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Red font indicates a new product introduction!

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|-----------------------------|-----------|-----------------------------------------------------|-----------------|-------------|-------------------------------|----------------|------------------|----------------|----|----|---------|---------------|--------------|
| | | | Direct Connect | Non-Contact | Measured Frequency Range (Hz) | AC Phase Fired | AC Zero Crossing | AC PWM | DC | AC | Digital | Local Display | Relay Output |
| Current Transformers | | | | | | | | | | | | | |
| MCCT | 6 | Metering Class Current Transformers, UR | | • | 50-400 | | | | | • | | | |
| 21279 | 7 | Current Transformer (0.1A Secondary) | | • | 57-63 | | | | | • | | | |
| 21280 | 7 | Current Transformer (0.1A Secondary) | | • | 57-63 | | | | | • | | | |
| 21281 | 7 | Current Transformer (0.1A Secondary) | | • | 57-63 | | | | | • | | | |
| CCT-800 | 8 | Precision AC Current Transformer, Compensated | | • | 50-400 | | | | | • | | | |
| ECT | 9 | Neutral Current Transformer, Electronic, Split-Core | | • | 50-60 | | | | | • | | | |
| CTY | 10 | Split-Core Current Transformers, UR | | • | 50-60 | | | | | • | | | |
| CTI | 11 | Split-Core Current Transformers | | • | 60 | | | | | • | | | |
| FSCCT | 12 | Flexible Split-Core Current Transformers, UR | | • | 50-400 | | | | | • | | | |
| LCCT | 16 | Low-Cost Current Transformers, UR | | • | 50-400 | | | | | • | | | |

| Current Measurement (Average Measuring) | | | | | | | | | | | | | |
|------------------------------------------------|----|------------------------------------------|---|---|------------|--|--|--|--|---|--|--|--|
| ACT | 17 | Current Transducer, 1Φ, UL, CE | • | • | 50-60 | | | | | • | | | |
| 3ACT | 19 | Current Transducer, 3Φ, UL, CE | • | • | 50-60 | | | | | • | | | |
| CTC, CTD | 21 | Current Transducer, 1Φ, UL, CE, □ | | • | 50-60, 400 | | | | | • | | | |
| MCT5 | 23 | Current Transducer, 1Φ, UL, DIN | • | | 48-65 | | | | | • | | | |
| SCT | 25 | Split-Core Current Transducer, 1Φ, UL, □ | | • | 50-400 | | | | | • | | | |
| DCT | 26 | Current Transducer, 1Φ, DIN, CSA, CE | • | | 50-60 | | | | | • | | | |

| Current Switches | | | | | | | | | | | | | |
|-------------------------|-----------|----------------------------------------------------|---|---|------------|--|--|--|--|--|--|--|---|
| CRD | 27 | Programmable Current Setpoint Relay/Transducer, 1Φ | • | | dc, 50-425 | | | | | | | | • |
| CPD-4715 | 29 | AC Current Present Detector, 1Φ, UL, CE, □ | | • | 50-400 | | | | | | | | • |
| DSO-102 | 30 | AC Current Switch, 1Φ | | • | 12-60 | | | | | | | | • |

| Current Measurement (RMS Measuring) | | | | | | | | | | | | | |
|--------------------------------------------|-----------|------------------------------------------------|---|---|--------|---|---|---|---|---|--|--|--|
| CTCR | 31 | Current Transducer, 1Φ, Loop Powered | | • | 50-400 | • | | | | • | | | |
| ACTR | 32 | Current Transducer, 1Φ, UL | • | | 48-420 | • | | | | • | | | |
| 3CTR | 33 | Current Transducer, 3Φ | • | | 48-420 | • | | | | • | | | |
| CTRS | 34 | Current Transformer/Transducer, 1Φ, Split-Core | | • | 10-20k | • | | | | • | | | |
| MCTR | 36 | Current Transducer, 1Φ, Loop-Powered, DIN | • | • | 50-60 | • | | | | • | | | |
| DCTR | 38 | Current Transducer, 1Φ, DIN, CSA, CE | • | | 50-60 | • | | | | • | | | |
| CT7 | 39 | Current Transducer (shunt isolator) | • | | dc-500 | • | • | • | • | • | | | |
| CT8 | 39 | Current Transducer (shunt isolator) | • | | dc-500 | • | † | • | • | • | | | |

(CONTINUED ON FOLLOWING PAGE)

OHIO SEMITRONICS, INC.

4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
 PHONE: (614) 777-1005 * FAX: (614) 777-4511
 WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

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| | | | Direct Connect | Non-Contact | Measured Frequency Range (Hz) | AC Phase Fired | AC Zero Crossing | AC PWM | DC | AC | Digital | Local Display | Relay Output |
| Current Measurement, Hall-Effect, Open Loop | | | | | | | | | | | | | |
| CTL | 40 | Current Transducer, 1Φ, 0-35A to 0-40kA, UL | | • | dc/ac | • | • | • | • | • | | | |
| CTA | 44 | Signal Conditioner, 1Φ (for use with CTL Series) | • | | dc-5000 | • | † | • | • | • | | | |
| CTG | 46 | Current Transducer, Built-in Amplifier, 1Φ, UL | | • | dc-400 | | | | • | | | | |
| CTH | 48 | Current Transducer, Built-in Amplifier, 1Φ | | • | dc | | | | • | | | | |
| CTLC | 50 | Current Transducer, Built-in Amplifier, 1Φ, Terminal Strip | | • | dc | | | | • | | | | |
| ISC | 52 | Current Transducer, Hall-Effect, 1Φ, UL, ATEX, CE | | • | dc | | | | • | | | | |
| CTLP | 54 | Current Transducer, Hall-Effect, 1Φ, Loop-Powered | | • | dc | | | | • | | | | |
| Current Measurement, Hall-Effect, Closed Loop | | | | | | | | | | | | | |
| CTF | 55 | Hall-Effect Current Transducer, 1Φ, 0.1% Linearity | | • | dc-100k | • | • | • | • | • | | | |
| CTFB | 55 | Hall-Effect Current Transducer, 1Φ, 0.1% Linearity, PCB | | • | dc-100k | • | • | • | • | • | | | |
| CTFG | 56 | AC/DC/Pulse Current Transducer, 1Φ | | • | dc-35k | • | • | • | • | • | | | |
| Current Measurement, Ultra-high Accuracy | | | | | | | | | | | | | |
| UFG | 57 | Precision AC/DC Current Transducer, 1Φ, 0.01% Accuracy | | • | dc-10k | | | | • | • | | | |
| Hall-Effect Transducer Power Supplies | | | | | | | | | | | | | |
| CTA800 | 58 | Signal Conditioner (for use with closed-loop sensors) | • | | dc-50k | • | † | • | • | • | | | |
| PS-4753 | 59 | Universal Power Supply for CTLC, CTG & CTH | • | | | | | | • | | | | |
| Current Measurement, Rogowski Coil | | | | | | | | | | | | | |
| MFC150 | 60 | Flexible Rogowski Coil | | • | 40-20k | | | | | • | | | |
| RPS50 | 62 | Single-Channel, Multi-Scale Integrator, DIN, <input type="checkbox"/> | • | | 8-100k | | | | • | • | | | |
| FCA3000 | 63 | Three-Channel Integrator, DIN, <input type="checkbox"/> | • | | 8-100k | | | | • | | | | |
| Voltage Measurement (Average Measuring) | | | | | | | | | | | | | |
| AVT | 64 | Voltage Transducer, 1Φ, UL, CE | • | | 50-60 | | | | • | | | | |
| 3AVT | 66 | Voltage Transducer, 3Φ, UL, CE | • | | 50-60 | | | | • | | | | |
| MVT | 68 | Voltage Transducer, 1Φ, UL, DIN | • | | 48-65 | | | | • | | | | |
| DVT | 70 | Voltage Transducer, 1Φ, DIN, CSA, CE | • | | 50-60 | | | | • | | | | |
| Voltage Measurement (RMS Measuring) | | | | | | | | | | | | | |
| AVTR | 71 | Voltage Transducer, 1Φ, UL | • | | 48-420 | • | | | • | | | | |
| 3VTR | 72 | Voltage Transducer, 3Φ | • | | 48-420 | • | | | • | | | | |
| MVTR | 73 | Voltage Transducer, 1Φ, Loop Power, DIN | • | | 50-400 | • | | | • | | | | |
| DVTR | 74 | Voltage Transducer, 1Φ, DIN, CSA, CE | • | | 50-60 | | | | • | | | | |
| VT8 | 75 | Voltage Transducer, 1Φ | †† | | dc-10k | • | † | † | • | | | | |


(CONTINUED ON FOLLOWING PAGE)

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| | | | Direct Connect | Non-Contact | Measured Frequency Range (Hz) | AC Phase Fired | AC Zero Crossing | AC PWM | DC | AC | Digital | Local Display | Relay Output |
| DC Voltage Isolators | | | | | | | | | | | | | |
| VT7 | 77 | DC Voltage Transducer/High-Voltage Isolator | †† | | dc-10k | | | | • | • | | | |
| DVT7E | 79 | DC Voltage Transducer, User Selectable Ranges, DIN | • | | dc | | | | • | | | | |
| VTU | 81 | Unidirectional DC Voltage Isolator | †† | | dc-1000 | | | | • | | | | |
| VTH | 82 | Unidirectional DC High-Voltage Isolator | • | | dc | | | | • | | | | |
| AC Watt/Watthour/VAR Transducers | | | | | | | | | | | | | |
| PC5/PC4 | 83 | AC Watt Transducer, 1-2-3 Element | • | • | 48-70/400 | • | † | | • | | | | |
| W/W4 | 88 | AC Watt/Watthour Transducer, 1-2-3 Element | • | • | 48-70/400 | • | † | | • | | | | • |
| AGW | 93,96 | Precision Watt Transducer, 1-2-3 Element, UL | • | Opt. | 58-62 | | | | • | | | | |
| GW5 | 94 | AC Watt Transducer, 1-2-3 Element | • | Opt. | 48-62 | | | | • | | | | |
| GV5 | 94 | AC VAR Transducer, 1-2-3 Element | • | Opt. | 50-60 | | | | • | | | | |
| GWV5 | 98 | Precision AC Watt/VAR Transducer, 1Φ, 3Φ | • | Opt. | 50-60 | | | | • | | | | |
| DW5 | 100 | AC Watt Transducer, DIN, CSA, CE, 1Φ, 3Φ | • | Opt. | 50-60 | | | | • | | | | |
| DWV | 102 | AC Watt/VAR Transducer, DIN, CSA, CE, 1Φ, 3Φ | • | Opt. | 50-60 | | | | • | | | | |
| AGH | 103,106 | Precision AC Watt/Watthour Transducer, UL, 1Φ, 3Φ | • | Opt. | 58-62 | | | | • | | | | • |
| GH | 104 | AC Watt/Watthour Transducer, 1Φ, 3Φ | • | Opt. | 48-62 | | | | • | | | | • |
| VGH | 104 | AC VAR/VARhour Transducer, 1Φ, 3Φ | • | Opt. | 50-60 | | | | • | | | | • |
| P | 108 | Variable-Frequency AC Watt Transducer, 1-2-3 Element | † | • | 5-500 | • | † | • | • | | | | |
| PC8 | 111 | DC & Variable-Frequency AC Watt Transducer, 1Φ | • | • | dc-400 | • | † | • | • | | | | |
| PC20 | 113 | AC Watt/Power Factor/Volt-Amp Transducer, 1Φ, 3Φ | • | Opt. | 50-400 | | | | • | | | | |
| MT | 116 | Multiplier (DC or AC Watt Transducer) | • | | dc-70 | | | | • | | | | |
| SWH | 117 | AC Watthour Transducer/Transformer, UL, 1Φ | | • | 48-62 | | | | | | | | • |
| ESP3 | 118 | Energy Scout+ Watthour Meter, DIN, CE,  , 1Φ, 3Φ | • | Opt. | 47-63 | | | | | | • | • | • |
| Power Factor Transducers | | | | | | | | | | | | | |
| PF5 | 121 | Phase Angle Transducer, 1Φ, 3Φ | • | | 50-60 | | | | • | | | | |
| Frequency Transducers | | | | | | | | | | | | | |
| AFT | 123 | Frequency Transducer, Wide-Range, UL, 1Φ | • | | 45-1000 | | | | • | | | | |
| DFT | 124 | Frequency Transducer, DIN, CSA, CE, 1Φ | • | | 45-425 | | | | • | | | | |
| DFTA | 125 | Frequency Transducer, Wide-Range, DIN, CSA, CE, 1Φ | • | | 10-1000 | | | | • | | | | |
| Process Signal Conditioners | | | | | | | | | | | | | |
| SG | 126 | Process Signal Conditioner, 1Φ | • | | dc | | | | • | | | | |
| MSG | 127 | Process Signal Conditioner, DIN, 1Φ | • | | dc | | | | • | | | | |

(CONTINUED ON FOLLOWING PAGE)

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| | | | Direct Connect | Non-Contact | Measured Frequency Range (Hz) | AC Phase Fired | AC Zero Crossing | AC PWM | DC | AC | Digital | Local Display |

Precision Integrators

| | | | | | | | | | | | | | |
|-----|-----|------------------------------------------------------|---|--|----|--|--|--|--|--|--|--|---|
| VFC | 128 | Precision Integrator, Converts dc Input to Pulse, 1Φ | • | | dc | | | | | | | | • |
|-----|-----|------------------------------------------------------|---|--|----|--|--|--|--|--|--|--|---|

Multifunction Transducers and Test Panels

| | | | | | | | | | | | | | |
|-----|-----|------------------------------|---|------|--------|---|---|------|------|---|--|---|------|
| DSP | 129 | Digital AC Power Monitor, 3Φ | • | | 48-62 | • | | | | | | • | |
| PTB | 131 | Power Test Board, 1Φ, 3Φ | • | • | 48-70 | • | † | | | • | | | Opt. |
| PDM | 135 | Power Display Meter, 1Φ, 3Φ | • | Opt. | 25-400 | | | Opt. | Opt. | | | • | • |

Multifunction Power Meters

| | | | | | | | | | | | | | |
|--------------|------------|------------------------------------------------------------------------------------|-----|-----|-------|-----|-----|-----|------|--|------|------|------|
| A210 | 137 | Multifunction Power Meter, 63 Measureands, <input type="checkbox"/> CE, 1-3Φ | • | | 45-65 | | | | Opt. | | Opt. | • | Opt. |
| A230 | 138 | Multifunction Power Meter, 134 Measureands, <input type="checkbox"/> CE, 1-3Φ | • | | 45-65 | | | | Opt. | | Opt. | • | Opt. |
| A230S | 138 | Multifunction Power Meter, 134 Measureands, <input type="checkbox"/> CE, 1-3Φ | • | | 45-65 | | | | Opt. | | Opt. | • | Opt. |
| MM/COM | 139 | Communication Module for A210, A230 & A230S, CE | N/A | N/A | N/A | N/A | N/A | N/A | Opt. | | Opt. | | |
| APLUS | 140 | Multifunction Pwr. Meter w/Configurable I/O, UL, <input type="checkbox"/> CE, 1-3Φ | • | | 45-65 | | | | Opt. | | Opt. | Opt. | Opt. |

Panel Meters & Counters

| | | | | | | | | | | | | | |
|------------|------------|--------------------------------------------------------|---|--|--|--|--|--|--|--|--|---|------|
| OFM | 142 | Low-Cost 3½ Digit LED Meter | • | | | | | | | | | • | |
| OFT | 142 | Loop-Powered 6 Digit LCD Meter | • | | | | | | | | | • | Opt. |
| OFC | 142 | High-Performance 4 Digit LED Meter | • | | | | | | | | | • | Opt. |
| 15660 | 144 | Digital Meter, 4½ Digits, Panel Mount, LED Display, CE | • | | | | | | | | | • | |
| 13835 | 144 | Counter, Electronic, 8-digit LCD, Battery Backup | • | | | | | | | | | • | |

Precision Hall-Effect Probes

| | | |
|----|-----|------------------------------|
| HR | 145 | Precision Hall-Effect Probes |
|----|-----|------------------------------|

Accessories

| | | |
|-----------------|------------|-------------------------------------------------------|
| LDB, LRB | 146 | Current-to-Voltage Converter, Precision Load Resistor |
| U3889 | 147 | Disconnect Switches, 3V, 3I with Shorting Bars, UR |
| FH | 147 | Fuse and Fuse Holders, 600Vac, 1/4A, 3Φ, UR, CSA |
| | 148 | Glossary |
| | 150 | Test Certificate Options |
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Key to Symbols

- Applies to most models. See product spec sheet for more complete specifications and options.
- † Recommend calling OSI Technical Support to discuss your application prior to purchase.
- †† Some models may require connection to a divider box. (provided)
- Opt Available as an option or with the purchase of an optional accessory.
- Double Insulated



RoHS-Compliant Models Available! Consult Factory

For Terms and Conditions, refer to our website at: www.ohiosemitronics.com/Terms.pdf
 For REACH compliance, refer to our website at: www.ohiosemitronics.com/REACH.pdf
 For WEEE compliance, refer to our website at: www.ohiosemitronics.com/WEEE.pdf
 For ISO 9000 certificate, refer to our website at: www.ohiosemitronics.com/ISO9001.pdf

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OSI METERING-CLASS CURRENT TRANSFORMERS

DESCRIPTION

The UL-Recognized metering-class current transformers provide the most accurate method of measuring AC current available. These transformers are typically used with [AGW](#), [GW5](#), [GV5](#) and [GH](#) series [Watt/Watthour](#) and [VAR transducers](#) to provide accurate, reliable power measurements.



5 YEAR WARRANTY

ACCURATE TO 0.3%

FEATURES

- For use with high-accuracy [AGW](#), [GW5](#), [GV5](#) and [GH](#) series [Watt](#), [Watt/VAR](#), & [Watt/Watthour](#) transducers.
- Meets ANSI specifications for sub-metering applications.
- An open-secondary protection device is available separately. See [LDB-40](#) specification sheet for details.



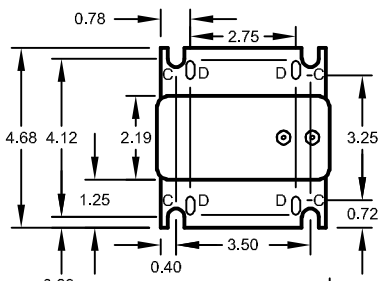
(CT shown with [LDB-40](#))

| CURRENT RATIO | DIM. DRAWING | PART NUMBER | WT. (LBS) | ANSI METERING-CLASS ACCURACY (60HZ) | | | | | RELAY CLASS |
|---------------|--------------|-------------|-----------|-------------------------------------|-------|-------|-------|-------|-------------|
| | | | | B 0.1 | B 0.2 | B 0.5 | B 0.9 | B 1.8 | |
| 100:5 | 1 | 12973 | 5.5 | 0.6 | 0.6 | 2.4 | 4.8 | - | - |
| 150:5 | 1 | 12974 | 5.5 | 0.3 | 0.3 | 1.2 | 1.2 | 2.4 | C10 |
| 200:5 | 1 | 12975 | 5.5 | 0.3 | 0.3 | 0.6 | 1.2 | 2.4 | C10 |
| 250:5 | 1 | 12976 | 5.5 | 0.3 | 0.3 | 0.3 | 0.6 | 1.2 | C20 |
| 300:5 | 1 | 12977 | 5.5 | 0.3 | 0.3 | 0.3 | 0.3 | 0.6 | C20 |
| 400:5 | 1 | 12978 | 5.5 | 0.3 | 0.3 | 0.3 | 0.3 | 0.6 | C20 |
| 400:5 | 3 | 12316 | 13.8 | 0.3 | 0.3 | 0.3 | 0.6 | 1.2 | C20 |
| 500:5 | 2 | 13480 | 3.5 | 0.3 | 0.3 | 0.3 | 0.3 | 0.6 | C10 |
| 500:5 | 3 | 12317 | 13.8 | 0.3 | 0.3 | 0.3 | 0.6 | 0.6 | C20 |
| 600:5 | 2 | 13481 | 3.5 | 0.3 | 0.3 | 0.3 | 0.6 | 0.6 | C10 |
| 600:5 | 3 | 12318 | 13.9 | 0.3 | 0.3 | 0.3 | 0.3 | 0.6 | C50 |
| 800:5 | 2 | 13483 | 3.5 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | C10 |
| 800:5 | 3 | 12319 | 14.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | C50 |
| 1000:5 | 2 | 13484 | 3.5 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | - |
| 1000:5 | 3 | 12320 | 14.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | C100 |
| 1200:5 | 2 | 13485 | 3.5 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | - |
| 1200:5 | 3 | 12321 | 12.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | C50 |
| 1500:5 | 2 | 13486 | 3.5 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | - |
| 1500:5 | 3 | 12322 | 12.6 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | C100 |
| 2000:5 | 3 | 12323 | 13.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | C100 |
| 2500:5 | 3 | 12324 | 12.0 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | C100 |
| 3000:5 | 3 | 12325 | 12.5 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | C100 |

SPECIFICATIONS

Frequency.....50-400Hz Continuous Thermal Current Rating Factor.....
 Insulation Class 600V 1.33 at 30°C ambient, 1.0 at 55°C ambient
 Impulse Level10kV, full-wave Terminals #8 - 32

DRAWING 1

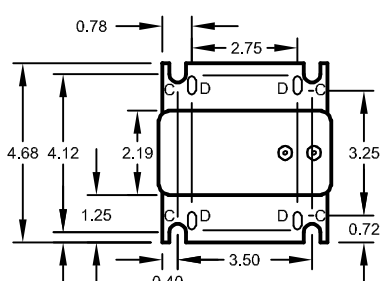


HOLE INFO:
 A. 1.25 DIA (1 PLC)
 B. 0.42 DIA (2 PLCS)
 C. 0.44 X 0.50 SLOT (4 PLCS)
 D. 0.22 X 0.50 SLOT (4 PLCS)

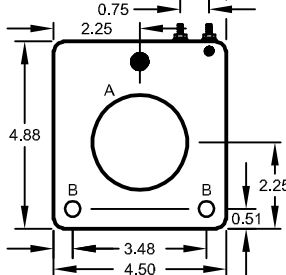
NOTES:
 1. ALL DIMENSIONS IN INCHES. TOLERANCE: ±0.03 INCHES.
 2. INCLUDES MOUNTING BRACKETS.

Dwg# 0902-00920-B Rev --

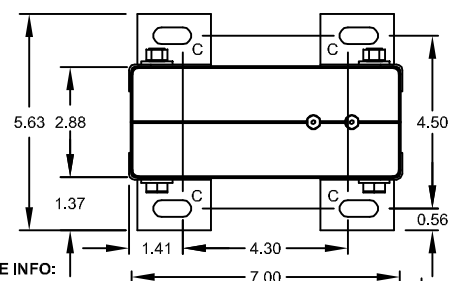
DRAWING 2



HOLE INFO:
 A. 2.50 DIA (1 PLC)
 B. 0.42 DIA (2 PLCS)
 C. 0.44 X 0.50 SLOT (4 PLCS)
 D. 0.22 X 0.50 SLOT (4 PLCS)



DRAWING 3



HOLE INFO:
 A. 4.00 DIA (1 PLC)
 B. 0.55 X 0.70 SLOT (4 PLCS)
 C. 0.44 X 1.00 SLOT (4 PLCS)



OSI CURRENT TRANSFORMERS (0.1A SECONDARY)

**0.3% Metering Class
Low Cost**

FEATURES

- 0.3% metering class accuracy.
- Secondary open-circuit voltage limited to less than 8.0Vac.

APPLICATIONS

- For use with any indicating device or ammeter requiring 0.1A input.
- Ideal for use with [watt transducers](#), [current transducers](#), and [energy management systems](#).



MODEL SELECTION

| MODEL | INPUT AC AMPS | CURRENT RATIO |
|-------|---------------|---------------|
| 21279 | 100 | 1000:1 |
| 21280 | 200 | 2000:1 |
| 21281 | 400 | 4000:1 |

For use over insulated conductors only.

SPECIFICATIONS

INPUT

Current See Table
 Over-current (without damage) 2X Rating
 Frequency Range 57-63Hz

ACCURACY 0.3% Class

TEMPERATURE

Operating Range -10°C to 55°C

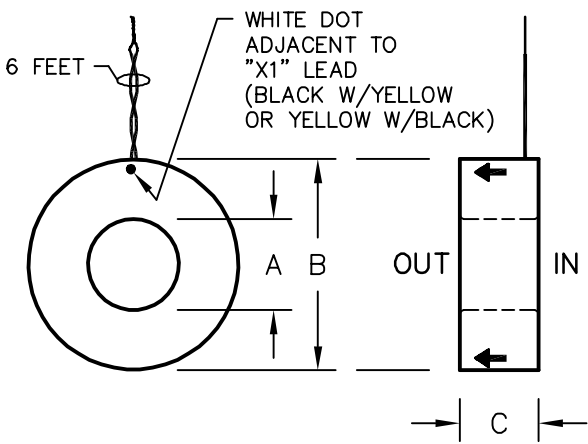
OUTPUT

Type 0-0.1Aac
 Burden 0.1VA

PHYSICAL

Termination 72", 16AWG
 (X1) Black w/Yellow or Yellow w/Black
 (X2) Yellow

CASE DIMENSIONS



| MODEL | SENSOR DIMENSIONS (inches) | | | WEIGHT | COLOR |
|-------|----------------------------|------|------|--------|--------|
| | A | B | C | | |
| 21279 | 0.75, min | 2.28 | 0.75 | 6 oz. | Red |
| 21280 | 0.75, min | 2.28 | 0.75 | 7 oz. | Yellow |
| 21281 | 1.40, min | 3.25 | 1.05 | 12 oz. | Black |

Dwg.# 0902-00622-B Rev B (mod.)

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OSI PRECISION AC CURRENT TRANSFORMER MODEL CCT-800

DESCRIPTION

The CCT-800 is an 800:0.2A solid-core, compensated CT. A compensated CT uses additional windings and electronic circuitry to compensate for losses within the transformer. This technique provides high accuracy across a wide dynamic range of input and is especially useful at the low end of the input range (0-10%).

FEATURES

- ±0.1% Ratio Accuracy
- ±5.0 Minutes Phase Accuracy
- 100:1 Dynamic Range

APPLICATIONS

- Precision Measurements
- Standards

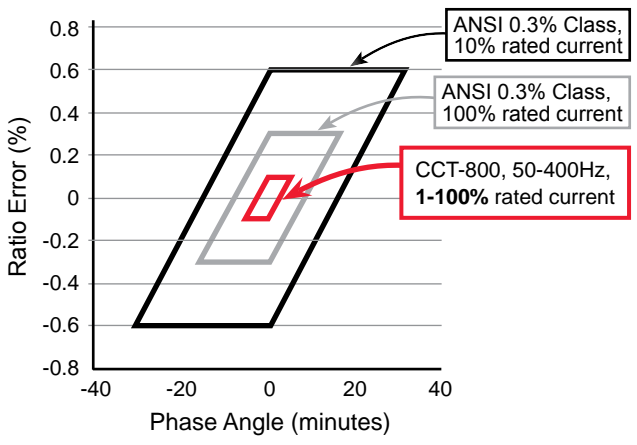
COMPENSATED CT



5 YEAR WARRANTY



Limits of Accuracy Class for Current Transformers



SPECIFICATIONS

INPUT

Current (Primary)..... I_P= 800Aac, max.
 Overrange without damage..... 1.2 X rating
 Frequency Range..... 16 to 400Hz

DIELECTRIC TEST

Input/Output/Case 2200Vac

INSTRUMENT POWER

Type ±15Vdc ±20%
 Current ≤10mAdc

OUTPUT

Scaling 0-800A Input = 0-0.2A Output (I_P/4000)
 Burden..... 0.1VA, max.

ACCURACY

Ratio..... 1-100% F.S. ±0.1% Rdg.
 Phase 1-100% F.S. ±5.0 minutes

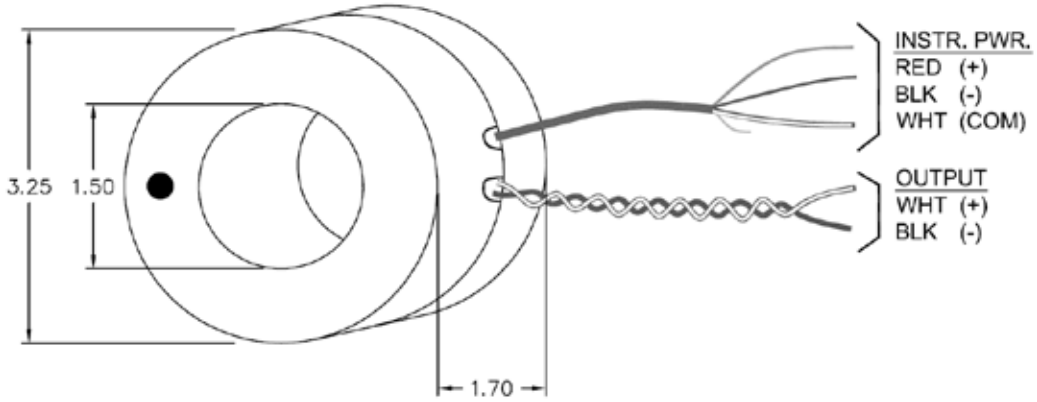
TEMPERATURE AND ENVIRONMENTAL

Operating Temperature Range..... -10 to 55°C
 Storage Temperature Range..... -25 to 60°C
 Operating Humidity 0-95% RH, non-condensing

PHYSICAL

Weight 0.80 lbs.
 Termination, Instrument Power
 3-Cond., PVC, shielded, brown 22AWG, 6ft.
 Termination, Output
 Twisted-pair, black/white..... 16AWG, 6ft.
 Enclosure ABS, Black

DIMENSIONS AND CONNECTIONS



All dimensions in inches
 Tolerance - 0.00 ± 0.03 (Unless otherwise specified)

Dwg# 0902-00988-B Rev -- (prelim)

OSI NEUTRAL CURRENT TRANSFORMER



MODEL ECT-

ELECTRONIC, SPLIT-CORE

FEATURES

- Split-core
- Large window

5 YEAR WARRANTY

APPLICATIONS

- Neutral current measurement
- Multiple conductors



MODEL SELECTION

| INPUT (Aac) | STANDARD OUTPUTS MODEL ECT- | | SENSOR SIZE |
|-------------|-----------------------------|----------|-------------|
| | 0-0.333Vac | 0-1.0Vac | |
| 0-10 | 10C-.3V | 10C-1V | C |
| 0-10 | 10D-.3V | 10D-1V | D |

SPECIFICATIONS

For use over insulated conductors only!

INPUT
 Current 0-10Aac
 Over-current 1.2 X F.S.
 Frequency Range 50-60Hz

OUTPUT
 Type See Table
 Loading ≥500kΩ

INSTRUMENT POWER
 Type 24Vac/dc, ±10%, <12mA

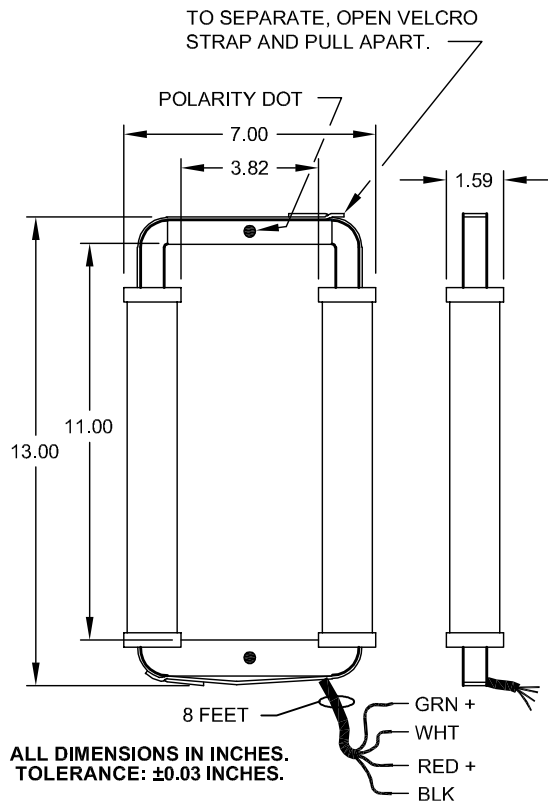
DIELECTRIC TEST
 Input to Output/Instr. Pwr. 2500Vac, 1min.

ACCURACY
 10-100% F.S. 0.30% Reading

PHYSICAL
 Weight 5.5lbs., approx.
 Leads
 Instrument Power 96", 20AWG
 Output 96", 20AWG
 Termination (all leads) Stripped and tinned

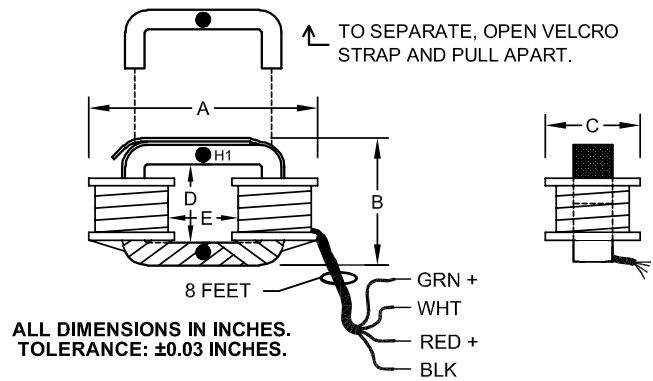
ENVIRONMENTAL
 Operating Temperature 0-55°C
 Operating Humidity 0-95% Non-condensing

DIMENSIONS & CONNECTIONS (D)



| WIRE COLOR | SIGNAL | |
|------------|--------|------------------|
| Red | + | Instrument Power |
| Black | - | |
| Green | + | Output |
| White | - | |

DIMENSIONS & CONNECTIONS (C)



| SENSOR SIZE | DIMENSIONS (inches) | | | | | WT. (lbs.) |
|-------------|---------------------|------|------|------|------|------------|
| | A | B | C | D | E | |
| C | 5.50 | 4.90 | 1.60 | 3.15 | 3.20 | 1.5 |

OSI SPLIT-CORE CURRENT TRANSFORMERS MODEL CTY-

FEATURES

- 0.5% Linearity
- Split-core
- AC Outputs 0.1A, 1A, 5A, 0.333V, 1V, 5V



APPLICATIONS

- For use with [OSI Watt transducers](#)
- For use with [OSI Current transducers](#)
- Ideal for Ammeters, Wattmeters

| INPUT AC AMPS | STANDARD OUTPUTS MODEL CTY- | | | | | | SENSOR SIZE |
|---------------|-----------------------------|---------|---------|------------|----------|----------|-------------|
| | 0-0.1Aac* | 0-1Aac | 0-5Aac | 0-0.333Vac | 0-1Vac | 0-5Vac | |
| 0-50 | 050A-.1 | 050A-1 | NA | 050A-.3V | 050A-1V | 050A-5V | A |
| 0-100 | 100A-.1 | 100A-1 | NA | 100A-.3V | 100A-1V | 100A-5V | A |
| 0-200 | 200A-.1 | 200A-1 | NA | 200A-.3V | 200A-1V | 200A-5V | A |
| 0-100 | 100B-.1 | 100B-1 | 100B-5 | 100B-.3V | 100B-1V | 100B-5V | B |
| 0-200 | 200B-.1 | 200B-1 | 200B-5 | 200B-.3V | 200B-1V | 200B-5V | B |
| 0-300 | 300B-.1 | 300B-1 | 300B-5 | 300B-.3V | 300B-1V | 300B-5V | B |
| 0-400 | 400B-.1 | 400B-1 | 400B-5 | 400B-.3V | 400B-1V | 400B-5V | B |
| 0-500 | 500B-.1 | 500B-1 | 500B-5 | 500B-.3V | 500B-1V | 500B-5V | B |
| 0-600 | 600B-.1 | 600B-1 | 600B-5 | 600B-.3V | 600B-1V | 600B-5V | B |
| 0-800 | 800B-.1 | 800B-1 | 800B-5 | 800B-.3V | 800B-1V | 800B-5V | B |
| 0-800 | 800C-.1 | 800C-1 | 800C-5 | 800C-.3V | 800C-1V | 800C-5V | C** |
| 0-1000 | 1000C-.1 | 1000C-1 | 1000C-5 | 1000C-.3V | 1000C-1V | 1000C-5V | C** |
| 0-1200 | 1200C-.1 | 1200C-1 | 1200C-5 | 1200C-.3V | 1200C-1V | 1200C-5V | C** |
| 0-1200 | 1200D-.1 | 1200D-1 | 1200D-5 | 1200D-.3V | 1200D-1V | 1200D-5V | D |
| 0-1500 | 1500C-.1 | 1500C-1 | 1500C-5 | 1500C-.3V | 1500C-1V | 1500C-5V | C** |
| 0-1500 | 1500D-.1 | 1500D-1 | 1500D-5 | 1500D-.3V | 1500D-1V | 1500D-5V | D |
| 0-2000 | 2000D-.1 | 2000D-1 | 2000D-5 | 2000D-.3V | 2000D-1V | 2000D-5V | D |
| 0-2500 | 2500D-.1 | 2500D-1 | 2500D-5 | 2500D-.3V | 2500D-1V | 2500D-5V | D |



5 YEAR WARRANTY



ORDERING INFORMATION

Example: 1500A Input, with a 0.333Vac Output. Sensor size D
CTY-1500D-.3V

Optional inputs and outputs are available, consult factory.

* 0.1Aac output models have an internal voltage-clamping circuit which limits the output voltage to less than 8Vac. CT secondaries may be opened safely without disconnecting the primary. These models are also suitable for use with WL50 series Watt/Watthour transducers.

** UL Recognition does not apply to C-size sensors.

SPECIFICATIONS

For use over insulated conductors only!

INPUT

Current See Table
Over-current 1.2 X rating
Frequency Range 50-60Hz

OUTPUT

Signal See Table
Burden, Sensor Size A
1Aac models..... 50Aac 0.2VA
100Aac 0.5VA
200Aac 1VA
Burden, Sensor Sizes B, C and D
1Aac, 5Aac models 100Aac 1VA
200Aac, 300Aac 2VA
400Aac through 800Aac 5VA
1000Aac through 2500Aac 10VA
Loading 0.33Vac, 1Vac, 5Vac models ≥500kΩ
0.1Aac models ≤10Ω

DIELECTRIC TEST

Input to Output 2500Vac, 1min.

ACCURACY

0-0.1Aac models 0.30% Metering Class
0-1Aac models, sensor size "A" ±1% F.S.
0-5Aac models ±1% F.S.
All other models ±0.5% F.S.

MECHANICAL

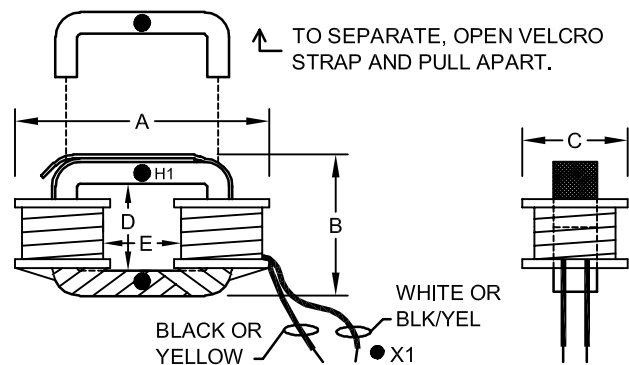
Operating Temperature 55°C Max.

SENSOR DIMENSIONS

| SENSOR SIZE | DIMENSIONS (inches) | | | | | WT. (lbs.) |
|-------------|---------------------|-------|------|-------|------|------------|
| | A | B | C | D | E | |
| A | 2.80 | 2.00 | 1.12 | 1.09 | 1.09 | 0.4 |
| B | 3.85 | 3.80 | 1.30 | 2.40 | 1.25 | 0.8 |
| C | 5.50 | 4.90 | 1.60 | 3.15 | 3.20 | 1.5 |
| D | 7.75 | 13.00 | 2.20 | 11.00 | 3.10 | 5.2 |

LEAD LENGTHS

5Aac models 24", 14AWG, White (X1) & Black
0.1Aac models 72", 16AWG, Blk/Yel (X1) & Yellow
All other models 72", 16AWG, White (X1) & Black



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OSI SPLIT-CORE CURRENT TRANSFORMERS MODEL CTI-

FEATURES

- Low Current Ranges
- Easy Installation (Split-Core)

APPLICATIONS

- [Current Measurement](#)
- [Power Measurement](#)

5 YEAR WARRANTY



MODEL SELECTION

| CURRENT RATIO | MODEL | BURDEN | ACCURACY* (F.S.) |
|---------------|---------|--------|------------------|
| 100:5A | CTI-100 | 0.5VA | ±3% |
| 150:5A | CTI-150 | 0.5VA | ±2% |
| 200:5A | CTI-200 | 1.0VA | ±1% |
| 250:5A | CTI-250 | 2.0VA | ±1% |
| 300:5A | CTI-300 | 2.0VA | ±1% |
| 400:5A | CTI-400 | 2.5VA | ±1% |

ORDERING INFORMATION
 Example:
 100A Input with 5A Output
CTI-100

*Note: Can be calibrated with [OSI transducers](#) for better accuracy - [consult factory](#).

SPECIFICATIONS

INPUT

Current Range See Table
 Frequency 60Hz

TEMPERATURE

Continuous Thermal Current Rating Factor
 At 30°C Ambient 1.33
 At 55°C Ambient 1.0

DIELECTRIC RATING

Rated for installation on 600Vac lines.

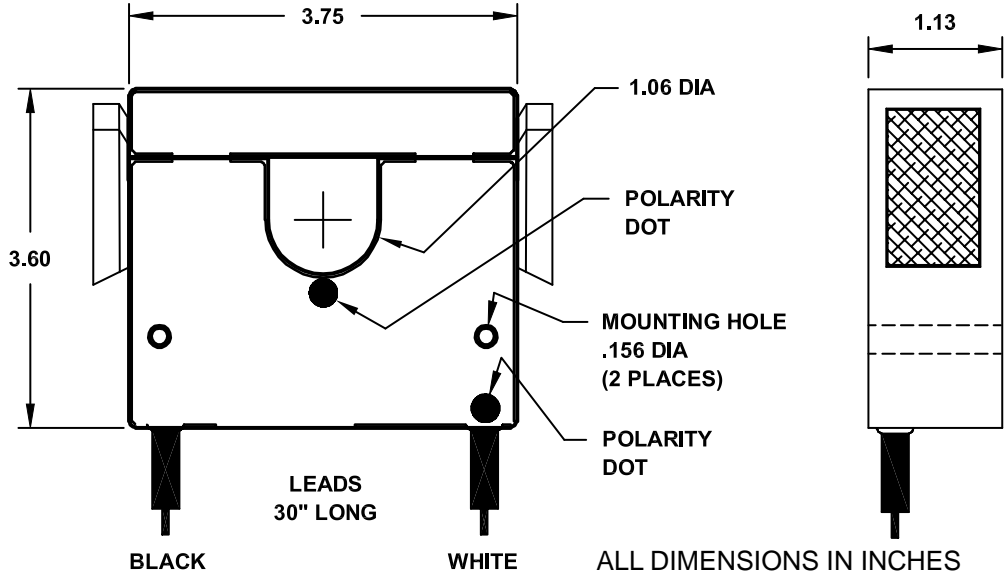
PHYSICAL

Case Material Noryl SE1X, Black
 Termination 14AWG Wire, 30in.
 Weight 1lb

OUTPUT

Type 0-5Aac

SENSOR DIMENSIONS



NOTE: For positive output on white cable, insert positive current cable through the "polarity dot" side of the sensor.

OSI FLEXIBLE SPLIT-CORE CURRENT TRANSFORMERS

CIRCULAR AND RECTANGULAR WINDOW (BUS BAR) MODELS

DESCRIPTION

The OSI flexible split-core current transformers provide the lowest cost installation available. All models are made of a silicon steel core which allows the units to be split and twisted around existing conductors for easy installation. The units are encapsulated in silicon rubber to protect against moisture, dirt, oil and corona.

A wide variety of standard transformer ratios and sizes are available. Current ratings range from 200A to 6000A with circular window diameters from 4 to 18 inches, and rectangular windows from 2.75 x 6.63 inches to 4 x 11 inches. Custom input ranges and sizes are also available. [Consult factory for details.](#)



FEATURES

- Flexible split-core configuration provides for easy installation around existing conductors.
- Unit is encapsulated in silicon rubber to protect against moisture, dirt, oil and corona.

APPLICATIONS

- For use with any indicating device or Ammeter which is designed for 1A, 5A, 0.333V or 1V input.
- Ideal for use with [OSI Watt transducers](#), [current transducers](#) and [energy management systems](#).

SPECIFICATIONS

INPUT

Current See Tables
 Frequency Range.....50 to 400Hz

INSULATION LEVEL

Insulation..... 720V, BIL 10kV, Full Wave

OUTPUT

Type See Tables
 Burden..... See Tables

ACCURACY (at 60Hz)

200:5 thru 300:54% F.S.
 400:5 thru 500:53% F.S.
 600:5 thru 800:52% F.S.
 All others1% F.S.

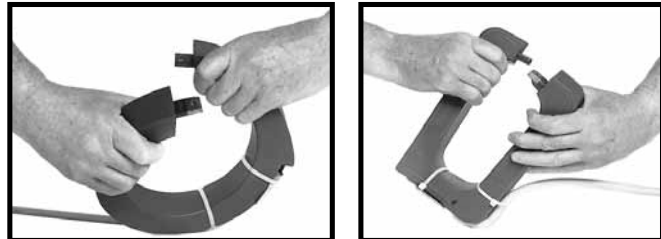
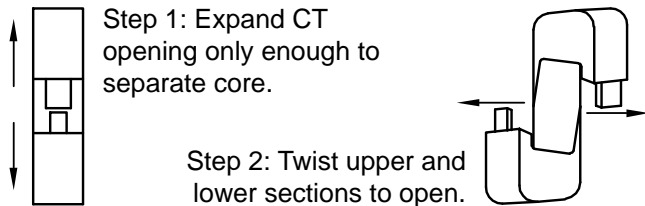
TEMPERATURE AND ENVIRONMENTAL

Operating Range.....-45°C to 55°C
 Thermal Rating Factor 1.25 @ 30°C, 1.0 @ 55°C
 Altitude 4000m, max.

PHYSICAL

Encapsulation..... Silicon Rubber, Red
 Sensor Dimensions See Tables
 Weight See Tables
 Output Cable 12ft., yellow
 ≤800A Input Models 12AWG, Black (X1), White
 >800A Input Models 16AWG, Black (X1), White
 Termination..... #8 Spade Terminals
 All models meet IEC 60044-1 standards.

INSTALLATION



Note: Open split core with a twisting motion only!

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OSI FLEXIBLE SPLIT-CORE CURRENT TRANSFORMERS

MODELS WITH 1A SECONDARY

| RATIO | WINDOW DIMENSIONS (in inches) | | | | | | | BURDEN AT 60Hz (VA) | ACCURACY AT 60Hz (±%) |
|--------|-------------------------------|-------|-------|-------|-------|---------------------|--------|---------------------|-----------------------|
| | Circular (ID) | | | | | Rectangular (H x W) | | | |
| | 4 | 6 | 8 | 11 | 18 | 2.75 x 6.63 | 4 x 11 | | |
| 200:1 | 19325 | - | - | - | - | - | - | 0.5 | 1 |
| 250:1 | 19326 | - | - | - | - | - | - | 0.5 | 1 |
| 300:1 | 19327 | - | - | - | - | - | - | 0.5 | 1 |
| 400:1 | 19328 | - | - | - | - | - | - | 0.9 | 1 |
| 500:1 | 19329 | 19333 | - | - | - | 19365 | - | 2.0 | 1 |
| 600:1 | 19330 | 19334 | - | - | - | 19366 | - | 3.0 | 1 |
| 800:1 | 19331 | 19335 | - | - | - | 19367 | - | 5.0 | 1 |
| 1000:1 | 19332 | 19336 | 19341 | - | - | 19368 | 19372 | 10.0 | 1 |
| 1200:1 | - | 19337 | 19342 | - | - | 19369 | 19373 | 15.0 | 1 |
| 1500:1 | - | 19338 | 19343 | 19349 | - | 19370 | 19374 | 15.0 | 1 |
| 1600:1 | - | 19339 | 19344 | 19350 | - | 19371 | 19375 | 15.0 | 1 |
| 2000:1 | - | 19340 | 19345 | 19351 | 19357 | - | 19376 | 18.0 | 1 |
| 2400:1 | - | - | 19346 | 19352 | 19358 | - | 19377 | 20.0 | 1 |
| 2500:1 | - | - | 19347 | 19353 | 19359 | - | 19378 | 20.0 | 1 |
| 3000:1 | - | - | 19348 | 19354 | 19360 | - | - | 20.0 | 1 |
| 3500:1 | - | - | - | 19355 | 19361 | - | - | 20.0 | 1 |
| 4000:1 | - | - | - | 19356 | 19362 | - | - | 20.0 | 1 |
| 5000:1 | - | - | - | - | 19363 | - | - | 20.0 | 1 |
| 6000:1 | - | - | - | - | 19364 | - | - | 20.0 | 1 |

| Sensor Size | 4 | 6 | 8 | 11 | 18 | 2.75 x 6.63 | 4 x 11 | * Average weight for each sensor size |
|--------------|------|------|------|------|-------|-------------|--------|---------------------------------------|
| Weight (lb)* | 4.00 | 6.00 | 7.00 | 8.50 | 18.00 | 6.00 | 7.50 | |

MODELS WITH 5A SECONDARY

| RATIO | WINDOW DIMENSIONS (in inches) | | | | | | | BURDEN AT 60Hz (VA) | ACCURACY AT 60Hz (±%) |
|--------|-------------------------------|-------|-------|-------|-------|---------------------|--------|---------------------|-----------------------|
| | Circular (ID) | | | | | Rectangular (H x W) | | | |
| | 4 | 6 | 8 | 11 | 18 | 2.75 x 6.63 | 4 x 11 | | |
| 200:5 | 13084 | - | - | - | - | - | - | 2 | 4 |
| 250:5 | 19289 | - | - | - | - | - | - | 2 | 4 |
| 300:5 | 12511 | 12520 | - | - | - | - | - | 2 | 4 |
| 400:5 | 12512 | 12521 | - | - | - | 19312 | - | 2 | 3 |
| 500:5 | 12513 | 12522 | - | - | - | 12599 | - | 3 | 3 |
| 600:5 | 12514 | 12523 | - | - | - | 12600 | - | 5 | 2 |
| 800:5 | 12515 | 12524 | - | - | - | 12601 | - | 5 | 2 |
| 1000:5 | 12516 | 12525 | 19293 | - | - | 12602 | - | 5 | 1 |
| 1200:5 | 12517 | 12526 | 19294 | - | - | 12603 | - | 5 | 1 |
| 1500:5 | 12518 | 12527 | 12534 | 19297 | - | 12604 | 19315 | 15 | 1 |
| 1600:5 | 19290 | 19291 | 19295 | 19298 | - | 19313 | 19316 | 15 | 1 |
| 2000:5 | 12519 | 12528 | 12535 | 19299 | 19304 | 12605 | 19317 | 25 | 1 |
| 2400:5 | - | 19292 | 19296 | 19300 | 19305 | 19314 | 19318 | 30 | 1 |
| 2500:5 | - | 12529 | 12536 | 19301 | 19306 | 12606 | 19319 | 35 | 1 |
| 3000:5 | - | 12530 | 12537 | 12542 | 19307 | 12607 | 19320 | 45 | 1 |
| 3500:5 | - | 12531 | 12538 | 12543 | 19308 | 12608 | 19321 | 45 | 1 |
| 4000:5 | - | 12532 | 12539 | 12544 | 19309 | 12609 | 19322 | 45 | 1 |
| 5000:5 | - | 12533 | 12540 | 12546 | 19310 | - | 19323 | 45 | 1 |
| 6000:5 | - | - | 12541 | 12547 | 19311 | - | 19324 | 45 | 1 |

| Sensor Size | 4 | 6 | 8 | 11 | 18 | 2.75 x 6.63 | 4 x 11 | * Average weight for each sensor size |
|--------------|------|------|------|------|-------|-------------|--------|---------------------------------------|
| Weight (lb)* | 3.50 | 4.25 | 5.50 | 7.50 | 17.00 | 4.25 | 6.25 | |

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OSI FLEXIBLE SPLIT-CORE CURRENT TRANSFORMERS

MODELS WITH 0.333V SECONDARY

| RATIO | WINDOW DIMENSIONS (in inches) | | | | | | | ACCURACY AT 60Hz (±%) |
|---------------------|-------------------------------|----------|----------|-----------|-----------|---------------------|---------------|---------------------------|
| | Circular (ID) | | | | | Rectangular (H x W) | | |
| | 4 | 6 | 8 | 11 | 18 | 2.75 x 6.63 | 4 x 11 | |
| 200:0.333V | 19433 | - | - | - | - | - | - | 1 |
| 250:0.333V | 19434 | - | - | - | - | - | - | 1 |
| 300:0.333V | 19435 | - | - | - | - | - | - | 1 |
| 400:0.333V | 19435 | - | - | - | - | - | - | 1 |
| 500:0.333V | 19437 | 19444 | - | - | - | 19487 | - | 1 |
| 600:0.333V | 19438 | 19445 | - | - | - | 19488 | - | 1 |
| 800:0.333V | 19439 | 19446 | - | - | - | 19489 | - | 1 |
| 1000:0.333V | 19440 | 19447 | 19457 | - | - | 19490 | 19500 | 1 |
| 1200:0.333V | 19441 | 19448 | 19458 | - | - | 19491 | 19501 | 1 |
| 1500:0.333V | 19442 | 19449 | 19459 | 19469 | - | 19492 | 19502 | 1 |
| 1600:0.333V | 19443 | 19450 | 19460 | 19470 | - | 19493 | 19503 | 1 |
| 2000:0.333V | - | 19451 | 19461 | 19471 | 19479 | 19494 | 19504 | 1 |
| 2400:0.333V | - | 19452 | 19462 | 19472 | 19480 | 19495 | 19505 | 1 |
| 2500:0.333V | - | 19453 | 19463 | 19473 | 19481 | 19496 | 19506 | 1 |
| 3000:0.333V | - | 19454 | 19464 | 19474 | 19482 | 19497 | 19507 | 1 |
| 3500:0.333V | - | 19455 | 19465 | 19475 | 19483 | 19498 | 19508 | 1 |
| 4000:0.333V | - | 19456 | 19466 | 19476 | 19484 | 19499 | 19509 | 1 |
| 5000:0.333V | - | - | 19467 | 19477 | 19485 | - | 19510 | 1 |
| 6000:0.333V | - | - | 19468 | 19478 | 19486 | - | 19511 | 1 |
| Sensor Size | 4 | 6 | 8 | 11 | 18 | 2.75 x 6.63 | 4 x 11 | * Average for sensor size |
| Weight (lb)* | 3.50 | 4.25 | 5.50 | 7.50 | 17.00 | 4.25 | 6.25 | |

MODELS WITH 1V SECONDARY

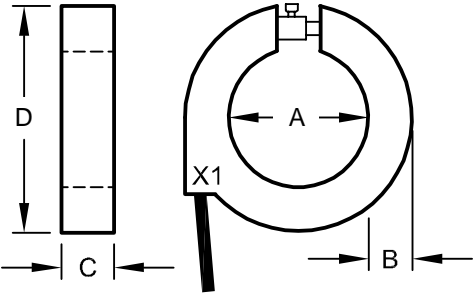
| RATIO | WINDOW DIMENSIONS (in inches) | | | | | | | ACCURACY AT 60Hz (±%) |
|---------------------|-------------------------------|----------|----------|-----------|-----------|---------------------|---------------|---------------------------|
| | Circular (ID) | | | | | Rectangular (H x W) | | |
| | 4 | 6 | 8 | 11 | 18 | 2.75 x 6.63 | 4 x 11 | |
| 200:1V | 19379 | - | - | - | - | - | - | 4 |
| 250:1V | 19380 | - | - | - | - | - | - | 4 |
| 300:1V | 19381 | - | - | - | - | - | - | 4 |
| 400:1V | 19382 | - | - | - | - | - | - | 3 |
| 500:1V | 19383 | 19387 | - | - | - | 19419 | - | 3 |
| 600:1V | 19384 | 19388 | - | - | - | 19420 | - | 2 |
| 800:1V | 19385 | 19389 | - | - | - | 19421 | - | 2 |
| 1000:1V | 19386 | 19390 | 19395 | - | - | 19422 | 19426 | 1 |
| 1200:1V | - | 19391 | 19396 | - | - | 19423 | 19427 | 1 |
| 1500:1V | - | 19392 | 19397 | 19403 | - | 19424 | 19428 | 1 |
| 1600:1V | - | 19393 | 19398 | 19404 | - | 19425 | 19429 | 1 |
| 2000:1V | - | 19394 | 19399 | 19405 | 19411 | - | 19430 | 1 |
| 2400:1V | - | - | 19400 | 19406 | 19412 | - | 19431 | 1 |
| 2500:1V | - | - | 19401 | 19407 | 19413 | - | 19432 | 1 |
| 3000:1V | - | - | 19402 | 19408 | 19414 | - | - | 1 |
| 3500:1V | - | - | - | 19409 | 19415 | - | - | 1 |
| 4000:1V | - | - | - | 19410 | 19416 | - | - | 1 |
| 5000:1V | - | - | - | - | 19417 | - | - | 1 |
| 6000:1V | - | - | - | - | 19418 | - | - | 1 |
| Sensor Size | 4 | 6 | 8 | 11 | 18 | 2.75 x 6.63 | 4 x 11 | * Average for sensor size |
| Weight (lb)* | 4.00 | 6.00 | 7.00 | 8.50 | 18.00 | 6.00 | 7.50 | |

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OSI FLEXIBLE SPLIT-CORE CURRENT TRANSFORMERS

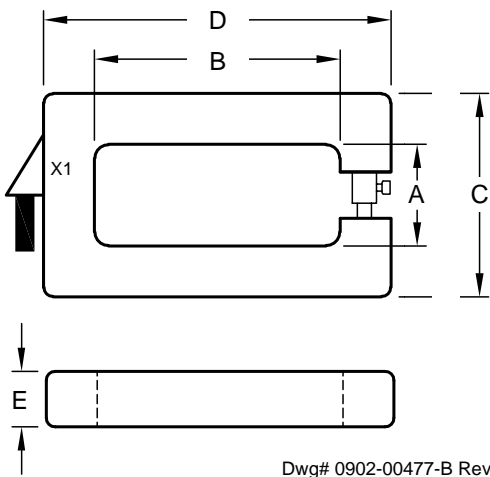
SENSOR DIMENSIONS

CIRCULAR WINDOW MODELS



| WINDOW SIZE (ID) | SENSOR DIMENSIONS (in inches) | | | |
|------------------|-------------------------------|------|------|-------|
| | A | B | C | D |
| 4.00 | 4.00 | 1.25 | 1.50 | 6.50 |
| 6.00 | 6.00 | 1.25 | 1.50 | 8.50 |
| 8.00 | 8.00 | 1.25 | 1.50 | 10.50 |
| 11.00 | 11.00 | 1.25 | 1.50 | 13.50 |
| 18.00 | 18.00 | 1.25 | 1.50 | 20.50 |

RECTANGULAR WINDOW MODELS



Dwg# 0902-00477-B Rev A (mod.)

| WINDOW SIZE (H X W) | SENSOR DIMENSIONS (in inches) | | | | |
|---------------------|-------------------------------|-------|------|-------|------|
| | A | B | C | D | E |
| 2.75 x 6.625 | 2.75 | 6.63 | 5.50 | 9.38 | 1.50 |
| 4.00 x 11.00 | 4.00 | 11.00 | 6.50 | 13.38 | 1.50 |

INSTALLATION

INSTALLATION INSTRUCTIONS

1. Installation should be performed by qualified electricians only!
2. Make sure electrical service is disconnected before making any electrical connections.
3. Transformers are suitable for installation on 720Vac lines.
4. For best accuracy, install with measured conductor centered in sensor window.
5. Branch circuit protection is required to be provided in accordance with the National and Local codes of the inspection authority.
6. De-energize all services of supply to measuring circuit before disconnecting output leads to prevent dangerous voltages and possible damage to the current sensor.
7. To prevent contact with live circuits, when installed on a bare bus bar, the transducer is required to be mounted in an enclosure that requires the use of a tool for access. When installed on an insulated cable, this second enclosure is not required.

OPERATING INSTRUCTIONS

1. This unit is intended for indoor use at altitudes up to 4000 meters.
2. If cleaning of the exterior surface is necessary, de-energize all services of supply (both measuring and instrument power circuits) and brush with a soft brush or blow off with low-pressure air. Use appropriate eye protection. Not suitable for hose-down cleaning.
3. Maximum operating temperature range is -45°C to 55°C.



UL recognized for USA and Canada

WARRANTY STATEMENT

Ohio Semitronics Inc. warrants this unit to be free of defects in material and workmanship for a period of five years from date of shipment. This unit must not be used in any manner other than as specified in this document.

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OSI LOW-COST CURRENT TRANSFORMERS

FREQUENCY RANGE 50-400 HERTZ

FEATURES

- Manufactured to meet requirements of UL 1244 and revisions
- All models on this page UL recognized - file number E134271.

APPLICATIONS

- For use with [OSI PC5 series](#) and [model W series Watt/Watthour transducers](#).
- Ideal for use with Ammeters, [relays](#) and [Watt transducers](#).



5 YEAR WARRANTY



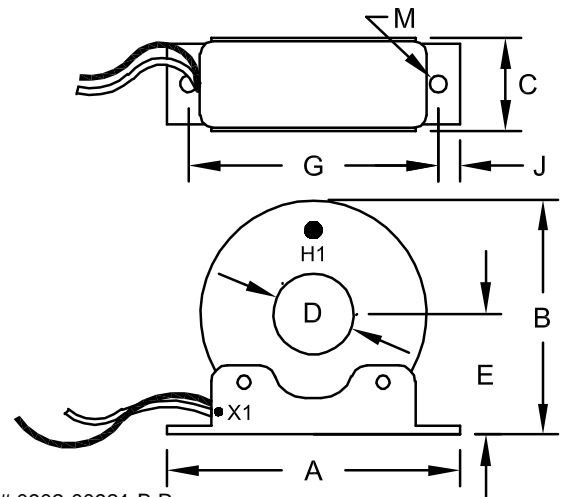
MODEL SELECTION

50-400 HERTZ CURRENT TRANSFORMER

| CURRENT RATIO | ACCURACY AT 60Hz (%) | BURDEN AT 60Hz (VA) | PART NUMBER | WT. (LBS) | TRANSFORMER DIMENSIONS (INCHES) | | | | | | | |
|---------------|----------------------|---------------------|-------------|-----------|---------------------------------|------|------|------|------|------|------|-----------|
| | | | | | A | B | C | D | E | G | J | M |
| 50:5 | 3.0 | 1.5 | 10418 | 1.22 | 4.50 | 3.70 | 1.25 | 1.25 | 1.94 | 3.88 | 0.31 | 0.27x0.44 |
| * 75:5 | 1.5 | 2.5 | 13076 | 1.25 | 4.50 | 3.70 | 1.25 | 1.25 | 1.94 | 3.88 | 0.31 | 0.27x0.44 |
| 100:5 | 1.5 | 5.0 | 10424 | 1.28 | 4.50 | 3.70 | 1.25 | 1.25 | 1.94 | 3.88 | 0.31 | 0.27x0.44 |
| 150:5 | 1.0 | 7.5 | 10421 | 1.35 | 4.50 | 3.70 | 1.25 | 1.25 | 1.94 | 3.88 | 0.31 | 0.27x0.44 |
| 200:5 | 1.0 | 12.5 | 10425 | 1.37 | 4.50 | 3.70 | 1.25 | 1.25 | 1.94 | 3.88 | 0.31 | 0.27x0.44 |
| 250:5 | 1.0 | 12.5 | 12271 | 1.39 | 4.50 | 3.70 | 1.25 | 1.25 | 1.94 | 3.88 | 0.31 | 0.27x0.44 |
| 300:5 | 1.0 | 15.0 | 10417 | 1.41 | 4.50 | 3.70 | 1.25 | 1.25 | 1.94 | 3.88 | 0.31 | 0.27x0.44 |
| 400:5 | 1.0 | 15.0 | 10420 | 1.47 | 6.50 | 4.70 | 1.25 | 2.50 | 2.46 | 5.75 | 0.38 | 0.28 |
| 500:5 | 1.0 | 25.0 | 12279 | 1.53 | 6.50 | 4.70 | 1.25 | 2.50 | 2.46 | 5.75 | 0.38 | 0.28 |
| 600:5 | 1.0 | 30.0 | 10422 | 1.59 | 6.50 | 4.70 | 1.25 | 2.50 | 2.46 | 5.75 | 0.38 | 0.28 |
| 750:5 | 1.0 | 30.0 | 12476 | 1.60 | 6.50 | 4.70 | 1.25 | 2.50 | 2.46 | 5.75 | 0.38 | 0.28 |
| 800:5 | 1.0 | 35.0 | 12280 | 1.61 | 6.50 | 4.70 | 1.25 | 2.50 | 2.46 | 5.75 | 0.38 | 0.28 |
| 1000:5 | 1.0 | 10.0 | 10423 | 0.65 | 6.50 | 4.70 | 1.25 | 3.00 | 2.46 | 5.75 | 0.38 | 0.28 |
| 1200:5 | 1.0 | 10.0 | 11014 | 0.73 | 6.50 | 4.70 | 1.25 | 3.00 | 2.46 | 5.75 | 0.38 | 0.28 |
| 1500:5 | 1.0 | 12.5 | 10998 | 0.86 | 6.50 | 4.70 | 1.25 | 3.00 | 2.46 | 5.75 | 0.38 | 0.28 |
| 1600:5 | 1.0 | 12.5 | 12284 | 1.10 | 6.50 | 4.70 | 1.25 | 3.00 | 2.46 | 5.75 | 0.38 | 0.28 |
| * 2000:5 | 1.0 | 15.0 | 14046 | 1.10 | 6.50 | 4.70 | 1.25 | 3.00 | 2.46 | 5.75 | 0.38 | 0.28 |

* Not UL Recognized

DIMENSIONS



Dwg# 0902-00921-B Rev --

SPECIFICATIONS

Frequency..... 50-400Hz
 Insulation Class 0.6kV BIL 10kV full-wave
 Lead Wire UL1015, 105°C, CSA approved
 Size 16 AWG, 24" length
 Termination..... No. 8 ring terminal

NOTE: Models with input of 300A and below have slotted mounting holes.

Caution: It is recommended that the incoming power be de-energized before installation. Current Transformer must have its secondary terminals shorted or the burden connected BEFORE ENERGIZING the primary.

FOR INDOOR USE ONLY.

OSI SINGLE-PHASE AC CURRENT TRANSDUCER MODEL ACT-

DESCRIPTION

The model ACT is a UL-, CUL-, and CE-approved AC current transducer which provides an isolated DC analog output that is directly proportional to the current input. The output is derived from the average absolute value of the input waveform and calibrated in terms of the RMS value of an input sine wave. With the exception of models which provide 4-20mA output, all other models require no external power connections.



5 YEAR WARRANTY

FEATURES

- Accurate, reliable current measurement
- Rugged metal construction
- Designed to withstand motor start-up transients
- Average reading calibrated RMS
- Low Cost

APPLICATIONS

- Designed for use in applications which require inexpensive current measurement.
- Designed for use in applications where UL-, CUL-, or CE-approved measurement is required.

ORDERING INFORMATION

Example: 200 Amp AC Input with 4-20mA Output and 230Vac instrument power

ACT-200E-22

400Hz models are available - [consult factory](#) for the CT5 series, which is not UL-, CUL- or CE-approved.

MODEL SELECTION

| INPUTS AC AMPS | SENSOR SIZE | STANDARD OUTPUT MODELS ACT- | | | | |
|-------------------|----------------|-----------------------------|------------|----------|---------|----------|
| | | UL, CUL & CE | | | | UL & CUL |
| | | 0-1mAdc* | 4-20mAdc** | 0-10Vdc* | 0-5Vdc* | 4-20mAdc |
| 0 - 1 | INT | 001A | 001E2 | 001C | 001CX5 | 001E |
| 0 - 5 | INT | 005A | 005E2 | 005C | 005CX5 | 005E |
| 0 - 10 | INT | 010A | 010E2 | 010C | 010CX5 | 010E |
| 0 - 20 | INT | 020A | 020E2 | 020C | 020CX5 | 020E |
| 0 - 25 † | W | 025A | 025E2 | 025C | 025CX5 | 025E |
| 0 - 50 | W | 050A | 050E2 | 050C | 050CX5 | 050E |
| 0 - 100 | W | 100A | 100E2 | 100C | 100CX5 | 100E |
| 0 - 200 | W | 200A | 200E2 | 200C | 200CX5 | 200E |
| 0 - 300 | W | 300A | 300E2 | 300C | 300CX5 | 300E |
| 0 - 400 | X | 400A | 400E2 | 400C | 400CX5 | 400E |
| 0 - 500 | X | 500A | 500E2 | 500C | 500CX5 | 500E |
| 0 - 600 | X | 600A | 600E2 | 600C | 600CX5 | 600E |
| 0 - 800 | X | 800A | 800E2 | 800C | 800CX5 | 800E |
| 0 - 1000 | Y | 1000A | 1000E2 | 1000C | 1000CX5 | 1000E |
| 0 - 1500 | Y | 1500A | 1500E2 | 1500C | 1500CX5 | 1500E |

* "A", "C", and "CX5" models are self-powered from measured line.

** "E2" models are loop-powered, and require 15-24Vdc instrument power.

† Indicates two turns required through transformer window.

SPECIFICATIONS

INPUT

Frequency Range..... 50/60Hz
 Burden..... 1.0VA F.S.
 Current Overload (continuous)
 20A model..... 1.25 X F.S. rating
 all other models 2 X F.S. rating

DIELECTRIC TEST

Input/Output/Case2200Vac

INSTRUMENT POWER

"A", "C", "CX5" models.....Self-powered
 "E2" models..... 15-24Vdc
 "E" models..... 115Vac, 50/60Hz, ±15%, 10VA
 "-22" option 230Vac, 50/60Hz, ±15%, 10VA

OUTPUT

Response 400ms
 Loading
 "A" models (0-1mAdc output)..... 0-10kΩ
 "E" models (4-20mAdc output)..... 0-1kΩ
 "E2" models ... (4-20mAdc output)....0-600Ω at 24V
 "C" & "CX5" models (5Vdc, 10Vdc output) ≥10MΩ
 Field Adjustable Cal.±5%

ACCURACY

Internal sensor ±0.25% F.S. @ 60Hz
 External sensor ±0.5% F.S. @ 60Hz
 Includes effects of linearity and setpoint
 Output Ripple <1.0% F.S.

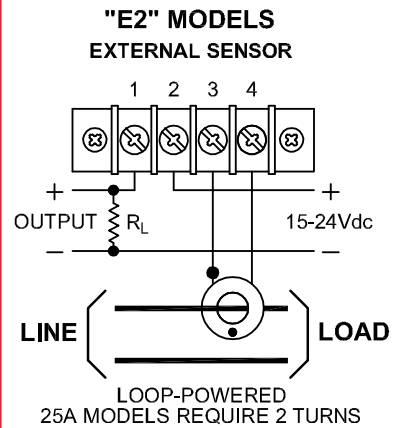
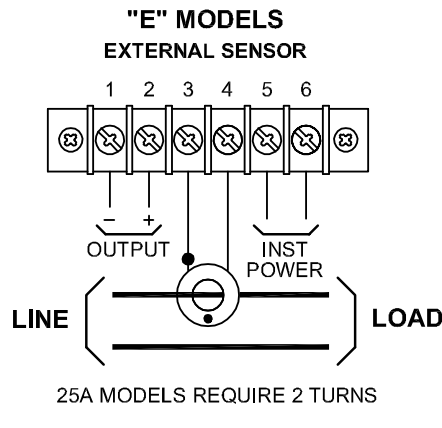
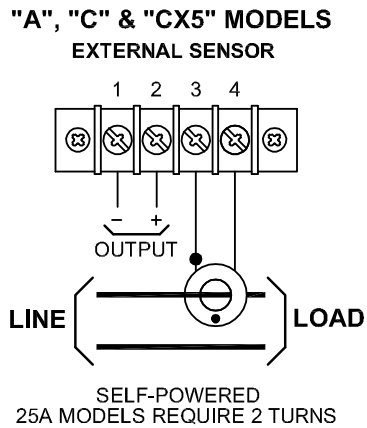
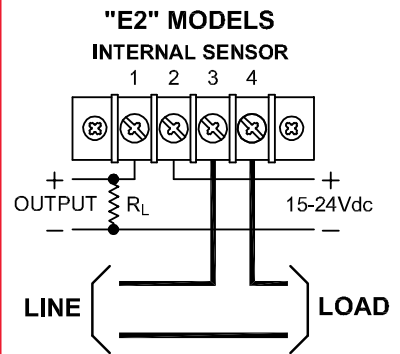
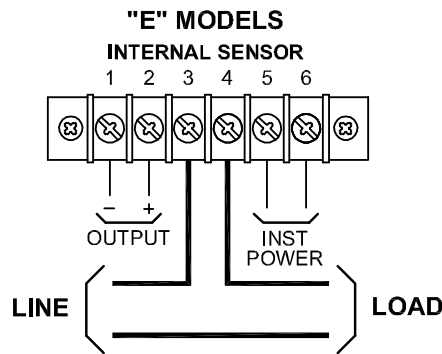
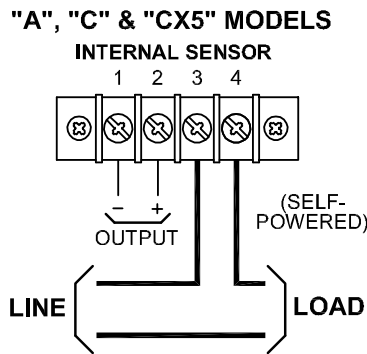
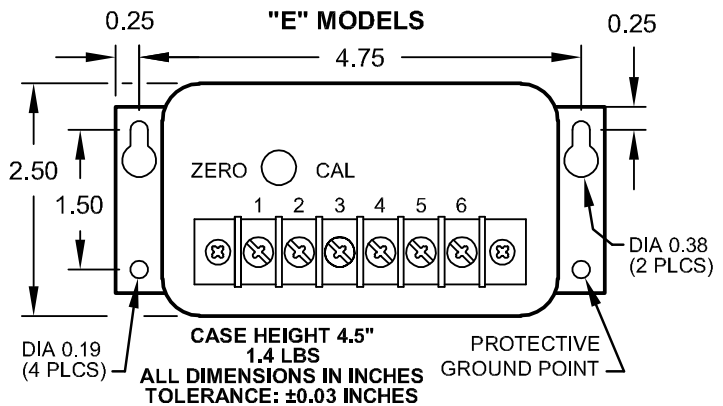
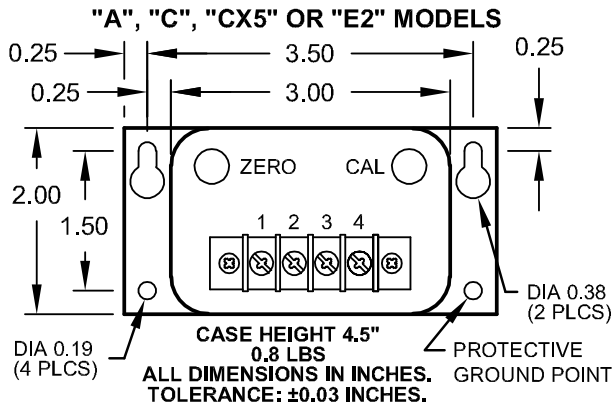
TEMPERATURE

Operating Range.....-20°C to +60°C
 Effect ±1.0% Rdg.

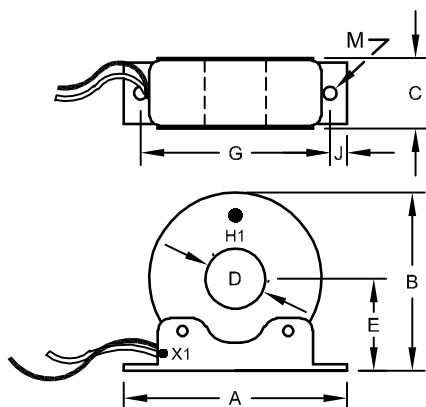
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OSI CASE DIMENSIONS & CONNECTION DIAGRAMS MODEL ACT-

CURRENT MEASUREMENT (AVG)



SENSOR DIMENSIONS



| SENSOR SIZE | SENSOR DIMENSIONS (INCHES) | | | | | | | | WT. LBS. |
|-------------|----------------------------|-----|------|------|------|------|------|-------------|----------|
| | A | B | C | D | E | G | J | M | |
| W | 4.50 | 3.7 | 1.25 | 1.25 | 1.94 | 3.88 | 0.34 | 0.27 x 0.44 | 1.43 |
| X | 6.50 | 4.7 | 1.25 | 2.50 | 2.46 | 5.75 | 0.39 | 0.28 | 1.61 |
| Y | 6.50 | 4.7 | 1.25 | 3.00 | 2.46 | 5.75 | 0.39 | 0.28 | 1.10 |

Lead Length.....24 Inches

Dwg# 0902-00857-B Rev A

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OSI THREE-PHASE AC CURRENT TRANSDUCER MODEL 3ACT-

DESCRIPTION

The model 3ACT is a three-phase UL-, CUL-, and CE-approved ac current transducer which provides three isolated dc outputs which are directly proportional to the three current inputs.

The output is derived from the average absolute value of the input and is calibrated in terms of the RMS value of the input sine wave.

Models with full-scale input ranges of 25A and higher use external sensors (CTs).

With the exception of models which provide 4-20mA outputs, all models are self-powered from the measured line.

5 YEAR WARRANTY

FEATURES

- Accurate, reliable current measurement
- Rugged metal construction
- Designed to withstand motor start-up transients
- Average reading calibrated RMS
- Low Cost

APPLICATIONS

- Designed for use in applications which require inexpensive current measurement.
- Designed for use in applications where UL, CUL, or CE compliance is required.

| INPUTS AC AMPS | SENSOR SIZE | STANDARD OUTPUT MODELS 3ACT- | | | | |
|----------------|-------------|------------------------------|------------|----------|---------|----------|
| | | UL, CUL & CE | | | | UL & CUL |
| | | 0-1mAdc* | 4-20mAdc** | 0-10Vdc* | 0-5Vdc* | 4-20mA |
| 0 - 1 | INT | 001A | 001E2 | 001C | 001CX5 | 001E |
| 0 - 5 | INT | 005A | 005E2 | 005C | 005CX5 | 005E |
| 0 - 10 | INT | 010A | 010E2 | 010C | 010CX5 | 010E |
| 0 - 20 | INT | 020A | 020E2 | 020C | 020CX5 | 020E |
| 0 - 25 † | W | 025A | 025E2 | 025C | 025CX5 | 025E |
| 0 - 50 | W | 050A | 050E2 | 050C | 050CX5 | 050E |
| 0 - 100 | W | 100A | 100E2 | 100C | 100CX5 | 100E |
| 0 - 200 | W | 200A | 200E2 | 200C | 200CX5 | 200E |
| 0 - 300 | W | 300A | 300E2 | 300C | 300CX5 | 300E |
| 0 - 400 | X | 400A | 400E2 | 400C | 400CX5 | 400E |
| 0 - 500 | X | 500A | 500E2 | 500C | 500CX5 | 500E |
| 0 - 600 | X | 600A | 600E2 | 600C | 600CX5 | 600E |
| 0 - 800 | X | 800A | 800E2 | 800C | 800CX5 | 800E |
| 0 - 1000 | Y | 1000A | 1000E2 | 1000C | 1000CX5 | 1000E |
| 0 - 1500 | Y | 1500A | 1500E2 | 1500C | 1500CX5 | 1500E |



* "A", "C", and "CX5" models are self-powered from measured line.
 ** "E2" models are 4-20mA loop-powered, and require 15-24Vdc.
 † Indicates two turns required through transformer window.

Standard "E" models require 115Vac instrument power.
 For optional 230Vac instrument power - add suffix "- 22".

For optional "3 outputs summed" - add suffix "Y05".
 (NOTE: Not UL, CUL or CE listed.)

ORDERING INFORMATION

Example: Three 200Aac Inputs with Three 4-20mAdc Outputs.

3ACT-200E

SPECIFICATIONS

INPUT

Frequency Range 50/60Hz
 Burden 1.0VA F.S. (each input)
 Current Overload (continuous)
 20A model 1.25 X F.S. rating
 All other models..... 2 X F.S. rating

DIELECTRIC TEST

Input/Output/Case.....2200Vac

INSTRUMENT POWER

"E" models....Standard..... 115Vac, 50/60Hz, ±15%, 10VA
 "-22" option230Vac, 50/60Hz, ±15%, 10VA
 "E2" models.....15-24Vdc loop powered
 All other models Self-powered

OUTPUT

Response.....400ms
 Loading
 "A" models(0-1mAdc)..... 0-10kΩ
 "E" models(4-20mAdc)..... 0-1kΩ
 "E2" models(4-20mAdc)..... 0-600Ω at 24V
 "C", "CX5" models(0-5Vdc, 0-10Vdc) ≥10MΩ
 Field Adjustable Cal. ±5%

ACCURACY

Internal sensor ±0.25% F.S. @ 60Hz
 External sensor ±0.5% F.S. @ 60Hz
 Includes effects of linearity and setpoint
 Output Ripple <1.0% F.S.

TEMPERATURE

Operating Range..... -20°C to +60°C
 Effect ±1.0% Rdg.

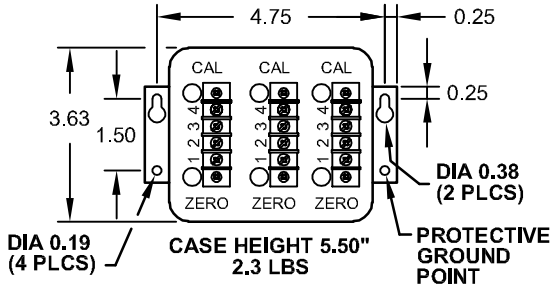
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OSI CASE DIMENSIONS & CONNECTION DIAGRAMS MODEL 3ACT-

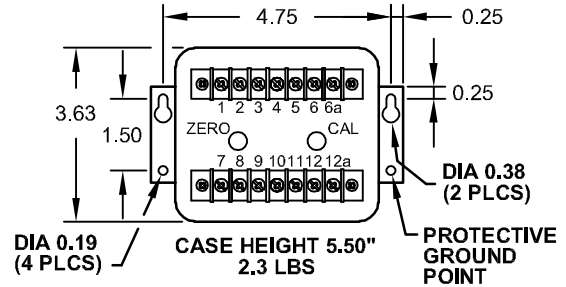
CURRENT MEASUREMENT (AVG)

MODELS WITH A, C, CX5 OR E2 OPTION

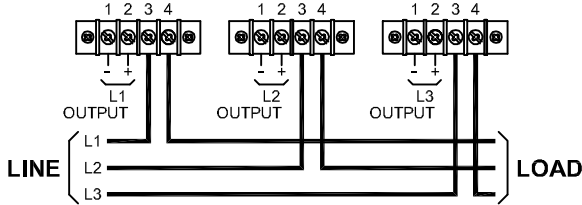


ALL DIMENSIONS ARE IN INCHES.

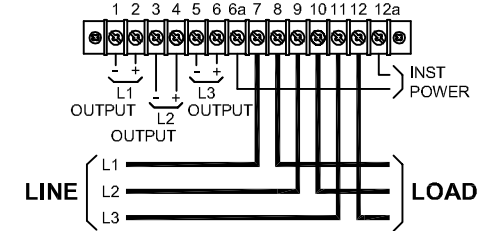
MODELS WITH E OPTION



MODELS WITH A, C & CX5 OPTIONS - INTERNAL SENSOR



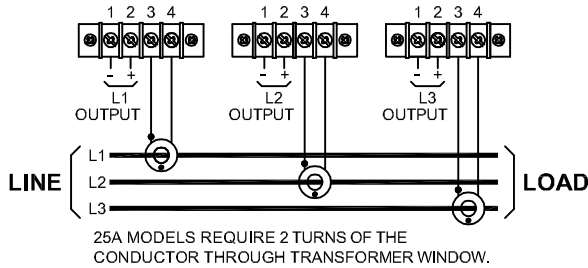
MODELS WITH E OPTION - INTERNAL SENSOR



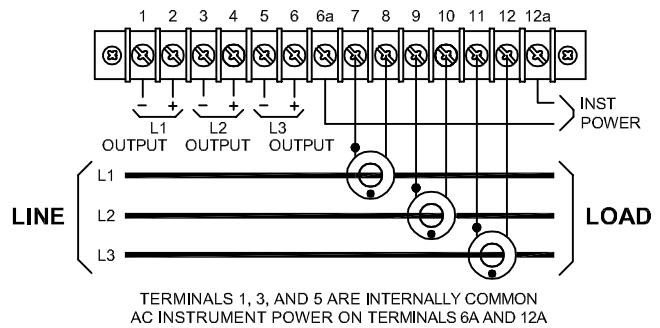
ALL MODEL "Y05" OUTPUT CONNECTIONS, TERMINALS 1 & 2 "L1"

TERMINALS 1, 3, AND 5 ARE INTERNALLY COMMON
AC INSTRUMENT POWER ON TERMINALS 6A AND 12A

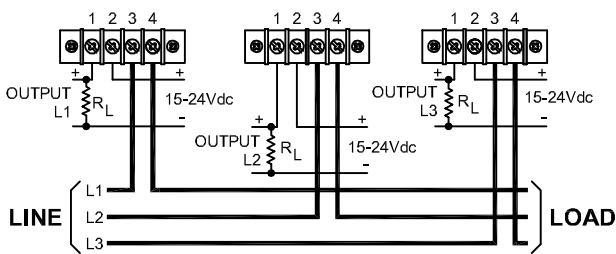
MODELS WITH A, C & CX5 OPTIONS - EXTERNAL SENSOR



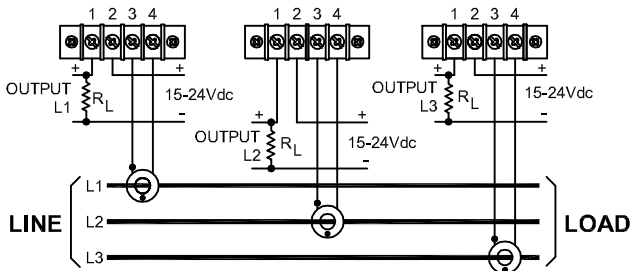
MODELS WITH E OPTION - EXTERNAL SENSOR



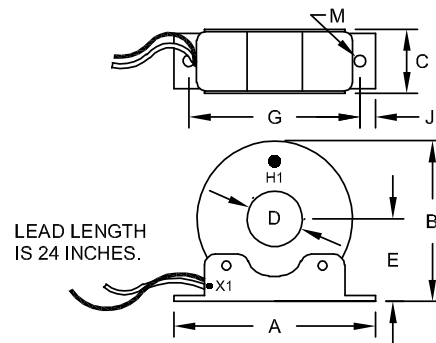
MODELS WITH E2 OPTION - INTERNAL SENSOR



MODELS WITH E2 OPTION - EXTERNAL SENSOR



EXTERNAL SENSOR DIMENSIONS



| SENS. SIZE | SENSOR DIMENSIONS (INCHES) | | | | | | | | WT. LBS. |
|------------|----------------------------|-----|------|------|------|------|------|-------------|----------|
| | A | B | C | D | E | G | J | M | |
| W | 4.50 | 3.7 | 1.25 | 1.25 | 1.94 | 3.88 | 0.34 | 0.27 x 0.44 | 1.43 |
| X | 6.50 | 4.7 | 1.25 | 2.50 | 2.46 | 5.75 | 0.39 | 0.28 | 1.61 |
| Y | 6.50 | 4.7 | 1.25 | 3.00 | 2.46 | 5.75 | 0.39 | 0.28 | 1.10 |

Dwg# 0902-00411-B Rev A

OHIO SEMITRONICS, INC.

4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

DESCRIPTION

The CTC & CTD units provide a self-powered 5Vdc, 10Vdc, or 1mAdc output, or a loop-powered 4-20mAdc output proportional to window currents, with input ranges up to 2000 Amperes at 50-400Hz. The dc output is proportional to the average absolute value of the input and is calibrated with the sine wave inputs.

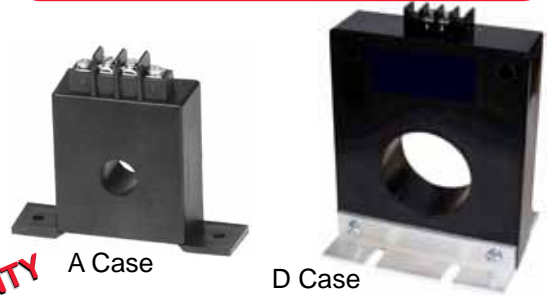
FEATURES

- Insensitive to polarity
- Easy to install
- Accurate & reliable 50-400Hz.

APPLICATIONS

- Designed for applications requiring accurate current measurements.

CTC CASE STYLES



CTD CASE STYLES



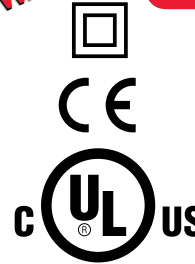
CURRENT MEASUREMENT (AVG)

| INPUT AC AMPS | STANDARD OUTPUT MODEL CTC- | | | | CASE SIZE |
|---------------|----------------------------|-------|-------|-----------|-----------|
| | 5Vdc | 10Vdc | 1mAdc | 4-20mAdc* | |
| 0 - 5 | 005CX5 | 005C | - | 005E2 | A |
| 0 - 10 | 010CX5 | 010C | - | 010E2 | A |
| 0 - 15 | 015CX5 | 015C | - | 015E2 | A |
| 0 - 20 | 020CX5 | 020C | - | 020E2 | A |
| 0 - 25 | 025CX5 | 025C | - | 025E2 | A |
| 0 - 30 | 030CX5 | 030C | - | 030E2 | A |
| 0 - 35 | 035CX5 | 035C | - | 035E2 | A |
| 0 - 40 | 040CX5 | 040C | - | 040E2 | A |
| 0 - 50 | 050CX5 | 050C | - | 050E2 | A |

| INPUT AC AMPS | STANDARD OUTPUT MODEL CTD- | | | | CASE SIZE |
|---------------|----------------------------|----------|----------|-----------|-----------|
| | 5Vdc** | 10Vdc** | 1mAdc | 4-20mAdc* | |
| 0 - 50 | 050CX5 | 050C | 050A | 050E2 | B |
| 0 - 100 | 100CX5 | 100C | 100A | 100E2 | B |
| 0 - 150 | 150CX5 | 150C | 150A | 150E2 | B |
| 0 - 200 | 200CX5 | 200C | 200A | 200E2 | B |
| 0 - 300 | 300CX5 | 300C | 300A | 300E2 | B |
| 0 - 400 | 400CX5 | 400C | 400A | 400E2 | B |
| 0 - 500 | 500CX5 | 500C | 500A | 500E2 | B |
| 0 - 600 | 600CX5 | 600C | 600A | 600E2 | B |
| 0 - 800 | 800CX5 | 800C | 800A | 800E2 | B |
| 0 - 1000 | 1000CX5 | 1000C | 1000A | 1000E2 | B |
| 0 - 200 | 200CX5Z03 | 200CZ03 | 200AZ03 | 200E2Z03 | C |
| 0 - 300 | 300CX5Z03 | 300CZ03 | 300AZ03 | 300E2Z03 | C |
| 0 - 400 | 400CX5Z03 | 400CZ03 | 400AZ03 | 400E2Z03 | C |
| 0 - 500 | 500CX5Z03 | 500CZ03 | 500AZ03 | 500E2Z03 | C |
| 0 - 600 | 600CX5Z03 | 600CZ03 | 600AZ03 | 600E2Z03 | C |
| 0 - 800 | 800CX5Z03 | 800CZ03 | 800AZ03 | 800E2Z03 | C |
| 0 - 1000 | 1000CX5Z03 | 1000CZ03 | 1000AZ03 | 1000E2Z03 | C |
| 0 - 1200 | 1200CX5Z03 | 1200CZ03 | 1200AZ03 | 1200E2Z03 | C |
| 0 - 1500 | 1500CX5Z03 | 1500CZ03 | 1500AZ03 | 1500E2Z03 | C |
| 0 - 2000 | 2000CX5Z03 | 2000CZ03 | 2000AZ03 | 2000E2Z03 | C |

| INPUT AC AMPS | STANDARD OUTPUT MODEL CTC- | | | | CASE SIZE |
|---------------|----------------------------|-------|-------|-----------|-----------|
| | 5Vdc | 10Vdc | 1mAdc | 4-20mAdc* | |
| 0 - 100 | 100CX5 | 100C | - | 100E2 | D** |
| 0 - 150 | 150CX5 | 150C | - | 150E2 | D** |
| 0 - 200 | 200CX5 | 200C | - | 200E2 | D** |
| 0 - 300 | 300CX5 | 300C | - | 300E2 | D** |
| 0 - 400 | 400CX5 | 400C | - | 400E2 | D** |
| 0 - 500 | 500CX5 | 500C | - | 500E2 | D** |
| 0 - 600 | 600CX5 | 600C | - | 600E2 | D** |
| 0 - 800 | 800CX5 | 800C | - | 800E2 | D** |
| 0 - 1000 | 1000CX5 | 1000C | - | 1000E2 | D** |

5 YEAR WARRANTY



LISTED
Measuring Equipment
7N93

(D case not included in UL/CE listing.)

ORDERING INFORMATION
Example: 25 Amps ac Input with 4-20mA loop-powered Output
CTC-025E2

SPECIFICATIONS

INPUT
Current See Table
Current Overload Continuous 1.3 X Rating
Transient 5 X Rating (10s/hr)
Frequency Range CTC 50-60Hz
CTD 50-400Hz

DIELECTRIC TEST
Input/Output/Case 1800Vac

INSTRUMENT POWER
"A", "C", "CX5" models Self-Powered
"E2" models 24Vdc, ±4Vdc, loop powered

OUTPUT
Type See Table
Loading "A" models 0-10kΩ
"C", "CX5" models >10MΩ
"E2" models 0-500Ω
Response Time (to 90% F.S.) Typical 300ms
5A & 10A models <750ms

ACCURACY (linearity, setpoint, repeatability @ 60Hz)
CTC 5A-50A models ±0.25% F.S.
All others ±0.5% F.S.
Output Ripple All models <±0.5% F.S.

TEMPERATURE
Operating Range -20 to 60°C
Effect ±1.0% Rdg.

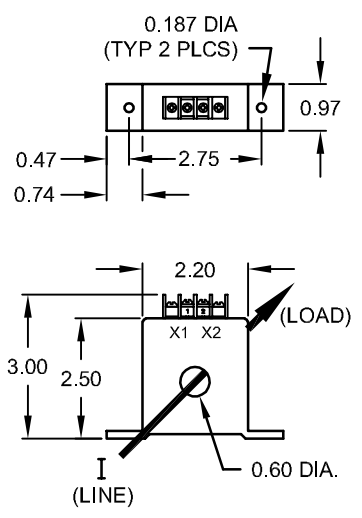
*4-20mA loop-powered models require an external 24Vdc power supply. These models are not CE-Compliant.

**CTC D-case models are not included in UL/CE listing. CTD voltage output models are not included in UL listing.

OSI CONNECTIONS & CASE DIMENSIONS MODEL CTC- & CTD-

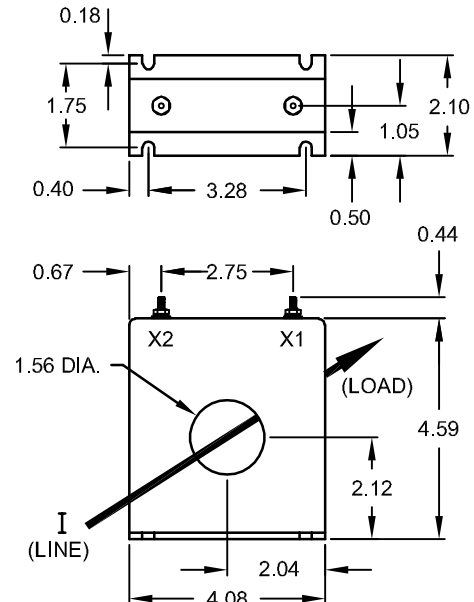
CURRENT MEASUREMENT (AVG)

A CASE

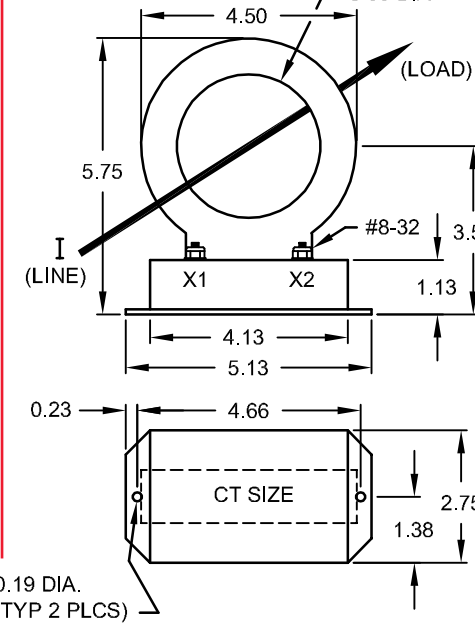


ALL DIMENSIONS IN INCHES. TOLERANCE: ±0.03 INCHES.

B CASE

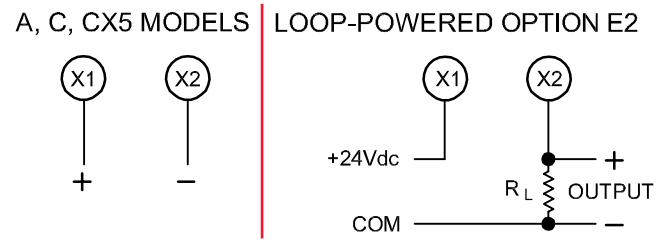


C CASE

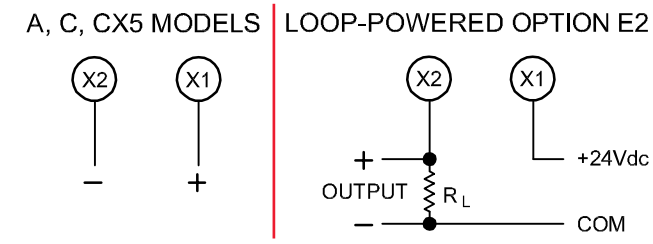


Dwg# 0902-00848-B Rev A

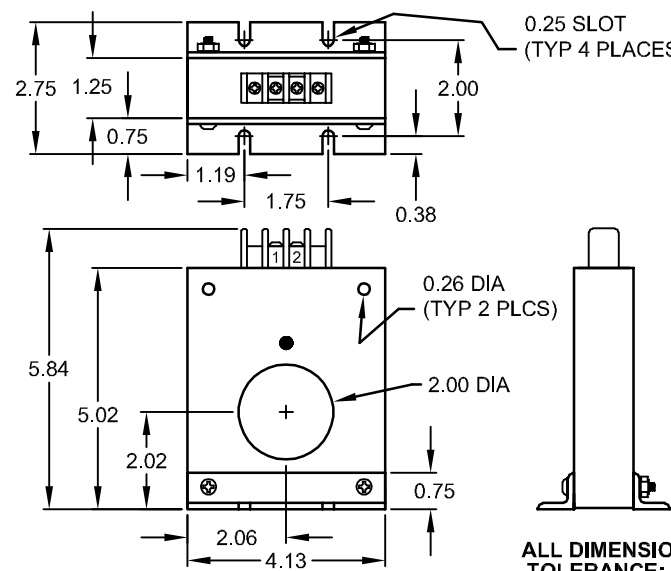
A & C CASE CONNECTIONS



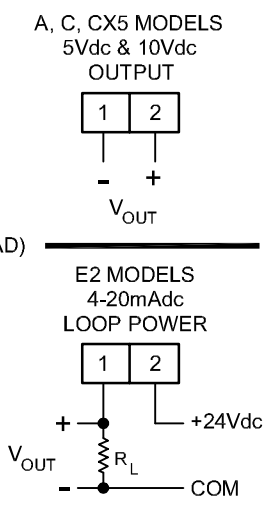
B CASE CONNECTIONS



D CASE DIMENSIONS AND CONNECTIONS



ALL DIMENSIONS IN INCHES. TOLERANCE: ±0.03 INCHES.



Dwg# 0902-00848-B Rev A

OSI SINGLE-PHASE AC CURRENT TRANSDUCER MODEL MCT5-

DIN-RAIL-MOUNTED AC CURRENT TRANSDUCER 0.25% ACCURACY

FEATURES

- Ruggedized Polyamide DIN-mount case.
- Slim profile allows maximum use of available space.
- Field-selectable analog outputs.
- Recessed terminals provide increased safety.

APPLICATIONS

- Ideal for use in enclosures with dimensional constraints.
- Designed for industrial environments.
- OEM measurement systems.
- Designed for use with [OSI current transformers](#).
- Easily integrated into control systems.



Transducer output is derived from the average absolute value of the input and calibrated as the RMS value of a sine wave input.

CURRENT MEASUREMENT (AVG)

| INPUT AC AMPS | STANDARD OUTPUTS MODEL MCT5- | | |
|------------------|------------------------------|----------|------------|
| | 0-1mAdc* | 4-20mAdc | 4-20mAdc** |
| 0 - 1.0 | 001A | 001E | 001E2 |
| 0 - 5.0 | 005A | 005E | 005E2 |

* Models are self-powered from measured AC input line with **DIP-switch-selectable 0-1mA, 0-5Vdc, or 0-10Vdc output.**

** Denotes 4-20mA loop-powered unit, requires 15-40Vdc instrument power.
Standard 4-20mA models require 85-135 Vac instrument power.

**5 YEAR
WARRANTY**



Measuring
Equipment
7N93

ORDERING INFORMATION

Example: 0-5A Input with 4-20mA Output.
MCT5-005E

SPECIFICATIONS

INPUT

Current See Table
Frequency Range..... 48 to 65Hz; 60Hz Nom.
Burden..... 1-Amp models.....0.05VA
5-Amp models.....0.175VA

Current Overload

Continuous..... 2 X F.S. rating
10s/hr 10 X F.S. rating

DIELECTRIC TEST

Input/Output 1500Vac

OUTPUT

Response(to 99%)..... 400ms
Field-Adjustable Span±5%
Loading
"A" models set for 0-1mA output0-10KΩ
"A" models set for 0-5Vdc output >5MΩ
"A" models set for 0-10Vdc output >10MΩ
"E" models.....(4-20mA) 0-500Ω
"E2" models...(Loop Powered 4-20mA) 0-600Ω

INSTRUMENT POWER

"E" models.... (4-20mA)..... 85-135Vac, 50-60Hz, 3VA
"E2" models.. (Loop-Powered 4-20mA) 15-40Vdc
"A" models..... Self-Powered

ACCURACY

Accuracy±0.25% F.S.@ 60Hz
Includes effects of linearity and setpoint.
Output Ripple<1.0% F.S.

TEMPERATURE

Effect
"A" & "E2" models ..(-20°C to +65°C).....±1.0%
"E" models..... (-20°C to +40°C)±1.0%

PHYSICAL

Termination..... wire size 22AWG to 12AWG
Net Weight..... 0.4 lb

CONNECTION DIAGRAMS AND DIMENSIONS SHOWN ON NEXT PAGE

([Consult factory](#) for availability of DIN-rail)

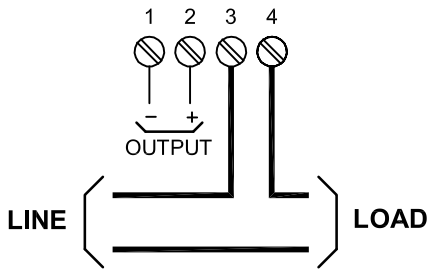
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4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
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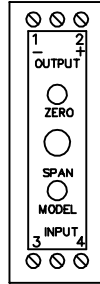
OSI DIMENSIONS AND CONNECTION DIAGRAMS MODEL MCT5-

CURRENT MEASUREMENT (AVG)

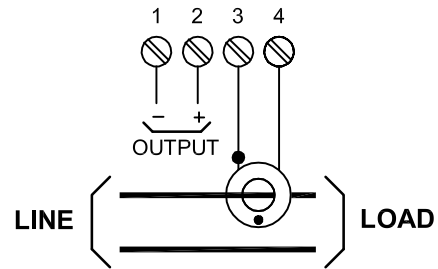
DIRECT CONNECTION



"A" MODELS (SELF-POWERED)

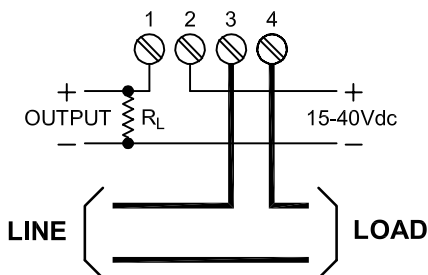


EXTERNAL CURRENT TRANSFORMERS

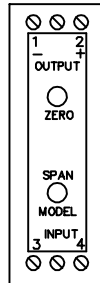


"A" MODELS (SELF-POWERED)

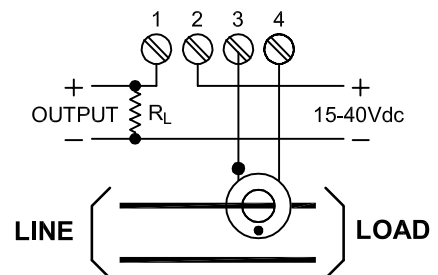
DIRECT CONNECTION



"E2" MODELS (LOOP-POWERED)

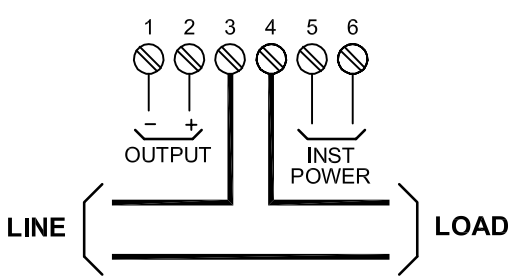


EXTERNAL CURRENT TRANSFORMERS

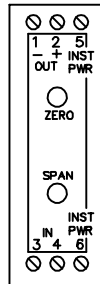


"E2" MODELS (LOOP-POWERED)

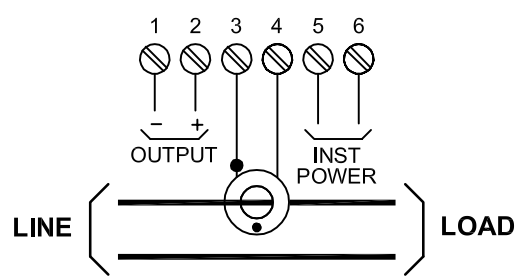
DIRECT CONNECTION



"E" MODELS (4-20mA OUTPUT)



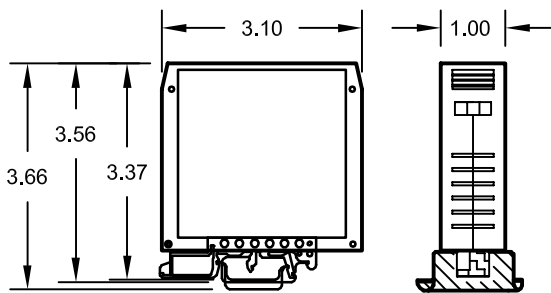
EXTERNAL CURRENT TRANSFORMERS



"E" MODELS (4-20mA OUTPUT)

CASE DIMENSIONS

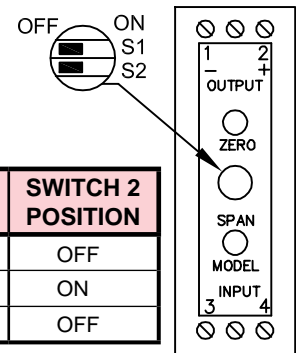
UNIT CAN BE MOUNTED ON:
STANDARD 35MM TOP-HAT DIN-RAIL (DIN3) PER EN 50022 OR STANDARD 32MM "G" DIN-RAIL (DIN1) PER EN 50035.



ALL DIMENSIONS IN INCHES.

"A" MODEL OUTPUT SELECTION

UNITS ARE SHIPPED WITH 0-1mA SETTING. REMOVE SNAP BUTTON FOR ACCESS TO DIP SWITCHES.



| OUTPUT REQUIRED | SWITCH 1 POSITION | SWITCH 2 POSITION |
|-----------------|-------------------|-------------------|
| 0-1mA | OFF | OFF |
| 0-5V | ON | ON |
| 0-10V | ON | OFF |

Dwg# 0902-00572-B Rev B

AC INPUT / DC OUTPUT FEATURES

DESCRIPTION

The SCT is a split-core current transformer integrated with a current transducer to provide current measurement ranges up to 500Aac. Outputs of 0-1mAdc, 0-5Vdc, or loop-powered 4-20mAdc are available.

The output is proportional to the average absolute value of the input and is calibrated to represent the RMS value of a sine wave.

- Insensitive to polarity
- Split-core design for easy installation
- Accurate and reliable from 50-400Hz.

APPLICATIONS

- Designed for applications requiring accurate current measurements.



| INPUT AC AMPS | STANDARD OUTPUTS MODEL SCT- | | |
|---------------|-----------------------------|------------|---------|
| | 0-1mAdc* | 4-20mAdc** | 0-5Vdc* |
| 0-50 | 050A | 050E2 | 050CX5 |
| 0-100 | 100A | 100E2 | 100CX5 |
| 0-200 | 200A | 200E2 | 200CX5 |
| 0-300 | 300A | 300E2 | 300CX5 |
| 0-400 | 400A | 400E2 | 400CX5 |
| 0-500 | 500A | 500E2 | 500CX5 |

ORDERING INFORMATION
 Example: 100 Amp AC Input with 4-20mA Loop-Powered Output.
SCT-100E2

* models are self-powered from measured line.
 ** 4-20mA loop-powered models require 15-40Vdc supply.

SPECIFICATIONS

INPUT

Current See Table
 Frequency Range 50 to 400Hz
 Burden 0.5VA max.
 Current overload 5 X rating for 10s/hr

DIELECTRIC TEST

Input/Output/Case 1800Vac

INSTRUMENT POWER

"A" & "CX5" models Self-powered
 "E2" models 15-40Vdc

OUTPUT

Response (to 90%) <300ms
 Loading
 "A" models 0-1 mA models 0-10kΩ
 "CX5" models ... 0-5Vdc models >100kΩ
 "E2" models 4-20mA models 0-500Ω

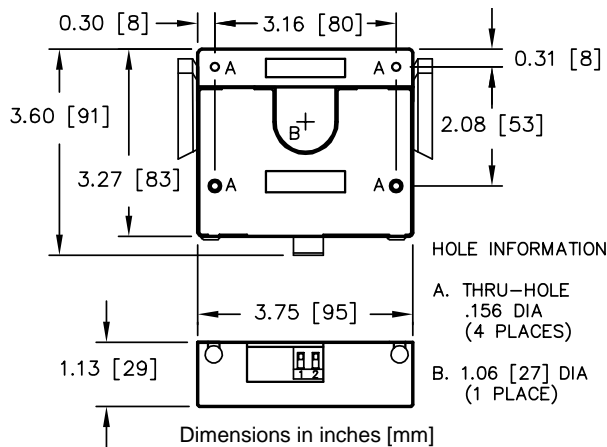
ACCURACY

25°C, 60Hz ±0.5% F.S.
 All conditions ±0.7% F.S.
 Output Ripple <0.5% F.S.

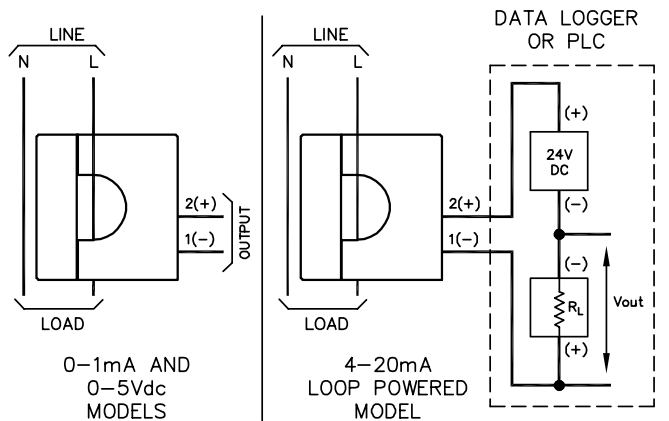
TEMPERATURE & PHYSICAL

Temperature Range -20°C to 60°C
 Net Weight 1.0 lb

CASE DIMENSIONS



CONNECTION DIAGRAMS



Dwg# 0902-00361-B Rev G

OSI SINGLE-PHASE AC CURRENT TRANSDUCER MODEL DCT-

DIN-RAIL-MOUNTED AC CURRENT TRANSDUCER

FEATURES

- Accurate, reliable measurement.
- Both 1 and 5A ranges are available.
- Compact DIN Rail packaging.



APPLICATIONS

- Designed for use in OEM applications which require inexpensive current measurement.
- Designed for installations that require both CE and CSA approvals.
- Perfect for applications that require DIN-Rail mounting.

Transducer output is derived from the arithmetic mean value of the input and calibrated in terms of the RMS value of the sine wave input.

MODEL SELECTION

| INPUT AC AMPS | STANDARD OUTPUTS MODEL DCT- | | | | |
|------------------|-----------------------------|--------|----------------------|---------|--------|
| | 0-1mA [*] | 4-20mA | 4-20mA ^{**} | 0-10Vdc | 0-5Vdc |
| 0 - 1 | 001A | 001E | 001E2 | 001C | 001CX5 |
| 0 - 5 | 005A | 005E | 005E2 | 005C | 005CX5 |

ORDERING INFORMATION

Example: 5Aac Input with 4-20mA Output.

DCT - 005E

^{*}A models are self-powered from measured line.
^{**}4-20mA loop-powered models require 12-32Vdc.

Standard E, C & CX5 models require 100-135Vac instr. power.
 For optional 220Vac instrument power - Add suffix " - 22".

SPECIFICATIONS

INPUT

Current0-1A or 0-5A
 Frequency Range..... 50/60Hz
 Burden..... <1.5VA F.S.
 Current Overload
 Continuous..... 120% of F.S. Input
 1s, Transient 20 X F.S. Rating

OUTPUT

Output Loading
 "A" models..... (0-1mA output) 0-15kΩ
 "C", "CX5" models (5V & 10V) 2.5kΩ Min.
 "E" models..... (4-20mA)..... 0-750Ω
 "E2" models..... (loop powered)..... 0-600Ω@24V
 Response Time 300ms

DIELECTRIC TEST

Input to Instrument Power/Output/Case 3700Vac
 Instrument Power to Output/Case 3700Vac
 Output to Case 490Vac

ACCURACY

Accuracy ±0.5% F.S. @ 60Hz
 Includes effects of linearity and setpoint.
 Output Ripple Less than 1.0% p.p.

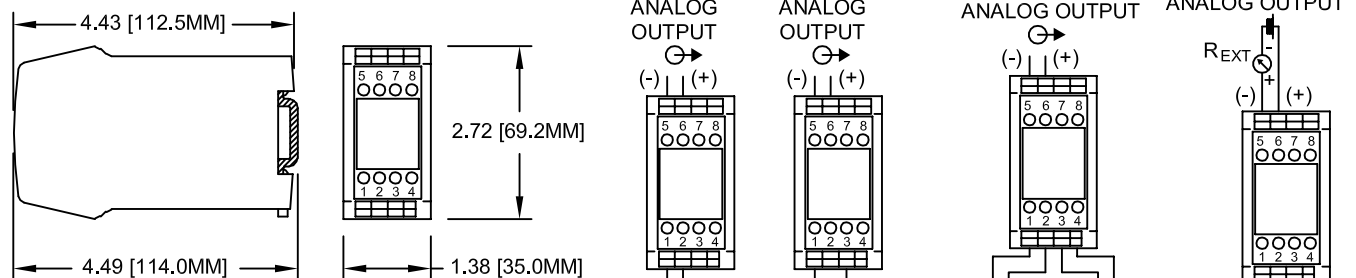
INSTRUMENT POWER

"A" models none required
 "E", "C", "CX5" models... 100-135Vac, 50/60Hz, 3.0VA
 "E2" models 12-32Vdc, loop-powered
 "-22" Option 230Vac, 50/60Hz, ±15%

TEMPERATURE & PHYSICAL

Operating Range -10°C to 55°C
 Termination..... wire size up to 10AWG
 Net Weight..... 0.65 lb

CASE DIMENSIONS AND CONNECTIONS



NOTES:
 1. DIMENSIONS ARE IN INCHES [MM].
 2. MOUNTED ON 35MM TOP-HAT DIN-RAIL.

0902--00898--B Rev --

OHIO SEMITRONICS, INC. 4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
 PHONE: (614) 777-1005 * FAX: (614) 777-4511
 WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

CURRENT MEASUREMENT (AVG)

PROGRAMMABLE AS A PERCENT OF RANGE

FEATURES

- Programmable settings for either current or voltage input, threshold levels, and over- or under-relay alarms.
- Internal DIP-switches may be set for either 0-1mAdc or 0-10Vdc, and may be set for under-alarm or over-alarm relay operation.
- Factory setting "0-1mA and over-range alarm mode"
- Lid-mounted two-digit numerical push-button switch calibrated as percent of full scale with a threshold range of 1-99%.
- Red LED lamp lights to indicate when threshold level has been obtained.



5 YEAR WARRANTY

| INPUT RANGE | INTERNAL SWITCH POSITIONS | | | | | | | |
|-----------------------|---------------------------|----|----|----|----|----|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | UNDER RANGE* | | | | | | | |
| 0-1mA _{dc} | ON | ON | | | ON | ON | | |
| 0-10V _{dc} | ON | ON | | | | ON | | |
| | OVER RANGE** | | | | | | | |
| 0-1mA _{dc} * | | | ON | ON | ON | ON | | |
| 0-10V _{dc} | | | ON | ON | | ON | | |

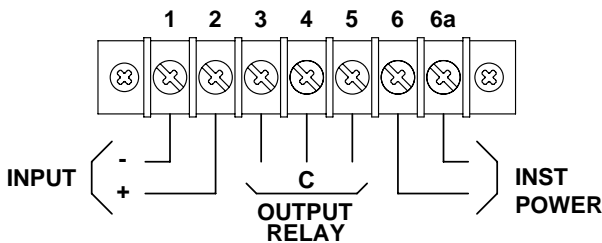
Highlighted area indicates Factory Setting. Unit is set at factory for the 0-1mA input and in the over-range alarm mode.

*The output relay will energize when instrument power is applied and the current is above the set point threshold. It will remain in a "Fail Safe" mode until either the input current drops below the set point threshold or instrument power is removed.

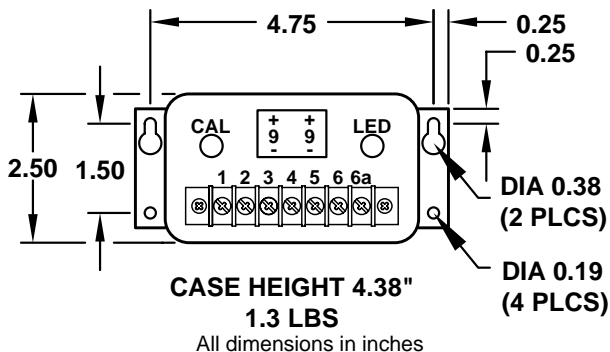
| MODE OF OPERATION | OUTPUT TERMINAL CONNECTIONS & LED OPERATION | | | | | | | |
|-------------------------------------|---------------------------------------------|-----|-----|-----|--------------|-----|-----|-----|
| | UNDER RANGE* | | | | OVER RANGE** | | | |
| | 3 | 4 | 5 | LED | 3 | 4 | 5 | LED |
| INST. POWER OFF | N/C | Com | N/O | OFF | N/C | Com | N/O | OFF |
| INST. POWER ON | N/C | Com | N/O | ON | N/O | Com | N/C | OFF |
| INST. PWR. ON INPUT BELOW SET POINT | N/C | Com | N/O | ON | N/O | Com | N/C | OFF |
| INST. PWR. ON INPUT ABOVE SET POINT | N/O | Com | N/C | OFF | N/C | Com | N/O | ON |

** The output relay will energize when instrument power is applied and will remain in a "Fail Safe" mode until either the instrument power is removed or the input exceeds the set point threshold level.

CONNECTION DIAGRAM



CASE DIMENSIONS



SPECIFICATIONS

INPUT

Current 1mA_{dc}
 Current Burden 1kΩ
 Voltage 0-10V_{dc}
 Voltage Burden 10kΩ
 Set Point (Digital) 1-99%, 1% minimum

DIELECTRIC TEST

Input to Output and Case 1500Vac

INSTRUMENT POWER 85-135Vac, 50-400Hz, 2.5VA

OUTPUT

Relay Form C, SPDT
 Rating 120Vac, 3A
 Response Time 10ms

ACCURACY

Accuracy Setpoint ±2 digits
 Resolution ±1 Digit
 Hysteresis ±1 Digit
 Temperature Effect (-10°C to +60°C) ±0.1%/°C

MECHANICAL

Mechanical Operations 1 Million

RANGES UP TO 20Aac CURRENT INPUT

FEATURES

- Programmable set-point relay setting for input current, threshold levels, over- and under-current operation.
- Internal DIP-switches may be set for current ranges of either 0-5, 0-10, 0-15, or 0-20 Amperes, and the relay mode for under- or over-current operation.
- Lid-mounted two-digit numerical push-button switch calibrated as percent of full scale with a threshold range of 1-99%.

- Red LED lamp lights to indicate when the threshold level has been obtained.

5 YEAR WARRANTY



| INPUT RANGE (AMPS) | INTERNAL SWITCH POSITIONS | | | | | | | |
|--------------------|---------------------------|----|----|----|----|----|---|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | UNDER CURRENT* | | | | | | | |
| 5 | ON | ON | | | | | | ON |
| 10 | ON | ON | | | | | | ON |
| 15 | ON | ON | | | | ON | | |
| 20 | ON | ON | | | ON | | | ON |
| | OVER CURRENT** | | | | | | | |
| 5 | | | ON | ON | | | | ON |
| 10 | | | ON | ON | | | | ON |
| 15 | | | ON | ON | | ON | | |
| 20 | | | ON | ON | ON | | | ON |

| OUTPUT TERMINAL CONNECTIONS & LED OPERATION | | | | | | | | |
|---------------------------------------------|--------------|-----|-----|-----|--------------|-----|-----|-----|
| MODE OF OPERATION | UNDER RANGE* | | | | OVER RANGE** | | | |
| | 3 | 4 | 5 | LED | 3 | 4 | 5 | LED |
| INST. POWER OFF | N/C | Com | N/O | OFF | N/C | Com | N/O | OFF |
| INST. POWER ON | N/C | Com | N/O | ON | N/O | Com | N/C | OFF |
| INST. PWR. ON, CURRENT BELOW SET POINT | N/C | Com | N/O | ON | N/O | Com | N/C | OFF |
| INST. PWR. ON, CURRENT ABOVE SET POINT | N/O | Com | N/C | OFF | N/C | Com | N/O | ON |

Highlighted area indicates Factory Setting. Unit is shipped from the factory with a 0-5 Amp input and in an over-current relay mode. The set point relay can be set to provide any one of the four current ranges and modes of operation.

** The output relay will energize when instrument power is applied and will remain in a "Fail Safe" mode until either the instrument power is removed or the input current exceeds the set point threshold level.

* The output relay will energize when instrument power is applied and the current is above the set point threshold. It will remain in a "Fail Safe" mode until either the input current drops below the set point threshold or instrument power is removed.

SPECIFICATIONS

INPUT

| | |
|--------------------------|-------------------------------|
| Current Ranges..... | (Selectable) |
| Operation..... | 5A Range.....80mA to 5A |
| | 10A Range.....160mA to 10A |
| | 15A Range.....200mA to 15A |
| | 20A Range.....220mA to 20A |
| Burden (Any Range) | 0.5VA, max. |
| Over-current (Any Range) | |
| | Continuous25Aac |
| | Transient50Aac (10s/Hr) |
| | Transient250Aac (1s/Hr) |
| Frequency..... | 50-425Hz, 60Hz Nom. |

DIELECTRIC TEST

Input/Output/Instrument Power/Case..... 1500Vac

INSTRUMENT POWER85-135Vac, 50-400Hz, 2.5VA

OUTPUT

| | |
|--------------------------------------|---------------------|
| Relay..... | Form C, SPDT |
| Rating..... | 120Vac, 3A |
| Mechanical Operations..... | 1 Million |
| Response Time to 90%...5A Range..... | 200ms |
| | 10A Range.....250ms |
| | 15A Range.....350ms |
| | 20A Range.....550ms |

ACCURACY

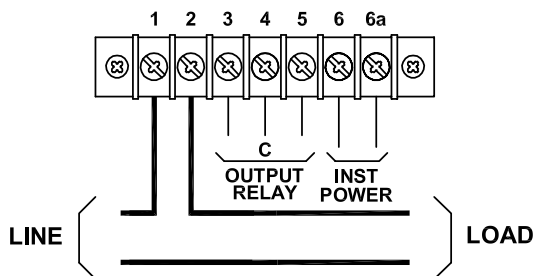
| | |
|-----------------|-----------|
| Setpoint..... | ±2 digits |
| Resolution..... | ±1 digit |
| Hysteresis..... | ±1 digit |

TEMPERATURE

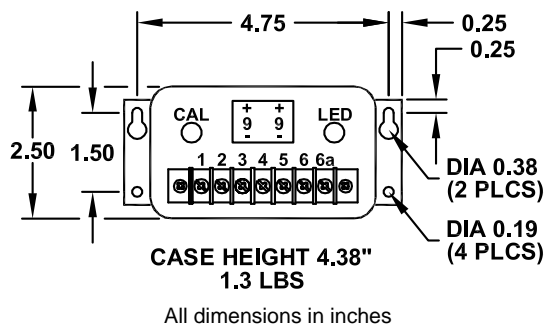
Effect (-10°C to +60°C)..... ±0.1%/°C, ±0.1% F.S.

CURRENT SWITCHES

CONNECTION DIAGRAM



CASE DIMENSIONS





OSI CURRENT PRESENT DETECTOR

MODEL CPD-4715

DESCRIPTION

The model CPD-4715 is a current present detector (current switch) with a solid-state relay output that indicates a measured current level of 0.5Aac or greater.

To operate, simply pass the current conductor through the window of the unit and activate the monitored circuit - no instrument power or additional setup is required.



Declaration of Conformity available upon request.



SPECIFICATIONS

INPUT

| | | |
|------------------|-----------------------------------|----------|
| Current | Trip Point (non-adjustable) | ≤0.5Aac |
| Over-range | Continuous | 100Aac |
| Frequency | Calibrated | 60Hz |
| | Range | 50-400Hz |

OUTPUT

| | |
|--------------------------|-------------------------------------------------------------------------------------|
| Solid State Relay | |
| Relay Rating | Form A, Normally Open, 30Vac/40Vdc, 0.5Aac/dc |
| Contact Resistance | at contact current = 0.075A Contact voltage drop = typical 1.5V, maximum 3.0V |
| Trip Point | (non-adjustable) ≤0.5Aac |
| Relay Action | Current under trip point = Open, Current above trip point = Closed |
| Turn-On Time | at 100% of trip point approx. 100ms |
| Turn-Off Time | approx. 300ms |

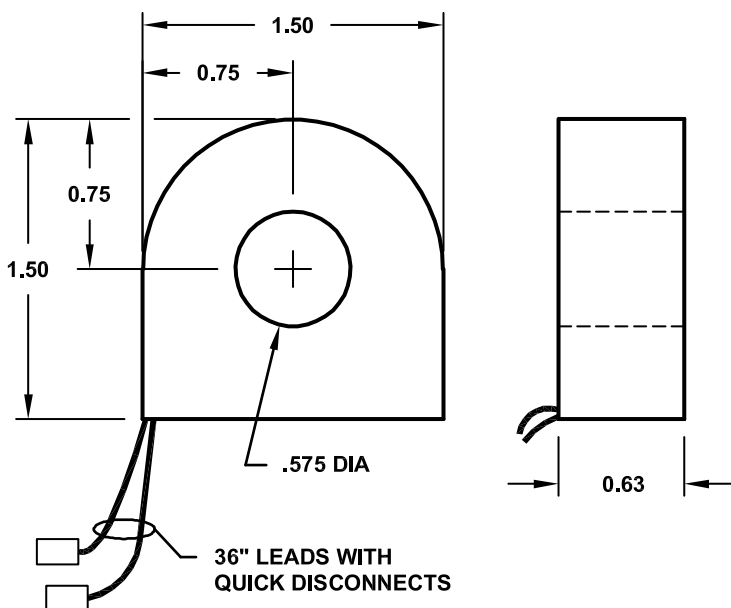
DIELECTRIC TEST 2250Vac

TEMPERATURE Operating Range -25°C to +60°C

PHYSICAL

| | |
|--------------------------|-------------------------------------------------------------------------------------------|
| Enclosure Material | LCP, UL94V-0, Black |
| Weight | 0.15lb. |
| Leads | 36in., 18AWG |
| Termination | 0.25in. male and female quick-disconnects, Molex 19001-0002 and 19002-0002 or equivalent. |

CASE DIMENSIONS (inches)



For installation on up to 600Vac lines.

Dwg# 0902-00613-B Rev A

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CURRENT SWITCHES



OSI AC CURRENT SWITCH MODEL DSO-102

DESCRIPTION

The Model DSO-102 monitors load currents of devices such as fans, pumps and other critical items in HVAC systems. The solid state relay output provides a run status indication for these devices to compatible DDC/PLC control systems. The relay output of this model is completely isolated from the input current.

Units with the VF option are suitable for use in Variable Frequency Drive (VFD) systems with a frequency range of 12 to 60Hz (order Model DSO-102-VF).

Note: DSO-102 was previously DSO-102-N.O.

5 YEAR WARRANTY



SPECIFICATIONS

INPUT

Current Range (Jumper-selectable)... 1-6A, 6-40A, 40-200A
Frequency
Standard..... 60Hz
With VF option..... 12-60Hz

OUTPUT

Solid State RelayForm A, Normally Open, 30Vdc, 0.150A dc maximum
Response Time
Standard.....25ms
With VF option.....2s
Threshold Setting.....Adjustable
Relay Action.....Load current Under threshold = Open
Load current Over threshold = Closed

INSTRUMENT POWER

All models Self Powered

TEMPERATURE

Operating Range..... 10°-135°F

PHYSICAL

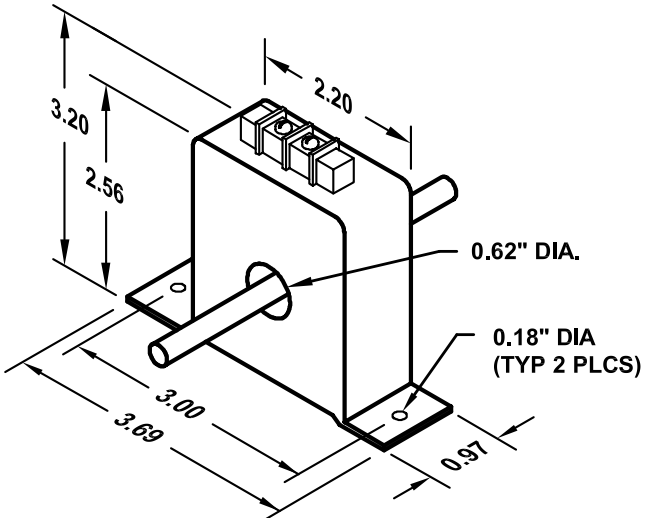
Enclosure ABS, Cyclac®, UL94V-0, Black
Net Weight 0.25lb

CONNECTIONS

Input..... Current-carrying cable is inserted through circular window opening. Maximum cable size #3/0 (dia. <0.62")
Output..... Wire-retaining screw terminals No. 6/32 Maximum wire size #14 AWG

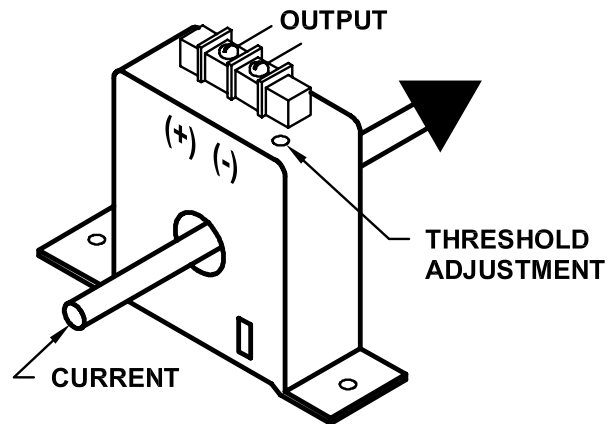
CURRENT SWITCHES

DIMENSIONS



ALL DIMENSIONS IN INCHES

CONNECTION DIAGRAM



Dwg# 0902-00593-B Rev --

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NON-CONTACT, LOOP-POWERED, TRUE RMS

DESCRIPTION

The CTCR series of transducers provides a non-contact, loop-powered, method of current measurement. The dc output is directly proportional to the true RMS value of ac window current. Measurement ranges of 1A to 100A are available.

FEATURES

- $\pm 0.25\%$ accuracy ($\pm 0.5\%$ on 1A model)
- True RMS measurement
- Non-contact
- Loop-powered
- Ease of Installation



5 YEAR WARRANTY



MODEL SELECTION

| INPUT Aac | STANDARD OUTPUTS MODEL CTCR- (4-20mAdc loop-powered) |
|--------------|---------------------------------------------------------|
| 0-1 | 001E2 |
| 0-5 | 005E2 |
| 0-10 | 010E2 |
| 0-15 | 015E2 |
| 0-20 | 020E2 |
| 0-25 | 025E2 |
| 0-30 | 030E2 |
| 0-35 | 035E2 |
| 0-40 | 040E2 |
| 0-50 | 050E2 |
| 0-100 | 100E2 |

SPECIFICATIONS

INPUT

Current Range See Table
 Over-range w/o damage .. Continuous 1.3X Rating
 Transient (10s/hr) .. 5X Rating
 Frequency Range 50-400Hz

OUTPUT

Type 2-Wire 4-20mAdc, loop-powered
 Scaling 0-F.S. Input = 4-20mAdc Output
 Loading 24Vdc loop power 0-500Ω
 15Vdc loop power 0-400Ω
 Response to 90% 250ms, Typical
 Ripple $\leq 1.0\%$ F.S. pk-pk

DIELECTRIC TEST

Conductor Through Window to Output 2200Vac

INSTRUMENT POWER

Loop-Powered Nominal 24Vdc
 Range 15-35Vdc

ACCURACY (setpoint, linearity, repeatability)

1A model
 50/60Hz 10-100% F.S. $\pm 0.5\%$ F.S.
 all other $\pm 2\%$ F.S., Typical
 5A-100A models
 50/60Hz 10-100% F.S. $\pm 0.25\%$ F.S.
 all other $\pm 1\%$ F.S., Typical

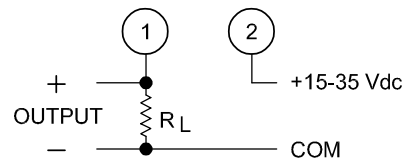
TEMPERATURE

Operating Range -20°C to 60°C
 Effect $\pm 1.0\%$ F.S.

PHYSICAL

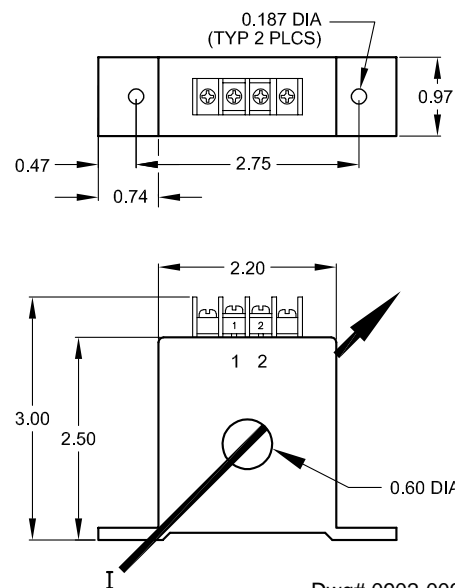
Termination No. 6-32 Screw Terminals
 Enclosure ABS, Black, UL94V-0
 Weight 0.2 lb

CONNECTION DIAGRAM



CASE DIMENSIONS

All dimensions in inches. (Tolerance: $\pm 0.03\text{in.}$)



Dwg# 0902-00937-B Rev B

OSI SINGLE-PHASE AC RMS CURRENT TRANSDUCER MODEL ACTR-

ACCURATE TO 0.25% FULL-SCALE

FEATURES

- Accurate measurement of the **true RMS** value of input signals over a wide frequency range.
- Input/output isolation.

APPLICATIONS

- For use in applications where measurement of non-sinusoidal waveforms is required.
- Designed to withstand motor start-up transients.



| INPUT AMPS AC | STANDARD OUTPUTS MODEL ACTR- | | | |
|---------------|------------------------------|----------|---------|--------|
| | 0-1mAdc | 4-20mAdc | 0-10Vdc | 0-5Vdc |
| 0 - 1 | 001B | 001E | 001D | 001X5 |
| 0 - 5 | 005B | 005E | 005D | 005X5 |
| 0 - 10 | 010B | 010E | 010D | 010X5 |
| 0 - 15 | 015B | 015E | 015D | 015X5 |
| 0 - 20 | 020B | 020E | 020D | 020X5 |



All standard units require 115Vac instrument power.
Optional 230Vac instrument power - Add suffix "-22".

ORDERING INFORMATION

Example: 15Aac Input with
0-10Vdc Output.
ACTR-015D

5 YEAR WARRANTY

SPECIFICATIONS

INPUT

Current See Table
Frequency Range..... 48-420Hz
Burden.....0.28VA F.S.
Current Overload (w/o damage)
1-10A Range 2 X Rating (continuous)
15-20A Range 25A maximum (continuous)
10 X Rating for one-second transient 10s/hr

DIELECTRIC TEST

Input/Output/Case 2200Vac

INSTRUMENT POWER

Standard..... 115V, ±15%, 50/60Hz, 3.5VA
"-22" Option 230V, ±15%, 50/60Hz, 3.5VA

OUTPUT

Type See Table
Loading **B** models 0-10kΩ
D & X5 models.....2kΩ, min.
E models..... 0-500Ω
Response Time (to 90% F.S.) 100ms
Field-adjustable Calibration..... ±10%

ACCURACY (Includes Effects of Linearity and Set Point)

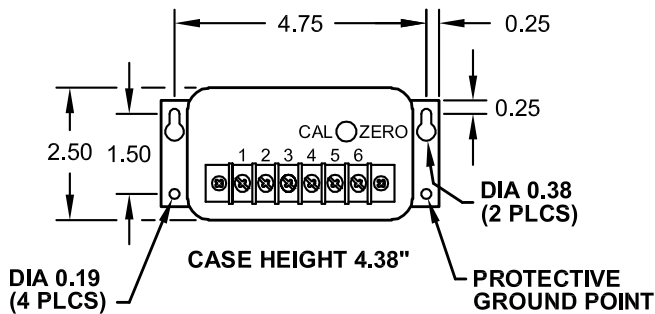
At 60Hz ±0.25% F.S.
(±0.5% typical over frequency range)
Output Ripple <1.0% F.S.

TEMPERATURE & PHYSICAL

Operating Range -20 to 60°C
Effect ±1.0% Rdg.
Net Weight..... 1.5 Lbs.

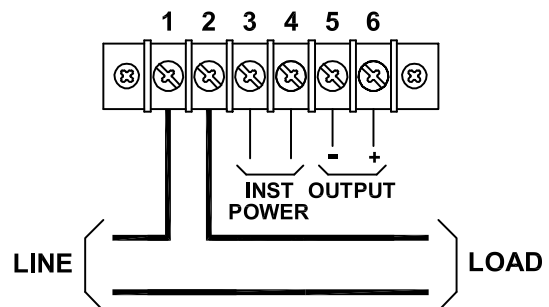
CURRENT MEASUREMENT (RMS)

CASE DIMENSIONS



ALL DIMENSIONS ARE IN INCHES.

CONNECTION DIAGRAM



Dwg# 0902-00919-B Rev --

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OSI THREE-PHASE AC RMS CURRENT TRANSDUCER MODEL 3CTR-

3-IN-1 AC RMS CURRENT TRANSDUCER 0.25% ACCURACY

FEATURES

- Accurate measurement of the **true RMS** value of input current over a wide frequency range.
- Input/output dielectric test 2500V.
- **0.25% ACCURACY**

APPLICATIONS

- For use in applications where measurement of non-sinusoidal waveforms is required.
- Designed for use on three-phase systems, but may also be used to monitor three single-phase circuits where panel space is a premium.
- Designed to withstand motor start-up transients.

5 YEAR WARRANTY



All units have universal power supply 85-265Vac, 48-420Hz, or 110-370Vdc.

| INPUT CURRENT | STANDARD OUTPUTS MODEL 3CTR- | | | |
|---------------|------------------------------|----------------------|---------------------|--------------------|
| | 0-1mA _{dc} | 4-20mA _{dc} | 0-10V _{dc} | 0-5V _{dc} |
| 0-1 | 001B | 001E | 001D | 001X5 |
| 0-5 | 005B | 005E | 005D | 005X5 |
| 0-10 | 010B | 010E | 010D | 010X5 |
| 0-15 | 015B | 015E | 015D | 015X5 |
| 0-20 | 020B | 020E | 020D | 020X5 |

ORDERING INFORMATION

Example: 15 Amp AC Input with 0-10V_{dc} Output.
3CTR-015D

SPECIFICATIONS

INPUT

Current See Table
 Frequency Range 48-420Hz
 Burden (Each input) 0.40VA @ F.S.
 Overload
 1-10A Range 2 X F.S. (cont.)
 15 & 20A Range 1.25 X F.S. rating (cont.)
 1A Range 10A (10s transient)
 All other ranges 50A (10s transient)
 250A (1s transient)

DIELECTRIC TEST

Input/Output/Case 2500Vac, RMS

INSTRUMENT POWER

Standard 85-265Vac, 48-420Hz, 5VA
 or 110-370Vdc, 5VA

OUTPUT

Response Time (to 90%) 100ms
 Loading
 "B" models (0-1mA_{dc}) 0-10kΩ
 "D", "X5" models .. (0-5V_{dc}, 0-10V_{dc}) 2kΩ min.
 "E" models (4-20mA_{dc}) 0-500Ω
 Field Adjustable Cal. ±10%

ACCURACY

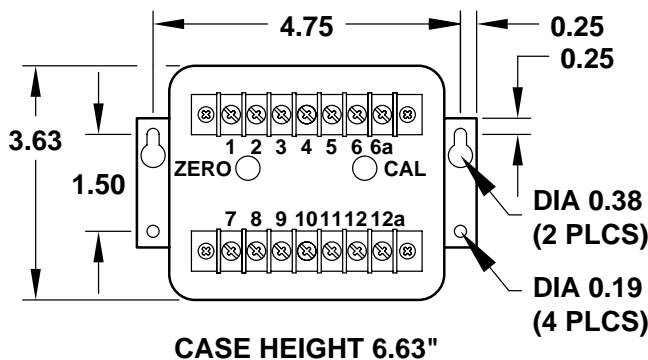
Linearity & Setpoint ±0.25% F.S. @ 60Hz
 (±0.5% typical over frequency range.)
 Output Ripple <1.0% F.S.

TEMPERATURE & PHYSICAL

Temperature Effect...(-20°C to 60°C) ±1.0% R_{dc}.
 Net Weight 2.5 Lbs.

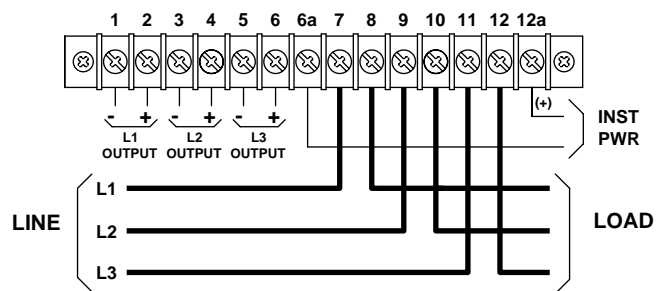
CURRENT MEASUREMENT (RMS)

CASE DIMENSIONS



All dimensions in inches

CONNECTION DIAGRAM



TERMINALS 1, 3, AND 5 ARE INTERNALLY COMMON

Dwg# 0902-00471-B Rev D

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OSI AC CURRENT TRANSFORMER/TRANSDUCER MODEL CTRS-

SPLIT-CORE

FEATURES

- Accurate measurement of the **true RMS** value of input signals.
- Split-core current sensors for easy installation.
- Current transformers contain open-circuit protection.
- Signal conditioners and current sensors are calibrated as sets and provide a choice of analog outputs. (0-5Vdc, 0-10Vdc, 0-1mAdc or 4-20mAdc)
- Current measurement ranges up to 40kAac.
- [Flexible Rogowski coils \(air-core CTs\)](#) are used for current measurement ranges of 1kAac and larger.
- Rogowski coil models use CE-compliant sensors.

APPLICATIONS

- For use in existing applications requiring installation with split-core sensors.
- Designed to withstand motor start-up currents.
- Easy installation in tight areas.

5 YEAR WARRANTY



MODEL SELECTION

| SENSOR | INPUTS AC AMPS | STANDARD MODELS CTRS- | | | |
|---------------------|-------------------|-----------------------|----------|---------|--------|
| | | 0-1mAdc | 4-20mAdc | 0-10Vdc | 0-5Vdc |
| CURRENT TRANSFORMER | 0 to 5 | 005B | 005E | 005D | 005X5 |
| | 0 to 10 | 010B | 010E | 010D | 010X5 |
| | 0 to 15 | 015B | 015E | 015D | 015X5 |
| | 0 to 20 | 020B | 020E | 020D | 020X5 |
| | 0 to 25 | 025B | 025E | 025D | 025X5 |
| | 0 to 50 | 050B | 050E | 050D | 050X5 |
| | 0 to 100 | 101B | 101E | 101D | 101X5 |
| | 0 to 200 | 201B | 201E | 201D | 201X5 |
| | 0 to 300 | 301B | 301E | 301D | 301X5 |
| | 0 to 400 | 401B | 401E | 401D | 401X5 |
| | 0 to 500 | 501B | 501E | 501D | 501X5 |
| 0 to 1000 | 102B | 102E | 102D | 102X5 | |
| ROGOWSKI COIL | 0 to 1k | 102RB | 102RE | 102RD | 102RX5 |
| | 0 to 2k | 202RB | 202RE | 202RD | 202RX5 |
| | 0 to 5k | 502RB | 502RE | 502RD | 502RX5 |
| | 0 to 10k | 103RB | 103RE | 103RD | 103RX5 |
| | 0 to 15k | 153RB | 153RE | 153RD | 153RX5 |
| | 0 to 20k | 203RB | 203RE | 203RD | 203RX5 |
| | 0 to 25k | 253RB | 253RE | 253RD | 253RX5 |
| | 0 to 30k | 303RB | 303RE | 303RD | 303RX5 |
| | 0 to 40k | 403RB | 403RE | 403RD | 403RX5 |

5A to 1000A models use current transformers.
1kA to 40kA models use Rogowski coils.

AVAILABLE OPTIONS (add in order shown):

230Vac instrument Power - Add suffix **"-22"**

Rogowski coil size:

| COIL INSIDE DIAMETER | COIL LENGTH | MODEL |
|----------------------|-----------------|------------------------|
| 6.5in. (16.5cm) | 23.6in. (60cm) | (standard) |
| 10.5in. (26.7cm) | 35.4in. (90cm) | Add suffix "-1" |
| 14.0in. (35.4cm) | 47.2in. (120cm) | Add suffix "-2" |
| 21.5in. (54.6cm) | 70.9in. (180cm) | Add suffix "-3" |

Additional current ranges, sensor sizes and RoHS-compliant models are available - [Consult factory](#).

ORDERING INFORMATION

Example: 10kAac Input with 0-10Vdc Output, 230Vac instrument power & 10.5-inch diameter Rogowski coil

CTRS-103RD-22-1

SPECIFICATIONS

INPUT

Current Range See Table
Over range (w/o damage) 2 X F.S. (cont.)
5 X for 10s transient
10 X for 1s transient
Frequency Range Non-"R" models 50-60Hz
"R" models (see Accuracy)

DIELECTRIC TEST

Input/Output/Case/Instrument Power 1500Vac

INSTRUMENT POWER

Standard 115Vac, ±15%, 50/60Hz, 3.5VA
Option **"-22"** 230Vac, ±15%, 50/60Hz, 3.5VA

OUTPUT

Response Time (to 90%) Non-"R" models 100ms
"R" models 300ms

Loading

"B" models 0-1mAdc 0-10kΩ
"D", "X5" models 0-10Vdc, 0-5Vdc 2kΩ min.
"E" models 4-20mAdc 0-500Ω
Field-adjustable Calibration Range ±10%, approx.

ACCURACY (linearity and set point)

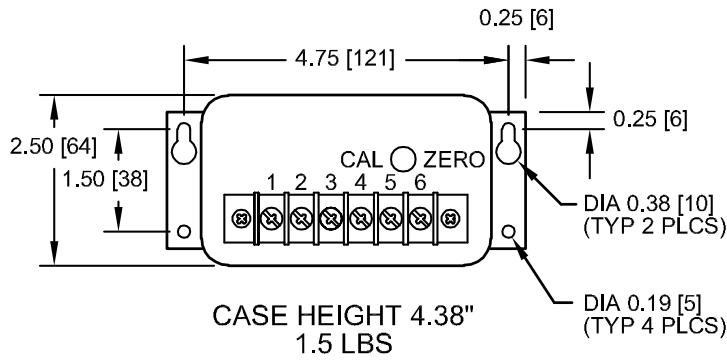
Current Transformer (Non-"R") Models
5A to 10A models ±0.5% F.S. @ 60Hz
15A to 1000A models ±0.25% F.S. @ 60Hz
Rogowski Coil ("R") Models
With conductor centered in window... ±1.0% F.S. @ 60Hz
Linearity ±0.25% F.S.
Set point variation with frequency
10Hz to 20Hz ±2.0% F.S.
20Hz to 2kHz ±1.0% F.S.
2kHz to 5kHz ±3.0% F.S.
5kHz to 7kHz ±7.0% F.S.
7kHz to 20kHz ±30.0% F.S.
Position Sensitivity ±2.0% F.S.
Output Ripple (all models) <1.0% F.S.

PHYSICAL & ENVIRONMENTAL

Temperature Effect (-20°C to 60°C) ... ±1.0% Rdg., ±0.1% F.S.
Weight (not including sensor) 1.5 lbs

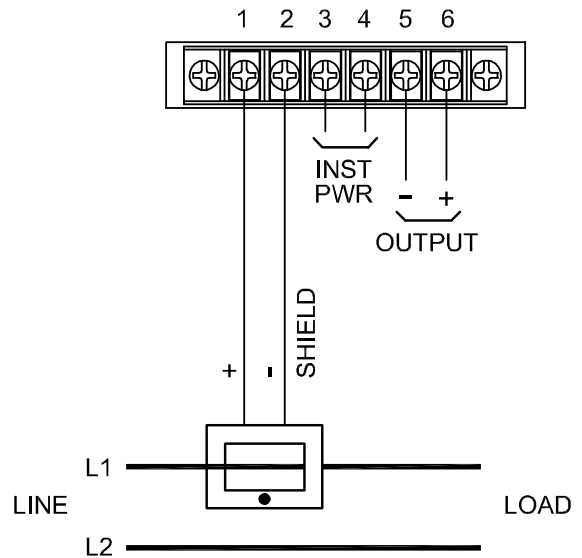
CURRENT MEASUREMENT (RMS)

CASE DIMENSIONS



DIMENSIONS ARE IN INCHES [mm].
TOLERANCE = ±0.03 IN [±0.76mm] UNLESS OTHERWISE SPECIFIED

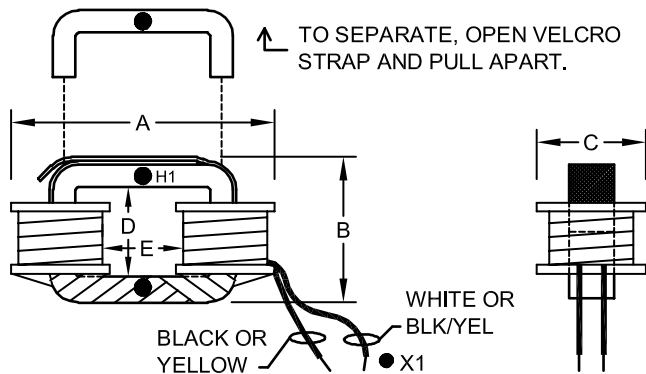
CONNECTION DIAGRAM



Dwg# 0902-00854-B Rev B (mod.)

SENSOR DIMENSIONS

5A to 1000A

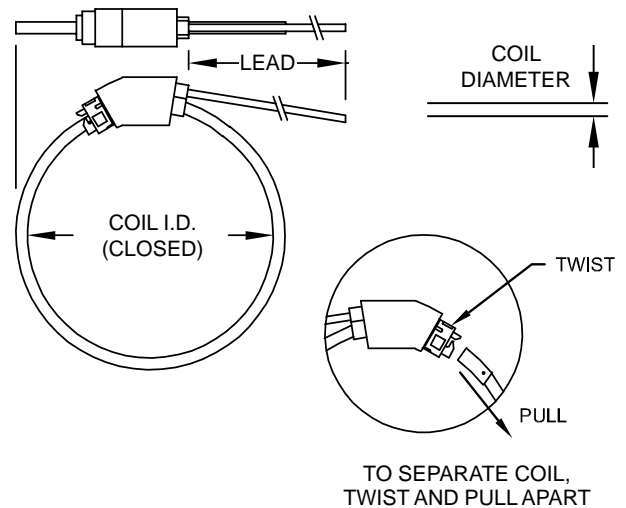


| INPUTS AC AMPS | SENSOR SIZE | DIMENSIONS (in inches) | | | | | WT. LBS. |
|----------------|-------------|------------------------|------|------|------|------|----------|
| | | A | B | C | D | E | |
| 5 - 100 | A | 2.80 | 2.00 | 1.12 | 1.09 | 1.09 | 0.4 |
| 200 - 500 | B | 3.85 | 3.80 | 1.30 | 2.40 | 1.25 | 0.8 |
| 1000 | C | 5.50 | 4.90 | 1.60 | 3.15 | 3.20 | 1.5 |

Lead Length..... 72", 16 gauge, White (X1) & Black

(Refer to [CTY spec sheet](#) for additional details.)

1kA to 40kA



| COIL INSIDE DIAMETER | COIL LENGTH | MODEL |
|----------------------|-----------------|-----------------|
| 6.5in. (16.5cm) | 23.6in. (60cm) | (standard) |
| 10.5in. (26.7cm) | 35.4in. (90cm) | Add suffix "-1" |
| 14.0in. (35.6cm) | 47.2in. (120cm) | Add suffix "-2" |
| 21.5in. (54.6cm) | 70.9in. (180cm) | Add suffix "-3" |

Lead Length..... approx. 6.6ft (2m) standard
Coil Diameter..... 0.33 in. ±0.008 in. (8.4 ±0.2mm)

(Refer to [MFC150 spec sheet](#) for additional details.)

Dwg# 0902-00878-B Rev --

[Consult factory](#) for special current ranges, sensor sizes and RoHS-compliant models.

Dwg# 0902-00901-B Rev B (mod.)



OSI RMS CURRENT TRANSDUCER

MODEL MCTR-

2-WIRE LOOP POWERED, TRUE RMS

FEATURES

- Accurate measurement of the true RMS value of input signals
- UL94V-0 Polyamide DIN-mount case
- [Split-core CT](#) option for easy installation
- Base unit and [current sensor](#) are calibrated as a set to provide a 4-20mA analog output.
- Current measurement ranges up to 1000A
- Slim profile allows maximum use of available space.
- Recessed terminals provide increased safety.
- Designed to withstand motor start-up currents

APPLICATIONS

- Use direct-input models with any [CT with 0.1A, 1A, 5A or 0.333V secondary](#).
- Ideal for non-sinusoidal applications, such as VFDs and SCR-controlled loads.
- Retro-fit of existing applications requiring installation with split-core sensors (order with suffix "S")

5 YEAR WARRANTY



DIN-rail lengths available - [Consult Factory](#)

MODEL SELECTION

| INPUTS AC AMPS | STANDARD OUTPUT MODEL MCTR- | SENSOR SIZE |
|-------------------|--------------------------------|----------------|
| | 4-20mA _{dc} | |
| *0 to 0.333V | 0.333E2 | (direct input) |
| 0 to 0.1 | 0.100E2 | (direct input) |
| 0 to 1 | 001E2 | (direct input) |
| 0 to 5 | 005E2 | (direct input) |
| 0 to 5 | 005E2S | 1 |
| 0 to 10 | 010E2S | 1 |
| 0 to 15 | 015E2S | 1 |
| 0 to 20 | 020E2S | 1 |
| 0 to 25 | 025E2S | 1 |
| 0 to 50 | 050E2S | 1 |
| 0 to 100 | 101E2S | 1 |
| 0 to 200 | 201E2S | 2 |
| 0 to 300 | 301E2S | 2 |
| 0 to 400 | 401E2S | 2 |
| 0 to 500 | 501E2S | 2 |
| 0 to 1000 | 102E2S | 3 |

*Note: The 0.333V model requires isolation through a [separately-supplied external CT](#).

ORDERING INFORMATION

Example: 0-50A Input, with an external, split-core sensor and 4-20mA loop-powered output.

MCTR-050E2S

SPECIFICATIONS

INPUT

Type See Table
 Over-range (without damage)
 Continuous 1.5 X F.S. Rating
 Transient 10s/hr 5 X F.S. Rating
 1s/hr 10 X F.S. Rating
 Frequency Range 50-60Hz
 Burden 0.1A & 1A models 0.05VA
 5A models 0.18VA
 0.333V models 0.004VA

OUTPUT

Scaling 0-F.S. Input = 4-20mA_{dc} Output
 Response (to 90%) 300ms
 Loading (@ 24V_{dc} loop-power) 0-500Ω
 Setpoint Adjustment ±5%, minimum

DIELECTRIC TEST

Input/Output 2200Vac
 *NOTE: 0.333V model requires isolation through [external CT](#).

INSTRUMENT POWER

Loop-Powered..... Nominal 24V_{dc}
 Range 15-35V_{dc}

ACCURACY (Includes effects of linearity and setpoint)

Direct input models 10-100% F.S. ±0.25% F.S.
 "S" suffix (5-20A Input) 10-100% F.S. ±1.0% F.S.
 "S" suffix (25-1000A input) 10-100% F.S. ±0.5% F.S.
 Output Ripple <1.0% pk-pk

TEMPERATURE

Operating Range -20°C to 60°C
 Effect ±1.0% F.S.

PHYSICAL (Base unit)

Net Weight 0.4 lb
 Unit can be mounted on RAIL EN50035 (DIN 1) or
 RAIL EN50022 (DIN 2)

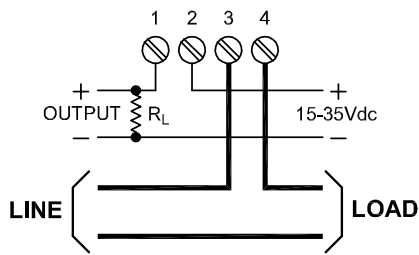
CURRENT MEASUREMENT (RMS)

OHIO SEMITRONICS, INC.

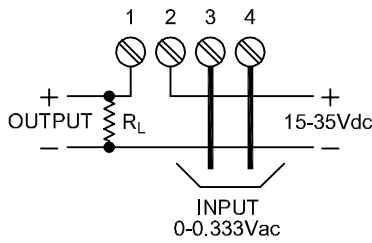
4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
 PHONE: (614) 777-1005 * FAX: (614) 777-4511
 WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

CONNECTION DIAGRAMS

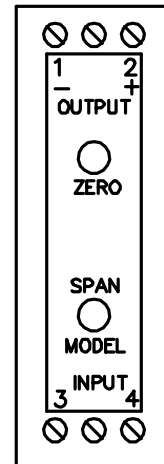
DIRECT CURRENT INPUT



VOLTAGE INPUT

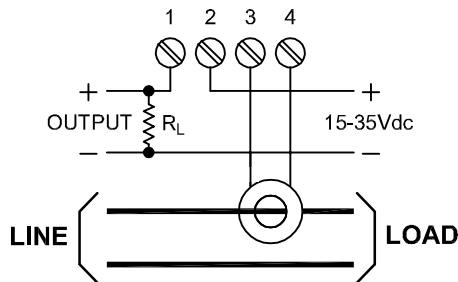


BASE UNIT (All Models)



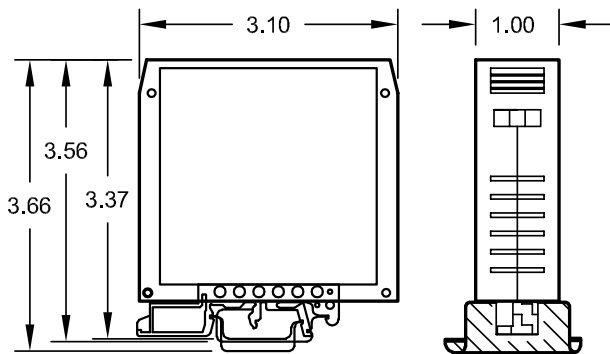
Dwg# 0902-00861-B Rev A (mod)

USING EXTERNAL CTs - "S" OPTION



DIMENSIONS

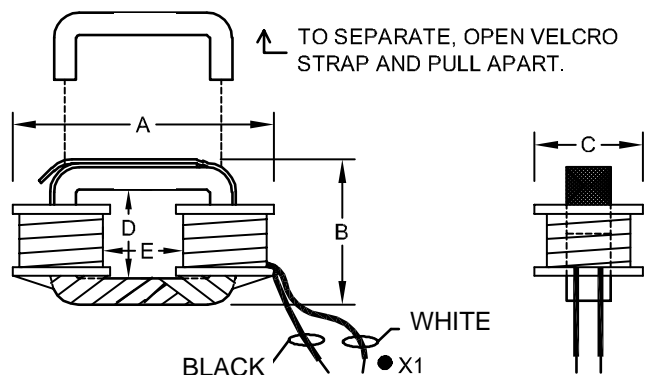
BASE UNIT (All Models)



All dimensions in inches. Tolerance: ± 0.015 in.

Dwg# 0902-00861-B Rev A

CURRENT SENSORS - "S" OPTION



Dwg# 0902-00878-B Rev -- (mod)

| INPUT | SENSOR SIZE | SENSOR DIMENSIONS (in inches, Tolerance. ± 0.03 in.) | | | | | | | | WT. LBS. |
|-------------|-------------|----------------------------------------------------------|------|------|------|------|-----|-----|-----|----------|
| | | A | B | C | D | E | G | J | M | |
| 5 to 100A | 1 | 2.80 | 2.00 | 1.12 | 1.09 | 1.09 | N/A | N/A | N/A | 0.4 |
| 200 to 500A | 2 | 3.85 | 3.80 | 1.30 | 2.40 | 1.25 | N/A | N/A | N/A | 0.8 |
| 1000A | 3 | 5.50 | 4.90 | 1.60 | 3.15 | 3.20 | N/A | N/A | N/A | 1.5 |

Lead Type 5Aac models 24", 14AWG, White (X1) & Black, Flying leads
 All other models 72", 16AWG, White (X1) & Black, Flying leads

CURRENT MEASUREMENT (RMS)

OSI SINGLE-PHASE AC RMS CURRENT TRANSDUCER MODEL DCTR-

DIN-RAIL-MOUNTED AC RMS CURRENT TRANSDUCER

FEATURES

- Accurate measurement of the **true RMS** value of the input signal.
- Universal ac/dc instrument power.
- One model for either 1A or 5A input.



APPLICATIONS

- For use in applications where measurement of non-sinusoidal or distorted waveforms is required.
- Applications that require CE or CSA approvals.
- Perfect for installations that require compact packaging.

5 YEAR WARRANTY



MODEL SELECTION

| INPUT AC AMPS | STANDARD OUTPUTS MODEL DCTR- | | | |
|---------------|------------------------------|-----------|---------|--------|
| | 0-1mA dc | 4-20mA dc | 0-10Vdc | 0-5Vdc |
| 0-1 or 0-5 | 005B | 005E | 005D | 005X5 |

All standard units require 85-230Vac/dc instrument power.

ORDERING INFORMATION

Example: 1 Amp AC Input with 0 to 10Vdc Output.

DCTR-005D

SPECIFICATIONS

INPUT

Current0-1Aac or 0-5Aac
 Frequency Range..... 50/60Hz
 Burden..... <1VA
 Current Overload.... Continuous..... 120% F.S.
 For 1 second..... 20 X F.S.

OUTPUT

Loading
 "B" model (0-1mA output)..... 0-15kΩ
 "D", "X5" models..... (0-10, 0-5Vdc).....2.5kΩ min.
 "E" model (4-20mA).....0-750Ω
 Response Time (to 90%)..... 300ms

DIELECTRIC TEST

Input to Instrument Power/Output/Case 3700Vac
 Instrument Power to Output/Case 3700Vac
 Output to Case 490Vac

ACCURACY

..... ±0.5% F.S. @ 60Hz
 Output Ripple <0.5% p.p.

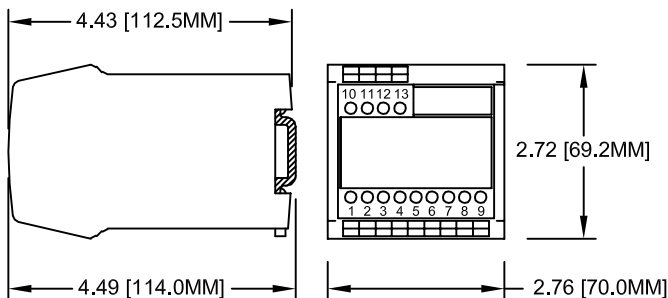
INSTRUMENT POWER

Standard..... 85-230Vac/dc, 50/60Hz, 3.0VA

TEMPERATURE & PHYSICAL

Operating Range -10°C to 55°C
 Termination..... Wire size up to 10AWG
 Net Weight..... 0.7 lbs

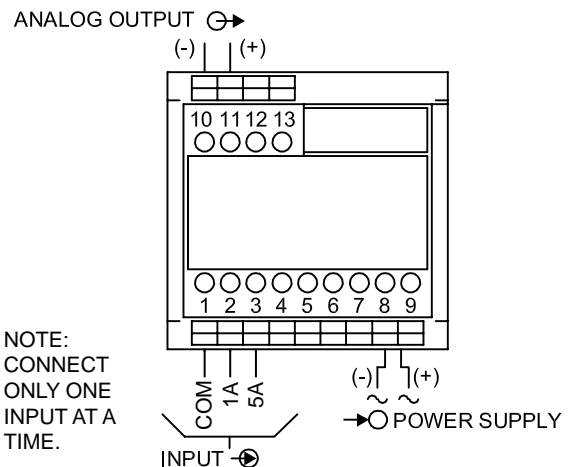
CASE DIMENSIONS



NOTES:

1. DIMENSIONS ARE IN INCHES [MM].
2. MOUNTED ON 35MM TOP-HAT DIN-RAIL.

CONNECTION DIAGRAM



NOTE:
 CONNECT ONLY ONE INPUT AT A TIME.

MEASURING RANGE 0902-00888-B Rev -- (mod.)

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OSI DC & RMS CURRENT TRANSDUCERS MODELS CT7- & CT8-

DC TO 500Hz 0.1A TO 20A INPUTS

DESCRIPTION

The **Model CT7- Series** (DC) current transducer produces an output which is directly proportional to the input signal from dc to 500Hz. It functions as a dc isolator or low-frequency ac transducer with dc response. The output is proportional to the input. (ac input/ac output, dc input/dc output)

The **Model CT8- Series** (RMS) current transducer provides an output directly proportional to the RMS value of the input over the dc to 500Hz range. The dc output is proportional to the RMS input including dc. Full-scale current ranges of 0.1 to 20 Amperes, and 2500Vac input/output dielectric test make them suitable for many instrumentation needs.



5 YEAR WARRANTY

| INPUT AMPS | STANDARD OUTPUTS MODEL CT7- & CT8- | | | |
|------------|------------------------------------|--------|--------------------------|-------|
| | 1mA | 4-20mA | 10V | 5V |
| 0-0.1 | 002B | 002E | 002D | 002X5 |
| 0-0.5 | 004B | 004E | 004D | 004X5 |
| 0-1 | 006B | 006E | 006D | 006X5 |
| 0-1.5 | 007B | 007E | 007D | 007X5 |
| 0-2 | 008B | 008E | 008D | 008X5 |
| 0-5 | 014B | 014E | 014D | 014X5 |
| 0-10 | 015B | 015E | 015D | 015X5 |
| 0-15 | 016B | 016E | 016D | 016X5 |
| 0-20 | 017B | 017E | 017D </td <td>017X5</td> | 017X5 |

ORDERING INFORMATION

Example: 0-5Adc Input,
with 4-20mA Output &
125Vdc Inst. Pwr.
CT7-014E

Instrument Power Options

Option "-11" 95-135Vac, 50/60Hz, 5VA

Option "-22" 230Vac, 50/60Hz, 5VA

Options "-12", "-15", "-24", "-37", "-48"
12Vdc thru 48Vdc, ±10%, 150mA max.

Bidirectional (±) output on CT7.

Other current & frequency ranges available, [consult factory](#).

SAVE \$ "-11" & "-22" models utilize a low-cost linear power supply.

SPECIFICATIONS

INPUT

Current See Table
Frequency Range dc-500Hz
Burden VA (0.050V X F.S. current)
Overload 1.25 X F.S. rating

OUTPUT

Response Time (to 90%)
CT7 Models 1ms
CT8 Models 100ms
Loading
0-1mA 0-10kΩ
5V & 10V >2kΩ
20mA 0-500Ω
Field Adjustable Cal. ±10%

DIELECTRIC TEST

Input/Output/Case 2500Vac

INSTRUMENT POWER

Standard 85-265Vac, 48-420Hz, 5VA, or 110-370Vdc
Options See available instrument power options

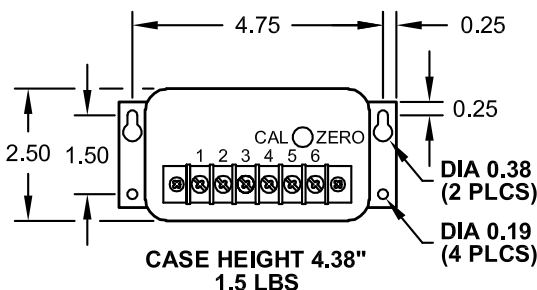
ACCURACY

Includes effects of linearity and repeatability.
CT7 Models ±0.25% F.S. @ DC
CT8 Models ±0.25% F.S. @ 48-420Hz
Ripple <1.0% F.S.

TEMPERATURE & PHYSICAL

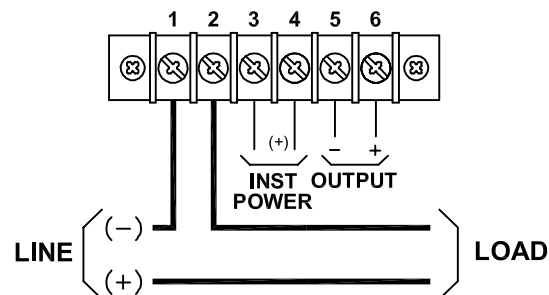
Operating Range -10°C to 60°C
Temperature Effect ±1% Rdg.
Net Weight 1.5 lbs

CASE DIMENSIONS



ALL DIMENSIONS ARE IN INCHES.

CONNECTION DIAGRAM



FOR DC INST. POWER OBSERVE POLARITY AS SHOWN.

0902-00903-B Rev --

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CURRENT MEASUREMENT (DC AND RMS)

CIRCULAR WINDOW MODELS

| CURRENT RANGE | MODEL NUMBER | NOMINAL OUTPUT | SENSOR SIZE |
|---------------|---------------|----------------|-------------|
| 0 to 35A | CTL-51/35 | 35mV | A |
| 0 to 50A | CTL-51/50 | 50mV | A |
| 0 to 50A | CTL-101/50 * | 50mV | C |
| 0 to 75A | CTL-101/75 * | 75mV | C |
| 0 to 100A | CTL-101/100 * | 100mV | C |
| 0 to 150A | CTL-201/150 * | 75mV | D |
| 0 to 200A | CTL-201/200 * | 100mV | D |
| 0 to 300A | CTL-401/300 * | 75mV | D |
| 0 to 400A | CTL-401/400 * | 100mV | D |
| 0 to 500A | CTL-601/500 | 40mV | E |
| 0 to 600A | CTL-601/600 | 50mV | E |
| 0 to 800A | CTL-202/800 | 40mV | E |
| 0 to 1000A | CTL-202/1000 | 50mV | E |
| 0 to 1500A | CTL-202/1500 | 75mV | E |
| 0 to 2000A | CTL-202/2000 | 100mV | E |

* Split-core option is not included in UL listing. Sensor size A is supplied as solid core only.



Window Size
 A3/8"
 C3/4"
 D1 1/8"
 E2"

ORDERING INFORMATION
 Example: 300Amp Split-Core Current Sensor with Extended Temperature Range.
CTL-401TS/300
 (Order in combination with appropriate [CTA Signal Conditioner](#))

SPECIFICATIONS

INPUT
 Current RangeSee Table.....dc/RMS
 Over-current (without damage)..... 50X rating
 Resistance
 0-400A models 6Ω ±3Ω
 600A+ models 23Ω ±5Ω
 Excitation Current 200mA

OUTPUT
 With 200mA excitation currentNominal ±30%
 Response Time (to 90% F.S.)50μ, typical
 Resistance25Ω ±15Ω
 Initial Offset <±2mV

DIELECTRIC TEST (Conductor through window to output).
 Standard Models 2200Vac
 Suitable for installation on 600Vac or 850Vdc uninsulated bus
 Option "S" with sensor size C and D 1000Vdc
 To be used with insulated conductors only.

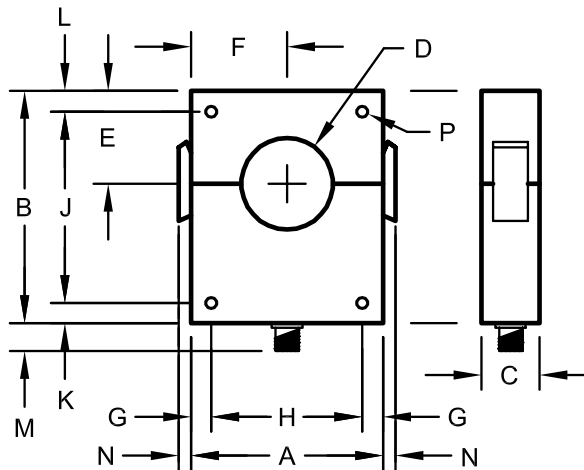
ACCURACY & LINEARITY
 When Calibrated with CTAxxxx ±0.5% F.S.
 (With current conductor centered in window)

TEMPERATURE
 Operating Range
 Standard -10°C to 40°C
 Extended Add suffix "T" -40°C to 65°C
 Effect ±1% F.S.

OPTIONS
 Split-core (Sensor sizes C, D and E) Add suffix "S"

PHYSICAL
 Cable Length ... A(all), C(solid), D(solid) ... 18in. non-detachable
 C (split) 8ft. non-detachable
 D (split), E(all) 8ft. detachable
 Other cable lengths available - [Consult factory](#).

DIMENSIONS A, C, D & E



Dwg# 0902-00927-B Rev --

| SENS. SIZE | SENSOR DIMENSIONS (inches) | | | | | | | | | | | | | | WT. LBS |
|------------|----------------------------|-------|-------|-------|-------|--------|------|-------|-------|------|------|-----|------|-------|---------|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P | |
| A | 1 1/8 | 1 1/2 | 1/2 | 3/8 | 9/16 | 9/16 | 9/32 | 9/16 | NA | 3/16 | NA | NA | NA | 1/8 | 0.12 |
| C | 2 | 2 | 3/4 | 3/4 | 7/8 | 1 | 1/4 | 1 1/2 | NA | 1/4 | NA | NA | 1/4 | 5/32 | 0.28 |
| D | 3 1/8 | 4 | 3/4 | 1 1/8 | 1 1/2 | 1 9/16 | 1/2 | 2 1/8 | NA | 1/2 | NA | 1/2 | 1/4 | 11/64 | 0.75 |
| E | 4 1/8 | 5 | 1 1/4 | 2 | 2 | 2 1/16 | 7/16 | 3 1/4 | 4 1/8 | 7/16 | 7/16 | 5/8 | 5/16 | 17/64 | 2 |

NOTES:
 CTL specifications are for unidirectional operation. For bidirectional, add suffix "Y122". (use with [direct model CTA](#))
 CTA signal conditioners provide the excitation current (instrument power) that the CTL sensor requires, as well as amplifying the low-level (mV) signal into a more typical signal. See [CTA spec sheet](#) for details.

CIRCULAR WINDOW MODELS

| CURRENT RANGE | MODEL NUMBER | TYPICAL OUTPUT | SENSOR SIZE |
|---------------|-----------------|----------------|-------------|
| 0 to 500A | CTL-601FS/500 | 40mV | F |
| 0 to 600A | CTL-601FS/600 | 50mV | F |
| 0 to 800A | CTL-202FS/800 | 40mV | F |
| 0 to 1000A | CTL-202FS/1000 | 50mV | F |
| 0 to 1000A | CTL-202EES/1000 | 100mV | EE |
| 0 to 1500A | CTL-202FS/1500 | 75mV | F |
| 0 to 1500A | CTL-202EES/1500 | 150mV | EE |
| 0 to 2000A | CTL-202FS/2000 | 100mV | F |
| 0 to 2000A | CTL-202EES/2000 | 200mV | EE |
| 0 to 2500A | CTL-302EES/2500 | 85mV | EE |
| 0 to 3000A | CTL-302EES/3000 | 100mV | EE |

Split core standard on all models.



Window Size
 F 2 1/4"
 EE..... 4 1/4"

ORDERING INFORMATION

Example: 2000Amp split-core current sensor with extended temperature range and 4 1/4" window.

CTL-202EETS/2000

(Order in combination with appropriate [CTA Signal Conditioner](#))

SPECIFICATIONS

INPUT

Current Range up to 2000A models dc/RMS
 2500A & above dc/peak ac
 Over-current (without damage) 50 X rating
 Resistance 23Ω ±5Ω
 Excitation Current 200mA

OUTPUT

Typical Output (@ 200mA excitation) Nominal ±30%
 Response Time (to 90% F.S.) 50μ, typical
 Resistance 25Ω ±15Ω
 Initial Offset <±2mV

DIELECTRIC TEST

Conductor Through Window to Output 2200Vac
 Suitable for installation on 600Vac or 850Vdc uninsulated bus.

ACCURACY & LINEARITY

When Calibrated with [CTA](#) ±0.5% F.S.

TEMPERATURE

Operating Range
 Standard -10°C to +40°C
 Extended Add Suffix "T" -40°C to +65°C
 Effect ±1% F.S.

CABLE LENGTHS

All models are supplied with detachable 8-foot cable.
 Longer cables are available - [Consult factory](#).

NOTES:

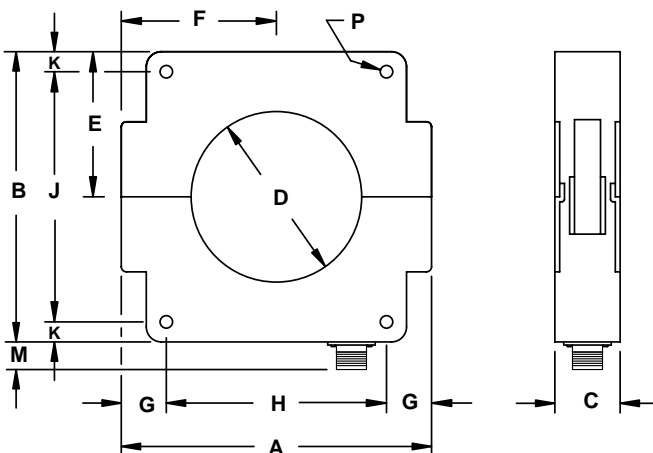
CTL specifications are for unidirectional operation.
 For bidirectional, add suffix "Y122". (use with [direct model CTA](#))
 CTA signal conditioners provide the excitation current (instrument power) that the CTL sensor requires, as well as amplifying the low-level (mV) signal into a more typical signal.
 See [CTA spec sheet](#) for details.

5 YEAR WARRANTY



Measuring Equipment 7N93

CASE DIMENSIONS EE & F



CURRENT MEASUREMENT (HALL-EFFECT, OPEN LOOP)

| SENS. SIZE | SENSOR DIMENSIONS (inches) | | | | | | | | | | | | WT LBS. |
|------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|---------------------------------|--------------------------------|-------------------------------|-------------------------------|--------------------------------|-------------------------------|--------------------------------|---------|
| | A | B | C | D | E | F | G | H | J | K | M | P | |
| F | 5 ³ / ₈ | 5 ¹ / ₄ | 1 ⁵ / ₈ | 2 ¹ / ₄ | 2 ⁵ / ₈ | 2 ¹¹ / ₁₆ | 1 ¹ / ₁₆ | 3 ¹ / ₄ | 4 ¹ / ₈ | 9 ⁹ / ₁₆ | 5 ⁵ / ₈ | 1 ¹ / ₄ | 2.8 |
| EE | 7 ³ / ₄ | 7 ¹ / ₄ | 1 ⁵ / ₈ | 4 ¹ / ₄ | 3 ⁵ / ₈ | 3 ⁷ / ₈ | 1 ¹ / ₈ | 5 ¹ / ₂ | 6 ¹ / ₄ | 1 ¹ / ₂ | 5 ⁵ / ₈ | 5 ⁵ / ₁₆ | 4.5 |

RECTANGULAR WINDOW (BUS BAR) MODELS

| CURRENT RANGE | MODEL NUMBER | TYPICAL OUTPUT | SENSOR SIZE |
|---------------|-----------------|----------------|-------------|
| 0 to 500A | CTL-202HS/500 | 50mV | Z |
| 0 to 1000A | CTL-202HS/1000 | 100mV | Z |
| 0 to 1000A | CTL-202ZZS/1000 | 100mV | ZZ |
| 0 to 1500A | CTL-202HS/1500 | 150mV | Z |
| 0 to 1500A | CTL-202ZZS/1500 | 150mV | ZZ |
| 0 to 2000A | CTL-202HS/2000 | 200mV | Z |
| 0 to 2000A | CTL-202ZZS/2000 | 200mV | ZZ |
| 0 to 2000A | CTL-502HS/2000 | 60mV | Z |
| 0 to 2500A | CTL-302ZZS/2500 | 125mV | ZZ |
| 0 to 2500A | CTL-502HS/2500 | 75mV | Z |
| 0 to 3000A | CTL-302ZZS/3000 | 150mV | ZZ |
| 0 to 3000A | CTL-502HS/3000 | 90mV | Z |
| 0 to 4000A | CTL-502HS/4000 | 120mV | Z |
| 0 to 5000A | CTL-502HS/5000 | 150mV | Z |



Window Size
 Z 1 1/4 X 4 1/2"
 ZZ 2 7/16 X 4 1/2"

ORDERING INFORMATION

Example: 2000 Amp dc, Split-Core Current Sensor with Extended Temperature Range.

CTL-202HTS/2000

(Order in combination with appropriate [CTA Signal Conditioner](#))

SPECIFICATIONS

INPUT

Current Range See Table dc/peak ac
 Over-current (without damage) 50 X rating
 Resistance 23Ω ±5Ω
 Excitation Current 200mA

OUTPUT

Typical Output (@ 200mA excitation) Nominal ±30%
 Response Time (to 90% F.S.) 50μ, typical
 Resistance 25Ω ±15Ω
 Initial Offset <±2mV

DIELECTRIC TEST

Conductor Through Window to Output 2200Vac
 Suitable for installation on 600Vac or 850Vdc uninsulated bus

ACCURACY & LINEARITY

When Calibrated with [CTA](#) ±1% F.S.

TEMPERATURE

Operating Range
 Standard -10°C to +40°C
 Extended Add suffix "T" -40°C to +65°C
 Effect ±1% F.S.

CABLE LENGTH

All models are supplied with detachable 8-foot cable.
 Longer cables are available - [Consult factory](#).

NOTES:

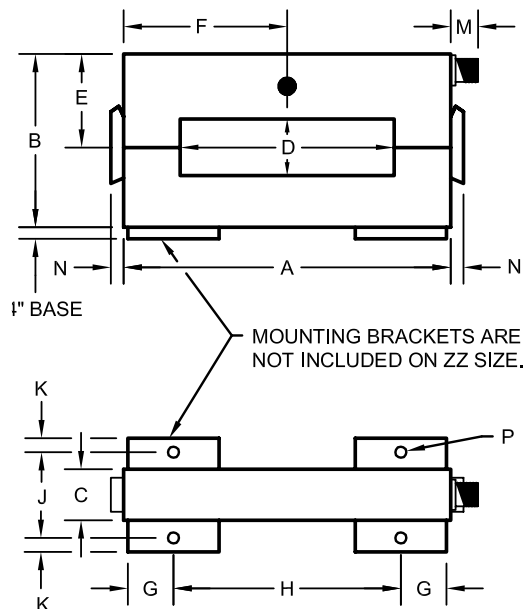
CTL specifications are for unidirectional operation.
 For bidirectional, add suffix "Y122". (use with [direct model CTA](#))
 CTA signal conditioners provide the excitation current (instrument power) that the CTL sensor requires, as well as amplifying the low-level (mV) signal into a more typical signal.
 See [CTA spec sheet](#) for details.

All standard models are configured with a split core.
 Solid-core option is available - [Consult factory](#)

5 YEAR WARRANTY



CASE DIMENSIONS Z & ZZ



Dwg. # 0902-00806-B Rev --

| SENS. SIZE | SENSOR DIMENSIONS (inches) | | | | | | | | | | | | | WT LBS. |
|------------|--------------------------------|---------------------------------|--------------------------------|----------------|--------------------------------|-------|-----|-----|-------|------|-----|------|------|---------|
| | A | B | C | D | E | F | G | H | J | K | M | N | P | |
| Z | 7 ³ / ₁₆ | 3 ¹⁵ / ₁₆ | 1 ⁵ / ₁₆ | 1 1/4 X 4 1/2 | 2 ⁹ / ₆₄ | 3 1/2 | 1 | 5 | 1 7/8 | 5/16 | 3/8 | 5/16 | 3/16 | 2.8 |
| ZZ | 7 ³ / ₁₆ | 5 1/2 | 1 1/8 | 2 7/16 X 4 1/2 | 2 1/2 | 3 1/2 | N/A | N/A | N/A | N/A | 3/8 | 5/16 | N/A | 3.5 |

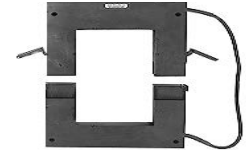
CURRENT MEASUREMENT (HALL-EFFECT, OPEN LOOP)

RECTANGULAR WINDOW (BUS BAR) MODELS

| CURRENT RANGE | MODEL NUMBER | TYPICAL OUTPUT | SENSOR SIZE |
|---------------|----------------|----------------|-------------|
| 0 to 2500A | CTL-502S/2500 | 75mV | G |
| 0 to 3000A | CTL-502S/3000 | 90mV | G |
| 0 to 4000A | CTL-502S/4000 | 120mV | G |
| 0 to 5000A | CTL-502S/5000 | 150mV | G |
| 0 to 5000A | CTL-103S/5000 | 50mV | H |
| 0 to 6000A | CTL-103S/6000 | 60mV | H |
| 0 to 7000A | CTL-103S/7000 | 70mV | H |
| 0 to 8000A | CTL-103S/8000 | 80mV | H |
| 0 to 9000A | CTL-103S/9000 | 90mV | H |
| 0 to 10000A | CTL-103S/10000 | 100mV | H |
| 0 to 12000A | CTL-203S/12000 | 60mV | H |
| 0 to 15000A | CTL-203S/15000 | 75mV | H |
| 0 to 18000A | CTL-203S/18000 | 90mV | H |
| 0 to 20000A | CTL-203S/20000 | 100mV | H |
| 0 to 25000A | CTL-303S/25000 | 85mV | HH* |
| 0 to 30000A | CTL-303S/30000 | 100mV | HH* |
| 0 to 35000A | CTL-403S/35000 | 90mV | HH* |
| 0 to 40000A | CTL-403S/40000 | 100mV | HH* |

*Sensor size HH is supplied as split-core only.
Sensor sizes G & H are supplied as either solid- or split-core.
Remove "S" from model number to indicate solid-core.

Window Size
G.....3 x 6 1/2"
H.....5 1/2 x 8"
HH ...13 x 13"



ORDERING INFORMATION

Example: 2500 Amp, Split-Core Current Sensor with Extended Temperature Range.

CTL-502TS/2500

(Order in combination w/ appropriate [CTA Signal Conditioner](#))

SPECIFICATIONS

INPUT

Current RangeSee Table..... dc/peak ac
Over-current (without damage).....50 X rating
Excitation Current200mA
Resistance
500-5000A models23Ω ±5Ω
6000A + models12Ω ±5Ω

OUTPUT

Typical Output (@ 200mA excitation)Nominal ±30%
Response Time (to 90% F.S.)50μ, typical
Resistance
500-5000A models25Ω ±15Ω
6000A + models32Ω ±10Ω
Initial Offset..... <±2mV

DIELECTRIC TEST

Conductor Through Window to Output 2200Vac
Suitable for installation on 600Vac or 850Vdc uninsulated bus.

ACCURACY & LINEARITY (When calibrated with [CTA](#))

502 and 103 models±1% F.S.
203, 303, and 403 models±2% F.S.

TEMPERATURE

Operating Range
Standard.....-10°C to +40°C
ExtendedAdd suffix "T"-40°C to +65°C
Effect.....±1% F.S.
20,000A models & up, Extended Range±2% F.S.

CABLE LENGTH

All models are supplied with detachable 8-foot cable.
Longer cables are available - [Consult factory](#).

NOTES:

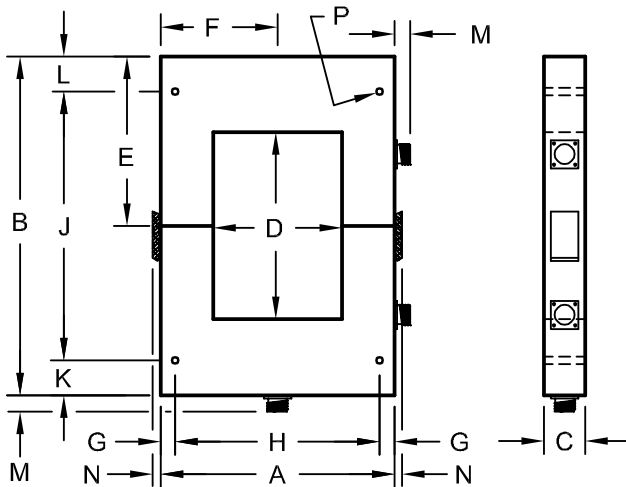
For HH case, remove red screws before unlatching head halves.
CTL specifications are for unidirectional operation.
For bidirectional, add suffix "Y122". (use with [direct model CTA](#))
CTAsignal conditioners provide the excitation current (instrument power) that the CTL sensor requires, as well as amplifying the low-level (mV) signal into a more typical signal.
See [CTA spec sheet](#) for details.

5 YEAR WARRANTY



Measuring Equipment 7N93

CASE DIMENSIONS G, H & HH



Dwg. # 0902-00931-B Rev A

| SENS. SIZE | SENSOR DIMENSIONS (inches) | | | | | | | | | | | | | | WT LBS. |
|------------|----------------------------|--------|-------|-----------|--------|--------|-------|-------|--------|-------|-------|-----|-------|------|---------|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P | |
| G | 7 3/4 | 12 | 1 3/4 | 3 x 6 1/2 | 6 | 3 7/8 | 5/8 | 6 1/2 | 10 3/4 | 5/8 | 5/8 | 5/8 | 5/16 | 5/16 | 12.3 |
| H | 10 | 13 3/4 | 1 3/4 | 5 1/2 x 8 | 6 1/2 | 5 | 5/8 | 8 3/4 | 11 1/2 | 1 1/2 | 3/4 | 5/8 | 5/16 | 5/16 | 13 |
| HH* | 21 | 21 | 2 | 13 x 13 | 10 1/2 | 10 1/2 | 1 1/2 | 18 | 18 | 1 1/2 | 1 1/2 | 5/8 | 11/16 | 3/8 | 44 |

CURRENT MEASUREMENT (HALL-EFFECT, OPEN LOOP)

DESCRIPTION

The CTA Signal Conditioner provides the excitation current (instrument power) that the [CTL Hall-effect sensor](#) requires, as well as amplifying the low-level (mV) signal into a more typical signal. The CTA is calibrated to the output of the specific [CTL](#) selected for the application. Each CTA model has a specific input range (mV) which corresponds to the output of the CTL.

The CTA family has two different types; Direct and RMS. Direct models provide an isolated output that is directly proportional to the amplitude and frequency of the input signal. If the input signal is ac, then the output signal is ac. If the input signal is dc, then the output signal is dc.

The RMS output models provide an output which is directly proportional to the RMS of the input signal. The output is dc regardless of whether the input is ac or dc. Each type has four output options: 1mA_{dc}, 4-20mA_{ac}, 10V_{dc}, or 5V_{dc}. DC instrument power options are available from 12 to 48V_{dc}.

The table on the following page shows appropriate CTL/CTA combinations with available CTA output options.

NOTE: For bidirectional calibration, use direct model CTA and [CTL](#) with "Y122" suffix.

5 YEAR WARRANTY



ORDERING INFORMATION

Example: 0-2000A_{dc} CTL Input through 2" Window, Split-Core, ±0.5% Accuracy and Linearity, and 4-20mA_{dc} CTA Output (direct, not RMS)
[CTL-202S/2000](#) and [CTA212P](#)

CTA SPECIFICATIONS

INPUT (to CTA)

| | |
|------------------------------------------------------|-----------|
| Standard (no option letter in model)..... | 0-50mV |
| Option "R" | 0-35mV |
| Option "F" | 0-40mV |
| Option "G" | 0-60mV |
| Option "H" | 0-75mV |
| Option "J" | 0-80mV |
| Option "W" | 0-90mV |
| Option "P" | 0-100mV |
| Option "N" | 0-120mV |
| Option "K" | 0-150mV |
| Option "L" | 0-200mV |
| Frequency Range (of CTA Signal Conditioner only) ... | dc-5000Hz |

OUTPUT

| | |
|------------------------------------|-------------|
| Field-adjustable Gain | 25% Loading |
| Models with 1mA output | 0-10kΩ |
| Models with 10V or 5V output | 2kΩ min. |
| Models with 4-20mA output | 0-500Ω |
| Response time (to 90%) | |
| Direct models | 40μs |
| RMS models | 200ms |

INSTRUMENT POWER

| | |
|--------------------|-----------------------|
| Standard | 115Vac, 50-400Hz, 2VA |
| Option "-22" | 230Vac ±15%, 50/60Hz |
| Option "-12" | 9-18V _{dc} |
| Option "-24" | 18-36V _{dc} |
| Option "-48" | 36-60V _{dc} |

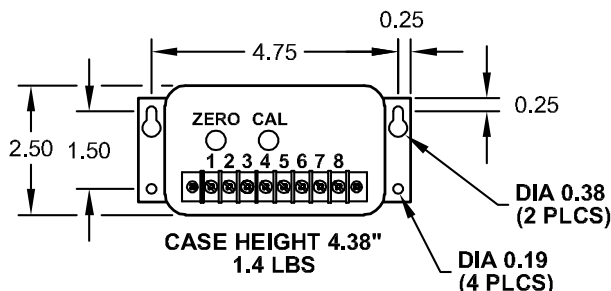
ACCURACY

| | |
|---------------------|----------------------|
| Linearity | ± 0.1% F.S. |
| Output Ripple | Less than 0.25% F.S. |

TEMPERATURE

| | |
|-----------------------|--------------|
| Operating Range | 0°C to +70°C |
| Effect | ±0.005%/°C |

CTA CASE DIMENSIONS

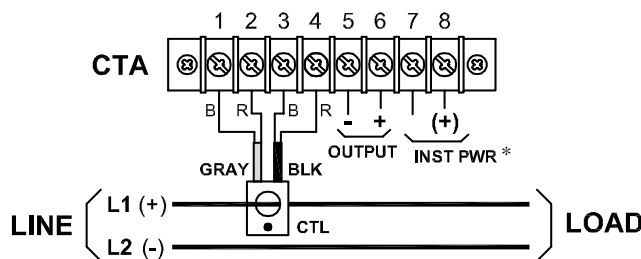


DIMENSIONS ARE IN INCHES
TOLERANCE = ±0.03 UNLESS NOTED.

Dwg# 0902-00922-B Rev --

CONNECTION DIAGRAMS

Caution: Connect [CTL](#) to CTA terminals 1, 2, 3, & 4 before applying instrument power to CTA terminals 7 & 8(+).

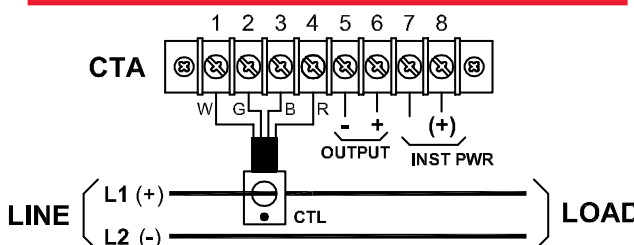


"RED DOT" SIDE OF CTL MUST FACE POSITIVE SUPPLY.

*DC Instrument Power positive on Term. 8. All shields tied to terminal 3.

CTL SENSOR SIZES [A, C, D \(solid core\)](#)

| CABLE | WIRE | SIGNAL |
|--------------|--------------|----------------|
| GRAY | BLACK | OUTPUT (-) |
| GRAY | RED | OUTPUT (+) |
| SHIELD | SHIELD | SHIELD |
| BLACK | BLACK | EXCITATION (-) |
| BLACK | RED | EXCITATION (+) |



"RED DOT" SIDE OF CTL MUST FACE POSITIVE SUPPLY.

CTL SENSOR SIZES [E, EE, F, G, H & HH](#)

| PIN | COLOR | SIGNAL |
|---------|--------------|----------------|
| A | WHITE | OUTPUT (-) |
| B | GREEN | OUTPUT (+) |
| C | BLACK | EXCITATION (-) |
| D | RED | EXCITATION (+) |
| E | SHIELD | SHIELD |

CTL SENSOR SIZES [D \(split core\), Z, & ZZ](#)

| PIN | COLOR | SIGNAL |
|---------|--------------|----------------|
| 1 | WHITE | OUTPUT (-) |
| 2 | GREEN | OUTPUT (+) |
| 4 | SHIELD | SHIELD |
| 6 | BLACK | EXCITATION (-) |
| 8 | RED | EXCITATION (+) |

When ordered together, CTL/CTA combinations are factory-calibrated as a set. To select the proper CTA model, locate the preferred CTL model and move to the right, selecting either direct or RMS style and the desired output signal.
 *For bidirectional calibration, use direct model CTA and CTL with "Y122" suffix.

CTA MODEL SELECTION

| INPUT CURRENT (THROUGH CTL WINDOW) | MODEL CTL CURRENT TRANSDUCER | ACC (% OF F.S.) | SENS. SIZE | DIRECT MODELS - AC/DC OUTPUT PROPORTIONAL TO AC/DC INPUT | | | | | RMS MODELS - DC OUTPUT PROPORTIONAL TO RMS OR DC INPUT | | | |
|------------------------------------|------------------------------|-----------------|------------|----------------------------------------------------------|-------|--------|------------|-------|--------------------------------------------------------|---------|----------|---------|
| | | | | STANDARD OUTPUT MODEL CTA | | | | | STANDARD OUTPUT MODEL CTA | | | |
| | | | | ±5V* | ±10V* | 4-20mA | 4/12/20mA* | ±1mA* | 0-5Vdc | 0-10Vdc | 4-20mAdc | 0-1mAdc |
| 0-35A | CTL-51(T)/35 | ±0.5 | A | 201RX5 | 201R | 212R | 212RY42 | 201RA | 213RX5 | 213R | 215R | 214R |
| 0-50A | CTL-51(T)/50 | ±0.5 | A | 201X5 | 201 | 212 | 212Y42 | 201A | 213X5 | 213 | 215 | 214 |
| 0-50A | CTL-101(TS)/50 | ±0.5 | C | 201X5 | 201 | 212 | 212Y42 | 201A | 213X5 | 213 | 215 | 214 |
| 0-75A | CTL-101(TS)/75 | ±0.5 | C | 201HX5 | 201H | 212H | 212HY42 | 201HA | 213HX5 | 213H | 215H | 214H |
| 0-100A | CTL-101(TS)/100 | ±0.5 | C | 201PX5 | 201P | 212P | 212PY42 | 201PA | 213PX5 | 213P | 215P | 214P |
| 0-150A | CTL-201(TS)/150 | ±0.5 | D | 201HX5 | 201H | 212H | 212HY42 | 201HA | 213HX5 | 213H | 215H | 214H |
| 0-200A | CTL-201(TS)/200 | ±0.5 | D | 201PX5 | 201P | 212P | 212PY42 | 201PA | 213PX5 | 213P | 215P | 214P |
| 0-300A | CTL-401(TS)/300 | ±0.5 | D | 201HX5 | 201H | 212H | 212HY42 | 201HA | 213HX5 | 213H | 215H | 214H |
| 0-400A | CTL-401(TS)/400 | ±0.5 | D | 201PX5 | 201P | 212P | 212PY42 | 201PA | 213PX5 | 213P | 215P | 214P |
| 0-500A | CTL-601(TS)/500 | ±0.5 | E | 201FX5 | 201F | 212F | 212FY42 | 201FA | 213FX5 | 213F | 215F | 214F |
| 0-500A | CTL-601F(T)S/500 | ±0.5 | F | 201FX5 | 201F | 212F | 212FY42 | 201FA | 213FX5 | 213F | 215F | 214F |
| 0-500A | CTL-202H(T)S/500 | ±1 | Z | 201X5 | 201 | 212 | 212Y42 | 201A | 213X5 | 213 | 215 | 214 |
| 0-600A | CTL-601(TS)/600 | ±0.5 | E | 201X5 | 201 | 212 | 212Y42 | 201A | 213X5 | 213 | 215 | 214 |
| 0-600A | CTL-601F(T)S/600 | ±0.5 | F | 201X5 | 201 | 212 | 212Y42 | 201A | 213X5 | 213 | 215 | 214 |
| 0-800A | CTL-202(TS)/800 | ±0.5 | E | 201FX5 | 201F | 212F | 212FY42 | 201FA | 213FX5 | 213F | 215F | 214F |
| 0-800A | CTL-202F(T)S/800 | ±0.5 | F | 201FX5 | 201F | 212F | 212FY42 | 201FA | 213FX5 | 213F | 215F | 214F |
| 0-1000A | CTL-202(TS)/1000 | ±0.5 | E | 201X5 | 201 | 212 | 212Y42 | 201A | 213X5 | 213 | 215 | 214 |
| 0-1000A | CTL-202F(T)S/1000 | ±0.5 | F | 201X5 | 201 | 212 | 212Y42 | 201A | 213X5 | 213 | 215 | 214 |
| 0-1000A | CTL-202EE(T)S/1000 | ±0.5 | EE | 201PX5 | 201P | 212P | 212PY42 | 201PA | 213PX5 | 213P | 215P | 214P |
| 0-1000A | CTL-202H(T)S/1000 | ±1 | Z | 201PX5 | 201P | 212P | 212PY42 | 201PA | 213PX5 | 213P | 215P | 214P |
| 0-1000A | CTL-202ZZ(T)S/1000 | ±1 | ZZ | 201PX5 | 201P | 212P | 212PY42 | 201PA | 213PX5 | 213P | 215P | 214P |
| 0-1500A | CTL-202(TS)/1500 | ±0.5 | E | 201HX5 | 201H | 212H | 212HY42 | 201HA | 213HX5 | 213H | 215H | 214H |
| 0-1500A | CTL-202F(T)S/1500 | ±0.5 | F | 201HX5 | 201H | 212H | 212HY42 | 201HA | 213HX5 | 213H | 215H | 214H |
| 0-1500A | CTL-202EE(T)S/1500 | ±0.5 | EE | 201KX5 | 201K | 212K | 212KY42 | 201KA | 213KX5 | 213K | 215K | 214K |
| 0-1500A | CTL-202H(T)S/1500 | ±1 | Z | 201KX5 | 201K | 212K | 212KY42 | 201KA | 213KX5 | 213K | 215K | 214K |
| 0-1500A | CTL-202ZZ(T)S/1500 | ±1 | ZZ | 201KX5 | 201K | 212K | 212KY42 | 201KA | 213KX5 | 213K | 215K | 214K |
| 0-2000A | CTL-202(TS)/2000 | ±0.5 | E | 201PX5 | 201P | 212P | 212PY42 | 201PA | 213PX5 | 213P | 215P | 214P |
| 0-2000A | CTL-202F(T)S/2000 | ±0.5 | F | 201PX5 | 201P | 212P | 212PY42 | 201PA | 213PX5 | 213P | 215P | 214P |
| 0-2000A | CTL-202EE(T)S/2000 | ±0.5 | EE | 201LX5 | 201L | 212L | 212LY42 | 201LA | 213LX5 | 213L | 215L | 214L |
| 0-2000A | CTL-202H(T)S/2000 | ±1 | Z | 201LX5 | 201L | 212L | 212LY42 | 201LA | -- | -- | -- | -- |
| 0-2000A | CTL-502H(T)S/2000 | ±1 | Z | -- | -- | -- | -- | -- | 213GX5 | 213G | 215G | 214G |
| 0-2000A | CTL-202ZZ(T)S/2000 | ±1 | ZZ | 201LX5 | 201L | 212L | 212LY42 | 201LA | -- | -- | -- | -- |
| 0-2500A | CTL-302EE(T)S/2500 | ±0.5 | EE | 201JX5 | 201J | 212J | 212JY42 | 201JA | -- | -- | -- | -- |
| 0-2500A | CTL-502H(T)S/2500 | ±1 | Z | 201HX5 | 201H | 212H | 212HY42 | 201HA | 213HX5 | 213H | 215H | 214H |
| 0-2500A | CTL-302ZZ(T)S/2500 | ±1 | ZZ | 201NX5 | 201N | 212N | 212NY42 | 201NA | -- | -- | -- | -- |
| 0-2500A | CTL-502(TS)/2500 | ±1 | G | 201HX5 | 201H | 212H | 212HY42 | 201HA | 213HX5 | 213H | 215H | 214H |
| 0-3000A | CTL-302EE(T)S/3000 | ±0.5 | EE | 201PX5 | 201P | 212P | 212PY42 | 201PA | -- | -- | -- | -- |
| 0-3000A | CTL-502H(T)S/3000 | ±1 | Z | 201WX5 | 201W | 212W | 212WY42 | 201WA | 213WX5 | 213W | 215W | 214W |
| 0-3000A | CTL-302ZZ(T)S/3000 | ±1 | ZZ | 201KX5 | 201K | 212K | 212KY42 | 201KA | -- | -- | -- | -- |
| 0-3000A | CTL-502(TS)/3000 | ±1 | G | 201WX5 | 201W | 212W | 212WY42 | 201WA | 213WX5 | 213W | 215W | 214W |
| 0-4000A | CTL-502H(T)S/4000 | ±1 | Z | 201NX5 | 201N | 212N | 212NY42 | 201NA | -- | -- | -- | -- |
| 0-4000A | CTL-502(TS)/4000 | ±1 | G | 201NX5 | 201N | 212N | 212NY42 | 201NA | -- | -- | -- | -- |
| 0-5000A | CTL-502H(T)S/5000 | ±1 | Z | 201KX5 | 201K | 212K | 212KY42 | 201KA | -- | -- | -- | -- |
| 0-5000A | CTL-502(TS)/5000 | ±1 | G | 201KX5 | 201K | 212K | 212KY42 | 201KA | -- | -- | -- | -- |
| 0-5000A | CTL-103(T)S/5000 | ±1 | H | 201X5 | 201 | 212 | 212Y42 | 201A | 213X5 | 213 | 215 | 214 |
| 0-6000A | CTL-103(T)S/6000 | ±1 | H | 201GX5 | 201G | 212G | 212GY42 | 201GA | 213GX5 | 213G | 215G | 214G |
| 0-7000A | CTL-103(T)S/7000 | ±1 | H | 201HX5 | 201H | 212H | 212HY42 | 201HA | 213HX5 | 213H | 215H | 214H |
| 0-8000A | CTL-103(T)S/8000 | ±1 | H | 201JX5 | 201J | 212J | 212JY42 | 201JA | 213JX5 | 213J | 215J | 214J |
| 0-9000A | CTL-103(T)S/9000 | ±1 | H | 201WX5 | 201W | 212W | 212WY42 | 201WA | -- | -- | -- | -- |
| 0-10000A | CTL-103(T)S/10000 | ±1 | H | 201PX5 | 201P | 212P | 212PY42 | 201PA | -- | -- | -- | -- |
| 0-12000A | CTL-203(T)S/12000 | ±2 | H | 201GX5 | 201G | 212G | 212GY42 | 201GA | 213GX5 | 213G | 215G | 214G |
| 0-15000A | CTL-203(T)S/15000 | ±2 | H | 201HX5 | 201H | 212H | 212HY42 | 201HA | -- | -- | -- | -- |
| 0-18000A | CTL-203(T)S/18000 | ±2 | H | 201WX5 | 201W | 212W | 212WY42 | 201WA | -- | -- | -- | -- |
| 0-20000A | CTL-203(T)S/20000 | ±2 | H | 201PX5 | 201P | 212P | 212PY42 | 201PA | -- | -- | -- | -- |
| 0-25000A | CTL-303(T)S/25000 | ±2 | HH | 201JX5 | 201J | 212J | 212JY42 | 201JA | -- | -- | -- | -- |
| 0-30000A | CTL-303(T)S/30000 | ±2 | HH | 201PX5 | 201P | 212P | 212PY42 | 201PA | -- | -- | -- | -- |
| 0-35000A | CTL-403(T)S/35000 | ±2 | HH | 201WX5 | 201W | 212W | 212WY42 | 201WA | -- | -- | -- | -- |
| 0-40000A | CTL-403(T)S/40000 | ±2 | HH | 201PX5 | 201P | 212P | 212PY42 | 201PA | -- | -- | -- | -- |

CURRENT MEASUREMENT (HALL-EFFECT, OPEN LOOP)

CURRENT SENSOR WITH OUTPUT AMPLIFIER 5Vdc OR 10Vdc OUTPUTS

DESCRIPTION

The CTG Current Transducer is a Hall-effect sensor integrated with an output amplifier. The CTG series offers a number of current ranges, outputs and sensor dimensions. Hall-effect current measurement is a non-contact technique that measures the magnetizing effects of current flowing in a conductor. This measurement type offers a number of benefits not afforded by conventional direct or contact (in-line) measurement. Some of these benefits are high electrical isolation between conductor and sensor output, high overload capability, fast response to input changes and no power consumption on measured circuit.

FEATURES

- Accuracy of $\pm 1\%$ F.S.
- 2200Vac line-to-output dielectric test.
- DC to 400Hertz response.
- Sensor and amplifier in one package.
- Available in split-core configurations.
- Output is proportional in direction and magnitude to the current flow through the window. (ac input yields ac output, dc input yields dc output)
- Overload capability to **10 times** rating (at 60Hz).
- Stability maintained during severe vibration.
- Models available to 5,000A.
- Response time less than 500 μ s.
- 8-foot cable length.

APPLICATIONS

- Replaces shunts. No insertion loss.
- Ideal for use on ac systems with dc components and/or chopped waveforms.



5 YEAR WARRANTY

MODEL SELECTION

Circular Window Models



Rectangular Window Models



| Current Range | ± 10 Vdc Output | ± 5 Vdc Output | Sensor Size |
|---------------|---------------------|--------------------|-------------|
| 0 - 100A | CTG-101 | CTG-101X5 | D |
| 0 - 200A | CTG-201 | CTG-201X5 | D |
| 0 - 300A | CTG-301 | CTG-301X5 | D |
| 0 - 400A | CTG-401 | CTG-401X5 | D |
| 0 - 500A | CTG-501 | CTG-501X5 | E |
| | CTG-501FS | CTG-501FSX5 | F |
| 0 - 600A | CTG-601 | CTG-601X5 | E |
| | CTG-601FS | CTG-601FSX5 | F |
| 0 - 800A | CTG-801 | CTG-801X5 | E |
| | CTG-801FS | CTG-801FSX5 | F |
| 0 - 1000A | CTG-102 | CTG-102X5 | E |
| | CTG-102FS | CTG-102FSX5 | F |
| | CTG-102EES | CTG-102EESX5 | EE |
| 0 - 1500A | CTG-152 | CTG-152X5 | E |
| | CTG-152FS | CTG-152FSX5 | F |
| | CTG-152EES | CTG-152EESX5 | EE |
| 0 - 2000A | CTG-202 | CTG-202X5 | E |
| | CTG-202FS | CTG-202FSX5 | F |
| | CTG-202EES | CTG-202EESX5 | EE |
| 0 - 2500A | CTG-252 | CTG-252X5 | E |
| | CTG-252FS | CTG-252FSX5 | F |
| | CTG-252EES | CTG-252EESX5 | EE |
| 0 - 3000A | CTG-302EES | CTG-302EESX5 | EE |

| Current Range | ± 10 Vdc Output | ± 5 Vdc Output | Sensor Size |
|---------------|---------------------|--------------------|-------------|
| 0 - 500A | CTG-501HS | CTG-501HX5S | Z |
| 0 - 600A | CTG-601HS | CTG-601HX5S | Z |
| 0 - 800A | CTG-801HS | CTG-801HX5S | Z |
| 0 - 1000A | CTG-102HS | CTG-102HX5S | Z |
| 0 - 1500A | CTG-152HS | CTG-152HX5S | Z |
| 0 - 2000A | CTG-202HS | CTG-202HX5S | Z |
| | CTG-202S | CTG-202X5S | G* |
| 0 - 2500A | CTG-252S | CTG-252X5S | G* |
| | CTG-302HS | CTG-302HX5S | Z |
| 0 - 3000A | CTG-302S | CTG-302X5S | G* |
| | CTG-402HS | CTG-402HX5S | Z |
| 0 - 4000A | CTG-402HS | CTG-402HX5S | Z |
| 0 - 5000A | CTG-502HS | CTG-502HX5S | Z |

* Sensor size "G" models are not UL listed.

ORDERING INFORMATION

Example: 300Amp Split-Core Current Sensor with ± 5 V Output and Extended Temperature Range.

CTG-301X5ST

For optional CTG power supply, see [PS-4753 spec sheet](#).

SPECIFICATIONS

INPUT

Current.....See Table..... dc/Peak ac
 Over-current (without damage).....10 X rating

INSTRUMENT POWER

Nominal±15Vdc
 Range±13Vdc to ±18Vdc
 Current.....<±20mAdc

DIELECTRIC TEST (Conductor Through Window to Output)

Sensor size "D" (split-core).....1000Vdc
 All others.....2200Vdc

OUTPUT

Load on output..... ≥25kΩ
 Response Time.....(typical).....500µs
 Saturation.....Approx.13.5V @±15Vdc

ACCURACY AND LINEARITY±1.0% F.S.

TEMPERATURE

Temperature Range.....Standard.....0°C to +40°C
 Extended Temp. Rangeadd "T" suffix-20°C to +60°C
 Temperature Effects.....±0.05%/°C

PHYSICAL

Insulation.....600Vac
 Option "S".....Split-core
 Dimensions.....Refer to [CTH](#) and [CTL](#) spec sheets
 NOTE: For sensor size "G", connector height is 0.422in.

Sensor size "D" split-core models are not UL listed.
 Sensor size "F", "EE" & "Z" are available in split-core only.

CONNECTIONS

| TABLE 1: SENSOR SIZES D & Z | | | |
|--------------------------------------|-------|------|------------------|
| Plastic Connector, 8ft. Rubber Cable | | | |
| PINS | LEADS | TYPE | |
| 1 | WHITE | - | OUTPUT * |
| 2 | GREEN | + | |
| 6 | BLACK | -15V | INSTRUMENT POWER |
| 8 | RED | +15V | |
| 1 | WHITE | COM | |

| TABLE 2: SENSOR SIZES E, EE, F & G | | | |
|------------------------------------|-------|------|------------------|
| Metal Connector, 8ft. Rubber Cable | | | |
| PINS | LEADS | TYPE | |
| A | WHITE | - | OUTPUT * |
| B | GREEN | + | |
| C | BLACK | -15V | INSTRUMENT POWER |
| D | RED | +15V | |
| A | WHITE | COM | |

* "Red dot" side of CTG must face positive supply.

INSTALLATION AND OPERATING INSTRUCTIONS

INSTALLATION INSTRUCTIONS

1. Installation should be performed by qualified electricians only!
2. Make sure electrical service is disconnected before making any electrical connections.
3. Branch circuit protection is required to be provided in accordance with the National and Local codes of the inspection authority.
4. Route wires as required and secure to terminals per connection diagram on this sheet and on the unit.
5. Transducers are suitable for installation on 600Vac lines.

OPERATING INSTRUCTIONS

1. This unit is intended for indoor use at altitudes up to 2000 meters.
2. Transient overvoltages according to Installation Category (overvoltage category) II, pollution Degree 2.
3. The output signal is intended to be "Not accessible to the user." To prevent contact with live circuits, the transducer is required to be mounted in an enclosure that requires the use of a tool for access.
4. If cleaning of the exterior surface is necessary, de-energize all services of supply (both measuring and instrument power circuits) and brush with a soft brush or blow off with low-pressure air. Use appropriate eye protection. Not suitable for hose-down cleaning.
5. Maximum relative humidity is 80 percent for temperatures up to 31°C decreasing linearly to 50 percent relative humidity at 40°C.
6. Maximum operating temperature range is -20°C to 60°C (refer to specifications for accuracy).

CURRENT MEASUREMENT
(HALL-EFFECT, OPEN LOOP)



UL approved for USA and Canada



Direct Current (dc)

WARRANTY STATEMENT

Ohio Semitronics Inc. warrants this unit to be free of defects in material and workmanship for a period of five years from date of shipment. This unit must not be used in any manner other than as specified in this document.

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OSI HALL-EFFECT DC CURRENT TRANSDUCER MODEL CTH-

CURRENT SENSOR WITH OUTPUT AMPLIFIER 4-20mA, 5Vdc OR 10Vdc OUTPUT

DESCRIPTION

The CTH Series Current Transducer is a Hall-effect sensor integrated with an output amplifier. The CTH Series Current Transducer offers a 4-20mA, 4-12-20mA, 5V, or 10V output and can be operated from either a 24Vdc source or a low-cost 24Vac control transformer. Available options are split-core, extended temperature range, ruggedized design and 12Vdc or 15Vdc instrument power.

FEATURES

- **ACCURACY 0.5%**
- Sensor & Amplifier in one package
- Output is proportional in direction and magnitude to the current flow through the window. (ac input yields ac output, dc input yields dc output)
- Available in split-core configurations
- Replaces shunts. No insertion loss.

5 YEAR WARRANTY

ORDERING INFORMATION

Example: 0-300Adc Input, 4-20mA Output, Split-Core Option and Extended Temperature Range, with 15Vdc Instrument Power.

CTH-301LST-15

Power supply available by using the [PS-4753-5](#) or [-6](#).

SPECIFICATIONS

INPUT

Current..... See Tablesdc or Peak ac
Over-current..... 10 X rating

INSTRUMENT POWER

Standard 24Vdc or ac $\pm 10\%$
Instrument Current..... 25mA + load current

DIELECTRIC TEST

Bare Bus to Output 3750Vac
Split-Core Sensor Size D 1000Vdc

OUTPUT

Load..... 4-20mA models 0-500 Ω
5 & 10V models..... >2K Ω
Response Time (to 90%) 500 μ s, typical

TEMPERATURE

Temperature Effects.. (0 $^{\circ}$ C to +40 $^{\circ}$ C) $\pm 0.025\%/^{\circ}$ C
Temperature Range 0 $^{\circ}$ C to +40 $^{\circ}$ C
Extended Temp. Range -40 $^{\circ}$ C to +60 $^{\circ}$ C

ACCURACY AND LINEARITY

CTH-050, CTH-050M, CTH-050X5, CTH-050D.... $\pm 1.0\%$ F.S.
CTH-025, CTH-025M, CTH-025X5, CTH-025D.... $\pm 2.0\%$ F.S.
All Other Models $\pm 0.5\%$ F.S.

AVAILABLE OPTIONS

Add Suffix in order shown:
Split-Core..... Add suffix "**S**"
Extended Temperature Range Add Suffix "**T**"
Ruggedized (potted) Add Suffix "**R**"
NOTE: Sensor size D split-Core models are potted, so "**R**" is not required in model number.
Instrument Power..... 12Vdc, $\pm 10\%$ Add Suffix "**-12**"
15Vdc, $\pm 10\%$ Add Suffix "**-15**"

MODEL SELECTION

Circular Window Models



| STANDARD OUTPUT | | MODEL CTH- | | | |
|------------------|------------------|---------------------|--------------------|---------------------|-------------|
| Input DC Current | 4-20mA dc Output | 4-12-20mA dc Output | ± 5 Vdc Output | ± 10 Vdc Output | Sensor Size |
| 0-25 | 025 | 025M | 025X5 | 025D | B |
| 0-50 | 050 | 050M | 050X5 | 050D | B |
| 0-100 | 101 | 101M | 101X5 | 101D | B |
| 0-100 | 101L | 101LM | 101LX5 | 101LD | D |
| 0-200 | 201L | 201LM | 201LX5 | 201LD | D |
| 0-300 | 301L | 301LM | 301LX5 | 301LD | D |
| 0-400 | 401L | 401LM | 401LX5 | 401LD | D |
| 0-500 | 501L | 501LM | 501LX5 | 501LD | E |
| 0-500 | 501FLS | 501FLMS | 501FSX5 | 501FSD | F |
| 0-600 | 601L | 601LM | 601LX5 | 601LD | E |
| 0-600 | 601FLS | 601FLMS | 601FSX5 | 601FSD | F |
| 0-800 | 801L | 801LM | 801LX5 | 801LD | E |
| 0-800 | 801FLS | 801FLMS | 801FSX5 | 801FSD | F |
| 0-1000 | 102L | 102LM | 102LX5 | 102LD | E |
| 0-1000 | 102FLS | 102FLMS | 102FSX5 | 102FSD | F |
| 0-1000 | 102EELS | 102EELMS | 102EESX5 | 102EESD | EE |
| 0-1200 | 122L | 122LM | 122LX5 | 122LD | E |
| 0-1200 | 122FLS | 122FLMS | 122FSX5 | 122FSD | F |
| 0-1200 | 122EELS | 122EELMS | 122EESX5 | 122EESD | EE |
| 0-1500 | 152L | 152LM | 152LX5 | 152LD | E |
| 0-1500 | 152FLS | 152FLMS | 152FSX5 | 152FSD | F |
| 0-1500 | 152EELS | 152EELMS | 152EESX5 | 152EESD | EE |

Split-Core option "S" is available except for sensor size B.
All sensor size F, EE, and Z are standard split-core.
[Consult factory](#) if solid core is desired in these models.

Rectangular Window Models



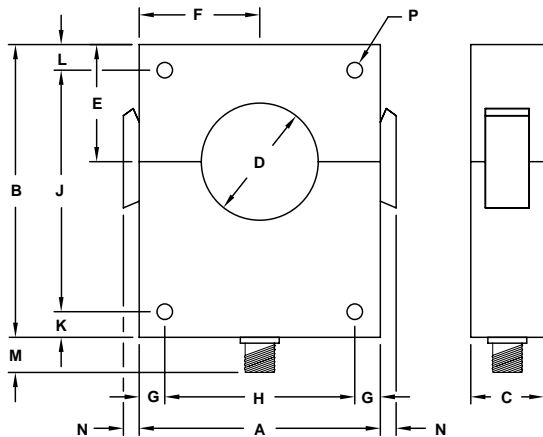
| STANDARD OUTPUT | | MODEL CTH- | | | |
|------------------|------------------|---------------------|--------------------|---------------------|-------------|
| Input DC Current | 4-20mA dc Output | 4-12-20mA dc Output | ± 5 Vdc Output | ± 10 Vdc Output | Sensor Size |
| 0-500 | 501HS | 501HMS | 501HX5S | 501HDS | Z |
| 0-600 | 601HS | 601HMS | 601HX5S | 601HDS | Z |
| 0-800 | 801HS | 801HMS | 801HX5S | 801HDS | Z |
| 0-1000 | 102HS | 102HMS | 102HX5S | 102HDS | Z |
| 0-1200 | 122HS | 122HMS | 122HX5S | 122HDS | Z |
| 0-1500 | 152HS | 152HMS | 152HX5S | 152HDS | Z |

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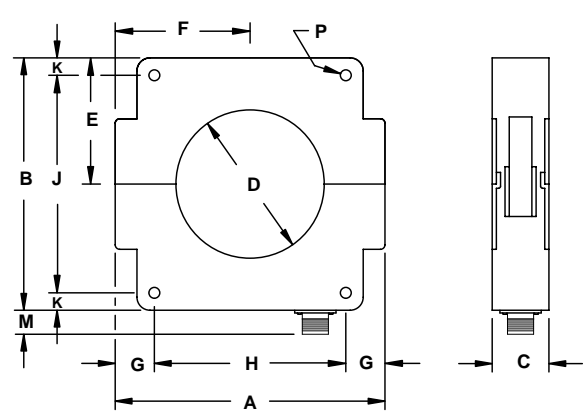
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CURRENT MEASUREMENT
(HALL-EFFECT, OPEN LOOP)

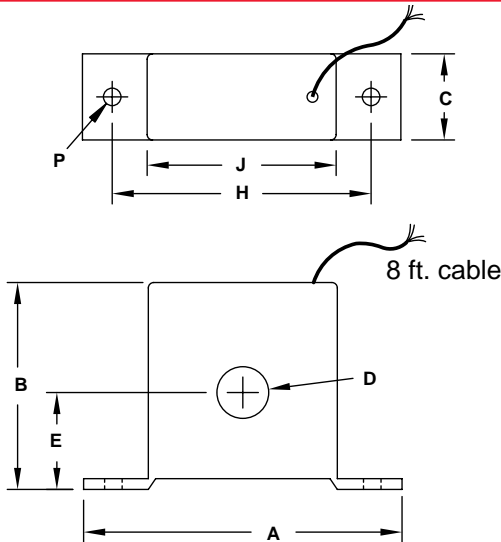
CASE DIMENSIONS D & E



CASE DIMENSIONS F & EE

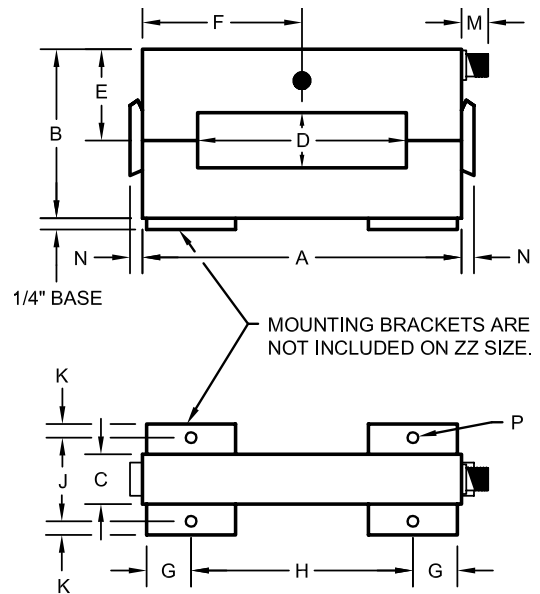


CASE DIMENSIONS B



Use Sensor Size D Cable Assembly for connections.
#22 AWG

CASE DIMENSIONS Z



Dwg# 0902-00806-B Rev --

| SENS. SIZE | SENSOR DIMENSIONS (inches) | | | | | | | | | | | | | | WT. LBS. |
|------------|----------------------------|---------|--------|---------------|--------|---------|--------|-------|--------|------|------|-----|------|-------|----------|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P | |
| B | 3 5/8 | 2 9/16 | 1 | 5/8 | 1 5/32 | NA | NA | 2 3/4 | 2 3/16 | NA | NA | NA | NA | 3/16 | 0.2 |
| D | 3 1/8 | 4 | 25/32 | 1 1/8 | 1 1/2 | 1 9/16 | 1/2 | 2 1/8 | NA | 1/2 | NA | 3/8 | 1/4 | 11/64 | 0.75 |
| E | 4 1/8 | 5 | 1 1/4 | 2 | 2 | 2 1/16 | 7/16 | 3 1/4 | 4 1/8 | 7/16 | 7/16 | 5/8 | 5/16 | 17/64 | 2.0 |
| F | 5 3/8 | 5 1/4 | 1 5/8 | 2 1/4 | 2 5/8 | 2 11/16 | 1 1/16 | 3 1/4 | 4 1/8 | 9/16 | NA | 5/8 | NA | 1/4 | 2.8 |
| EE | 7 3/4 | 7 1/4 | 1 5/8 | 4 1/4 | 3 5/8 | 3 7/8 | 1 1/8 | 5 1/2 | 6 1/4 | 1/2 | NA | 5/8 | NA | 5/16 | 4.5 |
| Z | 7 3/16 | 3 15/16 | 1 5/16 | 1 1/4 x 4 1/2 | 2 9/64 | 3 1/2 | 1 | 5 | 1 7/8 | 5/16 | NA | 1/2 | 5/16 | 3/16 | 2.8 |

CABLE ASSEMBLY

| SENSOR SIZE D, Z | | | | SENSOR SIZE E, EE, F | | | |
|------------------|----------------|------|------------|----------------------|----------------|------|------------|
| CONN. PINS | 18AWG 8' LEADS | TYPE | | CONN. PINS | 18AWG 8' LEADS | TYPE | |
| 1 | WHITE | - | OUTPUT* | A | WHITE | - | OUTPUT* |
| 2 | GREEN | + | | B | GREEN | + | |
| 6 | BLACK | COM | INST. PWR. | C | BLACK | COM | INST. PWR. |
| 8 | RED | +24V | | D | RED | +24V | |

*For positive output, insert positive current cable through "red dot" side of sensor.

Power supply available by using the [PS-4753-5 or -6](#).

CURRENT MEASUREMENT
(HALL-EFFECT, OPEN LOOP)



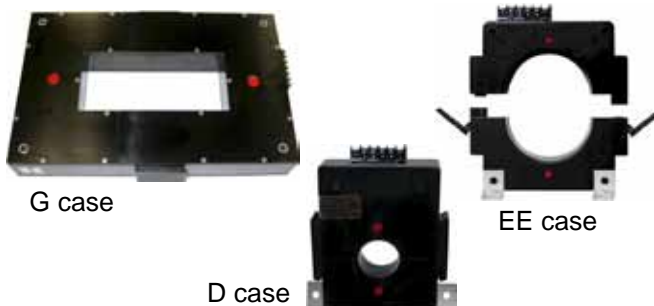
OSI HALL-EFFECT DC CURRENT TRANSDUCER MODEL CTLC-

DESCRIPTION

The CTLC series current transducers are Hall-effect current sensors with signal conditioning and an output amplifier in a single compact package. All models are supplied in a split-core configuration for ease of installation.

Hall-effect current measurement is a non-contact technique that measures the magnetizing effects of current flowing in a conductor.

Advantages of this technique include high electrical isolation between the measured conductor and transducer output, high over-range capability and fast response to input changes.



G case

D case

EE case

MODEL SELECTION

| DC Current Input | MODEL CTLC- | | | Size |
|------------------|-----------------|--------------|---------------|------|
| | 4-20mAdc Output | ±5Vdc Output | ±10Vdc Output | |
| 0-100A | 101LS | 101LSX5 | 101LDS | D |
| 0-200A | 201LS | 201LSX5 | 201LDS | D |
| 0-300A | 301LS | 301LSX5 | 301LDS | D |
| 0-400A | 401LS | 401LSX5 | 401LDS | D |
| 0-400A | 401EELS | 401EESX5 | 401EESD | EE |
| 0-500A | 501EELS | 501EESX5 | 501EESD | EE |
| 0-600A | 601EELS | 601EESX5 | 601EESD | EE |
| 0-800A | 801EELS | 801EESX5 | 801EESD | EE |
| 0-1000A | 102EELS | 102EESX5 | 102EESD | EE |
| 0-1200A | 122EELS | 122EESX5 | 122EESD | EE |
| 0-1500A | 152EELS | 152EESX5 | 152EESD | EE |
| 0-2000A | 202LS | 202SX5 | 202SD | G |
| 0-2500A | 252LS | 252SX5 | 252SD | G |
| 0-3000A | 302LS | 302SX5 | 302SD | G |

FEATURES

5 YEAR WARRANTY



- Accuracy = ±0.5% F.S.
- Sensor, signal conditioning and amplifier in one package
- Output is proportional in direction and magnitude to current flow through the window. (4-20mA output is unidirectional)
- Split-core configuration
- Replaces shunts. No insertion loss.

ORDERING INFORMATION

Example: Split-core current transducer with 0-400A dc Input, 4-20mA dc Output, D size, 24Vdc/ac instrument power and extended temperature range

CTLC-401LST

Power supply available by using the PS-4753-5 or -6.

SPECIFICATIONS

INPUT

Current See Table
Over-current without damage 10 X rating

OUTPUT

Load 4-20mA models..... 0-500Ω
5 and 10V models..... ≥2kΩ
Response Time (to 90%)..... 500μs, typical

INSTRUMENT POWER

Voltage 24Vdc/ac ±10%
Current 25mA + output current

DIELECTRIC TEST

Bare Conductor thru Window to Output 3750Vac

ACCURACY and LINEARITY ±0.5% F.S.

TEMPERATURE and ENVIRONMENTAL

Operating Range 0 to +40°C
Extended Range (add suffix "T") -40° to +60°C
Temperature Effect ±0.025%/°C
Humidity 0-95%, non-condensing

PHYSICAL

Weight D size ≤0.75lb., EE size ≤4.5lb.
Connections 6-32 screw terminals

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CURRENT MEASUREMENT (HALL-EFFECT, OPEN LOOP)

OSI INTRINSICALLY-SAFE DC CURRENT TRANSDUCER MODEL ISC-

DESCRIPTION

The ISC current transducer provides a Hall-Effect sensor with an integrated signal conditioner. All units are packaged in a split-core configuration for ease of installation. Application flexibility is provided by a wide variety of input current ranges and output signal types.

Units meet the requirements of ATEX Directive 94/9/EC and UL/CUL Intrinsically Safe regulations (see standards listing). These standards are specifically related to the requirements for hazardous location installations in North America and the European Union (EU) but are widely accepted throughout the world. When used with appropriate safety barriers these units are recommended for installation in hazardous locations such as offshore platforms and petrochemical plants.



FEATURES

- Hall-Effect Current Sensor with Output Amplifier
- Split Core
- UL/CUL Intrinsically Safe Certification.
- Meets Requirements of ATEX Directive 94/9/EC

APPLICATIONS

- Current Sensing
- Torque Measurements
- Hazardous Locations Such as Offshore Platforms and Petrochemical Plants

Intrinsically Safe Current Transducer meets the following standards:



Ex ia IIC T4
DNV-2006-OSL-ATEX-0411X

5 YEAR WARRANTY



UL/CUL CLI, Div1, Gr A, B, C, D

SPECIFICATIONS

INPUT

Current.....LinearSee Table
Over-current.....Without Damage.....10X Rating
Frequency Range(±1dB).....dc to 1kHz

DIELECTRIC TEST

Bus through Window to Output.....5kVac

INSTRUMENT POWER

Nominal.....24Vdc
Range14-30Vdc
Max Current Draw.....36mA

OUTPUT

Signal.....See Table
Loading.....Voltage Models.....≥100kΩ
Current Models.....≤250Ω
Response Time (to 90% F.S.).....<1ms
Offset.....≤1% F.S.

ACCURACY & LINEARITY±2% F.S.

TEMPERATURE

Operating Range.....-10 to 60°C
Effect.....(-10°C ≤ Tamb ≤ 60°C).....±1% F.S.

PHYSICAL

Weight.....2 lbs.
Enclosure.....Noryl SE1X, Black

MODEL SELECTION

ORDERING INFORMATION

Example: Input 0-1000Adc
Output 0-2.9Vdc
ISC-102

| INPUT DC AMPS | STANDARD OUTPUTS MODEL ISC- | | | |
|------------------|-----------------------------|--------|---------|----------|
| | 0-2.9Vdc | 0-5Vdc | 0-10Vdc | 4-20mAdc |
| *0-100 | 101 | 101X5 | 101D | 101E |
| 0-200 | 201 | 201X5 | 201D | 201E |
| 0-300 | 301 | 301X5 | 301D | 301E |
| 0-400 | 401 | 401X5 | 401D | 401E |
| 0-500 | 501 | 501X5 | 501D | 501E |
| 0-600 | 601 | 601X5 | 601D | 601E |
| 0-800 | 801 | 801X5 | 801D | 801E |
| 0-1000 | 102 | 102X5 | 102D | 102E |
| 0-1500 | 152 | 152X5 | 152D | 152E |
| 0-2000 | 202 | 202X5 | 202D | 202E |
| 0-2500 | 252 | 252X5 | 252D | 252E |

* Requires two turns through window.

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CURRENT MEASUREMENT
(HALL-EFFECT, OPEN LOOP)

OSI HALL-EFFECT CURRENT TRANSDUCER MODEL CTLP-

LOOP POWERED

DESCRIPTION

The model CTLP is a Hall-effect current sensor with signal conditioning in a single compact package. Hall-effect current measurement is a non-contact technique that measures the magnetizing effects of current flowing in a conductor. Advantages of this technique include high electrical isolation between the measured conductor and transducer output, high over-range capability and fast response to input changes.

This loop-powered design simplifies installation by reducing instrument power and output signal connections to a simple 2-wire interface.

5 YEAR WARRANTY



MODEL SELECTION

| INPUT | CASE | MODEL |
|-----------|------|------------|
| 0-25Adc | A | CTLP-025 |
| 0-50Adc | A | CTLP-050 |
| 0-100Adc | A | CTLP-100 |
| 0-400Adc | Z | CTLP-401HL |
| 0-500Adc | Z | CTLP-501HL |
| 0-600Adc | Z | CTLP-601HL |
| 0-800Adc | Z | CTLP-801HL |
| 0-1000Adc | Z | CTLP-102HL |
| 0-1500Adc | Z | CTLP-152HL |
| 0-2000Adc | Z | CTLP-202HL |
| 0-3000Adc | Z | CTLP-302HL |

SPECIFICATIONS

INPUT

Current Range..... See Table
 Over-range w/o damage ... Continuous..... 10X Rated
 Frequency Range..... dc

OUTPUT

Type Loop-powered.....4-20mAdc
 Scaling 0-F.S. Input = 4-20mAdc Output
 Loading 24Vdc loop-power, ±15%..... 0-500Ω
 Response to 90% 500μs, Typical

DIELECTRIC TEST

Conductor through Window to Output..... 2200Vac

ACCURACY (Setpoint, Linearity, Repeatability)

CTLP-025.....±2.0% F.S.
 CTLP-050, CTLP-100±1.0% F.S.
 All Others±0.5% F.S.

INSTRUMENT POWER

Loop-powered Voltage.....24Vdc, ±15%

TEMPERATURE

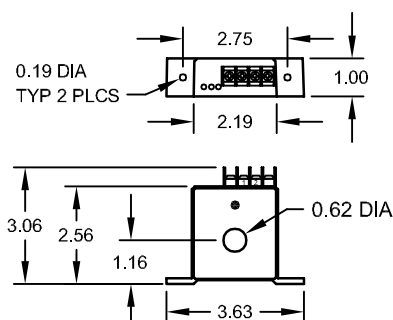
Operating Range standard..... 0 to +40°C
 "T" option -40°C to +60°C
 Effect A case standard.....±2.0% F.S.
 "T" option±3.0% F.S.
 Z case standard.....±1.0% F.S.
 "T" option±2.5% F.S.

PHYSICAL

Termination.....6-32 Screw Terminals
 Enclosure A case.....Noryl SE1X, Gray
 Z case.....Noryl SE1X, Black
 Weight A case..... 0.2 lb.
 Z case..... 1.4 lb.

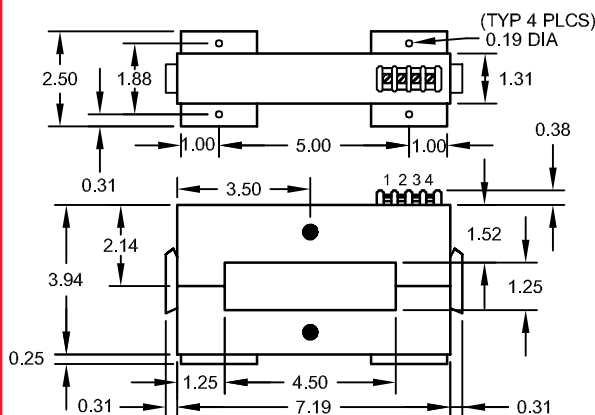
CASE DIMENSIONS

A CASE MODELS



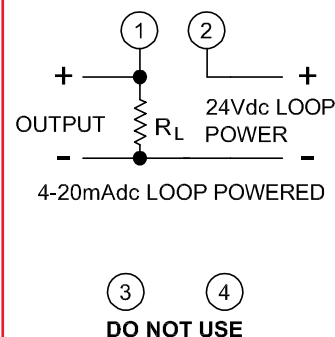
ALL DIMENSION ARE IN INCHES.
 TOLERANCE: 0.00 ±0.03.

Z CASE MODELS



CONNECTIONS

ALL MODELS



0902-00834-B Rev A

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OSI HALL-EFFECT CURRENT SENSOR MODEL CTF & CTFB-

0.1% Linearity

5 YEAR WARRANTY

DESCRIPTION

The CTF and CTFB current sensors are closed-loop, highly-precise electronic sensors designed for ac, dc, pulse and variable-frequency drives. The output is directly proportional to the input and the output waveform is identical to the "through-window" current.



The CTF and CTFB provide 0.1% linearity. Rugged construction and reduced temperature sensitivity ensure reliable measurements over a wide range of temperatures.

Models are provided in enclosures or circuit board arrangement.

Use [CTA800-*](#) for instrument power source and output signal conditioning.

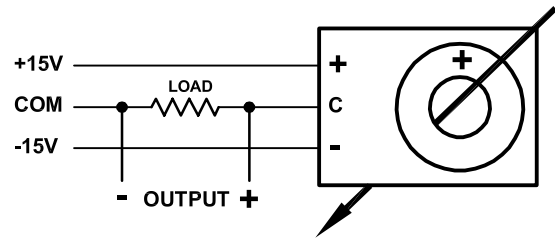
MODEL SELECTION

| MODEL NUMBER | INPUT CURRENT (AMPS) | | TEMPERATURE | | TURNS RATIO | OUTPUT | | | | ACCURACY F.S. @ 25°C | LINEARITY F.S. | SENSOR CASE SIZE |
|--------------|----------------------|-----|---------------|-------------------|-------------|--------|-------|-------|-------|----------------------|----------------|------------------|
| | AC | DC | RANGE | OFFSET OVER RANGE | | AC | | DC | | | | |
| | | | | | | CAL | LOAD | CAL | LOAD | | | |
| CTFB-100TT | 100 | 150 | -25° to +70°C | +0.75mA | 1000:1 | 100mA | 0-50Ω | 150mA | 0-50Ω | ±0.4% | ±0.1% | 1 |
| CTFB-100T | 100 | 150 | -40° to +80° | +1.0mA | 1000:1 | 100mA | 0-50Ω | 150mA | 0-50Ω | ±0.4% | ±0.1% | 1 |
| CTFB-300TT | 300 | 750 | -25° to +70° | +0.6mA | 2000:1 | 150mA | 0-40Ω | 375mA | 0-15Ω | ±0.4% | ±0.1% | 1 |
| CTFB-300T | 300 | 750 | -40° to +80° | +0.75mA | 2000:1 | 150mA | 0-40Ω | 375mA | 0-15Ω | ±0.4% | ±0.1% | 1 |
| CTF-500TT | 500 | 750 | -0° to +70° | +0.25 mA | 5000:1 | 100mA | 0-50Ω | 150mA | 0-15Ω | ±0.3% | ±0.1% | 2 |
| CTF-500T | 500 | 750 | -40° to +80° | +0.5mA | 5000:1 | 100mA | 0-50Ω | 150mA | 0-15Ω | ±0.3% | ±0.1% | 2 |

SPECIFICATIONS

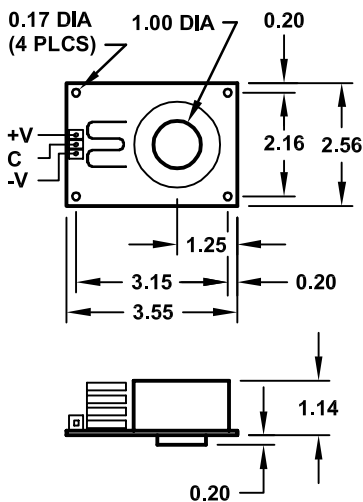
Current..... See Table
 Response Time..... (to 90%) 1μs
 di/dt..... 50A/1μs
 Bandwidth (-1dB)..... dc to 100kHz
 Instrument Power ±15Vdc to ±18Vdc
 Dielectric Test (input/output) 3kV
 Weight CTFB 0.4 lb
 CTF 2.2 lb

CTFB CONNECTIONS

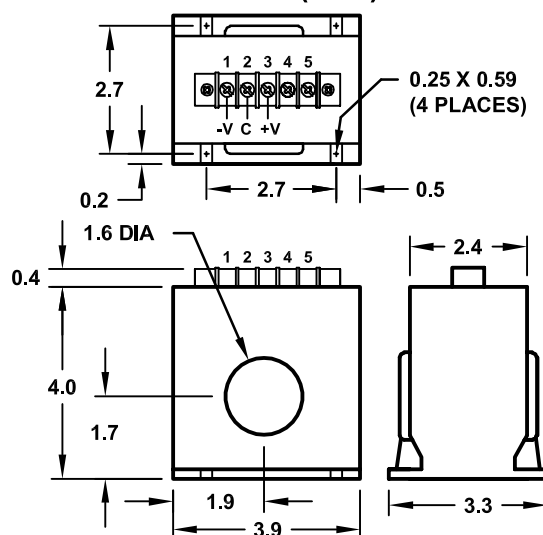


CASE DIMENSIONS (in inches)

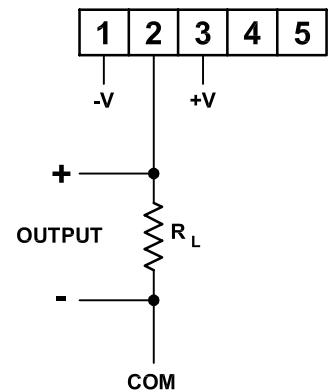
CASE 1 (CTFB)



CASE 2 (CTF)



CTF CONNECTIONS



Dwg. # 0902-00820-B Rev A

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DESCRIPTION

The CTFG- series current sensors are closed-loop Hall-Effect current sensors designed to measure ac or dc currents, or a combination of both. With allowable input current from 100A through 500A, the series provides pulse current measurement up to 100A/μs.

FEATURES

- Rugged construction
- Reduced temperature sensitivity
- High galvanic isolation

5 YEAR WARRANTY



APPLICATIONS

- Suitable for safe and reliable operation in a wide range of environmental conditions.

MODEL SELECTION

| INPUT CURRENT* | MODEL NUMBER | TURNS RATIO | OUTPUT |
|----------------|--------------|-------------|--------|
| 0 - 100A | CTFG-101 | 1000:1 | 100mA |
| 0 - 200A | CTFG-201 | 2000:1 | 100mA |
| 0 - 300A | CTFG-301 | 3000:1 | 100mA |
| 0 - 400A | CTFG-401 | 4000:1 | 100mA |
| 0 - 500A | CTFG-501 | 5000:1 | 100mA |

ORDERING INFORMATION

Example: 0-300A Input and 0-100mA Output

CTFG-301

* AC input current ratings based on 10Ω load or less.

SPECIFICATIONS

INPUT

Current (ac RMS or dc) See Table
 Over-range (w/o damage)
 Continuous 110% F.S.
 Transient 10 X F.S. for 50ms/Hr
 Bandwidth (-3dB) dc to 35kHz
 Response (di/dt correctly followed) 100A/μs

OUTPUT

Scaling/Turns Ratio See Table
 Loading (@15Vdc Instrument Power)
 100-300A Models Max 50Ω** Min 0Ω
 400-500A Models Max 40Ω** Min 0Ω
 ** Values shown are for dc/pkac. Max 10Ω for ac RMS.
 Response Delay ≤1μs

DIELECTRIC TEST (Cable through Window to Output)

60Hz, 1min. 2.2kV

INSTRUMENT POWER

Voltage ±15Vdc, ±5%
 Current Quiescent ±25mAdc
 Maximum Quiescent + Output Current

ACCURACY

With F.S. Input @ 25°C ±0.5% F.S.
 Linearity ±0.1% F.S.
 Offset @ 25°C ±0.25mA

TEMPERATURE & ENVIRONMENTAL

Operating Range -20 to 70°C
 Effect -20°C to 0°C ±20μA/°C
 0°C to 70°C ±6μA/°C
 Storage Range -25 to 85°C
 Operating Humidity 0-95% non-condensing

PHYSICAL

Weight 11.3oz.
 Enclosure Material Noryl SE1X
 Flammability UL 94 V-1
 Color Black
 Connections
 Instrument Power & Output M4 Stud
 Primary Conductor 1.25 in.(32mm) dia. window

NOTE: [CTA800 signal conditioners](#) provide the instrument power that the CTFG requires, as well as amplifying the low-level (mA) signal into a more typical signal. See [CTA800 spec sheet](#) for details.

DESCRIPTION

The model CTA800/801 series of signal conditioners is designed to interface with the [CTF\(B\) and CTFG series](#) of closed-loop Hall-effect current sensors. All models provide a $\pm 15\text{Vdc}$ power supply to power the current sensor.

Two types of signal conditioning are available:

Direct - this type is recommended for dc applications, but may also be used in ac applications to provide an output which is a scaled replica of the input.

RMS - this type is recommended for ac and ac/dc applications, and provides a dc output proportional to the true RMS value of the input.

The model **CTA800-P** provides a $\pm 15\text{Vdc}$ power supply only.



5 YEAR WARRANTY

MODEL SELECTION

CTA80 - (-22)*

| TYPE | | OUTPUT(S) | |
|------|------------------------------------------------------------|-----------|---------------------------------------|
| 0 | Direct (output is a scaled replica of the input) | B | 0-1mA dc & $\pm 15\text{Vdc}$ Supply |
| | | D | 0-10Vdc & $\pm 15\text{Vdc}$ Supply |
| 1 | RMS (output is proportional to the RMS value of the input) | X5 | 0-5Vdc & $\pm 15\text{Vdc}$ Supply |
| | | E | 4-20mA dc & $\pm 15\text{Vdc}$ Supply |
| | | EA | 0-20mA dc & $\pm 15\text{Vdc}$ Supply |
| | | P | $\pm 15\text{Vdc}$ Supply Only |

ORDERING INFORMATION

Example: Signal conditioner with 0-10Vdc output proportional to the RMS input and $\pm 15\text{Vdc}$ sensor supply.

CTA801-D

*For optional 230Vac instrument power, add suffix "-22".

SPECIFICATIONS

INPUT (From external current sensor)

Type nominal 100mA
 Frequency dc to 50kHz

OUTPUT (Signal Conditioning)

Type See Table
 Loading .. "B" Models 0-10k Ω
 "D" or "X5" Models 2k Ω , min.
 "E" or "EA" Models 0-500 Ω
 Field Adjustment Gain $\pm 10\%$
 Ripple (RMS models @ dc & >50Hz) <0.5% F.S.
 Response Time (to 90% F.S.)
 Direct Models (X5 or D) 1 μs
 Direct Models (B, E, EA) 30 μs
 RMS Models 100ms

OUTPUT (Power supply for external sensor)

Standard $\pm 15\text{Vdc}$
 ([Consult factory](#) for additional options.)

INSTRUMENT POWER

Standard 115Vac $\pm 10\%$, 50/60Hz
 Option "-22" 230Vac $\pm 10\%$, 50/60Hz

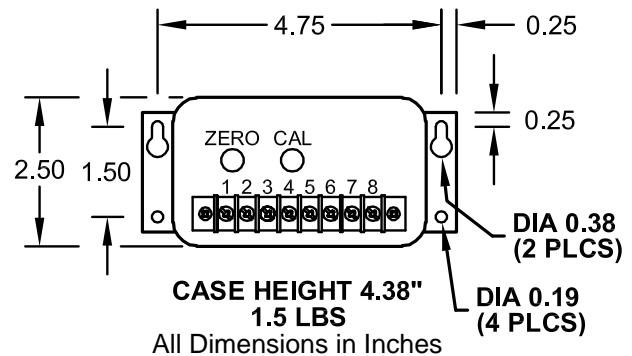
ACCURACY

Linearity $\pm 0.1\%$ F.S.

TEMPERATURE

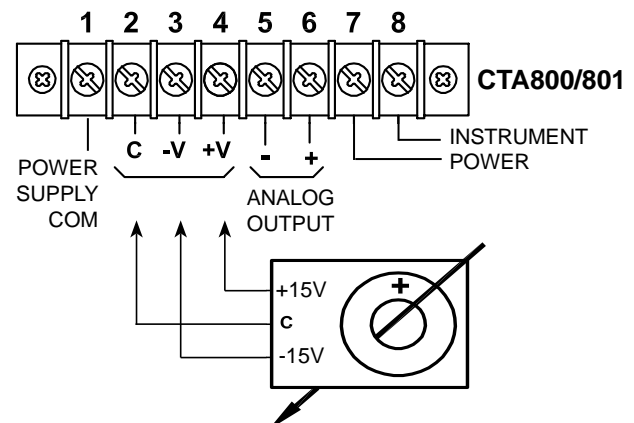
Operating Range 0-70 $^{\circ}\text{C}$
 Effect $\pm 0.01\%$ / $^{\circ}\text{C}$

CASE DIMENSIONS



Dwg. # 0902-0879-B Rev --

CONNECTION DIAGRAM



NOTE: [CTF\(B\) external sensor](#) shown as example.

Dwg. # 0902-0820-B Rev -- (mod.)



OSI UNIVERSAL POWER SUPPLY MODEL PS-4753

DESCRIPTION

The Model PS-4753 universal power supply is designed to interface with the [CTLC](#), [CTG](#), [CTH](#) and [CTU](#) series current transducers to provide the excitation current (instrument power) that the [open-loop Hall-effect sensor](#) requires.

Instrument power to the PS-4753 is rated at 110Vdc-370Vdc or 85Vac -265Vac, or with option 3 or 4, 15Vdc to 60Vdc.

A single or dual ± 12 Vdc or ± 15 Vdc output is available to power the sensor(s).



5 YEAR WARRANTY

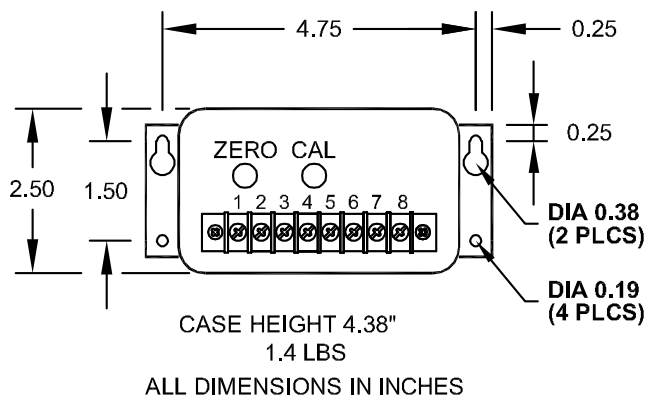
HALL-EFFECT TRANSDUCER POWER SUPPLY

MODEL SELECTION

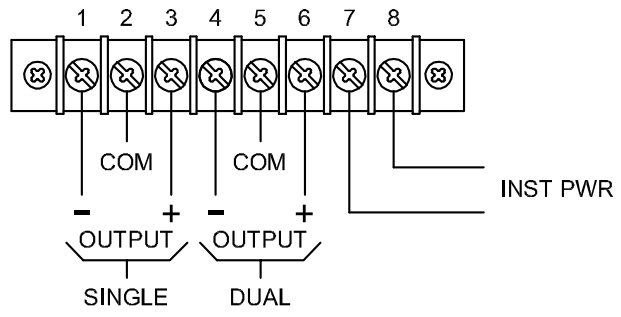
| MODEL | INSTRUMENT POWER | OUTPUT (to Sensor) |
|-----------|-------------------------|---------------------------|
| PS-4753 | 110-370Vdc or 85-265Vac | ± 15 Vdc (30Vdc) |
| PS-4753-2 | 110-370Vdc or 85-265Vac | Dual ± 15 Vdc (30Vdc) |
| PS-4753-3 | 15-60Vdc | ± 15 Vdc (30Vdc) |
| PS-4753-4 | 15-60Vdc | Dual ± 15 Vdc (30Vdc) |
| PS-4753-5 | 110-370Vdc or 85-265Vac | ± 12 Vdc (24Vdc) |
| PS-4753-6 | 110-370Vdc or 85-265Vac | Dual ± 12 Vdc (24Vdc) |

DIELECTRIC TEST..... Input/Output/Case.....2500Vac

CASE DIMENSIONS

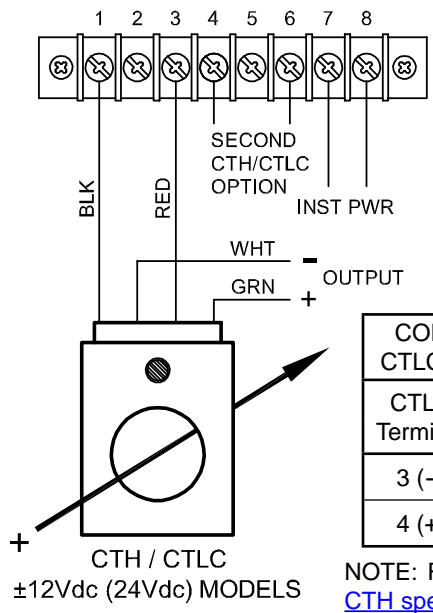


CONNECTION DIAGRAM



CONNECTION EXAMPLES

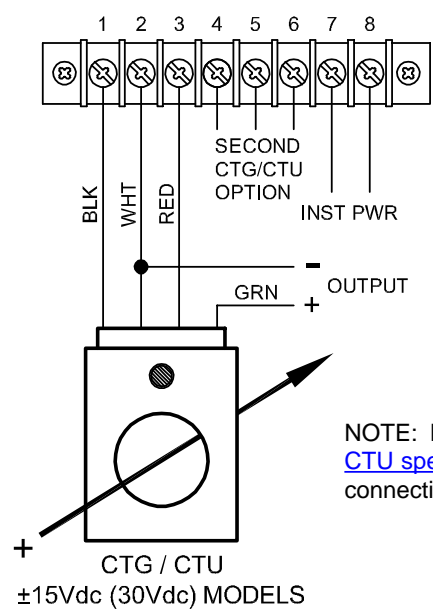
CONNECTIONS TO ± 12 Vdc (24Vdc) CURRENT SENSORS



| CTLC Terminal | PS-4753 Term. | |
|---------------|---------------|-------|
| | Single | Dual |
| 3 (-) | 1 (-) | 4 (-) |
| 4 (+) | 3 (+) | 6 (+) |

NOTE: Refer to the [CTLC](#) or [CTH spec sheet](#) for additional connection details.

CONNECTIONS TO ± 15 Vdc (30Vdc) CURRENT SENSORS



NOTE: Refer to the [CTG](#) or [CTU spec sheet](#) for additional connection details.

DESCRIPTION

MFC150 Series flexible current transducers operate based on the Rogowski principle. These coils are available in four standard sizes and can also be supplied according to customer's design by special order. Due to their design-specific features, Rogowski coils are an extremely flexible solution for current measurement and can be used in a number of cases where a traditional current transducer is not an option.

The MFC150 coil is provided with a shield that negates the influence of external magnetic fields allowing for ideal accuracy from low currents to hundreds of kiloamps.



5 YEAR WARRANTY

FEATURES



- High linearity
- Wide dynamic range
- Very useful with large wire bundles or awkwardly-shaped conductors, or in places with limited access.
- Cannot be damaged by large overloads.
- Light weight - can be suspended on the conductor being measured.

APPLICATIONS

- [Measuring devices](#), lab instrumentation
- [Power monitoring](#) & control systems
- DC ripple measurement
- Harmonics and transients monitoring
- Very high current monitoring, including pulse current

BENEFITS

- By design, flexible Rogowski coils allow for installation over various conductor sizes or grouped cables.
- The coil output gives a low voltage signal; therefore there is no danger from an open-circuited secondary. This feature makes Rogowski transducers extremely suitable for temporary measurements.
- Unlike traditional current transformers with magnetic cores, the Rogowski coil is a non-intrusive transducer. Since it has no magnetic core, it draws no power from the main circuit carrying the current to be measured.
- The absence of a magnetic core allows for a wide frequency response up to hundreds of kHz. This makes the MFC150 Series particularly suitable for measurement of harmonic content and transients.

Rogowski coils have been used for the detection and measurement of electric currents for several decades. They are based on a simple principle: an "air-cored" coil is placed around the conductor in a toroidal fashion and the magnetic field produced by the current induces a voltage in the coil. The voltage output is proportional to the rate of change of current. This voltage is integrated, thus producing an output proportional to the current.

By using precision winding techniques specially developed for the purpose, the coils are manufactured so that their output is not influenced by the position of the conductor within the toroid.

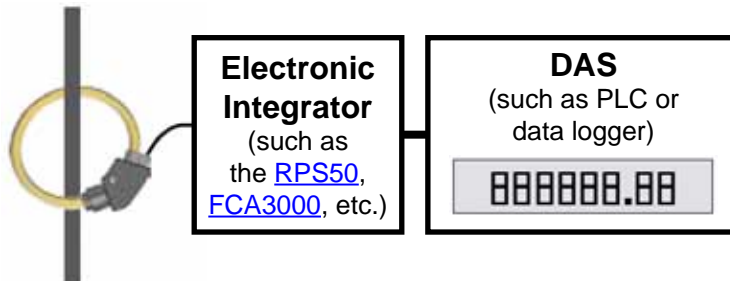
Rogowski coil current transducers are used for AC measurement applications.

They can be used similarly to current transformers but for many applications they have considerable advantages:

The transducer does not measure DC, but unlike a current transformer it can carry out accurate measurement of AC components even if there is a large superimposed DC component. This feature is particularly useful for measuring ripple currents in battery charging circuits.

A Rogowski coil current measuring system consists of the combination of a coil and [conditioning electronics](#).

Rogowski coils must be connected to an [electronic integrator](#) for 90° phase shift compensation and frequency equalization.



ORDERING INFORMATION

Example: 35" coil with 100mV/1kA output for use with an [RPS50](#).

17645

CURRENT MEASUREMENT
ROGOWSKI COILS

MODEL SELECTION

| STANDARD OUTPUT MODELS | | | | | | |
|------------------------|--------------------------------------|---------------------------|----------------|--------------------|-----------------|-----------------|
| Part Number | Rogowski Coil Length* in inches (cm) | Approx. ID in inches (cm) | Output (@50Hz) | Accuracy (typical) | Coil Resistance | Frequency Range |
| 17644 | 23.6 (60) | 6.5 (16.5) | 100mV/1kA | < ±1% | 20-140Ω | 40Hz-20kHz |
| 17645 | 35.4 (90) | 10.5 (26.7) | 100mV/1kA | < ±1% | 20-140Ω | 40Hz-20kHz |
| 17646 | 47.2 (120) | 14.0 (35.6) | 100mV/1kA | < ±1% | 20-140Ω | 40Hz-20kHz |
| 17647 | 70.9 (180) | 21.5 (54.6) | 100mV/1kA | < ±1% | 20-140Ω | 40Hz-20kHz |

The standard connection lead length on each Rogowski coil is approximately 6.6 feet (200cm). Custom lead lengths by request. *Custom coil lengths from 10 to 118 inches (25 to 300cm) available - [Consult factory](#).

SPECIFICATIONS

TRANSDUCER

Length 10 in. to 118 in. (25 to 300cm)
 Coil Diameter 0.33 in. ±0.008 in. (8.4 ±0.2mm)
 Fastener Type Bayonet holder
 Net Weight approx. 0.33 to 1.1 lb (150 to 500g)
 Material Thermoplastic rubber UL94-V0

ELECTRICAL CHARACTERISTICS

Output Level (RMS) (1) std. 100mV/1kA@50Hz
 Output Permissible Load >15kΩ for best accuracy
 Coil Resistance 70-900Ω
 Accuracy (2) <±1% Rdg., typical
 Frequency Range (3) approx. 40Hz to 20kHz
 (range depends upon coil length)
 Working Voltage 1000VRMS, CAT III,
 600VRMS, CAT IV, Pollution Deg. 2
 Test Voltage 7400VRMS/1min

STANDARDS COMPLIANCE

Safety: EN61010-1, EN61010-031, EN61010-2-031, and EN61010-2-032 Standards

CONNECTION LEAD

Lead Wires.. 2-conductor, 34-35AWG (0.15mm), plus shield
 Length approx. 6.6ft (2m) standard
 Material UL approved, 80°C, 1000V

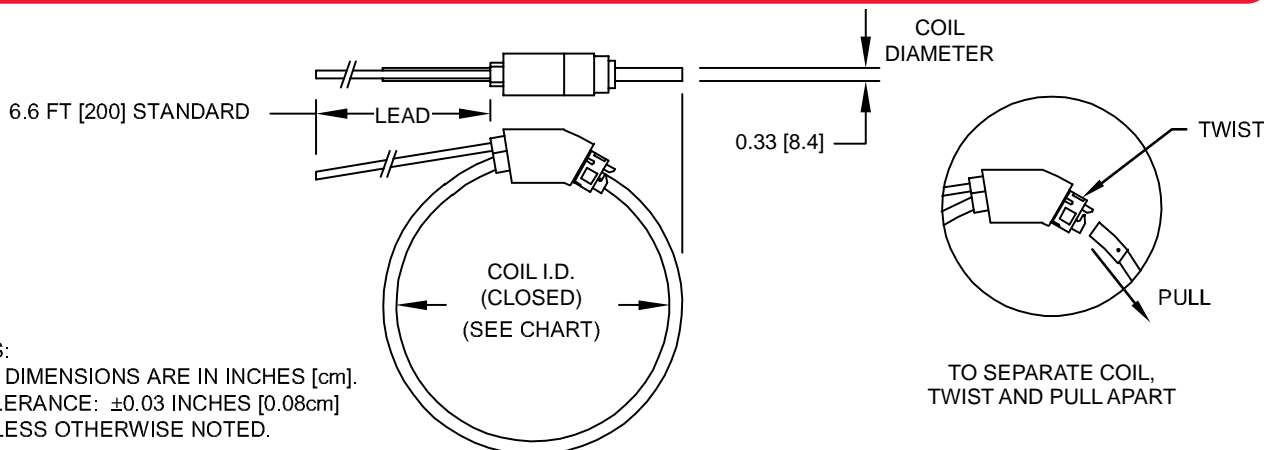
ENVIRONMENTAL CONDITIONS

Operating Temperature Range -30°C to 80°C
 Storage Temperature Range -40°C to 80°C
 Relative Humidity 95% max., non-condensing
 Protection Degree IP67

NOTES:

- (1) The Rogowski coil output is proportional to the rate of change of current. The calculation formula is: Amperes(RMS) x Hertz x K x 10⁻⁶, where K depends on manufacturing. The K value is 2 for 100mV models
- (2) All accuracies are specified at 23°C (±2°C) with the conductor carrying the current centered in the coil.
- (3) The low limit is approximate and is determined by noise effect on very low signals.

DIMENSIONS & CONNECTION DIAGRAM



- NOTES:
1. ALL DIMENSIONS ARE IN INCHES [cm].
 2. TOLERANCE: ±0.03 INCHES [0.08cm] UNLESS OTHERWISE NOTED.

Dwg# 0902-00901-B Rev B (mod.)

OSI MULTI-SCALE ROGOWSKI COIL INTEGRATOR MODEL RPS50-

DESCRIPTION

The RPS50 is a multi-scale signal conditioner designed to operate with the [MFC150 series](#) of Rogowski coils. Frequency equalization and 90° phase shift correction allow the use of [Rogowski coils](#) over a wide frequency range as well as with power and energy meters. Each unit provides a 0-3Vac output signal proportional to the instantaneous measured current. An optional dc output signal proportional to the RMS value of measured current is also available. Three DIP-switch-selectable ranges allow measurement of a wide range of current values with a single Rogowski coil.



FEATURES

- 90° phase shift correction allows [Rogowski coils](#) to be used with power and energy meters.
- Frequency equalization allows [Rogowski coils](#) to be used over a wide range of frequencies.
- DIP-switch-selectable ranges allow the same [Rogowski coil](#) to measure a wide range of current values.
- Compact and convenient DIN-Rail enclosure.
- Powered by any std. power mains Voltage from 85-250Vac or 110-250Vdc.



5 YEAR WARRANTY

MODEL SELECTION

| FULL-SCALE INPUT | | OUTPUT 2 (Optional, RMS) | |
|------------------|---------|--------------------------|----------|
| 10K | 10kAac | (blank) | (none) |
| 50K | 50kAac | P | 0-1Vdc |
| 250K | 250kAac | D | 0-10Vdc |
| | | N | 0-20mAdc |
| | | E | 4-20mAdc |

NOTE: All models are designed for use with any separately-supplied 100mV/1kA, [MFC150 series Rogowski coil](#).

APPLICATIONS

- [Measuring devices](#), lab instrumentation
- [Power monitoring](#) and control systems
- Harmonic and transient monitoring
- DC ripple measurement
- Welding machine control
- [High current measurement](#)

SPECIFICATIONS

INPUT (From [MFC150 series Rogowski coil](#))

Standard 100mV/1kA@50Hz
 Other values available upon request.
 DIP-Switch-Selectable Ranges:
 F.S. = 10kA 0.5kA, 2.5kA, 10kA
 F.S. = 50kA 2.5kA, 10kA, 50kA
 F.S. = 250kA 10kA, 50kA, 250kA
 Frequency Range (See Note 1) 8Hz-100kHz@-3dB

OUTPUT 1 (Proportional to the instantaneous measured current)

Scaling 0-F.S. Range = 0-3Vac Output
 Other values available upon request.
 Loading >10kΩ

OUTPUT 2 (Optional) (Proportional to RMS measured current)

Scaling
 Option D 0-F.S. Range = 0-10Vdc Output
 Option E 0-F.S. Range = 4-20mAdc Output
 Option N 0-F.S. Range = 0-20mAdc Output
 Option P 0-F.S. Range = 0-1Vdc Output
 Loading
 Option D >100kΩ
 Option E <300Ω
 Option N <300Ω
 Option P >100kΩ

ACCURACY (See Note 2)

Accuracy ±1.0% of F.S.

INSTRUMENT POWER

Rated Voltage (std.) ... 85-250Vac, 50/60Hz or 110-250Vdc
 Consumption 1.5VA max.

ENVIRONMENTAL

Operating Temperature Range -10°C to +50°C
 Storage Temperature Range -25°C to +70°C
 Relative Humidity 80% non-condensing

MECHANICAL

Material Plastic enclosure
 Protection IP20
 Size (approximate) 4.5in. x 3.9in. x 0.9in.
 Net Weight (approximate) 4.1oz
 DIN-Rail Format EN50022

NOTES:

1. The low limit is approximate and is determined by signal-to-noise ratio.
2. The RPS50 is delivered with the specified accuracy. The calibration of each scale is adjustable by the user to achieve the maximum accuracy in conjunction with the coil being used.

STANDARDS COMPLIANCE

SAFETY 73/23/EEC and 93/68/EEC directives, EN61010.1 safety standard

EMC 89/366/EEC directive with following modifications:
 93/31/EEC and 93/68/EEC, EN50081-2, EN50082-2, EN61326/A1

CONNECTIONS

Refer to User's Manual for installation instructions.

OHIO SEMITRONICS, INC. 4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
 PHONE: (614) 777-1005 * FAX: (614) 777-4511
 WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

OSI SINGLE-PHASE AC VOLTAGE TRANSDUCER MODEL AVT-

DESCRIPTION

The AVT model transducers are designed for applications where UL, CUL, or CE listing is required. The AVT provides isolated outputs which are proportional to the applied voltage. Transducer output is derived from the average absolute value of the input and calibrated as the RMS value of a sine wave input. The AVT takes one voltage input and provides one isolated output.



Measuring
Equipment
7N93

**5 YEAR
WARRANTY**

MODEL SELECTION

| INPUT AC VOLTS | STANDARD OUTPUTS MODEL AVT- | | | | |
|-------------------|-----------------------------|------------|----------|---------|----------|
| | UL, CUL & CE | | | | UL & CUL |
| | 0-1mAdc* | 4-20mAdc** | 0-10Vdc* | 0-5Vdc* | 4-20mAdc |
| 0 - 90 | 090A | 090E2 | 090C | 090CX5 | 090E |
| 0 - 150 | 150A | 150E2 | 150C | 150CX5 | 150E |
| 0 - 300 | 300A | 300E2 | 300C | 300CX5 | 300E |
| 0 - 600 | 600A | 600E2 | 600C | 600CX5 | 600E |

* "A", "C", and "CX5" models are self-powered from measured line.

** "E2" models are 4-20mA loop-powered, and require 15-24Vdc instrument power.

Standard "E" models require 115Vac instrument power.
For optional 230Vac instrument power - add suffix "- 22".

400Hz models are available - [consult factory](#) for VT series,
which is not UL-, CUL- or CE-approved.

ORDERING INFORMATION

Example: 120Vac Input,
single-phase with 4-20mA Output
AVT-150E

SPECIFICATIONS

INPUT

Frequency Range.....50/60Hz
Burden..... 90V & 150V models1VA
300V models2VA
600V models3VA
Overload..... 90V, 150V & 300V models F.S. rating
600V models575V

DIELECTRIC TEST

Input/Output/Case 2200Vac

INSTRUMENT POWER

"A", "C" and "CX5" models Self-powered
"E2" models 15-24Vdc
"E" models 115Vac, 50/60Hz, ±15%, 10VA
"-22" Option 230Vac, 50/60Hz, ±15%, 10VA

OUTPUT

Response 400ms
Loading
"A" models(0-1mAdc output) 0-10kΩ
"E" models(4-20mA output) 0-1kΩ
"E2" models ...(4-20mA output @ 24Vdc)... 0-600Ω
"C" & "CX5" models (5V & 10V output) ≥10MΩ
Field Adjustable Cal. ±5%

ACCURACY ±0.25% F.S. @60Hz
Includes effects of linearity (10-100%) and setpoint.
Output Ripple Less than 1.0% F.S.

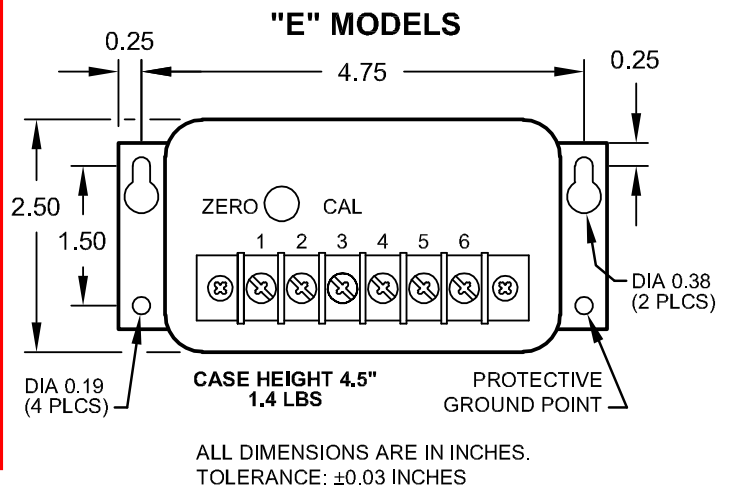
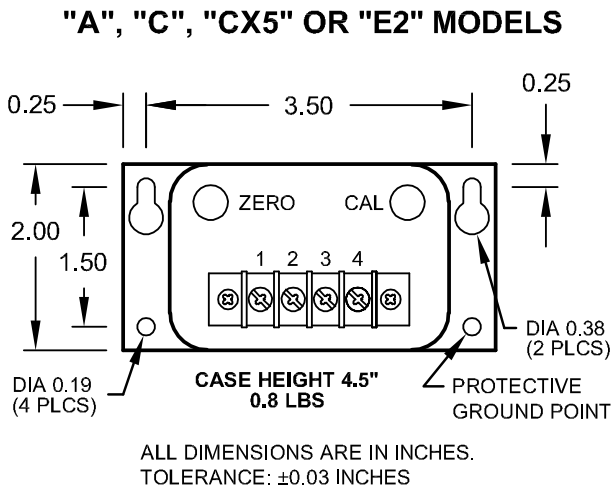
TEMPERATURE

Range -20°C to 60°C
Effect ±1.0% Rdg.

OHIO SEMITRONICS, INC.

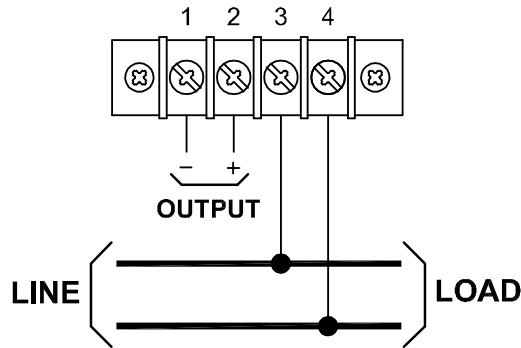
4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

CASE DIMENSIONS

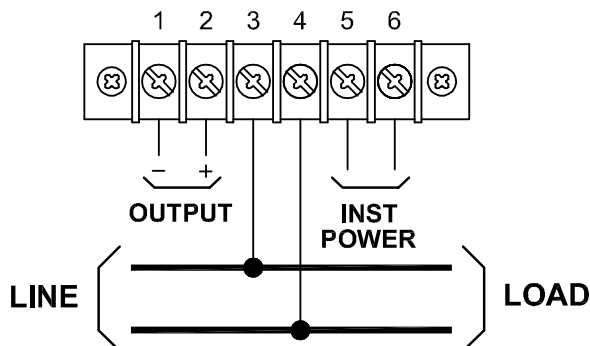


CONNECTION DIAGRAMS

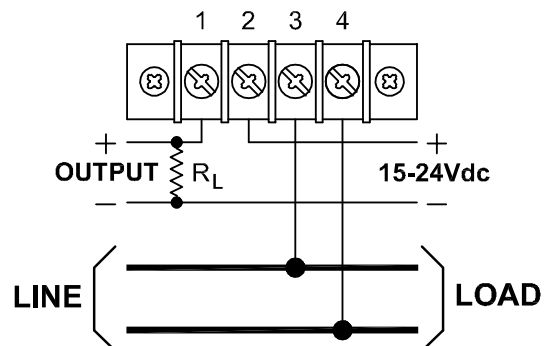
"A", "C" & "CX5" MODELS



"E" MODELS

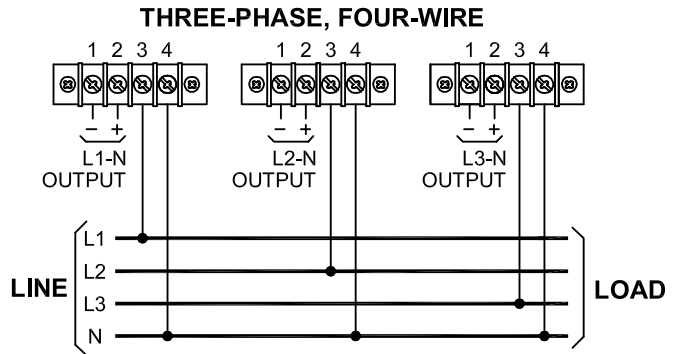
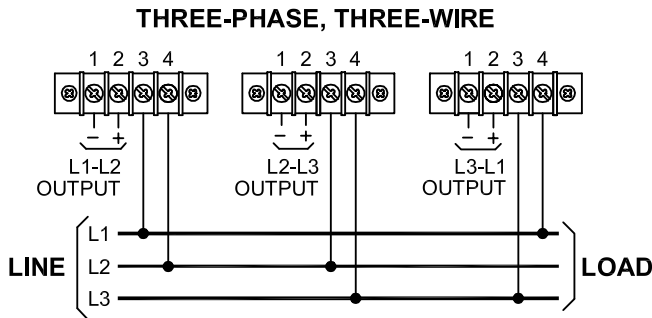


"E2" MODELS

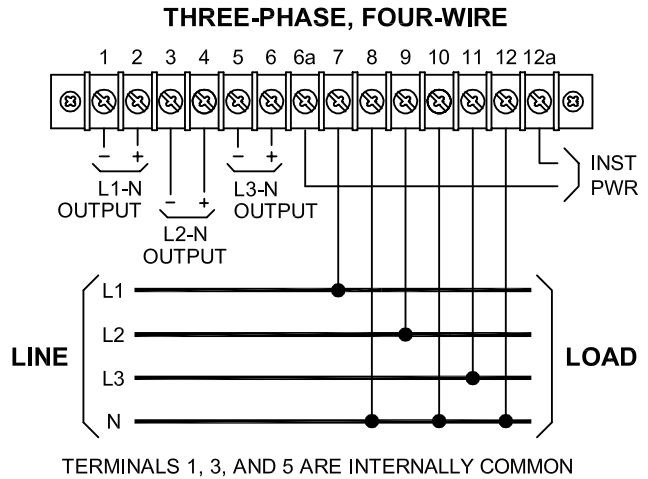
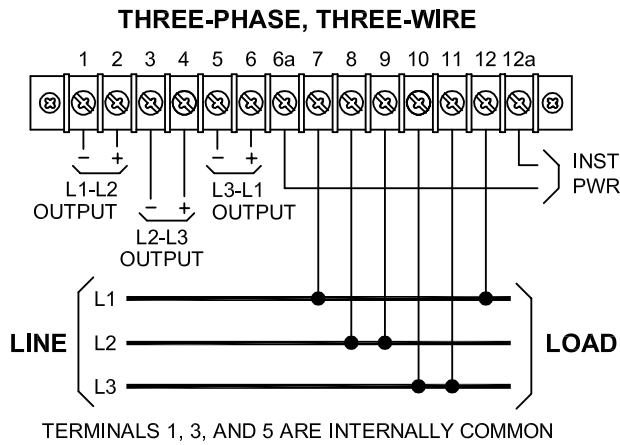


Dwg# 0902-00858-B Rev A

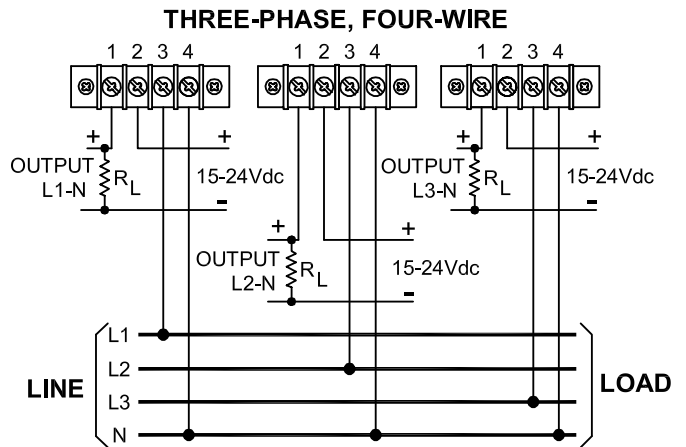
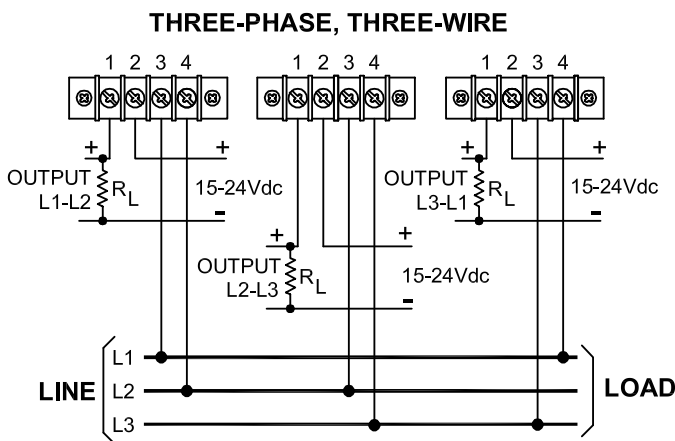
"A", "C" & "CX5" MODELS



"E" MODELS



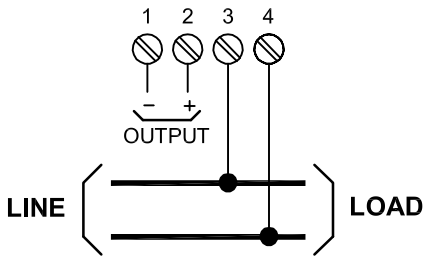
"E2" MODELS



Dwg# 0902-00880-B Rev --

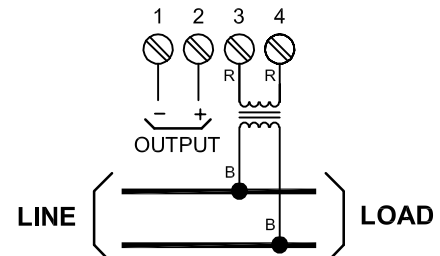
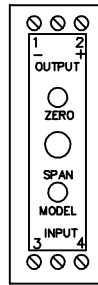
VOLTAGE MEASUREMENT (AVG)

SELF-POWERED "A" MODELS



150 & 300Vac MODELS

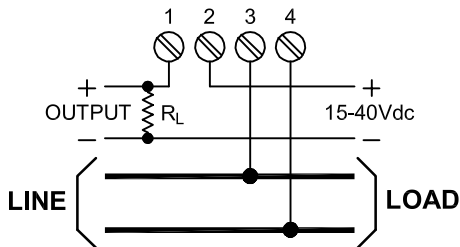
PTs: CONNECT AS SHOWN IN 600V DIAGRAM.



600Vac MODELS

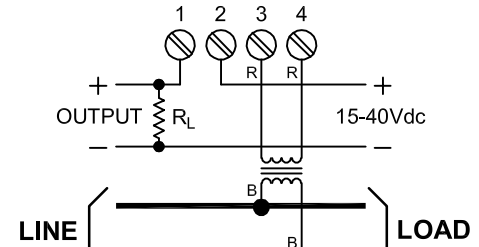
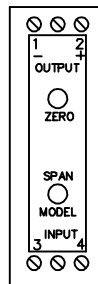
(PT SUPPLIED WITH UNIT)

LOOP-POWERED "E2" MODELS



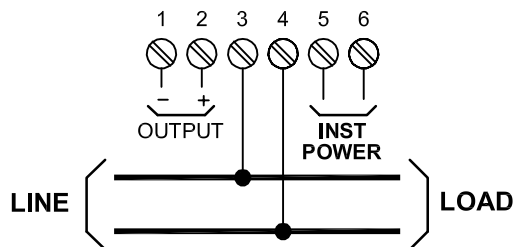
150 & 300Vac MODELS

PTs: CONNECT AS SHOWN IN 600V DIAGRAM.



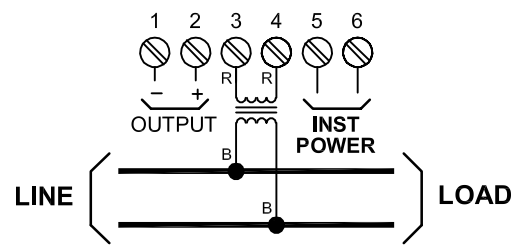
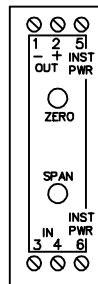
600Vac MODELS (PT SUPPLIED WITH UNIT)

"E" MODELS



150 & 300Vac MODELS

* AC INSTRUMENT POWER, TERMINALS 5, 6

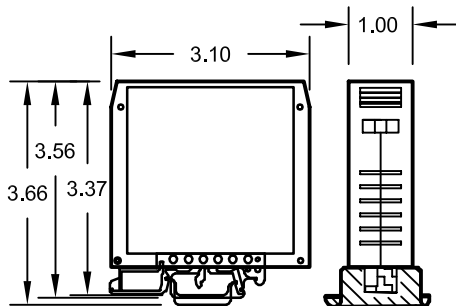


600Vac MODELS (PT SUPPLIED WITH UNIT)

* AC INSTRUMENT POWER, TERMINALS 5, 6

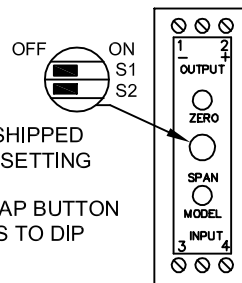
Mounting Dimensions

UNIT CAN BE MOUNTED ON:
STANDARD 35MM TOP-HAT DIN-RAIL (DIN3) PER EN 50022 OR STANDARD 32MM "G" DIN-RAIL (DIN1) PER EN 50035.



ALL DIMENSIONS IN INCHES.

Output Selections, "A" Models

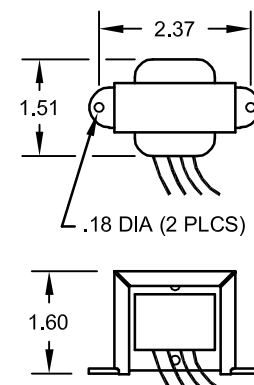


UNITS ARE SHIPPED WITH 0-1mA SETTING

REMOVE SNAP BUTTON FOR ACCESS TO DIP SWITCHES

| OUTPUT | SWITCH POS. 1 | SWITCH POS. 2 |
|--------|---------------|---------------|
| 0-1mA | OFF | OFF |
| 0-5V | ON | ON |
| 0-10V | ON | OFF |

PT Dimensions



ALL DIMENSIONS IN INCHES.

Dwg# 0902-00862-B Rev A

OSI SINGLE-PHASE AC VOLTAGE TRANSDUCER MODEL DVT-

DIN-RAIL-MOUNTED AC VOLTAGE TRANSDUCER

DESCRIPTION

The DVT model transducers provide an electrically-isolated output which is proportional to the applied voltage. Transducer output is derived from the arithmetic mean value of the input and calibrated as the RMS value of a sine wave input.

The transducer fulfills requirements and regulations regarding EMC and safety (IEC 1010) and was designed, manufactured and tested in accordance with ISO 9001.



FEATURES

- Voltage ranges up to 600V.
- Current and voltage outputs available.
- Compact DIN-rail packaging.

5 YEAR WARRANTY

APPLICATIONS

- Where voltage measurements are required.
- Where CE or CSA approvals are required.
- SCADA, process control or OEM applications.

MODEL SELECTION

| INPUT AC VOLTS | STANDARD OUTPUTS MODEL DVT- | | | | |
|----------------|-----------------------------|----------|------------|---------|--------|
| | 0-1mAdc* | 4-20mAdc | 4-20mAdc** | 0-10Vdc | 0-5Vdc |
| 0-90 | 090A | 090E | 090E2 | 090C | 090CX5 |
| 0-150 | 120A | 120E | 120E2 | 120C | 120CX5 |
| 0-300 | 240A | 240E | 240E2 | 240C | 240CX5 |
| 0-600 | 600A | 600E | 600E2 | 600C | 600CX5 |

ORDERING INFORMATION

Example: 120Vac Input with 4-20mA Output.
DVT-120E

DIN Rail lengths available - [Consult factory](#)

* "A" models are self-powered from measured voltage line.
** "E2" loop-powered models require 12-32Vdc instr. power.

"E", "C" & "CX5" models require instrument power.
Optional 230Vac instrument power - add suffix "-22"

SPECIFICATIONS

INPUT

Voltage See Table
Frequency Range 50/60Hz
Burden <2VA
Overload 120% of F.S.

DIELECTRIC TEST

Input to Instrument Power/Output/Case.....3700Vac
Instrument Power to Output/Case.....3700Vac
Output to Case.....490Vac

INSTRUMENT POWER

"A" models..... Self-powered
"E", "C" & "CX5" models..... 100-135Vac, 50/60Hz, 3VA
"E2" loop-powered models..... 12-32Vdc
"-22" Option..... 230Vac, 50/60Hz, ±15%

OUTPUT

Response Time (to 90% F.S.).....300ms
Loading
"A" models 0-15kΩ
"C" & "CX5" models 2.5kΩ minimum
"E" models 0-750Ω
"E2" models 0-600Ω @ 24V

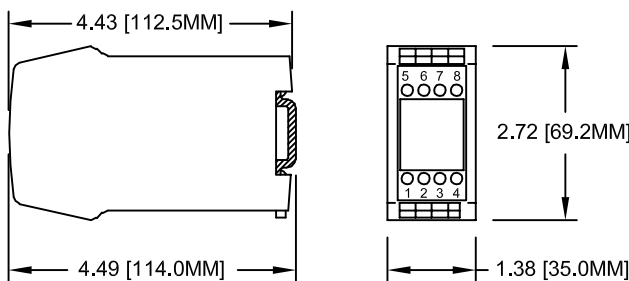
ACCURACY

..... ±0.5% F.S. @ 60Hz
Includes effects of linearity (20%-100%) and setpoint.
Output Ripple..... <1.0% p.p.

TEMPERATURE & PHYSICAL

Temperature Range -10°C to +55°C
Termination #10 AWG max.
Net Weight 0.6 lb

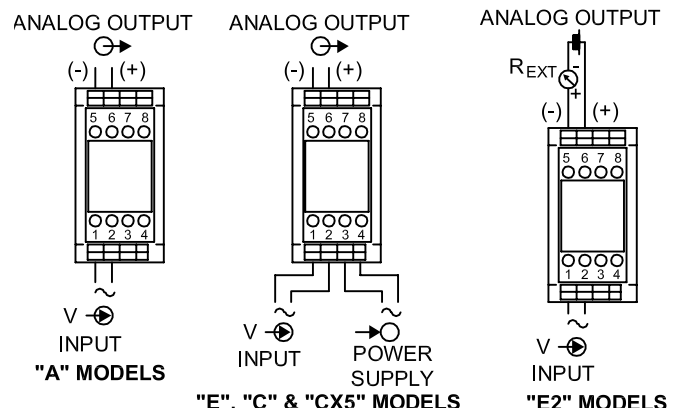
CASE DIMENSIONS



NOTES:
1. DIMENSIONS ARE IN INCHES [MM].
2. MOUNTED ON 35MM TOP-HAT DIN-RAIL.

Dwg# 0902-00866-B Rev --

CONNECTION DIAGRAMS



OHIO SEMITRONICS, INC. 4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

OSI THREE-PHASE AC RMS VOLTAGE TRANSDUCER MODEL 3VTR-

3-IN-1 AC RMS VOLTAGE TRANSDUCER 0.25% ACCURACY

FEATURES

- Accurate measurement of the **true RMS** value of input voltage over a wide frequency range.
- Input/Output dielectric test of 2500V.

5 YEAR WARRANTY

APPLICATIONS

- For use in applications where measurement of nonsinusoidal waveforms is required.
- Designed for use in three-phase systems, but may also be used to monitor three single-phase circuits where panel space is at a premium.



MODEL SELECTION

| INPUT AC VOLTS | STANDARD OUTPUTS MODEL 3VTR- | | | |
|-------------------|------------------------------|---------------------|----------------------|--------------------|
| | 0-1mA _{dc} | 0-10V _{dc} | 4-20mA _{dc} | 0-5V _{dc} |
| 0-150 | 001B | 001D | 001E | 001X5 |
| 0-300 | 002B | 002D | 002E | 002X5 |
| 0-600 | 004B | 004D | 004E | 004X5 |

ORDERING INFORMATION

Example: 120Vac Input with
a 0-10V_{dc} Output.
3VTR-001D

SPECIFICATIONS

INPUT

Voltage..... See Table
 Frequency Range 48-420Hz
 Burden (Each input)
 150Vac models..... 0.4VA @ F.S.
 300Vac models..... 0.4VA @ F.S.
 600Vac models..... 0.4VA @ F.S.
 Overload F.S. Rating

OUTPUT

Response Time (to 90% F.S.)..... 100ms
 Loading
 "D" models (0-1mA_{dc}) 0-10kΩ
 "D", "X5" models (0-5V_{dc}, 0-10V_{dc}) 2kΩ min.
 "E" models (4-20mA) 0-500Ω
 Field Adjustable Cal. ±10%

INSTRUMENT POWER

All units require 85-265Vac, 48-420Hz, 5VA or 110-370V_{dc}, 5VA.

DIELECTRIC TEST

Input/Output/Case 2500Vac RMS

ACCURACY

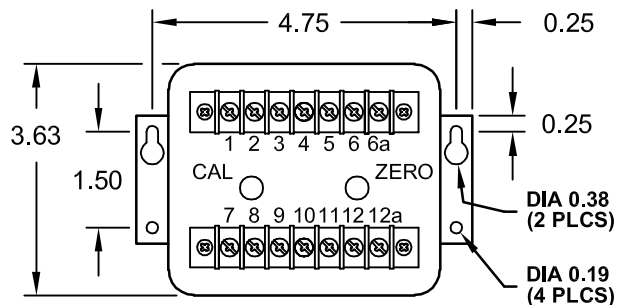
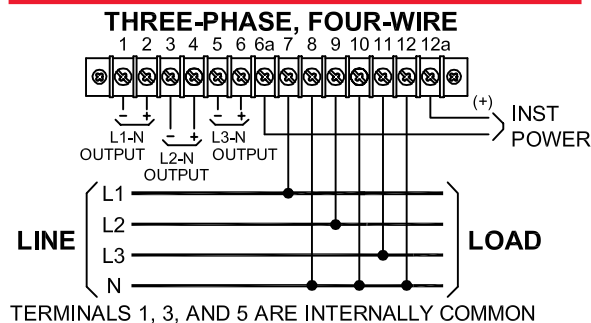
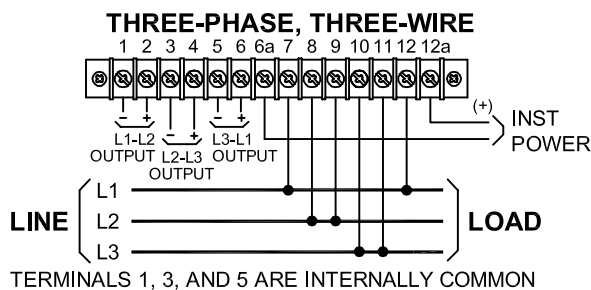
..... ±0.25% F.S. @60Hz
 (Includes effects of linearity and setpoint from 10-100% of range.
 ±0.5% F.S. typical over frequency range.)
 Output Ripple <1.0% F.S.

TEMPERATURE & PHYSICAL

Temperature Effect (-20°C to +60°C) ±1.0% R_{dg}.
 Net Weight 2.5 lbs

CONNECTION DIAGRAMS AND CASE DIMENSIONS

VOLTAGE MEASUREMENT (RMS)



- NOTES:
 1. ALL DIMENSIONS IN INCHES.
 2. ALL UNITS HAVE UNIVERSAL POWER SUPPLY 85-265Vac, 48-420Hz OR 110-370V_{dc}.

Dwg# 0902-00868-B Rev B

OHIO SEMITRONICS, INC. 4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
 PHONE: (614) 777-1005 * FAX: (614) 777-4511
 WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

OSI RMS VOLTAGE TRANSDUCER



MODEL MVTR-

2-WIRE LOOP POWERED, TRUE RMS

FEATURES

- Provides a fully-isolated 4-20mA output proportional to the measured voltage even in non-sinusoidal waveforms.
- Slim profile allows maximum use of control enclosure space.
- Recessed terminals provide increased safety.
- UL94V-0 polyamide DIN-mount case style.

APPLICATIONS

- True RMS transducer for accurately sensing voltage in single- and 3-phase installations.
- Ideal for non-sinusoidal applications, such as VFDs and SCR-controlled loads.
- Designed for industrial environments.

5 YEAR WARRANTY



Transducer output is derived from the RMS value of the input.

DIN-rail lengths available: [Consult Factory](#)

MODEL SELECTION

| INPUT AC VOLTAGE | STANDARD OUTPUTS MODEL MVTR- |
|------------------|------------------------------|
| | 4-20mA _{dc} |
| 0-150 | 150E2 |
| 0-300 | 300E2 |
| *0-600 | *600E2 |

*Note: 600Vac models supplied with potential transformer (PT)

SPECIFICATIONS

INPUT

| | | |
|------------------|-----------------------------|-------------|
| Voltage | | See Table |
| Frequency Range | Standard | 50-400Hz |
| Burden | 150Vac models | 1.0VA |
| | 300Vac, 600Vac models | 2.0VA |
| Voltage Overload | | F.S. Rating |

OUTPUT

| | | |
|---------------------|-----------------------------------------|--------------------------------------------|
| Scaling | | 0-F.S. Input = 4-20mA _{dc} Output |
| Response (to 90%) | 150 & 300V models | 200ms |
| | 600V models | 500ms |
| Loading | (@ 24V _{dc} Instr. Pwr.) | 0-500Ω |
| Setpoint Adjustment | | ±5%, minimum |

DIELECTRIC TEST

| | | |
|--------------|-------|---------|
| Input/Output | | 2200Vac |
|--------------|-------|---------|

INSTRUMENT POWER

| | | |
|--------------|---------------|----------------------|
| Loop-Powered | Nominal | 24V _{dc} |
| | Range | 15-35V _{dc} |

ACCURACY (Includes effects of linearity and setpoint)

| | | |
|---------------|--------------------|-------------|
| 60Hz | 10-100% F.S. | ±0.25% F.S. |
| all others | | ±1.0% F.S. |
| Output Ripple | | <1.0% pk-pk |

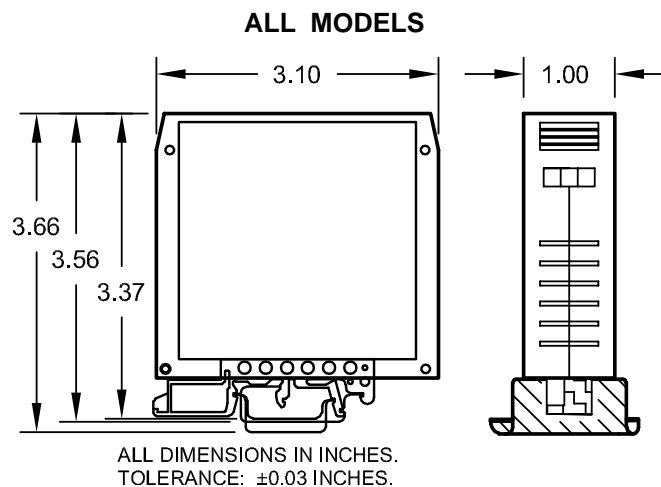
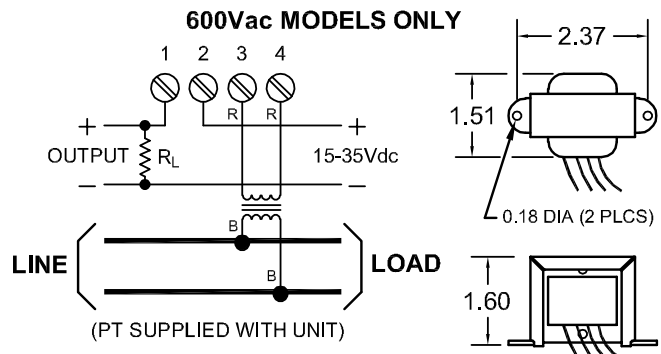
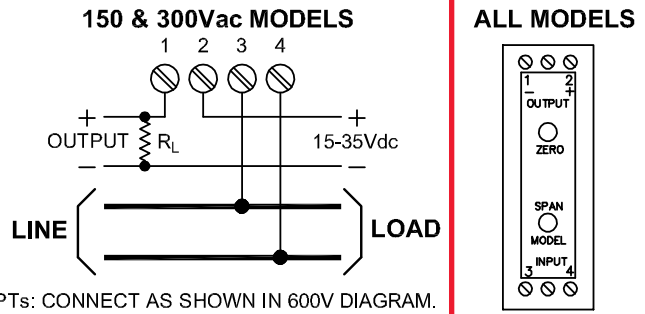
TEMPERATURE

| | | |
|-----------------|-------|---------------|
| Operating Range | | -20°C to 60°C |
| Effect | | ±1.0% F.S. |

PHYSICAL

| | | |
|------------------------|-----------------------------------------------------|-------------|
| Termination Wire Size | | 22 to 12AWG |
| Net Weight | 150Vac, 300Vac models | 0.25 lb |
| | 600Vac models with PT | 0.90 lb |
| Unit can be mounted on | RAIL EN50035 (DIN 1), or RAIL EN50022 (DIN 2) | |

CONNECTIONS & DIMENSIONS



Dwg# 0902-00863-B Rev B

OHIO SEMITRONICS, INC.

4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
 PHONE: (614) 777-1005 * FAX: (614) 777-4511
 WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

OSI SINGLE-PHASE AC RMS VOLTAGE TRANSDUCER MODEL DVTR-

DIN-RAIL-MOUNTED AC RMS VOLTAGE TRANSDUCER

FEATURES

- Accurate measurement of the true RMS value of the input signal.
- Universal ac/dc instrument power.
- Models up to 600Vac input.

5 YEAR WARRANTY



APPLICATIONS

- For use in applications where measurement of nonsinusoidal or distorted waveforms is required.
- Applications that require CE or CSA approval.
- Perfect for installations that require compact packaging.



MODEL SELECTION

| INPUT AC VOLTS | STANDARD OUTPUTS MODEL DVTR- | | | |
|----------------|------------------------------|---------------------|----------------------|--------------------|
| | 0-1mA _{dc} | 0-10V _{dc} | 4-20mA _{dc} | 0-5V _{dc} |
| 0-90 | 090B | 090D | 090E | 090X5 |
| 0-150 | 150B | 150D | 150E | 150X5 |
| 0-300 | 300B | 300D | 300E | 300X5 |
| 0-600 | 600B | 600D | 600E | 600X5 |

ORDERING INFORMATION

Example: 120Vac Input with a 0-10V_{dc} Output.

DVTR-150D

All standard units require 85-230Vac/dc instrument power (dc or 50/60Hz.)
DIN-rail lengths available: [Consult Factory](#)

SPECIFICATIONS

INPUT

Voltage See Table
Frequency Range 50/60Hz
Burden <1VA F.S.
Overload 120% F.S. Rating

DIELECTRIC TEST

Input to Instrument Power/Output/Case 3700Vac
Instrument Power to Output/Case 3700Vac
Output to Case 490Vac

INSTRUMENT POWER

Standard 85-230Vac/dc, 50/60Hz, 3.0VA

TEMPERATURE

Operating Range -10°C to +55°C

OUTPUT

Response Time (to 90%) 300ms
Loading
"B" models (0-1mA_{dc} output) 0-15kΩ
"D" & "X5" models .. (0-5, 0-10V_{dc}) 5kΩ min.
"E" models (4-20mA_{dc}) 0-750Ω

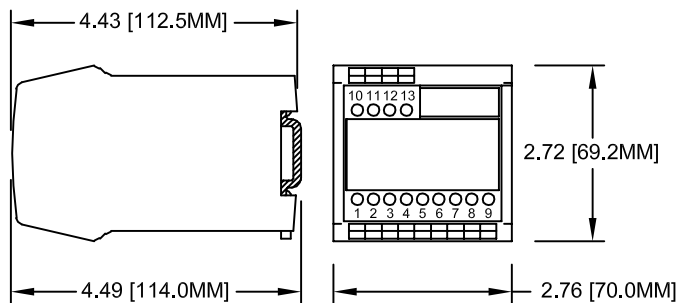
ACCURACY

..... ±0.5% F.S. @60Hz
Output Ripple <0.5% pk-pk

PHYSICAL

Termination #10 AWG max.
Net Weight 0.7 lb

CASE DIMENSIONS

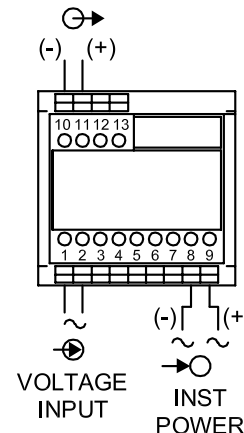


NOTES

1. DIMENSIONS ARE IN INCHES [MM].
2. MOUNTED ON 35MM TOP-HAT DIN-RAIL.

CONNECTION DIAGRAM

ANALOG OUTPUT



Dwg# 0902-00869-B Rev --

OHIO SEMITRONICS, INC.

4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

DC TO 10KHZ FREQUENCY RANGE

DESCRIPTION

The model VT8 RMS voltage transducer provides an output directly proportional to the true RMS value of the input. Input voltages may be dc, ac, non-sinusoidal or complex combinations of these waveforms.

A wide variety of standard input ranges and output types are available. [Consult factory](#) for special ranges.

FEATURES

- True RMS measurement
- 2500Vac dielectric test
- Wide frequency range

APPLICATIONS

- Accurate measurement of dc, ac and non-sinusoidal waveforms.



5 YEAR WARRANTY

MODEL SELECTION

| INPUT (mV) | STANDARD OUTPUTS MODEL VT8- | | | |
|---------------|-----------------------------|----------|---------|--------|
| | 0-1mAdc | 4-20mAdc | 0-10Vdc | 0-5Vdc |
| 0 - 50 | 015B | 015E | 015D | 015X5 |
| 0 - 100 | 016B | 016E | 016D | 016X5 |
| 0 - 200 | 017B | 017E | 017D | 017X5 |
| 0 - 250 | 018B | 018E | 018D | 018X5 |
| INPUT (Volts) | STANDARD OUTPUTS MODEL VT8- | | | |
| | 0-1mAdc | 4-20mAdc | 0-10Vdc | 0-5Vdc |
| 0 - 10 | 001B | 001E | 001D | 001X5 |
| 0 - 25 | 002B | 002E | 002D | 002X5 |
| 0 - 50 | 003B | 003E | 003D | 003X5 |
| 0 - 100 | 004B | 004E | 004D | 004X5 |
| 0 - 150 | 005B | 005E | 005D | 005X5 |
| 0 - 250 | 006B | 006E | 006D | 006X5 |
| 0 - 300 | 007B | 007E | 007D | 007X5 |
| 0 - 400 | 008B | 008E | 008D | 008X5 |
| 0 - 500 | 009B | 009E | 009D | 009X5 |
| 0 - 600 | 010B | 010E | 010D | 010X5 |
| *0 - 700 | 011B | 011E | 011D | 011X5 |
| *0 - 800 | 012B | 012E | 012D | 012X5 |
| *0 - 900 | 013B | 013E | 013D | 013X5 |
| *0 - 1000 | 014B | 014E | 014D | 014X5 |

Instrument Power Options

Option “-11” 115Vac ±15%, 50/60Hz, 5VA

Option “-22” 230Vac ±15%, 50/60Hz, 5VA

Options “-12”, “-15”, “-24”, “-28”, “-37”, “-48”
12Vdc thru 48Vdc, ±10%, 150mA max.

Standard models contain a universal switching power supply. “-11” & “-22” models utilize a lower-cost linear power supply.

ORDERING INFORMATION

Example: 0-100Vac Input with
0-10Vdc Output and 115Vac Instr. Pwr.

VT8-004D-11

* Supplied with external divider box.

SPECIFICATIONS

INPUT

Voltage See Table
 Frequency Range dc-10kHz
 Overload
 0.05-600V models 2XF.S. or 600Vac/850Vdc max.
 700V-1000V models (w/external divider box) 1.25XF.S.
 Burden >100kΩ

DIELECTRIC TEST

Input/Output/Case 2500Vac

INSTRUMENT POWER

Standard ... 85-265Vac, 48-420Hz, 5VA or 110-370Vdc, 5VA
 “-11” option 115Vac ±15%, 50/60Hz, 5VA
 “-22” option 230Vac ±15%, 50/60Hz, 5VA
 “-12”, “-15”, “-24” options 12, 15, or 24Vdc ±10%, 150mA max.
 “-28”, “-37”, “-48” options 28, 37, or 48Vdc ±10%, 150mA max.

OUTPUT

Type See Table
 Response (to 90%) 100ms
 Loading
 “B” models (0-1mAdc) 0-10kΩ
 “D”, “X5” models (0-10, 0-5Vdc) >2kΩ
 “E” models (4-20mAdc) 0-500Ω
 Field Adjustable Cal. ±10%

ACCURACY

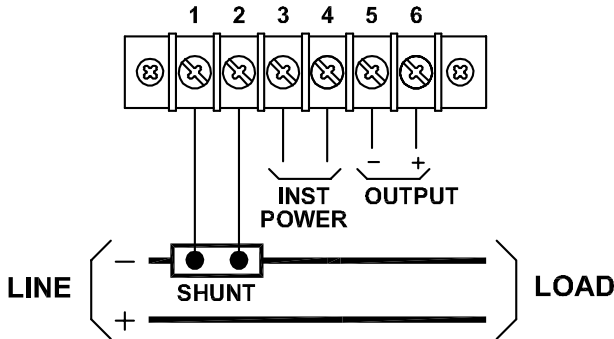
Includes effects of linearity, setpoint and repeatability.
 All Models ±0.25% F.S. @ 48-420Hz

TEMPERATURE

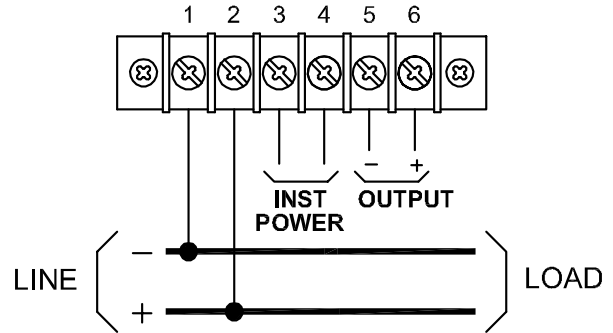
Operating Range -10°C to 60°C
 Effect ±1.0% Rdg., ±0.1%F.S.

CONNECTION DIAGRAMS

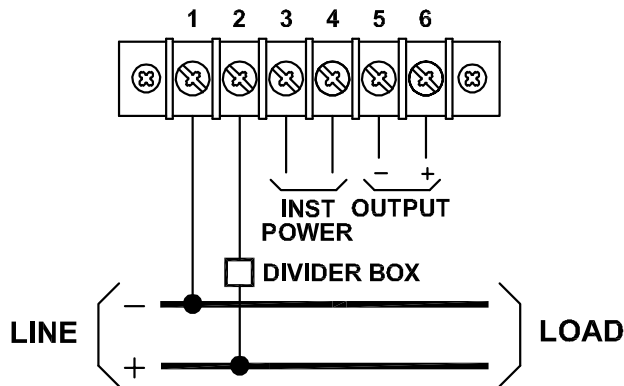
**SHUNT ISOLATOR
50mV - 250mV MODELS**



10V - 600V MODELS



700V - 1000V MODELS

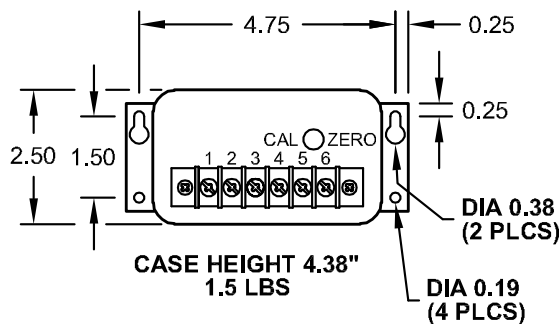


Dwg# 0902-00847-B Rev A

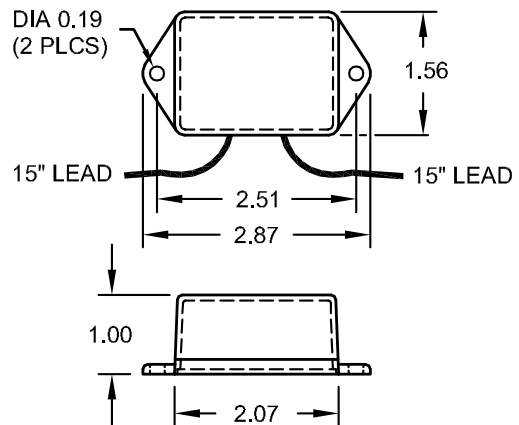
Note: All models above 600V input require a divider box in series with the input terminal #2. Do not connect the input voltage directly! Damage to the VT8 will result if not properly connected.

CASE DIMENSIONS

MODEL VT7 & VT8



DIVIDER BOX



All dimensions in inches

VOLTAGE MEASUREMENT (RMS)

DC TO 10KHZ FREQUENCY RANGE

DESCRIPTION

The model VT7 dc voltage transducer provides an output directly proportional to the input. It functions as a milliVolt shunt or high-voltage isolator.

This unit is primarily intended to measure and isolate dc voltages, but may also be used to monitor ac and non-sinusoidal waveforms. The output signal is a scaled replica of the input (ac input = ac output, etc.). For ac or bidirectional dc applications, a model with bidirectional output type must be used.

A wide variety of standard input ranges and output types are available. [Consult factory](#) for special ranges.

FEATURES

- dc voltage measurement
- 2500Vac dielectric test
- Wide frequency range

APPLICATIONS

- Accurate measurement and isolation of dc voltages.
- Shunt isolator



5 YEAR WARRANTY

MODEL SELECTION

| *INPUT (mV) | STANDARD OUTPUTS MODEL VT7- | | | |
|-------------|-----------------------------|--------|--------|-------|
| | 0-±1mA | 4-20mA | 0-±10V | 0-±5V |
| *0 - 50 | 015B | 015E | 015D | 015X5 |
| *0 - 100 | 016B | 016E | 016D | 016X5 |
| *0 - 200 | 017B | 017E | 017D | 017X5 |
| *0 - 250 | 018B | 018E | 018D | 018X5 |

| INPUT (Volts) | STANDARD OUTPUTS MODEL VT7- | | | |
|---------------|-----------------------------|--------|--------|-------|
| | 0-±1mA | 4-20mA | 0-±10V | 0-±5V |
| 0 - 10 | 001B | 001E | 001D | 001X5 |
| 0 - 25 | 002B | 002E | 002D | 002X5 |
| 0 - 50 | 003B | 003E | 003D | 003X5 |
| 0 - 100 | 004B | 004E | 004D | 004X5 |
| 0 - 150 | 005B | 005E | 005D | 005X5 |
| 0 - 250 | 006B | 006E | 006D | 006X5 |
| 0 - 300 | 007B | 007E | 007D | 007X5 |
| 0 - 400 | 008B | 008E | 008D | 008X5 |
| 0 - 500 | 009B | 009E | 009D | 009X5 |
| 0 - 600 | 010B | 010E | 010D | 010X5 |
| **0 - 700 | 011B | 011E | 011D | 011X5 |
| **0 - 800 | 012B | 012E | 012D | 012X5 |
| **0 - 900 | 013B | 013E | 013D | 013X5 |
| **0 - 1000 | 014B | 014E | 014D | 014X5 |

* Shunt inputs

** Supplied with external divider box.

Instrument Power Options

Option "-11" 115Vac ±15%, 50/60Hz, 5VA

Option "-22" 230Vac ±15%, 50/60Hz, 5VA

Options "-12", "-15", "-24", "-28", "-37", "-48"
12Vdc thru 48Vdc, ±10%, 150mA max.

Standard models contain a universal switching power supply. "-11" & "-22" models utilize a lower-cost linear power supply.

ORDERING INFORMATION

Example: 0-50mVdc Input with
4-20mAadc Output and
125Vdc Instrument Power
VT7-015E

SPECIFICATIONS

INPUT

Voltage See Table
Frequency Range dc-10kHz
Overload
0.05-600V models 2XF.S. or 600Vac/850Vdc max.
700V-1000V models (w/external divider box) 1.25XF.S.
Burden >100kΩ

DIELECTRIC TEST

Input/Output/Case 2500Vac

INSTRUMENT POWER

Standard ... 85-265Vac, 48-420Hz, 5VA or 110-370Vdc, 5VA
"-11" option 115Vac ±15%, 50/60Hz, 5VA
"-22" option 230Vac ±15%, 50/60Hz, 5VA
"-12", "-15", "-24" options 12, 15, or 24Vdc ±10%, 150mA max.
"-28", "-37", "-48" options 28, 37, or 48Vdc ±10%, 150mA max.

OUTPUT

Type See Table
Response (to 90%) 50µs
Loading
"B" models (0-1mA) 0-10kΩ
"D", "X5" models (0-10, 0-5V) >2kΩ
"E" models (4-20mA) 0-500Ω
Field Adjustable Cal. ±10%

ACCURACY

Includes effects of linearity, setpoint and repeatability.
All Models ±0.25% F.S. @ DC

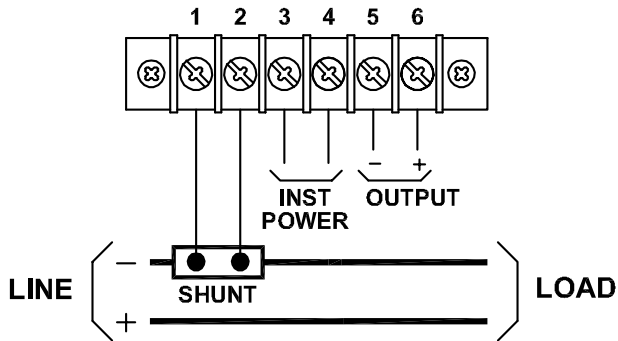
TEMPERATURE

Operating Range -10°C to 60°C
Effect ±1.0% Rdg., ±0.1% F.S.

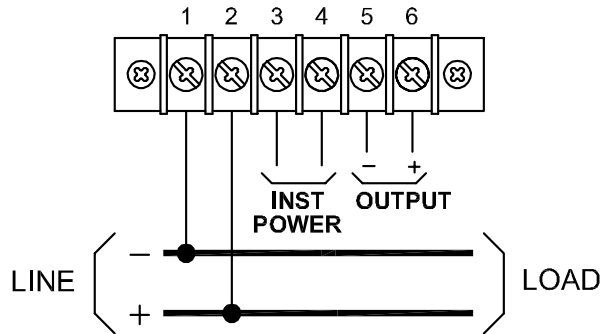
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CONNECTION DIAGRAMS

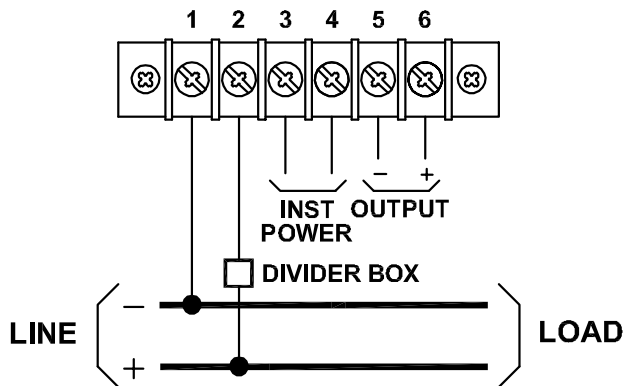
**SHUNT ISOLATOR
50mV - 250mV MODELS**



10V - 600V MODELS



700V - 1000V MODELS

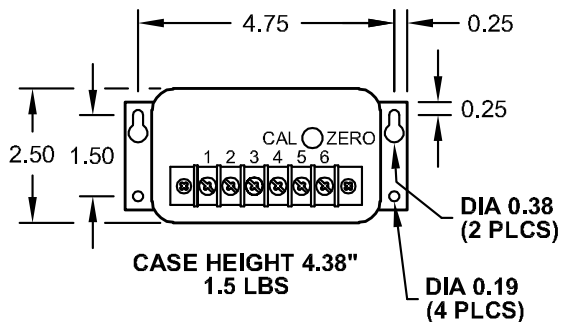


Dwg# 0902-00847-B Rev A

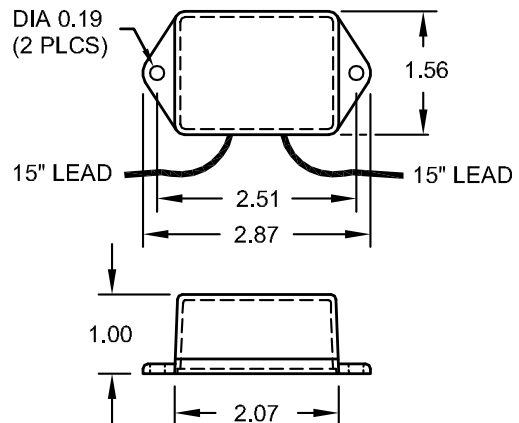
Note: All models above 600V input require a divider box in series with the input terminal #2. Do not connect the input voltage directly! Damage to the VT7 will result if not properly connected.

CASE DIMENSIONS

MODEL VT7 & VT8



DIVIDER BOX



All dimensions in inches



USER-SELECTABLE INPUT RANGES WITH 4-20mA OUTPUT

DESCRIPTION

The **DVT7E** is a single-model dc voltage transducer with user-selectable input ranges. DIP switch-selectable ranges extend from 50mV to 600V. An output of 4-20mA is proportional to a zero-to-F.S. input for the selected range. Packaging is in a compact, easy-to-install, DIN rail-mount enclosure.



5 YEAR WARRANTY

FEATURES

- DC voltage measurement
- 4-20mA sensor-powered output
- Input, output and instrument power are electrically isolated
- DIN rail-mount enclosure

APPLICATIONS

- Shunt isolation
- Solar string voltage monitoring
- Monitoring of battery ground problems
- Monitoring of over-voltage or under-voltage conditions to avoid DC motor drive problems.

SPECIFICATIONS

INPUT

(3 separate inputs, each with DIP switch-selectable ranges)

Millivolt Input:

Selectable Ranges: 50, 100, 150, 250 & 500mVdc

Low-Voltage Input:

Selectable Ranges: 5, 10, 15, 25 & 50Vdc

High-Voltage Input:

Selectable Ranges: 50, 100, 150, 250, 500 & 600Vdc

(*1000V option is available - [Consult factory](#) for details)

Over-range (without damage)

500V and 600V Ranges 850Vpk

All Other Ranges 2 X F.S. Rating

Frequency (all ranges) Unidirectional dc

Impedance:

Millivolt Input ≥1kΩ

Low-Voltage Input ≥100kΩ

High-Voltage Input ≥1MΩ

OUTPUT

Type 4-20mA

Scaling 0-F.S. Input = 4-20mA Output

Response (to 90%) 100μs, Typical

Loading 0-500Ω

INSTRUMENT POWER

Standard 24V, ±20%, dc/50-400Hz, ≤2W

ACCURACY (Includes effects of setpoint, linearity and offset)

At Any Range Setting ±0.5% F.S.

DIELECTRIC TEST

Input to Output/Instrument Power 2500Vac

Instrument Power to Output 500Vac

TEMPERATURE & ENVIRONMENTAL

Operating Range -30°C to +60°C

Temperature Effect ±1% Rdg., ±0.1% F.S.

Relative Humidity 0-95%, non-condensing

PHYSICAL

Mounts on standard 35mm "Top Hat" rail, per EN50052/EN60715.

Termination Wire Size 12-30AWG

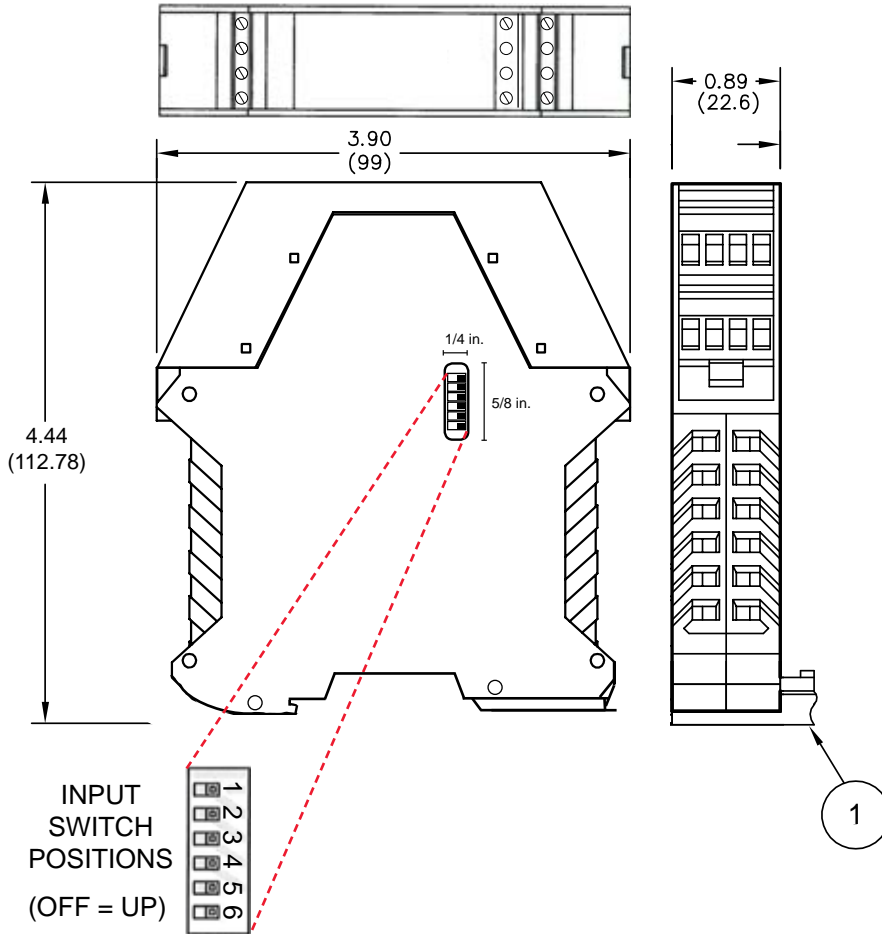
IP Rating IP20

SWITCH POSITIONS

To select the desired input range, set the switches "ON" as indicated in the chart below.

| INPUT RANGE | SWITCH POSITIONS | | | | | | |
|--------------------------|------------------|-----|-----|-----|-----|-----|-----|
| | SW1 | SW2 | SW3 | SW4 | SW5 | SW6 | |
| High-Voltage Input (Vdc) | 1000* | ON | ON | ON | off | off | ON |
| | 600 | off | off | ON | ON | ON | off |
| | 500 | off | ON | ON | ON | ON | off |
| | 250 | ON | off | off | ON | ON | off |
| | 150 | ON | ON | off | ON | ON | off |
| | 100 | ON | ON | ON | off | ON | off |
| Low-Voltage Input (Vdc) | 50 | ON | ON | ON | ON | ON | off |
| | 25 | ON | off | off | ON | off | ON |
| | 15 | ON | ON | off | ON | off | ON |
| | 10 | ON | ON | ON | off | off | ON |
| | 5 | ON | ON | ON | ON | off | ON |
| Millivolt Input (mVdc) | 500 | off | ON | ON | ON | off | off |
| | 250 | ON | off | off | ON | off | off |
| | 150 | ON | ON | off | ON | off | off |
| | 100 | ON | ON | ON | off | off | off |
| | 50 | ON | ON | ON | ON | off | off |

DIMENSIONS



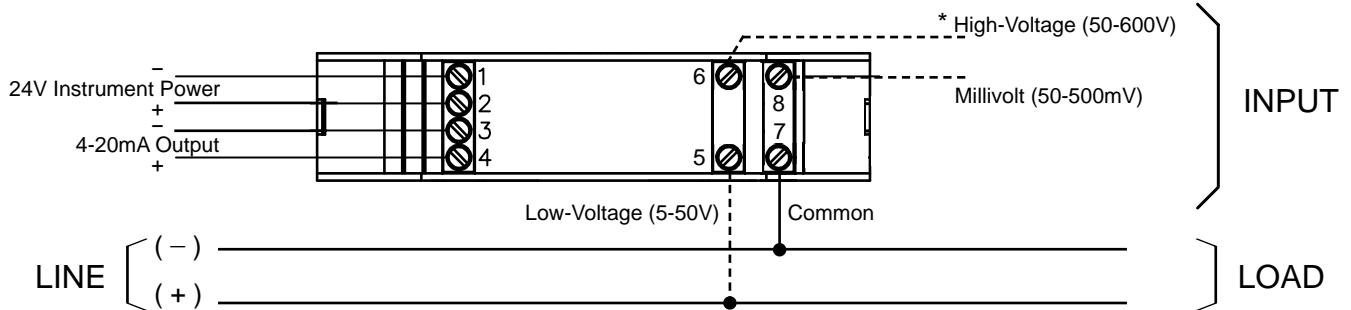
1) DIN Rail 35mm x 7.5mm x 2 meter, slotted (OSI P/N 18066)

ALL DIMENSIONS IN INCHES (mm)

TOLERANCE: ±0.03 IN. (0.76mm)

Dwg# 0902-00740-B Rev -- (mod.)

CONNECTION DIAGRAM



Dwg# 0902-00847-B Rev -- (mod.)

OSI UNIDIRECTIONAL DC VOLTAGE ISOLATOR MODEL VTU-

LOW COST

FEATURES

- Output is electrically isolated from the input and is directly proportional to the input.
- Unidirectional signals only.
- Provides 1500V dielectric protection.

APPLICATIONS

- Monitoring of substation or electric circuit performance.
- Isolation and amplification of shunt output.
- Electric generator or solar field monitoring.

MODEL SELECTION

| INPUT DC VOLTS | STANDARD OUTPUTS MODEL VTU- | | |
|----------------|-----------------------------|----------------------|--------------------|
| | 0-1mA _{dc} | 4-20mA _{dc} | 0-5V _{dc} |
| 0 - 0.05 | 015B | 015E | 015X5 |
| 0 - 0.10 | 016B | 016E | 016X5 |
| 0 - 10 | 001B | 001E | 001X5 |
| 0 - 25 | 002B | 002E | 002X5 |
| 0 - 50 | 003B | 003E | 003X5 |
| 0 - 100 | 004B | 004E | 004X5 |
| 0 - 150 | 005B | 005E | 005X5 |
| 0 - 250 | 006B | 006E | 006X5 |
| 0 - 300 | 007B | 007E | 007X5 |
| 0 - 400 | 008B | 008E | 008X5 |
| 0 - 500 | 009B | 009E | 009X5 |
| 0 - 600 | 010B | 010E | 010X5 |
| 0 - 700 | 011B | 011E | 011X5 |
| 0 - 800 | 012B | 012E | 012X5 |
| 0 - 900 | 013B | 013E | 013X5 |
| 0 - 1000 | 014B | 014E | 014X5 |

700-1000V models are supplied with an external divider box. 50mV and 100mV models can be used for shunt isolation.

SPECIFICATIONS

INPUT

- Voltage See Table
 Frequency Range dc to 1000Hz.
 Burden
 0.05 & 0.10mV Input models >500Ω
 All other models >100kΩ
 Overload
 0.05-600V 2 X F.S. or 850Vdc max.
 700-1000V (w/external divider box) 1500Vdc max.

DIELECTRIC TEST (direct input/output/case) 1500Vdc

INSTRUMENT POWER

- Standard 115Vac ±15%, 50/60Hz, 4VA
 “-22” option 230Vac ±15%, 50/60Hz, 4VA

OUTPUT

- Response Time (to 90%) 500μs
 Loading
 “B” models (0-1mA_{dc} output) 0-5kΩ
 “E” models (4-20mA_{dc} output) 0-300Ω
 “X5” models (0-5V_{dc} output) ≥2kΩ
 Field Adjustable Cal. ±10%

ACCURACY ±0.25% Rdg., ±0.1% F.S. @dc
 includes effects of linearity and repeatability

TEMPERATURE

- Effect (-5°C to +40°C) ±1.0% Rdg., ±0.1% F.S.

5 YEAR WARRANTY

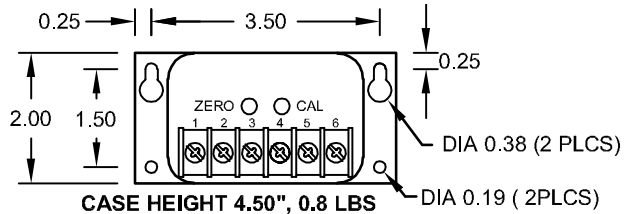


ORDERING INFORMATION

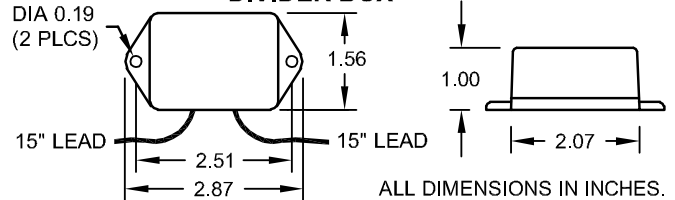
Example: 150Vdc Input with 4-20mA_{dc} Output.

VTU-005E

CASE DIMENSIONS

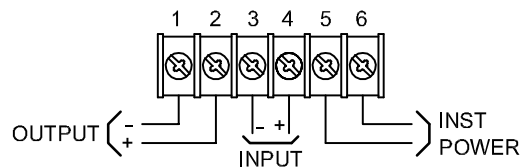


DIVIDER BOX

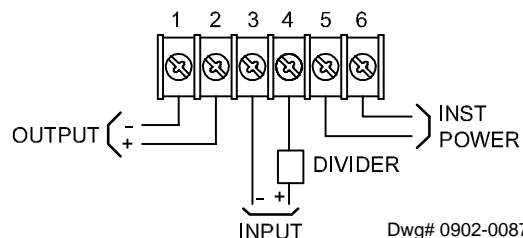


CONNECTION DIAGRAMS

50mV-600V MODELS



700V-1000V MODELS



Dwg# 0902-00870-B Rev A

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OSI UNIDIRECTIONAL DC HIGH-VOLTAGE ISOLATOR MODEL VTH-

10kV DIELECTRIC TEST

FEATURES

- Output is electrically isolated from the input and is directly proportional to the input amplitude.
- Input/output dielectric test of 10kV.

APPLICATIONS

- Monitoring of substation or electric circuit performance.
- Isolation and amplification of shunt output.

| INPUT DC VOLTS | STANDARD OUTPUTS MODEL VTH- | | | |
|----------------|-----------------------------|----------------------|---------------------|--------------------|
| | 0-1mA _{dc} | 4-20mA _{dc} | 0-10V _{dc} | 0-5V _{dc} |
| 0 - 0.050 | 015B | 015E | 015D | 015X5 |
| 0 - 0.100 | 016B | 016E | 016D | 016X5 |
| 0 - 100 | 004B | 004E | 004D | 004X5 |
| 0 - 250 | 006B | 006E | 006D | 006X5 |
| 0 - 400 | 008B | 008E | 008D | 008X5 |
| 0 - 1000 | 014B | 014E | 014D | 014X5 |
| 0 - 2500 | 020B | 020E | 020D | 020X5 |
| 0 - 4000 | 022B | 022E | 022D | 022X5 |

Standard models have 3-ft. input leads.
For optional 15-ft. input leads, add suffix "L" to model number



ORDERING INFORMATION

Example: 1000V_{dc} Input with a 4-20mA Output.
VTH-014E

5 YEAR WARRANTY

SPECIFICATIONS

INPUT

Voltage Range See Table
Over-range w/o damage 120% of Rating
Burden ≤1mA

DIELECTRIC TEST

Input to Output/Instrument Power 10kVac
Instrument Power to Output 2200Vac

INSTRUMENT POWER

Standard 115Vac, 50/60Hz, 3VA

ACCURACY ±0.5% F.S.

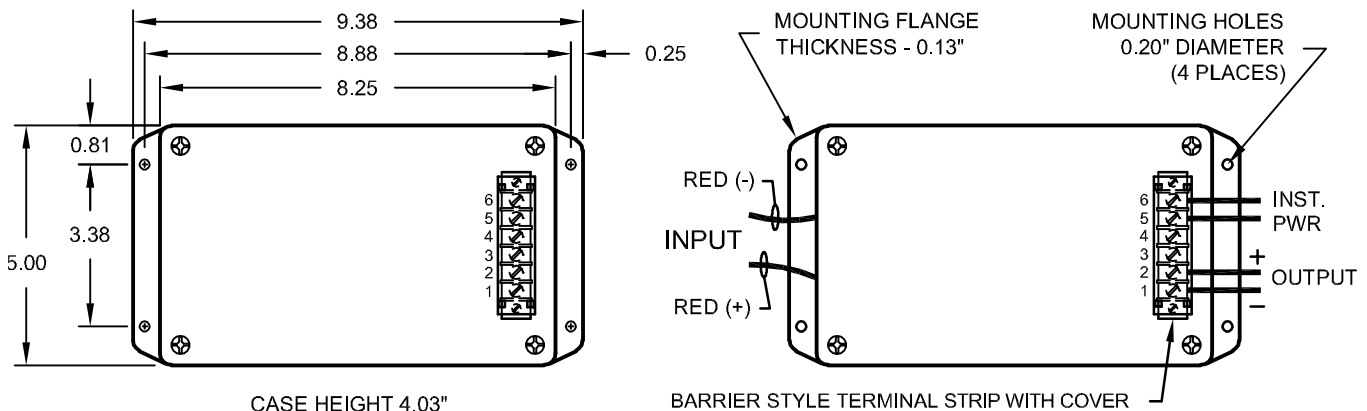
OUTPUT

Response (to 90%) 100ms
Loading
"B" models (0-1mA_{dc} output) ≤10kΩ
"X5", "D" models ... (5V, 10V_{dc} output) ≥2kΩ
"E" models (4-20mA_{dc} output) ≤500Ω

TEMPERATURE & PHYSICAL

Temperature Effect (-10°C to +60°C) ±1.0% Rdg., ±0.1% F.S.
Net Weight 3.0 lb
Input Leads
Wire Size 22AWG
Length Standard 3ft.
with option "L" 15ft.

DIMENSIONS & CONNECTIONS



ALL DIMENSIONS IN INCHES
TOLERANCE - 2 DECIMAL - 0.03"

0902-00813-B

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OSI AC WATT TRANSUDUCER MODEL PC5-/PC4-

INCLUDES PHASE-FIRED & ZERO-CROSSING MEASUREMENTS

DESCRIPTION

The PC5 Series Watt transducers utilize Hall-effect multipliers to provide continuous multiplication of voltage and current to accurately measure real power delivered to a load. Full-scale current ranges up to 1000A and full-scale voltage ranges up to 600V are available in one-, two-, 2½- or three-element transducers.

These highly-reliable units have been used for many years in industrial monitoring and control applications by thousands of customers. They are widely used in applications with chopped or distorted waveforms where they have advantages over pulse-width modulated units.

FEATURES

- Accurate regardless of variations in voltage, current, power factor, or load.
- Output is proportional to true power delivered to a load; $P = EI(\cos \phi)$.
- Accuracy maintained when supplied with internal or [external current sensors](#). **Factory calibrated.**

APPLICATIONS

- Equipment power consumption.
- For use with SCR controls, chopped waveforms, or where harmonic components exist.
- Standard outputs provide signal for interface with [meters](#), recorders, or data acquisition equipment.



5 YEAR WARRANTY

ORDERING INFORMATION

Example: Three-Phase, Three-Wire, Self-Powered, 120V, 5A Input with 0-1000 Watts = 0-10Vdc Output.

PC5-004C

Split-core external CT option is available - [consult factory](#).

400Hz Models: To order for use on 400Hz applications, substitute "PC4-" for "PC5-" in model number.

MODEL SELECTION

SINGLE-PHASE, TWO-WIRE (ONE-ELEMENT) MODELS WITH INTERNAL CURRENT SENSOR



| INPUTS | | F.S. (WATTS) | STANDARD DC OUTPUT MODEL PC5- OR PC4- | | | | | | | | | |
|----------|---------|-----------------|---------------------------------------|--------|---------|--------|--------|-----------|----------|--------|-------|--|
| AC VOLTS | AC AMPS | | 0-±1mA* | 0-±1mA | 0-±10V* | 0-±10V | 4-20mA | 4-12-20mA | 4-20mA** | 0-±5V* | 0-±5V | |
| 0-150 | 0 - 1 | 100 | 103A | 103B | 103C | 103D | 103E | 103EM | 103E2 | 103CX5 | 103X5 | |
| | 0 - 2.5 | 250 | 106A | 106B | 106C | 106D | 106E | 106EM | 106E2 | 106CX5 | 106X5 | |
| | 0 - 5 | 500 | 001A | 001B | 001C | 001D | 001E | 001EM | 001E2 | 001CX5 | 001X5 | |
| | 0 - 10 | 1k | 010A | 010B | 010C | 010D | 010E | 010EM | 010E2 | 010CX5 | 010X5 | |
| | 0 - 15 | 1.5k | 019A | 019B | 019C | 019D | 019E | 019EM | 019E2 | 019CX5 | 019X5 | |
| | 0 - 20 | 2k | 117A | 117B | 117C | 117D | 117E | 117EM | 117E2 | 117CX5 | 117X5 | |
| | 0 - 25 | 2.5k | 118A | 118B | 118C | 118D | 118E | 118EM | 118E2 | 118CX5 | 118X5 | |
| 0-300 | 0 - 1 | 200 | 104A | 104B | 104C | 104D | 104E | 104EM | 104E2 | 104CX5 | 104X5 | |
| | 0 - 2.5 | 500 | 107A | 107B | 107C | 107D | 107E | 107EM | 107E2 | 107CX5 | 107X5 | |
| | 0 - 5 | 1k | 002A | 002B | 002C | 002D | 002E | 002EM | 002E2 | 002CX5 | 002X5 | |
| | 0 - 10 | 2k | 011A | 011B | 011C | 011D | 011E | 011EM | 011E2 | 011CX5 | 011X5 | |
| | 0 - 15 | 3k | 020A | 020B | 020C | 020D | 020E | 020EM | 020E2 | 020CX5 | 020X5 | |
| | 0 - 20 | 4k | 110A | 110B | 110C | 110D | 110E | 110EM | 110E2 | 110CX5 | 110X5 | |
| | 0 - 25 | 5k | 119A | 119B | 119C | 119D | 119E | 119EM | 119E2 | 119CX5 | 119X5 | |
| 0-600 | 0 - 1 | 500 | 105A | 105B | 105C | 105D | 105E | 105EM | 105E2 | 105CX5 | 105X5 | |
| | 0 - 2.5 | 1k | 108A | 108B | 108C | 108D | 108E | 108EM | 108E2 | 108CX5 | 108X5 | |
| | 0 - 5 | 2k | 003A | 003B | 003C | 003D | 003E | 003EM | 003E2 | 003CX5 | 003X5 | |
| | 0 - 10 | 4k | 012A | 012B | 012C | 012D | 012E | 012EM | 012E2 | 012CX5 | 012X5 | |
| | 0 - 15 | 6k | 021A | 021B | 021C | 021D | 021E | 021EM | 021E2 | 021CX5 | 021X5 | |
| | 0 - 20 | 8k | 111A | 111B | 111C | 111D | 111E | 111EM | 111E2 | 111CX5 | 111X5 | |

* "A", "C" and "CX5" models are self-powered. Input voltage range is limited to:
 85-135V for 150V models
 200-280V for 300V models
 380-550V for 600V models

** "E2" models require only 15-40Vdc loop power.
 "B", "D" and "X5" models require 85-135Vac instrument power.
 "E" and "EM" models require 105-135Vac instrument power.
 Add suffix "-22" for optional 230Vac instrument power.

NOTE: "A", "B", "C", "CX5", "D", "X5" and "EM" models operate bi-directionally. Positive (+) output at terminal 2 (greater than 12mA for "EM" models) indicates forward/consumed power. Negative (-) output at terminal 2 (less than 12mA for "EM" models) indicates reverse/generated power.

"E" and "E2" models are unidirectional only. Reverse power conditions may cause the output to drop below 4mA but not below 0mA.

Add suffix "Y25" for use on zero-crossing SCR controllers.
 NOTE: This option is not available for self-powered models.

OSI AC WATT TRANSDUCER MODEL PC5-/PC4-

SINGLE-PHASE, TWO-WIRE (ONE-ELEMENT) MODELS SUPPLIED WITH EXTERNAL SENSOR



| INPUTS | | F.S. (WATTS) | SENSOR SIZE | STANDARD DC OUTPUT MODEL PC5- OR PC4- | | | | | | | | |
|----------|----------|-----------------|----------------|---------------------------------------|--------|---------|--------|--------|-----------|----------|--------|-------|
| AC VOLTS | AC AMPS | | | 0-±1mA* | 0-±1mA | 0-±10V* | 0-±10V | 4-20mA | 4-12-20mA | 4-20mA** | 0-±5V* | 0-±5V |
| 0-150 | 0 - 100 | 10k | W | 058A | 058B | 058C | 058D | 058E | 058EM | 058E2 | 058CX5 | 058X5 |
| | 0 - 200 | 20k | W | 067A | 067B | 067C | 067D | 067E | 067EM | 067E2 | 067CX5 | 067X5 |
| | 0 - 400 | 40k | X | 076A | 076B | 076C | 076D | 076E | 076EM | 076E2 | 076CX5 | 076X5 |
| | 0 - 600 | 60k | X | 085A | 085B | 085C | 085D | 085E | 085EM | 085E2 | 085CX5 | 085X5 |
| | 0 - 1000 | 100k | Y | 094A | 094B | 094C | 094D | 094E | 094EM | 094E2 | 094CX5 | 094X5 |
| 0-300 | 0 - 100 | 20k | W | 059A | 059B | 059C | 059D | 059E | 059EM | 059E2 | 059CX5 | 059X5 |
| | 0 - 200 | 40k | W | 068A | 068B | 068C | 068D | 068E | 068EM | 068E2 | 068CX5 | 068X5 |
| | 0 - 400 | 80k | X | 077A | 077B | 077C | 077D | 077E | 077EM | 077E2 | 077CX5 | 077X5 |
| | 0 - 600 | 120k | X | 086A | 086B | 086C | 086D | 086E | 086EM | 086E2 | 086CX5 | 086X5 |
| | 0 - 1000 | 200k | Y | 095A | 095B | 095C | 095D | 095E | 095EM | 095E2 | 095CX5 | 095X5 |
| 0-600 | 0 - 100 | 40k | W | 060A | 060B | 060C | 060D | 060E | 060EM | 060E2 | 060CX5 | 060X5 |
| | 0 - 200 | 80k | W | 069A | 069B | 069C | 069D | 069E | 069EM | 069E2 | 069CX5 | 069X5 |
| | 0 - 400 | 160k | X | 078A | 078B | 078C | 078D | 078E | 078EM | 078E2 | 078CX5 | 078X5 |
| | 0 - 600 | 240k | X | 087A | 087B | 087C | 087D | 087E | 087EM | 087E2 | 087CX5 | 087X5 |
| | 0 - 1000 | 400k | Y | 096A | 096B | 096C | 096D | 096E | 096EM | 096E2 | 096CX5 | 096X5 |

Note: [Current Transformer](#) is supplied as part of the model. [Refer also to notes below table on first page.](#)

THREE-PHASE, THREE-WIRE (TWO-ELEMENT) MODELS WITH INTERNAL CURRENT SENSORS



| INPUTS | | F.S. (WATTS) | STANDARD DC OUTPUT MODEL PC5- OR PC4- | | | | | | | | |
|----------|---------|-----------------|---------------------------------------|--------|---------|--------|--------|-----------|----------|--------|-------|
| AC VOLTS | AC AMPS | | 0-±1mA* | 0-±1mA | 0-±10V* | 0-±10V | 4-20mA | 4-12-20mA | 4-20mA** | 0-±5V* | 0-±5V |
| 0-150 | 0 - 1 | 200 | 120A | 120B | 120C | 120D | 120E | 120EM | 120E2 | 120CX5 | 120X5 |
| | 0 - 2.5 | 500 | 129A | 129B | 129C | 129D | 129E | 129EM | 129E2 | 129CX5 | 129X5 |
| | 0 - 5 | 1k | 004A | 004B | 004C | 004D | 004E | 004EM | 004E2 | 004CX5 | 004X5 |
| | 0 - 10 | 2k | 013A | 013B | 013C | 013D | 013E | 013EM | 013E2 | 013CX5 | 013X5 |
| | 0 - 15 | 3k | 022A | 022B | 022C | 022D | 022E | 022EM | 022E2 | 022CX5 | 022X5 |
| | 0 - 20 | 4k | 112A | 112B | 112C | 112D | 112E | 112EM | 112E2 | 112CX5 | 112X5 |
| | 0 - 25 | 5k | 123A | 123B | 123C | 123D | 123E | 123EM | 123E2 | 123CX5 | 123X5 |
| 0-300 | 0 - 1 | 400 | 121A | 121B | 121C | 121D | 121E | 121EM | 121E2 | 121CX5 | 121X5 |
| | 0 - 2.5 | 1k | 130A | 130B | 130C | 130D | 130E | 130EM | 130E2 | 130CX5 | 130X5 |
| | 0 - 5 | 2k | 005A | 005B | 005C | 005D | 005E | 005EM | 005E2 | 005CX5 | 005X5 |
| | 0 - 10 | 4k | 014A | 014B | 014C | 014D | 014E | 014EM | 014E2 | 014CX5 | 014X5 |
| | 0 - 15 | 6k | 023A | 023B | 023C | 023D | 023E | 023EM | 023E2 | 023CX5 | 023X5 |
| | 0 - 20 | 8k | 113A | 113B | 113C | 113D | 113E | 113EM | 113E2 | 113CX5 | 113X5 |
| | 0 - 25 | 10k | 124A | 124B | 124C | 124D | 124E | 124EM | 124E2 | 124CX5 | 124X5 |
| 0-600 | 0 - 1 | 800 | 122A | 122B | 122C | 122D | 122E | 122EM | 122E2 | 122CX5 | 122X5 |
| | 0 - 2.5 | 2k | 131A | 131B | 131C | 131D | 131E | 131EM | 131E2 | 131CX5 | 131X5 |
| | 0 - 5 | 4k | 006A | 006B | 006C | 006D | 006E | 006EM | 006E2 | 006CX5 | 006X5 |
| | 0 - 10 | 8k | 015A | 015B | 015C | 015D | 015E | 015EM | 015E2 | 015CX5 | 015X5 |
| | 0 - 15 | 12k | 024A | 024B | 024C | 024D | 024E | 024EM | 024E2 | 024CX5 | 024X5 |
| | 0 - 20 | 16k | 114A | 114B | 114C | 114D | 114E | 114EM | 114E2 | 114CX5 | 114X5 |

Note: [Refer to notes below table on first page.](#)

THREE-PHASE, THREE-WIRE (TWO-ELEMENT) MODELS SUPPLIED WITH EXTERNAL SENSORS

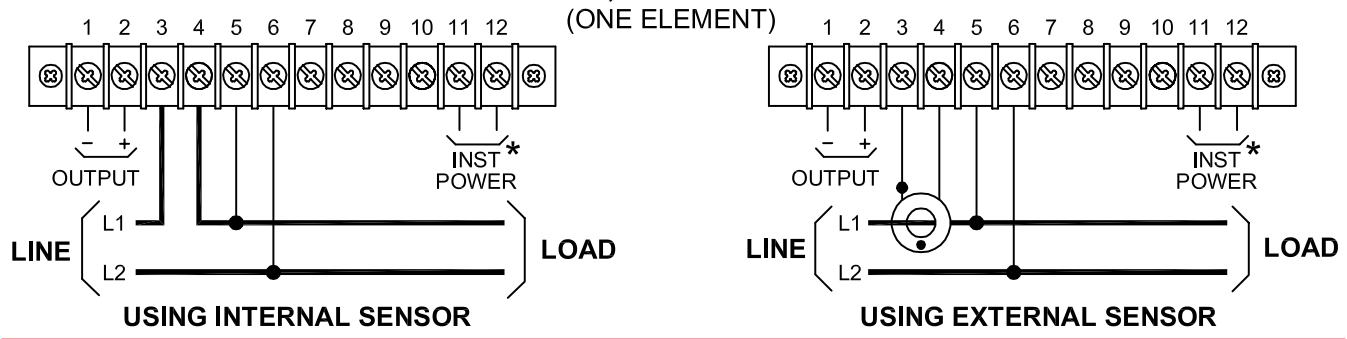


| INPUTS | | F.S. (WATTS) | SENSOR SIZE | STANDARD DC OUTPUT MODEL PC5- OR PC4- | | | | | | | | |
|----------|----------|-----------------|----------------|---------------------------------------|--------|---------|--------|--------|-----------|----------|--------|-------|
| AC VOLTS | AC AMPS | | | 0-±1mA* | 0-±1mA | 0-±10V* | 0-±10V | 4-20mA | 4-12-20mA | 4-20mA** | 0-±5V* | 0-±5V |
| 0-150 | 0 - 100 | 20k | W | 061A | 061B | 061C | 061D | 061E | 061EM | 061E2 | 061CX5 | 061X5 |
| | 0 - 200 | 40k | W | 070A | 070B | 070C | 070D | 070E | 070EM | 070E2 | 070CX5 | 070X5 |
| | 0 - 400 | 80k | X | 079A | 079B | 079C | 079D | 079E | 079EM | 079E2 | 079CX5 | 079X5 |
| | 0 - 600 | 120k | X | 088A | 088B | 088C | 088D | 088E | 088EM | 088E2 | 088CX5 | 088X5 |
| | 0 - 1000 | 200k | Y | 097A | 097B | 097C | 097D | 097E | 097EM | 097E2 | 097CX5 | 097X5 |
| 0-300 | 0 - 100 | 40k | W | 062A | 062B | 062C | 062D | 062E | 062EM | 062E2 | 062CX5 | 062X5 |
| | 0 - 200 | 80k | W | 071A | 071B | 071C | 071D | 071E | 071EM | 071E2 | 071CX5 | 071X5 |
| | 0 - 400 | 160k | X | 080A | 080B | 080C | 080D | 080E | 080EM | 080E2 | 080CX5 | 080X5 |
| | 0 - 600 | 240k | X | 089A | 089B | 089C | 089D | 089E | 089EM | 089E2 | 089CX5 | 089X5 |
| | 0 - 1000 | 400k | Y | 098A | 098B | 098C | 098D | 098E | 098EM | 098E2 | 098CX5 | 098X5 |
| 0-600 | 0 - 100 | 80k | W | 063A | 063B | 063C | 063D | 063E | 063EM | 063E2 | 063CX5 | 063X5 |
| | 0 - 200 | 160k | W | 072A | 072B | 072C | 072D | 072E | 072EM | 072E2 | 072CX5 | 072X5 |
| | 0 - 400 | 320k | X | 081A | 081B | 081C | 081D | 081E | 081EM | 081E2 | 081CX5 | 081X5 |
| | 0 - 600 | 480k | X | 090A | 090B | 090C | 090D | 090E | 090EM | 090E2 | 090CX5 | 090X5 |
| 0 - 1000 | 800k | Y | 099A | 099B | 099C | 099D | 099E | 099EM | 099E2 | 099CX5 | 099X5 | |

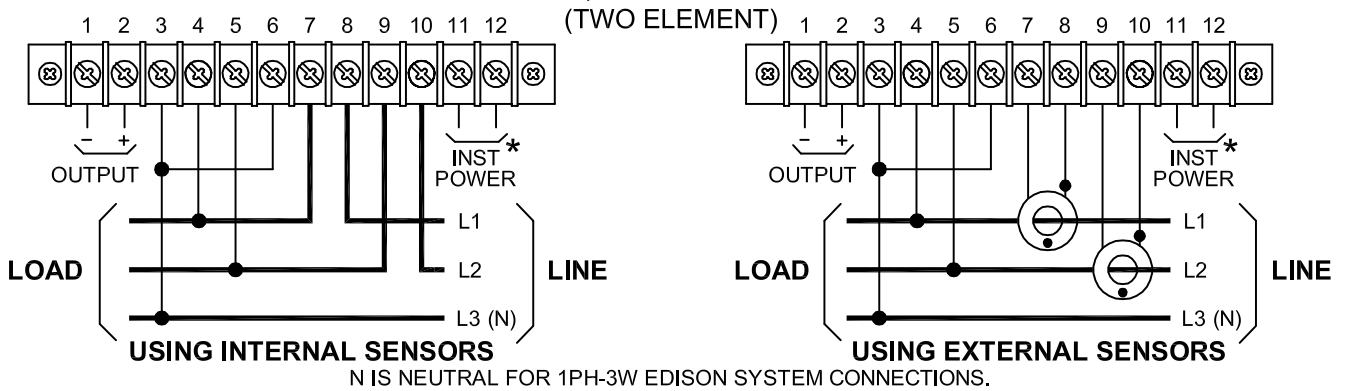
Note: [Current Transformer](#) is supplied as part of the model. [Refer also to notes below table on first page.](#)

OSI CONNECTION DIAGRAMS MODEL PC5-/PC4-

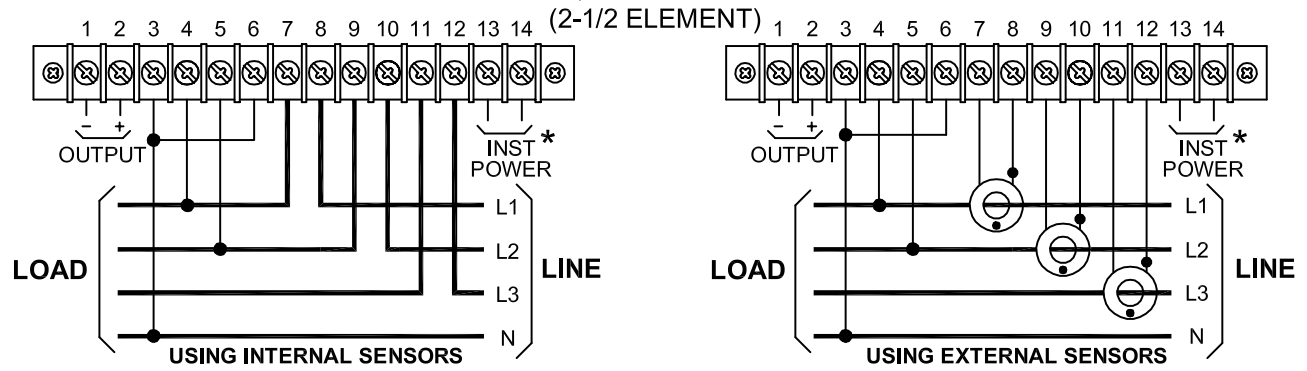
SINGLE-PHASE, TWO-WIRE CONNECTIONS



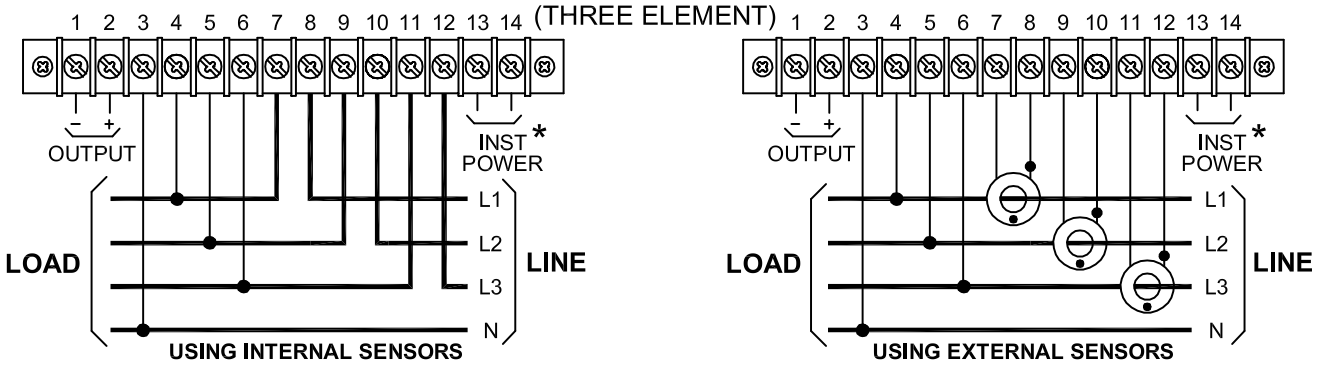
THREE-PHASE, THREE-WIRE CONNECTIONS



THREE-PHASE, FOUR-WIRE CONNECTIONS



THREE-PHASE, FOUR-WIRE CONNECTIONS



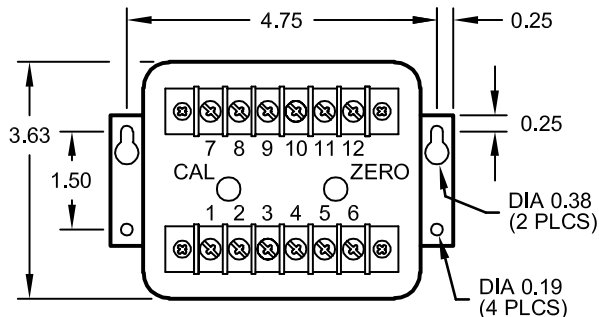
* 115Vac ON MODELS WITH B, D, E, EM OR X5 SUFFIX.
 * 230Vac ON MODELS WITH -22 SUFFIX.
 * NOT REQUIRED ON MODELS WITH A, C, E2 OR CX5 SUFFIX. Dwg# 0902-00871-B Rev --

OSI DIMENSIONS & CONNECTIONS

MODEL PC5-/PC4-

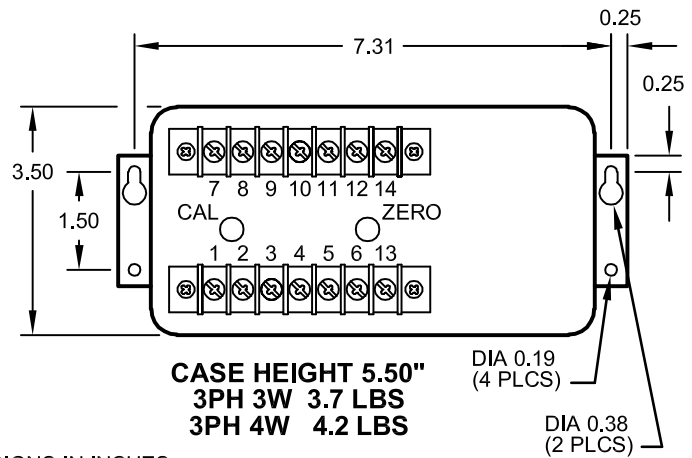
CASE DIMENSIONS

SINGLE-PHASE & THREE-PHASE, THREE-WIRE
(EXCEPT THREE-PHASE, THREE-WIRE "E" MODELS)



CASE HEIGHT 5.75"
1PH 2.2 LBS
3PH 3.7 LBS

THREE-PHASE, FOUR-WIRE
(ALSO USED ON THREE-PHASE, THREE-WIRE "E" MODELS)

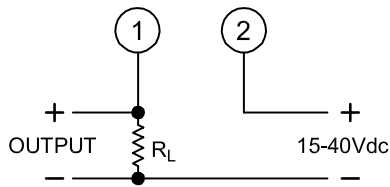


CASE HEIGHT 5.50"
3PH 3W 3.7 LBS
3PH 4W 4.2 LBS

ALL DIMENSIONS IN INCHES.

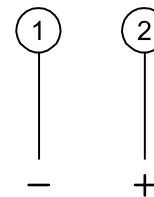
OUTPUT CONNECTIONS

"E2" MODELS



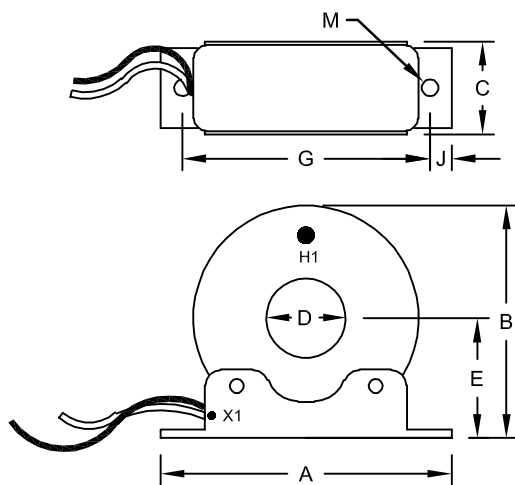
4-20mA_{dc} LOOP POWERED

ALL OTHER MODELS



0-5V_{dc}, 0-10V_{dc}, 0-1mA_{dc}, 4-20mA_{dc}

SENSOR DIMENSIONS



LEAD LENGTH IS 24 INCHES.
WHITE LEAD IS X1.

| SENS. SIZE | SENSOR DIMENSIONS (in inches) | | | | | | | | WT. LBS. |
|------------|-------------------------------|-----|------|------|------|------|------|-------------|----------|
| | A | B | C | D | E | G | J | M | |
| W | 4.50 | 3.7 | 1.25 | 1.25 | 1.94 | 3.88 | 0.34 | 0.27 x 0.44 | 1.43 |
| X | 6.50 | 4.7 | 1.25 | 2.50 | 2.46 | 5.75 | 0.39 | 0.28 | 1.61 |
| Y | 6.50 | 4.7 | 1.25 | 3.00 | 2.46 | 5.75 | 0.39 | 0.28 | 1.10 |

Split-core external CT option is available - [consult factory](#).

Dwg# 0902-00871-B Rev --

OHIO SEMITRONICS, INC.

4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

OSI AC WATT/WATTHOUR TRANSDUCER MODEL W-/W4-

INCLUDES PHASE-FIRED & ZERO-CROSSING MEASUREMENTS

DESCRIPTION

Model W transducers are available in many models covering 0-600 Volts and 0-1000 Amperes. One-, two- & three-element transducers are available for all single-phase and three-phase power systems.

All models provide an isolated analog output signal related to the average power consumed in the load and/or relay closure (or pulse output) related to the Watthours of energy consumed in the load.

Computers or auxiliary equipment can be used to calculate demand, monitor or control processes, and to accumulate energy consumption for billing purposes.

FEATURES

- Analog output for instantaneous Watts and relay closure or pulse output for Watthour consumption.
- Maintains accuracy with chopped or distorted waveforms through use of real-time multiplier.
- Accuracy maintained when factory-calibrated with [external current sensors](#).
- Rugged metal enclosures for harsh environments.

APPLICATIONS

- Building [energy management systems](#)
- Manufacturing process control
- Pump motor power consumption.
- Welding and soldering process monitoring.
- Battery charger monitoring.



5 YEAR WARRANTY

ORDERING INFORMATION

Example: Self-Powered, Three-Phase, Four-Wire, 120V, 5A Input with 0-5Vdc Output Proportional to 0-1500 Watts, TTL Pulse Output for Watthours, each Pulse Proportional to 1.0 Watthour
W-007CX5-T

Split-core external CT option is available - [consult factory](#).

400Hz Models: To order for use on 400Hz applications, substitute "W4-" for "W-" in model number.

MODEL SELECTION

SINGLE-PHASE, TWO-WIRE (ONE-ELEMENT) MODELS WITH INTERNAL CURRENT SENSOR



| INPUTS | | F.S. WATTS | F.S. COUNTS PER HOUR | WH PER COUNT | STANDARD OUTPUT MODEL W- OR W4- | | | | | | |
|----------|---------|------------|----------------------|--------------|---------------------------------|--------|---------|--------|--------|-------|--------|
| AC VOLTS | AC AMPS | | | | 0-±1mA* | 0-±1mA | 0-±10V* | 0-±10V | 0-±5V* | 0-±5V | 4-20mA |
| 0-150 | 0 - 1 | 100 | 100 | 1 | 103A | 103B | 103C | 103D | 103CX5 | 103X5 | 103E |
| | 0 - 2.5 | 250 | 250 | 1 | 106A | 106B | 106C | 106D | 106CX5 | 106X5 | 106E |
| | 0 - 5 | 500 | 5000 | 1 | 001A | 001B | 001C | 001D | 001CX5 | 001X5 | 001E |
| | 0 - 10 | 1000 | 1000 | 1 | 010A | 010B | 010C | 010D | 010CX5 | 010X5 | 010E |
| | 0 - 15 | 1500 | 1500 | 1 | 019A | 019B | 019C | 019D | 019CX5 | 019X5 | 019E |
| | 0 - 20 | 2000 | 2000 | 1 | 117A | 117B | 117C | 117D | 117CX5 | 117X5 | 117E |
| | 0 - 25 | 2500 | 2500 | 1 | 118A | 118B | 118C | 118D | 118CX5 | 118X5 | 118E |
| 0-300 | 0 - 1 | 200 | 200 | 1 | 104A | 104B | 104C | 104D | 104CX5 | 104X5 | 104E |
| | 0 - 2.5 | 500 | 500 | 1 | 107A | 107B | 107C | 107D | 107CX5 | 107X5 | 107E |
| | 0 - 5 | 1000 | 1000 | 1 | 002A | 002B | 002C | 002D | 002CX5 | 002X5 | 002E |
| | 0 - 10 | 2000 | 2000 | 1 | 011A | 011B | 011C | 011D | 011CX5 | 011X5 | 011E |
| | 0 - 15 | 3000 | 3000 | 1 | 020A | 020B | 020C | 020D | 020CX5 | 020X5 | 020E |
| | 0 - 20 | 4000 | 4000 | 1 | 110A | 110B | 110C | 110D | 110CX5 | 110X5 | 110E |
| | 0 - 25 | 5000 | 5000 | 1 | 119A | 119B | 119C | 119D | 119CX5 | 119X5 | 119E |
| 0-600 | 0 - 1 | 500 | 500 | 1 | 105A | 105B | 105C | 105D | 105CX5 | 105X5 | 105E |
| | 0 - 2.5 | 1000 | 1000 | 1 | 108A | 108B | 108C | 108D | 108CX5 | 108X5 | 108E |
| | 0 - 5 | 2000 | 2000 | 1 | 003A | 003B | 003C | 003D | 003CX5 | 003X5 | 003E |
| | 0 - 10 | 4000 | 4000 | 1 | 012A | 012B | 012C | 012D | 012CX5 | 012X5 | 012E |
| | 0 - 15 | 6000 | 6000 | 1 | 021A | 021B | 021C | 021D | 021CX5 | 021X5 | 021E |
| | 0 - 20 | 8000 | 8000 | 1 | 111A | 111B | 111C | 111D | 111CX5 | 111X5 | 111E |

* "A", "C" and "CX5" models are self-powered. Input voltage range is limited to:

- 103-135V for 150V models
- 215-280V for 300V models
- 395-550V for 600V models

All others require 103-135Vac instrument power, 50-400Hz.

Add suffix "-22" for optional 230Vac instrument power.

For custom Wh count rates, order desired model with added suffix "/xxxx", where "xxxx" = F.S. counts/hr.

Example: 0-300V, 0-100A input, 0-10Vdc output (for Watts) and TTL output (for Wh) with 5000 counts/hr at F.S.:
order model: **W-059D-T/5000**

Add suffix "Y27" for use on zero-crossing SCR controllers.
NOTE: This option is not available for self-powered models.

NOTE: Watt outputs for "A", "B", "C", "CX5", "D" and "X5" models operate bi-directionally. Positive (+) output at terminal 2a indicates forward/consumed power; negative (-) output indicates reverse/generated power. "E" models and all Wh relay outputs are unidirectional and operate in the forward/consumed direction only. For "E" models, reverse power conditions may cause the Watt output to drop below 4mA but not below 0mA.

OSI AC WATT/WATTHOUR TRANSDUCER

MODEL W-W4-

SINGLE-PHASE, TWO-WIRE (ONE-ELEMENT) MODELS SUPPLIED WITH EXTERNAL SENSOR



| INPUTS | | F.S. WATTS | F.S. CTS PER HR | WH PER COUNT | SENSOR SIZE | STANDARD OUTPUT MODEL W- OR W4- | | | | | | |
|----------|----------|------------|-----------------|--------------|-------------|---------------------------------|--------|---------|--------|--------|-------|--------|
| AC VOLTS | AC AMPS | | | | | 0-±1mA* | 0-±1mA | 0-±10V* | 0-±10V | 0-±5V* | 0-±5V | 4-20mA |
| 0-150 | 0 - 100 | 10k | 10000 | 1 | W | 058A | 058B | 058C | 058D | 058CX5 | 058X5 | 058E |
| | 0 - 200 | 20k | 2000 | 10 | W | 067A | 067B | 067C | 067D | 067CX5 | 067X5 | 067E |
| | 0 - 400 | 40k | 4000 | 10 | X | 076A | 076B | 076C | 076D | 076CX5 | 076X5 | 076E |
| | 0 - 600 | 60k | 6000 | 10 | X | 085A | 085B | 085C | 085D | 085CX5 | 085X5 | 085E |
| | 0 - 1000 | 100k | 1000 | 100 | Y | 094A | 094B | 094C | 094D | 094CX5 | 094X5 | 094E |
| 0-300 | 0 - 100 | 20k | 2000 | 10 | W | 059A | 059B | 059C | 059D | 059CX5 | 059X5 | 059E |
| | 0 - 200 | 40k | 4000 | 10 | W | 068A | 068B | 068C | 068D | 068CX5 | 068X5 | 068E |
| | 0 - 400 | 80k | 8000 | 10 | X | 077A | 077B | 077C | 077D | 077CX5 | 077X5 | 077E |
| | 0 - 600 | 120k | 1200 | 100 | X | 086A | 086B | 086C | 086D | 086CX5 | 086X5 | 086E |
| | 0 - 1000 | 200k | 2000 | 100 | Y | 095A | 095B | 095C | 095D | 095CX5 | 095X5 | 095E |
| 0-600 | 0 - 100 | 40k | 4000 | 10 | W | 060A | 060B | 060C | 060D | 060CX5 | 060X5 | 060E |
| | 0 - 200 | 80k | 8000 | 10 | W | 069A | 069B | 069C | 069D | 069CX5 | 069X5 | 069E |
| | 0 - 400 | 160k | 1600 | 100 | X | 078A | 078B | 078C | 078D | 078CX5 | 078X5 | 078E |
| | 0 - 600 | 240k | 2400 | 100 | X | 087A | 087B | 087C | 087D | 087CX5 | 087X5 | 087E |
| | 0 - 1000 | 400k | 4000 | 100 | Y | 096A | 096B | 096C | 096D | 096CX5 | 096X5 | 096E |

Note: [Current Transformer](#) is supplied as part of the model. [Refer also to notes below table on page first page.](#)

THREE-PHASE, THREE-WIRE (TWO-ELEMENT) MODELS WITH INTERNAL CURRENT SENSORS



| INPUTS | | F.S. WATTS | F.S. COUNTS PER HOUR | WH PER COUNT | STANDARD OUTPUT MODEL W- OR W4- | | | | | | |
|----------|---------|------------|----------------------|--------------|---------------------------------|--------|---------|--------|--------|-------|--------|
| AC VOLTS | AC AMPS | | | | 0-±1mA* | 0-±1mA | 0-±10V* | 0-±10V | 0-±5V* | 0-±5V | 4-20mA |
| 0-150 | 0 - 1 | 200 | 200 | 1 | 120A | 120B | 120C | 120D | 120CX5 | 120X5 | 120E |
| | 0 - 2.5 | 500 | 500 | 1 | 129A | 129B | 129C | 129D | 129CX5 | 129X5 | 129E |
| | 0 - 5 | 1k | 1000 | 1 | 004A | 004B | 004C | 004D | 004CX5 | 004X5 | 004E |
| | 0 - 10 | 2k | 2000 | 1 | 013A | 013B | 013C | 013D | 013CX5 | 013X5 | 013E |
| | 0 - 15 | 3k | 3000 | 1 | 022A | 022B | 022C | 022D | 022CX5 | 022X5 | 022E |
| | 0 - 20 | 4k | 4000 | 1 | 112A | 112B | 112C | 112D | 112CX5 | 112X5 | 112E |
| 0-300 | 0 - 1 | 400 | 400 | 1 | 121A | 121B | 121C | 121D | 121CX5 | 121X5 | 121E |
| | 0 - 2.5 | 1k | 1000 | 1 | 130A | 130B | 130C | 130D | 130CX5 | 130X5 | 130E |
| | 0 - 5 | 2k | 2000 | 1 | 005A | 005B | 005C | 005D | 005CX5 | 005X5 | 005E |
| | 0 - 10 | 4k | 4000 | 1 | 014A | 014B | 014C | 014D | 014CX5 | 014X5 | 014E |
| | 0 - 15 | 6k | 6000 | 1 | 023A | 023B | 023C | 023D | 023CX5 | 023X5 | 023E |
| | 0 - 20 | 8k | 8000 | 1 | 113A | 113B | 113C | 113D | 113CX5 | 113X5 | 113E |
| 0-600 | 0 - 1 | 800 | 800 | 1 | 122A | 122B | 122C | 122D | 122CX5 | 122X5 | 122E |
| | 0 - 2.5 | 2k | 2000 | 1 | 131A | 131B | 131C | 131D | 131CX5 | 131X5 | 131E |
| | 0 - 5 | 4k | 4000 | 1 | 006A | 006B | 006C | 006D | 006CX5 | 006X5 | 006E |
| | 0 - 10 | 8k | 8000 | 1 | 015A | 015B | 015C | 015D | 015CX5 | 015X5 | 015E |
| | 0 - 15 | 12k | 12000 | 1 | 024A | 024B | 024C | 024D | 024CX5 | 024X5 | 024E |
| | 0 - 20 | 16k | 16000 | 10 | 114A | 114B | 114C | 114D | 114CX5 | 114X5 | 114E |

Note: [Refer to notes below table on page first page.](#)

THREE-PHASE, THREE-WIRE (TWO-ELEMENT) MODELS SUPPLIED WITH EXTERNAL SENSORS



| INPUTS | | F.S. WATTS | F.S. CTS PER HOUR | WH PER COUNT | SENSOR SIZE | STANDARD OUTPUT MODEL W- OR W4- | | | | | | |
|----------|----------|------------|-------------------|--------------|-------------|---------------------------------|--------|---------|--------|--------|-------|--------|
| AC VOLTS | AC AMPS | | | | | 0-±1mA* | 0-±1mA | 0-±10V* | 0-±10V | 0-±5V* | 0-±5V | 4-20mA |
| 0-150 | 0 - 100 | 20k | 2000 | 10 | W | 061A | 061B | 061C | 061D | 061CX5 | 061X5 | 061E |
| | 0 - 200 | 40k | 4000 | 10 | W | 070A | 070B | 070C | 070D | 070CX5 | 070X5 | 070E |
| | 0 - 400 | 80k | 8000 | 10 | X | 079A | 079B | 079C | 079D | 079CX5 | 079X5 | 079E |
| | 0 - 600 | 120k | 12000 | 10 | X | 088A | 088B | 088C | 088D | 088CX5 | 088X5 | 088E |
| | 0 - 1000 | 200k | 2000 | 100 | Y | 097A | 097B | 097C | 097D | 097CX5 | 097X5 | 097E |
| 0-300 | 0 - 100 | 40k | 4000 | 10 | W | 062A | 062B | 062C | 062D | 062CX5 | 062X5 | 062E |
| | 0 - 200 | 80k | 8000 | 10 | W | 071A | 071B | 071C | 071D | 071CX5 | 071X5 | 071E |
| | 0 - 400 | 160k | 1600 | 100 | X | 080A | 080B | 080C | 080D | 080CX5 | 080X5 | 080E |
| | 0 - 600 | 240k | 2400 | 100 | X | 089A | 089B | 089C | 089D | 089CX5 | 089X5 | 089E |
| | 0 - 1000 | 400k | 4000 | 100 | Y | 098A | 098B | 098C | 098D | 098CX5 | 098X5 | 098E |
| 0-600 | 0 - 100 | 80k | 8000 | 10 | W | 063A | 063B | 063C | 063D | 063CX5 | 063X5 | 063E |
| | 0 - 200 | 160k | 1600 | 100 | W | 072A | 072B | 072C | 072D | 072CX5 | 072X5 | 072E |
| | 0 - 400 | 320k | 3200 | 100 | X | 081A | 081B | 081C | 081D | 081CX5 | 081X5 | 081E |
| | 0 - 600 | 480k | 4800 | 100 | X | 090A | 090B | 090C | 090D | 090CX5 | 090X5 | 090E |
| | 0 - 1000 | 800k | 8000 | 100 | Y | 099A | 099B | 099C | 099D | 099CX5 | 099X5 | 099E |

Note: [Current Transformers](#) are supplied as part of the model. [Refer also to notes below table on first page.](#)

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OSI AC WATT/WATTHOUR TRANSUDCER MODEL W-W4-

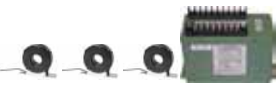
THREE-PHASE, FOUR-WIRE (THREE-ELEMENT) MODELS WITH INTERNAL CURRENT SENSORS



| INPUTS | | F.S. WATTS | F.S. COUNTS PER HOUR | WH PER COUNT | STANDARD OUTPUT MODEL W- OR W4- | | | | | | |
|--------------|---------|------------|----------------------|--------------|---------------------------------|--------|---------|--------|--------|-------|--------|
| AC VOLTS | AC AMPS | | | | 0-±1mA* | 0-±1mA | 0-±10V* | 0-±10V | 0-±5V* | 0-±5V | 4-20mA |
| 0-150 L-N | 0 - 1 | 300 | 300 | 1 | 125A | 125B | 125C | 125D | 125CX5 | 125X5 | 125E |
| | 0 - 2.5 | 750 | 750 | 1 | 132A | 132B | 132C | 132D | 132CX5 | 132X5 | 132E |
| | 0 - 5 | 1.5k | 1500 | 1 | 007A | 007B | 007C | 007D | 007CX5 | 007X5 | 007E |
| | 0 - 5 | 1.5k | 1500 | 1 | 7.5A | 7.5B | 7.5C | 7.5D | 7.5CX5 | 7.5X5 | 7.5E |
| | 0 - 10 | 3k | 3000 | 1 | 016A | 016B | 016C | 016D | 016CX5 | 016X5 | 016E |
| | 0 - 15 | 4.5k | 4500 | 1 | 025A | 025B | 025C | 025D | 025CX5 | 025X5 | 025E |
| | 0 - 20 | 6k | 6000 | 1 | 115A | 115B | 115C | 115D | 115CX5 | 115X5 | 115E |
| | 0 - 25 | 7.5k | 7500 | 1 | 127A | 127B | 127C | 127D | 127CX5 | 127X5 | 127E |
| 0-300 L-N | 0 - 1 | 600 | 600 | 1 | 126A | 126B | 126C | 126D | 126CX5 | 126X5 | 126E |
| | 0 - 2.5 | 1.5k | 1500 | 1 | 133A | 133B | 133C | 133D | 133CX5 | 133X5 | 133E |
| | 0 - 5 | 3k | 3000 | 1 | 008A | 008B | 008C | 008D | 008CX5 | 008X5 | 008E |
| | 0 - 5 | 3k | 3000 | 1 | 8.5A | 8.5B | 8.5C | 8.5D | 8.5CX5 | 8.5X5 | 8.5E |
| | 0 - 10 | 6k | 6000 | 1 | 017A | 017B | 017C | 017D | 017CX5 | 017X5 | 017E |
| | 0 - 15 | 9k | 9000 | 1 | 026A | 026B | 026C | 026D | 026CX5 | 026X5 | 026E |
| | 0 - 20 | 12k | 12000 | 1 | 116A | 116B | 116C | 116D | 116CX5 | 116X5 | 116E |
| | 0 - 25 | 15k | 1500 | 10 | 128A | 128B | 128C | 128D | 128CX5 | 128X5 | 128E |

Note: Part Numbers 7.5 and 8.5 denote 2½-element units. [Refer also to notes below table on first page.](#)

THREE-PHASE, FOUR-WIRE (THREE-ELEMENT) MODELS SUPPLIED WITH EXTERNAL SENSORS



| INPUTS | | F.S. WATTS | F.S. CTS PER HOUR | WH PER COUNT | SENSOR SIZE | STANDARD OUTPUT MODEL W- OR W4- | | | | | | |
|--------------|----------|------------|-------------------|--------------|-------------|---------------------------------|--------|---------|--------|--------|-------|--------|
| AC VOLTS | AC AMPS | | | | | 0-±1mA* | 0-±1mA | 0-±10V* | 0-±10V | 0-±5V* | 0-±5V | 4-20mA |
| 0-150 L-N | 0 - 100 | 30k | 3000 | 10 | W | 064A | 064B | 064C | 064D | 064CX5 | 064X5 | 064E |
| | 0 - 200 | 60k | 6000 | 10 | W | 073A | 073B | 073C | 073D | 073CX5 | 073X5 | 073E |
| | 0 - 400 | 120k | 1200 | 100 | X | 082A | 082B | 082C | 082D | 082CX5 | 082X5 | 082E |
| | 0 - 600 | 180k | 1800 | 100 | X | 091A | 091B | 091C | 091D | 091CX5 | 091X5 | 091E |
| | 0 - 1000 | 300k | 3000 | 100 | Y | 100A | 100B | 100C | 100D | 100CX5 | 100X5 | 100E |
| 0-300 L-N | 0 - 100 | 60k | 6000 | 10 | W | 065A | 065B | 065C | 065D | 065CX5 | 065X5 | 065E |
| | 0 - 200 | 120k | 12000 | 10 | W | 074A | 074B | 074C | 074D | 074CX5 | 074X5 | 074E |
| | 0 - 400 | 240k | 2400 | 100 | X | 083A | 083B | 083C | 083D | 083CX5 | 083X5 | 083E |
| | 0 - 600 | 360k | 3600 | 100 | X | 092A | 092B | 092C | 092D | 092CX5 | 092X5 | 092E |
| | 0 - 1000 | 600k | 6000 | 100 | Y | 101A | 101B | 101C | 101D | 101CX5 | 101X5 | 101E |

Note: [Current Transformers](#) are supplied as part of the model. [Refer also to notes under table on first page.](#)

SPECIFICATIONS

INPUT

- Voltage See Tables
- Current See Tables
- Frequency Range W- models..... 48-70Hz
W4- models..... 400Hz
- Power Factor..... Any
- Response (Transient, to 90% F.S.)
With Internal Sensors <100µs
With Current Transformers 1ms
- Burden
Voltage and Current..... 1.25VA/phase
Output Amplifier 2W
- Current Overload (Continuous) ... 1-10A models 2 X F.S.
15A, 20A, 25A models F.S.
Transient (all models) 6 X F.S. (10 seconds)

DIELECTRIC TEST

- Input/Output/Case..... 1500Vac (RMS)
- Surge Withstands IEEE SWC test

INSTRUMENT POWER

- "A", "C", "CX5" models not required
- "B", "D", "X5" & "E" models 103-135Vac, 50-400Hz, 5VA
- "-22" Option 230Vac ±10%, 50/60Hz, ±10%

OUTPUT

- Wh Relay (Wh output is forward/consumed direction only)
Standard..... N/O SPST relay contact; 150Vac, 0.5A Rated
Contact Closure Period..... 200ms
- "-T" Option TTL output for Watthours, 5Vdc pulse
- Watt Output, Loading
"A" & "B" models..... (0-±1mA) 0-10kΩ
"C" & "D" models..... (0-±10Vdc) 2kΩ min.
"CX5" & "X5" models (0-±5Vdc) 2kΩ min.
"E" models (4-20mA) 0-500Ω
(±1mA, ±5V and ±10V unit Watt outputs are bidirectional)
- Response Time (to 90% F.S.) ... standard..... 250ms
Suffix "Y27" (for use on zero-crossing SCR controllers) 5s
NOTE: This option is not available for self-powered models.
- Field Adjustable Calibration ±10%

ACCURACY

- ±0.5% F.S.
- Includes combined effects of power factor, repeatability, linearity, and current sensor.
- Analog Output Ripple <1% F.S.

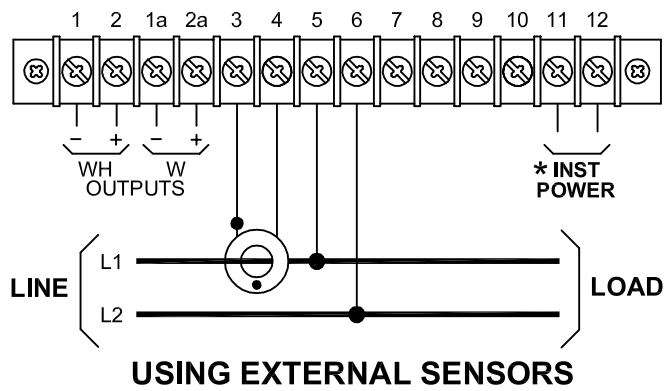
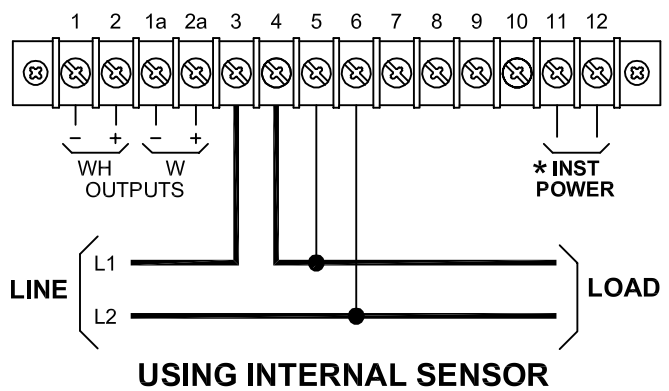
TEMPERATURE

- Operating Range..... -10°C to +60°C
- Effect ±1.0% of Rdg., ±0.1% F.S. Output

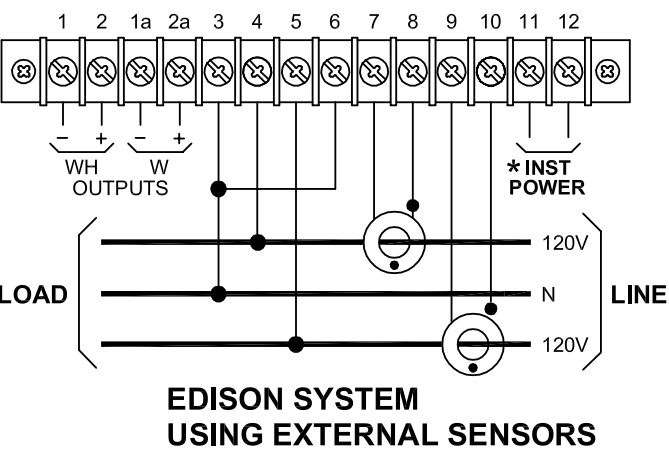
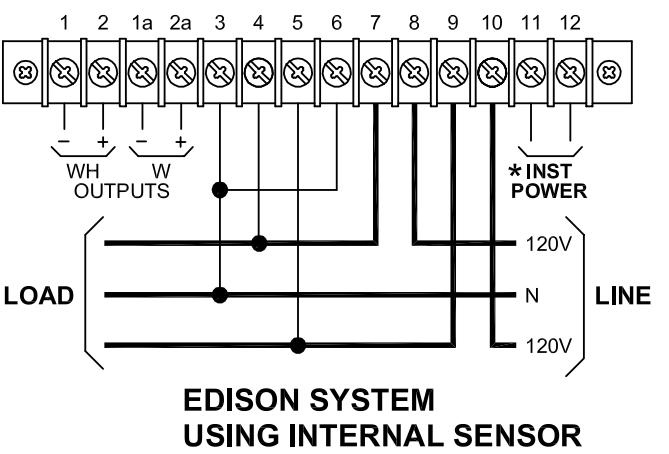
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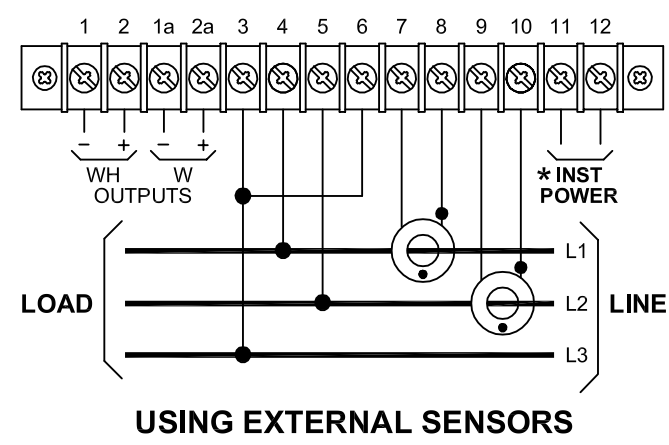
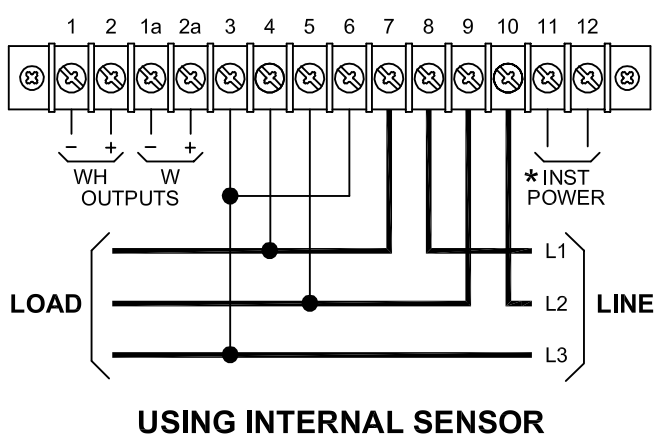
SINGLE-PHASE CONNECTIONS



SINGLE-PHASE, THREE-WIRE CONNECTIONS



THREE-PHASE, THREE-WIRE CONNECTIONS

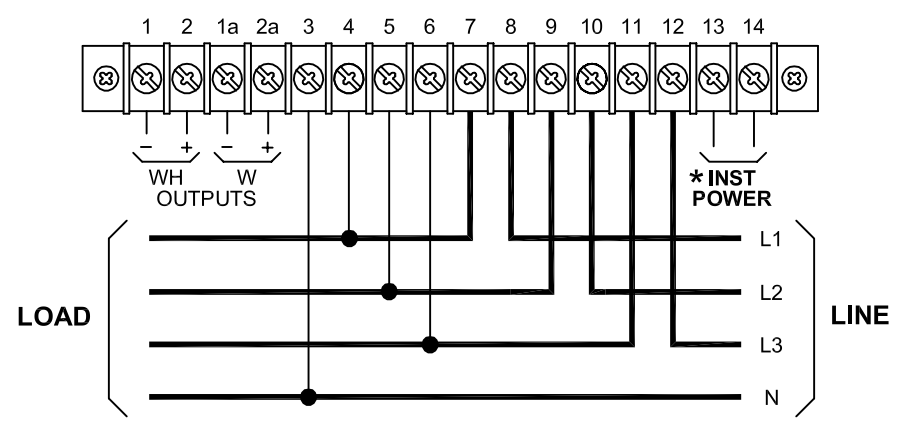


* 115Vac on models with B, D, E or X5 suffix.
 * 230Vac on models with -22 suffix.
 * Not required on models with A, C or CX5 suffix.

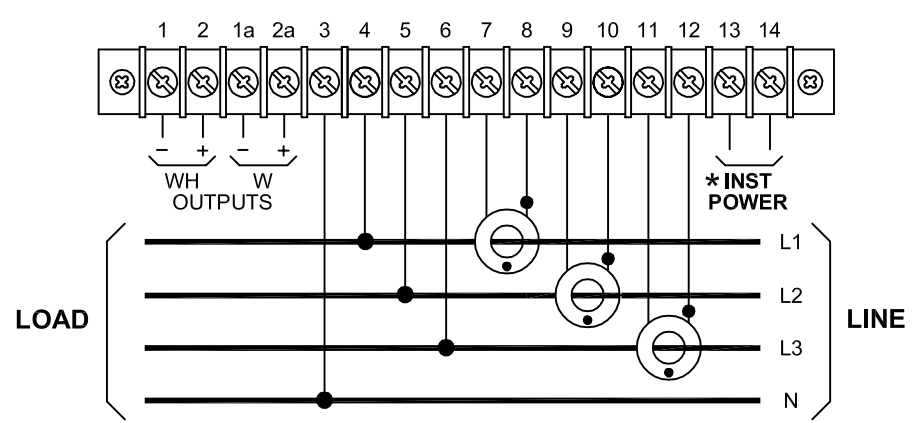
Dwg# 0902-00872-B Rev --

OSI CONNECTIONS & DIMENSIONS MODEL W-W4-

THREE-PHASE, FOUR-WIRE CONNECTIONS



USING INTERNAL SENSORS

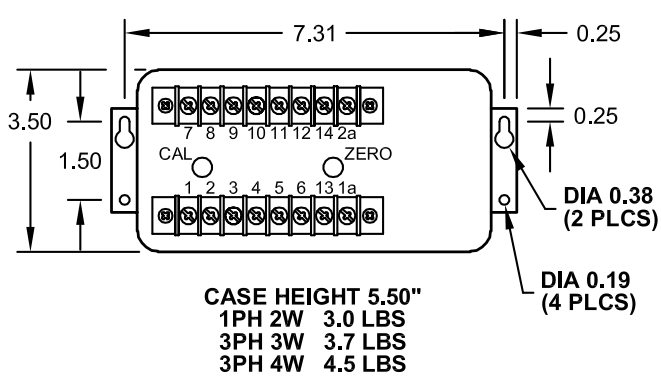


USING EXTERNAL SENSORS

- * 115Vac on models with B, D, E or X5 suffix.
- * 230Vac on models with -22 suffix.
- * Not required on models with A, C or CX5 suffix.

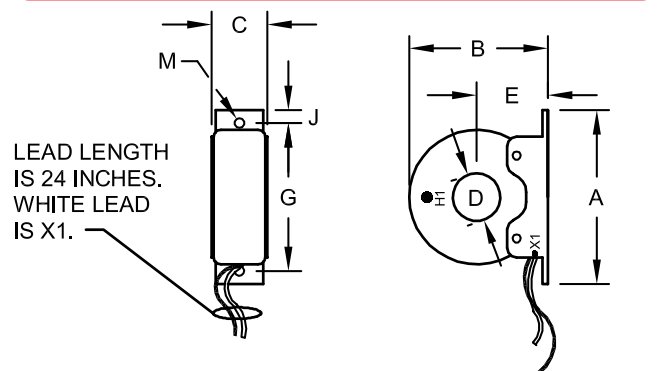
Dwg# 0902-00872-B Rev --

CASE DIMENSIONS



ALL DIMENSIONS IN INCHES.

SENSOR DIMENSIONS



| SENS. SIZE | SENSOR DIMENSIONS (inches) | | | | | | | | WT. (lbs.) |
|------------|----------------------------|------|------|------|------|------|------|----------------|------------|
| | A | B | C | D | E | G | J | M | |
| W | 4.50 | 3.70 | 1.25 | 1.25 | 1.94 | 3.88 | 0.34 | 0.27 X 0.44 | 1.43 |
| X | 6.50 | 4.70 | 1.25 | 2.50 | 2.46 | 5.75 | 0.39 | 0.28 | 1.61 |
| Y | 6.50 | 4.70 | 1.25 | 3.00 | 2.46 | 5.75 | 0.39 | 0.28 | 1.10 |

Lead Length: 24 inches White Lead is X1

OSI PRECISION AC WATT TRANSDUCER MODEL AGW-

ACCURATE TO 0.2% OF READING

FEATURES

- Accurate regardless of variations in voltage, current, power factor, or load.
- Available with 1-, 2-, 2½-, or 3-element configurations.
- Provides bidirectional operation.
- Accuracy maintained over wide temperature range, calibration traceable to **NIST**.

APPLICATIONS

- Equipment monitoring for process control.
- Integration into [energy management systems](#), or a variety of [sub-metering](#) applications.
- Measurement using direct-connection, [current and/or potential transformers](#).

5 YEAR WARRANTY



Energy Management
Equipment Accessory
87X9



| INPUTS | | F.S. WATTS | PHASE | NO. OF ELEMENTS | STANDARD OUTPUTS MODEL AGW- | | |
|-------------|---------|------------|----------|-----------------|-----------------------------|----------|----------|
| AC VOLTS | AC AMPS | | | | 0-±1mAdc | 0-±10Vdc | 4-20mAdc |
| 0 - 150 | 0 - 5 | 500 | 1Ph - 2W | 1 | 001B | 001D | 001E |
| 0 - 300 | 0 - 5 | 1000 | 1Ph - 2W | 1 | 002B | 002D | 002E |
| 0 - 600 | 0 - 5 | 2000 | 1Ph - 2W | 1 | 003B | 003D | 003E |
| 0 - 150 | 0 - 5 | 1000 | 3Ph - 3W | 2 | 004B | 004D | 004E |
| 0 - 300 | 0 - 5 | 2000 | 3Ph - 3W | 2 | 005B | 005D | 005E |
| 0 - 600 | 0 - 5 | 4000 | 3Ph - 3W | 2 | 006B | 006D | 006E |
| 0 - 150 L-N | 0 - 5 | 1500 | 3Ph - 4W | 3 | 007B | 007D | 007E |
| 0 - 300 L-N | 0 - 5 | 3000 | 3Ph - 4W | 3 | 008B | 008D | 008E |
| 0 - 150 L-N | 0 - 5 | 1500 | 3Ph - 4W | 2½ | 007.5B | 007.5D | 007.5E |
| 0 - 300 L-N | 0 - 5 | 3000 | 3Ph - 4W | 2½ | 008.5B | 008.5D | 008.5E |

To calculate full-scale Watts when using [potential](#) and/or [current transformers](#):
 a = initial transducer calibration (from table above in F.S. WATTS column)
 b = current transformer ratio (e.g. 100:5, or 20)
 c = potential transformer ratio (e.g. 600:120, or 5)
 F.S. WATTS = a x b x c

NOTE: [UL-recognized current transformers](#) available from factory.

SPECIFICATIONS

INPUT

- Voltage See Table
- Current 0-5Aac
- Frequency Range 58-62Hz
- Power Factor Any
- Burden
 - Voltage <0.1VA
 - Current <0.25VA
- Overload Voltage (continuous)
 - 150Vac Range 175Vac
 - 300Vac Range 350Vac
 - 600Vac Range 600Vac
- Overload Current (continuous) 2XF.S.
 - 50Aac transient (10s/hr)
 - 250Aac transient (1s/hr)

OUTPUT

- Loading
 - "B" models(0-±1mAdc output) 0-10kΩ
 - "D" models(0-±10Vdc output) 2kΩ min.
 - "E" models(4-20mAdc output) 0-500Ω
- Response Time (to 99%) <400ms
- Field Adjustable Cal. ±2% min.

DIELECTRIC TEST

- Input/Output/Case (150V & 300V) 1800Vac (600V) 2200Vac
- Surge Withstands IEEE SWC test

ACCURACY

- (Includes combined effects of voltage, current, load & power factor.)
- All models ±0.2% Rdg./PF, ±0.04% F.S.
- Output Ripple Less than 0.5% F.S.

TEMPERATURE & PHYSICAL

- Temperature Effect (-20°C to 60°C) ±0.005%/°C
- Operating Humidity 0-95% non-condensing
- Net Weight 3.3 lbs.

INSTRUMENT POWER

- Standard 85-135Vac, 60Hz, 7VA

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OSI PRECISION AC WATT OR VAR TRANSDUCER MODELS GW5- & GV5-

ACCURATE TO 0.2% OF READING

DESCRIPTION

The model GW5 Watt transducer provides power measurements to within ±0.2% of reading accuracy in single- or polyphase systems. The Model GV5 VAR transducer provides reactive power measurements to within ±0.2% of reading accuracy in single- or polyphase systems. The electrically-isolated dc output is proportional to the instantaneous power averaged over several cycles. Currents up to 20A and voltages up to 600Vac can be directly connected to the GW5 and GV5, thus eliminating the additional cost and additive errors of current and voltage transformers for these ranges. The GW5 and GV5 can be used with [OSI metering class current transformers](#) for measurements up to 10 kiloamperes.

Specific outputs can be selected to interface with any data acquisition system from a simple recorder to a computer-, SCADA-, or PLC-based system.



5 YEAR WARRANTY

The GW5 is widely used in a variety of applications, including hydroelectric generator output measurement, end-of-line appliance testing for energy consumption, building automation, [energy management](#), and cogeneration systems.

FEATURES

- Accurate regardless of variations in voltage, current, power factor, or load.
- Available in 1-, 1½-, 2-, 2½-, or 3-element configurations.
- Provides Leading/Lagging VAR indication.
- Accuracy maintained over wide temperature range, calibration traceable to **NIST**.
- For UL Listed precision Watt transducers, [see AGW Series](#)

APPLICATIONS

- Equipment monitoring for process control.
- Integration into [energy management systems](#), or a variety of [sub-metering](#) applications.
- Measurement using direct-connection, [current transformers](#) and/or [potential transformers](#).

SINGLE-PHASE, TWO-WIRE MODELS, INTERNAL SENSOR (ONE-ELEMENT)

| AC INPUTS | | F.S. WATTS or VARS | STANDARD OUTPUTS MODEL GW5- OR GV5- | | | | | | | | | |
|-----------|---------|--------------------|-------------------------------------|----------|-----------|----------|----------|---------|-----------|------------|----------|---------|
| VOLTS | AMPS | | 0-±1mAdc* | 0-±1mAdc | 0-±10Vdc* | 0-±10Vdc | 4-20mAdc | 4-20mA* | 4-12-20mA | 4-12-20mA* | 0-±5Vdc* | 0-±5Vdc |
| 0-150 | 0 - 1 | 100 | 103A | 103B | 103C | 103D | 103E | 103EG | 103EM | 103EMG | 103CX5 | 103X5 |
| | 0 - 2.5 | 250 | 106A | 106B | 106C | 106D | 106E | 106EG | 106EM | 106EMG | 106CX5 | 106X5 |
| | 0 - 5 | 500 | 001A | 001B | 001C | 001D | 001E | 001EG | 001EM | 001EMG | 001CX5 | 001X5 |
| | 0 - 10 | 1k | 010A | 010B | 010C | 010D | 010E | 010EG | 010EM | 010EMG | 010CX5 | 010X5 |
| | 0 - 20 | 2k | 019A | 019B | 019C | 019D | 019E | 019EG | 019EM | 019EMG | 019CX5 | 019X5 |
| 0-300 | 0 - 1 | 200 | 104A | 104B | 104C | 104D | 104E | 104EG | 104EM | 104EMG | 104CX5 | 104X5 |
| | 0 - 2.5 | 500 | 107A | 107B | 107C | 107D | 107E | 107EG | 107EM | 107EMG | 107CX5 | 107X5 |
| | 0 - 5 | 1k | 002A | 002B | 002C | 002D | 002E | 002EG | 002EM | 002EMG | 002CX5 | 002X5 |
| | 0 - 10 | 2k | 011A | 011B | 011C | 011D | 011E | 011EG | 011EM | 011EMG | 011CX5 | 011X5 |
| | 0 - 20 | 4k | 020A | 020B | 020C | 020D | 020E | 020EG | 020EM | 020EMG | 020CX5 | 020X5 |
| 0-600 | 0 - 1 | 500 | 105A | 105B | 105C | 105D | 105E | 105EG | 105EM | 105EMG | 105CX5 | 105X5 |
| | 0 - 2.5 | 1k | 108A | 108B | 108C | 108D | 108E | 108EG | 108EM | 108EMG | 108CX5 | 108X5 |
| | 0 - 5 | 2k | 003A | 003B | 003C | 003D | 003E | 003EG | 003EM | 003EMG | 003CX5 | 003X5 |
| | 0 - 10 | 4k | 012A | 012B | 012C | 012D | 012E | 012EG | 012EM | 012EMG | 012CX5 | 012X5 |
| | 0 - 20 | 8k | 021A | 021B | 021C | 021D | 021E | 021EG | 021EM | 021EMG | 021CX5 | 021X5 |

THREE-PHASE, THREE-WIRE MODELS, INTERNAL SENSOR (TWO-ELEMENT)

| AC INPUTS | | F.S. WATTS or VARS | STANDARD OUTPUTS MODEL GW5- OR GV5- | | | | | | | | | |
|-----------|---------|--------------------|-------------------------------------|----------|-----------|----------|----------|---------|-----------|------------|----------|---------|
| VOLTS | AMPS | | 0-±1mAdc* | 0-±1mAdc | 0-±10Vdc* | 0-±10Vdc | 4-20mAdc | 4-20mA* | 4-12-20mA | 4-12-20mA* | 0-±5Vdc* | 0-±5Vdc |
| 0-150 | 0 - 1 | 200 | 120A | 120B | 120C | 120D | 120E | 120EG | 120EM | 120EMG | 120CX5 | 120X5 |
| | 0 - 2.5 | 500 | 129A | 129B | 129C | 129D | 129E | 129EG | 129EM | 129EMG | 129CX5 | 129X5 |
| | 0 - 5 | 1k | 004A | 004B | 004C | 004D | 004E | 004EG | 004EM | 004EMG | 004CX5 | 004X5 |
| | 0 - 10 | 2k | 013A | 013B | 013C | 013D | 013E | 013EG | 013EM | 013 EMG | 013CX5 | 013X5 |
| | 0 - 20 | 4k | 022A | 022B | 022C | 022D | 022E | 022EG | 022EM | 022EMG | 022CX5 | 022X5 |
| 0-300 | 0 - 1 | 400 | 121A | 121B | 121C | 121D | 121E | 121EG | 121EM | 121EMG | 121CX5 | 121X5 |
| | 0 - 2.5 | 1k | 130A | 130B | 130C | 130D | 130E | 130EG | 130EM | 130EMG | 130CX5 | 130X5 |
| | 0 - 5 | 2k | 005A | 005B | 005C | 005D | 005E | 005EG | 005EM | 005EMG | 005CX5 | 005X5 |
| | 0 - 10 | 4k | 014A | 014B | 014C | 014D | 014E | 014EG | 014EM | 014EMG | 014CX5 | 014X5 |
| | 0 - 20 | 8k | 023A | 023B | 023C | 023D | 023E | 023EG | 023EM | 023EMG | 023CX5 | 023X5 |
| 0-600 | 0 - 1 | 800 | 122A | 122B | 122C | 122D | 122E | 122EG | 122EM | 122EMG | 122CX5 | 122X5 |
| | 0 - 2.5 | 2k | 131A | 131B | 131C | 131D | 131E | 131EG | 131EM | 131EMG | 131CX5 | 131X5 |
| | 0 - 5 | 4k | 006A | 006B | 006C | 006D | 006E | 006EG | 006EM | 006EMG | 006CX5 | 006X5 |
| | 0 - 10 | 8k | 015A | 015B | 015C | 015D | 015E | 015EG | 015EM | 015EMG | 015CX5 | 015X5 |
| | 0 - 20 | 16k | 024A | 024B | 024C | 024D | 024E | 024EG | 024EM | 024EMG | 024CX5 | 024X5 |

NOTE: PART NUMBER 4.5 DENOTES 1½-ELEMENT UNIT.

OSI PRECISION AC WATT OR VAR TRANSDUCER MODELS GW5- & GV5-

ACCURATE TO 0.2% OF READING



THREE-PHASE, FOUR-WIRE MODELS, INTERNAL SENSOR (THREE-ELEMENT)

| AC INPUTS | | F.S. WATTS or VARS | STANDARD OUTPUTS MODEL GW5- OR GV5- | | | | | | | | | |
|----------------|---------|--------------------------|-------------------------------------|---------|----------|---------|----------|---------|-----------|------------|---------|--------|
| VOLTS | AMPS | | 0±1mAdc* | 0±1mAdc | 0±10Vdc* | 0±10Vdc | 4-20mAdc | 4-20mA* | 4-12-20mA | 4-12-20mA* | 0±5Vdc* | 0±5Vdc |
| 0-150 L-N** | 0 - 1 | 300 | 125A | 125B | 125C | 125D | 125E | 125EG | 125EM | 125EMG | 125CX5 | 125X5 |
| | 0 - 2.5 | 750 | 132A | 132B | 132C | 132D | 132E | 132EG | 132EM | 132EMG | 132CX5 | 132X5 |
| | 0 - 5 | 1.5k | 007A | 007B | 007C | 007D | 007E | 007EG | 007EM | 007EMG | 007CX5 | 007X5 |
| | 0 - 5 | 1.5k | 7.5A | 7.5B | 7.5C | 7.5D | 7.5E | 7.5EG | 7.5EM | 7.5EMG | 7.5CX5 | 7.5X5 |
| | 0 - 10 | 3k | 016A | 016B | 016C | 016D | 016E | 016EG | 016EM | 016EMG | 016CX5 | 016X5 |
| | 0 - 20 | 6k | 025A | 025B | 025C | 025D | 025E | 025EG | 025EM | 025EMG | 025CX5 | 025X5 |
| 0-300 L-N** | 0 - 1 | 600 | 126A | 126B | 126C | 126D | 126E | 126EG | 126EM | 126EMG | 126CX5 | 126X5 |
| | 0 - 2.5 | 1.5k | 133A | 133B | 133C | 133D | 133E | 133EG | 133EM | 133EMG | 133CX5 | 133X5 |
| | 0 - 5 | 3k | 008A | 008B | 008C | 008D | 008E | 008EG | 008EM | 008EMG | 008CX5 | 008X5 |
| | 0 - 5 | 3k | 8.5A | 8.5B | 8.5C | 8.5D | 8.5E | 8.5EG | 8.5EM | 8.5EMG | 8.5CX5 | 8.5X5 |
| | 0 - 10 | 6k | 017A | 017B | 017C | 017D | 017E | 017EG | 017EM | 017EMG | 017CX5 | 017X5 |
| | 0 - 20 | 12k | 026A | 026B | 026C | 026D | 026E | 026EG | 026EM | 026EMG | 026CX5 | 026X5 |

NOTE: PART NUMBERS 7.5 & 8.5 DENOTE 2 1/2-ELEMENT UNITS.

Voltage specifications are **line-to-neutral voltage.

*Denotes self-powered unit, limiting input voltage ranges to:
 85-135 for 150Vac models
 200-280 for 300Vac models
 380-550 for 600Vac models
 All others require 85-135Vac instrument power, 60Hz.

Optional 50ms output response to 90% - Add suffix **"W"**
 Optional 230Vac instrument power - Add suffix **"-22"**
 For UL Listed precision Watt transducers, [see AGW Series](#).

50 HERTZ MODELS:

Add suffix **"-50"** to part number.

5 YEAR WARRANTY

ORDERING INFORMATION

Example: Self-Powered, Three-Phase, Four-Wire, 120V,
 5A Input with 0±5Vdc Output, Proportional to 0±1500Watts.
GW5-007CX5

ORDERING INFORMATION

Example: Self-Powered, Three-Phase, Four-Wire, 120V,
 5A Input with 0±1mAdc Output, Proportional to 0±1500VAR.
GV5-007A

SPECIFICATIONS

INPUT

Voltage See Tables
 Current See Tables
 Frequency Range
 GW5 standard 58-62Hz
 with **"-50"** option 48-52Hz
 GV5 standard 60Hz
 with **"-50"** option 50Hz

Power Factor Any
 Burden
 Voltage ≤0.1VA/element
 Current ≤0.28VA/element

Overload
 Voltage .. continuous... 0-150Vac Range 175Vac
 0-300Vac Range 350Vac
 0-600Vac Range 600Vac
 Current .. continuous... 0-1, 2.5, 5, 10Aac Ranges .. 2 X F.S.
 0-20Aac Range 20A
 transient 0-1, 2.5Aac Ranges... 20A... 10s/hr
 0-5, 10, 20A Ranges... 50A... 10s/hr
 0-1, 2.5Aac Ranges... 100A... 1s/hr
 0-5, 10, 20A Ranges... 250A... 1s/hr

OUTPUT

GV5 + = Lagging/ - = Leading
 Loading
 "A" & **"B"** models (0-1mA output) 0-10kΩ
 "C" & **"D"** models (0-10Vdc output) 2kΩ min.
 "E", **"EG"**, **"EM"**, **"EMG"** models (4-20mAdc output) 0-500Ω
 "CX5" & **"X5"** models ... (0-5Vdc output) 2kΩ min.
 Response standard (to 99%) ≤400ms
 with **"W"** option (to 90%) ... ≤50ms

Field Adjustable Cal. ±2%

DIELECTRIC TEST

Input/Output/Case 1800Vac (RMS)
 Surge Withstands IEEE SWC test

TEMPERATURE & PHYSICAL

Operating Range -20°C to 65°C
 Temperature Effect (-20°C to 65°C) ±0.005%/°C
 Storage Range -40°C to 70°C
 Operating Humidity 0-95% non-condensing

ACCURACY

Includes combined effects of voltage, current, load and power factor.
 GW5 ±0.2% Rdg./PF, ±0.04% F.S.
 GV5 ±0.2% Rdg./sinθ, ±0.04% F.S.
 Output Ripple <0.5% F.S.

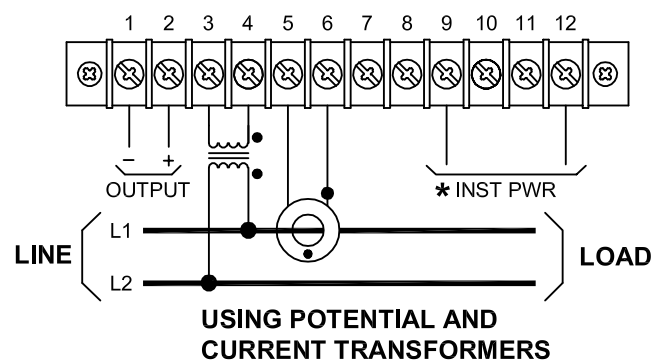
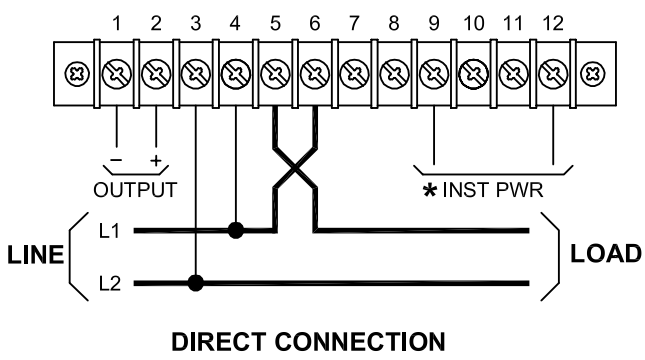
INSTRUMENT POWER

"B", **"D"**, **"E"**, **"EM"**, **"X5"** models 85-135Vac, 60Hz, 7VA
"-22" option 230Vac, 50/60Hz, ±15%
"A", **"C"**, **"CX5"**, **"EG"** or **"EMG"** models Not required

OSI CONNECTION DIAGRAMS MODEL AGW, GW5 & GV5-

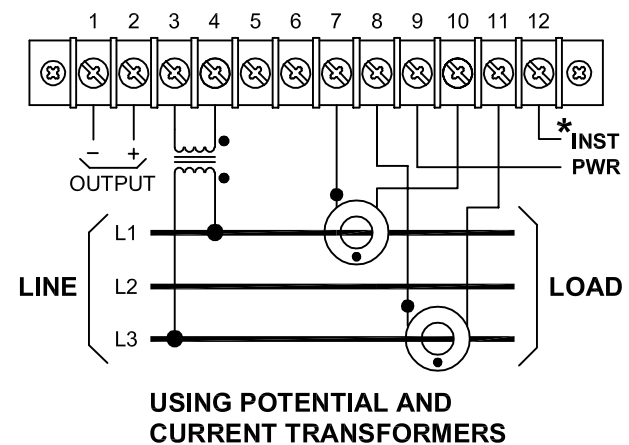
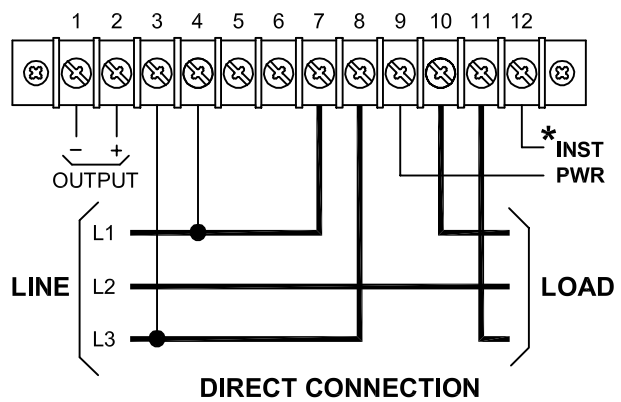
SINGLE-PHASE CONNECTIONS

(1 ELEMENT)



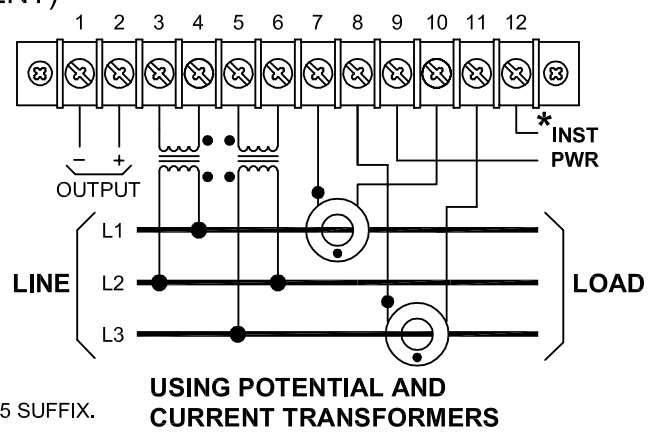
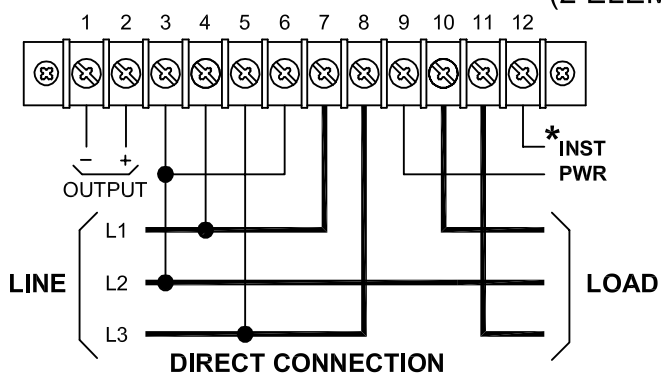
THREE-PHASE, THREE-WIRE CONNECTIONS

(1-1/2 ELEMENT)



THREE-PHASE, THREE-WIRE CONNECTIONS

(2 ELEMENT)

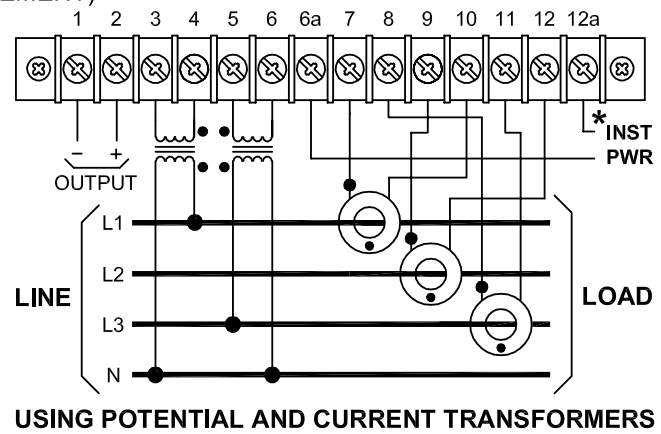
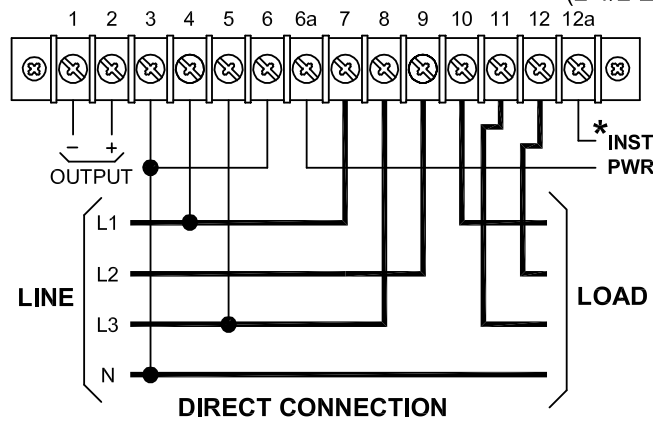


- * 115Vac ON MODELS WITH B, D, E, EM OR X5 SUFFIX.
- * 230Vac ON MODELS WITH -22 SUFFIX.
- * NOT REQUIRED ON MODELS WITH A, C, CX5, EG OR EMG SUFFIX.

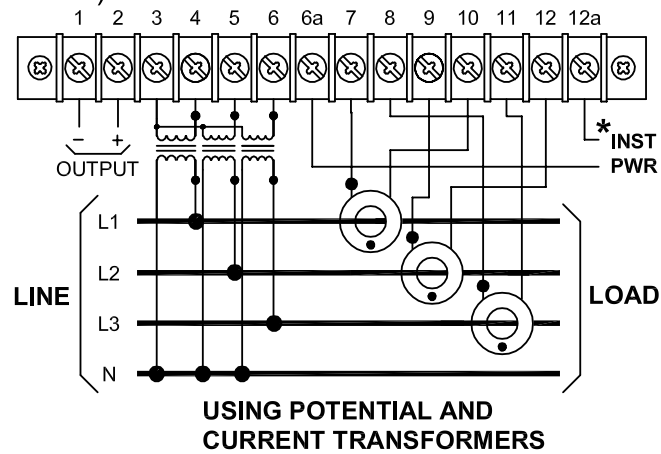
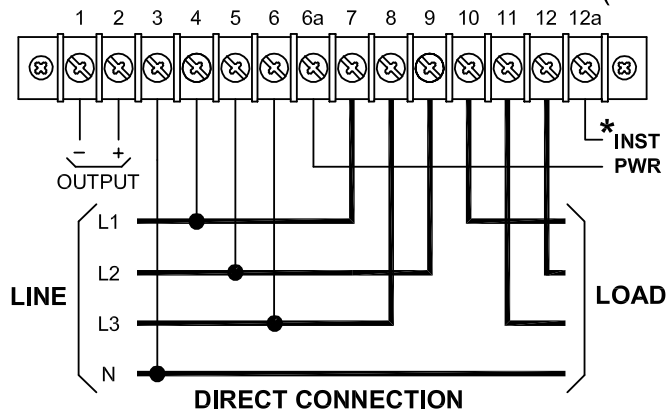
Dwg# 0902-00873-B Rev A

OSI CONNECTIONS & DIMENSIONS MODEL AGW, GW5 & GV5-

THREE-PHASE, FOUR-WIRE CONNECTIONS (2-1/2 ELEMENT)



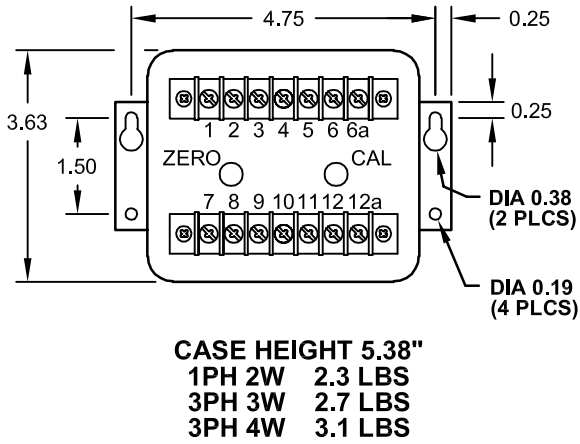
THREE-PHASE, FOUR-WIRE CONNECTIONS (3 ELEMENT)



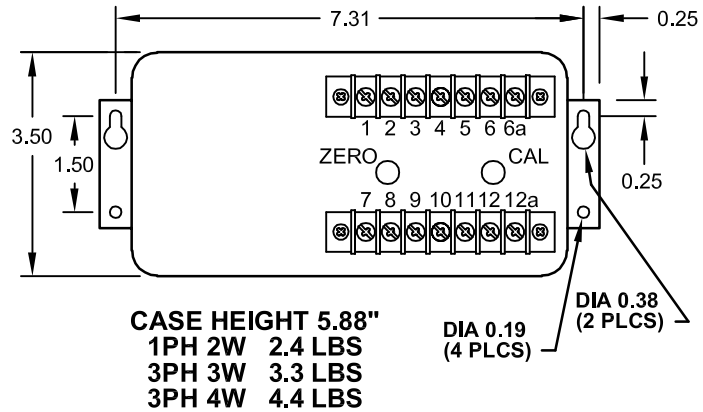
- * 115Vac ON MODELS WITH B, D, E, EM OR X5 SUFFIX.
- * 230Vac ON MODELS WITH -22 SUFFIX.
- * NOT REQUIRED ON MODELS WITH A, C, CX5, EG OR EMG SUFFIX.

CASE DIMENSIONS

**GW5/GV5 MODELS WITH
1mA, 5V, OR 10V OUTPUTS**



**GW5/GV5 MODELS WITH 4-20mA OUTPUTS
AND ALL AGW MODELS**



ALL DIMENSIONS IN INCHES.
Dwg# 0902-00873-B Rev A

OSI PRECISION AC WATT/VAR TRANSDUCER MODEL GWV5-

COMBINATION WATT & VAR MEASUREMENTS

FEATURES

- Available in 1-, 2-, or 3-element configurations.
- Some models provide bidirectional outputs.
- 0.2% of reading accuracy
- Accuracy maintained over wide temperature range, calibration traceable to **NIST**.

APPLICATIONS

- Integration into [energy management systems](#) and [sub-metering applications](#).
- Measurement using direct connection, [current transformers](#), and/or [potential transformers](#).
- Sinusoidal waveforms.



5 YEAR WARRANTY

SINGLE- AND THREE-PHASE MODELS WITH INTERNAL SENSOR

| INPUTS | | F.S. WATT/ VAR | PHASE | NO. OF ELE. | STANDARD OUTPUTS MODEL GWV5- | | | | | | | | | |
|-----------|---------|----------------|-------|-------------|------------------------------|----------|-----------|----------|--------|---------|-----------|----------|---------|--|
| AC VOLTS | AC AMPS | | | | 0-±1mAdc* | 0-±1mAdc | 0-±10Vdc* | 0-±10Vdc | 4-20mA | 4-20mA* | 4-12-20mA | 0-±5Vdc* | 0-±5Vdc | |
| 0-150 | 0-2.5 | 250 | 1P-2W | 1 | 106A | 106B | 106C | 106D | 106E | 106EG | 106EM | 106CX5 | 106X5 | |
| 0-150 | 0-5 | 500 | 1P-2W | 1 | 001A | 001B | 001C | 001D | 001E | 001EG | 001EM | 001CX5 | 001X5 | |
| 0-300 | 0-2.5 | 500 | 1P-2W | 1 | 107A | 107B | 107C | 107D | 107E | 107EG | 107EM | 107CX5 | 107X5 | |
| 0-300 | 0-5 | 1000 | 1P-2W | 1 | 002A | 002B | 002C | 002D | 002E | 002EG | 002EM | 002CX5 | 002X5 | |
| 0-600 | 0-2.5 | 1000 | 1P-2W | 1 | 108A | 108B | 108C | 108D | 108E | 108EG | 108EM | 108CX5 | 108X5 | |
| 0-600 | 0-5 | 2000 | 1P-2W | 1 | 003A | 003B | 003C | 003D | 003E | 003EG | 003EM | 003CX5 | 003X5 | |
| 0-150 | 0-2.5 | 500 | 3P-3W | 2 | 129A | 129B | 129C | 129D | 129E | 129EG | 129EM | 129CX5 | 129X5 | |
| 0-150 | 0-5 | 1000 | 3P-3W | 2 | 004A | 004B | 004C | 004D | 004E | 004EG | 004EM | 004CX5 | 004X5 | |
| 0-300 | 0-2.5 | 1000 | 3P-3W | 2 | 130A | 130B | 130C | 130D | 130E | 130EG | 130EM | 130CX5 | 130X5 | |
| 0-300 | 0-5 | 2000 | 3P-3W | 2 | 005A | 005B | 005C | 005D | 005E | 005EG | 005EM | 005CX5 | 005X5 | |
| 0-600 | 0-2.5 | 2000 | 3P-3W | 2 | 131A | 131B | 131C | 131D | 131E | 131EG | 131EM | 131CX5 | 131X5 | |
| 0-600 | 0-5 | 4000 | 3P-3W | 2 | 006A | 006B | 006C | 006D | 006E | 006EG | 006EM | 006CX5 | 006X5 | |
| 0-150 L-N | 0-2.5 | 750 | 3P-4W | 3 | 132A | 132B | 132C | 132D | 132E | 132EG | 132EM | 132CX5 | 132X5 | |
| 0-150 L-N | 0-5 | 1500 | 3P-4W | 3 | 007A | 007B | 007C | 007D | 007E | 007EG | 007EM | 007CX5 | 007X5 | |
| 0-300 L-N | 0-2.5 | 1500 | 3P-4W | 3 | 133A | 133B | 133C | 133D | 133E | 133EG | 133EM | 133CX5 | 133X5 | |
| 0-300 L-N | 0-5 | 3000 | 3P-4W | 3 | 008A | 008B | 008C | 008D | 008E | 008EG | 008EM | 008CX5 | 008X5 | |

* Denotes self-powered unit, voltage range limited to:
 85-135V For 150V Models
 200-280V For 300V Models
 380-550V For 600V Models

All units other than self-powered require 85-135Vac inst. power.
 Optional 230Vac Instrument Power - Add suffix “-22”

50 HERTZ MODELS - Add suffix “-50” to part number.

50ms output response to 90% - Add suffix “W”

CTs & additional current ranges available - [Consult Factory](#)

ORDERING INFORMATION

Example: Three-Phase, Three-Wire 120Vac,
 5A Input with 0-±1mA Output
 Equals 1000W & VARs.
GWV5-004B

SPECIFICATIONS

INPUT

Voltage.....See Table
 Current.....0-5Aac
 Frequency.....60Hz standard; 50Hz optional
 Power Factor.....Any
 Burden
 Voltage.....<0.1VA/phase
 Current.....<0.28VA/phase
 Overload
 Voltage (continuous).....175V, 350V, 600V
 Current (continuous).....10A

DIELECTRIC TEST

Input/Output/Case.....1800Vac
 Surge.....Withstands IEEE SWC test

INSTRUMENT POWER

Standard.....85-135Vac, 60Hz, 7.5VA
 “-22” option.....230Vac, 50/60Hz, ±15%
 “A”, “C”, “CX5” and “EG” models.....not required

OUTPUT

VARs.....+ = Lagging/ - = Leading
 Output Watts, VARs.....See Table
 Loading
 “A” models.....(0-±1mAdc output) ...0-10kΩ
 “C”, “D”, “CX5”, “X5” models (0-±10, 0-±5Vdc)>2kΩ
 “E”, “EG”, “EM” models.....(4-20mAdc output) ...0-500Ω
 Response Time to 99%.....<400ms
 50ms Response to 90%.....Add suffix “W”
 Field Adjustable Cal.±2% min.

ACCURACY (Includes combined effects of voltage, current, load , PF)

Watts.....±0.2% Rdg./PF, ±0.05% F.S.
 VARs.....±0.2% Rdg./sinθ, ±0.05% F.S.

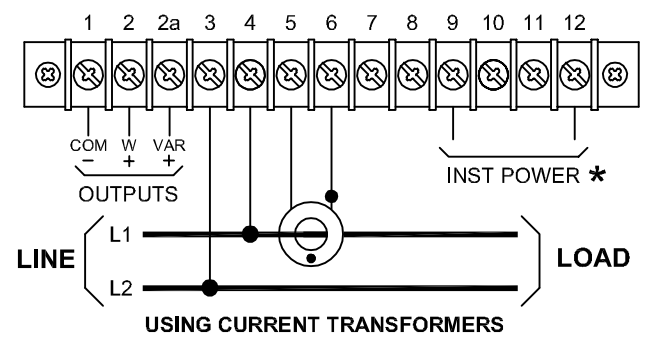
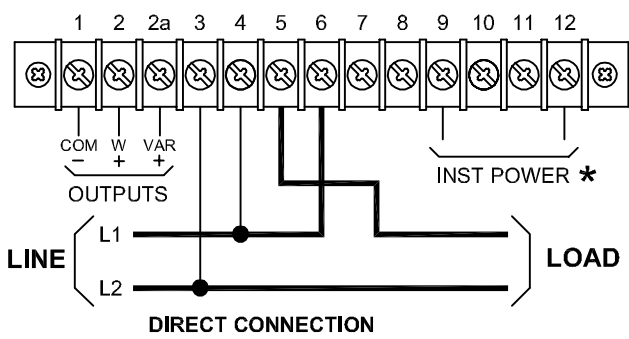
TEMPERATURE & PHYSICAL

Temperature Effect (-20°C to 60°C)
 Watts.....±0.005%/°C
 VARs.....±0.009%/°C
 Operating Humidity.....0-95% non-condensing

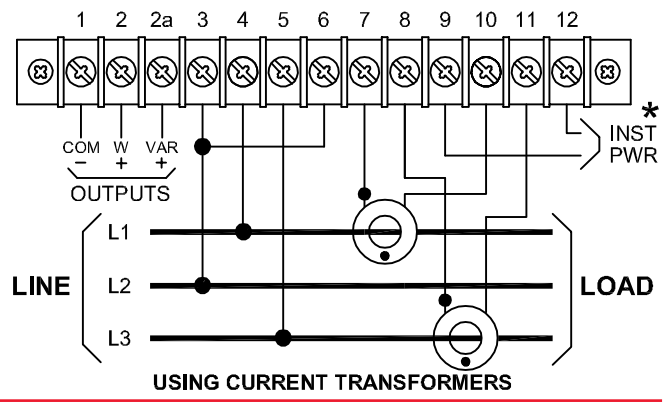
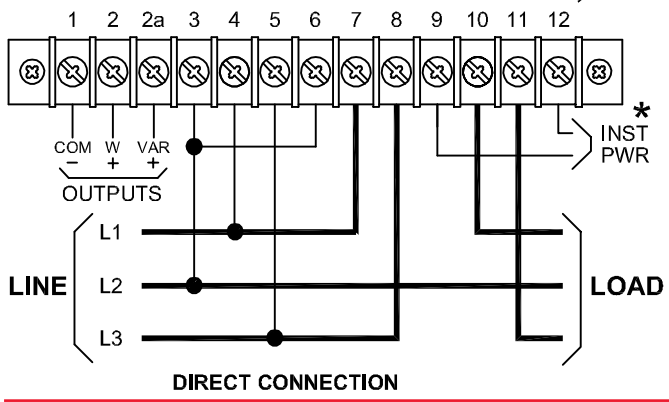
OSI CONNECTIONS AND DIMENSIONS MODEL GWV5-

CONNECTION DIAGRAMS

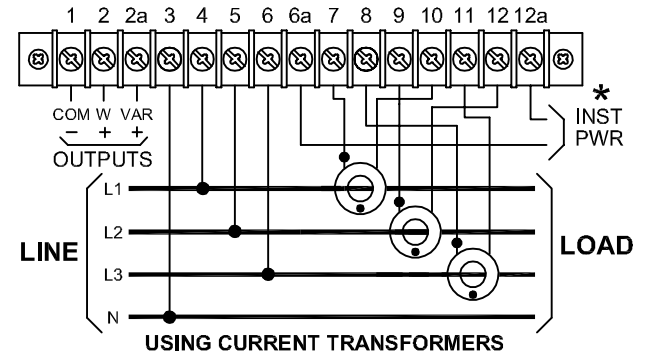
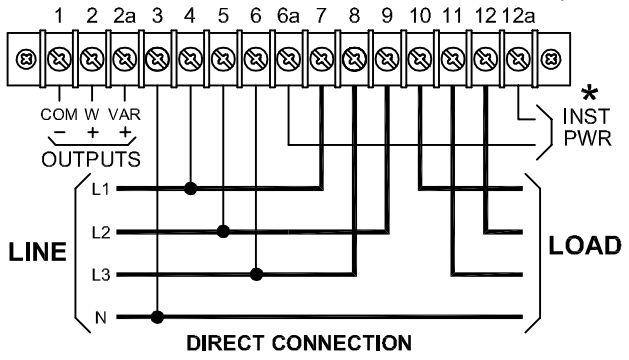
SINGLE-PHASE, TWO-WIRE CONNECTIONS



THREE-PHASE, THREE-WIRE CONNECTIONS

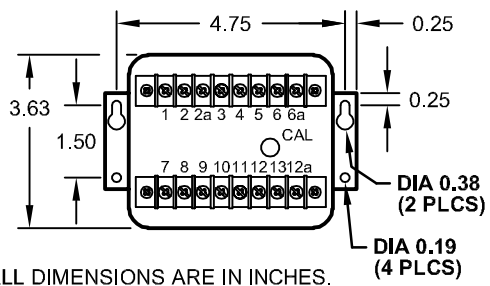


THREE-PHASE, FOUR-WIRE CONNECTIONS



* 115Vac ON MODELS WITH B, D, E, EM OR X5 SUFFIX
 * 230Vac ON MODELS WITH -22 SUFFIX
 * NOT REQUIRED ON MODELS WITH A, C, CX5 OR EG SUFFIX.

CASE DIMENSIONS



| | |
|--------------------------|---------|
| CASE HEIGHT 6.50" | |
| 1PH 2W | 2.6 LBS |
| 3PH 3W | 3.0 LBS |
| 3PH 4W | 3.5 LBS |

ALL DIMENSIONS ARE IN INCHES.

Dwg# 0902-00874-B Rev --

OSI AC WATT TRANSDUCER MODEL DW5-

DIN-RAIL-MOUNTED AC WATT TRANSDUCER

DESCRIPTION

The Model DW5 provides power measurement to within $\pm 0.5\%$ of full-scale accuracy in single- or polyphase systems. The electrically-isolated dc output is proportional to the instantaneous power averaged over several cycles. The DW5 is packaged in a DIN-Rail case for easy installation.

Currents up to 5 Amperes and voltages up to 600Vac can be directly connected to the DW5. The DW5 can be used with [OSI metering class current transformers](#) for measurements up to 10 kiloamperes.

Specific outputs can be selected to interface with any data acquisition system from a simple recorder to computer-, SCADA-, or PLC-based system.

The DW5 is widely used in a variety of applications, including hydroelectric generator output measurement, end-of-line appliance testing for energy consumption, building automation, energy management, and cogeneration systems. It comes with CE and CSA approvals and is manufactured and tested in accordance with ISO-9001.



5 YEAR WARRANTY



FEATURES

- Accurate regardless of variations in voltage, current, power factor, or load.
- Available with 1-, 2-, or 3-element configurations.
- Some models provide bidirectional operation.
- Accuracy maintained over wide temperature range.

APPLICATIONS

- Equipment monitoring for process control.
- Integration into [energy management systems](#) or a variety of [sub-metering](#) applications.
- Measurement using direct-connection, [current transformers](#), and/or [potential transformers](#).
- Best applied to sinusoidal waveforms.

MODEL SELECTION

SINGLE- AND THREE-PHASE MODELS WITH INTERNAL SENSOR

| INPUTS | | F.S. WATTS | PHASE | NO. OF ELEMENTS | STANDARD OUTPUTS MODEL DW5- | | | |
|-------------|---------|------------|-------|-----------------|-----------------------------|-----------------|----------|----------------|
| AC VOLTS | AC AMPS | | | | 0- ± 1 mAdc | 0- ± 10 Vdc | 4-20mAdc | 0- ± 5 Vdc |
| 0 - 150 | 0 - 5 | 500 | 1P-2W | 1 | 001B | 001D | 001E | 001X5 |
| 0 - 300 | 0 - 5 | 1000 | 1P-2W | 1 | 002B | 002D | 002E | 002X5 |
| 0 - 150 | 0 - 5 | 1000 | 3P-3W | 2 | 004B | 004D | 004E | 004X5 |
| 0 - 300 | 0 - 5 | 2000 | 3P-3W | 2 | 005B | 005D | 005E | 005X5 |
| 0 - 600 | 0 - 5 | 4000 | 3P-3W | 2 | 006B | 006D | 006E | 006X5 |
| 0 - 150 L-N | 0 - 5 | 1500 | 3P-4W | 3 | 007B | 007D | 007E | 007X5 |
| 0 - 300 L-N | 0 - 5 | 3000 | 3P-4W | 3 | 008B | 008D | 008E | 008X5 |

SPECIFICATIONS

INPUT

Voltage See Table
 Current See Table
 Frequency Nominal 60Hz
 Option "-50" 50Hz
 Power Factor Any
 Burden
 Voltage 400k Ω /phase
 Current 0.01 Ω /phase
 Overload
 Voltage 120% continuous
 Current 120% continuous

DIELECTRIC TEST

Input to Instrument Power/Output/Case 5550Vac
 Input to Input 3250Vac
 Instrument Power to Output/Case 3700Vac
 Output to Case 490Vac

INSTRUMENT POWER

Standard 85-230Vac/dc, 50/60Hz, 4.5VA

OUTPUT

Loading
 "B" models (0-1mAdc output) 0-15k Ω
 "X5" & "D" models... (0-5, 0-10Vdc) 2.5k Ω min.
 "E" models (4-20mAdc) 0-750 Ω
 Response Time (to 99%) 300ms
 Open Circuit Voltage <40Vdc

ACCURACY

..... $\pm 0.5\%$ F.S.
 Output Ripple <1% pk-pk

TEMPERATURE

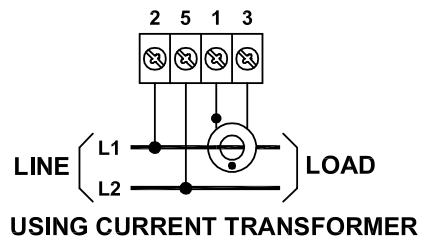
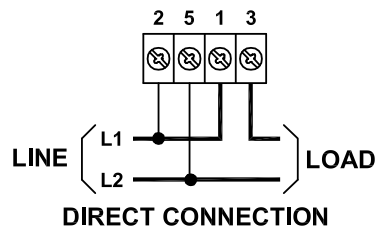
Temperature Range -10 $^{\circ}$ C to 55 $^{\circ}$ C

PHYSICAL

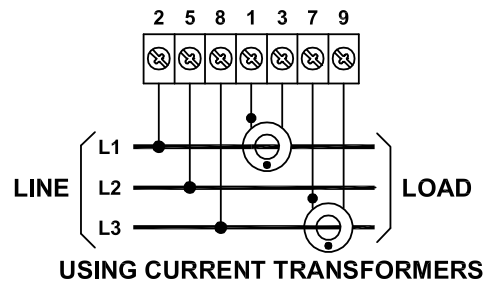
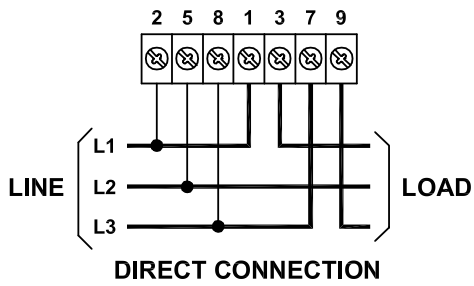
Mean Annual Humidity <75%
 Net Weight 0.9 lbs.
 Termination 10 AWG max.

OSI CONNECTIONS AND CASE DIMENSIONS MODEL DW5-

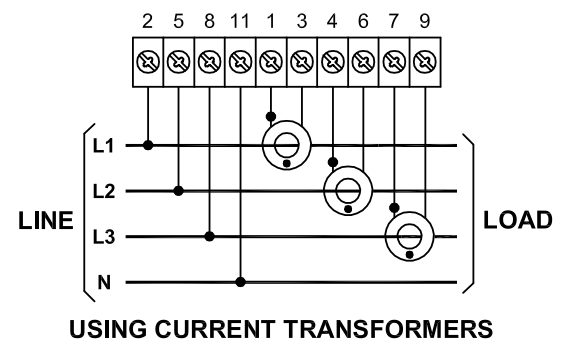
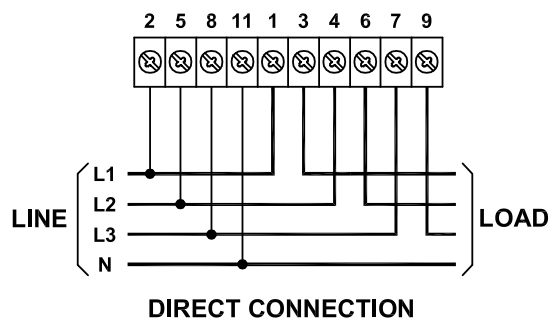
SINGLE-PHASE CONNECTIONS (ONE-ELEMENT)



THREE-PHASE, THREE-WIRE CONNECTIONS (TWO-ELEMENT)

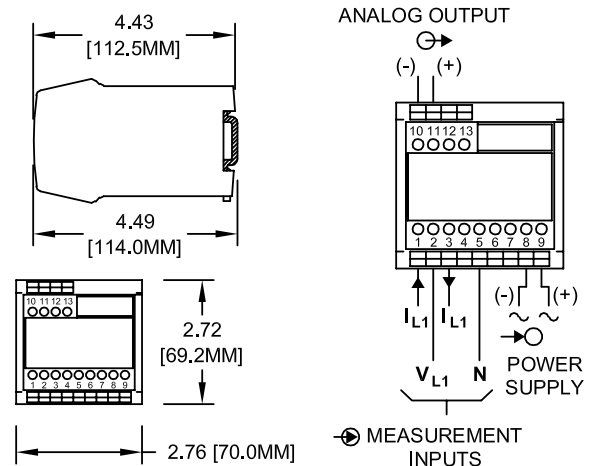


THREE-PHASE, FOUR-WIRE CONNECTIONS (THREE-ELEMENT)

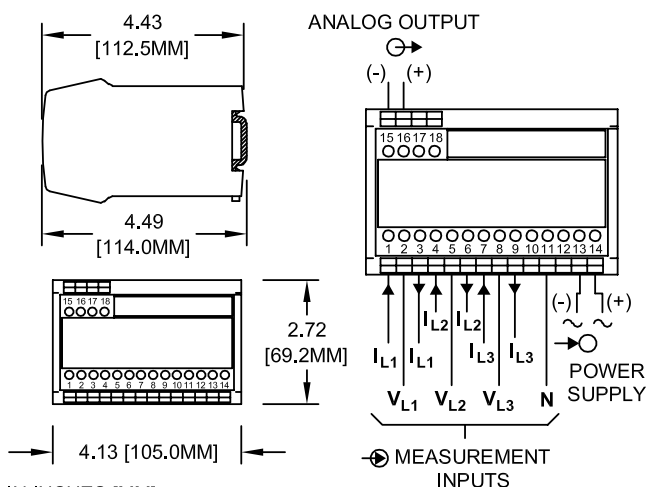


CASE DIMENSIONS

SINGLE-PHASE MODELS



THREE-PHASE MODELS



1. DIMENSIONS ARE IN INCHES [MM].
 2. MOUNTED ON 35MM TOP-HAT DIN-RAIL.

0902-00876-B
 Dwg # 0902-00876-B Rev --

OSI AC WATT/VAR TRANSDUCER MODEL DWV-

DIN-RAIL-MOUNTED AC WATT/VAR TRANSDUCER

FEATURES

- Available with 1-, 2-, or 3-element configurations.
- Some models provide bidirectional outputs.
- Compact DIN-Rail package, CE and CSA approvals.



APPLICATIONS

- Integration into [energy management systems](#) or a variety of [sub-metering](#) applications.
- Measurement using direct-connection, [current transformers](#), and/or [potential transformers](#).
- Sinusoidal Waveforms.

5 YEAR WARRANTY

ORDERING INFORMATION

Example: Three-Phase, Three-Wire
120Vac, 5A Input with 0-1mAdc Output.

DWV-004B

SINGLE- AND THREE-PHASE MODELS WITH INTERNAL SENSOR

| INPUTS | | F.S. WATT/VAR | PHASE | NO. OF ELEMENTS | STANDARD OUTPUTS MODEL DWV- | | | |
|-------------|---------|------------------|-------|--------------------|-----------------------------|----------|----------|---------|
| AC VOLTS | AC AMPS | | | | 0-±1mAdc | 0-±10Vdc | 4-20mAdc | 0-±5Vdc |
| 0 - 150 | 0 - 5 | 500 | 1P-2W | 1 | 001B | 001D | 001E | 001X5 |
| 0 - 300 | 0 - 5 | 1000 | 1P-2W | 1 | 002B | 002D | 002E | 002X5 |
| 0 - 600 | 0 - 5 | 2000 | 1P-2W | 1 | 003B | 003D | 003E | 003X5 |
| 0 - 150 | 0 - 5 | 1000 | 3P-3W | 2 | 004B | 004D | 004E | 004X5 |
| 0 - 300 | 0 - 5 | 2000 | 3P-3W | 2 | 005B | 005D | 005E | 005X5 |
| 0 - 600 | 0 - 5 | 4000 | 3P-3W | 2 | 006B | 006D | 006E | 006X5 |
| 0 - 150 L-N | 0 - 5 | 1500 | 3P-4W | 3 | 007B | 007D | 007E | 007X5 |
| 0 - 300 L-N | 0 - 5 | 3000 | 3P-4W | 3 | 008B | 008D | 008E | 008X5 |

SPECIFICATIONS

INPUT

- Voltage See Table
- Current 0-5Aac
- Frequency Standard 60Hz
Option "-50" 50Hz
- Power Factor any
- Burden
- Voltage 400kΩ/phase
- Current 0.01Ω/phase
- Overload
- Voltage (continuous) 120% of F.S. Voltage
- Current (continuous) 120% of F.S. Current

DIELECTRIC TEST

- Input/Instrument Power to Output/Case 3700Vac
- Input to Input 2200Vac
- Output to Case 490Vac

OUTPUT

- Loading
- "B" models (0-1mAdc) 0-15kΩ
- "E" models (4-20mAdc) 0-750Ω
- "X5", "D" models (0-5, 0-10Vdc) 2.5kΩ min.
- Response Time (to 99% F.S.) <300ms

ACCURACY ±0.5% F.S.

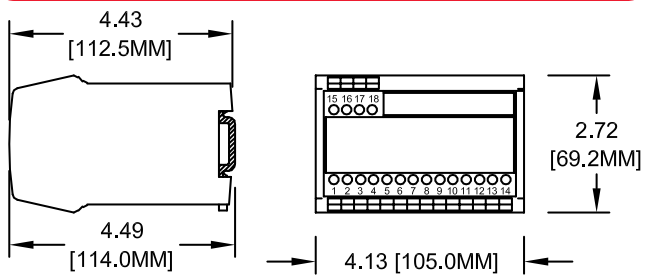
INSTRUMENT POWER

Standard 85-230Vac/dc, 50/60Hz, 7.0VA

TEMPERATURE & PHYSICAL

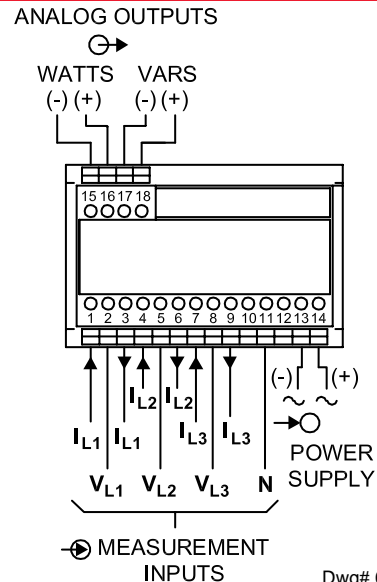
- Temperature Range -10°C to 55°C
- Annual Mean Humidity <75%
- Net Weight 1 lb
- Termination 10 AWG max.

DIMENSIONS



1. DIMENSIONS ARE IN INCHES [MM].
2. MOUNTED ON 35MM TOP-HAT DIN-RAIL.

CONNECTIONS



Dwg# 0902-00875-B Rev --

OSI PRECISION AC WATT/WATTHOUR TRANSDUCER MODEL AGH-

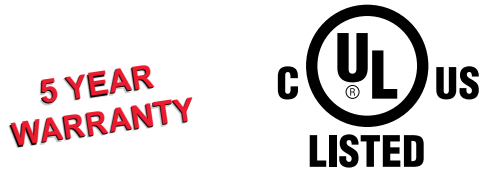
ACCURATE TO 0.2% OF READING

FEATURES

- Accurate regardless of variations in voltage, current, power factor, or load.
- Dual outputs, analog signal proportional to instantaneous watts. Relay closure proportional to Watthours.
- Calibrated with standards traceable to NIST.

APPLICATIONS

- Designed for applications which require UL-listed devices.
- Integration into [energy management systems](#) or a variety of [sub-metering](#) applications.
- Measurement using direct-connection, [current transformers](#) and/or [potential transformers](#).



Energy Management
Equipment Accessory
87X9



SINGLE- AND THREE-PHASE MODELS WITH INTERNAL SENSOR

| INPUTS | | F.S. WATTS | PHASE | NO. OF ELEMENTS | STANDARD OUTPUTS MODEL AGH- | | | F.S. Wh COUNTS/HOUR | Wh/COUNT |
|-------------|---------|------------|---------|-----------------|-----------------------------|----------|----------|---------------------|----------|
| AC VOLTS | AC AMPS | | | | 0-±1mAdc | 0-±10Vdc | 4-20mAdc | | |
| 0 - 150 | 0 - 5 | 500 | 1P - 2W | 1 | 001B | 001D | 001E | 500 | 1 |
| 0 - 300 | 0 - 5 | 1000 | 1P - 2W | 1 | 002B | 002D | 002E | 1000 | 1 |
| 0 - 600 | 0 - 5 | 2000 | 1P - 2W | 1 | 003B | 003D | 003E | 2000 | 1 |
| 0 - 150 | 0 - 5 | 1000 | 3P - 3W | 2 | 004B | 004D | 004E | 1000 | 1 |
| 0 - 300 | 0 - 5 | 2000 | 3P - 3W | 2 | 005B | 005D | 005E | 2000 | 1 |
| 0 - 600 | 0 - 5 | 4000 | 3P - 3W | 2 | 006B | 006D | 006E | 4000 | 1 |
| 0 - 150 L-N | 0 - 5 | 1500 | 3P - 4W | 3 | 007B | 007D | 007E | 1500 | 1 |
| 0 - 300 L-N | 0 - 5 | 3000 | 3P - 4W | 3 | 008B | 008D | 008E | 3000 | 1 |
| 0 - 150 L-N | 0 - 5 | 1500 | 3P - 4W | 2 1/2 | 007.5B | 007.5D | 007.5E | 1500 | 1 |
| 0 - 300 L-N | 0 - 5 | 3000 | 3P - 4W | 2 1/2 | 008.5B | 008.5D | 008.5E | 3000 | 1 |

To calculate full-scale Watts when using [potential](#) and/or [current transformers](#):

- a = initial transducer calibration (F.S. Watts from table above)
- b = current transformer ratio (e.g. 100:5, or 20)
- c = potential transformer ratio (e.g. 600:120, or 5)
- F.S. Watts = a x b x c

NOTE: [UL-recognized current transformers](#) available from factory

SPECIFICATIONS

INPUT

- Voltage See Table
- Current 0-5Aac
- Frequency Range 58-62Hz
- Power Factor Any
- Burden
 - Voltage <0.1VA
 - Current <0.25VA
- Overload
 - Voltage, continuous150Vac range175Vac
 - 300Vac range350Vac
 - 600Vac range600Vac
 - Current, continuous 2 X F.S.
 - transient..... 50Aac (10sec./hr)
 - 250Aac (1sec./hr)

DIELECTRIC TEST (Input/Output/Case)

- 150Vac & 300Vac models 1800Vac
- 600Vac models 2200Vac
- Surge Withstands IEEE SWC test

INSTRUMENT POWER

- Standard90-135Vac, 60Hz, 7.5VA

OUTPUT

- Wh Relay N/O SPST; 120Vac, 0.5A Rated
- contact closure duration200ms
- Closure Calibration (Std.).....1 Watthour/closure
- Analog Output Loading
 - "B" models... (0-1mAdc output) 0-10kΩ
 - "D" models... (0-10Vdc output) 2kΩ min.
 - "E" models... (4-20mAdc output) 0 to 500Ω
- Response Time (to 99%) <400ms

ACCURACY

- ±0.2% Rdg. ±0.05% F.S.
- Includes combined effects of voltage, current, load and power factor.
- Analog Output Ripple <0.5% F.S.

TEMPERATURE & PHYSICAL

- Temperature Effect (-20° to 60°C).....±0.005%/°C
- Net Weight 3 lbs.

CONNECTION DIAGRAMS AND DIMENSIONS
SHOWN ON PAGES [106-107](#)

OSI AC WATT/WATTHOUR & VAR/VARHOUR TRANSDUCERS MODELS GH-VGH-

DESCRIPTION ACCURATE TO 0.2% OF READING

The GH Watt/Watthour Transducer provides an analog output proportional to time-averaged instantaneous true power and a relay closure or TTL pulse output calibrated in terms of Watthours of energy consumption by the load. Accuracy is ±0.2% of reading.

A Model VGH VAR/VARhour transducer provides an analog output proportional to time-averaged instantaneous reactive power and a relay closure or TTL pulse output calibrated in terms of VARhours for reactive energy. Accuracy is ±0.2% of reading.

In addition, they are used extensively for sub-metering, generation control and appliance testing to verify compliance with federal standards.

Models are available in 1-, 2-, 2½-, or 3-element configuration. Bidirectional Watt and Watthour or VAR and VARhour outputs are available.



5 YEAR WARRANTY

FEATURES

- Accurate regardless of variations in voltage, current, power factor, or load.
- Available with 1-, 2-, 2½- or 3-element configurations.
- Bidirectional Watt/Watthours available.
- Leading/Lagging VARs/VARhours available.
- Accuracy maintained over wide temperature range.
- Calibration traceable to NIST.

APPLICATIONS

- Equipment monitoring for process control.
- Integration into [energy management systems](#) or a variety of [sub-metering](#) applications.
- Measurement using direct connections, [current](#) and/or [potential transformers](#).

50Hz models available: Add suffix "-50" to part number

SINGLE-PHASE, TWO-WIRE MODELS WITH INTERNAL SENSOR (ONE-ELEMENT)

| INPUTS | | F.S. WATTS or VARS | STANDARD GH- OR VGH- | | | | | | RELAY OPTIONS (ADD SUFFIX) * | | | |
|-------------|------------|--------------------------|----------------------|---------|----------|-------------|--------|---------------|---------------------------------------------------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| AC VOLTS | AC AMPS | | 0±1mAdc | 0±10Vdc | 4-20mAdc | 4-12-20mAdc | 0±5Vdc | Wh RELAY * | "-T" | "-R" | "-H" | "-K" |
| 0 to 150 | 0 to 1 | 100 | 103B | 103D | 103E | 103EM | 103X5 | 1Wh/Cnt | Wh relay is replaced with a 5Vdc, TTL-compatible pulse. | A second Wh relay or pulse is provided to allow bidirectional (Forward/Reverse) energy measurement | Wh relay is replaced with a solid-state, Form C (SPDT) relay | Wh relay is replaced with a solid-state, Form C (SPDT) relay operating in "KYZ" format (50% duty cycle) |
| | 0 to 2.5 | 250 | 106B | 106D | 106E | 106EM | 106X5 | 1Wh/Cnt | | | | |
| | 0 to 5 | 500 | 001B | 001D | 001E | 001EM | 001X5 | 1Wh/Cnt | | | | |
| | 0 to 10 | 1000 | 010B | 010D | 010E | 010EM | 010X5 | 1Wh/Cnt | | | | |
| | 0 to 20 | 2000 | 019B | 019D | 019E | 019EM | 019X5 | 1Wh/Cnt | | | | |
| 0 to 300 | 0 to 1 | 200 | 104B | 104D | 104E | 104EM | 104X5 | 1Wh/Cnt | | | | |
| | 0 to 2.5 | 500 | 107B | 107D | 107E | 107EM | 107X5 | 1Wh/Cnt | | | | |
| | 0 to 5 | 1000 | 002B | 002D | 002E | 002EM | 002X5 | 1Wh/Cnt | | | | |
| | 0 to 10 | 2000 | 011B | 011D | 011E | 011EM | 011X5 | 1Wh/Cnt | | | | |
| | 0 to 20 | 4000 | 020B | 020D | 020E | 020EM | 020X5 | 1Wh/Cnt | | | | |
| 0 to 600 | 0 to 1 | 400 | 105B | 105D | 105E | 105EM | 105X5 | 1Wh/Cnt | | | | |
| | 0 to 2.5 | 1000 | 108B | 108D | 108E | 108EM | 108X5 | 1Wh/Cnt | | | | |
| | 0 to 5 | 2000 | 003B | 003D | 003E | 003EM | 003X5 | 1Wh/Cnt | | | | |
| | 0 to 10 | 4000 | 012B | 012D | 012E | 012EM | 012X5 | 1Wh/Cnt | | | | |
| | 0 to 20 | 8000 | 021B | 021D | 021E | 021EM | 021X5 | 1Wh/Cnt | | | | |

All standard units require 115Vac instrument power.
 Optional 230Vac instrument power - Add suffix "-22"
 Optional self-powered models - Add suffix "G"

For self-powered models, input voltage ranges are limited to:
 95-135V for 150V models
 200-280V for 300V models
 380-550V for 600V models

To calculate unit scaling when using [Current](#) and/or [Potential Transformers](#) (CTs or PTs), multiply the base unit scaling by the CT and/or PT ratio.
 Example: GH-001D used with 100:5 CTs
 CT ratio = 100/5 = 20, so F.S. Watt input = 500W x 20 = 10,000W
 (0-10kW input = 0-10V output)
 Wh Relay scaling = 1Wh/Cnt x 20 = 20Wh/Cnt

*To specify a custom Wh count (pulse) rate, add a "/" suffix to the base model number followed by the desired F.S. counts (pulses) per hour.
 Range of Available Count (Pulse) Rates:
 Min Count (Pulse) Rate All Models50/hr
 Max Count (Pulse) Rate Relay Models 12k Counts/hr
 Pulse Models 12M Pulses/hr

Count (Pulse) rates over 9k/hr will have the contact closure (pulse duration) adjusted for a 50% duty cycle at F.S. input. (maximum count rate).

Example: GH-002D-T/500K indicates a F.S. pulse rate of 500k pulses/hr. F.S. Watt input for this model is 1000W. The new Wh per pulse scaling is 0.002Wh/pulse (1000W/500k cts/hr) and pulse duration is 3.6ms ±10% (500k/3600)/2.

ORDERING INFORMATION

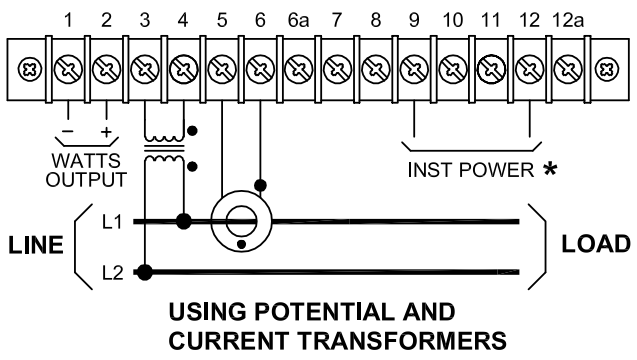
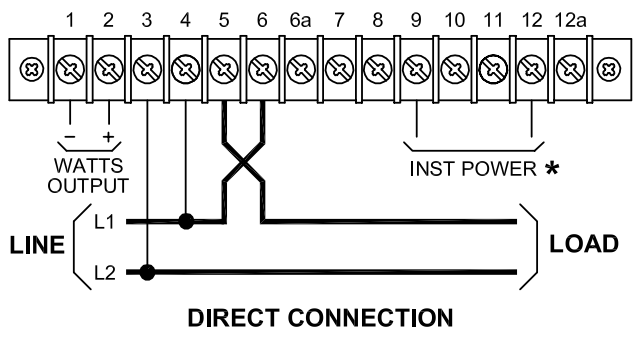
Example: Single-Phase, 120V, 5A Input with ±0-10Vdc Output proportional to ±0-500 Watts, TTL Pulse Output for Watthours, Each Pulse Proportional to 1.0 Watthour.
GH-001D-T

ORDERING INFORMATION

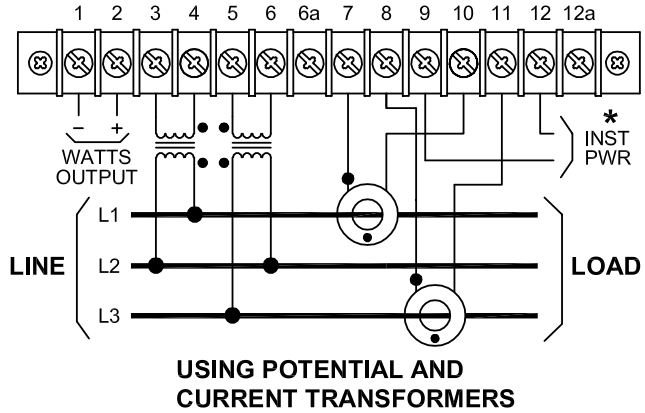
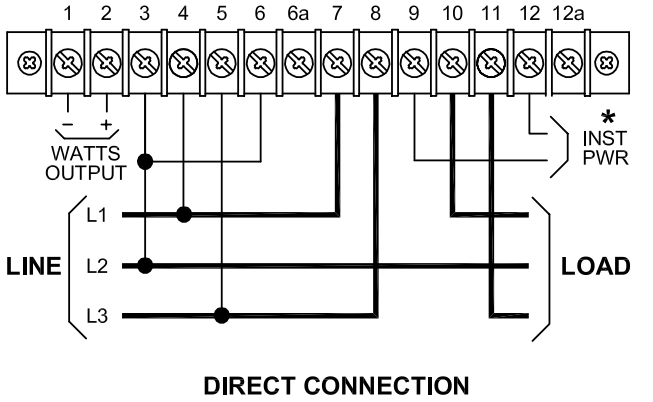
Example: Single-Phase, 120V, 5A Input with ±0-10Vdc Output proportional to ±0-500 VARs, Self-Powered, 1.0 VARhour per Relay Count.
VGH-001DG

OSI CONNECTION DIAGRAMS **MODEL AGH, GH & VGH-**

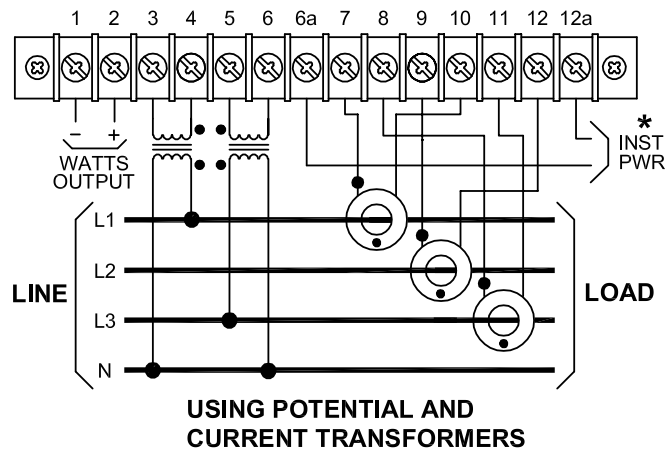
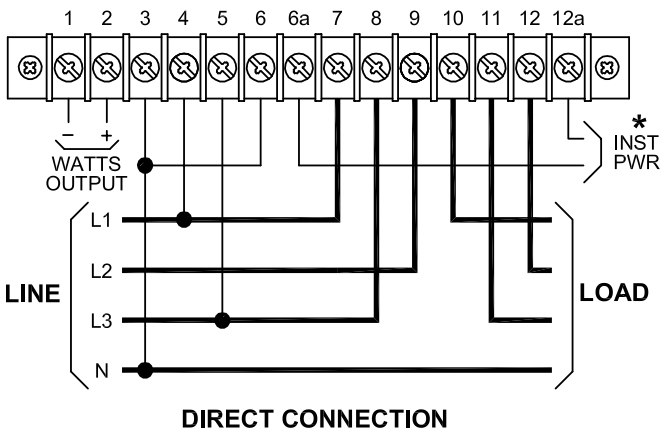
SINGLE-PHASE CONNECTIONS (ONE-ELEMENT)



THREE-PHASE, THREE-WIRE CONNECTIONS (TWO-ELEMENT)



THREE-PHASE, FOUR-WIRE CONNECTIONS (2-1/2 ELEMENT)

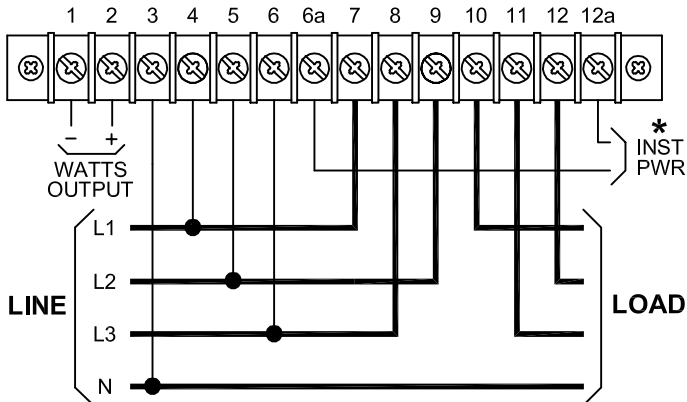


* 115Vac ON MODELS WITH B, D, E, EM OR X5 SUFFIX.
 * 230Vac ON MODELS WITH -22 SUFFIX.
 * NOT REQUIRED ON MODELS WITH G SUFFIX.

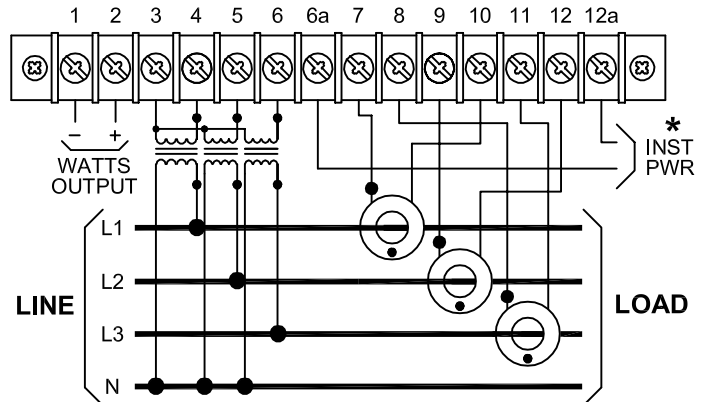
Dwg# 0902-00877-B Rev --

OSI CONNECTIONS & DIMENSIONS MODEL AGH, GH & VGH-

THREE-PHASE, FOUR-WIRE CONNECTIONS (THREE-ELEMENT)



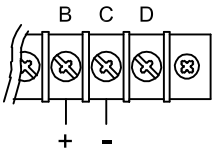
DIRECT CONNECTION



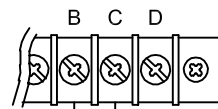
USING POTENTIAL AND CURRENT TRANSFORMERS

- * 115Vac ON MODELS WITH B, D, E, EM OR X5 SUFFIX.
- * 230Vac ON MODELS WITH -22 SUFFIX.
- * NOT REQUIRED ON MODELS WITH G SUFFIX.

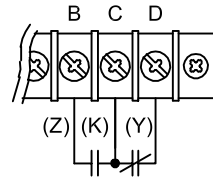
WATT HOUR OR VAR HOUR OUTPUT CONNECTIONS



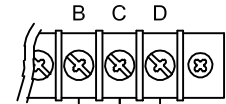
**OPTION "-T"
TTL OUTPUT**



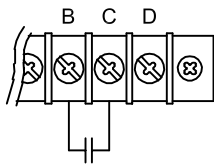
**FORWARD
(VGH = LAGGING)**



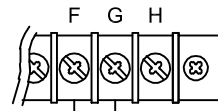
**OPTION "H" OR "K"
SPDT RELAY
(VGH = LAGGING)**



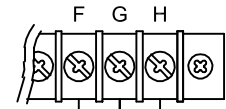
**FORWARD
(VGH = LAGGING)**



**STANDARD OUTPUT
SPST RELAY
(VGH = LAGGING)**



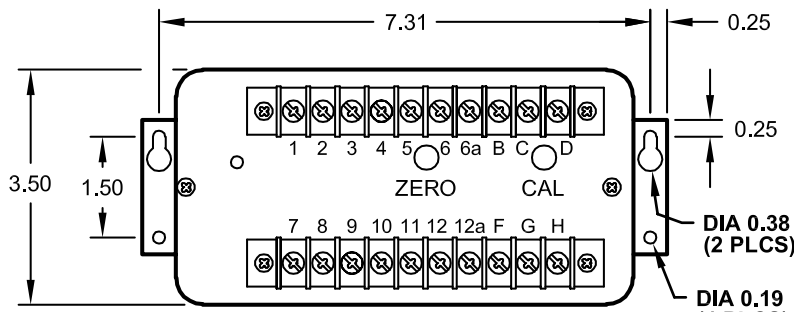
**OPTION "R"
BIDIRECTIONAL
SPST RELAY**



**REVERSE
(VGH = LEADING)**

OPTION "RH" OR "RK"

CASE DIMENSIONS



ALL DIMENSIONS IN INCHES.

CASE HEIGHT 5.88"
1PH 2W 2.9 LBS
3PH 3W 3.3 LBS
3PH 4W 3.8 LBS

Dwg# 0902-00877-B Rev --

OSI VARIABLE-FREQUENCY AC WATT TRANSDUCER MODEL P-

VARIABLE FREQUENCY (5-500 HERTZ)

FEATURES

- Accurate from 5 to 500Hz, factory-calibrated.
- Available in both single-phase and three-phase configurations. Bidirectional output.
- Available with [split-core current sensors](#).

APPLICATIONS

- Accurate monitoring of power that contains dc and non-sinusoidal ac components.
- Variable-frequency drives.
- Ideal for use in phase-angle-firing circuits or frequency synthesizers.

5 YEAR WARRANTY



SINGLE-PHASE (ONE-ELEMENT)

| INPUTS | | F.S. (WATTS) | SENSOR SIZE | STANDARD OUTPUTS MODEL P- | | | | | |
|----------|---------|-----------------|----------------|---------------------------|----------|----------|-------------|----------|---------|
| AC VOLTS | AC AMPS | | | 0-±1mAdc | 0-±10Vdc | 4-20mAdc | 4-12-20mAdc | 0-20mAdc | 0-±5Vdc |
| 0-150 | 0-100 | 10k | C | 121B | 121D | 121E | 121EM | 121EA | 121X5 |
| | 0-200 | 20k | D | 124B | 124D | 124E | 124EM | 124EA | 124X5 |
| | 0-400 | 40k | D | 127B | 127D | 127E | 127EM | 127EA | 127X5 |
| | 0-600 | 60k | E | 130B | 130D | 130E | 130EM | 130EA | 130X5 |
| | 0-1000 | 100k | E | 133B | 133D | 133E | 133EM | 133EA | 133X5 |
| | 0-2000 | 200k | E | 136B | 136D | 136E | 136EM | 136EA | 136X5 |
| 0-300 | 0-100 | 20k | C | 122B | 122D | 122E | 122EM | 122EA | 122X5 |
| | 0-200 | 40k | D | 125B | 125D | 125E | 125EM | 125EA | 125X5 |
| | 0-400 | 80k | D | 128B | 128D | 128E | 128EM | 128EA | 128X5 |
| | 0-600 | 120k | E | 131B | 131D | 131E | 131EM | 131EA | 131X5 |
| | 0-1000 | 200k | E | 134B | 134D | 134E | 134EM | 134EA | 134X5 |
| | 0-2000 | 400k | E | 137B | 137D | 137E | 137EM | 137EA | 137X5 |
| 0-600 | 0-100 | 40k | C | 123B | 123D | 123E | 123EM | 123EA | 123X5 |
| | 0-200 | 80k | D | 126B | 126D | 126E | 126EM | 126EA | 126X5 |
| | 0-400 | 160k | D | 129B | 129D | 129E | 129EM | 129EA | 129X5 |
| | 0-600 | 240k | E | 132B | 132D | 132E | 132EM | 132EA | 132X5 |
| | 0-1000 | 400k | E | 135B | 135D | 135E | 135EM | 135EA | 135X5 |
| | 0-2000 | 800k | E | 138B | 138D | 138E | 138EM | 138EA | 138X5 |

THREE-PHASE, THREE-WIRE (TWO-ELEMENT)

| INPUTS | | F.S. (WATTS) | SENSOR SIZE | STANDARD OUTPUTS MODEL P- | | | | | |
|----------|---------|-----------------|----------------|---------------------------|----------|----------|-------------|----------|---------|
| AC VOLTS | AC AMPS | | | 0-±1mAdc | 0-±10Vdc | 4-20mAdc | 4-12-20mAdc | 0-20mAdc | 0-±5Vdc |
| 0-150 | 0-100 | 20k | C | 142B | 142D | 142E | 142EM | 142EA | 142X5 |
| | 0-200 | 40k | D | 145B | 145D | 145E | 145EM | 145EA | 145X5 |
| | 0-400 | 80k | D | 148B | 148D | 148E | 148EM | 148EA | 148X5 |
| | 0-600 | 120k | E | 151B | 151D | 151E | 151EM | 151EA | 151X5 |
| | 0-1000 | 200k | E | 154B | 154D | 154E | 154EM | 154EA | 154X5 |
| | 0-2000 | 400k | E | 157B | 157D | 157E | 157EM | 157EA | 157X5 |
| 0-300 | 0-100 | 40k | C | 143B | 143D | 143E | 143EM | 143EA | 143X5 |
| | 0-200 | 80k | D | 146B | 146D | 146E | 146EM | 146EA | 146X5 |
| | 0-400 | 160k | D | 149B | 149D | 149E | 149EM | 149EA | 149X5 |
| | 0-600 | 240k | E | 152B | 152D | 152E | 152EM | 152EA | 152X5 |
| | 0-1000 | 400k | E | 155B | 155D | 155E | 155EM | 155EA | 155X5 |
| | 0-2000 | 800k | E | 158B | 158D | 158E | 158EM | 158EA | 158X5 |
| 0-600 | 0-100 | 80k | C | 144B | 144D | 144E | 144EM | 144EA | 144X5 |
| | 0-200 | 160k | D | 147B | 147D | 147E | 147EM | 147EA | 147X5 |
| | 0-400 | 320k | D | 150B | 150D | 150E | 150EM | 150EA | 150X5 |
| | 0-600 | 480k | E | 153B | 153D | 153E | 153EM | 153EA | 153X5 |
| | 0-1000 | 800k | E | 156B | 156D | 156E | 156EM | 156EA | 156X5 |
| | 0-2000 | 1600k | E | 159B | 159D | 159E | 159EM | 159EA | 159X5 |

All units require 115Vac instrument power, 50/60Hz.
 Optional 230Vac instrument power - add suffix "-22"
**FOR OPTIONAL [SPLIT-CORE CURRENT SENSOR](#),
 ADD SUFFIX "S" TO PART NUMBER.**

**ADDITIONAL CURRENT RANGES AVAILABLE.
[CONSULT FACTORY.](#)**

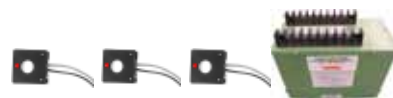
SENSOR SIZES SHOWN ON [FOLLOWING PAGE.](#)

ORDERING INFORMATION

Example: Three-Phase, Three-Wire, 120V,
 100A Input, Split-Core Sensor,
 with 0-±5Vdc Output, Proportional to 0-±20kW.
P-142X5S

OSI VARIABLE-FREQUENCY AC WATT TRANSDUCER MODEL P-

THREE-PHASE, FOUR-WIRE (THREE ELEMENTS)



| INPUTS | | F.S. (WATTS) | SENSOR SIZE | STANDARD OUTPUTS MODEL P- | | | | | |
|-----------|---------|--------------|-------------|---------------------------|----------|----------|-------------|----------|---------|
| AC VOLTS | AC AMPS | | | 0-±1mAdc | 0-±10Vdc | 4-20mAdc | 4-12-20mAdc | 0-20mAdc | 0-±5Vdc |
| 0-150 L-N | 0-100 | 30k | C | 160B | 160D | 160E | 160EM | 160EA | 160X5 |
| | 0-200 | 60k | D | 162B | 162D | 162E | 162EM | 162EA | 162X5 |
| | 0-400 | 120k | D | 164B | 164D | 164E | 164EM | 164EA | 164X5 |
| | 0-600 | 180k | E | 166B | 166D | 166E | 166EM | 166EA | 166X5 |
| | 0-1000 | 300k | E | 168B | 168D | 168E | 168EM | 168EA | 168X5 |
| | 0-2000 | 600k | E | 170B | 170D | 170E | 170EM | 170EA | 170X5 |
| 0-300 L-N | 0-100 | 60k | C | 161B | 161D | 161E | 161EM | 161EA | 161X5 |
| | 0-200 | 120k | D | 163B | 163D | 163E | 163EM | 163EA | 163X5 |
| | 0-400 | 240k | D | 165B | 165D | 165E | 165EM | 165EA | 165X5 |
| | 0-600 | 360k | E | 167B | 167D | 167E | 167EM | 167EA | 167X5 |
| | 0-1000 | 600k | E | 169B | 169D | 169E | 169EM | 169EA | 169X5 |
| | 0-2000 | 1200k | E | 171B | 171D | 171E | 171EM | 171EA | 171X5 |

SPECIFICATIONS

INPUT

Voltage..... See Tables
 Current..... See Tables
 Frequency Range 5-500Hz
 Power Factor..... Any
 Response (Transient 90%) 50µs
 Burden
 Voltage..... <0.1VA/phase
 Current..... <0.1VA/phase
 Overload
 Voltage..... 600Vac max.
 Current..... 50 X F.S.

DIELECTRIC TEST

Input/Output/Case..... 1500Vac

INSTRUMENT POWER

Standard 115Vac ±15%, 50/60Hz, 15VA
 “-22” Option..... 230Vac ±15%, 50/60Hz, 15VA

OUTPUT

Loading
 “B” models (0-±1mA output)..... 0-10kΩ
 “D” models (0-±10Vdc output)..... 2kΩ min.
 “E”, “EM”, “EA” models 0-500Ω
 “X5” models (0-±5Vdc output)..... 2kΩ min.
 Response Time (to 90%) 500ms
 Field Adjustable Cal. ±10%

ACCURACY

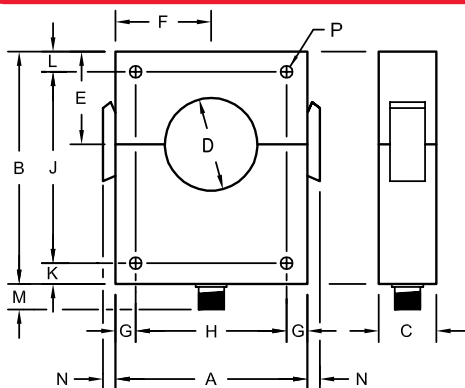
..... ±1.0% F.S.
 Includes combined effects of linearity, repeatability and frequency.
 Output Ripple Less than 1.0% F.S. @ 60Hz

TEMPERATURE

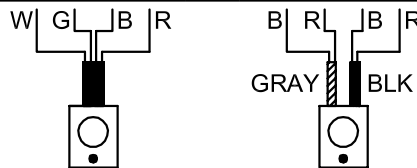
Temperature Range 0°C to +40°C
 Temperature Effect..... ±1.0% of Rdg., ±0.1% F.S. Output

Optional split-core current sensor available - Add suffix “S”

SENSOR DIMENSIONS & CONNECTION DIAGRAMS



| SIGNAL | PIN | 1-CABLE | PIN | 2-CABLE |
|----------------|-----|---------|-----|-----------|
| OUTPUT (-) | A | WHITE | 1 | GRAY “B” |
| OUTPUT (+) | B | GREEN | 2 | GRAY “R” |
| EXCITATION (-) | C | BLACK | 6 | BLACK “B” |
| EXCITATION (+) | D | RED | 8 | BLACK “R” |



ONE-CABLE CURRENT SENSOR TWO-CABLE CURRENT SENSOR

| SENS. SIZE | SENSOR DIMENSIONS (inches) | | | | | | | | | | | | | WT. LBS | |
|------------|----------------------------|---|-------|-------|-------|--------|------|-------|-------|------|------|-----|------|---------|------|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | | P |
| C | 2 | 2 | 3/4 | 3/4 | 7/8 | 1 | 1/4 | 1 1/2 | NA | 1/4 | NA | NA | 1/4 | 5/32 | 0.28 |
| D | 3 1/8 | 4 | 3/4 | 1 1/8 | 1 1/2 | 1 9/16 | 1/2 | 2 1/8 | NA | 1/2 | NA | 1/2 | 1/4 | 11/64 | 0.75 |
| E | 4 1/8 | 5 | 1 1/4 | 2 | 2 | 2 1/16 | 7/16 | 3 1/4 | 4 1/8 | 7/16 | 7/16 | 5/8 | 5/16 | 17/64 | 2.80 |

Solid-core models are supplied with 18-inch cables on sensor sizes C & D. All other solid-core models supplied with detachable 8-foot cable. Sensor size C split-core models are supplied with 8-foot attached cable. All other split-core models are supplied with detachable 8-foot cable. Longer cables are available.

Dwg# 0902-00860-B Rev B

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OSI CONNECTION AND DIMENSIONS DIAGRAMS MODEL P-

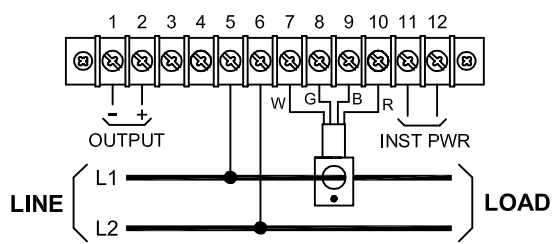
WARNING! SHOCK HAZARD!

Current Sensor Terminals are at Line Potential.

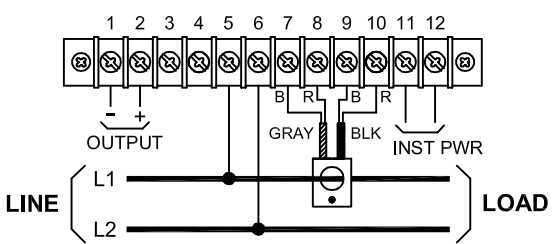
ONE-CABLE CURRENT SENSORS

TWO-CABLE CURRENT SENSORS

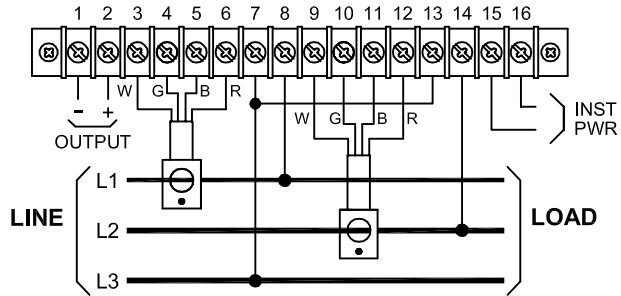
SINGLE-PHASE CONNECTIONS



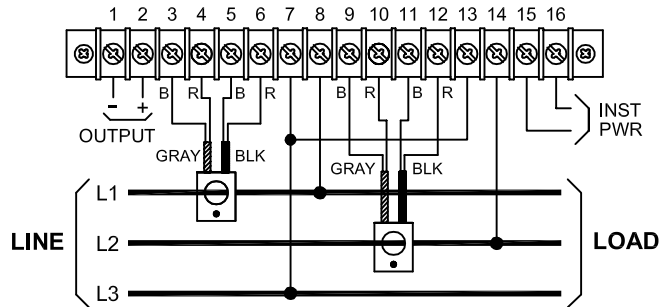
SINGLE-PHASE CONNECTIONS



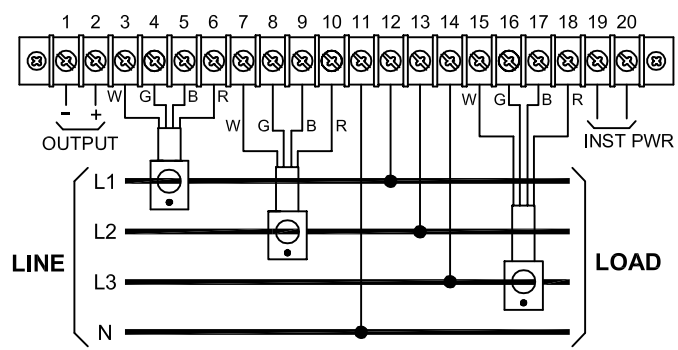
THREE-PHASE, THREE-WIRE CONNECTIONS



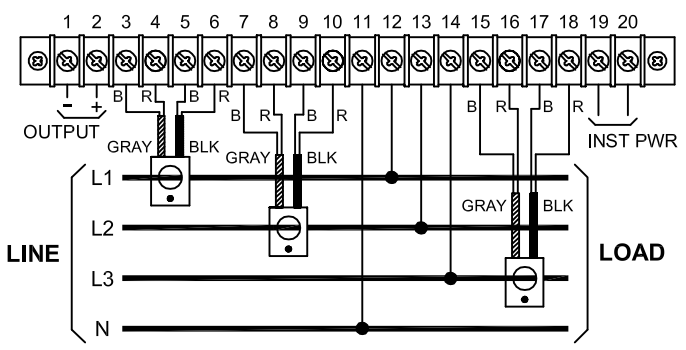
THREE-PHASE, THREE-WIRE CONNECTIONS



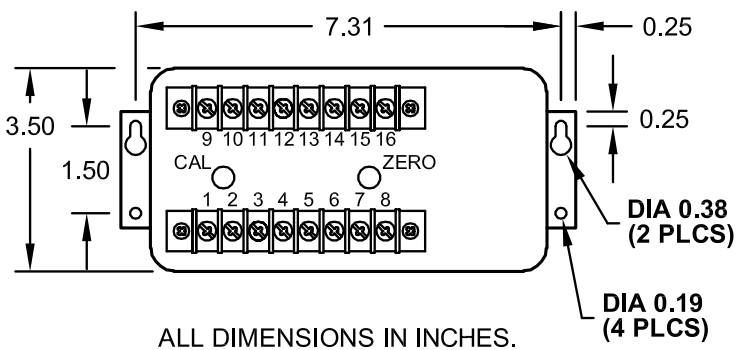
THREE-PHASE, FOUR-WIRE CONNECTIONS



THREE-PHASE, FOUR-WIRE CONNECTIONS



CASE DIMENSIONS



CASE HEIGHT 5.88"
1PH 2W TYP 3.0 LBS
3PH 3W TYP 3.5 LBS
3PH 4W TYP 4.0 LBS

ALL DIMENSIONS IN INCHES.

Dwg# 0902-00860-B Rev B

OSI DC & VARIABLE-FREQUENCY AC WATT TRANSDUCER MODEL PC8-

DESCRIPTION

The PC8 units are designed to provide accurate power measurements on sinusoidal or highly-distorted waveforms. Basic four-quadrant multiplier response of dc to 20 kilohertz provides operation up to at least the fifth harmonic for dc to 400-hertz applications.

Full-scale accuracy of 1% results for dc, sinusoidal ac, chopped or pulsed waveforms. Time-varying waveforms with a dc component are accurately measured.

Most units provide bidirectional output so that power consumption or generation can be measured. All units have input/output/case isolation.

Standard units with input current ranges up to 2000 Amperes and voltage ranges to 600 Volts are available with outputs to interface with most data calibration or control equipment.



DC WATTS

FEATURES

- Accurate from dc to 400 Hz.
- Factory calibration traceable to NIST.
- Input/output/case isolation.
- Real-time indication of power with transient response of less than 50 microseconds.

5 YEAR WARRANTY

APPLICATIONS

- Accurate monitoring of power that contains dc and/or harmonics.
- Ideal for use in SCR and other ac or dc switching circuitry.
- Bidirectional output.

MODEL SELECTION

PC8 — — (NO DASH) (S)

| | INPUT VOLTAGE | INPUT CURRENT | SENSOR SIZE | OUTPUT OPTIONS |
|-----|---------------|---------------|-------------|----------------|
| 001 | 0 - 25V | 08 0 - 5A | (internal) | B 0 - ±1mAdc |
| 002 | 0 - 50V | 01 0 - 100A | C | D 0 - ±10Vdc |
| 003 | 0 - 150V | 02 0 - 200A | D | E 4 - 20mAdc |
| 004 | 0 - 300V | 03 0 - 300A | D | EM 4/12/20mAdc |
| 005 | 0 - 400V | 04 0 - 400A | D | X5 0 - ±5Vdc |
| 006 | 0 - 500V | 05 0 - 600A | E | |
| 007 | 0 - 600V | 06 0 - 1000A | E | |
| | | 07 0 - 2000A | E | |

ORDERING INFORMATION

Example:
150V, 100A Input with Split-Core Sensor and 0-±5Vdc Output Proportional to 0-15000Watts

PC8-003-01X5S

All units require 85-135Vac instrument power, 50-400Hz. Optional 230Vac instrument power - add suffix “-22” Full-scale power (Watts) can be determined by the product of full-scale input voltage and full-scale input current.

OPTIONAL SPLIT-CORE CURRENT SENSOR AVAILABLE WITH UNITS OF 100 AMPS OR GREATER - ADD SUFFIX “S”.

ADDITIONAL CURRENT RANGES AVAILABLE.- CONSULT FACTORY.

SPECIFICATIONS

INPUT

Voltage See Table
Current See Table
Frequency Range dc to 400Hz
Power Factor Any
Response (Transient 90%) 50µs
Burden
Voltage Models under 50V >100kΩ
Models over 50V >1MΩ
Overload
Voltage 2 X F.S. or 600Vac/850Vdc max.
Current Using internal sensor 2 X F.S.
Using sensors C, D, E 50 X F.S.

DIELECTRIC TEST

Input/Output/Case 1000Vdc
Surge Withstands IEEE SWC test

OUTPUT

Loading
“B” models (0-±1mAdc output) 0-10kΩ
“E”, “EM” models ... (4-20, 4-12-20mAdc output) ... 0-500Ω
“X5”, “D” models (0-±5, 0-±10Vdc output) ≥2kΩ
Response Time (to 90%) <500ms
Field Adjustable Cal. ±10%

ACCURACY ±1.0% F.S.

Includes combined effects of voltage, current, load and power factor
Output Ripple <1.0% F.S. @60Hz

INSTRUMENT POWER

Standard 85-135Vac, 50-400Hz, 10VA
“-22” Option 230Vac, 50/60Hz, ±15%

TEMPERATURE

Temperature Range 0°C to 40°C
Temperature Effect ±1.0% of Rdg, ±0.1% F.S. Output

OHIO SEMITRONICS, INC.

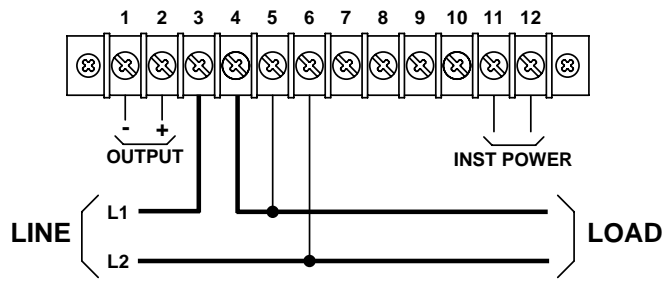
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OSI CONNECTIONS & CASE DIMENSIONS MODEL PC8-

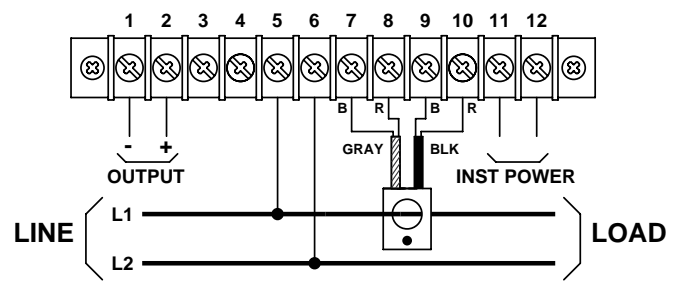
CONNECTION DIAGRAMS

SINGLE-PHASE, VARIABLE-FREQUENCY (ONE-ELEMENT)

DIRECT-CONNECTION USING INTERNAL SENSOR

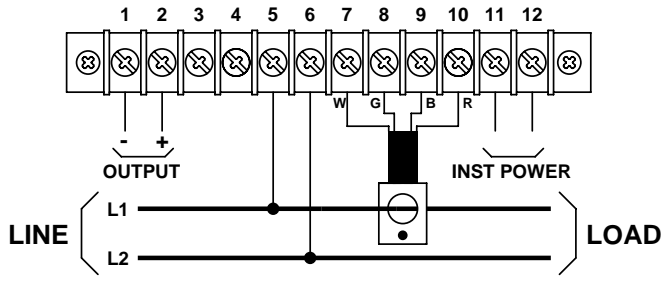


CONNECTION USING EXTERNAL SENSOR WITH TWO CABLES.



SENSOR CABLE SHIELD SHOULD BE CUT OFF.

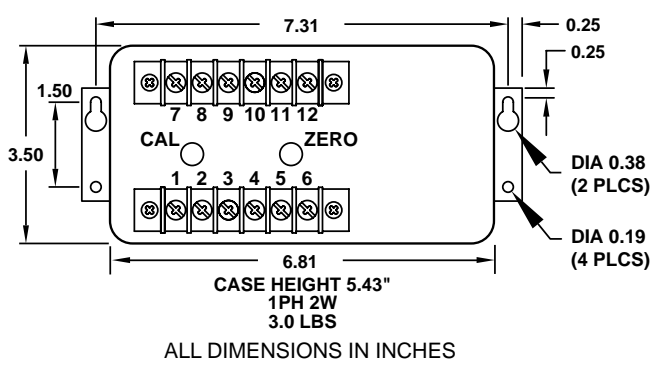
CONNECTION USING EXTERNAL SENSOR WITH ONE CABLE.



Warning! Shock Hazard!

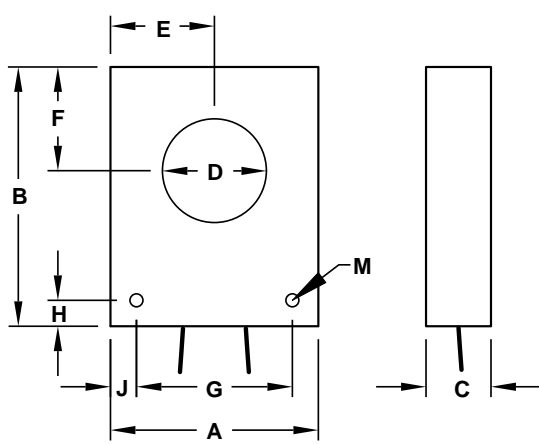
Current Sensor Terminals are at Line Potential.

CASE DIMENSIONS



Dwg# 0902-00554-B Rev --

SENSOR DIMENSIONS



| SENS. SIZE | SENSOR DIMENSIONS (inches) | | | | | | | | | | WT. LBS. |
|------------|----------------------------|---|-------|-------|--------|-------|-------|------|------|-------|----------|
| | A | B | C | D | E | F | G | H | J | M | |
| C | 2 | 2 | 3/4 | 3/4 | 1 | 7/8 | 1 1/2 | 1/4 | 1/4 | 5/32 | 0.28 |
| D | 3 1/8 | 4 | 3/4 | 1 1/8 | 1 9/16 | 1 1/2 | 2 1/8 | 1/2 | 1/2 | 11/64 | 0.75 |
| E | 4 1/8 | 5 | 1 1/4 | 2 | 2 1/16 | 2 | 3 1/4 | 7/16 | 7/16 | 17/64 | 2.80 |

Solid-core models are supplied with 18-inch cables on sensor sizes C & D. All other solid-core models supplied with detachable 8-foot cable. Sensor size C split-core models are supplied with 8-foot attached cable. All other split-core models are supplied with detachable 8-foot cable. Longer cables are available.

OSI AC WATT/POWER FACTOR/VA TRANSDUCER MODEL PC20-

ACCURATE TO 0.25% FULL-SCALE

DESCRIPTION

The Model PC20 transducer provides three separate outputs proportional to true power, VA, and power factor in single- or polyphase power systems. These are the most significant parameters in the efficient utilization of electrical energy in manufacturing or building management.

True power (Watts) is accurately measured by a continuous multiplication of instantaneous voltage and current by a four-quadrant multiplier. Average true power is then provided as the output.

The apparent power (VA) is determined by taking the product of RMS voltage and RMS current.

Power factor is derived from the ratio of true power to apparent power. This measurement does not rely on phase-angle measurement and is accurate for sinusoidal or distorted waveforms in the 50-400Hz frequency range.



FEATURES

- True power and VA measurement for sinusoidal and distorted waveforms.
- Power factor is derived from the ratio of true power to apparent power and remains accurate for SCR-controlled or otherwise-distorted waveforms.
- Three separate output signals – one each for Watts, power factor, and VA.

APPLICATIONS

- Equipment monitoring to determine and/or maintain efficiency.
- Process monitoring and/or controlling to maintain consistent product quality.
- For use with SCR-controlled, chopped, or otherwise-distorted waveforms.

5 YEAR WARRANTY

MODEL SELECTION

SINGLE-PHASE, TWO-WIRE (ONE-ELEMENT)

| INPUTS | | F.S. (W, VA) | STANDARD OUTPUTS (W, PF, VA) MODEL PC20- | | | | | | |
|-------------------------|---------|-----------------|------------------------------------------|---------|----------|---------|---------|--------|----------|
| AC VOLTS | AC AMPS | | 0-1mAdc* | 0-1mAdc | 0-10Vdc* | 0-10Vdc | 0-5Vdc* | 0-5Vdc | 4-20mAdc |
| 0-150 Nominal 115 | 0-1 | 100 | 103A | 103B | 103C | 103D | 103CX5 | 103X5 | 103E |
| | 0-5 | 500 | 001A | 001B | 001C | 001D | 001CX5 | 001X5 | 001E |
| | 0-10 | 1000 | 010A | 010B | 010C | 010D | 010CX5 | 010X5 | 010E |
| | 0-20 | 2000 | 117A | 117B | 117C | 117D | 117CX5 | 117X5 | 117E |
| 0-300 Nominal 230 | 0-1 | 200 | 104A | 104B | 104C | 104D | 104CX5 | 104X5 | 104E |
| | 0-5 | 1000 | 002A | 002B | 002C | 002D | 002CX5 | 002X5 | 002E |
| | 0-10 | 2000 | 011A | 011B | 011C | 011D | 011CX5 | 011X5 | 011E |
| | 0-20 | 4000 | 110A | 110B | 110C | 110D | 110CX5 | 110X5 | 110E |
| 0-600 Nominal 480 | 0-1 | 400 | 105A | 105B | 105C | 105D | 105CX5 | 105X5 | 105E |
| | 0-5 | 2000 | 003A | 003B | 003C | 003D | 003CX5 | 003X5 | 003E |
| | 0-10 | 4000 | 012A | 012B | 012C | 012D | 012CX5 | 012X5 | 012E |
| | 0-20 | 8000 | 111A | 111B | 111C | 111D | 111CX5 | 111X5 | 111E |

* Denotes self-powered units. Input voltage ranges limited to:
 85-135V for 150Vac models
 200-280V for 300Vac models
 380-550V for 600Vac models
 All others require a separate 120Vac (85-135V) instrument power.

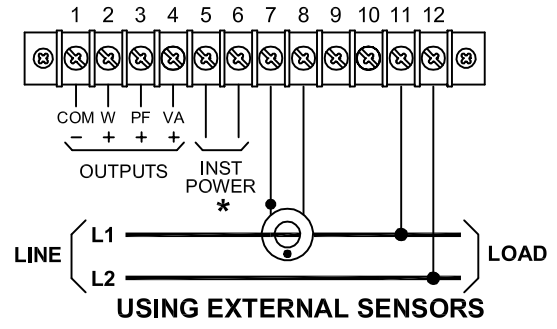
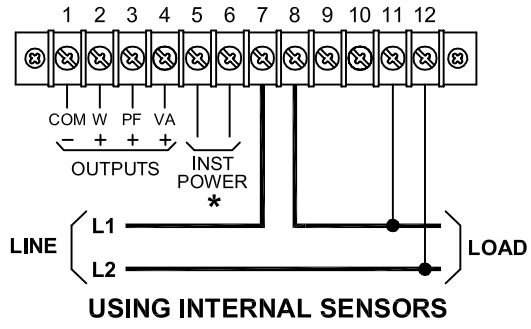
For optional 230Vac instrument power - Add suffix "-22"

ORDERING INFORMATION
 Example: Three-Phase, Three-Wire,
 230V, 5A, 0-10Vdc Output,
 Proportional to 0-2000W (VA),
 with Separate 120Vac Instrument Power.
PC20-005D

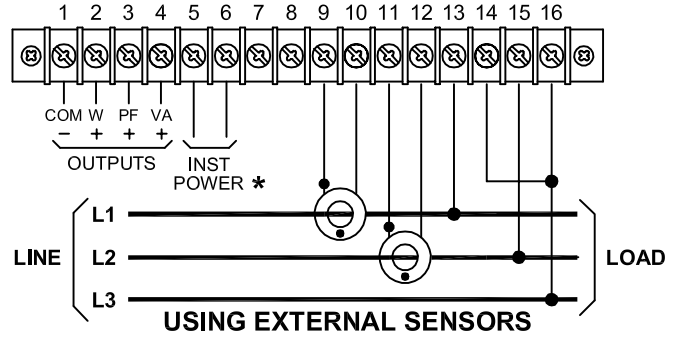
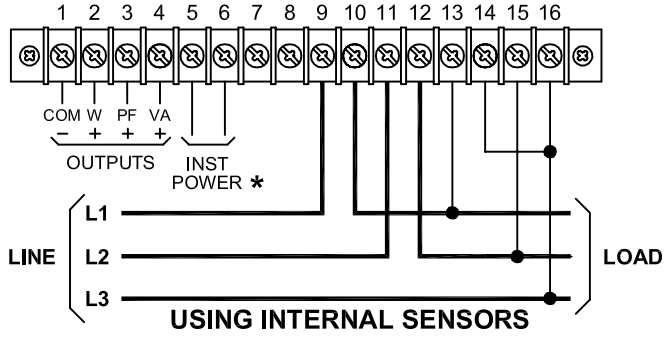
NOTE: Phase-Angle Transducer [Model PF5](#) provides a DC output which is linearly-proportional to the phase-angle difference between voltage and current on AC power systems. For more details, see [model PF5 on page 121](#).

OSI CONNECTION DIAGRAMS & DIMENSIONS MODEL PC20-

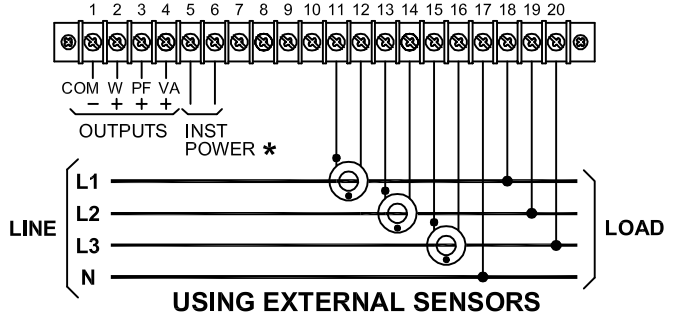
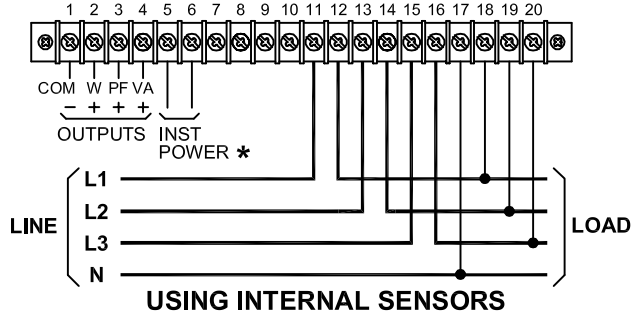
SINGLE-PHASE CONNECTIONS (ONE-ELEMENT)



THREE-PHASE, THREE-WIRE CONNECTIONS (TWO-ELEMENT)



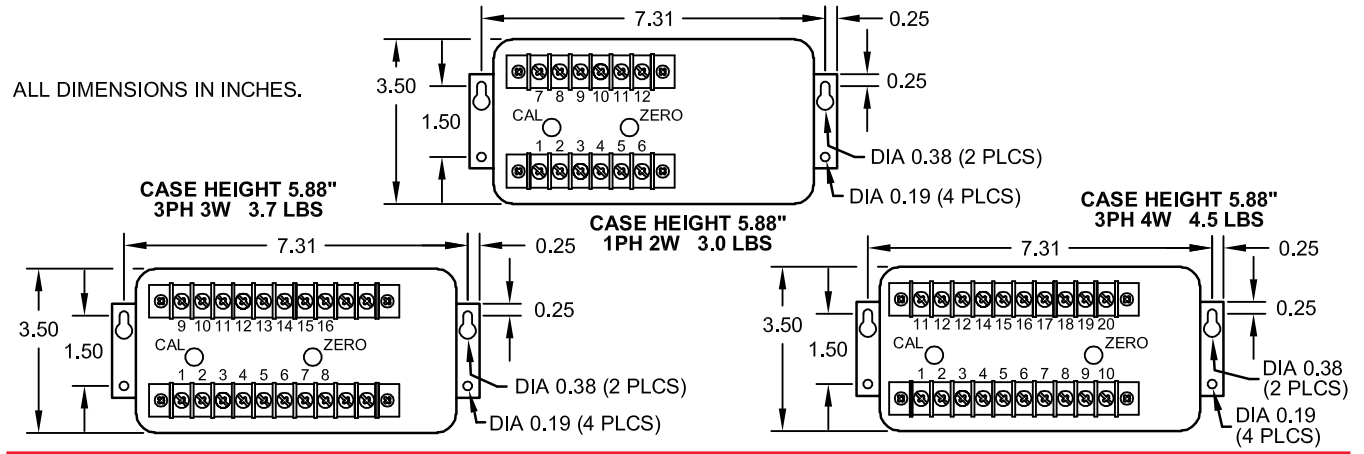
THREE-PHASE, FOUR-WIRE CONNECTIONS (THREE-ELEMENT)



- * 115Vac ON MODELS WITH B, D, E, EM OR X5 SUFFIX.
- * 230Vac ON MODELS WITH -22 SUFFIX.
- * NOT REQUIRED ON MODELS WITH A, C, OR CX5 SUFFIX.

0902-00881-B Rev A

CASE DIMENSIONS



OSI MULTIPLIER (DC OR AC WATT TRANSDUCER) MODEL MT-

DESCRIPTION

The MT Transducer provides an output signal which is directly proportional to the instantaneous product of two input signals. Each input and the output are isolated from one another up to 1000 Volts dc. The MT series should be used where two process quantities must be multiplied to obtain a useful quantity. For example, a shunt output may be multiplied with the system voltage to obtain dc power delivered to a load. The multiplier provides full four-quadrant operation so signals that may change polarity during operation may be accurately multiplied.



SHUNT INPUT

CALIBRATION

All standard models are calibrated at the factory with the values listed below in the Model Selection Table. For instance, the model MT-1-06B would be calibrated with inputs of 50mV and 100 Volts for a full-scale output of 1mA. To compute the power when using a 50mV shunt, multiply the current value of the shunt times 100V. In the case where the shunt equals 1000A, multiply 1000 times 100 for an output of 1mA which equals 100 kilowatts. **EXAMPLE: 50mV (Shunt Value) X 100V = 1mA Full-Scale Output**

MODEL SELECTION

MODEL MT — —

5 YEAR WARRANTY

| INPUT 1 (SHUNT) | | INPUT 2 (VOLTAGE) | | OUTPUT | | INSTRUMENT POWER | | FREQUENCY | |
|-----------------|-------|-------------------|------|--------|-----------|------------------|--------|-----------|------|
| 1 | 50mV | 01 | 1V | B | 1mA dc | Blank | 115Vac | Blank | dc |
| 2 | 100mV | 02 | 5V | D | 10V dc | G | 230Vac | AC | 60Hz |
| 3 | 1V | 03 | 10V | E | 4-20mA dc | | | | |
| 4 | 5V | 04 | 25V | EA | 0-20mA dc | | | | |
| 5 | 10V | 05 | 50V | | | | | | |
| | | 06 | 100V | | | | | | |
| | | 07 | 150V | | | | | | |
| | | 08 | 250V | | | | | | |
| | | 09 | 300V | | | | | | |
| | | 10 | 400V | | | | | | |
| | | *11 | 500V | | | | | | |
| | | *12 | 750V | | | | | | |

* dc only

ORDERING INFORMATION

Example: Input 1 = 0-50mV,
Input 2 = 0-100Vdc,
with 0-10Vdc Output.

MT-1-06D

SPECIFICATIONS

INPUT
 Input One..... (Shunt) See Table
 Burden..... >100kΩ
 Over-range 2 X Rated Input
 Input Two..... (Voltage)..... See Table
 Burden..... (to 100V) 100kΩ
 (150V to 300V) 500kΩ
 (400V to 750V) 1MΩ
 Over-range 2 X F.S. or 600Vac/850Vdc max.
 Frequency Standard DC
 AC Option 50-70Hz

DIELECTRIC TEST
 Inputs to Output 1000Vdc
 Inputs/Output to Instrument Power..... 1500Vac

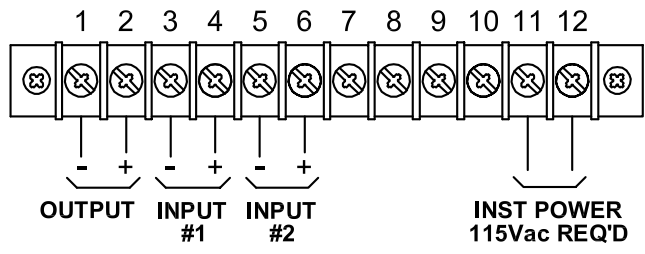
INSTRUMENT POWER
 Standard 90-135Vac, 50-400Hz, 7VA
 "G" Option 180-270Vac, 50-400Hz

OUTPUT
 Load on Output..... 1mA..... 0-10kΩ
 10V..... ≥2kΩ
 20mA..... 0-500Ω
 Response Time to 90% DC Models 10ms
 AC Option 200ms

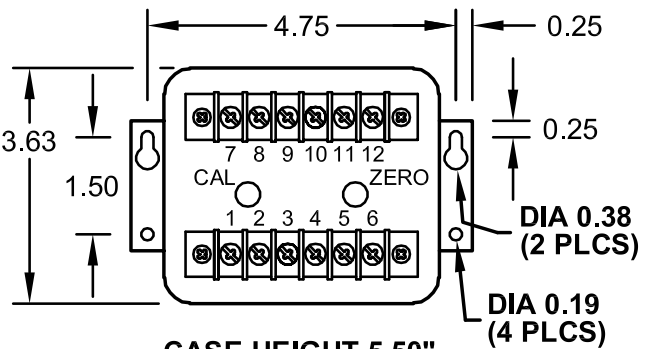
ACCURACY & LINEARITY ±0.5% F.S.
 Including Set-point, Repeatability, Voltage & Current Linearity
 Ripple ±1% F.S.

TEMPERATURE & PHYSICAL
 Temperature Effect (-20°C to 65°C)..... ±0.02%/°C
 Net Weight..... 2.2 lb

CONNECTION DIAGRAM



CASE DIMENSIONS



CASE HEIGHT 5.50"
 All dimensions in inches

OSI SINGLE-PHASE AC WATT/WHOUR TRANSDUCER/TRANSFORMER MODEL SWH-

DESCRIPTION

The model SWH is a single-phase bidirectional Watthour transducer with current transformer. The model SWH has a Form A solid-state relay pulse output.

5 YEAR WARRANTY



Measuring Equipment 7N93



| AC VOLTS | AC AMPS (through Window) | MODEL |
|----------|--------------------------|----------|
| 115 | 0-100 | SWH-1100 |
| | 0-200 | SWH-1200 |
| | 0-400 | SWH-1400 |
| 230* | 0-100 | SWH-2100 |
| | 0-200 | SWH-2200 |
| 277** | 0-100 | SWH-3100 |
| | 0-200 | SWH-3200 |

* May also be used for 208V and 240V applications.

** Not UL listed.

SPLIT-CORE

FEATURES

- Easy-to-install split-core design
- LED indications of proper installation/operation

APPLICATIONS

- [Energy Allocations](#)
- [Sub Metering](#)
- Revenue Metering
- Process Control



ORDERING INFORMATION

Example: 100Aac Input For Use On 230Vac L-N Voltage
SWH-2100

SPECIFICATIONS

INPUT

Voltage See Table
 Current(through window) See Table
 Frequency Range48-62Hz
 Power Factor..... Any Burden
 Voltage <0.2VA
 Overload
 Voltage 120% of Nominal
 Current 125% of F.S.

DIELECTRIC TEST

Input/Output 2250Vac

INSTRUMENT POWER

Standard Self-powered

[Consult Factory](#) for Custom Pulse Rates

OUTPUT

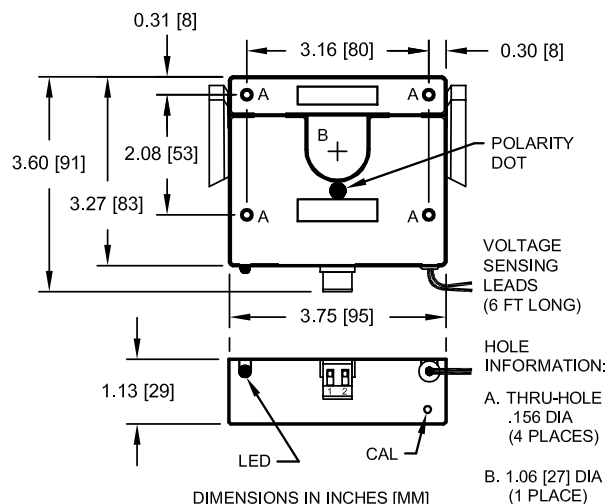
LEDEnergy Rate and Direction Indicator
 Green = Forward Power
 Red = Reverse Power
 Blinks at same rate as Wh pulse
 Wh Pulse
 Type.... Form A, Solid-State Relay, 30Vpk, 100mA max.
 Scaling.....10Wh per pulse
[Consult Factory](#) for Custom Pulse Rates
 Pulse Duration.....200ms
 Forward Power..... Normally Open with contact closing
 Reverse Power.. Normally Closed with contact opening

ACCURACY ±1.0% F.S.

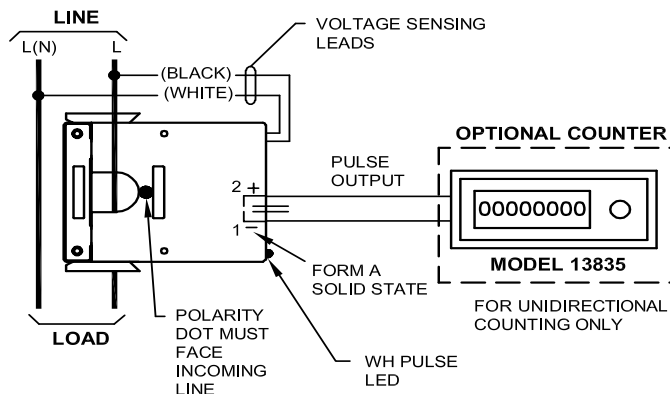
TEMPERATURE & PHYSICAL

Temperature Effect (-20°C to 65°C) ±1.0% F.S.
 Weight..... 1.0 lb

DIMENSIONS



CONNECTIONS



Dwg# 0902-00383-B Rev C



OSI ENERGY SCOUT+ WATTHOUR METER MODEL ESP3-

LOW-COST

DESCRIPTION

The model ESP3 Watthour meter is used to measure energy at the input to electrical load centers or branch circuits. The unit displays Volts, Amps, Watts and power factor, in addition to import and export energy.

The unit is DIN-rail mounted and has optional indoor and outdoor enclosures. [Solid-core](#) or [split-core current transformers](#) are available.

FEATURES

- Single model for all 1Φ and 3Φ applications over range of 120-240Vac
- Indoor or outdoor package options
- Optional [split-core current transformers](#)



APPLICATIONS

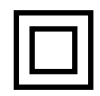
- Input to electrical load centers
- Branch circuits

CONNECTION OPTIONS

| SYSTEM CONFIGURATION | VOLTAGE INPUT (Vac) | MODEL ESP3- |
|-------------------------|---------------------|-------------|
| 1-Phase 2-Wire* | 120 | 354EDM-N |
| 1-Phase 2-Wire* | 240 | |
| 1-Phase 3-Wire* | 120/240 | |
| 1-Phase 3-Wire Network* | 120/208 | |
| 3-Phase 3-Wire* | 208 | |
| 3-Phase 4-Wire* | 120/208 | |

*1Φ2W system requires 1 [CT](#), 1Φ3W or 3Φ3W system requires 2 [CTs](#), 3Φ4W system requires 3 [CTs](#). [Solid and Split-Core CTs](#) are available separately. See [SCCT](#) and [BCT](#) on [following pages](#).

18 MONTH WARRANTY



ORDERING INFORMATION

Example: 3Φ3W Watthour Meter with 208Vac and 200Aac Input, with [Split-core CTs](#) in [Outdoor Surface-mount Enclosure](#)

**ESP3-354EDM-N with
SCCT-013-200 (Qty 2) and ENC-OSM**

SPECIFICATIONS

INPUT

Current Range
 With [appropriate CTs](#) (I_n).....0-200, 0-400, 0-600Aac
 Over-range without damage..... 125% F.S.
 Voltage..... Nominal..... 120, 208, 240V_{L-L}
 Operating Range.....Nominal ±30%
 Power Factor..... any
 Frequency Range 47-63Hz
 Power Consumption..... <1VA

OUTPUT

Pulse Value1.0kWh/Pulse, polarity sensitive
 (NOTE: Unit is factory-programmed for CT ratio.)
 Contact Closure (Low-impedance).....low<3Ω, high>1MΩ
 Duration... 50% duty cycle or 80ms, whichever is greater
 Serial..... RS-485, 9600 baud (E,7,1)

DIELECTRIC TEST

Input/Output/Case.....2250Vac

ACCURACY

IEC 62052-110.05(I_n)..... Class 0.5

DISPLAYED VALUES

| | <u>Resolution</u> |
|--------------------------------------------------------|-------------------|
| Energy (Import and Export)..... (kWh)..... | XXXXXX.X |
| Volts (Per-Phase)..... (Vac)..... | XXX.X |
| Amps (Per-Phase)..... (Aac)..... | XXX.X |
| Power (Per-Phase and Total)..... (W)..... | XXXXXX |
| Power Factor (Per-Phase w/Direction) ... (C or L)..... | X.XX |

TIME OF USE (Parameters Available via RS-485 Port)

Real-Time Clock Calendar with Battery Back-up
 4 Tariff Periods (T₁, T₂, T₃, T₄) Per Day. (Active Taiff Period is shown on display below decimal point in kWh reading.)
 Max. Demand for 15-, 30-, or 60-Minute Intervals.
 Resettable Demand via RS-485 Port

PHYSICAL & ENVIRONMENTAL

Operating Range.....0° to 40°C
 Storage Range.....-30° to 55°C
 Operating Humidity 0-85% non-condensing
 Weight..... 10.0 oz
 Termination (Screw Compression).....20-16 AWG
 Enclosure Material ABS

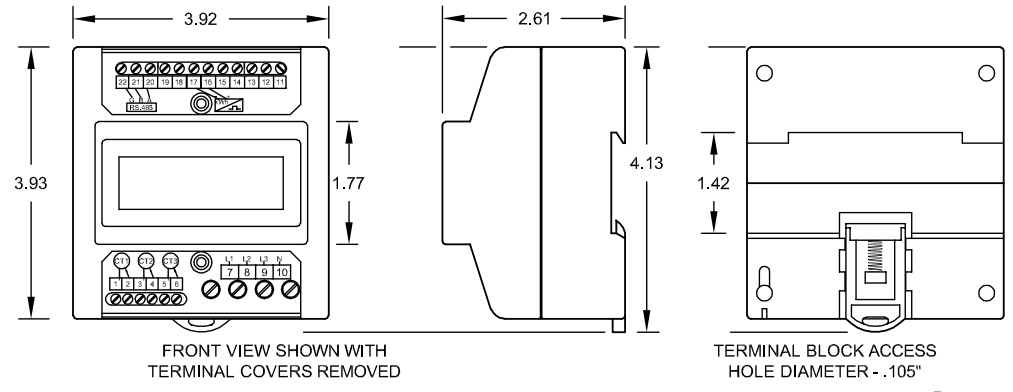
OSI DISPLAY, CONNECTIONS & DIMENSIONS MODEL ESP3-

DISPLAY REGISTERS

| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 |
|-----------|-------------|----------|----------|----------|---------|---------|---------|----------|----------|----------|-------------|--------|--------|--------|
| Total kWh | Reverse kWh | Volts L1 | Volts L2 | Volts L3 | Amps L1 | Amps L2 | Amps L3 | Watts L1 | Watts L2 | Watts L3 | Total Watts | Cos L1 | Cos L2 | Cos L3 |

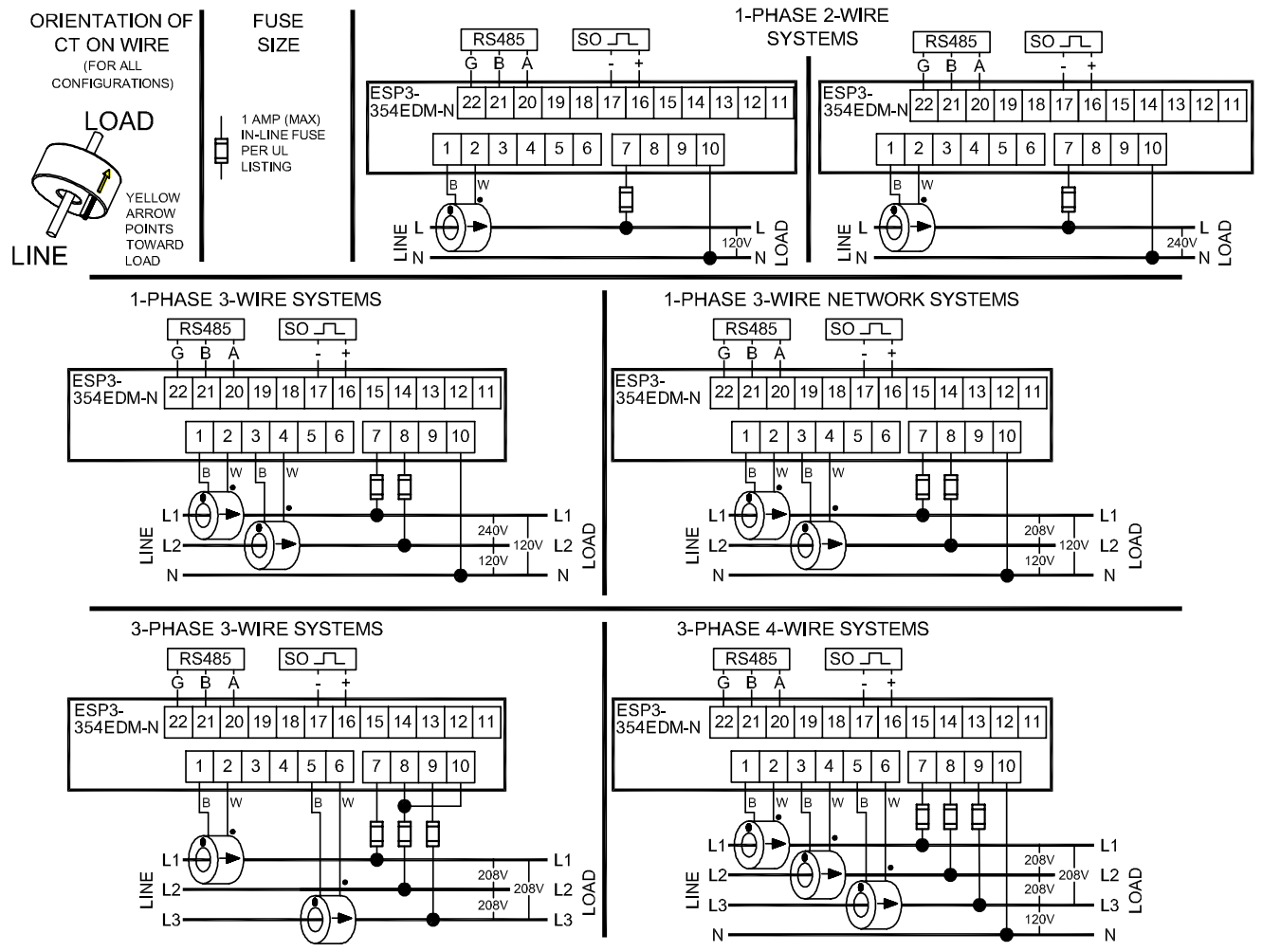
Display scrolls through each register with Total kWh displayed for 2 min. followed by the remaining registers for 3 sec. each.

CASE DIMENSIONS



Dwg# 0902-00949-B Rev A

CONNECTION DIAGRAMS





OSI CT OPTIONS (BCT & SCCT MODELS) MODEL ESP3-

FEATURES

- 0.5% Accuracy
- Split-core SCCT models
- Solid-core BCT models
- AC Output 26.6mA

LOW COST

18 MONTH WARRANTY



APPLICATIONS

- For use with [ESP3 series Watt transducers](#)
- Other metering applications

MODEL SELECTION

| INPUT AC AMPS | Split-Core: MODEL BCT- |
|---------------|------------------------|
| | 0-26.6mAac OUTPUT |
| 0 - 200 | 013-200 |
| 0 - 200 | 015-200 |
| 0 - 200 | 025-200 |
| 0 - 400 | 025-400 |
| 0 - 600 | 045-600 |

| INPUT AC AMPS | Solid-Core: MODEL SCCT- |
|---------------|-------------------------|
| | 0-26.6mAac OUTPUT |
| 0 - 200 | 013-200 |
| 0 - 400 | 032-400 |

Optional inputs and outputs are available for BCT & SCCT. [Consult factory.](#)

Intended for use over insulated conductors only!

SPECIFICATIONS

INPUT

Current See Model Selection Table
 Over-current 1.2 X F.S.
 Frequency Range 50-60Hz

ACCURACY ±0.5% F.S.

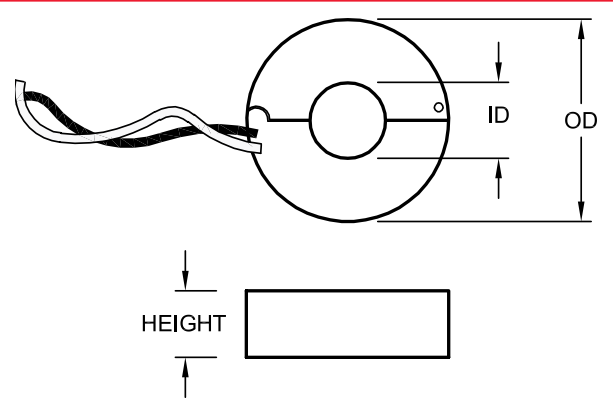
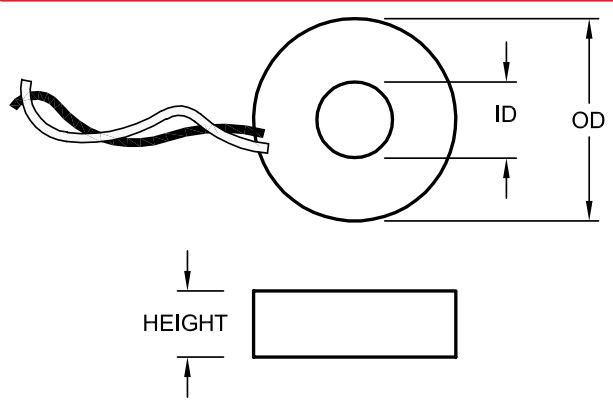
OUTPUT

Scaling 0-F.S. Input = 0-26.6mAac Output
 Burden 1VA

PHYSICAL & ENVIRONMENTAL

Weight See Dimension Table
 Lead Length 72"
 Lead Type 22AWG stranded, White (X1) & Black
 Operating Temperature 55°C Max.

SENSOR DIMENSIONS

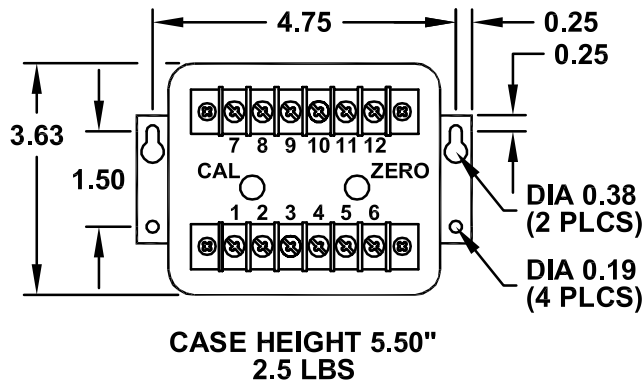


| MODEL BCT- | DIMENSIONS (inches) | | | WT. (lbs.) |
|------------|---------------------|------|------|------------|
| | Height | ID | OD | |
| 013-200 | 0.8 | 0.51 | 1.73 | 0.2 |
| 015-200 | 0.8 | 0.59 | 2.43 | 0.3 |
| 025-200 | 0.79 | 0.98 | 2.13 | 0.3 |
| 025-400 | 0.79 | 0.98 | 2.13 | 0.3 |
| 045-600 | 0.95 | 1.77 | 3.50 | 0.6 |

| MODEL SCT- | DIMENSIONS (inches) | | | WT. (lbs.) |
|------------|---------------------|------|------|------------|
| | Height | ID | OD | |
| 013-200 | 0.8 | 0.53 | 1.73 | 0.2 |
| 032-400 | 0.8 | 1.26 | 3.11 | 0.5 |

Dwg# 0902-00851-B Rev A

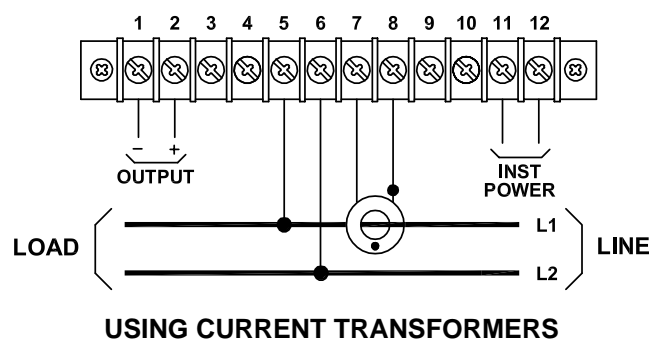
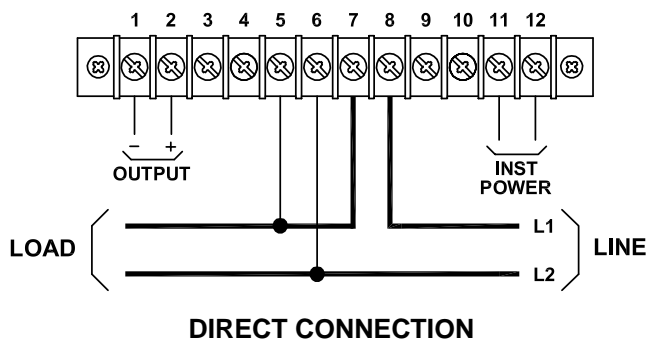
CASE DIMENSIONS



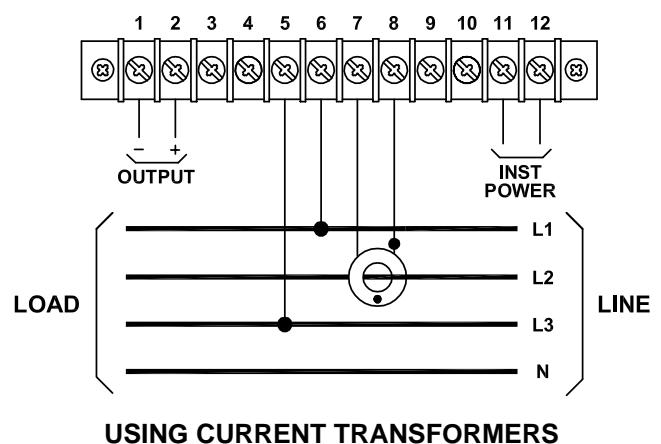
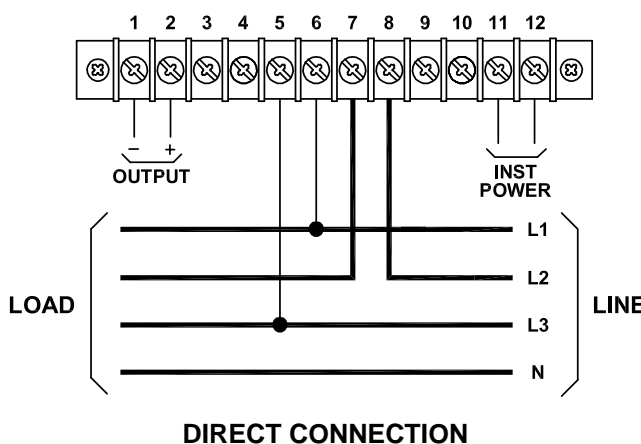
Dwg# 0902-00864-B

CONNECTION DIAGRAMS

SINGLE-PHASE CONNECTIONS



THREE-PHASE CONNECTIONS



INSTALLATION NOTE: Proper installation of the model PF5 Phase Angle Transducer is critical. *The connection diagrams shown above must be followed precisely.* If the application requires the use of current transformers, insure that polarity is correct. Any deviation from the connections shown will result in a locked full-scale output signal.

0.05% ACCURACY

DESCRIPTION

The AFT Frequency Transducer combines wide frequency range capability with high-accuracy measurement in a UL & CUL listed package. The AFT can accurately measure frequencies up to 1000Hz with some models measuring from dc to full-scale.

For applications requiring better resolution, the AFT has standard models with narrower frequency ranges. A wide input range means that all standard models accept voltages from 3V to 575V. The AFT comes with standard outputs of 0-1mA, 4-20mA, 0-20mA as well as 0-5V and 0-10V.

FEATURES

- High accuracy over wide frequency ranges.
- Each model covers all input voltages from 3V to 575V.
- UL & CUL approvals.

APPLICATION

- Where instantaneous indication of frequency is required.



| INPUT FREQUENCY (Hz) | STANDARD OUTPUTS MODEL AFT- | | | | | |
|----------------------|-----------------------------|---------------------|--------------------|----------------------|------------------------|----------------------|
| | 0-1mA _{dc} | 0-10V _{dc} | 0-5V _{dc} | 4-20mA _{dc} | 4-20mA _{dc} * | 0-20mA _{dc} |
| 45-55 | 050-10B | 050-10D | 050-10X5 | 050-10E | 050-10E2 | 050-10EA |
| 55-65 | 060-10B | 060-10D | 060-10X5 | 060-10E | 060-10E2 | 060-10EA |
| 375-425 | 400-50B | 400-50D | 400-50X5 | 400-50E | 400-50E2 | 400-50EA |
| 0-10 | 010B | 010D | 010X5 | 010E | 010E2 | 010EA |
| 0-55 | 055B | 055D | 055X5 | 055E | 055E2 | 055EA |
| 0-65 | 065B | 065D | 065X5 | 065E | 065E2 | 065EA |
| 0-100 | 100B | 100D | 100X5 | 100E | 100E2 | 100EA |
| 0-425 | 425B | 425D | 425X5 | 425E | 425E2 | 425EA |
| 0-1000 | 1000B | 1000D | 1000X5 | 1000E | 1000E2 | 1000EA |

115Vac, 50/60Hz instrument power is required on all units.

Optional 230Vac Instrument Power - Add suffix "-22"

* Output is loop-powered from 15-24V_{dc} (also requires instrument power)

[Consult factory](#) for special frequency ranges.

5 YEAR WARRANTY

ORDERING INFORMATION

Example: 55-65Hz Input with 0-5V_{dc} Output.

AFT-060-10X5

SPECIFICATIONS

INPUT

Frequency Range See Table
 Voltage Range 3-575V
 Burden 1.25VA
 Overload 575V

DIELECTRIC TEST

Input to Output/Instrument Power 3250Vac
 Instrument Power to Output 2200Vac
 Case to Input/Output/Instrument Power 2200Vac

INSTRUMENT POWER

Standard 115Vac, 50/60Hz, ±15%, 15VA max.
 "-22" Option 230Vac, 50/60Hz, ±15%, 15VA max.

OUTPUT

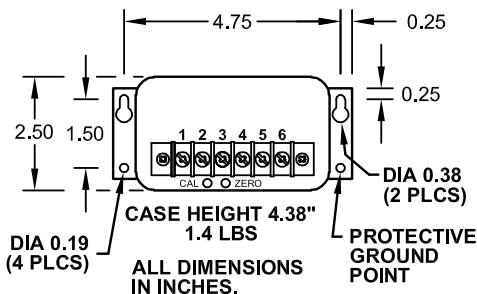
Loading
 "B" models (0-1mA_{dc}) 0-10kΩ
 "D" & "X5" models (0-10, 0-5V_{dc}) 2kΩ min.
 "E", "E2" & "EA" models .. (4-20 & 0-20mA_{dc}) 0-500Ω
 Response Time <200ms

ACCURACY ±0.05% R_{dg}. ±0.05% Span
 Output Ripple ±1.0% F.S.

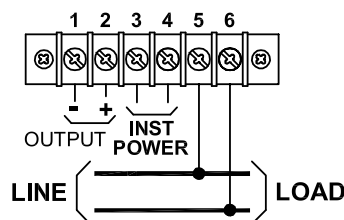
TEMPERATURE

Operating Range -20°C to 60°C
 Effect ±0.005%/°C

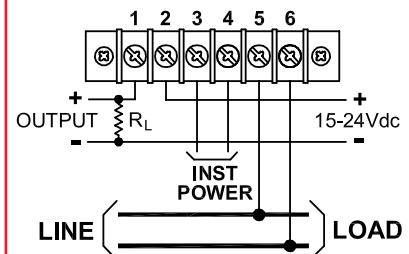
CONNECTION DIAGRAMS AND CASE DIMENSIONS



"B", "D", "X5", "E", "EA" MODELS



"E2" MODELS



Dwg # 0902-00884-B Rev --

DIN-RAIL-MOUNTED FREQUENCY TRANSDUCER

FEATURES

- Frequency measurement of sinusoidal and distorted waveforms.
- Digital period measurement.
- Analog output.

5 YEAR WARRANTY



APPLICATIONS

- For use on any application that requires indication of instantaneous frequency.
- Where CE or CSA is required.

MODEL SELECTION

| INPUT FREQUENCY (Hz) | STANDARD OUTPUTS MODEL DFT- | | | | |
|----------------------|-----------------------------|---------|--------|----------|----------|
| | 0-1mAdc | 0-10Vdc | 0-5Vdc | 4-20mAdc | 0-20mAdc |
| 45-55 | 050B | 050D | 050X5 | 050E | 050EA |
| 55-65 | 060B | 060D | 060X5 | 060E | 060EA |
| 375-425 | 400B | 400D | 400X5 | 400E | 400EA |

ORDERING INFORMATION

Example: 55-65Hz Input with 0-5Vdc Output.

DFT-060X5

All standard models require instrument power.

Additional frequency and voltage ranges available - [Consult factory](#)

Wide-range Frequency Transducers also Available - [Consult factory](#)

DIN Rail lengths available - [Consult factory](#)

SPECIFICATIONS

INPUT

Frequency Range See Table
 Voltage Range 10-230Vac
 Burden <1.0VA
 Overload 120% F.S. voltage continuous
 200% F.S. voltage for 1 second

OUTPUT

Loading
 "B" models (0-1mAdc) 0-15kΩ
 "D", "X5" models (0-10, 0-5Vdc) 2.5kΩ min.
 "E" & "EA" models (4-20, 0-20mAdc) 0-750Ω
 Response Time 4 Periods of Input Frequency

INSTRUMENT POWER

Standard 85-230Vdc/ac, 50/60Hz, 3.5VA

DIELECTRIC TEST

Input to Instrument Power/Output/Case 3700Vac
 Instrument Power to Output/Case 3700Vac
 Output to Case 490Vac

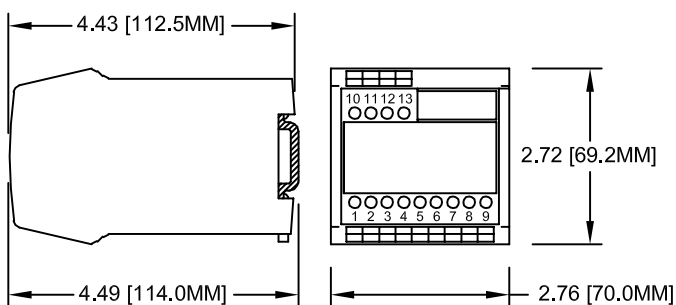
ACCURACY

50Hz, 60Hz Models ±0.02Hz
 400Hz Model ±0.1Hz
 Output Ripple <0.5% p.p.

TEMPERATURE & PHYSICAL

Temperature Range -10°C to 55°C
 Termination #10 AWG max.
 Net Weight 0.7 Lbs.

CASE DIMENSIONS AND CONNECTION DIAGRAM

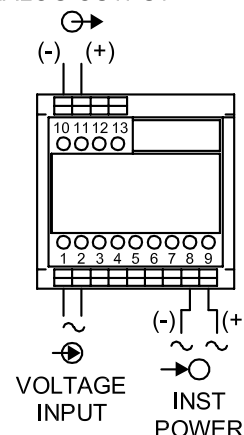


NOTES

1. DIMENSIONS ARE IN INCHES [MM].
2. MOUNTED ON 35MM TOP-HAT DIN-RAIL.

Dwg# 0902-00869-B Rev --

ANALOG OUTPUT



OSI WIDE-RANGE FREQUENCY TRANSDUCER MODEL DFTA-

FEATURES

- Provides analog output which is proportional to the input frequency over wide ranges.
- Digital period measurement delivers accurate frequency measurement.

APPLICATIONS

- For use on any application that requires measurement for generation or energy management.
- Applications that require compact DIN packaging or CE & CSA approvals.



5 YEAR WARRANTY

MODEL SELECTION

| INPUT FREQUENCY (Hz) | STANDARD OUTPUTS MODEL DFTA- | | | | |
|----------------------|------------------------------|---------|--------|----------|----------|
| | 0-1mAdc | 0-10Vdc | 0-5Vdc | 4-20mAdc | 0-20mAdc |
| 10-55 | 005B | 005D | 005X5 | 005E | 005EA |
| 10-65 | 004B | 004D | 004X5 | 004E | 004EA |
| 10-100 | 002B | 002D | 002X5 | 002E | 002EA |
| 10-425 | 006B | 006D | 006X5 | 006E | 006EA |
| 10-1000 | 003B | 003D | 003X5 | 003E | 003EA |

ORDERING INFORMATION

Example: 10-100Hz, 10-100V Input, 0-5Vdc Output proportional to 10-100Hz.

DFTA-002X5

DIN Rail lengths available - [Consult factory](#)

All standard models require instrument power.

Additional frequency and voltage ranges available - [Consult factory](#)

Differential Frequency Transducers also Available - [Consult Factory](#)

SPECIFICATIONS

INPUT

Frequency Range See Table
 Voltage Range 10-230V
 AC Waveforms Sine, square or triangle
 Burden <1.0VA
 Overload 120% F.S. Voltage

OUTPUT

Loading
 "B" models (0-1mAdc) 0-15kΩ
 "D" & "X5" models (0-10Vdc, 0-5Vdc) 2.5kΩ min.
 "E" & "EA" models (4-20mAdc, 0-20mAdc) 0-750Ω
 Response Time 4 Periods of Input Frequency

INSTRUMENT POWER

Standard 85-230Vdc/ac, 50/60Hz, 3.0VA

DIELECTRIC TEST

Input to Instrument Power/Output/Case 3700Vac
 Instrument Power to Output/Case 3700Vac
 Output to Case 490Vac

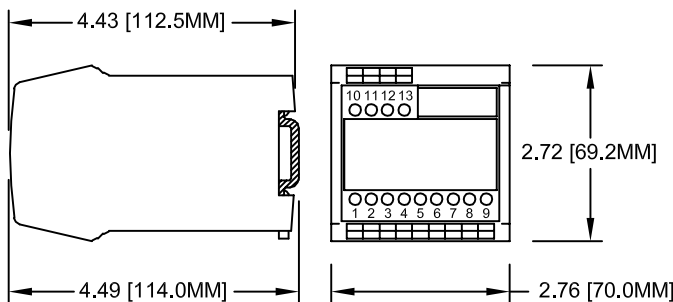
ACCURACY

..... ±0.2% of Span
 Output Ripple <0.5% p.p.

TEMPERATURE & PHYSICAL

Temperature Range -10°C to 55°C
 Termination #10 AWG max.
 Net Weight 0.7 lbs

CASE DIMENSIONS AND CONNECTION DIAGRAM

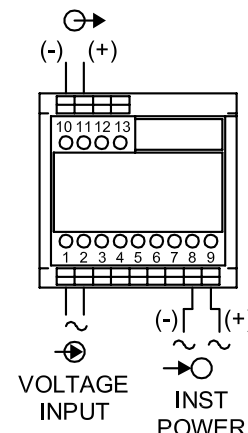


NOTES

1. DIMENSIONS ARE IN INCHES [MM].
2. MOUNTED ON 35MM TOP-HAT DIN-RAIL.

Dwg# 0902-00869-B Rev --

ANALOG OUTPUT



OHIO SEMITRONICS, INC.

4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
 PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

FREQUENCY TRANSDUCERS

FEATURES

- Isolated linear output from a standard or non-standard input process signal.
- Factory calibrated for various input and output signals.

5 YEAR WARRANTY

APPLICATIONS

- Process control
- Signal isolation
- Signal conversion



MODEL SELECTION

SG - □ - □ - □ (no dash) □

| RATED INPUT | | RATED OUTPUT | | INSTRUMENT POWER | | ADJUSTMENT OPTION | |
|-------------|-----------------------|--------------|-------------------------|------------------|--------|-------------------|-------------------------------------|
| 1 | 0-1mA _{dc} | 01 | 0-1mA _{dc} | H | 115Vac | (Blank) | ±10% Output Span Adj. ±1% Zero Adj. |
| 2 | 0-10V _{dc} | 02 | 0-10V _{dc} | G | 230Vac | 1 | 50% Output Span Adj. |
| 3 | 0-5V _{dc} | 03 | 0-5V _{dc} | | | 2 | +10% Output Span Adj. 50% Zero Adj. |
| 4 | 1-5V _{dc} | 04 | 1-5V _{dc} | | | 3 | 50% Output Span Adj. 50% Zero Adj. |
| 5 | 0-20mA _{dc} | 05 | 0-20mA _{dc} | | | | |
| 6 | 4-20mA _{dc} | 06 | 4-20mA _{dc} | | | | |
| 7 | 20-4mA _{dc} | 07 | 0-5mA _{dc} | | | | |
| 8 | 10-50mA _{dc} | 08 | 4-20mA loop powered | | | | |
| | | 09 | 4-12-20mA _{dc} | | | | |

ORDERING INFORMATION

Example:
4-20mA_{dc} Input and 0-1mA_{dc} Output, 115Vac Instrument Power, Adj. Option 1

SG-6-01-H1

SPECIFICATIONS

INPUT

Type See Table
 Burden
 0-1mA models 1kΩ
 0-5V, 0-10V and 1-5V models min. 100kΩ
 0-20mA, 4-20mA and 20-4mA models 250Ω
 10-50mA models 100Ω
 Over-range 2 X rated input.
 Response Time 1ms

OUTPUT

Loading
 0-1mA models 0-10kΩ
 0-5mA models 0-2.4kΩ
 0-5V, 0-10V models >2kΩ
 1-5V models >2kΩ
 0-20mA, 4-20mA & 4-12-20mA models 0-600Ω
 Response Time 10ms

DIELECTRIC TEST

Input to Output 1000V_{dc}
 Input/Output to Instrument Power 1500V_{dc}

ACCURACY

Set Point ±0.25% F.S.
 Linearity ±0.1% F.S.
 Output Ripple <±0.5% F.S.

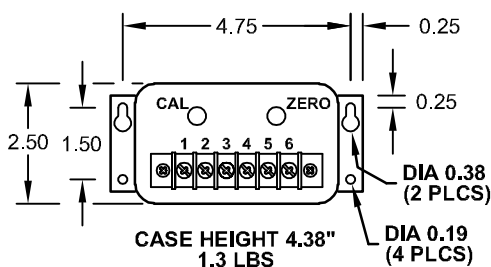
INSTRUMENT POWER

Standard (option H) 95-135Vac, 50-400Hz, 3.5VA
 Option G 230Vac, 50-60Hz
 Optional DC instrument power Consult Factory

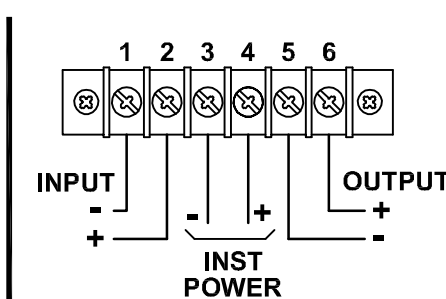
TEMPERATURE & PHYSICAL

Temperature Operating Range -20°C to 65°C
 Temperature Effect ±0.01%/°C
 Termination #14 AWG max.

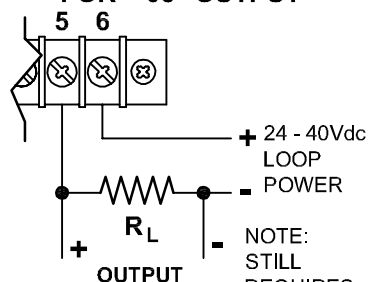
CASE DIMENSIONS AND CONNECTION DIAGRAMS



ALL DIMENSIONS IN INCHES.
TOLERANCE: ±0.03 INCHES.



FOR "-08" OUTPUT



Dwg# 0902-00886-B Rev A

DIN-RAIL MOUNTING

FEATURES

- Isolated linear output from a standard or non-standard input process signal.
- Factory calibrated for various input and output signals.
- DIN-style case

APPLICATIONS

- Process control
- Signal isolation
- Signal conversion



MODEL SELECTION

MSG - □ - □ - □

| RATED INPUT | | RATED OUTPUT | | INSTRUMENT POWER | |
|-------------|-----------|--------------|----------|------------------|--------|
| 1 | 0-1mAdc | 01 | 0-1mAdc | H | 115Vac |
| 2 | 0-10Vdc | 02 | 0-10Vdc | 5 | 5Vdc |
| 3 | 0-5Vdc | 03 | 0-5Vdc | 12 | 12Vdc |
| 4 | 1-5Vdc | 04 | 1-5Vdc | 15 | 15Vdc |
| 5 | 0-20mAdc | 05 | 0-20mAdc | 24 | 24Vdc |
| 6 | 4-20mAdc | 06 | 4-20mAdc | | |
| 7 | 20-4mAdc | 07 | 0-5mAdc | | |
| 8 | 10-50mAdc | | | | |
| 9 | 0-50mVdc | | | | |
| 10 | 0-100mVdc | | | | |

ORDERING INFORMATION

Example:
4-20mA Input and 0-1mA Output, 115Vac Instrument Power.

MSG-6-01-H

5 YEAR WARRANTY

SPECIFICATIONS

INPUT

Current, Voltage See Table
Burden
0-1mA models 1kΩ
5V, 10V, 1-5V, 50mV and 100mV models min. 100kΩ
0-20mA, 4-20mA and 20-4mA models 100Ω
10-50mA models 40Ω
Over-range 2 X rated input.
Response Time 1ms

DIELECTRIC TEST

Input to Output 1000Vdc
Input/Output to Instrument Power 1500Vdc

INSTRUMENT POWER

Standard 95-135Vac, 50-400Hz, 3.5VA
Optional See Table

OUTPUT

Current, Voltage See Table
Loading
0-1mA models 0-10kΩ
0-5mA models 0-2kΩ
0-5V and 0-10V models >2kΩ
1-5V models >1MΩ
0-20mA and 4-20mA models 0-500Ω
Response Time 10ms
Field-Adjustable Cal Span ±10%
Zero ±1%

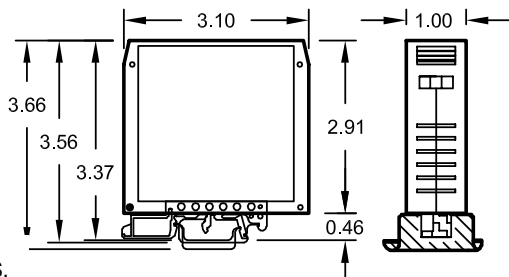
ACCURACY Set Point ±0.25% F.S.
Linearity ±0.1% F.S.
Ripple <±0.5% F.S.

TEMPERATURE & PHYSICAL

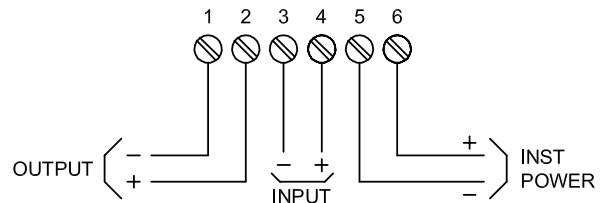
Operating Temperature Range -20°C to 65°C
Temperature Effect ±0.01%/°C
Termination #14 AWG max.
Net Weight 0.24 lb

CASE DIMENSIONS AND CONNECTION DIAGRAMS

MOUNTS ON STANDARD 35MM TOP-HAT DIN-RAIL
PER EN50022 OR 32MM "G" RAIL PER EN50035.



ALL DIMENSIONS IN INCHES.
TOLERANCE: ±0.03 INCHES.



Dwg# 0902-00865-B Rev --

CONVERTS DC INPUT TO TIME-INTEGRATED PULSE

FEATURES

- Provides relay closure rate which is proportional to the time integral of the input signal.

APPLICATIONS

- Designed for use with DC, pulsating DC, or DC with AC components.

5 YEAR WARRANTY



MODEL SELECTION

| INPUT RANGE | CLOSURE RATE (COUNTS/HR) | STANDARD MODELS |
|-------------|--------------------------|-----------------|
| 0-50mVdc | 0-10000 | VFC-010 |
| 0-100mVdc | 0-10000 | VFC-020 |
| 0-150mVdc | 0-10000 | VFC-030 |
| 0-250mVdc | 0-10000 | VFC-040 |
| 0-1mAdc | 0-10000 | VFC-050 |
| 0-10Vdc | 0-10000 | VFC-060 |
| 4-20mAdc | 0-10000 | VFC-070 |
| 0-5Vdc | 0-10000 | VFC-080 |

ORDERING INFORMATION

Example: 0-150mV Input, 10,000Cts/hr at F.S., 230Vac Inst. Pwr.

VFC-030-22

Custom count rates available - [Consult factory](#)
Optional 230Vac Instrument Power - Add suffix "-22"

SPECIFICATIONS

INPUT

Type See Table
Overload..... 10Vdc max.
Impedance
Voltage input models..... >1MΩ
Current input models..... <200Ω
Frequencydc with up to 100% ripple @ ≥120Hz

INSTRUMENT POWER

Standard.....85-135Vac, 50-400Hz, 3.5VA
"-22" Option..... 230Vac, 50/60Hz, ±15%

OUTPUT

RelayN/O SPST, 120V, 0.5A contact rating
Relay closure period 200ms

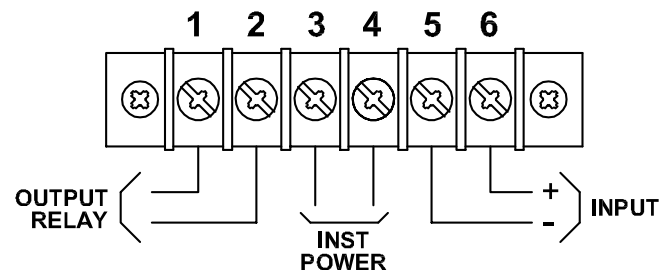
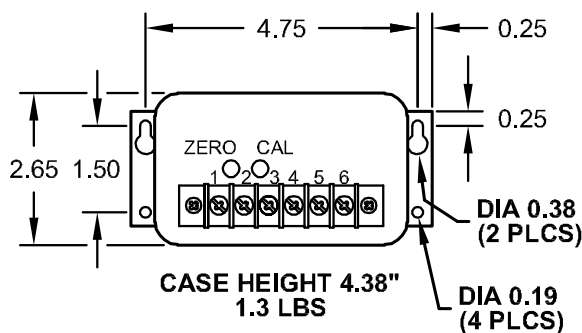
ACCURACY

..... ±0.25% F.S.
Linearity..... ±0.1% F.S.

TEMPERATURE

Operating Range-10°C to 60°C
Effect±0.5%

CASE DIMENSIONS & CONNECTION DIAGRAM



Dwg# 0902-00889-B Rev A

OSI DIGITAL AC POWER MONITOR MODEL DSP-

DESCRIPTION

The DSP is a three-phase, three-element multifunction digital transducer with outputs for voltage, current, and power via serial communication. Applications include 4-wire and 3-wire circuits with external current transformers where needed. Voltage and current ratings are programmable to obtain primary scaling.



Measurements include: 3 line-to-line and 3 line-to-neutral voltages, 3 currents, 3 per-phase power, total power and frequency. All measurements are true RMS values. Data is available via a serial RS-422 port using a simple ASCII protocol. (See below for RS-232C option.)

A PC data system and LabVIEW™ driver are available for programming and reading the DSP. [Consult factory](#) for free application software.

5 YEAR WARRANTY

SPECIFICATIONS

| INPUTS | MODEL DSP-007 | MODEL DSP-008 |
|----------------------------------|----------------------|----------------------|
| Voltage (Line-Line/Line-Neutral) | 300/175Vac | 600/345Vac |
| Current (secondary) | 0-5 Amps | 0-5 Amps |
| Power measurement range | 1-1000 W/element | 2-2000 W/element |
| Frequency | 48-62Hz | 48-62Hz |
| Power Factor | 1.0-0.1 Lag and Lead | 1.0-0.1 Lag and Lead |

SERIAL COMMUNICATION

Hardware..... RS-422, 9-Pin D connector
 Parameters... 9600 Baud, 8 data bits, 1 stop bit, no parity

DIELECTRIC TEST

Input/Instrument Power to Output 1000Vac
 Input/Instrument Power/Output to Case 1500Vac

INSTRUMENT POWER

Standard 115Vac, ±10%, 50/60Hz, 5VA
 “-22” Option 230Vac, 50/60Hz, ±10%

TEMPERATURE & PHYSICAL

Temperature Effect...(-10°C to 60°C).....±0.005%/°C
 Weight 3.4 lbs.

ORDERING INFORMATION

Example: Three-Phase, Four-Wire, 480/277V,
5A, 60Hz with 230V Instrument Power.

DSP-008-22

ACCURACY

Volts, Amps ±0.1% F.S.
 Power ..(10%-100%)±0.1% Rdg., ±0.05% F.S.
 Frequency ±0.1%, ±0.1Hz
 Power Factor ±0.01 PF

| FUNCTION | RESOLUTION | UNIT OF MEASURE |
|-------------------------------------|--------------------|-----------------|
| Line-to-neutral RMS Volts, 3 phases | 4 digits (XXX.X) | Volts |
| Line-to-line RMS Volts, 3 phases | 4 digits (XXX.X) | Volts |
| Per-Phase Current, 3 phases | 4 digits (XXXX) | mA or Amps * |
| Per-Phase Power | 6 digits (XXXX.XX) | Watts or kW * |
| Total Power | 6 digits (XXXX.XX) | Watts or kW * |
| Frequency (measured at L1-N) | 4 digits (XXX.X) | Hz |
| Power Factor | 3 digits (X.XX) | PF |

*CT Rating is programmable by serial communication from 5 - 5000.
 If current units are in Amps, then Watt reading is in kilowatts. If units are in milliamperes, Watt reading is in Watts

ANALOG OUTPUT OPTION

The model [D/A-4653](#) is a 24Vdc-powered serial converter providing 8 channels of 4-20mA dc analog output. The converter connects to the serial port of a model DSP and converts the serial data to 4-20mA dc analog signals. [Consult factory](#) for details and pricing.

RS-232C DATA CONVERTER OPTION

The model [IFC-4498](#) is a full-duplex RS-232C and RS-422 data converter. It connects to the serial RS-422 port of the DSP and provides a standard 9-pin D connector for attaching to a PC. [Consult factory](#) for details and pricing.

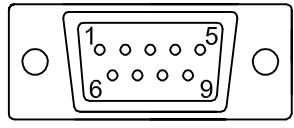
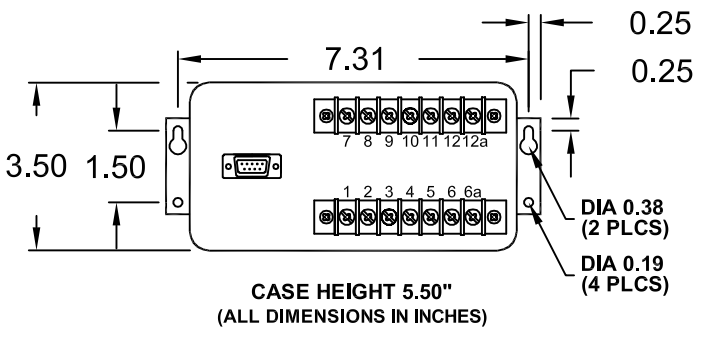
OHIO SEMITRONICS, INC.

4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
 PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

OSI DIGITAL AC POWER MONITOR MODEL DSP-

CASE DIMENSIONS

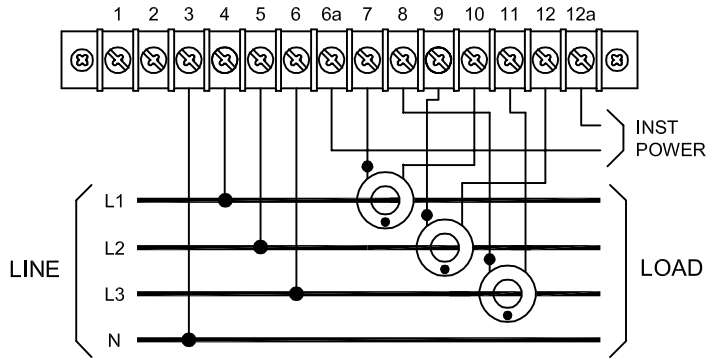
COMMUNICATIONS



| SIG | PIN |
|-----|-----|
| +5V | 2 |
| COM | 1 |
| TX+ | 4 |
| TX- | 5 |
| RX+ | 8 |
| RX- | 9 |

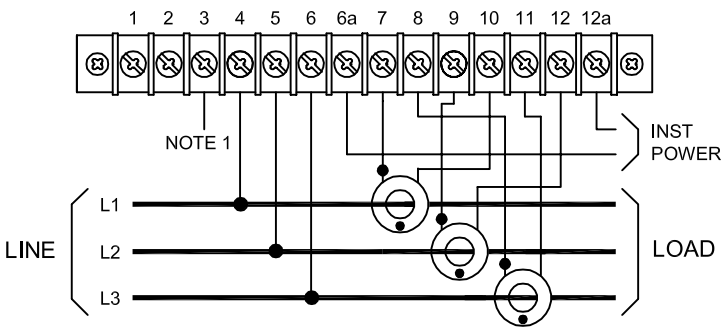
CONNECTION DIAGRAMS

THREE-PHASE, FOUR-WIRE SYSTEM



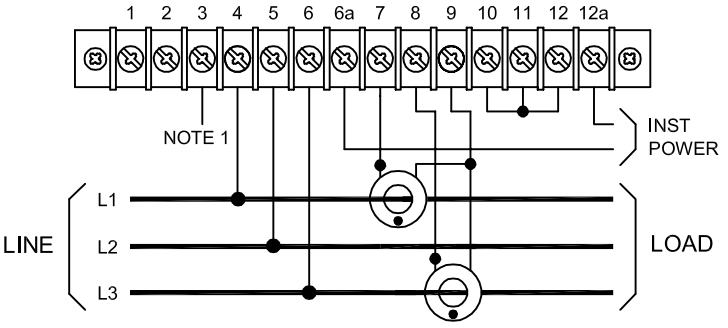
THREE-PHASE, THREE-WIRE SYSTEM (THREE CURRENT TRANSFORMERS)

NOTE: Connection of device voltage neutral to system neutral is recommended but not required. In this configuration, all three phase currents are measured. Individual phase power is dependent on system voltage balance if neutral is not connected. Total power accuracy is not dependent on voltage balance.



THREE-PHASE, THREE-WIRE SYSTEM (TWO CURRENT TRANSFORMERS)

NOTE: Connection of device voltage neutral to system neutral is recommended but not required. In this configuration, all three phase currents are measured. Individual phase power is dependent on system voltage balance if neutral is not connected. Total power accuracy is not dependent on voltage balance. L2 current is derived for this connection as $L2 = -(L1+L3)$



Dwg # 0902-00883-B Rev --

OSI MULTIFUNCTION POWER TEST BOARD MODEL PTB-

VOLTS, AMPS, WATTS, WATTHOURS, POWER FACTOR & VA

DESCRIPTION

The PTB board-level system monitor is designed to measure and provide analog output signals for all parameters of voltage, current, and total power in an electrical system. Optional outputs are available for power factor, apparent power, and Watthours as plug-in "daughter" boards.

The PTB comes standard with seven analog outputs for voltage, current, and power. As options, 0-10Vdc, 0-1mAdc and 4-20mAdc outputs are available.

The 10.75" x 8.9" x 2.5" circuit board is provided with mounting holes to fit a 10" x 12" NEMA case (option C) or the circuit board can be mounted in the user's cabinet with the stand-offs provided. Input and output terminals are located directly on the circuit board.

The electronic circuitry uses solid-state multipliers, RMS converters, and amplifiers. 115Vac or 230Vac instrument power options are available.

PTM Rack-mount models available - [Consult factory](#)



FEATURES

- Small Package
- Less Wiring
- High Accuracy
- Up to 9 Analog Outputs
- Circuit Board Design
- Direct Input to 600Vac
- Low Cost
- [Calibrated with CTs](#)

5 YEAR WARRANTY

MODEL SELECTION

PTB -

| SYSTEM | | VOLTS | | AMPS | | SENSOR SIZE | OUTPUTS | | INST. PWR. | | OPTION P | OPTION W | OPTION C |
|--------|-------|-------|-------------|------|-------------|-------------|---------|------------|------------|--------|-------------------------------|-----------|-----------|
| 1 | 1Φ2W | 1 | 0 - 150 Vac | 1 | 0 - 5 Aac | (none) | D | 0 - 10Vdc | 1 | 115Vac | Apparent Power & Power Factor | Watthours | NEMA Case |
| 2 | 3Φ3W | 2 | 0 - 300 Vac | 2 | 0 - 100 Aac | W | B | 0 - 1mAdc | 2 | 230Vac | | | |
| 3 | *3Φ4W | 3 | 0 - 600 Vac | 3 | 0 - 200 Aac | W | E | 4 - 20mAdc | | | | | |
| 4 | *1Φ3W | | | 4 | 0 - 400 Aac | X | | | | | | | |

*Specify L-N Voltage

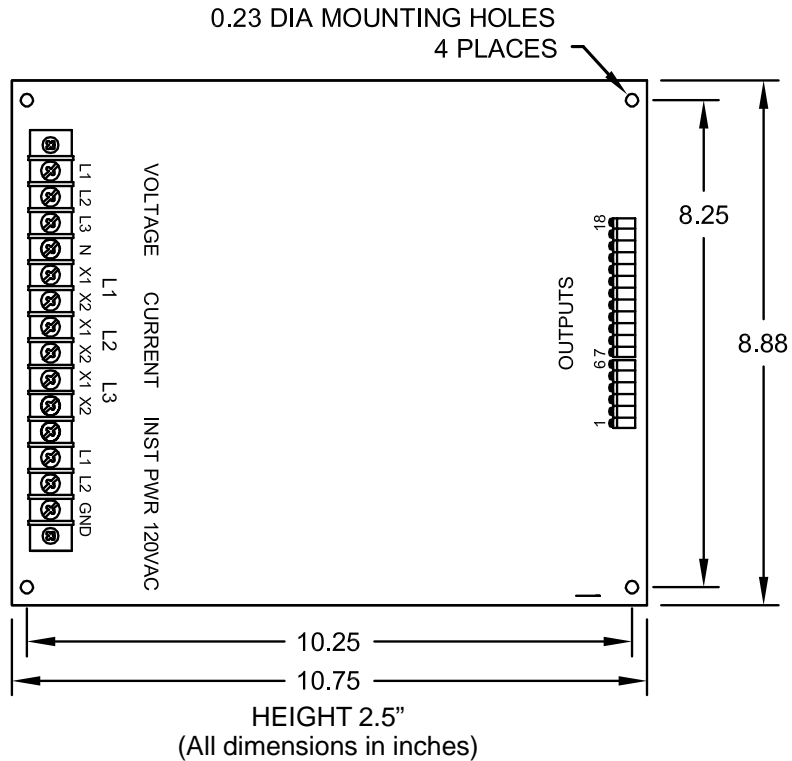
NOTE: [External current sensors](#) are included with models having an input current range of 100A and above (PTB-xx2xxx, PTB-xx3xxx, and PTB-xx4xxx models). For details, [see dimension and connection diagrams](#).

ORDERING INFORMATION

Example: 3Φ3W, 2-element system, 0-150Vac & 0-100Aac Inputs, 0-10Vdc & Watthour Outputs, 115Vac instrument power, in NEMA case

PTB-212D1WC

OSI DIMENSIONS & CONNECTIONS MODEL PTB-



OPTIONAL NEMA CASE
 Dimensions..... 12" X 10" X 4"
 Mounting.... 12.5" X 8.12", 0.22" Dia. Holes
 Weight 3.0 lbs.

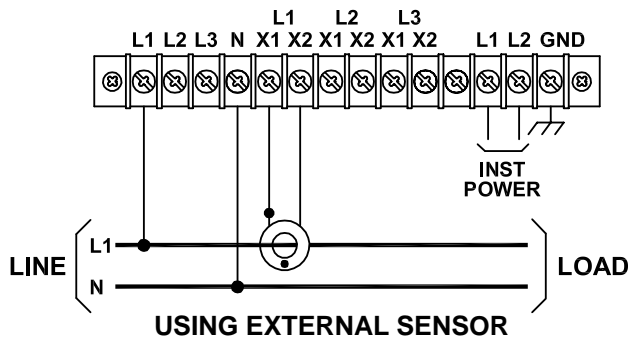
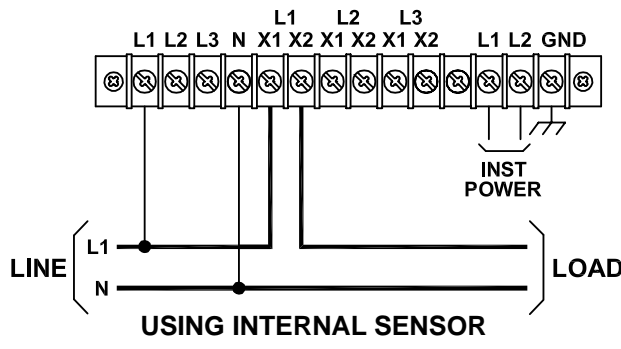
Dwg# 0902-00890-B Rev --

OUTPUT CONNECTIONS

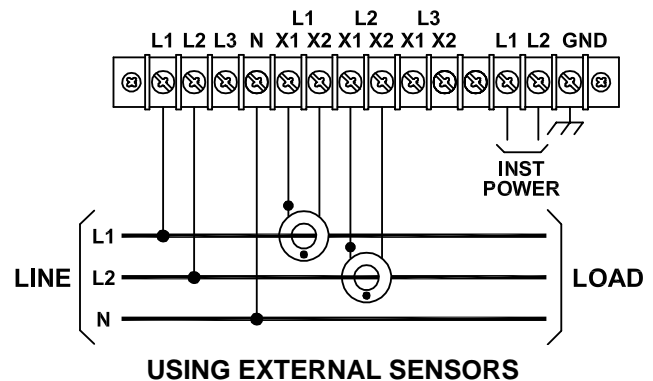
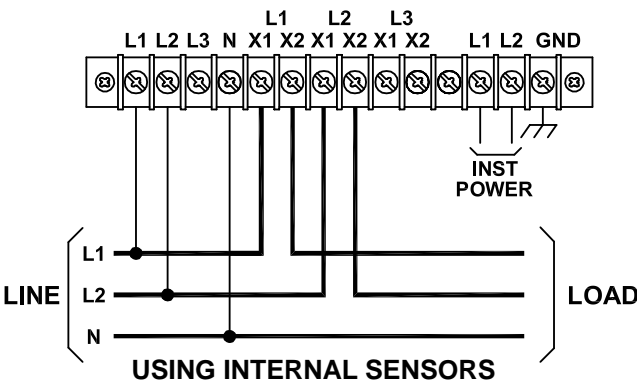
| 1Φ2W SYSTEM | | 3Φ3W SYSTEM | | 3Φ4W SYSTEM | | 1Φ3W SYSTEM | | | |
|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|----|------|
| 1 | Watt-hour Relay | 1 | Watt-hour Relay | 1 | Watt-hour Relay | 1 | Watt-hour Relay | | |
| 2 | | 2 | | 2 | | 2 | | | |
| 3 | N/A | 3 | N/A | 3 | N/A | 3 | N/A | | |
| 4 | N/A | 4 | N/A | 4 | N/A | 4 | N/A | | |
| 5 | Common | 5 | Common | 5 | Common | 5 | Common | | |
| 6 | Common | 6 | Common | 6 | Common | 6 | Common | | |
| 7 | Common | 7 | Common | 7 | Common | 7 | Common | | |
| 8 | Power Factor | 8 | Power Factor | 8 | Power Factor | 8 | Power Factor | | |
| 9 | Volt-Amperes | 9 | Volt-Amperes | 9 | Volt-Amperes | 9 | Volt-Amperes | | |
| 10 | Watts | 10 | Watts | 10 | Watts | 10 | Watts | | |
| 11 | Common | 11 | Common | 11 | Common | 11 | Common | | |
| 12 | N/A | 12 | L3 | Current | 12 | L3 | Current | 12 | N/A |
| 13 | N/A | 13 | L2 | | 13 | L2 | | 13 | L2 |
| 14 | Current | 14 | L1 | | 14 | L1 | | 14 | L1 |
| 15 | Common | 15 | Common | 15 | Common | 15 | Common | | |
| 16 | N/A | 16 | L1-L2 | Voltage | 16 | L3-N | Voltage | 16 | N/A |
| 17 | N/A | 17 | L2-L3 | | 17 | L2-N | | 17 | L2-N |
| 18 | Voltage | 18 | L3-L1 | | 18 | L1-N | | 18 | L1-N |

OSI INPUT CONNECTION DIAGRAMS MODEL PTB-

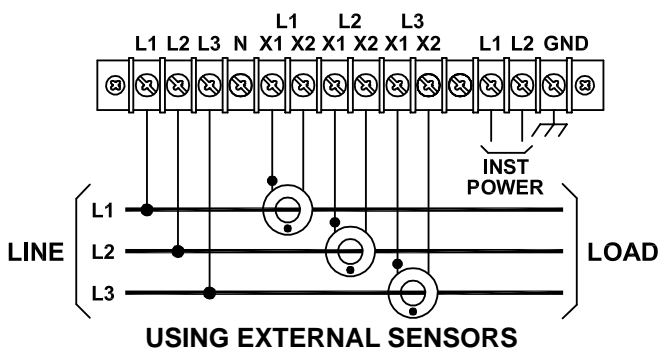
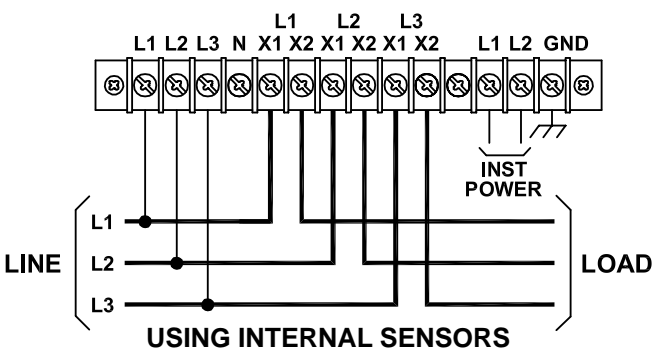
SINGLE-PHASE, TWO-WIRE CONNECTIONS



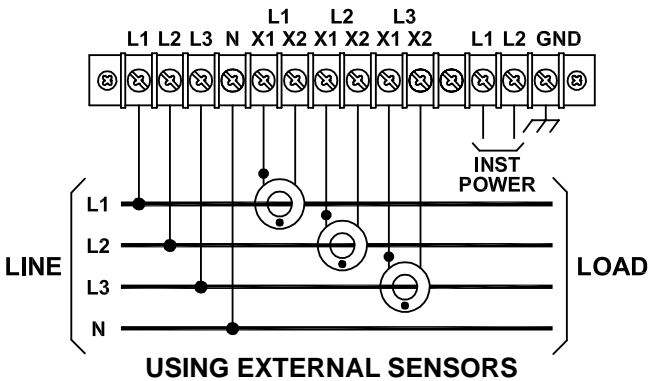
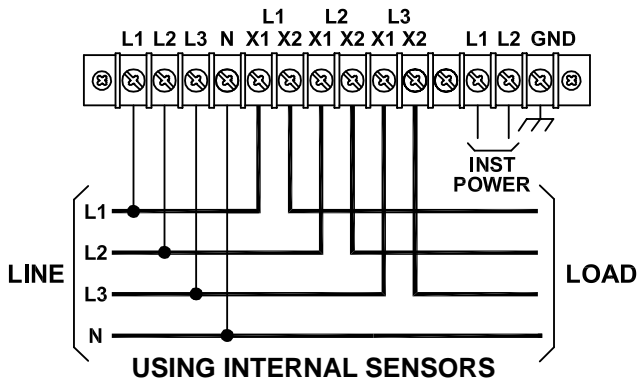
SINGLE-PHASE, THREE-WIRE CONNECTIONS



THREE-PHASE, THREE-WIRE CONNECTIONS



THREE-PHASE, FOUR-WIRE CONNECTIONS



Dwg# 0902-00890-B Rev --

OSI POWER DISPLAY METER MODEL PDM-

DESCRIPTION

The Model PDM power display meter measures and displays voltage, current, power and energy parameters for single-phase or three-phase systems. Voltages up to 600Vac and currents up to 5Aac are directly connected to the unit. [Current Transformers](#) are available in both solid-core (best accuracy) and split-core (most flexible) types to extend the current measurement range.

Local display is provided by three LED displays. Displayable parameters are grouped into four sets of three parameters each with the groups selectable by front panel push-button. Remote display modules may be added as required to provide dedicated display of up to eighteen different parameters.

Analog outputs are provided by adding one or more [D/A-4772](#) converters. Each of these converters provides up to eight output signals which may be assigned to any eight parameters.

Serial communications are provided through either an RS-232C, RS-422, RS-485 or USB interface, using a simple ASCII protocol. (USB is through an external RS-232C-to-USB adapter.)



FEATURES

- High accuracy over a wide range of measurement.
- Suitable for applications with PWM-generated waveforms such as variable-speed motor controls.
- Accommodates a wide variety of [current sensors](#) for many applications.
- Serial communication port options: RS-232C, RS-422, RS-485 or USB (through an external RS-232C-to-USB adapter)
- Simultaneous local display of three parameters on 5-digit, red, high-contrast LED displays.
- Measures true RMS voltage and current even with the presence of harmonics (distortion).
- Remote displays available.
- Analog output converters available.

MODEL SELECTION

PDM - - - - - -

| | VOLTAGE INPUT (Nominal) | | | | CURRENT INPUT | SERIAL COMM. | FREQUENCY | INSTRUMENT POWER | OPTIONS (leave blank for standard unit) | |
|---|----------------------------------------------|----------------------------------------------|----------------------------------------------|---------------------|---------------|--------------------------------------|---------------------------------------------------|------------------|-----------------------------------------|--------------------------------------------------------------------|
| | 3Φ 4W | 3Φ 3W | 1Φ 3W | 1Φ 2W | | | | | | |
| 1 | 120V _{L-N} / 208V _{L-L} | 120V _{L-L} , 240V _{L-L} | 120V _{L-N} / 240V _{L-L} | 120V _{L-N} | 1 0 - 0.1A | 1 RS-232C | 1 50/60Hz, Nominal | 1 115Vac | A | Without Local (front panel) Displays |
| 2 | 277V _{L-N} / 480V _{L-L} | 240V _{L-L} , 480V _{L-L} | N/A | 240V _{L-N} | 2 0 - 5A | 2 RS-422 | 2 400Hz, Nominal | 2 230Vac | B | With Streaming RS-485 Output for Remote Displays or D/A Converter. |
| | | | | | | 3 RS-485 | *3 25-130Hz Variable Frequency Drives | | **C | Internal Power Supply for up to 8 Remote Displays |
| | | | | | | 4 External RS-232C to USB adapter | | | | |

* Available with 0.1A Current Input only.
 **Using more than 8 remote displays requires an external power supply.

NOTE: 0.1A Current Inputs may be used only with [external CTs](#). 5A Current Inputs may be direct-connected or used with [external CTs](#).

5 YEAR WARRANTY

ORDERING INFORMATION

Example: 3Φ3W, 0-120Vac Input, 0-5A Input, USB Serial Communications, 50/60Hz, 230Vac Instrument Power, with Streaming RS-485 analog output and internal power supply for remote displays.

PDM-1-2-4-1-2-BC

Measured parameters, local display arrangement, communication data strings, etc. may be customized by completing a PDM Configuration Worksheet at time of ordering. [Consult factory](#) for additional information.

OSI SPECIFICATIONS & DIMENSIONS MODEL PDM-

INPUT

Voltage Range
 Type 1.....0-175VL-N/300VL-L
 Type 2.....0-346VL-N/600VL-L
 Over-range (without damage) 120% of Range
 Burden..... (Nominal at maximum input)0.5mA

Current Range
 Type 1.....(for use with CTs only).....0-0.1Aac
 Type 2..... (direct or with CTs)0-5Aac
 Over-range (without damage) 120% of Range
 Burden..... (Nominal at maximum input)
 Type 10.1VA
 Type 20.5VA

Frequency Range
 Type 1..... 50/60Hz ±10%
 Type 2..... 400Hz ±10%
 Type 3..... 25-130Hz, Variable
 (Available Only with Current Type 1)

Power Factor.....Any

INSTRUMENT POWER

Type 1 115Vac ±15%, 50/60Hz, 10VA
 Type 2230Vac ±15%, 50/60Hz, 10VA

SERIAL COMMUNICATIONS

Type 1 RS-232C
 Type 2 RS-422
 Type 3 RS-485
 Type 4 USB
 NOTE: USB comm. is through an RS-232C-to-USB adapter

OPTIONAL ACCESSORIES ([consult factory](#))

1. Current transformers: solid or split-core
2. Remote display (P/N 21967): 5 digit, LED, up to 18 per unit.
3. Analog output converter (P/N D/A-4772): 8 channels each.

ACCURACY (typical setpoint, linearity and repeatability)

Voltage, Current, Volt-Amps and VARs (10% - 100% of range)
 Frequency Type 1 or 2±0.1% F.S.
 Frequency Type 3±0.25% F.S.
 Power and Energy (Wh)
 Frequency Type 1 or 2±0.1% F.S.
 Frequency Type 3±0.25% F.S.
 Power Factor
 Frequency Type 1 or 2 ±0.01PF
 Frequency Type 3 ±0.02PF
 Frequency
 Frequency Type 1 or 2±0.1% Rdg., ±0.02% F.S.
 Frequency Type 3±0.1% Rdg., ±0.1% F.S.

DIELECTRIC TEST

Input/Output/Instrument Power 1800Vac

TEMPERATURE

Operating Range..... 0°C to 50°C
 Effect..... ±0.005%/°C, ±0.05% F.S.

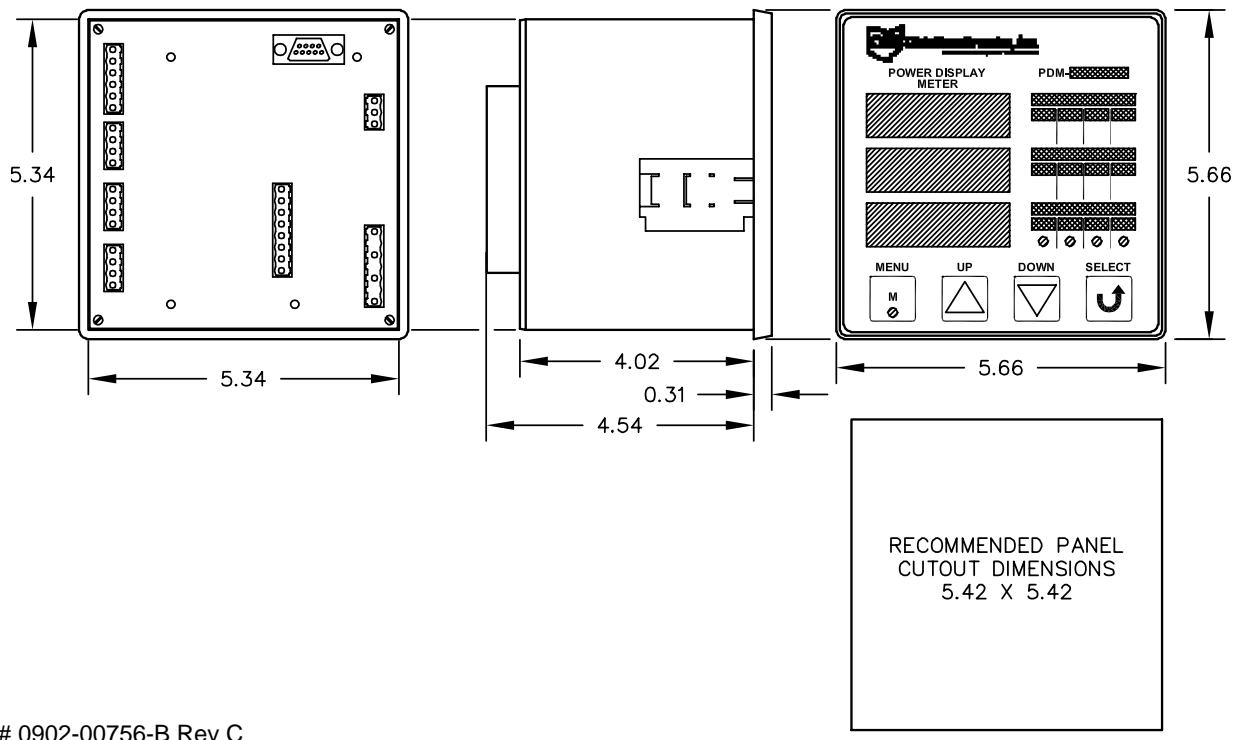
PHYSICAL

Operating Humidity0-95% non-condensing
 Weight.....2.75lb.

ENCLOSURE Noryl SE 1, UL94V-1, IP 40, Black

CONFIGURATION

Refer to the Configuration sheet supplied with each unit for specific information regarding the choice of measured parameters, local display arrangement, etc. (sheet is identified by serial number of unit).



Dwg# 0902-00756-B Rev C

DESCRIPTION

The A210 Power Meter measures and displays voltage, current, power, and energy quantities in single-phase or three-phase power systems. The meter's multifunction capability replaces a large number of analog measurement and display devices.

A high-contrast LED display in a compact, panel-mount package provides low-cost, high-visibility control panel monitoring. The basic instrument provides up to 63 measurements that can be displayed on three 4-digit LED displays.

Two solid-state relay/pulse outputs can be used as high/low limit alarms on selected measurements or as energy pulse outputs. Scaling of inputs for direct reading in primary values is provided.

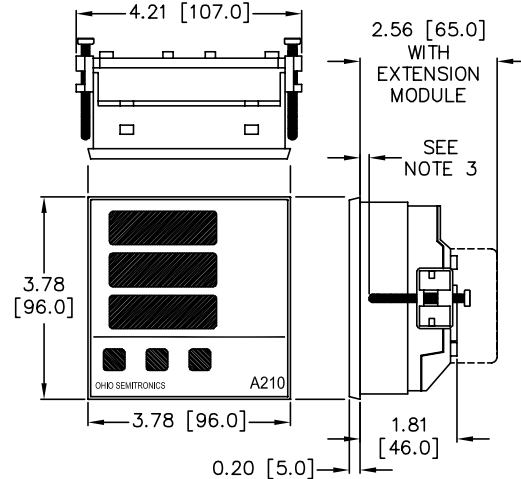
An extension module is available to extend the A210's function and flexibility. The [MM/COM module](#) provides RS-232/485 with MODBUS RTU communication protocol. The module also provides for load profile recording of active and/or reactive power quantities for up to 83 days at 15-minute intervals. Available software provides programming of the instrument, reading and retrieval of the recorded data. A pulse input can be used for synchronizing profile data timing or switching between high/low tariff energy metering with this option.

FEATURES

- Measurement of current, voltage, active, reactive and apparent power, active and reactive energy, power factor and line frequency
- Single-Phase, Three-Phase Three-Wire or Three-Phase Four-Wire Sinusoidal Measurements.
- Simultaneous display of up to three measurements with 4-digit red high-contrast LED displays
- Installation size of 96mm x 96mm panel, 46mm depth behind panel (65mm with [MM/COM module](#))
- Two pulse/relay outputs can be used for limit alarms or energy pulse outputs
- [MM/COM](#) optional extension module can be added for communications and load profile memory



OUTLINE AND DIMENSIONS



NOTES:

1. ALL DIMENSIONS IN INCHES [MM]
2. PANEL CUTOUT -
INCHES - 3.62 (+0.03/-0.00) X 3.62 (+0.03/-0.00)
MM - 92 (+0.8/-0.0) X 92 (+0.8/-0.0)
3. PANEL DIMENSIONS (THICKNESS, MIN-MAX) -
INCHES 0.08-1.00
MM 2-25.4

Dwg# 0902-00594-B Rev --

SPECIFICATIONS

DISPLAY 7-segment red LED
 Character Height.....0.55in/14mm
 Display Range.....Max. 9999
 Energy.....Max 99999999

INPUT
 Voltage.....Nominal 500 V_{LL} 290 V_{LN}
 Over-range.....Nominal +20%
 Current..... (A210-001/002)..... Nominal 5A
 (A210-003/004)..... Nominal 1A
 Over-range.....Nominal +20%
 Overload.....2X Nominal Continuous
 Frequency.....45-65Hz

ACCURACY (% of Nominal)
 Current..... ±0.5%
 Voltage..... ±0.5%
 Power..... ±1.0%
 Power Factor..... ±1.0%
 Frequency..... ±0.02 Hz
 Energy..... ±1.0%
 Response Time.....400ms

INSTRUMENT POWER
 A210-001/00385-253V, dc or 45-400Hz
 A210-002/00420-70V, dc or 45-400Hz
 (3VA without MM/COM module, 4VA with [MM/COM module](#))

OUTPUT
 Pulse/Limit Alarm Outputs..... (2ea)
 Outputs: passive, opto-isolated common-collector transistors
 Vce.....40Vdc maximum
 Vsat.....1.2Vdc maximum
 I_{max}.....150mA
 Pulse Duration.....100ms

MM/COM MODULE (OPTION)
 Interface.....RS-232/485
 Protocol.....MODBUS RTU
 Baud.....1200, 2400, 4800, 9600, 19200
 Memory.....15936 values
 (records 2 quantities for 83 days at 15-min intervals)
 Digital Input.....Contact Closure Synchronizing Input
 or HI/LO rate (tariff) select.

ENVIRONMENTAL
 Operating Temperature.....-10°C to +55°C
 Storage Temperature.....-25°C to +70°C

MECHANICAL
 Dimensions.....3.8" x 3.8" x 1.8"
 (2.6" depth behind panel with [MM/COM module](#))
 Panel Cutout.....3.6" x 3.6"
 Net Weight.....8.8oz

FEATURES

- 134 measurements
- 12 energy meters
- Comprehensive average and min/max value functions
- Total Harmonic Distortion (THD) analysis
- Asymmetric voltage and zero-displacement voltage
- 2 pulse/relay outputs can be used for limit alarms or energy pulse outputs
- [MM/COM Extension modules](#) extend the functionality of the A230/230S including options for RS232/RS485 with Modbus and data memory, the addition of analog outputs (2), or Ethernet communication.

5 YEAR WARRANTY



These measurements form the basis for the comprehensive analysis and assessment of the electrical system in all 4 quadrants.

DESCRIPTION

The A230 or A230S Power Meter measures and displays the voltage, current, power, and energy quantities in single-phase or three-phase power systems. The meter's multifunction capability replaces a large number of analog measurement and display devices.

A high-contrast LED display in a compact, panel-mount package provides low-cost, high-visibility control panel monitoring. The basic instrument provides up to 266 measurements combinations that can be displayed on three 4-digit LED displays.

MM/COM modules for the A230 and A230S extend the instrument's functionality by adding communication options, analog outputs, and data memory. [Add the A200plus PC application software](#) for easy meter programming and remote data access at no additional cost.

MULTIFUNCTION POWER METERS

SPECIFICATIONS

INPUT

| | |
|------------------|-----------------------------------------------|
| Voltage | Nominal 500V _{LL} 290V _{LN} |
| Over-range | Nominal +20% |
| Current | A230/A230S-001 & 002 Nominal 5A |
| | A230/A230S-003 & 004 Nominal 1A |
| Over-range | Nominal +20% |
| Overload | 2X Nominal Continuous |
| Frequency | 45-65 Hz |

ACCURACY (% of Nominal)

| | |
|---------------------|---------|
| Current | ±0.2% |
| Voltage | ±0.2% |
| Power | ±0.5% |
| Frequency | ±0.02Hz |
| Energy | ±0.5% |
| Response Time | 400ms |

MM/COM MODULES (Options)

| | |
|-----------------|----------------------------------------|
| MM/COM201 | Modbus RTU, Data Memory, RS-232/485 |
| MM/COM202 | Two Analog Outputs |
| MM/COM203 | Ethernet, Real Time Clock, Data Memory |

INSTRUMENT POWER

| | |
|---------------------------|------------------------|
| A230/230S-001& 003 | 85-253Vac/dc, 45-400Hz |
| A230/230S-002 & 004 | 20-70Vac/dc, 45-400Hz |

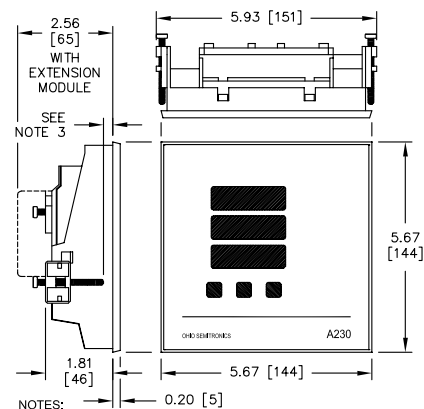
MECHANICAL

| | |
|-----------------------------|--------------------------------|
| Dimensions | A230 5.7" X 5.7" X 1.8" |
| | A230S 3.8" X 3.8" X 1.8" |
| Optional MM/COM | extends depth to 2.6" |
| Panel Cutout ... A230 | 5.4" X 5.4" |
| | A230S 3.6" X 3.6" |
| Net Weight | A230 10.6oz |
| | A230S 7.0oz |

ENVIRONMENTAL

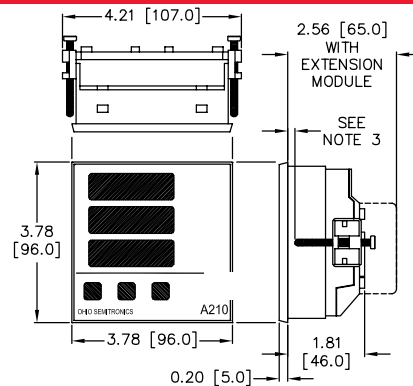
| | |
|-----------------------------|----------------|
| Operating Temperature | -10°C to +55°C |
| Storage Temperature | -25°C to +70°C |

DIMENSIONS A230



- NOTES:
1. ALL DIMENSIONS IN INCHES [MM]
 2. PANEL CUTOUT -
INCHES - 5.43 (+0.03/-0.00) X 5.43 (+0.03/-0.00)
MM - 138 (+0.8/-0.0) X 138 (+0.8/-0.0)
 3. PANEL DIMENSIONS (THICKNESS, MIN-MAX) -
INCHES 0.08-1.00 MM 2-25.4
- Dwg# 0902-00661-B Rev --

DIMENSIONS A230S



- NOTES:
1. ALL DIMENSIONS IN INCHES [MM]
 2. PANEL CUTOUT -
INCHES - 3.62 (+0.03/-0.00) X 3.62 (+0.03/-0.00)
MM - 92 (+0.8/-0.0) X 92 (+0.8/-0.0)
 3. PANEL DIMENSIONS (THICKNESS, MIN-MAX) -
INCHES 0.08-1.00 MM 2-25.4
- Dwg# 0902-00594-B Rev --

OSI EXTENSION MODULES FOR **A210-A230S** MODEL MM/COM20X

MULTIFUNCTION POWER METERS

MM/COM201



Modbus, data logger, RS232/485 interface, synchronizing input

SPECIFICATIONS

Protocol Modbus RTU for SCADA Interface RS232/485, switchable Synchronizing input synchronizing interval or tariff switching Baud rate... 1200, 2400, 4800, 9600, 19200

Data logger with **A210**

P_{int} avg. active power values (incoming/outgoing)
 Q_{int} avg. active power values (IND/CAP)

Data logger with **A230/A230s**

P_{int} avg. active power values (incoming/outgoing)
 Q_{int} ... avg. reactive power values (incoming/outgoing) or IND/CAP
 S_{int} avg. apparent power values and 9 additional free programming average values

Amount of data

1 value 166 days
 2 values 83 days
 14 values 12 days



For reading & selection of values, optional A200plus Software is available at no additional cost. [Consult factory.](#)



MM/COM202



2 Analog Outputs

SPECIFICATIONS

Input values
 A210 U, I, I_{avg} , I_n , P, Q, S, F, cos Φ
 A230 (in addition to above) zero-displacement voltage, asymmetric voltage, THD U, THD I, Voltage, Current Avg. value

Output 0-20mA, 4-20mA, inverting

Limitation min 0/3.7mA, resp. max. 21mA

Burden voltage 8V

Accuracy 0.1% (without A2xx)

Number of channels 2, electrically-isolated

MM/COM203



Ethernet, real-time clock, comprehensive data logger.

SPECIFICATIONS

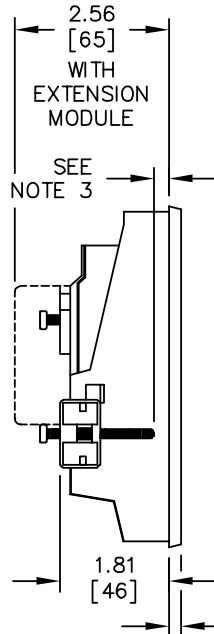
Protocol Modbus over TCP/IP, HTTP

Real-Time Clock battery backup, synchronization via LAN or external

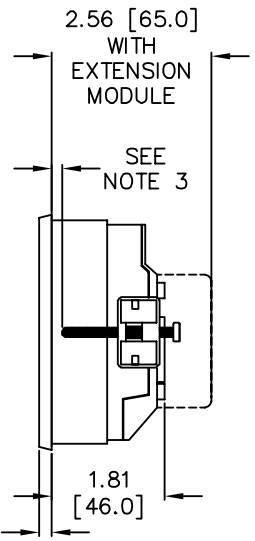
Data Logger... up to 1 year with time stamp

Terminals:
 Ethernet RJ45-port, 10/100 Base-Tx
 Tariff switching and synchronizing input via pluggable screw terminals
 Synchronizing input 5V-300Vac, 1-500Hz
 Tariff Switching 5V-300Vac/dc

DIMENSIONS



Dwg# 0902-00661-B Rev --



Dwg# 0902-00594-B Rev --

NOTES:

- All dimensions in inches [mm].
- Panel cut-out: 5.43 +0.03/-0.00 [138 +0.8/-0.0] x 5.43 +0.03/-0.00 [138 +0.8/-0.0]
- Panel dimensions (thickness, min/max): 0.08-1.00 [2-25.4]
- Refer to Operating Instructions manual for details on attaching extension modules.

OSI MULTIFUNCTION POWER METER WITH I/O MODEL APLUS



DESCRIPTION

The APLUS is a powerful platform for measuring, monitoring and analyzing power systems. This universal measurement device can be easily integrated into the process environment on site by means of the communication interface, digital I/O ports, or analog outputs. The included PC software packages allow for remote configuration and control of multiple units, as well as analyzing acquired data.



MULTIFUNCTION POWER METERS

MODEL SELECTION

APLUS- □ □ □ □ □ □ □

| BASIC UNIT | | FREQUENCY | | INSTRUMENT POWER | | COMMUNICATION INTERFACE | | I/O EXTENSIONS | | TEST CERTIFICATE | | DATA LOGGER | |
|------------|------------------------------------|------------------------|---------|------------------|-------------------------|-------------------------|---------------------------------|----------------|---------------------------------------------------------------|------------------|----------------|-------------|------------------|
| 0 | no display, top-hat DIN-rail mount | 1 | 50/60Hz | 1 | 24-230Vdc or 100-230Vac | 1 | RS-485 Modbus/RTU | 0 | (none) | 0 | (none) | 0 | (none) |
| 1 | with LED display, panel mount | 5 YEAR WARRANTY | | | | 2 | Ethernet Modbus/TCP NTP | 1 | 2 relay outputs, 4 analog outputs (±20mA), and 2 digital I/Os | E | includes Cert. | 1* | with data logger |
| | | | | | | 3* | RS-485 Modbus/RTU + Profibus DP | 2 | 2 relays and 6 digital I/Os | | | | |

*Data logger cannot be combined with Profibus DP interface.

SPECIFICATIONS

INPUT

Current, Nominal.....1 to 5Aac, selectable
 Maximum7.5Aac
 Overload without damage 10A, continuous
 100A, 10 x 1s, at 100s intervals
 Burden..... ≤ I² x 0.01 Ω per phase
 Voltage, Nominal.....57.7 to 400VL-L, 100 to 693VL-N
 Maximum..... 480VL-N, 832VL-L (sinusoidal)
 Overload without damage.... 480VL-N, 832VL-L continuous,
 600VL-N, 1040VL-L, 10 x 10s, at 10s intervals
 800VL-N, 1386VL-L, 10 x 1s, at 10s intervals
 Burden..... ≤ V² / 3MΩ per phase
 Frequency Range45...50/60...65Hz
 True RMS measurement up to 63rd harmonic
 System Configurations Accommodated:
 Single-phase .. 2-wire or 3-wire
 Three-phase... 3-wire, balanced load (1½ element)
 3-wire, unbalanced load (2 ele., 3 ele.)
 4-wire, balanced load (1 ele.)
 4-wire, unbalanced load (2½ ele., 3 ele.)

INSTRUMENT POWER

Nominal ... 100-230Vac ±15%, 50-400Hz or 24-230Vdc ±15%
 Burden..... ≤ 7VA

COMMUNICATION INTERFACE

Modbus/RTU RS-485 (max. 32 devices)
 Physical.....max. 4000 ft (1200m), via plug-in terminals
 Baud Rate 1.2 to 115.2kBAud
 Profibus DP RS-485, (max. 32 devices)
 Physical.....max. 4000 ft (1200m), via 9-pin D-Sub socket
 Baud Rate automatically detected (9.6k-12M Bit/s)
 Ethernet Ethernet 100Base TX
 Physical..... via RJ45 connector
 Mode 10/100 MBit/s, full/half duplex, auto negotiation
 Protocol Modbus/TCP, NTP (time synchronization)

I/O INTERFACE

Basic Device1 relay output, SPDT
 1 digital output (fixed)
 1 digital input (fixed)
 I/O Extension 12 relay outputs, SPDT
 4 bidirectional analog outputs
 2 digital inputs/outputs
 I/O Extension 2 2 relay outputs, SPDT
 6 digital inputs/outputs

DIGITAL INPUTS/OUTPUTS

I/O extensions are individually configurable as inputs or outputs.
 Connections..... via plug-in terminals.
 Inputs (according to EN 61 131-2, 24Vdc, Type 3):
 Voltage, Nominal 12 / 24Vdc (30V max.)
 Logical Zero..... -3 to +5V
 Logical One 8 to 30V
 Outputs (partially according to EN 61 131-2):
 Voltage, Nominal 12 / 24Vdc (30V max.)
 Current, Nominal 50mA (60mA max.)
 Load Capability..... 400Ω-1MΩ

RELAY OUTPUTS

Connectionsvia plug-in terminals
 Contacts SPDT, latching
 Load Capacity250Vac, 2A, 500VA or 30Vdc, 2A, 60W

ANALOG OUTPUTS

Connections plug-in terminals, galvanically isolated
 Linearization..... linear, quadratic or knee point
 Range ±20mA (24mA max.)
 Uncertainty..... ±0.2% F.S.
 Burden ≤ 500Ω
 Burden Influence..... ≤ 0.2%
 Residual Ripple..... ≤ 0.4%

NOTE: Refer to the Device Handbook (Operator's Manual), ModBus (-TCP) Interface, System Booklet and Safety Instructions for additional information.

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SPECIFICATIONS (Continued)

MEASUREMENT UNCERTAINTY

Ref. Cond.: 15-30°C, sinusoidal, meas. over 8 cycles, PF=1, 50-60Hz
 Voltage, Current ± (0.08% Rdg. + 0.02% F.S.)**
 Power ± (0.16% Rdg. + 0.04% F.S.) **
 Power Factor ± 0.1° **
 **Additional uncertainty for voltage of 0.1% and for PF of 0.1° if neutral wire is not connected. F.S. Power based on F.S. Current x F.S. Voltage
 Frequency ± 0.01Hz
 Voltage & Current Imbalance ± 0.5%
 Harmonics ± 0.5%
 THD Voltage, TDD Current ± 0.5%
 Active Energy Class 0.5S, EN 62053-22
 Reactive Energy Class 2, EN 62053-23

REAL-TIME CLOCK

Uncertainty.. ±2 min./mo. (15-30°C), trimmable via software
 Synchronizationvia sync pulse or NTP server
 Battery Life.....> 10 years

PHYSICAL AND ENVIRONMENTAL

NOTE: Intended for indoor use only!
 Enclosure MaterialPolycarbonate (Makrolon)
 Weight.....1.1 lb (500g)
 Flammability Class.....UL94V-0, halogen-free
 Operating Temperature-10 ... 15 ... 30 ... + 55°C
 Storage Temperature-25 to +70°C
 Temperature Effect.....0.5 x basic uncertainty per 10°C
 Long-term Drift.....0.2 x basic uncertainty per year
 Others Usage group II (EN 60688)
 Relative Humidity < 95% non-condensing
 Altitude..... ≤ 2000m max.
 OrientationAny

APPLIED STANDARDS, REGULATIONS & DIRECTIVES

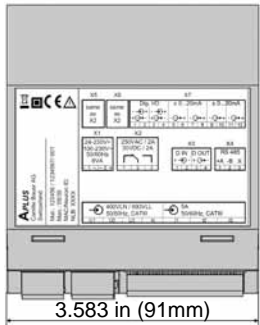
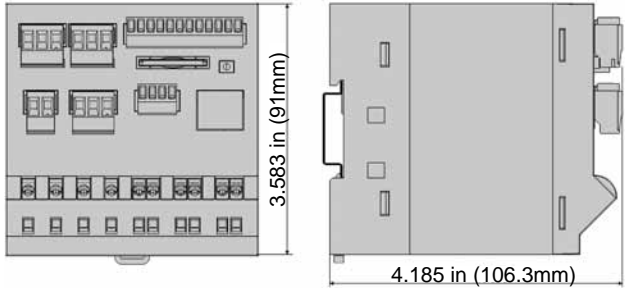
IEC/EN 61010-1 Safety of electric measuring, control & laboratory equipment
IEC/EN 60688 Transducers for converting AC variables into analog or digital signals
DIN 40 110 AC quantities
IEC/EN 60068-2-1/-2/-3/-6/-27 ambient tests: -1 Cold, -2 Dry heat, -3 Damp heat, -6 Vibration, -27 Shock
IEC/EN 60529 Protection type by case
2002/95/EG (RoHS) EC directive on the restriction of the use of certain hazardous substances
IEC/EN 61000-6-2/6-4 Electromagnetic compatibility (EMC) standards for industrial environments
IEC/EN 61131-2 Programmable controllers - equipment, requirements and tests (digital I/O 12/24Vdc)
IEC/EN 61326 EMC requirements for electrical equipment for measurement, control & laboratory use
IEC/EN 62053-31 Pulse output devices for electronic and electromechanical meters (SO output)
UL94V-0 Test for flammability of plastic materials for parts in devices and appliances

SAFETY & ENVIRONMENTAL

Current inputs are galvanically isolated from each other.
 Protection class.....II (protective insulation, voltage inputs via protective impedance)
 Pollution degree2
 Protection RatingIP64 (front), IP40 (housing), IP20 (terminals)
 Measurement Category CAT III, CAT II (relays)

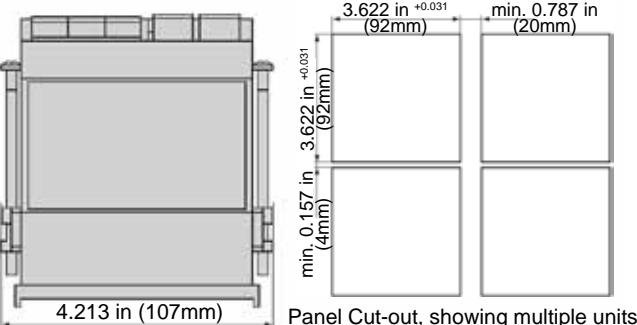
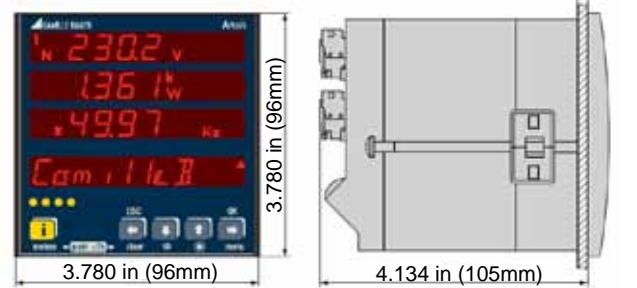
CASE DIMENSIONS & CONNECTIONS

DIN-RAIL MOUNT MODELS (NO DISPLAY)



Mounts on standard 35mm Top-Hat Din-Rail per EN50022.

PANEL-MOUNT MODELS



Panel Cut-out, showing multiple units



OSI PANEL-MOUNT METERS MODELS OFC-, OFT-, & OFM-

MICROPROCESSOR-BASED AND LOW-COST OPTIONS

DESCRIPTION & FEATURES

The OFC series meters provide a 4-digit, microprocessor-based, delta-sigma A-to-D converter with 16-bit (65536 counts) resolution.

The OFT series meters are loop-powered, microprocessor-based, 6-digit process meters that convert a 4-20mA signal to a customer-scalable display value.

The OFM series meters offer a low-cost 3 1/2-digit display with dual-slope integrating A-to-D conversion.



OFC Meter



OFT Meter



OFM Meter

5 YEAR WARRANTY

FEATURES (OFC & OFT models)

- OFC models offer 5 convenient front-panel buttons for setpoint, peak, valley, tare and set-up menu.
- The OFT control setup and calibration menus are accessed via two rear-panel switches.
- Both models fit 1/8 DIN cut-outs and offer optional set-point relay outputs (2).

FEATURES (Low-cost OFM model)

- Easy mounting with steel bezel in 1/16 DIN cut-out
- Full differential input with chopper-stabilized input buffer.
- Convenient adjustments for scaling and calibration
- A-to-D Reference High-stability 1.25V band gap
- Optional 24Vdc isolated supply for powering external devices (-221 models)

PANEL METERS AND COUNTERS

OFC MODEL SELECTION



| BASE METER | | INSTRUMENT POWER | | SIGNAL INPUT | |
|------------|----------------------|------------------|---------------------|--------------|------------------|
| 0 | (no setpoint relays) | 1 | 120Vac, 50/60Hz | 100 | 4-20mAdc |
| 1 | 2 setpoint relays | 8 | 10-30Vdc, isolated* | 120 | 0-10Vdc |
| | | | | 925 | AC ammeter, 5A** |

* 750V isolation between power supply and signal input.

** 925 models include an external CT.

ORDERING INFORMATION

Example: 4-digit display with setpoint relays, 120Vac instrument power, and 5Aac input.

OFC111-925

NOTE: Optional NEMA 4X gasket available. [Consult factory](#)

OFT MODEL SELECTION



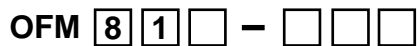
| BASE METER | | INSTRUMENT POWER | | SIGNAL INPUT | |
|------------|---------------------------|------------------|-----------------------|--------------|----------|
| 10 | 6-digit LCD (no relays) | 0 | self, from input loop | 101 | 4-20mAdc |
| 12 | 6-digit LCD with 2 relays | | | | |

ORDERING INFORMATION

Example: 6-digit display with setpoint relays, 4-20mAdc input, self-powered from input loop.

OFT120-101

OFM MODEL SELECTION



NOTE: all models have full differential input.

| INSTRUMENT POWER | | SIGNAL INPUT | |
|------------------|----------|--------------|-------------|
| 1 | 120Vac | 221 | 0-10Vdc* |
| 3 | 220Vac | 305 | 0-20.00Vac |
| 8 | 10-30Vdc | 369 | 0-5.00Aac** |

* -221 models also include an isolated 24Vdc power supply for powering external devices. (20mA max, 1kV isolation)

** -369 models include an external CT.

ORDERING INFORMATION

Example: 3 1/2-digit display with 10-30Vdc Power Supply and 0-20.00Vac Input

OFM818-305

NOTE: Optional NEMA 4X gasket available. Order Q400-0109

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PHYSICAL

Display
OFC Bright 0.6" tall, high-efficiency red LED
 Range -1999 to +9999
 (4 digits plus negative sign and decimal point)
OFT 0.5" 6-digit, enhanced contrast, extended
 temperature range, high-humidity sealed LCD
 Range -99999 to 999999
 (6 digits plus negative sign and decimal point)
OFM Bright 0.6" tall, high-efficiency LED
 Range -1999 to +1999
 (3.5 digits plus negative sign and decimal point)
 Window Non-glare cast acrylic, ruby red filter
 Bezel
OFC & OFT: Black, high-impact ABS plastic, UL 94V0
OFM: 16Ga. steel, black powder coat textured finish
 Connections Socketed screw terminal connectors
 Mounting Hardware Provided (attached to meter)

INPUT

Type See individual model selection tables
 Frequency
 -100, -120 & -221 models & all OFC dc
 -305, -369 & -925 models 50/60Hz
 Impedance
 -100 models 10Ω
 -120 & -221 models 1MΩ
 -305 models 2MΩ
 -369 & all OFT models negligible
 Over/Under Range Indication:
OFC displays "-ur-" or "-or-" when input exceeds
 min/max displayable range or min/max input range.
OFT & OFM .. displays polarity, most significant digit and
 the decimal point when input exceeds min/max range.
 Connectors Socketed screw terminals

INSTRUMENT POWER

OFC
 101 & 111 models 85-140Vac, 47-63Hz, 3VA max.
 108 & 118 models 10-30Vdc, 150mA max.,
 500mV max ripple allowed
OFT (all) self-powered, from 4-20mA dc input loop
 Loop drop 3.9V max., short-circuit protected
OFM
 811 models 120Vac, 50/60Hz, 25mA max., 3W
 813 models 220Vac, 50/60Hz, 14mA max., 3W
 818 models 10-30Vdc, 110mA max., 750Vdc isolation

DISPLAY

OFC
 Modes Track, Peak, Valley
 Update Rate 1-16 per second (selectable)
 Scaling (Decimal Point Location)
 Programmable, for 0, 0.0, 0.00 or 0.000 precision.
 Response Time (for F.S. step) 0.5s
 Setpoint Relays (optional) 200Vac/dc, 1A max.,
 independently programmable as NO or NC

DISPLAY (continued)

OFT
 Display Update Rate 7.5 per second
 Display Scaling
 Decimal Point Location Programmable, for
 0, 0.0, 0.00, 0.000, 0.0000 or 0.00000 precision
 Setpoint Relays (optional) 300Vac/dc, 130mA max.,
 solid-state, independently programmable NO or NC
OFM
 Display Update Rate 2.5 per second
 Display Scaling
 Decimal Point Location Jumper-selectable,
 for 0, 0.0, 0.00 or 0.000 precision
 -221 models 20-turn pots for scaling & calibration
 -305, -369 models Fixed zero,
 20-turn pot for span adjust.

ACCURACY & RESOLUTION

OFC
 Over Full Operating Temperature Range:
 -100 & -120 models <±0.05% F.S.
 -925 models (RMS value of input) <±0.1% F.S.
 At Fixed Temperature:
 -100 & -120 models <±0.02% F.S.
 -925 models <±0.05% F.S.
 A/D Converter 16-bit: 65536 counts of resolution
 A/D Conversion Rate 4000 per second
OFT
 Accuracy <±0.05%
 A/D Converter 24-bit: 1,000,000 counts of resolution
 A/D Conversion rate 7.5 per second
OFM (function of calibration and scaling)
 Linearity <±0.02%, typical

TEMPERATURE & ENVIRONMENTAL

OFC
 Operating Range -25°C to 80°C
 Storage Range -55°C to 80°C
 Drift <0.1% per 20°C change in ambient temperature
OFT
 Operating and Storage Range -20°C to +80°C
 Operating Environment Tested to NEMA 4X
 NOTE: Meter will tolerate exposure to most dilute
 acids and cleaning agents when properly installed
OFM
 Operating Range -25°C to 70°C
 Storage Range -40°C to 85°C
 Drift <0.1% per 20°C change in ambient temperature

DIMENSIONS, CONNECTIONS, CALIBRATION & OPERATION

Refer to individual specification sheet for OFC, OFT or OFM
OFC .. Refer to Operation and Installation Guide for full
 connection details and menu functions.
OFT & OFM Refer to manuals for details on set-up and
 calibration.

OSI VERSATILE DIGITAL PANEL METER

MODEL 15660

DESCRIPTION

The 15660 is a streamlined, low-cost, utility, dc voltage measuring meter. The unit has a standard input range of $\pm 2V$. The easy-to-use screw terminals and provision to "Hold" the displayed reading indefinitely make this a cost-effective solution for display of most analog signals.

Ease-of-use and quick installation are facilitated by the unique pinout of the series. The standard meter is provided with screw terminal blocks and insulated quick disconnects.



FEATURES

- 0.56" LED Display
- Screw Terminals for Easy Connection
- Selectable Decimal Point Position

SPECIFICATIONS

INPUT

Voltage Range..... Standard $\pm 2Vdc$
 Selectable 20Vdc, $\pm 200Vdc$
 Impedance..... 1M Ω , minimum

INSTRUMENT POWER

Standard..... 120/240V, 50/60Hz, 2.5VA

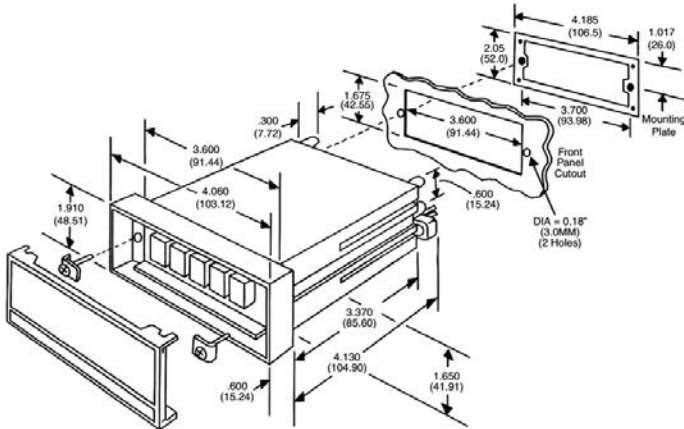
DISPLAY 0.56" LED Display

ACCURACY $\pm 0.05\%$ of reading + 3 digits

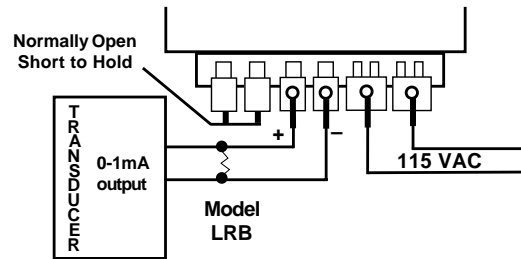
TEMPERATURE

Operating Range..... $-10^{\circ}C$ to $+50^{\circ}C$

CASE DIMENSIONS in inches (mm)



CONNECTION DIAGRAM



Dwg# 0902-00894-B Rev --

PANEL METERS AND COUNTERS

MINIATURE ELECTRONIC COUNTER

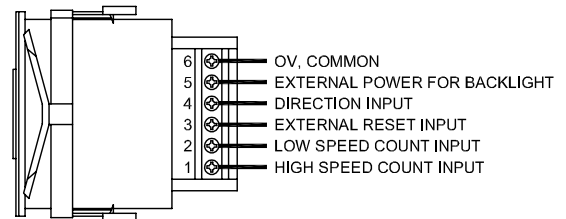
MODEL 13835

FEATURES

- 8 Digits, 0.354" (9mm) LCD Display
- Reset Front and Remote
- 10-Year Battery
- Relay Contact/Open Collector/5V TTL or CMOS Pulse Input
- Up to 10kHz Count Rate
- NEMA 4X/IP65 RatingKit includes additional mounting adapters.

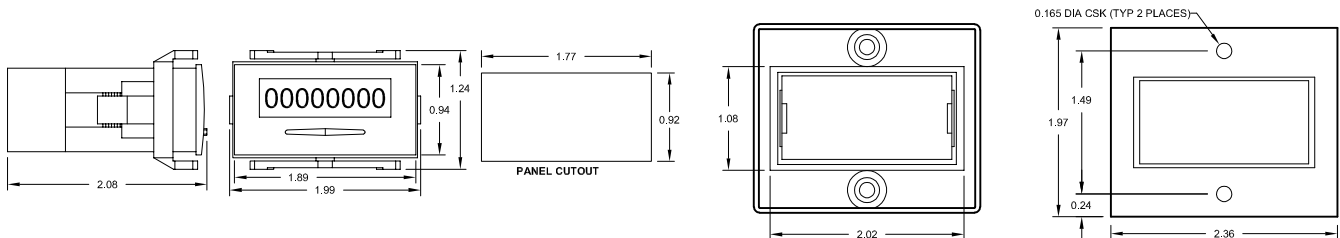


CONNECTION DIAGRAM



Dwg# 0902-00893-B Rev --

CASE DIMENSIONS (in inches)



Counter can be mounted as shown in drawing, or with included adaptor plate as shown in photo, or with adaptor frame - [Consult factory](#) for details.

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HALLTRON MAGNETIC FIELD PROBE

FEATURES

With high accuracy and low noise, the HR series Hall-Effect Probes are designed into end-user applications where a reliable measurement of magnetic field strength is a requirement. When a specified control current is applied to the probe, the listed output reflects a field strength of 10kGauss.



APPLICATIONS

Our HR series probes have been manufactured for 50 years and are used as a key system component in a diverse array of industry projects. Applications include medical devices, cryogenics, and military aerospace, as well as many industry and university research projects with a requirement for measuring a fixed or changing magnetic field.

MODEL SELECTION

| MODEL NUMBER | OUTPUT B=10kG (mV, ±25%) | CONTROL CURRENT I _c (mA) | OHMIC RESIDUAL (mV) | | TEMPERATURE COEFFICIENT (%/°C, typical) | DIMENSIONS (INCHES) | | | LEAD WIRES (AWG) |
|--------------|--------------------------------|-------------------------------------------|-----------------------------|------------------------------|-----------------------------------------------|------------------------|------|-------|------------------------|
| | | | B=0 I _c =10mA | B=0 I _c =100mA | | A | B | C | |
| HR36 | 1225 | 350 | | <±0.15 | -0.10 | 0.375 | 0.50 | 0.035 | 32 |
| HR38 | 200 | 25 | <±0.15 | | -0.25 | 0.375 | 0.63 | 0.035 | 32 |
| HR66 | 500 | 200 | | <±0.50 | -0.20 | 0.250 | 0.20 | 0.028 | 34 |
| HR70 | 340 | 200 | | <±0.50 | -0.10 | 0.250 | 0.20 | 0.028 | 32 |
| HR72 | 700 | 100, max | | <±2.0 | -0.25 | 0.250 | 0.20 | 0.025 | 34 |
| HR77 | 550 | 100 | <±0.20 | | -0.25 | 0.250 | 0.20 | 0.028 | 34 |
| HR88 | 400 | 300 | | <±1.4 | -0.15 | 0.375 | 0.34 | 0.023 | 30 |
| HR120 | 75 | 100 | | <±0.50 | -0.05 | 0.250 | 0.20 | 0.028 | 34 |
| HR125A | 100 | 100 | | <±0.50 | -0.05 | 0.250 | 0.20 | 0.028 | 34 |
| HR170 | 20 | 200 | | <±0.03 | -0.005 | 0.250 | 0.20 | 0.028 | 34 |

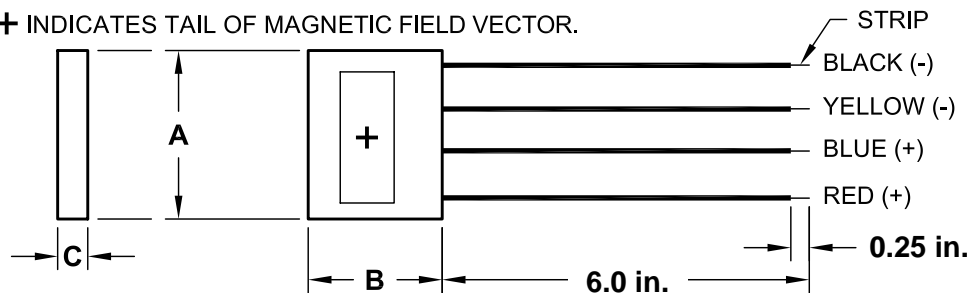
B = magnetic field strength, in Gauss I_c = control current (excitation current)

For full specifications on each model, visit our website at www.ohiosemitronics.com

Other sizes and configurations are available. [Consult factory](#) for details.

DIMENSIONS

† INDICATES TAIL OF MAGNETIC FIELD VECTOR.



| WIRE COLOR | SIGNAL | |
|------------|--------|-----------------|
| Red | + | Control Current |
| Black | - | |
| Blue | + | Output |
| Yellow | - | |

Dwg# 0902-00859-B Rev A (mod.)

See model selection table for length, width, and thickness dimensions.

NOTE: For HR36 and HR38 probes, the wire color order is (top to bottom) Blue, Red, Yellow, Black. For HR88, both input leads are red and both output leads are green.



OSI VOLTAGE LIMITER

MODEL LDB-40

OPEN-SECONDARY PROTECTION FOR CURRENT TRANSFORMERS

DESCRIPTION

The LDB-40 is an open-secondary protection device, intended to be used with industry-standard current transformers. When connected across an open secondary, the device will limit voltage to a safe level of approximately 40V.



5 YEAR WARRANTY



SPECIFICATIONS

INPUT

Current..... 1A or 5A from CT secondary
Frequency Range50 to 400Hz
Leakage Current..... Typical @ 25°C0.05mA

PROTECTION

Breakover Voltage..... 38Vpk, ±5V
Clamping Voltage..... Typical.....1V
Clamping Duration Continuous
Response..... 250µs

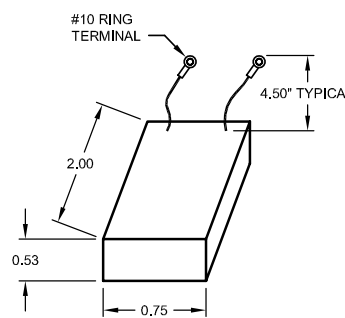
TEMPERATURE

Operating Range..... 25°C to 60°C

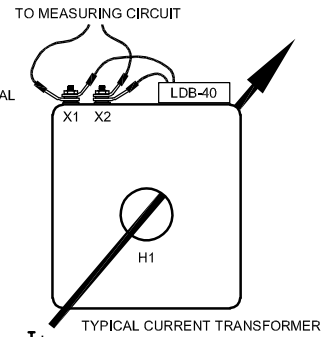
PHYSICAL

Lead Length4.5 in. Typical, 16AWG
Termination #10 Ring Terminals
Weight..... Typical..... 1 oz.

DIMENSIONS & CONNECTIONS



ALL DIMENSIONS IN INCHES.
TOLERANCE IS ±0.03"



I+

NOTE: CONNECTIONS ARE NOT POLARIZED.

Dwg# 0902-00970-B Rev --

CURRENT-TO-VOLTAGE CONVERTER

MODEL LRB-

CONVERTS 0-1mA INPUT TO VOLTAGE OUTPUT

DESCRIPTION

The LRB series converters provide a precision resistor in a ruggedized enclosure. Standard resistor values from 500Ω to 10000Ω are available. Non-standard values from 200Ω to 10000Ω are also available. [Consult factory](#) for non-standard models.

5 YEAR WARRANTY



MODEL SELECTION

| DC OUTPUT REQUIRED | LOAD RESISTANCE (Ω) | MODEL |
|--------------------|---------------------|-----------|
| 0-500mV | 500 | LRB-500 |
| 0-1V | 1000 | LRB-1000 |
| 0-2V | 2000 | LRB-2000 |
| 0-5V | 5000 | LRB-5000 |
| 0-10V | 10000 | LRB-10000 |

Non-standard resistance values available for 200-10000Ω.
Substitute desired load resistance in model number LRB-xxxx

ORDERING INFORMATION

Example: 0-1mA Input, 0-2V Output

LRB-2000

SPECIFICATIONS

INPUT

Current.....0-1mA Dc

OUTPUT

Voltage See Table
Load Resistance See Table

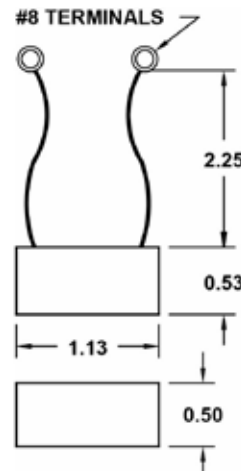
ACCURACY

500-10000Ω models.....±0.1%
200-499Ω models.....±0.2%

TEMPERATURE

Operating Range..... -20°C to +70°C
Effect..... ±0.005%/°C

DIMENSIONS & CONNECTIONS



All dimensions in inches

Dwg# 0902-00891-B

OHIO SEMITRONICS, INC.

4242 REYNOLDS DRIVE * HILLIARD, OHIO * 43026-1264
PHONE: (614) 777-1005 * FAX: (614) 777-4511
WWW.OHIOSEMITRONICS.COM * 1-800-537-6732

OSI VOLTAGE AND CURRENT DISCONNECT SWITCH MODEL U3889

3-PHASE SWITCH ASSEMBLY

DESCRIPTION

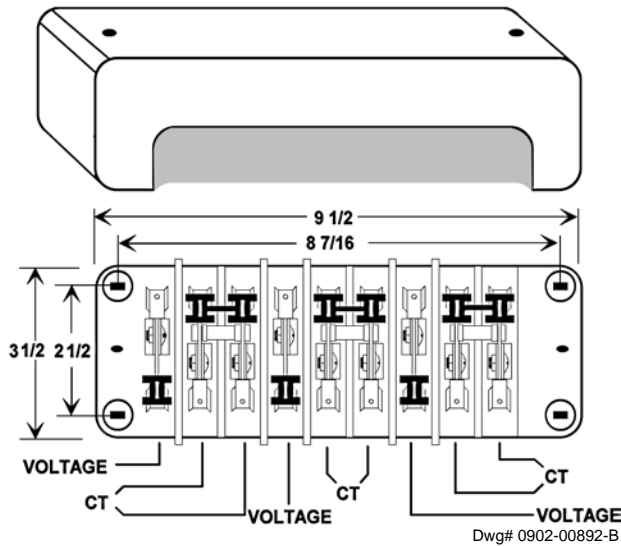
This switch assembly is designed to provide a disconnecting means for your Watt transducer or meter. Not only can this switch assembly provide isolation from line voltages, it also will short out current transformer secondaries to prevent transformer damage which may occur when the circuit is opened under load.

FEATURES

- 3-Phase Switch Assembly
- 30 Amp Rated
- 600Vac
- UL Recognized



DIMENSIONS & CONNECTION DIAGRAM



SWITCH DIMENSIONS 9 1/2" X 3 1/2" X 2 3/4"
COVER DIMENSIONS 10 1/8" X 4 5/8" X 3 1/8"

NOTES

- The bottom side of the switch is connected to the circuits being measured.
- The top side of the switch is connected to the Watt transducer or meter.
- The switch handles are color-coded red for voltage and black for current.
- The black plastic cover is constructed so that all switches must be in the closed position before the cover can be sealed.

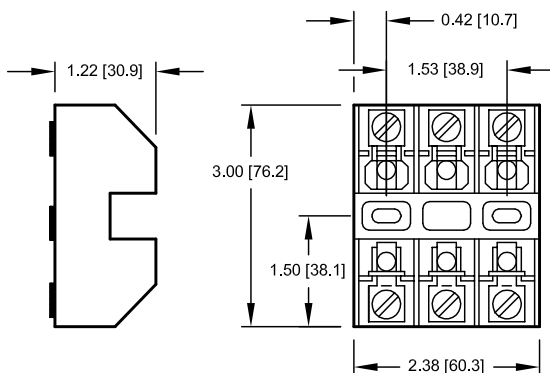
FUSE BLOCK & FUSES

MODEL FH-6-1/4-3

FEATURES

- 600V - 30A Base
- Fuses Included
- 3 each: 600V, 1/4A, Fast Acting

CASE DIMENSIONS



NOTES:
1. ALL DIMENSIONS ARE IN INCHES [MM].
2. MOUNTING SLOTS ARE .22 [5.5] X .17 [4.3].

Dwg# 0902-00895-B Rev --



5 YEAR WARRANTY



SPECIFICATIONS

- Base of high-impact thermoplastic (125°C)
- Flammability Rating 94V-0
- Clip, Copper Alloy, Tin Plated
- Midget Fuses
- UL Recognized - CSA Certified

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ABS: Acrylonitrile Butadiene Styrene - ABS is an easily-machined, tough, low-cost rigid thermoplastic material with high impact strength, ideal for turning, drilling, milling, sawing, die-cutting, and shearing.

Accuracy: The precision of a transducer or meter that is given as a percent of full scale (or of reading) at 25°C. This does not take temperature into consideration. The effect of temperature is a separate statement for OSI devices.

Active Power (or Real Power) (P): True electrical power; power that is actually doing work. It is measured in Watts.

Apparent Power: Power that is apparently available for use in an AC circuit containing a reactive element. It is the product of effective voltage times effective current expressed in Volt-Amperes (VA). It must be multiplied by the power factor to obtain true power available.

Average Value of AC: The average of instantaneous values for 1/2 cycle of alternating current, or the average of the absolute value of alternating current. (0.636 times the peak waveform for a full sine wave rectification)

Burden (input): The load in either Volt-Amperes (VA) or Ohms by a measuring device on the input circuit.

Burden (output): The maximum load in either Volt-Amperes (VA) or Ohms that a current or voltage transformer can maintain for the rated accuracy of the device.

Cal Adjust: All transducers manufactured by Ohio Semitronics, Inc. are calibrated against standards traceable to NIST. For Ohio Semitronics, Inc., the Cal Adjust refers to available calibration span over which the user may adjust the transducer or device.

Compliance (Voltage): Maximum output voltage that a transducer current output can maintain within the specified load resistance range.

Current Transformer (CT or doughnut): Transformer used to step the current up or down. For transducers and instrumentation, a [current transformer](#) steps a high value of current down to 5 or 1 Ampere, which the transducer or instrument can utilize. For any power-measuring device, the polarity markings must be observed. Primary current goes in H1 and out H2. In the secondary winding, usually a toroid, the X1 lead connects to the current "IN" terminal and the X2 lead connects to the current "OUT" terminal of the transducer or instrument.

Delta Circuit: 3-phase, 3-wire system in which the source is connected line-to-line (rather than line-to-neutral).

DIAC (Diode for Alternating Current): Used to protect current transformers against open-secondary conditions.

Dielectric Test: A test in which a voltage higher than the rated voltage is applied for one minute to determine the adequacy of the insulation under normal conditions.

Direct Measurement: Measurement of a waveform in which the output signal replicates the waveform of the input.

Edison System: Often used to describe typical USA home wiring that is a single-phase, three-wire system. This requires a two-element Watt transducer or meter for accurate measurement of active power.

Elements: The number of multipliers in an active or reactive power-measuring device where each multiplier is obtaining the instantaneous product of the measured voltage and current. The number of elements required equals the number of conductors used to connect the load minus one. For example, in the three-phase, three-wire connected load, a two-element device is required.

Excitation Current: This is the current required by OSI Hall-effect devices to produce the rated full-scale output. This applies to both [open-loop Hall-effect current transducers](#) and to [Hall-effect probes](#).

External Sensor: This can be either a [Hall-effect current transducer](#) or transformer that is supplied and calibrated with a [current](#) or [power measuring transducer](#) or instrument.

Full-Scale Counts per Hour: The total number of contact closures or pulses generated by an active or reactive energy measuring device in one hour at the rated full-scale of the device.

Grounded Delta: Obsolete but still being used three-phase transformer system in which the secondaries are connected in a delta with one of the transformer windings center-tapped and grounded. This typically supplies a 3-phase, 3-wire system at 240V and a single-phase, three-wire 120/240V source. This system requires a three-element power transducer or meter.

Hall-Effect Voltage: A voltage that results in a conductor from the deflection of electrons perpendicular to a magnetic field and perpendicular to the direction of current flow.

OSI GLOSSARY (Continued)

Insertion Loss: For DC, it is the power lost due to the resistance of the measuring device (Zero for [Hall-effect transducers](#)). For AC, it is the power lost due to the impedance of the measuring device.

Instrument Power: The voltage supply required to power the transducer or device for operation.

Internal Sensor (Current): The primary current-sensing device is internal to the transducer or meter. Typically these transducers or meters may be connected directly in series with the load. 5A or 1A input models may also be used with [5A or 1A secondary current transformers](#).

Isolation: Voltage level the transducer or meter is expected to withstand without breakdown among the input circuit, output circuit, power supply input, and the case.

KYZ Output: Form C relay contact closure output in which each toggle (or change of state) represents some amount of integrated power or reactive power. (Energy or Reactive energy)

Linearity: The variation between a known standard across the low and high end of the span of a transducer or instrument.

Loop-Powered 4 to 20: Transducers with a loop-powered output require a voltage source in the external circuit. For OSI devices, this voltage may be between 15 and 40Vdc. The device will regulate the current output from 4 to 20mA proportional to the measured value.

Ohmic Residual: [Hall Probes](#) only. (Also referred to as the residual misalignment voltage) The offset voltage that results from the slight misalignment of the voltage pick-up points on the Hall element.

Output Loading: The total resistance of circuits and devices connected to the output of an OSI device.

Output Ripple: An oscillation of small amplitude imposed on top of the signal output of a transducer or instrument. This is expressed as a maximum permitted value as a percentage of the full scale.

Potential (or Voltage) Transformer: A precision shunt-connected transformer used to step voltage from one level to another for the purpose of measurement. These transformer ratios are typically stated as a ratio of the full-scale primary to the full-scale secondary voltage.

Examples are: 69.3:120, 240:120, 600:120, and 4200:120.

Phase Angle: The angular displacement in degrees between the voltage and current in a circuit. (Sinusoidal voltage and current only)

Power Factor: The ratio of active power to apparent power (Watts/VA). For the sine wave case, the power factor is also equal to the cosine of the phase angle displacement between the voltage and current.

Quiescent Current: ([Closed-loop type Hall-effect sensors](#)) Power supply current required with zero signal input.

Reactive Power (Q): The unused power which flows back and forth in an AC system due to electric and magnetic fields caused by inductive and capacitive loads. It is the vector difference between the Active (real) Power and the Apparent Power, and is measured in Volt-Amps Reactive (VAR).

Response Time: In the OSI catalog, this refers to the time required for the output signal to reach 90% (or as otherwise stated) of the full-scale output for a step change in the input from zero to full scale.

RMS (Root Mean Square): The equivalent heating value of an alternating current or voltage, as compared to a direct current or voltage. It is 0.707 times the peak value of the same sine wave.

RMS Measurement: Measurement of a waveform that provides the DC equivalent heating value — the RMS value of the current or voltage.

Self-Powered: A transducer that is parasitic for its instrument power. It takes the required power from the circuit being measured.

Split Core: [Current transformer](#) or [Hall-effect current sensor](#) that can be taken apart and put back together around a current-carrying conductor.

Surge (withstand) Test: Damped oscillatory wave in the megahertz (MHz) range applied to transducer or instrument input circuits to simulate a lightning strike down line. IEEE standards or agency approval standards apply.

OSI GLOSSARY (Cont'd.), COMPLIANCE & CERTIFICATIONS

VA (Volt-Amperes): Unit of apparent power. (See [Apparent Power](#))

VAR (Volt-Amperes-Reactive): Unit of reactive power. (See [Reactive Power](#))

Watt: Unit of active power — measure of the rate at which work is being done. The unit power (Watt) equals 1 Joule per second; 1 Watt equals the power dissipated by a current of 1 Ampere flowing across a resistance of 1 Ohm.

Watt-hour: The unit of energy that is equal to the power of one Watt operating for one hour.

Wye: Three-phase, four-wire system in which the three phase lines reference a common neutral.

Zero: In the OSI catalog, “zero” refers to the adjustment potentiometer that allows one to adjust the output signal to the value representing zero or no input.

TEST CERTIFICATE OPTIONS

A-7003-01 Certificate of Compliance (C of C):

Includes Company name, P.O. #, Date, Model, and Serial number(s).

Document states: “It is hereby certified that the above stated models, in the quantities listed, are in full compliance with all applicable requirements and specifications. Configuration, operation and safety characteristics have been tested and inspected to verify compliance with published specifications and any additional requirements as specified by the referenced purchase order. Accuracy of factory test and measurement equipment is established through regular comparisons traceable to recognized national or international standards such as those maintained by the National Institute of Standards and Technology (NIST).”

Signatures: Q.A. personnel, Group Supervisor, Dept. Mgr.

A-7003-02 C of C with Documented Traceability:

Includes all the information and statements listed on above document, plus traceability to NIST provided via equipment and report identification numbers listed on the certificate.

Signature: Quality Assurance Manager.

A-7003-03 C of C with Traceability and Data Points:

Includes all the information and statements listed on above document, traceability to NIST provided via equipment and report identification numbers listed on the certificate, and 10-point calibration data. The format and price of the data points can vary with the type of equipment and/or customer requirements.

Signature: Quality Assurance Manager.

A-7003-04 C of C - ISO 17025

Includes all the information and statements listed on above document, plus information on the calibration services provider who is contracted to provide ISO/IEC 17025:2005 compliance certification for Ohio Semitronics, Inc. products.

Signature: Quality Assurance Manager.

A-7003-06 C of C - ANSI Z540

Includes: Includes all the information and statements listed on above document, plus information on the calibration services provider who is contracted to provide ISO/IEC 17025:2005 compliance certification for Ohio Semitronics, Inc. products.

Signature: Quality Assurance Manager.

To Order: Include the document number and price on your Ohio Semitronics, Inc. purchase order. Additional C of C options are available. Please [consult Ohio Semitronics](#), Inc. for pricing.

T&C, REACH & WEEE COMPLIANCE & ISO 9000 CERTIFICATION



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For ISO 9000 certificate, refer to our website at: www.ohiosemitronics.com/ISO9001.pdf

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