

DESCRIPTION

Model WMx transducers utilize a microprocessor based design with high speed analog-to-digital converters to provide accurate measurement of true power, apparent power, reactive power, energy, power factor, voltage, current and frequency. Bi-directional capability allows indication of forward (consumed) as well as reverse (generated) power and energy conditions.

Models are available in a variety of configurations with current ranges up to 1000A and nominal voltage ratings up to 600V (suitable for 693VL-L applications). Models are available in 1, 2 and 3 element versions and are suitable for all single-phase and three-phase power systems.

Serial interface is galvanically isolated from the measured inputs and instrument power.



5 YEAR WARRANTY



FEATURES

- DIN rail mountable package - small, lightweight.
- Wide variety of input configurations.
- Measures instantaneous power (real and reactive) as well as energy.
- Indication of forward/reverse power and leading/lagging VARs.
- Universal power supply.
- MODBUS RTU serial communications using RS232, RS422, or RS485.

APPLICATIONS

- Process control.
- Variable frequency drives
- Energy management systems.
- Sub-metering.
- 40th harmonic measurement per DOE requirement.

SPECIFICATIONS

INPUT

Voltage Nominal Select from table
 Range With accuracy 10% to 125% of Nominal
 Overrange.. Without damage 150% of Nominal

Current Nominal Select from table
 Range With accuracy ..5% to 110% of Nominal
 Overrange.. Without damage200% Nominal

Power Factor.. With accuracy 0.5Lead - 1 - 0.5Lag
Frequency
 Range With accuracy .. WMx 5,6..... 48 - 62Hz
 WM7 10 - 500Hz
 WM9 . 48-62Hz, 40th Har.

Burden
 Voltage..... All models ≤0.5mA/phase
 Current..... All models ≤0.25VA/phase

DIELECTRIC TEST

Input to Output/Inst. Pwr./Case 3000V, 60Hz, 1min.
 Inst. Pwr. to Output/Case 3000V, 60Hz, 1min.
 Output to Case..... 500V, 60Hz, 1min.

ACCURACY (setpoint/linearity/repeatability at 25°C)

WM5 models ±0.5% F.S.
 WM6 models.. Watts ±0.2% Rdg./PF, ±0.04% F.S.
 VARs..... ±0.2% Rdg./sinθ, ±0.04% F.S.
 All other measurements .. ±0.25% F.S.
 WM7 models ±0.25% F.S.
 WM9 models Watts..... ±0.2% Rdg./PF, ±0.04% F.S.
 All other measurements... ±0.25% F.S.

TEMPERATURE

Range Operating..... -10 to 50°C
 Storage -25 to 75°C
 Effect ±0.005%/°C, ±0.05% F.S.

OUTPUT - MODBUS RTU Serial Measurements

Digital Measurements:

Totals: Watts, VA, VARs, and Power Factor
 Per channel: Volts, Current, Watts, VARs, VA and Power Factor

In addition: Frequency: Consumed and/or Generated energy meter.
 (Refer to user manual 7004-00108-A for MODBUS Register mapping.)

Polarity Watt Pos(+) = Fwd..... Neg(-) = Rev
 VAR Pos(+) = Lead Neg(-) = Lag
 Ripple Input .. frequency >48Hz..... <±0.5% F.S.

Energy Registers

Scaling Pulse weight is 0.0001, 0.001, 0.01, 0.1 or 1kWh/kVARh as required to provide best resolution while maintaining pulse rate between 1000 and 10,000 pulses per hour at F.S. input.

INSTRUMENT POWER

Standard universal 85-265V, 47-63Hz, ≤10VA
 115-300Vdc, ≤10VA

PHYSICAL

Humidity Operating Any non-condensing
 Weight ≤1lb.
 Enclosure ..Mounting DIN rail, 35mm
 (may be panel mounted using 19754 adaptors)
 Material ABS, UL94HB
 Connections Screw terminals

MODEL SELECTION

W **AA** - **B** **C** - **DDD** (**D***) - **E** - **G**

(Replace letters in boxes with selected options.)

TRANSDUCER TYPE		SYSTEM CONFIGURATION		INPUT VOLTAGE - NOMINAL				
AA	Features	B	Phase (no. of elements)	C	1Ø 2W (Vac)	3Ø 3W (Vac)	3Ø 4W (Vac)	1Ø 3W (Vac)
M5	Standard Accuracy	1	1Ø2W (1 ele.)	1	120VL-N	120VL-L	69VL-N/120VL-L	120VL-N/240VL-L
M6	High accuracy	2	3Ø3W (2 ele.)	2	240VL-N	240VL-L	120VL-N/208VL-L	
M7	Variable frequency	3	3Ø4W (3 ele.)	3	480VL-N	480VL-L	277VL-N/480VL-L	
M9	40th Harmonic of 60Hz	4	1Ø3W (2 ele.)	4			**346VL-N/600VL-L	

**Suitable for 400VL-N/693L-L

INPUT CURRENT - NOMINAL				SERIAL COMMUNICATION FORMAT		CONNECTOR	
Direct Input (no CTs)		With External CTs		E	Type	G	Type
DDD	Aac	DDD(D*)	Aac				
001	1A	100(S)	100A	M2	MODBUS RS422 (4-wire)	R	RJ-45 connector (std.)
005	5A	200(S)	200A	M3	MODBUS RS232		
010	10A	300(S)	300A	M5	MODBUS RS485 (2-wire)	B	Screw terminals
		400(S)	400A				
		500(S)	500A				
		600(S)	600A				
		800(S)	800A				
		1000(S)	1000A				

NOTE: Models WM7 are not available with direct input or with split-core CTs. Solid-core external CTs only.

ORDERING INFORMATION

EXAMPLE: 3Ø 4W, 277VL-N/480VL-L, 200A with solid-core CTs, ±0.5%F.S. accuracy with Modbus RS-485 and RJ-45 connector.

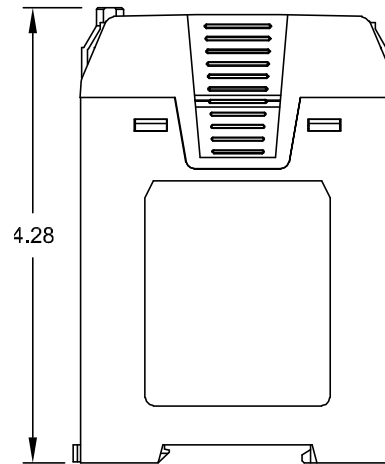
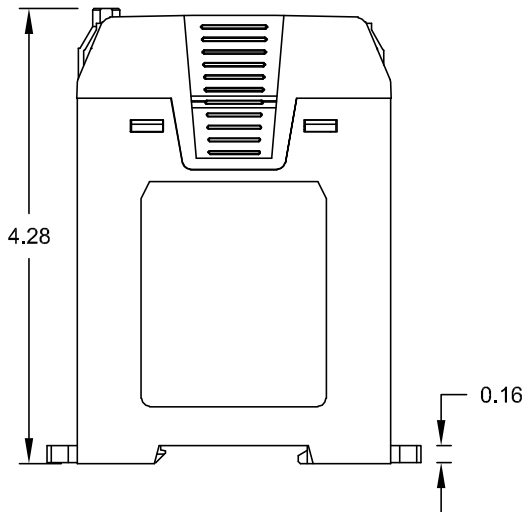
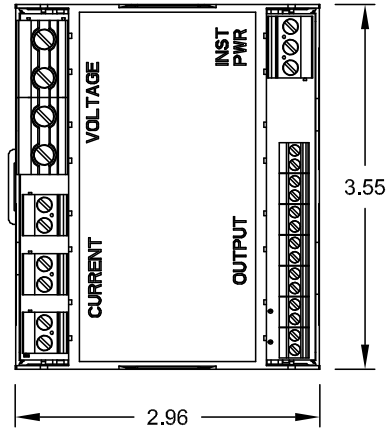
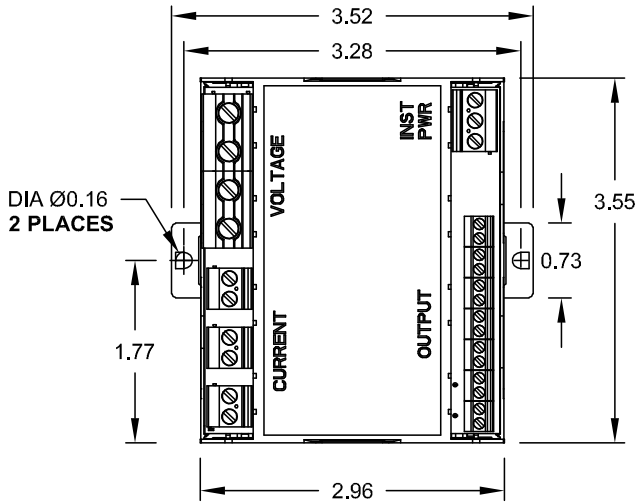
Pulse counter scaling: 0.1kWh per pulse

Model number is: **WM5-33-200-M5-R**

DIMENSIONS

With Panel Mount Adapters (OSI P/N 19754)

DIN Rail Mounting (35mm)

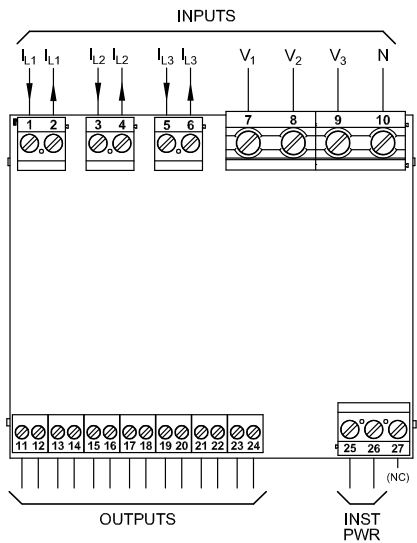


Dwg# 0902-01016-B Rev-D

DIMENSIONS FOR ALL MODELS
 All dimensions in inches. Tolerance - 0.00±0.03
 (unless otherwise specified)

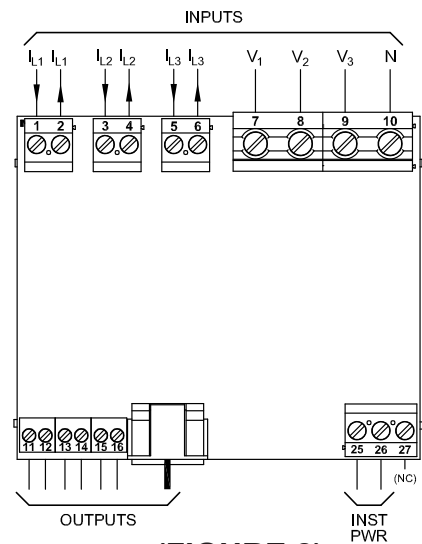
Dwg# 0902-01016-B Rev-D

TERMINAL IDENTIFICATION



(FIGURE 1)

Terminals are identified using the tables below.



(FIGURE 2)

Dwg# 0902-01016-B Rev-D

Parameter "G" = B (MODBus RTU w/Term. Blocks) (FIGURE 1)

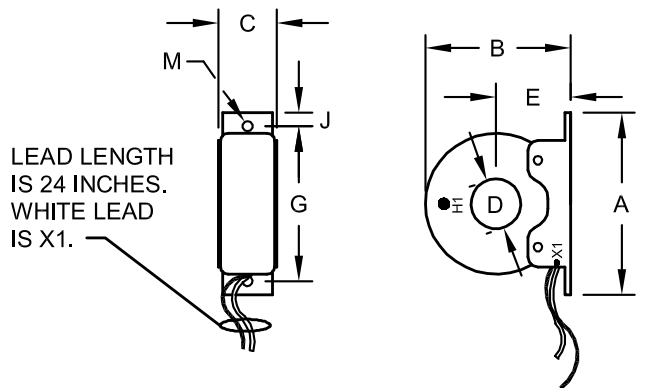
Mode	TB11	TB12	TB13	TB14	TB15	TB16	TB17	TB18	TB19	TB20	TB21	TB22	TB23	TB24
RS422	(N/C)	COM	(N/C)	(N/C)	(N/C)	Tx+	Tx-	Rx+	Rx-	(N/C)	(N/C)	5V	(N/C)	(N/C)
RS485	(N/C)	COM	(N/C)	(N/C)	(N/C)	Tx+/Rx+	Tx-/Rx-	Tx+/Rx+	Tx-/Rx-	(N/C)	(N/C)	5V	(N/C)	(N/C)
RS232	(N/C)	COM	(N/C)	(N/C)	(N/C)	(N/C)	(N/C)	Rx	Tx	(N/C)	(N/C)	5V	(N/C)	(N/C)

Parameter "G" = R (MODBus RTU w /RJ45) (FIGURE 2)

Mode	RJ45								Term. Blocks			
	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	TB 11	TB 12	TB 13	TB 14-16
RS422	Rx-	Rx+	(N/C)	Tx+	Tx-	(N/C)	5V	COM	(N/C)	COM	5V	(N/C)
RS485	Tx-/Rx-	Tx+/Rx+	(N/C)	Tx+/Rx+	Tx-/Rx-	(N/C)	5V	COM	(N/C)	COM	5V	(N/C)
RS232	Tx	Rx	(N/C)	(N/C)	(N/C)	(N/C)	(N/C)	COM	(N/C)	COM	5V	(N/C)

DIMENSIONS

WM5-xx Solid-Core CTs

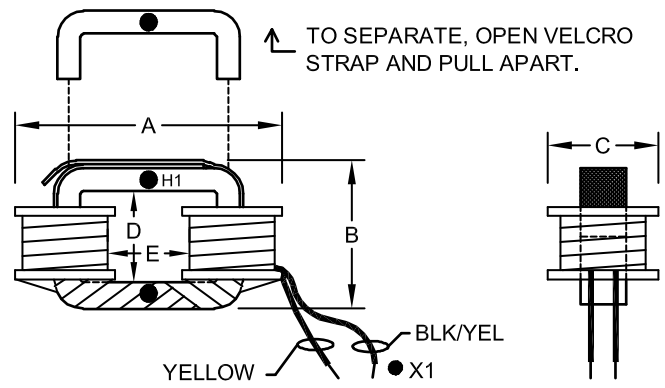


Dwg# 0902-00872-B Rev--

SENSOR SIZE	DIMENSIONS (inches)								WT. (lbs.)
	A	B	C	D	E	G	J	M	
100A-300A	4.50	3.70	1.25	1.25	1.94	3.88	0.34	0.27 X 0.44	1.43
400A-800A	6.50	4.70	1.25	2.50	2.46	5.75	0.39	0.28	1.61
1000A	6.50	4.70	1.25	3.00	2.46	5.75	0.39	0.28	1.10

LEAD LENGTHS24in.,14AWG, White (X1) and Black

WM5,6-xx Split-Core CTs



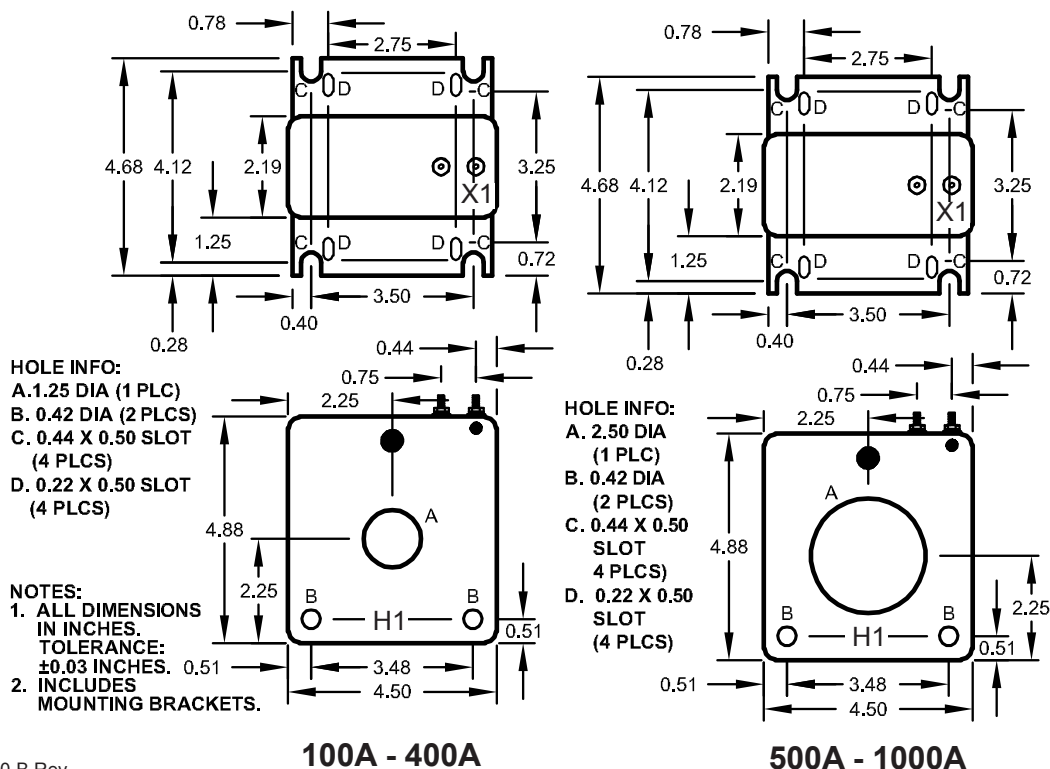
Dwg# 0902-00878-B Rev--

SENSOR SIZE	DIMENSIONS (inches)					WT. (lbs.)
	A	B	C	D	E	
100A-800A	3.85	3.80	1.30	2.40	1.25	0.8
1000A	5.50	4.90	1.60	3.15	3.20	1.5

LEAD LENGTHS 72in.,16AWG, Blk/Yel (X1) and Yellow

WM6-xx Solid-Core CTs

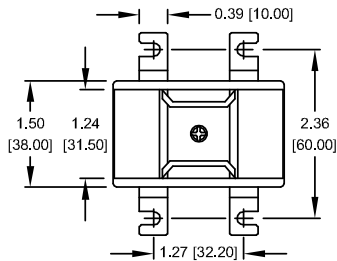
Recommended Lead Lengths
72in., 16AWG, Twisted Pair



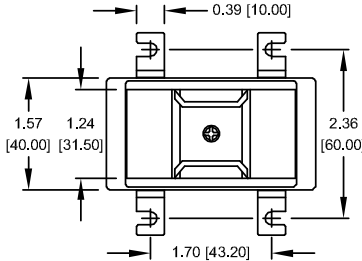
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DIMENSIONS

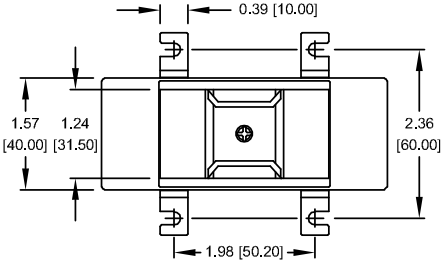
WM7-xx, WM9xx Solid-Core CTs



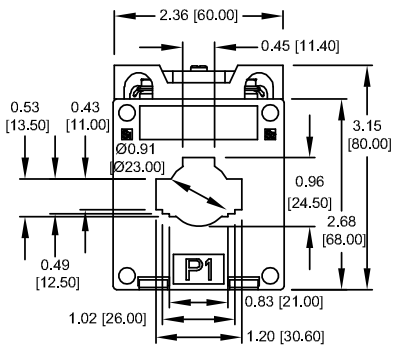
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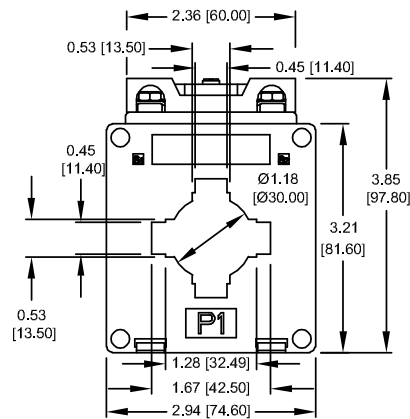
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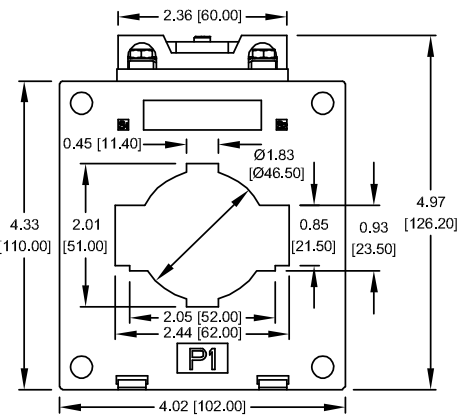
SIZE 3



100A - 300A

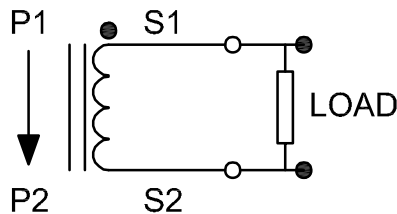


400A - 600A



800A - 1000A

Polarity Markings



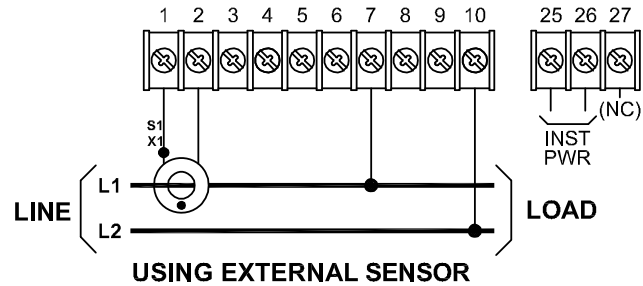
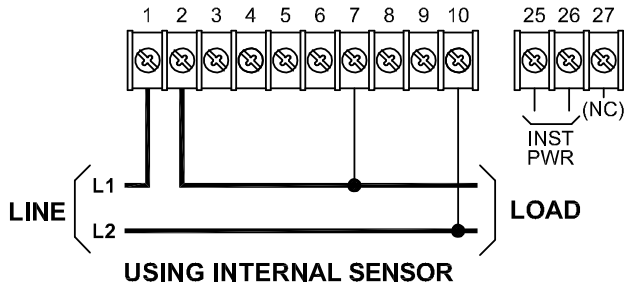
Recommended Lead Lengths

72in., 16AWG, Twisted Pair

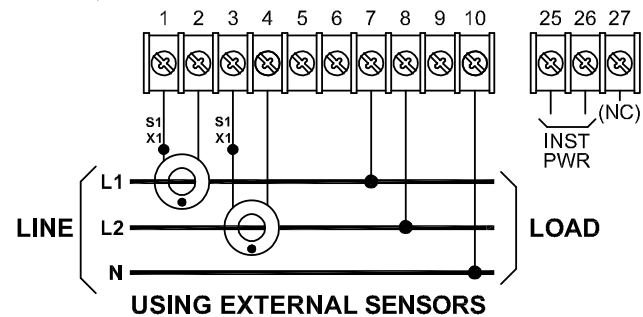
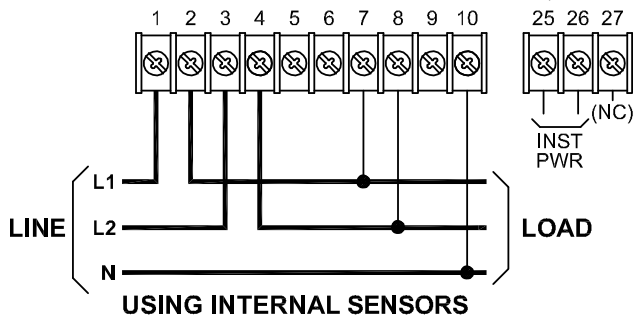
Dwg# 0902-01025-B Rev-A

CONNECTIONS

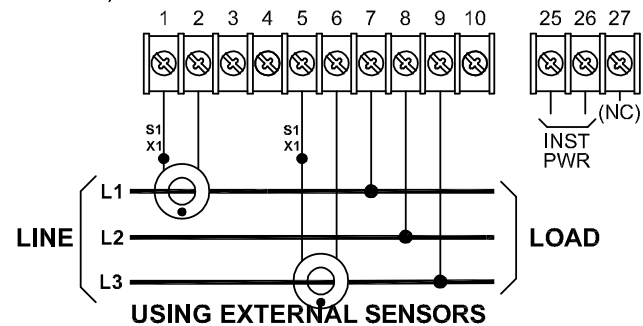
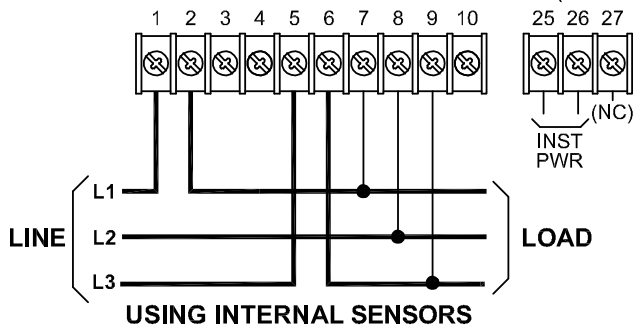
**SINGLE-PHASE, TWO-WIRE CONNECTIONS
(ONE ELEMENT)**



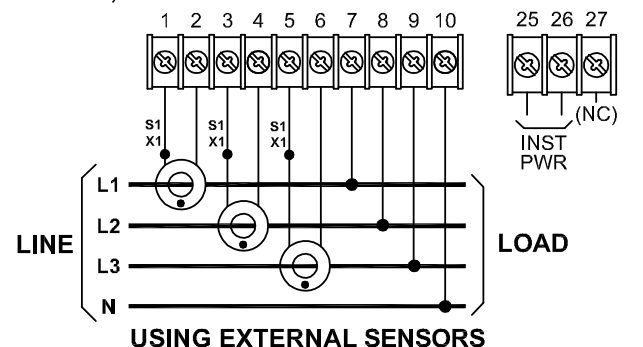
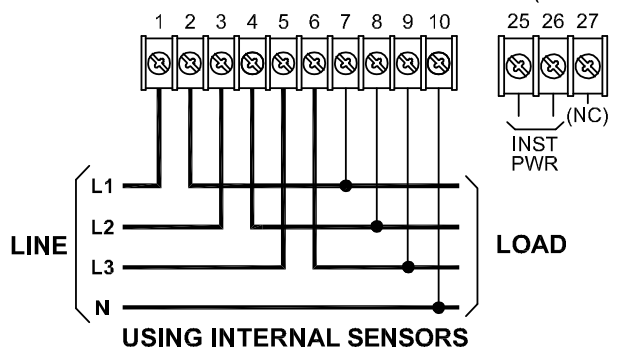
**SINGLE-PHASE, THREE-WIRE EDISON CONNECTIONS
(TWO ELEMENT)**



**THREE-PHASE, THREE-WIRE CONNECTIONS
(TWO ELEMENT)**



**THREE-PHASE, FOUR-WIRE CONNECTIONS
(THREE ELEMENT)**



Dwg# 0902-01016-B Rev-D