

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

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. Consult factory or review spec sheet on our website.

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OSI AC WATT/POWER FACTOR/VA TRANSDUCER MODEL PC20-

THREE-PHASE, THREE-WIRE MODELS (TWO-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	200	118A	118B	118C	118D	118CX5	118X5	118E
	0-5	1000	004A	004B	004C	004D	004CX5	004X5	004E
	0-10	2000	013A	013B	013C	013D	013CX5	013X5	013E
	0-20	4000	112A	112B	112C	112D	112CX5	112X5	112E
0-300 Nominal 230	0-1	400	119A	119B	119C	119D	119CX5	119X5	119E
	0-5	2000	005A	005B	005C	005D	005CX5	005X5	005E
	0-10	4000	014A	014B	014C	014D	014CX5	014X5	014E
	0-20	8000	113A	113B	113C	113D	113CX5	113X5	113E
0-600 Nominal 480	0-1	800	120A	120B	120C	120D	120CX5	120X5	120E
	0-5	4000	006A	006B	006C	006D	006CX5	006X5	006E
	0-10	8000	015A	015B	015C	015D	015CX5	015X5	015E
	0-20	16000	114A	114B	114C	114D	114CX5	114X5	114E

THREE-PHASE, FOUR-WIRE MODELS (THREE-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 L-N Nominal 115	0-1	300	124A	124B	124C	124D	124CX5	124X5	124E
	0-5	1500	007A	007B	007C	007D	007CX5	007X5	007E
	0-10	3000	016A	016B	016C	016D	016CX5	016X5	016E
	0-20	6000	115A	115B	115C	115D	115CX5	115X5	115E
0-300 L-N Nominal 277	0-1	600	125A	125B	125C	125D	125CX5	125X5	125E
	0-5	3000	008A	008B	008C	008D	008CX5	008X5	008E
	0-10	6000	017A	017B	017C	017D	017CX5	017X5	017E
	0-20	12000	116A	116B	116C	116D	116CX5	116X5	116E

SPECIFICATIONS

INPUT

Voltage..... See Tables
 Current..... See Tables
 Frequency Range 50 to 400Hz
 Power Factor..... Any
 Response (to 90%) 1ms
 Burden
 Voltage..... 0.1VA/phase
 Current..... 0.28VA/phase
 Over-range (w/o damage)
 Voltage, continuous 150V Range 175V
 300V Range 350V
 600V Range 600V
 Current, continuous 1A, 5A, 10A Range..... 2 X Rated
 20A Range..... 20A

DIELECTRIC TEST

Input/Output/Case..... 1500Vac

INSTRUMENT POWER

"A", "C", "CX5" models..... not required
 "B", "D", "X5", "E" models..... 85-135Vac, 50-400Hz, 10VA
 "-22" Option..... 230Vac ±15%, 50/60Hz

OUTPUTS

Power Factor..... F.S. at unity, Zero at lead or lag zero
 Loading
 "A", "B" models(0-1mAdc)..... 0-10kΩ
 "E" models(4-20mAdc)..... 0-500Ω
 All other models...(0-5, 0-10Vdc)..... 2kΩ min.
 (All except "E" model outputs are bidirectional.)
 Response Time.....(to 90%)..... 250ms

ACCURACY

Includes effects of linearity, setpoint, repeatability and power factor at nominal voltage input @ ±10%.
 W/VA..... 50-60Hz ±0.25% F.S.
 Power Factor 10-100%VA, 50/60Hz..... ±0.005 PF
 W/VA..... 50-400Hz ±0.5% F.S.
 Power Factor 10%-100%VA, 50-400Hz ±0.01 PF
 Ripple..... <1%F.S.

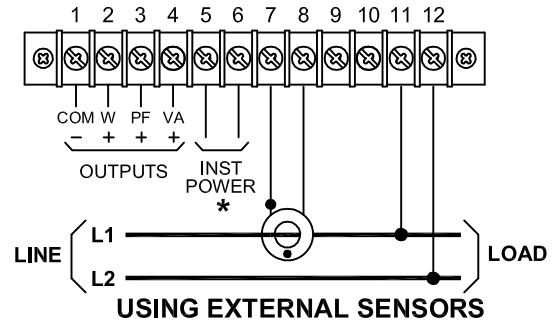
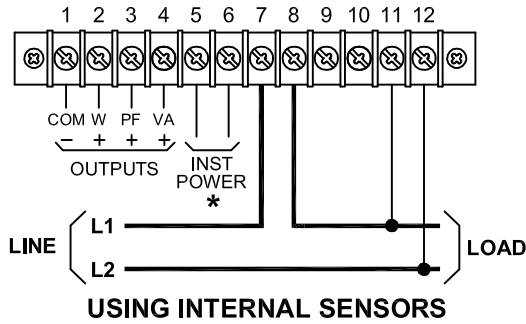
TEMPERATURE

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

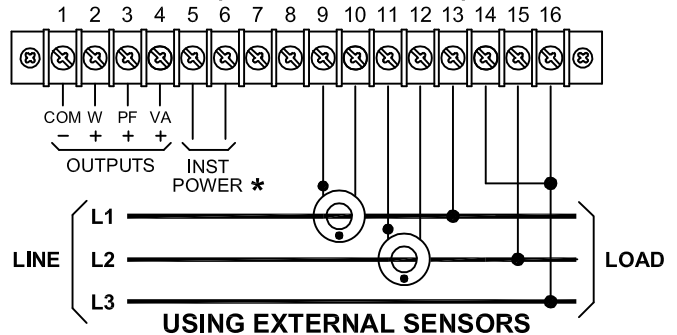
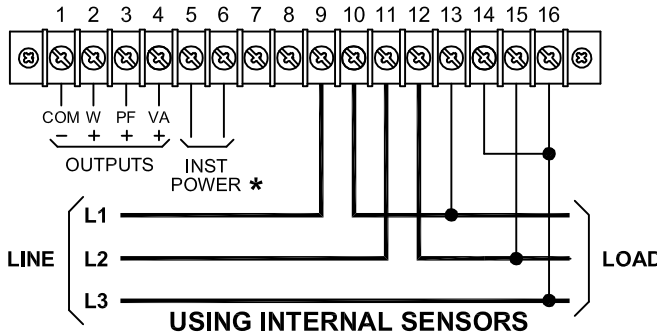
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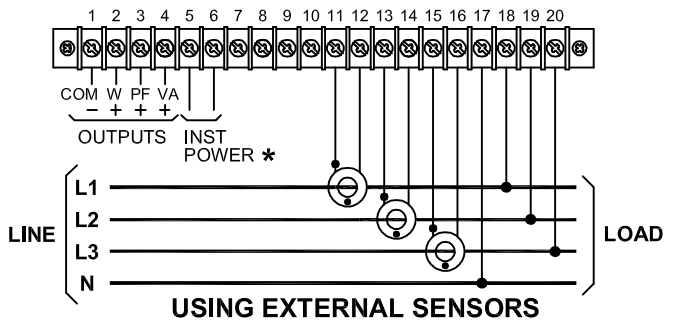
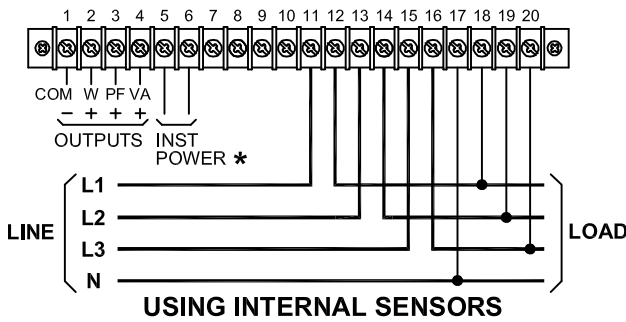
SINGLE-PHASE CONNECTIONS (ONE-ELEMENT)



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

