

Description

Moore Industries' AC Power Transducers continuously track the amount of power being consumed by an electric device or a system.

Available models accept an AC input from a "load" device such as a motor, pump or heater. They provide a proportional milliamp output for determining equipment power use and operating efficiency. They can also be used to trip automatic power control equipment to initiate energy conservation measures.

Moore Industries' AC power transducers are available in 1, 1-1/2, 2, 2-1/2, and 3 element versions. They may be either self- or externally-powered.

Easy Installation and Maintenance—All Moore Industries power transducers are enclosed in rugged and rustproof extruded aluminum housings that provide superior heat dissipation. Keyhole cutout screw holes allow installation and removal simply by loosening the mounting screws.

All circuitry is attached to the unit's front panel to allow quick access to the circuitry without removing the entire housing. The circuit boards slide smoothly out of the housing on PC board guides that run the entire length inside the unit's housing.



Unique keyhole-slotted mounting flanges allow these power monitors to be removed and reinstalled by loosening the mounting screws.

Features

- **High accuracy.** $\pm 0.2\%$ of reading accuracy makes the PVT, PWT and PWV ideal for applications where precision is demanded.
- **Measure true RMS power.** Moore Industries AC power transducers measure the true RMS (Root Mean Square) of voltage and current for exceptionally accurate computation of power in watts and VARs.
- **No Zero adjustment required.** The zero adjustment never needs readjustment from its initial factory setting.
- **Complete isolation.** Full input/output isolation eliminates signal inaccuracies caused by ground loops.

Table 1. Available AC Power Transducer Models

Model	Function
PWT Watt Transducer	Monitors RMS (Root Mean Square) active power to accurately measure watts
PVT VAR Transducer	Measures RMS reactive power
PWV Watt/VAR Transducer	Combined-function unit calculates both RMS active power and RMS reactive power

Certifications

 Underwriters Laboratories: General Location

PVT, PWT & PWV

AC Power Transducers

Specifications

<p>Performance Accuracy@25°C, ± -2°C: Watt: 0.19% of reading/ Cos ϕ ±0.01% full scale VAR: 0.19% of reading/Sin ϕ ±0.01% full scale Operating Frequency: 60Hz standard Output Ripple (peak): <0.5% of full scale Burden: Input Current: 0.1VA Input Voltage: 0.02VA Auxiliary Power Voltage: PVT, 5.0VA; PWT, 4.0VA; PWV, 6.0VA (add this value to the input voltage value to determine burden of self-powered units)</p>	<p>Performance (continued) Dielectric Test: 2000Vrms for one minute Response Time: To 90%, <100ms; To 99%, <200ms Overload Capability: Voltage Input: 1.5 times the nominal input value Current Input: See Table 2 Surge Withstand Capability: ANSI- C37.90a-1974 (IEEE 472) BEAMA 219, SPECIAL 5kV, 0.6kV B.I.L. (basic insulation level)</p>	<p>Ambient Temperature Range: -20°C to +70°C (-4°F to +158°F) Effect: 0.005%/°C (±0.003%/°F) typical Adjustments Type: External multiturn potentiometers Span: ±10% of rated output Zero: ±2% of rated output</p>
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Ordering Specifications

Unit	Input	Output	Configuration	Options	Housings
PVT VAR Transducer PWT Watt Transducer PWV Watt/VAR Transducer	Specify both Voltage Input and Current Input from Table 3; (See Table 4 for factory calibration information; see the -SPC option if special calibration is required)	(-1)-1MA (0, ±1mA) into 15,000 ohms, where 0mA = 0% (-10)-10MA (0, ±10mA) into 1500 ohms, where 0mA = 0% 4-20MA into 750 ohms; uni-directional, where 4mA = 0% (PWV Watt output is 4-20mA. VAR output is 4-12-20mA, where 12mA = 0%) 4-20MAB (12mA, ±8mA) into 750 ohms, where 12mA = 0 Watts 1-5V unidirectional, where 1V = 0 Watts (-5)-5V (0, ±5V)	See Table 5	-.09 Provides ±0.09% of reading, ±0.02% of full scale accuracy -50H 50Hz input/operating frequency -400H 400Hz input/operating frequency -120AC 85-150Vac auxiliary power -240AC 170-300Vac auxiliary power -CAL Provides adjustment of output signal from 25% to 125% of full scale -CG Case ground terminal -Q Replaces VAR output with Q output, Q = Elcos (ϕ -60) -SPC Special calibration to values other than listed in Table 4	SM Surface-mount housing DM DIN-rail mount housing

When ordering, specify: Unit / Input (nominal input voltage, full scale input current) / Output / Configuration / Options [Housing]

Model number example: PWT / 120AC, 5A / 4-20MA / 2E / -120AC [SM]

Ordering Information

To order, use the bold face data from the Ordering Specifications table. For assistance, refer to the model number example located at the bottom of the table.

Table 2. Current Input Overload Capability

Input	Overload Continuous	Overload 10 Sec/Hour	Overload 1 Sec/Hour
0-1A	3A	6A	100A
0-2A	6A	12A	150A
0-5A	15A	30A	250A
0-10A	35A	75A	300A
0-25A	35A	75A	300A

Table 3. Input Selection

Voltage Input (nominal)*			Current Input (nominal)		
Ordering Code	Range with Self-Power	Range with Auxiliary Power	Ordering Code	Nominal Range	Maximum Range
69AC	50-80Vac	0-90Vac	1A	0-1 amp	0-2 amps
120AC	85-135Vac	0-150Vac	2A	0-2 amps	0-5 amps
240AC	170-300Vac	0-300Vac	5A	0-5 amps	0-10 amps
460AC	325-515Vac	0-575Vac	10A	0-10 amps	0-20 amps
600AC	425-675Vac	0-750Vac	25A	0-25 amps	0-35 amps

*Specify line to neutral voltage on 3-phase, 4-wire circuits (e.g., specify 240AC for a 480Y277 circuit)

Table 4. Standard Calibration

Watts or VARs Per Element*:					
Voltage Input	Current Input				
	1A	2A	5A	10A	25A
69AC	65	130	325	650	1625
120AC	100	200	500	1000	2500
240AC	200	400	1000	2000	5000
460AC	400	800	2000	4000	10000
600AC	500	1000	2500	5000	12500

*A unit with 120AC, 5A indicated in the input field of the model number will be calibrated to 500 watts or VARs per element. (i.e., with a 1-1/2 or 2 element unit 20mA will represent 1000 watts or VARs)

Table 5. Configuration Selection

Ordering Code	Application	Circuit Type (number of elements)	Restrictions	
			Voltage	Load
1E	1 Element	1-Phase, 2-Wire	None	None
1.5E*	1-1/2 Element	3-Phase, 3-Wire	Balanced	Balanced
2E	2 Element	3-Phase, 3-Wire	None	None
2.5E*	2-1/2 Element	3-Phase, 4-Wire	Balanced	None
3E	3 Element	3-Phase, 4-Wire	None	None

*1.5 element units are calibrated as 2 element units; 2.5 element units are calibrated as 3 element.

PVT, PWT & PWV

AC Power Transducers

Figure 1. The PWT's high accuracy allows power usage to be used as an indicator of whether a motor is operating efficiently.

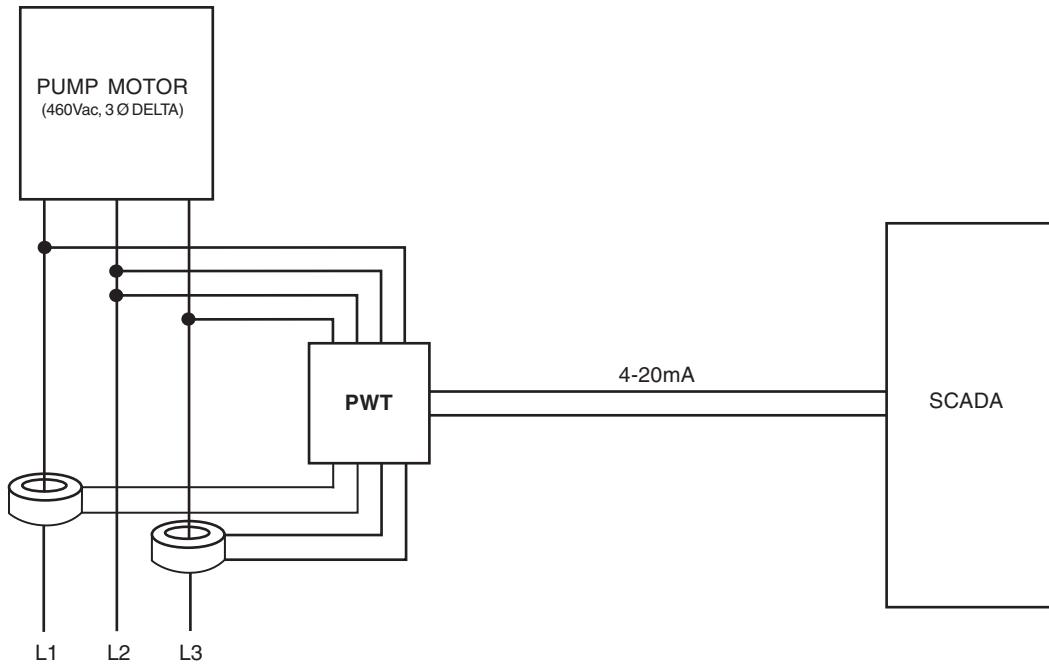
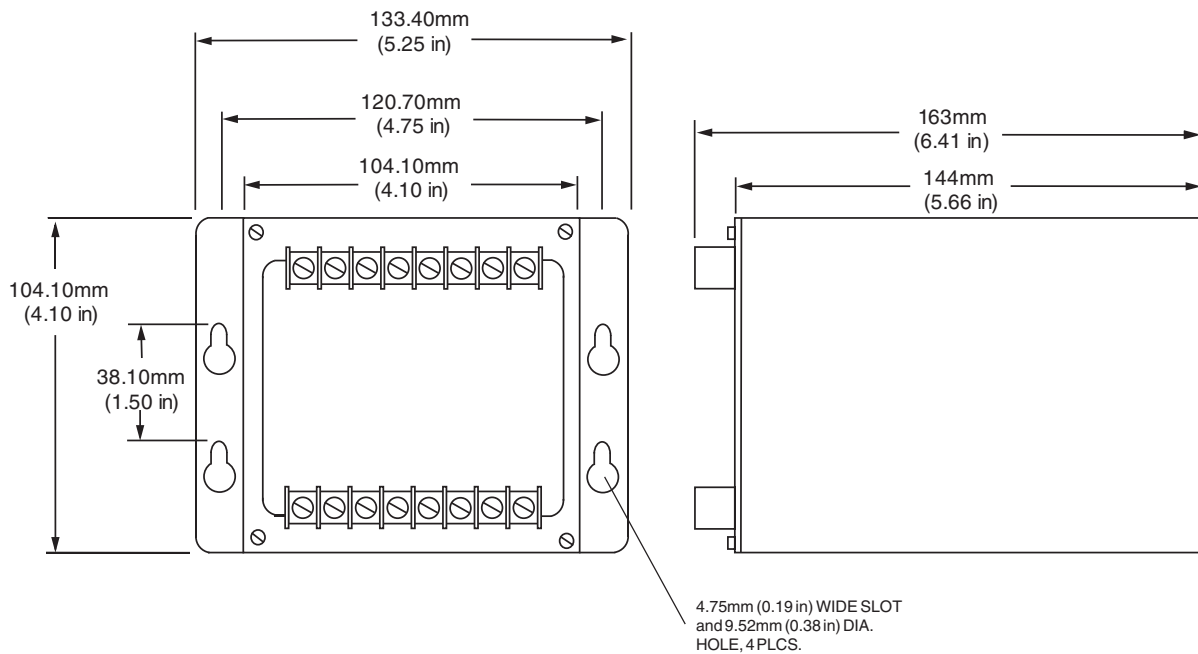


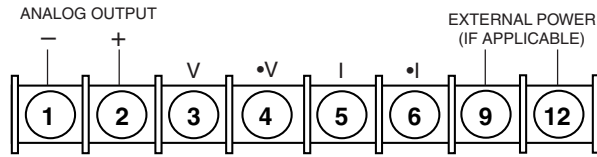
Figure 2. PVT, PWT and PWV Installation Dimensions



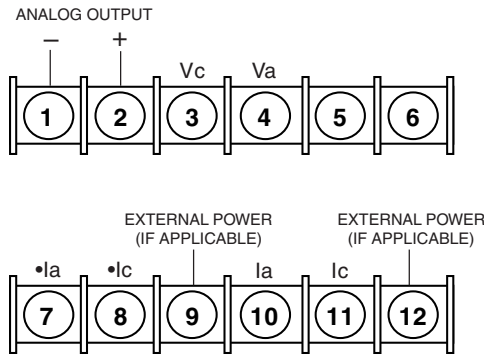
PVT, PWT & PWV

AC Power Transducers

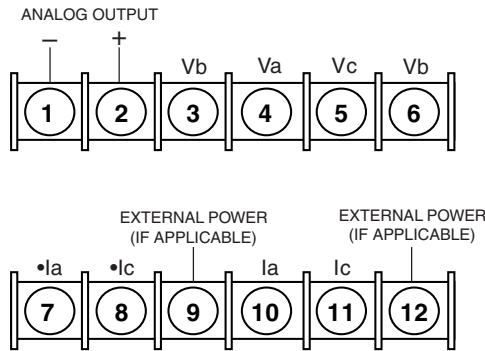
Figure 3. PVT and PWT Terminal Designations



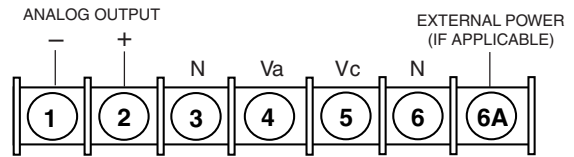
1 Element Configuration



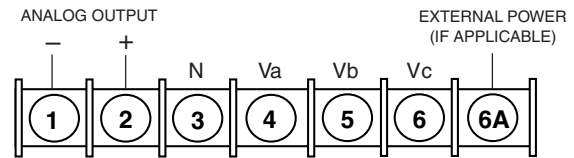
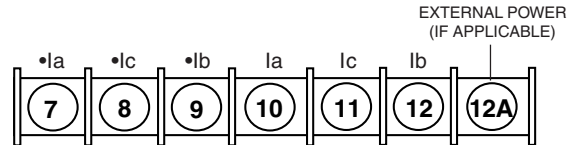
1.5 Element Configuration



2 Element Configuration



2.5 Element Configuration



3 Element Configuration

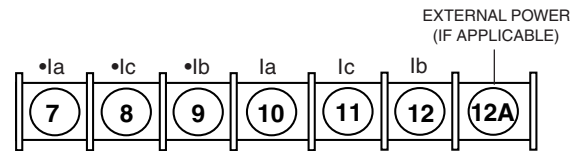


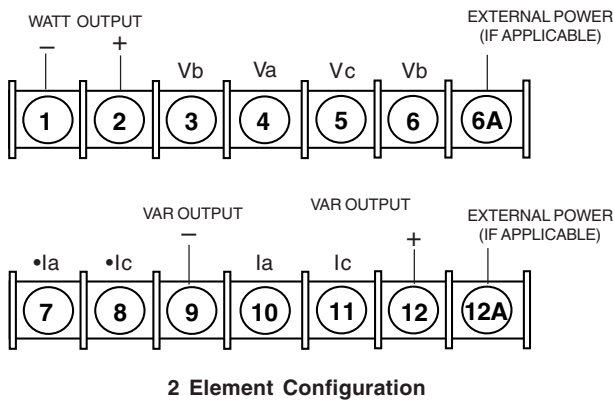
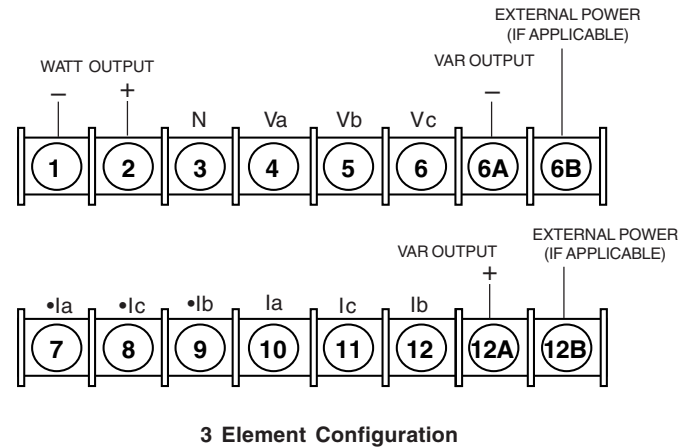
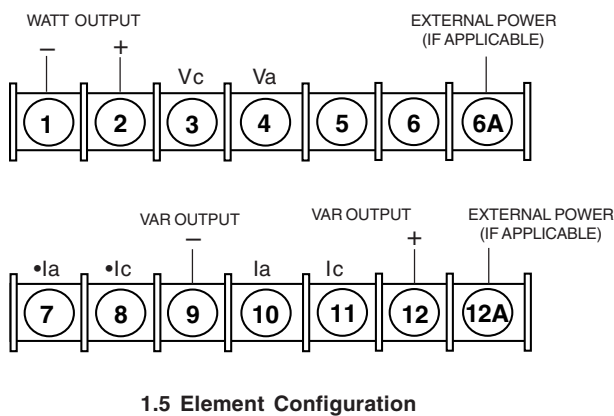
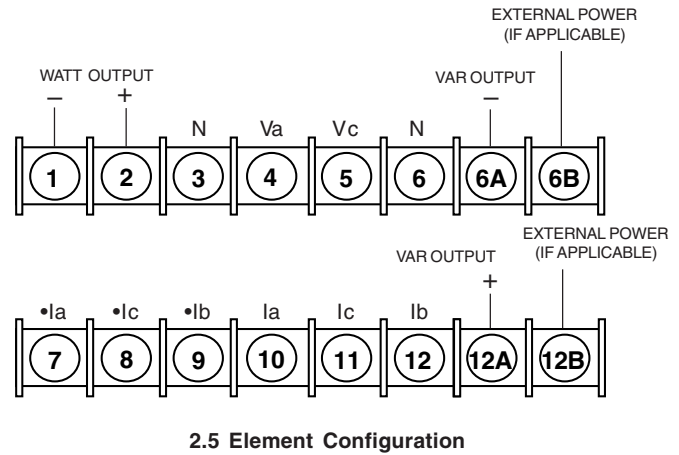
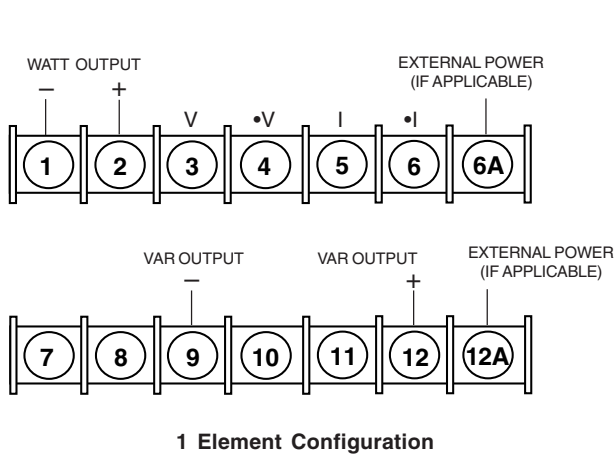
Table 6. Key to Terminal Designation Abbreviations

Key	Definition
Va	Voltage input, phase A
Vb	Voltage input, phase B
Vc	Voltage input, phase C
N	Neutral
Ia	Current input, phase A
Ib	Current input, phase B
Ic	Current input, phase C
•	Transformer polarity
V	Voltage input
I	Current input

PVT, PWT & PWV

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Figure 4. PWV Terminal Designations



The Interface Solution Experts • www.miinet.com

United States • info@miinet.com
 Tel: (818) 894-7111 • FAX: (818) 891-2816
 Australia • sales@mooreind.com.au
 Tel: (02) 8536-7200 • FAX: (02) 9525-7296

Belgium • info@mooreind.be
 Tel: 03/448.10.18 • FAX: 03/440.17.97
 The Netherlands • sales@mooreind.nl
 Tel: (0)344-617971 • FAX: (0)344-615920

China • sales@mooreind.sh.cn
 Tel: 86-21-62481120 • FAX: 86-21-62490635
 United Kingdom • sales@mooreind.com
 Tel: 01293 514488 • FAX: 01293 536852