

# TRANSDUCERS

## TRANSDUCER FOR ACTIVE OR REACTIVE POWER

- Unipolar output characteristic
- Bipolar output characteristic
- Live zero output
- **Complies with IEC 60688**

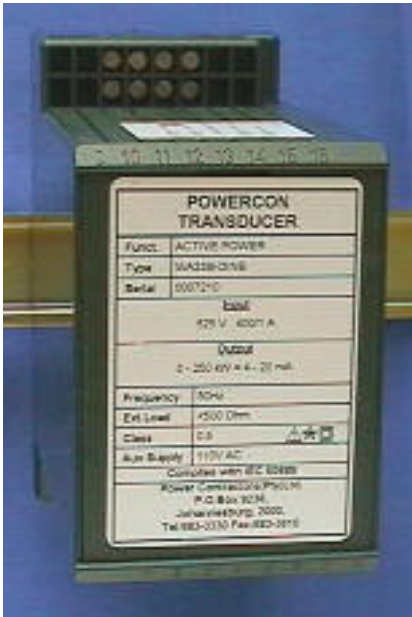


Figure 1 - DIN B Enclosure

The transducer converts active or reactive power in an AC system into a load independent DC current or voltage signal which may be used to drive a number of remotely installed instruments.

Depending on the application, versions of this transducer are available for single phase and three phase (3 or 4 wire, balanced or unbalanced loads) measurement.

The multiplication of voltage and current signals may be either by means of analogue multipliers or by TDM methods, depending on the harmonic content of the signals.

## MODE OF OPERATION

Refer to Figure 2.

The voltage and current signals are transformed in (1) and (2) and multiplied in (6). In transducers incorporating more than one multiplier, the various power signals are summated in (7). The output amplifier (8) provides either a load independent current signal (with maximum burden) or a load independent voltage signal (with minimum burden). The auxiliary voltage is transformed in (4), rectified and smoothed in (5) and is used to power the multiplier(s), summator, output amplifier and to provide offset voltage for live zero versions.

The 90° phase shift circuit (3) is required for single phase reactive power measurement.

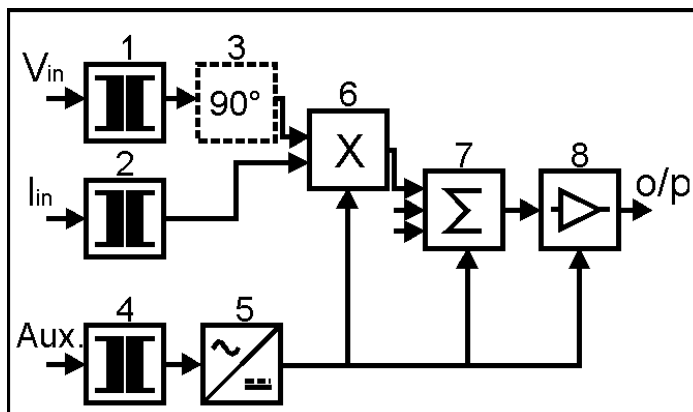


Figure 2 - Block Diagram

# TECHNICAL DATA

## 1. Input Quantities

Voltage:	All standard values up to 600V
Burden:	2.5mA maximum
Overload in terms of rated input:	1.73x indefinitely 2.5x 10 seconds
Current:	0-1A, 0-5A (other values on request)
Burden:	0.3VA at rated output
Overload in terms of rated input:	1.2x indefinitely 40x 0.5 second
Frequency:	45-55-65 Hz

## 2. Output

Characteristic:	A or B or D or E
Output quantity:	impressed current signal (voltage signal available on request)
Standard values:	1, 5, 20mA unipolar or bipolar
Maximum load:	10k, 2k, 500 Ohm
Maximum output voltage:	15V DC
Maximum current output:	1.25x rated (typical) 2.00x rated (maximum)
Ripple:	0.5% standard
Response time:	210ms standard

## 3. Auxiliary Power Supply

Voltage:	110V, 220V 50Hz $\pm 20\%$ . (other values and DC on request)
Burden:	3.0VA at rated output

## 4. Accuracy

Error limit at rated conditions:	0.5%(Watts), 1.0%(Vars) at 23°C, 45-55Hz, cos N=1
Linearity Error:	0.1%
Long term drift:	0.25%
Temperature Shift:	400ppm/C

Variation with auxiliary supply:	0.05% for $\pm 20\%$ variation
Variation with power factor(Watt transducer)	Additional error max 0.5% at cos N=0.5

## 5. Protection

Impulse test between isolated sets of terminals:	5kV (0.5J, 1.2/50 wave. IEC standard)
Voltage withstand rating between sets of terminals:	4kV, 50Hz AC for 1 minute
Power voltage across output:	220V 50Hz AC indefinitely

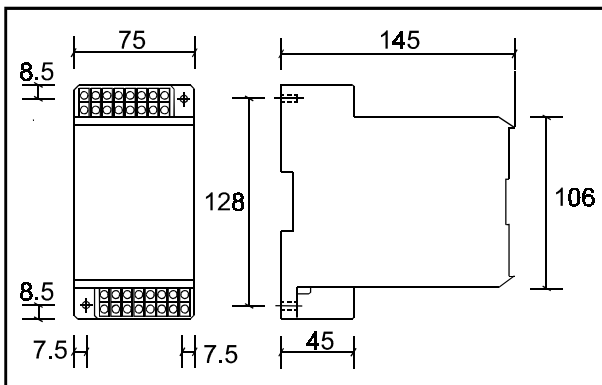
## 6. Physical Constraints

Working temperature:	-25 to <b>13 to 33</b> to 55°C
Storage Temperature:	-55 to 75°C
Relative Humidity:	80%
Variation due to external magnetic field(worst case):	0,05% at 400A/m, 50Hz.
Position:	Surface mounting in any position indoors.

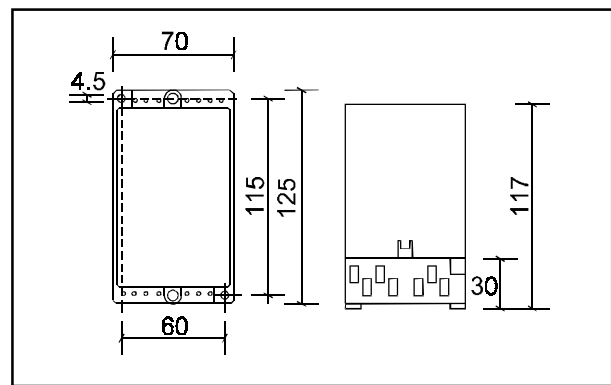
## 7. Enclosure

<b>DIN B</b>	ABS
Terminals	Double screw cage. Plated. Rated 10A. 2x2,5mm <sup>2</sup> or 1x6mm <sup>2</sup> cable.
Mounting	DIN rail - C type 35mm or chassis. Cover - ABS Base - fibre reinforced phenolic resin.
<b>K125</b>	
Terminals	Screw type with wire protection. Plated. Rated 10A. 2x2,5mm <sup>2</sup> or 1x6mm <sup>2</sup> cable.
Mounting	Chassis.

## Dimension Diagrams



DIN B Housing



K125 Housing

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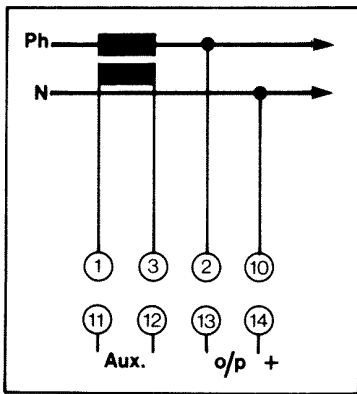
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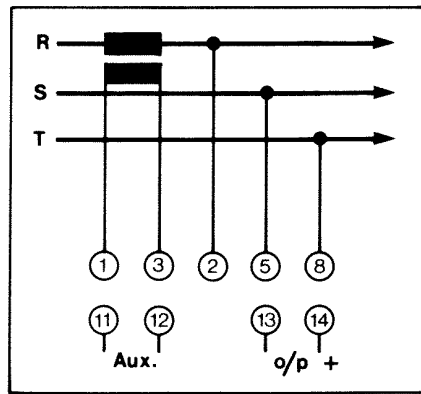
Email: sales@powercontractors.co.za

Website: www.powercontractors.co.za

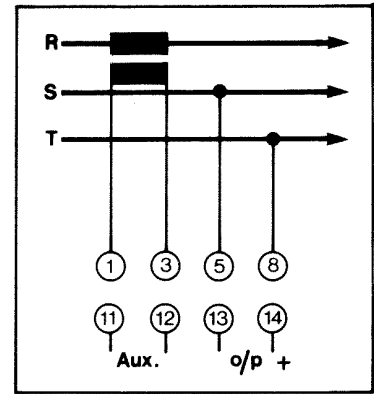
## CONNECTION DIAGRAMS



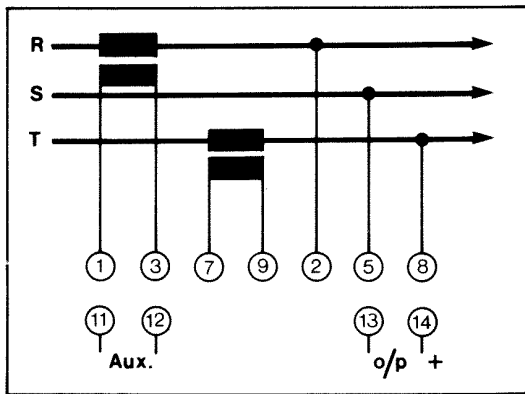
SINGLE PHASE  
ACTIVE OR REACTIVE  
POWER



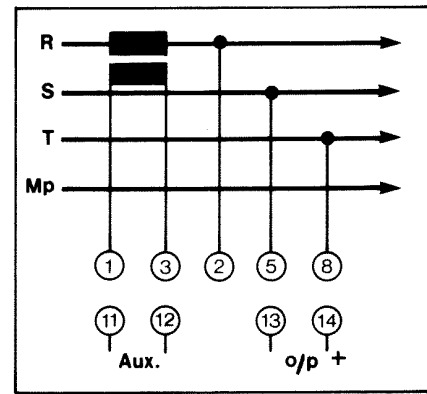
3 PHASE 3 WIRE  
BALANCED LOAD  
ACTIVE POWER



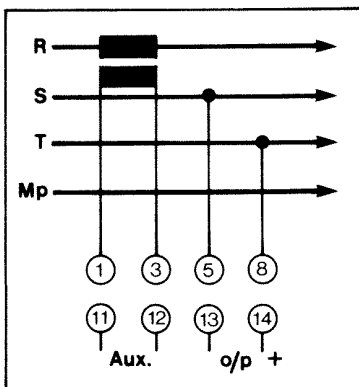
3 PHASE 3 WIRE  
BALANCED LOAD  
REACTIVE POWER



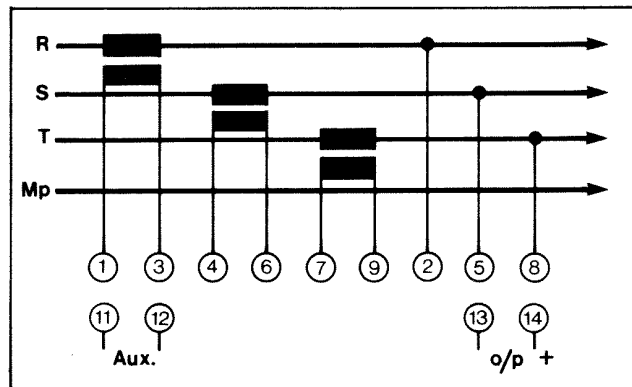
3 PHASE 3 WIRE  
UNBALANCED LOAD  
ACTIVE OR REACTIVE  
POWER



3 PHASE 4 WIRE  
BALANCED LOAD  
ACTIVE POWER



3 PHASE 4 WIRE  
BALANCED LOAD  
REACTIVE POWER



3 PHASE 4 WIRE  
UNBALANCED LOAD  
ACTIVE OR REACTIVE  
POWER