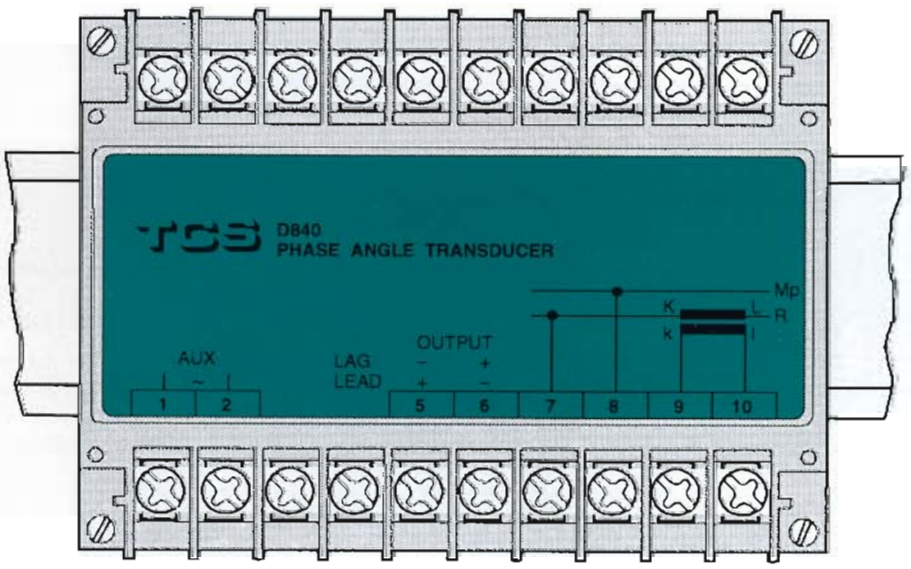
6000

SYSTEM

EUROTHERM
PROCESS
AUTOMATION



D840
Phase angle transducer

Product specification

Star Features

* Frequency independent
* Fully isolated
* Unipolar or bipolar options
* Current outputs with true and 'live' zero
* Single or polyphase systems

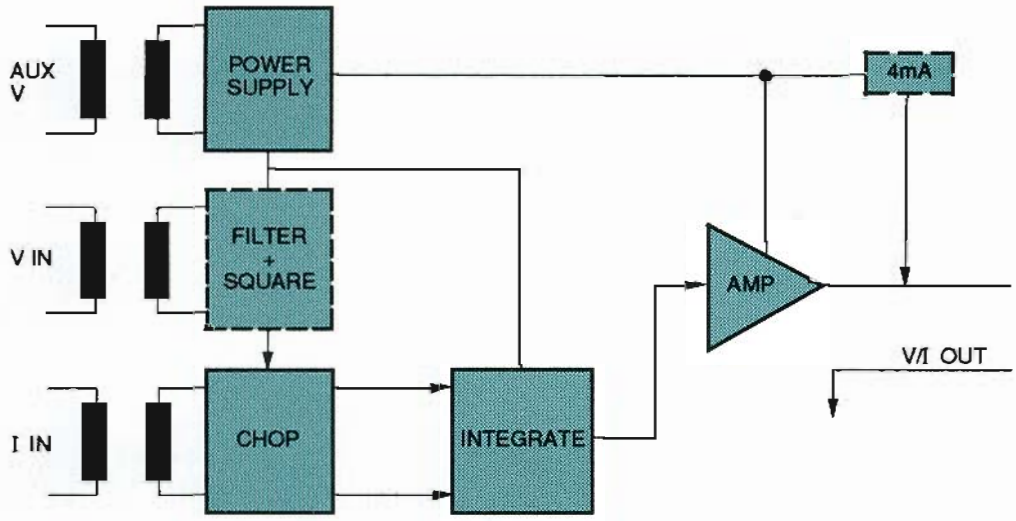
Introduction

The D840 Phase Angle Transducer provides an accurate DC output signal proportional to the phase angle between the AC current and voltage being measured.

The design allows the transducer to operate with frequencies between 40-440Hz and in both single and polyphase systems providing flexibility and versatility. These transducers may be used to measure either the angle in degrees (phase angle) or the cosine of the phase angle (power factor) as the transfer function between inputs and outputs is linear. Low burden on the inputs means that these transducers can be 'self powered' by the internal connection of the auxiliary supply to the measured voltage circuit. Isolation to 2kV is achieved by means of internal transformers. The unit is housed in a flame retardant polycarbonate enclosure (DIN 43604) and may be mounted either on a DIN rail (DIN 46277) or to a wall or bulkhead.

Functional Description

The measured inputs are isolated, filtered and squared. A precision quadrature switching circuit produces fixed amplitude current pulses, the polarity and width being variable. These pulses are then integrated to produce a DC voltage proportional to phase angle. The output stage then converts this to the required output signal.



PHASE ANGLE / POWER FACTOR

Specification

INPUT

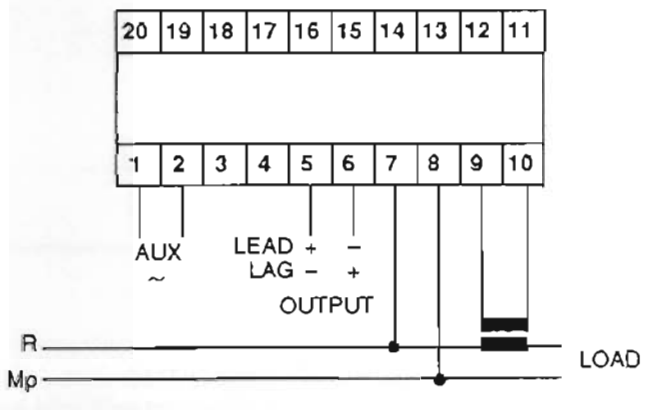
Voltage:	110, 240, 415V
Range:	50% to 125% of nominal
Burden:	1.3VA approx
Current:	1A or 5A
Range:	40% to 150% of nominal
Burden:	0.8VA approx
Phase Angle:	60° capacitive to 0° to 60° inductive (0.5 lead to 1 to 0.5 lag)
	28.9° capacitive to 0° to 78.5° inductive (0.8 lead to 1 to 0.2 lag)
Frequency:	45-65Hz 360-440Hz

OUTPUTS

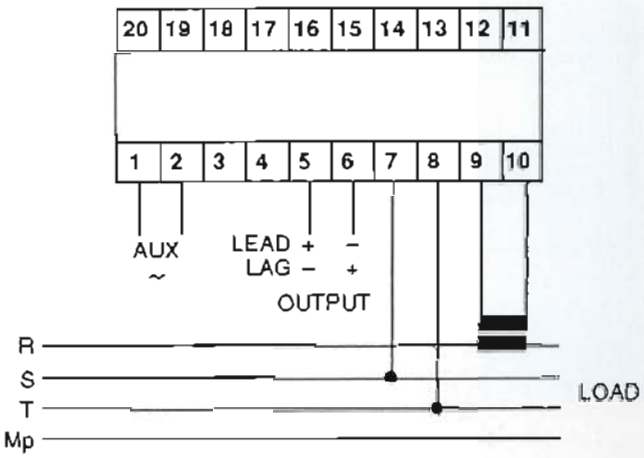
Phase Angle Range	0.5 lead	to 1	to 0.5 lag		0.8 lead	to 1	to 0.2 lag
Bipolar:	–0.5mA	to 0	to +0.5mA				
	–5mA	to 0	to +5mA				
	–10mA	to 0	to +10mA				
Unipolar:	0	to 0.5mA	to 1mA		0	to 0.32mA	to 1mA
	0	to 5mA	to 10mA		0	to 3.2mA	to 10mA
	0	to 10mA	to 20mA		0	to 6.4mA	to 20mA
	4mA	to 12mA	to 20mA		4mA	to 9.11mA	to 20mA

DRIVE CAPABILITY:	10V
ACCURACY	Class 1.5% (1.5° electrical)
TEMPERATURE RANGE:	–10°C to +60°C
TEMPERATURE DRIFT:	0.03%/°C
AUXILIARY SUPPLY:	110, 240, 415V ±20%
HOUSING:	100mm DIN
WEIGHT:	385gm approx

Connection & Installation



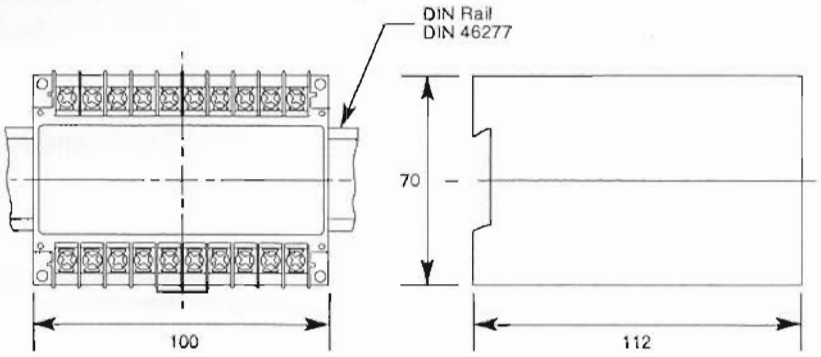
D840
SINGLE PHASE
POWER FACTOR



D840
3 PHASE 3/4 WIRE
POWER FACTOR

WARNING: Current Transformers MUST NOT be open circuited on load.

Housing Details



Dimensions in mm

Ordering Information

Description		Order Code
Phase Angle Transducer		D840
Power Factor		PF
Range:	(a) 0.5 lead to 1 to 0.5 lag (a) 0.8 lead to 1 to 0.2 lag	0.5-1-0.5 0.8-1-0.2
No of Phases:	(a) Single phase (b) Three phase	1PH 3PH
Voltage Input:	(a) 110V (b) 240V (c) 415V	110V 240V 415V
Current Input:	(a) 1A (b) 5A	1A 5A
Auxiliary Supply		AUX
Range:	(a) 110V (b) 240V (c) 415V	110V 240V 415V
Output Type		OP
Output Ranges and Units:	(a) 0-1mA into 10K (b) 0-10mA into 1K (c) 0-20mA into 500R (d) 4-20mA into 500R (e) –0.5mA to +0.5mA into 10K (f) –5mA to +5mA into 1K (g) –10mA to +10mA into 500R	0-1mA 0-10mA 0-20mA 4-20mA ±0.5mA ±5mA ±10mA
NOTE Ranges (e), (f) and (g) only available for PF = 0.5 lead to 1 to 0.5 lag.		
Labelling:	(a) Blank (b) Tagging	— T

Example: D840/PF/0.5-1-0.5/3PH/110V/1A/AUX/-/OP/0-20mA/T

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