minilec

Instruction Manual

Active Power Transducer (D5PTW1)
Reactive Power Transducer (D5PTW2)

Introduction:

It is a precision grade Transducer used for measurement of Active Power (Watt) or Reactive Power (VAR) of a 3 Phase 3 Wire or 3 Phase 4 Wire Electrical Network System. The Transducer is fully solid state, use of latest circuit techniques and quality components ensure reliable operation over long period. The Active Power Transducer is suitable for measurement of both Import and Export power while the Reactive Power Transducer is suitable for measurement of Capacitive (Lead) and Inductive (Lag) power. The Transducer is suitable for Panel Wall Mounting Or 35 mm DIN Rail mounting.

Operation:

The input Current and Voltages are scaled down through interposing CT's and PT's to provide galvanic isolation. The scaled down voltage and current signals are fed to a precision multiplier. In the multiplier the values of voltage and current signals are multiplied. The multiplier works on the principle of time division multiplication i.e. pulse width and pulse height modulation where the pulse width is determined by the instantaneous value of the input voltage and pulse height by instantaneous value of input current. A high sampling frequency results in negligible error even with distorted waveforms. The multiplier output is suitably conditioned to provide a DC voltage proportional to the input active/reactive power. The output stage provides required DC Current or DC Voltage outputs. The Transducer is suitable for balanced as well as unbalanced loads. The power to operate the circuit is derived internally in case of Self Powered and externally in case of Auxiliary Power Supply.

Specifications:

Auxiliary Supply	110, 240 V AC ± 15%, 50 Hz Or 24,48,110,220 V DC ± 10% Or Self Powered
Nominal Input Current	1 Or 5 A AC, CT Ratio as specified
Nominal Input Voltage (P-P)	110 V AC (HT Supply) PT Ratio as specified 415 V AC (LT Supply)
Electrical Network	3 Phase 3 Wire Or 3 Phase 4 Wire
Type of Measurement	Watt Or Watt : Import (-) and Export (+) Or VAR : Lag Or VAR : Lead Or VAR : Lead and Lag
Power Range	As specified depending on CT & PT Ratio
No. of Outputs	One Or Two
Output Range	4-20 mA DC, 0-1,0-5,0-10,0-20 mA DC 0 – (±) 5, 0 – (±)10, 0 – (±)20 mA DC 0-5,0-10 V DC
Output Load Resistance	Max 10 V / I out For Current Output 10 K Ohm (Min) For Voltage Output
Accuracy	± 0.5% of Span.
Conformity	General Conformity to IEC 688.1, BIS 12784-Part I-1989

Operating Instructions:

The Transducer is to be mounted either on Panel Wall or on a 35 mm DIN Rail as ordered.
The electrical connections are to be done as per the wiring diagram provided on the specification sticker located on side of the enclosure. For Current Input follow proper CT polarities considering supply and load side as shown. For Voltage Input follow proper Phase sequence. For Auxiliary Power Supply ensures that proper rated supply voltage is connected. Also ensure proper polarity incase of DC Power Supply. While wiring DC output signal, ensure proper polarities.