



## FEATURES

- Trivector Meter with built in maximum demand controller
- True RMS measurement
- More than 75 parameters displayed in a single meter
- Suitable for LT & HT metering both star and delta configuration
- Field programmable PT, CT ratios
- Maximum demand control with 3 relays
- Prediction demand control function
- Selectable time base 15/30 minutes
- Suitable for all kind of balanced / unbalanced loads
- Auto ranging of display parameters
- Highly stable calibration by software means
- Low power consumption
- Provides Direct reading of all parameters
- Suitable for integration in SCADA application
- Optional : RS485Serial port

## APPLICATION

- Sub Station Metering
- Industrial and Buildings
- Hotels & Hospitals
- Switch gear Metering

# TRIVECTOR METER/ MD CONTROLLER

PCM9005

**ICD PCM 9005** is a Microcontroller based high performance **Digital Trivector Meter** suitable for flush mounting on panels to display several electrical parameter in a single meter. Three Phase AC power/ Energy / Maximum demand meters and smart transducers are designed to meet the requirement of metering applications of all kinds. It is designed to be a stand alone Digital Power / Energy meter or with a remote computer. It also displays kVA demand and controls by adopting prediction demand control technique.

**MAXIMUM DEMAND** : It registers 15 or 30 minutes kVA maximum demand. For every time slot while computing maximum demand, it also generates prediction demand and operate relays to control demand parameters which are registered in non-volatile memory chip with real time reference.

The Trivector Meter is provided with LCD displays to have simultaneous indication of several parameters. Parameters can be selected and seen in Scroll / Hold mode and several pages are built in to display all parameters. Membrane key pad is available to enter all the parameters viz., CT Ratio, PT Ratio, Demand Setting, Time base Selection, Time duration etc.,

**TIME OF THE DAY (TOD) METER** : The Trivector Meter has built-in feature of time of the day meter. The 24 hour duration is divided into 4 zones, namely peak / non-peak/ day & night periods which is programmable as per customer's requirements. Maximum demand setting 1 and 2 are programmable separately for peak / non- peak periods. The meter also got facility, to register all the energy consumption kVAh, kWh, kVARh & Max. Demand for four time zones separately. ICD Electronic Trivector Meter and Maximum Demand Controller are compact, housed in a flush mounting 96 x 192 x 160 mm. ABS plastic enclosure.

## TECHNICAL SPECIFICATION

<p><b>TYPE</b> : <b>ICD ELECTRONIC TRIVECTOR METER AND MAXIMUM DEMAND INDICATOR / CONTROLLER</b></p> <p><b>Model</b> : PCM 9005</p> <p><b>Application</b> : LT / HT</p> <p><b>Voltage input</b> : 415V AC RMS (Line to line) (-20% to +10%) for LT 110 VAC RMS (Line to line) (-20% to +10%) for HT</p> <p><b>Current input</b> : 5A AC RMS (Standard) 1A AC RMS available as ordering option</p> <p><b>Max. Current</b> : 1.5/7.5 A</p> <p><b>Frequency</b> : 45.00 to 55.00 Hz</p> <p><b>Working load range</b> : 0.5% to 120% of load current</p> <p><b>Working PF range</b> : 0.0 PF lag unity to 0.0 PF lead</p> <p><b>Measuring method</b> : 3 phase 4 wire (Standard) for LT 3 phase 3 wire available as ordering option 3 phase 3 wire (Standard) for HT 3 phase 4 wire available as ordering option</p> <p><b>Display</b> : 2 Rows x 16 Character Alpha numeric LCD display with Backlit</p> <p><b>Character size</b> : 4.35(H) x 2.95 (W) mm</p> <p><b>Parameters shown</b> : 1) 3 Phase - Phase to neutral voltage 2) 3 Phase - Phase to Phase Voltage 3) 3 Phase currents 4) 3 Phase kVA, kW, kVA &amp; PF Frequency 5) Total Voltages, Current, kVA, kW, kVA, PF &amp; Average PF till last MD Reset 6) Total kVAh, kWh, kVAh (lag &amp; lead) export mode available in model PCM 9005-IE 7) TOD kVAh, kWh, kVAh (lag &amp; lead) for 4 zones 8) Rising demand kVA 9) Prediction demand kVA 10) Maximum demand with Date &amp; Time 11) TOD maximum demand with date &amp; time (4 zones) 12) Cumulative maximum demand and MD reset counts.</p> <p><b>Calibration pulse output</b> : Provided through IR LED in the front panel of the meter either for kWh or kVAh. (Selectable through keypad with password facility)</p> <p><b>Meter constant</b> : 3200 imp / kWh / kVAh (upto 7000 kW / kVA instant load)</p>	<p><b>Setting parameter</b> : a) Primary current setting b) Primary voltage setting c) Integration time (15 / 30 minutes) d) Set points for rising demand e) Clock and Calendar f) TOD zone setting</p> <p><b>Parameters setting Instant &amp; Demand</b> : Through keypad with password protection</p> <p><b>Parameters Selection</b> : Through 8 keys provided in the front panel of the meter</p> <p><b>MD Reset facility</b> : Provided through keypad with password protection</p> <p><b>Number of Relays</b> : Three Relays - RL1 for predictive demand control RL2 &amp; RL3 for rising demand control</p> <p><b>Predictive demand</b> : The Predictive relay is energised when the predictive demand exceeds the 1st set point. The relay action takes place only after 5 minutes in 15 minutes demand cycle and after 10 minutes in 30 minutes demand cycle</p> <p><b>Rising demand control</b> : The rising demand control relays are energised when the rising demand exceeds the respective control setpoints</p> <p><b>Contact rating</b> : 3 A at 240 V AC</p> <p><b>Relay Acknowledgment</b> : Provided through relay acknowledgment key in the front panel of the meter</p> <p><b>Communication Output</b> : An optically isolated RS485 Serial Port is available</p> <p><b>Protocol Type</b> : MODBUS - RTU</p> <p><b>Burden on Voltage Input</b> : 0.1 VA per phase</p> <p><b>Burden on Current Input</b> : 0.1 VA per phase</p> <p><b>Auxiliary power supply</b> : 110 / 240 V AC RMS Derived from voltage input terminals as standard. External 110/240V AC RMS available as ordering option</p> <p><b>Burden on aux. supply</b> : 8 VA</p> <p><b>Box Dimension</b> : Bezel : 144 (H) x 144 (W) x 160 (D) mm cutout : 138(H) x 138 (W) mm</p> <p><b>Enclosure</b> : ABS Plastic</p> <p><b>Mounting</b> : Panel</p> <p><b>Weight</b> : 1.5 Kg.</p> <p><b>Approvals</b> : Type test approved as per IS 14697 standards for class 1, class 0.5 confirms EMI, EMC regulations as per 14697 standard</p>
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### PARAMETERS DISPLAYED

PARAMETER	RANGE	RESOLUTION	ACCURACY
R, Y, B Voltage (LT Meter)	180 V - 270 V	0.1 V	0.5% ± 2 least digit
RY, YB, BR Voltage (LT Meter)	310 V - 470 V	0.1 V	0.5% ± 2 least digit
R, Y, B Voltage (HT Meter)	Primary Voltage	0.01 KV	0.5% ± 2 least digit
RY, YB, BR Voltage (HT Meter)	Primary Voltage	0.01 KV	0.5% ± 2 least digit
Current	0 - 100 A 100 A & above	0.1 A 1 A	0.5% ± 2 least digit
kVA, kW, kVA (LT Meter)	0 - 1000 1000 & above	0.1 kVA / kW / kVA 1 kVA / kW / kVA	0.5% ± 2 least digit
kVA/kW/kVA (HT Meter)	0 - 10000 10000 & above	1 kVA / kW / kVA 0.01 MVA / MW / MVA	0.5% ± 2 least digit
3 Phase Power Factor & Total	0.0 lag to unity to 0.0 lead	0.001	0.5% ± 2 least digit
Frequency	45.00 - 55.00 Hz	0.01 Hz	0.2% ± 2 least digit
kVAh / kWh / kVAh (Lead & Lag) (Including TOD register) LT Meter	9999999.9	0.1 kVAh / kWh / kVAh	0.5% for kWh better than 1% for kVAh & kVAh
kVAh / kWh / kVAh (Lead & Lag) (Including TOD register) HT Meter	99999999	1 kVAh / kWh / kVAh	0.5% for kWh better than 1% for kVAh & kVAh

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