Department of Electrical Engineering

Enquiry No. IITK/EE/SMARTCITY/2018/01 Opening Date: 17-09-2018

Closing Date: 15-10-2018

Subject: Purchase of Multi-line 3 Phase Digital Panel Meters (50 Numbers) and Current Transformers of different current ratings.

We are interested in the purchase of 3 phase digital panel meters and current transformers of different current ratings as per the following details.

S. No.	**Name of Material**	**Quantity**
1	Multi-line 3 phase digital panel meters	50 No.
2	Current transformer of CTR=1000/5	5 No.
3	Current transformer of CTR=600/5	5 No.
4	Current transformer of CTR=400/5	5 No.
5	Current transformer of CTR=250/5	5 No.

Specifications of items required:

- Minimum desired technical specifications for multi-line 3 phase digital panel meters are:

S. No.	**Electrical**	
1	Connection type	Common product for HT3/ HT4/ LT4 application
2	Measurement voltage range	57.7 V (100V) - 240 V (415 V) AC 3 phase 4 wire (3 phase 3 wire)
3	Tolerance	-30% to +20% of V
4	Aux power supply range	80 - 300 V AC/DC or 24 - 60 V DC (Variant)
5	Current range	1-2A and 5-10 A in single variant (field configurable)
6	Main frequency	50/60Hz with ±5%
7	Accuracy class	0.2s, 0.5s, 1.0
8	Burden	Aux burden: 3.5 VA; 8VA when all modules connected; Current ckt burden: 1 A - 0.05VA per phase, 5 A - 0.25 VA per phase; Voltage ckt burden: 0.15 VA per phase.
9	Short time over current	20 x I for 1 sec., 10 x I for 3 sec., 7 x I for 10 sec.
	Approvals	
10	Standards	IS13779, IS14697, IEC62052-11, IEC62053-21, IEC62053-23, IEC62053-22, IEC61010, IEC62053-31

	Environmental	
11	Ingress protection	IP 54 (front fascia); IP20 (at terminals)
12	Insulation	4 kV RMS 50 Hz, 1 minute
13	Impulse withstand	6 kV
14	Temperature	-20 °C to +60 °C (operating); -25 °C to +80 °C (storage)
15	Humidity	95% non-condensing
	Features	
16	Favourite page	On / Off
17	CT/VT primary	Configurable in field through keypad
18	Communication	RS485 Modbus half duplex (Default) and data will be available in floating point format (IEEE754)
19	Baud rate	From 1200-38400 bps (Default 9600 bps)
20	Load survey	40 days for 6 parameters @ 30 minutes integration period options for 15 or 60-minute integration period.
	Modules	
21	2 Digital pulse input and output (single module)	Input supports voltage range of 8-40VDC with pulse duration of 5 ms for input 1 and 40 ms for input 2. Output are normally open type, voltage rating of 230 V AC @ 100 mA or 48 V DC @ 100 mA with pulse width of 80 ms or 240 ms
22	Ethernet	10/100base-T for modbus over TCP/IP communication
23	4 analogue outputs	Analogue output supports current range of 4-20 mA non-isolated with loop impedance 750 Ω, auxiliary supply 20-40V DC @ 100 mA
	Mechanical	
24	Dimensions (WXHXD)	96 x 96 x 65 mm (w/o module) 96 x 96 x 110 mm (with module) cut out size 92 x 92 mm
25	Weight	0.5 kg (approx)
26	Enclosure	FRPC
27	Terminals	Combicon connector
28	Max conductor size	2.5 sq. mm
29	**Warranty**	1 year after installation

- **Minimum required parameters from multi-line 3 phase meter:**

  Voltage R-Y, Voltage Y-B, Voltage B-R, Current R-N, Current Y-N, Current B-N, Neutral Current, MW, MVAR, Power Factor, Frequency, MWH Export, MWH Import, MVARh, MVA, MVAh.

- Minimum desired technical specifications for current transformers are:

S. No.	**Electrical**	
1	Rated voltage	240V (phase to neutral), 415V (phase to phase)
2	Rated current (I basic)	5A balanced & unbalanced load
3	Rated frequency	50 Hz
4	Accuracy class	0.5
5	Power factor	Unity to zero (all power factor lag or lead)
6	Supply system variation	Voltage Vref +20% to -30% Frequency 50Hz ±5%
7	Current transformer ratio	As specified above
8	Burden	5-15 VA
Approvals		
8	Standard	IS/IEC 60044-1
Construction		
9	Core material	Low loss CRGO M4 or better grade (core losses will not exceed 0.8 watts/kg at 1.5 tesla)
10	Core thickness	Less than or equal to 0.27 mm
11	Copper wire material	Enameled wire as per IS 4800 part IX /IEC 317
12	Insulation	• Coil will be insulated with electrical grade polyester tape. • Outer insulation will be with vacuum mixed, homogeneous resin casting. • Minimum 2mm thickness of resin above the coil of the CT will be provided.
13	**Warranty**	1 year after installation

Please send your **Sealed Quotation** to the undersigned for the same.

Note:

1. Our organization is an educational institute of repute and liable to get educational discount from the manufacturer/supplier. Please specify the discount separately.
2. Three phase panel meter make should be compatible with **Synergy Systems & Solutions SCADA & RTU system** so that meters could be easily integrated with the existing **Synergy Systems & Solutions system** installed at IIT Kanpur.
3. The installation of panel meters will be performed on running electricity panel of 11/0.415 kV, so before installation vendor will have to visit the campus for inspection.
4. All quotations must reach the undersigned on or before 15**-10-2018.**
5. Quotation must be valid for 90 days.
6. Delivery period should not be more than 1 **month**.
7. Send complete detail of the product(s).
8. Payments terms: 90% after delivery, 10% after successful installation/mounting.
9. IITK is exempted from excise/custom duty.
10. All prices are to be for IIT Kanpur.

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