Technology of Measurement... defined

emfis

Digital Multi-Function Meter

HPL brings to you a wide range of digital panel meters which measure Trivector Energy as well as the basic electrical parameters using state-of-the-art technology.

HPL

METERING

Unique Features

- Accuracy complies as per requirement of Is13779, IEC 62053-21, 22 for class 1.0 & Is14697, IEC 62053-22, 23 for class 0.5s meter
- Three Line Backlit LCD Display
- Suitable for 3 phase 4 wire & 3 phase 3 wire LT & HT Network
- Display Resolution in kWh, MWh, GWh depending on programmed CTR & PTR
- Separate Active Energy (kWh) & Reactive Energy (kVArh) Pulse LED for onsite accuracy checking
- RS485 MODBUS communication port
- Test Mode option to cross check connection & configured parameters
- Snapshot of Energy parameter whenever there is CT/PT programmed or Energy is reset
- Programmable auto scroll time for user reading convenience
- Displays phase sequence of voltage, current & phase association for connection checking
- Separate Min/Max Mode for voltage, current & power
- Import / Export option enables monitoring of bi-directional power flow – useful when in-house Solar generation run in parallel with the Grid.
- Basic, Import & Export meter available with THD feature.
- Programmable security codes ensure total security of operations.
- Model available with percentage THD for Voltage & Current

Typical Applications:

- Electrical panels – Industrial LT & HT panels
- Air conditioning & Refrigerator panels, Genset Panels.
- Generation, Transmission & Distribution panels
- Test Bench & Laboratory Equipment
- Energy Accounting & Balancing
- EB meter cross-check
- Process management
- Remote Energy Monitoring System
- Building Management System (BMS)
- Solar Energy Measurement

Technical Specification:

A. Electrical Specification

Auxiliary Power Supply	80 – 300V AC/DC or 20 – 60 V DC
Auxiliary burden	< 1VA
Voltage circuit burden	< 0.5 VA
Current circuit burden	< 0.5 VA

B. Measuring Range

Voltage (Direct measurement)	20 – 650V AC
Current (Direct measurement)	10mA – 7.5A AC

C. Resolution

Voltage (Direct measurement)	0.1 V
Current (Direct measurement)	0.001 A

D. Display

Display	8 mm x 5mm
Display Range	0 to 999999
Decimal	Auto adjust for power & Energy based on CTR x PTR

E. Mechanical

Enclosure Material	Engineering Plastic
Bezel Size	96 x 96 mm
Panel Cutout	92 x 92 mm
Depth	55 mm
Weight	< 300g

F. Accuracy

Class 1.0	± 1% of measured value
Class 0.5s	± 0.5% of measured value

G. Environmental

Operational temp.	-10°C to 60°C
Storage temp.	-20°C to 70°C
Relative humidity	0 to 95%

H. Safety

IP Protection	IP 54 on front plate
Device safety	As per IEC 61010

Display Parameters:

S. No.	Auto Scroll/Push Button Parameters	VAFP/VAFP +RS485		VAFPE/VAFPE +RS485		BASIC/BASIC +RS485		BASIC+THD/ BASIC +RS485+THD		Imp- Exp / Imp-Exp +RS485		Imp-Exp +THD/ Imp-Exp+ RS485+THD	
		3P4W	3P3W	3P4W	3P3W	3P4W	3P3W	3P4W	3P3W	3P4W	3P3W	3P4W	3P3W
1	Inst. Phase wise Phase-Neutral Voltage	√		√		√		√		√		√	
2	Inst. line Voltage (volts)	√	√	√	√	√	√	√	√	√	√	√	√
3	Inst. Phase wise Current (Amp)	√	√	√	√	√	√	√	√	√	√	√	√
4	Inst. Phase-wise Active Power (kW)	√	√	√	√	√	√	√	√	√		√	
5	Inst. Phase-wise Apparent Power (kVA)	√		√		√		√		√	√	√	√
6	Inst. Phase-wise Reactive Power (kVAr)	√	√	√	√	√	√	√	√	√	√	√	√
7	Inst. Phase-wise Power Factor (PF)	√	√	√	√	√	√	√	√	√	√	√	√
8	Inst. Frequency (Hz)	√	√	√	√	√	√	√	√	√	√	√	√
9	System Power Factor (PF)	√	√	√	√	√	√	√	√	√	√	√	√
10	Real Date & Time					√	√	√	√	√	√	√	√
11	Active Energy			√	√								
12	Apparent Energy					√	√	√	√				
13	Reactive Lag & Lead Energy					√	√	√	√				
14	Total Active, Apparent & Reactive Power	√	√	√	√	√	√	√	√	√	√	√	√
15	Avg. Active, Apparent & Reactive Power	√	√	√	√	√	√	√	√	√	√	√	√
16	Max. Active, Apparent & Reactive Power	√	√	√	√	√	√	√	√	√	√	√	√
17	Phase-wise Average Voltage (Volts)	√	√	√	√	√	√	√	√	√	√	√	√
18	Phase-wise Maximum Voltage (Volts)	√	√	√	√	√	√	√	√	√	√	√	√
19	Phase-wise Average Current (Amps)	√	√	√	√	√	√	√	√	√	√	√	√
20	Phase-wise Maximum Current (Amps)	√	√	√	√	√	√	√	√	√	√	√	√
21	Total Current (Amps)	√	√	√	√	√	√	√	√	√	√	√	√
22	Meter Run Hour (Hr)	√	√	√	√	√	√	√	√	√	√	√	√
23	Meter Power On Hour (Hr)	√	√	√	√	√	√	√	√	√	√	√	√
24	kW MD with Date & Time					√	√	√	√				
25	kVA MD with Date & Time					√	√	√	√				
26	R Phase – kW, Current, Voltage & PF	√		√		√		√		√		√	
27	Y Phase – kW, Current, Voltage & PF	√		√		√		√		√		√	
28	B Phase - kW, Current, Voltage & PF	√		√		√		√		√		√	
29	CT Ratio	√	√	√	√	√	√	√	√	√	√	√	√
30	PT Ratio	√	√	√	√	√	√	√	√	√	√	√	√
31	Import & Export kW MD with Date & Time									√	√	√	√
32	Import & Export kVA MD with Date & Time									√	√	√	√
33	Import & Export Active, Apparent, Reactive Energy									√	√	√	√
34	Reactive Energy Q1, Q2, Q3, Q4									√	√	√	√
35	Net Active Energy & Apparent Energy									√	√	√	√
37	THD % Voltage-R,Y,B							√				√	
38	THD % Voltage-RY, YB, BR							√	√			√	√
39	THD % Current-R, Y, B							√	√			√	√

Configurable Parameters

Programming Parameters	Range	Default Values	VAFP	VAFP+ Rs485	VAFPE	VAFPE+ Rs485	BASIC	BASIC+ Rs485
CT Primary	1A to 9999A	500A	√	√	√	√	√	√
CT Secondary	1A/5A	5A	√	√	√	√	√	√
PT Primary	110 to 999000 V	110	√	√	√	√	√	√
PT Secondary	110 to 650 V	110	√	√	√	√	√	√
Network Selection	Star/Delta	Star	√	√	√	√	√	√
RTC Setting	-	Current RTC					√	√
Averaging Time	01-60 Minutes	05 Minutes	√	√	√	√	√	√
Demand Integration Time	5/10/15/20/30/60 Minutes	30 Minutes				√	√	
Auto Scroll Time	01-60 Seconds	10 Seconds	√	√	√	√	√	√
Slave Id	01 to 247	5		√		√		√
Baud Rate	2400/4800/9600/ 19200/38400/57600	9600		√		√		√
Parity Bit	None/Even/Odd	None		√		√		√
Parameters Reset	-	-	√	√	√	√	√	√
Hour - Reset	-	-	√	√	√	√	√	√
Energy Reset	-	-			√	√	√	√
Change Energy Re set Password	0 - 9999	8000			√	√	√	√
Change Programming Password	0 - 9999	0000	√	√	√	√	√	√

Note: * Parameters are only applicable for Model with Rs. 485 Port

Ordering Information:

Model		FG Code	
Name	Number	Class 1.0	Class 0.5
VAFP Meter	Emfis - 201	PMEMCN1LCDAT-VAFP	PMEMCN5LCDAT-VAFP
VAFP+RS485 Meter	Emfis - 202	PMEMCC1LCDAT-VAFP	PMEMCC5LCDAT-VAFP
VAFPE Meter	Emfis - 203	PMEMCN1LCDAT-VAFPE	PMEMCN5LCDAT-VAFPE
VAFPE+RS485 Meter	Emfis - 204	PMEMCC1LCDAT-VAFPE	PMEMCC5LCDAT-VAFPE
Basic Meter	Emfis - 205	PMEMCN1LCDAT-BASIC	PMEMCN5LCDAT-BASIC
Basic+RS485 Meter	Emfis - 206	PMEMCC1LCDAT-BASIC	PMEMCC5LCDAT-BASIC
IMPEXP Meter	Emfis - 207	PMEMCN1LCDAT-IMPEX	PMEMCN5LCDAT-IMPEX
IMPEXP+RS485 Meter	Emfis - 208	PMEMCC1LCDAT-IMPEX	PMEMCC5LCDAT-IMPEX
Basic+THD Meter	Emfis - 209	PMEMCN1LCDAT-B+THD	PMEMCN5LCDAT-B+THD
Basic+RS485+THD Meter	Emfis - 210	PMEMCC1LCDAT-B+THD	PMEMCC5LCDAT-B+THD
IMPEXP+THD Meter	Emfis - 211	PMEMCN1LCDAT-IETHD	PMEMCN5LCDAT-IETHD
IMPEXP+RS485+THD Meter	Emfis - 212	PMEMCC1LCDAT-IETHD	PMEMCC5LCDAT-IETHD

Note: * For 0.2 class meters, kindly coordinate with the local sales Team

Front Panel View:

Model-wise Presence of LEDs and Keys are indicated below

1. Model No
2. LCD Display
3. kWh: Active Energy Pulse indication (16000 imp/kWh)
4. kVArh: Reactive Energy Pulse indication (16000 imp/kVArh)
5. Push buttons

HEPL/Emifs/02-25

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