

Technology of Measurement...

defined



CT2E Series

Digital Multi-Function Meter Single Source (Alpha Series)
& Dual Source (Beta, Gamma & Delta Series)



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.





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.
- Single Line Backlit LCD Display.
- Suitable for 3 phase 4 wire & 3 phase 3 wire LT & HT Network.
- 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.
- Auto Resolution of Power & Energy as per CT & PT ratio.
- 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 available in MFM.
- Separate Min/Max Mode for voltage, current & power.
- Programmable security codes ensure total security of operations.
- Favorite display mode available to view required Parameter only.
- One meter record active energy of two sources.
- Alpha-I cost effective meter display RTC, KW & KVA demand along with the Instantaneous Parameters.
- For Dual source Models separate Red Colour LED provided for easy identification of DG Running Status.
- Additional Parameters such as Distortion PF, True PF & Individual Phase Active, Reactive & Apparent Power helps in Power Quality Monitoring.
- RPM helps in monitoring running of motors & finding any abnormality.
- K factor indicates amount of high harmonic current transformer is capable to handle. This features helps in determine actual K factor during operation of transformers.
- Voltage & Current THD available phase wise separately which indicate the quality of power received

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).
- Load management & control facility for industries to avoid penalty in Delta model

Technical Specification:

A. Electrical Specification

Auxiliary Power Supply	80 – 300V (± 10%) AC
DG Sense Supply	240V (± 10%) AC
Auxiliary burden	<1VA
Voltage circuit burden	<0.5 VA
Current circuit burden	<0.5 VA
Frequency	45 - 65 Hz
RPM	225-3900

B. Measuring Range

Voltage (Direct measurement)	20-650V AC
Current (Direct measurement)	0.01-7.5 A AC

C. Resolution

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

D. Display

Display	10mm x 5mm
Display Range	0 to 999999
Decimal	Auto Adjusted

E. Mechanical

Enclosure Material	Engineering Plastic
Bezel Size	96x96mm
Panel Cutout	92x92mm
Product	96x96x55mm
Weight	<300g

F. Accuracy

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

G. Environmental

Operational temp.	-10 to 55 C
Storage temp.	-20 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:

Sr. No.	Model No. Parameter Name	CT2EA			CT2EMG					
		ALPHA	ALPHA _I	ALPHA ₊	BETA	BETA ₊	GAMMA	GAMMA ₊	DELTA(N)	DELTA(C)
1	R,Y,B - Phase Instantaneous Voltage	-	√	√	√	√	√	√	√	√
2	R - Y Instantaneous Line Voltage	-	√	√	√	√	√	√	√	√
3	Y - B Instantaneous Line Voltage	-	√	√	√	√	√	√	√	√
4	*B - R Instantaneous Line Voltage	-	√	√	√	√	√	√	√	√
5	R,Y,B - Phase Instantaneous Current	-	√	√	√	√	√	√	√	√
6	Total Instantaneous Current	-	√	√	√	√	√	√	√	√
7	Neutral Current	-	√	√	√	√	√	√	√	√
8	R,Y,B - Phase Active Power	-	√	√	√	√	√	√	√	√
9	Total Active Power	-	√	√	√	√	√	√	√	√
10	R,Y,B - Phase Apparent Power	-	√	√	√	√	√	√	√	√
11	Total Apparent Power	-	√	√	√	√	√	√	√	√
12	R,Y,B - Phase Reactive Power	-	√	√	√	√	√	√	√	√
13	Total Reactive Power	-	√	√	√	√	√	√	√	√
14	Instantaneous Frequency	-	√	√	√	√	√	√	√	√
15	RPM	-	√	√	√	√	√	√	√	√
16	R,Y,B - Phase Power Factor	-	√	√	√	√	√	√	√	√
17	System Power Factor	-	√	√	√	√	√	√	√	√
18	R,Y,B - Phase Distortion Power Factor	-	-	√	-	-	√	√	√	√
19	R,Y,B - Phase True Power Factor	-	-	√	-	-	√	√	√	√
20	R,Y,B - Phase Voltage K-Factor	-	-	√	-	-	√	√	√	√
21	R,Y,B - Phase Current K-Factor	-	-	√	-	-	√	√	√	√
22	Real Date	-	√	√	√	√	√	√	√	√
23	Real Time	-	√	√	√	√	√	√	√	√
24	Cumulative Active Energy kWh - Utility	√	√	√	√	√	√	√	√	√
25	Cumulative Apparent Energy kVAh- Utility	√	√	√	√	√	√	√	√	√
26	Cumulative Reactive Energy kVAh Lag - Utility	√	√	√	√	√	√	√	√	√
27	Cumulative Reactive Energy kVAh Lead - Utility	√	√	√	√	√	√	√	√	√
28	Cumulative Active Energy kWh - DG Mode	-	-	-	√	√	√	√	√	√
29	Cumulative Apparent Energy kVAh- DG Mode	-	-	-	√	√	√	√	√	√
30	Cumulative Reactive Energy kVAh Lag - DG Mode	-	-	-	√	√	√	√	√	√
31	Cumulative Reactive Energy kVAh Lead - DG Mode	-	-	-	√	√	√	√	√	√
32	Meter Run on Hours - Utility	-	√	√	√	√	√	√	√	√
33	Meter Run on Hours - DG Mode	-	-	-	√	√	√	√	√	√
34	Meter Power on Hours	-	√	√	√	√	√	√	√	√
35	MD KW - Utility	-	√	√	√	√	√	√	√	√
36	MD KW - Utility Date	-	√	√	√	√	√	√	√	√
37	MD KW - Utility Time	-	√	√	√	√	√	√	√	√
38	MD KVA - Utility	-	√	√	√	√	√	√	√	√
39	MD KVA - Utility Date	-	√	√	√	√	√	√	√	√
40	MD KVA - Utility Time	-	√	√	√	√	√	√	√	√
41	MD KW - DG Mode	-	-	-	√	√	√	√	√	√
42	MD KW - DG Mode Date	-	-	-	√	√	√	√	√	√
43	MD KW - DG Mode Time	-	-	-	√	√	√	√	√	√
44	MD KVA - DG Mode	-	-	-	√	√	√	√	√	√
45	MD KVA - DG Mode Date	-	-	-	√	√	√	√	√	√
46	MD KVA - DG Mode Time	-	-	-	√	√	√	√	√	√
47	R,Y,B - Phase Voltage % THD	-	-	-	-	-	-	-	√	√
48	RY Line Voltage % THD	-	-	-	-	-	-	-	√	√
49	YB Line Voltage % THD	-	-	-	-	-	-	-	√	√
50	BR Line Voltage % THD	-	-	-	-	-	-	-	√	√
51	R,Y,B - Phase Current % THD	-	-	-	-	-	-	-	√	√
52	Status of Relay 1	-	-	-	-	-	-	-	√	√
53	Status of Relay 2	-	-	-	-	-	-	-	√	√

Configurable Parameters

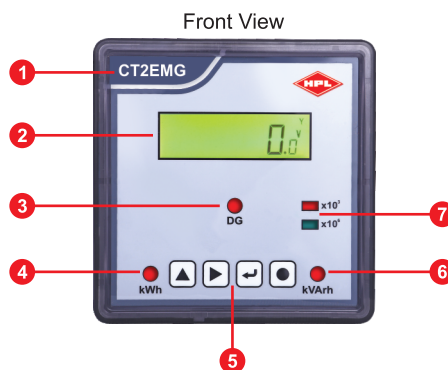
Sr. No.	Programming Parameters	Range	Default	CT2EA			CT2EMG			
				ALPHA	ALPHAi	ALPHAi+	BETA/GAMMA	BETA+/GAMMA+	DELTA(N)	DELTA(C)
1	CT Primary	1A to 9999A	500A	√	√	√	√	√	√	√
2	CT Secondary	1A to 5A	5A	√	√	√	√	√	√	√
3	PT Primary	110 to 999000 V	110 V	√	√	√	√	√	√	√
4	PT Secondary	110 to 650 V	110 V	√	√	√	√	√	√	√
5	Network Type	Star/Delta	Star	-	√	√	√	√	√	√
6	No of Poles	Jan-28	4	-	√	√	√	√	√	√
7	Date Setting	-	Current Date	-	√	√	√	√	√	√
8	Time Setting	-	Current Time	-	√	√	√	√	√	√
9	Demand Integration Time	5/10/15/20/30/60 Minutes	30 Minutes	-	√	√	√	√	√	√
10	Auto Scroll Time	01-60 Seconds	10 Seconds	√	√	√	√	√	√	√
11	Display Lock Type	Temporary / Permanent	Temporary	√	√	√	√	√	√	√
12	Slave Id	01 to 247	5	-	-	√	-	√	-	√
13	Baud Rate	2400/4800/9600/19200	9600/38400/57600	-	-	√	-	√	-	√
14	Parity Bit	None/Even/Odd	None	-	-	√	-	√	-	√
15	MD Reset	-	-	-	√	√	√	√	√	√
16	Hour - Reset	-	-	-	√	√	√	√	√	√
17	Energy Reset	-	-	√	√	√	√	√	√	√
18	Change Energy Reset Password	0000 - 9999	8000	√	√	√	√	√	√	√
19	Change Programming Password	0000 - 9999	0	√	√	√	√	√	√	√
Relay 1 & Relay 2										
20	Supply Selection	None, Mains, Generator, Both	None							
	Parameter	Voltage/Current/Total KW/Total KVA/ Frequency/ Mains KW MD/Gen KW MD/Mains KVA MD/Gen KVA MD	Current							
	Upper Threshold	(I,V,kW,kVA,MD) 0- 9999, F-0-99.9	0						√	√
	Lower Threshold	(I,V,kW,kVA,MD) 0-9999, F-0-99.9	0							
	Delay	0-9999	0							
	Hysteresis	0-99	5%							
	Cfg	NO or NC	NO							

Ordering Information:

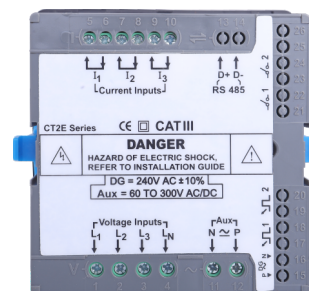
Model		FG Code	
Name	Number	Class 1.0	Class 0.5
Alpha	401	PMCTCN1LCDAT-ALP	PMCTCN5LCDAT-ALP
Alpha-i	402	PMCTCN1LCDAT-ALPi	PMCTCN5LCDAT-ALPi
Alpha-I +	403	PMCTCC1LCDAT-ALPi+	PMCTCC5LCDAT-ALPi+
Beta	421	PMCTCN1LCDAT-BETA	PMCTCN5LCDAT-BETA
Beta +	422	PMCTCC1LCDAT-BETA+	PMCTCC5LCDAT-BETA+
Gamma	441	PMCTCN1LCDAT-GAM	PMCTCN5LCDAT-GAM
Gamma +	442	PMCTCC1LCDAT-GAM+	PMCTCC5LCDAT-GAM+
DELTA(N)	461	PMCTCN1LCDAT-DLT	PMCTCN5LCDAT-DLT
DELTA(C)	462	PMCTCC1LCDAT-DLT	PMCTCC5LCDAT-DLT

Front Panel View:

1. Model No
2. LCD Display
3. DG Indication LED (Dual Source)
4. kWh: (16000 imp/kwh)
5. Push Button
6. kVArh: (16000 imp/kVArh)
7. Function for (MEGA/GIGA)



Back View



HEPL/CT2E Series/02-25



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