



# MULTIFUNCTIONAL ENERGY METERS

Empowering you with **accurate** recordings of energy usage.

## IMPROVED ENERGY EFFICIENCY & BILLING ACCURACY.

- Field programmable Star (Wye) or Delta configuration.
- Energy Display programmable - counter based or resolution based.
- **Neutral current measurement** for selected models (optional)
- Communication with PCs, PLCs, DCS through optically isolated **RS485** serial interface or **WiFi** option.

## WIDER MEASUREMENT RANGE SUITING VARIETY OF APPLICATIONS.

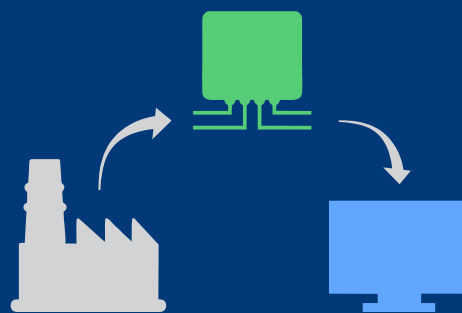
- **High & Low measurements** for voltage and current (last one minute of data)
- Motor **load efficiency** can be monitored for 5 different programmable slots along with Load Hrs. for Watts/Current.
- **Non resettable overvoltage hour** in diagnostic communication mode for healthiness of system.
- CO2 emission, ON hrs, Power interruptions.
- Demand control option with 2 relay (selected models).

## DUAL SOURCE ENERGY & POWER METERING.

- Pulse LED 16000 imp/kWh of secondary input.
- **Wide measurement** range 1 : 1000 (6mA to 6000mA & 100mA to 100A).
- **Dynamic communication** with the programmable address and user selectable parameter sequence.
- Finger touch proof terminals to voltage and current connections.
- Energy resetting at 99999999 kVAh x MF.

# EXTENSIVE VERSATILITY TO MEET YOUR NEEDS.

Consistent reliability, superior design, and the flexibility to meet your energy metering needs. With a huge range of selectable models to suit various field applications, MFM offers you unrivaled energy visibility by providing granular second-wise data of the parameters that matter.



## Multifunctional Energy Meter

### Panel Mounted Meters



- Alpha numeric display LCD 10mm height, 1 row for 2xxx series.
- Accuracy Class 1.0 (IEC 62053-21), 0.5s (IEC 62053-22) option, 0.2S for selected models.
- **Individual phase energy** through communication - helps branch monitoring, better load distribution study.
- **Datalog:** Programable time interval 1min to 12 hrs. Programmable parameters upto 29, can be selected as 1, 2, 4, 9, 14, 29, and logged can be download from the Application
- Individual harmonics upto 15th for LG 6400 & upto 31st for LG 2550.
- Fixed / Sliding demand with RTC for W, VA, VAR (LG 2550D).
- Most Compact 96x96x47mm with communication
- **Low Starting Current 6mA** (for LG)
- High sampling rate 128 samples/cycle

### DIN-Rail Mounted Meters



- Alpha numeric LCD display for 6mm height, 4 digits 3 row for M series.
- Wide measurement range: 1 : 1000 (6mA to 6000mA & 100mA to 100A).
- Fixed / Sliding demand with RTC for W, VA, VAR (LG 2550D).
- Individual phase energy through communication - helps branch monitoring, better load distribution study.
- **Dynamic communication** with the programmable address and user selectable parameter sequence.
- **IoT metering device** enabled with Wi-Fi Communication (IoT Models without display).

## Dual Source Energy Meter

### DIN-Rail & Panel Mounted Meters



- Energy display programmable counter based or resolution based
- kWh and kVAh

### 120A Pass Through Dual Source Meter (LG5120D)



- Measure maximum upto 120A
- Isolated Voltage and Current Terminal

## Energy Reset Value

Full Scale in Watts : $\sqrt{3} \times V_{Pri} \times A_{Pri}$	0.4k to 4.0k	4.01k to 40k	40.1k to 400k	400.1k to 4000k	4M to 40M	40M to 400M	400M to 4000M
Reset Value (VAh)	999.99999M	9.9999999G	99.999999G	999.99999G	9999.9999G	9999.9999G	9999.9999G

# Product Selection

Parameters	Panel Mount LCD - Single Row					Panel Mount LED - Three Row		
	LG2519	LG2599	LG2510	LG2520	LG2550#	LG6435 Any 3 Groups	LG6430	LG6400
CLASS 1.0	✓	✓	✓	✓	✓	✓	✓	✓
CLASS 0.5 / 0.5S^	[✓]	[✓]	[✓]	[✓]	[✓]^	[✓]^	[✓]^	[✓]^
CLASS 0.2S (for 5A / CT operated Models)					[✓]			
G1. BASIC PARAMETERS								
V12 V23 V31	✓		✓	✓	✓	✓	✓	✓
V	✓		✓	✓	✓		✓	✓
V1 V2 V3	✓		✓	✓	✓		✓	✓
A	✓	✓	✓	✓	✓		✓	✓
A1 A2 A3	✓	✓	✓	✓	✓		✓	✓
Hz	✓		✓	✓	✓		✓	✓
Angle V & A, RPM					✓*			✓
Unbalance V & A					✓*			✓
G2. POWER PARAMETERS								
W			✓	✓	✓	✓	✓	✓
W1 W2 W3			✓	✓	✓		✓	✓
VA			✓	✓	✓		✓	✓
VA1 VA2 VA3			✓	✓	✓		✓	✓
PF			✓	✓	✓		✓	✓
PF1 PF2 PF3			✓	✓	✓		✓	✓
G3. ENERGY - IMPORT								
Wh Import	✓	✓	✓	✓	✓	✓	✓	✓
VAh Import		✓	✓	✓	✓		✓	✓
Load Hours Import		✓	✓	✓	✓		✓	✓
Phase Energy & Load Hours (COM)			✓*	✓*	✓*			✓*
Power Cycles					✓*			✓
ON Hours		✓	✓	✓	✓			✓
CO2 Emission					✓*			✓
G4. REACTIVE ENERGY - IMPORT								
VAR					✓	✓		✓
VAR1, VAR2, VAR3					✓			✓
VARh - Ind - Import					✓			✓
VARh - Cap - Import					✓			✓
G5. ENERGY - EXPORT								
Wh Export					✓	✓		✓
VAh Export					✓			✓
Load Hours Export					✓			✓
G6. REACTIVE ENERGY - EXPORT								
VAR					✓	✓		✓
VAR1, VAR2, VAR3					✓			✓
VARh - Ind - Export					✓			✓
VARh - Cap - Export					✓			✓
G7. THD								
THD - Voltage					✓*	✓		✓
THD - Current					✓*			✓
COMMUNICATION								
RS485 (MODBUS)	[✓]	✓	✓	✓	✓	✓		✓
WiFi								
OPTIONAL FEATURES								
Direct Current								
CT Operated								
Dual Source	✓	✓		✓				
Hanging CT upto 100A		✓	✓		✓	✓		✓
Demand Monitor: W,VA,VAR (with RTC, Fixed / sliding for CT operated)					✓			✓
Data Logger - 512kb (Time interval 1 min to 12 hrs, Programable parameters UP to 29.)					✓			✓
Demand Control with 2 relay					✓			✓
Relay output upto					2	2		2
Individual Harmonics					15th*			15th#

# MOQ Applied

2DIN - 1Ph/3Ph LCD - 3 row		5DIN - 3Ph LCD - Single Row				2DIN - 1Ph/3Ph IoT Series	
M13 (1 Ph)	M30 Any 3 Groups	LG2310D	LG2510D	LG5120D	LG2550D	IoT 10	IoT 30
✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓		✓
					✓		
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RPM					✓*	RPM	✓
				✓*		✓	
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# Technical Specification

Specification	Panel Mount Three Phase	2DIN Single Phase	2DIN Three Phase	5DIN Three Phase	
GENERAL CHARACTERISTICS					
Display type:	LCD single row (7 digits), LED 3Row (4 digits each)		LCD (3 row, 4 digits)		LCD (1 row, 7 digits)
Sensing / Measurement:	True RMS, 1 sec update time, 4 quadrant Power & Energy				
Rated voltage:	50-550 VLL	110-300 VLN	50-550 VLL		
Rated current:	10mA - 6A for 5A meter	100mA - 100A	10mA - 6A for CT operated, 100mA - 100A for Direct Current, 100mA - 120A for pass through		
Frequency:	45 - 65 Hz				
Poles description:	3P + N	1P + N	3P + N		
Measured accuracy class:	Class 1.0 default (Class 0.5S / Class 0.2 as per IEC 62053-22 Optional)				
Programmable setting:	415V LL Nominal & Primary Programmable upto 999 kV. Burden: 0.2VA Max. per phase		415V LL Nominal & Primary Programmable upto 999 kV. Burden: 0.2VA Max. per phase		
Permissible overload:	120%, Burden: 0.2VA per phase				
External fuse rating:	200mA slow blow				
CT PT ratio max.:	2000 MVA programmable		2000 MVA programmable		
Auxiliary supply:	80-300V AC/DC, Lower AUX available on request for selected models		Self Powered for direct current, 60-300V AC/DC for CT operated		
Power Consumption:	5VA Max.				
Data update rate:	1 sec.				
COMMUNICATION					
Device ID & Parity:	1 to 247 & Odd, Even, None (Preferred Even)				
Protocol & Interface:	Modbus RTU & RS485, Baud rate: 4800 bps to 38.4k bps (Preferred 9600). Isolation: 2000 volts AC isolation for 1 minute between communication and other circuits				
Wi-Fi Communication WiFi Protocol: 802.11 b/g/n; Frequency: 2.4 GHz ~ 2.5 GHz; Security: WPA/WPA2, WPA-PSK/WPA2-PSK; Encryption: WEP/TKIP/AES; Network Protocol: IPv4, TCP; Receive Sensitivity: -83 dBm Typical					
ENVIRONMENTAL CHARACTERISTICS					
Operating temperature:	-10°C to + 55°C (14°F - 131°F)				
Storage temperature:	-25°C to + 70°C (-13°F - 158°F)				
Humidity:	5% to 95% non-condensing				
Altitude:	Below 2000 mts				
Measurement category:	CAT III				
Pollution degree:	2 (As per IEC 61010)				
PROTECTION CLASS					
Ingress protection:	IP20 - terminal side IP 54 - Front facia panel mount (as per IEC 61010-1)				
SAFETY AND STANDARDS					
Construction:	IEC/EN 61010-1 edition 3, CAT III, 300V LN / 600V LL, Protection class II				
Standards:	UL 61010-1, IEC/EN 62052-11				
MECHANICAL CHARACTERISTICS					
Weight	Unpacked: 175 gms, Packed: 250gms				
Torque at terminals	1 N-m (CT Operated), 2.5 N-m (Direct Current)	2.5 N-m	0.5 N-m	1 N-m (CT Operated), 2.5 N-m (Direct Current)	

## Mechanical Specification

