ELMEASURE®
Possibilities...Infinite

Products for Efficient Energy & Process Management

WHAT ARE WE?

A SPARKLE TO KEEP THE ENERGY ALIVE FOREVER.

15+ Years in the Energy Business

Product Versatility to 500+ & counting

Tailor-made Solutions for 25+ Industries

60,000+ & Growing no. of Happiest Clients

5 Million products in the field

Footprints in 45+ Countries

ABOUT US

Elmeasure India is a fast growing technology leader in the field of energy management. The Return on Investment is typically less than 12 months and the user can have recurring profits. Elmeasure India Pvt. Ltd. was promoted in 2004 by a young team of entrepreneurs with a collective experience of more than a decade in the field of energy management.

Elmeasure has its Headquarters at Bangalore and state of the art manufacturing facilities at Bangalore and Coimbatore. Elmeasure is renowned for its technical know-how in the field of energy management. It is backed by a pool of experts to invent, customize & serve the needs of 25 + industries over the globe.

Elmeasure is a complete package of 500+ product varieties, 10+ Customizable Solutions & 300+ brains with stupendous & steady growth every year that is not same & not small. As a result, it was the fastest growing manufacturing company of the year 2016, 2017 &

One Platform,
Many Possibilities...

Energy | Costs | Manpower | Environment

Monitor

Energy | Process | Water | Gas

Analyze

Dynamic dashboard | KPI reports | Real time alerts & notifications

Communicate

WiFi | Zigbee | GPRS | 4G | Ethernet | RS485 | Modbus / MQTT

Control

On-premises | Remote | Scheduled

iD-LOG

PORTABLE POWER QUALITY ANALYZER

3 Phase and Unbalanced Load | Harmonics

HAND HELD PORTABLE POWER ANALYZER WITH HIGHER ACCURACY AND DATA LOGGING!

Features :

Ability to connect and analyse various types of electrical systems

- Single Phase
- Unbalanced phase with or without neutral.
- Full traditional energy analysis (V, I, P, Q, S, F, PF, THD%, actual values / Minimum / Maximum / Average, energy meters and consumption generated for each phase and single phase.

Analysis of power quality parameters

- Harmonics of current and voltage for each phase and for the neutral.
- Phase unbalance voltage.
- Net interruption , overvoltage, sags.
- Test according to EN 50160.

Advance Features :

- Real measurement of the neutral current.
- Display waveforms of currents and voltage.
- Setting four tariff bands with display of relative costs.
- Configuration and display of alarms and threshold on selectable measurement.
- Visualization of the time course of selectable parameter (trend)
- Checking of the correct connection of the instrument to the system.
- Possibility to measure long-term campaigns.
- Choice of language.
- Customizable display, choosing which parameter to view according to a rotation in the lower part and turning it 90° in relation to the convenience of reading.

Benefits :

- Equipped with a large graphical LCD with high efficiency, which allows the visualization of waveforms, graphics, etc.. and the use of multilingual menu (English, Italian, Spanish, Germany & French). The white pixels on indigo provide exceptional visibility of the display.
- An elegant keyboard with 10-key dual function allows the user an easy and intuitive navigation menu.
- The instrument can be indifferently grasped through its ergonomic rubber, or else placed on a plane thanks to an integrated removable support, both to simplify the measurement operations on field or to use near a PC.
- The availability of a microSD memory card for storing data and USB port for communication with PC, allows the creation of accurate measurement campaigns and the subsequent analysis of the data using the dedicated software supplied.
- A further innovation is the equipment of mini flexible current probes. This feature significantly improves the portability and handling of the instrument, reducing weight and size, without impairing the possibility of measurement.

iD-LOG MAKES IT POSSIBLE

- Control loads, consumption and costs.
- Test the correct dimensioning of new plants.
- Prevent risk to overheating and lack of insulation due to high harmonic content.
- Correctly resolve the problems of power factor correction;
- Identify and eliminate peak load of power to reduce the electricity consumption.
- Monitor power and consumption in different time zones
- Monitor and evaluate the performance of UPS, with measures AC input and DC output (or vice versa).
- Measure signals including non-symmetrical PWM control of inverter.
- Identify the causes of issues resulting from a poor quality electrical (presence of harmonics, interruptions, overloads, voltage dips, phase unbalance voltage) which, in addition to causing potential production blocks, may damage.

Functions :

Mechanical

Type	Handheld
Dimension	203 x 116 x 53 mm.
Weight	600 g
Protection	IP30
Container material	ABS V0 e EPDM

ELECTRICAL	
Single Phase	Y
Three Phase	Y
Input Voltage	4 (3 + N common + AUX)
Input Current	6 - 3000A
Safety	5 independent

POWER SUPPLY	
Battery Package	4 x AA 2100mAh
Supplier/battery charger.ext.	100-240V AC /50-60Hz
Autonomy Charge	>24h

USER INTERFACE		
LCD	Type	FSTN Graphic LCD
	Dimension	68 x 68 mm.
	Definition	128 x 128
	Color	White Pixel / Indigo Background
	Back light	
Menu		Multilingual
Keyboard		10 membrane keys
Languages		English/Spanish/Italian/German/French

ANALYZED SYSTEMS	
Single Phase	Y
Two Phase	Y
3 Phase + N, Balanced	Y
3 Phase + N, Unbalanced	Y
3 Phase Without neutral, Balanced	Y
3 Phase w/o neutral, Unbalanced	Y
Photovolt @ 1 Phase Inverter	N

COMMUNICATION	
USB	To PC
Wireless (ZigBee)	Y

DATA RECORDING	
Internal memory	64kB
External memory	Micro SD

KIT COMPOSITION	
Mini flexible clamp	3
Voltage cable	4
Crocodiles	4
Voltmetric tip	N
Cable/miniUSB_B	Y
External power supply	Y
CD software	Y
MicroSD card	4 GB
Hard Case	Y
Soft Bag	N
Solar meter	N
Temperature probe	N
DC clamp	N

REFERENCE STANDARDS	
EN 61010-1	Y
EN 61326 / A1/A2/A3	Y
EN 50160	Y
CEI 82-25	N
EN 60904-3	N

Measure

Traditional energy analysis (V, I, P, Q, S, F, PF, THD, cosϕ , peak, minimum, max, medium, max, demand, etc.		Y
Three Phase counter		Y
Counter for each phase		Y
Cogeneration		Y
Waveform		Y
Harmonics		Up to 50th order
Histogram Harmonics		Y
Dips		>500ms
Swells		>500ms
Interruptions		>500ms
Fast Transient		Y
Trend		Y
Unbalance Voltage		Y
Test EN 50160		Y
Neutral Current		Y
Inrush Current		Y
DC Measure		Y
Alarms		Y
K Factor		Y (Up to 25th order)
Solar Radiation		Y
Temperature photovoltaicpanel		N
Environmental temperature		N
Voltage		1000V AC (P-N); 700V AC (P-P); 1000V DC
Current		Up to 3000A (with MiniFlex Sensor)
Frequency		50Hz - 60Hz - 400Hz
Tariffs Band		Y
Energy costs		Y
Precision	Voltage	±0.25% +0.05 F.S.
	Current	±0.25% +0.05 F.S. ± Σ CT
	Power	±0.5% +0.05 F.S.
Measurement camping		Y
Alarm Log		Y
Test Voltage		N

ENVIRONMENT	
Functional tempreture	-10 to +55 °C
Storage temperature	-20 to +85 °C
Max. Humidity	95% (No Condensation)

ACCESSORIES	
CLAMP 1000A/1V	Y
CLAMP 200A/1V	Y
CLAMP A/1V	Y
FLEXIBLE CLAMP 1000A Ø40	Y
FLEXIBLE CLAMP 3000A Ø80 (NEW)	Y
CLAMP 400 IN DC	Y
CLAMP 1000A IN DC	Y
Set auxiliary voltage cable	Y
Set 4 voltage cable Ø4	Y
Hard Case	Y
Battery package NiMh	Y

EN | PN

DEMAND CONTROLLER

Multifunction Meter | Demand Controller | Import Export | Harmonics | Power Quality | Digital/Analog Input or Output | Dual Source

HIGH-END MULTIFUNCTION METER FOR COMPREHENSIVE ENERGY MANAGEMENT!

Features :

- High / Low recording VLL, VLN, A, Hz, W, VA, PF, VAR value storage with time stamp.
- Accuracy class 1.0 as per IEC 62053-21, 0.5s option, Class 0.2s
- User programmable Password Protection.
- Measures THD and Individual harmonics up to 63rd order with a sampling rate of 512 samples / cycle.
- Captures and measures power quality events: K factor, Crest factor, Sag / Swell, Interruption and Unbalance in accordance with EN 50160.
- Display basic, power, energy, demand for both import and export parameters.
- Representation of waveforms for instantaneous V, I, Sag / Swell. voltage and current harmonics histogram.
- Records events such as Sag / Swell for voltage with the time stamp in 1s duration.
- CO_2, ON Hr, Power Interruptions.
- Max demand 4 high / 4 low, Flash 6MB, 12am snapshot, 31st day snapshot.
- Simultaneous sampling of voltage and current, programmable PT & CT ratio.
- Demand update every second to forecast kVA, kW & kVAR accurately.
- Clearance and Creepage distance meets UL- 61010.
- Programmable starting current in % of 5A secondary. Default 10mA
- Programmable Auto scrolling time - 1 sec. to 10 sec. (Default 5 sec.).
- Programmable Energy display - Counter based or Resolution based.
- Energy resetting at 9999999 kVAh x MF.
- Front LED pulse 16000 imp/kWh.
- OLD register to store previously cleared Energy & Load hours.
- Ampere hour (Ah) & PF average parameter.
- Phase wise Voltage Sag & Swell Wave Forms.
- LCD 8 parameter display at a time, 8 Digits energy.
- Power save mode with Enable/Disable option.
- Available RS485 communication & optional Ethernet communication (factory configurable).
- Byte order option - Field Programmable Float / Little Endian / Big Endian data format.

Optional Features EN :

- Digital outputs - 4 potential free contacts with programmable time delay. Hysteresis of 1%. Trip time delay: 1 to 180 sec.
  Output configurable to any of the parameters from VLL, A, F, W, PF, VA
- TOD option (Energy & Demand upto 8 slots).
- Pulse output 300/TR/KWh.
- Analog Input upto 2. Accuracy of class 1% FS.
- Digital Input upto 4
- Analog Output - Two independently programmable to 0-20 mA (or) 4-20 mA
- Individual Harmonics upto 63rd order.
- Demand Controller with 4 Relay outputs.
- RTC synchronisation through communication.
- Upto 60A or 100A direct measurements using Hanging CT.
- Datalogger - 6MB optional / Ethernet with 14GB memory for IOT device.
- Dual Source

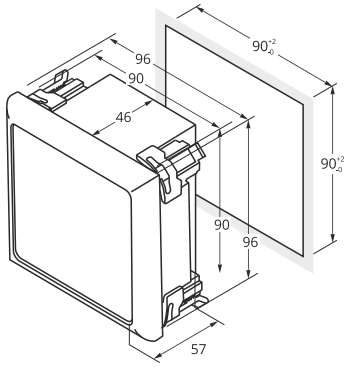
Typical Applications

- Automatic connection or disconnection of DG connected to common bus .
- Keep equipment in safe region.
- Protection of equipment from Under/ Over Voltage or Current or Frequency.
- Process control.
- Protection of 3 phase equipment from Single phase prevention, Overload etc.

Multiplication factor for counter based energy mode

Full Scale in Watts : $\sqrt{3} \times V_{Pri} \times A_{pri} / 1000$	0.4k to 4.0k	4.01k to 40k	40.1k to 400k	400.1k to 4000k	4M to 40 M	40 M to 400 M	400M to 4000M
Multiplication Factor:	0.01	0.1	1.0	10	100	1000	10000
Unit of display	kWh				MWh		GWh

Mechanical Specification:



Parameters

	PN 8710
ACCURACY OPTION	Graphical LCD
CLASS 1.0	■
CLASS 0.5S	□
CLASS 0.2S	□
BASIC PARAMETERS	
V_{12} V_{23} V_{31}	■
V V_1 V_2 V_3	■
A A_1 A_2 A_3	■
Hz	■
Angle V/A RPM	■
POWER PARAMETERS	
Unbalance V & A	■
W W_1 W_2 W_3	■
VA VA_1 VA_2 VA_3	■
PF PF_1 PF_2 PF_3	■
VAR VAR_1 VAR_2 VAR_3 - Ind	■
VAR VAR_1 VAR_2 VAR_3 - Cap	■
POWER QUALITY PARAMETERS	
THD - V A Power upto 63rd	■
Ind. Harmonics upto 63rd	■
K Factor	■
Crest Factor	■
High Low	■
Sag & Swell	■
ON Hr	■
Power Interruptions	■
CO_2	■
% Load	
TEHD	■
TOHD	■
INTEGRATED PARAMETERS	
Wh	■
VAh	■
VARh-Ind	■
VARh-Cap	■
Load Hrs.	■
RD (IE)	■
Kwh Total	■
KVAh Total	■
KVARh Total	■
OLD Energy	■
OLD Load Hrs.	■
OLD RD Details	■
Volt Squared Hours	■
Amp Squared Hours	■
TOD PARAMETERS	
TOD Demand	■
TOD Energy	■
TOD RD (IE)	■
DEMAND PARAMETERS	
Sliding Demand	■
Block Demand	■
Rising Demand	■
Forecast Demand	■
Step Demand	■
Maximum Demand	■
Maximum Demand 4 high / 4 low	■
Cumulative MD Option	■
Additional Load	■
12am & 31st day snapshot	■
6 MB Data Logging	■
DUAL SOURCE	
Dual Source	
ADDITIONAL OPTIONAL FEATURES (ANY ONE)	
Ethernet +14 GB Data Logging	■
2DI	■
4 DI (WAGES)	■
1DO	■
2DO	■
2AI	■
2AO	■
2AI, 2DO	■
2DO, 2AO	■
4DO	

□ Optional feature * Only through communication

Technical Specification:

	PN 8710
GENERAL CHARACTERISTICS	
Sensing / Measurement	True RMS, 1 Sec update time, 4 Quadrant Power & Energy
Rated voltage	50-600 VLL
Rated current	10mA - 6A
Frequency	45 - 65Hz
Poles description	1P + N, 3P, 3P + N
Sampling rate	512 bits / cycle
Measured Accuracy Class	Class 1 as per IEC 62053-21 / Class 0.5 / Class 0.2S as per IEC 62053-22 (Optional).
Display type	LCD 8 row
Instantaneous Digits	4
Integrated Digits	7
Programmable Setting	110 or 415V LL Nominal & Primary Programmable up to 999 kV. Burden: 0.2VA Max. per phase
Permissible overload	120%, Burden: 0.2VA per phase
External Fuse Rating	200mA
CT PT Ratio Max	2000MVA Programmable
Auxiliary supply	80-300V AC / DC
Power consumption	4VA nominal. 5VA for DMC
Data update rate	1 Sec.
COMMUNICATION	
Device ID & Parity	1 to 247 & Odd, Even, None (Preferred Even)
Protocol & Interface	Modbus. RTU & RS 485
Baud rate	9600 bps to 115200 bps (Preferred 9600 bps)
Isolation	2000 volts AC isolation for 1 minute between communication & other circuits
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 2000mts
Measurement Category	CAT III
Pollution degree	2 (As per IEC 61010)
PROTECTION CLASS	
Ingress protection	IP 51 (IP 54 front facia optional) & Double Insulation (As per IEC 61010-1)
ELECTROMAGNETIC COMPATIBILITY	
Electrostatic discharge	IEC 61000-4-2g
Immunity to Electromagnetic RF Fields	IEC 61000-4-3g
Conducted Immunity	IEC 61000-4-6g
Immunity to Magnetic Fields	IEC 61000-4-8g
Immunity to voltage dips and interruptions	IEC 61000-4-11g
Fast transient	IEC 61000-4-4g
Immunity to surge waves	IEC 61000-4-5g
Impulse voltage Conducted and radiated emissions	CISPR- 22
SAFETY AND STANDARDS	
Construction	IEC/EN 61010-1 ed.3, CAT III, 300 V LN / 600 V LL , protective class II.
Standards	UL 61010-1, IEC/EN 62052-11
MECHANICAL CHARACTERISTICS	
Weight	Unpacked 350 gms. Packed 450 gms. (It may vary based on optional features)
Dimensions	96x96 mm
Torque	1 N-m
Wire gauge	11 AWG

IM

POWER QUALITY METER

Multifunction Meter | Demand Controller | Load Manager | Import Export | Harmonics | Power Quality | Digital/Analog Input or Output

HIGH-END MULTIFUNCTION METER FOR COMPREHENSIVE ENERGY MANAGEMENT!

iM8000 is an ideal choice for remote monitoring of devices via M2M software platform. The performance and availability of devices can be monitored using inbuilt MQTT as well as TCP/IP protocol. Also, iM8000 can provide comprehensive information on all power quality issues.

Unique Features :

Sag & Swell with timestamp & 10 waveform storage.

Real-time THD & Individual harmonics (upto 63rd harmonics) with value & graph in the display & web browser.

Data storage upto 14GB.

Real-time FFT waveform for individual phase both current & voltage in the web browser.

Integrated web server for configuration & data.

Demand parameters (W, VA, VAR,) with Date & timestamp for Maximum Demand.

TOD option for Energy & Demand upto 8 slots.

Graphical Energy Report - Hourly, Daily & Monthly.

Direct cloud connectivity - Ethernet.

Data push in 5 sec. (ETH).

Diagnostic page.

Phasor diagram for voltage & current.

Pictorial representation of all 3 Phases simultaneous (Voltage & Current) in terms of sinusoidal waveforms.

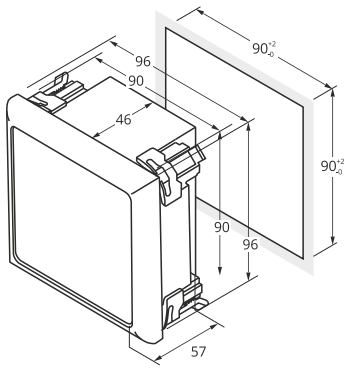
High-resolution display with capacitive touch.

Individual phase energy for import & export with 1-second update.

High / Low recording VLL, VLN, A, Hz, W, VA, PF, VAR value storage with time stamp.

Real-time waveform for all the voltage & current can be displayed simultaneously on meter & web browser

Mechanical Specification:



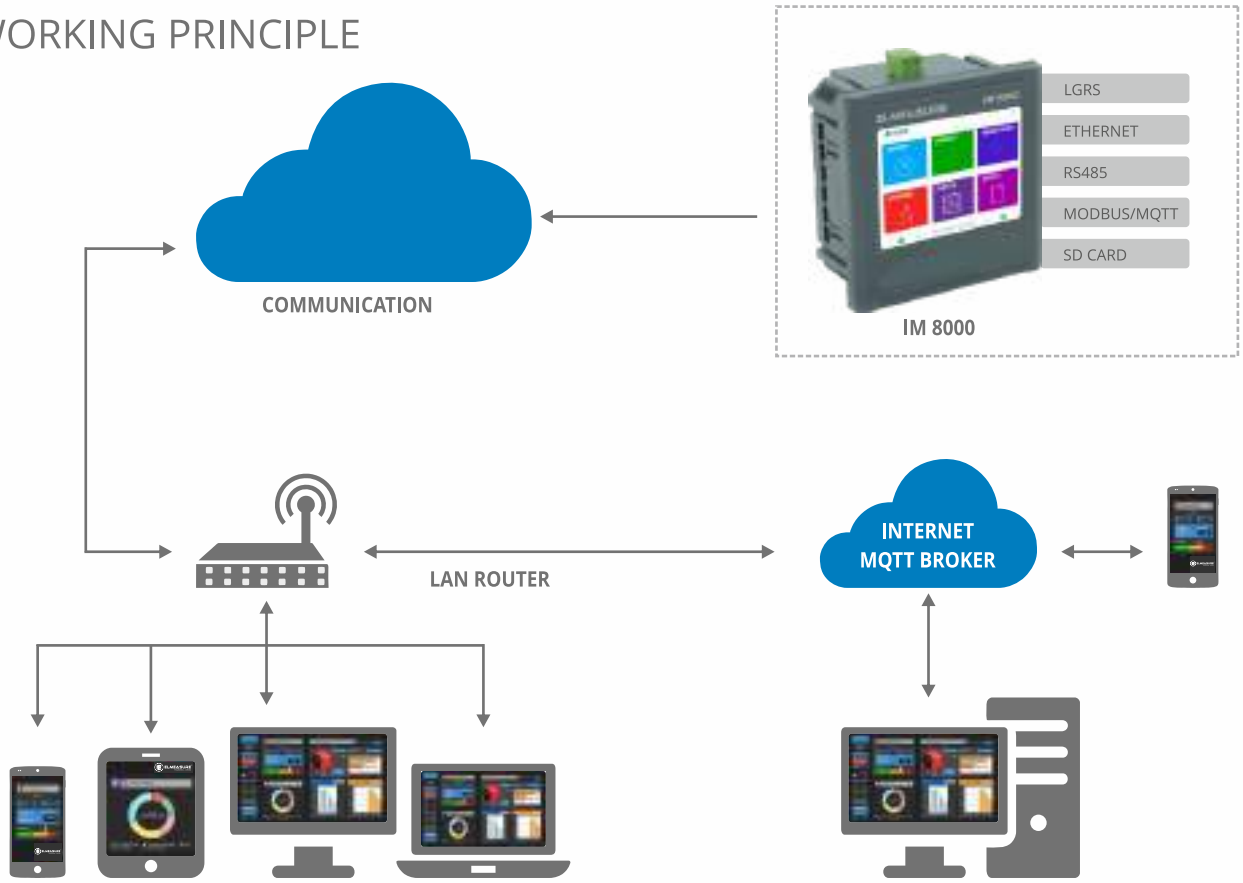
Features :

- Displays all the electrical parameters & waveforms on Webpage and TFT Display.
- 100% LIFO data recovery.
- Gateway IP, user name & password can be changed to default IP (192.168.5.175), username (elmeasure) & password (elmeasure) from holding hardware reset key for 10 seconds.
- Real time SD card status & memory space indication
- One touch recovery
- LED Indication for easy setup & trouble shooting
- Web browser for debug, configuration, setup & information on Device brief description.
- Configurable account based secure access - required login name & password for login
- Online setting changes (reboot is not required)
- Mobile data service network signal strength
- Color code indication for device & network connection
- Gateway statistic for remote diagnosis & troubleshooting
- Online debug status
- Built in RTC with configurable option
- DHCP (obtain an IP address automatically) or Static IP
- Configurable broker IP Address, port number, Quality of services
- Easy switch of Ethernet communication interface
- Secured Data transfer over MQTT with user authentication for connection & data transfer
- Multi-client Connection
- No Gateway ID conflict in wildcard topic enable
- Full device parameter logging.
- Transaction ID based data logging, publish & recovery.
- Transaction ID based message acknowledgement & auto retry/ recovery
- Options to disable live, log & recovery.
- Suitable for EMS application & Monitors all electrical data.
- Configurable UART Baud rate, all meter configurations through Webpage.
- Electrically isolated communication ports.

Multiplication factor for counter based energy mode

Full Scale in Watts : $\sqrt{3}$ × VPri x Apri /1000	0.4k to 4.0k	4.01k to 40k	40.1k to 400k	400.1k to 4000k	4M to 40 M	40 M to 400 M	400M to 4000M
Multiplication Factor:	0.01	0.1	1.0	10	100	1000	10000
Unit of display	kWh				MWh		GWh

WORKING PRINCIPLE



SOFTWARE SCREENS

Technical Specification:

Specification	Description
Accuracy:	Class 1 (Default) IEC 62053-21, Class 0.5S IEC 62053-22 (Option)
Sensing/ Measurement:	True RMS, 1 Sec update time, 4 Quadrant Power & Energy.
Input Voltage:	4 Voltage inputs (V_1, V_2, V_3, V_N); Programmable 110 or415V LL Nominal (Range 50 – 550V LL); Primary programmable up to 999 kV. Burden: 0.2VA Max.per phase
Input Current:	Current inputs (A_1, A_2, A_3) 50mA - 6A (Field configurable 1A or 5A). Primary programmable up to 99kA. Overload: 10A max continuous, 50A max for 3s Burden: 0.2VA Max, per phase.
Aux-Supply (control power):	80 – 300V AC / DC Burden: 5VA Max
Display type:	Touch Screen
Communication RS485 interface:	*Parity: Odd, Even, None (Preferred Even)* *Baud rate:* 9600 bps to 115200 bps. (Preferred 9600 bps). *Isolation:* 2000 volts AC isolation for 1 minute between communication and other circuits.
Weight:	Unpacked: 400gms, Packed: 500gms
Torque	1 N-m
Wire gauge	11 AWG

LG+

DIGITAL MULTIFUNCTION LOAD MANAGER

Basic | Power | Energy | Load Manager | Digital Output | Pulse Output

SIMULTANEOUS MEASUREMENT OF VARIOUS ELECTRICAL PARAMETERS!

Features :

- Accuracy Class 1.0 (default) as per IEC 62053-21, Class 0.5 as per IEC 62053-22 (Optional).
- True RMS measurement.
- Simultaneous sampling of Volts & Amps.
- Energy display programmable-counter based or resolution based.
- Energy resetting at 999999 kVAh* Transformer Ratio
- Positive energy accumulation even with CT polarity reversal, reverse lock programmable.
- User programmable password protection.
- Auto scrolling.
- Auto-scaling of Kilo, Mega, Giga and Decimal point.
- Low PT, CT burden.
- Front LED pulse 1250 imp/kWh of secondary input.
- Programmable PT, CT ratio upto 2000 MVA.
- Programmable kVAh (default kWh) for meters with Energy parameter.
- Wide Measurement range - 10mA - 6A.
- Clearance and Creepage distance meets safety standard.
- Finger touch proof terminals to voltage and current connections.
- Parameter name & value displaying using 7 seg LEDs.
- 6 digits display on each row for better readability.
- Available in LED (3 row, 2 row and 1 row), LCD, DIN rail (1 row).
- Field programmable Star (Wye) or Delta or Single phase configuration.

LG+5310

- Quick and Easy navigation and programming.
- Displays more than 25 parameters Basic, Power and Energy.
- Basic : VLL, VLn, A, (Avg. & PW), F, RPM.
- Power : W, PF, VA, (Avg. & PW)
- Energy : Wh, Hi. Amps, LH, OLD Wh, OLD LH, ON Time (non resettable).
- OLD register to store the previously cleared energy value and its corresponding LH.
- **Optional -** Programmable relay output (upto 2) for any threshold of Under & Over (Voltage, Amps, Frequency**),** Under PF, Over Watts, Over Wh, Phase missing. Programmable tripping time up to 180 sec. with hysteresis of 1%.

LG+ 5110 DIN rail

- Displays Basic : VLL, VLn, A (Avg. & PW), F. Power: W, PF, VA (Avg. & PW). Energy : Wh, LH, Old Wh, Old LH.
- Energy is programmable to Wh or VAh with 7 digit resolution (LCD), 6 digit resolution (LED) and 4 digit resolution for instantaneous parameters.
- OLD register to store the previously cleared Energy value and its corresponding LH.
- 80 to 300 V AC/DC auxiliary supply.
- **Optional -** Programmable relay output (upto 2 in LCD version and 1 in LG+ 5110) for any threshold of Under & Over(Voltage, Amps, Frequency), Under PF, Over Watts, Over Wh, Phase missing. Programmable tripping time upto 180 sec with hysteresis of 1%.

LG+ 1119 DIN rail

- Field programmable W or VA or PF or Wh (any one parameter). Factory configured : Wh.
- Displays programmed parameter name and value for instantaneous parameters.
- Reduces complexity of stocking as this can be used for multiple measurement applications.
- OLD register to store the previously cleared energy value.

Application Information:

LG+ series has optional optically isolated RS485 or pulse output, which can be integrated into a process through a PLC/DCS for online energy management
For pulse output, if the DCS/PCS has a self excited 12V or 24V, external 24V DC supply is not required.

DUAL SOURCE ENERGY METER - Features :

- Automatic switching of display based on input source (EB/DG).
- Load hours and ON hours for both sources.
- Positive energy accumulation / reverse lock programmable.
- Programmable to kWh or kVAh.
- 'OLD' registers to store the previously cleared energy values.

Additional Features: LG+5220

- 2 Row display with 6 digits each.
- Simultaneous display of Energy for EB & DG in single page.
- Displays Basic : VLL, VLn, A (Avg. & PW), F.
  Power : W, PF (Avg. & PW).
  Energy : Wh, LH, ON hrs OLD Wh, OLD LH(both for EB & DG)
- **Optional -** Programmable relay output upto 2 relays.
  Options : Under Voltage, Over Voltage, Under Amps, Over Amps, Under Frequency, Over Frequency, Under PF, Over Watts, Over Wh, and Phase missing (both for EB & DG).
  Programmable tripping time upto 180 sec with hysteresis of 1%.

LG+ 3220

- 2 Row display with 6 digits each.
- Simultaneous display of Energy for EB & DG in single page.
- Displays W, PF (Average & Phasewise).
- Wh, OLD Wh, (both for EB & DG)
- **Optional -** Programmable relay output upto 2 relays.
  Options : Under PF, Over Watts, Over Wh, and Phase missing (both for EB & DG).
  Programmable tripping time upto 180 sec with hysteresis of 1%.

LG+ 5120L

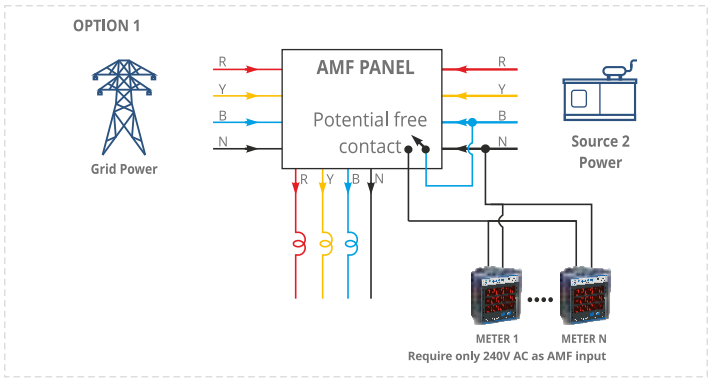
- Energy is programmable to Wh or VAh with 7 digit resolution and 4 digit resolution for instantaneous parameters.
- Displays Basic : VLL, VLn, A (Avg. & PW), F.
  Power : W, PF (Avg. & PW).
  Energy : Wh, LH, ON hrs., OLD Wh, OLD LH (both for EB & DG)
- **Optional -** Programmable relay output upto 2 relays.
  Options : Under & Over (Voltage, Amps, Frequency), Under PF, Over Watts, Over Wh, and Phase missing (both for EB & DG).
  Programmable tripping time upto 180 sec with hysteresis of 1%.

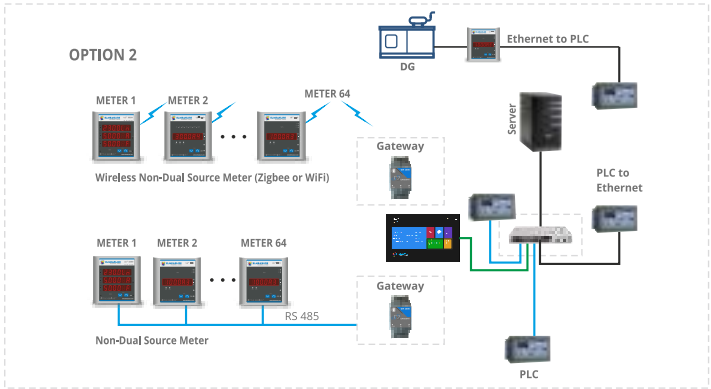
Multiplication factor for counter based energy mode:

Full Scale in Watts $= \sqrt{3} \times$ VPri x APri	0.4k to 4.0k	4.01k to 40k	40.1k to 400k	400.1k to 4,000k	4 M to 40 M	40 M to 400 M	400 M to 4000 M
Multiplication Factor:	0.01	0.1	1.0	10	100	1000	10000
Unit of display	KWH			MWH			GWH

Energy Reset : 999999 kVAh × Transformer Ratio.

Typical Connection Scheme for Dual Energy Measurements

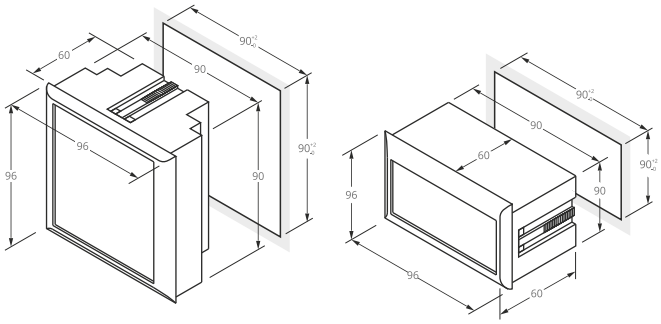




Mechanical Specification:

Dimension Bezel:
96 x 96 mm (Depth 50mm behind Bezel)
96 × 48 mm (Depth 45mm behind Bezel)

Panel Cutout:
90^{+2}_{-0} x 90^{+2}_{-0} mm
90^{+2}_{-0} x 42^{+2}_{-0} mm



Technical Specification:

Specification	Description
Accuracy:	Class 1 (Default) as per IEC 62053-21, C lass 0.5 as per IEC 62053-22.
Sensing/ Measurement:	True RMS, 1 Sec update time. 4 Quadrant Power & Energy.
Input Voltage:	4 Voltage inputs (VR, VY, VB, VN). Programmable 110 or 415V LL Nominal (Range 50 to 550V LL). Primary Programmable up to 999 kV. *Burden:* 0.2VA Max. per phase.
Input Frequency:	45 - 65 Hz
Input Current:	Current inputs (AR, AY, AB) 500mA - 6A (Field configurable 1A or 5A). Primary programmable up to 99 kA. *Overload:* 10A max continuous, 50A max for 3 Sec. *Burden:* 0.2VA Max. per phase.
Aux-Supply (control power):	(Control Power)- 80 - 300V AC/DC, 40-70Hz. *Burden: 5*VA Max
Display Type:	LG+/µG+: 10mm height bright red LED display. LCD: 10mm height bright LCD.
Display Resolution:	4 digits for instantaneous, Integrated: 6digits for LED, 7digits for LCD
CT PT Ratio Max:	2000 MVA programmable.
Communication:	Rs485 interface Industry Standard Modbus RTU protocol (RS232 optional). *Baud rate:* 4800 bps to 19200 bps. (Preferred 9600 bps). *Isolation:* 2000 volts AC isolation for 1 minute between communication and other circuits.
Weight:	*Unpacked*: 300 gms, *Packed*: 400 gms

Note: *Additional error of 0.1% of full scale, for meter input current below 500mA*

Applicable Standards :

Test of insulation properties	IEC60060-1
Test of Accuracy requirements	IEC62052-11
Test of electrical requirements	IEC62052-11
Radio interference suppression	CISPR22
Fast transient burst test	IEC61000-4.4
Damped oscillatory waves immunity test	IEC61000-4.12
Test of immunity to electromagnetic RF fields	IEC61000-4.3
Test of immunity to conducted disturbances, Induced by radio-frequency fields	IEC61000-4.6
Test of immunity to electrostatic discharges	IEC61000-4.2
Surge immunity test	IEC61000-4.5
Test of the effect of the climatic environments	IEC60068-2
Mechanical tests	IEC60068-2
Test of protection against penetration of dust and water	IEC60529
Test of resistance to heat and fire	IEC60695-2
Safety standard	IEC61010–1

Product Selection Guide :

MODEL NO.	BASIC				POWER			ENERGY			ACC CLASS 1.0/0.5	OPTIONAL FEATURE			
	VLL RYB	VLN RYB	AMP RYB	Hz	W RYB	PF RYB	VA RYB	kWh/ kVAh	Load Hrs/ ON Hrs	OLD ENERGY		RS232⬟	RS485	PULSE O/P	DIGITAL O/P ⬟
LG+ 1119					●	●	●	●		OLD	✓	✓	✓		
LG+ 5110	VLL	VLN	AMP	Hz	W	PF	VA	Wh	LH	OLD	✓	✓	✓○	✓	1
LG+ 5310	VLL	VLN	AMP	Hz	W	PF	VA	Wh	LH & OH	OLD	✓	✓	✓✷	✓	2
LG+ 3220 (DS)					W	PF		Wh		OLD	✓	✓	✓		2
LG+ 5220 (DS)	VLL	VLN	AMP	Hz	W	PF		Wh	LH & OH	OLD	✓	✓	✓		2

LCD / DIN rail Version

LG+ 1119L/D					●	●	●	●		OLD	✓	✓▲	✓		
LG+ 5120L (DS)	VLL	VLN	AMP	Hz	W	PF		Wh	LH	OLD	✓	✓	✓		2 ■

▲ For DIN rail Version only RS485 Communication Option ✷ Zigbee Communication Option ○ Analog Output kWh / kVAh Programmable at site.

● LG+ 3399: Wh and PF and any two parameters [Basic (VLL,VLN,AMP,Hz) or W or VA] programmable ⬟ Restricted Option ■ For LCD version only
LG+/µG+ 1119/L/D: Any one parameter [W or PF or VA or Wh] programmable
LG+/µG+ 1129/L/D: Any two parameters [Basic (VLL,VLN,AMP,Hz) or W or PF or VA or Wh] programmable

EDC

DC ENERGY METER

Multi-channel DC Energy | Voltage/Current full scale

SMART DEVICE FOR ALL RENEWABLE ENERGY RESOURCES!

Features :

- Single meter measures multiple channels.
- Differential current input for all the current channels.
- Voltage Full scale programmable.
- Current full scale programmable independently.
- Reverse lock option for not accumulating the reverse current energy. This can be used for the better study of charging and discharging circuit.
- Programmable shunt secondary 50mV or 75mV.
- Energy display programmable-counter based or resolution based.
- Energy resetting at 999999 x PT Primary x CT Primary
- Auto scaling of kilo, mega decimal point.
- Optional programmable relay output maximum 1 and tripping time upto 180 seconds.

Additional features for EDC 1100

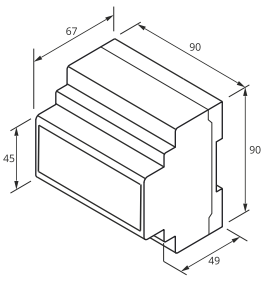
- Displays Voltage, Current, Watts & Energy for 1 channel
- Optional RS485 communication.

Additional features for EDC 4100

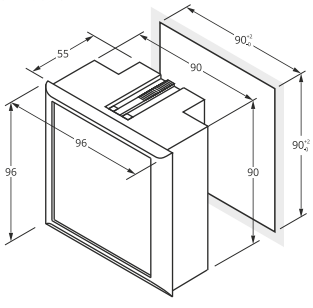
- Displays Voltage for 1 channel, Current, Watts & Energy for 4 channel
- Optional RS485 communication.

Mechanical Specification

DIN Rail



Panel Mount



Applicable Standards :

DIN 40050 EN 60529	Degrees of protection provided by enclosure for electrical equipment against ingress of solid foreign objects.
DIN / IEC 688-1	Electrical measuring transducers for converting AC electrical quantities into DC electrical quantities.
IS 12784	Electrical measuring transducers for converting AC electrical quantities into DC electrical quantities.

Technical Specification:

Specification	Description
Accuracy:	Class 1.0 FS, Class 0.5 FS (optional)
Display resolution:	1Row 6 Digits for EDC4100 and EDC1100.
Input Voltage:	One Voltage Input (48VDC Factory Default). Varieties of range in Voltage like 48VDC, 100VDC, 150VDC, 300VDC, 600VDC, 800VDC (factory settable). Primary Programmable range: 0.100 to 999.9kV .
Input Current:	One / Four Current Input (50mV, 75mV Shunt type). Individually Programmable primary current. Range: 0.100 to 999.9k .
Aux-Supply:	40 - 300V AC/DC, 40-70Hz *Burden*: 4VA Nominal.
Communication RS485 interface :	*Parity: Odd, Even, None (Preferred Even)* *Baud rate:* 4800 bps to 19200 bps. (Preferred 9600 bps). *Isolation:* 2000 volts AC isolation for 1 minute between communication and other circuits.
Weight:	*Unpacked*: 300 gms, *Packed*: 400 gms
Operating Temperature:	-10°C to +55°C (14°F to 131°F).
Storage Temperature:	-25°C to +75°C (-13°F to 581°F).
Humidity:	5% to 95% non condensing.
Protection index:	IP 51 (IP 54 front option).
Torque	1 N-m
Wire gauge	11 AWG

BM

BRANCH CIRCUIT MONITOR

Multi Channel Load Manager | Power Distribution Unit/System

COMPACT DEVICE TO ENROUTE MULTIPLE CHANNELS!

Features :

- Multi-channel data collection.
- 3 Phase, 4 channels or Single phase 12 channels
- Displays Basic, Power and Energy parameters.
- Optional Pluggable Zigbee communication or Ethernet (Default RS 485).
- Space saving compact design for easy installation into existing panel boards.
- True RMS measurements.
- Simultaneous sampling of Volts & Amps.
- Accuracy class 1.0 as per IEC 62053-21, Class 0.5 as per IEC 62053-22.
- User programmable password protection.
- Energy resetting @ 999999 KVAh × Transformer ratio.
- Displays more than 25 parameters - Basic [VLL, VLn, A (Average & Phasewise), F], Power [W, PF, VA (Total & Phasewise)] and Energy [Wh, LH].
- Optional Ethernet with 14GB memory for IOT device.

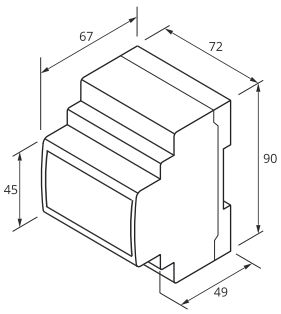
Note: *Customization can be done for other parameters provided volume justify*

Applications :

- For remote reading and control, the BM is supported by ELNet Software, designed for remote setup and data viewing and analysis.
- Building Management System: With the open modbus protocol, the BM can interface any system, such as building management, HMI etc.
- Compact : Ideal for Data Center.
- Ideal for apartments / commercial complexes billing and load pattern study on individual phase.
- Individual phase kWh measurement provides user flexibility of measuring 3 phase 4 channels or single phase 12 channels.
- Primary current can be independently configured making it ideal for any kind of industry or upgradation.

Note: *Additional error of 0.1% of full scale, for meter input current below 500mA for 5A setting*

Mechanical Specification

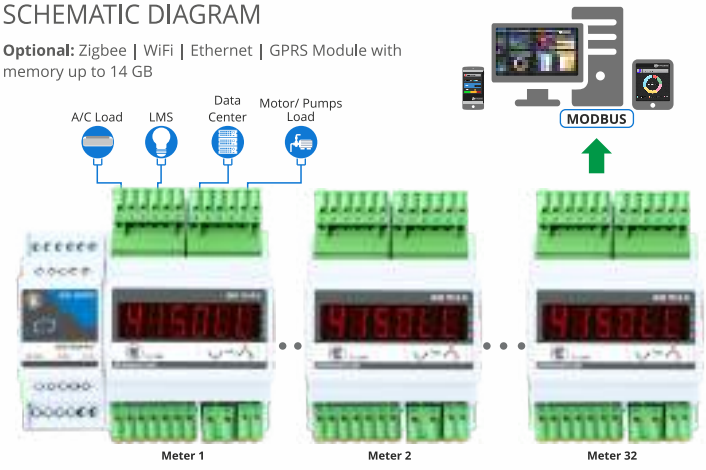


Technical Specification:

Specification	Description
Accuracy:	Class 1.0 (Default) as per IEC 62053-21, Class 0.5 as per IEC 62053-22 (Optional).
Sensing/ Measurement:	1:600 for channel 1 & 2, 1:120 for channel 3 & 4
Sensing/ Measurement:	True RMS, 1 Sec update time; 4 Quadrant Power & Energy
Input Voltage:	4 Voltage inputs (V_1 V_2 V_3 V_N) Programmable 110 or 415V LL Nominal (Range 80 to 550V LL) Primary Programmable up to 999 kV. *Burden:* 0.2VA Max. per phase.
Input Frequency:	45 - 65 Hz
Input Current:	Current inputs (A_1 A_2 A_3), 4 Channels - Each channel is independently configurable. Primary Programmable up to 99 kA. *CT output :* Can be upto 1000 mV or 100 mA from Split core CT or Hanging CTs - Manufacturing option.
Aux-Supply	80 - 300V AC / DC, 40-70Hz. *Burden:* 4VA Max.
Display resolution:	1 row 6 Digit for Integrated, 4 Digits for Instantaneous
CT PT Ratio Max:	2000 MVA Programmable.
Communication RS485 interface:	*Parity: Odd, Even, None (Prefered Even)* *Baud rate:* 4800 bps to 19200 bps. (Preferred 9600 bps). *Isolation:* 2000 volts AC isolation for 1 minute between communication and other circuits.
Weight:	*Unpacked:* 275 gms *Packed:* 350 gms (weight of CT excluded)

SCHEMATIC DIAGRAM

Optional: Zigbee | WiFi | Ethernet | GPRS Module with memory up to 14 GB



Current Transformers :

Hang on CT- 5A or 50A or 100A or 200A

Up to 100A, 16mm ID

Clip on CT-5A | 50A | 100A | 250A

Split Core CT-100A | 400A | 1000A

PE

AC STATIC WATTHOUR METER

Multifunction | Dual source | Over voltage/current cut off for protection

SINGLE DEVICE FOR ELECTRICITY, GAS & WATER MEASUREMENT!

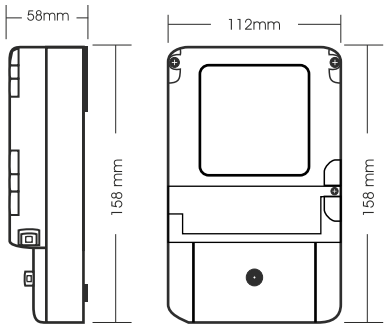
Software Features :

- Monthly fixed charges based on kVA/kW.
- Maintenance charges based on area or fixed.
- Advance information about tripping with 2 Alert SMS/Email for the different balance amount.
- Holiday cut off prevention.
- Night time cutoff prevention.
- SMS / Email will be sent stating negative threshold.
- EB/DG Grace threshold setting.
- kW/kWh logging every 15 minutes for future clarification, Profiling.
- Intimation on ELNet whether it is working on EB or DG to prevent misuse.
- ELNet displays EB/DG kWh, kW and Balance.
- Wrong Recharge reversal entry.
- Online Customer Login Portal- User can get balance credit through any of the interface (Mobile / web-portal) or through Apps.
- Service provider name logo, Grievance forum.
- Information through Smart mobile app where in no need of remote display.

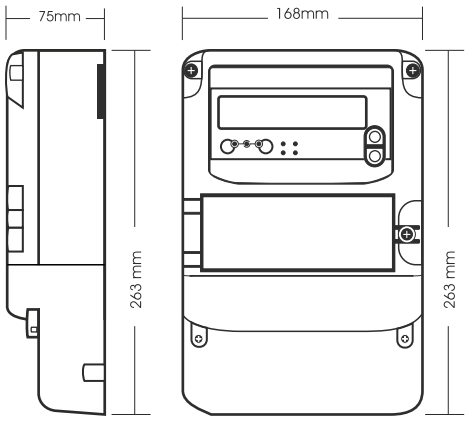
Technical Specification:

Specification	Description
Accuracy	Class 1.0 (default) as per IS 13779/15884, Class 0.5 as per IS14697 (Optional).
Sensing/ Measurement	True RMS, 1 Sec update time. 2 Quadrant Power & Energy.
Input voltage	4 Voltage inputs (V_1, V_2, V_3, V_N) Programmable 110 or 415V LL Nominal (Range 80 to 550V LL). Primary programmable up to 999kV. *Burden*: 10VA Max.
Input Frequency:	45 - 65Hz
Input current	Current inputs (A_1, A_2, A_3) whole current 10/60A or CT operated 5A. *Overload*: 3 times for 3s. *Burden*: 0.5VA Max. per phase.
Whole current CT Operated	5/30A or 10/60A or 20/80A ___ /5A
CT PT Ratio Max	2000 MVA Programmable for CT operated.
Display Resolution	1 row, 6 Digits, (Integrated 6 Digits) 10mm.
Communication	RS485, Ethernet, GPRS, RF & Wifi.
Gas / water input option	Factory configurable Digital input with Maximum Frequency 3 Hz for upto 4 channel.
Weight	3 phase: Unpacked - 1650 gms, Packed - 1850 gms Single phase: Unpacked - 670 gms, Packed - 750 gms
Torque	2 N-m
Wire gauge	6 AWG

Mechanical Specification:

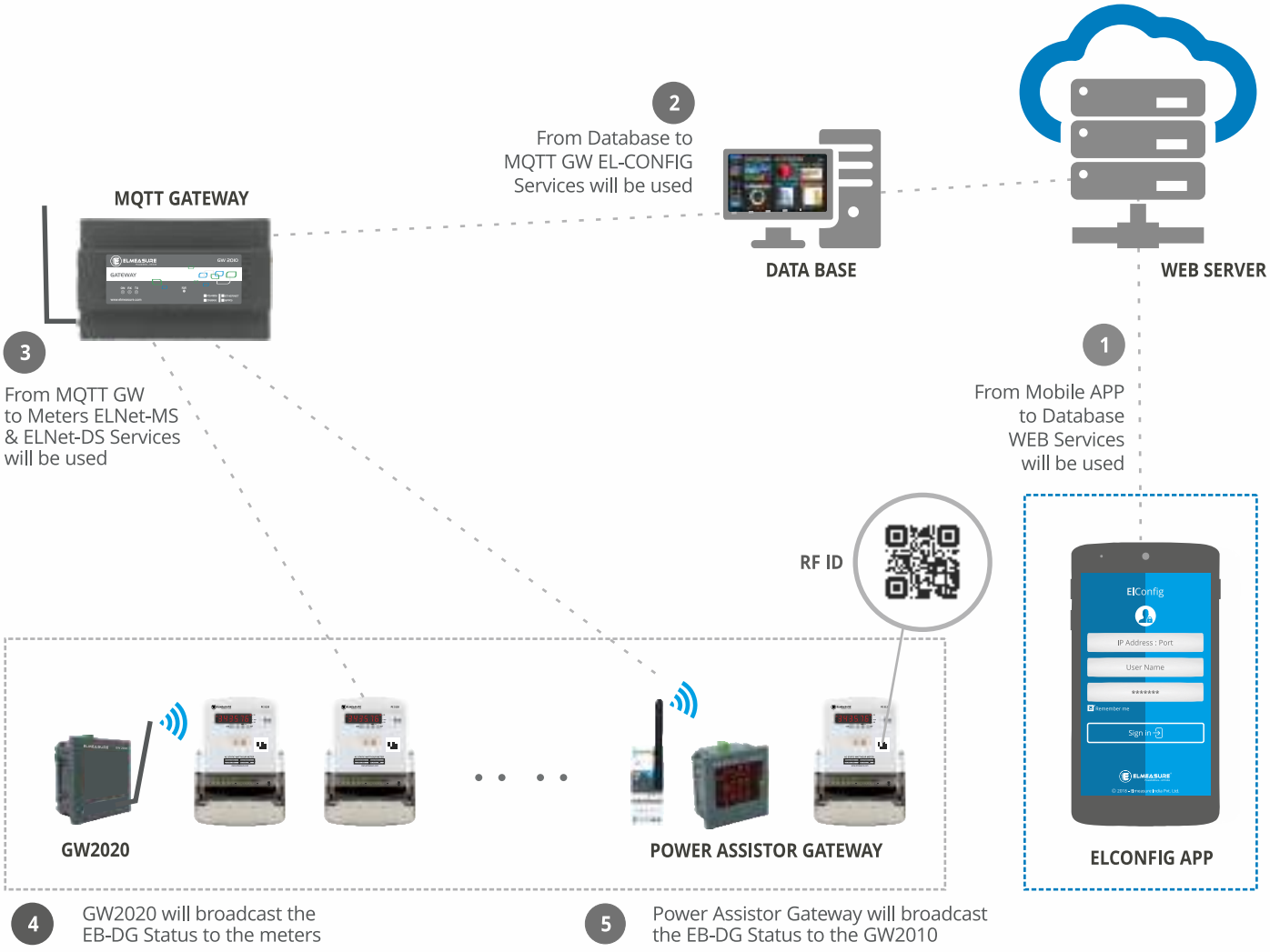


Single phase: Dimension Bezel:
158 x 112 mm (Depth 58mm)



Three phase: Dimension Bezel:
263 x 168 mm (Depth 75mm)

PREPAID METER WITH RF



Features :

- QR Code scanning for auto configuration Gateway for interfacing with cloud network by using MQTT lite protocol.
- Occurrence with Date & Time.
- Restoration with Date & Time.
- RF Communication for meter data reading.
- Acknowledge will be given in the meter by pressing right key continuously for 10sec and alarm will stop permanently till next low balance.
- Mobile application for Pre Paid Software (PPS).

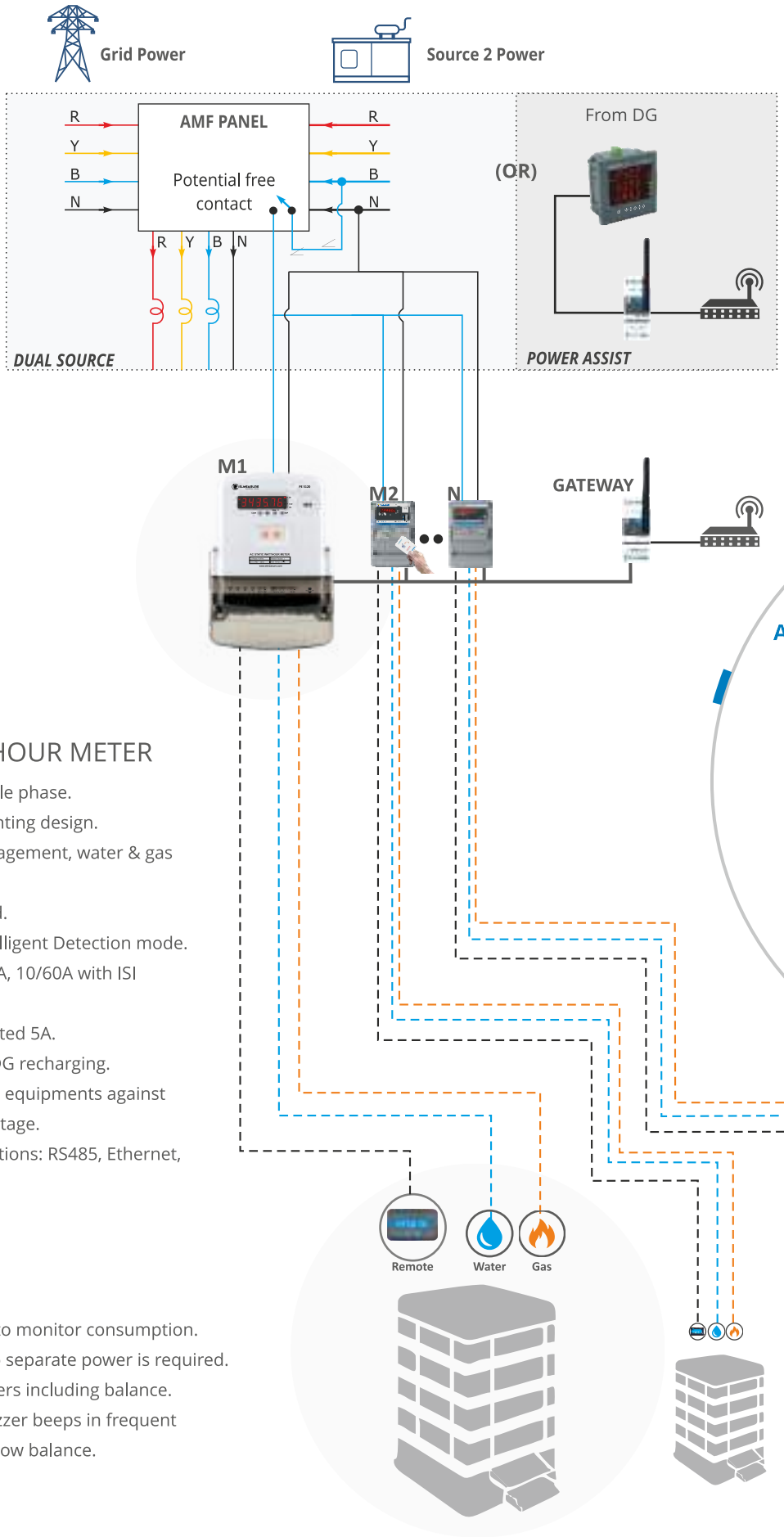
Additional Features

- Ability to pay-as-you-go.
- Explicit view of energy usage & tariff rates.
- Alarm notifications for low credit balance.
- Anti-tamper Features provided in the meter as per Indian standards.
- Reduces manual supervision.
- Live updates on energy consumption at your fingertips.
- Keep records of recharge & consumption history.

Applications :

- Prepaid metering solution will provide flexibility for consumers to pay for electricity from any location without any hurdles, no more standing in queues, the hassle of bills & receive better customer service.
- Shopping Malls & Commercial Complexes.
- Gated residential societies /Residential apartments.
- Industries & Government Sectors.

WIRELESS DG SENSOR



SMART WATT HOUR METER

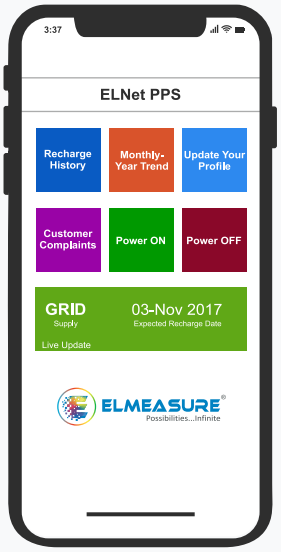
- Three phase & Single phase.
- Compact wall mounting design.
- Electrical load management, water & gas consumption.
- Postpaid or Prepaid.
- Dual Source or Intelligent Detection mode.
- Direct current 5/30A, 10/60A with ISI certification.
- 20/80A & CT operated 5A.
- No separate EB & DG recharging.
- Protects household equipments against overload or overvoltage.
- Communication options: RS485, Ethernet, LGRS, RF & Wifi.

REMOTE UNIT

- Allowing customer to monitor consumption.
- Elegant design & no separate power is required.
- Display all parameters including balance.
- Display blinks & buzzer beeps in frequent interval to indicate low balance.

CUSTOMER WEB PORTAL | MOBILE APP

- Online Customer login portal/ Mobile app login.
- User can get balance credit through any of the interface (Mobile/Web-portal) or through Apps.
- Remote switch ON/OFF through mobile app
- Information through Smart mobile app - no need of Remote display



ALERTS OVER EMAIL/SMS

- Warning SMS at 20% and 10% of kWh threshold level, step tariff crossover.
- Sending SMS to the users during power outage:
- Get alerts for activities like Account recharge, Recharge status, Low Credits, Overload, Overvoltage, etc.

ENERGY BILLS, CONSUMPTION & PRICING

- Real time data monitoring.
- Recharge Slip, Recharge history for the selected date range
- Monthly billing with breakup of EB/DG energy bills and Maintenance bills.
- Running Hours of DG and Mains Supply is provided.
- Cheque reconciliation.

ONLINE PAYMENT
PAYTM, CREDIT CARD,
DEBIT CARD

RECHARGING OPTIONS

ONE TOUCH AUTO CONFIGURATION

ALPHA+

SMART BASIC METER

Amps | Volts | VAF | Frequency | Hz | DC | RPM & MPM | Transducer

BASIC PARAMETERS MEASURES PRECISELY!

Features :

- True RMS.
- Four digit resolution with auto scaling.
- Field programmable Star (Wye) or Delta or Single Phase configuration.
- Average & Phase wise information.

Additional Features:

- Universal auxiliary input 80 - 300V AC (Optional: 40-300V DC, 80-300V AC/DC).
- Auto-scrolling.
- Available in single row DIN rail version (Alpha+D VAF, Alpha+D V/3V,
- Alpha+D A/3A, Alpha+D Hz). Minimum order quantity apply.
- Optional direct measurement upto 20A. 60A or 100A max. using Hanging CT.
- Available in 14mm display (4 digit) - optional (for Alpha+ series only). Minimum order quantity apply.

Optional Features :

- 2 digital output programmable for threshold upto 6 parameters (Under/Over).
- Programmable tripping time upto 180 secs. with Hysteresis of 1%.
- Analog transducer output 0-20mA / 4-20mA or 0-1V, Accuracy of 1% FS (Alpha+ only).
- Optically isolated RS 485 / RS 232 serial interface (Alpha+ only).

VAF METER - **ALPHA+ 3VAF / OM 1300**

- Displays more than 13 basic parameters i.e., VLL, VLN, A (Average & Phase wise), F, ON Hours.
- Programmable Relay Output (upto 2) {VLL, A, F (under, over)}.

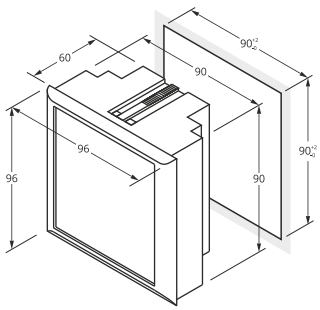
DC METER - **ALPHA+ ADC/VDC**

- DC Vin - 75mV or 100mV or 10V or 100V or 500V default 48 VDC.
- 0-20 mA / 4-20 mA input options. 4 digit resolution for ADC.
- DC auxiliary from 80-300V option available for Alpha+ and DIN rail version.
- Field programmable full scale or offset value.

Mechanical Specification:

Dimension Bezel:
96 x 96 mm (Depth 50mm behind Bezel)

Panel Cutout:
90^{+2}_{-0} x 90^{+2}_{-0} mm



Weight: *Unpacked*: 300 gms, *Packed*: 400 gms

AMMETER - **ALPHA+ 3A**

- Displays Amps for + A and Amps (Avg & PW) for 3A.
- Field programmable CT primary and secondary.
- Optional programmable relay output (upto 2) for threshold Amp (under or over).
- Optional transducer output (0 to 20mA / 4 to 20mA or 0 to 1V DC) for average Amps (for Alpha+ series only) Accuracy 1% of FS.

VOLT METER - **ALPHA+ 3V**

- Displays VLL, VLN (Avg & PW), F, for Alpha+ 3V & µA+ 3V. VLL / VLN for Alpha+ V & µA+ V
- Field programmable PT primary and secondary.
- Optional programmable Relay output (upto 2) for any threshold VLL, Hz (under or over) for A+3V & only VLN (under or over) for A+ V.
- Optional transducer output (0 to 20mA / 4 to 20mA or 0 to 1V DC) for Average VLL, VLN and F (for Alpha+ series only) Accuracy 1% of FS.

TRANSDUCER OUTPUT - Features & Benefits :

- Programmable primary / secondary voltage or current making wider range of operations - Stocking becomes simple
- Programmable transducer output either 0-20mA or 4-20mA. (Maximum load resistance: 75ohms.)
- 0-1V DC optional
- DC current signal or DC voltage signal directly proportional to the change of input.
- Fully protected against open and short circuited output.

Technical Specification:

ALPHA+, OMEGA

Specification	Description
Accuracy:	Class 1.0 (Default) as per IEC 62053-21, Class 0.5, 0.5S as per IEC 62053-22
Measurement:	True RMS, 1 Sec update time.
Input Voltage:	4 Voltage inputs (V1, V2, V3, VN); Programmable 110 or 415V LL Nominal (Range 80-550V LL); Primary Programmable up to 999 kV. *Burden*: 0.2VA Max. per phase
Input Current:	Current inputs (A1, A2, A3) 50mA - 6A (Field configurable 1A or 5A). Primary Programmable up to 99 kA. *Overload*: 10A max continuous, 50A max for 3 Sec *Burden*: 0.2VA Max. per phase.
Aux-Supply (control power):	80 - 300V AC for Omega 80-300V AC/DC, 40-70Hz Burden: 5VA Max
Display resolution:	4 digits display with 14 mm height for Alpha Plus, 10 mm height for OMEGA series.
Communication:	RS485 serial channel connection, Industry standard Modbus RTU protocol Optional: RS232, Zigbee. *Baud rate:* 4800 bps to 19200 bps. (Preferred 9600 bps) *Isolation:* 2000 Volts AC isolation for 1 minute between communication and other circuits.

Note: *Additional error of 0.05% of full scale, for meter input current below 500mA*

iPFC

POWER FACTOR CONTROLLER

Current | Voltage | Frequency | PF | VAR | 6/8/12 stage control

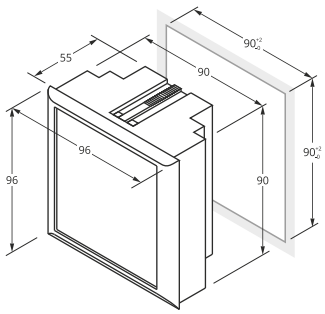
INTELLIGENT DEVICE TO MAINTAIN THE POWER FACTOR IN REQUIRED RANGE!

Features :

- Three phase sensing with Three CT or Single CT (Balanced Load)
- Intelligent Power Factor Controlling based on the capacitor bank switching history (Number of operations, ON time) improves the capacitor life time.
- 6 or 8 or 12 switching relay outputs.
- Automatic or manual control (manual control with power backup option).

  User programmable:
  - Star/Delta.
  - Lead and Lag limits.
  - PT and CT ratios.
  - CT secondary.
  - Minimum switch ON time (4-999 seconds) default 20s.
  - Minimum discharge time (4-999 seconds) default 50s.
  - Minimum capacitor on time (4-999 seconds) default 20s.
  - Minimum sensing current for controlling operation 100mA - 500mA.
  - User programmable capacitor value.
- Fault detection (Over compensation, Under compensation, Over voltage, Over current, Under voltage, Under current, Over harmonics for voltage and current).
- Displays VLL, VLN, Amps (Average and Phasewise) Frequency, W, PF, VAR (Total and Phasewise) Wh, PF Avg.
- Four quadrant operation.
- RS 485 communication interface (Optional).

Mechanical Specification:



**Note: Depth will be 10 mm more based on the relay/connector accommodation.*

Advantages

- Three phase sensing gives accurate measurement of PF.
- Fault Detection (Over compensation, Under compensation, Over voltage, Over current, Under voltage, Under Current, Over harmonics for voltage and current).
- Automatic or Manual Control (manual control with power backup option).
- Increased capacitor life - capacitor switching based on history - ON time / number of switching.

Applications:

- In all Incomers.
- Fixed power factor corrections individual (e.g. motor, transformers, lighting, etc.)
- Group fixed power factor correction (several equipments connected in a group).
- Capacitor banks of tuned and detuned.
- Harmonic trap applications (e.g. UPS, Frequency Drives and Converters, etc.)

Technical Specification:

Specification	Description
Input current:	Current inputs (A_1 A_2 A_3) 50mA - 6A (Field configurable 1A or 5A). Primary Programmable up to 99 kA. Overload: 10A max continuous, 50A max for 3 Sec. Burden: 0.2VA Max. per phase.
Input voltage:	4 Voltage inputs (V_1 V_2 V_3 V_N) Programmable 110 or 415V LL Nominal (Range 80 to 550V LL) Primary Programmable up to 999 kV. Burden: 0.2VA Max. per phase.
Input Frequency:	45-65 Hz
Sensing/ Measurement:	True RMS, 1 Sec update time. 4 Quadrant Power & Energy.
Accuracy:	Class 1.0 (default) as per IEC 62053-21, Class 0.5 as per IEC 62053-22 (Optional).
Aux-Supply :	Control Power: 180 - 300V AC/DC, 40-70Hz. Burden: 10VA Max.
CT PT Ratio Max:	2000 MVA Programmable.
Relay contact rating:	SPST, 2A @ 240V.
Display Resolution:	1 row, 4 Digits for instantaneous and 6 Digits for integrated (10mm height).
Weight:	Unpacked: 350 gms, Packed: 450 gms.
Communication RS485 interface:	*Parity: Odd, Even, None (Prefered Even)* *Baud rate:* 4800 bps to 19200 bps. (Preferred 9600 bps). *Isolation:* 2000 volts AC isolation for 1 minute between communication and other circuits.
Torque	1 N-m
Wire gauge	11 AWG

Note: *Additional error of 0.1% of full scale, for meter input current below 500mA*

iELR

EARTH LEAKAGE RELAY

Earth leakage current | Trip time

DETECT THE LEAKAGE CURRENT IN AN INTELLIGENT ELECTRICAL DEVICE!

Features :

- True RMS measurement.
- Clearance and creepage distance meets UL 61010 safety standard.
- Inverse curve - trip time is inversely proportional to fault current. This ELR is Intelligent, when the leakage current is 10 times higher than the set current, it trips 10 times faster.
- Field programmable trip current and trip time through front panel keys with password protection.
- Continuous leakage current display (Programmable) - Leakage current continuously displayed to enhance the user to understand the quality of Electrical network / Machine online. This can be disabled through setup if required.
- Continuous display of trip leakage current (Programmable) - In case of tripping, iELR captures and displays the tripped current with 4 Digits resolution, which helps the user to analyze and correct the problem. This can be disabled through setup if required.
- Continuous scrolling display for set current and set time.
- Manual test and reset keys.
- RS485 communication option.
- Auto Configuration through communication.
- Reset through communication in trip condition

Applications:

- Protects control panels and switch boards from flame leakage.
- Protects motors / transformers / feeders / generators etc., from earth leakage.
- Hazardous and sensitive industries like oil refineries / pulp industries / electrical distribution etc., can be protected.
- Complete protection for control engineering and mining industry.

Core Balance Current Transformer - CBCT

CBCT Specification
Input Range : 30mA to 3A Default (300mA to 8A, 30mA to 30A Optional)

Round Diameter: (Tape Wound) Inner Diameter 45mm, 60mm, 100mm, 150mm, 200mm, 250mm, 300mm	
Round Diameter: (Case mounted) Inner Diameter 38mm, 57mm, 92mm, 120mm, 210mm	 Plastic Epoxy
Rectangular: (Tape Wound) 150×50mm, 250×100mm, 300×100mm, 350×100mm, 400×125mm, 400×200mm, 500×225mm, 500×200mm. (Any other sizes subject to availability)	

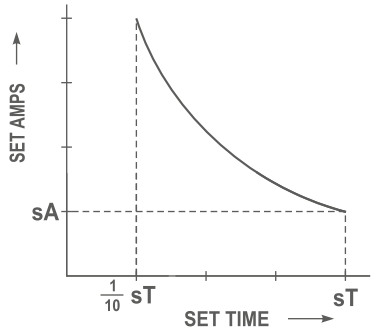
Advantages

- Microcontroller based design provides higher technological advantage
- Peak detection and value display helps in analysis and corrective action.
- Password protection for security against mishandling.
- Current sensitivity wider range 30mA - 30A and no limitations on set current.
- Programmable trip time 30ms - 30s with wider choice to suit different industry.
- Selection through soft keys (No DIP switches) provides better IP protection and longer life.
- Continuous earth leakage value display helps online loss analysis (Programmable).
- Intelligent tripping based on T ∝ 1/A gives faster and reliable protection.
- Auto scrolling of trip information and peak fault current provides better analysis.

Technical Specification:

	iELR 200D	iELR 300	iELR 400D
Input current:	30mA to 3A Default (300mA to 8A, 30mA to 30A Optional)		
Input Voltage:	NA	NA	50 - 550V LL
Trip Current:	Programmable		
Tripping time:	100 mS - 30 Sec		
Contact Rating:	2Amps @ 240V AC / 24V DC		
Accuracy:	Class 2.0FS		
Auxiliary supply:	80 - 300V AC/DC, 4VA Max		
CBCT:	Round , Rectangular		
Core Balance:	CT type : Tape wound limited round size option for epoxy coated and plastic version.		
Display:	4 Digit		
Mounting Type:	DIN rail	Panel Mount	DIN rail
Mechanical specification:	2 DIN: 90×36×67 mm	Panel Mount: 96×96×30 mm Cutout: 90^{+2}_{0} x 90^{+2}_{0} mm	4DIN: 90×72×67mm
Communication RS485 interface: (Optional)	*Parity: Odd, Even, None (Prefered Even)* *Baud rate:* 4800 bps to 38400 bps. (Preferred 9600 bps). *Isolation:* 2000 volts AC isolation for 1 minute between communication and other circuits.		
Torque	1 N-m		
Wire gauge	11 AWG		

Trip Characteristics:



CT

CURRENT TRANSFORMER

SPLIT CORE | CLIP ON

Features :

- Nominal Rating ranges from 5A to 1500A
- Accuracy ±1% from 10% to 130% of full scale range
- Frequency Range of 50 Hz to 400 Hz
- Shrouded core blades for protection during installation
- Snap closing/opening feature
- Meet CE & ETL C57.13

Applications:

- Energy Management, Data logging, Recording,
- Power & Energy Monitoring, Cost allocation

Technical Data Clip On :

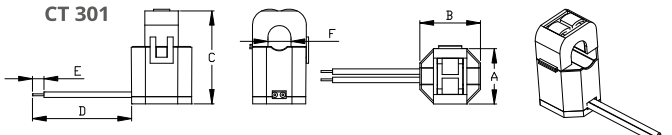
	CT 301	CT 302	CT 303
Electrical			
Rated Primary Current	60A	200A	120A
Saturation current	85A	250A	>120
Rated Secondary current	20mA 666mV (Optional)	66.6mA 666mV (Optional)	40mA 666mV (Optional)
Accuracy	1%	2%	1%
Electrical Strength	3000VAC 1mA60s	3000VAC 1mA60s	3000VAC 1mA60s
Load Resistance	20Ω	20Ω	20Ω
Operation Frequency	50/60Hz	50/60Hz	50/60Hz
Internal Diameter	10mm	24mm	16mm

Technical Data Split Core :

	ELSC 0750	ELSC 1250	ELSC 2000
Electrical			
Nominal Rating	5 - 150 Amps	10 - 600 Amps	600 - 1500 Amps
Accuracy	±1% for 10% to 130% of full scale range	±1% for 10% to 130% of full scale range	±1% for 10% to 130% of full scale range
Phase Shift at Rated current 50/60 Hz	< 2°	< 2°	< 2°
Frequency Range	50 Hz to 400 Hz	50 Hz to 400 Hz	50 Hz to 400 Hz
Useful Current Range	10% to 130% of Rated Current	10% to 130% of Rated Current	10% to 130% of Rated Current
Working Voltage	Maximum 600 Vrms	Maximum 600 Vrms	Maximum 600 Vrms
Output Signal at rated current	666mV (Default) 1000mV (Optional)	666mV (Default) 1000mV (Optional)	666mV (Default) 1000mV (Optional)
	White lead is positive	White lead is positive	White lead is positive
Output Lead	2.5 m twisted pair (22AWG, terminated with ferrules)	2.5 m twisted pair (22AWG, terminated with ferrules)	2.5 m twisted pair (22AWG, terminated with ferrules)

Mechanical Specification

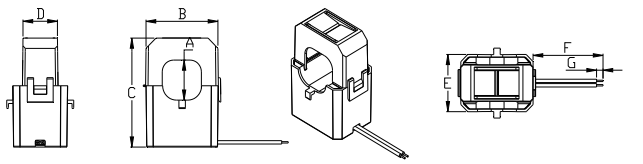
CT 301



A	B	C	D	E	F
25max	27.5max	42.5max	1500±10	6±1	10±0.5

**All dimensions in mm*

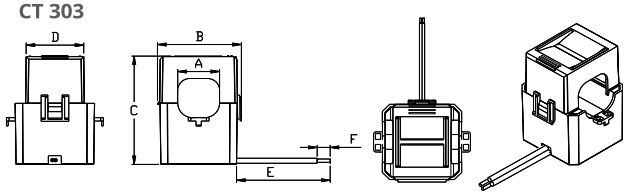
CT 302



A	B	C	D	E	F	G
24.3±0.5	46max	66max	22Max	34Max	1500±10	10±1

**All dimensions in mm*

CT 303

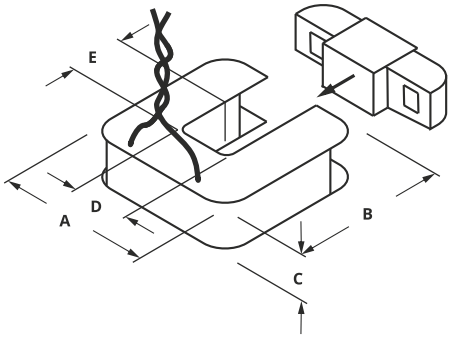


A	B	C	D	E	F
16.0±0.5	31.3±0.3	43.5±0.5	22.8±0.3	1500±10	6±1

**All dimensions in mm*

Mechanical Specification

Window size	1.9 cm (.75")	3.2 cm (1.25")	5.1 cm (2.0")
Dimensions	5.1 × 5.3 × 1.6 cm (2.0 × 2.1 × 0.6")	8.3 × 8.6 × 2.5 cm (3.3 × 3.4 × 1.0")	12.1 × 12.7 × 3.0 cm (4.8 × 5.0 × 1.2")
Operating Temp	-10 to 50°C (14 to 120°F)	-10 to 50°C (14 to 120°F)	-10 to 50°C (14 to 120°F)
Weight	136 g (4.8 oz)	340 g (12 oz)	748 g (26 oz)



A	2.00 inch	3.25 inch	4.75 inch
B	2.10 inch	3.35 inch	5.00 inch
C	0.610 inch	1.00 inch	1.20 inch
D	**0.75 inch**	**1.25 inch**	**2.00 inch**
E	0.75 inch	1.25 inch	2.00 inch

ATeS

AUTOMATIC TRANSFER SWITCH

Features :

- Automatic start/stop operation of DG on mains failure.
- Availability of over load tripping (optional) with inverse curve logic.
- Fire alarm / external fault trip feature is provided.
- Inbuilt control switch for selecting auto/manual mode.
- High capacity to withstand short circuit.
- Inbuilt source selection and trip button for manual mode operation.
- 3 Position isolation lock for Source I – Off – Source II
- AC 33B Utilization Category and in coherence with IEC□60947-6-1.
- Optional RS485 communication and cloud connectivity for IoT applications.
- Optional Remote display for real time monitoring and controlling of both sources.

Control Function:

AF Auto Mode:

ATeS provides automatic operation of a genset during any failure of the primary source/exceeding operating limits/occurrence of the fault.

MF Manual Mode:

ATeS Key switch is used to perform Start/Stop Logic for the selection of primary/secondary source.

Remote Modes (RS-485 Modbus Protocol):

Derived from the Master/Slave architecture to enhance man-machine communication for monitoring and controlling the equipment. The real-time system parameters like 3 phase voltage, frequency and source availability of primary and secondary source are monitored continuously.

ATeS Switching Operation:

Utility-to-Generator

ATeS continuously monitors the utility power supply to sense any interruptions and transfers the load to the generator as the utility power fails. The load is switched back as the utility power is restored.

Generator-to-generator

In remote locations, source powers are transferred between two generator sets to provide uninterrupted power supply by installing ATeS.

Utility-to-Utility

In applications for a continuous power supply, ATeS can be used to transfer the load between two utility system in the absence of standby generators.

ATeS Timers:

- Transfer Delay: ATeS transfers the load to the standby generator on the failure of the primary source after a configurable time delay in the range of 3 to 600s.
- Recovery Delay: Programmable timer(3 to 600s) allows the transfer of load back as the primary source is restored.
- Generator Start /Stop delay: The timer helps to delay (3to 600s) the supply of electric power from the generator on mains failure, preventing electrical damage due to fluctuation in supply.
- Remote display for flexible setting of under/over voltage, under/over frequency and timer both the sources.

Datasheet

ATES – 125

ATES – 250

ATES – 630

Electrical Characteristics			
Current Rating	63-125A	160-250A	315-630A
No. of Poles	4		
Rated Operating Voltage	415V		
Rated Insulation Voltage (Ui) V – Power Circuit	500V		
Rated Insulation Voltage (Ui) V – Control Circuit	500V		
Rated impulse withstand voltage (Uimp) - Power Circuit	8kV		
Rated impulse withstand voltage (Uimp) – Control Circuit	4kV		
Utilization Category	AC – 33B		
Rated control Power supplyVoltage	230V/50Hz		
Rated short circuit withstand current (KA, Rms) Icw(0.1/1s)	9/5 kA	12/25 kA	50/25 kA
Rated short circuit Making Capacity (KA, Peak) Icm	8 kA	17 kA	26 kA
Rated Limit short circuit current (KA) Iq	120 kA		
Operating Cycle	10000	8000	4000
Motor operating Voltage	220V AC / 50Hz		
Auxiliary DC voltage	24V DC		
Standard	IEC60947-6-1		
Measurement Parameters			
Primary Source	Voltage & Frequency		
Secondary Source	Voltage & Frequency		
Measurements Monitored	Remote display via LCD		
Communication	(Optional) RS485 / Ethernet gateway		
Program Configuration			
Primary Source	Under Voltage(160-200V)/Over Voltage (240-290V)		
	Under/Over Load (optional)		
	Under Frequency (40-48Hz) /Over Frequency (50-60Hz)		
Secondary Source	Under Voltage(150-200V) / Over Voltage (240-290V)		
	Under/Over Load (optional)		
	Under Frequency (40-48Hz) /Over Frequency (50-60Hz)		
Timers	Recovery delay (3 to 600s)		
	Transfer delay(3 to 600s)		
	Generator Start delay(3 to 600s)		
	Generator stop delay(3 to 600s)		
Priority selection	Primary/Secondary source		
Applications			
Transfer Between Main Power to Backup Power	Applicable		
Transfer between Backup Power to Main Power			
Mode of Operation			
Selection Mode	Auto/Manual/Remote/RS485		
Position order	I-OFF-II		
Functionality	On Load / Off Load		
Manual Emergency Operation	Available		
Mechanical Characteristics			
Mounting	Split		
Outline Dimension in mm	245X115X125	373X175X200	435X260X245
Weight in kg	5	10	20
General Characteristics			
Ambient temperature	-20° to 55° C		
Air Humidity	Not more than 50% @ 40° C		
Altitude	Not more than 2000 m		
Electromagnetic Compatibility			
Class	Class B		
Radio Frequency Transmission Test	EN55011		
Radio Frequency radiation Transmission Test	EN55011		

GW

GATEWAY

RS485 | ETHERNET | GPRS | RF

A MACHINE COMMUNICATION UNICORN TAILOR MADE FOR INDUSTRIAL IOT WORLD!

Features :

- Compact size.
- Built in RTC.
- Embedded web server for easy configuration and commissioning using a web browser.
- Modbus/MQTT protocol.
- DHCP / Static IP support
- Configurable RS485 baud rate, party and stop bits.
- Completely isolated in both RS485 and RJ45
- Optional storage Available.
- One touch recovery (Factory reset configuration)
- LED indication for easy setup and trouble Shooting.

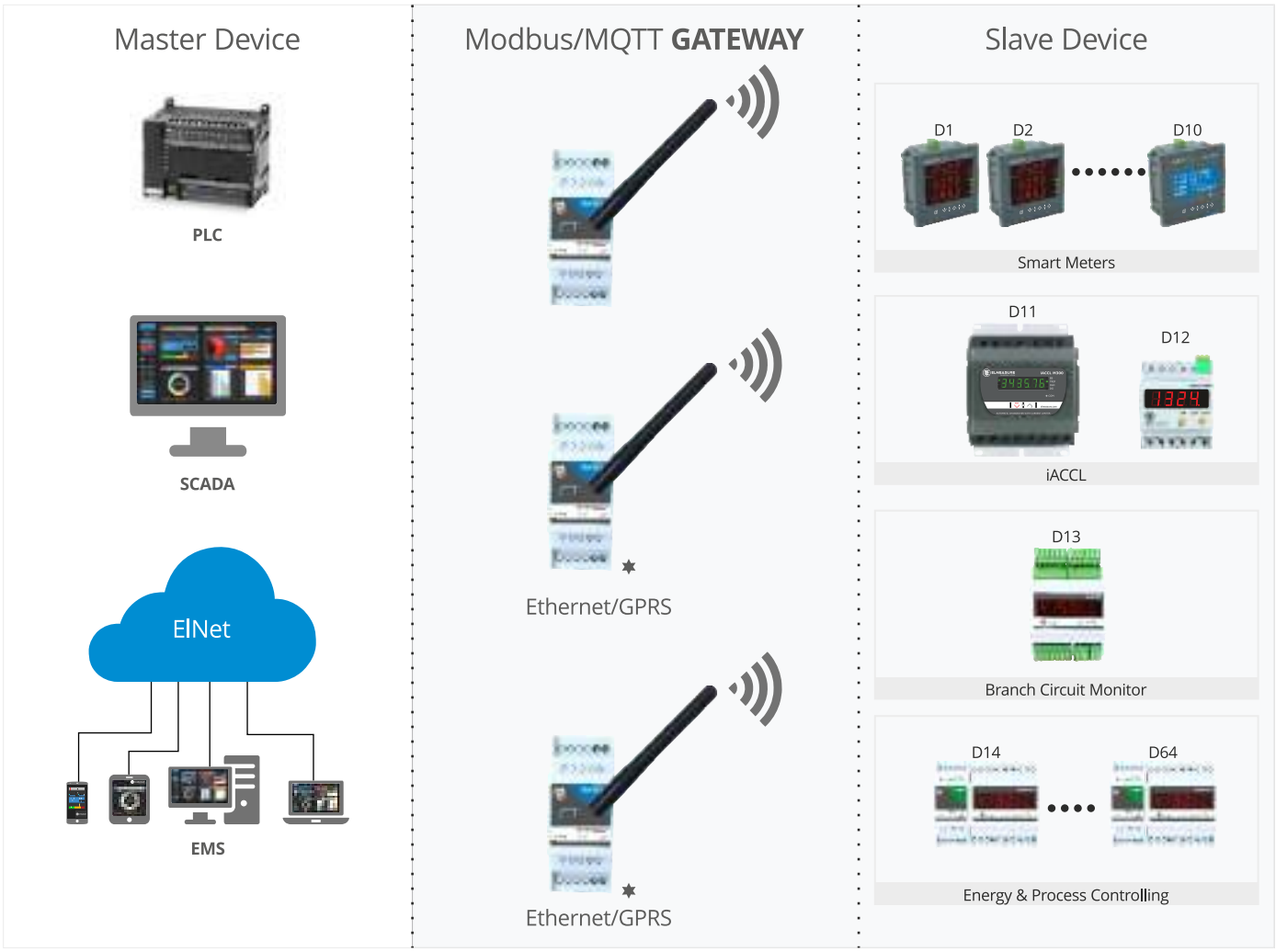
Benefits:

- Gateway helps link non-internet sensor and devices to the internet so that data, configuration and controlling can be made possible online.
- Gateway can work as bridge between Zigbee and GPRS at low cost installation.

Applications:

- Energy management system
- Building management system
- Data centers, etc.

COMMUNICATION MODEL



✸ Upto 64 device

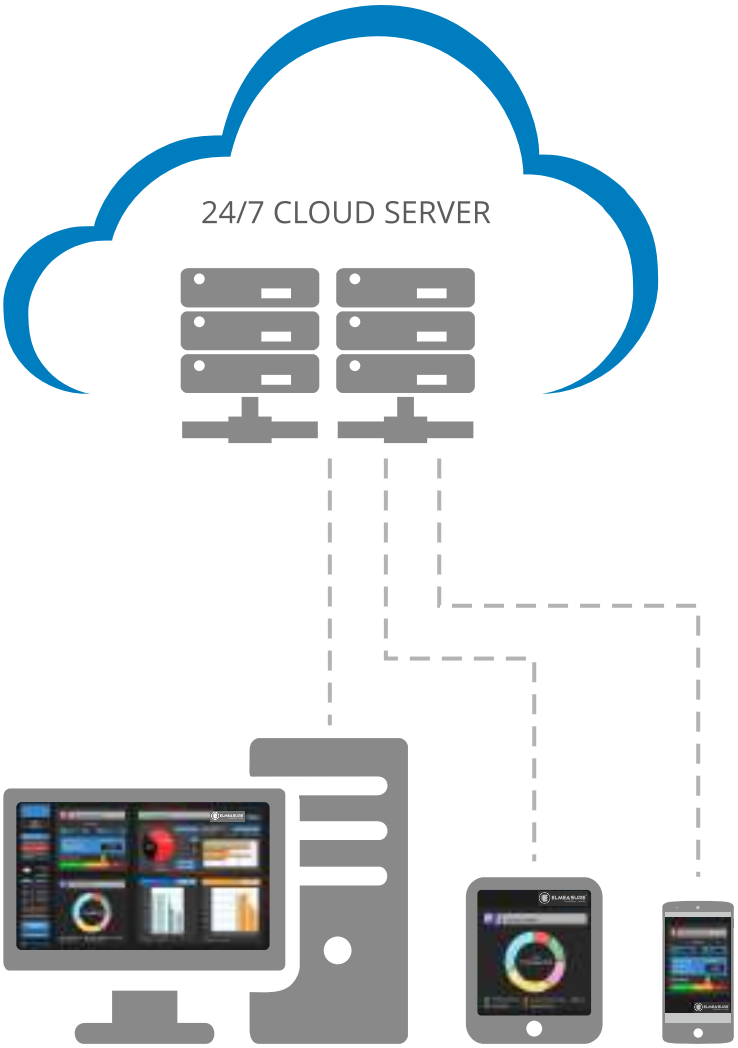
Technical Specification:

	GW 1000 (Ethernet/GPRS)	GW 2000 (Ethernet/GPRS)
PROTOCOL		
	Modbus RTU	MQTT
ETHERNET PORT		
Connecter	8-pin RJ-45 socket for Cat 5 UTP	8-pin RJ-45 socket for Cat 5 UTP
Physical & Data Link Layer	IEEE 802.3i 10/100 BASE-T	IEEE 802.3i 10/100 BASE-T
Isolation	1.5 kV galvanic	1.5 kV galvanic
Max. cable length	100 m (328 ft)	100 m (328 ft)
Protocols	Modbus TCP Server/client, RTU Server/Client, HTTP.	Modebus RTU. TCP/IP, IPV4,MQTT, DHCP, UDP, HTTP, ARP, ICMP.
Concurrent connections	2Modbus/TCP slave, 8 HTTP web page	Windows: Maximum 1023 client
GPRS INTERFACE		
Anteena	5 dBi (Omni-Directional)	5 dBi (Omni-Directional)
Quadband	(850/900/1800/1900 MHz)	(850/900/1800/1900 MHz)
Connectivity	Internal module and SIM card socket	Internal module and SIM card socket
Compliant to GSM phase 2/2+	Class 4 (2 W @850/900 Mhz); Class 1 (1 W @ 1800/1900 Mhz) Code Schemes C2 1, 2, 3, 4	Class 4 (2 W @850/900 Mhz); Class 1 (1 W @ 1800/1900 Mhz) Code Schemes C2 1, 2, 3, 4
SERIAL PORT RS-485/RS-422 INTERFACE		
Connector	5.08mm 2-pin	5.08mm 2-pin
Physical layer	EIA-485-A, 2-wire	EIA-485-A, 2-wire
Isolation	15KV	15KV
Speed	2400, 4800, 9600, 19200, 38400, 57600, 115200 bps	2400, 4800, 9600, 19200 bps
Max. number of nodes	64	64
Protocols	Modbus RTU (master), Modbus TC P/IP (master)	Modbus RTU (master)
Serial Number	Virtual Com / TCP Server / TCP Client / Serial Tunnel	TCP Server / Serial Tunnel
USER INTERFACE		
LED Indicators	Power (RED), Ethernet link (green)	Power (RED), Ethernet link (green)
Monitoring & Configuration	Web browser based	Web browser based
High availability features	Watchdog supervision, brown-out detection	Support Watchdog, system never halt
POWER SUPPLY		
Connector	5.08mm 2-pin	5.08mm 2-pin
Voltage	4.5-6 V DC	4.5-6 V DC
Current	2A typical @ 5 V DC	2A typical @ 5 V DC
Intrinsic consumption	4W Eth/6W LGRS	4W Eth/6W LGRS
ELECTROMAGNETIC COMPATIBILITY		
Emissions (radiated and conducted)	AS/NXS CISPR 22/En 55022 (Class A)	AS/NXS CISPR 22/En 55022 (Class A)
Immunity	EN 55024	EN 55024
Electrostatic discharge	EN 61000-4-2	EN 61000-4-2
Radiated RF	EN 61000-4-3	EN 61000-4-3
Fast Transients	EN 61000-4-4	EN 61000-4-4
Conducted RF	EN 61000-4-6	EN 61000-4-6
ENCLOSURE		
Material	self-extinguishing PC/ABS blend (UL 94-V0)	self-extinguishing PC/ABS blend (UL 94-V0)
Mounting	35mm DIN rail (EN 60715)	35mm DIN rail (EN 60715)
Classification/Type rating	IP 20/NEMA Type1	IP 20/NEMA Type1
Cooling	Connection	Connection
ENVIRONMENT		
Operating Temperature	0 to 60° C / 32 to 140° F	0 to 60° C / 32 to 140° F
Storage Temperature	-25 to 85° C / -13 to 185° F	-25 to 85° C / -13 to 185° F
Humidity rating	10 to 95% relative humidity, non condensing	10 to 95% relative humidity, non condensing
Operating Ambience	Free from corrosive gas, minimal dust	Free from corrosive gas, minimal dust
PHYSICAL		
Dimension	36mm x 90mm x 67mm	36mm x 90mm x 67mm
Weight	100gms	100gms

ElNet

Energy Management Software

The Software collects data from the plant consolidating it into manageable information to constantly monitor energy usage and identify the core areas for corrective action, ensuring optimum performance.



Web based technology

- User friendly
- Enhanced security
- Vector based graphics
- Remote monitor and control equipment processes and facilities with in-expensive web browsers
- Report on operational status of equipment, process and facilities
- Reduce billing cycles by obtaining accounting information directly from automation systems
- Reduce service calls and manpower by using remote diagnostics.
- Use low cost secure connections to network over a combination of Analyzing and Reporting ISP, Intranet, Internet and dial-up connections

Analyzing and Reporting

A variety of reports can be availed by activity, schedule and types by specific list:

- Data Quality
- Exception Reports
- Alarm Handling Packages
- Display Groups
- Historical Data Trending
- Real time Trending
- Dashboard
- Matrix

Reports can be viable and downloaded by any format provided and schedules can be modified based on convenient time. *Schedulers will automatically run according to our initial configuration

Datalog

- Trends - Single and multiple days Min, Max & Avg.
- Table view - Single and multiple days Data Export to Excel
- Alarm, Min & Max.

Email/SMS

- Day Log book, Hourly-day Energy, Shift Energy, TOD energy, Min max, Flexible energy report and for abnormal Alarm conditions
- SMS to the mobile for the following: abnormal Alarm conditions, Hourly and Daily Energy
- Customization is possible for any kind of Email/SMS options

Our Key Customers

Reliance Infrastructure

ABB

Coca-Cola

भारत इलेक्ट्रॉनिक्स BHARAT ELECTRONICS

Bengaluru International Airport

namma metro

apollo

Mahindra

JK TYRE

Biocon

SAINT-GOBAIN

SAMSUNG

BURJ KHALIFA

TATA

MRF

JSW Steel

Hero

इंडियनऑयल Indian Oil

Kirloskar

• • •

Certification

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Contact for certification details

ELMEASURE®
Possibilities...Infinite

Registered Office

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HUVINAYAKANAHALLI, JALA HOBLI, YELAHANKA TALUK,
BENGALURU - 562 149. KARNATAKA INDIA
info@elmeasure.com
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Manufacturing Units

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BENGALURU - 562 149. KARNATAKA, INDIA

UNIT II
GOWTHAM GARDEN NO. 4, VEERAPANDI
COIMBATORE - 641 019. TAMIL NADU, INDIA

UNIT III
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