

EG

EL-Guard

Upgrade your switchgear to a smart system with EL-Guard, adding [real-time monitoring](#), [precise control](#), and [advanced safety features](#).



Enhance plant efficiency through advanced monitoring, control and protection measures.



EG Operation

Elmeasure EG100 offers a comprehensive solution that includes earth fault protection, metering, control, and safeguarding the electrical system. By integrating it with standard MCCB, ACB, or contactors, you can transform non-communication devices into wired or wireless communication-enabled components. This allows for real-time monitoring of the system's status, including ON, OFF, or Trip states. The tripping mechanism can utilize a shunt coil, UV coil for ACB/MCCB, or auxiliary coil connections for contactors.



ElecGuard (EG): A device with integrated metering capabilities designed to optimize protection, control and measurement in your systems.

► Key features of ElecGuard(EG)

Integrated Functionality

- **Replaces multiple devices**, offering metering, EFR, and protection against near short circuit conditions <20mS..
- **Converts non communicating to IOT enabled.**

Protection and Disconnection

- **Built-in disconnection circuit** with configurable protections using Shunt coil, UV coil etc.
- **Guards against** Voltage Variations, Single Phasing, Phase Reversal and current issues like Current Unbalance(Only Trip in the case of MCCB/ACB).

Energy Efficiency Insights

- Programmable levels display **load efficiency and status.**
- Monitors individual phase energy consumption for maintenance indication.

Configuration and Setup

- Easy setup with password protection and field programmability.
- Dynamic communication with configurable addresses.

Remote control & IoT Capability

- Supports remote monitoring and control for an easy on-the-go load management.

Display and Indicators

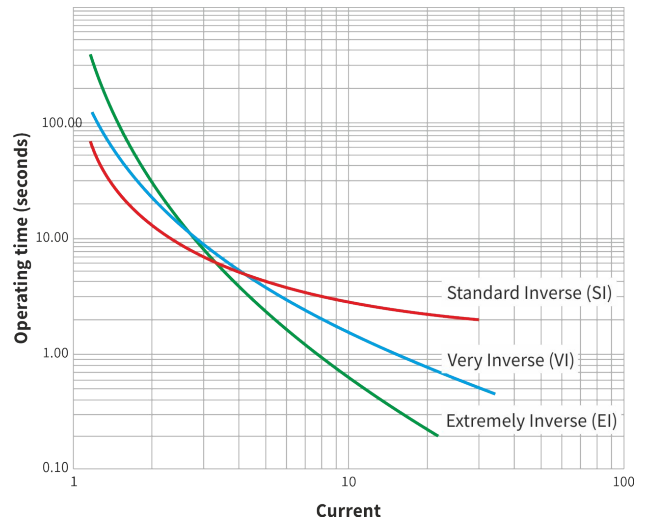
- Alphanumeric LCD display with LED indicators.
- Displays the status of Breakers ON, OFF or TRIP.
- **Displays disconnection reasons and trip details.**
- Monitor V, A, F, W, VA, PF, Wh, VAh, Load Hrs., ON Hrs and Neutral Amps.
- Provides real-time information on basic, energy and power parameters. Offers energy tracking via LED pulses as well.
- 1600 impulse/kWh for 5A.

Programmable 2 Relay for tripping

- Easily configure EG 100 for multiple operations depending on the switchgear item – Shunt, Relay, Contactor

Phase Missing

- Programmable Enable/Disable option is provided for Phase sequence or Phase missing



Programmable Curves

- IEC 60255-151-2009 Curves – Definite time, Normally Inverse, Very Inverse, Extremely inverse, Long time inverse
- IEEE 37.112-1996 – Moderately Inverse Curve, Very Inverse Curve, Extremely Inverse Curve

Short-time High Current sensing

- Programmable Enable/Disable option. If the current occurred 12 time of rated secondary current device will trip the load within 25 ms.

High & Low measurements

- High & low measurements for voltage and current (*last 1 minute data in communication*).

Trip Delay Time

- Delay time is programmable for tripping based on Under/Over voltage faults. However, in the event of Single phasing, Phase sequence reversal or Phase missing the device trips immediately.
- In the metering condition, when overcurrent occurs tripping will be based on the set time and inverse current.

Smart Integration Made Simple

- Introducing Feedback Input: Connects with MCCBs, Contactors, UV Relays for real-time output status monitoring. Supports 150V to 550V AC, upgrading standard switchgear to smart functionality.

Display Parameters

VLL average	Current R phase
VLN average	Current Y phase
Current average	Current B phase
Earth Fault Current	Watts R phase
Frequency	Watts Y phase
Watts Total	Watts B phase
VA total	VA R phase
Displacement PF average	VA Y phase
True PF average	VA B phase
Energy Grid / EB [Wh]	Displacement PF R phase
Energy Grid / EB [VAh]	Displacement PF Y phase
Load Hours Grid / EB	Displacement PF B phase
ON hours	True PF R phase
Vry phase	True PF Y phase
Vyb phase	True PF B phase
Vbr phase	
V R phase	
V Y phase	
V B phase	

Optional Features

- Communication with isolated RS485 serial interface (default), Wi-Fi optional

Applications

- Any equipment Connected to MCCB/MCB/ACB/Contactor
- Building and factory automation
- Convert non IoT to IoT

Cost-effective Solution

Discover a cost-effective and user-friendly solution that combines intelligent monitoring with seamless load disconnection, protection, status updates, ensuring both safety and efficiency in your electrical system.



Technical Specifications

Parameters	Specification details
GENERAL CHARACTERISTICS	
Accuracy	Class1: IEC 62053-21 (Class 0.5: IEC 62053-22 - Optional)
Update Rate	1 Sec for metering, 100mS for EFR and 20mS for semi short circuit
Power system type	Star (3Phase 4Wire) or 4 wire.
Sensing / Measurement	True RMS, 1 Sec update time. 4 Quadrant Power & Energy.
Input voltage (Measurement)	4 Voltage inputs (V1, V2, V3, VN).
Rated voltage	80 - 550 VLL
Burden	0.2VA Max. per phase
External Fuse Rating	2 Amps
Frequency	45 Hz - 65Hz
Input Current (Measurement)	Programmable 5A or 1A
Current rating	___/5A or 1A, 6 times overload (Use protection class CT)
Auxiliary Supply (Control Power)	Self-Supplied (80 to 550V AC)
Burden	< 5VA Max
Protection Class	3
Display Type	1 Row, LCD
Display Dimension	68.4mmx18mmx2.85mm
Display Color	Black Background, White digits and Green icons
No. of Keys	2
Display Resolution	4 Digits for instantaneous, 7 Digits for integrated parameters.
COMMUNICATION	
Device ID & Parity	1 to 247 & Odd, Even, None Parity (Preferred Even)
Protocol & Interface	Modbus RTU & RS485 Baud rate: 4800 bps to 38.4kbps (Preferred 9600). Isolation: 2000 volts AC isolation for 1 minute between communication and other circuits
	WiFi 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	
Measurement Category	CAT III (As per IEC 61010)
Humidity	5% to 95% non-condensing
Pollution Degree	2
Altitude	Below 2000mts
Insulation	Double Insulation
Ingress Protection	IP 20
Operating Temperature	-10°C to + 55°C (14°F - 131°F)
Storage Temperature	-25°C to +70°C (-13°F - 158°F)
SAFETY AND STANDARDS	
Construction	IEC/EN 61010-1 edition 3, CAT III, 300V LN / 550V LL, Protection class II
Standards	UL 61010-1, IEC/EN 62052-11
MECHANICAL CHARACTERISTICS	
Wire Gauge (Connecting wires)	22 - 14 AWG
Torque for screw terminals	0.5N-m
Container material	PC with V0 grade
Dimension	96 x 96mm
Mounting	Panel mount
Weight	Without Packing 300gm
	With Packing 350gm

Mechanical Specification:

