

# Grid Edge Power Quality Monitor

Grid Data Logger - Grid and Transformer Monitoring Unit

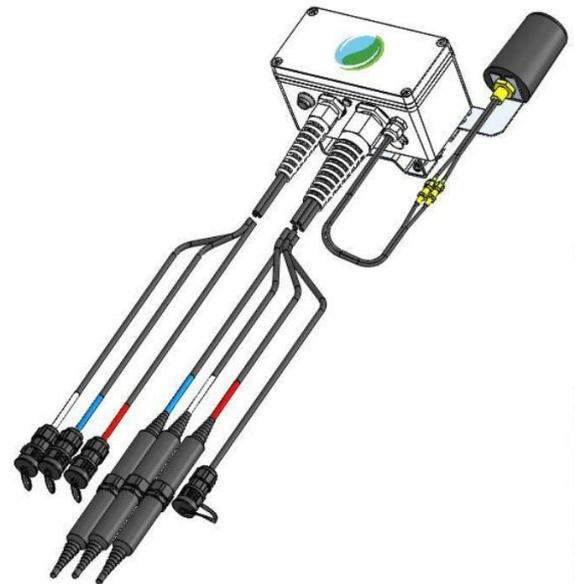
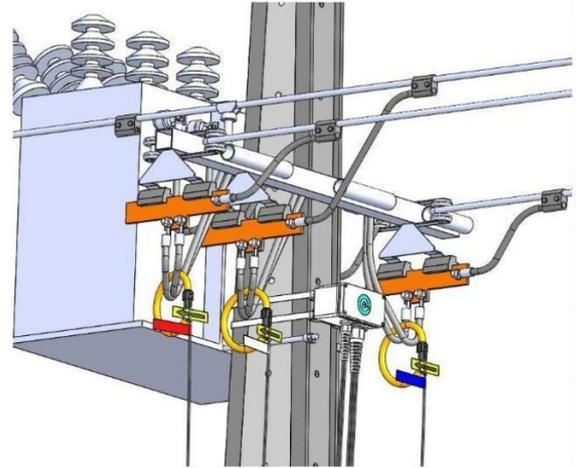
Models: EE-405-Series



## FEATURES

### Compact Smart Grid Data Logger

- ▢ Monitors and Transmits Grid Full Power Quality Data.
- ▢ Grid or Transformer Status Monitoring Unit
- ▢ For both Single or Three Phase Installations
- ▢ Wide Voltage Input - 100-520VAC
- ▢ High Temperature Polycarbonate IP68 enclosure
- ▢ Monitors and Transmits Full Grid or Transformer Status including Full Power Quality Data.
- ▢ Full Alarms including - Power Outages and Recovery, Overloading, Overvoltage, Undervoltage, PF min., Reverse Current.
- ▢ Remote Firmware Upload to add upgrade Custom Options and modify Alarm Limits.
- ▢ Intelligent Software Control: Network compatible Unit that is Programmable over Internet.
- ▢ Encryption AES128 & SHA256 over private APN.
- ▢ Quick install Utility Grade Rogowski Current Transformers.
- ▢ Events Logging 10 days – Store and Forward.
- ▢ EMI Electrical Noise Suppression Networks.
- ▢ Line Surge protected - IEC 61000-4-5 to 10KV / 22KA
- ▢ Data Comms – LoRa Mesh (for ongoing development) and Cellular (4G Cat-1 and LTE CAT-M1).
- ▢ Unit Ingress Protection: IP68; Compatible to meet NEMA Type 4X
- ▢ UL/CSA 61010-1, 61010-2-030
- ▢ Current Sensor: UL2808 standard (Category XOBA)
- ▢ Patents Pending.



## DESCRIPTION

The Edge Grid Data Logger is a Compact Grid Edge Power Quality Monitor that incorporates Edge Electronics Power Quality Grid Edge Technology. It is an intelligent, software-driven, full Power Quality Grid Monitoring Sensor, installed on Pole or Pad Transformers that monitors Status and Alarms. The Grid Data Logger is specifically designed to be an Intelligent Network Device that monitors and transmits secure full Power Quality Data with additional Status Alarms for Grid Edge Applications and remote Software updates for additional Custom Features and setting Alarm Limits.

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<b>Electrical Specifications</b>	
Available Configurations	1 Phase, 2 Wire configurations 2 Phase, 3 Wire configurations 3 Phase, 4 Wire configurations
Electrical Frequency	50/60Hz
Rated Voltage	100 – 277 Vac (L1-to-N, Supply Voltage) 170 - 480 Vac 4-Wire/3 Phase Network (Line-to-Line) Plus Neutral for power quality data
Absolute Maximum Voltage Rating	300 Vac (L1-to-N) 520 Vac (Line-to-Line)
Current Full Scale Range	4000 Amps RMS
Lightning Strike	Power line surge protected - IEC61000-4-5
Voltage Accuracy	+ 1% + 0.3% with Manufacturing Sensor Calibration
Power & Energy Accuracy	+ 3% + 0.5% of Current Full Scale + 0.5% + 0.1% of Current Full Scale with Manufacturing Sensor Calibration
Power Factor Accuracy	+ 1 degree
Power Quality Measurements	Voltage, Current, Power, Energy, vTHD, iTHD, individual harmonics
Reporting Interval	1min transmit time
Back Up Power/" Last Gasp" Hold-up Time	60 seconds
<b>Alarms and Event Logging</b>	
Grid Power Quality Alert	Power Outage, Power Restore, Current Imbalance, Maximum iTHD, Reverse Current Flow, Low Power Factor Voltage Imbalance, Maximum vTHD, Over-voltage, Under-voltage, Voltage Swell, Voltage Sag, Voltage Flicker Over-frequency, Under-frequency
Transformer Asset Management	Overload (Power), Peak demand Alert, Over-current, Fault Current Reading, No Current Reading No Voltage Reading
Measured Parameters	V, I, PF, kW, kVA, kVAR, Energy, vTHD, iTHD, up to 21 <sup>st</sup> harmonics
<b>Connectivity</b>	
Communications Options	Cellular Communications with embedded CAT-1 / CAT-M1 modem, Private APN with AES128 & SHA256 encryption IPsec tunnel. LoRa Mesh for data communication redundancy and connection for Edge Power Factor Correction PowerSave v2.0
Communications Architecture	Periodic reporting to a central IoT Cloud server On demand reporting to a SCADA system
IoT Communications	Push notification on Alerts CoAP with DTLS security
<b>Mechanical and Environmental</b>	
Dimensions	L160 x W80 x H90 mm
Weight	4.0kg
IP Rating	IP68; compatible to meet NEMA Type 4X
Power Supply Button	Phase 1 Power Supply Button to initialize the unit
Operating Temperature and Humidity	-10°C to 50°C, 0-95% RH non-condensing
Storage Temperature	-30°C to 80°C
Operating Altitude	2000m

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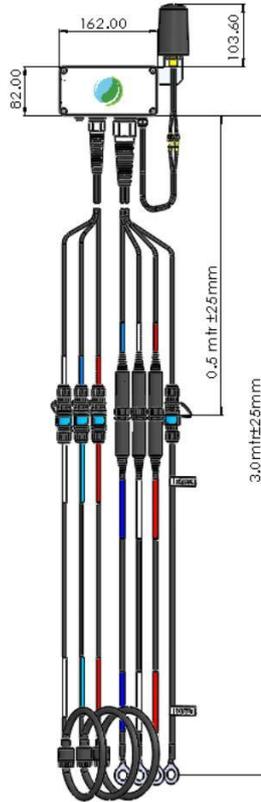


Figure: Grid Data Logger with Detachable Accessories

## Grid Data Logger Parts List Options for Detachable Sensors

Parts/Accessories	Options		
<b>Current Sensor</b>			
Current Range	4kA		
Phase Configuration	3-Phase 3 CTs	2-Phase 2 CTs	1-Phase 1 CT
Sensor Length	3m		
Internal Diameter (mm/in)	Ø106mm/4.17"		
<b>Voltage Sensor</b>			
Termination comes with Insulation Piercing Clamp (IPC)	Ring terminal (16mm bolt diameter) Ring terminal (16mm bolt diameter) with in-line fuse		
Phase Configuration	3-Phase 4 Wires (3 Line Sensing + N)	2-Phase 3 Wires (2 Line Sensing + N)	1-Phase 2 wires (1 Line Sensing + N)
Sensor Length	3m		
Sensor Wire Size	AWG 16		
<b>Communications</b>			
Communications	4G CAT-1 LTE CAT-M1		
<b>Mounting</b>			
Mounting Type	Pole mount belt & bracket Magnetic Pad mount		

# Grid Edge Power Quality Monitor

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## PART NUMBERS

<b>EE-600-301 Grid Data Logger (Detachable - Network) Overhead LTE CAT-M1, 3 phase</b>	
Base Unit	EE-405-1002
Current Sensor Accessories	3 x EE-510-1100 Coreless Current Sensor with 10cm Window Size diameter and 2.5m UV Resistant cable length
Voltage Sensor Accessories	1 x EE-900-0001 Voltage Sensor Wire 1 Set (4pcs) with 2.5m UV Resistant cable length for IP68 Fuse Holder
Mounting Accessories	1 x EE-509-0005 Circular Pole mount belted and bracket set

<b>EE-600-302 Grid Data Logger (Detachable - Network) Ground level LTE CAT-M1, 3 phase</b>	
Base Unit	EE-405-1002
Current Sensor Accessories	3 x EE-510-1100 Coreless Current Sensor with 10cm Window Size diameter and 2.5m UV Resistant cable length
Voltage Sensor Accessories	1 x EE-900-0001 Voltage Sensor Wire 1 Set (4pcs) with 2.5m UV Resistant cable length for IP68 Fuse Holder
Mounting Accessories	1 x EE-509-0004 Pad mount magnetic accessory bracket set

<b>EE-600-303 Grid Data Logger (Detachable - Network) Overhead 4G-Cat 1, 3 phase</b>	
Base Unit	EE-405-1000
Current Sensor Accessories	3 x EE-510-1100 Coreless Current Sensor with 10cm Window Size diameter and 2.5m UV Resistant cable length
Voltage Sensor Accessories	1 x EE-900-0001 Voltage Sensor Wire 1 Set (4pcs) with 2.5m UV Resistant cable length for IP68 Fuse Holder
Mounting Accessories	1 x EE-509-0005 Circular Pole mount belted and bracket set

<b>EE-600-304 Grid Data Logger (Detachable - Network) Ground level 4G-Cat 1, 3 phase</b>	
Base Unit	EE-405-1002
Current Sensor Accessories	3 x EE-510-1100 Coreless Current Sensor with 10cm Window Size diameter and 2.5m UV Resistant cable length
Voltage Sensor Accessories	1 x EE-900-0001 Voltage Sensor Wire 1 Set (4pcs) with 2.5m UV Resistant cable length for IP68 Fuse Holder
Mounting Accessories	1 x EE-509-0004 Pad mount magnetic accessory bracket set

### Contact

Magis Innovations Inc.

[www.magisinov.com](http://www.magisinov.com)

[info@magisinov.com](mailto:info@magisinov.com)