

Grid Edge Power Quality Sensor

eSensor - Compact Grid Edge Monitoring Module

Models: EE-402-Series



FEATURES

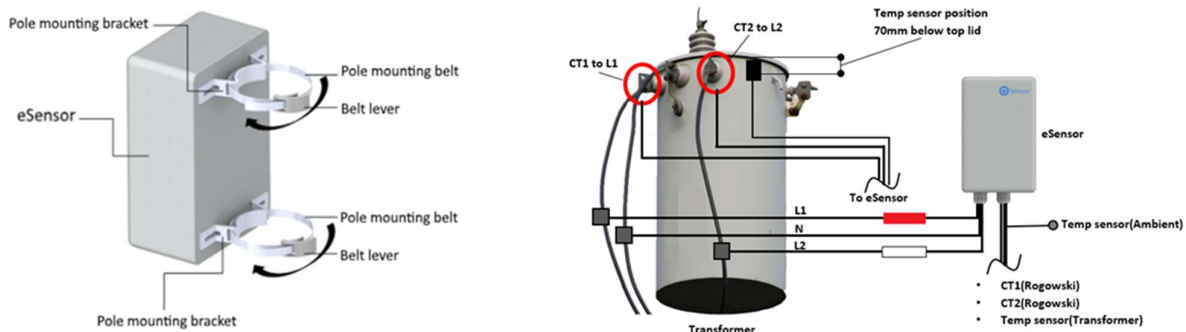
Compact Grid or Transformer Mounted Metering Module

- Grid or Transformer Status Monitoring Module
- For both Single or Three Phase Installations
- Wide Voltage Input - 100-520VAC
- High Temperature Polycarbonate IP66 enclosure
- Monitors and Transmits Grid Full Power Quality Data.
- Monitors and Transmits Full Pole or Pad Transformer Status including Full Power Quality Data plus Temperatures.
- Full Alarms including - Power Outages, Overloading, Overvoltage, Undervoltage, PF min., Reverse Current, Temperatures, Tampering.
- Firmware Uploading to add Custom Options and set Alarm Limits.
- Intelligent Software control; Network compatible Unit that is Programmable over Internet. Encryption AES128 & SHA256.
- Flexible Utility Grade Rogowski Current Transformers (supplied)
- Ingression Protection – IP66
- Events Logging 1 Month – Store and Forward.
- Last Gasp Feature – 30 Sec Hold Up for Power Interrupt Data
- EMI Electrical Noise Suppression Networks
- Line Surge protected - IEC 61000-4-5 to 10KV / 22KA with fuses in each line phase input
- Complete Install Kits - 1-Ph, 2-Ph and 3-Ph
- Data Comms - 3G, 4G, LoRaWan. Options for 3G+GPS and NB-IoT are in development.
- Supports IoT Centric Cloud Architecture and DNP3 (in development) SCADA reporting.
- Transformer life prediction through derived transformer hotspot and top oil temperature
- Patents Pending



DESCRIPTION

The Edge eSensor 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, or installed on Pole or Pad Transformers that monitors Transformer Status and Alarms, including Temperatures. The eSensor 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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Electrical Specifications	
Available Configurations	1 Phase, 2 Wire configurations 2 Phase, 3 Wire configurations 3 Phase, 4 Wire configurations
Electrical Frequency	50/60Hz
Rated Voltage	100 – 300 VAC Line - Neutral 173 - 520VAC 4-Wire/3 Phase Network (Line – Line)
Current Full Scale Range	2000 Amps RMS with auto-range function 4000 Amps RMS with auto-range function 8000 Amps RMS with auto-range function
Lightning Strike	Power line surge protected to 10KV per IEC61000-4-5
Voltage Accuracy	± 0.5%
Power & Energy Accuracy	± 1% + 0.1% of Current Full Scale (2kA, 4kA, 8kA variants)
Power Factor Accuracy	± 1 degree
Power Quality Measurements	Voltage, Current, Power, Energy, vTHD, iTHD, individual harmonics up to 21 st order
Reporting Interval	1min transmit time, 4GB memory allocated for 1sec data logging
Temperature Measurement Accuracy	± 1 degree
'Last Gasp' Hold-up Time	30 seconds
Alarms and Event Logging	
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 In development - Transformer Over Heating Temperature Alert (Hotspot & Top-oil), Transformer Over Heating Temperature Limit (Hotspot & Top-oil), End-of-Life Warning
Measured Parameters	Device Tampering, Communication Fault, Watchdog Alarm V, I, PF, kW, kVA, kVAr, Energy, vTHD, iTHD, V/I Harmonics (up to 21 st), T unit internal, T transformer top oil (in development), T transformer hotspot (in development)
Connectivity	
Communications Options	Cellular Communications with embedded 3G / 4G modem, Private APN with AES128 & SHA256 encryption IPsec tunnel Versions available to support SilverSpringNetworks and Landis + Gyr Mesh Wireless (in development) Other Communication options by request (eg. LoRA, NB-IoT, SigFox)
Communications Architecture	Periodic reporting to a central IoT Cloud server On demand reporting to a SCADA system
IoT Communications	CoAP with DTLS security
SCADA Communications	DNP3 with TLS security
Systems Logs	Fully configurable measurement interval, 4GB memory allocated to

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eSENSOR KITS AND PART NUMBERS – EE-402-XXXX	- 0008	- 0009	- 0010	- 0011
	3-Ph 3 CTs	2-Ph 2 CTs	1-Ph 1 CT	3-Ph 3 CTs
• eSensor, Base Unit	1 pc	1 pc	1 pc	1 pc
• Full Scale Current Range	4kA	2kA	2kA	2kA
• Rogowski CT	3 pcs	2 pcs	1 pc	3 pcs
○ Diameter (∅)	∅172mm/4.17"	∅83.56mm/3.29"	∅106mm/4.17"	∅106mm/4.17"
○ IP65 Cable Length	3.15m	2.6m	3.15m	3.15m
• Voltage Lead/Sense	4 pcs (3 Lines + N)	3 pcs (2 Lines + N)	2 pcs (1 Lines + N)	4 pcs (3 Lines + N)
○ Termination Type	Insulation Pierced Clamp	Ring Terminal	Insulation Pierced Clamp	Insulation Pierced Clamp
○ Wire Length	3.15m	2.6m	3.15m	3.15m
• Communication	3G/4G	3G/4G	3G/4G	3G/4G
• Transformer Temperature sensor with 6M cable – EE-500-0020	3 pcs	3 pcs	3 pcs	3 pcs
• Pole mounting steel belt	2 pcs	2 pcs	2 pcs	2 pcs

Contact

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