

# Power Guardian

with Neutral/Earth Leakage Measurement and Energy Metering

## Safety and Energy Metering

- Neutral/Earth Leakage Measurement
- Communications via Ethernet (TCP/IP)
- (optional) Energy Metering
- (optional) Neutral impedance test
- (optional) Impact Detection with 3-axis Accelerometer
- (optional) Environmental & Air Filter Monitoring
- (optional) "Last Gasp" report during power outages
- (optional) Redundant Comms. (LTE Cat. M1/NB1 or LoRaWAN™)



## Product Description

Definium's Power Guardian is a drop-in safety solution for monitoring neutral current leakage, with alerts, in communications cabinets and other always-on assets which cannot utilise RCDs. Multiple back-haul network technologies and additional monitoring/metering options are available, making the Guardian one of the most flexible safety devices on the market.

The Power Guardian is based on Definium's Internet of Things sensor platform, utilising a robust Ethernet connection to report metrics in near real-time. Optional communications redundancy is available via LTE Cat. M1/NB1 or LoRaWAN, ensuring messages get through during localised network outages. An optional backup battery enables a "last gasp" transmission during power outages.

The Power Guardian constantly measures power usage, reporting neutral/earth current leakage and other potentially dangerous situations within seconds.

Energy metering is optionally available and provides sub-metering capability and numerous other power quality metric reporting.

Optional environmental monitoring of air temperature and relative humidity, along with a differential pressure sensor for monitoring filter cleanliness, enables condition-based maintenance for the enclosing cabinet. An optional accelerometer reports impacts to the enclosure.

The Guardian is powered directly via the monitored source and only requires active and neutral connections, plus networking.

Each Guardian comes pre-configured with unique internal ids and encryption keys, reducing overall commissioning time. Settings can be altered remotely via each of the network communications methods.

Definium Technologies designs and manufactures its devices in-house in Launceston, Tasmania. Definium produces a broad range of gateways and sensors to use in any IoT network.

## Product Selector

Model	Networking	Features	Phases	Interfaces	Reporting	Enclosure
	Ethernet (TCP/IP) LTE Cat. M1 / LTE Cat. NB1 LoRa® / LoRaWAN™	Neutral/Earth Leakage Monitoring Energy Metering Temperature & Humidity Air Filter Monitoring "Last Gasp" Battery	Single-Phase Three-Phase	Internal Web Interface Remote Network Configuration LoRaWAN™ Remote Configuration	Periodic Reporting & Alarms Power Outage Alarm Environmental Alarms	Polycarbonate DIN-Rail (Slim) Polycarbonate DIN-Rail (Full) Exterior Building Mount
<b>Power Guardian</b>	● ○ ○	● ○ ○ ○ ○	●	● ● ○	● ○ ○	● ○ ○
<b>Power Guardian Outback</b>	● ○ ○	● ○ ○ ○ ○	● ○	● ● ○	● ○ ○	● ○

Ensure you order the correct product for your LoRaWAN™ region. ● = Included. ○ = Differs with product variants.

# Power Guardian

## Features

Fault Detection	Neutral/Earth current leakage measurement Optional neutral impedance test
Reporting	Reporting/alarms via SNMP Visual indicator of current status Secondary reporting via redundant communications Optional environmental state alarm
Metering	Single-phase Optional three-phase
Environment Temperature Humidity Air Filter	Optional Environmental Monitoring -40°C to +85°C (±1°C) ±3% relative humidity Air Pressure Across Filter Range ±2 kPa (±0.29 psi) Typ. Accuracy ±2.5% (10°C to +60°C)
Impact Detection	Impact
Networking	10/100 BaseT Ethernet Electrically isolated RJ45 jack IPv4 & IPv6 Supported SNMPv3 agent
Redundant Communications LTE	(optional) LTE Cat. M1 and Cat. NB1 External or internal antenna Class C (1.0.2) with ADR
LoRaWAN™	
Markings	DataMatrix with Device Info Default Internal IP Address EUI48 Safety and compliance markings Electrical connection markings

## Electrical Data

Power	85 – 305 VAC 47 – 63 Hz Surge protected Noise filtering
Consumption	TBA (est < 1W) (varies with options)

## Enclosure

Polycarbonate DIN (Slim)	TBA
Polycarbonate DIN (Full)	TBA
External Building Mount	TBA

## Environmental data, quality & reliability

Operating range	-10°C to 70°C
RoHS compliant (lead-free)	

## Security

Secure internal storage of keys	
Noise-based random number generator	

## Certifications and approvals

AS/NZS 60950.1:2011, AS/NZS 4268:2012  
Other certifications TBA

## Support products

DT1046	Nexus 8 LoRaWAN™ Gateway with CAN, LTE, PoE
LoRaWAN™ network provision and hosting via partners	

## Product variants

TBA	
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## Preliminary Product Notes

Enclosure	Current enclosure fits within the maximum dimensions 60 mm x 140 mm x 17.5 mm.
Connections	The unit will utilise semi-enclosed spring-loaded or screw-terminal connections, as appropriate.
Compliance	Device will be compliant with AS 3000 and other relevant standards.
Temperature	Temperature range may be able to be extended if required.
IP Rating	IP ratings can be accommodated in the enclosure design, however environmental monitoring options may limit the maximum rating (as exposure to air is required for humidity sensing).
Changes	The Power Guardian this is a preliminary product in prototype stage. Changes to functional requirements can be requested and will be accommodated where possible.

## Further Information

For contact information, see [www.definium.net/contact](http://www.definium.net/contact).

For more product details and ordering information, see the [product data sheet](#).

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