

2Grid CommPack PM1

Technical data specifications

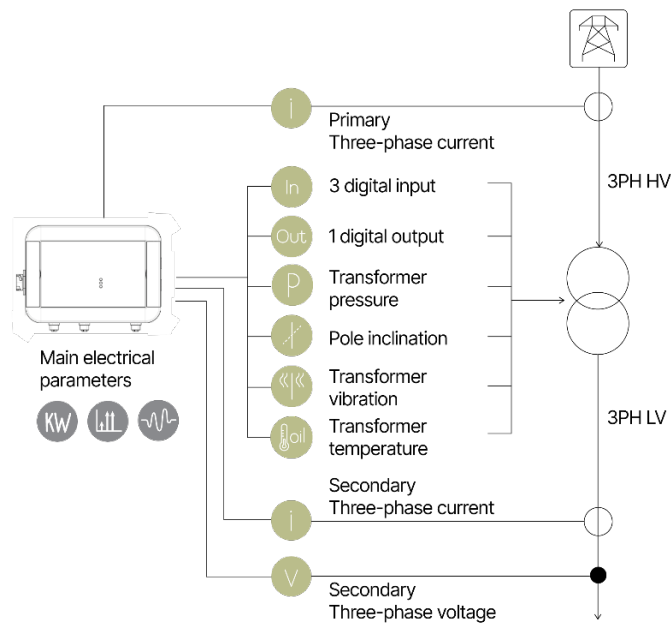


Product Description

An electrical parameter measuring and monitoring device is essential to ensure efficient and safe operation in low voltage distribution.

2Grid CommPack PM1 version equipment provides continuous measuring and monitoring of all the key electrical parameters, allowing potential problems or anomalies to be detected at the beginning of the low voltage distribution network.

Product application



Key Features

- Mobile communications 4G-LTE CAT-1
- Self-Powered from phases.
- Guaranteed Last Gasp Energy 5 seconds.
- Waterproof rating IP67
- Primary triphasic current measurement
- Secondary triphasic current measurement
 - Neutral current measurement: Direct, calculated, and homopolar.
- Secondary triphasic voltage measurement.
- Derived electrical quantities calculation:
 - Power, power factor, $\cos\Phi$, active / reactive / apparent power, active energy per quadrant, symmetrical components, and frequency.
- Total Harmonic Distortion (THD). Voltage and current harmonic calculation up to 41st (21st odd harmonic).
- Oil temperature measurement.
- Oil pressure measurement.
- Pole tilt detection.
- Pole vibration/impact detection.
- 3 independent, isolated, and configurable digital inputs (24Vdc) or (300Vac).
- 1 independent, isolated, and configurable digital outputs (Dry contact)
- External ambient temperature measurement (PT100).
- Measurement and recording of electrical parameters.
- Event registering.
- Alarms: Overload, short-circuit, power failure, tilt, impact, oil pressure and temperature and external temperature, digital I/O and user customized.
- Internal web server for monitoring and configuration.
- Supported encrypted protocols:
 - HTTPS (API / WEB), MQTTS, MODBUS TCP TLS.
- Compliance with high cybersecurity standards.
- Quick and easy installation:
 - Connectorized and pre-wired accessories.
 - Customized factory configuration option.

Cybersecurity

- TPM 2.0 Cryptographic hardware accelerator
- Secure Firmware Install (SFI). Embedded security services to authenticate and protect the software IPs while performing initial programming.
- Cryptographic Co-processor with Secure Hardware-based Key Storage: Secure Boot Secure Firmware Update (SBSFU).

Cryptographic functions: AES-128: Encrypt/Decrypt, Galois Field Multiply for GCMn And HASH functions, SHA-1 and SHA-2 (secure HASH algorithms), MD5, HMAC.

- Antitamper detection.

Encrypted communications: HTTPS, MQTTS, MODBUS TCP TLS.

Logging

Statistical storage of sensors and metrology measures
Sensors, metrology, and system events
Local storage of logs (up to 200 logs)
Logs sent by MQTT to the cloud.
Logs accessible by HTTP (Web/API)
Security information and event management.

Alarms

Settable alarms threshold, hysteresis, message and debounce filter
Independent alarms by phase
Short-circuit alarms resolution in <10ms
Overload detection
Power failure detection
Oil temperature alarm
Oil pressure alarm
Pole tilt alarm
Pole vibration/impact alarm
Ambient temperature alarm

Communications (Communications Interface)

Type	LTE 4G-LTE CAT-1 Ethernet 10/100 Base TX
Connector	RJ45 Shielded
Communication Protocols	MODBUS TCP, MQTT, HTTP (Web/API), NTP, DHCP CLIENT.

Technical features

Electrical features

Power	10 VA
Input voltage	480/830 Vac
Rated frequency	50/60 Hz
Voltage input range (PN)	0 – 480 Vac
Voltage input range (PP)	0 – 830 Vac
Current measurement range	0 - 4000 A
Short circuit current measurement	Up to 4000 A

Accuracy (device and sensors) *

VLN Voltage	±0.2%
Current secondary	±1 %
Current primary	±1 %
Temperature	0,5°C
Pressure	±0,5 psi

Mechanical features

Dimensions	210mm x 150mm x 55mm
Material	Plastic ABS / Flame resistant UL94 V0
Protection rating	IP67
Installation	Pole mounted version (bracket or neodymium magnet) DIN rail 35 mm Wall mount with 2/4 screws.

Ambient conditions

Temperature (operating & storage) *	-25°C up to +70°C
Relative humidity	0% up to 97%
Pressure	70 up to 106 kPa
Maximum altitude	2000 m
Pollution degree	PD2
Use	Outdoor

General

RTC	Ultra-low power consumption / Timekeeper and antitamper detection. UTC format.
RTC battery **	CR2032 (210mAh)

Safety and EMC

Installation Category	IV IEC 61010-1
Safety category voltage measurement inputs	IEC 61010-1 CAT IV 600V
Safety category current, pressure, temperature sensor, digital inputs, Ethernet	IEC 61010-1 CAT IV 150V
Insulation	Double
Electromagnetic compatibility	Emission: IEC 61000-6-4 Immunity: IEC 61000-6-2

Test

Standard

ESD	IEC EN 61000-4-2
Ring Wave	IEC EN 61000-4-12
Damped oscillatory waves	IEC EN 61000-4-18
Fast transient / burst	IEC EN 61000-4-4
Power frequency magnetic field	IEC EN 61000-4-8
Radiated RF EM field	IEC EN 61000-4-3
Radiated RF EM field (digital radio teleph.)	IEC EN 61000-4-3
Test voltage level at main freq. conducted	IEC EN 61000-4-16
Conducted CM disturb. (0-150Hz)	IEC EN 61000-4-16
Conducted disturbances	IEC EN 61000-4-6

HDMI

Front panel

LEDs	Status, Power, and Alarm
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Web server

Control, Measures, Configuration, FW Updates, Logs

NFC Identification

Type	Passive RFID
Frequency	13.56 (NFC)
Information	Manufacturer, Device type, SN, HW version, MAC, Default IP

* According to IEC61557-12

** Internal and not removable

Sensors and voltage inputs

Current Sensor

Sensor & Cable

Type	Openable Rogowski coil
Internal diameter	120 / 70 mm
Flexible part diameter	8 mm
Accuracy	Class 0.5 A1
Short circuit withstand	25 kA peak
Cable length	2 m (splitter included)
Cable type	Shielded 24 AWG conductors
Protection grade	IP67
Insulation	Double
Safety	CAT IV 600V

Connector

Type	M12 pluggable
Protection grade	IP67

Temperature sensor

Type	3 wire PT 100
Measurement range	-50 °C up to 150 °C
Resolution	< 0.3 °C
Accuracy	±0.3°C (Class B)
Maximum drift	1m°C/yr
Protection grade	IP67
Insulation	Double
Safety	CAT IV 300V

Pressure sensor

Measurement range	Up to 30 psi absolute
Accuracy	±0.5 psi
Protection grade	IP67
Insulation	Double
Safety	CAT IV 300V

Connector

Type	M12 pluggable
Protection grade	IP67

3PH Voltage Input

Secondary Voltage Inputs

Cable

Cable structure	4 conductors + shield (L1, L2, L3, N, GROUND)
Cable type	Shielded
Cable length	2 m
Insulation	Double
Safety	CAT IV 600V

Connector

Type	Pluggable
Protection grade	IP67

Digital Input

Type	3 independent digital inputs DC or AC (optional), non-polarity, isolated
Protection	Over-voltage protection, anti-bounce circuit
Impedance	200 k Ω
Voltage range	0 to ± 30 Vdc or 0 to 300Vac
Scan time	≤ 10 ms

Digital output

Type	Single-pole dry contact
Rated load	5 A at 250 Vac / 5 A at 30 VDC

Connector

Type	M12
Protection grade	IP67

Dimensions

