

Digitizing the grid edge

Live monitoring of LV/MV networks

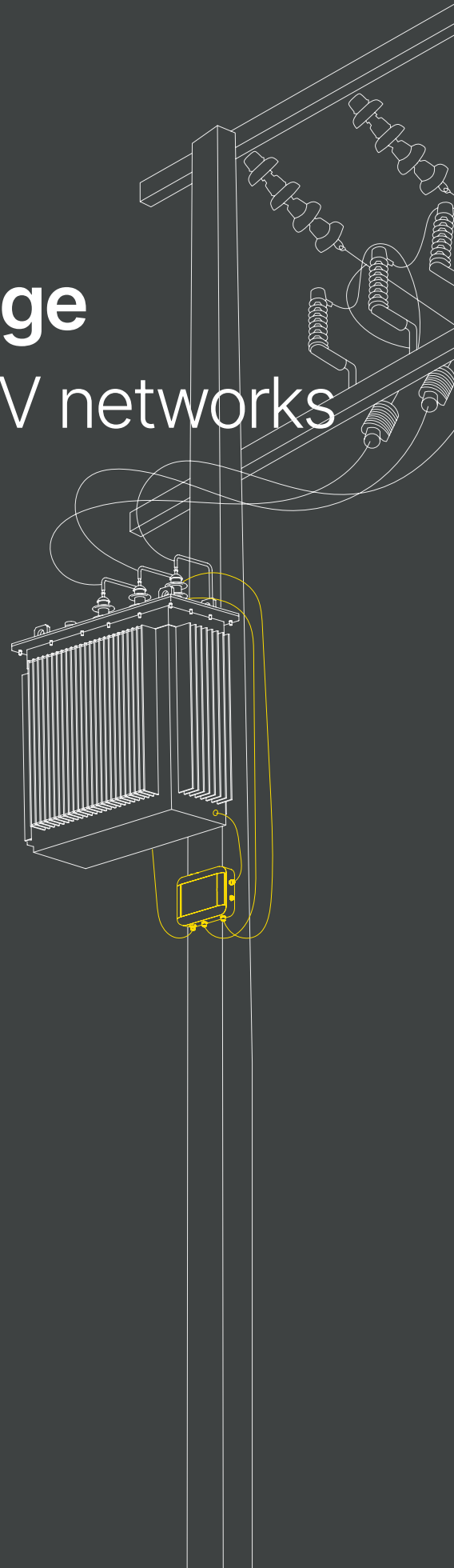
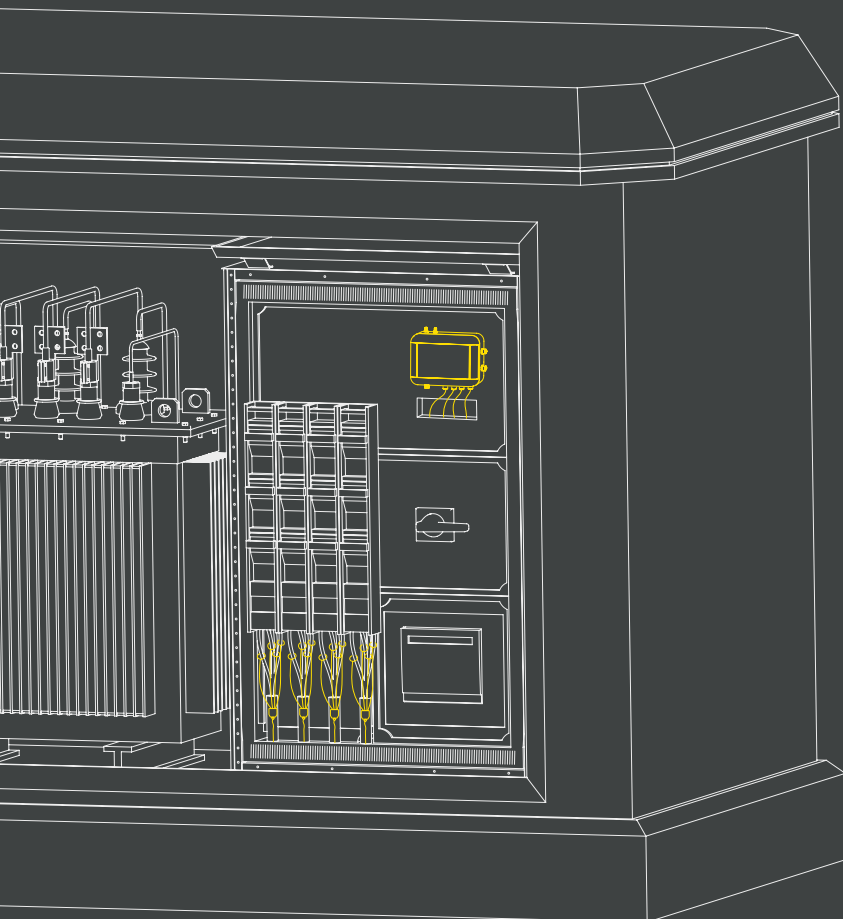


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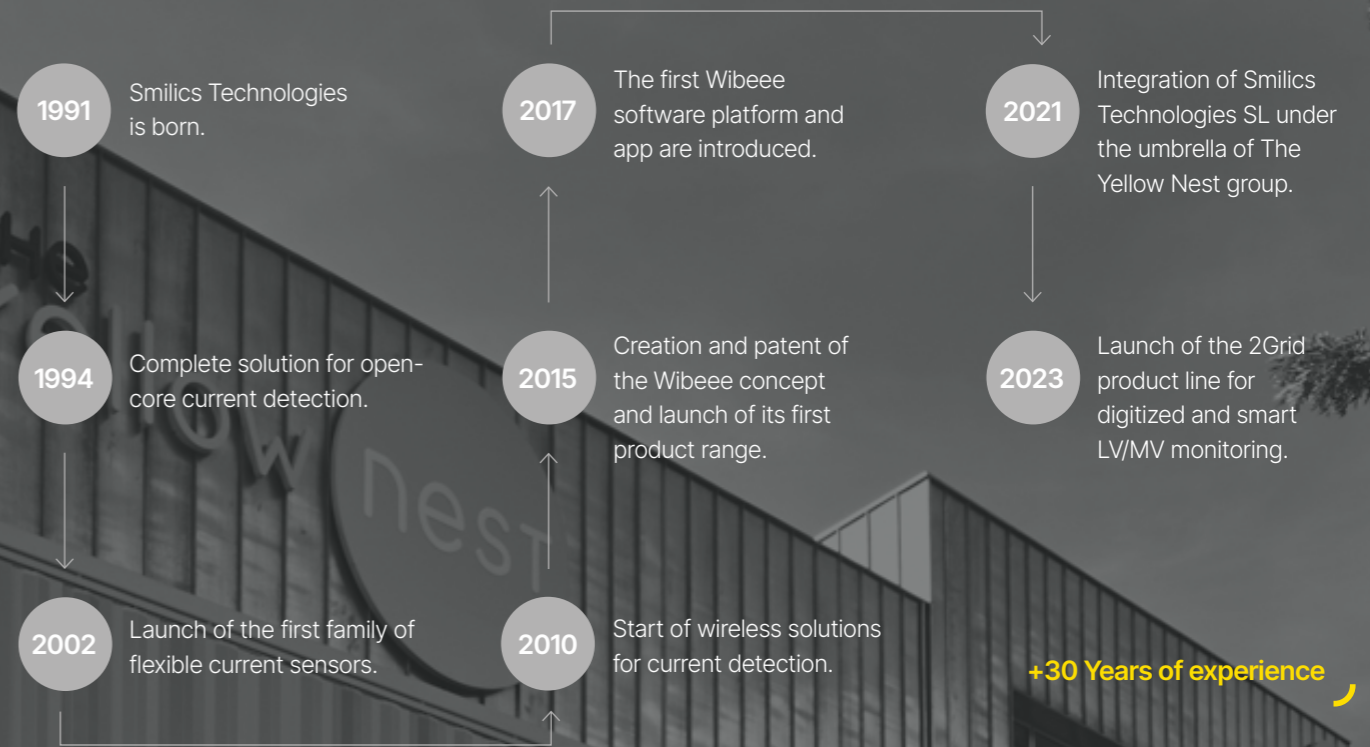
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About Smilics Technologies

Smilics Technologies, part of the global Yellow Nest group, specializes in advanced measurement and monitoring solutions for low- and medium-voltage secondary substations, supporting DSOs and utilities in more than 80 countries.

With over 30 years' of experience, we design and manufacture high-performance hardware and software that enable precise control, fault detection, and optimization of electrical distribution networks.

Based in Terrassa (Barcelona), our in-house R&D and manufacturing teams ensure the highest quality and reliability, accelerating the digitalization of the electrical grid through robust, field-ready solutions.



+30 Years of experience

+600K

devices installed worldwide

+150K







substations monitored

+95%

of our solutions are manufactured in Europe



Our portfolio includes advanced hardware and software solutions designed to make energy digitalization simple, smart, and accessible.

Software	 Wibeee Nest	 Ready2Grid
Meters	 Solutions for monitoring management of industrial, tertiary and domestic facilities	 Solutions for monitoring LV substations
Current Sensors	 Split Core Current Transformers	 Rogowski Coils

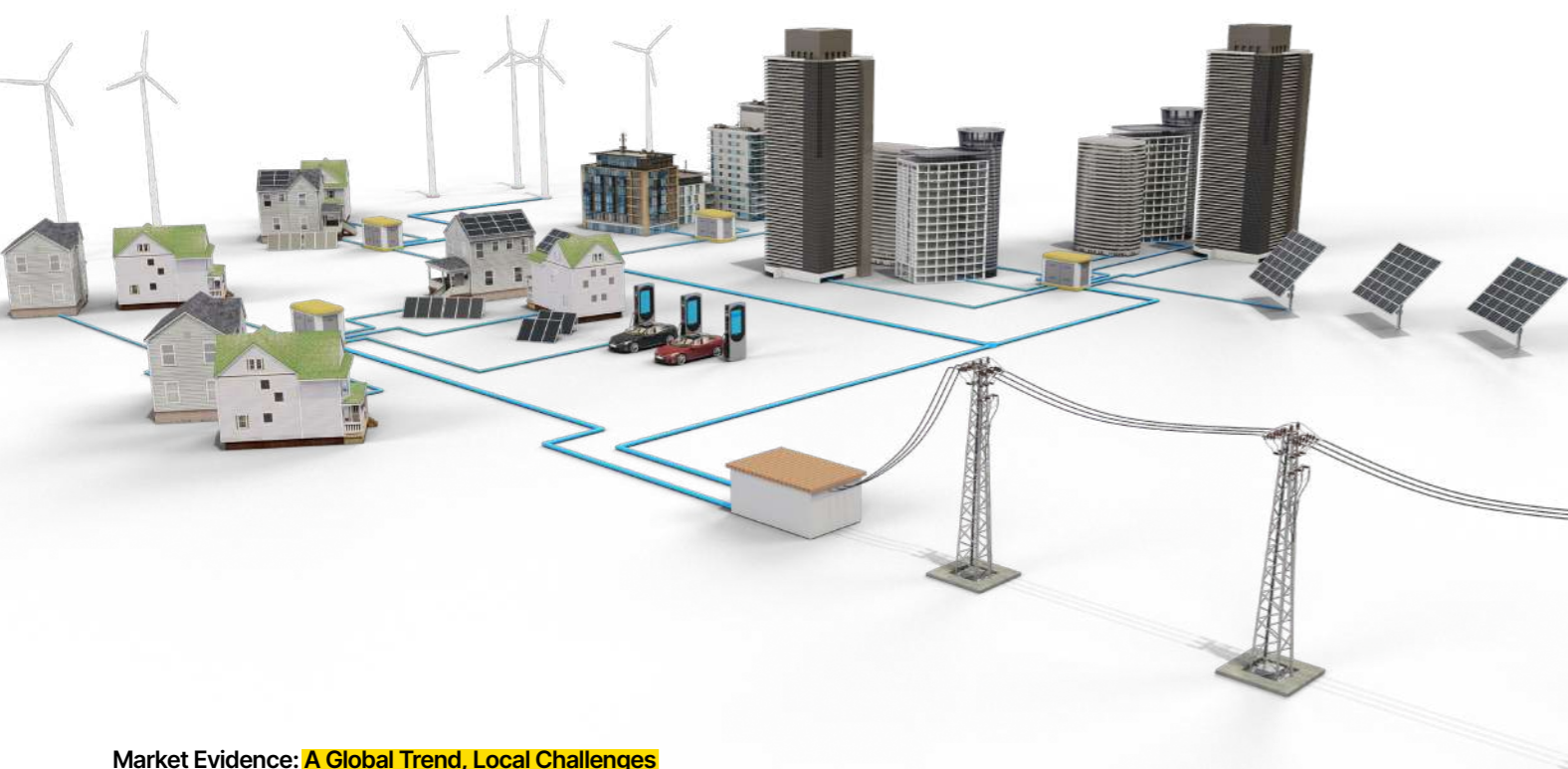
Why digitize low voltage grid?

Low-voltage network: from oblivion to the center of the electrical system

For decades, the low-voltage (LV) network has been the great forgotten one in electricity planning and digitalisation. However, today it has become the most critical layer of the system. The rise of prosumers, the expansion of distributed generation (especially photovoltaic), the deployment of batteries, the electrification of industry, the growth of electric vehicles and the increase in new connections are generating unprecedented complexity in the LV grid, causing congestion, voltage problems and difficulties in managing demand efficiently.

By integrating up to 70% of renewable sources and facilitating a more decentralized and adaptable system, DSOs are the backbone of the energy transformation.

Digitizing the low-voltage network is no longer an option, it is the only way to manage it efficiently, guarantee the quality of supply and prepare it for present and future challenges.



Market Evidence: A Global Trend, Local Challenges

The need to digitize the low voltage (LV) grid is not an isolated phenomenon and it's a shared priority across the globe. Electricity distribution operators around the world are facing similar challenges: increasing electrification, the growth of distributed generation, evolving regulatory demands, and aging LV infrastructures that must evolve.

Now is the time to act. Without real-time visibility and intelligence at the LV level, the energy transition cannot succeed.



Hidden risks of not digitizing low voltage grid

- Congestions remain hidden, leading to unexpected outages and blackouts.
- Voltage instabilities increase, damaging equipment and customer trust.
- Failures go undetected, causing extra challenges to comply with the SAIDI and SAIFI.
- Problems happening undetected could cause reducing the network assets lifetime.
- Regulatory penalties grow, damaging reputation and financial stability.
- The energy transition stalls, delaying sustainability goals and innovation. (Energy losses, automatic LV network connection).

Result → No visibility. No control. No future



What happens when you take control of the network

- Higher Network Reliability: Continuous monitoring boosts service quality and reduces outages.
- Early Problem Detection: Issues are caught before they escalate, minimizing failures and damage.
- Optimized Energy Efficiency: Energy losses are identified, and operating costs are reduced.
- Full Regulatory Compliance: Stay ahead of mandatory digitalization laws and sustainability goals.
- Data-Driven Planning: Real-time insights reveal trends and support smarter network optimization.
- Extended Equipment Life: Monitoring harmonics protects sensitive assets and extends their lifespan.

Result → Smarter, stronger and more resilient grid

2Grid Solution

Advanced Low-Voltage Monitoring Delivers Real Operational Knowledge

Until now, low-voltage networks have operated with limited information based almost exclusively on meters. However, true control of the network begins with advanced physical monitoring, which captures what is actually happening in the field upstream the point of consumption.

Our equipment allows DSOs to know in real time:

- Electrical status (voltages, currents, THD, some power quality features...)
- Phase balance and technical losses
- Critical events: overloads, unbalances, disconnections, short circuits and MV cable-down.

And in addition, we add variables that others do not capture:

- Transformer temperature
- Flood, intrusion, tilt, ozone...



2Grid adapts to any type of low-voltage transformer substation

Different versions: Modular, CommPack+, CommPack Pole mounted and Ground mounted. Choose the 2Grid model which best fits your needs.



Plug & Play

2Grid devices are installed quickly and easily, without the need for downloads or interrupting the power supply. Their plug-and-play design makes them ideal for retrofit projects, minimizing disruptions and ensuring service continuity.



Real-time information

Monitor in real time and set up appropriate alarms to keep your secondary substation under control. Take advantage of all the information for early fault detection, optimize your system's performance, and extend the lifespan of your assets.



Maximum Cybersecurity

All 2Grid devices have been designed with robust cybersecurity measures, ensuring maximum protection and security for the electrical infrastructure.

Value propositions and use cases

Transformer condition & asset monitoring

- Monitor transformer load, oil temperature, cable overheating and tap changer imbalances to prevent asset degradation.
- Detect harmonics, THD and power quality deviations that shorten asset lifetime. For example, in Poland harmonics were proven to reduce transformer life by up to 5 years.
- Enable predictive maintenance by monitoring overheating, arc flash events (ozone gas), and water ingress, preventing failures and extending asset lifetime.

Feeder capacity management

- Detect feeder overloads and analyse reverse power flows and phase unbalances to safely manage distributed generation.
- Monitor feeder capacity in real time to enable proactive planning, congestion management and optimization of distributed energy resources.

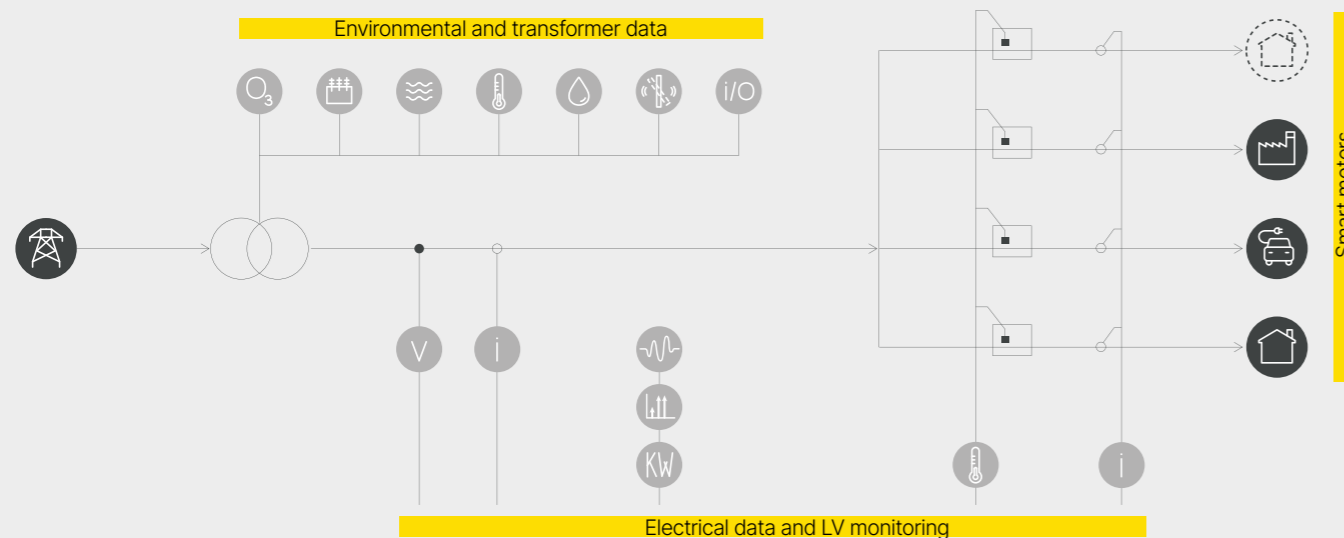
Improve operation & fault identification

- Enable immediate fault detection with precise geolocation, accelerating EPC response, service restoration and improving SAIDI/SAIFI indicators.
- Detect blown fuses, cable-down events, and intrusions in substations, supporting early interventions in high-risk scenarios.
- Monitor auxiliary signals (breaker status, battery alarms, FCI signals, forced ventilation) through digital inputs and outputs.

Non-technical losses detection

- Detect and reduce energy theft at both transformer and feeder level, improving grid efficiency and reducing non-technical losses.
- Identify illegal installations and unauthorized connections to secure network integrity and protect revenues.

→ SOLUTION DIAGRAM



Easy installation

No cabinet needed (IP67)

Built-in Communications

MV-LV monitoring

2Grid Modular

Complete Low-Voltage Monitoring

Modular 2Grid solution consists of up to four devices, each dedicated to monitoring and managing key electrical and environmental parameters within a low-voltage transformer substation.

These 2Grid devices provide secure and efficient communication, enabling remote monitoring and control through an advanced visualization platform.

Electrical Monitoring Devices

Gate and Feeder measure key electrical parameters to ensure control and performance.



2Grid Gate

Value propositions covered: Improve operation & fault identification / Non-technical losses detection.

Low Voltage Secondary Side Monitoring with Harmonic Supervision

It enables targeted monitoring of the low-voltage directly at the transformer's secondary output, making it ideal for capturing critical quality and load behaviour in real time.

→ Key Features:

- Real-time measurement of 3PH+N voltage and current from LV.
- Total Harmonic Distortion (THD) up to the 41st harmonic.
- Detects overloads, short circuits, and reverse flows.



2Grid Feeder

Value propositions covered: Improve operation & fault identification / Feeder capacity management / Non-technical losses detection.

Comprehensive Low Voltage Feeder Monitoring

Designed especially for low-voltage feeders monitoring, it is capable of supervising up to 4 feeders simultaneously providing with real-time electrical data along with temperature measurements for each feeder, helping DSOs improve fault detection.

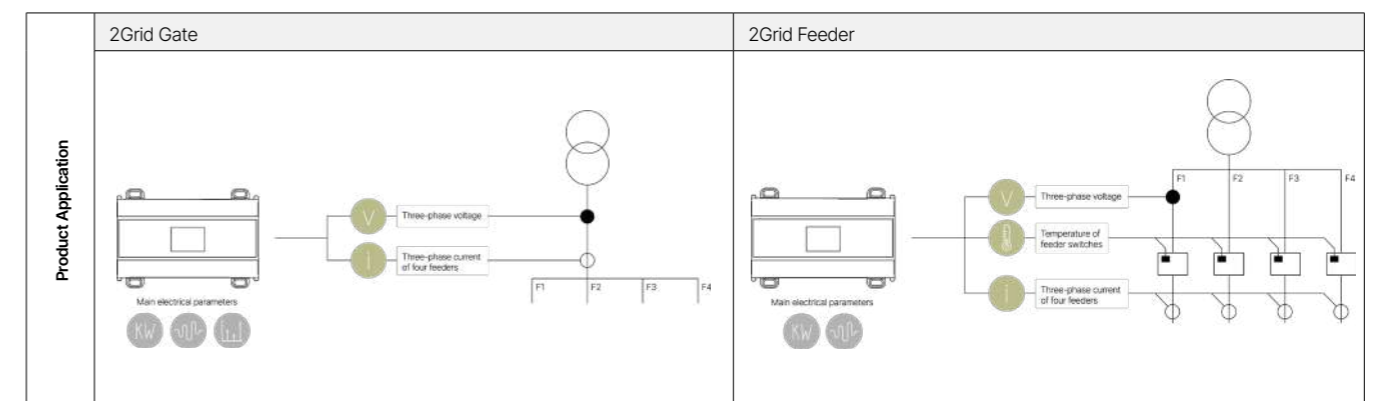
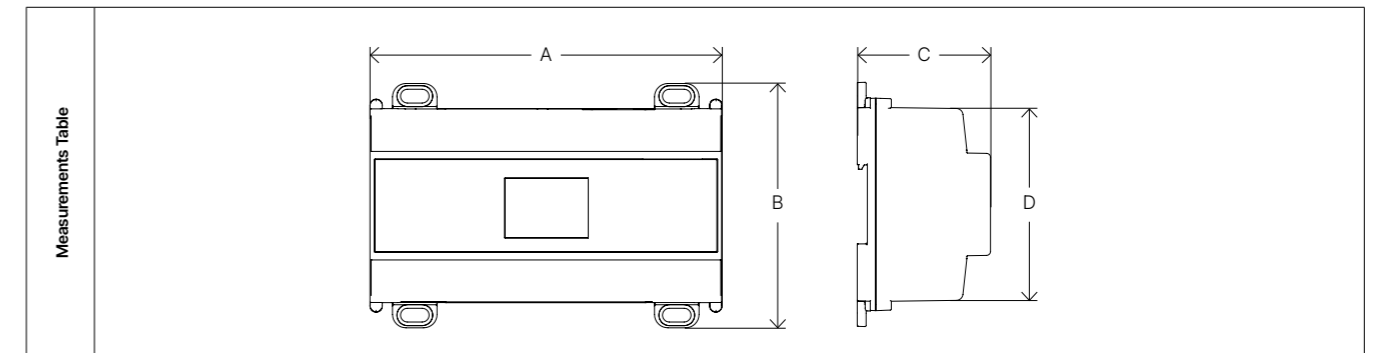
→ Key Features:

- Measures electrical parameters of 4 feeders using 16 Rogowski sensors.
 - Integrates breaker temperature alarms for predictive maintenance.
 - Calculates key power metrics including $\cos \Phi$, frequency, and apparent power.



2Grid Feeder & Gate Technical Specifications Chart

Physical & Mechanical Features	Power Supply	2.5 W	
	Input Voltage	24 V	
	Voltage Input Range	0 - 450 Vrms	
	Current Measurement Range	0 - 4000 A	
	Short-Circuit Current Measurement	Up to 4000 A	
	Current and Voltage Accuracy	± 0.2%	
Physical & Mechanical Features	Material	PA66 plastic, heat-resistant and flame-retardant (UL94 V0)	
	Protection Rating	IP40	
	Installation	DIN rail or wall-mounted	
	Operating Temperature	-25°C to +70°C	
	Relative Humidity	Up to 93%	
	Dimensions (mm)	A	157,80
		B	109,83
C		59	
D		87,20	
Weight (kg)	0,358		
Safety & EMC	Installation Category	IV IEC 61010-1	
	Isolation	Double	
Comms & Cybersecurity	Ethernet Communication	10/100 Base TX with RJ45 connector	
	Transmission Protocols	MODBUS TCP, MQTT, HTTP, NTP, DHCP CLIENT	
	Cybersecurity	TPM 2.0 cryptographic accelerator, AES-128 encryption functions, tamper detection	



Environmental & Transformer Monitoring

Bulker and Green monitoring environmental and transformer conditions to protect assets.



2Grid Bulker

Value propositions covered: Transformer condition & asset monitoring / Improve operation & fault identification

Advanced Transformer Monitoring Solution

Engineered to monitor the LV transformer with a comprehensive set of sensors for thermal, environmental, and operational parameters. It enables DSOs to enhance reliability and safety while integrating auxiliary functions like ventilation control and alarm signalling.

→ Key Features:

- Transformer oil temperature and IR chassis measurement for thermal supervision.
- Ozone level sensor for arc flash detection.
- 8 digital I/O to control ventilation, monitor FCI, MV switches, and battery among other possibilities.



2Grid Green

Value propositions covered: Transformer condition & asset monitoring / Improve operation & fault identification

Environmental Safety and Intrusion Detection

It safeguards secondary substations by monitoring ambient conditions, detecting fire or intrusion risks, and enhancing operational safety.

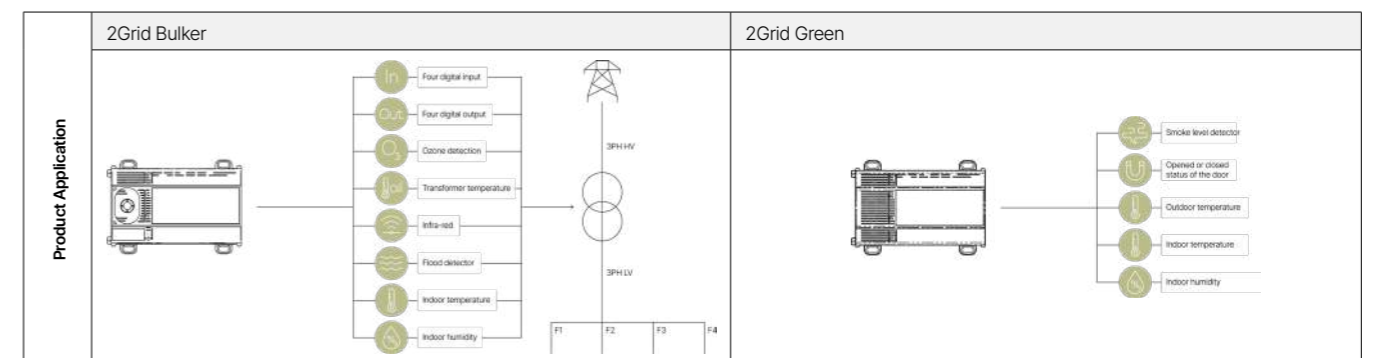
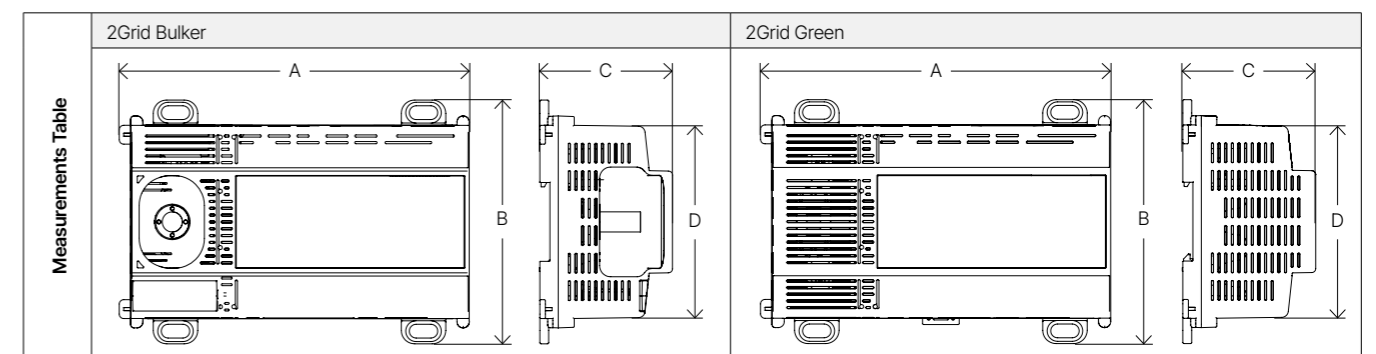
→ Key Features:

- Measures indoor/outdoor temperature, humidity, and smoke level.
- Detects unauthorized access through magnetic door sensors.
 - Logs alarms and conditions for early anomaly detection.



2Grid Bulker & Green Technical Specifications Chart

Main Tech. Feature		
Power Supply		2.5 W
Input Voltage		24 V
Physical & Mechanical Features	Material	PA66 plastic, heat-resistant and flame-retardant (UL94 V0 / CTI ≥ 500)
	Protection Rating	IP40
	Installation	DIN rail or wall-mounted
	Operating Temperature	-25°C to +70°C
	Relative Humidity	Up to 93%
	Dimensions (mm)	A
B		109,83
C		59
D		87,20
Weight (kg)		0,358
Safety EMC	Installation Category	IV IEC 61010-1
	Isolation	Double
Comms & Cybersecurity	Ethernet Communication	10/100 Base TX with RJ45 connector
	Transmission Protocols	MODBUS TCP, MQTT, HTTP, NTP, DHCP CLIENT
	Cybersecurity	TPM 2.0, AES-128 encryption, secure firmware authentication
Environmental & Sensor Features	2Grid Bulker	
	Oil Temperature Sensor	PT100, range from -50°C to 150°C, accuracy ±0.3°C
	Infrared Temperature Sensor	Range from -20°C to 150°C, accuracy ±1°C
	Internal Temperature Sensor	Range from -40°C to 125°C, accuracy ±0.3°C
	Internal Humidity Sensor	Range from 0% to 100% RH, accuracy ±2% RH
	Ozone Level Sensor	Range from 0 to 2 ppm, accuracy 1 ppb
	Flood Sensor	Resistive sensor with cable length up to 5 m
	2Grid Green	
	Smoke sensor	Sensitivity ≥ 1 µg/m³, range -30°C to 60°C
	External temperature sensor	PT100, accuracy ±0.3°C, range -25°C to 70°C
	Indoor temperature sensor	Range -40°C to 125°C, accuracy ±0.3°C
	Indoor humidity sensor	Range 0-100% RH, accuracy ±2% RH
	Magnetic door contact sensor	Open/closed state detection



2Grid CommPack

One System. Any Substation.

2Grid CommPack system is a compact, all-in-one solution for monitoring any type of transformer substation.

It features 4G LTE communication and can be adapted to the specific needs of each substation.

It enables real-time monitoring of electrical parameters, transformer health, and environmental conditions.



2Grid CommPack PM1 & PM4

Value propositions covered: Transformer condition & asset monitoring / Improve operation & fault identification / Feeder capacity management

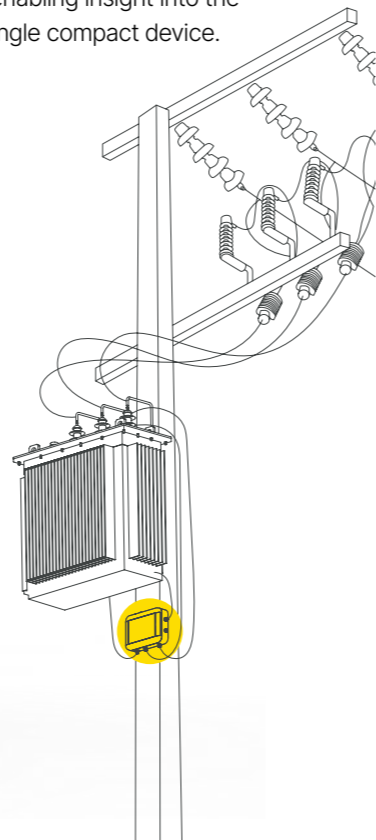
Fully Autonomous Monitoring for Pole-Mounted Substations

2Grid CommPack PM solution is a compact, rugged and autonomous monitoring unit, specially designed for outdoor pole-mounted installation: no cabinet, no auxiliary power, no complexity. Powered directly from the LV phases and equipped with native 4G LTE connectivity, PM series enables complete digitalization of aerial substations in just minutes.

Thanks to its self-powered design, integrated communications, and magnetic mounting system, it can be installed quickly without interrupting service or performing a discharge.

It is the ideal solution for DSOs seeking to bring real-time visibility and event intelligence to remote or difficult-to-access substations without trenching, enclosures or complex wiring.

In addition to full electrical and transformer analytics, PM devices include pole tilt and vibration sensors for structural monitoring. Not only that, but it can also be configured to measure the medium-voltage current, enabling insight into the MV side of the transformer, all from a single compact device.



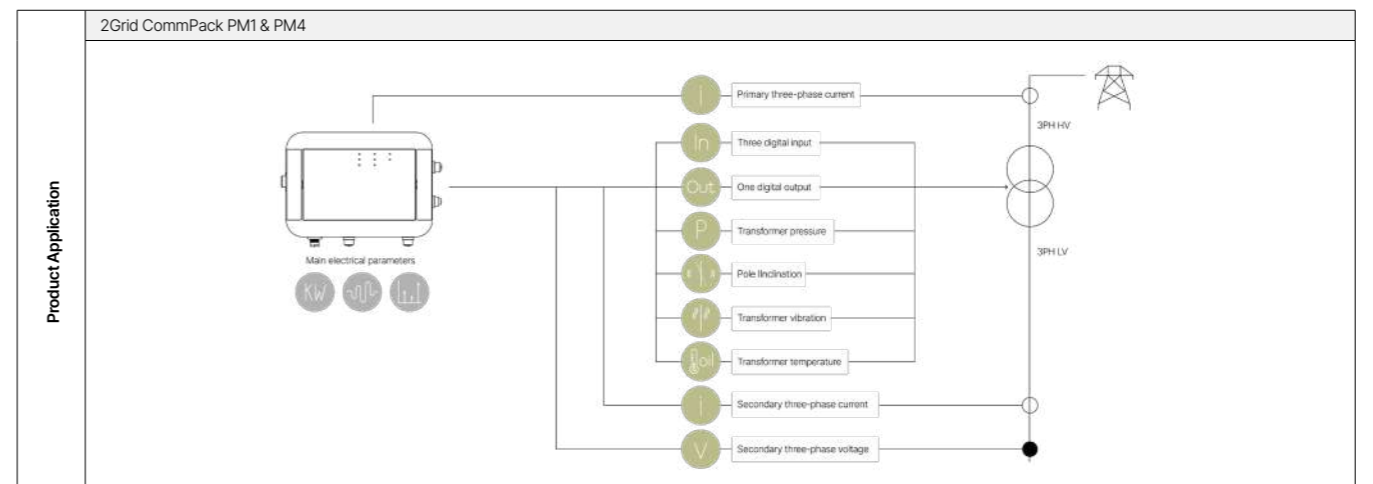
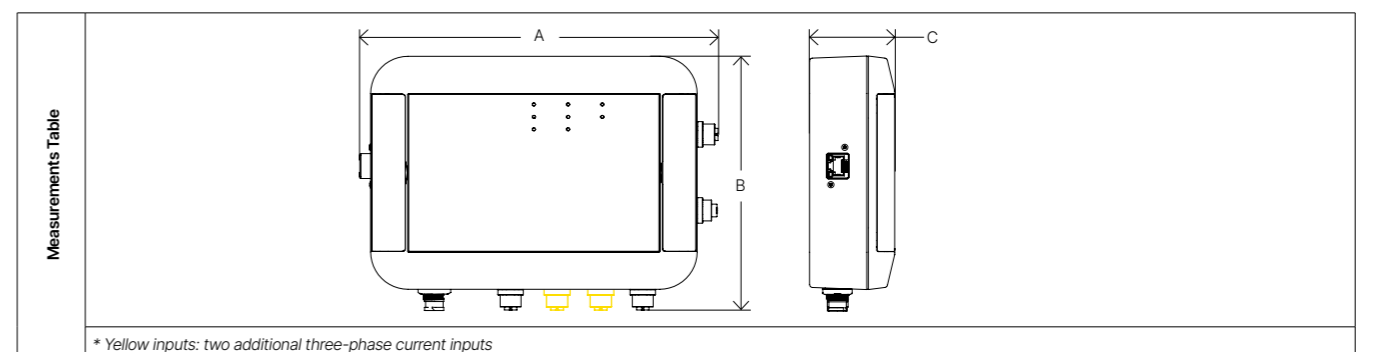
- Integrated communications
- Full transformer monitoring
- Rugged outdoor design



→ Key Features:

- **All-in-One Transformer Monitoring:** Monitors primary current, secondary voltage and current, along with key transformer parameters.
- **Self-Powered with Built-in 4G-LTE:** Operates autonomously by drawing power directly from the phases and includes integrated mobile connectivity with encrypted data channels.
- **Transformer Monitoring:** Measures the oil temperature and pressure, or alternatively chassis temperature, using external sensors and vibration & tilt detection using internal sensors.
- **Available in Two Versions:** PM1 is designed for single-feeder monitoring in compact, pole-mounted installations, while PM4 supports up to four three-phase feeders for more complex substation environments.
- **Fast, Non-Invasive Installation:** Magnetic mounting system, pre-wired accessories and no need to interrupt the network during deployment make the PM1 & PM4 ideal for rapid installation in pole-mounted environments.

2Grid CommPack PM4 & PM1 Technical Specifications Chart			
Metrics and Calculations	Primary & secondary three-phase current measurement		
	Neutral current measurement: direct, calculated and homopolar		
	Three-phase secondary voltage measurement		
	Derived electrical magnitudes calculation: power, power factor, $\cos\Phi$, active/reactive/apparent power, quadrant-based active energy, symmetrical components, frequency		
	Total harmonic distortion (THD) calculation up to the 41st harmonic (21st odd)		
	Electrical parameter logging		
	Oil temperature and pressure measurement or transformer chassis temperature		
Safety Features	Pole tilt and impact/vibration detection		
	High cybersecurity standards		
	Encrypted communication protocols: HTTPS (API/WEB), MQTTS, MODBUS TCP TLS		
	Configurable alarms: Overload, short circuit, power failure, oil pressure & temperature, external temperature, digital I/O alarms, user-defined alarms		
	Degree of ingress protection (IEC 60529)	IP65 and IP67	
	Pollution degree	PD2	
	Ratings of insulation of external circuits	Power supply CAT IV 300V / Other ports CAT IV 150V	
Environmental & Installation Conditions	Overvoltage category	CAT IV 300V	
	Installation location	Outdoor	
	Altitude	2000 m	
	Temperature	-20°C up to +55°C	
	Relative humidity	0% up to 97%	
	Main supply voltage fluctuations	View supply voltage range	
	Device Features	Quick and easy installation with pre-wired connectors	
Custom factory configuration option			
Supply voltage		90..480V AC	
Frequency		50/60 Hz	
Power rating		12VA	
Description of all inputs and outputs		1 x 3PH Power supply and voltage measurement / 1 x 3 digital inputs + digital output / 1 x 3 analog sensors interface / 1 x 3 ethernet port / PM1: 2 x 3PH current metrology / PM4: 4 x 3PH current metrology	
Dimensions (mm)		2Grid CommPack PM4 & PM1	
		A	230
		B	164
		C	55
Weight (kg)	0,8		
Comms & Logging	4G-LTE mobile communication		
	Internal web server for monitoring and configuration		
	Event logging and statistical data storage		



2Grid CommPack GM4

Value propositions covered: Transformer condition & asset monitoring / Improve operation & fault identification / Feeder capacity management / Non-technical losses detection

Advanced Feeder & Transformer Monitoring for Ground-Level Substations

2Grid CommPack GM4 is specifically designed for ground-mounted LV secondary substations, offering a compact, robust, and fully outdoor-ready solution. Its sealed IP67 enclosure ensures reliable operation in harsh environments, while its features enable continuous visibility of grid conditions and transformer health. This makes it the ideal device for DSOs seeking to improve operational awareness, fault detection, and preventive maintenance at the low-voltage level.

GM4 supports direct measurement of up to four three-phase current circuits, allowing it to monitor either primary or secondary currents. In addition to current measurement, it provides voltage sensing, some power quality indicators, and transformer condition monitoring, all in a single and compact

device. It includes self-powering capability from phase lines and last gasp functionality to ensure event capture during outages.

Equipped with 4G-LTE connectivity and an integrated Ethernet port, the GM4 communicates simultaneously with SCADA systems and grid visualization platforms using standard protocols such as MODBUS TCP, MQTT, and HTTP (API), offering maximum flexibility for integration into digital substation architectures.

Beyond electrical parameters, GM4 also monitors transformer oil temperature and pressure or chassis temperature, and includes three configurable digital inputs and one dry contact output for alarms or remote control applications.

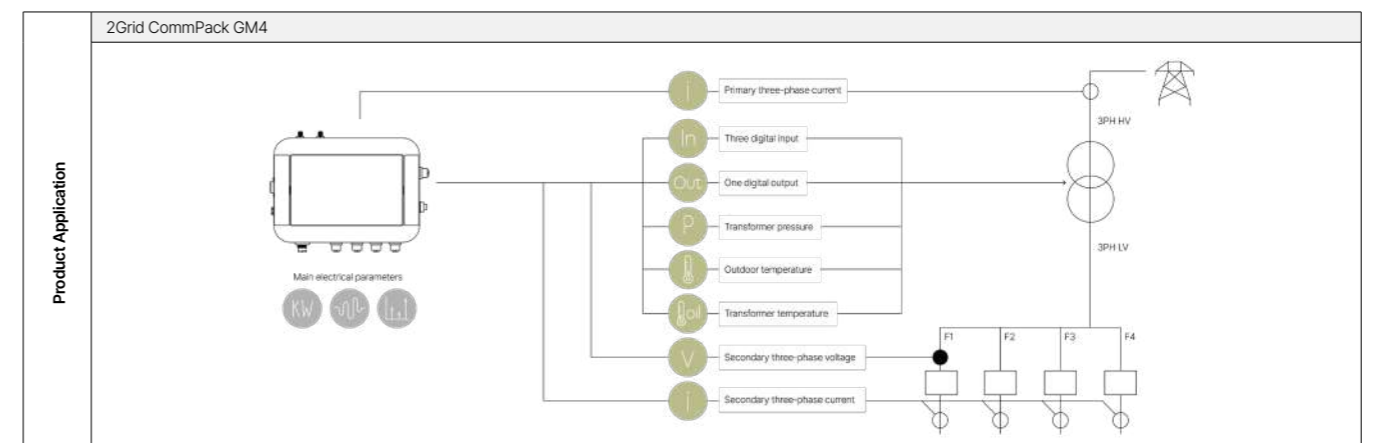
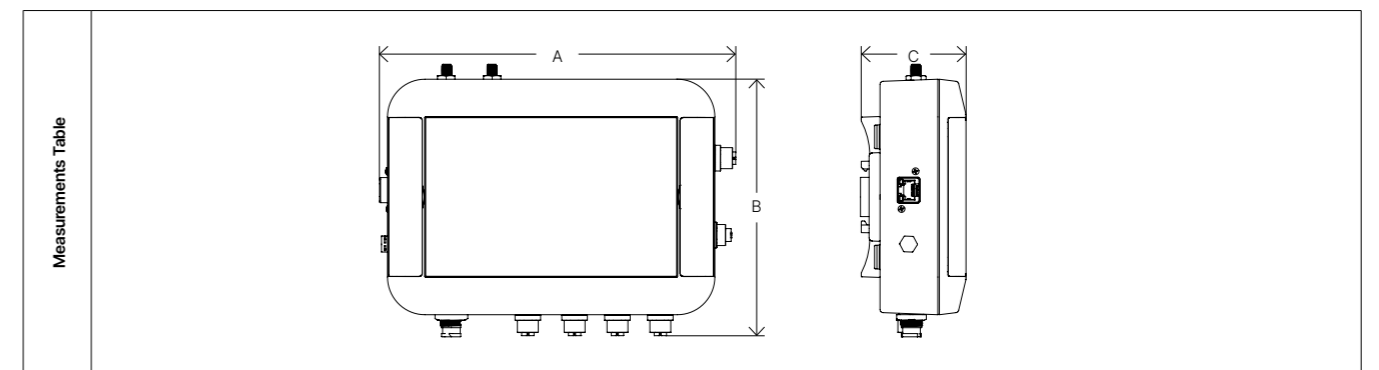
- RTU Compatible
- 4 x 3PH current measurement inputs
- Small cabinet ready



→ Key Features:

- **All-in-One Transformer Monitoring:** Monitors all key electrical parameters for primary current, secondary voltage and current, along with transformer parameters.
- **Self-Powered with Built-in 4G-LTE:** Operates autonomously by drawing power directly from the phases and includes integrated mobile connectivity with encrypted data channels.
- **Transformer Monitoring:** Measures the oil temperature and pressure, or alternatively chassis temperature, using external sensors and vibration detection using internal sensors.
- **External Antenna System for Reliable Connectivity:** Equipped with an external 4G-LTE antenna to ensure strong and stable communication in any ground-mounted substation. For challenging environments, the antenna can be replaced with a cabled extension to improve reception outside metallic enclosures or shielded locations
- **Fast, Non-Invasive Installation:** Magnetic mounting system, pre-wired accessories and no need to interrupt the network during deployment make the GM4 ideal for rapid installation in ground substations.

2Grid CommPack GM4 Technical Specifications Chart			
Metrics and Calculations	Primary & secondary three-phase current measurement (up to 18 three-phase current measurement adding bridge accessories)		
	Neutral current measurement: direct, calculated and homopolar		
	Three-phase secondary voltage measurement		
	Derived electrical magnitudes calculation: power, power factor, cosφ, active/reactive/apparent power, quadrant-based active energy, symmetrical components, frequency		
	Total harmonic distortion (THD) calculation up to the 41st harmonic (21st odd)		
	Electrical parameter logging		
	Digital I/O		
Safety Features	Oil temperature and pressure measurement or transformer chassis temperature		
	High cybersecurity standards		
	Encrypted communication protocols: HTTPS (API/WEB), MQTTS, MODBUS TCP TLS, MODBUS RTU (Master)		
	Ratings of insulation of external circuits	Power supply CAT IV 300V / Other ports CAT IV 150V	
	Overvoltage category	CAT IV 300V	
	Pollution degree	PD2	
	Degree of ingress protection (IEC 60529)	IP65 and IP67	
Environmental and Installation Conditions	Configurable alarms: Overload, short circuit, power failure, oil pressure & temperature, external temperature, digital I/O alarms, user-defined alarms		
	Installation location	Outdoor	
	Altitude	2000 m	
	Temperature	-20°C up to +55°C	
	Relative humidity	0% up to 97%	
	Main supply voltage fluctuations	View supply voltage range	
	Device Features	IP67-rated outdoor protection	
Quick and easy installation with pre-wired connectors			
Custom factory configuration option			
Supply voltage		90...480V AC	
Frequency		50/60 Hz	
Power rating		12 VA	
Description of all inputs and outputs		1 x 3PH Power supply and voltage measurement / 1 x 3 Digital inputs + 1 digital output / 1 x Analog sensors interface / 1 x Ethernet port / 1 x GNSS Antenna / 1 x LTE Antenna / 4 x 3PH Current metrology	
Dimensions (mm)		2Grid CommPack GM4	
		A	227,9
		B	178,8
Weight (kg)	C	55	
		0,8	
Comms & Logging	4G-LTE mobile communication		
	Internal web server for monitoring & configuration		
	Event logging & statistical data storage		



2Grid CommPack GMX & Bridge

Value propositions covered: Transformer condition & asset monitoring / Improve operation & fault identification / Feeder capacity management / Non-technical losses detection

Scalable Monitoring for Every Substation

2Grid CommPack product line expands with the introduction of the GMX, a new unit designed for flexible requirements for installations. Paired with our Bridge expansion modules, this solution enables DSOs to scale the number of monitored feeders according to the specific needs of each secondary substation.

GMX serves as the head-end device, coordinating measurements and communication across a daisy-chained network

of Bridge units. Each Bridge extender seamlessly adds new feeder measurements, ensuring full adaptability and optimized system sizing.

This powerful combination is purpose-built for scenarios that go beyond the capacity of GM4 device, unlocking reliable supervision for more than four feeders, with full compatibility across the 2Grid Commpack ecosystem.

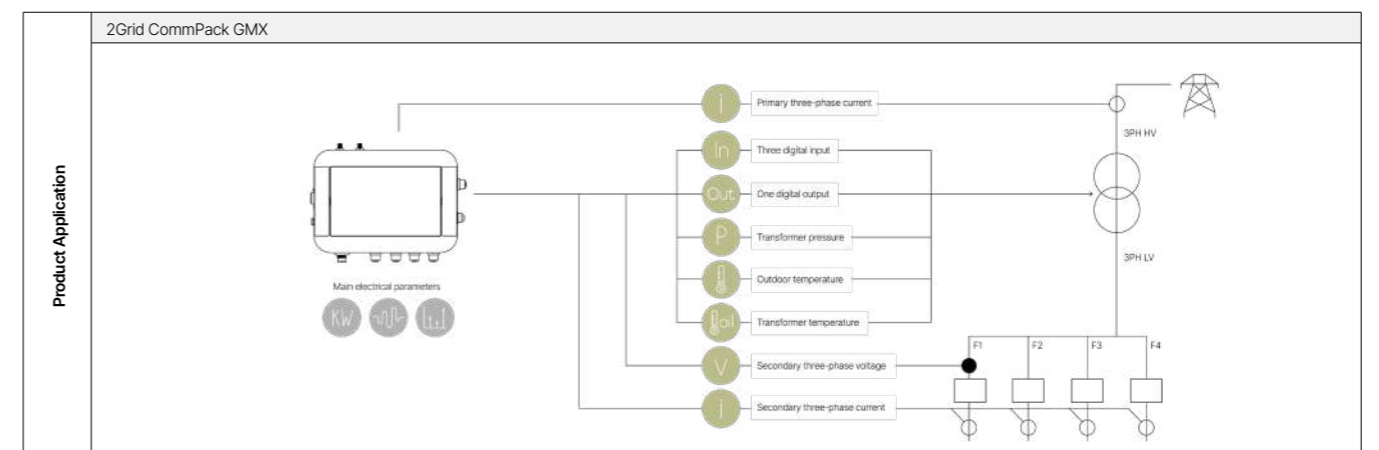
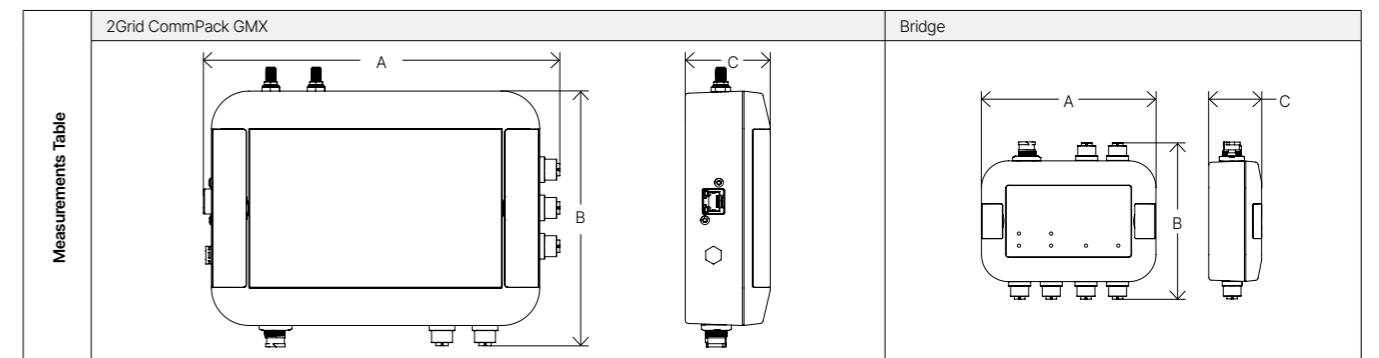


- RTU Compatible
- Scalable up to 3 18PH current
- 3rd party FSD Master Unit

→ Key Features:

- **Scalable Feeder Monitoring:** Supports monitoring of up to 18 feeders by connecting up to 4 Bridge modules via daisy-chain.
- **Optimized Data Refresh Rates:** Provides real-time (1 s) acquisition for up to 6 feeders. For expanded configurations, the data reporting interval can be adjusted to ensure consistent performance and reliable communication across all connected Bridge modules.
- **Advanced Insights:** GMX includes monitoring of harmonics (Voltage and Current) and Total Harmonic Distortion (THD) for deeper grid analysis.
- **Comprehensive Parameter Coverage:** It captures all key PMD-II parameters defined by IEC 61557-12, plus transformer data such as oil or chassis temperature, and digital I/Os for control and alarms, thus ensuring full visibility of feeders and substation status.
- **Rugged Design:** Rated IP65/IP67 for robust performance in harsh outdoor and indoor environments.

2Grid CommPack GMX Technical Specifications Chart				
Metrics and Calculations	Primary & secondary three-phase current measurement (up to 18 three-phase current measurement adding bridge accessories)			
	Neutral current measurement: direct, calculated and homopolar			
	Three-phase secondary voltage measurement			
	Derived electrical magnitudes calculation: power, power factor, cosφ, active/reactive/apparent power, quadrant-based active energy, symmetrical components, frequency			
	Total harmonic distortion (THD) calculation up to the 41st harmonic (21st odd)			
	Electrical parameter logging			
	Digital I/O			
Safety Features	Oil temperature and pressure measurement or transformer chassis temperature			
	High cybersecurity standards			
	Encrypted communication protocols: HTTPS (API/WEB), MQTTS, MODBUS TCP TLS, MODBUS RTU (Master)			
	Ratings of insulation of external circuits	Power supply CAT IV 300V / Other ports CAT IV 150V		
	Overvoltage category	CAT IV 300V		
	Pollution degree	PD2		
	Degree of ingress protection (IEC 60529)	IP65 and IP67		
Environmental and Installation Conditions	Configurable alarms: Overload, short circuit, power failure, oil pressure & temperature, external temperature, digital I/O alarms, user-defined alarms			
	Installation location	Outdoor		
	Altitude	2000 m		
	Temperature	-20°C up to +55°C		
	Relative humidity	0% up to 97%		
	Main supply voltage fluctuations	View supply voltage range		
	Device Features	IP67-rated outdoor protection		
Quick and easy installation with pre-wired connectors				
Custom factory configuration option				
Supply voltage		90...480V AC		
Frequency		50/60 Hz		
Power rating		12 VA		
Description of all inputs and outputs		1 x 3PH Power supply and voltage measurement / 1 x 3 Digital inputs + 1 digital output / 1 x Analog sensors interface / 1 x Ethernet port / 1 x GNSS Antenna / 1 x LTE Antenna / 2 x 3PH Current metrology / 1 x Bridge interface (RS485)		
Dimensions (mm)		2Grid CommPack GMX	Bridge	
		A	227,9	130
		B	178,8	117,2
Weight (kg)	C	55	39,9	
		0,8		
Comms & Logging	4G-LTE mobile communication			
	Internal web server for monitoring & configuration			
	Event logging & statistical data storage			



Get ready for what's next

From measurement to intelligence: the next step in smart grid evolution.

2Grid CommPack+ represents the evolution of secondary substation monitoring, designed to meet the challenges of the next generation of smart grids.

It integrates advanced Power Quality class measurement in accordance with IEC 61000-4-30 standards and certified under EN 62586-2, ensuring accuracy and reliability in power quality analysis. Beyond measurement, it provides a powerful platform that enables virtualized RTU functionalities, hosting third-party applications directly on its hardware. This makes it the ideal solution for managing FSD solutions and other grid intelligence tools, offering utilities unmatched adaptability, openness, and future-ready performance.

Coming Next Year — Stay Tuned!



2Grid CommPack+ PQS6

Value propositions covered: Transformer condition & asset monitoring / Improve operation & fault identification / Feeder capacity management / Non-technical losses detection

Certified Power Quality Class S. Full Spectrum Power Quality. Modular Intelligence.





2Grid CommPack+ PQS6 sets a new benchmark in the digitalization of secondary substations. More than a monitoring device, it is a versatile and intelligent platform designed to address the increasing complexity of today's power distribution networks.

Fully compliant with all mandatory requirements — and many beyond — of the IEC 61000-4-30 standard, and certified under EN 62586-2, it delivers comprehensive power quality monitoring with unmatched accuracy and reliability. PQS6 goes far beyond the minimum Class S criteria, covering nearly

the entire set of PQI parameters and providing utilities with granular, real-time visibility of their networks.

But measurement is only the beginning. PQS6 opens the door to third-party integration, supporting FSD solutions and other applications directly on its platform.

This flexibility transforms the CommPack+ into a future-ready ecosystem, enabling utilities not only to monitor and analyze, but also to act and integrate external intelligence tools in a seamless way.

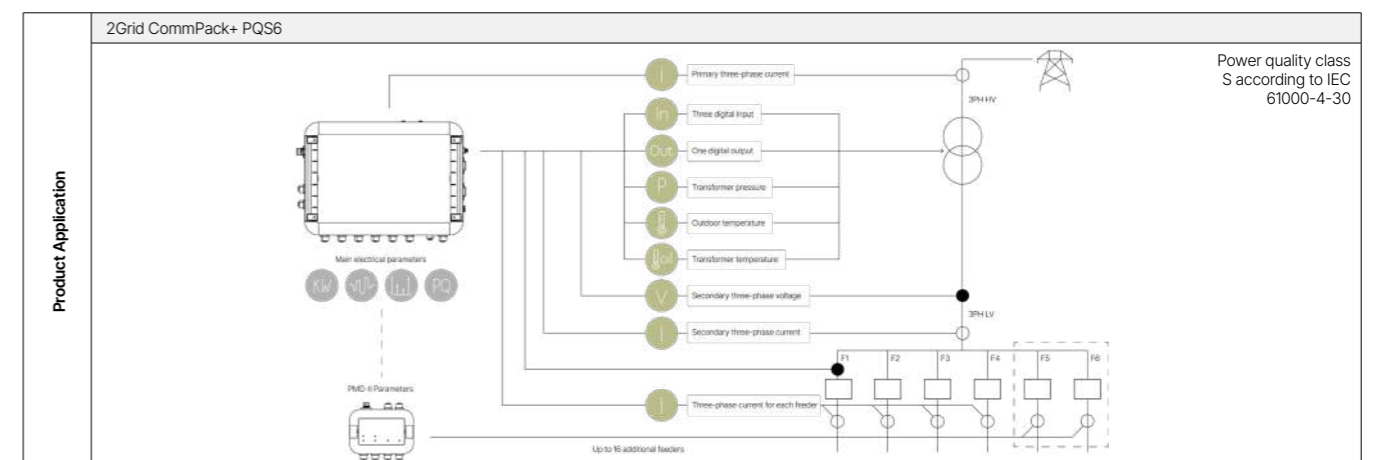
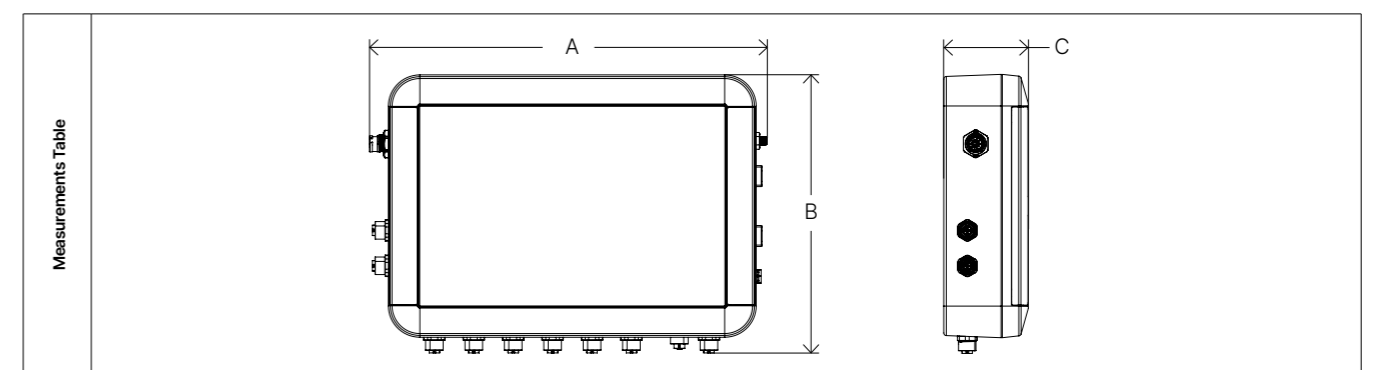
-  Power Quality IEC 61000-4-30
-  Expandible up to 22 3PH current inputs
-  Linux OS for Edge Applications
-  3rd party FSD Master Unit



→ Key Features:

- **Scalable Feeder Monitoring:** Supports monitoring of up to 22 feeders by connecting up to 4 BRIDGE modules via daisy-chain.
- **Certified Power Quality Class S Insights:** Measures key power quality parameters in full alignment with IEC 61000-4-30 Class S, including voltage, frequency, harmonics, unbalance, dips, swells, and interruptions for deeper grid analysis.
- **Smart-Grid Ready Interfaces:** Compatible with standard protocols (e.g., Modbus, IEC 60870-5-104, MQTT), and includes digital I/Os for alarms and event control.
- **Rugged Design:** Rated IP65/IP67 for robust performance in harsh outdoor and indoor environments.

2Grid CommPack+ PQS6 Technical Specifications Chart		
Metrics and Calculations	Primary & secondary three-phase current measurement (up to 22 three-phase current measurement adding bridge accessories)	
	Neutral current measurement: direct, calculated and homopolar	
	Three-phase secondary voltage measurement	
	Derived electrical magnitudes calculation: power, power factor, cosΦ, active/reactive/apparent power, quadrant-based active energy, symmetrical components, frequency	
	Total harmonic distortion (THD) calculation up to the 41st harmonic (21st odd)	
	Electrical parameter logging	
Safety Features	Power quality class S according to IEC 61000-4-30, measuring the following parameters: voltage frequency, supply voltage amplitude, flicker, supply voltage dips and surges, power supply interruptions, supply voltage imbalances, voltage harmonics, voltage interharmonics, over-under deviation.	
	Oil temperature and pressure measurement or transformer chassis temperature	
	High cybersecurity standards	
	Encrypted communication protocols: HTTPS (API/WEB), MQTTS, MODBUS TCP TLS, IEC 60870-5-104	
	Configurable alarms: Overload, short circuit, power failure, oil pressure & temperature, external temperature, digital I/O alarms, user-defined alarms	
	Degree of ingress protection (IEC 60529)	IP65 and IP67
Environmental and Installation Conditions	Pollution degree	PD3
	Ratings of insulation of external circuits	Power supply CAT IV 300V / Other ports CAT IV 150V
	Overvoltage category	CAT IV 300V
	Installation location	Outdoor
	Altitude	2000 m
	Temperature	-20°C up to +55°C
Device Features	Relative humidity	0% up to 97%
	Main supply voltage fluctuations	View supply voltage range
	Quick and easy installation with pre-wired connectors	
	Custom factory configuration option	
	Supply voltage	90...480V AC
	Frequency	50/60 Hz
Comms & Logging	Power rating	12VA
	Description of all inputs and outputs	1 x 3PH power supply and voltage measurement / 1 x 3 digital inputs + digital output / 1 x analog sensors interface / 1 x bridge interface (RS485) / 1 x ethernet port / 1 x GNSS antenna / 1 x LTE Antenna / 6 x 3PH current metrology
	Dimensions (mm)	2Grid CommPack+ PQS6 A 303 B 212 C 65
	Weight (kg)	1,3
	4G-LTE mobile communication	
	Internal web server for monitoring and configuration	
Event logging and statistical data storage		

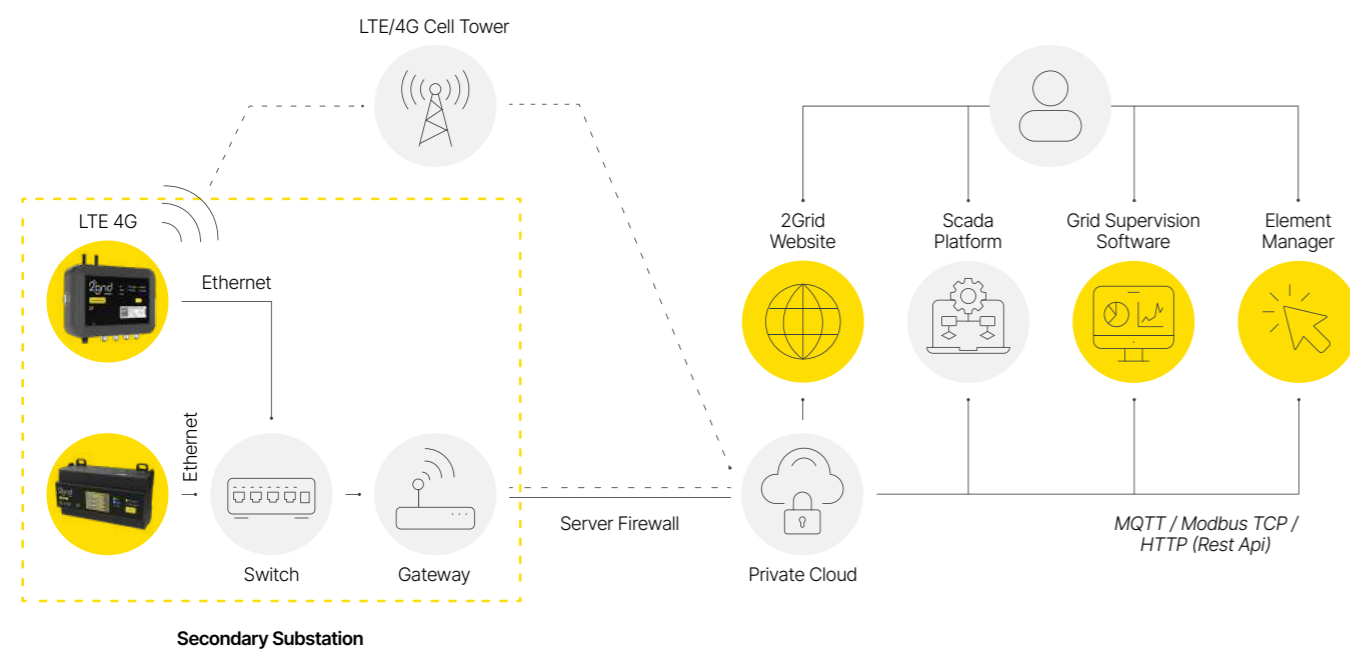


Your network, under complete control

Our 2Grid solutions will come with its own float management solution that will allow DSOs to replicate the configuration to a large number of devices, define user credentials easily and update the firmware in a simple process.

Built for interoperability: connect, visualize, store securely

2Grid devices are designed to connect securely and effortlessly to your existing infrastructure. Thanks to native support for MQTTs, Modbus TCP, and HTTPS (REST API), your grid data can be safely transmitted to your SCADA system or visualization software of choice. Whether operating in a private cloud or local network, DSOs gain full visibility and control over their infrastructure without being locked into proprietary platforms.





Visualize and monitor your grid with total flexibility

2Grid devices provide easy access to all electrical measurement and monitoring data, offering a visualization experience fully adaptable to the different systems used by the operator. Thanks to their open architecture, the devices can transmit all measurement and status values through multiple communication protocols, ensuring seamless and reliable integration with ADMS systems or any visualization environment employed by the DSO.

Whether through Grafana dashboards, proprietary software, or third-party visualization platforms, 2Grid guarantees a complete connection between the field and the user interface, enabling real-time analysis, configuration, and decision-making.

Supported Protocols:

- IEC 60870-5-104
- MQTT
- Modbus TCP
- HTTP (Rest API)



No locking software



Grid analytics



ADMS



Ready2Grid

Intelligent configuration and firmware management for the efficient digitalization of transformer substations.

Ready2Grid is a specialized software platform designed to manage the configuration, monitoring, and firmware of the 2Grid product family developed by Smilics. Operating as a centralized control layer, Ready2Grid enables utility operators to access, configure, update, and supervise distributed equipment installed in low-voltage transformer substations.

Its main function is to streamline operations by ensuring that each 2Grid device such as Gate, Feeder, Bulker, Green and CommPack+ is correctly configured and running the latest, secure firmware or configuration. This management is carried out remotely, reducing the need for physical interventions in the field. Beyond simple device configuration, Ready2Grid plays a critical role in the digitalization of the power grid.

It provides a secure and scalable interface for integrating field devices, using standard protocol like HTTPS. It is a key enabler for the shift from passive infrastructure to intelligent, actively managed distribution networks.



→ Key Features:

- **Comprehensive electrical visualization:** voltage, current, power, harmonics, frequency, and more.
- **System and alarm monitoring:** follow up on system events and active alarms.
- **Open compatibility:** easy integration with visualization platforms using standard protocols (MQTT, Modbus TCP, HTTPS, IEC 60870-5-104).
- **Advanced user management:** secure and flexible control of access rights and permissions.
- **Event logging and diagnostics:** access to historical events, system diagnostics, and full operational traceability.

→ Key Features:

- **Real-time visualization of the status** of the installed 2Grid equipment fleet.
- **Retrieval** of basic technical information and status of each device.
- Custom **tagging and classification** of devices.
- Remote **firmware** update, embedded **web interface**, device **configuration** including MQTT protocol with certificate configuration, and **list of users and permissions**.
- **Support** for immediate, scheduled, and recurring tasks.
- **Audit log** of actions executed by each device.
- Others: local download of device logs, remote reset command execution.

2Grid Cybersecurity Compliance



Secure boot

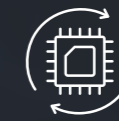
Bootloader: Installed in a secure area and neither readable nor modifiable.

Application: Only a properly signed application is executed by the bootloader.



Reverse engineering

Encrypted application to prevent reverse engineering.



Secure FW update

Only properly authenticated applications can be installed.



Secure storage

Cryptographic chipset for the storage of keys and passwords.

Certification FIPS 140-2 L2 (L3 at physical level), TPM 2.0 EAL4+ and HW EAL5+.



Antitamper

Tamper detection on the case of all 2Grid devices, even without power.

Besides the alarm, it can also execute an event like deleting all memory.

Hidden tracks on the circuit board.

Hidden pins on the circuit board.

Hidden printing on the most significant chipsets so that they cannot be identified.



Secure communications

Encrypted communications TLS (HTTPs, MQTTs).

smilics[®]

TECHNOLOGIES

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