Panoramic Power™ Gen 4+ Bridge

Overview and technical specifications

Energy insights from Centrica Business Solutions provide organisations with unparalleled visibility into their entire energy estate by delivering a wide range of granular and actionable energy intelligence in real-time. Our energy insights solutions consist of Panoramic Power wireless sensors that are easily attached to circuits. The sensors – in combination with integrated 3rd party meters for gas, heat, air and water – transmit data to our Panoramic Power Gen 4+ Bridge. The Gen 4+ Bridge makes this collected energy intelligence available for visualisation and analysis in PowerRadar™, our cloud-based energy management platform. Customers retain the flexibility to use the software of their choice by using the Modbus TCP interface to export and manage the data locally – directly from the Gen 4+ Bridge. A selection of hardware is available to meet organisational requirements.

Gen 4+ Bridge

Technical specifications

Physical dimensions (without antennas)	111 x 87 x 35 mm / 4.4 x 3.4 x 1.4 inch
Weight (with antennas)	150 gr/0.33 lb
Power adapter (included)	Input: 100-240 VAC 50-60Hz, Output: 5 VDC
Power consumption	5 W max
Sensor receiver frequency	915 MHz (PAN-2-H-3G-US, PAN-2-H-US) 434 MHz (PAN-2-H-3G-EU) 923 MHz (PAN-2-H-JP)
Sensor reception sensitivity	-105 dBm
Cellular bands (MHz)[1]	**US:** B2(1900) / B4(AWS1700) / B5(850) / B12/13(700) (4G), 850/1900 (3G) **EU:** B1(2100) / B3(1800) / B7(2600) / B8(900) / B20(800) (4G), 900/1800 (2G) **JP:** B1(2100) / B19(850) / B21(1500) (4G)
Wi-Fi protocol	802.11 b/g/n
Wi-Fi security protocol	WEP64, WEP128, WPA, WPA2, WPA2-Enterprise
Compression	Sensor messages are collected and sent once every 10 seconds to reduce bandwidth
Authentication	CHAP protocol used by the server to verify connected bridge's identity

Key features

- Plug-and-play installation
- Flexible mounting options
- Wi-Fi/Ethernet connectivity
- Cellular (LTE) connectivity[1]
- Store capability in case of network loss
- Field-upgradable firmware
- Initial configuration (built-in web interface)
- Easily integrated with PowerRadar, our cloud-based energy management platform, and 3rd party software using Modbus TCP
- Over-the-air upgrades can be enabled to receive latest bridge firmware automatically from PowerRadar cloud

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Technical specifications

Pulse interface	2x KY inputs (5 V open voltage, 0.9 mA max current, 5 ms minimum pulse width, 100 Hz maximum pulse rate)
Certification[2]	**USA and Canada** Safety: UL 61010-1, UL 61010-2-030 CAN/CSA-C22.2 No. 61010-1, 61010-2-030 (ETL listed) EMC: FCC Part 15 Subpart B, ICES-003 PTCRB listed **Europe** Safety: EN 61010-1, EN 61010-2-030 (CE) EMC: EN ETSI 301 489-1, 301 489-3, 301 489-17, 613 326-1, 301 489-52, 61000-3-2, 61000-3-3 Radio: EN ETSI 300 220-1, 300 220-2, 300 328 CB certification IEC 61010-1, IEC 61010-2-030 by Intertek Testing Services
Flammability rating (enclosure)	UL94 V-0
Ingress protection (IP) rating	IP5X
Operating temperature	-25 – 60°C / -13 – 140°F
Operating humidity range	5% – 95% non-condensing
Storage temperature	-25 – 65°C / -13 – 149°F

The Gen 4+ Bridge is available in two variants:

- **Gen 4+ Bridge (LTE):** This version supports Ethernet, Wi-Fi, and LTE network connectivity (with 3G fallback in the US model, and 2G fallback in the EU model).
- **Gen 4+ Bridge (LAN):** This version supports Ethernet and Wi-Fi connectivity.

The table below shows the model number by territory:

Regions and countries[2]	Gen 4+ Bridge (LAN)	Gen 4+ Bridge (LTE)
North America & Mexico	PAN-2-H-US V4+ (LAN)	PAN-2-H-3G-US V4+ (LTE)
Brazil	PAN-2-H-US V4+ (LAN)	NA
Japan	NA	PAN-2-H-3G-JP V4+ (LTE)
United Kingdom, Ireland, European Union, Russia, Australia, New Zealand, Israel	PAN-2-H-EU V4+ (LAN)	PAN-2-H-3G-EU V4+ (LTE)

Panoramic Power™ wireless sensors and power meters

Overview and technical specifications

Centrica Business Solutions offers a comprehensive portfolio of cost-effective and easy-to-install monitoring and metering tools that provide organisations with the real-time intelligence they need to improve energy and operational efficiency. Our energy insights solutions consist of our Panoramic Power wireless sensors and power meters, which are industry leaders in cost and ease of installation, enabling organisations to quickly and cost-effectively collect real-time energy data and analyse performance in PowerRadar™ — our cloud-based energy management platform — or software of choice. A selection of hardware is available for different current ranges, wire sizes, and measurement requirements.

PAN-10 Wireless Sensor

PAN-12 Wireless Sensor

PAN-10 and PAN-12 Wireless Sensor specifications

	PAN-10 Wireless Sensor	PAN-12 Wireless Sensor
Physical dimensions	17 x 20 x 32 mm 0.67 x 0.79 x 1.26 inch	46.2 x 22.8 x 32.6 mm 1.82 x 0.90 x 1.28 inch
Max hot-wire outer diameter (including insulation)	7 mm 0.28 inch	18.8 mm 0.74 inch
Current measurement range	0 – 63 A	0 – 225 A
Current measurement accuracy	Typically <2% at I > 3 A	Typically <2% at I > 10 A
Minimum operating current	0.5 – 1 A (typical)	0.7 – 1.2 A (typical)
AC frequency supported	50 Hz (EU, JPE versions) 60 Hz (US, JPW versions)	
Transmission frequency	434 MHz (EU version) 915 MHz (US version) 923 MHz (JPE, JPW versions)	
Transmission power (ERP)	0 dBm (max – EU, US versions) -4 dBm (max – JPE, JPW versions)	
Transmission interval	10 seconds	

Key features

- Non-invasive – snaps and fits without disconnection
- No maintenance; self-powered
- High accuracy
- Wireless – no wiring, unlike standard CT-based monitoring systems
- Real-time current data transmitted every 10 seconds

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PAN-10 and PAN-12 Wireless Sensor specifications

Certification[1]	USA and Canada Safety: UL 61010-1, UL 61010-2-030, CAN/CSA-C22.2 No. 61010-1 (ETL listed) EMC: FCC Part 15 subpart B, ICES-003 Radio: FCC Part 15 subpart C, RSS-210, RSS-Gen Europe Safety: EN 61010-1, EN 61010-2-030 (CE) EMC: EN ETSI 301 489-1, 301 489-3, 613 326-1 Radio: EN ETSI 300 220-1, 300 220-2	Australia ACMA compliant Russia EAC compliant Japan Radio: ARIB STD-T108 CB Certification IEC 61010-1, IEC 61010-2-030 by Intertek Testing Services
Flammability rating of external enclosure	UL94 V-0	
Ingress protection (IP) rating	IP5X	
Operating temperature	-25 – 60°C / -13 – 140°F[2]	
Operating humidity range	5% – 95% non-condensing	
Storage temperature	-25 – 65°C / -13 – 149°F	

PAN-14 Wireless Sensor specifications

Physical dimensions	33.8 × 29 × 42.5 mm 1.33 × 1.14 × 1.67 inch	The PAN-14 Wireless Sensor attaches to any size standard 0 – 5 A current transformer, allowing measurements at any current range or wire gauge.
Current input range	0 – 5 A (up to 10 A peak) (from external current transformer)	
Current measurement range	Determined by external current transformer	
Current measurement accuracy	Typically <2% at I > 0.1 A (at input from external CT)	
Minimum operating current	0.03 – 0.05 A (at input from external CT)	
AC frequency supported	50 Hz (EU, JPE versions) 60 Hz (US, JPW versions)	
Transmission frequency	434 MHz (EU version) 915 MHz (US version) 923 MHz (JPE, JPW versions)	
Transmission power (ERP)	0 dBm (max) -4 dBm (max – JPE, JPW versions)	
Transmission interval	10 seconds	

PAN-14 Wireless Sensor

PAN-14 Wireless Sensor specifications

Certification[1]	USA and Canada
	Safety: UL 61010-1, UL 61010-2-030, CAN/CSA-C22.2 No. 61010-1 (ETL listed)
	EMC: FCC Part 15 subpart B, ICES-003
	Radio: FCC Part 15 subpart C, RSS-210, RSS-Gen
	Europe
	Safety: EN 61010-1, EN 61010-2-030 (CE)
	EMC: EN ETSI 301 489-1, 301 489-3, 613 326-1
	Radio: EN ETSI 300 220-1, 300 220-2
	Australia
	ACMA compliant
	Russia
	EAC compliant
	Japan
	Radio: ARIB STD-T108
	CB Certification IEC 61010-1, IEC 61010-2-030 by Intertek Testing Services
Flammability rating of external enclosure	UL94 V-0
Ingress protection (IP) rating	IP5X
Operating temperature	-25 – 60°C / -13 – 140°F
Operating humidity range	5% – 95% non-condensing
Storage temperature	-25 – 65°C / -13 – 149°F

Key features

- Connects to any standard 5 A current transformer
- No maintenance; self-powered
- High accuracy
- Wireless sensor and CT are closed around the hot wire with no additional wiring
- Real-time current data transmitted every 10 seconds

PAN-42 Power Meter specifications

Description	4-wire Wye, 3-wire Delta, single-phase 3-wire, single phase 2-wire, or dual-phase 3-wire
	• Voltage: [120/208 V], [240/416 V], or [277/480 V]
	• Frequency: 48–62Hz
	• Current input range: 0 – 5 A (up to 10 A peak)
	• Current measurement range: determined by external CT
	• Minimum measurable power: 0.025W at device inputs (per phase)
Outputs	• Active energy (kWh) — accumulated, per phase
	• True RMS voltage and current — per phase
	• Active and reactive power — per phase
	• Power factor — per phase
	• Line frequency

The PAN-42 Power Meter provides high-accuracy real-time power measurements and advanced power quality measurements for main power monitoring, sub-metering and for the metering of large devices.

Designed for demanding electrical applications, supporting industry accuracy standards, the PAN-42 Power Meter enables the metering of power, voltage, current, power factor and power quality measurement data.

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Panoramic Power wireless sensors and power meters

PAN-42 Power Meter specifications

Accuracy (for voltage, current and active energy)	According to ANSI C12.1 (Class 1)[3]
Transmission frequency	434 MHz (EU version) 915 MHz (US version)
Transmission power (ERP)	0 dBm (max)
Transmission interval	10 seconds
Certification[1]	**USA and Canada** Safety: UL 61010-1, UL 61010-2-030, CAN/CSA-C22.2 No. 61010-1 (ETL listed) EMC: FCC Part 15 subpart B, ICES-003 Radio: FCC Part 15 subpart C, RSS-210, RSS-Gen **Europe** Safety: EN 61010-1, EN 61010-2-030 (CE) EMC: EN ETSI 301 489-1, 301 489-3, 613 326-1 Radio: EN ETSI 300 220-1, 300 220-2 **Australia** ACMA compliant **Russia** EAC compliant CB Certification IEC 61010-1, IEC 61010-2-030 by Intertek Testing Services
Flammability rating of external enclosure	UL94 V-0
Ingress protection (IP) rating	IP5X
Operating temperature	-25 – 60°C / -13 – 140°F
Operating humidity range	5% – 95% non-condensing
Storage temperature	-25 – 65°C / -13 – 149°F

PAN-42 Power Meter

Key features

- Single, dual or 3-phase metering
- Accurate measurement of active and reactive power
- Real-time monitoring of current, voltage, power and power quality
- Easily integrated with PowerRadar, our cloud-based energy management platform
- Fast and easy installation

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Panoramic Power wireless sensors and power meters

For granular monitoring of individual circuits and devices:

PAN-10 Wireless Sensor

PAN-12 Wireless Sensor

PAN-14 Wireless Sensor

For sub-metering and monitoring of main powerlines and large devices:

PAN-42 Power Meter

Part numbers of the different versions of our hardware

PAN-10 Wireless Sensor	PAN-12 Wireless Sensor	PAN-14 Wireless Sensor	PAN-42 Power Meter
US: PAN-10-063-US	US: PAN-12-225-US	US: PAN-14-US	US: PAN-42-US
EU: PAN-10-063-EU	EU: PAN-12-225-EU	EU: PAN-14-EU	EU: PAN-42-EU
JP East: PAN-10-063-JPE	JP East: PAN-12-225-JPE	JP East: PAN-14-JPE	
JP West: PAN-10-063-JPW	JP West: PAN-12-225-JPW	JP West: PAN-14-JPW	

[1]Please check local regulations for using the hardware outside of the countries listed here.

[2]Applies to currents up to 125A on the PAN-12 Wireless Sensor. The operating temperature for the PAN-12 Wireless Sensor's full current range (up to 225A) is -25 to 50°C / -13 – 122°F.

[3]Assuming CT of class 0.2 or better.

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