

PowerTag System

PowerTag System is a system made of a gateway (PowerTag Link) and wireless communication products: PowerTag Energy sensors, PowerTag Control modules and a PowerTag Link Display.

PowerTag Energy Sensors 63A

Electrical Distribution Boards shall be enabled with a load monitoring device capable of monitoring individual loads and electrical measurements and alarms on load failure.

Energy sensors shall be installed directly on breaker terminals up to 63A and collect the voltage directly from it.

Energy sensors shall communicate wirelessly with Ethernet gateway (no communication cables) with a limited Isotropic Radiated Power up to 0dBm (or 1mW).

Wireless communication shall be encrypted on AES128 bit CCM and using star topology only (no mesh).

Energy sensors shall provide:

- Active Energy (Wh): total and partial (class 1 IEC 61557-12)
- Active Energy (Wh): per phase (class 1 IEC 61557-12)
- Active Power (W) total and per phase
- Apparent Power (W): total
- Voltage (V): phase-to-phase (U12, U23, U31) and phase-to-neutral (V1N, V2N, V3N)
- Current (A): per phase (I1, I2, I3)
- Power Factor
- Alarm in case of voltage loss
- Alarm in case of current overload at voltage loss

In case of failure of communication with gateway, the energy sensor device shall continue measurements and keep recording the Active Energy index.

In case of power loss, the energy sensor shall record Active Energy index.

PowerTag Energy Sensors 160A

Electrical Distribution Boards shall be enabled with a monitoring device capable of monitoring electrical measurements and alarms.

Energy sensors shall be installed directly on the conductors up to 160A and collect voltage through voltage picking.

Energy sensors shall communicate wirelessly with Ethernet gateway (no communication cables) with a limited Isotropic Radiated Power up to 0dBm (or 1mW).

Wireless communication shall be encrypted on AES128 bit CCM and using star topology only (no mesh).

Energy sensors shall provide:

- Active Energy (kWh): total and partial, delivered and received (class 1 IEC 61557-12)
- Active Energy (kWh): per phase, delivered and received (class 1 IEC 61557-12)
- Reactive Energy (kVARh): total and partial, delivered and received, per phase
- Active Power (W): total and per phase
- Reactive and Apparent Power (VAR, VA): total and per phase
- Voltage (V): phase-to-phase (U12, U23, U31) and phase-to-neutral (V1N, V2N, V3N)
- Current (A): per phase (I1, I2, I3)

- Power Factor
- Frequency
- Alarm in case of voltage loss
- Alarm in case of current overload at voltage loss

In case of failure of communication with gateway, the Energy sensor shall continue measurements and keep recording the Active Energy index.

In case of power loss, the energy sensor shall record Active Energy index.

PowerTag Energy Sensors 250A / 630A

Electrical Distribution Boards shall be enabled with a main monitoring device capable of monitoring electrical measurements and alarms.

Energy sensors shall be installed directly on breaker terminals up to 630A and collect voltage directly from it.

Energy sensors shall communicate wirelessly with Ethernet gateway (no communication cables) with a limited Isotropic Radiated Power up to 0dBm (or 1mW).

Wireless communication shall be encrypted on AES128 bit CCM and using star topology only (no mesh).

Energy sensors shall provide:

- Active Energy (kWh): total and partial, delivered and received (class 1 IEC 61557-12)
- Active Energy (kWh): per phase (class 1 IEC 61557-12)
- Reactive Energy (kVARh): partial, delivered and received
- Active Power (W): total and per phase
- Reactive and Apparent power (VAR, VA): total
- Voltage (V): phase-to-phase (U12, U23, U31) and phase-to-neutral (V1N, V2N, V3N)
- Current (A): per phase (I1, I2, I3)
- Power Factor
- Frequency
- Alarm in case of voltage loss
- Alarm in case of current overload at voltage loss

In case of failure of communication with gateway, the energy sensor device shall continue measurements and keep recording the Active Energy index.

In case of power loss, the energy sensor shall record Active Energy index.

PowerTag Energy Sensors Rope up to 2000A

Electrical Distribution Boards shall be enabled with monitoring devices capable of monitoring electrical measurements and alarms.

Current sensors shall be able to be installed directly on conductors up to 2000A (including busbars) without having to disconnect the primary conductors.

Energy sensors shall communicate wirelessly with Ethernet gateway (no communication cables) with a limited Isotropic Radiated Power up to 0dBm (or 1mW).

Wireless communication shall be encrypted on AES128 bit CCM and using star topology only (no mesh).

Energy module shall provide:

- Active Energy (kWh): total and partial, delivered and received (class 1 IEC 61557-12)
- Active Energy (kWh): per phase, delivered and received (class 1 IEC 61557-12)
- Reactive Energy (kVARh): total and partial, delivered and received, per phase

- Active Power (W): total and per phase
- Reactive and Apparent Power (VAR, VA): total and per phase
- Voltage (V): phase-to-phase (U12, U23, U31) and phase-to-neutral (V1N, V2N, V3N)
- Current (A): per phase (I1, I2, I3)
- Power Factor
- Frequency
- Alarm in case of voltage loss
- Alarm in case of current overload at voltage loss

In case of failure of communication with gateway, the energy sensor shall continue measurements and keep recording the Active Energy index.

In case of power loss, the energy sensor shall record Active Energy index.

PowerTag Control Modules

Electrical Distribution Boards shall be enabled with devices to control loads and to monitor circuits by collecting status of a contact.

Control modules shall communicate wirelessly with Ethernet gateway (no communication cables) with a limited Isotropic Radiated Power up to 0dBm (or 1mW).

Control modules shall have one digital output 230Vac dry contact, normally open or normally closed.

Control modules shall have 2 inputs 230Vac dry contact to collect status.

Control modules shall be installed on Din rail with 18mm width size.

PowerTag Link High Density

Gateway shall be supplied using 110/230 Vac power supply.

Gateway shall communication with upstream system using open Modbus TCP/IP protocol over 10/100 Mbps Ethernet network.

Gateway shall communicate to up to 100 wireless energy sensors and control modules. (please refer to user guide)

Gateway shall have embedded synthesis Modbus registers table for all connected sensors to easy communication with upstream system.

Gateway shall have embedded web pages for real time monitoring display and active alarms.

Gateway shall allow to set up to 5 separate user accounts for log in and monitoring. It shall allow to set different access levels for each user.

Gateway shall auto-discover wireless energy sensors and control modules and allow to customize or label each load monitoring device separately including the type of connected load.

Gateway shall allow customizable thresholds for pre-alarms and alarms for electrical measurements, loss of voltage and overload, when using Email notification

Gateway shall be able to send pre-alarms in case the current measured is reaching 80% of nominal current.

Gateway shall be able to send alerts and alarms over email to the Users using secure SMTP server over TLS security modes.

Gateway shall be able to detect and alert on communication loss of wireless sensors.

Gateway shall be able to provide load operating time counter (h)

Gateway shall have embedded diagnostics for the communication performance.

Display

As an option, a wireless display shall be proposed.

the product shall display up to 20 wireless devices data and dedicated alarms from PowerTag energy sensors:

Voltage loss alarm, Overcurrent at voltage loss

For operator safety, wireless display shall be powered thanks to 24 VDC Power supply.

Display shall offer the option to be mounted on din rail or flush mounted

For electromagnetic compatibility, Product shall be compliant to standards EN 61326, EN 300328, EN 301489-1, EN 301489-17

To limit power signal, Product shall not exceed 2.94 dBm as an average for Effective Isotropic Radiated Power (EIRP)

Distribution board test report

Installation of wireless energy sensors, control modules and the gateway in the distribution boards shall be tested and provided with factory acceptance test report (FAT).