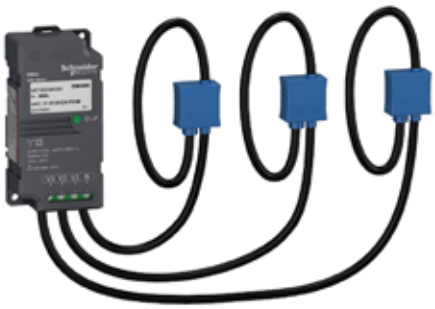
PowerLogic

Wireless energy metering

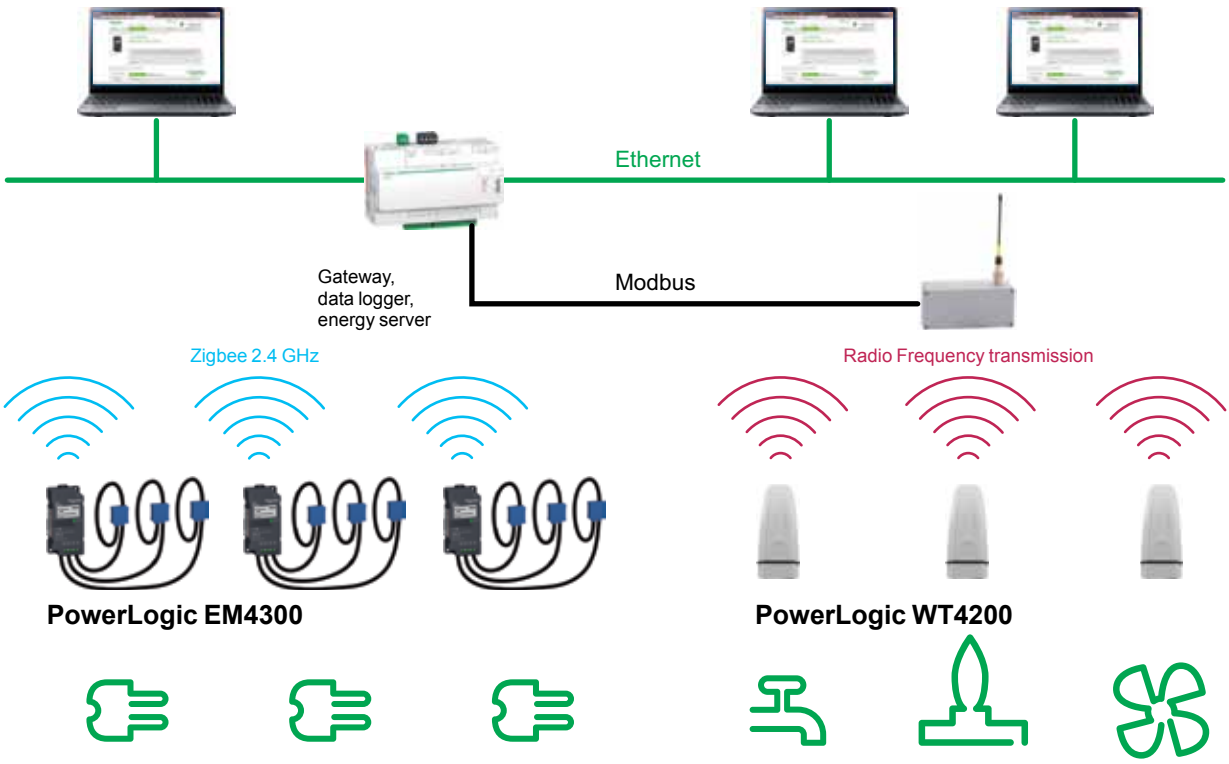
Catalogue



Schneider Electric

PowerLogic EM4300
Wireless metering system

DB407246



PowerLogic wireless range is designed to retrofit existing switchboards, and enhance energy efficciency of buildings in operation for many years, by:
- Monitoring energy consumption, to detect potential savings.
- Monitoring operation of the electrical system, to optimize service to the building occupants.

- PowerLogic EM4300 meters collect a broad scope of electrical data, from the distribution line they are fitted on.

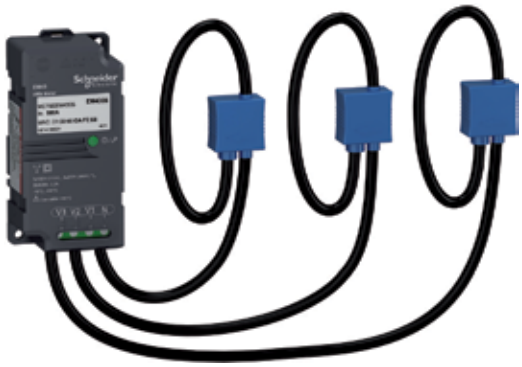
- PowerLogic WT 4200-transmitters collect data from various meters (water, air, gas, steam etc.) with pulse outputs.

Collected data from both these sources are transmitted to a data concentrator, which enables their reading by various energy management services and software.

For data concentrators of various types, see:
- Com'X for Ethernet networks
http://www.schneider-electric.com/products/ww/en/82258-energy-and-power-digitization/82259-interfaces-and-gateways/62072-enerlinx-comx/
- SmartStruXure Lite MPM managers for BACnet, EnOcean, CANbus nest works
http://www.schneider-electric.com/products/ww/en/1200-building-management-system/1210-building-management-systems/62191-smartstruxure-lite-solution/?BUSINESS=2

PowerLogic EM4300
Wireless metering system (cont.)

DB407247



Functions
Electrical circuits and loads monitoring, through a combination of power and enerrgy metering with wireless communication.

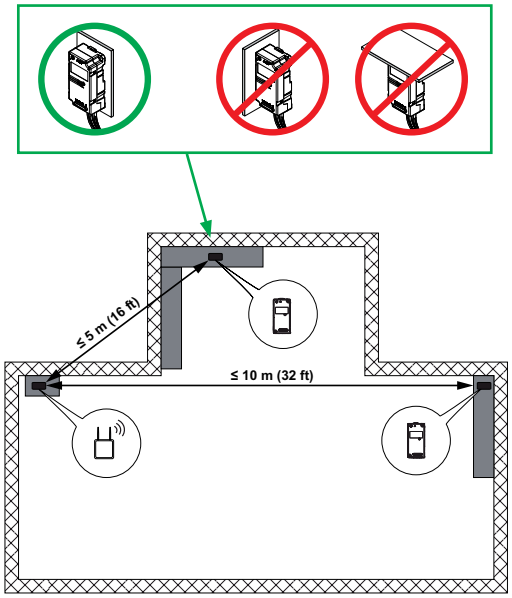
Features and benetits
■ Installation time and therefore total cost of ownership is minimized thanks to:
□ wireless communication.
□ attached flexible current sensors, immediately fitted around any cable or bar without disconnection. Power-off time to fit several, meters in a switchboard is a matter of minutes.
■ Equipment can be scaled over time, according to savings fields identification, or other matters of interest.
■ Broad scope of collected data make PowerLogic EM4300 of high added-value for:
□ energy management.
□ energy cost allocations.
□ electrical network management and supervision.

Collected information
■ Energy: active, reactive, apparent, phase by phase and aggregated.
■ Active, reactive and apparent powers, power factor.
■ RMS Voltage and frequency.
■ Maximum RMS current and minimum RMS voltage over the last minutes (1 to 30).

Wireless data transmission
■ Zigbee Pro HA protocol.
■ 2.4 GHz radio frequency.
■ Maximum power: 10 mW (10 dBm).
■ Compatible with Com'X and MPM gateways, data loggers and energy servers.

RF Operating range
The recommended distances between the meter and the receiver are shown below:

DB407250



■ Wireless meters are inside electrical switchboards.
■ Wireless receivers are located in the technical room with up to 20 meters range.
■ Location of each element has to match distances as described on the picture.
■ All barriers, walls or pipes have to be considered during the installation. Moving an element by few centimers can increse or decrease the wireless transmission performance.
■ Checking the LQI (Link Quality Index) is recommended to build a robust network.

Note: Do not install the meter if there is a solid concrete wall between the meter and the gateway.

Certain installation locations or scenarios should be avoided.
■ Do not install the meter in front of or close to metallic parts, which may reduce the efficiency of the embedded antenna.
■ Do not install in a location that directly blocks the antenna on the meter.

PowerLogic EM4300
Wireless metering system (cont.)

Commercial reference numbers

Model	Current rating	Current sensor inner Ø	Ref. number
EM4302	200 A	55 mm (2.17 in)	**METSEEM4302**
EM4305	500 A	55 mm (2.17 in)	**METSEEM4305**
EM4310	1000 A	125 mm (4.92 in)	**METSEEM4310**
EM4320	2000 A	125 mm (4.92 in)	**METSEEM4320**

Technical characteristics

Control power	
Powered by L1-N measured input voltage	90 V to 300 V - 50/60 Hz
Maximum supply current	4 A
Maximum burden	2.0 W
Measurement characteristics	
Input voltage	90 V to 300 V
Frequency range	50/60 Hz
Current range	0 % to 120 % of rated value (200, 500, 1000 or 2000 A)
Current sensors	3 attached to the meter and calibrated as a single unit
Accuracy	1 % on active energy (3-phase with neutral)
Mechanical characteristics	
Degree of protection (for indoor use only, not suitable for wet locations)	IP20
	IK06
Insulation	Class II (IEC 61010-1 CAT III 300 V)
Environmental characteristics	
Operating temperature	-10°C to 55°C (14°F to 131°F)
Moisture withstand	5 % to 90 % relative humidity, non-condensing, maximum dewpoint 38°C (100°F)
Pollution degree	2
Voltage surges	Category III
Altitude	2000 m (6562 ft) above sea level
Standards compliance	
Safety	IEC/EN 61010-1 ed. 3, UL 61010-1 ed. 3
Electromagnetic compatibility	EN 61326-1:2013
Wireless communication	FCC CFR Part 15, subparts and C

PowerLogic EM4300
Wireless metering system (cont.)

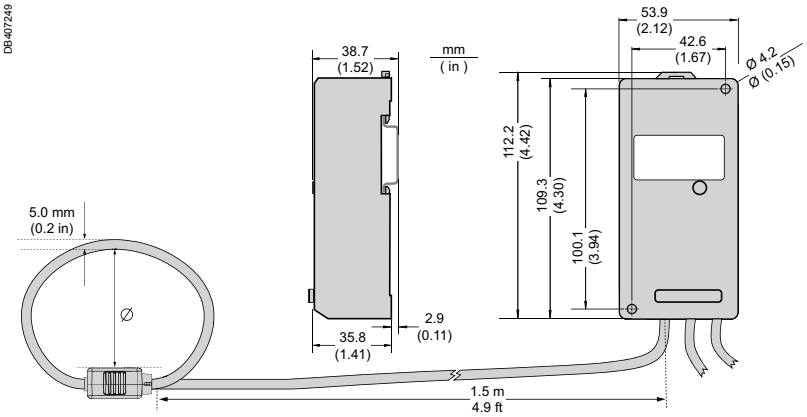
DB407248

Mounting
- DIN-rail or flat surface.
- Flexible current sensors around conductor to be monitored.

Max inner Ø 55 or 125 mm. For safe and correct mounting, refer to the installation guide.

Dimensions

DB407249



Model	I (A)	Ø (mm / in)	Weight
EM4302	200	55 / 2.17	*
EM4305	500	55 / 2.17	*
EM4310	1000	125 / 4.92	*
EM4320	2000	125 / 4.92	*

*Please consult your Schenider Electric representative.

WT4100 / WT4200 series
Functions and characteristics

PB115554

Transmitter pulse counter (1 or 2 channel)

PB115555

Water pit pulse counter (1 channel)

PB115556

ATEX-rated pulse counter (1 channel)

WAGES (Water, Air, Gas, Electricity, Steam) energy monitoring can be challenging, especially if the monitoring devices are installed in hazardous conditions or remote locations with rough or difficult-to-access terrain. The WR4100 series / WR4200 series devices help provide an easy and reliable solution.

This long-range radio frequency (RF) wireless solution consists of transmitters and a receiver. Typically, repeaters are also installed and located between the transmitter and receiver to boost the transmission signal when the line-of-sight distance between the transmitter and receiver is greater than the transmitter's range.

Physical obstructions, such as buildings, reduce the effective transmission range of a transmitter, so repeaters are also installed in these situations. The wireless devices are grouped according to model numbers, and these identify a device's RF transmission frequency. It is common for countries to limit RF transmission to a specific radio frequency.

- WT4200 series, WR4200 series, WA4200 series, 169MHz for EEC
- WT4100 series, WR4100 series, WA4100 series, 153MHz for USA and Canada

(Before installing and operating the wireless devices, check the rules and restrictions on RF transmission for your country and make sure your devices' transmission frequency matches the allowed radio frequency.)

Main components

Transmitter Pulse counters - This Modbus device pulse counter transmitter detects and counts pulses from a meter's pulse output. It can count pulses with a 0.1 to 10 Hz frequency and the value is transmitted once every 15 minutes.

Water pit pulse counter - Designed for use with a water flowmeter and is easily installed by magnetic force to cast-iron covers.

ATEX-rated pulse counter - Designed for use with devices such as a gas meter, compliant with ATEX II 3G and Ex ic IIA T3 for use in hazardous or explosive environments.

Receiver - The gateway between sensors (transmitters) and the Modbus network. Data can be accessed via Modbus using a Com'X or EGX gateway device.

Wireless repeater - this device extends the operating range between transmitters and receivers.

Part number	Product name	Description
Europe		
METSEWT4211	WT4211	Single Pulse 169 MHz
METSEWT4216	WT4216	Single Pulse Water Pit 169 MHz
METSEWT4214	WT4214	Single Pulse Atex 169 MHz
METSEWT4212	WT4212	Dual Pulse 169 MHz
METSEWT4232	WT4232	Alarm Status Dual 169 MHz
METSEWT4222	WT4222	Analogue 0-10 V Dual 169 MHz
METSEWT4241	WT4241	Temperature Single Internal 169 MHz
METSEWR4200	WR4200	Modbus Receiver 169 MHz
METSEWR4290	WR4290	Repeater 169 MHz
METSEWA4275	WA4275	Dipole Antenna 169 MHz
METSEWA4277	WA4277	Whip Antenna 169 MHz
USA & Canada		
METSEWT4111	WT4111	Single Pulse 153 MHz
METSEWT4112	WT4112	Dual Pulse 153 MHz
METSEWT4132	WT4132	Alarm Status Dual 153 MHz
METSEWT4122	WT4122	Analogue 0-10 V Dual 153 MHz
METSEWT4141	WT4141	Temperature Single Internal 153 MHz
METSEWR4100	WR4100	Modbus Receiver 153 MHz
METSEWR4190	WR4190	Repeater 153 MHz
METSEWA4175	WA4175	Dipole Antenna 153 MHz
METSEWA4177	WA4177	Whip Antenna 153 MHz
Common accessories		
METSEWA4X82	WA4X82	5 m antenna extension cable 169 MHz
METSEWA4X84	WA4X84	10 m antenna extension cable 169 MHz

Contact your Schneider Electric representative for complete ordering information

WT4100 / WT4200 series
Functions and characteristics (cont.)

PB115557

Repeater

PB115541

The receiver is delivered by default with a small antenna that will work if the transmitters are in the the same room than the receiver.

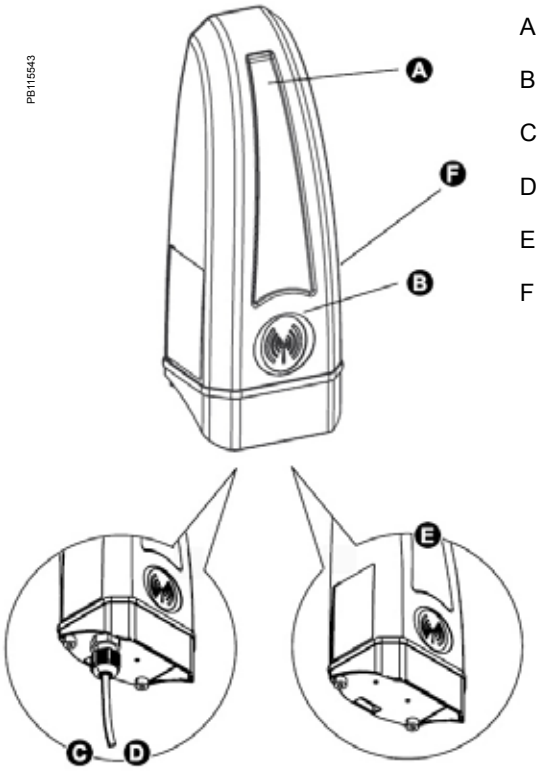
Dipole antenna for outdoor use (left) and whip antenna for indoor use (right)

PB115542

Extension cable

Pulse counter parts

PB115543



A Antenna location

B Reed switch location

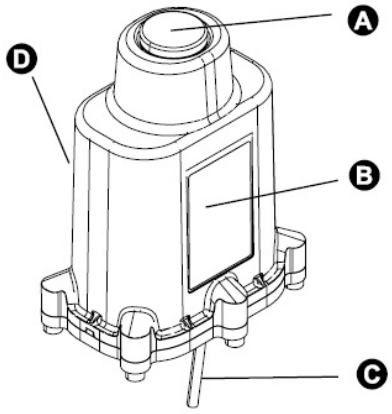
C Single channel (2 wire)

D Dual channel (4 wire)

E Internal temperature sensor

F Serial # (transmitter ID)

PB115544



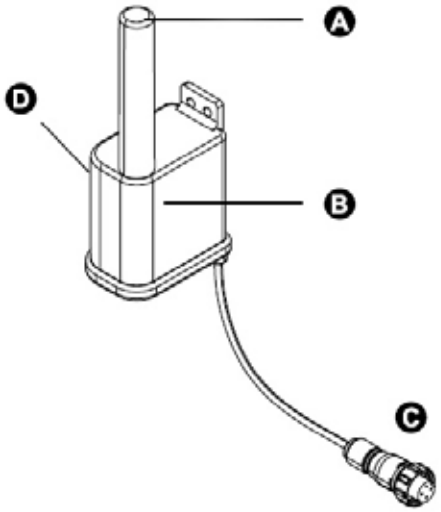
A Mounting magnet

B Reed switch location

C Input wiring

D Serial # (transmitter ID)

PB115545



A Antenna

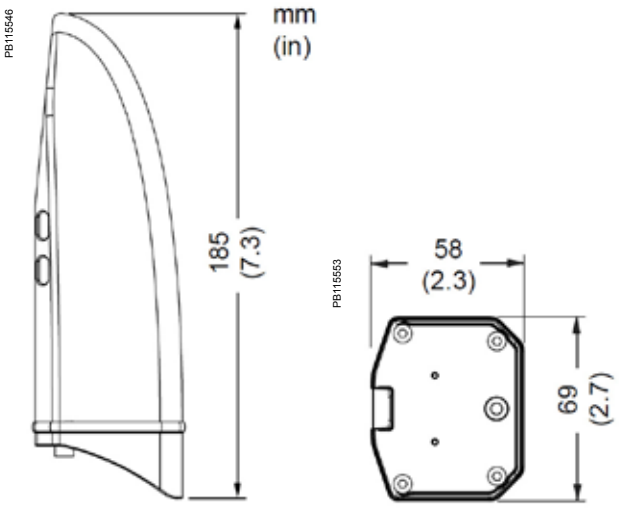
B Reed switch location

C Input wiring connector

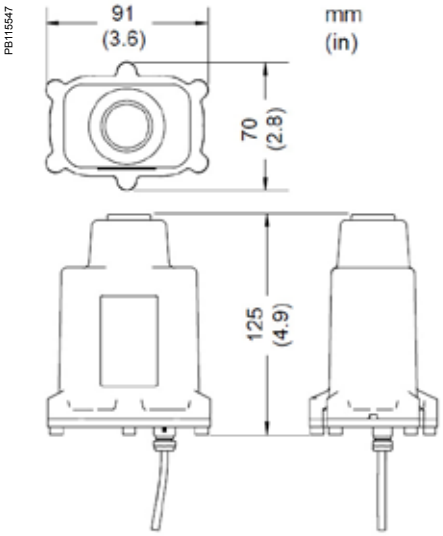
D Serial # (transmitter ID)

WT4100 / WT4200 series
Dimensions and connection

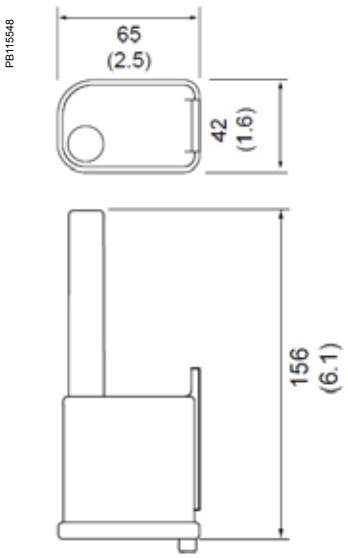
Pulse counter



Single pulse, water pit



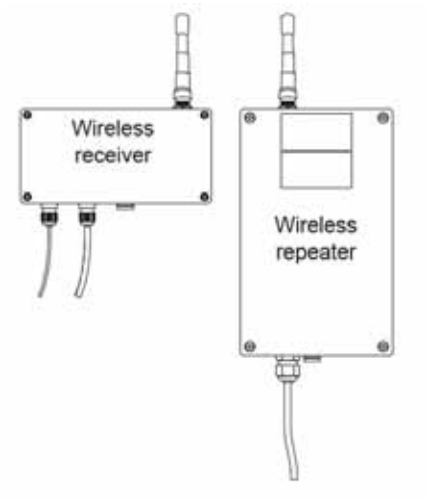
Single pulse, Atex



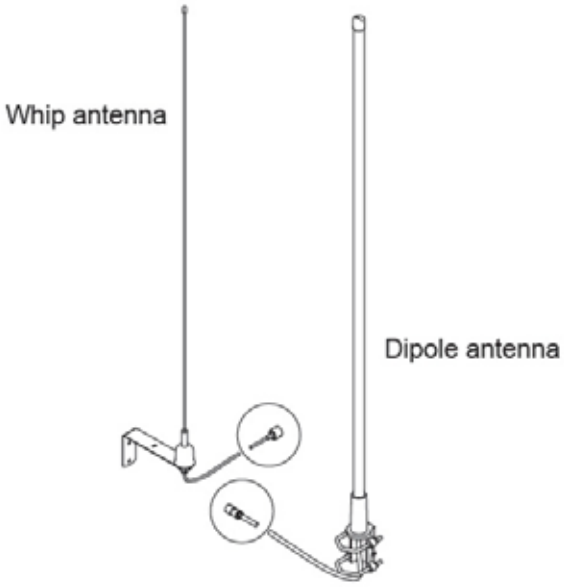
WT4100 / WT4200 series
Dimensions and connection

Receiver, repeater, and antenna options

PB115549



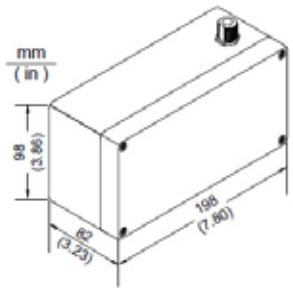
PB115550



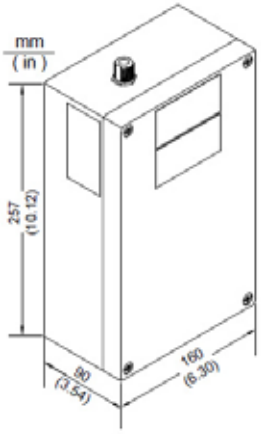
Receiver, repeater, and antenna dimensions

PB115551

WR4100 / WR4200



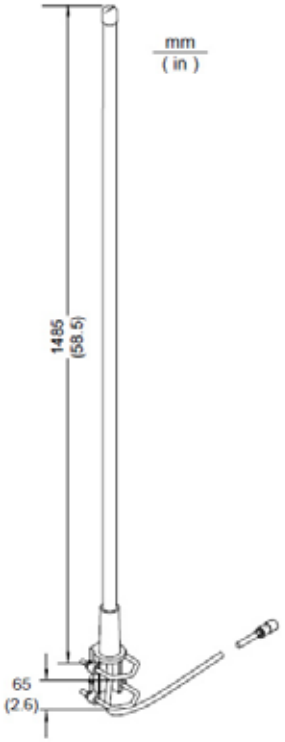
WR4190 / WR4290



PB115552

WA4177 / WA4277

WA4175 / WA4275



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As standards, specifications and designs develop from time to time, please ask for confirmation of the information given in this document.

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Photos: Schneider Electric

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