

zigbee smart building



Zigbee wireless devices for energy saving and comfort living

Ideal for:

- temperature, humidity and light sensors
- CO₂ sensors
- NTC temperature probes
- single-phase and three-phase energy meters





zigbee smart building

A line of devices based on ZigBee technology for projects focused on energy saving and environmental comfort. Dedicated to system integrators on the lookout for wireless solutions offering low energy consumption and high reliability, our ZigBee radio devices guarantee extensive radio coverage creating mesh type networks.

Wireless sensors, for energy and comfort

Thermostats, energy meters, temperature, presence, brightness and CO2 sensors, smart plugs, switches incorporating energy and power meters: a complete catalogue of wireless devices for smart building projects focused on the intelligent use of energy.

Easily integrated into any system thanks to gateways and bridges with ModBus protocol.



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BlackBox – ZigBee Ethernet Modbus Gateway

BlackBox is a ZigBee Modbus gateway with an Ethernet connection, and is mainly used to route data from ZigBee sensors monitoring environment and energy parameters and to control electrical devices and/or signalling systems.

BlackBox connects ZigBee low energy wireless device networks (comprising sensors, actuators, pulse counters, etc.) to cabled networks via Modbus TCP/IP protocol.

The device also permits asynchronous data acquisition from network nodes and high efficiency transmission direct to the supervisor.

Modbus protocol gateways ensure the easy integration of ZigBee wireless devices with third party systems in civil, commercial and industrial energy management, energy saving and automation projects.

ZC-GW-BB-EM BlackBox – ZigBee Modbus Gateway with Ethernet connection



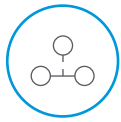
MAIN TECHNICAL SPECIFICATIONS

- Gateway with Ethernet RJ45 communications port
- Modbus TCP/IP to ZigBee Modbus protocol converter
- Coordinator function within ZigBee networks
- Standard Modbus TCP/IP interface
- MicroUSB power supply
- External antenna with SMA-RP connector
- Provision for DIN rail installation
- Dedicated IP configuration software
- Can be used as replacement for Gateway code ZC-GW-ETH-EM

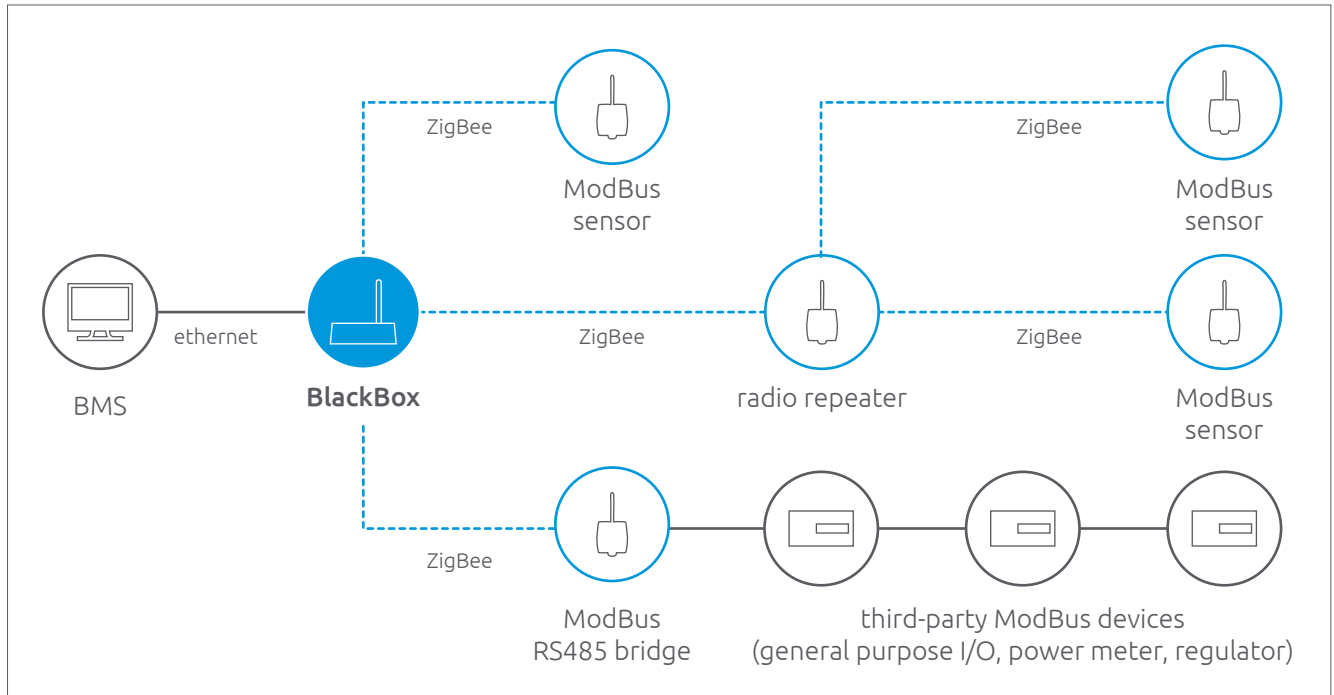


APPLICATIONS

- Building energy management systems
- Building automation and industrial control systems



CONNECTION DIAGRAM

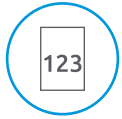
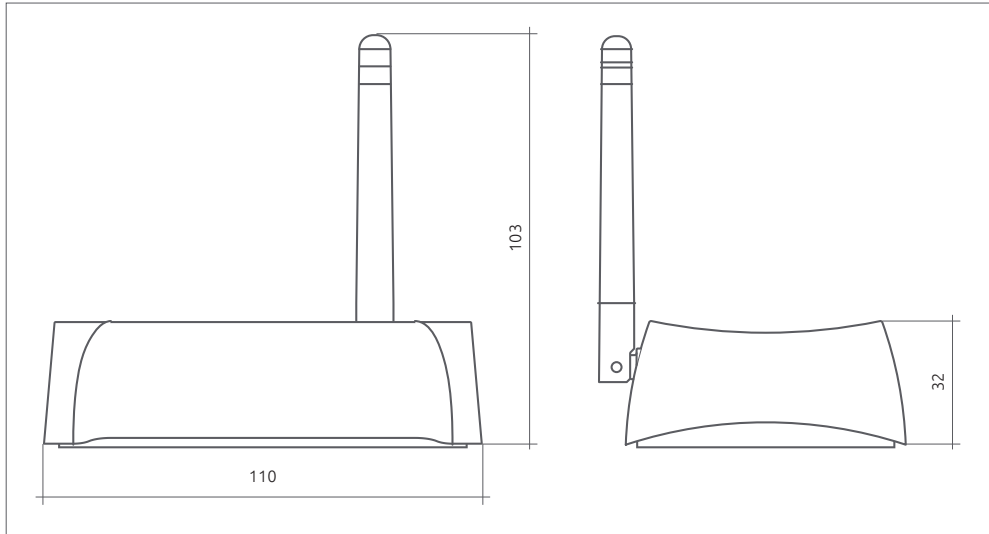


TECHNICAL SPECIFICATIONS


Type	Features
General specifications	<ul style="list-style-type: none"> - Silicon Labs chip - Compatible with IEEE 802.15.4 - Stack EmberZnet 6.4.1 - Modbus / RTU
Radio specifications	<ul style="list-style-type: none"> - Frequency: 2405 MHz to 2480 MHz - Modulation: DSSS - Nominal transmission power: 10 dBm - Receiver sensitivity -90 dBm
Antenna	<ul style="list-style-type: none"> - External with 2 dB gain - Radio range: max 50 m outdoors - SMA-RP antenna connector
Power supply	<ul style="list-style-type: none"> - 5 VDC - 0.4 A - 2 W (power supply included)
Status display	3x indicator LEDs
Connections	1x RJ45 Ethernet port 1x MicroUSB for power supply
Mounting	Provision for DIN rail
Ambient parameters	<ul style="list-style-type: none"> - Operating conditions: <ul style="list-style-type: none"> - -10 to +50 °C - <80% R.H. n. c. - Storage conditions: <ul style="list-style-type: none"> - -20 to +70 °C; - <80% R.H. n. c.
Degree of protection	IP20
Insulation	Class II
Conformity	<ul style="list-style-type: none"> - EU Directives: 2014/35/EU; 2011/65/EU; 1999/519/EC; 2012/19/EU - Reference standards: ETSI EN 301 489-1 V1.9.2; ETSI EN 301 489-17; EN 61000-6-1; EN 61000-6-3 - Safety: EN 62368-1:2014; EN 62479:2010
Dimensions (L x H x P)	110 x 35 x 70 mm
Weight	95 g



DIMENSIONS (MM)



CODE

Product	Code	Description
	ZC-GW-BB-EM	BlackBox – ZigBee Modbus Gateway with Ethernet connection



ZigBee RS485 Modbus Gateway

These gateways are mainly used to route data from sensors monitoring environment and energy parameters and to control electrical devices and/or signalling systems. They connect ZigBee low energy wireless device networks (comprising sensors, actuators, pulse counters, etc.) to cabled networks via Modbus RS485 protocol. These gateways also permit asynchronous data acquisition from network nodes and high efficiency transmission direct to the supervisor. Modbus protocol gateways ensure the easy integration of ZigBee wireless devices with third party systems in civil, commercial and industrial energy management, energy saving and automation projects.

- ZC-GWP485-EM** Gateway RS485 Modbus; alimentazione 12 ÷ 24 VDC; spina esterna standard italiano
- ZC-GWP485-EMUK** Gateway RS485 Modbus; alimentazione 230 VAC; spina esterna standard UK
- ZC-GWP485D-EM** Gateway RS485 Modbus per barra DIN; alimentazione 230 VAC



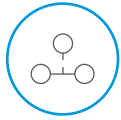
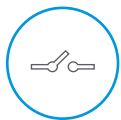
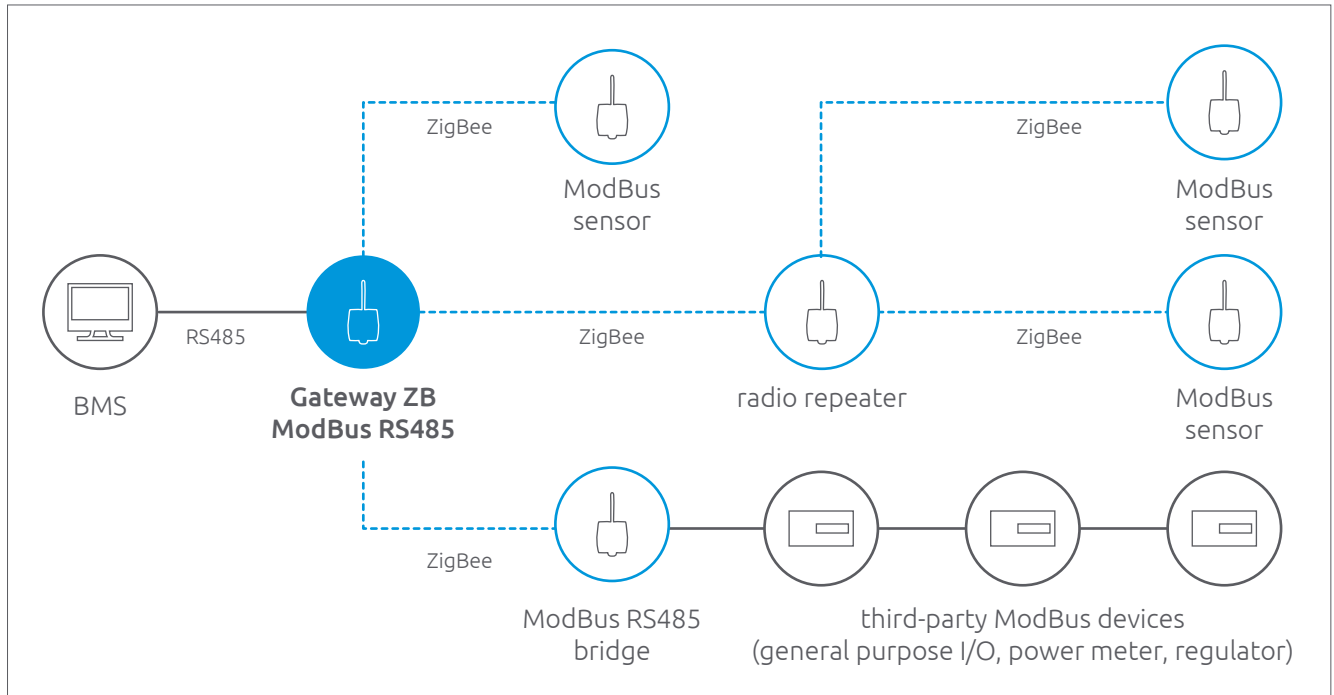
MAIN TECHNICAL SPECIFICATIONS

- Modbus/RTU 485 to ZigBee Modbus protocol converter
- Coordinator function within ZigBee networks
- Master function in the transmission of data acquired from ZigBee nodes to the PC / SCADA supervisor
- Standard Modbus RS485 interface
- External (interchangeable) antenna for maximum efficiency



APPLICATIONS

- Building energy management systems
- Building automation and industrial control systems


CONNECTION DIAGRAM

TECHNICAL SPECIFICATIONS

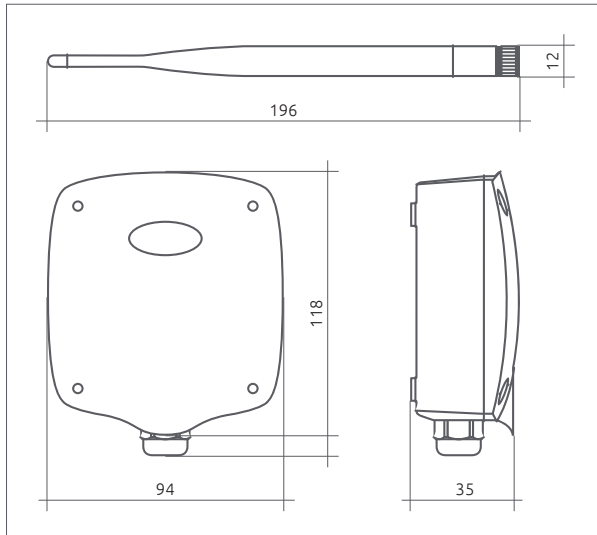
Type	Features
General specifications	<ul style="list-style-type: none"> - Ember EM3587 chip - Compatible with IEEE 802.15.4 - Stack EmberZnet 5.3.1 (ZigBee PRO) - Modbus / RTU
Radio specifications	<ul style="list-style-type: none"> - Frequency: 2405 MHz to 2480 MHz - Modulation: DSSS - Nominal transmission power: 1 mW (0 dBm) - Receiver sensitivity: -92 dBm
Antenna	<ul style="list-style-type: none"> - External with 5.5 dB gain - Radio range: max 70 m outdoors - SMA-RP antenna connector
Power supply	<ul style="list-style-type: none"> - ZC-GW-P485-EMxx <ul style="list-style-type: none"> - 12 to 24 VDC; 100 mA; 12 to 15 VAC; 50 to 60 Hz; 2.4 VA - ZC-GW-P485D-EM <ul style="list-style-type: none"> - 85-250 VAC; 50 to 60 Hz
Status display	3x indicator LEDs
Connections	<ul style="list-style-type: none"> - ZC-GW-P485-EMxx <ul style="list-style-type: none"> - push-in terminals (3.81 mm pitch) - ZC-GW-P485D-EM <ul style="list-style-type: none"> - screw terminals
Mounting	<ul style="list-style-type: none"> - ZC-GW-P485-EMxx <ul style="list-style-type: none"> - wall-fixing with screws - ZC-GW-P485D-EM <ul style="list-style-type: none"> - DIN rail
Ambient parameters	<ul style="list-style-type: none"> - Operating conditions: <ul style="list-style-type: none"> - -10 to +60 °C - <80% R.H. n. c. - Storage conditions: <ul style="list-style-type: none"> - -20 to +70 °C - <80% R.H. n. c.
Degree of protection	<ul style="list-style-type: none"> - ZC-GW-P485-EMxx <ul style="list-style-type: none"> - IP51 - ZC-GW-P485D-EM <ul style="list-style-type: none"> - IP30

Type	Features
Insulation	Class II
Conformity	<ul style="list-style-type: none"> - ETSI EN 300 328 - ETSI EN 301 489-1 - ETSI EN 301 489-17 - EN 61000-6-1 - EN 61000-6-3 - EN 60950-1 - EN62311 - Direttive 2014/53/UE (RED) 2011/65/UE (RoHS) 2012/19/UE (WEEE) 1999/519/CE
Dimensions (L x H x P)	<ul style="list-style-type: none"> - ZC-GW-P485-EMxx: 94 x 118 x 35 mm - ZC-GW-P485D-EM: 72 x 110 x 60 mm
Weight	<ul style="list-style-type: none"> - ZC-GW-P485-EMxx: 125 g - ZC-GW-P485D-EM: 165 g

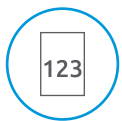
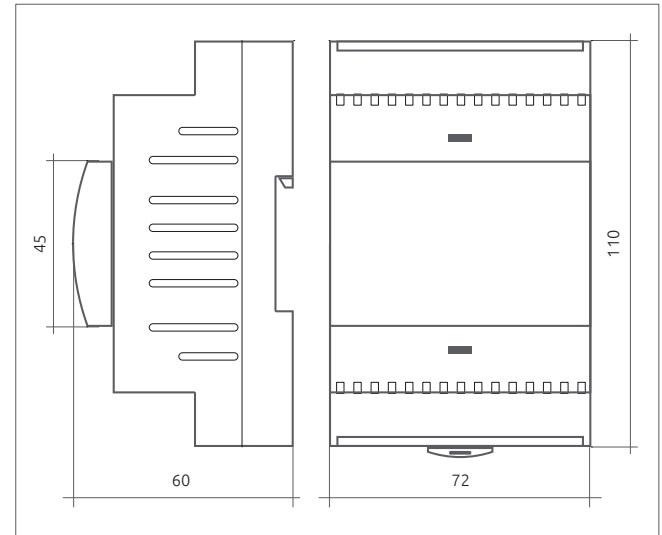


DIMENSIONS (MM)

ZC-GWP485-EM - ZC-GWP485-EMUK



ZC-GWP485D-EM



CODES

Products	Codes	Description
	ZC-GWP485-EM	Modbus RS485 gateway; 12 to 24 VDC power supply; Italian standard power plug
	ZC-GWP485-EMUK	Modbus RS485 gateway; 230 VAC power supply; UK standard power plug
	ZC-GWP485D-EM	Modbus RS485 gateway for DIN rail; 230 VAC power supply



Energy Meter 1~ ZigBee Modbus

Wireless energy meter for measuring the power of a load/single phase line up to 15 kW using a split core current transformer (TA)

In industrial applications, the device can be used to monitor a production line or a lighting line inside or outside a section.

The device is fitted with a digital output for controlling an external, high power relay.

Thanks to continuous power, the device can also function as a ZigBee signal repeater and as a parent device for battery powered sensors.

ZR-HM.D-M Energy Meter 1~ for one single phase line up to 15 kW – Modbus



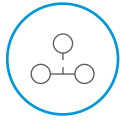
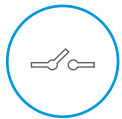
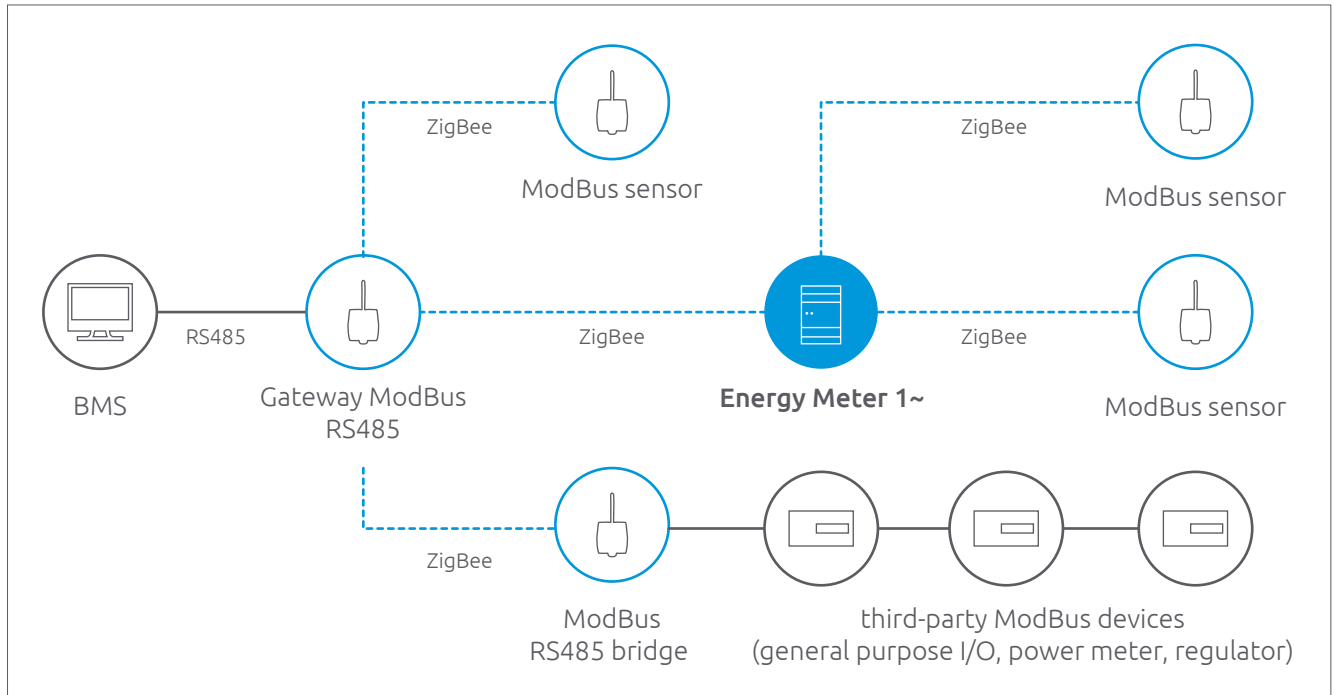
MAIN TECHNICAL SPECIFICATIONS

- ZigBee bidirectional wireless power and energy meter
- Max power measurement: 15 kW single phase
- Split core current transformer included
- Digital output for controlling an external relay
- Router function within the ZigBee wireless network



APPLICATIONS

- Building automation and industrial control systems
- Energy monitoring and management

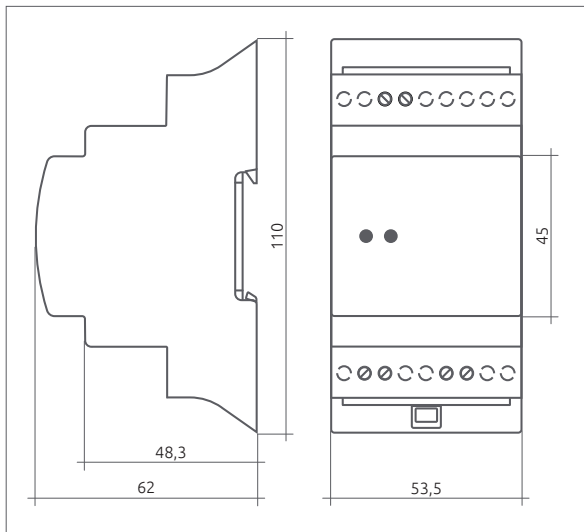

CONNECTION DIAGRAM

TECHNICAL SPECIFICATIONS

Tipo	Caratteristiche
General specifications	<ul style="list-style-type: none"> – Chip Ember EM3587 – Compatible with IEEE 802.15.4 – Stack EmberZnet 5.3.1 (ZigBee PRO) – Modbus / RTU
Radio specifications	<ul style="list-style-type: none"> – Frequency: 2405 MHz to 2480 MHz – Modulation: DSSS – Nominal transmission power: 2 mW (3 dBm) – Receiver sensitivity: -95 dBm
Antenna	<ul style="list-style-type: none"> – Radio range: <ul style="list-style-type: none"> – 50 m outdoor – 20 m indoor
Power supply	<ul style="list-style-type: none"> – 90 to 250 VAC – 1 W – 50 to 60 Hz
Max current	15 kW
Status display	1x LED indicator
Sampling / data transmission time	20 secondi (default)
Measurements	<ul style="list-style-type: none"> – Bidirectional active power [W] – Bidirectional energy [Wh]
Connections	Screw terminals (5.08 mm pitch)
Inputs	Input for measurement with TA
Digital outputs	Auxiliary relay, 230 VAC 10A max (pure resistive)
Current transformer (included)	100 / 33 mA; internal diameter 15 mm
Mounting	DIN rail
Ambient parameters	<ul style="list-style-type: none"> – Operating conditions: <ul style="list-style-type: none"> – -10 to +60 °C – <80% R.H. n. c. – Storage conditions: <ul style="list-style-type: none"> – -20 to +70 °C – <80% R.H. n. c.

Tipo	Caratteristiche
Degree of protection	IP20
Insulation	Class II
Conformity	<ul style="list-style-type: none"> - ETSI EN 300 328 - ETSI EN 301 489-1 - ETSI EN 301 489-17 - EN 61326-1 - EN 61010-1 - EN 62479 - Directives 2014/53/EU (RED) 2011/65/EU (RoHS) 2012/19/EU (WEEE) 1999/519/EC
Dimensions (L x H x P)	53,5 x 110 x 62 mm
Weight	155 g



DIMENSIONS (MM)



CODE

Product	Code	Description
	ZR-HM.D-M	Energy Meter 1~ for one single phase line up to 15 kW – Modbus



ZigBee Modbus Energy Meter 3~ / 6~

Wireless energy meter for measuring electrical consumption in civil, industrial and service applications. Data is acquired by split core current transformers (TA). The device measures voltage, current, instant power and energy consumption. Thanks to continuous power, the device can also function as a ZigBee signal repeater and as a parent device for battery powered sensors.

- | | |
|----------------------|--|
| ZR-HM3-50-EM | Energy Meter 3~ per 1 three phase line or 3 single phase lines, 50 A |
| ZR-HM3-100-EM | Energy Meter 3~ for 1 three phase line or 3 single phase lines, 100 A |
| ZR-HM3-200-EM | Energy Meter 3~ for 1 three phase line or 3 single phase lines, 200 A |
| ZR-HM6-50-EM | Energy Meter 6~ for 2 three phase lines or 6 single phase lines, 50 A |
| ZR-HM6-100-EM | Energy Meter 6~ for 2 three phase lines or 6 single phase lines, 100 A |
| ZR-HM6-200-EM | Energy Meter 6~ for 2 three phase lines or 6 single phase lines, 200 A |



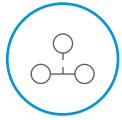
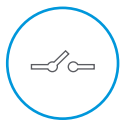
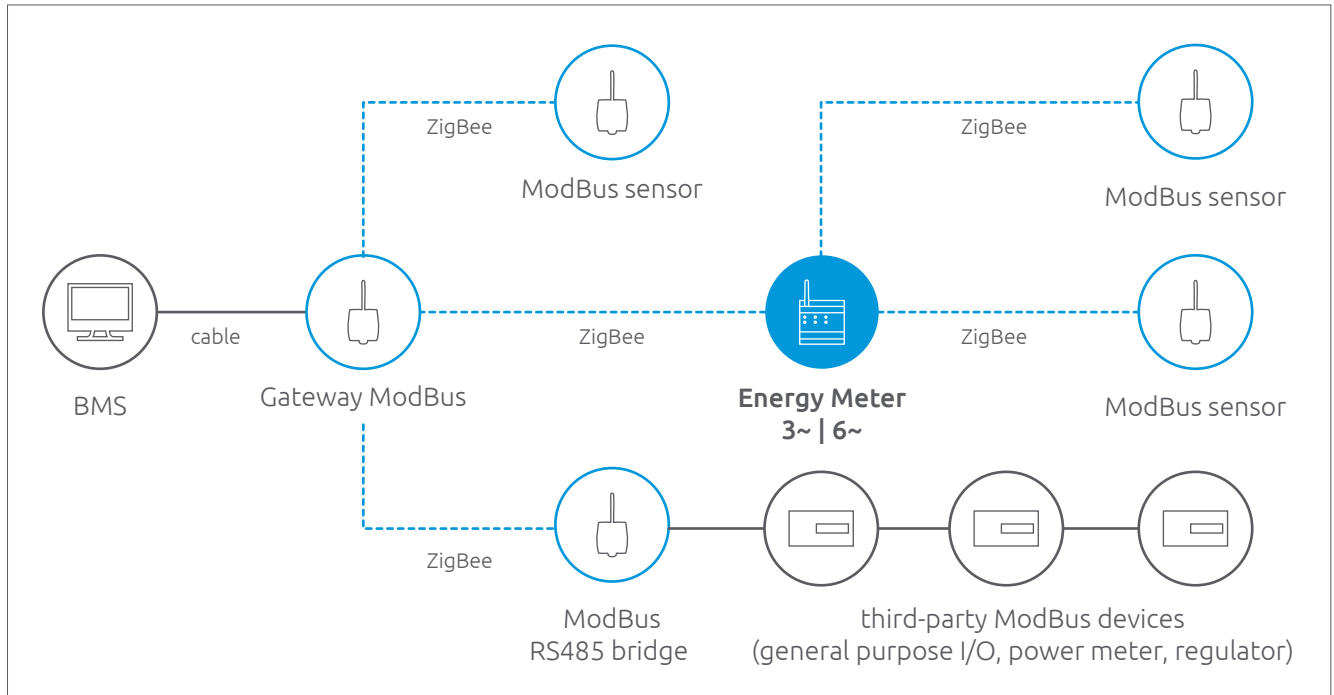
MAIN TECHNICAL SPECIFICATIONS

- ZigBee wireless power and energy meter
- For monitoring one three phase line or three single phase lines (ZR-HM3-xx-EM)
- For monitoring two three phase lines or six single phase lines (ZR-HM6-xx-EM)
- Mono-directional Active / Reactive Energy Meter Log
- Instant bidirectional measurement of active and reactive power
- Current transformers for currents of 50 A, 100 A or 200 A max included
- Router function within the ZigBee wireless network
- External antenna



APPLICATIONS

- Building automation and industrial control systems
- Energy monitoring and management

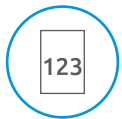
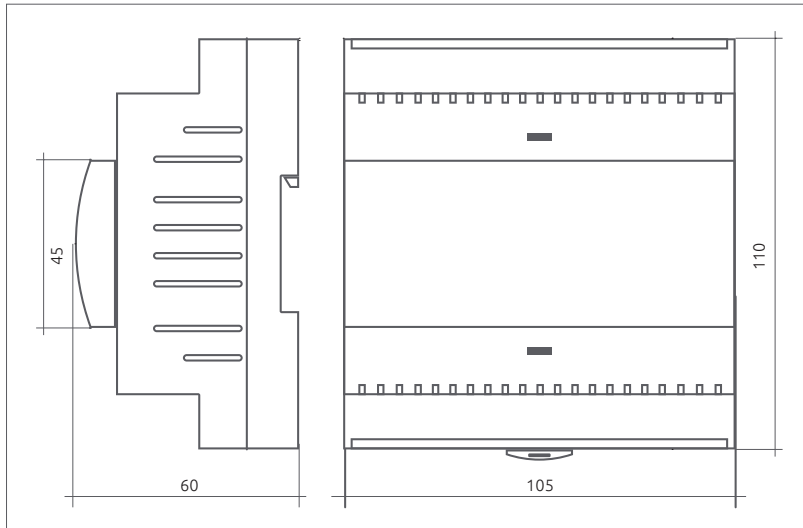

CONNECTION DIAGRAM

TECHNICAL SPECIFICATIONS

Tipo	Caratteristiche
General specifications	<ul style="list-style-type: none"> - Chip Ember EM3587 - Compatible IEEE 802.15.4 - Stack EmberZnet 5.3.1 (ZigBee PRO) - Modbus / RTU
Radio specifications	<ul style="list-style-type: none"> - Frequency: 2405 MHz to 2480 MHz - Modulation: DSSS - Nominal transmission power: 10 mW (10 dBm) - Receiver sensitivity: 103 dBm
Antenna	<ul style="list-style-type: none"> - External antenna with 5 dB gain - Radio range: <ul style="list-style-type: none"> - 50 m outdoor - 20 m indoor
Antenna connector	RP-SMA connector
Power supply	230 VAC 1.5 W 50 to 60 Hz
Max measured current	<ul style="list-style-type: none"> - ZR-HMx-50-EM: 50 A max per phase - ZR-HMx-100-EM: 100 A max per phase - ZR-HMx-200-EM: 200 A max per phase
Status display	6x LED indicator
Measurements	<ul style="list-style-type: none"> - Voltage (V), Current (A), PowerFactor, - Bidirectional active power [W], Reactive power [VAR], Apparent power [VA] - Active energy [Wh], Reactive energy [VARh]
Connections	Screw terminals (5.08 mm pitch)
Inputs	<ul style="list-style-type: none"> - 2x non-isolated inputs for voltage-free contacts - Closing current 0.01 mA. Use self-cleaning contacts - ZR-HM3-XX-EM: 3x inputs for measurement with TA - ZR-HM6-XX-EM: 6x inputs for measurement with TA
Digital outputs	1x auxiliary relay, 230 VAC 10A max (pure resistive)
Current Transformers	<ul style="list-style-type: none"> - ZR-HMx-50-EM: 50 A max; diameter 15 mm - ZR-HMx-100-EM: 100 A max diameter 15 mm - ZR-HMx-200-EM: 200 A max diameter 25 mm
Mounting	DIN rail

Tipo	Caratteristiche
Ambient parameters	<ul style="list-style-type: none"> - Operating conditions: <ul style="list-style-type: none"> - -0 to +50 °C - <80% R.H. n. c. - Storage conditions: <ul style="list-style-type: none"> - -20 to +70 °C - <80% R.H. n. c.
Degree of protection	IP20
Insulation	Class II
Conformity	<ul style="list-style-type: none"> - ETSI EN 300 328 - ETSI EN 301 489-1 - ETSI EN 301 489-17 - EN 61326-1 - EN 61010-1 - EN 62479 - Directives 2014/53/UE (RED) 2011/65/UE (RoHS) 2012/19/UE (WEEE) 1999/519/CE
Dimensions (L x H x P)	105 x 110 x 60 mm
Weight	330 g



DIMENSIONS (MM)



CODES

Products	Codes	Description
	ZR-HM3-50-EM	Energy Meter 3~ for 1 three phase line or 3 single phase lines, 50 A
	ZR-HM3-100-EM	Energy Meter 3~ for 1 three phase line or 3 single phase lines, 100 A
	ZR-HM3-200-EM	Energy Meter 3~ for 1 three phase line or 3 single phase lines, 200 A
	ZR-HM6-50-EM	Energy Meter 6~ for 2 three phase lines or 6 single phase lines, 50 A
	ZR-HM6-100-EM	Energy Meter 6~ for 2 three phase lines or 6 single phase lines, 100 A
	ZR-HM6-200-EM	Energy Meter 6~ for 2 three phase lines or 6 single phase lines, 200 A



ZigBee Modbus Temperature, humidity and light sensors

A complete range of battery powered, ZigBee wireless sensors for measuring temperature, humidity and light. In a wireless network, these devices transmit measurements to a ZigBee Gateway.

ZigBee environment sensors are the ideal choice for energy saving and environment monitoring systems in building automation and large office applications. They permit data to be acquired and processed without the need for cabled connections.

- ZED-THL-M** Temperature, humidity and light sensor – Modbus
- ZED-THI-M** Temperature and humidity sensor – Modbus



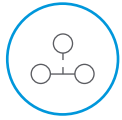
MAIN TECHNICAL SPECIFICATIONS

- Measurement of temperature, humidity and light
- Regular transmission of measured values to the ZigBee gateway
- Sampling intervals and data transmission to the Gateway can be customised to increase battery life.
- Customisable range of measurements for recording firmware alarm conditions. Settings can be used by the supervisor to generate alarms and/or warnings (e.g. to check whether doors, windows, etc. are closed/open)
- Battery powered
- For indoor or outdoor use: these environment sensors are housed in a waterproof plastic compartment
- Internal antenna

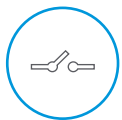
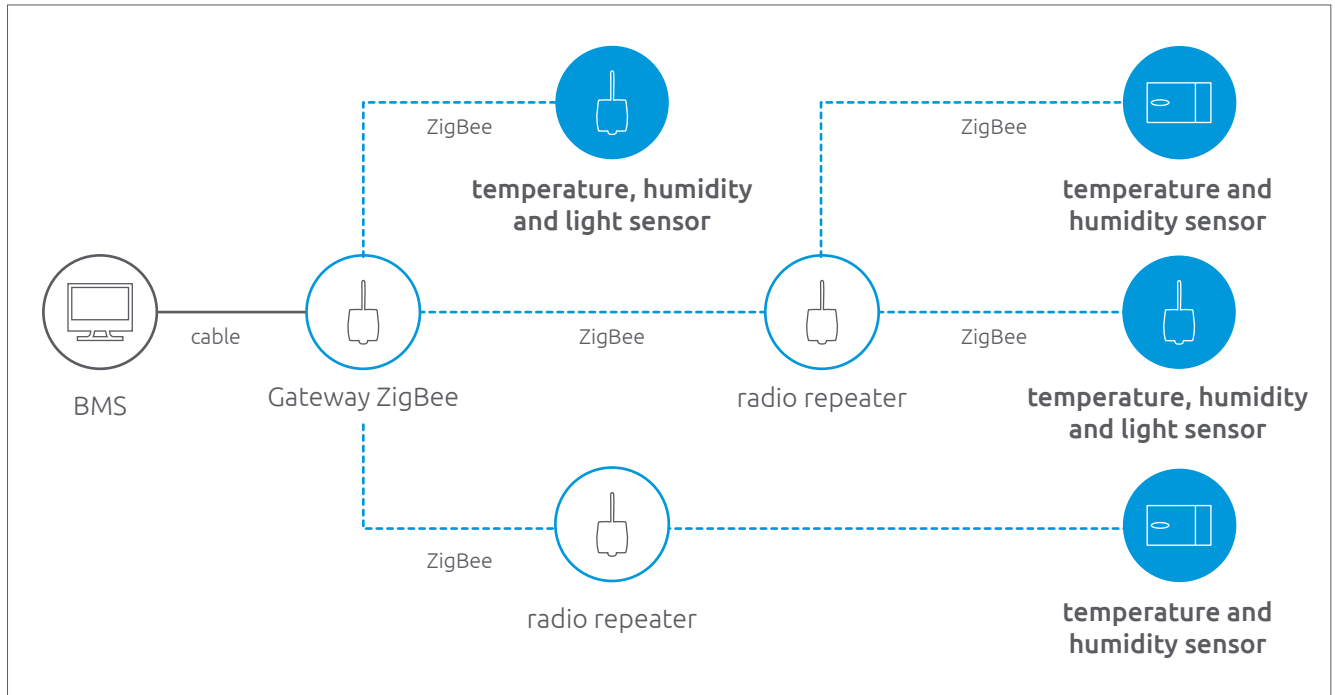


APPLICATIONS

- Building automation and industrial control systems
- Energy monitoring and management



CONNECTION DIAGRAM



TECHNICAL SPECIFICATIONS

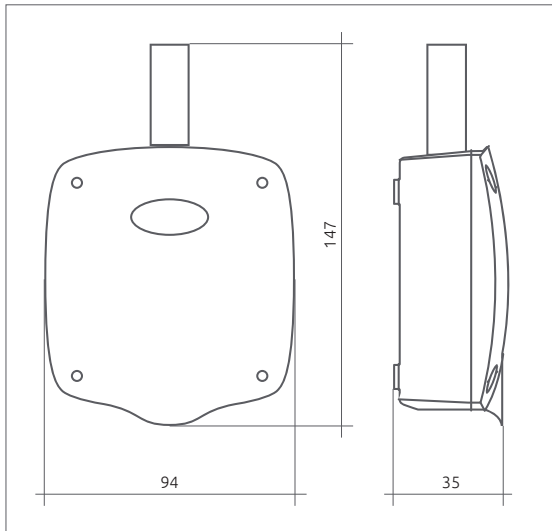
Type	Features
General specifications	<ul style="list-style-type: none"> - Ember EM250 chip - Compatible with IEEE 802.15.4 - Stack EmberZnet3.4.x (ZigBee PRO) - Modbus / RTU
Radio specifications	<ul style="list-style-type: none"> - Frequency: 2405 MHz to 2480 MHz - Modulation: DSSS - Nominal transmission power: 2 mW (3 dBm) - Receiver sensitivity: -95 dBm
Antenna	<ul style="list-style-type: none"> - Internal with 0 dB gain - Radio range: max 30 m outdoors
Power supply	<ul style="list-style-type: none"> - High energy, 3.6 V / 2000 mAh AA lithium battery - Battery life: 3 years with data transmission every minute at 20 °C
Status display	3x indicator LEDs
Sampling interval	60 s default
Sensors used	<ul style="list-style-type: none"> - Temperature and humidity: Sensirion SMD SHT11 - Light (only ZED-THL-M): Agilent ADPS-9002
Temperature	<ul style="list-style-type: none"> - Temperature sensor measurement range: -40 to 120 °C - Accuracy over sensor operating range: ±1.5 °C max - Temperature measurement in tenths of a degree
Humidity	<ul style="list-style-type: none"> - Humidity sensor measurement range: 0 to 100% RH%, - Accuracy ± 5 RH% max
Light (only ZED-THL-M)	Measurement error: ±5% over range 10 to 1000 Lux
Mounting	Wall-fixing with screws
Ambient parameters	<ul style="list-style-type: none"> - Operating conditions: <ul style="list-style-type: none"> - -10 to +60 °C - <80% R.H. n. c. - Storage conditions: <ul style="list-style-type: none"> - -20 to +70 °C - <80% R.H. n. c.
Degree of protection	<ul style="list-style-type: none"> - ZED-THL-M: IP54 - ZED-THI-M: IP20

Type	Features
Insulation	Class III
Conformity	<ul style="list-style-type: none"> - ETSI EN 300 328 - ETSI EN 301 489-1 - ETSI EN 301 489-17 - EN 61000-6-2 - EN 61000-6-3 - EN 60950-1 - EN 62479 - Directives 2014/53/EU (RED) 2011/65/EU (RoHS) 2012/19/EU (WEEE) 1999/519/EC
Dimensions (L x H x P)	<ul style="list-style-type: none"> - ZED-THL-M: 94 x 147 x 35 mm - ZED-THI-M: 127 x 80 x 30 mm
Weight	<ul style="list-style-type: none"> - ZED-THL-M: 112 g - ZED-THI-M: 105 g

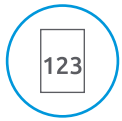
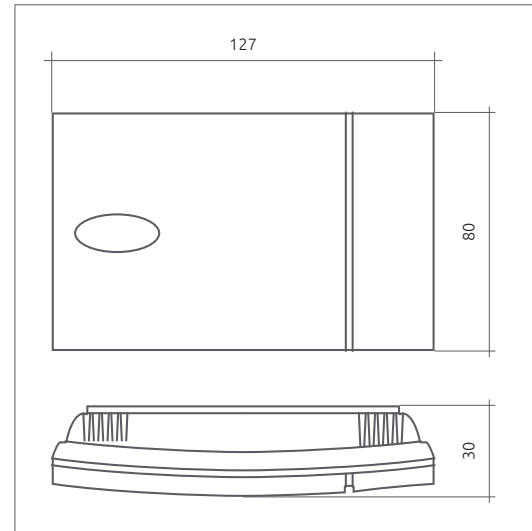


DIMENSIONS (MM)

ZED-THL-M



ZED-THI-M



CODES

Products	Codes	Description
	ZED-THL-M	Temperature, humidity and light sensor – Modbus
	ZED-THI-M	Temperature and humidity sensor – Modbus



TID – ZigBee Modbus Module with digital inputs

Devices for detecting the status of two ON/OFF digital outputs and temperature readings from NTC probes. In a wireless network, these devices regularly transmit measurements to a ZigBee Gateway. All digital input status changes are sent to the Gateway irrespectively of sampling time.

ZED-TID-M ZigBee module with 2 digital inputs, 2 NTC inputs, battery powered



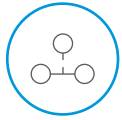
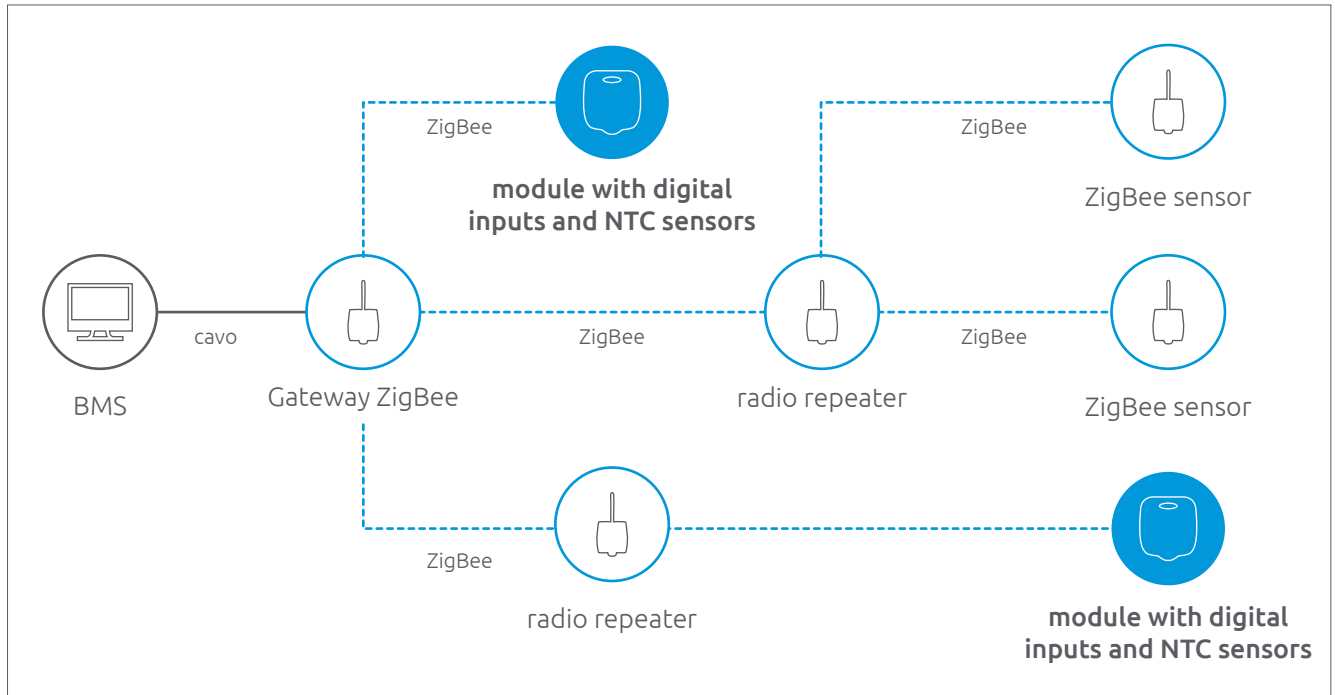
MAIN TECHNICAL SPECIFICATIONS

- 2 digital inputs
- 2 inputs for NTC probes (probes not included)
- Sampling intervals and data transmission to the Gateway can be customised to increase battery life.
- Customisable range of measurements for recording level alarm conditions: settings can be used by the supervisor to generate alarms (e.g. to check whether doors, windows, etc. are closed/open).
- Internal antenna



APPLICATIONS

- Building automation and industrial control systems
- Energy monitoring and management

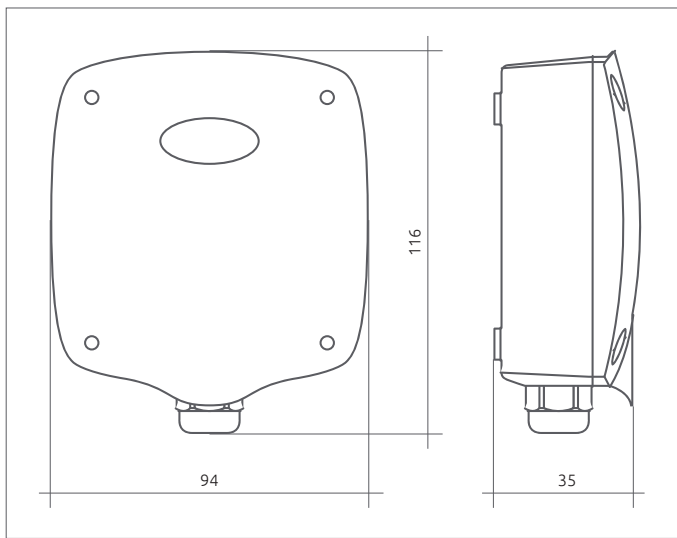

CONNECTION DIAGRAM

TECHNICAL SPECIFICATIONS

Type	Features
General specifications	<ul style="list-style-type: none"> - Ember EM250 chip - Compatible with IEEE 802.15.4 - Stack EmberZnet 3.5.x (ZigBee PRO) - Modbus / RTU
Radio specifications	<ul style="list-style-type: none"> - Frequency: 2405 MHz to 2480 MHz - Modulation: DSSS - Nominal transmission power: 2 mW (3 dBm) - Receiver sensitivity: -95 dBm
Antenna	<ul style="list-style-type: none"> - Internal antenna with 0 dB gain - Radio range <ul style="list-style-type: none"> - 100 m outdoor - 30 m indoor
Power supply	High energy, 3.6 V / 2000 mAh AA lithium battery; battery life 3 years with data transmission every minute at 20 °C
Status display	3x indicator LEDs
Sampling interval	60 seconds (default)
Digital inputs (2x)	<ul style="list-style-type: none"> - Non-isolated inputs for voltage-free contacts - Closing current 0.01 mA - Use self-cleaning contacts
Inputs for NTC probes (2x)	<ul style="list-style-type: none"> - 103AT type (R25 = 10 KOhm; Beta = 3435 K) - Measurement range: -50 to +100 °C - Read resolution: 0.1 °C - Read accuracy: ±1.0 °C - Linearised measurements in tenths of a degree
Measurements	Detection of digital output status (0/1), temperature (°C)
Connections	Push-in terminals (3.81 mm pitch)
Mounting	Wall-fixing with screws
Ambient parameters	<ul style="list-style-type: none"> - Operating conditions: <ul style="list-style-type: none"> - -10 to +60 °C - <80% R.H. n.c. - Storage conditions: <ul style="list-style-type: none"> - -20 to +70 °C - <80% R.H. n.c.


Type	Features
Degree of protection	IP55
Insulation	Class III
Conformity	<ul style="list-style-type: none"> - ETSI EN 300 328 - ETSI EN 301 489-1 - ETSI EN 301 489-17 - EN 61000-6-2 - EN 61000-6-3 - EN 60950-1 - EN 62479 - Directives 2014/53/EU (RED) 2011/65/EU (RoHS) 2012/19/EU (WEEE) 1999/519/EC
Dimensions (L x H x P)	94 x 116 x 35 mm
Weight	125 g

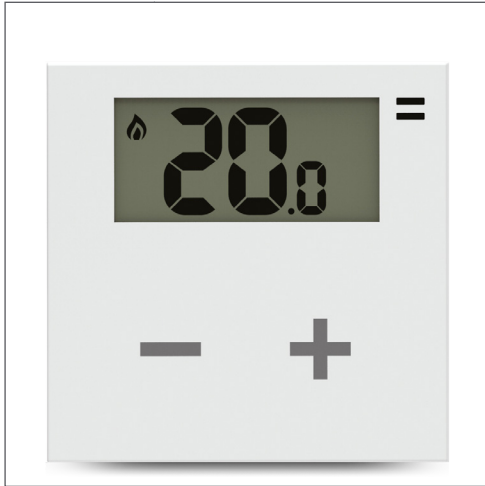


DIMENSIONS (MM)



CODE

Product	Code	Description
	ZED-TID-M	ZigBee module with 2 digital inputs, 2 NTC inputs, battery powered



TTR2 – ZigBee Modbus wireless thermostat

The TTR2 is a battery powered wireless thermostat for controlling indoor air conditioning in building automation systems. In a wireless network, it transmits measurements to a ZigBee network Gateway / Hub.

ZED-TTR2-M TTR2 Battery powered wireless thermostat – Modbus



MAIN TECHNICAL SPECIFICATIONS

- Touch user interface
- Relay control with voltage free contact (C, N.C., N.O.)
- Battery powered
- Heating / air conditioning control
- Internal antenna



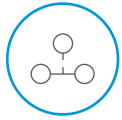
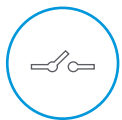
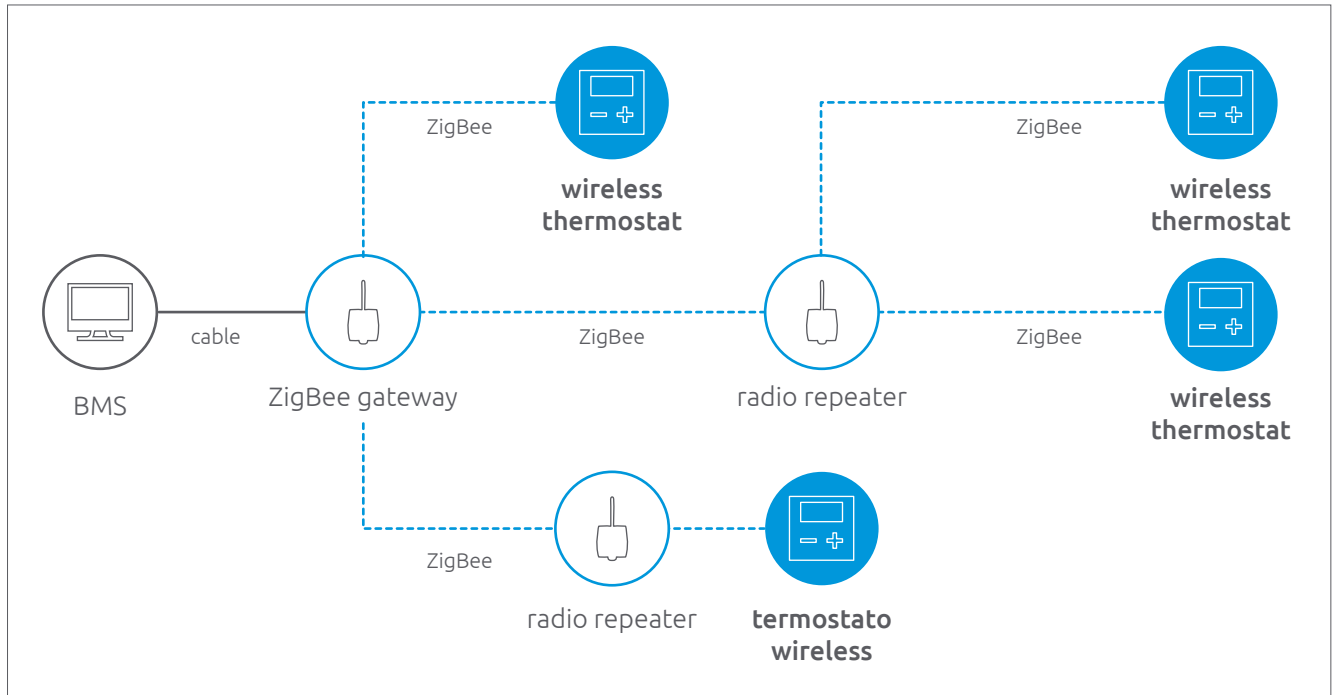
APPLICATIONS

- Building automation and industrial control systems
- Energy monitoring and management



VERSIONS AVAILABLE

- Modbus

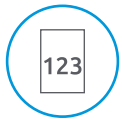
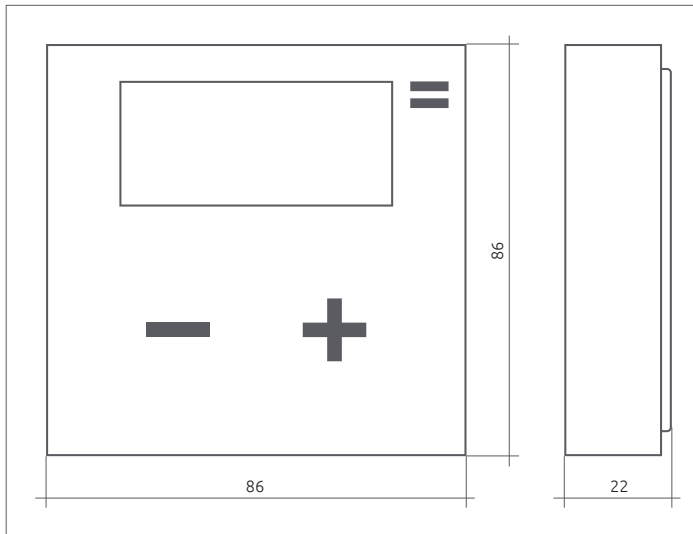

CONNECTION DIAGRAM

MODELS AVAILABLE

Type	Features
General specifications	<ul style="list-style-type: none"> - Battery powered wireless thermostat with touch screen technology - Electronic control device for separate installation
Radio specifications	<ul style="list-style-type: none"> - Frequency: 2405 MHz to 2480 MHz - Modulation: DSSS - Nominal transmission power: 2 mW (3 dBm) - Receiver sensitivity: -95 dBm - ZED-TTR2-M: Modbus
Antenna	<ul style="list-style-type: none"> - Internal with 0 dB gain - Radio range: max 30 m outdoors
Power supply	<ul style="list-style-type: none"> - Alkaline battery (2x) AA 1.5 V - Battery life: > 1 year
Control relay	NC/COM/NO contacts 250 V 5 A Cos (Φ)=1 resistive load
Sampling interval	60 seconds (default)
Temperature sensor	Murata NTC, NXRT15XH103FA1B0(30-40)
Temperature	<ul style="list-style-type: none"> - Setting range: +7 to +30 °C - Resolution: 0.1 °C - Accuracy: ±0.5 °C
Connections	N.O. / C / N. C. control terminals
Mounting	Wall-fixing with screws
Ambient parameters	<ul style="list-style-type: none"> - Operating conditions: <ul style="list-style-type: none"> - -10 to +60 °C - <80% R.H. n.c. - Storage conditions: <ul style="list-style-type: none"> - -20 to +70 °C - <80% R.H. n.c.
Degree of protection	IP33
Insulation	Class III

Type	Features
Conformity	<ul style="list-style-type: none"> - EN 55014-1 - EN 55014-2 - EN 60730-1 - EN 60730-2-9 - EN EN 62479 - ETSI EN 300328 - ETSI EN 301489-1 - ETSI EN 301489-17 - Directives 2014/53/EU (RED) 2011/65/EU (RoHS) 2012/19/EU (WEEE) 1999/519/EC
Dimensions (L x H x P)	86 x 86 x 22 mm
Weight	115 g



DIMENSIONS (MM)



CODE

Product	Code	Description
	ZED-TTR2-M	TTR2 Battery powered wireless thermostat – Modbus



ZigBee Modbus Pulse counters

Wireless devices for counting the number of pulses generated by energy meters connected to the 2 digital inputs. Counts are transmitted regularly to a ZigBee network Gateway. Temperature can also be measured using the two NTC probe inputs.

ZR-CI-ZB-EM

ZigBee pulse counter with 2 digital inputs, 2 NTC inputs power supply with Italian standard 230 VAC / 24 VDC plug included

ZR-ES-EM

ZigBee pulse counter with ES board input power supply with Italian standard 230 VAC / 24 VDC plug included

ZED-TIDCI-M

ZigBee pulse counter with 2 digital inputs and 2 NTC inputs Battery powered



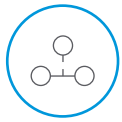
MAIN TECHNICAL SPECIFICATIONS

- 2 S0 standard pulse counter inputs
- 2 NTC probe inputs (only ZR-CI-ZB-EM and ZED-TIDCI-M)
- 2 digital inputs (only ZR-ES-EM)
- Sampling time and transmission settings

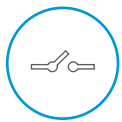
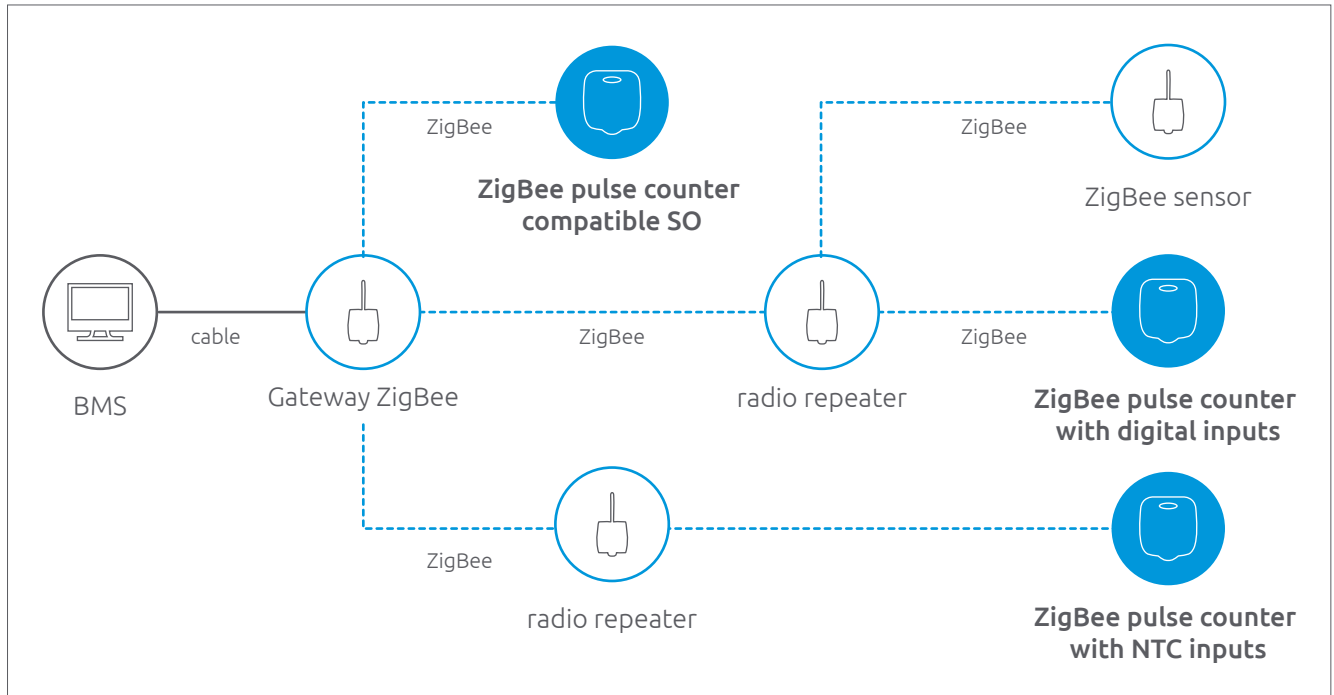


APPLICATIONS

- Building automation and industrial control systems
- Energy monitoring and management



CONNECTION DIAGRAM



TECHNICAL SPECIFICATIONS

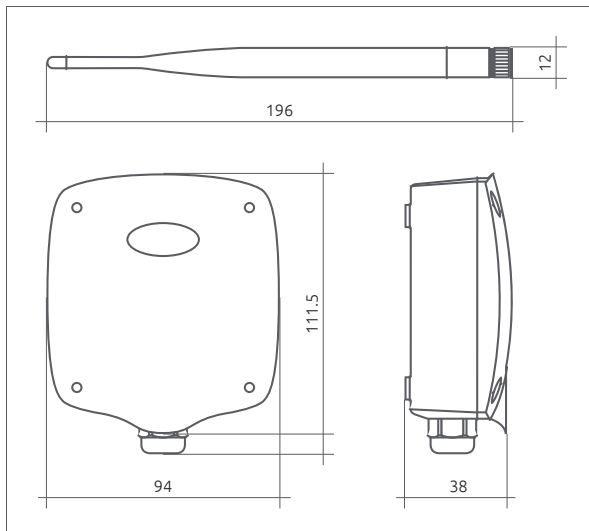
Type	Features
General specifications	<ul style="list-style-type: none"> – Chip Ember EM250 – Compatible with IEEE 802.15.4 – Stack EmberZnet 3.5.x (ZigBee PRO) – Modbus / RTU
Radio specifications	<ul style="list-style-type: none"> – Frequency: 2405 MHz to 2480 MHz – Modulation: DSSS – ZR-CI-ZB-EM, ZR-ES-EM: <ul style="list-style-type: none"> – Nominal transmission power: 10 mW (10 dBm) – Receiver sensitivity: -97 dBm – ZED-TIDCI-M: <ul style="list-style-type: none"> – Nominal transmission power: 2 mW (3 dBm) – Receiver sensitivity: -95 dBm
Antenna	<ul style="list-style-type: none"> – ZR-CI-ZB-EM, ZR-ES-EM: <ul style="list-style-type: none"> – External antenna with 5 dB gain – Radio range: 100 m outdoor; 30 m indoor – ZED-TIDCI-M: <ul style="list-style-type: none"> – Internal antenna with 0 dB gain – Radio range: 50 m outdoor; 20 m indoor
Antenna connector ZR-CI-ZB-EMxx and ZR-ES-EM only	SMA-RP antenna connector
Power supply	<ul style="list-style-type: none"> – ZR-CI-ZB-EM; ZR-ES-EM <ul style="list-style-type: none"> – 12 to 24 VDC, 100 mA; 12 to 15 VAC, 50 to 60 Hz, 2.4 VA – ZED-TIDCI-M <ul style="list-style-type: none"> – high energy, 3.6 V / 2000 mAh AA lithium battery – Battery life: 3 years with data transmission every minute at 20 °C
Status display	3 x indicator LEDs
Sampling interval	60 seconds (default)
Digital inputs (2x) ZR-CI-ZB-EMxx and ZED-TIDCI-M only	<ul style="list-style-type: none"> – Non-isolated inputs for voltage-free contacts – Closing current 0.01 mA. Use self-cleaning contacts

Type	Features
NTC probes (2x) ZR-CI-ZB-EMxx and ZED-TIDCI-M only	<ul style="list-style-type: none"> - 103AT type (R25 = 10 KOhm; Beta = 3435K) - Measurement range: -50 °C to +110 °C - Read resolution: 0.1 °C - Read accuracy: ±1.0 °C - Linearised measurements in tenths of a degree
Measurements	Energy meter [Wh], temperature measurement [°C]
Connections	Push-in terminals (3.81 mm pitch)
Mounting	Wall-fixing with screws
Ambient parameters	<ul style="list-style-type: none"> - ZR-CI-ZB-EM; ZR-ES-EM: <ul style="list-style-type: none"> - Operating conditions: -20 to +55 °C; <80% R.H. n.c. - Storage conditions: -20 to +70 °C; <80% R.H. n.c. - ZED-TIDCI-M: <ul style="list-style-type: none"> - Operating conditions: -10 to +60 °C; <80% R.H. n.c. - Storage conditions: -20 to +70 °C; <80% R.H. n.c.
Degree of protection	IP51
Insulation	<ul style="list-style-type: none"> - ZR-CI-ZB-EM, ZR-ES-EM: class II - ZED-TIDCI-M: class III
Conformity	<ul style="list-style-type: none"> - ETSI EN 300 328 - ETSI EN 301 489-1 - ETSI EN 301 489-17 - EN 61000-6-2 - EN 61000-6-3 - EN 60950-1 - EN 62479 - Directives 2014/53/EU (RED) 2011/65/EU (RoHS) 2012/19/EU (WEEE) 1999/519/EC
Dimensions (L x H x P)	<ul style="list-style-type: none"> - ZR-CI-ZB-EM, ZR-ES-EM: 94 x 116 x 35 mm - ZED-TIDCI-M: 94 x 116 x 35 mm
Weight	<ul style="list-style-type: none"> - ZR-CI-ZB-EM, ZR-ES-EM: 130 g - ZED-TIDCI-M: 220 g

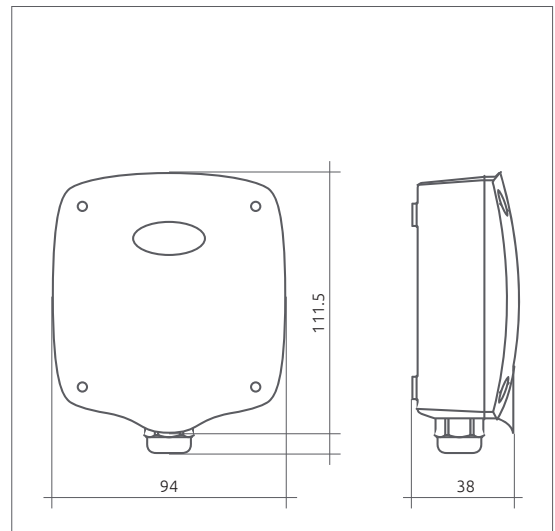


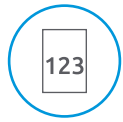
DIMENSIONS (MM)

ZR-CI-ZB-EM, ZR-ES-EM






ZED-TIDCI-M





CODES

Products	Codes	Description
	ZR-CI-ZB-EM	ZigBee pulse counter with 2 digital inputs, 2 NTC inputs, S0 compatible digital counters 12 – 24 VDC power; power supply with Italian standard 230 VAC / 24 VDC plug included
	ZR-ES-EM	ZigBee pulse counter with ES board input, 2 digital pulse counter inputs, 2 digital inputs for voltage-free contacts, 12 – 24 VDC power; power supply with Italian standard 230 VAC / 24 VDC plug included
	ZED-TIDCI-M	ZigBee pulse counter with 2 digital inputs and 2 NTC inputs Battery powered

COMPARATIVE CHART

Features	ZR-CI-ZB-EM	ZR-ES-EM	ZED-TIDCI-M
Digital pulse counter input	2	2	2
NTC temperature probe input	2	–	2
Digital input for voltage-free contacts	–	2	–
Optical sensors included	·	–	–
Fixing	Wall-fixing	Wall-fixing	Wall-fixing
Antenna	External	External	Internal
Router function	·	·	–
Power supply	12/24 DC	12/24 DC	Battery
External power supply included in the box	·	·	–



Modbus CO₂ Sensor

Battery powered ZigBee wireless sensors for measuring the concentration of carbon dioxide in the air. In a wireless network, these devices regularly transmit measurements to a ZigBee Gateway.

These devices can be connected to ventilation systems to optimise air quality. They can be used in environment control, indoor ventilation, controlled mechanical ventilation and air conditioning systems.

ZED-CO2-M Carbon dioxide sensor – Modbus



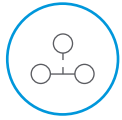
MAIN TECHNICAL SPECIFICATIONS

- Double NDIR wavelength measurement
- Auto-calibrating
- Long term stability and accuracy
- Sampling intervals and data transmission to the Gateway can be customised to increase battery life.
- Customisable range of measurements for recording firmware level alarm conditions: settings can be used by the supervisor to generate alarms and/or warnings (e.g. to check whether doors, windows, etc. are closed/open).
- Wall-fixing
- Internal antenna

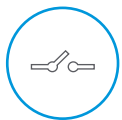
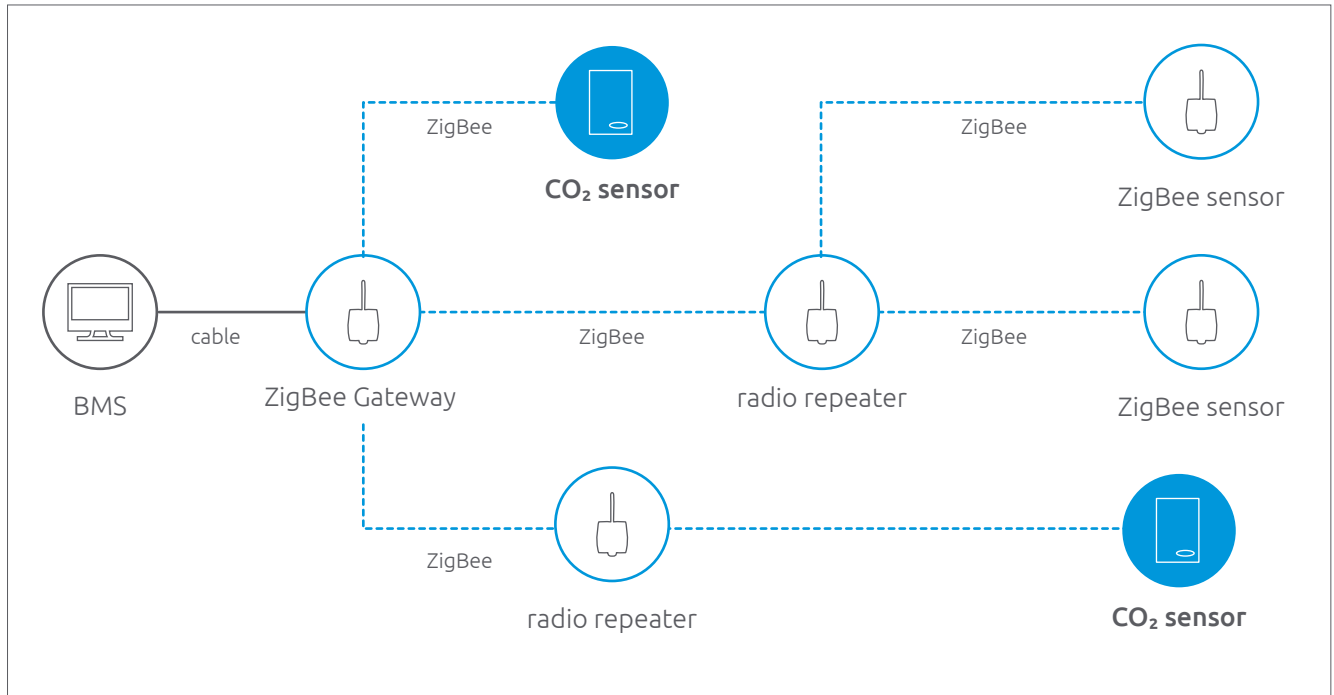


APPLICAZIONI

- Large public and/or private buildings for:
 - optimising ventilation in closed spaces and/or areas with an irregular influx of persons (e.g. museums, schools, hospitals, etc.)
 - ensuring that the concentration of carbon dioxide does not limit the attention span of occupants
 - ensuring that the concentration of carbon dioxide is never harmful to health
- Greenhouses, for optimised plant growth



CONNECTION DIAGRAM

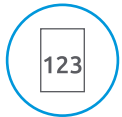
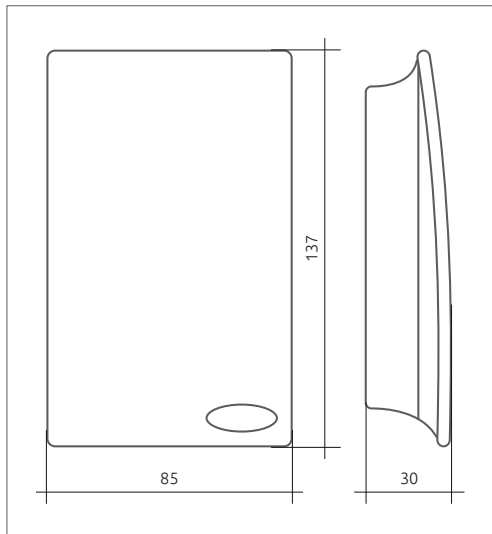


TECHNICAL SPECIFICATIONS


Type	Features
General specifications	<ul style="list-style-type: none"> - Ember EM357 chip - Compatible with IEEE 802.15.4 - Stack EmberZnet 4.7.3 (ZigBee PRO) - Modbus / RTU
Radio specifications	<ul style="list-style-type: none"> - Frequency: 2405 MHz to 2480 MHz - Modulation: DSSS - Nominal transmission power: 2 mW (3 dBm) - Receiver sensitivity: 103 dBm
Antenna	<ul style="list-style-type: none"> - Internal with 0 dB gain - Radio range: max 30 m outdoors
Power supply	<ul style="list-style-type: none"> - Batteries: (4x) AA - Battery life: 1 year with tx > 15 min
Status display	4x indicator LEDs
Sampling interval	15 mins default
Sensors used	EE893-05C2
Measurements	<ul style="list-style-type: none"> - Double NDIR wavelength - Measurement range 0~2,000 ppm (0~5,000 ppm, 0~10,000 ppm optional) - Accuracy ± (4% FS + 3% Reading) - Measurement intervals: 1.5 s
Mounting	Wall-fixing with screws
Ambient parameters	<ul style="list-style-type: none"> - Operating temperature: <ul style="list-style-type: none"> - 0 to +50 °C - <80% R.H. n. c. - Storage temperature: <ul style="list-style-type: none"> - -20 to +70 °C - <80% R.H. n. c.
Degree of protection	IP30
Insulation	Class III

Type	Features
Conformity	<ul style="list-style-type: none"> - ETSI EN 300 328 - ETSI EN 301 489-1 - ETSI EN 301 489-17 - EN 61000-6-2 - EN 61000-6-3 - EN 60950-1 - EN 62479 - Directives 2014/53/EU (RED) 2011/65/EU (RoHS) 2012/19/EU (WEEE) 1999/519/EC
Dimensions (L x H x P)	85 x 37 x 30 mm
Weight	215 g

DIMENSIONS (MM)



CODE

Product	Code	Description
	ZED-CO2-M	Carbon dioxide sensor – Modbus



TIR2 – ZigBee Modbus Relay Module

Devices for acquiring the status of two ON/OFF digital outputs and NTC temperature probe readings; 2 configurable relay outputs for controlling external third party devices. In a wireless network, these devices regularly transmit acquired data to a ZigBee Gateway and serve as radio signal repeaters for nearby sensors.

All digital input status changes are sent to the Gateway irrespectively of sampling time.

ZR-TIR2-EM ZigBee module with 2 digital inputs, 1 NTC input, 2 relays
24 VDC power; power supply with Italian standard
230 VAC / 24 VDC plug included

ZR-TIR2-EM-UK ZigBee module with 2 digital inputs, 1 NTC input, 2 relays
24 VDC power; power supply with UK standard
230 VAC / 24 VDC plug included



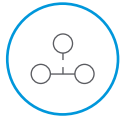
MAIN TECHNICAL SPECIFICATIONS

- 2 digital inputs
- 1 NTC probe input (probe not included)
- 2 relay outputs
- Sampling intervals and data transmission to the Gateway can be customised to increase battery life.
- Customisable range of measurements for recording level alarm conditions: settings can be used by the supervisor to generate alarms and/or warnings (e.g. to check whether doors, windows, etc. are closed/open).
- Routing functionality
- External antenna for maximum efficiency

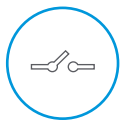
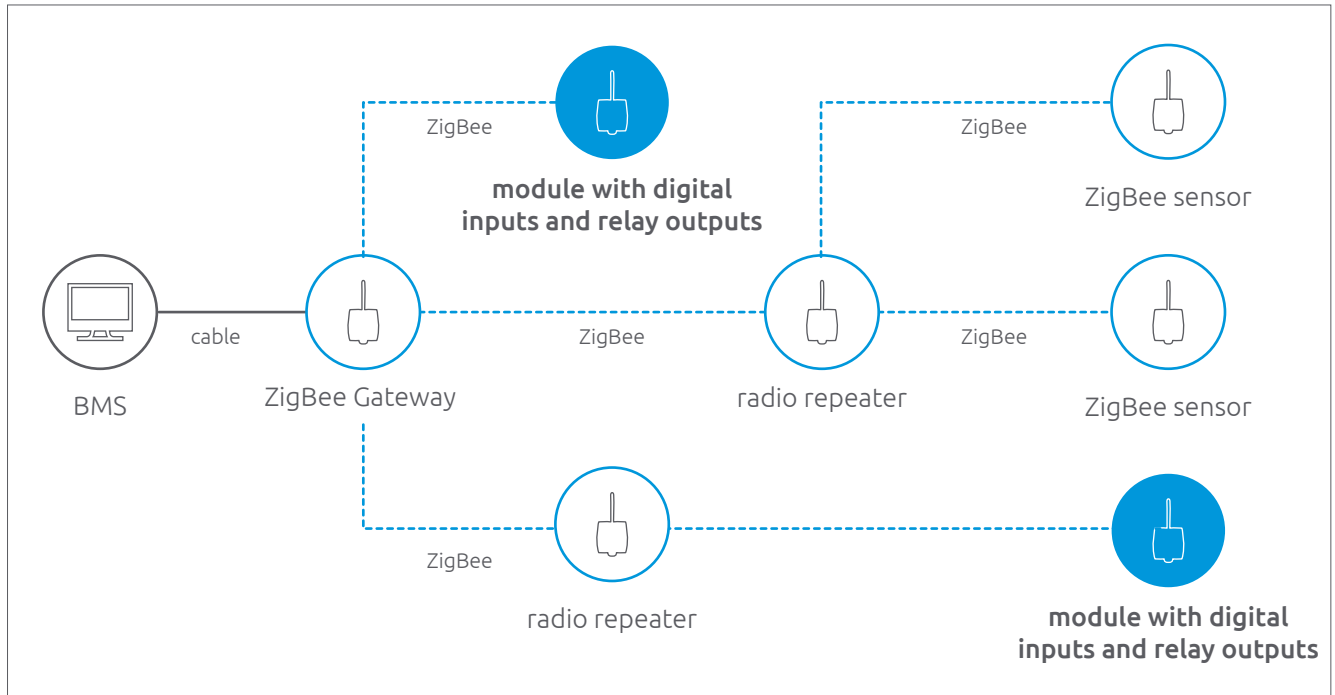


APPLICATIONS

- Building automation and industrial control systems
- Energy monitoring and management



CONNECTION DIAGRAM



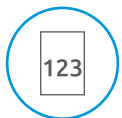
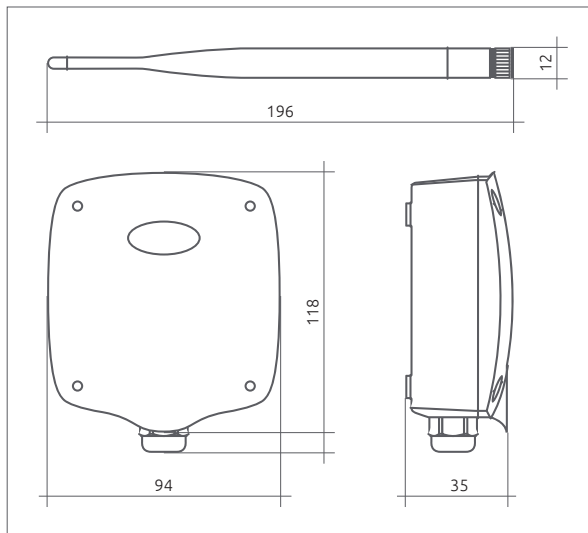
TECHNICAL SPECIFICATIONS

Type	Features
General specifications	<ul style="list-style-type: none"> - Ember EM250 chip - Compatible with IEEE 802.15.4 - Stack EmberZnet 3.5.x (ZigBee PRO) - Modbus / RTU
Radio specifications	<ul style="list-style-type: none"> - Frequency: 2405 MHz to 2480 MHz - Modulation: DSSS - Nominal transmission power: 1 mW (10 dBm) - Receiver sensitivity: -92 dBm
Antenna	<ul style="list-style-type: none"> - External antenna with 5 dB gain - Radio range: <ul style="list-style-type: none"> - 100 m outdoor - 30 m indoor
Antenna connector	SMA-RP antenna connector
Power supply	<ul style="list-style-type: none"> - 12 to 24 VDC, 100 mA - 12 to 15 VAC, 50 to 60 Hz, 2.4 VA
Status display	3x indicator LEDs
Sampling interval	60 seconds (default)
Digital inputs (2x)	<ul style="list-style-type: none"> - Non-isolated inputs for voltage-free contacts - Closing current 0.01 mA - Use self-cleaning contacts
Ingressi per sonda NTC (1x)	<ul style="list-style-type: none"> - 103AT type (R25 = 10 KOhm; Beta = 3435K) - Measurement range: -50 to +100 °C - Read resolution: 0.1 °C - Read accuracy: ±1.0 °C - Linearised measurements in tenths of a degree
Relays (2x)	<ul style="list-style-type: none"> - 24 VDC coil - 250 V ± 5 A contacts
Measurements	Detection of digital output status (0/1), temperature (°C)
Connections	Push-in terminals (3.81 mm pitch)
Mounting	Wall-fixing with screws



Type	Features
Ambient parameters	<ul style="list-style-type: none"> - Operating conditions: <ul style="list-style-type: none"> - -10 to +60 °C - <80% R.H. n.c. - Storage conditions: <ul style="list-style-type: none"> - -20 to +70 °C - <80% R.H. n.c.
Degree of protection	IP51
Insulation	Class II
Conformity	<ul style="list-style-type: none"> - ETSI EN 300 328 - ETSI EN 301 489-1 - ETSI EN 301 489-17 - EN 61000-6-2 - EN 61000-6-3 - EN 60950-1 - EN 62479 - Directives 2014/53/EU (RED) 2011/65/EU (RoHS) 2012/19/EU (WEEE) 1999/519/EC
Dimensions (L x H x P)	94 x 116 x 35 mm
Weight	125 g



DIMENSIONS (MM)



CODES

Products	Codes	Description
	ZR-TIR2-EM	ZigBee module with 2 digital inputs, 1 NTC input, 2 relays 24 VDC power; power supply with Italian standard 230 VAC / 24 VDC plug included
	ZR-TIR2-EM-UK	ZigBee module with 2 digital inputs, 1 NTC input, 2 relays 24 VDC power; power supply with UK standard 230 VAC / 24 VDC plug included



Modbus Smart Plug

ZigBee wireless pass-through socket with built-in power meter, energy meter and relay for controlling electrical loads

ZR-PLUG-EU-M ZigBee wireless pass-through socket, Schuko standard (EU) – Modbus

ZR-PLUG-UK-M ZigBee wireless pass-through socket, standard UK – Modbus

ZR-PLUG-FR-M ZigBee wireless pass-through socket, standard FR – Modbus

ZR-PLUG-IT-M ZigBee wireless pass-through socket, standard IT – Modbus



MAIN TECHNICAL SPECIFICATIONS

- Power relay with built-in energy meter
- Max power: 13 A @ 230 VAC
- Router function within the ZigBee wireless network
- Stand-by killer function
- Override function



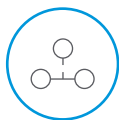
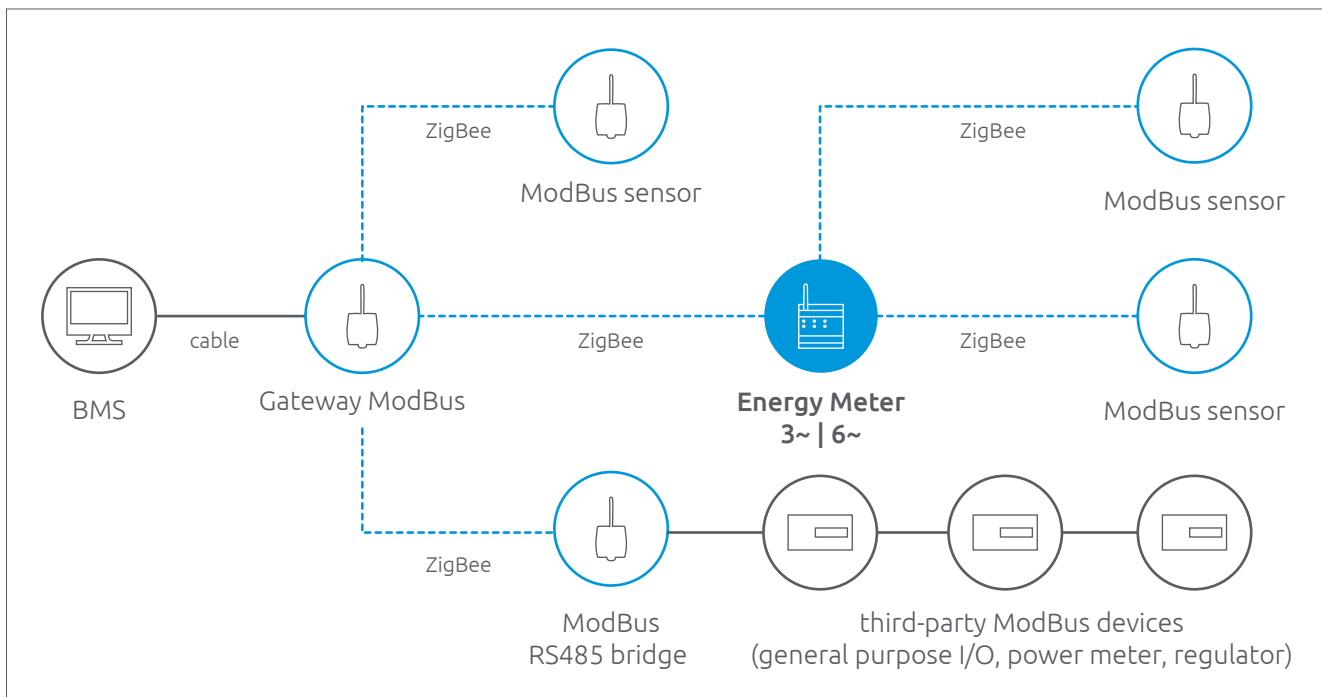
PLUG/SOCKET MODELS AVAILABLE

- Standard Schuko (EU)
- British standard (UK)
- French standard (FR)
- Italian standard (IT)



AVAILABLE PROTOCOLS

- Modbus

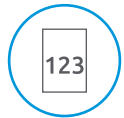
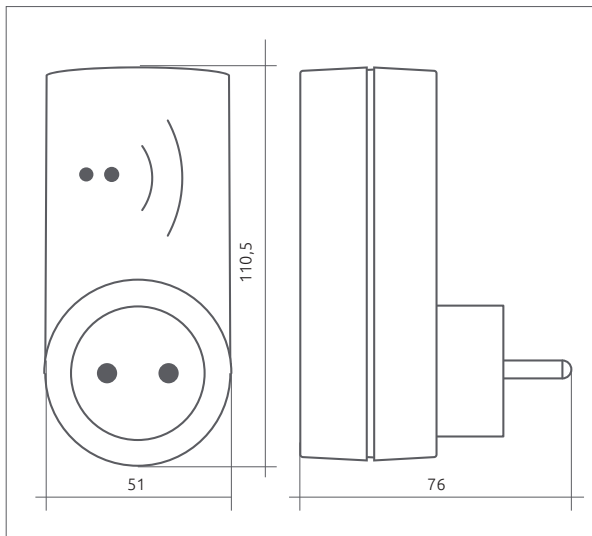

CONNECTION DIAGRAM

TECHNICAL SPECIFICATIONS

Type	Features
General specifications	<ul style="list-style-type: none"> - Ember EM3587 chip - Compatible with IEEE 802.15.4 - Stack EmberZnet 5.3.1 (ZigBee PRO) - ZR-PLUG-xx-M: Modbus / RTU
Radio specifications	<ul style="list-style-type: none"> - Frequency: 2405 MHz to 2480 MHz - Modulation: DSSS - Nominal transmission power: 2 mW (3 dBm) - Receiver sensitivity: -95 dBm
Antenna	<ul style="list-style-type: none"> - Internal antenna with 0 dB gain - Radio range: 30 m outdoor; 15 m indoor
Power supply	<ul style="list-style-type: none"> - 90 to 240 VAC - 1 W - 50 to 60 Hz
Power	<ul style="list-style-type: none"> - Max current 13 A - 3.0 kW electrical load (pure resistive)
Status display	1x LED indicator
Sampling / data transmission time	20 seconds (default)
Measurements	<ul style="list-style-type: none"> - Active power [W] - Active energy consumption [Wh]
Outputs	Socket for load control
Plug / socket models	<ul style="list-style-type: none"> - Standard Schuko (EU) - English Standard (UK) - French Standard (FR) - Italian Standard (IT)
Ambient parameters	<ul style="list-style-type: none"> - Operating conditions: <ul style="list-style-type: none"> - -0 to +50 °C - <80% R.H. n. c. - Storage conditions: <ul style="list-style-type: none"> - -20 to +70 °C - <80% R.H. n. c.
Degree of protection	IP33
Insulation	Class III

Type	Features
Conformity	<ul style="list-style-type: none"> - ETSI EN 300 328 - ETSI EN 301 489-1 - ETSI EN 301 489-17 - EN 61000-6-2 - EN 61000-6-3 - EN 60950-1 - EN 62479 - Directives 2014/53/EU (RED) 2011/65/EU (RoHS) 2012/19/EU (WEEE) 1999/519/EC
Dimensions (L x H x P)	51 x 110,5 x 76 mm
Weight	160 g



DIMENSIONS (MM)



CODES

Products	Codes	Description
	ZR-PLUG-EU-M	ZigBee wireless pass-through socket, Schuko standard EU – Modbus
	ZR-PLUG-UK-M	ZigBee wireless pass-through socket, standard UK – Modbus
	ZR-PLUG-FR-M	ZigBee wireless pass-through socket, standard FR – Modbus
	ZR-PLUG-IT-M	ZigBee wireless pass-through socket, standard IT – Modbus



Modbus Smart Switch

Wireless Smart Switch wall sockets can easily be used in building automation systems to program the activation of electrical loads and to measure their energy consumption. Measured data are transmitted regularly to a ZigBee network Gateway.

ZR-SWITCH-M Wall mounted ZigBee wireless actuator – Modbus



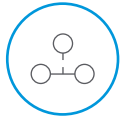
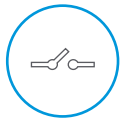
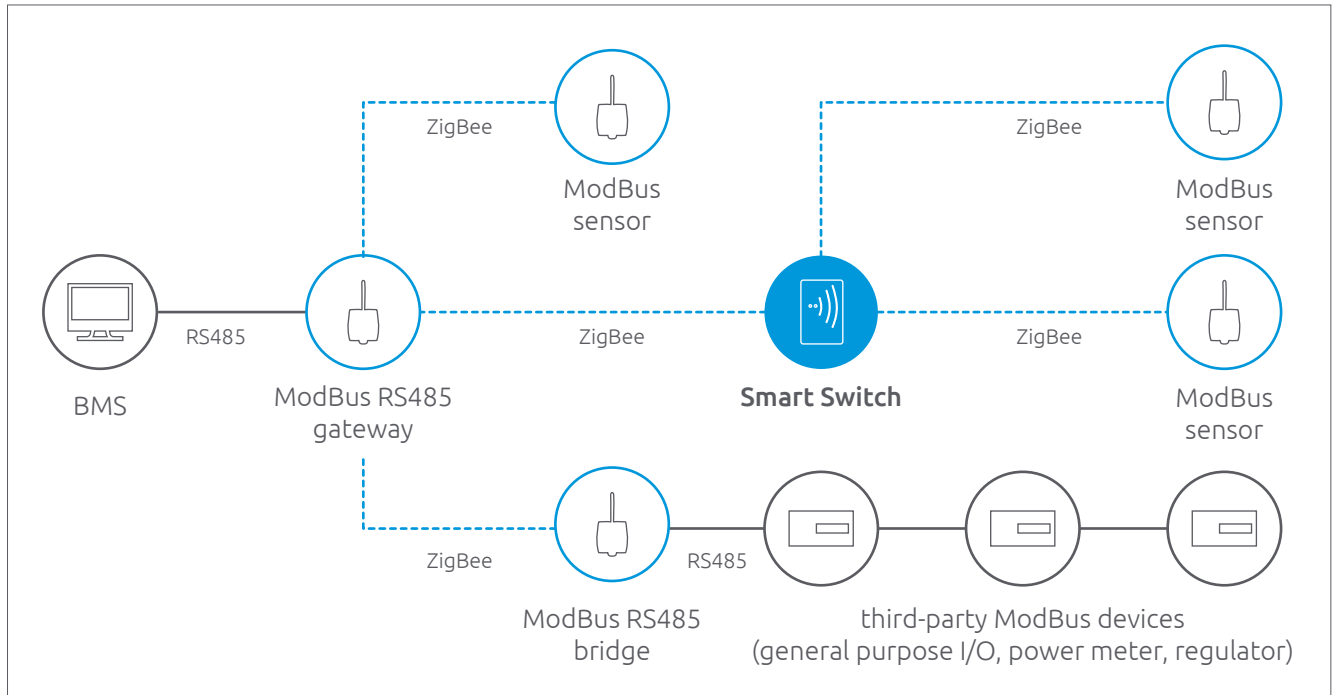
MAIN TECHNICAL SPECIFICATIONS

- Power relay with built-in energy meter
- Max power: 13 A @ 230 VAC
- Router function within the ZigBee wireless network
- Stand-by killer function
- Override function
- Wall-fixing



AVAILABLE PROTOCOLS

- Modbus

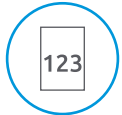
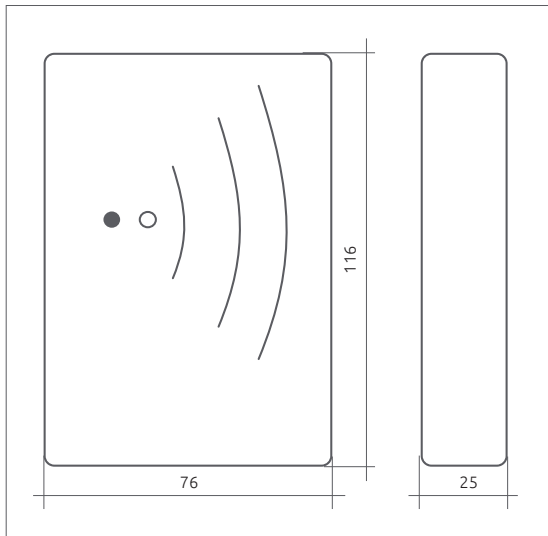

CONNECTION DIAGRAM

TECHNICAL SPECIFICATIONS

Type	Features
General specifications	<ul style="list-style-type: none"> - Ember EM3587 chip - Compatible with IEEE 802.15.4 - Stack EmberZnet 5.3.1 (ZigBee PRO) - ZR-SWITCH-M: Modbus / RTU
Radio specifications	<ul style="list-style-type: none"> - Frequency: 2405 MHz to 2480 MHz - Modulation: DSSS - Nominal transmission power: 2 mW (3 dBm) - Receiver sensitivity: -95 dBm
Antenna	<ul style="list-style-type: none"> - Internal antenna with 0 dB gain - Radio range: 30 m outdoor; 15 m indoor
Power supply	<ul style="list-style-type: none"> - 90 to 240 VAC - 1 W - 50 to 60 Hz
Power	<ul style="list-style-type: none"> - Max current 13 A - 3.0 kW electrical load (pure resistive)
Status display	1x LED indicator
Sampling / data transmission time	20 seconds (default)
Measurements	<ul style="list-style-type: none"> - Active power [W] - Active energy consumption [Wh]
Outputs	Terminals for load control
Mounting	Wall-fixing with screws
Ambient parameters	<ul style="list-style-type: none"> - Operating conditions: <ul style="list-style-type: none"> - -0 to +50 °C - 80% R.H. n. c. - Storage conditions: <ul style="list-style-type: none"> - -20 to +70 °C - <80% R.H. n. c.
Degree of protection	IP30
Insulation	Class I

Type	Features
Conformity	<ul style="list-style-type: none"> - ETSI EN 300 328 - ETSI EN 301 489-1 - ETSI EN 301 489-17 - EN 61000-6-2 - EN 61000-6-3 - EN 60669-2-1 - EN 62479 - Directives 2014/53/EU (RED) 2011/65/EU (RoHS) 2012/19/EU (WEEE) 1999/519/EC
Dimensions (L x H x P)	76 x 116 x 25 mm
Weight	130 g



DIMENSIONS (MM)



CODE

Product	Code	Description
	ZR-SWITCH-M	Wall mounted ZigBee wireless actuator – Modbus



ZigBee Modbus Bridge

Wireless connection device between a ZigBee Gateway and one or more third party Modbus devices connected to the Bridge via 485.

The ZigBee Bridge simplifies the connection of third party devices as it does not require cables to connect to the PLC/Scada. This facilitates installation in large buildings.

Information is exchanged between the PLC (or PC-Scada) connected to the Gateway and the third party Modbus devices via the ZigBee wireless network, with no cables required.

Thanks to mains power, the device can also function as a ZigBee signal repeater and as a parent device for battery powered sensors.

ZR-B-P485-EM High power, amplified ZigBee-RS485 Modbus RTU Bridge
Power: 12-24 VDC power, power supply with Italian standard 230 VAC / 24 VDC plug included



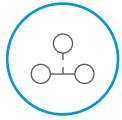
MAIN TECHNICAL SPECIFICATIONS

- Connects third party Modbus/RTU devices to the ZigBee radio network
- Modbus / RTU protocol
- RS485 interface for connection to the PLC/Scada
- Routing functionality
- External antenna

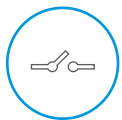
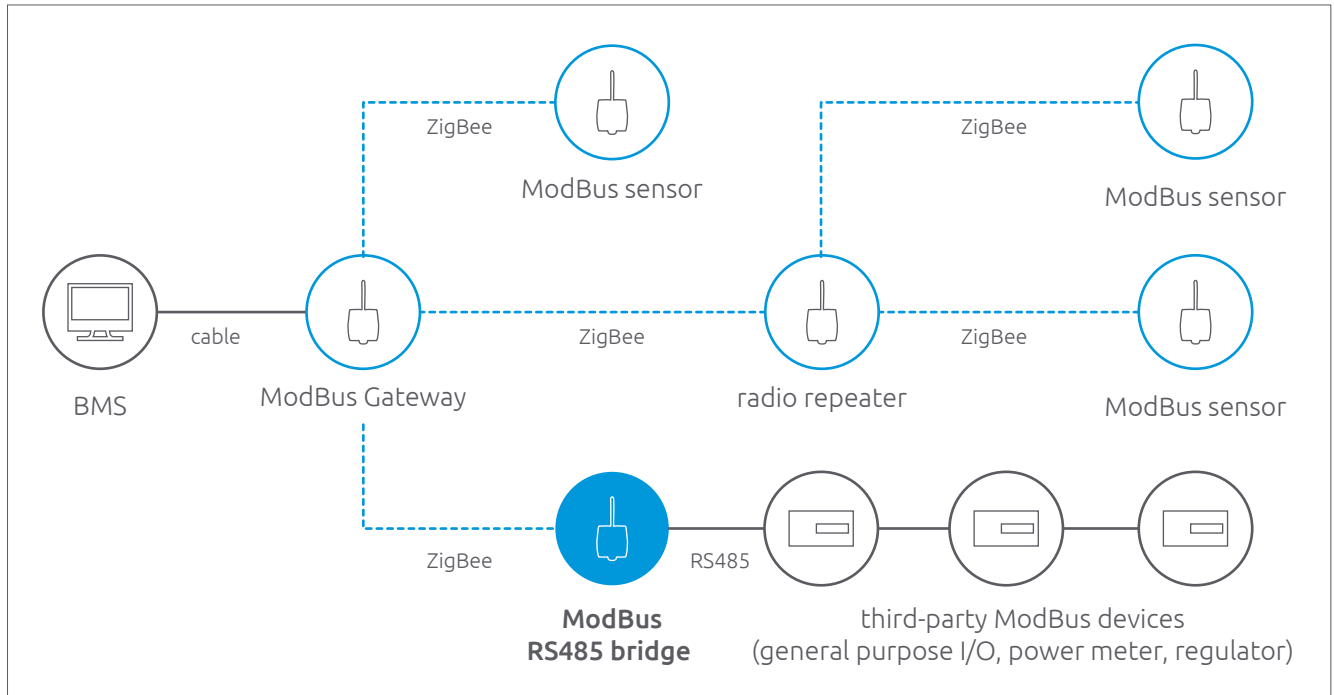


APPLICAZIONI

- Building energy management systems
- Building automation and industrial control systems



CONNECTION DIAGRAM

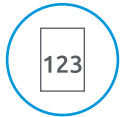
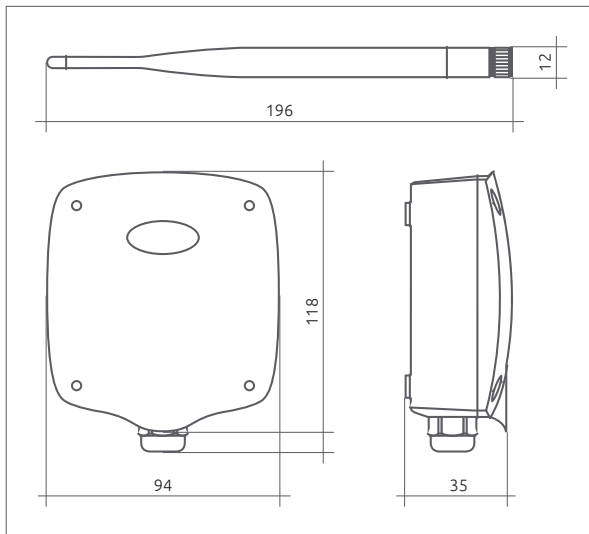


TECHNICAL SPECIFICATIONS

Type	Features
General specifications	<ul style="list-style-type: none"> - Chip Ember EM3587 - Compatible with IEEE 802.15.4 - Stack EmberZnet 5.3.1 (ZigBee PRO) - Modbus / RTU
Radio specifications	<ul style="list-style-type: none"> - Frequency: 2405 MHz to 2480 MHz - Modulation: DSSS - Nominal transmission power: 1 mW (0 dBm) - Receiver sensitivity: -92 dBm
Antenna	<ul style="list-style-type: none"> - External antenna with 5 dB gain - Radio range: 100 m outdoor; 30 m indoor
Antenna connector	SMA-RP antenna connector
Power supply	<ul style="list-style-type: none"> - 12 to 24 VDC, 100 mA - 12 to 15 VAC, 50 to 60 Hz, 2.4 VA
Status display	3x indicator LEDs
Connections	<ul style="list-style-type: none"> - Power supply: push-in terminals (3.81 mm pitch) - RS485 interface: push-in terminals (3.81 mm pitch)
Inputs	RS-485 input
Input for NTC probe (1x)	<ul style="list-style-type: none"> - 103AT type (R25 = 10 KOhm; Beta = 3435K) - Measuring range: -50 ÷ +100 °C - Reading resolution: 0.1 °C - Reading accuracy: ±1.0 °C - Linearized measures in tenth of a degree
Mounting	Wall-fixing with screws
Ambient parameters	<ul style="list-style-type: none"> - Operating conditions: <ul style="list-style-type: none"> - -10 to +60 °C - <80% R.H. n. c. - Storage conditions: <ul style="list-style-type: none"> - -20 to +70 °C - <80% R.H. n. c.
Degree of protection	IP51
Insulation	Class II

Type	Features
Conformity	<ul style="list-style-type: none"> - ETSI EN 300 328 - ETSI EN 301 489-1 - ETSI EN 301 489-17 - EN 61000-6-1 - EN 61000-6-3 - EN 60950-1 - EN62311 - Directives 2014/53/EU (RED) 2011/65/EU (RoHS) 2012/19/EU (WEEE) 1999/519/ECE
Dimensions (L x H x P)	94 x 116 x 35 mm
Weight	130 g

DIMENSIONS (MM)



CODE

Product	Code	Description
	ZR-B-P485-EM	High power, amplified ZigBee-RS485 Modbus RTU Bridge Power: 12-24 VDC power, power supply with Italian standard 230 VAC / 24 VDC plug included



ZigBee Modbus radio repeaters

ZigBee radio repeater for extending the range of wireless devices in the event of weak signals caused by obstacles or long distances.

Thanks to continuous power, the device can also function as a parent for battery powered sensors.

The device requires no connections other than the power connection.

ZR-REP-E230M

ZigBee Modbus Radio Repeater



MAIN TECHNICAL SPECIFICATIONS

- Routing functionality
- External antenna



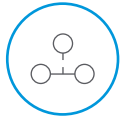
APPLICATIONS

- Building automation systems
- Energy monitoring and management

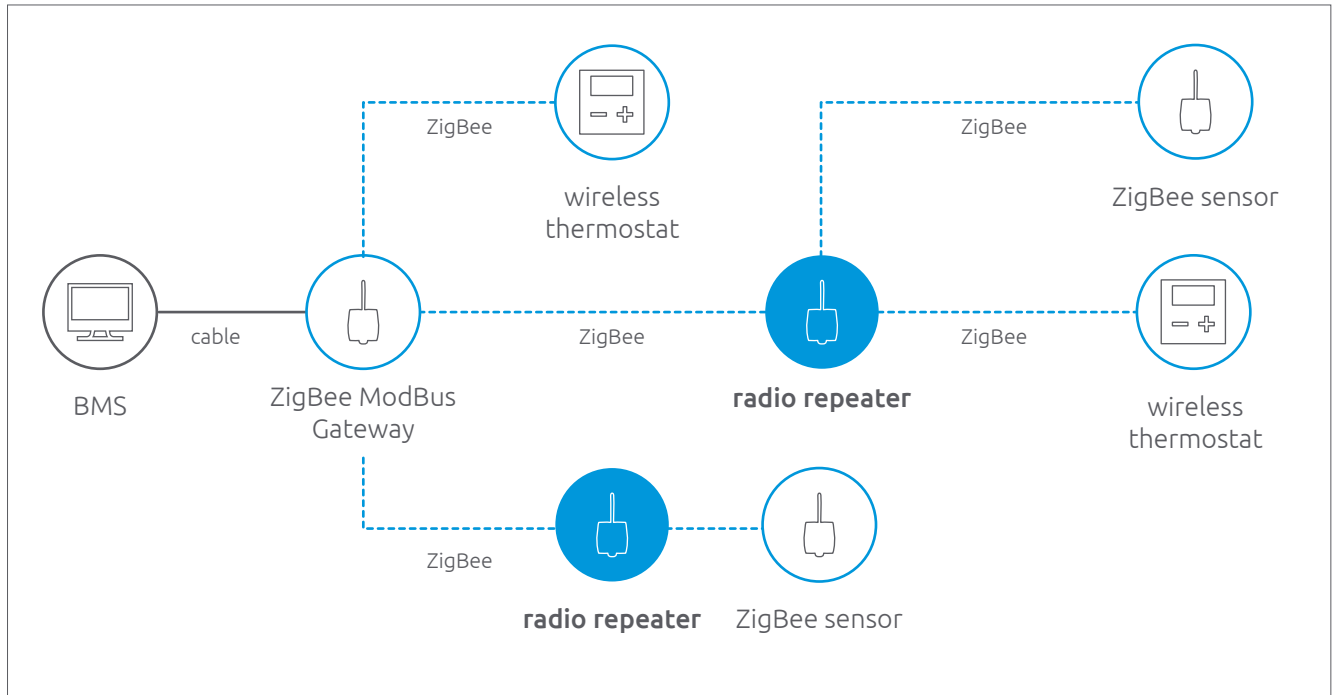


AVAILABLE PROTOCOLS

- Modbus



CONNECTION DIAGRAM

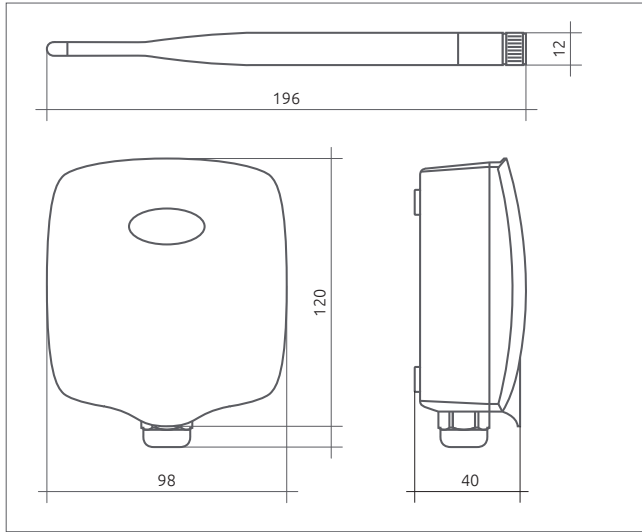


TECHNICAL SPECIFICATIONS


Type	Features
General specifications	<ul style="list-style-type: none"> - Chip Ember EM3587 - Compatible IEEE 802.15.4 - Stack EmberZnet 5.3.1 (ZigBee PRO) - Modbus / RTU
Radio specifications	<ul style="list-style-type: none"> - 2405 MHz ÷ 2480 MHz - DSSS Modulation - Nominal transmission power: +10 dBm - Receiver sensitivity: -92 dBm
Antenna	<ul style="list-style-type: none"> - External antenna with 5 dB gain - Radio range: 100 m outdoor; 30 m indoor
Antenna connector	RP-SMA connector
Power supply	<ul style="list-style-type: none"> - 90 to 250 VAC - 50 to 60 Hz
Status display	3 x indicator LEDs
Connections	Italian standard plug with 2 m cable
Mounting	Wall-fixing with screws
Ambient parameters	<ul style="list-style-type: none"> - Operating conditions: <ul style="list-style-type: none"> - -10 to +60 °C - <80% R.H. n. c. - Storage conditions: <ul style="list-style-type: none"> - -20 to +70 °C - <80% R.H. n. c.
Degree of protection	IP51
Insulation	Class II
Conformity	<ul style="list-style-type: none"> - ETSI EN 300 328 - ETSI EN 301 489-1 - ETSI EN 301 489-17 - EN 61000-6-2 - EN 61000-6-3 - EN 60950-1 - EN 62479 - Directives 2014/53/EU (RED) 2011/65/EU (RoHS) 2012/19/EU (WEEE) 1999/519/EC
Dimensions (L x H x P)	123 x 100 x 42 mm (without antenna)
Weight	260 g



DIMENSIONS (MM)



CODE

Product	Code	Description
	ZR-REP-E230M	ZigBee Modbus Radio Repeater

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