

**WIRELESS FAMILY DEVICES**  
**ZB-CONNECTION**  
**Repeater 230**  
**(Product code: ZR-REP-E230M)**

| <b>Document version Number</b> | <b>Date</b> | <b>Firmware Revision</b> | <b>Author</b>     |
|--------------------------------|-------------|--------------------------|-------------------|
| V3.3                           | 26/09/11    | V8.3.146<br>(2051)       | Franco Pierazzoli |

## CONTENTS

1. DEVICE CHARACTERISTICS
2. ELECTRICAL CHARACTERISTICS
3. CIRCUIT BOARD AND CONNECTION LAYOUT
4. DEVICE ADDRESSING
5. ASSOCIATING THE DEVICE TO A COMPATIBLE NETWORK
6. DISASSOCIATING THE DEVICE FROM THE NETWORK
7. LED/PUSHBUTTON INTERFACE

### 1) DEVICE CHARACTERISTICS

Repeater Modbus 230 (ZR-REP-E230M) belongs to ZB-Connection devices family.

The device requires an uninterrupted 230Vac source of power.

For network purposes, it has the active function of maintaining radio traffic from and to other similar devices and it can also act as a parent device for battery-powered nodes of the same family.

### 2) ELECTRICAL CHARACTERISTICS

|                           |  |
|---------------------------|--|
| POWER SUPPLY              | 230V~ (+/- 10%) 50Hz                         |
| MAXIMAL ABSORBED CURRENT  | 20mA   |
| OPERATING CONDITIONS      | -10°C -:- +60°C, <80%UR                      |
| STORAGE CONDITIONS        | -20°C -:- +70°C, <80%UR                      |
| PROTECTION CLASS          | IP55   |
| INSULATION CLASS          | II   |
| POWER CABLE               | CABLE 2X0,75mmq 2m. Bipolar plug CEI EN50075 |
| WIRELESS CHARACTERISTICS: | 2405 MHz ÷ 2480 MHz                          |
|                           | DSSS Modulation                              |
|                           | Nominal transmission Power +10dBm            |
|                           | IEEE 802.15.4 compliant                      |
|                           | Stack EmberZNet3.5.x                         |
|                           | Stack version 0                              |
|                           | Proprietary profile ID                       |
|                           | Proprietary encryption key                   |

### 3) CIRCUIT BOARD AND CONNECTION LAYOUT

The device does not need any connections because it is provided with electrical cable with bipolar plug.

### 4) DEVICE ADDRESSING

The device does not need any address.

### 5) ASSOCIATING THE DEVICE TO A COMPATIBLE NETWORK

The process to be followed when annexing ZR-REP to a network is the same as for all ZB-Connection routers.

The annexing process is activated automatically by the device if the node does not have network parameters, this happens if the device is new or if it has been voluntarily disassociated.

The annexing process consists in scanning all 16 radio channels, in search of an "open" and compatible network (i.e. a ZB-Connection network).

Scanning lasts about 20 seconds. If the annexing process terminates unsuccessfully, the device resets and the annexing process is re-started.

Network opening is performed by suitably stimulating the Gateway, by pressing the push-button on-board the device or sending the appropriate command password (for further information, refer to the document relating to the Gateway).

## 6) DISASSOCIATING THE DEVICE FROM THE NETWORK

Device disassociation causes the loss of network parameters, with the consequent exiting of the device from the network it belongs to.

Disassociation can be commanded in two ways:

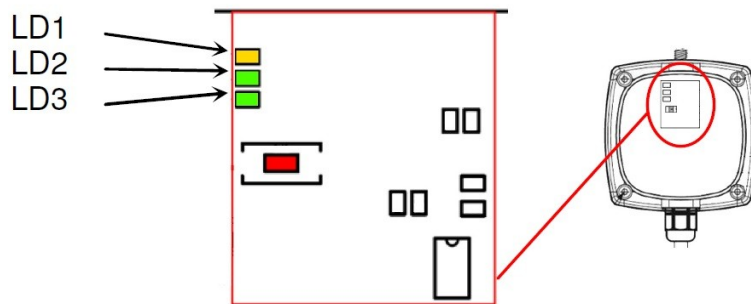
1. Receipt of the appropriate command password.
2. Holding the push-button on the card down for at least 6 seconds. Disassociation using the push-button is only possible within 20 seconds from when the device is switched on.

## 7) LED/PUSH-BUTTON INTERFACE

The Repeater has three leds through which it is possible to obtain information on the device's operating state.

Furthermore, the Repeater has a push-button which makes it possible to send commands to the device.

Nomenclature of Repeater leds:



### Behaviour of leds at the start-up:

At the reset of Repeater all leds lighted for 2 seconds, then all leds flash fast for another 2 seconds.

At the end of flashing device starts the normal functioning.

### How the leds function when the Repeater is NOT on the network:

All leds lighted steady with short flash every 20 seconds.

### How the leds function when the Repeater is on the network:

LD1 (yellow led): Working State

Slow flashing (1Hz) -> Closed Router

Fast flashing (4Hz) -> Opened Router

LD2 (middle led): Radio Link

Turned off -> No router with good link in the proximity

1 flash -> One router with good link in the proximity

2 flashes -> Two routers with good link in the proximity

3 flashes -> Four or more routers with good link in the proximity

LD3: Radio Activity

Usually turned off

Shortly Lighted on transmitting or receiving a radio message