

**QUICK INSTALLATION MANUAL  
SENSOR ZR-TID  
PRODUCT CODE: ZR-TID-EM  
ROUTER FOR ZB-CONNECTION RADIO NETWORK**

**1) GENERAL DEVICE CHARACTERISTICS**

ZR-TID-EM belongs to ZB-Connection devices family.  
It has two inputs for temperature sensors and two digital inputs.  
It has the fundamental task of acquiring its inputs, and sending the data it acquires and generates at regular intervals, to a compatible Gateway.  
The device requires an uninterruptible 12/24 Vdc (or 12/24 Vac) power supply.  
For network purposes, it is a Router i.e. 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) DEVICE ELECTRICAL CHARACTERISTICS**

**POWER SUPPLY:** 12-:-24Vdc; 100mA  
12-:-24Vac; 50/60Hz; 2,4VA

**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

**THERMAL SENSOR INPUT:** NTC Sensor 103AT Type  
(10K to 25 °C; Beta = 3435K)  
Measurement range -50°C ÷ +100°C  
Reading resolution 0,1°C  
Reading accuracy ±0,5°C

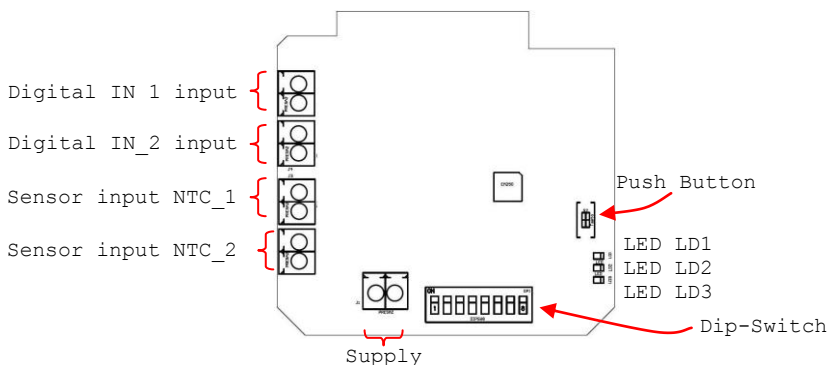
**DIGITAL INPUT CHARACTERISTICS:** electronic type not insulated inputs for clean contact (low current reed switch).

**CONNECTIONS:** pull out terminals(3,81 mm pitch)

**OPERATING CONDITIONS:** -20÷+55 °C

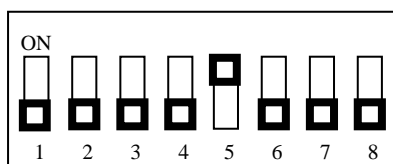
**PROTECTION DEGREE:** IP55

**3) CIRCUIT BOARD AND CONNECTION LAYOUT**



**4) DEVICE ADDRESSING**

The device can be addressed by DipSwitch. Valid addresses range from 16 and 127.  
The DipSwitch is read only when switching the circuit board on; a modification in the Dipswitch's position is taken into consideration only after that device has been reset.  
Set the DipSwitch before switching the circuit board on and before it has gone onto the network.



Address = 16

DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	DIP7	DIP8	ADR
OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	16
ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	17
OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	18
ON	ON	OFF	OFF	ON	OFF	OFF	OFF	19
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
OFF	OFF	ON	ON	ON	ON	ON	OFF	124
ON	OFF	ON	ON	ON	ON	ON	OFF	125
OFF	ON	ON	ON	ON	ON	ON	OFF	126
ON	ON	ON	ON	ON	ON	ON	OFF	127

## 5) ASSOCIATING THE DEVICE TO A COMPATIBLE NETWORK

The process to be followed when annexing ZR-TID-EM 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 onboard 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

Disassociating the device involves losing the network parameters and consequently leaving the network of which it had been a part.

Moreover device loads to the default value all of its operating parameters (HoldingRegister).

Disassociation can be commanded in two ways:

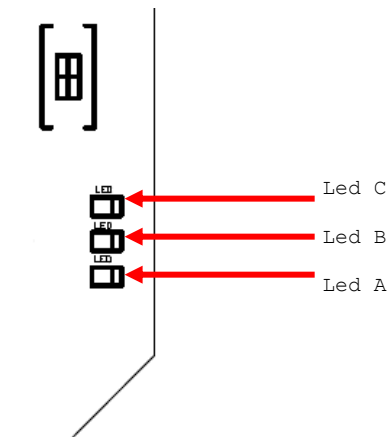
- 1) Receipt of the appropriate command password.
- 2) Holding the pushbutton on the card down for at least 6 seconds.

## 7) DEVICE LED/PUSH BUTTON INTERFACE

ZR-TID-EM has three leds through which it is possible to obtain information on the device's operating state.

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

Nomenclature of ZR-TID leds:



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

At the reset of ZR-TID 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.

### Leds functioning when device is NOT on the network:

Led "A" on lighted steady, leds "B" and "C" off

### Leds functioning when device is on the network:

Led "A": Working State

Slow flashing (1Hz) -> Closed Router

Fast flashing (4Hz) -> Opened Router

Led "B" (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

Led "C": Radio Activity

Usually turned off

Shortly Lighted on transmitting or receiving a radio message