

## **Equipment Installation Manual**

TUTEN Industrial Box RevB October 2020

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## **GENERAL CHARACTERISTICS**

#### Electrical characteristics

Feeding	7-36V
inputs	4 analog voltage / pulse ports
Serial port	TTL/RS232
Protection	Reverse polarity on power supply and surge on all ports

#### Communication

	SIGFOX	LoRa
Frequency	868/902/920MHz	433/868/915MHz
Protocol	Zona 1,2,3,4	LoRaWAN Class A and C

### Mechanical characteristics

Grado de protección	IP67
Mounting	4 fixing points for screws / flanges

## SUGGESTED WIRING CONNECTION

color	Function	Maximum Voltage
Red	Feeding +	36v
Black	Feeding -	GND
Blue	Common pulse ports	36v
Green	Pulse port 1	36v
Yelloow	Pulse port 2	36v
Orange	Pulse port 3	36v
Violet	Pulse port 4	36v

Gray	Serial port line Start 1	5V
White	Tx serial port	+-15V
Brown	Rx serial port	+-15V

### PULSE INPUT CONNECTION

The pulse input ports of the equipment must be connected to potential-free relays or contactors.

The basic connection scheme is shown below:



## **RS232 SERIAL PORT CONNECTION**

The serial port is used for communication with external devices (PLC and others). The hardware can be configured to receive RS232 (+ - 15v) or TTL (5V) levels

Below is the basic connection scheme



## **BUTTONS AND STATUS LEDs**

The equipment has 2 buttons and a status LED for basic interaction with the user.



RESET: general reset of the equipment

CONF: used to change the equipment mode (Configuration or Normal Operation)

LED - Provides the user with an indication of the current task the computer is in

Color	task
Green	Normal operation mode, waiting to transmit
Orange	Entering configuration mode
Blue	Configuration mode (AP on)
Red	Communication in process

## SETTING

The equipment can be configured wirelessly in two ways:

- by accessing the internal web server of the device
- via downlinks from the Sigfox backend

## Web Server

This task is carried out with the equipment in configuration mode, which is accessed by pressing and holding the CONF button until the status LED lights up blue.

When the equipment enters this mode, a configuration host WiFi network is generated with which we can modify the internal variables and parameters of the equipment in a dedicated Web Server.

To make configuration changes through the internal Web Serber of the equipment, the following steps must be followed:

1) connect to the Wi-Fi network generated by the equipment when it is in configuration mode:

SSID: xal-tuten-config

PASSWORD: xaltuteniot

2) in a browser, enter : <u>http://192.168.4.1/</u>

Main view

# < TUTEN Industrial BOX >

Bienvenido a la web de configuración de su equipo.

- Configuración general
- Configuración de red
- <u>Configuración de monitor serie</u>
- Configuración de monitor de pulsos
- Volver el equipo a configuración de fabrica

Para mayor información diríjase a TUTEN.IT

• Mode view, allows to switch the operation mode between pulse monitor and serial monitor

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### Configuración general

-Modo-

Monitor de pulsos 🗸

Guardar cambios

Volver a la pagina principal

• Network View, allows you to change the network settings of the device

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## Configuración de red

Red elegida-SIGFOX 🗸

-Configuración SIGFOX DevID: 004D6338 DevPAC: 323AC24DA8948853

Zona: 4 🗸

—Configuración LoRa	
configuration zona	
LoRa MAC: 70B3D5499D335B50	
Region: AS923 🗸	
Activación: OTAA 🗸	
App EUI(OTAA):	8 hex bytes
App Key(OTAA):	16 hex bytes
Dev Address(ABP):	4 hex bytes
App SW Key(ABP):	16 hex bytes
Network SW Key(ABP):	16 hex bytes

Guardar cambios

To configure your equipment, first select the Network you want to use (SIGFOX or LoRa).

Then adjust Zone, in case you have chosen SIGFOX or Region and keys, in case you have chosen LoRa.

Furthermore, LoRa has 2 activation modes: ABP and OTAA. Tuten IT recommends using OTAA activation. Complete only the keys of the chosen activation system, the others will be ignored.

#### • Serial monitor view

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## Configuración de monitor serie

-Puerto			
Baudrate: 1	15200 🗸		

rama —		
Inicio: 0	Valores posibles: 0-255	
Largo: 12	Valores posibles: 1-12	

Guardar cambios

Volver a la pagina principal

Set your port's operating baudrate, frame start byte, and frame length

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### Configuración de monitor de pulsos

-Configuración común		
Umbral: AUTO 🗸		
Intervalo de monitoreo: 15	Valores posibles: 15-255 segundos	

-Limites-		
Canal 1:	10	Valores posibles: 1-99 %
Canal 2:	15	Valores posibles: 1-99 %
Canal 3:	20	Valores posibles: 1-99 %
Canal 4:	25	Valores posibles: 1-99 %
		-

Formato	
Canal 1: Hz 🗸	
Canal 2: RPM 🗸	
Canal 3: Cuenta 🗸	
Canal 4: Cuenta 🗸	

Guardar cambios

Configure equipment count interval, variation limits per channel and count format per channel

The THRESHOLD parameter allows adjusting the validation window of the pulses with respect to the equipment supply voltage. It is recommended to use in AUTO.

• View back to factory settings

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## Volver a configuración de fabrica

Continuar

Volver a la pagina principal

Allows you to reset all the configuration variables to the factory state.

### **Downlinks (SIGFOX only)**

Once in configuration mode (LED in blue), the equipment automatically obtains the new configuration parameters (if any) when it communicates with the remote server (LED in red). To force the equipment to communicate with the remote server, quickly press the CONF button while the status LED is blue. Using this method, the computer understands the following 3 commands of 8 bytes each:

Downlink mode change (Sigfox only)

Byte 1: 1 Byte 2-3: ignored Byte 4: new mode {0 -> Pulse monitor, 1-> Serial monitor} Byte 5-8 ignored

Pulse Monitor Downlink (Sigfox only)

Byte 1: 3

Byte 2-3: ignored

Byte 4: counting interval {0.255 seconds}

Byte 5: variation limit allowed on channel 1 {1,100%}

Byte 6: variation limit allowed on channel 2 {1,100%}

Byte 7: variation limit allowed on channel 3 {1,100%}

Byte 8: variation limit allowed on channel 4 {1,100%}

Serial monitor downlink (Sigfox only)

Byte 1: 2

Byte 2-3: ignored

Byte 4: frame start byte {0,255}

Byte 5: frame length {1,12}

Byte6-8: baudrate {1200,2400,4800,9600,14400,19200,28800,38400,57600,76800,115200 BPS}

## **IMPORTANT!**

Manually reset the equipment after making the changes, whether it received new configurations through Downlinks or if you used the WEB SERVER.

The computer will update its settings on the next startup.

If I make no changes and want to return to normal operating mode, press and hold the CONF button until you see the status LED turn green.

## **EQUIPMENT INSTALLATION**

All devices are delivered with a front sticker on which the information of the inputs or signals connected to each input can be written. The use of indelible markers or the like is recommended to prevent the writing from being erased by water, sun, etc.

In addition, it has 4 attachment points (2 on each side) for screwing the device to the wall, electrical panels or others.



## CONTACT



Email: info@tuten.com.ar Phone: +54 11 5263-8156