# Wireless Tunnel
## with ZigBee Radio Technology

## wTunnel

**exemys**

### Wireless Tunnels
### ZigBee 2.4GHz
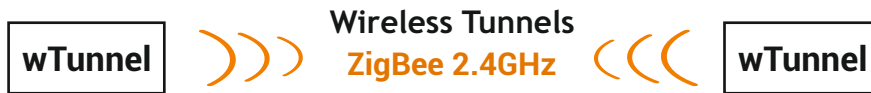
| wTunnel | )))) | (((( | wTunnel |
|---------|------|------|---------|

| | | | |
|---------|------|------|------|
| **Serial** | Serial port | ←→ | Serial port |
| **Digital** | Digital Input<br>Digital Output | →<br>← | Digital Output<br>Digital Input |
| **Analog to Digital** | Analog<br>Digital Output | →<br>← | Digital Output<br>Analog |
| **Analog** | Analog Inputs<br>Analog Outputs | →<br>← | Analog Outputs<br>Analog Inputs |

**wTunnel** is an innovative product that enables reflect device inputs as outputs in the other, completely wireless and through technology ZigBee 802.15.4 Radio.
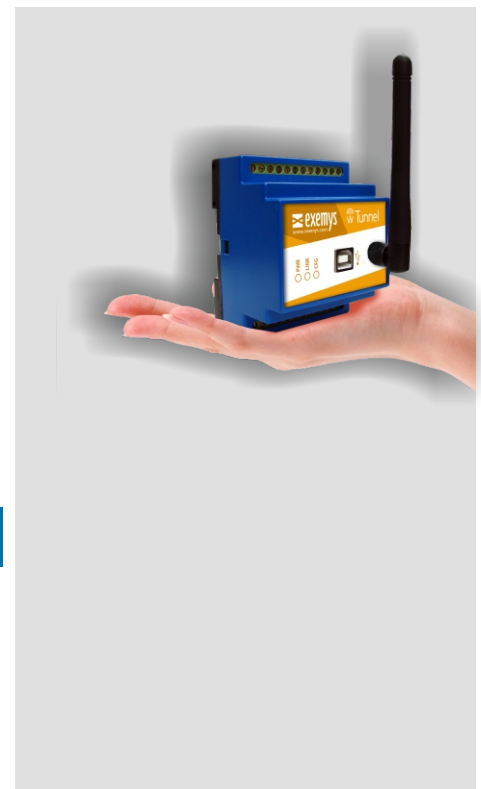
The system was designed to be a true Point to Point Tunnel to reflect conditions and field values, reliably and at low cost.

## ⭐ GENERAL FEATURES

- Communication IEEE 802.15.4 in 2.4GHz
- Serial Tunnel Transparent RS232, RS485 or USB
- 2 Analog Inputs, 0-10V and 4-20mA
- 2 Digital Inputs
- 2 Digital Outputs
- 2 Analog Inputs with digital alarm output
- 2 Analog Outputs

## 📋 AVAILABLE MODELS

| MODEL | SERIAL PORT | USB | ANALOG INPUTS | ANALOG OUTPUTS | DIGITAL INPUTS | DIGITAL OUTPUTS |
|-------|-------------|-----|---------------|----------------|----------------|-----------------|
| wTunnel-2002 | RS232/RS485 | Yes | --- | --- | 2 | 2 |
| wTunnel-3001 | RS232/RS485 | Yes | 2 Configurables 0-10V / 4-20mA | --- | 2 | 2 |
| wTunnel-5003 | RS232/RS485 | Yes | 2 Configurables 0-10V / 4-20mA | 2 | 2 | 2 |

### For pricing or any further information, please contact Omni Instruments Ltd.

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## ⚙ TECHNICAL SPECIFICATIONS

### RF Wireless

- Protocol: IEEE 802.15.4
- Frecuency: 2.4000 to 2.4835 Ghz Free Band
- Channels: 16
- Separation between channels: 5 MHz
- Transmission Power: +20 dBm (100 mW)
- Reception Sensitivity: -104 dBm
- Antenna: 2dBi Connector RP-SMA (other antennas optional)
- Scope: 2Km between nodes, with antenna of 2dBi and line of sight
- Module Certifications: FCC, IC, Europe/ETSI, Australia/Ctick

### General

- Indicators of Leds: On / Link / Data
- Cabinet: Industrial, Rail DIN
- Dimensions: 70 x 90 x 65 mm (Width x Height x Depth)
- Operation Temperature: -15°C to +65ºC
- Guarantee: 1 year

### Power

- Power Input: +10Vdc min. to +30 Vdc max.
- Average Consumption: 15mA@24Vdc, 25mA@12Vdc
- Maximum Consumption: 20mA@24Vdc, 30mA@12Vdc

### Communications

- Serial Port: 1 Port RS232 / RS485
- USB Port: 1 Port for configuration or Modbus slave (in the Concentrator)
- Configuration: For USB or for radio for the remote nodes.

### Inputs and Outputs

- Analog Inputs: 2 configurables in 0-10V or 4-20mA
- Analog Inputs in 0-10Vdc: Precision 10mV, Impedance of input 10.7 Kohm
- Analog Inputs in 4-20mA: Precision 10uA, Resistence of Shunt 68 Ohms. Protection in the input against tension spikes
- Analog Outputs in 0-10Vdc: Precision 10V, load min. 500 Ω.
- Analog Outputs in 4-20mA: Precision 10μA, Shunt max, between 650 Ω and 1500.
- Digital Inputs: 2, Transistor, Activation: +3,5Vdc min. to +28Vdc Max.-, Impedance: 2 Kohm
- Digital Outputs: 2, Transistor Open collector, +45Vdc max. input, 50mA max. Current

### Other family devices:

**wRemote** - Telemetry System with Wireless Mesh Networks



Concentrador    Nodo Remoto
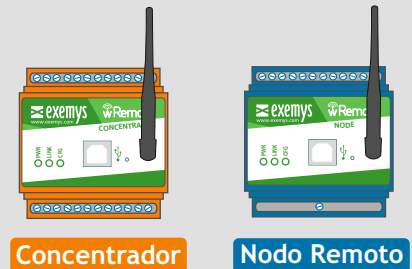
### wRemote Industrial

- Industrial Model Dash
- Red Mesh between remote devices
- Inputs and Outputs own
  - Digital and Analog
- Serial Port RS232/485
- MODBUS Protocol

**IEC** IEC 60950-1:2005+A1

**ISO 9001:2015 CERTIFICATION**

IRAM
GESTION
DE LA CALIDAD

IQNet
CERTIFIED MANAGEMENT SYSTEM

RI-9000-6174
Acreditado por OAA

# ✔ TYPES OF TUNNELS

## I/O Tunnel

With this tunnel can replicate the activation of an input as an output the other end, and vice versa.

ON / OFF

ON

OFF

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ON

OFF
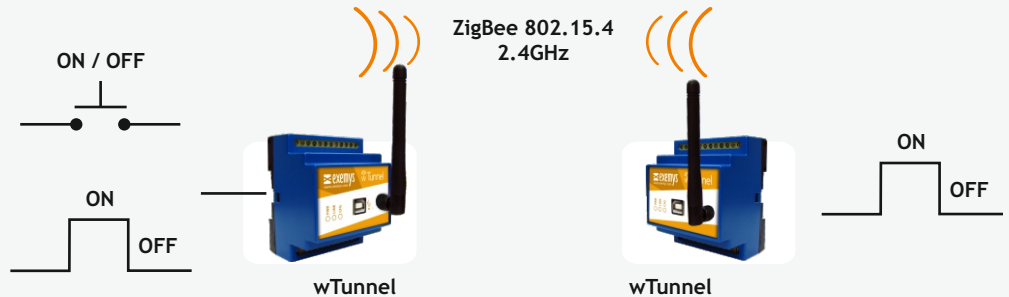
wTunnel

## 0-10V and 4-20mA with Digital Output, Tunnel

2 values are set at the inputs of 0-10V or 4-20mA from one end, which they shoot at the other end, on or off, of a digital signal.

OFF

ON

4-20mA
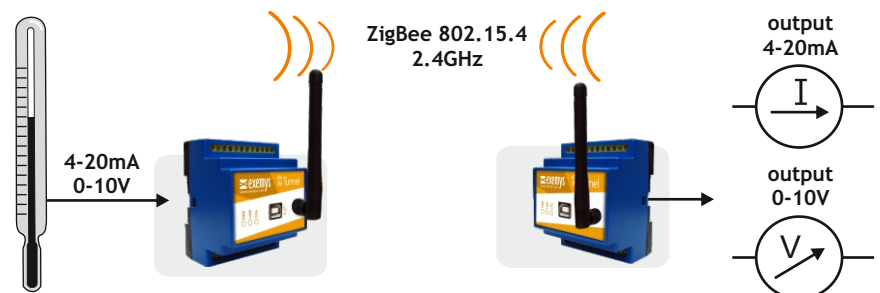0-10V

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ON

OFF
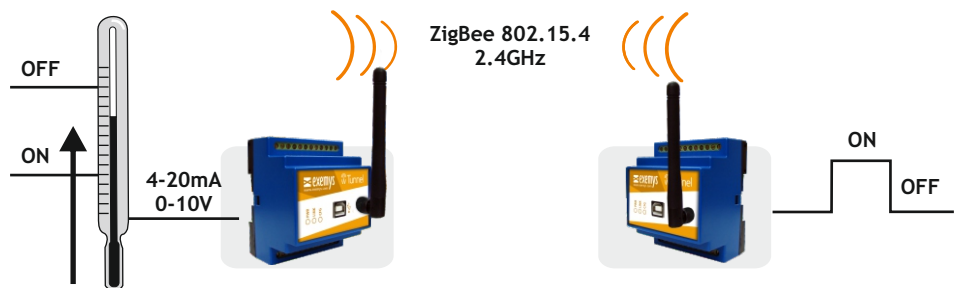
## Serial Tunnel

It replicates the information flowing through the serial port on one end, on the other end. The device has a serial port RS232, RS485 or USB

Serial port
**RS232 / 485 / USB**

**ZigBee 802.15.4 2.4GHz**

Serial port
**RS232 / 485 / USB**
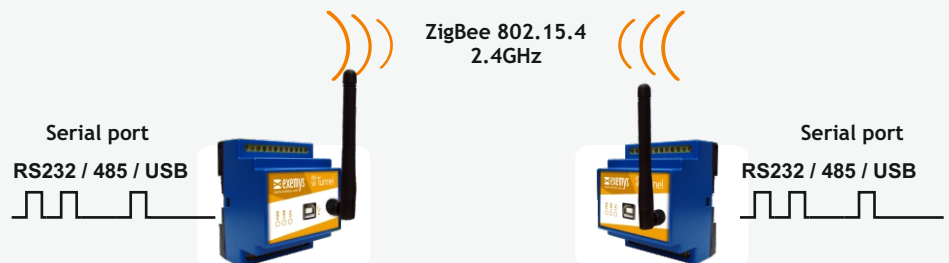
## Analog I / O Tunnel (NEW)

The value of an input analog will be reflected in the analog output of the team remote.

4-20mA
0-10V

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output
4-20mA

output
0-10V

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