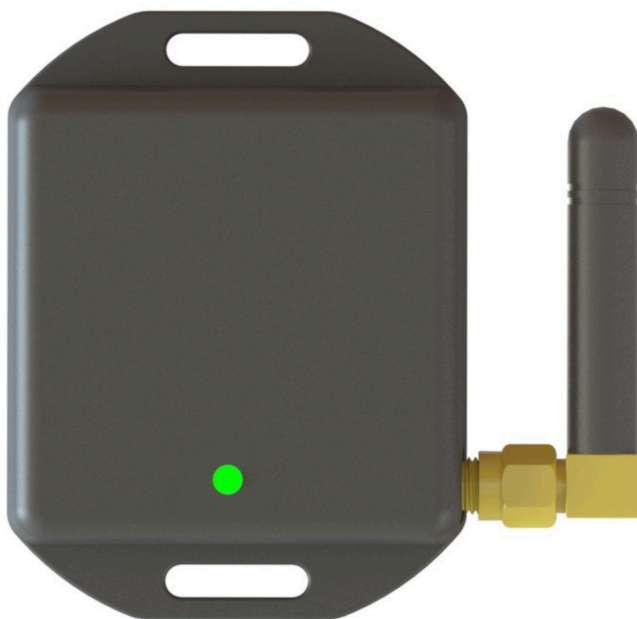


System Lo.Ra.

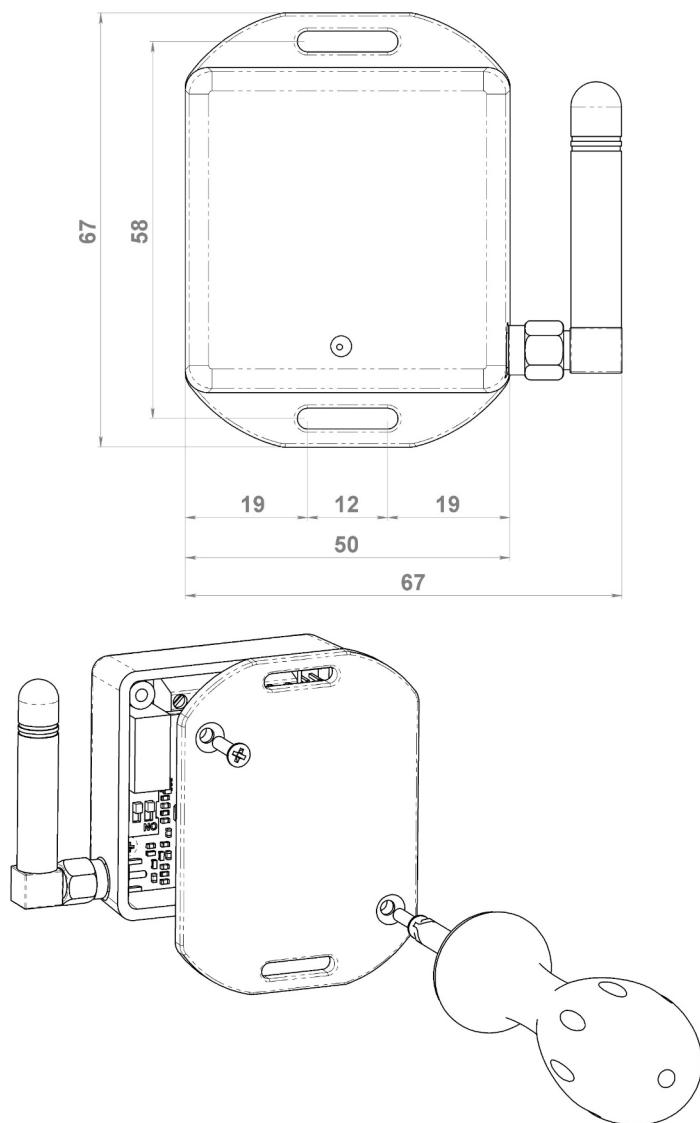
INSTALLATION INSTRUCTION



Art. **57520RF**: Transmitter

Art. **57521RF**: Receiver

DIMENSIONS



Unscrew the two screws in the back part to enter the circuit and prepare the passage hole cables on the box.



ART. 57520RF

DESCRIPTION

The **item 57520RF** is a transmitter able to guarantee the long distance communications, high immunity to interference, high sensibility and reduced energy consumption.

The transmitter must be combined to the receiver item **57521RF** equipped with outputs for remote load activation, offering to the user multiple solutions; ideal to very long distance activation and control applications.

CHARACTERISTICS

Radio Communication Encryption Security

Transmitted RF Power: max 20 mW

Non-polarized Power Supply: (12 - 24 VDC); (12 - 18 VAC)

No. of Inputs: 4

Average Coverage Range: 1000 m in open field

Operating Temperature: -20 °C to +70 °C

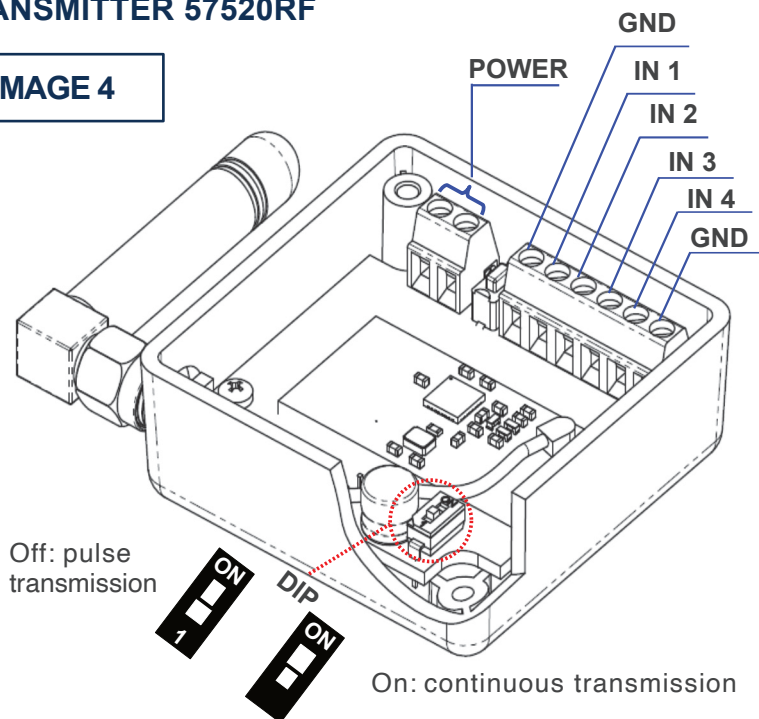
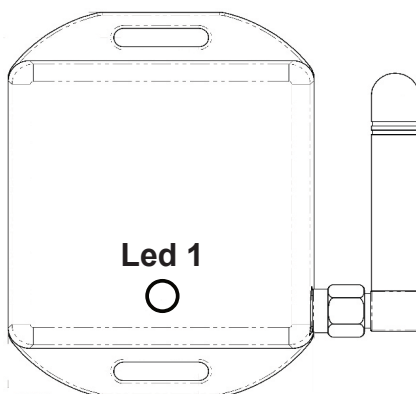
Storage Temperature: -40 °C to +100 °C

FUNCTIONING

The transmitter is equipped with 4 input lines (IN 1–4, **image 4**), which can be connected to 4 push buttons or normally open (N.O.) contacts. Avoid activating all inputs simultaneously or connecting them in parallel. The transmitter remains in power-down mode by default, with a maximum current consumption of 5 mA (LED 1 in **image 5** is off). When at least one of the inputs IN 1–4 is pulled low (GND), the device wakes up and transmits the input status using an encrypted packet, with a current consumption of 50 mA.

During transmission, LED 1 flashes red once, followed by a green flash, then turns off again. If LED 1 flashes red four times without a green flash, it indicates that the receiver may not be powered, not paired with the transmitter, or out of range.

In **image 4**, the DIP switch allows you to select the type of transmission to be used, depending on the application needs: With the DIP switch set to ON, the continuous transmission mode is enabled. In this mode, the receiver outputs remain active for as long as the corresponding inputs are active. With the DIP switch set to OFF, the pulse transmission mode is enabled. In this mode, the receiver output is deactivated immediately after activation, even if the input remains active.

TRANSMITTER 57520RF**IMAGE 4****IMAGE 5**

ART. 57521RF

DESCRIPTION

The **item 57521RF** is a receiver designed to ensure long-range communication, high immunity to interference, high sensitivity, and low power consumption. When paired with the 57520RF transmitter, the receiver enables activation of the corresponding OUT 1–4 outputs, allowing control of remote loads and offering the user a wide range of application possibilities. It is ideal for long-distance activation and control applications. Two onboard DIP switches (image 1) are available to configure the output modes (OUT) for either monostable or bistable operation (see table in image 3).

CHARACTERISTICS

Radio Communication Encryption Security

UART Speed: 115,200 bps

Transmitted RF Power: max 20 mW

Sensitivity: -126 dBm

Non-polarized Power Supply: (12 – 24 V DC); (12 – 18 V AC)

Number of Outputs: 4; normally open (N.O.) contacts via electronic relay (max 400 mA @ 60 V DC)

Average Coverage Range: 1000 m in open field

Operating Temperature: -20 to +70 °C

FUNCTIONING

When the circuit is powered and waiting to receive, the status LED1 on the enclosure (**image 2**) flashes at a very high frequency. When a valid packet transmitted by the paired transmitter is decoded, the corresponding output OUT 1–4 is activated and the green LED1 lights up steadily for one second.

By factory default, the outputs operate in monostable mode, meaning they remain active for one second or as long as the transmitter inputs IN 1 – 4 are active.

(**Note** that the latter condition requires the transmitter to operate in continuous transmission mode; see the transmitter's instructions for details). The receiver can learn up to 48 transmitters.

AUTOMATIC Learning Procedure

This procedure pairs the transmitter with the receiver.

Press and release button P1 on the module (see image 1) to enter learning mode. The LED 2 on the module (see image 1) will flash rapidly for 10 seconds. During this time, while operating near the receiver, activating any input IN 1–4 on the transmitter will be learned by the receiver. Successful programming of the transmitter is indicated by LED 2 lighting steadily for 1 second, then turning off. In this case, all transmitter inputs IN 1– 4 have been associated with the receiver outputs, so activation of each input will trigger the corresponding output (e.g., IN 1 activates OUT 1, IN 2 activates OUT 2, etc.).

To pair additional transmitters, repeat the operation.

If no transmitter is recognized during the 10-second LED 2 flashing period, the device exits learning mode.

MANUAL LEARNING PROCEDURE

This procedure allows you to pair the transmitter inputs IN 1–4 with the outputs OUT 1 – 4 as desired (e.g., IN 1 activates OUT 4, IN 2 activates OUT 1, etc.). By pressing and releasing button P1, the device enters the learning mode. LED 2 flashes rapidly for 10 seconds. During this time, press button P1 again: LED 2 will switch from flashing to steady ON. Press button P1 again to select output OUT 1 (LED 2 flashes once to confirm), press it again to select OUT 2 (LED 2 flashes twice), and so on until you reach the desired output to be programmed.

Once the desired OUT output is selected, activate the IN input you want to associate with it. Successful programming is indicated by LED 2 flashing a number of times corresponding to the programmed output, after which the LED turns off. The output, after this programming, operates in monostable mode. To program additional transmitters or buttons from the same transmitter, repeat this procedure.

MEMORY RESET PROCEDURE

To reset and clear the receiver's memory (thus deleting all paired transmitters), press and release button P1. LED 2 will start flashing. Press button P1 again and hold it for about 5 seconds, or until LED 2 turns off. Then release button P1 and check for 5 flashes of LED 2, indicating that the memory has been successfully cleared.



MONOSTABLE / BISTABLE PROGRAMMING

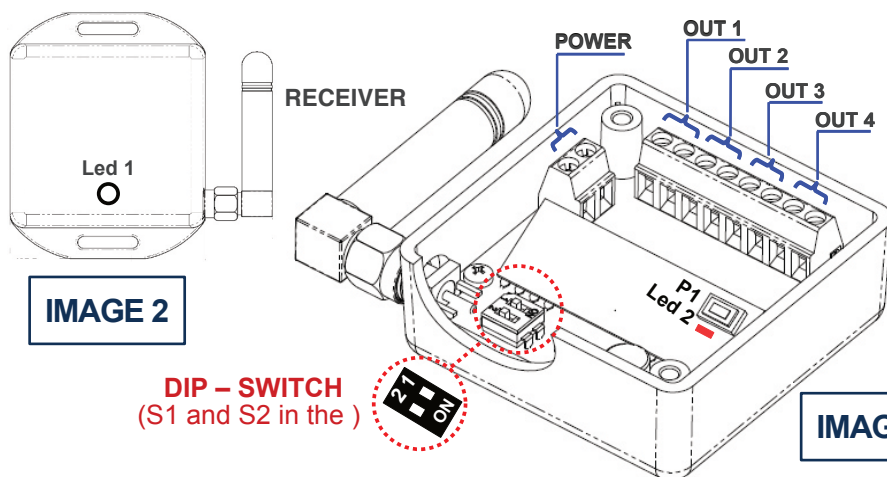
To set the activation mode of the output lines OUT 1–4, configure the inputs S1–S2 according to the table in **Fig. 3**:

MONO = Monostable output: remains active as long as the button (IN 1–4) on the transmitter is pressed.

BISTABLE = Bistable output: each press of the button on the transmitter (IN 1–4) toggles the output state.

MONO 1 / 2 sec = Monostable output: remains active for 1 or 2 seconds after the button on the transmitter is released.

The output activation mode is detected by the receiver at startup. Therefore, to change the settings and apply them, it is necessary to disconnect the power supply from the module, adjust **S1** and **S2** as needed, and then power the module back on.



- POWER:** Power input
- OUT 1 – 4:** Outputs
- P1:** Programming and reset button (image 1).
- Led 2:** Indicator led for learning and deletion phases (Image 1)
- Led 1:** Red/green bicolor status led, external on the box (image 2).
- DIP-SWITCH:** S1 and S2 for setting of outputs **OUT 1– 4** (table image 3).

TABLE

S1 (1)	S2 (2)	OUT 1	OUT 2	OUT 3	OUT 4
OFF	OFF	Mono	Mono	Mono	Mono
OFF	ON	Mono	Mono	Bistable	Bistable
ON	OFF	Mono ½ Sec.	Mono ½Sec.	Bistable	Bistable
ON	ON	Bistable	Bistable	Bistable	Bistable

IMAGE 3



SCHEME

The “**LoRa**” radio system (consisting of Transmitter ref. **57520RF** and Receiver ref. **57521RF**) can be used whenever it is necessary to manage “Safety and/or Service Closures” where the distance between the control stations and the closures themselves makes laying electrical cables for a wired connection impractical.

In **scheme 1**, the dashed connection highlights the part of the wiring already present (electric lock E, intercom transformer and/or power supply T, wall button and/or intercom handset contacts P) in condominium systems, making the installation of the receiver very practical. It only needs to be powered and, through the relay RL, it will activate the existing button P. The relay RL, which is the installer’s responsibility, is a 12 Vac relay with a 2A changeover contact. The button PL, connected to the transmitter, represents the remote control command to unlock the electric lock E.

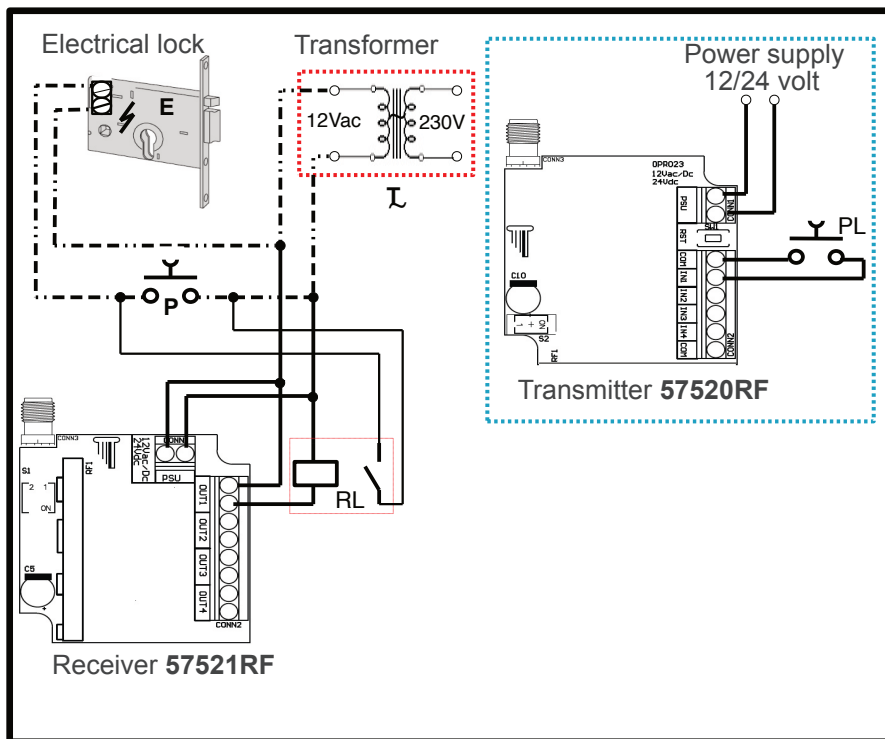
Diagram 2 illustrates the use of the LoRa system combined with various control devices such as PLCs, alarm panels, dialers, and any actuator complete with a control unit.

In **scheme 3**, the LoRa receiver (REC.) is wired to control different types of locks, from the Prima and Classica series electric bolts shown in image 1 (or any type of lock with integrated electronics), to the classic electric locks on entrance doors in **image 2**, or the electromagnet on an emergency door in **image 3**, etc.

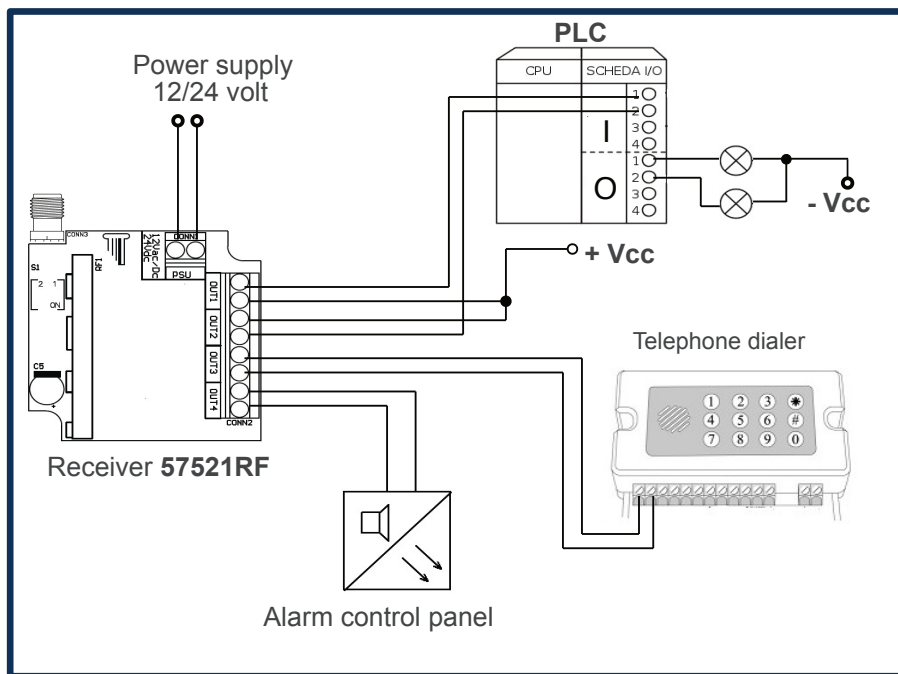
For wiring convenience (cable installation), it is also possible to set up one receiver for each door (REC.1..n) and then manage the commands for all of them from a single transmitter or multiple transmitters (TR 1..n in **image 4**). In the wiring of the receivers in **Fig. 2 and 3**, a relay RL is present; it is absolutely necessary whenever the load to be driven has a current consumption exceeding 400 mA. In fact, the relay RL does not appear in Fig. 1 because the output is used to control intelligent electric locks with onboard electronics.

In **image 4**, the buttons or contacts P1...P3 connected to the transmitters TR1..n serve as commands to remotely unlock the corresponding OUT1–3 outputs on the various receivers.

SCHEME 1



SCHEME 2



SCHEME 3

Fig.1

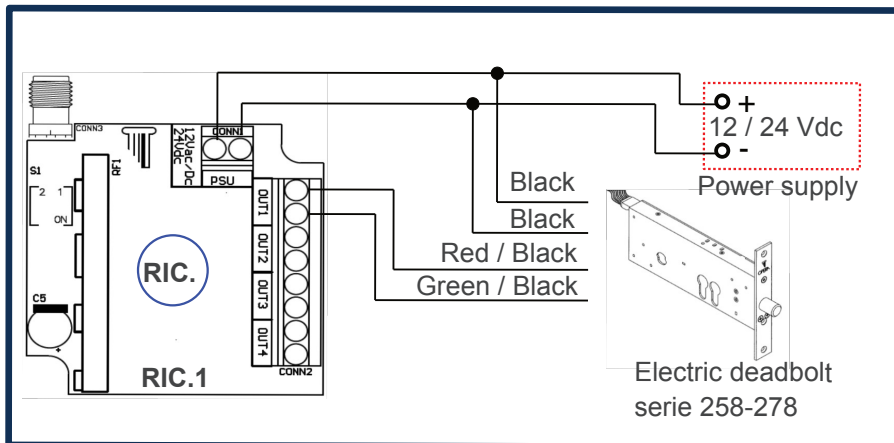


Fig.2

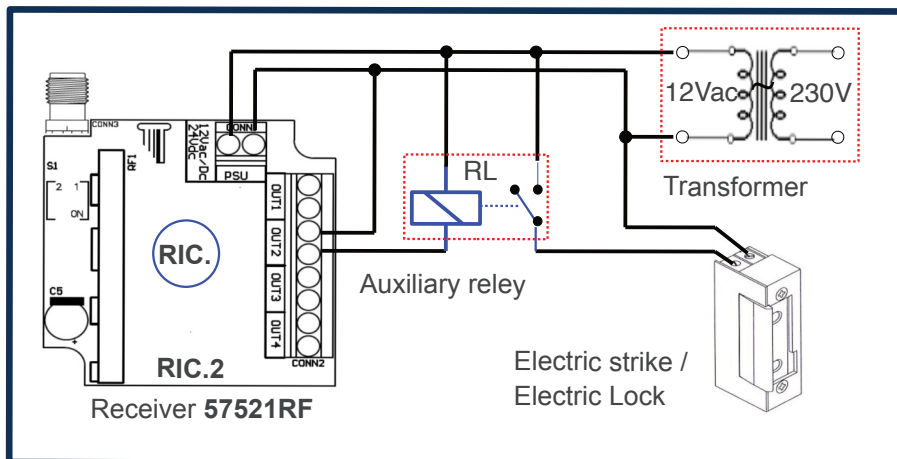


Fig.3

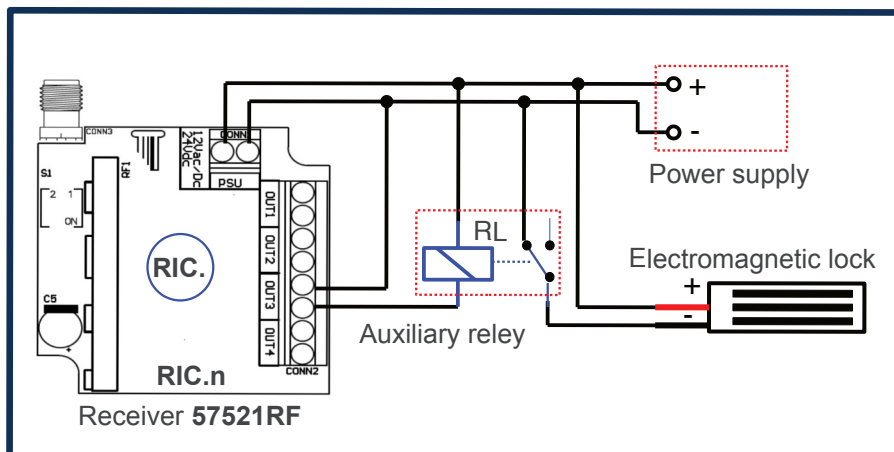
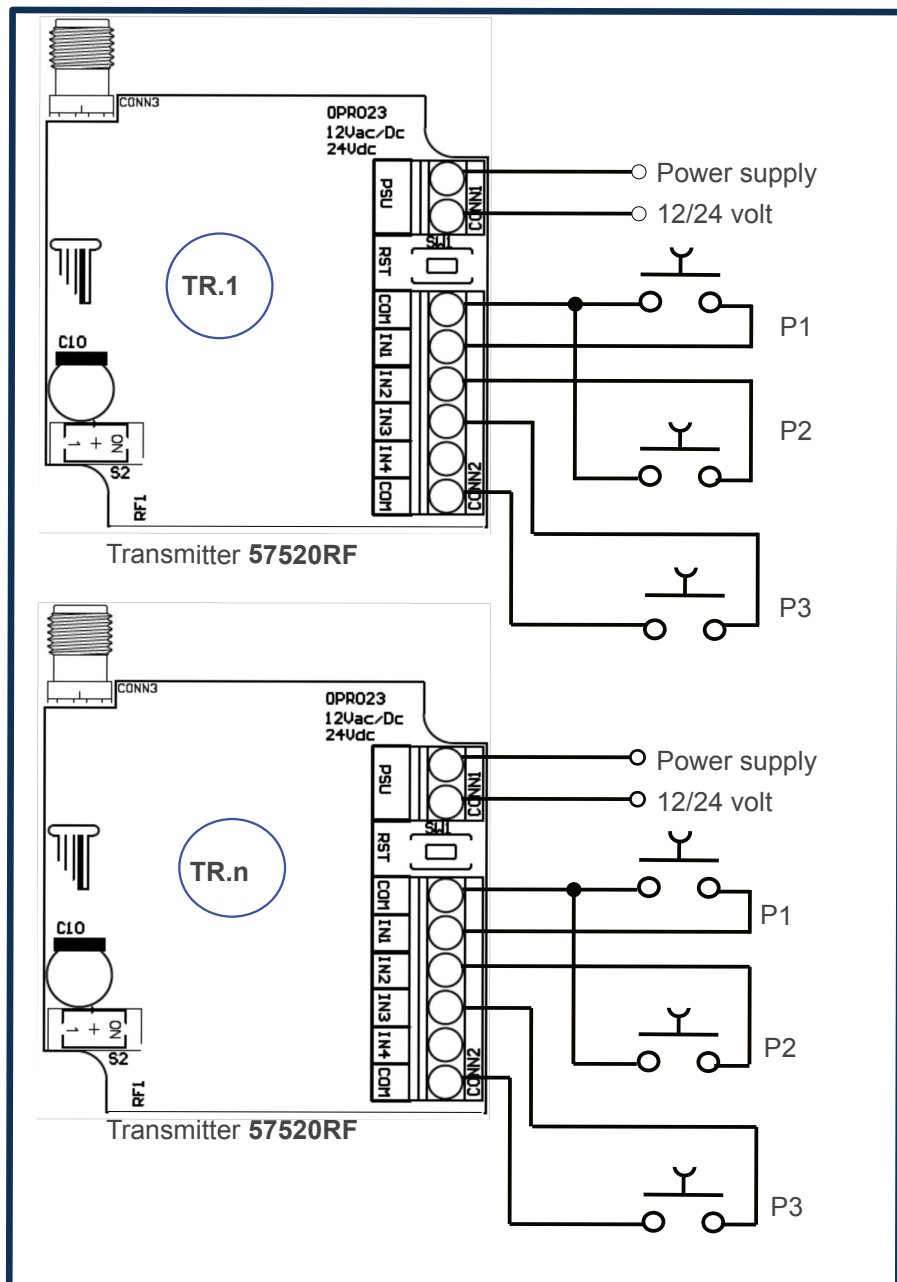


Fig.4





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