Smart remote controls

User manual

TR800 range

From October 2025

INDEX

Safety Warning

This user manual is provided for safety reasons and for the correct use, installation, and maintenance of the product.

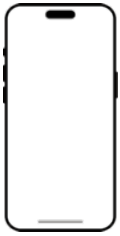
The installer is responsible for complying with all safety and maintenance regulations, as well as having the necessary training to handle the equipment. Observe the symbols below and their associated explanations, which are used throughout the manual to identify safety instructions.

Danger
This symbol warns of an imminent danger. Failure to follow the instructions could result in serious injury.

Caution
This symbol warns of a potentially hazardous situation. Failure to follow the instructions could result in minor/moderate injuries and material damage.

Tip
This symbol indicates useful information and tips to facilitate the work. These tips do not affect safety.

Safety Warning for Smart Control



The use of mobile devices carries inherent risks that are **unrelated to the Smart Control system**: software failures, crashes, screen freezes, discharged battery, or loss of connectivity. Control via mobile devices must always be performed under **safe conditions**.

Recommendations for use:

- Use the device in environments where it will not cause distractions.
- Do not use the mobile device while driving or performing tasks that could compromise your own or others' safety.
- Ensure that the mobile device is in good condition.

The physical remote remains the primary and priority method for the safe operation of Tarso Smart Control receivers.

1. Product Description

Industrial and Versatile

The Tarso TR800 product range (Nova, Falcon, Titan, or Zenit) consists of a remote control and receiver that allow you to control via radio any device or machinery that needs to be controlled by an electrical signal. The TR800 has been designed and tested for use in the automotive sector.

Intelligent Multi-frequency System

The TR800 remote and receiver feature an advanced, intelligent multi-frequency radio communication system. The frequency changes automatically to avoid interference during simultaneous transmissions from multiple devices in the same physical space. The system changes frequency every time a button is pressed on the remote, which helps to avoid frequencies where interference is present. This is complemented by an interference detection and learning system that allows the equipment to understand interferences, adapt to them, and avoid them during transmission.

Resistant, Watertight, and Reliable

The TR800 range has been developed and manufactured to be a product resistant to water, impacts, and other working conditions found in industrial environments. All materials and their assembly have been carefully selected to suit the industrial sector. Therefore, the parts are made from a plastic polymer alloy that provides great strength and hardness simultaneously.

Secure

The multi-frequency system is complemented by a secure encoding system where the signal is encoded and encrypted by the remote before being transmitted; this transmission is then captured, decoded, and decrypted by the receiver. This system ensures that a remote only activates the receiver it is paired with, that multiple pieces of equipment can work simultaneously in the same location, that the transmission is secure, and that it acquires a high degree of immunity to interference.

2. Smart Control

The latest generation of TR800 series products incorporates a new system developed by Tarso called Smart Control, which is included in receivers that have dual connectivity.

Smart Control products have, on one hand, connectivity with the physical remote and, on the other hand, incorporate a second connectivity that allows them to connect to mobile devices.

The Tarso mobile APP allows a mobile device to connect to the Smart Control receiver, which will then be linked and saved.

To link the receiver, it is necessary to power it on and search for it from the app.

When accessing the receiver from a mobile device, a digital image of the physical remote is created, allowing control of the receiver's outputs as if it were a physical remote.

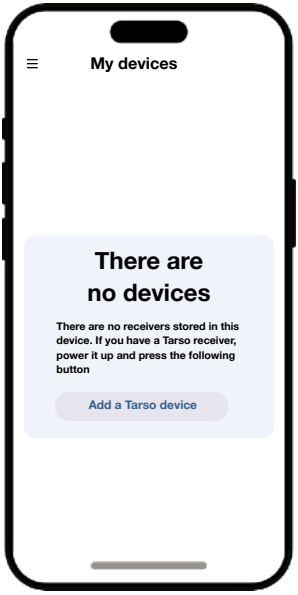
The mobile application also offers information about the receiver and its use, the linked physical remote, and assists the user in pairing new remotes or troubleshooting errors.

Apple

Android

The Smart Control system is being rolled out gradually across different products, and it is possible that your product may not include it. If your phone is not updated, the app may not work.

2.1. How to connect a receiver to a device?



Once you have downloaded the Tarso application, the "My devices" screen will always appear when you open it.

From the "My devices" screen, the application allows you to add Tarso devices, and once added, they are saved for easy use in the future.

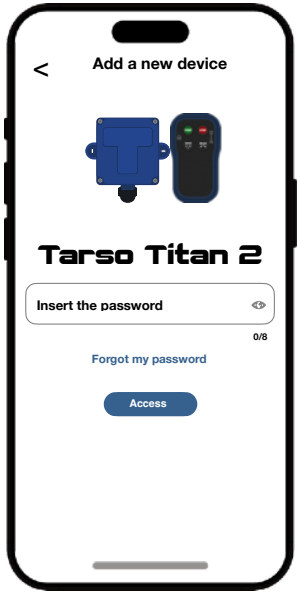
To connect a Tarso Smart Control receiver to a mobile device, we must ensure that we are nearby, that the receiver is powered, and that Bluetooth is activated on the mobile device.

By pressing "Add a Tarso device", the app will automatically search for new devices.

In the next step, we will select the equipment we want to add from the list, and finally, enter its password.

The factory default password for each piece of equipment is its serial number. Keep in mind that the password is case-sensitive.

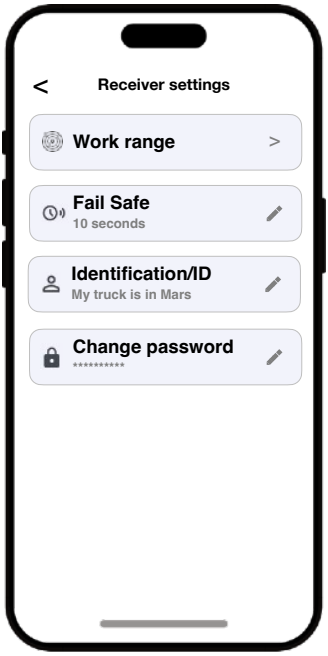
Once we are inside the device, it is recommended, for security, to change the password.



2.2. Changing ID and password

To modify the receiver's identifier or password, you must first connect to it with a mobile device.

Once connected, access the receiver's settings from the gear icon located in the upper right part of the screen.



Identification
The Smart Control receiver allows you to assign an identifier to differentiate it from other equipment of the same range or reference.

This text field is free-form and can be completed, for example, with the license plate of the vehicle where it is installed.

If you do not want to enter an identifier, the system can generate a random one automatically.

Password
Smart Control receivers are delivered with a predefined factory password, which matches the equipment's serial number.

For security reasons, it is recommended to change this password after the first connection.

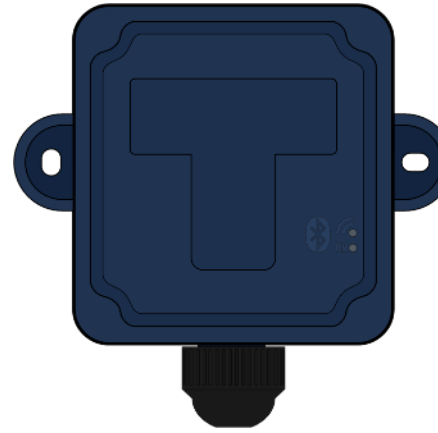
If you forget your personal password, you must follow the steps indicated in the application using the "I forgot my password" option.

3. Technical Specifications

What's included in a complete kit?

1 x Telemando rojo o azul
1 x Receptor rojo o azul cableado
2 x Pilas AA instaladas en el mando
2 x Tornillos de fijación del receptor
1 x Cinta para colgar el mando

1 x remote



1 x receiver

1 x lanyard

2 x AA batteries installed

Connecting wires

2 x screws to fix the receiver

Remote control specifications

Physical characteristics
- Watertightness grade without e-stop: IP67.
- Watertightness grade with e-stop: IP65.
- Impact resistance grade: IK09.
- Button durability: 5 million cycles.
- Stainless steel screws.
- Operating temperature: -40° to +40°.
- Screen-printed and protected rubber buttons.
- Protective cover against wear.

Power
- 2 AA batteries.
- Consumption: 0.2μA≈ (standby) and 12mA≈ (transmission).
- Autonomy: 240 hours (RF transmission).

Radiofrequency
- Operating band: 868Mhz 2GFSK.
- Multi-frequency system with automatic switching of 17 channels.
- Transmission encryption system.
- Maximum working distance: 160 meters.

Operation and indication
- Independent START and STOP buttons.
- LED indicator for radiofrequency transmission.
- LED indicator for low and depleted battery.
- LED indicator for security lock.
- LED indicator for status confirmation.
- Automatic shutdown after 4.5 minutes of inactivity.
- Delayed safety start of 1.5 seconds.

Remotes with up to 10 buttons
Dimensions: 106x62x27mm.
Weight with batteries: 153 grams.

Remotes with up to 14 buttons
Dimensions: 136x60x27mm.
Weight with batteries: 185 grams.

Receiver specifications

Physical characteristics

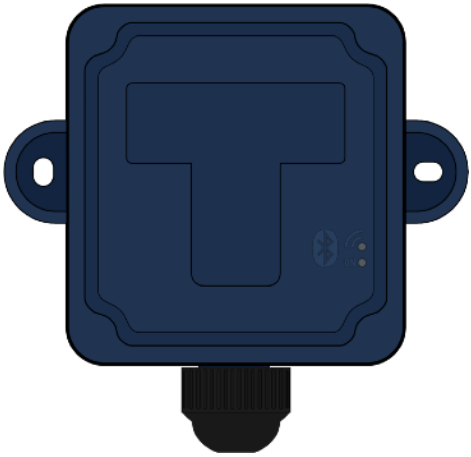
- Impact resistance grade: IK09.
- Flame retardant encapsulation: UL94 V0.
- Stainless steel screws.
- Operating temperature: -40° to +65°.
- Internal safety relay.
- Push button with pairing function.
- Cable: power and signal output.
- Standard cable length: 1000mm.
- Special configuration programming (optional).

Power

- External power: 6VDC to 32VDC.
- Consumption per output: 35mA (12V) and 20mA (24V).
- Standby consumption: 20mA≈ (12V) and 17mA≈ (24V).
- General protection fuse: 10A.
- Maximum working load at 12V: 10A.
- Maximum working load at 24V: 7A.

Radiofrequency

- Operating band with remotes: 868Mhz 2GFSK.
- Operating band with mobile devices: 2.4Ghz.
- Multi-frequency system with automatic switching of 17 channels.



Receptor de hasta 3 movimientos

- Size: 115x107x40
- Weight: 174 grams
- Watertightness grade: IP69

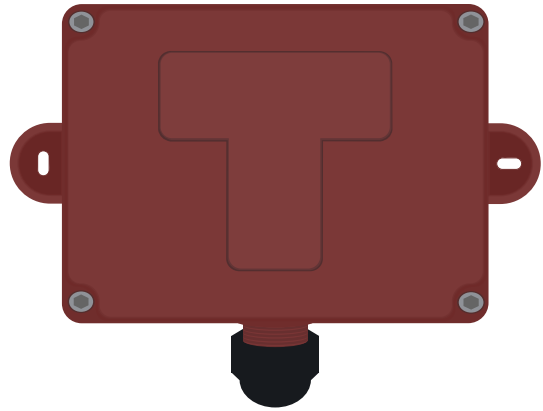
Possibility of maximum working current up to 25A.

Features external LEDs to show receiver activity.

Receiver for 4 to 6 movements

- Size: 142x85x48
- Weight: 350 grams
- Watertightness grade: IP67

Features internal LEDs to show receiver activity.



Receiver for 8 to 14 movements

- Size: 204x85x48
- Weight: 615 grams
- Watertightness grade: IP67

Features internal LEDs to show receiver activity.

Receiver for 16 to 24 movements

To perform 16 to 24 movements, 2 receivers will be used. A first, larger receiver will perform 14 movements and a second receiver will perform the rest of the movements. Both receivers work together, responding to a single remote without the user having to do anything.

4. Operating description

4.1. The remote

4.1.1. Transmitter pushbuttons

The START pushbutton allows the user a secure start of the transmitter. **It must be pressed during 1,5s** to unlock the function pushbuttons. In the remotes with function splitting, it also allows switching between X1 and X2 layer change functionality

The STOP pushbutton allows an emergency stop and stop of any function with an instantaneous push. The STOP prevails over any other function, it transmits a stop signal to the receiver and turns off the remote. For safety reasons, the remote will transmit the stop signal to the receiver even if it is switched off.

The rest of keypad pushbuttons perform different functions. Each pushbutton will transmit a different signal to the receiver so that the receiver activates this signal in its wire output. For safety reasons, the simultaneous push has been blocked, except for those applications that require it.

4.1.2. Reset the transmitter

If there are anomalies in operation, you can reset the remote (the reset does not eliminate pairing with the receiver). To reset the remote, you must remove the batteries for 5 seconds. If upon inserting the batteries the red LED turns on and stays fixed for 3 seconds, the remote is indicating an error, and it is recommended to replace the batteries. We always advise replacing both batteries to rule out possible failures and operating errors (see battery replacement manual).

4.1.3. Inherent safety of the transmitter

- The remote has a stop pushbutton that stops any operation activated by mistake. In the event of a malfunction, press the STOP button to stop any operation, then reset the transmitter. If the problem remains then we advice that you send transmitter and receiver to our headquarters.
- For safety reasons, after 4,5 minutes without use, the remote will switch to a STOP state to avoid unintentional actions if you forgot to turn it off.

4.1.4. Transmitter light indicator

	Slow flashing	An operation is being transmitted
	Quick flashing	The transmitter is switching on
	Fixed	The transmitter is on. Confirmation
	Slow flashing	The transmitter is off
	Fixed	The battery is empty
X1	Slow flashing	The transmitter is operating in X1 state
	Quick flashing	The transmitter is toggling X1-X2 states
X2	Slow flashing	The transmitter is operating in X2 state
	Quick flashing	The transmitter is toggling X1-X2 states

- If green and red LEDs turn on at the same time, means that the transmitter has low battery and soon will stop working.
- If no LED turns on, adjust and fix the batteries or just replace them.

4.1.5. Splitting of functions X1 and X2

The splitting of the buttons on the 12-button remote allows activating up to 24 functions in the receiver with a 12-button remote. This function is only applicable to equipment enabled with this functionality.

X1	The first 12 outputs will be activated with buttons 1 to 12; this is state X1.
X2	The remaining 12 outputs are duplicated; this is state X2. After duplicating the functions, buttons 1 to 12 are used: button 1 activates output 13, button 2 activates 14, button 3 activates 15, button 4 activates 16, button 5 activates 17, etc.

Changing between state X1 and X2:

- While the transmitter is on, press the START pushbutton 1.5 seconds and it will alternate state X1 and X2.

How to know the current state:

- While the remote is on, press START less than 1.5 seconds and the state X1 or X2 which is active will light up.
- While the remote turns on, the active state X1 or X2 will light up, it will be the same that was on before the remote turned off last time.

4.1.6. How to avoid interference?

Tarso equipment is designed with a **17-channel multi-frequency system** aimed at reducing environmental interference and ensuring stable communication between the remote and receiver.

In certain environments, external emissions may exist that coincide with some frequencies and cause interference. To avoid this problem, the system automatically changes the channel **each time a button is pressed**, reducing the probability of coincidence with other equipment and avoiding the cuts or blockages that tend to occur in systems that use a single communication channel.

Smart Control offers information

Signal stability:

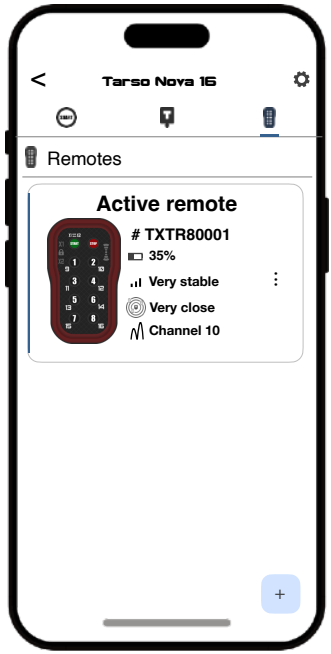
- While a button is pressed, the app shows the quality of communication between the remote and the receiver.
- It allows checking if the information is transmitted correctly or if losses occur.

Distance estimation:

- This estimation can vary depending on the installation. For example, if the receiver is inside a metal box, even if the remote is close, the signal will be interpreted as more distant.

Channel in use:

- The application indicates at all times which channel the equipment is using.
- This allows verifying on which channels there is interference.



To view the information in real time, the mobile device must be connected to the receiver. The communication range of the mobile is less than that of the remote, so performing long-distance tests can be complicated.

4.1.7.Falcon safety feature

The 4-button Falcon range remotes for tail lifts include a factory-installed safety system that requires the user to use both hands simultaneously to carry out the opening or closing.

How is the tilting performed?

Press the tilt button with your right hand.

Press the down button with your left hand at the same time for the platform to begin the function.

Notes:

- If you release the up or down button, even if you continue to press the tilt button, for safety the transmission will cease and the platform will stop tilting.
- If you release the tilt button while still pressing the up or down button, the platform will move up or down.

Disabling the Falcon safety system

The operator can disable the safety system at their own responsibility and risk by doing the following:

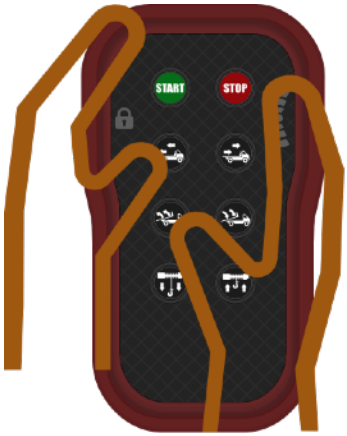
1. When the remote is off, press the START button and immediately press tilt down.
2. The remote's LEDs will start to blink.
3. Keep the buttons pressed until the LEDs remain fixed, the safety will be disabled and you can perform the tilt with a single button.

5 sec

Note: To re-enable the Falcon safety system, you just have to repeat the previous steps.

4.1.8. Titan special functionality

The TR800 Titan range remotes for vehicle-mounted cranes allow for simultaneous tilting and platform movement. Any other simultaneous press is not permitted.



How is the Titan system used?

Press the move button with one hand.

Press the tilt button with the other hand at the same time as the platform moves.

Notes

- It is permitted to extend the platform and lift it at the same time, just as it is permitted to retract the platform and lower it.
- If you are performing two movements and you stop pressing one of them, the movement that continues to be pressed will continue to function.

The Titan functionality comes disabled from the factory and it must be the user who enables it if they wish to use it. You must take into account that performing simultaneous operations while the crane is loaded could damage the crane or the hydraulic system. Consult with the crane manufacturer about its technical possibility to perform simultaneous operations.

Enabling the Titan system

START

5 sec

1. When the remote is off, press the START button and immediately press lower the platform.
2. The remote's LEDs will begin to blink.
3. Keep the buttons pressed until the LEDs remain fixed, the safety will be disabled and you will be able to perform the tilt with a single button.

Note: To disable the Titan functionality, you will have to repeat the previous steps.

4.1.9. "Exclusive remote" feature

The "exclusive remote" or "exclusive ID" feature is a functionality developed by Tarso with the aim of making work safer in environments where a receiver can be activated by more than one remote.

The "exclusive ID" ensures that if a remote has started working with a receiver, only this remote can control the receiver until the work is finished. The Tarso team considers that the work ends when the user presses STOP or after 4.5 minutes without interaction with the remote.

Without this functionality, if a user paired more than one remote with a receiver, both remotes would activate the receiver without any restriction, and this poses a risk if one user is working and another different user with a paired remote activates the same receiver. The exclusive ID functionality, which comes as standard, eliminates this risk situation.

With the Tarso Smart Control app, you can graphically observe how a receiver can have two different remotes paired but only one is active.

The "exclusive ID" feature is different from the encoding system:

- The encrypted encoding system is responsible for ensuring that each Tarso remote has a unique ID and guarantees that each receiver responds only to the remote with which it is paired (as explained in the product description).
- The exclusive ID is a security functionality and applicable in case more than one remote (ID) has been paired with a receiver.

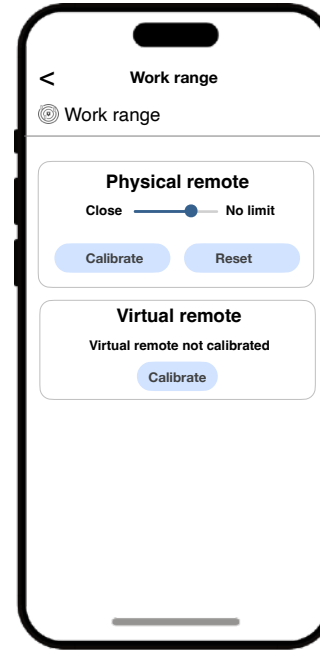
4.1.10. Limiting the working range

Limiting the working range is a measure intended to reinforce safety and ensure that the operator maintains a location that allows them to visualize the maneuver.

This functionality can be applied to both a physical remote and mobile devices (digital remote) through the Tarso Smart Control application, following the same procedure in both cases.

The range adjustment can be configured by the user, with four distance levels available: from a close range up to 100% of the available range.

All equipment is supplied from the factory with 100% of the range enabled, that is, without limit, and it will be the user who determines if they wish to limit it.



To be able to apply the limitation, it is necessary first to perform a calibration of the ranges. The Smart Control application guides the user step by step in this procedure. The calibration must be carried out for each remote-receiver pair, ensuring that both are installed in their usual location and under normal working conditions.

Once the initial calibration is complete, the user can select any of the four available distance levels from the application without needing to repeat the process. In this way, the working range configuration can be easily adapted to the operational needs of each situation.

4.1.11. Emergency stop button (optional)

General Description

The remote equipped with an emergency stop button located on the top is designed to ensure the immediate stop of any operation if necessary. Unlike remotes without a button, this model incorporates a perimeter mechanical protection that protects the button against impacts and falls.

The press of the button or the STOP button generates the same behavior: the remote turns off and any action in progress, both on the remote and on the receiver, is immediately interrupted.

Activation

When the button is pressed (lowered), a red indicator light is activated and the remote is blocked, with no possibility of being operated.

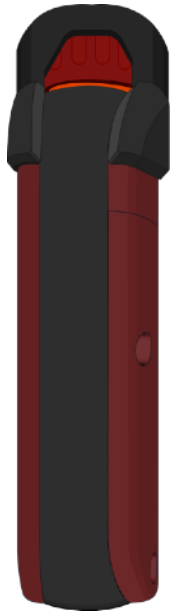
If the button is pressed, no function can be activated from the remote and pressing the START button will only turn on a red light.

Deactivation

To unlock the button, it must be turned until it returns to the raised position. Once raised, simply press the START button to reactivate the remote and allow its use.

IP protection rating

The body of the remote is certified with an IP67 protection rating. However, due to the presence of the emergency stop button, the effective protection rating of the assembly is limited to IP65. This is due to the need to maintain functional gaps in the button's mechanism that allow for its double position (up and down). All remotes equipped with an emergency stop button have a global IP65 protection.



Mechanical protection

The emergency stop button is a mechanical component that is not tolerant to impacts. In case of breakage of the perimeter protection, it must be replaced immediately. Using the remote without the installed protection carries a high risk of irreversible damage to the button, which would compromise its safety function.

Temporary deactivation

The emergency stop button constitutes a mandatory safety element and must always be kept in operational condition. In case of mechanical failure, the component must be replaced without delay. If it is required to temporarily deactivate the button and omit its status (down or up), there is a specific option that is activated by a combination of buttons on the remote.

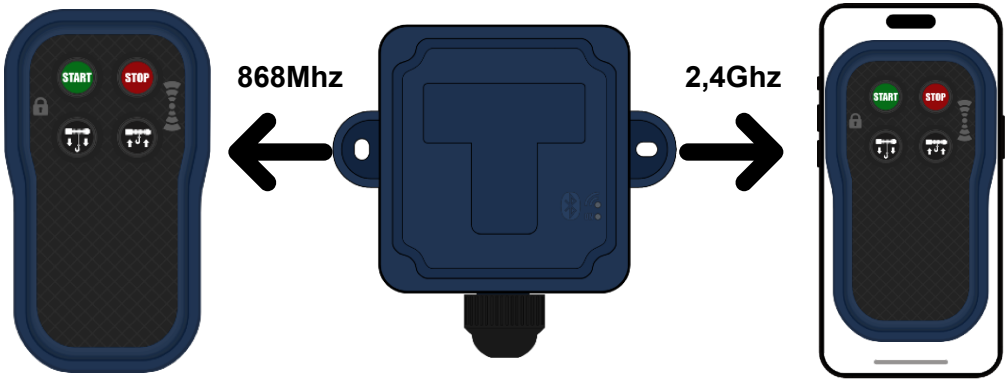
To temporarily deactivate the emergency stop button, you must first press it (lower it) and then simultaneously press the START button together with button 2. The procedure is the same if we want to reactivate the emergency stop button.

4.2. The receiver

It operates automatically; the user does not act on it, since when power is supplied, it goes into "listening" mode, waiting to receive the signal from the remote. The cable hose contains power and all the positive voltage outputs; each output is controlled by an internal relay.

The receiver is supplied in 3 sizes depending on the number of movements required for each piece of equipment. Equipment from 16 to 24 outputs is supplied with two receivers, one with 14 movements and the other with the rest. In equipment with two receivers, the remote is associated from the factory to work with both receivers individually.

Smart Control receivers have dual connectivity to adapt to different forms of use:



The 868 MHz connectivity is used for communication with Tarso's physical remotes, allowing direct and reliable control of the receiver. For its part, the 2.4 GHz connectivity via Bluetooth allows a direct connection with mobile devices, whether Android or iPhone.

Both systems work independently, so if the remote is lost, the receiver can continue to be used with a mobile device until the replacement physical remote is received.

It is important to bear in mind that mobile connectivity is secondary to the use of the physical remote. If the receiver is connected to a mobile device and the remote begins to be used, the mobile connection is automatically interrupted, always giving priority to the physical remote.

The receivers create their own Bluetooth network, without the need for a Wi-Fi connection or mobile coverage. It only requires a mobile device that has the Tarso app downloaded to link with the receiver and access its functions.

4.2.1. Inherent receiver security

The operator should never act on the circuit. If you handle the receiver you could suffer personal injury and damage the equipment. In case of anomalies, erroneous operation or lack of response, the receiver must be reset and the fuse changed.

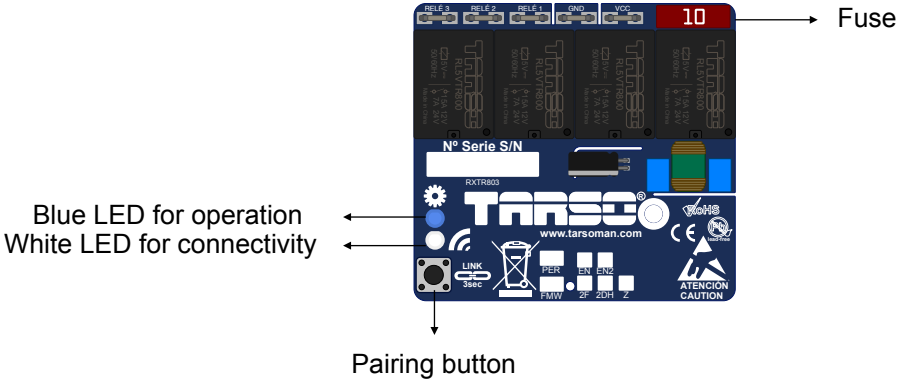
4.2.2. Resetting the receiver

If there are anomalies in the operation, you can reset the receiver and measure the supplied power. To restart the receiver, you must remove the power for 10 seconds.

In the event that a user forgets their Smart Control receiver password, the user can, as a last resort, perform a reset or hard reset of the receiver by pressing the pairing button for 25 seconds. This type of reset causes the receiver to restore its original password and forget all paired remotes.

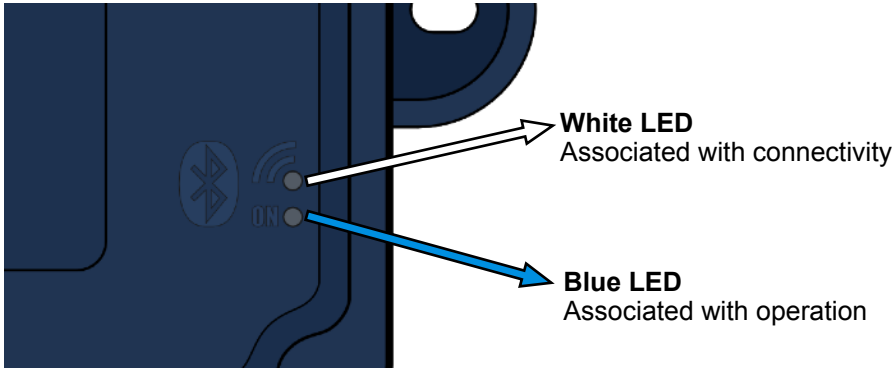
4.2.3. Replacing the main fuse

The receiver incorporates a 10A mini fuse for general protection, this fuse could blow and the equipment would stop working. Check its status in case the equipment does not work and replace it if necessary.



4.2.4. Receiver light signals

Receivers with up to 3 movements include two visible LEDs on the front. The purpose of these LEDs is to offer the user a visual indication of what is happening in the receiver.



When the receiver is powered on
The white and blue LEDs flash 4 times quickly to indicate that the receiver has started.

Stand-by without active remote
The blue LED flashes 2 times every 4 seconds indicating that the receiver is powered and that no remote is on its list of active devices.

Stand-by with active remote
The blue LED flashes 2 times and then the white LED flashes. This pattern repeats every 4 seconds. This pattern, in addition to indicating that the receiver is powered, shows that there is an active remote according to the "exclusive remote" feature.

During an operation
Whenever there is an active output on the receiver, the blue LED is on solid.

During signal reception
The white LED will flash or be solid, indicating the reception of information from the remote or a mobile device.

During pairing
The LEDs flash as indicated in the pairing process to guide the user during the process.

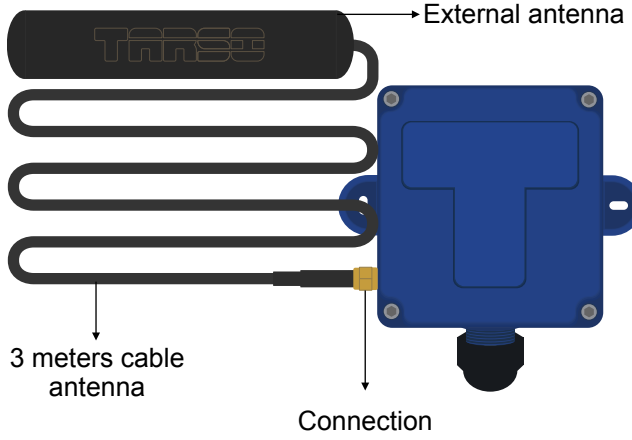
4.2.5. Receivers with external antenna

The Tarso receiver has an internal antenna that allows for a compact and small-sized product, but optionally it can be manufactured and supplied with an external antenna that allows it to be adapted to industrial work situations that require it.

The external antenna allows the receiver to be installed inside metal boxes or between large masses of iron and to place the antenna on the outside to have a maximum range thanks to its 3-meter long cable. A receiver that has an external antenna does not use its internal antenna, so for its correct operation it must have the external antenna connected.

The antenna should preferably be placed in a vertical position with the cable facing down to obtain maximum performance in an open space and to obtain the greatest direct visibility with the remote while working. To place the antenna, it is only necessary to stick it with the adhesive that it has incorporated on any smooth and clean surface.

Although water does not affect the antenna, you must take into account that applying jets of water under pressure directly on the antenna will damage it. In no situation should you apply jets of water under pressure on the receiver or the connection between antenna and receiver since the receiver would be damaged beyond repair. Never cut, reduce or lengthen the cable as it would change its characteristics and therefore reduce the working distance.



4.2.6. Smart Control Fail Safe

To access the Fail Safe, enter the receiver settings from the gear icon located in the upper right part of the screen.

What is Fail Safe?

Fail Safe is a security measure for Smart Control receivers that protects against possible communication failures from mobile devices. Its purpose is to prevent an order from remaining active for too long without real control by the user.

What is its utility?

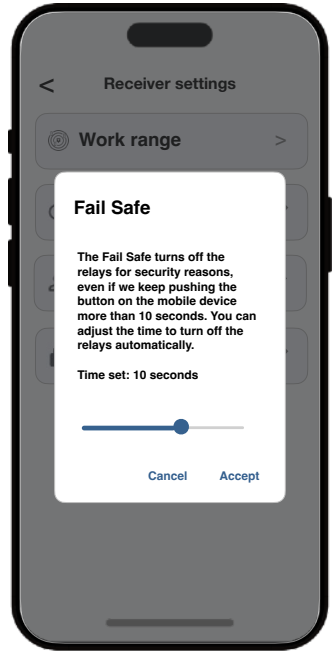
When using the mobile application, if a button is kept pressed beyond the configured time, the relays open automatically, stopping the maneuver. Even if an error occurs that keeps the signal active involuntarily, the maneuver is stopped.

Use

The application allows you to adjust this security time between 3 and 15 seconds:

- 3 seconds is the most restrictive value but forces you to press the button frequently.
- 15 seconds is the least restrictive value, allowing for greater continuity but a lower level of security.

It is important that the user be prudent when choosing this time, since a configuration that is too permissive can increase the risk of an involuntary signal remaining active longer than desired and could lead to an accident.



4.3. The digital remote

The Tarso Smart Control system has a digital remote accessible from the Tarso application, which allows replicating all the functions of the physical remote and, if necessary, replacing it temporarily.

The digital remote reproduces on the screen of the mobile device the same distribution of buttons and controls as the physical remote, so the user can use it intuitively. In this way, any action performed from the digital remote will have the same effect as if it were performed directly with the physical remote.

The digital remote is useful in the following situations:

- When the physical remote is not available (for example, in case of loss or failure).
- To have an additional control method from the mobile device itself.
- For quick tests of the receiver's operation without needing to use the physical remote.

The digital remote requires that the mobile device be connected to the receiver through the Smart Control application. Once the connection is established, the user can operate with the digital remote in the same way they would with the physical remote.

It is important to keep in mind that the digital remote must be used under the same or greater security conditions than the physical remote. The operator must always be in a position that guarantees visibility of the work area and maintain the same precaution as with a physical control.

How to use

1. Open the Smart Control application and connect to a device.
2. You must press the START icon. Doing so will bring up the digital remote.
3. When the digital remote opens, only the **START** and **STOP** buttons will be enabled.
4. To start using the digital remote, for security, press and hold the **START** button for **1.5 seconds**.
5. A warning will appear on the screen that the user must accept to continue.
6. Once the warning is accepted, the digital remote will be activated and can be used in the same way as a physical remote.

Warning for use

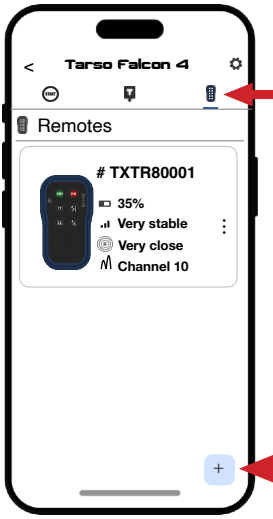
You have to take into account that the digital remote does not replace the physical remote and therefore you will have to take into account and accept some conditions of use:

- The mobile phone is not a work tool designed for operations that must be carried out with a physical remote.
- The operator is responsible for the use of the digital remote.
- The use of the digital remote is limited to a maximum of **7 days without connecting a physical remote**. Each time a physical remote is used, 7 more days will be renewed to use the digital remote. After 7 days of using the digital remote without connecting a physical remote, the digital remote will be canceled until a physical remote is connected again.

4.4. Pairing new remotes

Replacements will be sold with a different code than the original, so it will be necessary to pair the replacement with the original remote/receiver. Pairing is not necessary if a new remote/receiver set is purchased because it is paired before being sent to the client.

4.4.1. Using the Smart Control app



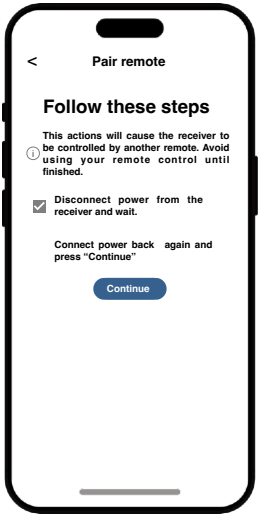
It is not necessary to open the receiver

Connect your mobile device to the receiver.

Press the **remotes** tab. Here the already paired remotes will be shown.

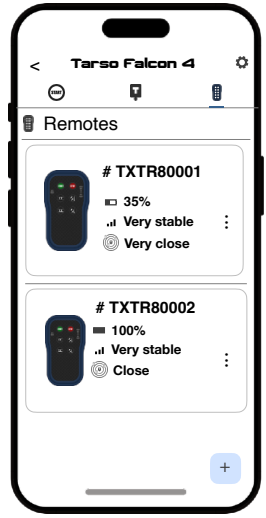
Press the **blue icon with the + sign**, located in the lower part of the screen. The pairing menu will open.

The application will ask you to **disconnect the power** to the equipment.



1. Once the loss of power is detected, the application will ask you to **re-supply power** to the equipment.
2. Press "**Continue**".
3. Finally, it will ask you to **press the STOP** button on the remote you want to pair.

The process ends and the new remote will appear on the screen.



4.4.2. Manual pairing

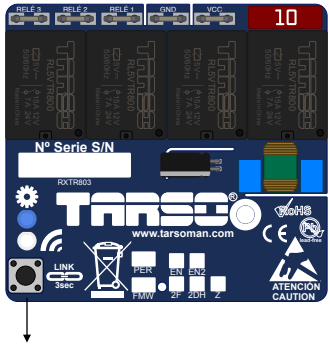
It is necessary to open the receiver

If your receiver does not have mobile connectivity or if it does not work for you, you can perform the manual pairing. If your receiver has mobile connectivity, pairing through the app is preferable for its ease and because it offers the user information of each step through the mobile device.

Procedimiento manual

1. Remove power and remove the screws with a HEX 2.5 key.
2. Power the receiver, for security after supplying power you have 1 minute to pair; this function is disabled afterwards.
3. Press the black button on the receiver for 1 second.
4. When you lift your finger, the blue LED will start to flash.
5. Wait for the blue LED to turn off.
6. Press the black button on the receiver again for 1 second.
7. When you lift your finger, the white LED will start to flash.
8. Press the STOP button on the remote until the white LED turns off and the blue flashes, indicating that the link has finished.

Attention: the pairing process must be carried out when there are no more remotes operating nearby, otherwise you could link a nearby remote.



Pairing button

All receiver boards have a pairing button that is enabled during the first minute after receiving power.

As a reference, you have the image on the left. Your receiver board may be different and the location of the button may vary.

Receiver boards only have one button.

4.4.3. Questions during pairing. FAQ

Is my remote compatible with the receiver?
If you press STOP on the receiver, the **blue LED flashes rapidly.**

Is the remote paired with the receiver?
If you press STOP on the receiver, the **white LED flashes rapidly**.

Is there another active remote on the receiver?
If you press STOP and the remote is paired with the receiver but there is an active remote at that moment on the receiver, the blue L**ED flashes slowly**. For more information, you should consult about the "exclusive remote" feature.

Does no LED flash?
If you press STOP and no LED flashes, there are two options:

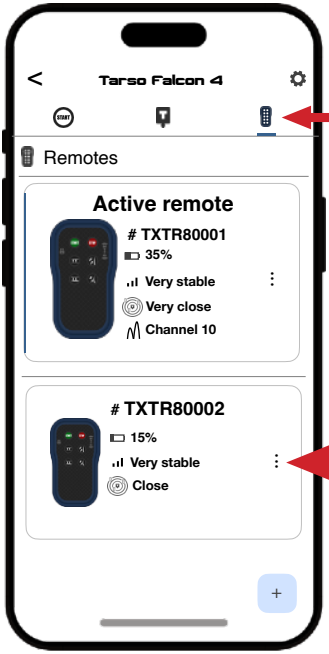
1. The remote is not compatible. See the next point about incidents during pairing.
2. There is a problem with the receiver or remote. You can consult the chapter on frequently asked questions and problems.

4.4.4. Issues during pairing

- Only compatible remotes can be paired with the receiver, which will be those of the same range and number of buttons.
- If more than two years have passed since the purchase of the original equipment and you are trying to pair a new replacement remote with an old receiver, it is possible that the replacement remote is not compatible with the receiver. In this case, it would be necessary to update the receiver's firmware version to make it compatible with the new remote. We recommend verifying the receiver's serial number when purchasing a replacement remote.
- If you press the pairing button on the receiver and the blue or white lights do not turn on, it may be that:
    1. More than a minute has passed since you powered the receiver.
    2. The receiver is not powered.
    3. The receiver's fuse is blown.
    4. The receiver's button has been pressed for less than 1 second.
    5. There is a problem with the receiver and it should be checked by a technician.

4.5. Unpairing remotes

From the "Remotes" tab of the Smart Control app, it is possible to remove a remote that you no longer wish to use. By removing a remote, the receiver will stop recognizing it and will not respond to its actions.



Keep in mind that if a remote is active, it cannot be removed. On the screen on the left, we can remove the bottom remote since the top one is active.

1. Go to the **Remotes** tab.
2. Locate the remote you want to remove in the list.
3. Press the **three dots** that appear to the right of the remote.
4.

4. Select the **Remove** option.
5. The application will ask for confirmation. Select yes if you wish to continue.

The remote will be removed from the receiver and will no longer be operational. On the remotes screen, you will see that the remote has disappeared.

5. Installation Manual

5.1. Safety warnings

- The installation must be carried out by qualified personnel.
- Use insulating protective equipment.
- Perform the first start-up without load.
- Turn off the machine/vehicle during installation.
- It is recommended to power the equipment through a safety system such as an emergency key to cut the power to the receiver.
- Incorrect connection of the receiver's outputs could cause unexpected activity from the machine when the remote is operated.
- The receiver's outputs are positive voltage, a contact with ground would cause a short circuit and in the best of cases would blow the fuse.

5.2. Assembly and first use

1. For safety, before carrying out any action, the operator must ensure that the power to the circuit, machinery or vehicle is disconnected to avoid human and/or material damage.
2. The receiver must be screwed onto a flat surface with the wiring facing down, otherwise the watertightness of the receiver could be compromised.
3. The receiver should be installed as far as possible from a large metal structure and should avoid being screwed inside a metal box, as otherwise interference will occur and the working distance will decrease considerably. It is also recommended to install it away from motors as these produce electromagnetic fields. If you need to install it in these conditions, you can opt to install a receiver with an external antenna.
4. Before connecting the receiver outputs, take into account that each button on the remote can control one or more relays and have different operating modes. To find out how each button behaves, you should consult the following pages on the operation of each product range and the relationship between buttons and receiver outputs.
5. Connect the receiver outputs to the element you want to control (circuit, solenoid valve, relay, motor, etc.).
6. **IMPORTANT:** the connection must be waterproofed so that water does not enter through the cable hose. The cable hose is not watertight at its ends and water could enter between the wires.
7. Connect the receiver's power supply (red/black).
8. Supply power to the receiver and operate the remote.

5.3. Operation of each range

This section describes the operation of each range, explaining the relationship between buttons and outputs, the on/off behavior, and the characteristics of use. If none of the ranges cover the needs of your project, **Tarso offers the possibility of developing personalized** configurations, including:

- Specific assignments between buttons and outputs.
- Automations adapted to the client's work logic.

Nova

Each button controls a receiver output.
The output is activated while the button is pressed and deactivated when released.
The remote turns off automatically after 4.5 minutes of non-use.
Keypad: numeric.

Nova - Toggle

Each button activates its output when pressed and remains active after being released.
To deactivate the output, the same button is pressed.
The STOP button turns off all active outputs.
The remote turns off after 4.5 minutes of non-use, as long as there are no active outputs. If there were active outputs, it turns off after 63 minutes with the receiver.
Keypad: numeric.

Nova - Enclave

Each **pair of buttons** manages one output:

- Odd button: activates the output.
- Even button: deactivates the output.

The STOP button turns off all active outputs.
The remote turns off after 4.5 minutes of non-use, as long as there are no active outputs. If there were active outputs, it turns off after 63 minutes with the receiver.
Keypad: numeric.

FALCON

Designed for tail lifts.
Specific configuration according to the tail lift model.
One button can activate several outputs simultaneously.
The remote turns off after 4.5 minutes of non-use.
Keypad: specific for tail lifts.

TITAN

Designed for roadside assistance cranes.
Each button controls a receiver output.
The output is activated while the button is pressed and deactivated when released. The remote turns off after 4.5 minutes of non-use.
Keypad: specific for assistance cranes.

ZENIT

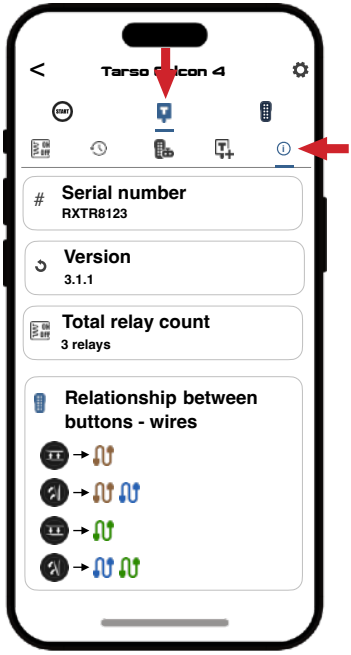
Designed for tow trucks and flatbed cranes.
Each button controls a receiver output.
The output is activated while the button is pressed and deactivated when released. The remote turns off after 4.5 minutes of non-use.
Keypad: specific for towing and vehicle transport.

NOVA moving floor

Each button controls a receiver output.
The load is activated while the button is pressed.
The unload remains active after pressing the button. It is deactivated by pressing the same button, STOP, the load, or after 15 minutes from activation. The remote turns off after 4.5 minutes of non-use.
Keypad: specific for loading and unloading.

5.4. Relationship between buttons and outputs

The relationship between the remote's buttons and the colors of the cables (relays) that are activated in the receiver can be consulted quickly and visually through the Tarso app. In addition, the tables on the following pages show these associations in detail. In the Nova, Titan, and Zenit models, each button is linked to a single receiver output. In the Falcon models, the same button can activate several outputs simultaneously.



Information in the app

Power the receiver, open the app and connect to the receiver, press the receiver icon in the top bar and select the "i" (Information).

In the information screen you will find:

- Serial number.
- Firmware version.
- Total number of installed relays.
- The relationship between each button on the remote and the colors of the cables (relays) of the receiver.

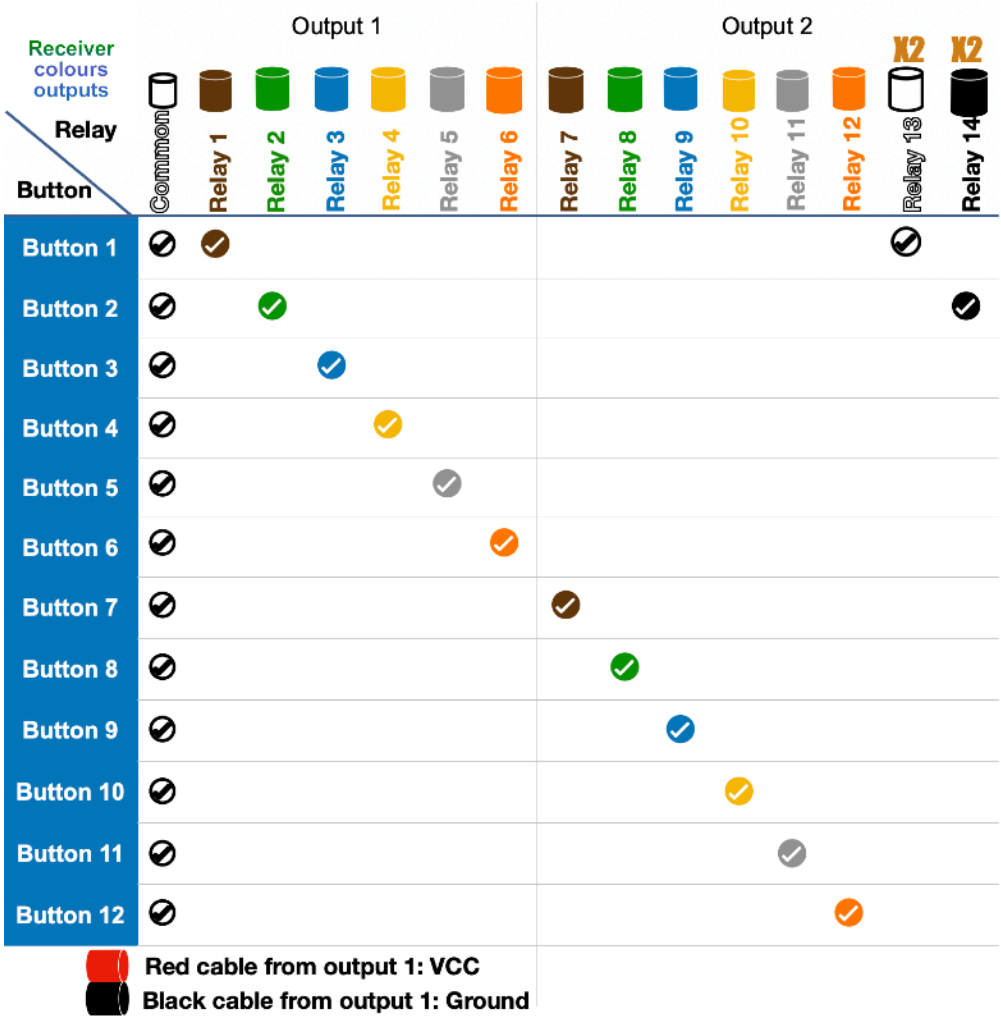
The client can request:

- Personalized combinations between buttons and receiver outputs.
- Automations and automatic shutdowns of outputs, which can modify the standard characteristics described in this manual.

Notes:

- Equipment with only 2 outputs does not have a common output as standard, but it can be requested on demand.
- The tables refer to the **X2** nomenclature relating to the specific function of splitting functions for the control of applications with more than 12 movements. For more information, consult the section on how to split functions.
- Receivers that control more than 6 outputs will have 2 output cable hoses.

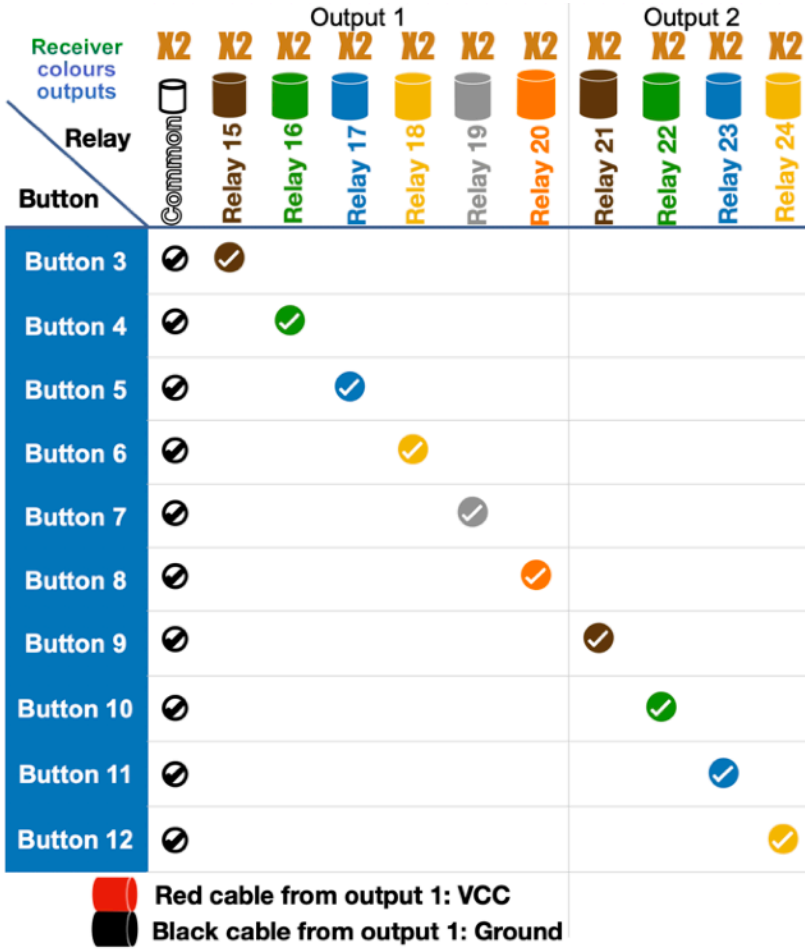
Nova-I / Nova-G / Titan / Zenit



Legend:

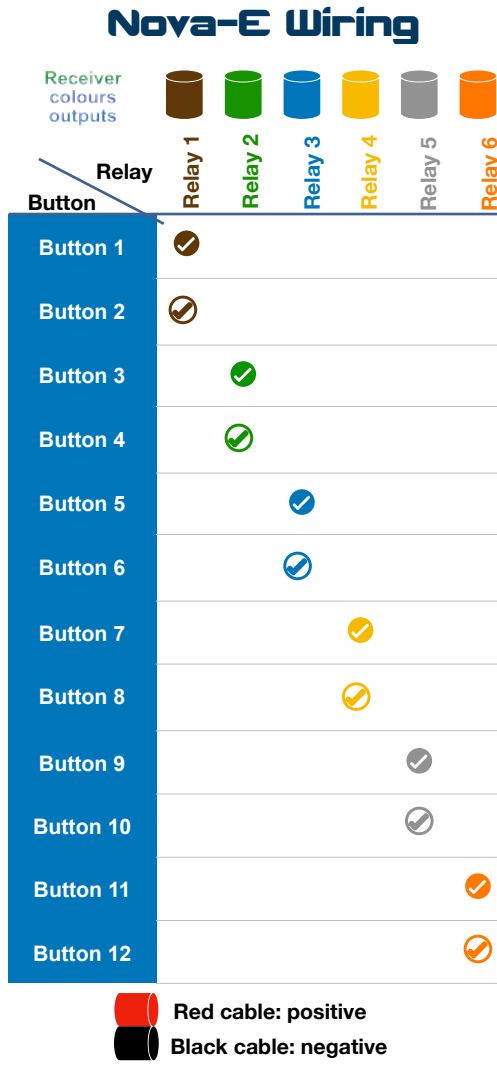
- The common is activated whenever any button on the remote is pressed.
- Hose 2 is included in equipment with 8, 10, 12, and 14 movements.
- Hose 2 differs from hose 1 in that it does not have a red cable.
- Relays 13 and 14 are activated with buttons 1 and 2 in X2.

Second receiver Nova-I Wiring



Legend:

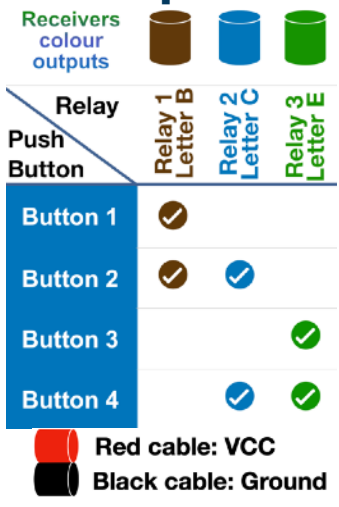
- The second Nova-I receiver is included only for equipment from 15 to 24 functions and can be of 3 different sizes.
- The common is activated whenever any button on the remote is pressed.
- Hose 2 is included in equipment with 21, 22, 23, and 24 movements.
- Hose 2 differs from hose 1 in that it does not have a red cable.
- All relays are activated when the remote is in X2.



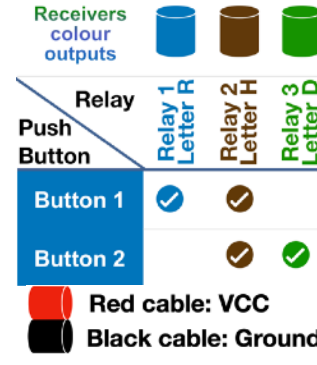
Legend:

- Nova-E refers to equipment with latched outputs.
- The receivers do not have a common output.
- The odd buttons activate the relays and the even buttons deactivate them; for example, button 1 activates relay 1 and button 2 deactivates it.
- The STOP deactivates all active relays at the same time.

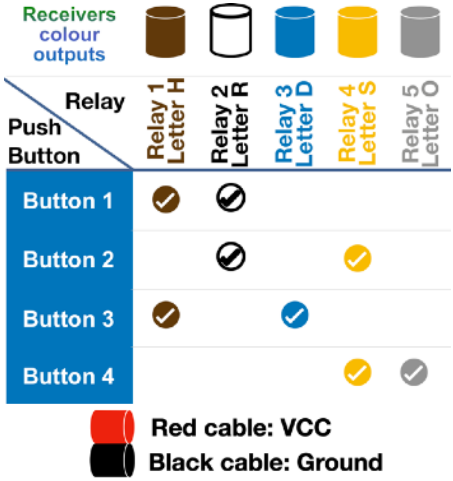
Zepro



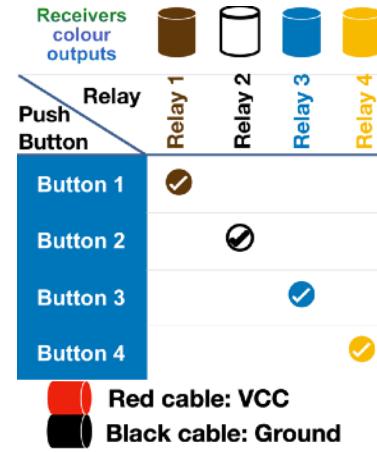
Dhollandia 2



Dhollandia 4



Falcon 4

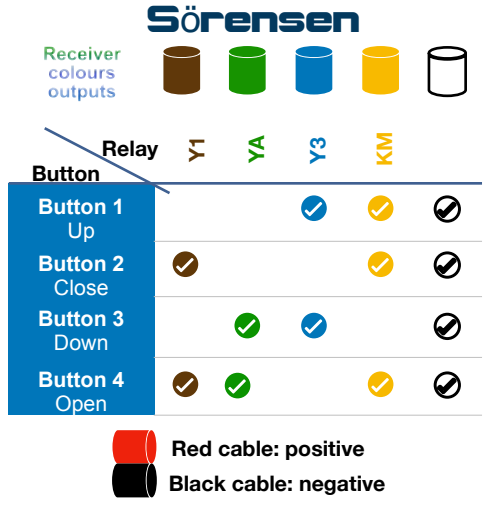


Tail lifts MBB, Anteo, BAR, Dautel, Benalu, Elephant Car

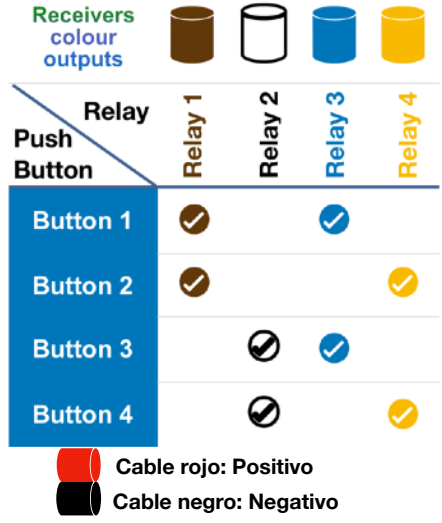
Legend:

- The tables on this page represent Falcon equipment specifically developed for some tail lifts.
- The receivers of the Falcon range do not have a common output.
- Each tail lift has a different and specific combination.

Sörensen



Erhel Hydris



6. Frequently Asked Questions (FAQ)

The remote does not turn on any light, it does nothing

1. Open the remote, remove the batteries and put them back in.
2. Squeeze the metal battery holders so that the batteries make contact.
3. Replace the remote's batteries.

The remote turns on the red padlock light

1. Open the remote and remove the batteries.
2. Replace the remote's batteries.

The remote turns on when pressing START but does not work

1. Make sure to turn on the remote correctly. To turn on the remote, you must press the START button for 1.5 seconds.
2. Replace the remote's batteries.

The remote turns on but the receiver does nothing

1. Check that power is reaching the receiver.
2. Replace the general 10A red power fuse of the receiver.
3. Check that the relays are heard when operating the remote.
4. Open the receiver and check the white reception LED. The white LED, while receiving a signal, should flash rapidly.
5. If the remote is new, perform the pairing procedure. If you have incidents during the pairing process, review the section on Pairing new remotes.

The connection between the remote and receiver is intermittent, abnormal or the connected machinery does not work correctly

1. Check the status of the receiver's wiring and that the supply voltage is stable and is between 6 and 32 VDC.
2. Check that the green light on the remote turns on while performing the work maneuver.
3. Open the receiver and check the white reception LED. The white LED, while receiving a signal, should flash rapidly.
4. Check that there are no buildings, official cars or police.
5. Make sure the receiver is not in a metal box.

If your problem persists or is not covered in the previous procedures, you can request maintenance at rma@tarsoman.com. To request maintenance, you must indicate that you have performed the previous checks and which of them the equipment has not passed.

7. Replacing the Remote's AA Batteries

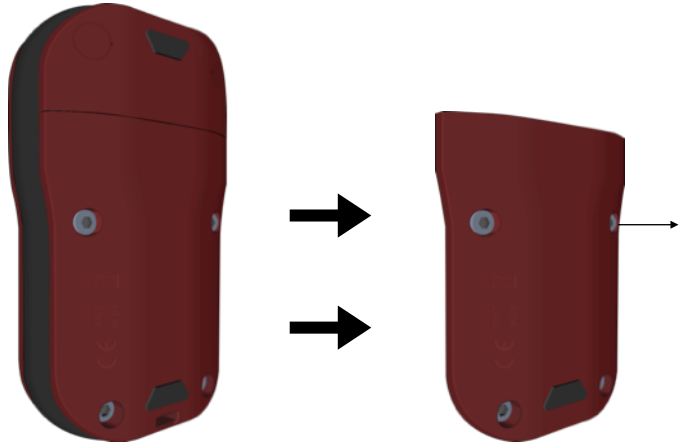
If when turning on the remote, the padlock LED (red) is solid, it means that the remote does not have a high enough battery level to function. Therefore, it will be necessary to replace the batteries by following the steps below.

ATTENTION: there are two versions of the remote and each one follows a different process for replacing the batteries.

- If the back of your remote has 4 screws in sight, a dividing line on the back and was sold from June 2025, follow the section "**4-screw remote design**".
- If the back of your remote has 6 screws or 6 black rubber plugs in sight, is made of a single piece and was sold between 2020 and 2025, follow the section "**6-screw remote design**".

Pay attention to the tightening torque of the screws: 1Nm

7.1 4-screw remote design



Step 1
Remove the 4 screws with a HEX 2.5 key.

Step 2
Remove the back cover.

1. After removing the cover, you will have access to the batteries.
2. To change the batteries you can use a small object to help you get them out. Be careful not to damage the circuit under the batteries.
3. Insert two new batteries, check the polarity.
4. Before closing the remote, check that when you press STOP the red LED turns on, if not, check the polarity.
5. Put the cover back on and tighten the 4 screws to seal the remote.

7.2. 6-screw remote design

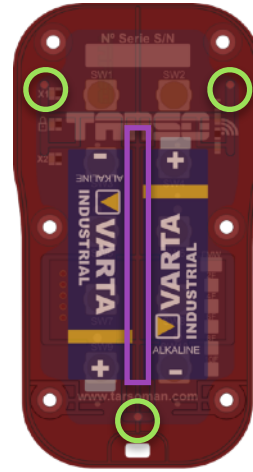
The procedure for the 6-screw or 6-plug remote is a little longer than the previous procedure but it will be the necessary procedure if you have this version of the remote. In this case, you must handle the circuit with care and pay attention to the metal battery holders.

Step 1
Remove the rubber plugs and the screws with a HEX 2.5 key.

Step 2
Remove the back cover and take out the circuit from its interior.

1. Remove the batteries and recycle them.
2. Squeeze the battery holders inwards to ensure good contact.
3. Insert two new batteries into the circuit, check the polarity.
4. **ATTENTION.** First insert the circuit into the 3 small supports of the rear casing, otherwise you could place the circuit incorrectly. Check that the batteries fit correctly and are separated by the central line, otherwise the battery holders could bend (see maintenance manual).
5. Insert the assembly (back cover + circuit) into the rubber. Pay attention that the edges of the rubber fit correctly and do not fold over on themselves, if they fold the remote will cease to be watertight.
6. Before closing the remote, check that when you press STOP the red LED turns on. Tighten the 6 screws to seal the remote.
7. Insert the rubber plugs for greater protection of the remote.

Purple
Central dividing line. Fixes the center of the circuit and separates the batteries.
If the circuit is forced when inserted or the batteries are not in place, it could break the remote or generate a short.



Green
Fixing supports, in charge of centering the circuit in the casing.

The circuit must be correctly fitted in the 3 supports before being introduced into the rubber.

8. Maintenance Manual

Maintenance ensures a correct operation and guarantees a good external condition, extends the useful life of the equipment and decreases the number of repairs.

Operation of the relays

The internal relays implemented in this product are prepared for the control of solenoid valves, electronic boards, motors and other DC electrical signals and are considered components susceptible to wear due to their normal operating cycle. The internal contact of the relays, especially when managing inductive or high current loads, can deteriorate even more rapidly, causing a decrease in its conduction capacity or an increase in the resistance of the internal contact.

This progressive wear can manifest itself in the form of intermittent failures, total loss of the function of the controlled device or fluctuations in performance. Therefore, it is recommended to contact Tarso in case of observing anomalous behaviors and the relay will be replaced in case of observing deterioration, thus guaranteeing the continuity of operation.

The Titan and Falcon functionality, mentioned in the special functionalities section, as well as any other special functionality that allows combining simultaneous pulsations of the remote's buttons, will cause greater wear on the contact of the relays due to the pulsations and simultaneous activations.

Exposure of the remote to extreme temperatures

The remote uses two AA batteries whose normal working range oscillates between -20°C and 45°C. When the batteries are exposed to temperatures above this limit, the risks of electrolyte leakage, deformation or even damage to the circuit increase. In hot climates it is important not to expose the remote to the sun, as the batteries will heat up above ambient temperature.

State of the remote's faceplate

The black faceplate on the front of the remote is an essential element for the watertightness and protection of the remote. If your faceplate has deep cracks, perforations or scratches, you should send the remote for replacement.

State of the receiver's wiring

The receiver's wiring is a hose that in turn contains its individual wire interior. If the coating of the hose is damaged, it must be replaced to avoid electrical and human damage. You must also verify that the end of the hose is correctly protected and insulated.

Physical appearance

If the remote/receiver present external damage (cracks or breaks), do not continue using the product because they can cause electrical damage to the machine, the electronics and cannot be repaired.

Cleaning

Remove the accumulated dirt and grease on the outside of the remote/receiver. Do not use solvents or aggressive products, d**o not use pressurized water** as it will deteriorate plastics and rubbers; pressurized water exceeds the IP67 rating and voids the warranty.

Treatment of the rubbers

To ensure watertightness, you must maintain the rubbers of the remote and receiver. Use silicone grease or vaseline so that the gaskets recover their properties in case of observing rigidity of them.

9. Warranty

The products manufactured by Tarso-man S.L.U., intended to be integrated into the buyer's production process or used by the end client, have a warranty period of ONE (1) YEAR from the date of purchase. This warranty is granted exclusively in business-to-business (B2B) operations. Consequently, the consumer and user protection regulations established in Directive (EU) 2019/771 or in the national legislation that has transposed it are not applicable, as these are not sales to final consumers.

The warranty only covers defects in materials and the labor necessary to put the product sold by Tarso-man, S.L.U. in working order.

To claim the warranty, the buyer must notify, to the email address info@tarsoman.com, the defect detected within the warranty period, providing the purchase invoice, invoice number or serial number of the equipment and a detailed description of the problem. Tarso-man, S.L.U. will evaluate the case and, if appropriate, will repair or replace the defective product. All costs associated with the claim, including shipping, will be borne by the buyer, unless otherwise indicated.

The installation, repair, labor or maintenance service will be borne exclusively by the buyer. The shipping costs for the return and replacement of defective products will be borne by the buyer; these costs will not be reimbursed.

Tarso-man S.L.U. reserves the right to **inspect and verify the product before validating any warranty claim**. The buyer must facilitate sending the product to the company's facilities for its technical review.

Exclusions from the warranty:

- Damage caused by exposure to water that exceeds the product's IP standard, such as jets of water under pressure or deterioration of the rubber seals. For example, pressurized water can penetrate the IP67 encapsulation, but once inside, it cannot be evacuated, which will damage the equipment.
- Damage from overheating of the remote or receiver, derived from short circuits or external temperatures that exceed the usual working conditions.

- Breakdowns attributable to negligence, manipulation, improper use or incorrect installation of the equipment by the user, including non-compliance with the technical specifications detailed in this document, lack of maintenance, application of inadequate chemicals or accumulation of waste and water.
- Breakdowns caused by fortuitous events, force majeure or external accidents to the equipment.
- Disassembled remotes by removing the two upper screws that are covered by plastic plugs on 4-screw remotes (this exclusion does not apply to remotes with 6 black rubber studs).
- Damage caused by exceeding the recommended tightening torque (1Nm recommended), as they can cause deformation of metal inserts or breakage of plastic parts. A tightening torque that is too low will not guarantee the watertightness of the equipment.
- Breakdowns derived from an incorrect installation that does not follow the specifications, lack of maintenance, application of inadequate chemicals or accumulation of waste and water.
- Wear and tear due to normal use of the equipment, including aesthetic or mechanical damage to elements such as buttons, mechanical contacts of relays, gaskets and rubbers.
- Equipment that has undergone physical modifications that alter its technical characteristics.
- Installation or use of the equipment that does not comply with the technical specifications detailed in this document.
- Indemnities for expenses or damages derived from the manipulation, assembly or disassembly of the equipment.
- Losses for lost profits (profits not obtained).
- Expenses incurred by the warranty claim.

This warranty is governed by Spanish legislation, without prejudice to other applicable regulations. Tarso-man, S.L.U. reserves the right to modify these terms in future versions of the document, publishing them in official documents on its website www.tarsoman.com. The publication on the website will be considered sufficient notification to the buyer, who must periodically review the updates to be aware of any changes.

10. Declaration of Conformity

CE

The manufacturer: Tarso-man S.L.U.

Address: Polígono Industrial Fuente del Rey,
Carretera Isla Menor, Km 0,200, Nave F
41703 Dos Hermanas, Sevilla (Spain)

As a manufacturer and legal entity that compiles the Technical File, declares that the Tarso remote control and receiver equipment of the TR800 range (Nova, Falcon, Titan and Zenit) with serial number:

TR8

Complies with the following regulations and directives:

- Electromagnetic Compatibility according to Directive 2014/53/EU (RED)
  - ETSI EN 301 489-1 Ver. 2.2.3.
  - ETSI EN 301 489-3 Ver. 2.3.2.
  - Draft ETSI EN 301 489-17 Ver. 3.2.5.
- Radiofrequency tests according to Directive 2014/53/EU (RED)
  - EN 300 220-1 Ver. 3.1.1.
  - EN 300 220-2 Ver. 3.1.1.
  - EN 300 328 Ver. 2.2.2.
- Human exposure to radiofrequency according to EN 62479:2011
- Electrical safety UNE-EN-1 62368-1:2014 + AC1:2015 + AC2:2015 + AC:2017 + A11:2017
- Electromagnetic Compatibility 10.6 UN regulation 10 revision 6 + Am 1
- IP protection rating according to UNE-EN 60529:2018
- IK protection rating according to UNE-EN 50102:1996

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The technician

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