TARSO

Industrial remote controls

User's manual

TR800 series

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Safety warning

This user manual is given for safety reasons and the necessary information for the right use, installation and maintenance of the product.

The installer will be responsible of keeping all the safety rules and maintenance, and of having the necessary training to handle the equipment. Please, notice the symbols above and their respective explanations, as they will be used throughout this manual to identify the safety instructions.

Danger
This symbol warns you of an imminent danger. The fact of not following the instructions could cause serious injuries

Caution
This symbol advises you of a potentially dangerous situation. The fact of not following the instructions could cause slight/moderate injuries and material damages.

Advice
This symbol indicates useful information and advices in order to do the work easier. These advices do not affect safety.

1. Product description

Industrial and versatile

The series TARSO TR800 (Nova, Falcon, Titan or Zenit) is made up of a receiver and a remote control that will 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 to be used in the automotive sector.

Multifrequency smart system

The TR800 receiver and transmitter have an advanced smart multifrequency system of communication via radio, as the frequency changes automatically avoiding interferences in simultaneous transmissions of several equipment working at the same time and place. The system changes the frequency each time that a button is pushed, this helps to avoid frequencies with interferences. The system also includes a technology to detect interferences and learn from them during each transmission allowing the product adapt and avoid frequency collisions

Durable, waterproof and reliable

The TR800 has been developed and manufactured searching to obtain a waterproof resistant product, shockproof and resistant to other conditions that remotes are exposed in industrial environments. All the materials and its assembly have been carefully chosen to adapt to the industrial sector. It is for that reason that pieces have been produced in a plastic polymeter alloy that allow to have a great durability and hardness at the same time.

Secure

The multifrequency system is completed with a secure system of codification through which the signal is codified and encrypted by the transmitter and this transmission is captured, decoded and decrypted by the receiver. This system guarantees that a remote will activate oily the receiver paired with, the possibility to work with several remotes at the same location making the transmission secure and with a high degree of immunity to interferences.

2. Smart Control

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

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

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

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

By accessing the receiver from a mobile device, a digital image of the physical remote control is created and the outputs of the receiver can be controlled as if it were a physical remote control.

The mobile application also provides information about the receiver and its use, about the linked physical remote control and assists the user in linking new remotes or searching for errors.

Apple

Android

The *Smart Control* system is gradually being deployed within the different products and it is possible that your product does not incorporate this system.

If your phone is not up to date, the app may not work and may need to be updated.

The app is available in English, Spanish, French, Portuguese, German and French.

3. Technical specifications

Packing

1 x red or blue transmitter
1 x red or blue receiver
2 x AA batteries (already installed in the transmitter)
2 x fixing screws for the receiver
1 x user manual

Technical specifications of the transmitter

Up to 10 buttons

Dimensions: 108x60x27mm.
Weight (batteries included): 154 gr.
Stainless steel screws.
Operating temperature: -40º a +40º.
Power supply: 2 AA batteries.
Operating band: 2GFSK.
Energy consumption: 0,2µA≈ (standby) y 12mA≈ (transmission).
Battery life: 240 hours (RF transmission).
Multifrequency system with automatic change.
Max operating distance (open field): 160 meters.
Waterproof rating: IP67.
Mechanical impact protection rating: IK10.
Durability of the pushbuttons: 5 million cycles.
Screen-printed and protected rubber pushbuttons.
Protective cover against wear and tear.
Emergency stop acting directly on the receiver.
Radiofrequency transmission LED indicator.
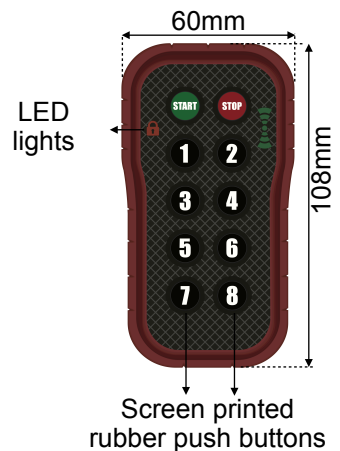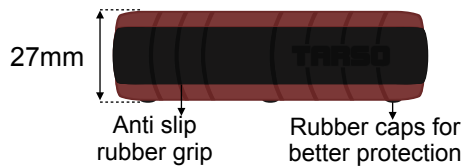Low battery LED indicator.
LED safety lock indicator.
Status confirmation indicated by LED.
Secure transmission encryption system.
Secure auto off after 4,5 minutes of inactivity.
Secure delayed switch on of 1.5 seconds.
The remote has a START button and other STOP; there are versiones of 2, 4, 6 or 8 buttons of function depending of the purchased model.

27mm

Anti slip rubber grip

Rubber caps for better protection

60mm

LED lights

108mm

Screen printed rubber push buttons

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Up to 14 buttons

Dimensions: 136x60x27mm.
Weight (batteries included): 185 gr.
Stainless steel screws.
Operating temperature: -40º a +40º.
Power supply: 2 AA batteries.
Operating band: 2GFSK.
Energy consumption: 0,2µA≈ (standby) y 12mA≈ (transmission).
Battery life: 240 hours (RF transmission).
Multifrequency system with automatic change.
Max operating distance (open field): 160 meters.
Waterproof rating: IP67.
Mechanical impact protection rating: IK10.
Durability of the pushbuttons: 5 million cycles.
Screen-printed and protected rubber pushbuttons.
Protective cover against wear and tear.
Emergency stop acting directly on the receiver.
Radiofrequency transmission LED indicator.
Low battery LED indicator.
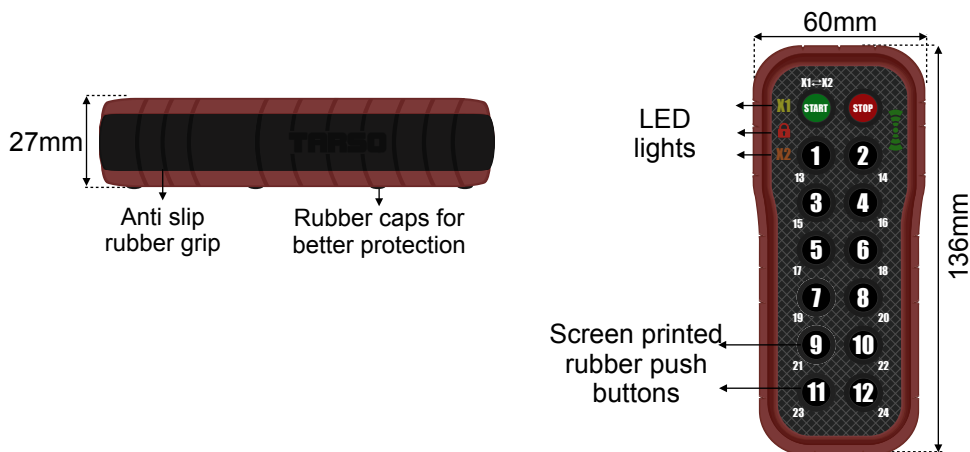LED safety lock indicator.
Status confirmation indicated by LED.
Secure transmission encryption system.
Secure auto off after 4,5 minutes of inactivity.
Secure delayed switch on of 1.5 seconds.
The remote has a START button and other STOP; there are versions of 10 or 12 buttons of function depending on the purchased model; 24 movements could be done creating a second layer.

27mm

Anti slip rubber grip

Rubber caps for better protection

60mm

LED lights

136mm

Screen printed rubber push buttons

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Technical specifications of the receiver

Number of functions	Dimensions	Weight
Up to 3 functions	112x85x48mm	280 gr
Up to 6 functions	142x85x48mm	350 gr
Up to 14 functions	204x85x48mm	615 gr

Stainless steel screws
Operating temperature: -40º a +65º.
Power supply: 6VDC a 32VDC.
Standby consumption: 20mA≈ (12V) y 17mA≈ (24V).
Energy consumption of each output: 35mA (12V) y 20mA (24V)
Operating band: 2GFSK.
Multifrequency system with automatic change.
General protection fuse: 10A.
Max working load at 12V: 10A.
Max working load at 24V: 7A.
Waterproof rating: IP67.
Mechanical impact protection rating: IK09.
Flame retardant box: UL94 V0.
Internal security relay.
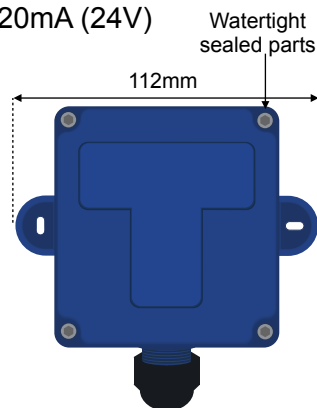Pairing pushbutton (LINK).
Signal reception white LED.
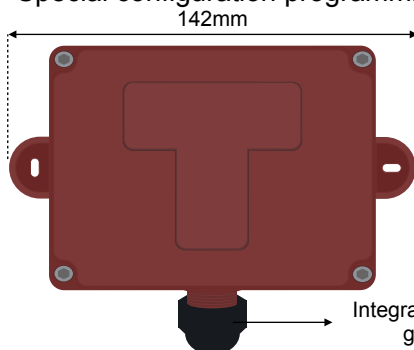Pairing and operation blue LED.
Cable output: supply and signals.
Standard wiring length: 1000mm.
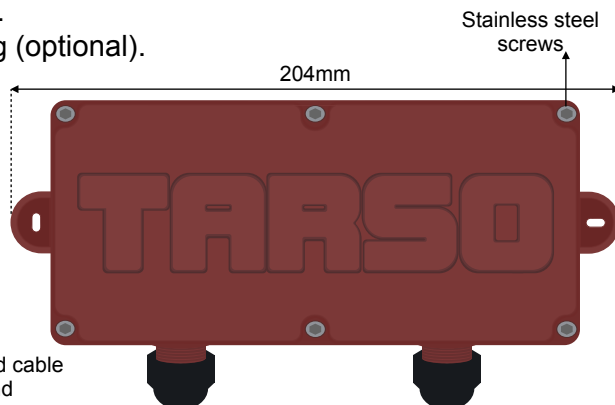Special configuration programming (optional).

Watertight
sealed parts

112mm

Receiver up to 3 functions

Stainless steel
screws

142mm

204mm

Integrated cable
gland

Receiver up to 6 functions

Receiver up to 14 functions

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4. Operating description

4.1. The remote

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.

Reset the transmitter

If any anomaly is found during the operating, the transmitter can be reset. In order to reset the remote, batteries must be removed during 5 seconds. If the red LED lights up fixed during 3 seconds when the batteries are inserted, the transmitter is indicating that there is an error in the radiofrequency system or that the batteries are not new. In order to avoid possible failures and operating errors, we always advise to replace both batteries (page 23). If any of LEDs of the remote light up while pushing START or STOP, it could mean that the batteries are not tightly introduced or that the remote is damaged.

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.

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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.

Doubling of functions X1 and X2 (optional)

Doubling functions allows the user to activate 14 functions in the receiver with a remote of only 8 function pushbuttons. This function only applies for equipments of 10, 12 and 14 independent outputs.

X1	The first 8 outputs will be activated with pushbuttons from 1 to 8, this is stage X1.
X2	The remaining 12 outputs are doubled at stage X2. After doubling, buttons 1 to 12 are used as follow: the button 1 activates outputs 13, the button 2 activates the 14th, the buttons 3 activates the15th, the button 4 activates the 16th, the button 5 activates the 17th 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.

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How to avoid possible interferences?

They can be avoided when we stop pushing a button and we push it again, the remote will be changing the frequency range. The interferences can't be avoided if they are due to inhibitors.

Falcon feature

The Tarso remote controls from the Falcon 4-button range for tail lifts, are equipped with a safety system that requires the operator to use two hands to perform opening and closing movements.

How to use

1. Push the tilt button with your right hand.
2. Push the up or down button with your left hand at the same time.

Tip: if you lift the up or down button, for your safety, the transmission will stop and the platform will stop tilting; if you lift the tilt button and keep pressing the up or down button, the platform will go up or down.

Disabling the security system

The user may disable the security system at his own responsibility and risk with following procedure:

1. When the controller is off, press the START button and immediately press tilt down.
2. The remote's LEDs will begin to flash.
3. Keep the buttons pressed until the LEDs are steady, the security will be disabled and you can tilt with a single button.

Note: to re-enable the security system you only have to repeat the previous steps.

Titan feature

The remotes from TR800 Titan range for towing, allow to move the platform and tilting at the same time. This functionality can be also disabled to only allow one movement at the time. The following combination is allowed:

Move out the platform while tilting up.

Move in the platform while tilting down.

Exclusive ID feature

The feature exclusive ID or exclusive remote, it is a functionality developed by Tarso willing to make the work more secure in environments where the receiver will be paired and controlled with one or more remote controls.

The exclusive ID guarantees that if a remote controls has started to work with a receiver, only that remote will be able to control the receiver until the work has finished. The Tarso receiver, considers that the work has finished when the user has pushed STOP button or after 4,5 minutes without receiving any order from the paired remote. Without this feature, if the user pairs more than one remote control, both would be able to control the receiver and this might be a risk if one of the users is working and another user tries to control at the same time the receiver. This feature, is by default included in all Tarso products from TR800 range.

The exclusive ID feature is different from the coding system:
- The encrypted coding system of the product is in charge of giving each Tarso remote an unique ID guaranteeing that each receiver is only controlled by the remote that it is paired with (page 4).
- The exclusive ID is a security feature that only applies in case there is more than on remote with a receiver.

Safe range feature (optional)

The safe range feature is an optional functionality developed by Tarso to force the user be placed at a fixed location to start the work or to make critically secure operations.

If the feature is active, when the user starts the remote o before starting a certain operation would need to previously register the remote at the safe rage area. The user would need to place the "Safe Point" part at the desired location to fore the user register the remote and where he should make the signal LED of the remote match.

Area to register   Safe Point

4.2. The receiver

It works automatically, the user does not act on the receiver. When it is powered, the receiver goes into a "listening" state, waiting to receive a signal from the transmitter. The cable output contains the power supply and the outputs, each one controlled by an internal relay.

The receiver can be supplied in 3 different sizes, depending on the number of functions. The products from 16 to 24 outputs are supplied with two receivers, one of 14 movements and another one with the rest. The products with two receivers, the remote is paired from origin to work seamlessly with both receivers.

Inherent safety on the receiver

The user must never act on the circuit. If he manipulates the receiver may suffer personal injury and damage. If any anomaly is found the receiver and transmitter must be reset.

Reset the receiver

If there are malfunctions the receiver should be reset and the supplied power should be measured. In order to reset the receiver, the power supply must be removed for 10 seconds.

Replacement of the main fuse

The receiver includes a mini fuse of 10A for general protection, the fuse could burn or break and the product would stop woking. Check the state of the fuse in case the receiver stops responding and change it if needed.

Fuse

Work blue LED

RF white LED

Pairing button
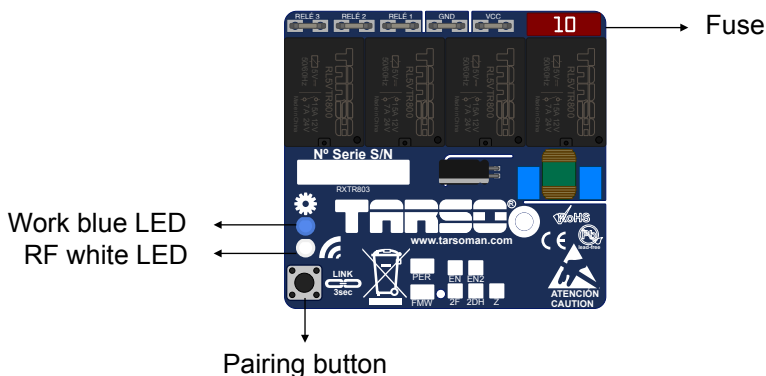
Receiver with external antenna (optional)

The Tarso receiver has an internal antenna that makes it possible to obtain a compact and small-sized product, but it can optionally 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 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 it to work correctly it must have the external antenna connected.

The antenna should preferably be placed in a vertical position with the cable downwards to obtain the maximum performance in an open space and to obtain the best direct visibility with the control while working. To place the antenna it is only necessary with the sticker that it comes with, it should be applied on any smooth and clean surface.

Although water does not affect the antenna, you should be aware that applying high pressure water jets directly to the antenna will damage it. In no situation should you apply pressurized water jets on the receiver or the connection between the antenna and the receiver, since the receiver would be damaged beyond repair. Never cut, shorten or lengthen the cable as this would change its characteristics and therefore reduce the working distance.

External antenna

3 meters long cable

Antenna-receiver connector
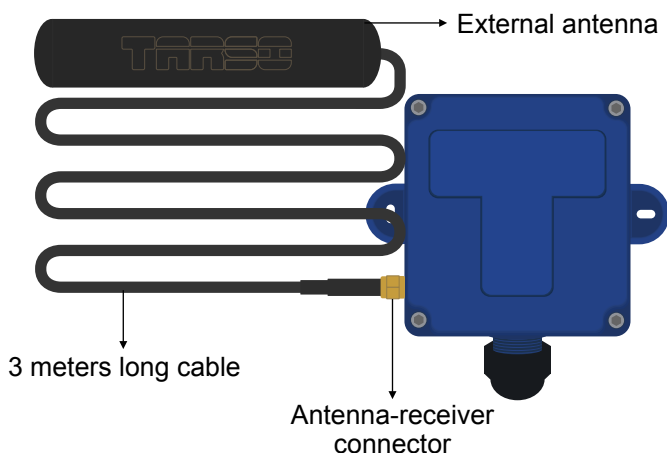
4.3. Pairing LINK

Spare parts are sold with a different code different from the original one, so it is necessary to pair the spare part with the original transmitter/receiver. The pairing is not necessary if you buy a new kit of receiver and transmitter because it is already paired before shipment.

Pairing procedure

1. Remove the power supply and the screws with a Hex 2,5 wrench.
2. Supply power to receiver, for safety reasons after supplying power you will have 1 minute to pair; then this function will be disabled.
3. Press the black pushbutton on the receiver for 1 second.
4. When the finger is lifted, the blue LED will start flashing.
5. Wait for the blue LED to turn off.
6. Press the black pushbutton in the receiver once again for 1 second.
7. When the finger is lift, the white LED will start flashing.
8. Press the STOP button on the remote until the white LED turns off and the blue blinks for a second to show that the pairing process has finished.

Caution: the pairing process must be done while there are no other operating remote nearby otherwise they could be paired instead.

Issues during the pairing process

- Only compatible remotes will be allowed to pair with the receiver. They will be compatible if they are from same series, range and button number.
- If more than two years have passed since the purchase of the original product and you try to pair a new spare remote with the old receiver, a firmware update of the receiver could be necessary to make it compatible. It is always recommended the verification of the serial number on the receiver before purchasing a new remote spare part.
- If pairing button is pushed in the receiver an no lights blink it could mean:
  1. It has been more than 1 minutes since the receiver was powered up.
  2. The receiver has no power.
  3. The main fuse is burned or broken.
  4. The receiver button has been pressed for less than 1 second.
  5. The receiver has a problem and should be checked by a the Tarso technical service.

5. Installation manual

Safety warning

- The installation will be carried out by qualified operators
- Use insulating protective equipment.
- Carry out first start-up without load.
- Switch off the machine/vehicle during installation.
- It is recommended to power supply the equipment through a safety system as an emergency key.
- A wrong connection of the receiver outputs causes unexpected movements of the machine when activating the transmitter.
- The outputs of the receiver are positive voltage, a contact with ground would cause a short circuit.

Assembly procedure and first use

1. For safety before performing any operation, the operator must ensure that the power supply of the circuit, machinery or vehicle is disconnected to avoid human and/or material damage.
2. We recommend to screw the receiver with the wiring downwards, protected from direct exposure to water and mud. This will allow to lengthen the lifetime of the receiver and prevents possible malfunctions.
3. The receiver should be installed as far away as possible from a large metal ground and must not be screwed into a metal box, as this may provoke interferences and the working distance will decrease considerably. It is also recommended to install it away from engines as these caused electromagnetic fields. If you need to install under these conditions it is recommended to use a receiver with external antenna.
4. Before connecting the receiver outputs, remember that each button of the remote can control one or more relays and have different working modes. To know how each button behaves, the behaviour of all product ranges and the relation between the remote buttons and the receiver outputs should be checked.
5. Connect the receiver outputs to the load you want to control.
6. Connect power cables (red/black)
7. Power the receiver up and control it with the remote.

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Functionality of each product range

NOVA   **FALCON**   **TITAN**   **ZENIT**

Nova-I

Each button on the remote corresponds to a receiver output that is activated while each button is pressed and deactivated when the button is released. The controller turns off after 4.5 minutes without use. The remote controls are supplied with a numbered keypad.

Nova-G

Each button on the remote corresponds to a receiver output that is activated when each button is pressed and remains active when the button is released. To deactivate each output, the button that previously activated it will have to be pressed again. The Stop button turns off all active outputs. The controller does not turn off after 4.5 minutes without use. The remote controls are supplied with a numbered keypad.

Nova-E

Each pair of buttons on the remote control corresponds to a receiver output that is activated when each odd button is pressed and remains active when it is released. To deactivate each output, you must press the even button (in a 2-button control, button 1 activates output 1 and button 2 deactivates it). The Stop button turns off all active outputs. The controller turns off after 4.5 minutes without use if no output is active. The remote controls are supplied with a numbered keypad.

Falcon

Remote control for tail lifts. Each product reference is manufactured with the specific configuration for each tail lift. The controller turns off after 4.5 minutes without use. The remote controls are supplied with a specific keypad for tail lifts.

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Titan

Remote control for recovery trucks. Each button on the remote corresponds to a receiver output that is activated while each button is pressed and deactivated when the button is released. The controller turns off after 4.5 minutes without use. The remote controls are supplied with a specific keypad or sticker for the application.

Zenit

Remote control for towing trucks. Each button on the remote corresponds to a receiver output that is activated while each button is pressed and deactivated when the button is released. The controller turns off after 4.5 minutes without use. The remote controls are supplied with a specific keypad or sticker for towing vehicles.

Relation between buttons and outputs

The tables on the following pages show the active outputs when each button on the remote is pressed. The control buttons of the Nova, Titan and Zenit models are only associated with a single receiver output, but the control buttons of the Falcon model can activate several receiver outputs simultaneously.

The client may request combinations between buttons and receiver outputs according to the needs of each application. The customer may request automation and automatic shutdown of the outputs, so these products may not follow the characteristics detailed in this manual.

Notes:
- The following tables will not always apply to equipment that has been requested with special configurations upon request.Los equipos de únicamente 2 salidas no tienen salida común de serie, pero puede ser solicitada bajo pedido.
- The tables refer to the nomenclature **X2** related to the specific function of the splitting of functions for the control of applications with more than 12 movements. For more information consult the .
- Receivers that control more than 6 outputs will have 2 cable outputs.

Nova-I / Nova-G / Titan / Zenit

Receiver colours outputs / Relay / Button	Common	Output 1						Output 2						Relay 13 X2	Relay 14 X2
		Relay 1	Relay 2	Relay 3	Relay 4	Relay 5	Relay 6	Relay 7	Relay 8	Relay 9	Relay 10	Relay 11	Relay 12		
Button 1	✓	✓												✓	
Button 2	✓		✓												✓
Button 3	✓			✓											
Button 4	✓				✓										
Button 5	✓					✓									
Button 6	✓						✓								
Button 7	✓							✓							
Button 8	✓								✓						
Button 9	✓									✓					
Button 10	✓										✓				
Button 11	✓											✓			
Button 12	✓												✓		

Red cable from output 1: VCC
Black cable from output 1: Ground

Legend:
- The common is activated whenever any button on the remote is pressed.
- Output 2 is included in kits of 8, 10, 12 and 14 movements.
- Output 2 differs from output 1 because it does not have a red wire.
- Relays 13 and 14 are activated by buttons 1 and 2 on **X2**.

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Second receiver Nova-I

Button	Common	Relay 15	Relay 16	Relay 17	Relay 18	Relay 19	Relay 20	Relay 21	Relay 22	Relay 23	Relay 24
		Output 1						**Output 2**			
	X2	X2	X2	X2	X2	X2	X2	X2	X2	X2	X2
Button 3	⊘	✓									
Button 4	⊘		✓								
Button 5	⊘			✓							
Button 6	⊘				✓						
Button 7	⊘					✓					
Button 8	⊘						✓				
Button 9	⊘							✓			
Button 10	⊘								✓		
Button 11	⊘									✓	
Button 12	⊘										✓

Receiver colours outputs / Relay

Red cable from output 1: VCC
Black cable from output 1: Ground

Legend:
- The second Nova-I receiver is included only for teams from 15 to 24 functions and can be of 3 different sizes.
- The common is activated whenever any button on the remote is pressed.
- Output 2 is included in kits of 21, 22, 23 and 24 movements.
- Output 2 differs from output 1 because it does not have a red wire.
- All relays are activated when the command is in X2.

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Nova-E

Button \ Relay	Relay 1 (brown)	Relay 2 (green)	Relay 3 (blue)	Relay 4 (yellow)	Relay 5 (grey)	Relay 6 (orange)
Button 1	✓					
Button 2	⊘					
Button 3		✓				
Button 4		⊘				
Button 5			✓			
Button 6			⊘			
Button 7				✓		
Button 8				⊘		
Button 9					✓	
Button 10					⊘	
Button 11						✓
Button 12						⊘

Receiver colours outputs

Red cable: VCC
Black cable: Ground

Legend:
- Nova-E refers to products with interlocked outputs.
- The receivers have no 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.

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Zepro

Push Button	Relay 1 Letter B	Relay 2 Letter C	Relay 3 Letter E
Button 1	✓		
Button 2	✓	✓	
Button 3			✓
Button 4		✓	✓

Red cable: VCC
Black cable: Ground

Dhollandia 2

Push Button	Relay 1 Letter R	Relay 2 Letter H	Relay 3 Letter D
Button 1	✓	✓	
Button 2		✓	✓

Red cable: VCC
Black cable: Ground

Dhollandia 4

Push Button	Relay 1 Letter H	Relay 2 Letter R	Relay 3 Letter D	Relay 4 Letter S	Relay 5 Letter O
Button 1	✓	✓			
Button 2		✓		✓	
Button 3	✓		✓		
Button 4				✓	✓

Red cable: VCC
Black cable: Ground

Falcon 4

Push Button	Relay 1	Relay 2	Relay 3	Relay 4
Button 1	✓			
Button 2		✓		
Button 3			✓	
Button 4				✓

Red cable: VCC
Black cable: Ground

For tai lifts MBB, Anteo, BAR, Dautel, Benalu, Elephant Car

Legend:
- The tables on this page represent most common Falcon products specifically developed for tail lifts.
- The Falcon range receivers do not have a common output.
- Each tail lift has a different and specific combination.

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.
2. Squeeze the metal battery holders to make them a bit more tight and the batteries make contact.
3. Replace the batteries in the remote.

The remote turns on the lock red light.
1. Open the remote and remove the batteries.
2. Replace batteries in the remote, it is an indication of a dead battery.
3. The remote may be equipped with the safe range feature.

The remote turns on when START is pressed but it doesn't work.
1. Make sure you turn on the remote control correctly. To turn on the controller, you must press the START button for 1.5 seconds.
2. Replace the batteries in the remote.

The remote turns on when START is pressed.
1. Check that receiver is powered up.
2. Replace the red 10A general power supply fuse of the receiver.
3. Check that the relays make noise when the control is actuated.
4. Open the receiver and check the white receive LED. The white LED, while receiving a signal, should flash rapidly.
5. If the remote is new, carry out the pairing procedure. If you have problems during the process, check the section 3.3 Pairing LINK.

The connection between the remote and receiver is intermittent, abnormal, or the connected machinery does not work properly.
1. Check the condition of the receiver wiring and that the supply voltage is stable and between 6 and 32 VDC.
2. Check that the green light on the control turns on while you are performing the work manoeuvre.
3. Open the receiver and check the white receive 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 by the above procedures, you can request maintenance at rma@tarsoman.com. To request maintenance, you must indicate that you have carried out the above checks and which of them the equipment has not passed.

TARSO

7. Replacement of AA batteries from the remote

If, when you turn on the controller, the lock LED (red) is not blinking, it means that the controller does not have enough battery level to work. Therefore, it will be necessary to replace the batteries by following the steps below:

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

Step 2
Remove the back cover and take out the circuit inside it.

1. Remove the batteries and recycle them.
2. Push the battery holders to guarantee a good contact with the batteries.
3. Insert two new batteries, mind the polarity.
4. **CAUTION**. First insert the circuit into the 3 small brackets of the rear casing, otherwise you could misplaced the circuit. Check that the batteries fit correctly and are separated by the central plastic line, if not the battery holders could bend (page 24).
5. Insert the assembly (rear cover + circuit) into the rubber. In this step it is important to pay attention that the edges of the rubber fit together correctly and do not bend over themselves, since if they bend the rubber will be damaged and the transmitter will cease to be hermetic.
6. Before tightening the screws and closing the transmitter completely, check that if a button is pressed any LED lights up. Retighten the 6 screws to hermetically seal the transmitter.
7. Insert the rubber caps for a better protection of the remote.

Purple

Center dividing line. Fixes the center of the circuit and separate the batteries.

If the circuit is forced and the batteries are not separated, it might break the remote control or generate a short circuit.
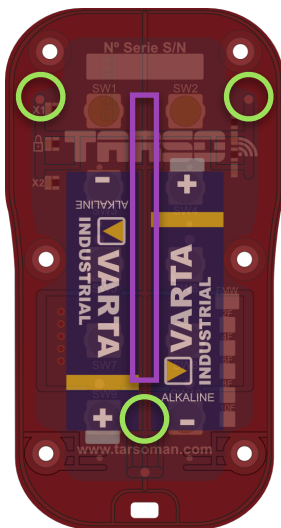
Green

Rounded fixing supports that center the circuit in the casing.

The circuit must be correctly fitted into the 3 supports before being inserted 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.

Physical appearance

If the transmitter/receiver is damaged externally (cracks or tears), do not continue using the product as it may cause electrical damage in the machine, in the electronics and repairing might not be possible.

Product cleaning

Remove dirt and grease from the outside of the transmitter/receiver. Do not use solvents or aggressive products, **nor high-pressure water** since it will deteriorate plastics and rubbers; high-pressured water exceeds IP67 grade protection and if used the warranty will be voided.

Treatment of rubbers

In order to guarantee waterproof rating, you must maintain the rubbers of transmitter and receiver. Use silicone grease or petroleum jelly to restore their properties.

9. Warranty

1. The products manufactured by Tarso-man S.L.U. which are intended to be integrated in the production process of the buyer or the final customer will have a warranty period of **ONE YEAR** from the date of purchase.

2. Warranty exclusions:
   - **Damage due to water not covered under standard IP67 like pressured water** or wear of rubbers with the time. High pressured water will penetrate inside the IP67 enclosure but once it is inside, it won't be able to exit, damaging the product.
   - Damage due to overheating of the control unit due to short circuit or high external temperatures exceeding the normal working temperature.
   - Damage due to negligence, handling or misuse of the equipment by the user, as well as the repairs performed by unauthorized operator.
   - Breakdowns due to fortuitous causes, force majeure and incidents outside the equipment.
   - Faults due to incorrect installation without following the specifications, lack of maintenance, application of chemicals products and accumulation of waste and water.
   - Wear or deterioration due to normal use of the equipment, either for aesthetic or mechanical damage such as pushbuttons, relays and rubbers.
   - The equipment that has undergone physical changes and these alter their technical characteristics.
   - The installation and use of equipment that does not meet the technical specifications detailed in this document.
   - Compensation for the costs and damages arising from the handling, assembly and disassembly of equipment.
   - The losses caused by lost profits.
   - Expenses incurred by the warranty claim.
3. The service of installation, repair, labor costs or maintenance shall be borne exclusively by the purchaser.
4. The warranty only covers defects in materials and labor force necessary to deliver in operating conditions the product sold by Tarso-man S.L.U.
5. Shipping costs for the return and replacement of defective products will be charged to the buyer; shipping costs will not be paid back.

10.Declaration of conformity

C E

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 (España)

As manufacturer and legal entity issuing this declaration of conformity, declares that the Tarso TR800 (Nova, Falcon, Titan y Zenit) wireless remote and receiver with serial number:

TR8

Fulfils the following harmonisation laws and standards:
- Electromagnetic Compatibility Directive 2014/53/UE (RED)
  - ETSI EN 301 489-1 Ver. 2.2.3.
  - ETSI EN 301 489-3 Ver. 2.3.2.
- Radio Frequency Directive 2014/53/UE (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 Radio Frequency 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 degrees of Protection of Enclosures UNE-EN 60529:2018
- IK Degrees of Protection of Enclosures UNE-EN 50102:1996

Francisco F. Mayoralas
The assembly staff   CEO

TARSO

Tarso-man S.L.U.

🌐 **www.tarsoman.com**
✉ **info@tarsoman.com**
📞 **+34 954689663**