Tiger G2

Installation instructions








Receivers

TG-R10-1
TG-R10-2

IM-TG2-RX103-B02-EN
Language: English (original)

TELE RADIO® REMOTE CONTROL

CONTENTS

CHAPTER 1: CUSTOMER INFORMATION

THANK YOU FOR PURCHASING A TELE RADIO AB PRODUCT

Read all instructions and warnings carefully before mounting, installing and configuring the products.

These instructions have been published by Tele Radio AB and are not subject to any guarantee. The instructions may be withdrawn or revised by Tele Radio AB at any time and without further notice. Corrections and additions will be added to the latest version of the instructions. Always download the installation instructions from our website, www.tele-radio.com, for the latest available version. Keep the safety instructions for future reference.

IMPORTANT! These instructions are intended for installers. The instructions containing information about the installation and configuration of the radio remote control unit on the machine are not intended to be passed on to the end user. Only information that is needed to operate the machine correctly by radio remote control may be passed on to the end user.

Tele Radio AB remote controls are often built into wider applications. Always refer to the applicable local regulations for installation and safety requirements relating to cranes, hoists or other material handling and/or lifting equipments using Tele Radio AB products, e.g.:

- applicable local and industrial standards and requirements,
- applicable occupational health and safety regulations,
- applicable safety rules and procedures for the factory where the equipment is being used,
- user and safety manuals or instructions of the manufacturer of the equipment where Tele Radio AB remote control systems are installed.

Tele Radio AB instructions do not include or address the specific instructions and safety warnings of the end product manufacturer.

Tele Radio AB products are covered by a guarantee/warranty against material, construction or manufacturing faults, see § "GUARANTEE, SERVICE, REPAIRS AND MAINTENANCE" on page 30

Datavägen 21
SE-436 32 ASKIM
SWEDEN
Tel: +46-31-748 54 60
www.tele-radio.com

ABOUT TIGER TG2 SYSTEMS

The Tiger TG2 product range is composed of transmitters and receivers intended for use together as a system in complex lifting applications such as cranes, OHT cranes and electric hoists or advanced mobile applications.

Tiger TG2 systems put safety first, the stop function achieved product certifications CAT3, PLe and SIL3 in accordance with EN 13849-1 and IEC 61508 respectively. The ergonomic sizes and shapes of the transmitters, the clear and fully customizable panel foils & face-plates as well as the accessories ensure that the Tiger G2 radio remote controls are easy to operate.

ABOUT THIS DOCUMENT

Every care has been taken in the preparation of this manual. Please inform Tele Radio AB of any inaccuracies or omissions.

These installation instructions cover general safety issues, main technical specifications, standard installation, configuration and operating instructions, general troubleshooting and battery information. Images shown in this document are for illustrative purposes only.

Term and symbol definitions

The capitalized terms and symbol used herein shall have the following meaning:

- WARNING! indicates a hazardous situation which, if not avoided, could result in death or serious injury.
- CAUTION! indicates a hazardous situation which, if not avoided, will result in minor or moderate injury.
- IMPORTANT! is used for information that requires special consideration.
- NOTE! is used to address practices not related to physical injury.

This symbol is used to call attention to safety messages that would be assigned the signal words "WARNING" or "CAUTION".

WARNINGS & RESTRICTIONS

Carefully read through the following safety instructions before proceeding with the installation, configuration, operation or maintenance of the product. Failure to follow these warnings could result in serious injury and property damage.

Tiger TG2 products must not be operated without having read and understood the Installation instructions, the specific technical documentation (when provided), and having received the appropriate training. The purchaser of this Tiger TG2 product has been instructed how to handle the system safely. The following information is intended for use as a complement to applicable local regulations and standards.

Installing, connecting and mounting

- This radio system must not be used in areas where there is a risk of explosion.
- Tele Radio AB remote controls are often built into wider applications. Those systems should be equipped with:
  - a wired emergency stop where necessary.
  - a brake.
  - an audible or visual warning signal.
- Always switch off all electrical power from the equipment before installation procedure.
- Only licensed or qualified personnel should be permitted to install the product.
- To utilize the safety of the system, use the stop relays in the safety circuitry of the object that you want to control.
- When the equipment controlled by the receiver's standard relays is connected via the stop relays, make sure that the maximum current through the stop relays is still within the specifications. Contact your representative for assistance.
- Avoid registering transmitters in receivers where they are not being used.
- The receiver should be installed well away from wind, damp and water. It must be securely attached and located where it will not be hit by e.g. any moving parts.
- Do not install the product in areas affected by strong vibrations.
- Cable glands and vent plugs must face downwards to prevent water from gaining access.
- Check that the power supply is connected to the correct connection terminal.
- Do not use damaged cables. Cable must not hang loose.

- Avoid installation in areas subject to strong vibrations
- The receiver can withstand normal weather conditions but should be protected from extreme conditions. The receiver should also not be subjected to mechanical water pressure i.e. a pressure washer or similar adverse conditions.

Operation

- Only qualified personnel should be permitted to access the transmitter and operate the equipment.
- Make sure that the user satisfies the age requirements in your country for operating the equipment.
- Make sure that the user is not under the influence of drugs, alcohol and medications.
- Make sure that the user knows and follows operating and maintenance instructions as well as all applicable safety procedures and requirements.

- **The user should:**
  - always test the transmitter stop button before operating it. Press the stop button then twist and pull it out. This test should be done on each shift, without a load.
  - never use a transmitter if the stop button is mechanically damaged. Contact your supervisor/representative for service immediately.
  - never let the transmitter unattended.
  - always switch the transmitter off when not in use. Store in a safe place.
  - keep a clear view of the work area at all times.

Maintenance

- Keep the safety instructions for future reference. Always download the configuration instructions from our website for the latest available version.
- Always contact your representative for service and maintenance work on the product.
- Write down the serial numbers/ ID codes of the receivers and transmitters used. This information should be recorded in the "Settings document" for your product (can be downloaded from www.tele-radio.com).
- If error messages are shown, it is very important to find out what caused them. Contact your representative for help.
- The functionality of the stop button should be tested at least after every 200 hours' use. Test the stop button by pressing it and pulling it out.
- If the stop button is mechanically damaged, do not use the transmitter. Contact your representative for service immediately.
- **Before maintenance intervention on any remote controlled equipments:**

  - always remove all electrical power from the equipment.
  - always follow lockout procedures.

CHAPTER 2: FUNCTIONAL SAFETY

SAFETY FUNCTIONS

Stop function

The stop function in the radio system complies with IEC 61508 SIL3. The stop relays on the receiver unit are controlled by the stop button on the transmitter unit. When the stop button is pressed, the stop relays interrupt the power to the safety-related application. The complete end user system, including the radio system, enters a safe state. The maximum response time for the stop function is 500 ms.

The stop function is supported by all receiver and transmitter units in the Tiger G2 range.

INSTALLATION

The stop relays on the receiver unit must be correctly installed on the end user system, to ensure that opened/deactivated stop relays interrupts the power to the safety-related application. The safety level of the stop function can only be credited when used in a complete end user system that complies with IEC 61508 SIL3.

The safe relays on the receiver units must be correctly installed on the end user system, to ensure that opened/deactivated stop relays interrupts the power to the dedicated safety function. The safety level of the safe function can only be credited when used in a complete end user system that complies with IEC 61508 SIL3.

MEASURES FOR PROBABILITY OF HARDWARE FAILURES

Transmitter stop function	
Probability of dangerous failure per hour	PFHd = 8.5 FITs (=λdu)
Fraction of total failure rate with dangerous and detected consequence	λdd = 357 FITs
Diagnostic coverage	DC = 98.3 %
Safe failure fraction	SFF = 99.1 %
Common cause failure	0 FIT
Level of hardware fault tolerance	HFT = 1
Proof test interval	10 years
Diagnostic test interval	Continuous

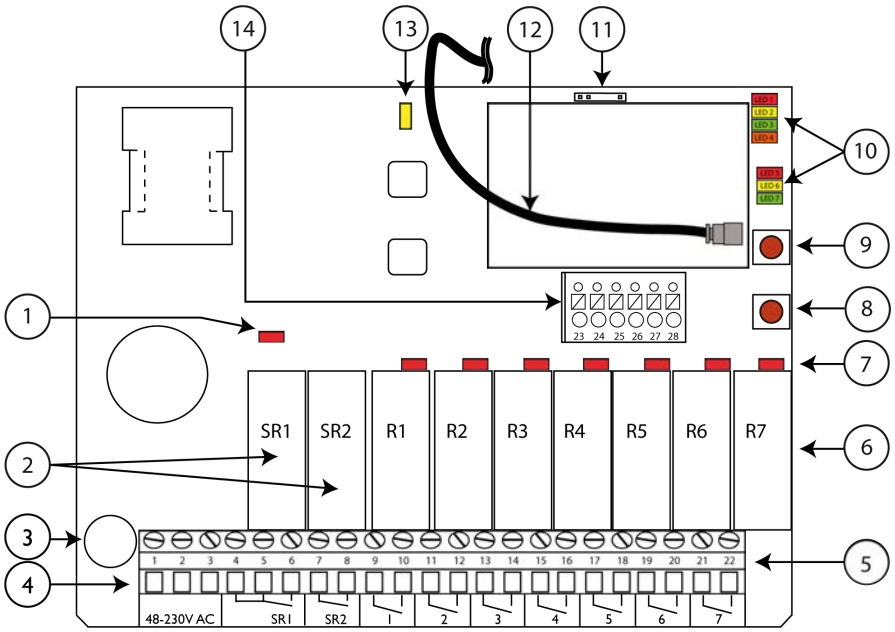
Receiver stop function	
Probability of dangerous failure per hour	PFHd = 30.1 FITs (=λdu)
Fraction of total failure rate with dangerous and detected consequence	λdd = 685.0 FITs
Diagnostic coverage	DC = 96.9 %
Safe failure fraction	SFF = 98.7 %
Common cause failure	8.0 FIT
Level of hardware fault tolerance	HFT = 1
Proof test interval	10 years
Diagnostic test interval	Continuous

CHAPTER 3: PRODUCT DESCRIPTION

Risk of electric shock. The receiver must only be opened by qualified installers. Make sure the power supply is switched off before opening the receiver.

BASE BOARD

NOTE! This base board is fitted in the following receiver models:
TG-R10-1, TG-R10-2

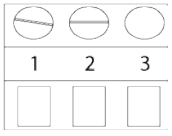


1. LED indicator for stop relays SR1–2 (red)
2. Stop relays 1–2
3. Obligatory fuse 2A (slow)
4. Terminal block for input power

   Risk for electric shock
5. Terminal block for R1–R7
6. Relays 1–7 (NO)
7. LED indicator for R1–R7 (red)
8. Select button (OK)
9. Function button (Cancel)
10. Function LEDs (1=red, 2=yellow, 3=green, 4=orange, 5 = red, 6 = yellow, 7 = green)
11. Programming connector
12. Cable to the internal antenna
13. Power LED (yellow)
14. Terminal block for digital I/O and buzzer

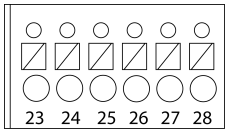
Terminal block for input power

Risk for electric shock. Do not touch the terminal block when the receiver is powered up.



1. 48–230 V AC
2. 48–230 V AC
3. Not used

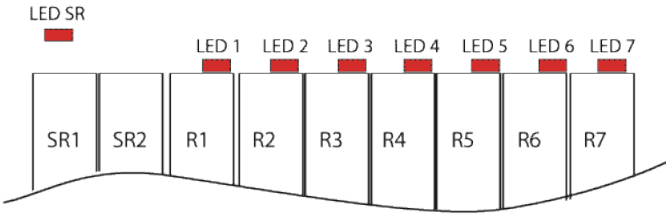
Terminal block for mixed I/O



23.	+12 V DC	26.	GND
24.	Transistor output	27.	DI 2
25.	DI 1	28.	GND

LED indicators on the base board

The base board has 8 LEDs for relay status indication. The LED lights when the corresponding relay on the base board is activated.



LED SR = stop relays 1–2
LED 2 = relay 1
LED 3 = relay 2
LED 4 = relay 3
LED 5 = relay 4
LED 6 = relay 5
LED 7 = relay 6
LED 8 = relay 7

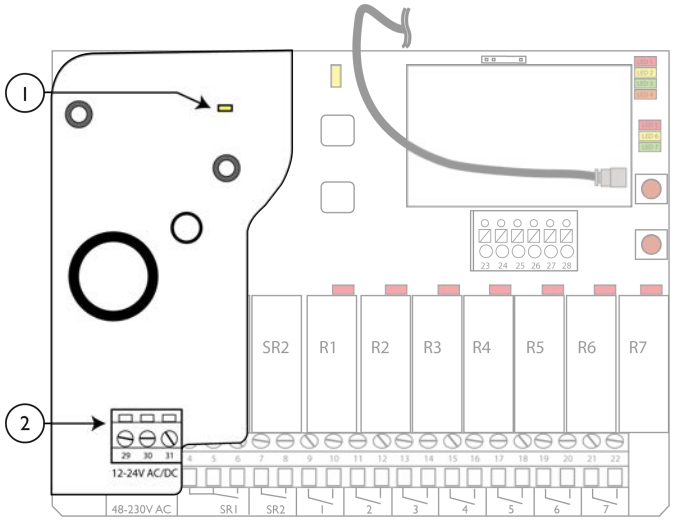
Function LED indications in operation mode

LED	Color	Off	On	Flashing	Indicates
1	Red	X			No transmitter is registered.
			X		One or more transmitters are registered.
2	Yellow	X			No transmitter is logged in.
			X		One transmitter is logged in.
3	Green		X		Receiving valid RS485 data.
4	Orange	X			SIL conformity (settings in the safety CPUs are conform with SIL3).
			X		SIL error (settings in the safety CPUs are not conform with SIL3).
5	Red	X			Automatic frequency control processing. Signal is not locked on the transmitter.
			X		Automatic frequency control fine-tuned. Signal is locked on the transmitter.
				X	The receiver is frequency scanning
6	Yellow		X		Receiving valid sync word.
7	Green		X		Receiving valid radio packet.

EXPANSION BOARD

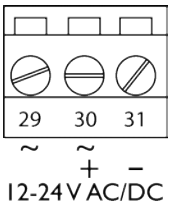
NOTE! This expansion board is fitted in the following receiver model:
TG-R10-2

Do not connect power supply to the base board when this expansion board is used.



1. Power LED (yellow)
2. Terminal block for input power

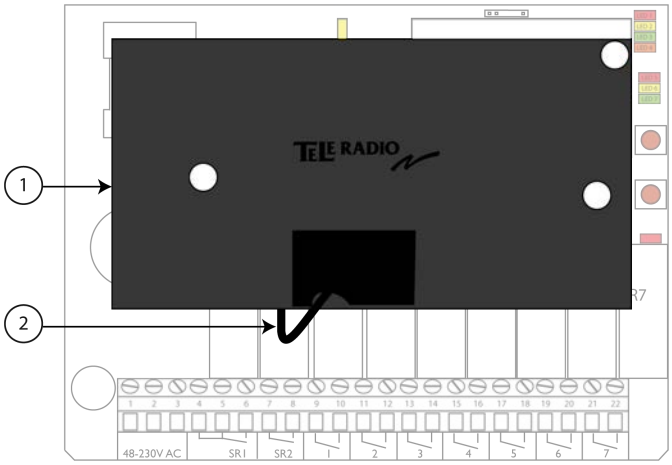
Terminal block for input power on expansion board



29. ~ 12–24 V AC/DC
30. ~ 12–24 V AC/DC
31. Negative terminal DC voltage

INTERNAL ANTENNA

NOTE! This internal antenna is fitted in the following receiver models:
TG-R10-1, TG-R10-2



1. Internal antenna
2. Connection cable for the internal antenna

TECHNICAL DATA

	TG-R10-1	TG-R10-2
Input power	48–230 V AC, 50–60 Hz, max. 0.5 A	12–24 V AC/DC, max. 0.5 A
Number of stop relays	2 (potential free*, 10 A)	
Number of relays	7 (potential free*, 10 A)	
Number of digital inputs	2	
Number of transistor outputs	1	
Bus system	–	
Radio communication	Simplex (default), support for duplex	
Frequency band	433.075–434.775 MHz	
Number of channels	69	
Max. number of registered transmitters	15	
Radio frequency output power	<10 mW	
IP code	IP66	
Safety level	SIL3, PLe	
Dimensions	152 x 139 x 58 mm / 6 x 5.5 x 2.3 in	
Weight	650 g / 1.4 lbs	
Operating temperature	-20…+55 °C / -4…+130 °F	
Antenna	Internal antenna	

* Potential free means that a supply voltage is needed to get voltage out of a relay (e.g. via the included connection comb).

CURRENT CONSUMPTION

Input power	TG-R10-1		TG-R10-2	
	Min.*	Max.**	Min.*	Max.**
12 V AC	–	–	0.05 A	0.3 A
24 V AC	–	–	0.03 A	0.2 A
48 V AC	0.02 A	0.09 A	–	–
115 V AC	0.01 A	0.04 A	–	–
230 V AC	0.01 A	0.03 A	–	–
12 V DC	–	–	0.06 A	0.4 A
24 V DC	–	–	0.03 A	0.2 A

*Minimum current consumption = Receiver powered, no active relays, no radio session established.

**Maximum current consumption = Receiver powered, all relays on the receiver active, radio session established.

FATAL ERROR INDICATIONS AND ERROR CODE MESSAGES

Fatal errors are indicated by function LEDs 1–7, which are all flashing at the same time. Each fatal error is identified by a code indicated by relay LEDs 1–5.

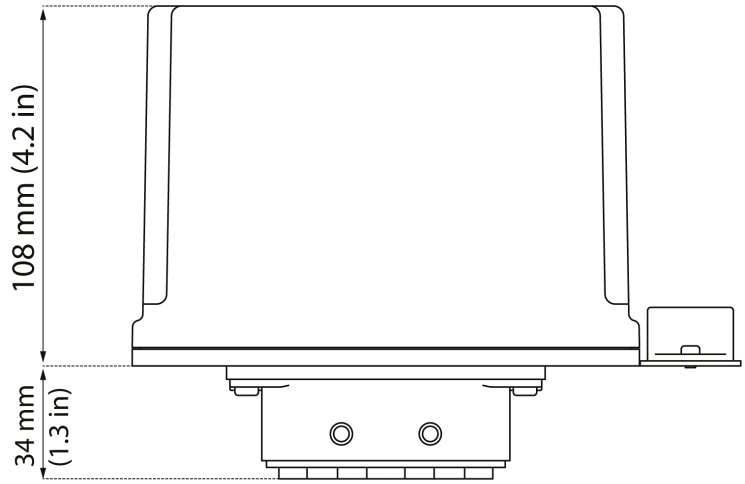
●: LED is lit. ○: LED is off

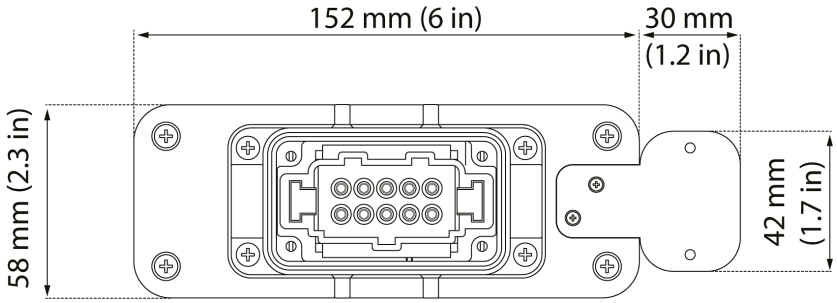
Relay LED1 red	Relay LED2 red	Relay LED3 red	Relay LED4 red	Relay LED5 red	Error code message	Indicates
●	○	○	○	○	"Invalid PD CPU3"	Invalid/ missing production data in the CPUs
○	●	○	○	○	"Wrong SW CPU4"	Incompatible software in the CPUs
●	●	○	○	○	"Xapp init failed"	Bad settings data
○	○	●	○	○	"No reply CPU1/2"	No reply from CPU1 or CPU2
●	○	●	○	○	"Test mode"	Receiver in test mode (no error)
○	●	●	○	○	"IF cal. failed"	Initialization of the radio module failed
●	●	●	○	○	"Bad exp. in rly"	Incompatible expansion board*
○	○	○	●	○	"Bad exp. in can"	No CAN expansion board found**
●	○	○	●	○	"SIL error"	SIL error reported from CPU1 or CPU2
○	●	○	●	○	"Bad radio module"	Incompatible radio module
●	●	○	●	○	"LML error"	LML fatal error
○	○	●	●	○	"Bad binDat"	Missing or bad binDat
●	○	●	●	○	"No binDat ID"	No binDat ID in binDat
○	●	●	●	○	"LML bad SWID"	Wrong target software ID in binDat
●	●	●	●	○	"LML bad SW ver"	Wrong target software version in binDat
○	○	○	○	●	"LML bad cclml ver"	Wrong cclml version in binDat
●	○	○	○	●	"LML buffer full"	Buffer is full

* R10-2 only

** N/A

MECHANICAL INSTALLATION





CHAPTER 4: CONFIGURATION SETTINGS

All configuration settings require access to the receiver circuit board(s).

Risk of electric shock. The receiver must only be opened by qualified installers. Make sure the power supply is switched off before opening the receiver.

1. Remove the front cover of the receiver. Use a screwdriver to remove the screws.
2. Power the receiver up.
3. The power LED lights (yellow).
4. Proceed with the configuration instructions of your choice.

REGISTER

Register a transmitter model without display

The following instructions apply to transmitter models:

TG-T9-1, TG-T9-11

TG-T11-5, TG-T11-15

NOTE! Only transmitters that are intended for use should be registered in the receiver.

Do not perform this action when the receiver is in a session with another transmitter. The radio communication may be interrupted or broken.

1. Make sure that the transmitter stop button is pressed.
2. Twist and pull out the stop button.
   The top LED lights.
3. Press the right start button. Keep pressed.
4. Press the stop button.
5. Release the right start button.
   The top LED flashes when in menu mode. All menu LEDs flash.
6. Press button 1 to enter the Register menu.
7. Press a button[1] on the transmitter to select an empty location.
   Occupied locations are indicated by the corresponding red lit LED. When an available location has been selected the corresponding LED will flash. Location 1 is selected by default.

[1] Buttons 1–6 (TG-T9), 1–10 (TG-T11) can be used for registration.

8. Press the left start button to confirm.
   The LEDs next to both start buttons light.

ON THE RECEIVER

9. Press the top button (Function button).
   Function LED 1 flashes (red).
   Red lit relay LEDs 1–7 show the number of transmitters already registered in the receiver.
   Example: LED1 = 1 registered TX, LED2 = 2 registered TX, etc.).

10. Press the bottom button (Select button).
    All relay LEDs light red.
    The receiver will remain in registration mode for 1 minute.
    Once the receiver has found the transmitter, Function LED 1 and all the relay LEDs will flash.

11. Press the bottom button (Select button) again.
    Function LEDs 1–7 flash 3 times (multicolor). All relay LEDs go off.
    All function LEDs light for approximately 1 second. The transmitter is now registered in the receiver.
    The transmitter switches off.

If not successfully completed, the top LED lights red and the buzzer emits a beep.

Register a transmitter model with display

The following instructions apply to transmitter models:

TG-T9-2, TG-T9-12, TG-T9-22,

TG-T11-4, TG-T11-14, TG-T11-24

TG-T14 and TG-T15

NOTE! Only transmitters that are intended for use should be registered in the receiver.

Do not perform this action when the receiver is in a session with another transmitter. The radio communication may be interrupted or broken.

1. Make sure that the transmitter stop button is pressed.

2. Twist and pull out the stop button.
   The top LED lights

3. Press the right start button. Keep pressed.

4. Press the stop button.

5. Release the right start button.
   The top LED flashes when in menu mode. Use buttons 1 and 2 to move up and down the menu options.

6. Navigate to [Register]. Press the left start button to enter the menu.

7. Select an empty location.

8. Press the left start button to confirm.
   The display shows [Register][No].

9. Press button 1 to select [Yes]. Press the left start button to confirm.
   The display shows [Registering].

ON THE RECEIVER

9. Press the top button (Function button).
   Function LED 1 flashes (red). Red lit relay LEDs 1–7 show the number of transmitters already registered in the receiver. *Example: LED1 = 1 registered TX, LED2 = 2 registered TX, etc.)*.

10. Press the bottom button (Select button).
    All relay LEDs light red. The receiver will remain in registration mode for 1 minute.
    Once the receiver has found the transmitter, Function LED 1 and all the relay LEDs will flash.
    The transmitter's display shows [Confirm on RX].

11. Press the bottom button (Select button) again.
    Function LEDs 1–7 flash 3 times (multicolor). All relay LEDs go off.
    All function LEDs light for approximately 1 second. The transmitter is now registered in the receiver. The transmitter's display shows [REGISTRATION OK]. The transmitter switches off.

If not successfully completed, the top LED lights red, the display shows [FAILED] and the buzzer emits a beep. The transmitter switches off.

Register a TG-T12 transmitter

NOTE! Only transmitters that are intended for use should be registered in the receiver.

Do not perform this action when the receiver is in a session with another transmitter. The radio communication may be interrupted or broken.

1. Make sure that the transmitter stop button is pressed.

2. Pull out the stop button.
   LEDs 1 + 2 light.

3. Press side button 3. Keep pressed.

4. Press the stop button.

5. Release side button 3.
   Use the joystick to move up and down the menu options.

6. Navigate to [Register]. Press side button 4 to enter the menu.

7. Select an empty location.

8. Press side button 4 to confirm.
   The display shows [Register][No].

9. Use the left joystick to select [Yes]. Press side button 4 to confirm.
   The display shows [Registering].

ON THE RECEIVER

10. Press the top button (Function button).
    Function LED 1 flashes (red). Red lit relay LEDs 1–7 show the number of transmitters already registered in the receiver. *Example: LED1 = 1 registered TX, LED2 = 2 registered TX, etc.)*.

11. Press the bottom button (Select button).
    All relay LEDs light red. The receiver will remain in registration mode for 1 minute.
    Once the receiver has found the transmitter, all the receiver relay LEDs will flash. The transmitter's display shows [Confirm on RX].

12. Press the bottom button (Select button) again.
    Function LEDs 1–7 flash 3 times (multicolor). All relay LEDs go off. All function LEDs light for approximately 1 second. The transmitter is now registered in the receiver. The transmitter's display shows [REGISTRATION OK]. The transmitter switches off.

If not successfully completed, the top LED lights red, the display shows [FAILED] and the buzzer emits a beep. The transmitter switches off.

LOG A TRANSMITTER OUT

If a transmitter has been lost or seriously damaged, use the replace procedure on the transmitter whenever possible. It is possible to log a transmitter out directly from the receiver, however this is not recommended.

Ensure that the stop relays are deactivated before proceeding with the following instructions; LED SR/ LED 9 must be Off.

Function LED1 (red) and 2 (yellow) are lit (one or mote transmitter are registered in the receiver and one transmitter is logged in).

1. Press the Select (bottom) button for 5 s.
   Function LED 2 flashes fast (yellow).

2. Release the Select (bottom) button.
   Function LED 2 goes off.

   All function LEDs light briefly. The logged in transmitter has been logged out. The receiver returns to normal operation.

ERASE ALL REGISTERED TRANSMITTERS

If a transmitter has been lost or seriously damaged, use the replace procedure on the transmitter whenever possible. It is possible to erase a transmitter directly from the receiver, however this is not recommended.

IMPORTANT! The following instructions will erase all registered transmitter(s) from the receiver but the transmitter(s) can still have the receiver registered in. To insure that both the transmitter and the receiver have been erased from each other, use the erase procedure on the transmitter (see relevant transmitter installation instructions).

Do not perform this action when the receiver is in a session with another transmitter. The radio communication may be interrupted or broken.

Ensure that the stop relays are deactivated before proceeding with the following instructions; LED SR/ LED 9 must be Off.

Function LED1 should be lit (one or more transmitters are registered in the receiver).

1. Press the Function (top) button 1 time.
   Function LED 1 flashes fast (red). Relay LEDs 1–7 light to indicate the location number of the registered transmitters.

2. Press and hold the Select (bottom) button for 10 s or until all function LEDs light briefly.
   Function LED 1 flashes slow (red). Relay LEDs 1–7 light (red).

3. Release the Select (bottom) button
   Relay LEDs 1–7 go off.

   All function LEDs light briefly. All the registered transmitters have been erased from the receiver. The receiver returns to normal operation.

MASTER RESET OF THE RECEIVER

This procedure will erase all settings and all relay mapping from the receiver. This is not recommended if the receiver's TRS files are missing or when there is no programming possibilities. This function can be activated/inactivated in the Tele Radio AB PC program "Settings Manager".

Do not perform this action when the receiver is in a session with another transmitter. The radio communication may be interrupted or broken.

Ensure that the stop relays are deactivated before proceeding with the following instructions; LED SR/ LED 9 must be Off.

1. Press and hold both the Select (bottom) and the Function (top) button for approx. 20 s or until the function LEDs go off.

2. Release both buttons.
   All function LEDs light.
   All relay LEDs flash fast.

3. Press the Select (bottom) button.
   All function LEDs and relay LEDs go off.
   All function LEDs light briefly. The receiver has been reset. The receiver returns to normal operation.

RELAY FUNCTIONALITY

The receiver is set to momentary relay functionality by default. It means that the relay remains active while a button is pressed on the transmitter. When the button is released the relay deactivates. Setting a relay to latching means that the relay becomes active when a button is pressed and remains active until the button is pressed again.

Select momentary or latching relay functionality

The relay functionality settings depend on the selected Operating mode. Relay functionality can only be changed for relays assigned to a button function. Relays assigned to direction function will not be available for functionality changes.

NOTES! If Operating mode 0 has been selected, the relay functionality settings will not be available. Contact your representative for assistance.

Do not perform this action when the receiver is in a session with another transmitter. The radio communication may be interrupted or broken.

Ensure that the stop relays are deactivated before proceeding with the following instructions; LED SR/ LED 9 must be Off.

1. Press the Function (top) button 5 times.
   Function LED 5 flashes (red).
   Relay LEDs 1–7 indicate if the corresponding relay has a momentary or latching functionality:

Relay LEDs	Relay functionality
On	Latching relay
Off	Momentary relay

2. Press the Select (bottom) button to enter the setting mode.
   Function LED 5 goes off.
   The relay LED for the first available relay flashes.
   If the relay is momentary, Function LED 5 remains off. If the relay is latching, Function LED 5 lights (red).

3. Press the Function (top) button to switch functionality.
   Function LED 5 changes status.

4. Press the Select (bottom) button to confirm and move to the next available relay.

5. Repeat step 3–4 for all available relays.
   After the last change, all function LEDs light briefly. The receiver exits the setting mode and returns to normal operation.

DIGITAL INPUT INDICATIONS ON THE TRANSMITTER

NOTE! This function requires duplex communication to be activated. Contact your representative for assistance.

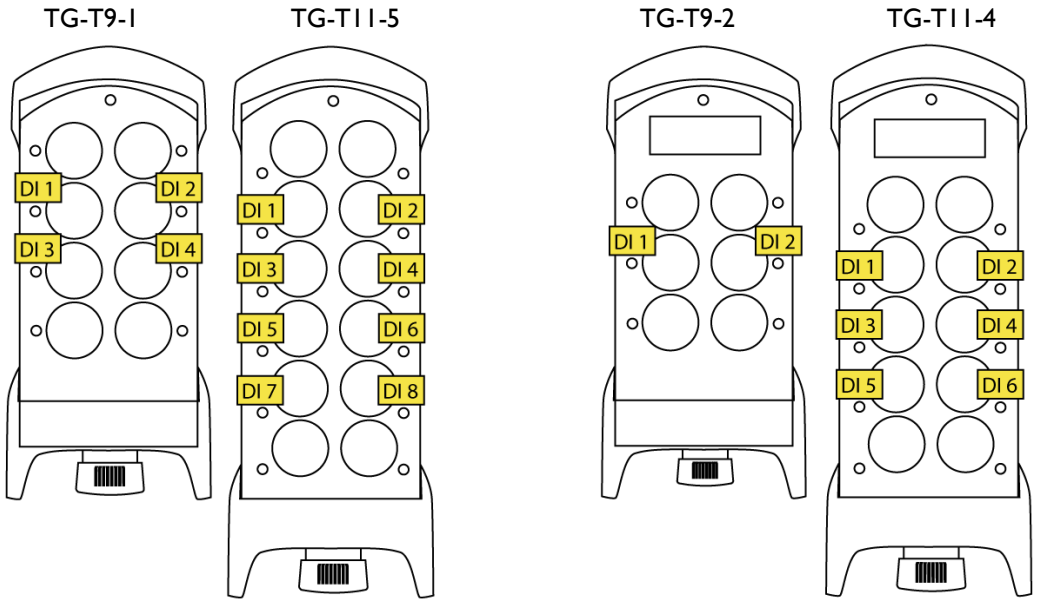
The status of the digital inputs on the receiver can be indicated with the LEDs on the transmitter. Up to 8 of the receiver's digital inputs can be mapped to transmitter LEDs 3–10 and depending on the transmitter, the number of digital inputs displayed can vary from 2 to 8.

The digital inputs displayed on the transmitter correspond always to those of the first receiver that has been logged in to. For other settings of the digital inputs indication on the transmitter, contact your representative for assistance.

If a digital input is connected to GND[1], the corresponding LED on the transmitter will light.

Ex. TG-R10-1 – when pin 27 is connected to pin 28, LED 4 lights on the transmitter(s).*
27 = DI 2
28 = GND

Suitable transmitters:



* LED nr = DI nr +2

[1] See § "Terminal block for mixed I/O" on page 9.

OPERATING MODES

NOTE! Operating modes 0 and 255 are reserved for specific customer applications. Contact your representative for assistance.

Operating modes are designed for the base board and the relay expansion board only. The Operating mode is indicated by the relay LED indicators 1–7.

NOTE! The following Operating modes are the same for both TG-R10 and TG-R4 models but some are more suitable for models with more relays than the TG-R10-1 and TG-R10-2.

Select an Operating mode

Do not perform this action when the receiver is in a session with another transmitter. The radio communication may be interrupted or broken.

Ensure that the stop relays are deactivated before proceeding with the following instructions; LED SR/ LED 9 must be Off.

1. Press the Function (top) button 4 times.
   Function LED 4 flashes fast (orange).
   Relay LEDs 1–7 light to indicate the selected Operating mode according to the following table.

Relay LED(s)	Operating Mode
-	0*
1	1 (default)
2	2
1 + 2	3
3	4
1 + 3	5
2 + 3	6
1 + 2 + 3	7
ALL	255*

   * for specific customer applications only. Contact your representative for assistance.

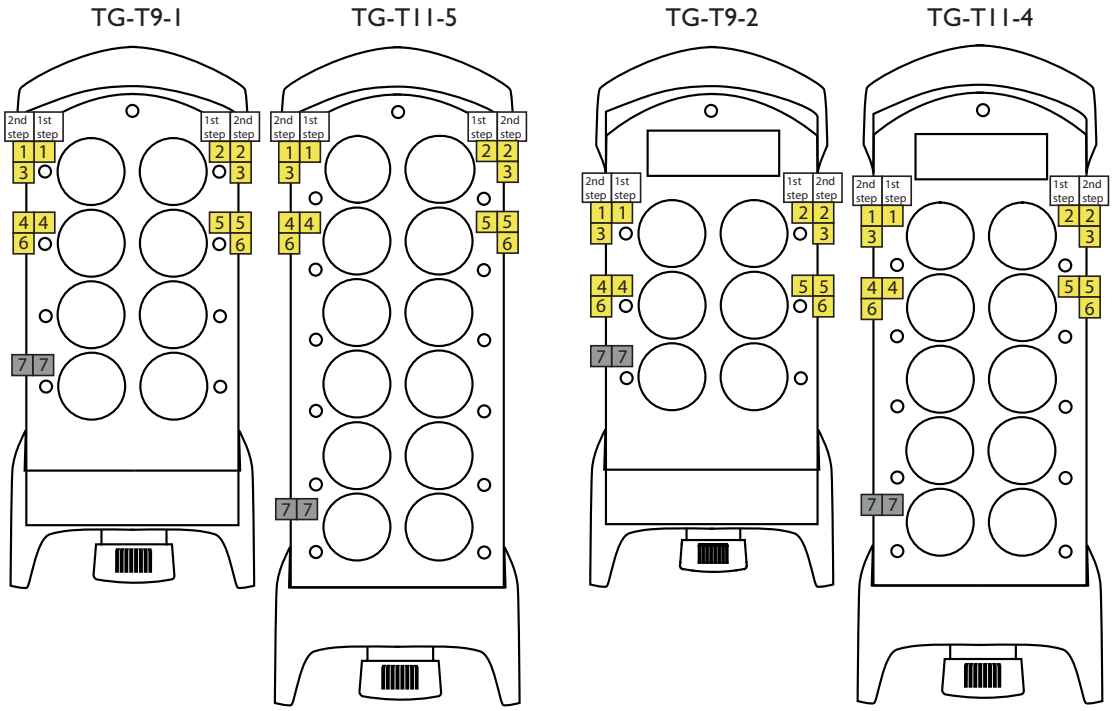
2. Press the Select (bottom) button to enter the setting mode.
   Function LED 4 flashes (slow).

3. Press the Function (top) button once to move to the next Operating mode or repeat until the LED combination corresponds to the desired Operating mode.

4. Press the Select (bottom) button to select the Operating mode.
   All function LEDs light briefly. The receiver exits the setting mode and returns to normal operation.

Example: relay LED 2 is lit, which means Operating mode 2 is selected. Pressing the Function button once will change to Operating mode 3, LED 1+2 light. To go to Operating mode 4, press the Function button one more time, LED 1+2 go off and LED 3 lights.

Operating Mode 1



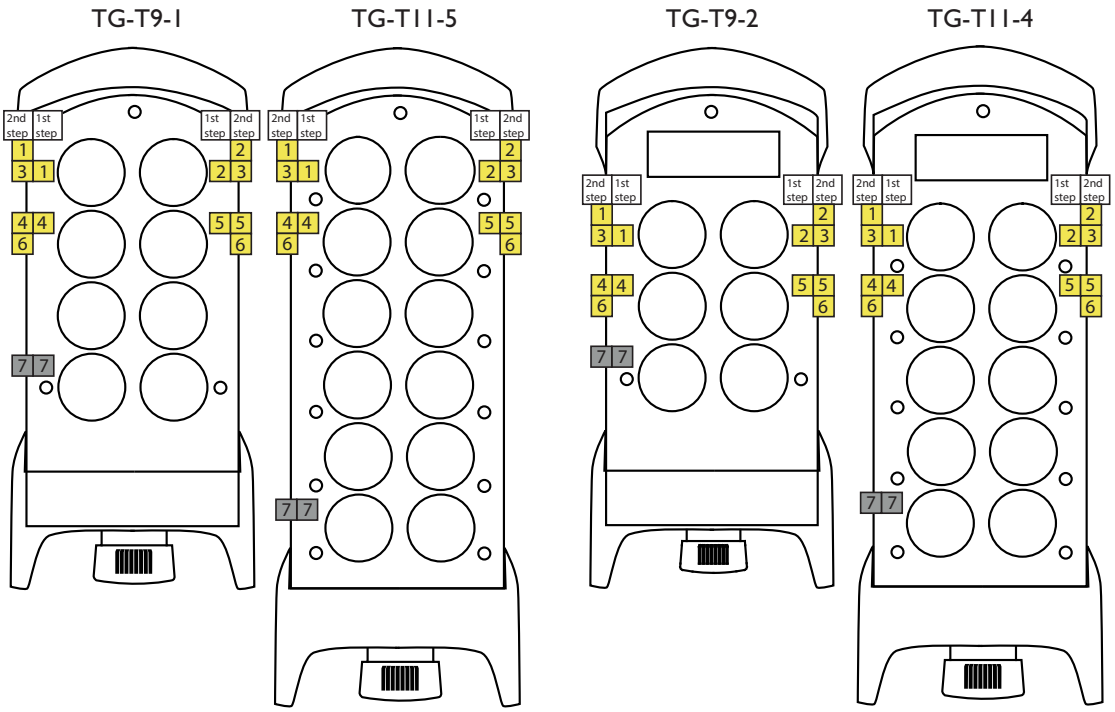
2 Relay number on the receiver

Button functions

Direction functions

Transistor output (buzzer)	Transistor output activates together with relay 7
Load select relays	–
Programmable relay functions	Relay 7 can be set to latching
Interlocking	Button transmitters – interlocking between direction functions horizontally aligned
Zero position check	Active for all functions

Operating Mode 2



2 Relay number on the receiver

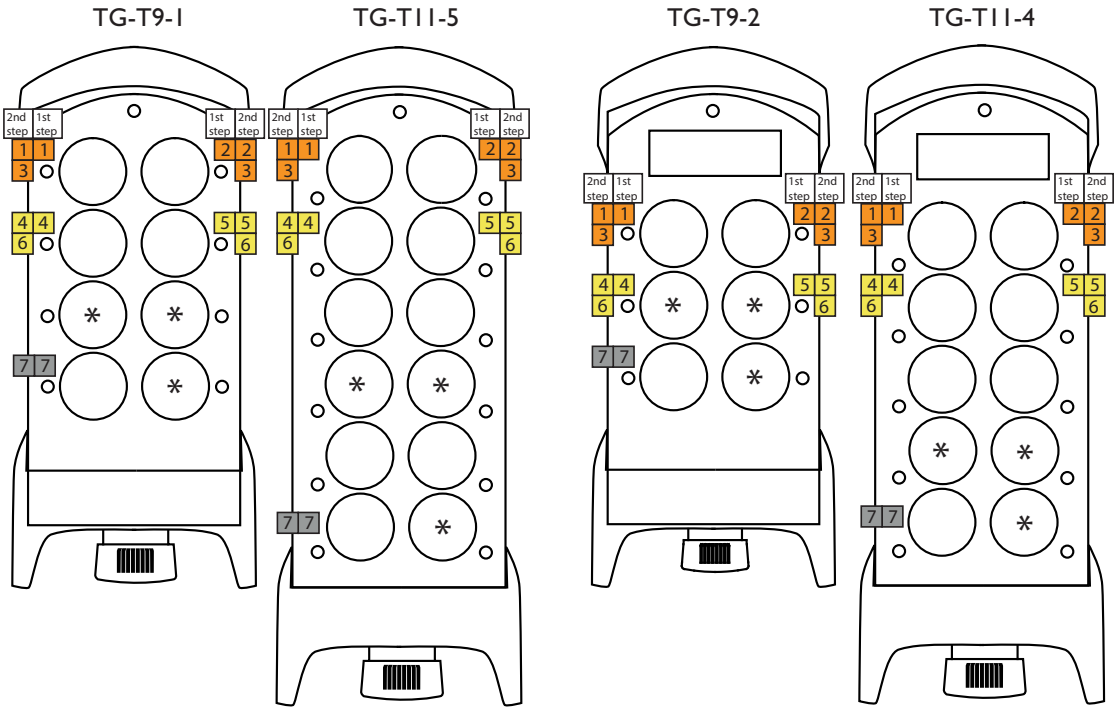
Button functions

Direction functions

Transistor output (buzzer)	Transistor output activates together with relay 7
Load select relays	–
Programmable relay functions	Relay 7 can be set to latching
Interlocking	Button transmitters – interlocking between direction functions horizontally aligned
Zero position check	Active for all functions

Operating Mode 3

NOTE! This Operating mode supports Load select mode. See transmitter installation instructions for available Load select modes.



2 Relay number on the receiver

Button functions

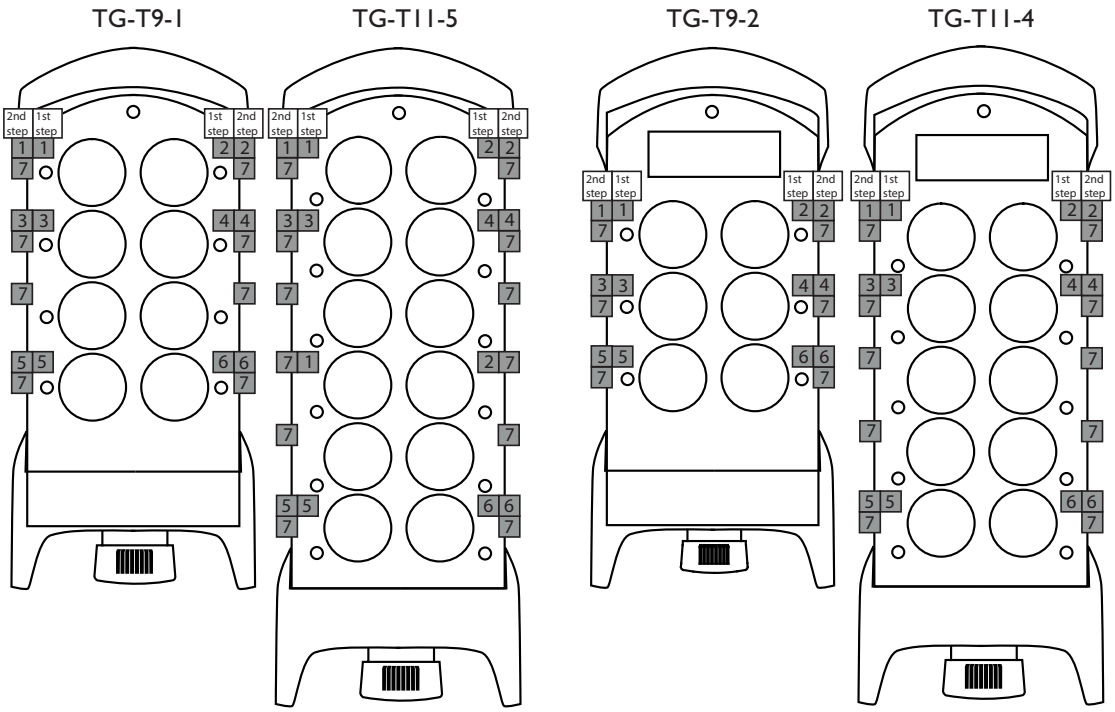
Direction functions

Load select A + direction functions

* Depending on the Load select mode selected on the transmitter

Transistor output (buzzer)	Transistor output activates together with relay 7
Load select relays	–
Programmable relay functions	Relay 7 can be set to latching
Interlocking	Button transmitters – interlocking between direction functions horizontally aligned
Zero position check	Active for all functions

Operating Mode 4



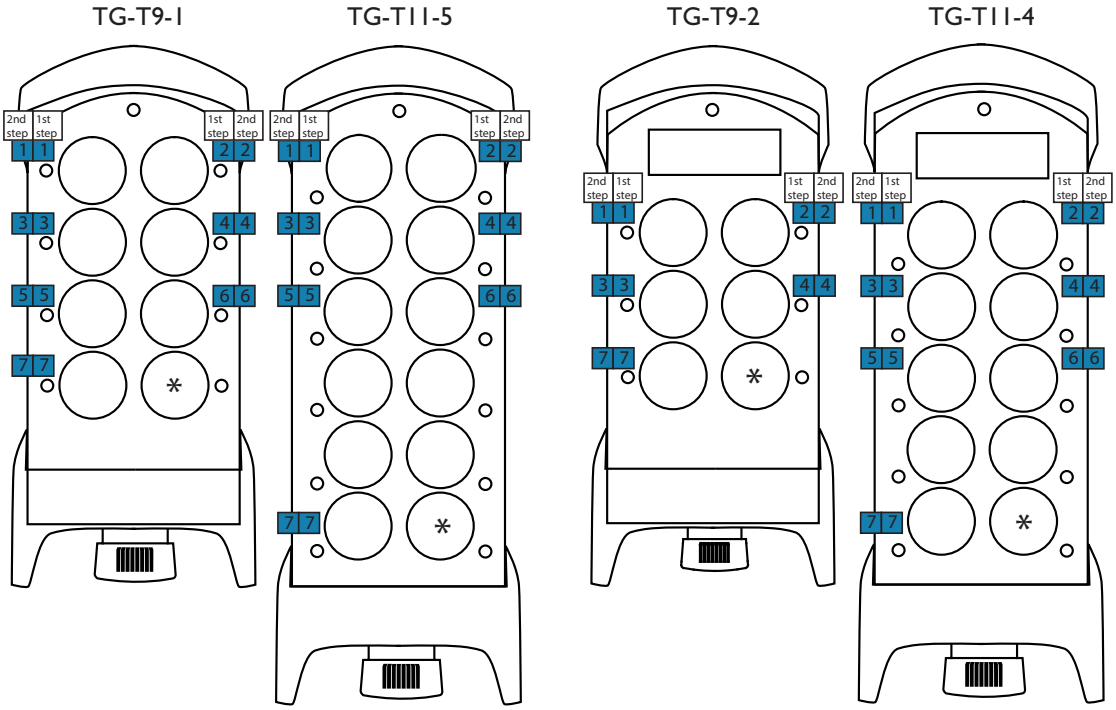
2 Relay number on the receiver

Button functions

Transistor output (buzzer)	–
Load select relays	–
Programmable relay functions	Relay 1–7 can be set to latching
Interlocking	–
Zero position check	Active for all functions

OPERATING MODE 5

NOTE! This Operating mode supports Load select mode. See transmitter installation instructions for available Load select modes.



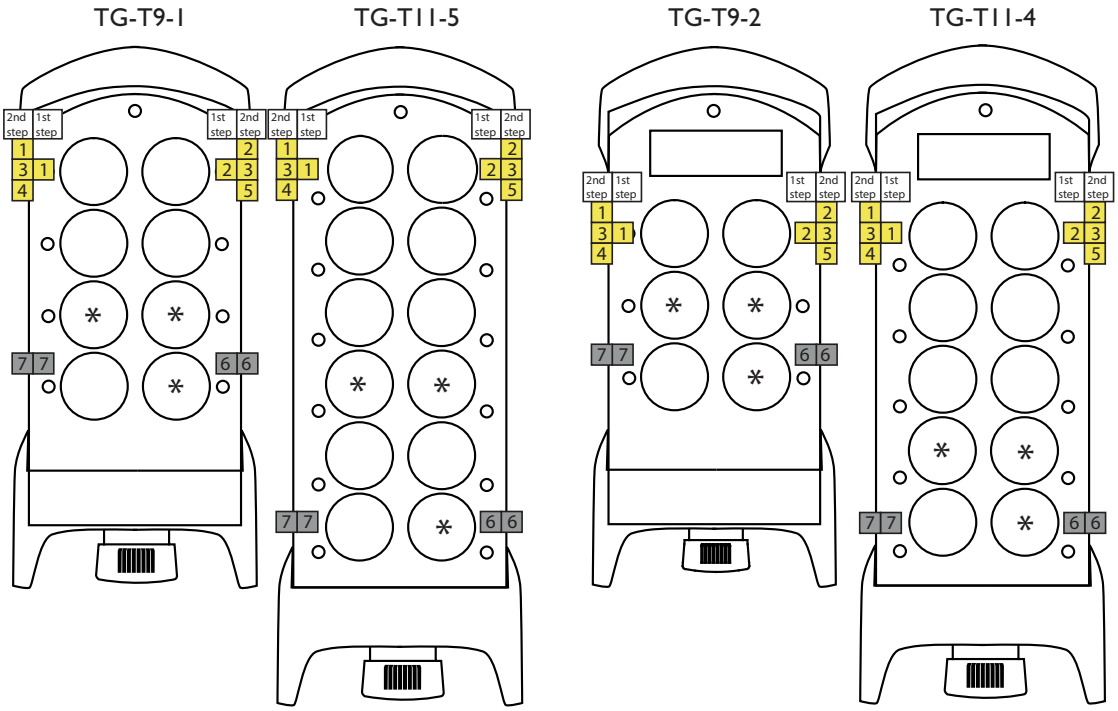
■ Button function – Load select A

* Depending on the Load select mode selected on the transmitter

Transistor output (buzzer)	–
Load select relays	–
Programmable relay functions	Relay 1–7 can be set to latching
Interlocking	–
Zero position check	Active for all functions

Operating Mode 6

NOTE! This Operating mode supports Load select mode. See transmitter installation instructions for available Load select modes.



2 Relay number on the receiver

Button functions

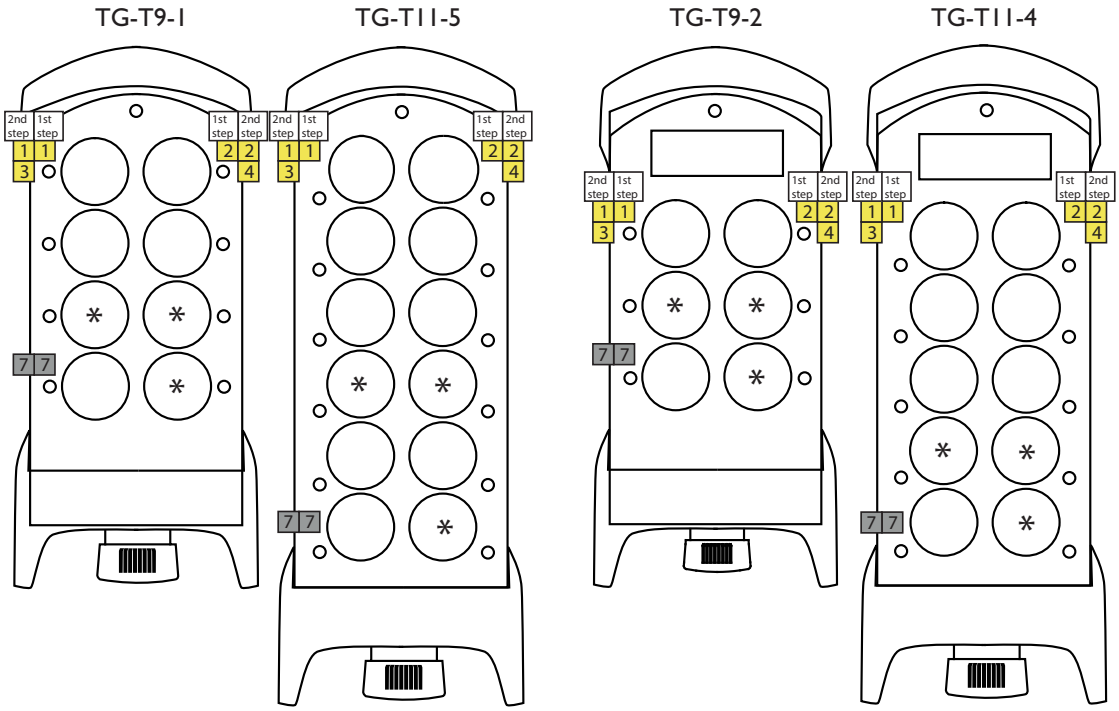
Direction functions

* Depending on the Load select mode selected on the transmitter

Transistor output (buzzer)	Transistor output activates together with relay 7
Load select relays	–
Programmable relay functions	Relay 6–7 can be set to latching
Interlocking	Button transmitters – interlocking between direction functions horizontally aligned
Zero position check	Active for all functions

Operating Mode 7

NOTE! This Operating mode supports Load select mode. See transmitter installation instructions for available Load select modes.



2 Relay number on the receiver

Button functions

Direction functions

* Depending on the Load select mode selected on the transmitter

Transistor output (buzzer)	Transistor output activates together with relay 7
Load select relays	Load select A: relay 5 Load select B: relay 6
Programmable relay functions	Relay 7 can be set to latching
Interlocking	Button transmitters – interlocking between direction functions horizontally aligned
Zero position check	Active for all functions

CHAPTER 5: GUARANTEE, SERVICE, REPAIRS AND MAINTENANCE

Tele Radio AB products are covered by a guarantee/warranty against material, construction and manufacturing faults. During the guarantee/warranty period, Tele Radio AB may replace the product or faulty parts. Work under guarantee/warranty must be carried out by Tele Radio AB or by an authorized service centre specified by Tele Radio AB.

The following are **not** covered by the guarantee/warranty:

- Faults resulting from normal wear and tear.
- Parts of a consumable nature.
- Products that have been subject to unauthorized modifications.
- Faults resulting from incorrect installation and use.
- Damp and water damage.

Maintenance:

- Repairs and maintenance must be carried out by qualified personnel.
- Only use spare parts from Tele Radio AB.
- Contact your representative for service or any other assistance.
- Keep the product in a clean, dry place.
- Keep contacts and antennas clean.
- Wipe off dust using a slightly damp, clean cloth.

NOTE! Never use cleaning solutions or high-pressure washer.

CHAPTER 6: REGULATORY INFORMATION

EUROPE

Applies to:

- **TG-R10-1, TG-R10-2**

CE marking

Hereby, Tele Radio AB, declares that the radio equipment type(s) listed above is/ are in compliance with Directive 2014/53/EU.

The latest version of the complete EU Declaration of Conformity is available on the Tele Radio AB website, www.tele-radio.com.

WEEE directive

This symbol means that inoperative electrical and electronic products must not be mixed with household waste. The European Union has implemented a collection and recycling system for which producers are responsible. For proper treatment, recovery and recycling, please take this product to a designated collection point.

Tele Radio AB strives to minimize the use of hazardous materials, promotes reuse and recycling, and reduces emissions to air, soil and water. When a commercially viable alternative is available, Tele Radio AB strives to restrict or eliminate substances and materials that pose an environmental, health or safety risk.

ANNEX A: FREQUENT TERMS

Function relay	Standard relay, controlled by the buttons on the transmitter unit.
Interlocking	Prevents a component from functioning when another component is functioning or operating in a particular way.
Latching relay functionality	The relay becomes active every time you press a button and remains active until the button is pressed again.
Load select mode	One or more Load select modes are stored in the transmitter unit. Activating a specific Load select mode results in a group of preselected relays on the receiver unit, which may be controlled from the transmitter unit.
Momentary relay functionality	The relay will only be active while a button is pressed on the transmitter. When the button is released, the relay will no longer be active.
Operating mode	One or more Operating modes are stored in the receiver unit. Each Operating mode describes which relays on the receiver unit are controlled when specific buttons on the transmitter unit are pressed.
Stop relay	Safety related relay controlled by the stop button on the receiver. Intended to interrupt the power supply to a safety application controlled by the receiver unit.
Zero position check	Security function ensuring that potentially active buttons/joysticks upon start up or lost/found radio links must be in the zero position before the system can be used to avoid unplanned movements of the controlled object.

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INSTRUCTIONS
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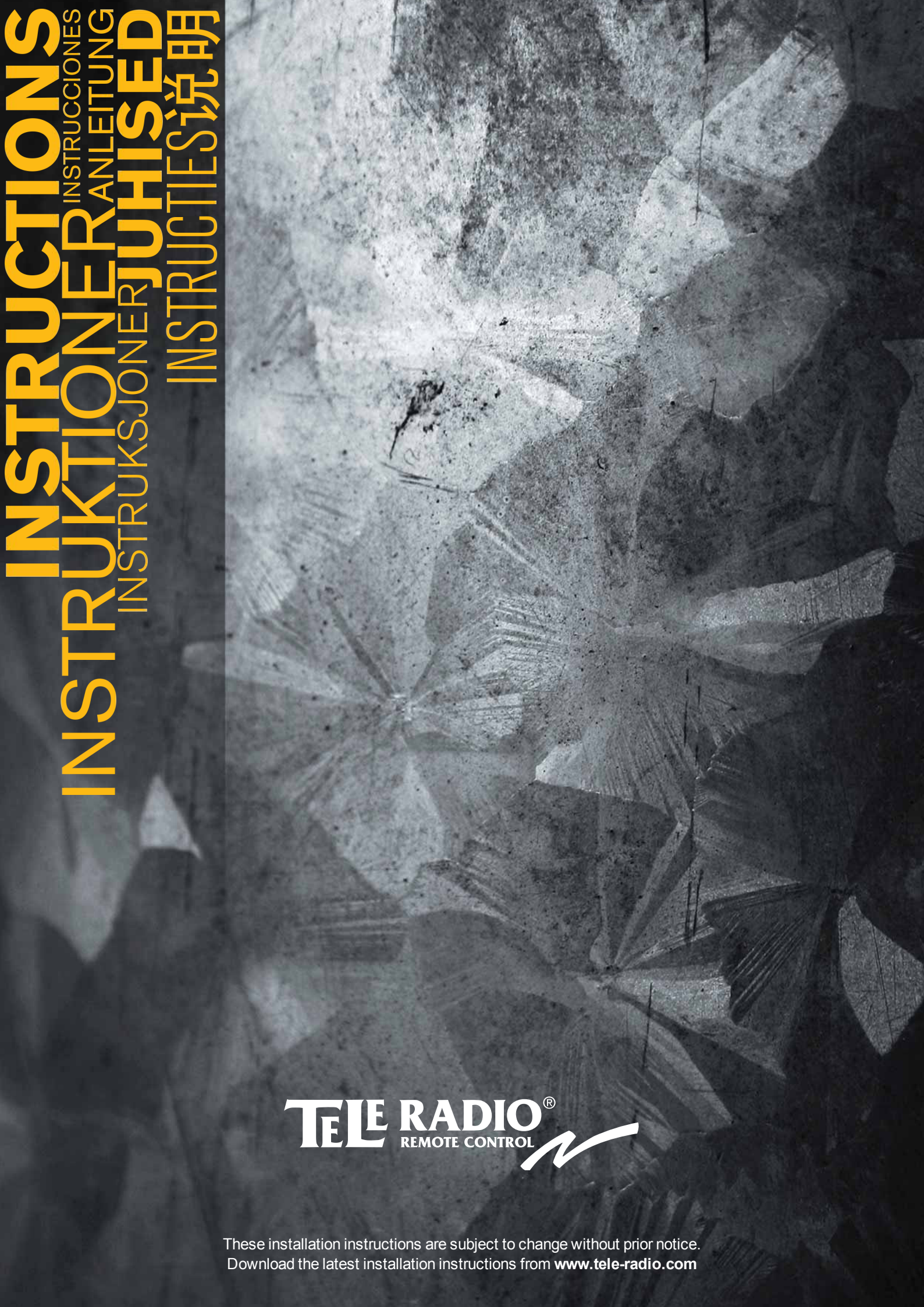

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REMOTE CONTROL

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Download the latest installation instructions from **www.tele-radio.com**