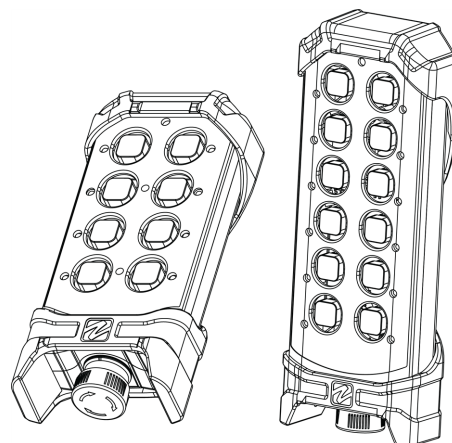


INSTALLATION INSTRUCTIONS

*Transmitter:
T37-01, T38-01*



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For more information about this product, please download the latest user or
installation instructions at **www.tele-radio.com**.

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CHAPTER 1: INTRODUCTION



READ ALL INSTRUCTIONS AND WARNINGS CAREFULLY BEFORE MOUNTING, INSTALLING, CONFIGURING AND OPERATING THE PRODUCTS.

These installation instructions have been published by Tele Radio and are not subject to any guarantees. The installation instructions may be withdrawn or revised by Tele Radio at any time and without further notice. Corrections and updates will be added to the latest version of the manual. 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 and authorized service and distribution centers. 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 users. Only information that is needed to operate the machine correctly by radio remote control may be passed on to users.

Tele Radio's product range is composed of transmitters, receivers, and accessories intended for use together as a system and Tele Radio remote controls are often built into wider applications. This documentation is not intended to replace the determination of suitability or reliability of the product for specific user applications and should not be used for this purpose. It is the responsibility of any such users or integrators to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use. Tele Radio shall not be responsible or liable for misuse of the information contained herein.

Always refer to the applicable local regulations for installation and safety requirements relating to cranes, hoists, material handling applications, lifting equipment, industrial machinery, and/or mobile hydraulic applications using Tele Radio 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 remote control systems are installed.

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

For battery precautions, see "8.1 Battery precautions".

Tele Radio products are covered by a warranty against material, construction, or manufacturing faults. See "Chapter 9: Warranty, service, repairs, and maintenance".

1.1 About this document

Before installing or operating the product, read the corresponding documentation carefully.

Tele Radio's product range is composed of transmitters, receivers, and accessories intended for use together as a system.

NOTE: This document contains information of two different protocols, simplex (legacy Panther) and duplex (legacy Puma).

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.

Customized System. How the outputs are connected to control the object depends on each specific installation and will not be covered in this document. For exact details, see the technical documentation provided for your specific system. Drawings, schematics and connection diagrams are unique and are also provided together with the system.

Please report any error or omission in this document, as well as any improvement or amendment suggestion to techdoc@allgon.com.

1.1.1 COPYRIGHT

Information in this document is subject to change without notice. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, photographic, mechanical (including photocopying), recording or otherwise for any purpose other than the purchaser's personal use without the written permission of Tele Radio.

1.1.2 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".

1.2 About T35/T36 transmitters

- T35/T36 Transmitters with simplex protocol have simplex communication and work in continuous mode.
- T35/T36 Transmitters with duplex protocol have duplex communication.

The product is intended for professional use in the temperature range -20...+55 °C / -4...+131 °F. The product must be protected from extreme weather conditions.

The product housing has IP code T38:IP65, T37: IP66.

1.2.1 OVERVIEW OF THE AVAILABLE MODELS

Model	Number of buttons	Display	Available frequencies		Connectivity module	
			433 MHz ¹	2.4 GHz	IEEE 802.15	RFID
T37-01	8	–	●	●	●	●
T38-01	12	–	●	●	●	●

● Standard – Not available

¹Only valid for EU

CHAPTER 2: SAFETY

2.1 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 death or serious injury.

This product must not be operated without having read and understood the Installation instructions, the specific technical documentation (for customized systems), and having received the appropriate training. The purchaser of this 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.

IMPORTANT! Tele Radio remote controls are often built into wider applications.

These systems should be equipped with:

- a wired emergency stop where necessary
- a brake
- an audible or visual warning signal

2.1.1 INSTALLATION AND COMMISSIONING

IMPORTANT! Only licensed or qualified personnel should be permitted to install the product.



This radio system must not be used in areas where there is a risk of explosion.



Always switch off all electrical power from the equipment before installation procedure.



RISK OF UNINTENDED EQUIPMENT OPERATION

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

Failure to follow these instructions could result in death, serious injury, or equipment damage.

2.1.2 OPERATION



This equipment is not suitable for use in locations where children are likely to be present.



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. This test should be done on each shift. See "2.2.1 Stop button".
- Never use a transmitter if the stop button is mechanically damaged. Contact your supervisor or representative for service immediately.
- Never leave 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.

2.1.3 MAINTENANCE



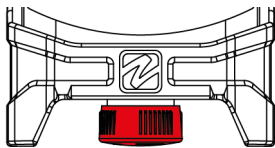
Before maintenance intervention on any remote controlled equipments:

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

- Keep the safety information for future reference. Always download the Installation instructions from our website, www.tele-radio.com, for the latest available version.
- If error messages are shown, it is very important to find out what caused them. Contact your representative for assistance.
- The functionality of the stop button should be tested at least after every 200 hours' use (see "2.2.1 Stop button").
- If the stop button is mechanically damaged, do not use the transmitter. Contact your supervisor or representative for service immediately.
- Keep the product in a clean, dry place.
- Keep contacts and antennas clean.
- Wipe off dust using a clean, slightly damp cloth.
- Never use cleaning solutions.
- Check the encapsulation, foil and cable for damages every day. If the encapsulation or foil is damaged, moisture can cause serious damage to the electronics.

2.2 Safety features

2.2.1 STOP BUTTON



Tele Radio transmitters are equipped with a stop button.

When the **Stop** button is pressed, the stop relays on the receiver deactivate.

IMPORTANT! The Stop button should always be tested before operating the transmitter. This test should be done on each shift, without a load.

To test the stop button:

1. Press the **Stop** button.
2. Twist and release the **Stop** button.

CHAPTER 3: TECHNICAL DATA

3.1 Transmitter specifications

	T37-01	T38-01
Number of buttons	8 x 2-step buttons	12 x 2-step buttons
I/O switch	Yes	No
Power supply	Internal, rechargeable lithium-ion battery 103450	Replaceable, rechargeable lithium-ion battery (3.7 V) (see "8.2 Battery information").
Compatible battery packs	-	D4-13: 3.7 V / 2000 mAh Li-ion
Operating current (mA) ¹	16	16
Operating time (with continuous usage)	Approximately 128 h (depending on settings)	Approximately 131 h (depending on settings)
Max. number of registered receivers ²	6	10
IP code (product housing)	IP66	IP65
Operating Altitude (m)	2000	
Operating temperature	-20...+55 °C / -4...+131 °F	
Storage temperature	-30...+70 °C / -22...+158 °F (without battery) ³	
Charging temperature	+10...+35 °C / +50...+95 °F	
Charging voltage	5-45 V DC ⁴	
Safety levels	EN ISO 13849-1, PLe CAT4 (Stop function , see Functional Safety)	
Dimensions (LxWxH)	160 x 76 x 39 mm / 6.3 x 3 x 1.5 in	210 x 79 x 42 mm / 8.2 x 3.1 x 1.6 in
Weight	285 g / 0.63 lbs	330 g / 0.73 lbs (without battery)

¹2.4GHz band, TX max power

²Only for transmitter with duplex protocol

³For storage temperature of battery pack, see "8.2 Battery information".

⁴Charging works down to 5 V, but with degraded charge current and increased charging time.

12-36 V DC optimum.

3.2 Radio specifications

	2.4 GHz SRD (Normal)	433 MHz ¹	IEEE 802.15 connectivity module	RFID
Radio frequency range	2405 – 2480 MHz	Option 1: 433.075 – 434.775 MHz Option 2: 433.06875 – 434.76875 MHz Option 3: 433.08125 – 434.78125 MHz	2402 – 2480 MHz	13.56 MHz
Frequency management	Direct Sequence Spread Spectrum (DSSS)	GFSK	GFSK	ASK
Radio frequency output power	CE EIRP: <12dBm (15.85mW) FCC+IC Max EIRP: <18dBm (63mW)	EIRP ² : <12.15dBm (16.5mW)	EIRP: <10dBm (10 mW)	< - 5dBuA/m @ 10m
Number of channels	16 (channel 11–26)	69 (channel 1– 69)	40 (channel 0– 39)	1
Radio communication, depending on protocol	Duplex. Simplex			RFID reader

¹Only valid for EU

²Equivalent isotropic radiated power. $EIRP (W) = 1.64 \times ERP (W)$ or $EIRP (dBm) = ERP (dBm) + 2.15$

3.3 Radio frequency band - 2.4 GHz

For radio systems operating on frequency band 2.4 GHz, the frequency band is divided into 16 channels (11 to 26). Once the channel has been selected on the transmitter, the receiver will automatically detect and switch to the same channel.

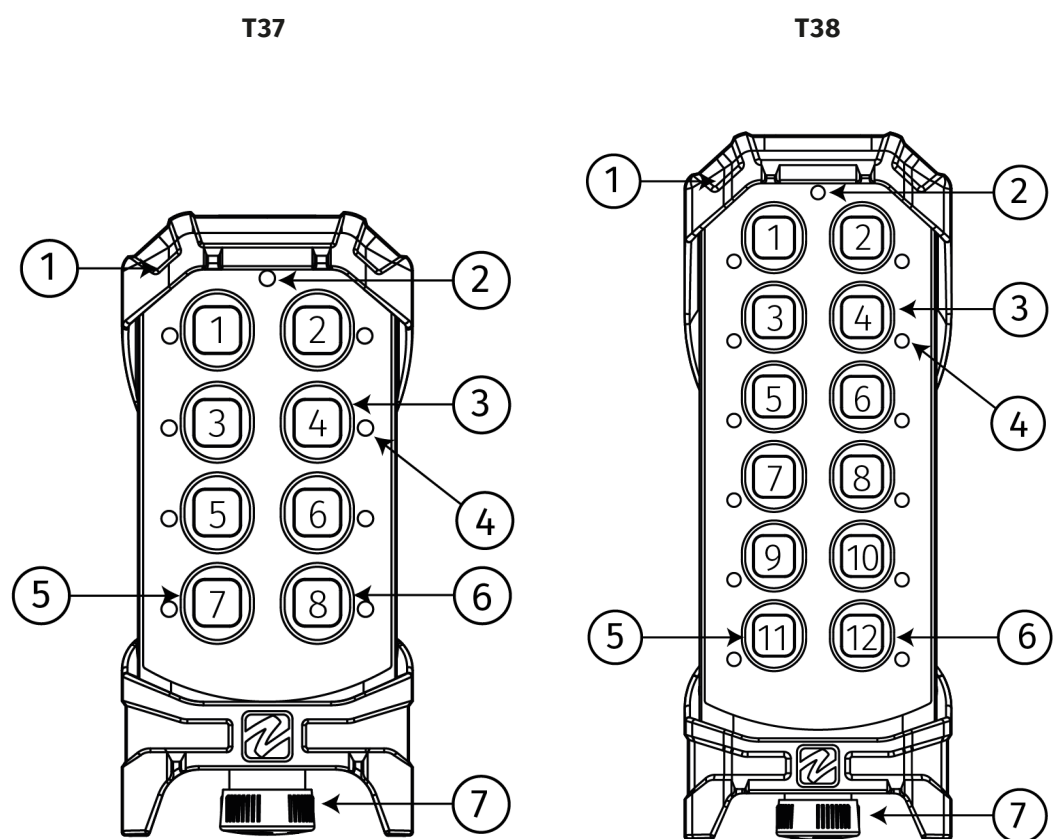
Channel	Frequency (MHz)	Channel	Frequency (MHz)
11	2405	19	2445
12	2410	20	2450
13	2415	21	2455
14	2420	22	2460
15	2425	23	2465
16	2430	24	2470
17	2435	25	2475
18	2440	26	2480

CHAPTER 4: PRODUCT GENERAL DESCRIPTION – BASE MODELS

NOTE: The pictures shown in this chapter are for illustrative purposes only. Depending on the configuration, the actual product appearance may differ from the basic model used for reference.

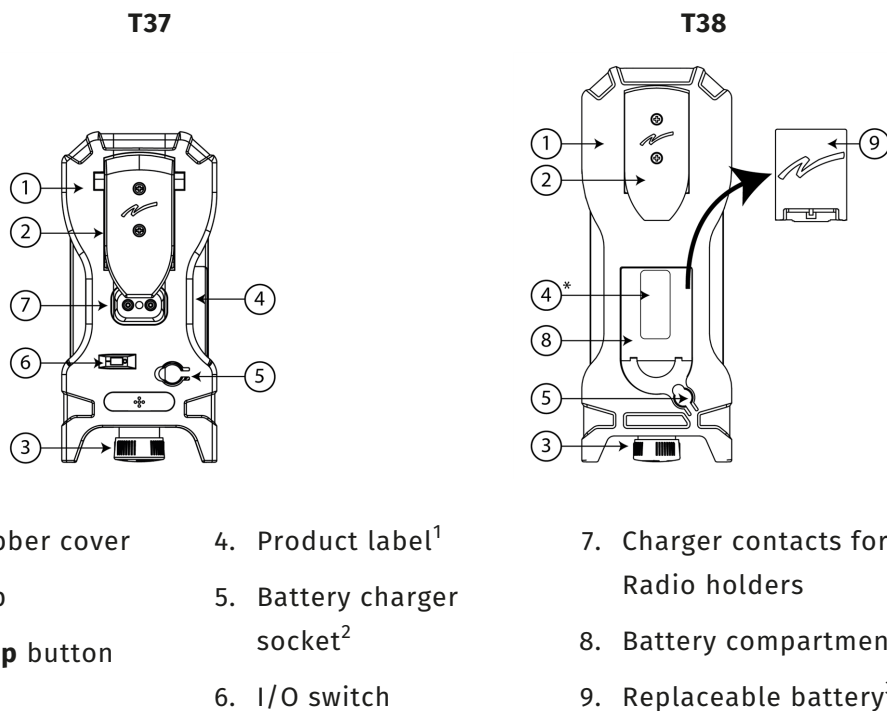
The pictures shown in this chapter are for illustrative purposes only.

4.1 Transmitter front

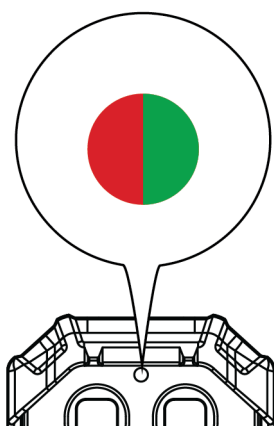


- 1. Rubber cover
- 2. Top LED
- 3. Buttons
- 4. Button LEDs
- 5. **Left Start** button
- 6. **Right Start** button
- 7. **Stop** button

4.2 Transmitter back



4.3 Top LED



The transmitter is equipped with one bi-color LED (top LED) for battery indication and radio link information. For more details, see "Chapter 5: Status and error indications"

¹*The product label is placed inside the battery compartment.

²For adapter 100-001-057-18 (M769720) multi charger power supply 12V DC. T36: Only to use with D4-13 battery.

³D4-13 battery

CHAPTER 5: STATUS AND ERROR INDICATIONS

5.1 Top LED status indication

The top LED lights red if there is no battery is present in the compartment or if the battery used is not a D4-13 battery. When the transmitter is charging, the top LED flashes red and when the when the battery capacity is full, the top LED lights green.

The top LED lights/flashes red, battery should be charged or changed at the next convenient opportunity (see "8.2.2 Charge the battery").

5.2 Stop button error indications

The **Stop** button must be tested if one of the following errors occurs when pulling out the **Stop** button to start the transmitter:

- "FATAL ERROR STOP BUTTON NOT ANALYZED"
- "FATAL ERROR STOP BUTTON INVALID AD VAL"
- "FATAL ERROR STOP-BUTTON TEST REQUIRED"

5.2.1 TEST THE STOP BUTTON

NOTE: A test of the stop button is required in both "pulled out" and "pressed in" positions.

1. Press the **Stop** button.

If the transmitter turns off	If the transmitter doesn't turn off
<i>The test succeeded.</i>	<i>The test failed.</i>
Proceed to next step.	1. Disassemble the transmitter 2. Check the stop button and replace if necessary. 3. Check the cables from the stop button to the transmitter board. 4. Proceed to next step.

2. Twist and release the **Stop** button.

If the transmitter turns on.	If the transmitter doesn't turn on
<i>The test succeeded.</i>	<i>The test failed.</i>
The transmitter can be used.	Go back to step 1 and try again.

5.3 Error indications and code messages

Each error is identified by a code indicated by a LED combination including the top LED (LED 0) and button LEDs 1–4.

Top LED is flashing red/green with one second interval. The combination of Red + LEDS 1-4 and Green + LEDS 1-4 build up an indication code.

5.3.1 FATAL ERROR

For this error code, contact technical support

Number	Error code	Description
1	FATAL ERROR RF CHIP INIT FAILED	RF chip initialization has failed
	FATAL ERROR SAFE CPU1 IN BOOTLOADER	
2	FATAL ERROR RF CHIP DEAD	
	FATAL ERROR SAFE CPU2 IN BOOTLOADER	
3	FATAL ERROR INCONSISTENT SETTINGS	
4	FATAL ERROR NO VALID PRODUCTION DATA	
	FATAL ERROR STOP BUTTON INVALID AD VAL	'Stop button is returning a incorrect value'. Test the stop button (see "5.2.1 Test the Stop button").
	FATAL ERROR STOP BUTTON BRANCH INCONSISTENCY	Test the stop button (see "5.2.1 Test the Stop button").
5	FATAL ERROR BAT COMPARTMENT SHORT CIRCUIT	
6	FATAL ERROR ACC INIT FAIL	
7	FATAL ERROR ACC COMM FAIL	
	FATAL ERROR ADC STOPPED	
8	FATAL ERROR PRESENT BUT NOT RESPONDING	
	FATAL ERROR INVALID SUPPLY VOLTAGE	
9	FATAL ERROR CHARGER CONNECTED TOO OLD HW	
	FATAL ERROR STOP BUTTON TEST REQUIRED	Test the stop button (see "5.2.1 Test the Stop button").
11	FATAL ERROR STOP BUTTON NOT ANALYZED	
	FATAL ERROR SAFE CPU1 WRONG SW VERSION	
12	FATAL ERROR ALL PBS NOT RELEASED	
	FATAL ERRORS SAFE CPU2 WRONG SW VERSION	
13	FATAL ERROR REQUESTED PENDING STOP BUTTON TEST	

5.3.2 DUPLEX MESSAGES

Number	Error code	Description
1	EXCEPTION DUPLEX_PUSH_CONFIRM BUTTON_DURING_REG	
2	TXT_EVENT_LOGIN_OK	
3	TXT_EVENT_MASTER	
	EVENT_DUPLEX LOGIN_MASTER_TAKEOVER_OK	
4	TXT_EVENT_PITCH	
	EVENT_DUPLEX LOGIN_PC_TAKEOVER_OK	
5	EXCEPTION DUPLEX LOGIN COMMAND NOT SUPPORTED	
6	EXCEPTION DUPLEX_LOGIN TX_NOT_REGISTERED	
7	EXCEPTION DUPLEX_LOGIN OTHER_TX_LOGGED_IN	
8	EXCEPTION DUPLEX_LOGIN SESSION_ACTIVE	
9	EXCEPTION DUPLEX_LOGIN UNHANDLED_REPLY_STATUS	
10	EXCEPTION DUPLEX_LOGIN RX_SAYS_INVALID_TX_SESSION_DATA	
11	EXCEPTION DUPLEX_LOGIN CONFIG_ID_MISMATCH	
12	EXCEPTION DUPLEX_LOGIN TX_PROT_VER_NOT_SUPPORTED	
13	EXCEPTION DUPLEX_LOGIN RX_PROT_VER_NOT_SUPPORTED	
14	EXCEPTION DUPLEX_LOGIN FEEDBACK_OFFSET_NOT_SUPPORTED	
15	EXCEPTION DUPLEX_LOGIN FEEDBACK_OFFSET_DUPLICATES	
16	EXCEPTION DUPLEX_LOGIN MASTER_TAKEOVER_NOT_ALLOWED	
17	EXCEPTION DUPLEX_LOGIN TIMEOUT	
18	TXT_EVENT_LOGIN_START	
30	TXT_EVENT_CONFIRM	
	EVENT_DUPLEX_REGISTRATION_OK	
31	EXCEPTION DUPLEX_REGISTRATION COMMAND_NOT_SUPPORTED	
32	EXCEPTION DUPLEX_REGISTRATION RX_MEMORY_FULL	
33	EXCEPTION DUPLEX_REGISTRATION CONFIG_ID_MISMATCH	
34	EXCEPTION DUPLEX_REGISTRATION UNHANDLED_REPLY_STATUS	
35	EXCEPTION DUPLEX_REGISTRATION TIMEOUT	
40	TXT_EVENT_REPLACE	
	EVENT_DUPLEX_REPLACE_OK	
41	EXCEPTION DUPLEX_REPLACE TIMEOUT	
42	EXCEPTION DUPLEX_REPLACE CONFIG_ID_MISMATCH	
43	EXCEPTION DUPLEX_REPLACE COMMAND_NOT_SUPPORTED	
44	EXCEPTION DUPLEX_REPLACE NEW_TX_ALREADY_REGISTERED	
45	EXCEPTION DUPLEX_REPLACE UNHANDLED_REPLY_STATUS	

Number	Error code	Description
50	TXT_EVENT_END_SESS_TMO	
	EXCEPTION DUPLEX_END_SESSION_TIMEOUT	
51	TXT_EVENT_END_SESSION	
	EVENT_DUPLEX_END_SESSION_OK	
60	EXCEPTION DUPLEX_ERASE_TX_NOT_REGISTERED_IN_RX	
61	EXCEPTION DUPLEX_ERASE_COMMAND_NOT_SUPPORTED	
62	EXCEPTION DUPLEX_ERASE_STATUS_UNKNOWN	
63	EXCEPTION DUPLEX_ERASE_TIMEOUT	
64	TXT_EVENT_ERASE_OK	
	EVENT_DUPLEX_ERASE_OK	
70	TXT_EVENT_LOGOUT_OK	
	EVENT_DUPLEX_LOGOUT_OK	
71	EXCEPTION DUPLEX_LOGOUT_TIMEOUT	
80	TXT_EVENT_TAKEOVER	
	OTHER_TX_HAS TAKEN_OVER_SESSION	

Tip 1: If a indication appear before a session is started the indication is a fatal error. During and after a session is started the indication can be either a fatal error or an exception.

5.3.3 INDICATIONS DUPLEX MESSAGES AND FATAL ERROR CODES

Number	Top LED	LED1	LED2	LED3	LED4	Number	Top LED	LED1	LED2	LED3	LED4
1						32					
2						33					
3						34					
4						35					
5						40					
6						41					
7						42					
8						43					
9						44					
10						45					
11						50					
12						51					
13						60					
14						61					
15						62					
16						63					
17						64					
18						70					
30						71					
31						80					

CHAPTER 6: OPERATION

6.1 General information

To control a receiver, the transmitter must be registered and logged in to the receiver. If another transmitter is already logged in to the receiver, it must be logged out before a different transmitter can be logged in.

If no transmitter is logged in to the receiver, proceed with the login procedure before using the system. Once a transmitter has been logged in, it will remain logged in until it is manually logged out.

More than one transmitter can be registered in the receiver, but only one transmitter can be logged in at a time.

6.2 Radio mode

NOTE: To establish a radio link between the transmitter and the receiver, both units must be set to the same radio mode.

This transmitter is set to **continuous** radio mode. The transmitter starts to transmit continuously as soon as it is started. The radio transmission ends when the stop button is pressed. **T37:** Buttons 7 and 8 are used as start buttons. **T38:** Buttons 11 and 12 are used as start buttons.

Discontinuous radio mode is not available for this transmitter.

6.3 Functionality test

NOTE: This list is intended for use as a support for the manufacturer of the equipment where Tele Radio remote control systems are installed.

Before operating the radio system, follow the procedure below.

IMPORTANT! This test should be performed at each shift, without a load, and should include but not be limited to the following steps

- Make sure that the controlled object can not cause any harm in the event of unexpected movement.
- Always follow local safety rules and start the equipment according to the corresponding instructions.
- Make sure that the transmitter can control the receiver by testing all functions.
- Make sure that the functions respond as expected.
- Make sure that all movements are as planned.
- Make sure that the stop button works correctly.
- Make sure that the stop function works correctly.

6.4 Start a session

To be able to control a receiver with the transmitter, the transmitter must be registered in the receiver.



When not in use, transmitters must be switched off and stored in a secure storage space.



Do not use the system if the stop button is damaged or if it does not stop the equipment. Doing so could result in serious injury or death.

6.4.1 SIMPLEX PROTOCOL

1. Make sure that the **Stop** button is pressed.

2. Twist and release the **Stop** button.

*The top LED lights. The LEDs next to the **Start** buttons flash (red).*

If PIN code enabled: Enter the PIN code (4 digits). Use the buttons according to the following table.

Digit	1	2	3	4	5	6	7	8	9	0
T38 Button	1	2	3	4	5	6	7	8	9	10
T37 Button	1	2	3	4	5	6	Shift + 1	Shift + 2	Shift + 3	Shift + 4

Shift: Press and hold button 8

3. Press and hold both **Start** buttons simultaneously for one second.
*The LEDs next to the **Start** buttons light (red). The buzzer emits a beep.*
4. Release both **Start** buttons.
*The LEDs next to the **Start** buttons go out. The top LED flashes. The buzzer stops beeping.*
5. Proceed with the functional test (see "6.3 Functionality test").

6.4.2 DUPLEX PROTOCOL

NOTE: The last accessed receiver(s) will automatically be selected the next time the transmitter is started.

1. Make sure that the **Stop** button is pressed.

2. Twist and release the **Stop** button.

The top LED lights.

If PIN code enabled: Enter the PIN code (4 digits). Use the buttons according to the following table.

Digit	1	2	3	4	5	6	7	8	9	0
T38 Button	1	2	3	4	5	6	7	8	9	10
T37 Button	1	2	3	4	5	6	Shift + 1	Shift + 2	Shift + 3	Shift + 4

SHIFT = Press and hold button 8

If a receiver is selected

*The LEDs next to the **Start** buttons flash (red).*

If no receiver is selected

Select receiver(s): Selectable options flash. Select option, the LEDs next to the **Start** buttons flash (red).

3. Press and hold both **Start** buttons simultaneously for one second.

*The LEDs next to the **Start** buttons light (red). The buzzer emits a beep.*

4. Release both **Start** buttons.

*The LEDs next to the **Start** buttons go out. The top LED flashes. The buzzer stops beeping.*

5. Proceed with the functional test (see "6.3 Functionality test").

6.5 Log the transmitter out from a receiver

IMPORTANT! For the logout function to work, **BOTH** the receiver and the transmitter must have the logout function activated and be set to continuous radio mode.

A transmitter already logged in to the receiver has to be logged out before any other transmitter can be logged in. If a transmitter has been lost or seriously damaged, use the replace procedure on the transmitter.

NOTE: Logout can only be performed when the transmitter is on and a radio link with one or more receivers has been established. The receiver must be powered-up for the logout procedure to be successful.

NOTE: The logout procedure will log the transmitter out from all receivers that are part of the radio session.

NOTE: The logout function cannot be activated/deactivated from the transmitter. Contact your representative for assistance.

For this transmitter, the logout function is activated by default.¹

6.5.1 QUICK LOGOUT

While the transmitter is in a session (i.e. transmitter started and radio link with the receiver established):

1. Press and hold the **left Start** button.
2. Press the **Stop** button.
The top LED lights (red).
3. Release the **left Start** button.
The transmitter takes approximately 2 seconds to log out. The transmitter turns off.

It is also possible to log out from the **Menu mode** (Simplex). See .

¹Check the receiver installation instructions for more details about the logout function in the receiver.

CHAPTER 7: CONFIGURATION MENU

7.1 Register the transmitter in a receiver



RISK OF UNINTENDED EQUIPMENT OPERATION

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

Failure to follow these instructions could result in death, serious injury, or equipment damage.



RISK OF UNINTENDED EQUIPMENT OPERATION

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

Failure to follow these instructions could result in death, serious injury, or equipment damage.

NOTE: For the registration procedure to be successful, the receiver must be powered up.

NOTE: To establish a radio link between the transmitter and the receiver, both units must be set to the same radio mode.

7.1.1 PREREQUISITE

NOTE: The registration instructions require access to the receiver circuit board. Before starting the registration of a transmitter, prepare the receiver as follow:



RISK OF ELECTRIC SHOCK

The receiver must only be opened by qualified installers or authorized personnel.

Make sure the power supply is switched off before opening the receiver. Failure to follow these instructions could result in death, serious injury, or equipment damage.

1. Remove the front cover of the receiver. Use a screwdriver to remove the screws.
2. Proceed with the registration procedure.

7.1.2 REGISTER THE TRANSMITTER IN A DUPLEX RECEIVER

T35/T36 transmitters can have up to 32 registered receivers (locations 0–31).

NOTE: Applies to PM receivers.

On the Receiver

1. Power the receiver up.

On the Transmitter

2. Start the transmitter.

On the Receiver

3. Enter registration mode in the receiver.¹

If no register command is received within 20 seconds, the receiver will exit registration mode.

On the Transmitter

4. Enter **Menu mode** (see "7.3 Enter menu mode").
5. Press button 1 to enter the [Register] menu.
6. Press a button on the transmitter to select an empty location (**T37**: buttons 1-6; **T38**: buttons 1-10).²
Occupied locations are indicated by the corresponding red lit LED. When an available location has been selected the corresponding LED will flash. To deselect press selected button again.
7. Press **Right Start** button to confirm.³
The LEDs next to both start buttons light.

On the Receiver

8. Confirm registration on the receiver, see receiver installation instructions.

On the Transmitter

The transmitter turns off.

If not successfully completed:

¹See the receiver installation instructions for more detailed information.

²Location 1 is selected by default.

³ **T37**: button 8. **T38**: button 12.

On the Receiver

The receiver exits registration mode. See receiver installation instructions.

On the Transmitter

If not successfully completed, the top LED lights red and the buzzer emits a beep. The transmitter turns off. Go back to step 2 and try again.

7.1.3 REGISTER THE TRANSMITTER IN A SIMPLEX RECEIVER

NOTE: Applies to Panther receivers

NOTE: Applies when used together with receivers set to "Continuous mode".

1. Make sure that the **Stop** button is pressed.
2. Twist and release the **Stop** button.
The top LED lights (green when the battery capacity is good, red when the battery capacity is poor). The LEDs next to both start buttons flash (red).
3. Press and hold both **Start** buttons simultaneously for one second.
The LEDs next to both start buttons light (red).
4. Release both **Start** buttons.
The LEDs next to both start buttons go out. The top LED flashes (green).

ON THE RECEIVER

5. Enter registration mode. See the receiver installation instructions for more detailed information.

ON THE TRANSMITTER

6. Press and hold buttons 1 and 2¹.
7. Release buttons 1 and 2.
The transmitter is registered.

If no transmitter is found within approximately 10 seconds, the receiver exits to normal operation. Go back to step 1 and try again.

¹Default predefined registration buttons.

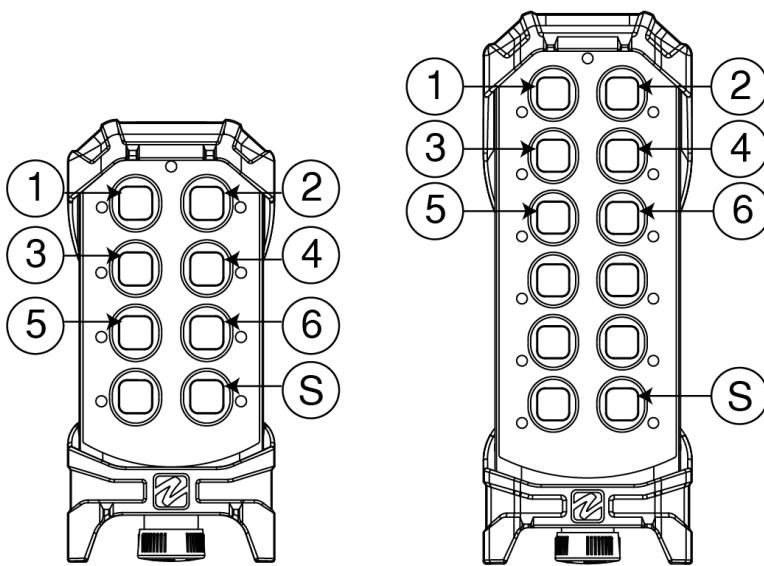
7.2 Menu mode and standard settings

The **Menu mode** allows for certain settings to be set directly from the transmitter. Once in **Menu mode**, the following menus will be available.

In some cases, the **Right Start** button is used as a shift button to access some menus and/or channels.

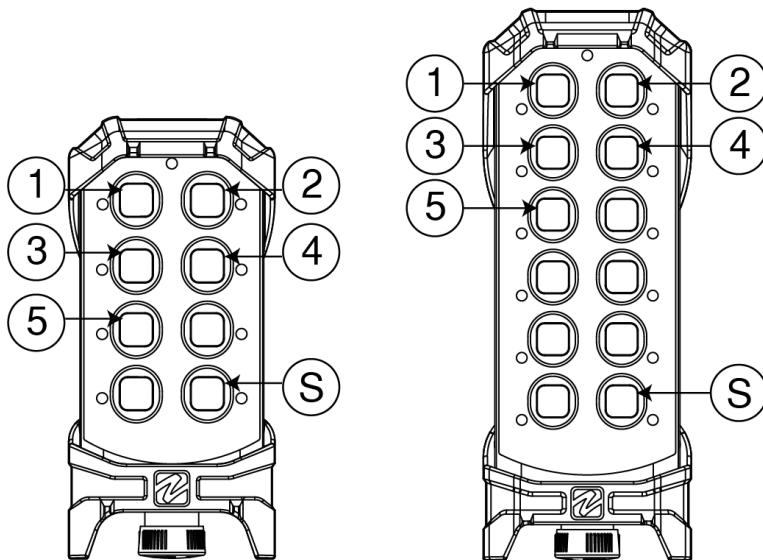
To activate the shift function, press the shift button and keep it pressed. Press the button corresponding to the desired menu/ channel number. Release it, then release the shift button.

7.2.1 MENU SIMPLEX



	Menu	Decription
3	Replace	Replace a lost or damaged transmitter
4	Show channel	Show the channel currently used
5	Automatic shutdown	Enable/Disable the auto-shutdown option
6	Load select mode	Select a load option (0-8)
S	Shift button	Activate the shift function to access additional menus
S+1	Logout	Log out the transmitter from a receiver
S+2	Switch channel	Select the channel to use
S+3	Load at start-up	Select the default load at start up
S+4	Learn RFID	Learn a RFID tag
S+5	IEEE 802.15 option	Enable/Disable Smartphone Connectivity

7.2.2 MENU DUPLEX



	Menu	Decription
1	Register	Register the transmitter in a receiver
2	Erase	Erase the transmitter from a receiver
4	Show channel	Show the channel/bank currently used
5	Automatic shutdown	Select the radio inactivity timeout
S	Shift button	Activate the shift function to access additional menus
S+2	Switch channel	Select the channel/bank to use
S+4	Learn RFID	Learn a RFID tag
S+5	IEEE 802.15.1 option	Enable/Disable Smartphone Connectivity.

7.3 Enter menu mode

1. Make sure that the **Stop** button is pressed.
2. Twist and release the **Stop** button.
The top LED lights.
3. Press and hold the **right Start** button.¹
4. Press the **Stop** button.
5. Release the **right Start** button.
WITHIN 1 MINUTE OF RELEASING THE STOP BUTTON:
6. Press buttons 1, 2, 3, 4 in sequence to enter **Menu mode**.
The top LED flashes and all button LEDs representing a menu flash. The transmitter is now in Menu mode.
If the code is invalid, the transmitter turns off. Go back to step 1 and try again.
WITHIN 1 MINUTE OF ENTERING THE CODE:
7. Select a menu by using the buttons according to the following illustration.

Simplex		
Menu	T37	T38
Replace	Button 3	Button 3
Show channel	Button 4	Button 4
Automatic shutdown	Button 5	Button 5
Load select mode	Button 6	Button 6
Logout	Press and hold button 8 (shift) + press button 1	Press and hold button 12 (shift) + press button 1
Switch channel	Press and hold button 8 (shift) + press button 2	Press and hold button 12 (shift) + press button 2
Load at start-up	Press and hold button 8 (shift) + press button 3	Press and hold button 12 (shift) + press button 3
Learn RFID	Press and hold button 8 (shift) + press button 4	Press and hold button 12 (shift) + press button 4
IEEE 802.15 option	Press and hold button 8 (shift) + press button 5	Press and hold button 12 (shift) + press button 5

¹ **T37**: button 8. **T38**: button 12.

Duplex		
Menu	T37	T38
Register	Button 1	Button 1
Erase	Button 2	Button 2
Replace	Button 3	Button 3
Show channel	Button 4	Button 4
Automatic shutdown	Button 5	Button 5
Switch channel	Press and hold button 8 (shift) + press button 2	Press and hold button 12 (shift) + press button 2
Learn RFID	Press and hold button 8 (shift) + press button 4	Press and hold button 12 (shift) + press button 4
IEEE 802.15 option	Press and hold button 8 (shift) + press button 5	Press and hold button 12 (shift) + press button 5

If no buttons are pressed within 1 minute, the transmitter will turn off.

7.4 Erase (Duplex)

This procedure will erase the transmitter from the selected receiver and vice versa.

1. Make sure that the **Stop** button is pressed.
2. Enter **Menu mode** (see "7.3 Enter menu mode").
3. Press button 2 to enter the [Erase] menu.
The LEDs corresponding to registered receivers flash.
4. Press the button corresponding to the receiver to be erased.
The corresponding LED stops flashing and remains lit.
5. Press **Right Start** button to confirm.
6. If successfully completed, the top LED stops flashing and remains lit. The transmitter turns off.

If not successfully completed, the transmitter turns off. Go back to step 1 and try again.

7.5 Replace a transmitter

It is possible to replace a registered transmitter with another transmitter of the same model. The procedure does not require to open the receiver housing but the receiver needs to be powered up and within transmission range.

RISK OF UNINTENDED EQUIPMENT OPERATION



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

Failure to follow these instructions could result in death, serious injury, or equipment damage.



The replacement transmitter will control all receivers it has been registered in, provided that no other transmitter is logged in.

IMPORTANT! Before replacing a damaged or missing transmitter with a new one, check if the transmitter used as replacement is already registered in any other receiver. If necessary, erase the transmitter from other receivers before performing the replacement procedure.

IMPORTANT! The replacement ID to be used is the one associated to the transmitter to be replaced (i.e. the old, lost or damaged transmitter).

IMPORTANT! When entering the last digit in the code, keep that button pressed until the stop button has been pressed.

Replace ID (Simplex): Use the FieldManager (smartphone app Android/iOS) and scan the QR Code to get a Replace ID.

Replace ID (Duplex): Use the serial number "SN", see the type label on the transmitter. The replace ID should consist of maximum 11 digits.

1. Make sure that the **Stop** button is pressed.
2. Enter **Menu mode** (see "7.3 Enter menu mode").
3. Press button 3 to enter [Replace] menu.
The top LED lights (green).
4. Enter the firstdigit of the Replace ID of the transmitter **to be replaced** (i.e. the old, lost or damaged transmitter).
Duplex replace ID has a maximum of 11 digits between 0–9. Simplex replace ID has a maximum of 11 digits between 1–8.

Digit	1	2	3	4	5	6	7	8	9	0
Button T38	1	2	3	4	5	6	7	8	9	10
Button T37	1	2	3	4	5	6	SHIFT ¹ +1	SHIFT+2	SHIFT+3	SHIFT+4

LED 3 lights (red) when a valid digit has been entered.
5. Enter the last digit of the Replace ID **and keep the button pressed** until TOP-GREEN LED starts to flash 3 times then release the button.
LEDs 3 and 4 light (red) when the maximum number of digits (11) have been entered.
6. Simplex: After approximately 10 seconds the transmitter turn off.
Duplex: If the replace is successful the TOP-GREEN LED will start to flash slow for 3 seconds, then the transmitter turn off.

Duplex: If the entered number is not valid, the TOP-RED led will light up for 3 seconds and the transmitter will shutoff.

Duplex: If the number is valid the TOP-GREEN led start flashing rapidly and the device sends the replace command.

NOTE: If the last digit number's button is not pressed while pressing the **Stop** button, the transmitter will exit Replace menu without sending the replace command.

¹**Right Start** button

7.6 Show current radio frequency channel

1. Make sure that the **Stop** button is pressed.
2. Enter **Menu mode** (see "7.3 Enter menu mode").
3. Press button 4 to enter the [Show channel] menu.
The top LED lights (green).
LED 1 flashes a number of times corresponding to the first digit.
LED 2 flashes a number of times corresponding to the second digit. ¹
The sequence is repeated six times.

¹Example: For channel 23, LED 1 will flash 2 times, LED 2 will flash 3 times.

7.7 Set the radio inactivity timeout (automatic shutdown)

NOTE: Only for **continuous** radio mode.

Set the off delay (in minutes) before the transmitter automatically turns off. Automatic shutdown helps prolong battery capacity by automatically turning the transmitter off after a preset period of inactivity.

1. Make sure that the **Stop** button is pressed.
2. Enter **Menu mode** (see "7.3 Enter menu mode")
3. Press button 5 to enter the [Automatic shutdown] menu.
The top LED lights (green). LED 2 flashes (red).
4. Select the automatic shutdown time by pressing a button according to the following table.

Automatic shutdown time	T37	T38
3 minutes	Button 1	Button 1
6 minutes	Button 2	Button 2
12 minutes	Button 3	Button 3
No automatic shutdown	Button 7	Button 11

The top LED flashes (green) 3 times. The transmitter turns off.

7.8 Select the Load select mode

NOTE: Only for **continuous** radio mode.

1. Make sure that the **Stop** button is pressed.
2. Enter **Menu mode** (see "7.3 Enter menu mode").
3. Press button 6 to enter the [Load Select Mode] menu.
The top LED lights (green). LED 2 flashes (red).
4. Select a **Load select** mode by pressing a button according to the following table.

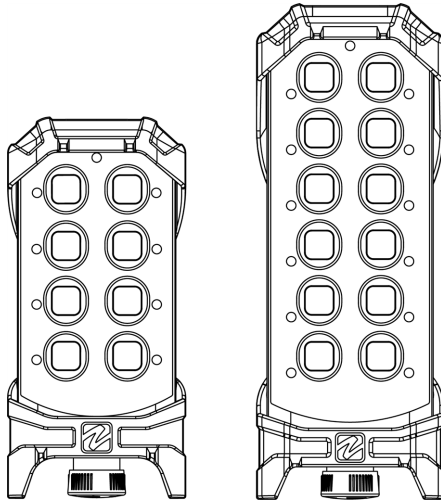
Setting	Description	Default load selected at start-up ¹	T37	T38
0	(Disabled)	none	Button 7	Button 11
1	Rotate A/B	none	Button 1	Button 1
2	Rotate A/B/C	none	Button 2	Button 2
3	Rotate A/B/A+B	none	Button 3	Button 3
4	Rotate A/B/C/D	none	Button 4	Button 4
5	A-B/A+B	none	Button 5	Button 5
6	A-B	none	Button 6	Button 6
7	A-B/A+B and rotate C/D/C+D	none	Press and hold button 8 (shift) + press button 1	Button 7
8	A-B and rotate C/D	none	Press and hold button 8 (shift) + press button 2	Button 8

The top LED flashes (green) 3 times. The transmitter turns off.

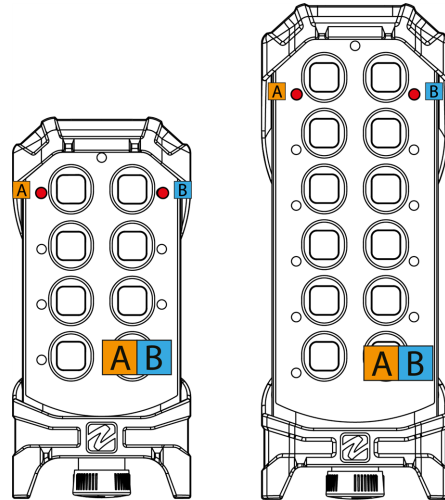
¹Load at start-up can be changed later on, see "Chapter 1: Load at start-up".

7.8.1 LOAD SELECT MODE 0-8 (SIMPLEX)

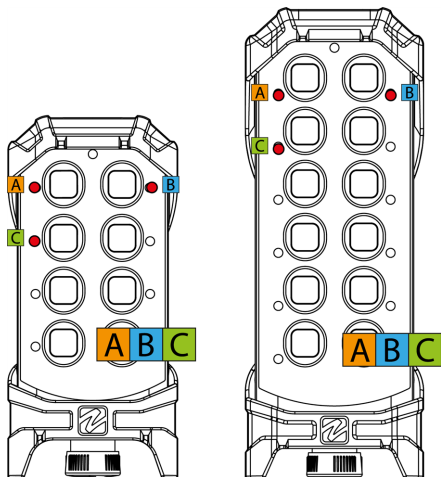
Load select mode 0



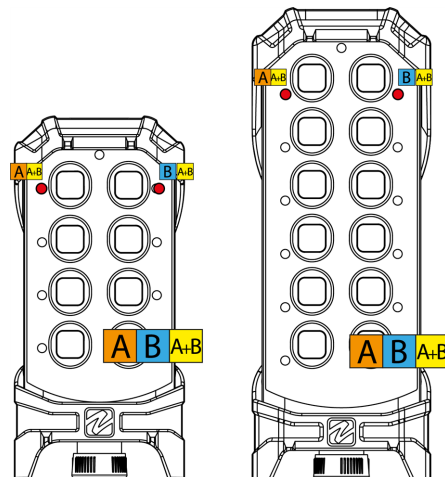
Load select mode 1



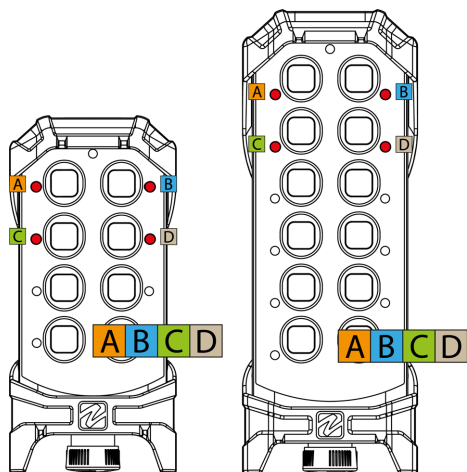
Load select mode 2



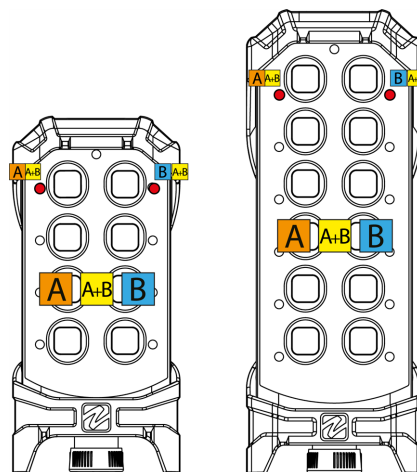
Load select mode 3



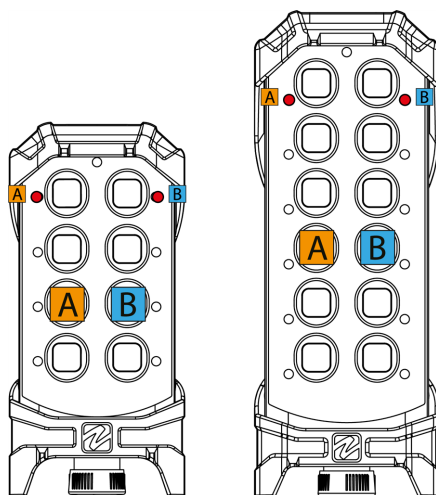
Load select mode 4



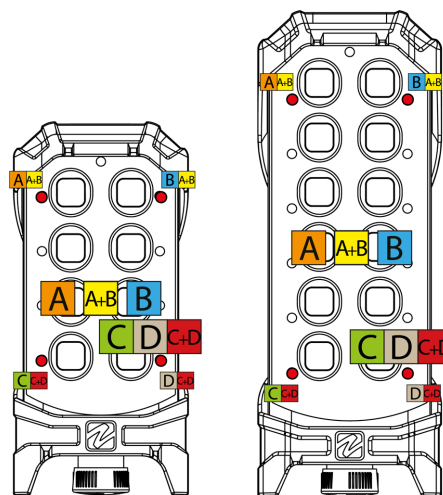
Load select mode 5



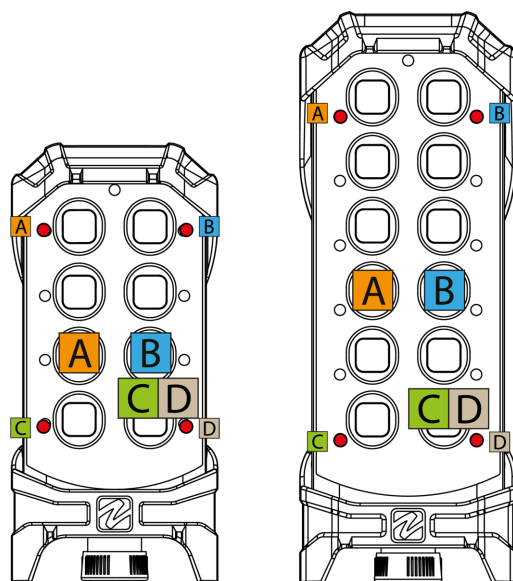
Load select mode 6



Load select mode 7



Load select mode 8



7.9 Logout from Menu mode (Simplex)

This logout option is mainly used when the button for quick logout is used by another function.

IMPORTANT! For the logout function to work, BOTH the receiver and the transmitter must have the logout function activated and be set to continuous radio mode.

NOTE: Logout can only be performed when the transmitter is on and a radio link with one or more receivers has been established. The receiver must be powered-up for the logout procedure to be successful.

1. Make sure that the **Stop** button is pressed.
2. Enter **Menu mode** (see "7.3 Enter menu mode").
3. When in Menu mode: Press and hold the **Right Start** button.
4. Press button 1.
5. Release button 1.
6. Release the **Right Start** button to enter the [Logout] menu.
The top LED lights (red).
The transmitter takes approximately 10 seconds to logout. The transmitter turns off.

7.10 Select a radio frequency channel

1. Make sure that the **Stop** button is pressed.
2. Enter **Menu mode** (see "7.3 Enter menu mode").
3. When in Menu mode: Press and hold the **right Start** button.¹
4. Press button 2
5. Release button 2
6. Release **right Start** button.
The top LED lights (green). LED 2 flashes (red). The transmitter enters the [Switch channel] menu.

¹ **T37:** button 8. **T38:** button 12.

-
7. Enter the first digit of the new channel (11–26) by pressing the buttons according to the following table.¹

Digit	Buttons
1-6	Button 1-6
7	Press and hold button 8 (shift) + press button 1
8	Press and hold button 8 (shift) + press button 2
9	Press and hold button 8 (shift) + press button 3
0	Press and hold button 8 (shift) + press button 4

LED 3 lights (red) when a valid digit has been entered.

8. Enter the second digit.

LED 4 lights (red) when a valid digits has been entered.

The top LED flashes (green) 3 times. The transmitter turns off.

To check that the channel has been properly changed, see "7.6 Show current radio frequency channel".

¹For example channel 20: Press button 2 for the first digit. For zero, press and hold button 8, press button 4, release button 4, release button 8.

7.11 Select the load at start-up (Simplex)

NOTE: Make sure to have a **Load select** mode selected before following the instructions below.

1. Make sure that the **Stop** button is pressed.
2. Enter **Menu mode** (see "7.3 Enter menu mode").
3. When in Menu mode: Press and hold the **Right Start** button.
4. Press button 3.
5. Release button 3.
6. Release the **Right Start** button to enter the [Load Select Mode] menu. The top LED lights (green). LED 2 flashes (red). The transmitter enters the [Load at start-up] menu.
7. Select the load at start-up by pressing a button according to the following table.

Load at start-up	T37	T38
A	Button 1	Button 1
B	Button 2	Button 2
A+B	Button 3	Button 3
none	Button 7	Button 11

The top LED flashes (green) 3 times and LED. The transmitter turns off.

7.12 Smartphone Connectivity – IEEE 802.15

Enable/Disable Smartphone Connectivity.

1. Make sure that the **Stop** button is pressed.
2. Enter **Menu mode** (see "7.3 Enter menu mode").
3. When in Menu mode: Press and hold the **right Start** button.¹
4. Press button 5
5. Release button 5

¹ **T37**: button 8. **T38**: button 12.

-
6. Release **right Start** button.

The top LED lights (green). LED 2 flashes (red). The transmitter enters the [IEEE 802.15 option] menu.

7. Use button 1 to enable/disable Smartphone Connectivity.

LED 1 will also indicate if the connectivity is on or off.

LED 1	
ON	IEEE802.15 Enable
OFF	IEEE802.15 Disable

CHAPTER 8: BATTERY

8.1 Battery precautions

Carefully read the following safety instructions and warnings before using, charging or disposing of the batteries.



Batteries contain flammable substances such as lithium or other organic solvents, which may result in overheating, rupture or combustion. Failure to read and follow the below instructions may result in fire, personal injury and damage to property if charged or used improperly.

8.1.1 HANDLING AND STORAGE



- Risk of explosion if battery is replaced with a battery of an incorrect type.
- Do not short-circuit, disassemble, deform or heat batteries.
- Never attempt to charge a visibly damaged or frozen battery.
- Do not use or charge the battery if it appears to be leaking, deformed or damaged in any way.
- Do not solder directly onto batteries.
- Do not leave the battery in the charger once it is fully charged.
- Store in a cool location. Keep batteries away from direct sunlight, high temperature, and high humidity.
- Immediately discontinue use of the battery if, while using, charging, or storing the battery, the battery emits an unusual smell, feels hot, changes color, changes shape, or appears abnormal in any other way.
- Keep batteries out of reach of small children. Should a child swallow a battery, consult a physician immediately.

8.1.2 DISPOSAL

When discarding batteries, insulate the + and - terminals of batteries with insulating/ masking tape.



- **Do not place multiple batteries in the same plastic bag.**
- **Do not incinerate or dispose of batteries in fire.**
- **Do not place used batteries in the household waste. Dispose of used batteries in accordance with the applicable regulations and legal requirements.**
- **Batteries that have been disposed of incorrectly may short circuit, causing them to become hot, burst or ignite.**

8.2 Battery information

NOTE: Only batteries approved by Tele Radio should be used in T35/T36 transmitters.

NOTE: When the battery capacity reaches approximately 10 %, the top LED lights red.

The T38 transmitter is supplied and shall be used together with a D4-13 battery.

Article number	103450	D4-13
Type of battery	Internal, rechargeable lithium-ion battery	Replaceable, rechargeable lithium-ion battery 3.7 V, 2000 mAh, 7.4 Wh
Charge:	via the charger plug on the back of the transmitter, with AC adapter ¹	option 1 via the charger plug on the back of the transmitter, with AC adapter ² option 2 In charger unit D4-01 or D4-07.
Charging time (typical with an empty battery)	Approximately 4 h	Approximately 5 h
Charging temperature	+10...+35 °C / +50...+95 °F	+10...+35 °C / +50...+95 °F
Storage temperature	-20...+55 °C / -4...+131 °F	-20...+55 °C / -4...+131 °F

¹100-001-057-18 (M769720) multi charger power supply 12V DC. Must be purchased separately.

²100-001-057-18 (M769720) multi charger power supply 12V DC. Must be purchased separately.

8.2.1 REMOVAL OF THE INTERNAL BATTERY (T37)

Electronics and batteries must be physically separated before disposal.

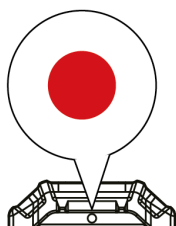
1. Remove the clip. Use a screwdriver to remove the screws.
2. Remove the rubber cover by hand.
3. Use a screwdriver to remove the screws in the back of the transmitter.
4. Gently pull to release the back encapsulation (black).
5. Remove the back encapsulation by hand.
6. Turn it over so the circuit board is facing upwards.
7. Use a screwdriver to remove the screw(s) on the circuit board.
8. Unplug connectors, if any.
9. Gently lift up the circuit board by hand. The battery pack is located behind the circuit board.
10. Remove the battery by hand.

8.2.2 CHARGE THE BATTERY

T38: Battery D4-13 can be charged directly on the transmitter or in the table/wall charger D4-01. For more information, see "8.2 Battery information".

T37 with internal battery can only be charged directly on the transmitter.

NOTE: For T37 transmitters, the 1/O switch must be in the 1/on position when charging.



When the battery capacity reaches approximately 10 %, the top LED lights red.

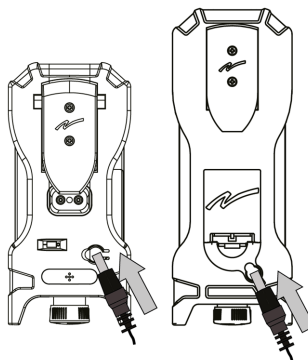
NOTE: If the transmitter has a D4-13 replaceable rechargeable battery it can either be recharged directly on the transmitter or using the D4-01 charger unit.

Charging on the transmitter

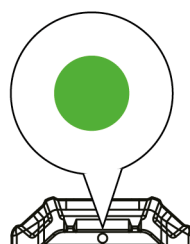
NOTE: Applies to D4-13 battery only or internal rechargeable battery.

1. Lift the protection cap.
2. Insert the charger plug into the socket on the back of the transmitter.

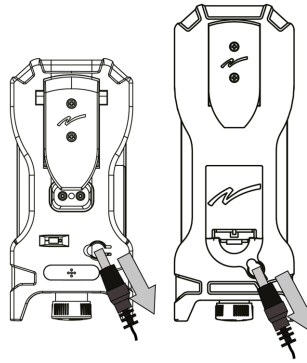
The top LED flashes red while the battery is charging.



The top LED turns green when the battery is fully charged.



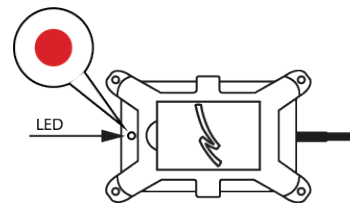
-
3. Remove the charger plug and close the protection cap.



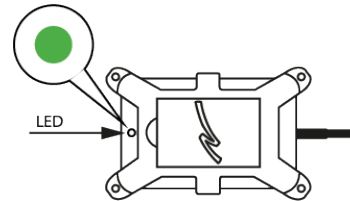
Charging using the charger unit

NOTE: Applies to T38

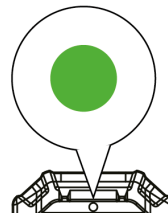
1. Remove the rubber cover from the transmitter.
2. Remove the battery from the transmitter
3. Place the battery in the charger.
The charger's LED lights red while the battery is charging.



The charger's LED turns green when the battery is fully charged.



3. Remove the battery from the charger unit.
4. Put the battery back in the transmitter.
The top LED lights green when the battery is fully charged.



CHAPTER 9: WARRANTY, SERVICE, REPAIRS, AND MAINTENANCE

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

The following are **not** covered by the 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 performed by qualified personnel
- Only use spare parts from Tele Radio
- 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 10: REGULATORY INFORMATION

10.1 Europe

Applies to: **T37, T38**

10.1.1 CE MARKING



Hereby, Allgon AB, declares that the product(s) listed above is/are in compliance with the Radio Equipment Directive 2014/53/EU.

The latest version of the complete EU Declaration of Conformity is available at the following website: www.tele-radio.com.

10.1.2 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 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 strives to restrict or eliminate substances and materials that pose an environmental, health or safety risk.

10.1.3 UK IMPORTER

UK Importer: Tele Radio (UK) LTD

1 SEYMOUR COURT,
MANOR PARK, RUNCORN, WA7 1SY, UK
Email: sales@teleradiouk.com

10.2 North America

Applies to: **T37, T38**

10.2.1 FCC STATEMENT

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

10.2.2 IC STATEMENT

This product complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

- (1) This device may not cause interference; and
- (2) This device must accept any interference, including interference that may cause undesired operation of device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- 1) l'appareil ne doit pas produire de brouillage;
- 2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

10.2.3 FCC/IC LABELS

The radio module in this product is labeled with its own FCC ID and IC numbers. The FCC ID and IC numbers are not visible when the radio module is installed inside another device. Therefore, the outside of the device into which the module is installed must also display a label referring to the enclosed radio module. The final end device must be labeled in a visible area with the following:

Contains FCC ID: 2BC3H2316C

Contains IC: 31388-2316C

10.3 Radio module

Each radio module is specifically designed to match a Tele Radio product in terms of physical dimensions, connection points, voltage levels, signal interface etc. To use the radio modules in non Tele Radio products is not permitted. The radio modules are designed to interface directly to the main board of the receiver/transmitter unit. They are power supplied by the main board and the radio circuit operates strictly according to instructions from a microprocessor on the main board. The radio circuit configuration is stored in a flash memory on the radio module. A receiver/transmitter unit with a defective/no radio module will give an error message immediately after power up, and it will not be possible to start a radio session.

The products described in these instructions contain radio module:

Model	Radio module
T37-01, T38-01	D5-40 D5-42

ANNEX A: GLOSSARY

DC

Diagnostic Coverage

FIT

Failures in time (1 FIT = 1 failure per 10^9 hours)

HFT

Hardware Fault Tolerance

MTTF

Mean Time To Failure

PFH

Probability of Failure per Hour

PL

Performance level

SFF

Safety Failure Fraction

SIL

Safety Integrity Level

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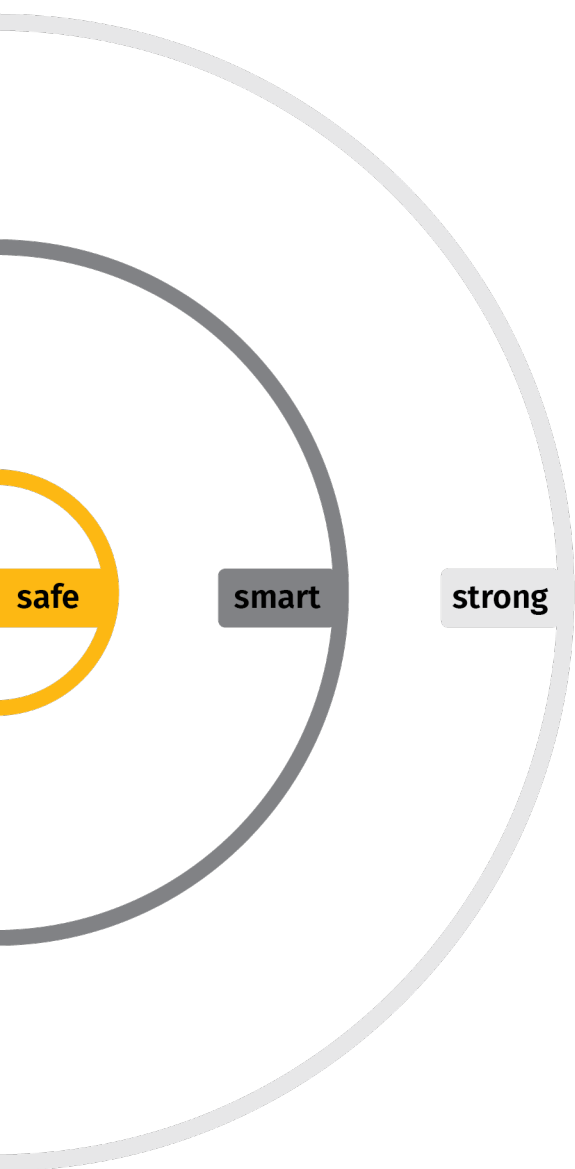
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These installation instructions are subject to change without prior notice.
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