

TELE RADIO

INDUSTRIAL RADIO REMOTE CONTROLS

T20/T60

Installation instructions



T20TX-01NKL, T20TX-01NKM, T20/T60RX-01APL, T20/T60RX-01ARL, T60TX-01STL, T60TX-01STM, T60TX-02STM, T60TX-02STL, T20TX-02NKL, T20TX-02NKM, T20RX-02AKM, T20RX-02AKL, T20TX-03NKL, T20-03ASM, T20RX-03ADM, T20RX-03ASL, T20TX-03NKM, T20/T60RX-03ADL, T60TX-03STM, T60TX-03STL, T60RX-04BSL, T60RX-04DSM, T60RX-04BSM, T60TX-04STM, T60RX-04CSL, T60RX-04ASL, T60RX-04ASLI, T60RX-04CSM, T60RX-04ASM, T60RX-04DSL, T60RX-08DSL, T60TX-04STL, T60RX-05ASL, T60RX-05ASLI, T60RX-08BSL, T60RX-08DSM, T60RX-08BSM, T60RX-08CSL, T60TX-06STL, T60TX-06STM, T60TX-08STL, T60TX-08STM, T60RX-08ASL, T60RX-08CSM, T60RX-08ASM, T60TX-15SML, T20TX-15DMM, T20TX-15SMM, T60TX-15DML, T60-T8-50, T60-T8-51, T60-T8-52, T60-T8-53

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CONTENTS

Chapter 1: CUSTOMER INFORMATION	2
Chapter 2: PRODUCT PAGES - RECEIVERS	4
Antenna - mounting	4
T20RX-03ASL, T20RX-03ASM receiver	5
T20RX-02AKL, T20RX-02AKM receiver	7
T20/T60RX-03ADL, T20RX-03ADM receiver	10
T60RX-05ASL, T60RX-05ASL* receiver	12
T60RX-04*SL, T60RX-04*SM, T60RX-08*SL, T60RX-08*SM	17
T20/T60RX-01APL plugin receiver	22
T20/T60RX-01ARL receiver	24
Chapter 3: PRODUCT PAGES - TRANSMITTERS	26
T20TX-0XNKL, T20TX-0XNKM transmitter	26
T60-T8-5X transmitter	27
T60TX-0XSTL, T60TX-0XSTM transmitter	28
T60TX-15DML, T60TX-15SML, T20TX-15DMM, T20TX-15SMM transmitter	29
Chapter 4: APPENDIX	30
Chapter 5: BATTERY GUIDE	32

CHAPTER 1: CUSTOMER INFORMATION

THANK YOU FOR PURCHASING A TELE RADIO AB PRODUCT

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

These instructions are published by Tele Radio AB without any guarantee. The instructions may be removed 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 instruction.

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WARNINGS & RESTRICTIONS

IMPORTANT! Tele Radio remote controls are often built into wider applications. We recommend that the system is provided with a wired emergency stop where necessary.

INSTALLING, CONNECTING AND MOUNTING

- Allow only licensed or qualified personnel to install the product.
- Switch the power supply off to the receiver before connecting the equipment.
- Check that you have connected the power supply to the correct connection terminal.
- Use undamaged cables. No cables should hang loose.
- Avoid installing in areas affected by strong vibrations.
- Place the receiver well away from wind, damp and water.
- Cable glands and vent plugs must face down to prevent water from seeping in.

THE USER

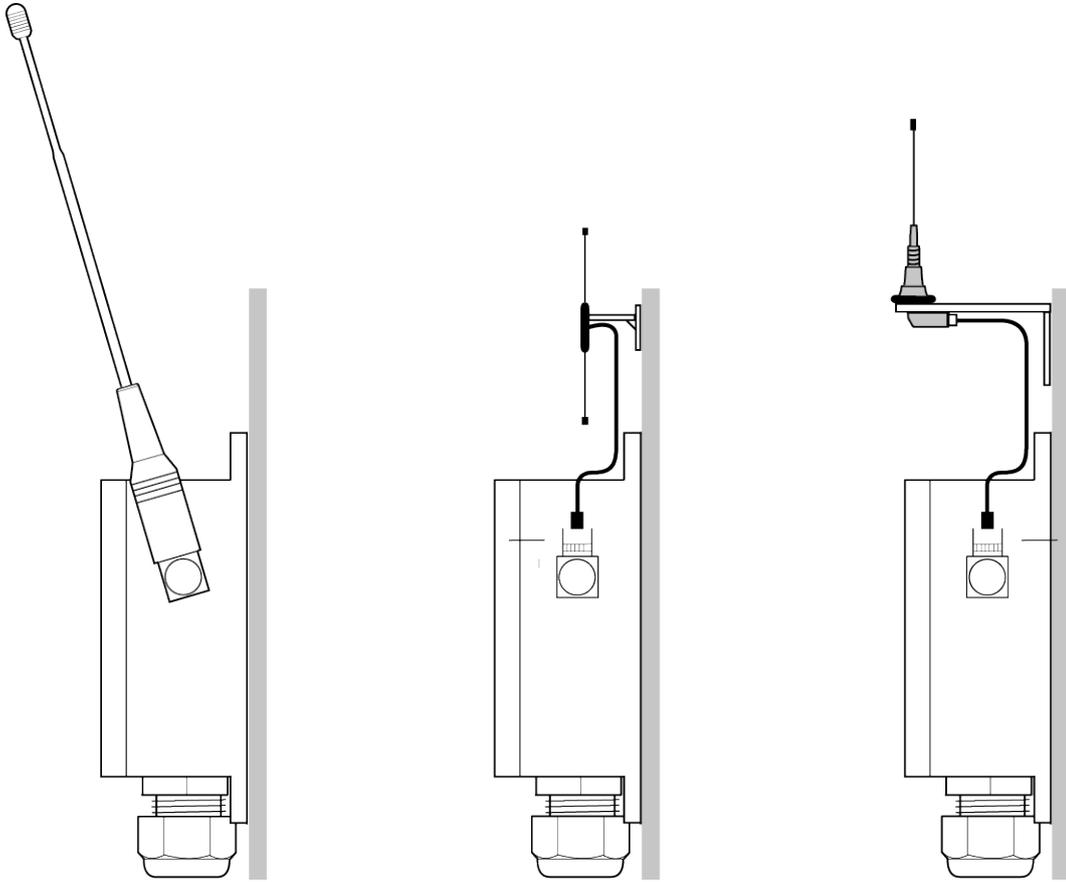
- Make sure that the user is following the instructions.
- Make sure that the user has reached the certified age of your country to operate the equipment.
- Make sure that the user is not under the influence of drugs, alcohol and medicines.
- Allow only qualified personnel to have access to the transmitter and operate the equipment.
- Make sure that the user does not leave the transmitter unsupervised.
- Make sure that the user always turns the transmitter off when not in use.
- Make sure that the user keeps a good overview of the work area.

MAINTENANCE

- When error messages are shown, it is very important to find out what caused them.
- Always contact your representative for service and maintenance work on the product.
- Avoid registering transmitters to receivers where it is not being used.
- Always download the configurations instruction from our web site for the latest version available.

CHAPTER 2: PRODUCT PAGES - RECEIVERS

ANTENNA - MOUNTING



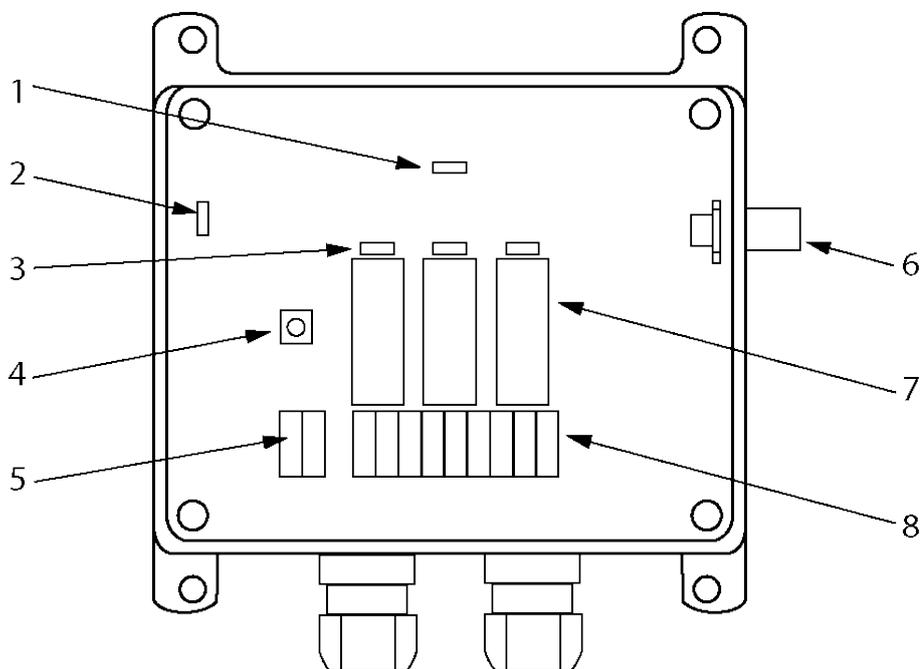
NOTE! For optimum performance: Place well away from metal objects, such as metal girders, high-voltage cables and other antennas.

- If the receiver is installed on a wall, the antenna should be angled out from the wall.
- The dipole antenna with three meter coaxial cable should be installed vertically.
- The 5/8 antenna with three meter coaxial cable makes it possible for the antenna to be positioned freely and high above the ground.

T20RX-03ASL, T20RX-03ASM RECEIVER

T20RX-03ASL frequency	433 MHz
T20RX-03ASM frequency	869 MHz
Operating voltage	12-30 V AC/DC
Power consumption	25-75 mA.
Size	132 x 133 x 45 mm.
Protection	IP 65
Climatic conditions	-30°C to +70°C
Transmitter compatibility	T20, T60, 460
Humidity	10-90%

NOTE! For connecting the receiver, go to the Appendix pages.



1. Green LED	LED lights up when the receiver receives a radio signal.
2. Yellow LED	LED lights up when the receiver has the correct operating voltage.
3. Red LED	LED lights up above the relay that is actuated and shows the programming status.
4. Button	Button for learning / erasing.
5. Connection terminal	Connection terminal for voltage.
6. Connection terminal	Connection terminal for relays.
7. Relay 3 separate relays	Max load over relay is 8 A for resistive loads.
8. BNC	BNC contact for the antenna.

Learning the transmitter code

NOTE! If a T60 transmitter in adjustable mode is registered, a combination of ten zeros (0000000000) will make the receiver automatically register the fixed individual code.

T20 transmitters: Fixed individual code / T60 transmitters: Adjustable code

1. Press the receiver registering button for 0.3 - 4 seconds.
2. Release the receiver registering button. The red LED lights.
3. Press the required transmitter button. The red LED flashes 3 times quickly.
4. The code is saved. T60 transmitter: The red LED flashes once every other second. T20 transmitter: The red LED double-flashes every other second.

T20 transmitters: Fixed individual code / T60 transmitters: Fixed individual code

1. Press the receiver registering button for 0.3 - 4 seconds.
2. Release receiver registering button within 1 second.
3. Press the receiver registering button once again (for more than one second). The red LED goes out and lights up.
4. Press the required transmitter button. The red LED flashes 3 times quickly.
5. The fixed individual code is saved. The red LED double-flashes every other second.

Confirm the programming

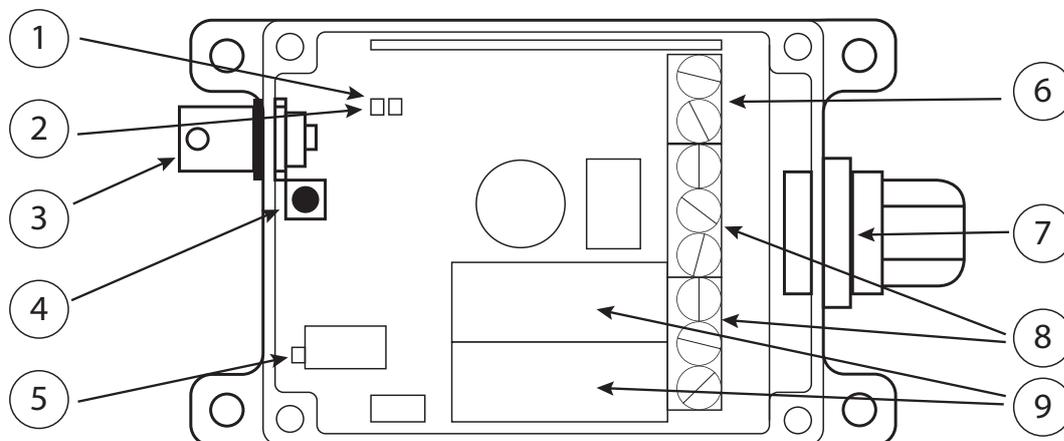
Check the programming by testing the transmitter buttons. The green LED lights up when the receiver receives the signal and the red relay LED lights when the relay is activated.

Erase all programmed codes

Press down and keep receiver registering button pressed for at least 4 seconds. The red LEDs light up when the receiver registering button is pressed and go out when the codes have been erased. NOTE! All codes get erased.

T20RX-02AKL, T20RX-02AKM RECEIVER

WARNING! The receiver must NOT be opened by any other than a qualified installer. Make sure to turn the electricity off before opening the receiver.



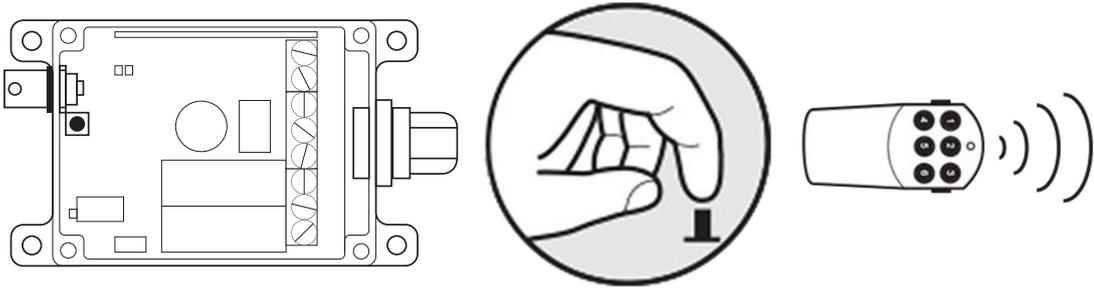
NOTE! For connecting the receiver, go to the Appendix pages.

1. Yellow LED	LED lights up when the receiver has the correct supply voltage.
2. Green LED	LED lights up when the receiver receives a radio signal.
3. BNC	BNC contact for the antenna.
4. Push-button	Programming relay function and transmitter.
5. Red LED	LED indicates during programming.
6. AC/DC connection terminal	Connection terminal for voltage.
7. Bushing	Cable coupling.
8. Relay connection terminal	Connection terminal for relays.
9. Relay	Two separate relays. Maximum load over relay is 8 A for resistive loads.

Technical data

Input power	12-24V AC/DC
Current consumption	30-80 mA
Frequency	L=433MHz, M=869MHz
Size	54x96x37 mm
IP classification	65
Climatic conditions	-30°C - 70°C, humidity 10 - 90%
Transmitter capability	T20

Learning the transmitter code



The receiver can be programmed to accept up to 15 different transmitters for relay 1 and up to 15 different transmitters for relay 2. Each transmitter has a unique ID code.

Relay function in the receiver

Three different functions for the two relays in the receiver can be selected when instructing the transmitter:

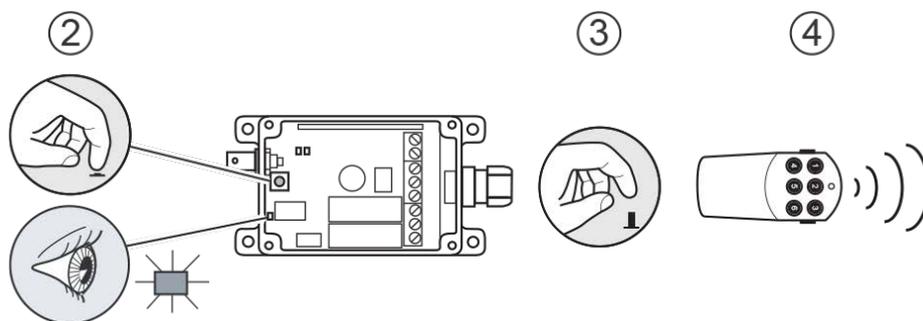
1. Button 1 activates relay 1, button 2 activates relay 2.
2. Any button on the transmitter activates relay 1.
3. Any button on the transmitter activates relay 2.

Function description

	Function	Red LED	Press the receiver's button for:*	The transmitter button number:
A	The transmitter button activates relay 1, button 2 activates relay 2	Lights continuously	0.3 -2s	Button 1 or button 2
B	Any button on the transmitter activates relay 1	Flashes slowly	2 - 4s	Select the button that you are going to use
C	Any button on the transmitter activates relay 2	Flashes quickly	4 - 6s	Select the button that you are going to use
D	Cancel ID code registration	Lights continuously	6 -8s	-
E	Erase all stored transmitters		more than 8s	

*During the time that the receiver button is pressed the red LED changes to indicate the current function mode of the programming

STORING THE TRANSMITTER ID CODE



1. Remove the receiver cover (4 screws).
2. Press and hold the receiver registering button. The red LED changes.
3. Release the button when the red LED lights/flashes for the desired function (according to the function description in the table).
4. Press the transmitter button that you want to use. The red LED flashes three times. The transmitter ID code is stored in the receiver.
5. Check the programming by pressing the transmitter buttons to see if the selected relay is activated. The green LED lights when the receiver receives the signal. When one or more transmitters are stored, the red LED flashes continuously (double flashes).

Stop instruction

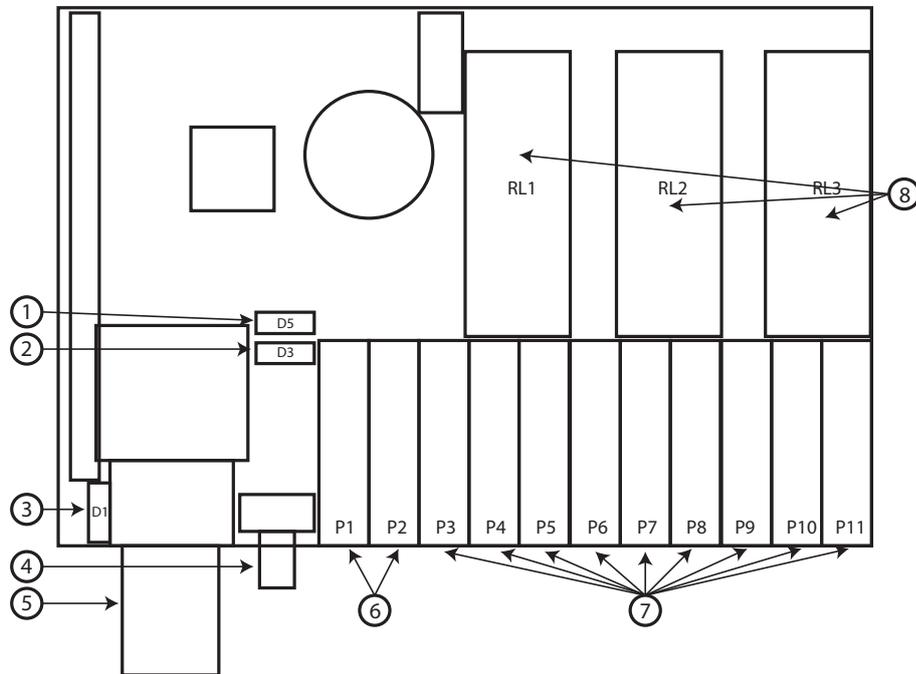
Stop instruction of the transmitter by pressing the receiver button for 6 - 8 seconds (function D in the table).

Erase all stored transmitters

Erase all stored transmitter ID-codes by pressing the receiver button for more than 8 seconds (function E in the table).

T20/T60RX-03ADL, T20RX-03ADM RECEIVER

WARNING! The receiver must NOT be opened by any other than a qualified installer. Make sure to turn the electricity off before opening the receiver.



NOTE! For connecting the receiver, go to the Appendix pages.

1. Yellow LED	LED lights up when the receiver has the correct operating voltage
2.Red LED	LED shows programming status.
3. Green LED	LED lights up when the receiver receives a radio signal.
4. Button	Button for registering and erasing.
5. BNC	BNC contact for the antenna.
6. Connection terminal	Connection terminal for voltage.
7. Connection terminal	Connection terminal for relays.
8. Relay	Three separate relays. Max load over relay is 8 A for resistive load.

Technical data

Input power	12-24V AC/DC
Current consumption	40-80 mA
Frequency	T20/T60RX-03ADL=433MHz, T20RX-03ADM=869MHz
Size	85 x 62 x 30 mm
IP classification	20
Climatic conditions	-30°C to +70°C, humidity < 90%
Transmitter capability	T20, T60, 460

NOTE! For simultaneous relay function, the following priority applies:

Relay 1+2: Relay 2 has priority

Relay 1+2+3: Relay 2 has priority

Relay 2+3: Relay 2 has priority

Relay 1+3: No function

Learning the transmitter code

NOTE! If a T60 transmitter in adjustable mode is registered, a combination of ten zeros (0000000000) will make the receiver automatically register the fixed individual code.

T20 transmitters: Fixed individual code / T60 transmitters: Adjustable code

1. Press the receiver registering button for 0.3 - 4 seconds.
2. Release the receiver registering button. The red LED lights.
3. Press the required transmitter button. The red LED flashes 3 times quickly.
4. The code is saved. T60 transmitter: The red LED flashes once every other second. T20 transmitter: The red LED double-flashes every other second.

T20 transmitters: Fixed individual code / T60 transmitters: Fixed individual code

1. Press the receiver registering button for 0.3 - 4 seconds.
2. Release receiver registering button within 1 second.
3. Press the receiver registering button once again (for more than one second). The red LED goes out and lights up.
4. Press the required transmitter button. The red LED flashes 3 times quickly.
5. The fixed individual code is saved. The red LED double-flashes every other second.

Confirm the programming

Check the programming by testing the transmitter buttons. The green LED lights up when the receiver receives the signal and the red relay LED lights when the relay is activated.

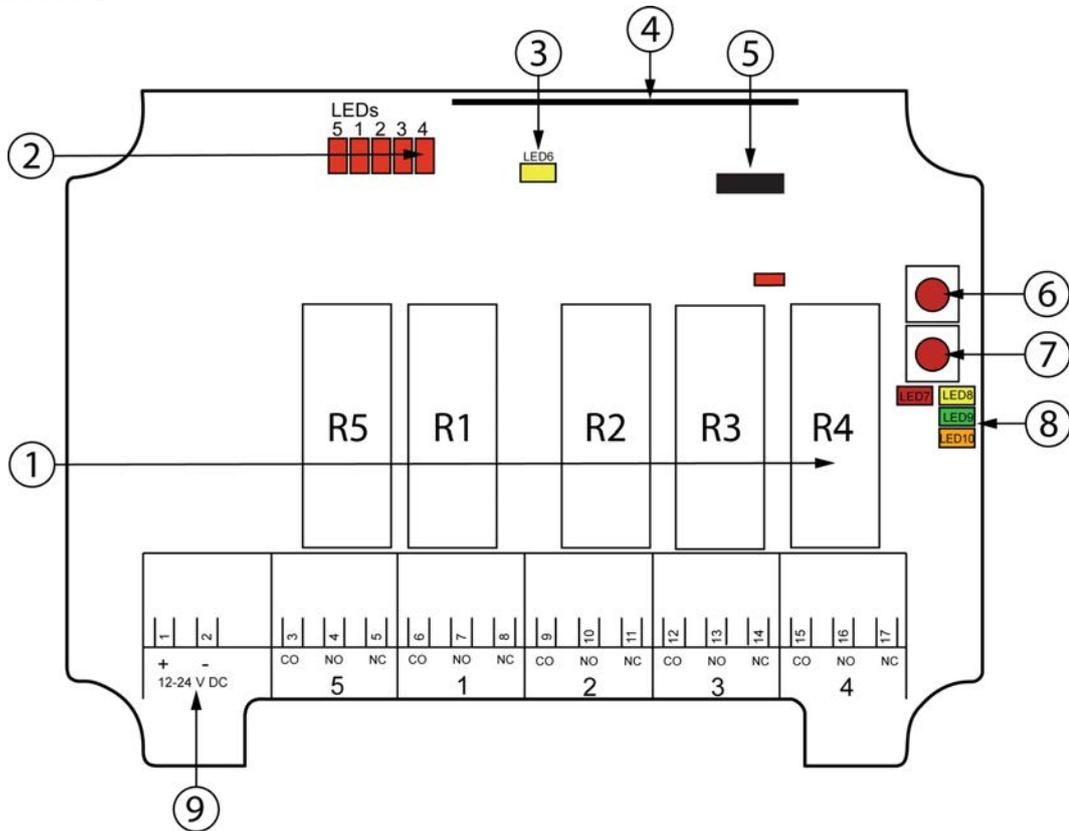
Erase all programmed codes

Press down and keep receiver registering button pressed for at least 4 seconds. The red LEDs light up when the receiver registering button is pressed and go out when the codes have been erased. NOTE! All codes get erased.

T60RX-05ASL, T60RX-05ASLI* RECEIVER

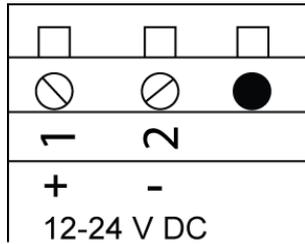
WARNING! The receiver must NOT be opened by any other than a qualified installer. Make sure to turn the electricity off before opening the receiver.

Base board:



1. Function relays 1-5	6. Function button (Cancel)
2. Relay LEDs 1-5 (red)	7. Select button (OK)
3. Power LED (yellow)	8. Function LEDs (7=red, 8=yellow, 9=green, 10=orange)
4. Radio module	9. Terminal block for input power
5. Programming connector	

Terminal block for input power on base board



1	12 - 24V DC
2	Negative terminal DC voltage

The power source to the receiver unit must fulfill the definition of LPS (Limited Power Source) according to EN 60950-1. The maximum available output power should be either 240VA (fuse protected) or 100VA (without fuse).

Technical data

Input power	12-24V DC
Function relays	5 (potential free*, 8A 250V AC)
Operating frequency	433 MHz
Antenna	* 1 internal PCB antenna
IP class	66
Operating temperature	-20 - +55°C / -4 - +130°F
Size	121 x 117 x 51 mm./ 4.75 x 4.6 x 2 in.
Weight	420 g./ 0.926 lbs.
Transmitter capability	T20, T60

*potential free means that you have to supply voltage to get voltage out of a relay (e.g. via the included connection comb)

Function LEDs indication

FUNCTION LED	INDICATES
LED 7 (red)	Register
LED 8 (yellow)	Latching/momentary function
LED 9 (green)	Interlock
LED 10 (orange)	The receiver is receiving signal from any registered or not registered T20/T60 transmitter.

Program mode indication

LED 7 (red)	INDICATES
Lights up	ID code registration mode
Flashes once	ID code registered
Flashes twice	One or more private ID codes registered
Off	No ID code registered

Learn the transmitter ID code

NOTE! 10 ID codes can be stored in each relay in the receiver. If a T20 transmitter is registered, the receiver will automatically register the private ID code. If a T60 transmitter in adjustable DIP switch mode (1.2.6) is registered, the combination of 0 0 0 0 0 0 0 0 0 0 (ten zeros) will make the receiver automatically register the private ID code.

Register the adjustable transmitter ID code and function/button 1 - 5

1. Press the receiver Function button. LED 7 (red) is ON.
2. Press the receiver Select button.
3. Select all 5 relays (all relay LEDs are ON) by using the receiver Function button.
4. Press the receiver Select button for 0,3 - 4 seconds. The receiver enters an ID code registration mode (6 seconds).
5. Press any function button 1 - 5 on the transmitter. The transmitter ID code and functions 1 - 5 are registered.

Register adjustable transmitter ID code and function/button

-
1. Press the receiver Function button. LED 7 (red) is ON.
 2. Press the receiver Select button.
 3. By using the receiver Function button step to the relay you wish to register the transmitter ID code and function/button in.
 4. Press the receiver Select button for 0,3 - 4 seconds. The receiver enters an ID code registration mode (6 seconds).
 5. Press the function/button on the transmitter you like to registered. The ID code and the function are registered in the chosen relay.

Register private transmitter ID code

NOTE! Only on T60 transmitter models.

1. Press the receiver Function button. LED 7 (red) is ON.
2. Press the receiver Select button.
3. Select relay(s) by using the receiver Function button. Relay LED is ON.
4. Press the receiver Select button for 0,3 - 4 seconds.
5. Release and press again the receiver Select button within 1 second. Keep pressed for at least 1 second.
LED 7 (red) flashes once.
The receiver enters an ID code registration mode (6 seconds).
6. Press the function/button on the transmitter you like to register. The transmitter ID code, private ID code and function/button are registered in the chosen relay.

Erase codes

1. Press the receiver Function button. LED 7 (red) is ON.
2. Press the receiver Select button.
3. Press the receiver Function button to select relay(s) you want to erase .
4. Press the receiver Select button for at least 4 seconds.
All ID codes for the selected relay(s) are erased.

Relay functionality

Momentary and latching relay functionality

1. Press the receiver Function button 2 times. LED 8 (yellow) is ON. The first relay LED is ON.
2. Press the receiver Select button to set latching or momentary functionality:
LED8 (yellow) OFF = momentary relay functionality
LED 8 (yellow) ON = latching relay functionality
3. Press the receiver Function button to step to the next available relay. Set latching or momentary relay functionality. When you have stepped through all the available relays, press the receiver Function button to exit the settings menu. LED 8 (yellow) flashes if any of the relays have latching relay functionality.

Interlocking relay functionality

The receivers relay 1 and relay 2 can be interlocked, as well as relays 3 and 4.

1. Press the receiver Function button 3 times. LED 9 (green) is ON.
2. Press the receiver Select button to interlock relays 1 and 2 (relay LEDs are ON):
LED 9 (green) OFF = relays are not interlocked
LED 9 (green) ON = relays are interlocked
3. Press the receiver Function button to select relays 3 and 4. Set the interlocking function between the relays.
4. Press the receivers Function button to exit the settings menu. LED 8 (green) flashes when at least one relay pair is interlocked.

Erase ID codes and relay functions

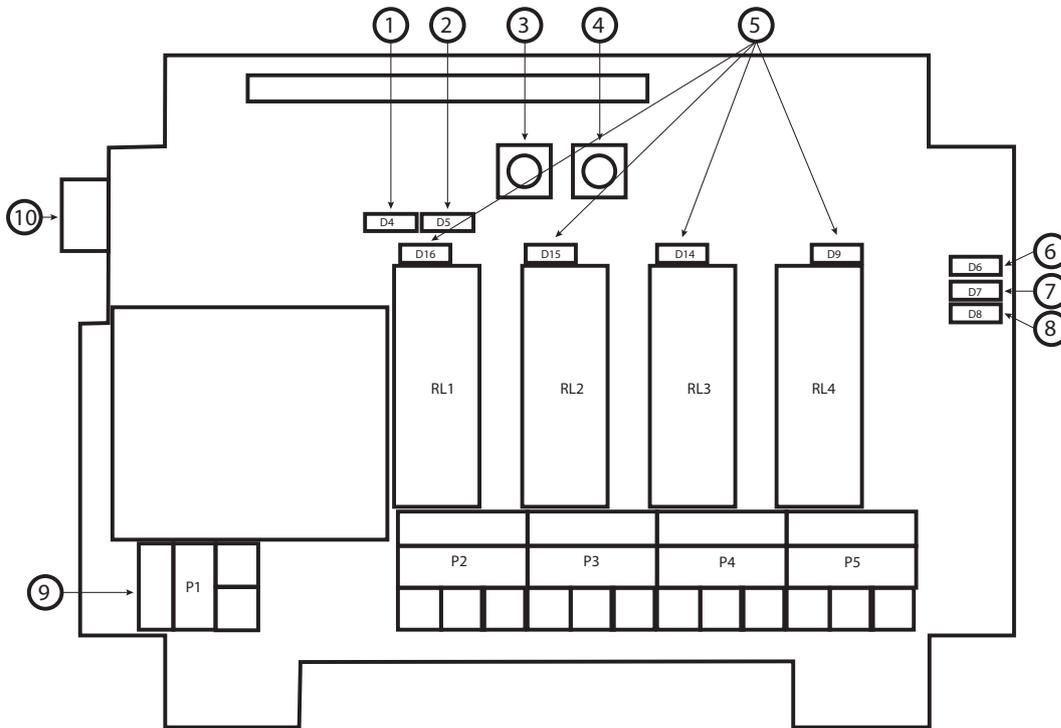
To erase all registered ID codes and relay functions at the same time:

1. Press the receiver Function button and Select button at the same time. Keep pressed for at least 4 seconds.
2. The function LEDs red, yellow and green and relay LEDs light up.
3. The function LEDs red, yellow and green and relay LEDs go out.
4. All registered ID codes, latching and/or interlocking function erased.

T60RX-04*SL, T60RX-04*SM, T60RX-08*SL, T60RX-08*SM

T60RX-04*SL, T60RX-04*SLI, T60RX-04*SM RECEIVER

WARNING! The receiver must NOT be opened by any other than a qualified installer. Make sure to turn the electricity off before opening the receiver.



NOTE! For connecting the receiver, go to the Appendix pages.

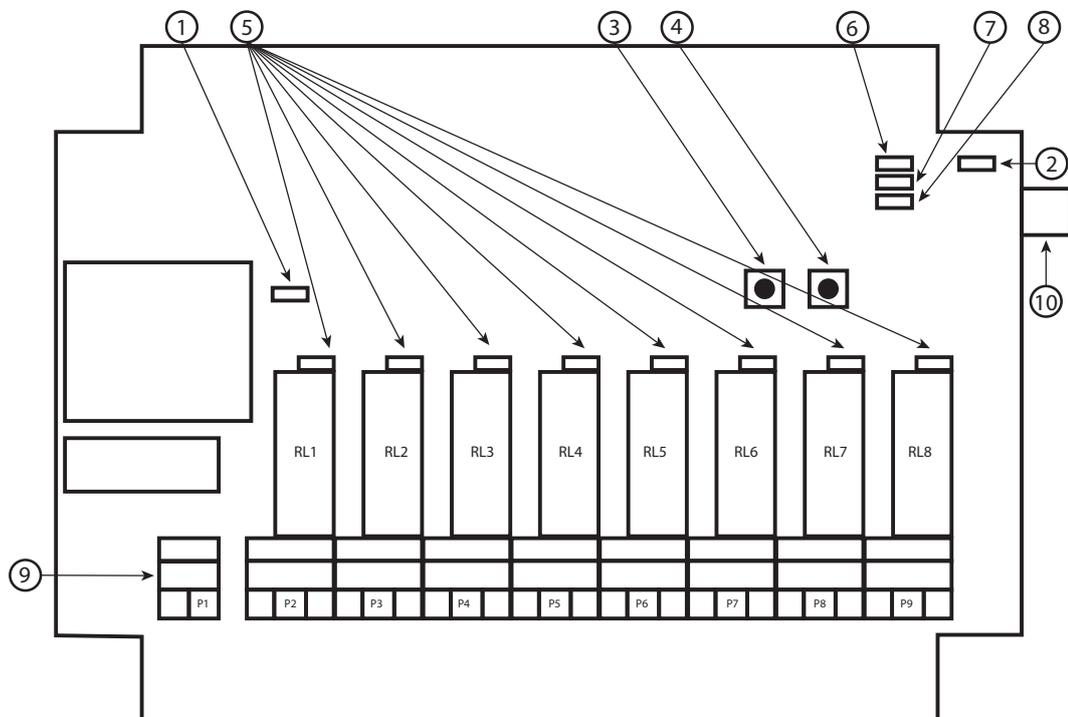
1. Yellow LED	Lit when the receiver has correct supply voltage.
2. Green LED	Lit when the receiver is receiving radio signals.
3. Function button	
4. Select button	
5. Red LED	Each relay has a LED that lights when the relay is activated.
6. Red LED	Lights up: learning of code possible, flashes: adjustable code learnt (1-10), flashes twice: one or more fixed, individual codes have been learnt.
7. Yellow LED	Flashes when one of the relays has a latching function.
8. Green LED	Flashes when one of the relay-pairs is interlocked.
9. Connection terminal for voltage	
10. BNC contact for the antenna	(Not on T60RX-04*SLI)

Technical data

Input power	*A=12-24V AC/DC, B=230V AC, C=48V AC, D=115V AC
Frequency	L=433MHz, M=869MHz, LI=433MHz Internal antenna
Size	121 x 117 x 51 mm./ 4.75 x 4.6 x 2 in.
IP classification	66
Transmitter capability	T20, T60, 460

T60RX-08*SL, T60RX-08*SM RECEIVER

WARNING! The receiver must NOT be opened by any other than a qualified installer. Make sure to turn the electricity off before opening the receiver.



NOTE! For connecting the receiver, go to the Appendix pages.

1. Yellow LED	Lights when the receiver has correct supply voltage.
2. Green LED	Lights when the receiver is receiving radio signals.
3. Function button	
4. Select button	
5. Red LED	Each relay has a LED that lights when the relay is activated.
6. Red LED	Lights up: learning of code possible, flashes: adjustable code learnt (1-10), flashes twice: one or more fixed, individual codes have been learnt.
7. Yellow LED	Flashes when one of the relays has a latching function.
8. Green LED	Flashes when one of the relay-pairs is interlocked.
9. Connection terminal for voltage	
10. BNC contact for the antenna	

Technical data

Input power	*A=12-24V AC/DC, B=230V AC, C=48V AC, D=115V AC
Frequency	L=433MHz, M=869MHZ, LI=433MHz Internal antenna
Size	132 x 133 x 45 mm
IP classification	65
Transmitter capability	T20, T60, 460

Program the T60RX-04*SL, T60RX-04*SLI, T60RX-04*SM, T60RX-08*SL, T60RX-08*SM receiver

The receiver Function and Select buttons are used for the programming the receiver. The Function button is used to scroll through the options. The Select button is used to confirm the selection.

In the first position, you can scroll between the following options by pressing the Function button.

RED LED (no.6) - Learn the transmitter code.

YELLOW LED (no.7) - Program latching/momentary relay function.

GREEN LED (no.8) - Program interlock function.

When you have selected one of the options with the Select button, press the Function button to move to the relay(s) that you want to program. The red LEDs indicate what relay(s) is selected (see the corresponding programming sequence).

IMPORTANT! The transmitter and the receiver can be co-programmed with an adjustable code or with a fixed, individual code. When an adjustable code is used, it is very important that a unique code is programmed by using the transmitter DIP switches. If not, it may result in disturbances from other transmitters using the same code.

Learn the transmitter code

Fixed, individual code

1. Select the program option "Learning of code" (red LED) using the function button.
2. Confirm by using the select button. The red LEDs above the relays light up.
3. Scroll to the relay(s) that you want to program by using the function button.
When a relay has been selected, it will be controlled by the transmitter button that you used during learning.
When a relays are selected: button 1 activates relay 1, button 2 activates button 2, etc.
4. Confirm by:
 - pressing down the select button for 0.3 - 4 seconds.
 - pressing down the select button within 1 second for at least 1 second.
5. Program the transmitter code by holding down the transmitter button until the red LED 6 flashes 3 times.

Red LED 6 double flashes to indicate that the transmitter adjustable and fixed, individual code have been stored.

Adjustable code

Ensure that the required adjustable code is set on the transmitter code switch.

1. Select the program option "Learning of code" (red LED) using the function button.
2. Confirm by using the select button. The red LEDs light up.
3. It is possible to scroll to the relay(s) to be coded using the function button.
 - When a relay is selected, it is activated by the transmitter button that was used during instruction.
 - When all relays are selected, the system will function as normal. I.e. button 1 will control relay 1, button 2 will control relay 2, etc.
4. Confirm by pressing the select button 1 time.
5. Program the transmitter code by holding down the corresponding transmitter button until the red LED 6 flashes 3 times.

The red LED 6 flashes when the transmitter adjustable code has been saved.

Erase codes

1. Select the program option "Learning of code" (red LED).
2. Confirm by using the select button. The red relay LEDs light.
3. Use the function button to scroll to the relay(s) that you want to erase.
4. Press the selected button until the relay LED(s) go out (at least for 4 seconds).

Program latching/momentary function

The relays have momentary function as default.

1. Select the option "latching/momentary relay function" (yellow LED) by using the function button.
2. Confirm by using the select button. Red relay LED 1 lights up.
3. Change the functionality for the relays by using the select button. The yellow LED lights when the relay has a latching function. If the yellow LED is out, the relay has a momentary function.
4. Step forward among the relays by using the function button. Select latching or momentary relay functionality with the select button. Programming is complete when all relays have been passed.

The yellow LED 7 flashes when more than one relay have a latching function.

Program interlock function

You can select the following interlocking options:

-
- Interlocking between relays 1-2
 - Interlocking between relays 3-4
 - Interlocking between relays 5-6 (on the Robust receiver)
 - Interlocking between relays 7-8 (on the Robust receiver)

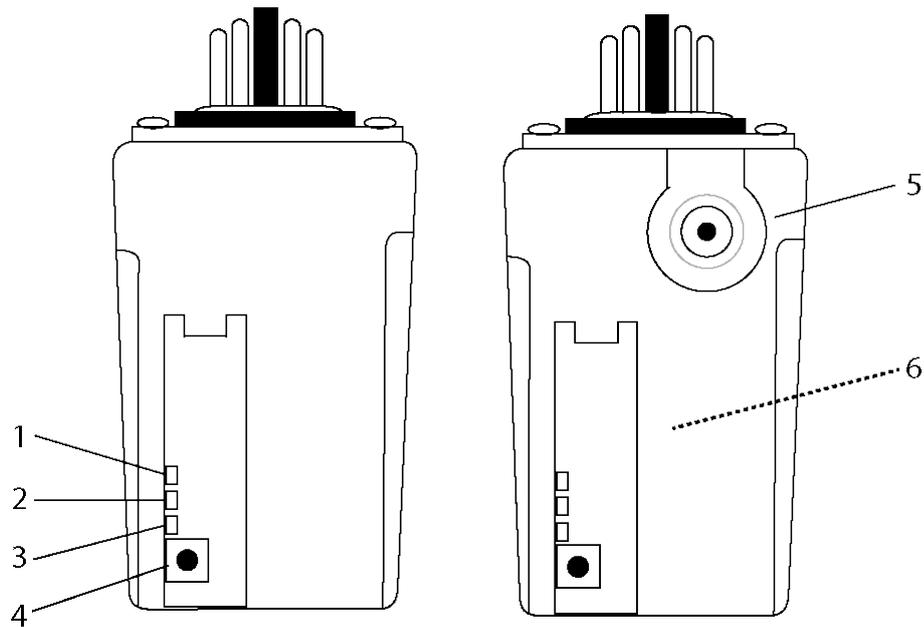
1. Select interlocking function (green LED) by using the function button.
2. Confirm with the select button. The red LEDs light up.
3. Use the select button to interlock. The green LED lights when the relays are intelocked.
4. Step forward among the relay-pairs using the function button. Select with the select button. Programming is complete when all relay-pairs have passed.

The green LED 8 flashes when interlocking is activated.

You can set interlocking between other functions, by programming the code for individual transmitter buttons on individual relays (see learning of code). E.g. when button 1 and button 3 are programmed to relay 1 and relay 2, you can interlock function 1 and 3.

T20/T60RX-01APL PLUGIN RECEIVER

Frequency	433 MHz
Operating voltage	12-30 V AC/DC
Power consumption	40-80 mA
Size	70 x 58 x 40 mm
Protection	IP 20
Climatic conditions	-30°C to +70°C
Humidity	<95%
Transmitter compatibility	T20, T60, 460



NOTE! For connecting the receiver, go to the Appendix pages.

1. Red LED	LED shows programming status.
2. Yellow LED	LED lights up when the receiver has the correct operating voltage.
3. Green LED	LED lights up when the receiver receives a radio signal.
4. Button	Button for learning / erasing.
5. BNC	BNC contact for the antenna.
6. Relay	Maximum load over relay is 8 A for resistive loads.

Learning the transmitter code

NOTE! If a T60 transmitter in adjustable mode is registered, a combination of ten zeros (0000000000) will make the receiver automatically register the fixed individual code.

T20 transmitters: Fixed individual code / T60 transmitters: Adjustable code

1. Press the receiver registering button for 0.3 - 4 seconds.
2. Release the receiver registering button. The red LED lights.
3. Press the required transmitter button. The red LED flashes 3 times quickly.
4. The code is saved. T60 transmitter: The red LED flashes once every other second. T20 transmitter: The red LED double-flashes every other second.

T20 transmitters: Fixed individual code / T60 transmitters: Fixed individual code

1. Press the receiver registering button for 0.3 - 4 seconds.
2. Release receiver registering button within 1 second.
3. Press the receiver registering button once again (for more than one second). The red LED goes out and lights up.
4. Press the required transmitter button. The red LED flashes 3 times quickly.
5. The fixed individual code is saved. The red LED double-flashes every other second.

Confirm the programming

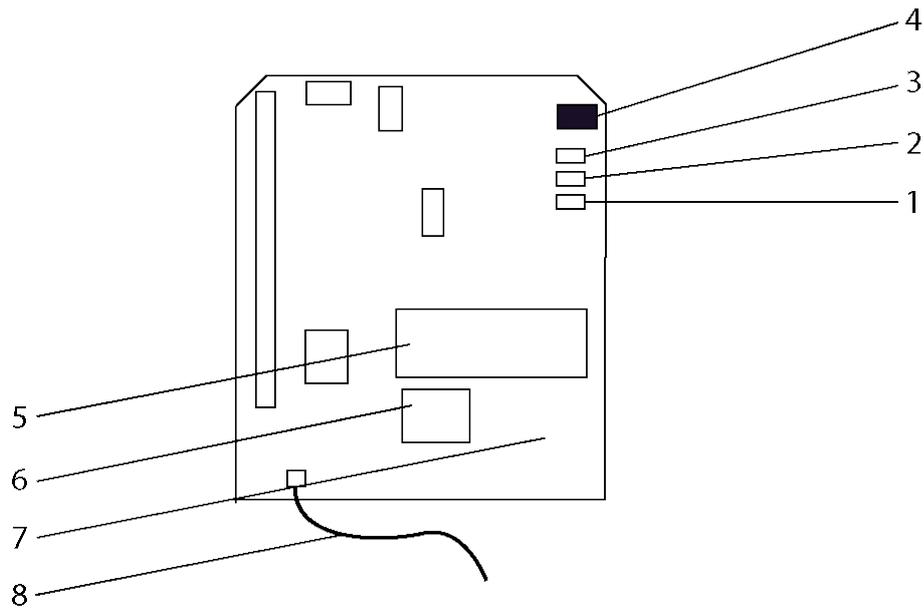
Check the programming by testing the transmitter buttons. The green LED lights up when the receiver receives the signal and the red relay LED lights when the relay is activated.

Erase all programmed codes

Press down and keep receiver registering button pressed for at least 4 seconds. The red LEDs light up when the receiver registering button is pressed and go out when the codes have been erased. NOTE! All codes get erased.

T20/T60RX-01ARL RECEIVER

Frequency	433 MHz
Operating voltage	12-30 V AC/DC
Power consumption	40-80 mA
Size	54 x 63 mm
Protection	IP 20
Climatic conditions	-30°C to +70°C
Humidity	<95%
Transmitter compatibility	T20, T60, 460



NOTE! For connecting the receiver, go to the Appendix pages.

1. Red LED	LED shows programming status.
2. Yellow LED	LED lights up when the receiver has the correct operating voltage.
3. Green LED	LED lights up when the receiver receives a radio signal.
4. Button	Button for learning / erasing.
5. Relay	Max load over relay is 8 A for resistive loads.
6. Connection terminal	Connection terminal for voltage.
7. Connection terminal	Connection terminal for relay.
8. Antenna	Wire antenna.

Learning the transmitter code

NOTE! If a T60 transmitter in adjustable mode is registered, a combination of ten zeros (0000000000) will make the receiver automatically register the fixed individual code.

T20 transmitters: Fixed individual code / T60 transmitters: Adjustable code

1. Press the receiver registering button for 0.3 - 4 seconds.
2. Release the receiver registering button. The red LED lights.
3. Press the required transmitter button. The red LED flashes 3 times quickly.
4. The code is saved. T60 transmitter: The red LED flashes once every other second. T20 transmitter: The red LED double-flashes every other second.

T20 transmitters: Fixed individual code / T60 transmitters: Fixed individual code

1. Press the receiver registering button for 0.3 - 4 seconds.
2. Release receiver registering button within 1 second.
3. Press the receiver registering button once again (for more than one second). The red LED goes out and lights up.
4. Press the required transmitter button. The red LED flashes 3 times quickly.
5. The fixed individual code is saved. The red LED double-flashes every other second.

Confirm the programming

Check the programming by testing the transmitter buttons. The green LED lights up when the receiver receives the signal and the red relay LED lights when the relay is activated.

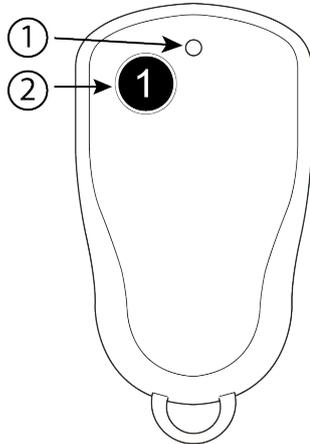
Erase all programmed codes

Press down and keep receiver registering button pressed for at least 4 seconds. The red LEDs light up when the receiver registering button is pressed and go out when the codes have been erased. NOTE! All codes get erased.

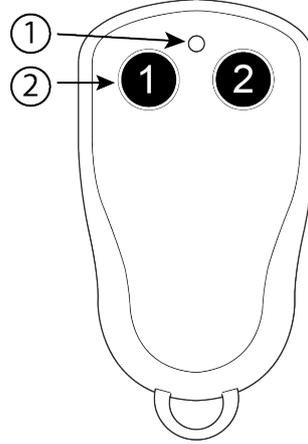
CHAPTER 3: PRODUCT PAGES - TRANSMITTERS

T20TX-0XNKL, T20TX-0XNKM TRANSMITTER

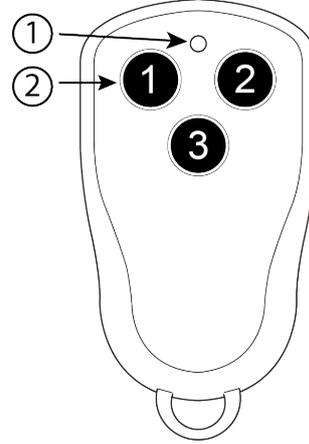
T20TX-01NKL
T20TX-01NKM



T20TX-02NKL
T20TX-02NKM



T20TX-03NKL
T20TX-03NKM



1. LED
2. Push button

Technical data

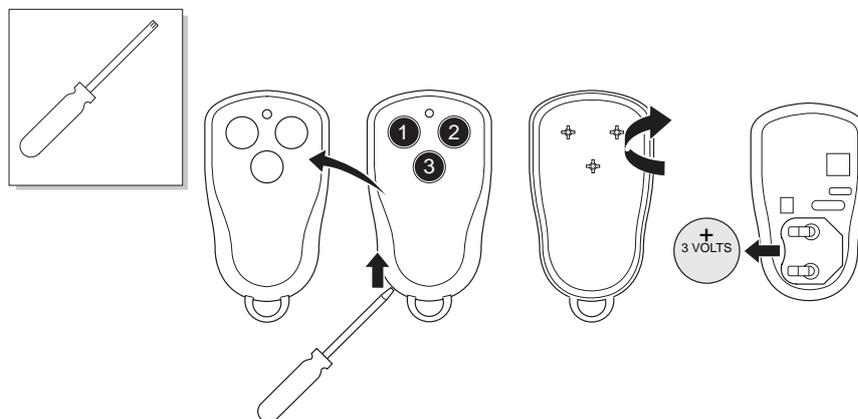
Frequency	L=433.92 MHz, M=869MHz
IP classification	65
Size	71 x 38 x 12 mm
Climatic conditions	-20°C to +55°C
Humidity	10 - 90%

Radio transmission

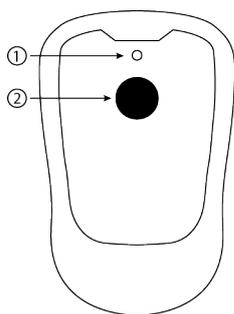
Transmission continues during the time that each function button is pressed and is interrupted when the button is released. The red LED flashes while the button is pressed.

Change the batteries

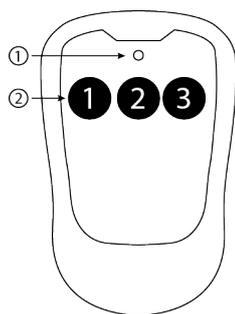
BATTERY TYPE: 3v, cr2032



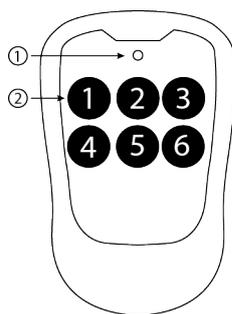
T60-T8-5X TRANSMITTER



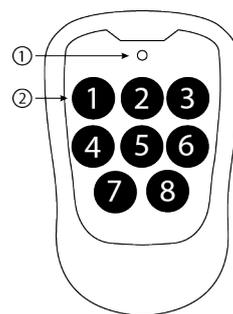
T60-T8-53



T60-T8-52



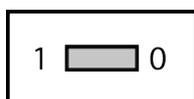
T60-T8-51



T60-T8-50

1. LED
2. Push buttons

ON/OFF SWITCH



The transmitter has an on/off switch on the back side. The on/off switch has 2 positions:

1 = on

0 = off

The on/off switch breaks the power supply from the battery. When in position 0/off, the transmitter can not be started.

Technical data

Frequency	433.92 MHz
On/off switch	Yes
Size	52 x 83 x 17 mm / 2.0 x 3.3 x 12"
IP classification	67
Climate conditions	- 20°C to + 55°C
Humidity	10-90%

BATTERY TYPE: 2 x 1.5V AAA alkaline

CHANGE THE BATTERIES

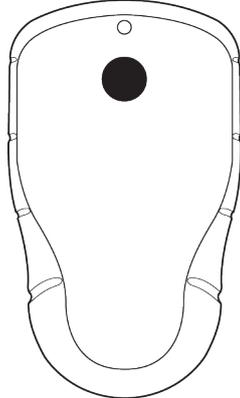
1. Remove the back piece (3 screws).
2. Remove the batteries.
3. Put the new batteries in.
4. Replace the back piece (3 screws).



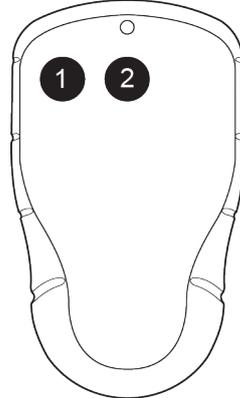
WARNING! Do not recharge! Attempts to recharge may cause rupture, or leaking of hazardous liquids, which will corrode the equipment.

T60TX-0XSTL, T60TX-0XSTM TRANSMITTER

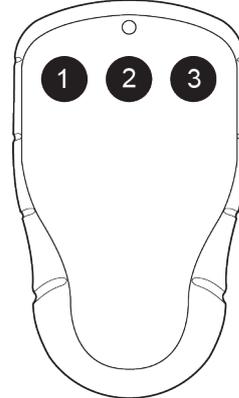
T60TX-01STL



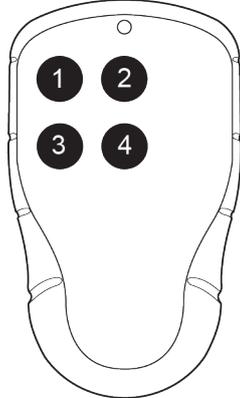
T60TX-02STL



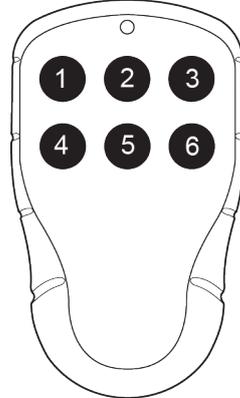
T60TX-03STL



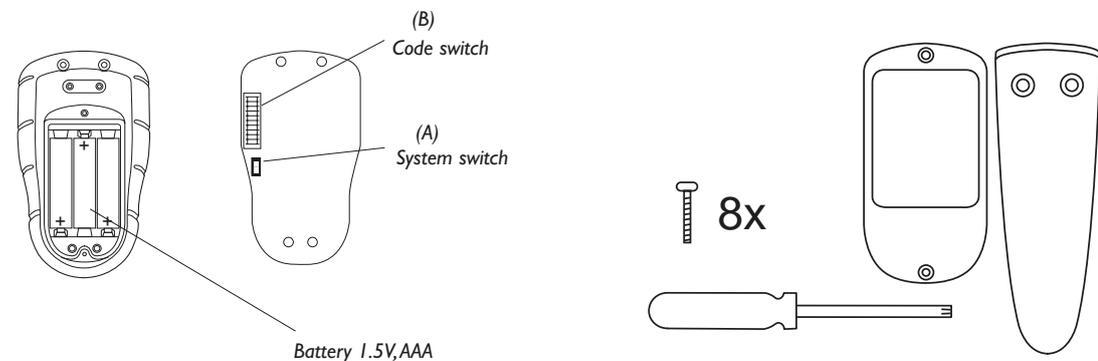
T60TX-04STL



T60TX-06STL



T60TX-08STL



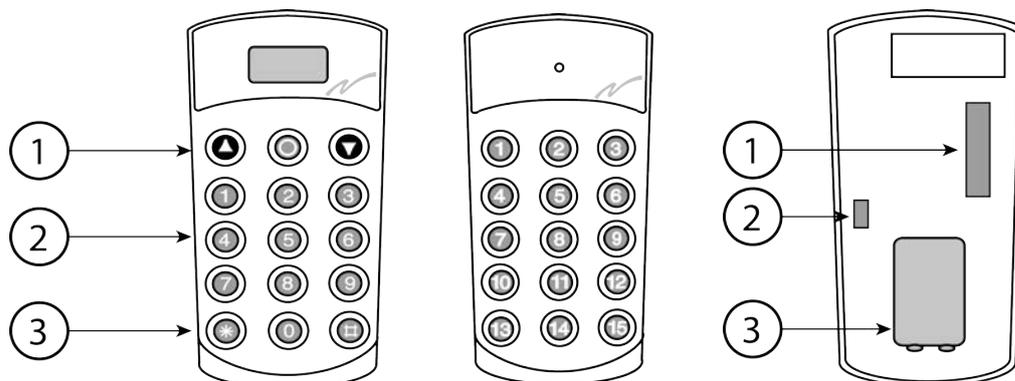
Technical data

Frequency	L=433MHz, M=869MHz
Size	65x112x35 mm
IP classification	65
Climatic conditions	-20°C to +55°C
Humidity	10 - 90%

Radio transmission

Transmission continues during the time each function button is held down and is interrupted once the button is released. The red LED flashes while the button is pressed.

T60TX-15DML, T60TX-15SML, T20TX-15DMM, T20TX-15SMM TRANSMITTER



T60TX-15DML
T20TX-15DMM

1. Function buttons
2. Door-no. buttons
3. Function shortcut

T60TX-15SML
T20TX-15SMM

1. Code switch
2. System switch
3. Battery 9V, 6F22

Technical data

Frequency	L=433.92 MHz, M=869MHz
Size	43 x 62 x 38 mm
IP classification	65
Climatic conditions	-20°C to +55°C
Humidity	10-90%

*NOTE! When re-setting the system switch, the transmitter must be turned off.

Shortcut for one function (T60TX-15DML):

The *-buttons and #-buttons are used for programming a shortcut (1 selection per button) for a particular function. To program a shortcut: set the door that you wish to save, press * or # for more than 3 seconds (the display flashes). The door has been saved as a shortcut. To access the shortcut, press the relevant button once.

System switch:

When is in ON position, the transmitter communicates with system T60. When is in OFF position, the transmitter communicates with system 460. When re-setting, the transmitter must be turned off.

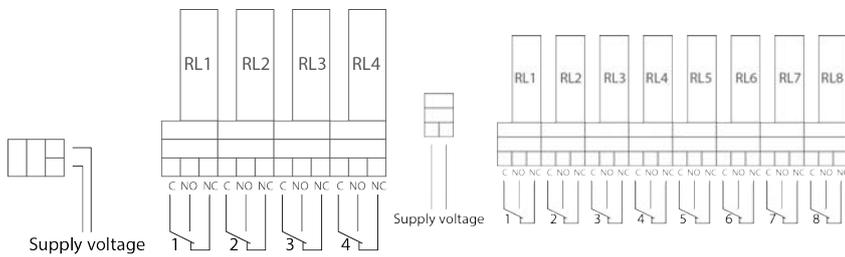
CHAPTER 4: APPENDIX

VOLTAGE CONNECTIONS

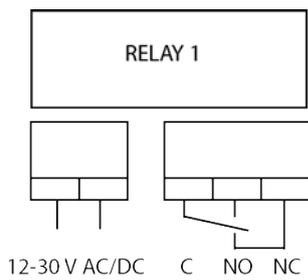
T60RX-0xAS_	12-24V AC/DC
T60RX-0xBS_	230V AC
T60RX-0xCS_	48V AC
T60RX-0xDS_	115V AC

STANDARD
T60RX-04*SL
T60RX-04*SLI
T60RX-04*SM

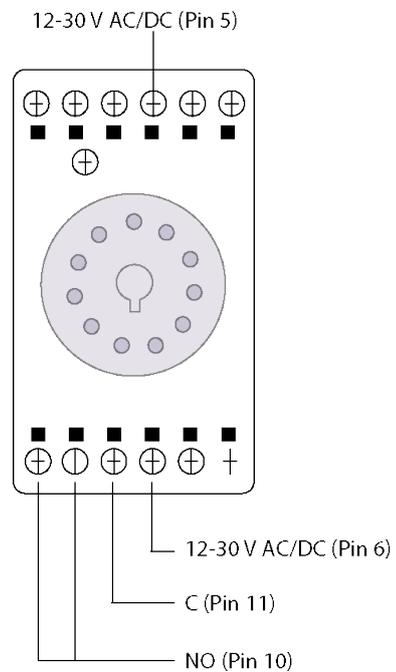
ROBUST
T60RX-08*SL
T60RX-08*SM



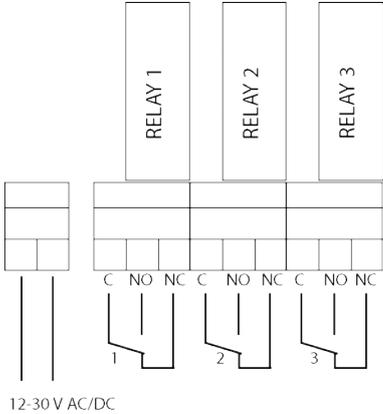
VOLTAGE CONNECTION T20/T60RX-01ARL



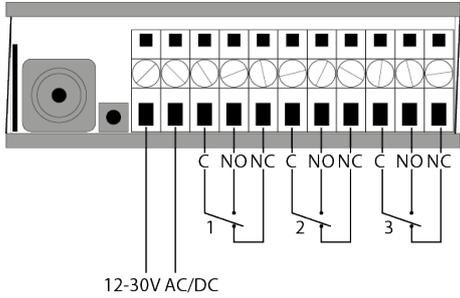
VOLTAGE CONNECTION T20/T60RX-01APL SOCKET



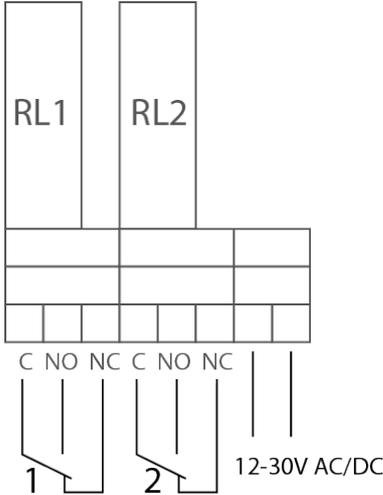
VOLTAGE CONNECTION
 T20/T60RX-03ASL
 T20/T60RX-03ASM



VOLTAGE CONNECTION
 T20/T60RX-03ADL
 T20/T60RX-03ADM



VOLTAGE CONNECTION
 T20RX-02AKL
 T20RX-02AKM



CHAPTER 5: BATTERY GUIDE

BATTERY PRECAUTIONS

Observe the following general battery warnings:

- As batteries contains flammable substances such as lithium or other organic solvents, they may cause heating, rupture or ignition.
- Risk of explosion if battery is replaced with a battery of an incorrect type.
- Do not short circuit, disassemble, deform or heat batteries.
- Never try to charge a visibly damaged or frozen battery.
- Keep batteries out of reach of small children. Should a child swallow a battery, consult a physician immediately.
- Avoid direct soldering to batteries.
- When discarding batteries, insulate the + and - terminals of batteries with insulating/ masking tape. Do not put multiple batteries in the same plastic bag.
- When improperly disposed, lithium batteries may short circuit, causing them to become hot, burst or ignite.
- Store in a cool location. Keep batteries away from direct sunlight, high temperature, and high humidity.
- Do not throw batteries into fire.

ROHS AND WEEE

In accordance with Directive 2011/65/EU on restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) and Directive 2002/96/EC on waste electrical and electronic equipment (WEEE), 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.

GUARANTEE, SERVICE, REPAIRS AND MAINTENANCE

The 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.

This is 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
- Use spare parts from Tele Radio AB only
- Contact your representative if you require service or other assistance
- Keep the product in a dry, clean place
- Keep contacts and antennas clean
- Wipe off dust using a slightly damp, clean cloth

IMPORTANT! Never use cleaning solutions or high-pressure water.

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