

CONTENTS / ENGLISH

- xx Important Information
- xx Codes
- xx Placement of the Aerial and Receiver
- xx The Transmitter
- xx Programming the Receiver
- xx Co-programming the Transmitter and Receiver
- xx Trouble Shooting Chart
- xx Service and Support
- xx Coding Tables 1-10, Appendix A
- xx Coding Tables 0-15, Appendix B
- xx Coding Tables 460-93, Appendix C
- xx Connecting the receiver – see Appendix D

IMPORTANT!

In order to make optimal use of your system, it is important that you take the time to read through this manual before you begin to install/program your equipment.

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GENERAL INFORMATION

The system works at the frequency 433.92MHz and uses frequency modulation, commonly referred to as FM. The main benefit of using FM instead of the more common AM (amplitude modulation) is that FM is less sensitive to the electrical interference generated by computers, electric motors, etc.

Objects positioned between the transmitter and receiver aerial, especially large metal objects (think about the reinforcement rods in concrete walls), can affect the range in a very unpredictable manner, depending on how the radio signals spread.

The effect of other radio transmitters operating on the same frequency in the vicinity also affects the range. Due to these factors, it is difficult to provide any general advice other than that if there is a free line of visibility between the transmitter and the receiver the range with an optimal signal should be the best.

The normal range for the transmitter in an interference-free environment is about 50-100m.

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T60 CODES

T60RX-0XYZL

The transmitter and receiver that are to be used together must be coded together before use. The T60 system has two different types of codes:

Adjustable codes:

All transmitters are equipped with a code switch that consists of 10 three-position switches, which makes it possible to choose freely among 59,049 different codes.

Fixed individual code:

Each transmitter is supplied with a fixed individual code that cannot be changed.

“Learning” the codes:

In the 460 system, the transmitter and receiver are coded together through a self-instruction process, in other words, the receiver “learns” the transmitter’s code. You can have the receiver learn only the adjustable code or both the adjustable and fixed individual code.

Compatible with the 460 system

The T60 system is compatible with Tele Radio’s 460 system.

PLACEMENT OF THE AERIAL AND RECEIVER

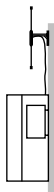
The receiver should be placed:

- As far as is possible, protected from the elements.
- With cable holders facedown.

Placement of the receiver aerial

- Place the aerial high above the ground.
- The aerial should not be in the vicinity of metal objects such as electrical cables and other aerials.

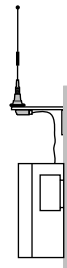
X= 3, 5, or 10m aerial cable



DIP-433K3

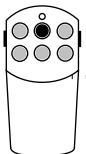


1/4-433Kx

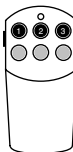


5/8-433Kx

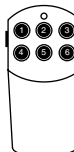
HANDHELD TRANSMITTER MINI



T60TX-01SHL
with 1 button function

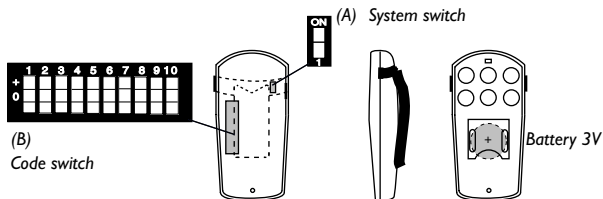


T60TX-03SHL
with 3 button functions

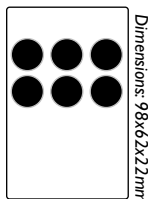


T60TX-06SHL
with 6 button functions

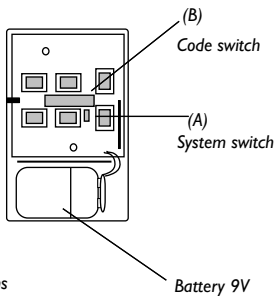
Dimensions:
84x40x16mm



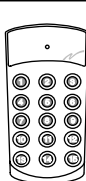
HANDHELD TRANSMITTER MIDI



T60TX-06SOL
with 1, 3, 4, or 6 button functions



MOBILE TRANSMITTER MAXI



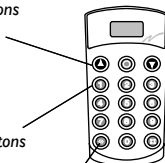
Dimensions:
143x62x38mm

Transmitter T60TX-15SML
with 15 button functions

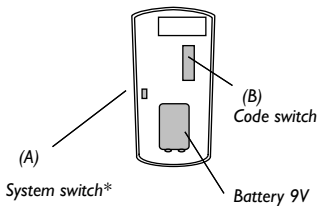


Function buttons

Port no. buttons



Shortcuts for functions
T60TX-15SML



*Note: During adjustment, the transmitter must be turned off.

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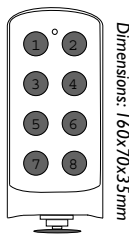
SHORTCUT FOR ONE FUNCTION (T60TX-15DML)

The * and # buttons are used to program a shortcut (1 selection per button) for a specific function. To program a shortcut set the port you wish to save, press * or # for more than 3 seconds (the display flashes). The port has now been saved as a shortcut. To reach the shortcut, press the appropriate button once.

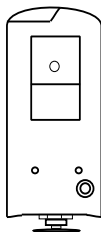
Note: Shortcuts only in T60 mode and 460-93 mode.

ROBUST TRANSMITTER MAXI

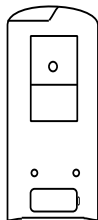
T60TX-0XYZL*



T60TX-08ERL
with 8 button functions



Rear
Rechargeable battery
and stop switch



T60TX-0xSzL
Rear 9V

SUPPLY VOLTAGE

T60TX-08SRL 9V Battery
T60TX-04SDL

T60TX-0x CRL Rechargeable battery
T60TX-04CDL

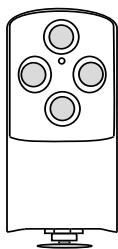
T60TX-0x ERL Rechargeable battery and stop switch
T60TX-04EDL

* x = Number of buttons

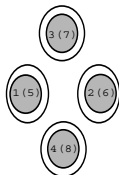
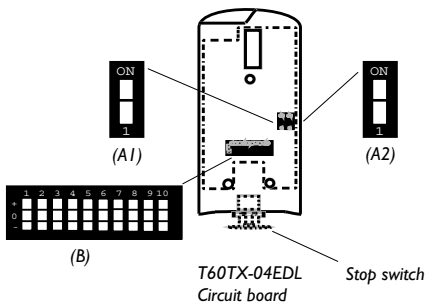
y = Transmitter type (9V, Rechargeable, Rechargeable + Stop switch)

z = Enclosure type

T60TX-04XDL&T60TX-0XYRL



T60TX-04xDL



4 dual function buttons

T60TX-04YDL & T60TX-0XYRL

The transmitter is equipped with 3 switches and a stop switch.

System switch (A1):

With (A1) in the ON position, the transmitter communicates with the T60 system and in position I (OFF) with the 460 system. When adjusting, the transmitter must be turned off.

Mode switch (A2):

With (A2) in the ON position, continual transmission is activated (only T60TX-0xERL & T60TX-04EDL) and in position I (OFF) normal transmission is activated.

In the latter case, the transmitter functions like a T60TX-0xCRL with the stop switch acting as a circuit breaker.

Code switches (B):

Coding the transmitter and receiver.

Stop switch:

For continual transmission, the stop switch must be pulled out and buttons 1 and 2 held down for at least 500ms.

To stop continual transmission, the stop switch must be pressed in.

RECEIVER T60RX-04XSL

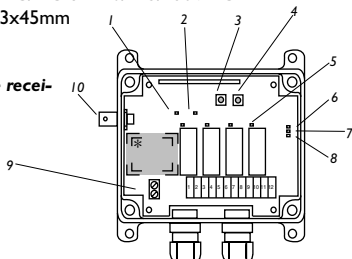
T60RX-04XSL

Operating voltage: 12-28V AC/DC or *48/115/230V AC

Dimensions: 132x133x45mm

Enclosure: IP 65

Note: Connecting the receiver – see Appendix D



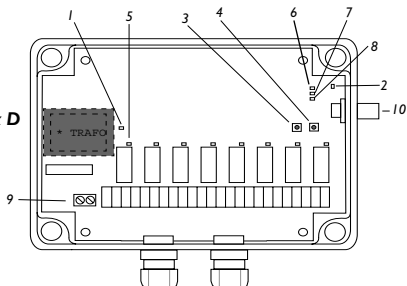
- | | |
|---------------------|---|
| 1. Yellow LED. | Lights when the receiver has the correct supply voltage. |
| 2. Green LED. | Lights when the receiver receives a radio signal. |
| 3. | Function button. |
| 4. | Select button. |
| 5. Red LED. | Each relay is fitted with an LED that lights when the relay switches. |
| 6. Red LED. | |
| 6.1. Lights. | -Code learning enabled. |
| 6.2. Flashes. | - Adjustable code learnt (1-10). |
| 6.3. 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 relays is interlocked. |
| 9. | Connection terminal for the supply voltage. |
| 10. | BNC contact for the aerial. |

ROBUST RECEIVER T60RX-0XYSL

T60RX-08xxL

Operating voltage:	12-28V AC/DC or *48/115/230V AC
Dimensions:	175x125x45mm
Enclosure:	IP 65

Note: Connecting the receiver – see Appendix D



- | | |
|---------------------|---|
| 1. Yellow LED. | Lights when the receiver has the correct supply voltage. |
| 2. Green LED. | Lights when the receiver receives a radio signal. |
| 3. | Function button. |
| 4. | Select button. |
| 5. Red LED. | Each relay is fitted with an LED that lights when the relay switches. |
| 6. Red LED. | |
| 6.1. Lights. | - Code learning enabled. |
| 6.2. Flashes. | - Adjustable code learnt (1-10). |
| 6.3. 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 relays is interlocked. |
| 9. | Connection terminal for the supply voltage. |
| 10. | BNC contact for aerial. |

PROGRAMMING RECEIVER T60RX-0XYZL*

SELF-INSTRUCTION OF ADJUSTABLE CODE

1. Press the function button for at least 0.3 seconds, max. 4 seconds.
-Red LED no. 6 lights (programming the code).

Pressing the function button repeatedly allows you to select between code learning (red LED), latching relay function (yellow LED), or interlocking (green LED).

2. Now press the select button.
-All red LEDs light above the relays.
3. Now press the function button and select which relay(s) is(are) to be coded.

Note: Pressing the function button repeatedly allows you to select which one of the relays is to be coded. You can choose between all relays or only 1, 2, or up to 8. A red LED lights above the relays that can be coded. If all the relays are chosen, the first relay will work with function button 1 on the transmitter, the second relay with function button 2 on the transmitter, and so on.

4. Press the select button again for at least 0.3 seconds, max. 4 seconds.
-Release the select button.
5. Then press the function button on the transmitter (that is to control the relay) until red LED no. 6 blinks 3 times.
6. The transmitter's adjustable code is now stored.
-Red LED no. 6 flashes and indicates that the transmitter is programmed.

* Does not apply to T60RX-03ADL, T60RX-01 APL, or T60RX-01ARL.

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ERASE ALL RELAYS OR INDIVIDUAL RELAYS

1. Press the function button for at least 0.3 seconds, max. 4 seconds.
-Red LED no. 6 lights.
2. Now press the select button.
-All red LEDs light above the relays.
3. Release the select button.
4. Now press the function button and select the relay to be erased.

Note: Pressing the function button repeatedly allows you to select which relay(s) is(are) to be erased. You can choose between all relays or only 1, 2, or up to 8. A red LED lights behind the relay that can be erased.

5. Press the select button again for at least 6 seconds.
-The red LEDs above the relays go out.

REGISTER ADJUSTABLE AND FIXED INDIVIDUAL CODES ON ALL OR INDIVIDUAL RELAYS

1. Press the function button for at least 0.3 seconds, max. 4 seconds.
-Red LED no. 6 lights (learning code).

Pressing the function button repeatedly allows you to select between adjustable code (red LED), latching (yellow LED), and interlocking (green LED).

2. Now press the select button.
-All red LEDs light above the relays.
3. Now press the function button and select which relay(s) is(are) to be coded.

Note: Pressing the function button repeatedly allows you to select which relays are to be coded. You can choose between all relays or only 1, 2, or up to 8. A red LED lights above the relay that can be coded. If all of the relays are chosen the first relay will work with function button 1 on the transmitter, the second relay with function button 2 on the transmitter, and so on.

4. Press the select button for at least 0.3 seconds, max. 4 seconds.
5. Release the select button, wait max. 1 second.
6. Press the select button again for more than 1 second.
7. Now press the function button on the transmitter that is to control the relay.
8. The transmitter's adjustable code and fixed individual code are now stored.
-Red LED no. 6 double-flashes to indicate that the private code has been stored.

PROGRAMMING THE LATCHING/INSTANTANEOUS FUNCTION

1. Press the function button twice so that green LED no. 7 lights (programming the latching relay).
2. Now press the select button.
-The red LED above the first relay lights.
3. Press the select button and select whether the first relay should be latching or not. If the yellow LED is on then the relay is latching, if it is off the relay is instantaneous.

Note: Using the function button you can step through whether it is relay 2, 3, or 8 that is to have a latching function. After the final relay the program is stored

4. Continue to press the function button until all relay LEDs go out.
-Yellow LED no. 7 flashes once (the function is now stored).
5. The latching function has now been programmed.
-Yellow LED no. 7 flashes and indicates that one of the relays has a latching function..

PROGRAM/ERASE THE INTERLOCK FUNCTION

1. Press the function button 3 times so that green LED 8 lights (programming the interlock).
2. Now press the select button.
-The red LEDs above relays 1 and 2 light.

Note: Press the function button once to program interlocking over relays 3 and 4, and so on.

3. Continue to press the function button until all relay LEDs go out.
-Green LED no. 8 flashes once (the function is now stored).
4. The interlock is now programmed.
-Green LED no. 8 flashes and indicates that the interlock is programmed.

DIN-RECEIVER T60RX-03ADL

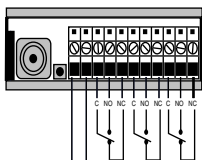
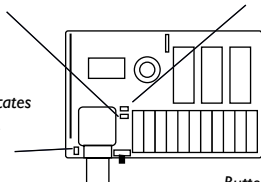
Frequency: 433.92MHz
Operating voltage: 12-24V AC/DC
Dimensions: 86x30x58mm
Enclosure: IP 20, for internal installation

Red LED indicates programming status.

Yellow LED indicates supply voltage.

Green LED indicates signal reception.

Button for self-instruction/erasing.



Power connection.

12/24V AC/DC
12/24V AC/DC

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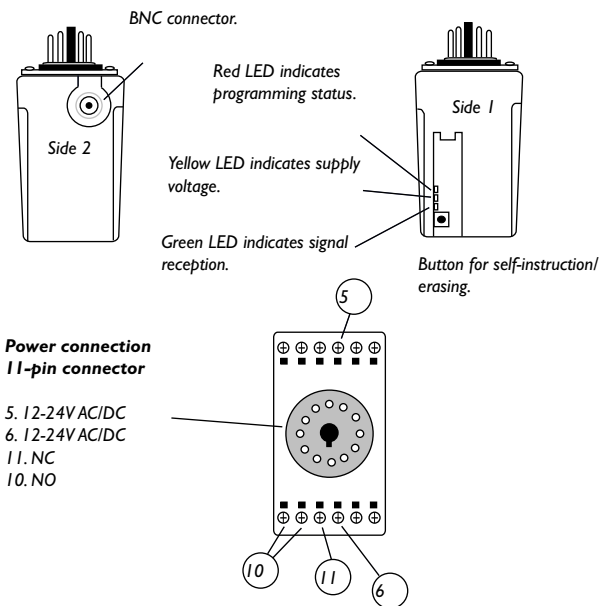
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PLUG-IN RECEIVER T60RX-01APL

Frequency:	433.92MHz
Operating voltage:	12-24V AC/DC
Dimensions:	70x58x40mm
Enclosure:	IP 23, for internal installation



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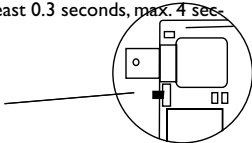
US

PROGRAMMING RECEIVER T60RX-03ADL, T60RX-01APL, AND T60RX-01ARL

SELF-INSTRUCTION FOR ADJUSTABLE AND FIXED CODES

Register adjustable code:

1. Press the self-instruction button for at least 0.3 seconds, max. 4 seconds.
2. Release the button.
-Programming mode, red LED lights.
3. Press the desired function button.
-Red LED flashes rapidly three times.
4. The adjustable code is now stored.
-Red LED flashes. Once every other second.



Register fixed individual code:

1. Press the self-instruction button for at least 0.3 seconds, max. 4 seconds.
2. Release the button (less than 1 second).
3. Press the button again (longer than 1 second).
-Private program mode, red LED goes out and lights again.
4. Press the desired function button.
-Red LED flashes rapidly three times.
5. The private code is now stored.
-Red LED double-flashes every other second.

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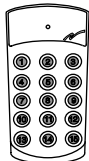
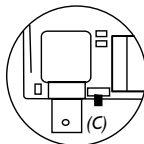
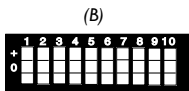
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CO-PROGRAMMING THE TRANSMITTER AND DIN-RECEIVER

T60TX-15SML AND T60RX-03ADL

1. Check that the transmitter's system switch (A) is in the ON position.
2. Set a unique code on the transmitter's code switch (B) 1-10.
3. If buttons 1-3 are pressed, the relays in the receiver will function as buttons 1-3. If buttons 4-6 are pressed, the relays in the receiver will function as buttons 4-6, and so on.
-Red LED lights (programming mode 6 seconds).
4. Press the desired function button (1-15) on the transmitter.
-Red LED flashes three times.
5. Check that the relay switches when the same function button is pressed again.



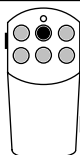
T60TX-15DML AND T60RX-03ADL

1. Check that the transmitter's system switch (A) is in the ON position.
2. Set a unique code on the transmitter's code switch (B) 1-10.
3. Press the self-instruction button (C) on the receiver.
-Red LED lights (programming mode 6 seconds).
4. Press the desired port number button (0-999) and an optional function button (up, stop, down) on the transmitter.
-Red LED flashes three times.
5. Check that the relay switches when one of the transmitter buttons is pressed again.



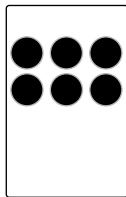
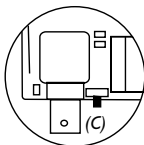
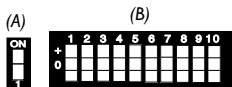
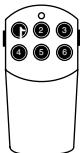
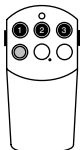
T60TX-0XSHL/T60TX0XSOL AND T60RX-03ADL

1. Check that the transmitter's system switch (A) is in the ON position.
2. Set a unique code on the transmitter's code switch (B) 1-10.
3. Press the self-instruction button (C) on the receiver.
-Red LED lights (programming mode 6 seconds).



Note: Only receiver T60RX-03ADL.

4. If buttons 1-3 are pressed, the relays in the receiver will function as buttons 1-3. If buttons 4-6 are pressed, the relays in the receiver will function as buttons 4-6, and so on.
-Red LED lights (programming mode 6 seconds).
5. Press the desired function button (1-6) on the transmitter.
-Red LED flashes three times.
6. Check that the relay switches when the same function button is pressed again.



SUPPLEMENT FOR THE 460 SYSTEM

T60TX-15DML*

Type 401RVL9 and 403RVL9 transmitters with knob 1-10:

1. Check that the transmitter's system switch (A) is in position I (OFF).
2. Check that code switch (B) 9 is in the 0 (zero) position.
3. Set code switch 10 to either the minus or plus position depending on whether you are using A or B coding on the old transmitter (robust transmitter).
4. Set a code on the transmitter's 4 first switches (code switches 1-4) identical to the receiver's (code switches 5-8 not used).
5. Check that the relay switches when one of the transmitter buttons is pressed. The numbers on the transmitter display correspond to the knob. Press a number followed by the transmit button and verify that the corresponding relay switches.

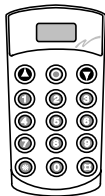
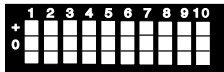
See code table I-10, Appendix A.

* Transmitter T60TX-15DML in the T60 system is compatible with transmitter Type 401RVL9 and 403RVL9 in the 460 system.

(A)



(B)



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Type 401RVL9 and 403RVL9 with knob 0-15:

1. Check that the transmitter's system switch (A) is in position I (OFF).
2. Check that code switch (B) 9 is in the - (minus) position.
3. Set code switch 10 to either the minus or plus position depending on whether you are using A or B coding on the old transmitter (robust transmitter).
4. Set a code on the transmitter's 4 first switches (code switches 1-4) identical to the receiver's (code switches 5-8 not used).
5. Check that the relay switches when one of the transmitter buttons is pressed.

See code table 0-15, Appendix B.

Type 460-93 transmitter:

1. Check that the transmitter's system switch (A) is in position I (OFF).
2. Check that code switch (B) 9 is in the + (plus) position.
3. Set codes on the transmitter's 3 first switches (code switches 1-3) identical to the receiver's codes (code switches 4-8 not used).
4. Check that the relay switches when one of the transmitter buttons is pressed.

See code table 460-93, Appendix C.

Note:

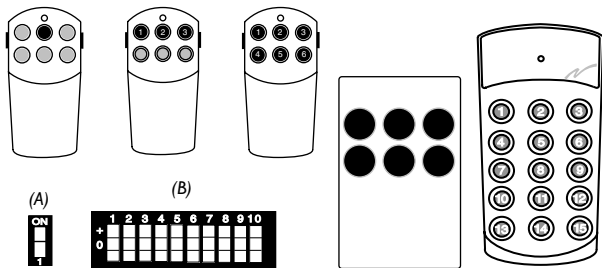
When you select the port on the T60TX-15DML transmitter, a combination of the first digit and the last two digits is entered when used together with a 460-93 transmitter.

Example: In order to control port A2 in accordance with table A, enter the combination 102; to control port D3 in accordance with table D, enter the combination 403; and so on.

T60TX-0XSHL/T60TX-0XSOL/T60TX-15SML

Type 401L-406L transmitter:

1. Check that the transmitter's system switch (A) is in position I (OFF).
2. Set codes on the transmitter's code switches (B) 1-8 identical to the existing receiver (9-10 not used).
3. Check that the relay switches when the same function button is pressed again.

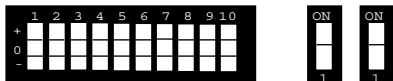


ROBUST TRANSMITTER T60TX-04YDL & T60TX-0XYRL

Type 408RFLI9, 408RFLIC, 408RFLIE, 404RFLI9 transmitter:

Programming the 460 and T60 systems for normal or continuous transmission.

1. Check that the transmitter's system switch (A1) is in position I (OFF) for the 460 system or in the ON position for the T60 system.
2. Check that the transmitter's mode switch (A2) is in position I (OFF) for normal transmission or in the ON position for continuous transmission.
3. Set codes on the transmitter's code switches (B) 1-8 identical to the receiver for the 460 system. For the T60 system, set codes on the transmitter's code switches 1-10.
4. Check that the relay switches when the same function button is pressed again.



SERVICE AND SUPPORT

For service, returns, and complaints, please write an R/A number on each consignment sent to Tele Radio AB.

(Contact Tele Radio AB to obtain an R/A number). Products that have an R/A number are given priority over those that do not have one.

Service

If the product stops working during the warranty period, Tele Radio AB offers full servicing of the product. The product should be sent to Tele Radio AB (to the specified address).

Note: The warranty does not apply to faults that arise due to product modifications or incorrect installation.

Support

This service is designed so that you receive the results you need in a fast and professional manner.

When you contact Tele Radio's Support you should have the following noted:

System, model, and a description of the problem.

DK

NO

SE

NL

ES

FR

DE

GB

US

TROUBLE SHOOTING CHART

If the equipment is not working as it should, we would ask you to follow the steps below.

FAULTY FUNCTION	POSSIBLE CAUSES	REMEDY
The receiver does not work when you transmit.	The receiver is incorrectly connected.	Inspect receiver connections.
	Incorrect operating voltage to the receiver.	Check the supply voltage.
The receiver's green LED lights when you transmit, but the relays are not activated.	The codes in the transmitter and receiver do not correspond, i.e., they are not identical.	Check the coding.
The receiver's green LED does not light when you transmit.	The battery is discharged.	Replace the battery.
	The transmitter is damaged.	Contact your dealer.
The receiver's green LED lights when you are not transmitting.	Another unit is transmitting in the vicinity on a similar frequency.	Contact your dealer.
The transmitter's LED does not light when you transmit.	The battery is discharged.	Replace or charge the battery.
	The transmitter is damaged.	Contact Tele Radio's support.
The range is too short.	Bad battery.	Replace the battery.
	Aerial cables are damaged or incorrectly installed.	Check the aerial connection.

If you have followed these instructions and still cannot get the radio system to work properly, please contact your dealer.

US

GB

DE

FR

ES

NL

SE

NO

DK

US

GB

DE

FR

ES

NL

SE

NO

DK

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 UNDESIRE OPERATION.

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.