tele radio®
wireless solutions

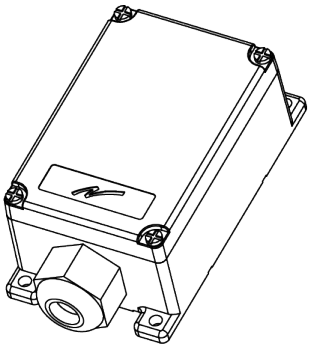
safe smart strong

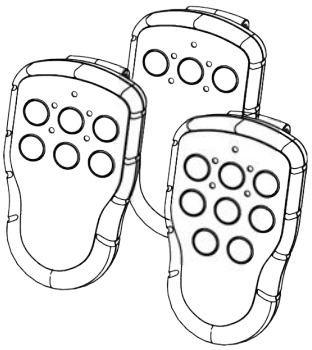
INSTALLATION INSTRUCTIONS

Receiver

R2-01

with transmitters T1-01, T1-02, T1-03





IM-LX-RX101-EN-v01
Language: English (original)

R2

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SE-436 32 Askim

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CONTENTS

CHAPTER 1: INTRODUCTION

Thank you for purchasing a Tele Radio AB product

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

These Installation instructions have been published by Tele Radio AB and are not subject to any guarantees. The Installation instructions may be withdrawn or revised by Tele Radio AB at any time and without further notice.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 the end user. Only information that is needed to operate the machine correctly by radio remote control may be passed on to the end user.

Tele Radio AB remote controls are often built into wider applications. 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 AB 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 AB products, e.g.:

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

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

Tele Radio AB products are covered by a warranty against material, construction, or manufacturing faults. See "Chapter 8: Warranty, service, repairs, and maintenance".

1.1 About this document

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

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

1.1.1 TERM AND SYMBOL DEFINITIONS

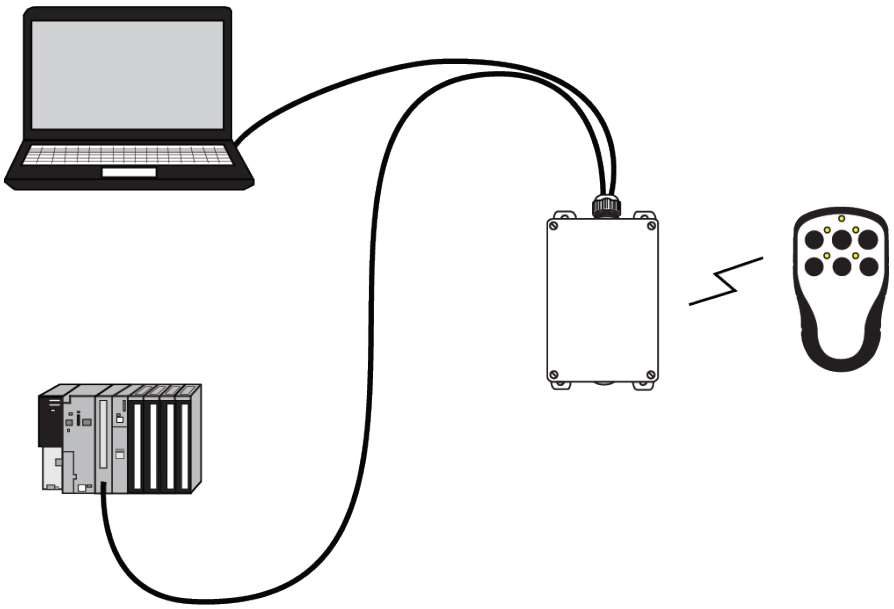
The capitalized terms and symbol used herein shall have the following meaning:

- 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 Lynx systems

Lynx systems are composed of a stationary unit (receiver), a hand unit (transmitter) and a master unit (PC).



The communication between the master device and the Lynx system requires to write a software application. Configuration is done via Modbus protocol (see "Annex A: Implementation Specifications – Lynx (in English)" for more details).

1.2.1 THE HAND UNIT

The transmitter uses duplex communication and works in continuous mode.

There are three models available: with 3, 6 or 8 buttons.

1.2.2 THE STATIONARY UNIT

The receiver uses duplex communication and works in continuous mode.

It can use RS232 and RS485 for communication with the master unit and has two open collector outputs and two digital inputs.

1.2.3 MASTER UNIT

Can be e.g. a PC or a PLC. The master unit must be connected to the receiver with a serial cable (cross over/null modem RS232 cable). The system is based on Modbus, a widely used, open serial communication protocol. Transmission speed is approx. 19 200 bits per second. It is possible to choose between RS232 or RS485 for communication with the receiver.

1.2.4 GENERAL INFORMATION ABOUT MODBUS PROTOCOL

To enable communication between computerized systems, a protocol is required to define the rules of communication. Modbus is one of the most common protocols used for transmitting information between electronic devices over serial lines.

Master & slaves

The device requesting the information is called the Master. The devices supplying information are called the slaves.

In a standard Modbus network, there is one Master and up to 247 slaves, each with a unique address from 1 to 247.

Modbus messages

Modbus is transmitted over serial cables between devices. The data is sent as series of ones and zeroes, called bits. Each bit is sent as a voltage. Zeroes are sent as positive voltages and ones are sent as negative voltages.

When the master requests data, the first byte it sends is the slave address. This way the slave will know whether to ignore the message or not, right after receiving the first byte.

Error check

CRC (Cyclic Redundancy check) is 2 bytes added to the end of every Modbus message for error detection. Every byte in the message is used to calculate the CRC.

When receiving a message, the receiving device calculates the CRC and compares it to the CRC from the sending device. If even one bit in the message is received incorrectly, an error will be reported.

1.2.5 SERIAL COMMUNICATION

NOTE: Using twisted or shielded cables is recommended with RS232 and RS485.

RS232

An asynchronous point-to-point standard that enables a variety of ways to communicate with PCs. The transmissions seldom exceed 100 feet/ 30 m.

RS485

A asynchronous multi-point standard using differential signaling for applications where it's important to reduce wiring expenses, and achieve longer line lengths.

1.2.6 INPUTS/ OUTPUTS

Open collectors (OC)

A lower or higher voltage than the input power supply can be used (up to 24V DC).

Can be used to interface devices that have different operating logic voltage levels, or to control external circuitry that requires a higher voltage level (e.g. a 12 V relay).

Open collectors are controlled by the master application. More than one open-collector output can be connected to a single line. See "5.1 Base board" for more details)

Digital inputs

DI can be used for receiving input from the master application. A switch, or a micro switch, can be connected (see " Wiring example for the digital inputs" for more details). Maximum input voltage to the digital inputs is +3.3 VDC referred to GND.

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 AB 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.

When the equipment controlled by the receiver's standard relays is connected via the stop relays, make sure that the maximum current through the stop relays is still within the specifications. Contact your representative for assistance.

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 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.

- **The receiver must be securely attached and located where it will not be hit by e.g. any moving parts.**
- **Do not install the product in areas affected by strong vibrations**
- **Cable glands and vent plugs must face downwards to prevent water ingress.**
- **Ensure that the power supply is connected to the correct terminals.**
- **Ensure that flexible cords and cables are not damaged through friction or stress.**
- **Do not use damaged cables.**
- **Ensure cables and connectors do not hang loose.**

- The receiver is designed to withstand normal weather conditions but should be protected from extreme conditions.
- Install the receiver in a location where the LEDs are easily visible.
- Make sure to install available accessories inside or on the receiver before permanently installing the receiver. A permanent installation of the product must include fuse protection of the equipment and cables against short circuits.

2.1.2 OPERATION

Only qualified personnel should be permitted to access the transmitter and operate the equipment.

- **Make sure that the user satisfies the age requirements in your country for operating the equipment.**
- **Make sure that the user is not under the influence of drugs, alcohol and medications.**
- **Make sure that the user knows and follows operating and maintenance instructions as well as all applicable safety procedures and requirements.**

The user should:

- **Always test the transmitter stop button before operating it.This test should be done on each shift, without a load.**
- **Never use a transmitter if the stop button is mechanically damaged.Contact your supervisor 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 help.
- Keep contacts and antennas clean.
- Wipe off dust using a clean, slightly damp cloth.
- Never use cleaning solutions.
- Check the encapsulation, foils and cable for damages. If the encapsulation or foil is damaged, moisture can cause serious damage to the electronics.

CHAPTER 3: TECHNICAL DATA

3.1 Stationary unit specifications

	R2-01
Power supply	5–24 V DC
Number of digital inputs	2
Number of digital outputs	2 (open collector)
Radio frequency band	2405–2480 MHz
Number of channels	16 (channels 11–26)
Channel separation	5 MHz
Radio communication	Duplex
Radio frequency output power	EIRP[1] < 0 dBm (1 mW)
Max. number of registered transmitters	16
IP code	IP65
Operating temperature	-20...+55°C / -4...+130°F
Dimensions	54 x 96 x 37 mm
Weight (typical)	130 g
Antenna	Internal antenna
Bus system/com. protocols	RS232, RS485
Compatible transmitter(s)	T1-01, T1-02, T1-03

3.2 Current consumption

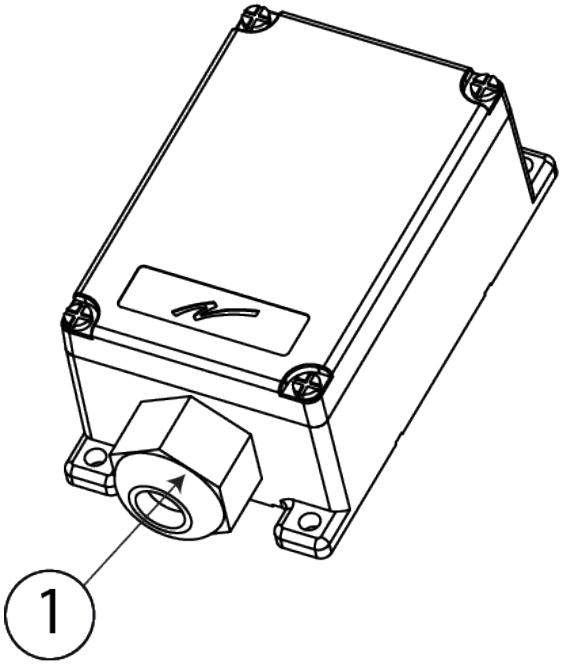
Input power	**R2-01**
5 V DC	30 mA
12 V DC	30 mA
24 V DC	16 mA

[1]Equivalent isotropic radiated power

CHAPTER 4: PRODUCT GENERAL DESCRIPTION

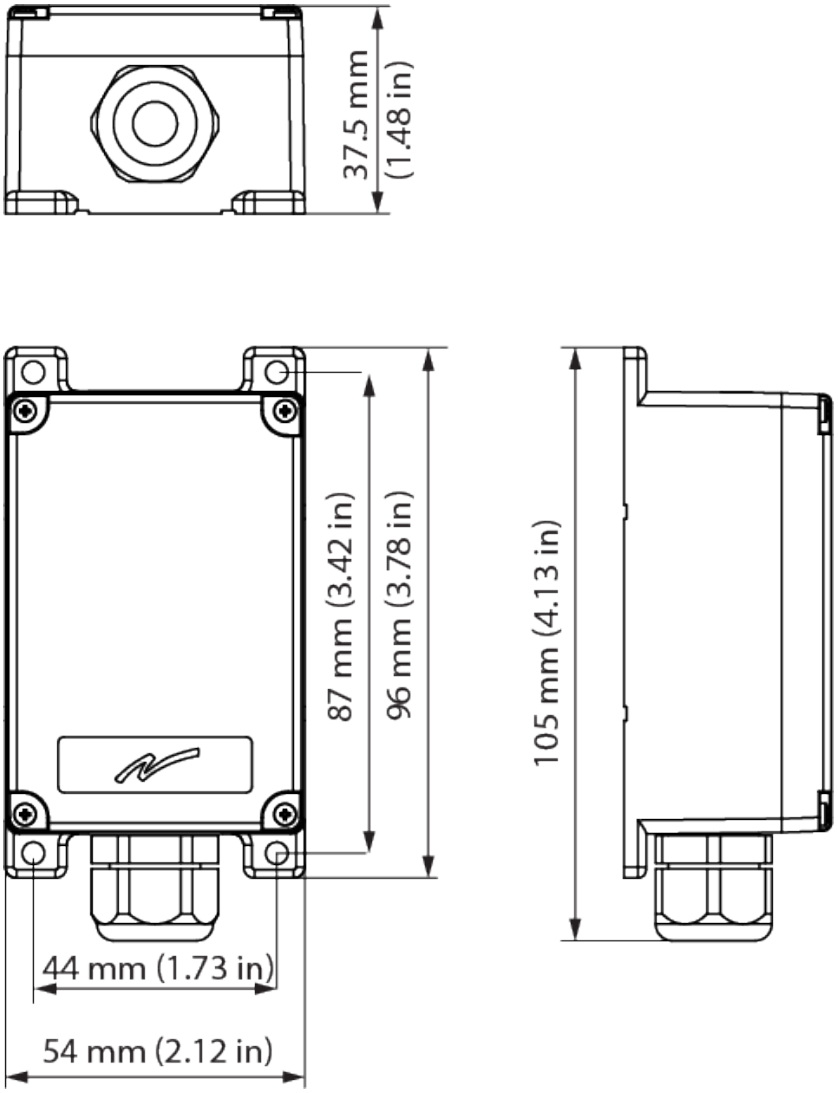
NOTE: The pictures shown in this chapter are for illustrative purposes only. Depending on the configuration, the actual product appearance may differ from the basic model used for reference.

4.1 Stationary unit description



1. Cable glands (M20x1.5)

4.2 Mechanical installation



4.2.1 INSTALLATION PRECAUTIONS

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.

IMPORTANT! Only authorized personnel should install the product.

Only correct installation complies with the safety levels for the product.

- A permanent installation of the receiver must include fuses in order to protect the equipment and cables from short circuit.
- The receiver must be installed vertically, on a flat and rigid surface, with the cable at the bottom.
- Install the receiver in a location where it is easily visible.
  Mount the receiver in a location where the LEDs and buttons inside the receiver are easily visible and accessible, e.g. for troubleshooting operations.
- Consider the wiring limitation and the radio communication limitation to choose the receiver location.
- Ensure no obstacle is impairing the radio communication performance between the receiver and the transmitter.
- The receiver must not be installed inside closed metal containers.
- Make sure any accessories inside or on the receiver are installed before permanently installing the receiver.
- Test the equipment before installing the receiver permanently.

CHAPTER 5: BOARD DESCRIPTION

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.

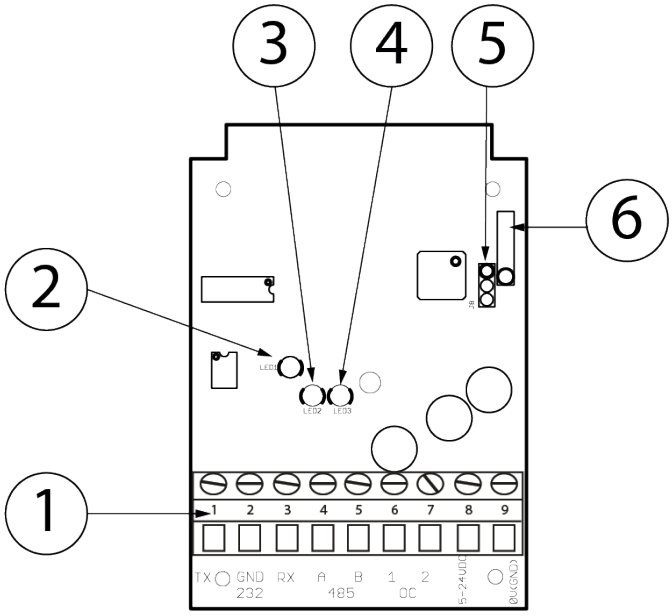
RISK OF ELECTRIC SHOCK

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.

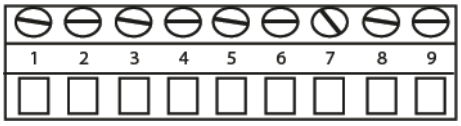
IMPORTANT! Only experienced electronic technicians should add and map expansion boards and inputs/outputs.

5.1 Base board



1. Terminal block for input power and communication
2. LED 1 (green)
3. LED 2 (yellow)
4. LED 3 (red)
5. Connector for digital inputs
6. Programming contact

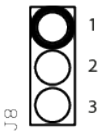
5.1.1 TERMINAL BLOCK FOR INPUT POWER AND COMMUNICATION



Pin	Description	
1.	RS232	Transmitter
2.		GND
3.		Receiver
4.	RS485	Port A
5.		Port B
6.	Open-collector outputs	Open collector 1*
7.		Open collector 2*
8.	Input power	+ 5–24 V DC
9.		GND

*Not implemented.

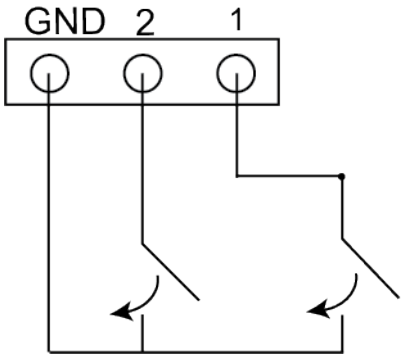
5.1.2 CONNECTOR FOR DIGITAL INPUTS



Pin	Description
1.	DI 1
2.	DI 2
3.	GND

Wiring example for the digital inputs

NOTE: Maximum input voltage to the digital inputs is +3.3 VDC referred to GND.



CHAPTER 6: STATUS AND ERROR INDICATIONS ON THE STATIONARY UNIT

●: LED is lit. ○: LED is off.

◈: LED is blinking (red); ⊙: LED is blinking (yellow);

LED 1 (green)	LED 2 (yellow)	LED 3 (red)	Indicates
○			No power to the receiver
●			Receiver is powered up
●		●	The stationary unit is in registering mode (activated by a 'register' command from the customer host system). The unit will not respond to any Modbus commands while in registering mode. The unit stays in registering mode for 10 s.
	⊙		Modbus packages sent to this unit are being received on either RS232 or RS485.
		◈	Radio packages are being sent and received on the same channel as the stationary unit.
		◈ with 2 s interval	The unit cannot read the start-up information, such as ID code. Contact your representative for assistance.
		◈ with 4 s interval	The flash memory may be damaged. contact your representative for assistance.

CHAPTER 7: HAND UNITS

7.1 Battery precautions

Carefully read through 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.

7.1.1 HANDLING AND STORAGE

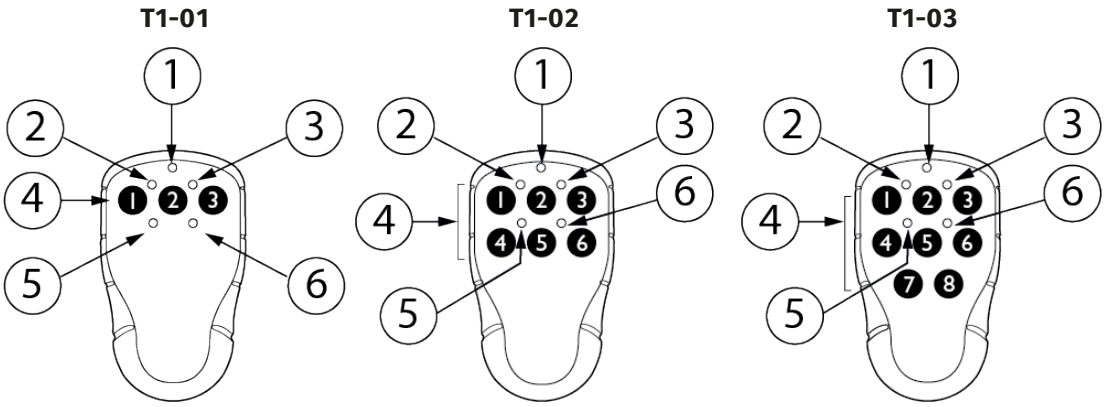
- Risk of explosion if battery is replaced with a battery of an incorrect type.
- Do not short circuit, disassemble, deform or heat batteries.
- Never attempt to charge a visibly damaged or frozen battery.
- Do not use or charge the battery if it appears to be leaking, deformed or damaged in any way.
- 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.

7.1.2 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.

7.2 Hand unit description – T1-01, T1-02, T1-03

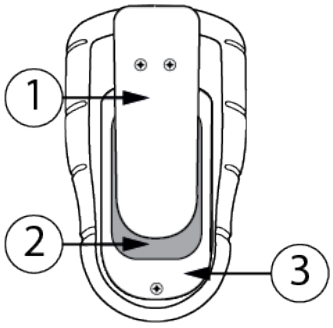


1. LED 1 (red/green)
2. LED 2 (red)
3. LED 3 (red)
4. Push buttons
5. LED 4 (red)
6. LED 5 (red)

LED 1 (bicolor green/red) is for hand unit status and error indications.

The other four LEDs (red LEDs 2–5) can be controlled by the customer software, and be used for feed-back purposes.

Hand unit back



1. Clip
2. Product label
3. Battery compartment

7.2.1 TECHNICAL DATA

	T1-01, T1-02, T1-03
Power supply	2 x 1.5 V AAA alkaline battery
Radio frequency band	2405–2480 MHz
Number of channels	16 (channels 11–26)
Radio frequency output power	EIRP[1] < 0 dBm (1 mW)
Operating temperature	-20...+55°C / -4...+130°F (humidity 10–90%)
Dimensions	71 x 38 x 12 mm

7.2.2 RADIO TRANSMISSION

Transmission continues during the time that each function button is pressed and is interrupted when the button is released.

7.2.3 RADIO FREQUENCY BAND

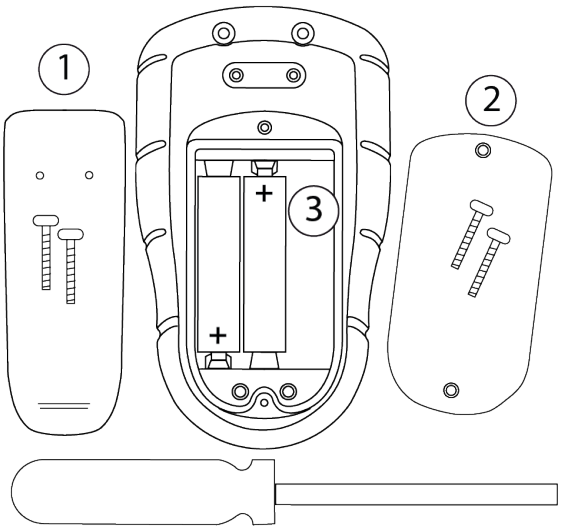
For radio systems operating on frequency band 2.4 GHz, the frequency band is divided into 16 channels (11 to 26). Once the channel has been selected on the transmitter, the receiver will automatically detect and switch to the same channel.

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

[1]Equivalent isotropic radiated power

7.3 Change the batteries

BATTERY TYPE: 2 x 1.5 V AAA alkaline



Do not recharge the batteries! Attempts to recharge the batteries may cause rupture, or leaking of hazardous liquids, which will corrode the equipment and result in minor or moderate injury.

1. Disassemble the clip (2 screws)
2. Disassemble the lid of the battery compartment (2 screws).
3. Replace the batteries.
4. Reassemble the lid of the battery compartment (2 screws).
5. Reassemble the clip (2 screws).

7.4 Status and error indications on the hand unit

The Lynx system only controls the red/ green top LED 1 on the hand unit. The functions of LEDs 2–5 are determined by the design of the customer host system and are therefore not described here.

●: LED is lit. ○: LED is off.

◈: LED is blinking (red); ⊡: LED is blinking (green);

LED 1		**Indicates**
(green)	**(red)**	
○		No power to the receiver
●		The hand unit is activated.
⊡ with 0.25 s interval		The unit has received an acknowledgment from the stationary unit.
	◈ with 0.25 s interval	Low battery power. Change the batteries.
	◈ with 1 s interval	No registered stationary unit found in memory. Register the hand unit in a stationary unit.
	◈ with 2 s interval	The unit cannot read start-up information, such as ID code. contact your representative for assistance
	◈ with 4 s interval	The flash memory may be damaged. contact your representative for assistance.

CHAPTER 8: WARRANTY, SERVICE, REPAIRS, AND MAINTENANCE

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

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 AB

Contact your representative for service or any other assistance

Keep contacts and antennas clean

Wipe off dust using a slightly damp, clean cloth

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

CHAPTER 9: REGULATORY INFORMATION

NOTE: Models including additional naming conventions:

Model	Article names	Additional naming conventions
R2	R2-01	R2-1, R00002-01, LX-R2-01, LX-R2-1, LXS-MN-CTC
T1	T1-01	T1-1, T00001-01, LX-T1-01, LX-T1-1
	T1-02	T1-2, T00001-02, LX-T1-02, LX-T1-2
	T1-03	T1-3, T00001-03, LX-T1-03, LX-T1-3

9.1 Europe

Applies to:

Receiver	Transmitters
R2-01	**T1-01, T1-02, T1-03**

9.1.1 CE MARKING

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

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

9.1.2 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 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.

9.2 North America

Applies to:

Receiver	Transmitters
R2-01	T1-01, T1-02, T1-03

9.2.1 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.

9.2.2 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.

9.2.3 FCC/IC LABELS

The FCC ID and IC numbers can be found on the product label.

	FCC ID	**IC**
R2	ONFR2X1	4807A-R2X1
T1	ONFT1X1	4807A-T1X1

ANNEX A: IMPLEMENTATION SPECIFICATIONS – LYNX (IN ENGLISH)

A.1 Modbus Commands

Function		Sub-function	Function name
3	0x03		Read Holding Registers
4	0x04		Read Input Registers (Equivalent to Read Holding Registers)
16	0x10		Write Multiple Registers
17	0x11		Report Slave ID
22	0x16		Mask write Register
65	**0x41**		**Tele Radio – Event management**
		0x01	– Poll Events
		0x02	– Delete Events
		0x03	– Respond to Event
66	**0x42**		**Tele Radio – Transmitter management**
		0x01	– Get total number of transmitters
		0x02	– Get transmitter Ids
		0x03	– Delete all transmitters
		0x04	– Add one transmitter by ID
		0x05	– Enter Learn mode
67	**0x43**		**Tele Radio – Interrupt (Not implemented)**
		0x01	– Change interrupt

A.2 Register Map

Changes to registers will be applied directly after a Modbus response has been sent from the slave. I.e. if new serial setting is written to 0x0001 by the master, the slave (Lynx) will change to the new serial setting directly after it has sent its response.

Address	Contents
0x0000	Status register
0x0001	Reserved
0x0002	Reserved
0x0003	RS232 Modbus address (default 0x66)

Address	Contents
0x0004	RS485 Modbus address (default 0x66)
0x0005	Radio channel (default 17)
0x0006	Functionality
0x0007	RS232 Baud rate
0x0008	RS232 Serial port mode
0x0009	RS485 Baud rate
0x000A	RS485 Serial port mode
0x0200	Transmitter button state (bit mapped)
0x0201	Discrete inputs on stationary unit (bit mapped)
0x0600	Sampled Input Power on stationary unit.
0x0A00	LED2 state (Only lower byte used)
0x0A01	LED3 state (Only lower byte used)
0x0A02	LED4 state (Only lower byte used)
0x0A03	LED5 state (Only lower byte used)
0x1000	Discrete outputs on stationary unit (bit mapped)

A.2.1 STATUS REGISTER – 0X0000

Bit	Indicates
0	0 = FIFO OK, 1 = FIFO has overflowed, oldest event discarded.
15-1	Reserved

Table: Status register bit mapping

A.2.2 RESERVED – 0X0001 / 0X0002

Reserved for backwards compatibility. Do not write.

A.2.3 MODBUS ADDRESS – 0X0003 / 0X0004

According to Modbus specification only address 1 to 247 are valid. All unused values are reserved.

Bit	Contents
7–0	Modbus Address (1-247) (Default: 0x66)
15–8	Reserved

A.2.4 RADIO CHANNEL – 0X0005

According to IEEE802.15.4 only 11 to 26 are valid. All unused values are reserved.

Bit	Contents
7–0	Radio Channel (11-29) (Default: 17)
15–8	Reserved

A.2.5 FUNCTIONALITY – 0X0006

Bit	Contents
0 (LED Control)	0 = Respond To Event handles LEDs for specific units (Default) 1 = LED state registers controls LEDs for all units
1 (Listen Mode)	00 = Only events from learned units are stored on the event queue (Default) 01 = Events from all units (with this stationary as recipient) are stored on the event queue.
2 (Listen Mode)	10 = Promiscious mode. Unit stores all events on the queue regardless if the unit is recipient or if there are broadcast packets. Mainly used for testing purposes. 11 = Reserved for future use
3 (Only 1 TX)	0 = Max number of transmitters is 16 (Default) 1 = Max number of transmitters is 1
15-4	Reserved

A.2.6 RS232 BAUD RATE – 0X0007

Value	Baudrate
0 (default)	19200 baud
1	9600 baud
2	38400 baud
3	57600 baud

A.2.7 RS232 SERIAL PORT MODE – 0X0008

Value	Baudrate
0 (default)	8 bits, Even parity, 1 stop bit
1	8 bits, Odd parity, 1 stop bit
2	8 bits, No parity, 2 stop bits
3	8 bits, No parity, 1 stop bit

A.2.8 RS485 BAUD RATE – 0X0009

Value	Baudrate
0 (default)	19200 baud
1	9600 baud
2	38400 baud

Value	Baudrate
3	57600 baud

A.2.9 RS485 SERIAL PORT MODE – 0X000A

Value	Baudrate
0 (default)	8 bits, Even parity, 1 stop bit
1	8 bits, Odd parity, 1 stop bit
2	8 bits, No parity, 2 stop bits
3	8 bits, No parity, 1 stop bit

A.2.10 TRANSMITTER BUTTON STATE – 0X0200

The button state register is reset to all zeroes if the stationary unit if the stationary unit has not received radio packet with button activity for 300ms.

Bit	Contents
0 (Button 1)	0 = Non active 1 = Active
1 (Button 2)	0 = Non active 1 = Active
2 (Button 3)	0 = Non active 1 = Active
3 (Button 4)	0 = Non active 1 = Active
4 (Button 5)	0 = Non active 1 = Active
5 (Button 6)	0 = Non active 1 = Active
6 (Button 7)	0 = Non active 1 = Active
7 (Button 8)	0 = Non active 1 = Active
15-8	Reserved

A.2.11 DISCRETE INPUTS ON STATIONARY UNIT – 0X0201

Bit	Contents
0 (Input 1)	0 = Not Active 1 = Active
1 (Input 2)	0 = Not Active 1 = Active
15–2	Reserved

A.2.12 SAMPLED INPUT POWER ON STATIONARY UNIT – 0X0600

Bit	Contents
15–0	Sampled voltage in millivolts

A.2.13 LED STATE REGISTERS – 0X0A00 – 0X0A03

Only the lower 8 bits are used to define the state.

Bit	Contents
7-0	State (Default 0x00)
15-8	Reserved

Supported states:

State	Description
0x00	LED OFF (Default)
0x01 – 0x10	Reserved
0x11	0.125 second single blink
0x12	0.25 second single blink
0x13	0.5 second single blink
0x14	1 second single blink
0x15	2 second single blink
0x16	4 second single blink
0x17	8 second single blink
0x18 – 0xFE	Reserved
0xFF	LED ON

A.2.14 DISCRETE OUTPUTS ON STATIONARY UNIT – 0X1000

This register controls the open collector outputs on the stationary unit.

Bit	Contents
0 (Output 1)	0 = Not Active 1 = Active
1 (Output 2)	0 = Not Active 1 = Active
15–2	Reserved

ANNEX B: SETTINGS DOCUMENTS

Receiver

Article code: _____

Serial no: _____

Radio channel: _____

RS232 Modbus serial setting:_____

RS485 Modbus serial setting:_____

RS232 Modbus address:_____

RS-485 Modbus address:_____

Transmitter 1

Article code: _____

Serial no: _____

Radio channel: _____

Transmitter 2

Article code: _____

Serial no: _____

Radio channel: _____

Transmitter 3

Article code: _____

Serial no: _____

Radio channel: _____

ANNEX C: INDEX

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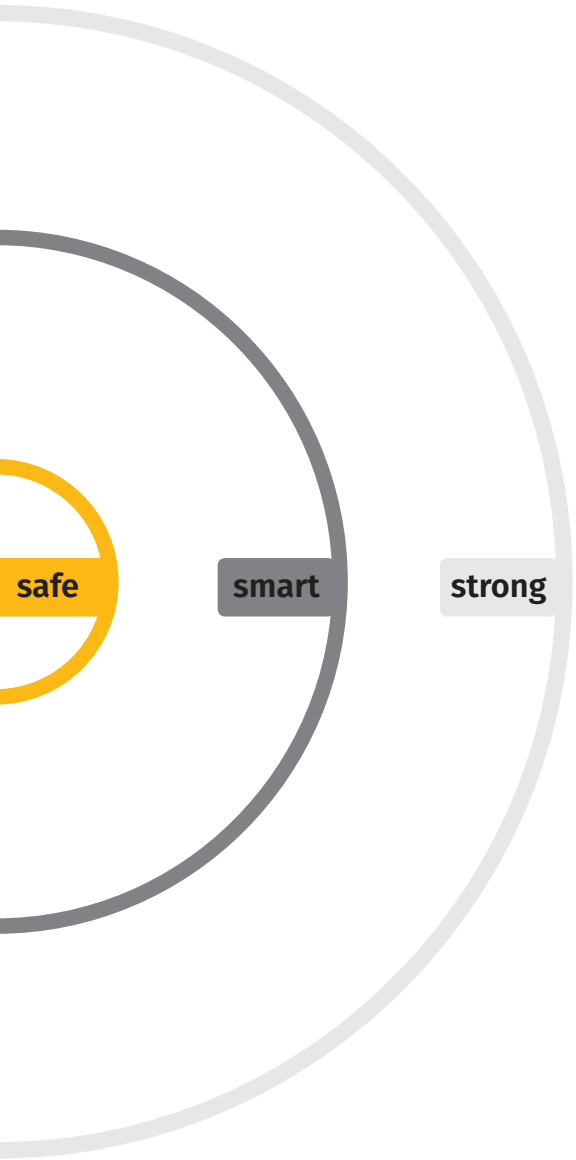

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