

# MITO

**ELCA**  
RADIOCONTROLS

## AT MITO-MINI+ 915

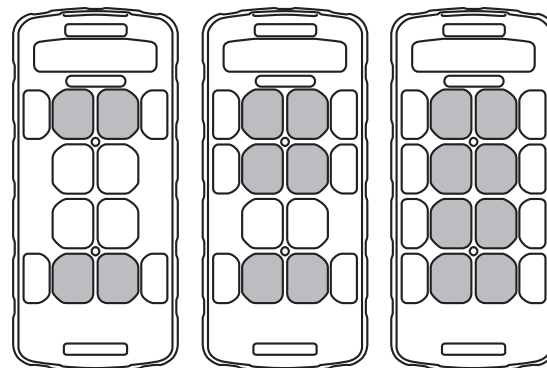
Instructions translated from the original

### Part 1

#### TRANSMITTING UNIT USER MANUAL

#### OTHER LANGUAGES

<https://qrcode.elcaradio.biz/man/170be55eb609c787177d5fb6931208fd>







# WARNING

**THIS PART OF THE MANUAL CONSISTS OF:** Part 1 – Information, instructions and general warnings for the Transmitting Unit and its charging system. The manual consists of Part 1 "Transmitting Unit user manual", Part 2 "Receiving Unit user manual", Position of the controls and the Connection diagram.

**THIS MANUAL, INCLUDING ALL ITS PARTS, AND ALL THE INSTRUCTIONS CONTAINED IN IT MUST BE READ CAREFULLY AND UNDERSTOOD BEFORE EACH INSTALLATION, USE, MAINTENANCE OR REPARATION OPERATION OF THE ELCA RADIO REMOTE CONTROL.**

**FAILURE TO READ THE MANUAL AND COMPLY WITH ALL THE APPLICABLE WARNINGS AND INSTRUCTIONS, OR ANY RESTRICTION PROVIDED IN THIS MANUAL CAN CAUSE SERIOUS PHYSICAL INJURIES OR DEATH AND/OR DAMAGE TO PROPERTY.**

**THE ELCA RADIO REMOTE CONTROL IS NOT AN INDEPENDENT PRODUCT AND IS EXCLUSIVELY A COMPONENT OF A MACHINE THAT:**

- PERMITS A RADIO REMOTE CONTROL TO BE USED IN AN APPROPRIATE MANNER,
- CAN BE OPERATED SAFELY AND IN COMPLIANCE WITH ALL LEGAL PROVISIONS, REGULATIONS AND STANDARDS APPLICABLE TO THIS RADIO REMOTE CONTROL.

**ACCORDINGLY, IT IS THE RESPONSIBILITY OF THE MANUFACTURER AND THE DESIGNERS OF THE MACHINE ON WHICH YOU INTEND TO INSTALL THE ELCA RADIO REMOTE CONTROL to carry out a careful and in-depth risk assessment to determine whether the Elca radio remote control is suitable for the safe and efficient use of the Machine, taking into account the conditions of use and the intended uses, and that the installation, maintenance and use of the Elca radio remote control and all its components are carried out only and entirely in accordance with this Manual and in compliance with all local safety rules, standards and regulations (referred to herein as "Laws, Regulations and Standards").**

**With reference to the US market, the Laws, regulations and Standards include all regulations and standards of the Occupational Safety & Health Administration (OSHA) (<http://www.osha.gov>), all federal, state and local laws and provisions, the construction and electric devices codes and all applicable standards, including, but not only, ANSI standards.**

**It is the responsibility of the Manufacturer and the designers of the Machine on which you intends to install and use the Elca Radio Remote Control to make sure that the structure, condition, organisation and the markings of the Machine as well as how it is installed in its place of use are appropriate and allow the Machine to be used and controlled safely and reliably using the interface of the Elca Radio Remote Control.**

**IT IS THE RESPONSIBILITY OF THE USER OF THE SYSTEM AND THEIR DESIGNERS that the installation, maintenance and use of the Elca Radio Remote Control and all its components are carried out only and entirely in accordance with this Manual and in compliance with all applicable Laws, Regulations and Standards, also local. It is also the responsibility of the Owner, the system user and their designers to make sure that the structure, the condition, the organisation and the markings of the Machine and the place where the Elca Radio Remote Control is installed and used are appropriate and allow the Machine to be used and controlled safely and reliably using the interface of the Elca Radio Remote Control.**

**ONLY QUALIFIED AND SUITABLY TRAINED PERSONNEL ARE ALLOWED TO CONTROL AND USE THE ELCA RADIO REMOTE CONTROL AND THE MACHINE CONTROLLED BY THE ELCA RADIO REMOTE CONTROL. ONLY QUALIFIED AND SUITABLY TRAINED PERSONNEL ARE ALLOWED ACCESS TO THE VICINITY OF THE MACHINE CONTROLLED BY THE ELCA RADIO REMOTE CONTROL.**

**INADEQUATE INSTALLATION, OPERATION, MAINTENANCE AND ASSISTANCE OPERATIONS ON THE ELCA RADIO REMOTE CONTROL CAN CAUSE SERIOUS PHYSICAL DAMAGE OR DEATH AND/OR DAMAGE TO PROPERTY.** For further assistance refer to this Manual and all its parts, or else contact Elca. Elca is not responsible for and accepts no liability for any installation of the Elca Radio Remote Control carried out by Elca itself, or for any use or maintenance of the Elca Radio Remote Control that do not fully comply with all the instructions and warnings supplied by Elca and with all applicable Laws, Regulations and Standards, also local.

**Elca is not responsible for and accepts no liability for any alterations or modifications of the Elca Radio Remote Control, or for the use of non-original Elca parts that are used together or incorporated inside the Radio Remote Control itself.**

**IT IS THE RESPONSIBILITY OF THE OWNER, AND USER OF THE SYSTEM AND ITS DESIGNERS to make sure that the Elca Radio Remote Control is always maintained and serviced in compliance with all the instructions and warnings provided by Elca, and in compliance with all applicable Laws, Regulations and Standards, also local.**

IT IS THE RESPONSIBILITY OF THE OWNER, THE USER OF THE SYSTEM AND THEIR EMPLOYEES MANAGERS AND SUPERVISORS to make sure that all the Users of the Elca Radio Remote Control and all those that work or will work with or near the Machine **operated by or through the Elca Radio Remote Control are completely and adequately instructed and trained by qualified persons on the correct and safe use of the Elca Radio Remote Control and the Machine**, including without restrictions the complete familiarity with and understanding of the warnings and instructions provided by Elca, and all applicable Laws, Regulations and Standards, also local; it is equally also their responsibility to make sure that these Users or other Persons use or work always in a safe manner with the Elca Radio Remote Control and e **ONLY** in compliance with the instructions and warnings provided by Elca and in compliance with all applicable Laws, Regulations and Standards, also local. **FAILURE TO COMPLY WITH THIS INSTRUCTION CAN CAUSE SERIOUS PHYSICAL INJURIES OR DEATH AND/OR DAMAGE TO PROPERTY.**

IT IS THE RESPONSIBILITY OF THE OWNER, THE USER OF THE SYSTEM AND THEIR EMPLOYEES MANAGERS AND SUPERVISORS to make sure that the area where the Machine is located and is operated by the Elca Radio Remote Control is clearly marked and indicated, in compliance with all the instructions and warnings provided by Elca, and in compliance with all applicable Laws, **Regulations and Standards, also local, and that there are sufficient indications that notify EVERYONE that the machine is operated by or through a Radio Remote Control**, and that prohibit any unauthorised access to the area. **FAILURE TO COMPLY WITH THIS INSTRUCTION CAN CAUSE SERIOUS PHYSICAL INJURIES OR DEATH AND/OR DAMAGE TO PROPERTY.**

IF THE ELCA RADIO REMOTE CONTROL IS NOT USED SAFELY AND IN ADHERENCE TO THE INSTRUCTIONS AND WARNING PROVIDED BY ELCA, AND IN CONFORMITY WITH APPLICABLE LAWS, REGULATIONS AND STANDARDS , ALSO LOCAL, AND/OR IF USE OF THE RADIO REMOTE CONTROL IS PERMITTED TO USERS OR OTHER PERSONS THAT ARE NOT ADEQUATELY TRAINED TO USE THE SYSTEM OR THE MACHINE ON WHICH IT IS INSTALLED SAFELY AND CORRECTLY, CAN CAUSE SERIOUS INJURIES OR DEATH AND/OR DAMAGE TO PROPERTY.

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## **a FEDERAL COMMUNICATIONS COMMISSION (FCC) CONFORMITY AND FREQUENCIES**

### **a.1 CONFORMITY**

Each MITO-MINI+ serie's radio remote control working in the frequency band 920.000 - 921.150 MHz complies with Part 15 of standards FCC.

Transmitting Unit AT MITO-MINI+ 915 FCC ID: 2ABS7-ATMILS915  
Receiving Unit AR MITO-MINI 915 FCC ID: 2ABS7-ARMIMI915

### **a.2 FCC CONFORMITY 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.

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

### **a.3 FREQUENCIES**

The radio link between the units of ELCA MITO-MINI+ series radio remote controls is built at one of the frequencies permitted by the US standards in force when the system is put on the market.

Frequency band .....920.000 - 921.150 MHz  
Transmitting power .....meets FCC requirements  
Available radio channels .....24  
Channel spacing ..... 50kHz

### **a.4 MARKET**

- MITO-MINI+ serie's radio remote controls working in the frequency band 920.000 - 921.150 MHz can be used in the United States market.

## 1 Use and Maintenance Manual

### 1.1 Structure

The Instruction Manual for use and maintenance consists of two parts: together they constitute the Elca Radio Remote Control of the series MITO. The Manual should be read, understood and applied by the Owner of the Radio Remote Control, by the User and by all those who, for whatever reason, operate the Radio Remote Control or the Machine on which it is installed.

This part (called Part 1) deals with the Transmitting Unit and the charging system. Part 2 (to which reference is made) deals with the Receiving Unit.

The contents of the Instruction manual for use and maintenance is supplemented by the following documents:

- "Arrangement of Controls" that contains the configuration of the Transmitting Unit and the names of the commands sent to the Receiving Unit;
- "Connection diagram" that indicates the correspondence of the commands sent by the Transmitting Unit and those available in the Receiving Unit .

The Instruction manual for use and maintenance is an integral part of the Elca Radio Remote Control and therefore of the Machine that is equipped with the Radio Remote Control. It is the responsibility of the Manufacturer of the Machine or the system on which the Radio Remote Control is installed to ensure that the Instruction Manual is inserted in the instruction manual of the Machine.

Further information on the operation of the radio remote control system, particularly if made to the customer's own specifications, can be found in the documents attached to the manual that should be considered as an integral part of the Manual itself.

## 1.2 Definitions



Please contact Elca if any instructions, symbols, warnings or images are unclear or incomprehensible or if you have any doubts or questions.

The meanings of the terms in the entire Manual, including all its parts, are shown below:

- **Unit:** the individual units, transmitting and receiving, that make up the Elca Radio Remote Control.
- **Radio Remote Control:** wireless control system (CCS: Cableless Control System) composed of a Transmitting unit and a Receiving unit that communicate with each other via radio connection.
- **Transmitting unit:** portable component (remote station) through which the user interfaces with the Radio Remote Control.
- **Receiving unit:** component fixed stably to the Machine (base station) that constitutes an interface between the Radio Remote Control and the other parts of the machine.
- **Machine:** the machine, as defined by Directive 2006/42/CE and by other local regulations, and every other device, machinery, equipment, system, application, etc., on which the Elca Radio Remote Control is installed or that is controlled by it.
- **Manufacturer:** the entity that designs and/or constructs a Machine and that decides to install a Radio Remote Control in order to operate the Machine.
- **Installer:** the entity, specialised technician, that plans and/or carries out the installation of the Elca Radio Remote Control on a Machine in order to operate its controls.
- **User:** the entity that materially uses the Elca Radio Remote Control as a device for operating the controls of a Machine.

- **Maintenance technician:** the entity, specialised technician, that carries out routine and extraordinary maintenance on the Elca Radio Remote Control, in order to keep it undamaged and running efficiently.
- **Manual or Instruction manual:** document consisting of Part 1 (Transmitting unit and its charging system), Part 2 (Receiving unit), Position of the controls and the Connection diagram.
- **Person:** individual, natural or legal person and/or every entity, however considered.
- **Owner:** the owner of the Radio Remote Control.

The functions indicated for the Manufacturer, the Installer, the User and the Maintenance Technician can be carried out by a single entity, where these have the skills and assume the relative responsibilities. Each entity should be aware of the instructions in the Manual for the work that it carries out.

For example, if a Manufacturer also acts as an Installer, and/or Maintenance Specialist, it should understand and follow also the instructions specifically directed at these entities. The same criteria should be applied in the case where, for example, a User assumes the function of manufacturer and/or Installer.

### 1.3 Symbols



The parts of the Manual that are drawn attention to by this symbol should be read very carefully.



**The parts of the Manual that are drawn attention to by this symbol contain warnings, information and/or instructions that are extremely important for safety issues: failure to understand these parts could be dangerous for Persons and/or property.**

### 1.4 Who these instructions are for

The Instruction Manual is for the User, the Owner of the Radio Remote Control, the Installers, the Manufacturers and all those Persons who, for whatever reason, are operating the Radio Remote Control or the Machine on which it is installed.

The Manual should be read, understood and applied, in all its parts, by:

- the Owner and/or the person responsible for operating the Machine and/or the Elca Radio Remote Control;
- the Manufacturer of the Machine who decides to equip it with a Radio Remote Control;
- the Installer of the Radio Remote Control or the entity that takes care of its fitting on a Machine, on a device, on a system, etc., and/or that has the responsibility for its operation;
- the safety manager of the workplace where the Radio Remote Control is used;
- the Users, namely those who materially, and for any purpose, are enabled/authorised/entrusted with using the Radio Remote Control or simply find themselves in this situation;

- the Maintenance technician;
- Those who, for any reason, find themselves operating the Radio Remote Control and/or the Machine, the system, the device and/or the system on which the Elca Radio Remote Control is installed, or which is controlled by it.



**The instructions concerning the installation and maintenance of the Radio Remote Control are for qualified personnel and for their application specialised professional expertise is required: none of the operations for which qualified personnel are required can be carried out by Persons or entities that do not have the specific professional skill required.**

### 1.5 Storage of the instructions

The Instruction Manual should be taken good care of and should accompany the Radio Remote Control throughout its working life. No part of the manual should be removed, torn or arbitrarily modified. The Instruction Manual should be available for all those requiring it and at any moment it becomes necessary to consult it. Another copy of the Manual should be requested if it deteriorates. The copy will be supplied after communicating the serial number of the Radio Remote Control and at the expense of the person requesting it.

### 1.6 Updating the Manual

The contents of this manual are subject to change without prior notice, therefore the operator is required to verify (before using the radio remote control) that the information contained in this publication is consistent with the device in their possession.

Elca is solely responsible for the instructions compiled and validated by Elca itself (Original Instructions); in order to be able to check the accuracy of the translation, any translations should always accompany the Original Instructions.

Contact ELCA in the event there are instructions, warnings or indications which may prove to be unclear.

### 1.7 Intellectual property

This manual and any annexed documents are the property of ELCA and all rights are reserved. No part of this publication (for example the structure, the contents, the instructions, the figures, the diagrams, the photos) may be reproduced or transmitted (including photocopies and web) for any reason without the written authorisation of Elca.

## 2 Series, Radio Remote Control and Unit

The Manual concerns the Transmitting Unit of an Elca Radio Remote Control in the MITO series.

Elca Radio Remote Controls provide a control interface to be used on Machines to manage the command and control system.

The Radio Remote Controls have been designed to be used at a suitable distance and position.

A Transmitting Unit and a Receiving Unit make up the Radio Remote Control of the MITO series.

## 3 Conformity

It is the responsibility of the recipients of these instructions to:

- check the radio frequency band permitted in the country where it will be used;
- check that the Radio Remote Control operates inside this band;
- check the country's applicable standards;
- check that the Radio Remote Control operates correctly in conformity with them.

In no way can the conformity of the Radio Remote Control be modified, making changes to it or carrying out technical interventions that change the way it works.

For the instructions and use of the Elca Radio Remote Controls, local regulations must be respected.

These regulations obligate the protection of the conformity of the products with local regulations, and the specific standards regarding the safe use of the Radio Remote Controls or electric devices, both inside and outside the workplace.

## 4 Manufacturer's identification

|                                       |   |
|---------------------------------------|---|
| Radio Remote Control<br>Manufacturer: | ELCA S.r.l.   |
| Registered office:                    | Via del Commercio, 7/b – 36065<br>Mussolente (VI) - ITALY |
| Telephone:                            | +39 0424 578500   |
| Fax:                                  | +39 0424 578520   |
| E-mail:                               | info@elcaradio.com  |
| Site:                                 | www.elcaradio.com   |

## 5 Assistance and spare parts

For technical assistance and/or spare parts, please contact Elca.

When sending a request regarding an Elca Radio Remote Control the serial number (Serial Num.) of the Radio Remote Control itself must be provided. The serial number (Serial Num) can be found on the unit's data plate (see paragraph 10.3).

## 6 Warranty

The general warranty conditions can be found on the sheet enclosed with this manual.

It is also possible to see the warranty conditions in the relative section of the web site [www.elcaradio.com](http://www.elcaradio.com).

## 7 Safety warnings

### 7.1 General information

**All the warnings and instructions contained in this chapter are relevant for safety purposes.**

**Failure to follow the instructions in the Manual supplied by Elca and applicable safety legal provisions, also local, regulations, norms and standards can cause serious injuries to Persons and damage to property.**



**It is the responsibility of the Manufacturer and/or the designer of the Machine, the Installer, the Maintenance Technician and the Persons responsible for the use of the Machine and the workplace, that the installation, maintenance and use of the Elca Radio Remote Control and all its components are done only and entirely in compliance with the instructions provided by Elca e and in conformity with all applicable safety standards and regulations in force in the countries where the Machine and Radio Remote Control are used.**

**The Manufacturer of the Machine bears responsibility for the installation and use of Radio Remote Control on any application.**

- check whether the Machine that you want to equip with a Radio Remote Control is suitable for being used with a Radio Remote Control safely and efficiently;
- carry out a comprehensive risk assessment taking into account the construction, functional and/or performance characteristics of the Machine, the use of the Machine, the location and the environment where the Machine will be used, the structure where the Machine will be or is installed, the interaction between the Machine and the other equipment and the personnel, the safety conditions when the Machine is operating, the effective and potential different conditions of use, the conditions that can be created after the installation of a Radio Remote Control and the characteristics and limitations of the Elca Radio Remote Control.

To this end refer to, but not only, ISO 12100 and ISO 14121, that lay down the conditions through which a correct comprehensive risk analysis can be carried out as well as the adoption of the necessary safeguards. Even without any legal or regulatory restrictions, a Radio Remote Control should never be used if the Manufacturer or those who intend to use or install a Radio Remote Control on a Machine cannot:

- carry out an appropriate and comprehensive analysis of the risks in relation to the safety of the Machine after the installation of the Radio Remote Control;
- provide adequate professional experience and/or technical expertise to properly carry out the risk analysis;
- correctly install the Radio Remote Control in accordance with this Manual and all the applicable Laws, Regulations and Standards, also local;

The Manufacturer of the Machine or whoever intends to use or install an Elca Radio Remote Control on a Machine should first of all:

- implement all the safety provisions so that the machine fitted with the Radio Remote Control can be used safely without creating dangerous situations;
- adopt the appropriate technical remedies and actions from an information point of view to allow the User and Maintenance Technician of the Machine equipped with a Radio Remote Control to operate it safely;
- implement all procedures required and appropriate for eliminating or reducing the risks connected to using the Machine fitted with a Radio Remote Control.

**THE INSTALLATION AND USE OF THE ELCA RADIO REMOTE CONTROL IS ONLY PERMITTED IF THE COMPREHENSIVE ASSESSMENT OF THE RISKS CONFIRMS THE INSTALLATION OF AN ELCA RADIO REMOTE CONTROL IS SUITABLE, EFFECTIVE AND SAFE FOR OPERATING THE MACHINE ITSELF, AND IF THE USE OF THE RADIO REMOTE CONTROL ON THE MACHINE IS PERMITTED BY AND IN CONFORMITY WITH APPLICABLE LAWS, REGULATIONS AND STANDARDS, ALSO LOCAL, AND WITH THIS MANUAL**

**THE MANUFACTURER OF THE MACHINE OR THOSE WHO INTEND TO INSTALL AN ELCA RADIO REMOTE CONTROL ON A MACHINE IS RESPONSIBLE:**

- FOR AN ASSESSMENT OF THE RISKS;
- FOR THE DECISION TO USE THE ELCA RADIO REMOTE CONTROL ON THE MACHINE;
- FOR THE OBSERVANCE OF THE STANDARDS AND REGULATIONS AIMED AT MAINTAINING SAFETY.



- **FOR IMPLEMENTING ALL THE NECESSARY OR ADVISABLE MEASURES FOR REDUCING OR ELIMINATING THE RISKS RESULTING FROM THE MACHINE AND, WITHOUT RESTRICTION, FROM THE USE OF THE RADIO REMOTE CONTROL FOR CONTROLLING THE MACHINE;**

**THE ELCA RADIO REMOTE CONTROL IS NOT AN INDEPENDENT PRODUCT AND IS EXCLUSIVELY A COMPONENT OF A MACHINE THAT:**

- PERMITS A RADIO REMOTE CONTROL TO BE USED IN AN APPROPRIATE MANNER,
- CAN BE OPERATED SAFELY AND IN COMPLIANCE WITH ALL LEGAL PROVISIONS, REGULATIONS AND STANDARDS APPLICABLE TO THIS RADIO REMOTE CONTROL.



**ELCA IS NOT RESPONSIBLE FOR, AND DOES NOT ACCEPT ANY LIABILITY FOR, THE COMPATIBILITY BETWEEN THE RADIO REMOTE CONTROL AND THE MACHINE OR THE USE YOU WANT TO MAKE OF IT, IRRESPECTIVE OF WHETHER IT FALLS WITHIN THOSE ENVISAGED OR NOT, OR FOR ANY PROBLEM REGARDING THE SUITABILITY OF THE MACHINE AND ITS CONTROL SYSTEMS TO BE MANAGED USING THE RADIO REMOTE CONTROL.**





**IN THE SAME WAY ELCA IS NOT RESPONSIBLE FOR, AND DOES NOT ACCEPT ANY LIABILITY FOR, THE ASSESSMENT OF THE RISKS TO BE CARRIED OUT WHENEVER TAKING INTO ACCOUNT THE RADIO REMOTE CONTROL IN GENERAL, OR SPECIFICALLY THE ELCA RADIO REMOTE CONTROL, NOR FOR THE SUITABILITY OF OPERATING THE MACHINE WITH A RADIO REMOTE CONTROL IN GENERAL OR SPECIFICALLY THE ELCA RADIO REMOTE CONTROL, IN RELATION TO THE STRUCTURE WHERE THE MACHINE IS OR WILL BE USED, AS WELL AS THE ENVIRONMENTAL AND/OR OPERATING CONDITIONS IN WHICH THE MACHINE IS OR WILL BE USED.**

Without limiting what was stated above, Elca is not responsible for, and does not accept any liability for:

- defective installation or installation not complying with this Manual, with any other instructions provided by Elca, and with all applicable Laws, Regulations and Standards, also local;
- installation carried out on Machines, appliances, devices, equipment and/or systems for which the use of a Radio Remote Control is not permitted by its Manufacturer or by applicable Laws, Regulations and Standards, also local, and for which the installation and/or use of a Radio Remote Control could cause safety issues or other hazardous situations that are not adequately eliminated and/or reduced, in respect of applicable Laws, Regulations and Standards, also local;
- damage and/or deterioration of any part or function of the Radio Remote Control;
- the use of the Elca Radio Remote Control that does not comply with what is written in this Manual and in any other instructions supplied by Elca and with applicable Laws, Regulations and Standards, also local;
- the use of the Radio Remote Control in locations, climatic and/or weather conditions that are not permitted or not recommended by applicable Laws, Regulations and Standards, also local, forbidden by the instructions in this Manual, or in relation to which there are risks of damage and/or incorrect operation of the Radio Remote Control (for example: temperatures outside the limits indicated in the paragraph 9.3, situations with a risk of explosion, contact with liquids or fluids);
- the use of the Radio Remote Control in work conditions that do not allow the User to maintain complete and continuous visual control of the movements of the Machine and the load, if present;
- the use of the Radio Remote Control in a manner different to, or for uses other than those permitted and/or not in complete conformity with the instructions for use and maintenance contained in this Manual;
- the lack of, or poor maintenance of the Radio Remote Control, both routine and special, or the failure to repair any damage, wear or malfunction of the Elca Radio Remote Control;
- failure to take the Elca Radio Remote Control out of service in the case it or one of its components develops a fault or malfunctions;
- the use of non-original parts or components that were not supplied by Elca;
- technical assistance for the Elca Radio Remote Control carried out by a company other than Elca or that is not part of its assistance network.



## 7.2 Risk analysis for remote-controlled Machines

The Manufacturer of the Machine on which you intend to install the Radio Remote Control and its designers need to carry out a careful and in-depth risk assessment to determine whether the Elca radio remote control is suitable for the safe and efficient use of the Machine, taking into account the conditions of use and the intended uses, and that the installation, maintenance and use of the Elca radio remote control and all its components are carried out only and entirely in accordance with this Manual and in compliance with all local safety rules, standards and regulations (referred to herein as "Laws, Regulations and Standards"). In carrying out the risk analysis to establish whether the Radio Remote Control can be installed on a Machine, the Manufacturer of the Machine and/or the Installer of the Radio Remote Control must respect all Laws, Regulations and Standards, also local, regarding the assessment of the risks and the safety of the Machine and the following recommendations:

- some Machines cannot be fitted with a Radio Remote Control, as established in paragraph 8.6). Also all the other circumstances that might limit, impede or impose conditions for the use of a Radio Remote Control on the Machine, or which could effect it being used correctly and safely should be evaluated.
- The radio link between the two Units can be interrupted (see paragraph 8.2.3Description of the radio link).
- all the information regarding the installation, use and maintenance supplied by Elca should be taken into consideration (see paragraph 8.6, paragraph 9.2 and paragraph 13.1 ).
- there is a delay between the release of a command in the Transmitting Unit and the deactivation of the relative output in the Receiving Unit (see paragraph 7.3).

- there is a delay between the activation of a command in the Transmitting Unit and the activation of the relative output in the Receiving Unit (see paragraph 7.3).
- additional measures might be needed to protect the actuators (see paragraph 7.4).
- it is possible that a command is activated or deactivated because of electrical and/or mechanical faults.

## 7.3 Delay in the command response time

**In normal conditions, the delay between the activation of a command in the Transmitting Unit and the activation of the relative output in the Receiving Unit requires a time equal to the "Command response time" (typical) indicated in the Technical Data (see paragraph 8.3). In situations where there is a poor quality radio link (for example: interference, range of action reached) this delay can extend up to the "Maximum stop time" indicated in the Technical Data (see paragraph 8.3).**



**It should be remembered that due to the characteristics of the radio medium (for example: interference, range of action reached), the delay between the release of a command in the Transmitting Unit and the deactivation of the relative output in the Receiving Unit can extend up to the "Maximum stop time" indicated in the Technical Data (see paragraph 8.3).**



The Manufacturer of the Machine, the Installer, the Owner, the User and the Maintenance Technician need to make sure that these delays can never lead to a situation of danger in the specific application.

#### 7.4 Unintended activations of the commands

The User should operate the Radio Remote Control correctly, following the use and maintenance instructions.

If the Unit is used correctly, accidental contact with parts of the body of the User or with foreign objects, does not cause the unintended operation of the actuators.

Any action is carried out on the Transmitting Unit, or part of it, in order to operate the actuators in a way other than that indicated in the Manual is an incorrect use of the Radio Remote Control and cause serious damage to Persons and/or property.



The User should use the Radio Remote Control in compliance with the use and maintenance instructions and all applicable Laws, Regulations and Standards, also local, in the country where the Radio Remote Control and the Machine are used, always maintaining control of the Radio Remote Control and the position of use just as described in the specific part of the Transmitting Unit.



The Manufacturer of Machine and/or the Installer should assess and eventually adopt additional protective measures for the actuators (for example: two-hand controls, "dead-man" function) in the case where particular locations, equipment and working modes can create situations of risk and in the case this is required by the applicable Laws, Regulations and Standards in the country where the Radio Remote Control and the Machine are used.

It is possible that a command is activated or deactivated because of electrical and/or mechanical faults, which can affect the Radio Remote Control and/or the Machine.

The Manufacturer of the Machine and/or the Installer of the Radio Remote Control should carefully assess what the consequences of this malfunction are. If the risk analysis requires it, protective measures should be prepared that avert, reduce or signal situations of potential risk.

If a command is activated and/or deactivated because of electrical and/or mechanical faults:

- press the STOP button to put the machine in a safe state,
- disable the Radio Remote Control and cease using the "Machine + Radio Remote Control" system until the problem is solved by means of the required technical intervention.

## 8 Radio Remote Control of the Range MITO

### 8.1 Characteristics

An Elca radio remote control of the MITO range belongs to the selection of industrial remote controls used mainly (but not only) for applications on forest machinery (such as: winches, manure spreaders, pumps, etc.). With a Radio Remote Control it is possible to control the Machine from a remote position and without a physical connection using wifi or connection cables.

The User manages the machine from a distance using a Transmitting Unit (portable) that dialogues with a Receiving Unit (fixed) installed on the Machine itself.

This chapter contains images of the individual units that make up the Radio Remote Control, please look at the parts concerning each Unit.

### 8.2 Frequencies and radio link

#### 8.2.1 Frequencies

The radio link in the Elca Radio Remote Control units, as regards the MITO range, occurs at one of the frequencies in compliance with part 15 of the FCC Rules.

The MITO range operates by using the 920.000 - 921.150 frequency band.

Depending on the specific market there are laws and regulations that establish the frequency with which a Radio Remote Control can operate.

If these laws and standards are not respected, the Radio Remote Control cannot and should not be used.

It is not the responsibility of Elca to check whether the Radio Remote Control is configured during installation and used with a frequency other than that permitted in the country where it is to be used.



The Radio Remote Control is made in such a way that when started it looks for a free frequency to use. The automatic search for a frequency allows a free frequency to be found free from interference. It also allows other apparatus in the vicinity not to be disturbed and vice-versa not to be disturbed by them.

#### 8.2.2 Technical data of the frequency band

| Data  | Value      |
|---|------------|
| Frequencies used in the band<br>920.000 - 921.150 | 24         |
| RF power  | < 3 mW ERP |
| Channel spacing used                              | 50 kHz     |

#### 8.2.3 Description of the radio link

The Transmitting Unit communicates with the Receiving Unit using a radio link.

The system uses electromagnetic waves to transport the control signals. The Transmitting Unit and the Receiving Unit communicate through codified messages that contain a unique code.

Each unit can decode only the messages coming from the Unit that possess the same code. This is to exclude the possibility that another radio apparatus could send commands to the Machine on which the Radio Remote Control is installed.

Each Radio Remote Control operates within and not beyond a certain distance, beyond which the communication between the Units is lost. This distance is called "operating range".



The radio link is sensitive to particular conditions in the environment, like for example the presence of metal obstacles or electromagnetic interference.

If the connection between the Transmitting Unit and the Receiving Unit is interrupted or is incorrect, the system provides that the Receiving Unit commands the Machine to stop.

There are various reasons for an interruption of the connection:

- programmed automatic shut-off;
- Transmitting Unit low battery;
- no power supply to the Transmitting Unit;
- STOP button pressed;
- Automatic connection interruption;
- operating range exceeded;
- presence of metal obstacles.

For the Machine to stop, however, the wiring between the units must have been made correctly.

When the radio link is interrupted all the outputs of the Receiving Unit are disabled. To be able to activate/deactivate the controls of the Machine using the Transmitting Unit the Radio Remote Control must be switched on again.

#### 8.2.4 Radio transmission mode

The radio remote controls of the MITO range have two possible radio transmission modes:

- Continuous transmission: where the radio connection is activated by a specific actuator (START). The connection remains active until another specific actuator (STOP) is activated, or until the transmission is terminated automatically after a predefined inactivity time.
- Temporary transmission: where the radio connection is activated by the enabling of any actuator. The connection remains active until the transmission is terminated automatically after a predefined inactivity time.

#### 8.2.5 Stop

The shut-down is a safety function that puts the Machine in a safe state each time it is necessary to stop it because of a potentially dangerous situation.

The stop function can activate:

- by the operator pressing the red STOP button on the Transmitting Unit (manual mode).
- automatically by the Receiving Unit if the radio link between the Units is incorrect or interrupted (automatic mode).

THE USER MUST ALWAYS PAY THE UTMOST ATTENTION TO THE SAFE AND CORRECT WORKING OF THE MACHINE IN ACCORDANCE WITH THE INSTRUCTIONS AND WARNINGS PROVIDED IN THIS MANUAL, THE INSTRUCTIONS AND WARNINGS IN THE MANUAL OF THE MACHINE AND IN COMPLIANCE WITH ALL APPLICABLE LAWS, REGULATIONS AND STANDARDS, ALSO LOCAL.

THE ACTIVATION OF THE STOP BUTTON OR THE RETURN OF THE ACTUATORS TO THE REST POSITION MIGHT NOT CAUSE THE MACHINE TO STOP IMMEDIATELY.



THE STOP BUTTON MIGHT NOT ACTIVATE A BRAKE. MOREOVER, DIFFERENT MACHINES HAVE DIFFERENT RESPONSE TIMES AND STOPPING DISTANCES. EVEN IF THE STOP FUNCTION IS USEFUL, THE USER SHOULD BE FULLY AWARE OF THE MOVEMENTS AND WORKING AREAS OF THE MACHINE AND SHOULD PROVIDE FOR THE SAFE OPERATION OF THE MACHINE, TAKING INTO CONSIDERATION THESE RESPONSE TIMES AND STOPPING DISTANCES.

FAILURE TO COMPLY WITH THESE INSTRUCTIONS, EVEN TEMPORARILY, CAN CAUSE SERIOUS INJURIES OR DEATH OR DAMAGE TO PROPERTY.



The stop function using the Radio Remote Control is only available if the Radio Remote Control has been started.

Never leave the Transmitting Unit unattended so that there is no doubt about the availability of the stop function.

**The “useful life”, as defined in international standards and requirements, of the stop function is 20 years. in any case, the Radio Remote Control should be replaced before then. The “useful life” cannot be understood as a warranty period.**



After the STOP button is activated in the Transmitting Unit, the Machine is no longer controlled by the Radio Remote Control. The possible risks deriving from the activation of the stop function should be evaluated both by the Installer of the Radio Remote Control as well as by the Manufacturer and the Owner of the Machine on which the Radio Remote Control is installed. The User of the Radio Remote Control should be adequately trained in this regard.

### 8.3 Technical data of the range MITO

| Data                            | Value    |
|---------------------------------|----------|
| Operating range                 | 150 m    |
| Command response time (typical) | < 150 ms |
| Stop time (typical)             | 150 ms   |
| Maximum stop time               | < 1 s    |

The technical data of the Receiving Unit of the MITO range is reported in Part 2 and in the relative connection diagram.

### 8.4 Identification of the Radio Remote Control

The technical data of the Receiving Unit of the MITO range is reported in Part 2 and in the relative connection diagram.

The serial number (Serial Num.) uniquely identifies the Radio Remote Control.

The serial number can be found on the data plate of the Radio Remote Control; each unit of the Radio Remote Control has its own data plate. When sending a request regarding an Elca Radio Remote Control the serial number (Serial Num.) of the Radio Remote Control itself must be provided.

The Serial Num. should be reported in all communications with Elca or with Persons who require information, spare parts or technical data regarding the Radio Remote Control.



Do not remove the data plate on the Units from their position, since removing it will immediately void the warranty. If the data plate has been altered or damaged, contact Elca for a replacement.

### 8.5 Transportation and/or storage

The Radio Remote Control and all its parts should be transported and stored according to the following parameters and environmental conditions:

| Operation      | Temperature         |
|----------------|---------------------|
| Transportation | from -25°C to +55°C |
| Storage        | from -25°C to +55°C |

The original packaging should be kept for the entire life of the product. Use the original packaging for transporting and storing the Radio Remote Control in all the phases of its life, for example before installing and after its removal.

## 8.6 Applications

An Elca Radio Remote Control of the MITO range can be used for various applications: the suitability of the Radio Remote Control for each different application, especially for safety reasons, should be assessed by the Manufacturer of the Machine.

The most common use of the MITO range is with forest machinery (such as: winches, manure spreaders, pumps, etc.). Make a thorough check to ensure the safety characteristics of the radio remote control are coherent with the safety characteristics required by the application.

**An Elca Radio Remote Control should not be installed on Machines whose application or function is not permitted by this Manual or by applicable Laws, Regulations and Standards, also local. THE INSTALLATION OF AN ELCA RADIO REMOTE CONTROL ON OTHER MACHINES OR FOR OTHER FUNCTIONS CAN CAUSE SERIOUS INJURY OR DEATH OR DAMAGE TO PROPERTY.**



Elca is not responsible for, and does not accept any liability for, applications of the Radio Remote Control in situations where safety conditions are poor or non-existent.

The Manufacturer of Machine should assess and eventually adopt additional protective measures for the actuators (for example: two-hand controls, "dead-man" function) where particular locations, equipment and working modes can cause accidental collisions.



**In addition to the above, a MITO Radio Remote Control should not be installed:**

- On Machines operating in environments that require explosion-proof equipment, or in all those situations that carry a risk of explosion.
- On machines for moving, lifting and transporting people, where the characteristics of the machine and the risks linked to its functions and/or linked to the use of a radio remote control do not allow the machine manufacturer to guarantee compliance with all safety requirements. These requirements should be taken into consideration when designing and manufacturing the Machine, also taking into account the use of the Radio Remote Control. The Manufacturer of the Machine can allow the installation and use of the Radio Remote Control on these applications under its own responsibility.
- On Machines that cause or might cause dangerous situations in the event of a stoppage due to the loss of the radio link.
- On Machines that, because of their functions or characteristics and/or risks connected to their use, do not allow the use of a Radio Remote Control in conditions where there are no risks.



- On accessories of any type, when the loss of the radio connection or the deactivation of the commands may cause injury to people or damage to property. The Manufacturer of the Machine can allow the installation and use of the Radio Remote Control for these applications under its own responsibility.
- If the applicable legislation in the country where the Machine is used, and also the local safety regulations and standards, also with reference to safety in the workplace, do not allow the use of Radio Remote Controls for commanding and/or controlling Machines.

**THE INSTALLATION OF AN ELCA REMOTE RADIO CONTROL ON MACHINES AND IN SITUATIONS DESCRIBED ABOVE CAN CAUSE SERIOUS INJURIES OR DEATH OR DAMAGE TO PROPERTY.**

## 8.7 Classification of the controls

This paragraph describes the classification of the controls in the Radio Remote Control: this information is useful during installation and maintenance.

### Type of control: analogue or digital

The commands sent by the Transmitting Unit can be either analogue or digital.

An analogue command generates a proportional output depending on the position of the relative actuator.

A digital command switches the state of the relative output according to the position of the corresponding output. This state can be on or off.

### Name of the commands

All the commands sent by the Transmitting Unit are identified with initials.

These initials are reported in the Position of the controls and in the Connection diagram to be used during installation.

These documents clarify the correspondence between the commands sent by the Transmitting Unit and those available in the Receiving Unit.



## 9 Instructions for the User



**All the instructions and warnings of the Elca Radio Remote Control in this Manual should be read and understood. Failure to understand or follow them can cause serious injuries or death or damage to property.**

### 9.1 Use of the Radio Remote Control and operating conditions

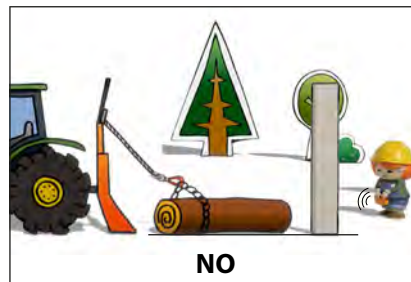
For the correct use of the Radio Remote Control all the warnings and instructions in the Manual must be respected. It is also necessary to comply with what is reported in the documentation of the Radio Remote Control and the Machine on which the Radio Remote Control is installed. It is necessary to comply with all workplace safety and accident prevention regulations.

Finally, all applicable Laws, Regulations and Standards, also local, must be respected.

Below are some examples of behaviours to be avoided in using the Radio Remote Control.

These examples are given purely by way of example and do not cover all possible incorrect uses of the Radio Remote Control.

It is the responsibility of the Manufacturer of the machine and the User to evaluate and establish any measures for avoiding the possible incorrect use of the Radio Remote Control or the Machine.



### 9.2 General warnings for the User

The User should:

- check that the units of the Radio Remote Control are undamaged and operational;
- keep the Transmitting Unit safe so that it cannot be used by unauthorised or unqualified personnel;
- check that the STOP button is working correctly;
- check that the controls of the Machine are working correctly;
- immediately notify superiors and/or managers of the workplace and/or the Machine of any faults, subsidence, deterioration of any other fault that could cause the Radio Remote Control and/or the Machine to malfunction or that could injure Persons and/or damage property;
- not the Radio Remote Control if it is damaged or if the controls are not working correctly;

- use the Machine on which the Elca Radio Remote Control is installed only in accordance with the measures and instructions provided by the Manufacturer of the Machine and in compliance all applicable Laws, Regulations and Standards, also local;
- turn off the Transmitting Unit whenever work is suspended, even momentarily;
- respect all the instructions and warnings provided by the Manufacturer of the Machine and/or the Installer;
- respect all the instructions and warnings provided by the person responsible for starting up the Machine for work;
- respect all the instructions and warnings contained in the Manual of the Radio Remote Control;
- use the Radio Remote Control only as described in this Manual, as explained in all the warnings and instructions provided by Elca and in any event not contrary to all the applicable Laws, Regulations and Standards, also local;
- be aware of its work application and as a consequence implement all the operating instructions received in relation to that;
- use the Radio Remote Control only if in a good mental and physical condition;
- use the Radio Remote Control to move the Machine correctly;
- use the Transmitting Unit gripping it with both hands or using support devices (belt, sheath etc.) for the Transmitting Unit supplied by Elca;
- use the stop devices of the Radio Remote Control or the Machine if any dangerous situation arises, also unrelated to the use of the Machine;
- use the transmitting Unit only if there is no risk of falling, loss of control or contact with Persons and/or objects;
- pay attention to the indicator lights of the Transmitting Unit;
- respect any safety distances connected to the use of the Machine in order to avoid potential and/or real situations of risk.

- respect any safety distances connected to the use of the Machine in order to avoid potential and/or real situations of risk.

The User should not:

- use the Radio Remote Control if not fully aware of the instructions and warnings of the Radio Remote Control or if no suitable training has been received from qualified personnel;
- use the Radio Remote Control if you suspect a malfunction of the Radio Remote Control, the Machine or a component;
- use the Radio Remote Control if the labels, symbols and/or the warnings are dirty, worn or illegible;
- use the Radio Remote Control in conditions that do not allow the Transmitting Unit and/or the Machine to be controlled correctly;
- use the Radio Remote Control and carry out other operations, like for example using other Machines and/or other devices (telephone, computer, keyboards, information technology or audio-visual appliances, radio-telephone etc.);
- eat or drink when using the Radio Remote Control;
- tamper with the Transmitting Unit, including its components and controls;
- alter the labels, the warnings and everything on the Transmitting Unit panel;
- allow unauthorised persons and/or those who are not adequately trained to use the Radio Remote Control;
- leave the Transmitting Unit exposed to the possibility of being used, damaged or tampered with by unauthorised persons.



OBSERVE ALL FURTHER INFORMATION, INSTRUCTIONS OR WARNINGS CONTAINED IN THIS MANUAL.

### 9.3 Environmental conditions of use

The environmental conditions of use of the Elca Radio Remote Control are the following:

| Unit              | Temperature         |
|-------------------|---------------------|
| Transmitting Unit | from -25°C to +55°C |

### 9.4 Warnings before starting work

Before starting work with the Radio Remote Control the User should:

- get in a position that allows both direct control of the Machine and also the movement of the load;
- get in a safe position with respect to the load, the Machine and any other activity, operation of the workplace;
- get in a work position where you will not lose your balance or stumble;
- check that the STOP button mechanism is working correctly;
- use the Transmitting Unit only for its intended purpose or operating requirements;
- learn the correspondence between the actuators and the operations of the Machine.

The User should not:

- switch on or use the Radio Remote Control in enclosed spaces or places with poor visibility;
- use the Radio Remote Control if it is outside the operating range.



Failure to comply with the points above can lead to a connection between the Units of the Radio Remote Control that is not optimal, with the risk that the Machine carries out undesired commands.



The symbols on the Transmitting Unit panel have been chosen by the Manufacturer of the Machine and/or the Installer based on the use and purpose of the Machine.

### 9.5 Warnings during normal use

During normal use the User should:

- pay attention to the work area and any dangerous situations present;
- visually check all the movements of the Machine and the load;
- stay within the operating range of the Radio Remote Control;
- pay attention to the visual and acoustic signals of the Radio Remote Control;
- use the Radio Remote Control to move the Machine safely, to avoid creating dangerous situations for Persons and/or property;
- switch off the Transmitting Unit and disconnect the power supply to the Receiving Unit in the event of a malfunction;





- immediately notify superiors and/or managers of the workplace and/or the Machine of any malfunctions;
- use the Radio Remote Control only after solving and problems and/or malfunctions;
- use the Radio Remote Control only with a fully charged battery;
- end any dangerous operations as soon as possible in the event of a low battery;
- use any holster, belt for the Transmitting Unit to prevent the Unit falling or accidentally activating the actuators.

## 9.6 Warnings for after its use



### Warnings for after its use

- avoid leaving the Machine in dangerous conditions (for example with a suspended load);
- prevent unauthorised or unsuitable trained persons from using the Radio Remote Control.

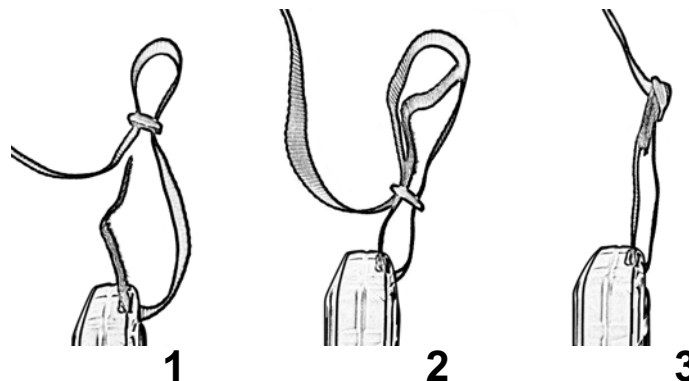
**FAILURE TO COMPLY WITH THESE INSTRUCTION CAN CAUSE SERIOUS INJURIES OR DEATH AND/OR DAMAGE TO PROPERTY.**

## 9.7 Belt

The transmitting unit is supplied with a belt.

### Assembly

Before using the Radio Remote Control the User should connect the belt to the Transmitting Unit, as described in the following procedure.



**The User should use the belt with the Transmitting Unit attached to prevent it falling or actuators accidentally being activated.**