

**METAL DETECTOR**  
**HI-PE Multi-Zone Plus**  
Installation, Programming and Maintenance

**ATTENTION!**

This manual contains the necessary instructions for the CEIA equipment described in the test report attached to the end of the manual itself (Factory Acceptance Test Report). These instructions are not, generally, applicable to equipment different from that described in the test report

# CONTENTS

<b>1</b>	<b>BOOKLET OVERVIEW .....</b>	<b>5</b>
1.1	Contents of the booklet.....	5
1.2	Symbols .....	5
1.3	Acronyms used in this document .....	5
1.4	Warranty conditions.....	5
1.5	Customer Satisfaction Report .....	5
1.6	Revisions .....	5
<b>2</b>	<b>INSTALLATION, USE AND SAFETY INFORMATION.....</b>	<b>6</b>
2.1	General warnings .....	6
2.2	Medical Safety Information.....	6
2.3	Correct and Forbidden Use of the Device and Operating Limits .....	6
2.3.1	Forbidden use .....	6
2.3.2	Operating limits .....	6
2.4	Installation warnings.....	7
2.5	Use warnings.....	8
2.6	Maintenance warnings.....	8
2.7	Disposal warnings .....	9
2.8	Regulatory Information .....	9
2.8.1	Harmlessness to Magnetic Media.....	10
<b>3</b>	<b>DESCRIPTION.....</b>	<b>11</b>
3.1	Operating principle .....	11
3.1.1	Composition .....	12
3.1.2	Control unit.....	12
3.1.3	Power Supply Adapter.....	13
3.1.4	Archway.....	13
3.1.4.1	<i>Lower Connection Module with anti-tamper on/off switch.....</i>	<i>13</i>
3.1.4.2	<i>Upper Connections.....</i>	<i>13</i>
3.1.5	Marking.....	13
3.1.6	Wireless Interfaces.....	13
3.1.7	Transit Counter: Photocells [OPTION] .....	13
3.1.8	Emergency battery with charger and under voltage protection [OPTION] .....	14
3.1.9	Ethernet interface with Web-Server & Logger [OPTION].....	14
3.1.10	Long Life Crossbar Battery Back-Up with charger and under voltage protection [ACCESSORY] .....	14
3.1.11	Available Protection Degree Configurations .....	14
3.1.12	Useful Width [OPTION] .....	15
3.1.13	Light Bar on RX Panel [OPTION] .....	16
3.1.14	Signalling of the horizontal position of the detected metal mass [OPTION].....	16
3.2	Specifications.....	17

<b>4</b>	<b>INSTALLATION .....</b>	<b>19</b>
4.1	Installation procedure overview .....	19
4.1.1	Personnel needed .....	19
4.1.2	Knowledge required .....	19
4.1.3	Components needed .....	19
4.1.4	General rule for replacing a non-functioning component .....	19
4.1.5	Re-installation in case of a movement of the Metal Detector .....	19
4.2	Noting the Metal Detector Data .....	20
4.3	Opening the package .....	20
4.3.1	Pictures and labelling of main components .....	21
4.4	Assembly .....	22
4.4.1	Assembly rules .....	22
4.4.2	Assembly Procedure of the Panel-Shape Version .....	23
4.5	Positioning and Preliminary Layout inspection .....	28
4.6	Power Supply Connection .....	30
4.7	First Power On and Setup .....	31
4.7.1	Power On Sequence .....	31
4.7.6	OTS (One-Touch Self-Installation) .....	31
4.7.6.1	<i>Starting the OTS Procedure</i> .....	31
4.7.6.2	<i>Light Bar Verification</i> .....	32
4.7.6.3	<i>Control Unit Display Verification</i> .....	32
4.7.6.4	<i>Verification of the Photocells</i> .....	32
4.7.6.5	<i>Input Power Supply Verification</i> .....	32
4.7.6.6	<i>Selection of the Security Level</i> .....	32
4.7.6.7	<i>Selection of the Operating Channel</i> .....	32
4.7.6.8	<i>Selection of the Alarm Volume</i> .....	33
4.7.6.9	<i>Selection of the Alarm Tone</i> .....	33
4.7.6.10	<i>Selection of the Transit Direction</i> .....	34
4.7.6.11	<i>Evaluation and Compensation of Environmental Interferences</i> .....	34
4.7.6.12	<i>FGA Adjustment of Gain at ground level</i> .....	34
4.7.6.13	<i>TFV Technical Functionality Verification</i> .....	35
4.7.6.14	<i>General Environmental Noise Measurement</i> .....	36
4.7.6.15	<i>Environmental Electromagnetic Noise Measurement</i> .....	36
4.7.6.16	<i>End of the OTS procedure</i> .....	37
4.9	Final Verifications .....	37
4.9.1	Verification of the Calibration .....	37
4.9.2	Anchoring the MD to the floor .....	37
4.10	Personalisation .....	38
4.10.1	Settings check .....	38
4.10.2	Verification of the User Access Level .....	39
4.10.3	Protecting operational parameters by password .....	39
4.11	End of the installation .....	40
<b>5</b>	<b>PROGRAMMING .....</b>	<b>41</b>
5.1	Programming levels .....	41
5.2	Time out .....	41
5.3	Local programming .....	42
5.3.1	Access to the local programming phase using the password .....	42
5.3.2	Free access to local programming phase without password .....	42
5.3.3	Selection of the functions in local programming .....	43





5.3.4	Command execution in local programming.....	43
5.3.5	Exit from local programming.....	43
5.4	Remote programming.....	44
5.4.1	Serial communication .....	44
5.4.1.1	Serial communication system configuration.....	44
5.4.2	Communication through other types of connection.....	44
5.4.3	Access to the remote programming phase using the password .....	44
5.4.4	Free access to remote programming phase without password.....	44
5.4.5	Command execution in remote programming.....	45
5.4.6	Exit from remote programming .....	45
5.5	Description of the commands.....	45
5.5.1	Summary of the parameters according to their function .....	45
5.5.2	Description of the commands available both in local and remote programming.....	45
5.5.3	Parameters accessible from remote programming only .....	56
<b>6</b>	<b>MAINTENANCE.....</b>	<b>58</b>
6.1	Suggested Maintenance Schedule.....	58
6.2	Diagnosis .....	59
6.3	Troubleshooting.....	60
6.4	Useful Parameters for Remote Maintenance .....	60
6.5	Procedures .....	61
6.5.1	Verification of Compatibility .....	61
6.5.1.1	Inspection of possible sources of mechanical interference.....	62
6.5.1.2	Inspection of possible sources of electrical interference.....	65
6.5.2	Procedure for positioning the unit through ENM command in case of environmental interferences .....	67
6.5.3	Procedure for compensating the environmental vibrations through EVA command .....	67
6.5.4	Battery Replacement Procedure.....	68
<b>7</b>	<b>APPENDICES .....</b>	<b>69</b>
7.1	Auxiliary Electrical Connections .....	69
7.1.2	Ethernet ports.....	69
7.1.3	USB Ports.....	70
7.2	DECLARATION OF CE CONFORMITY.....	71
7.3	Spare parts .....	72

# 1 BOOKLET OVERVIEW

## 1.1 Contents of the booklet

This manual contains all necessary information for a correct installation, programming and maintenance of the described device(s). Please refer to the Operator Manual for the instructions for use of the equipment.

## 1.2 Symbols

	The device is marked with this symbol whenever the operator or the maintenance personnel, in order to avoid possible damage, have to refer to the present manual. The same symbol appears in the booklet at points where warnings or particularly important instructions are given - instructions that are vital to a safe and correct use of the device.
	The device is marked with this symbol in those areas where a dangerous amount of voltage is present. Only specialised maintenance personnel should make adjustments in these areas.
	This sign in the manual indicates tips for optimising the device's performance.
	This symbol printed on the packaging identifies operations that can be properly carried out after reading the related section of the present manual.

## 1.3 Acronyms used in this document

MD	Metal Detector
EMD	Enhanced Metal Detector (Metal Detector with improved detection and discrimination features)
IMM	"Installation and Maintenance" manual (this document)
SAT	Site Acceptance Test: verification of the equipment compliance to the customer requirements during the installation procedure
SAT-SCR	Site Acceptance Test – Service Call Report form
RE-SAT	Repeated Site Acceptance Test: verification of the compliance to the customer requirements of an equipment already installed, in consequence of a service intervention.
FAT	Factory Acceptance Test Report: verification of the equipment compliance to the customer requirements at the end of the manufacturing process

## 1.4 Warranty conditions

The warranty on all CEIA products, extended to the period agreed with the Sales Department, is applicable to goods supplied from our factory, and for every constituent part thereof, with the exception of the batteries and the card reader. Any form of tampering with the device, and in particular opening its container, is strictly forbidden and will invalidate the warranty.

## 1.5 Customer Satisfaction Report

Your suggestions and comments on the products and services offered by CEIA and its distribution network are extremely important for improving our procedures. We would ask you to send them to us /by compiling and returning the form available:

<http://www.ceia.net/security/satisfaction>

Thank you for your kind interest and co-operation.

CEIA reserves the right to make changes, at any moment and without notice, to the models (including programming), their accessories and options, to the prices and conditions of sale.

## 1.6 Revisions

Code	Firmware Version	Date	Author	Reference	Changes
FI056GB60K10v1410	T8RC 1010	2010-11-09	DTP-BC	-	Firmware T8RC 1010
FI056GB60K10v1420	T8RC 1010	2010-11-29	DTP-BC	-	Options Signals adjustment parameters
FI056GB60K10v1430	T8RC 1020	2010-12-22	DTP-BC	-	NETV parameter
FI060K0056v1500	T8RC 1030	2011-08-31	DTP-BC	-	Protection Degrees. Parameters: BAI, CS, ENA, ENM, ENS, GTA, MDO, OTS, WIE. Locked and stand-by modes.
FI060K0056v1700	T8RC 1032	2012-09-07	DTP-BC	-	Indication of incorrect passages and metal+random alarm. Modified/new parameters CAV, CAT, BR, ADB, ATD, GTA, RAM, RAW, RE, RMA, DAD, ADB, ADD, DAT, DAV, IS, LD, L1...L19.
FI060K0056v1710	T8RC 1032	2012-11-29	DTP-BC	-	ENA, ENS parameters.

## 2 INSTALLATION, USE AND SAFETY INFORMATION



READ THESE INSTRUCTIONS BEFORE WORKING WITH THE DEVICE

### 2.1 General warnings

- CEIA cannot be held responsible for any damage resulting from procedures which are not expressly indicated in this manual, or from any lack of attention, either partial or total, of the procedures described therein.
- **Read this manual carefully before installing, operating or carrying out maintenance on the device. Keep the manual in a safe place for future reference, and in perfect condition.**
- Follow the instructions contained in this manual for all operations relating to installation, use and maintenance of the device.
- All personnel operating with or performing operations on the device must have an adequate preparation and shall know the procedures described in this manual.
- Observe current regulations regarding electrical and personal safety for both the operator and the installer when installing the device.
- Any modification to the configuration setup by CEIA is forbidden and voids all warranties and certifications.
- This manual must accompany the device described therein in the case of change of ownership, and until the device is broken up.

### 2.2 Medical Safety Information

#### **Compliance with standards for human exposure to electromagnetic fields**

CEIA Metal Detectors comply with regulatory requirements for human exposure to electromagnetic fields. CEIA submits its devices to testing by bodies qualified to check compliance with the emission limits of the main standards currently in force, which are listed in the section "Conformity to Regulations – Human Exposure to Electromagnetic Fields" (documentation available on request).

#### **General information on use**

The electromagnetic field emitted by CEIA devices is extremely weak, with an amplitude comparable with that of the earth. However, CEIA cannot exclude the possibility that there may be medical devices which impose special restrictions on use. Any recommendation or directive issued by medical personnel or medical equipment manufacturers relating to electromagnetic fields must therefore be implemented. If for any reason a person about to pass through the detector shows fear or refuses to undergo the inspection, it is recommended that the inspection be carried out using an alternative method.

For further information on standard procedures to be followed for inspection of people with implanted medical devices using a metal detector, please consult the ASTM F2401-04 standard "Standard Practice for Security Checkpoint Metal Detector Screening of Persons with Medical Devices" or other relevant directives.

**CEIA is not responsible for direct or indirect harm to people or things due to incorrect use of the Metal Detector.**

### 2.3 Correct and Forbidden Use of the Device and Operating Limits

A Metal Detector is a unit that reacts to the metal masses present on people in transit.

As part of the normal screening process, people are required to walk through the detector archway. A complete analysis requires a complete passage through the archway.

#### 2.3.1 Forbidden use

Any use different from that described in this manual is forbidden.

#### 2.3.2 Operating limits

Refer to the "Technical Characteristics" section.

## 2.4 Installation warnings

- Observe current regulations regarding electrical and personal safety for both the operator and the installer when installing the device.
- Choose the installation site carefully. Avoid placing the device in locations where it may be directly exposed to sunlight, in unventilated areas or in places that are close to sources of heat. In addition, avoid places that are subject to vibrations, dust, humidity, rain and excessively high or low temperatures.
- Installation must be carried out by qualified personnel. Given the dimensions of the device, it is requested that the installation site be kept clear while work is carried out to facilitate setting it up and to avoid any harm to third parties.
- Position the device as far away as possible from sources of electromagnetic interference such as transformers or motors.
- When installation is completed, the detector must be anchored to the ground in a stable manner and not subject to vibrations (use expansion screws inserted through the anchoring holes in the base of the panels). All connecting cables between the gate and the power supply or other external devices must be properly fixed and protected so as to achieve the best performance from the detector and avoid accidental injury to people who might trip over them.
- Handle the device with care and without excessive force during installation, use and maintenance.
- Before powering up the device, check that the mains power supply voltage corresponds to the voltage shown on the device's electrical specifications plate. Verification that the power supply conforms to the specified values plate and to the regulations in force is the total responsibility of the customer.
- The device should be connected to the mains voltage only after all the connections required for full installation have been carried out.
- The device must be connected to a power supply circuit fitted with a switch or other device which allows the power to be cut off.
- If the device is to be powered via an external autotransformer to regulate the voltage, ensure that the common terminal of the autotransformer is connected to the neutral of the power-supply circuit.
- The power-supply plug must only be inserted into a socket fitted with an earth/ground connection.

Any break in the safety conductor, either inside or outside the device, or disconnection of the earth/ground safety terminal, will render the device dangerous. Intentional cutting or disconnection is strictly forbidden.
- Whenever there is any suggestion that the level of protection has been reduced, the device should be taken out of service and secured against any possibility of unintentional use, and authorised service technicians should be called.

The level of protection is considered to have been reduced when:

  - the device shows visible signs of deterioration;
  - the device does not operate correctly;
  - the device has been stored for a long period in sub-optimal conditions;
  - the device has suffered mechanical or electrical stress (shocks, bumps, etc.);
  - the device has suffered severe stress during transport;
  - the inside of the device has come into contact with liquids
- Always remove the plug by hand when disconnecting the power supply cable, never by pulling on the cable.
- If the power-supply adapter is not waterproof: place it in a ventilated position where it is protected from water (rain, condensation, liquid detergents)! There is a risk of electric shocks for people and damage to the equipment.
- This device contains electrical and electronic components, and may therefore be susceptible to fire. Do not install in explosive atmosphere or in contact with inflammable material. Do not use water or foam in the case of fire when the device is powered up.
- To avoid damage due to lightning, fit the power supply line with appropriate surge suppressors.
- Do not use in an explosive atmosphere. Avoid contact with inflammable or explosive material!

## 2.5 Use warnings

- The final user is responsible for selecting the appropriate security level/sensitivity for their application. After this selection has been made, and programming has been adjusted accordingly, it is also the final user's responsibility to verify calibration using the test object(s) appropriate to the level of security selected. Additionally, this test should be carried out periodically to insure no changes have occurred in the equipment. Reference Standards on this argument include documents ASTM C 1270-97 and ASTM C 1309-97.
- The final user is responsible for determining and implementing the appropriate inspection procedures and for the training of personnel involved in carrying them out.
- The information contained in this manual is provided only as a technical reference for use and maintenance, and does not contain operational procedures. For further information on standard procedures to be followed for inspection of people using a metal detector, please consult the guidelines entitled "The Appropriate and Effective Use of Security Technologies in U.S. Schools" by the National Institute of Justice or other relevant directives.
- Handle the device with care and without excessive force during use.
- In case of damage to the Power Supply Unit, input and output cables included, the unit should be returned to a CEIA qualified Technical Assistance Centre or directly to CEIA Headquarters for proper repair or replacement. Do not open, tamper with or attempt to repair the power supply unit or any other part of the device.
- If the device is stored for a long period in temperatures outside the operating range, wait for the temperature of the detector to come back within that range before switching on
- Whenever there is any suggestion that the level of protection has been reduced, the device should be taken out of service and secured against any possibility of unintentional use, and authorised service technicians should be called.  
The level of protection is considered to have been reduced when:
  - the device shows visible signs of deterioration;
  - the device does not operate correctly;
  - the device has been stored for a long period in sub-optimal conditions;
  - the device has suffered mechanical or electrical stress (shocks, bumps, etc.);
  - the device has suffered severe stress during transport;
  - the inside of the device has come into contact with liquids
- Always remove the plug by hand when disconnecting the power supply cable, never by pulling on the cable.
- The standard power-supply adapter is not waterproof: place it in a ventilated position where it is protected from water (rain, condensation, liquid detergents)! There is a risk of electric shocks for people and damage to the equipment.
- This device contains electrical and electronic components, and may therefore be susceptible to fire. Do not install in explosive atmosphere or in contact with inflammable material. Do not use water or foam in the case of fire when the device is powered up.
- Do not use in an explosive atmosphere. Avoid contact with inflammable or explosive material!
- Models with protection covers: make sure that a switch or other device which allows the power to be cut off can be easily operated, as the main switch of the device is not directly accessible.

## 2.6 Maintenance warnings

- Carry out the periodic maintenance regularly (see section on Maintenance).
- Do not wash the device with water, liquid detergents or chemical substances. Use a slightly moist, non-abrasive cloth for cleaning.
- The device must be disconnected from all power sources before undergoing any maintenance or cleaning, and before being moved.
- Read the chapter "Maintenance" carefully before calling the service centre. Whatever the problem, only specialised service personnel authorised to work with CEIA equipment should be called.
- Any damaged parts of the device should be replaced by original components only.
- Important advice regarding any batteries incorporated in the device.
  - When replacing: use CEIA spare parts or batteries with equivalent electrical/mechanical characteristics.
  - Do not open batteries: they may contain a small quantity of potentially dangerous substances.



- Do not short-circuit the contacts: serious risk of burning and breakage!
- Do not dispose of battery in fire: danger of explosion!
- Any maintenance or repair involving the device being opened while powered should be avoided as far as possible: if this becomes inevitable, the operation must be carried out only by qualified personnel who are fully aware of the risks involved.

## 2.7 Disposal warnings

Disposal of parts with environmental impact: follow the regulations in force in the country where the device is being used.

**Important advice regarding any batteries incorporated in the device.** When replacing: use CEIA spare parts or batteries with equivalent electrical/mechanical characteristics. Do not dispose of used batteries in general rubbish bins; use public battery collection facilities as per local regulations, or return them to a CEIA office. If the equipment is to be disposed of, remove the batteries and dispose of them separately..

## 2.8 Regulatory Information

The device described in this manual conforms to the following standards (documentation available on request):

### Electrical Safety

- Canadian Standard - CAN / CSA-C22.2 No. 1010.1 and CAN / CSAC22.2 No. 1010.1B-97 Safety Requirements for Measurement, Control and Laboratory Use, Part 1: General Requirements.
- US Standard - UL 3101-1 1993 Electrical Equipment for Laboratory Use, Part 1: General Requirements.
- International Standard - IEC 61010-1 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use, Part 1: General Requirements.
- OSHA Regulation 1910.147 De-energizing Equipment.

### Mechanical Tests

- IEC 60068-2-27 Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock
- IEC 60068-2-29 Environmental testing. Part 2: Tests. Test Eb and guidance: Bump
- IEC 60068-2-64 Environmental testing - Part 2: Test methods - Test Fh: Vibration, broadband random (digital control) and guidance
- ASTM F 1468 – 04 Standard Practice for Evaluation of Metallic Weapons Detectors for Controlled Access Search and Screening – Section 5.4 Tip Over
- IEC 60529 Degrees of protection provided by enclosures (IP Code).

### Electromagnetic Compatibility

- EN61000-6-1:2007 "Electromagnetic compatibility (EMC) - Part 6-1: Generic Standards - Immunity for residential, commercial and light-industrial environments"
- EN61000-6-3:2007 "Electromagnetic compatibility (EMC) - Part 6-3: Generic Standards - Emission standard for residential, commercial and light-industrial environments"
- EN55022:2006 "Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement";
- EN61000-4-6:2009 "Electromagnetic compatibility - Basic immunity Standard - Conducted disturbances induced by radio-frequency fields - Immunity test"
- EN61000-4-4:2004 "Electromagnetic compatibility (EMC) Part 4: Testing and measurement techniques- Section 4: Electric fasts transient. Immunity test EMC Publication".
- ENV50204:1995 "Radiated electromagnetic field from digital radio telephones - Immunity test".
- EN 61000-4-3:2006+A1 "Electromagnetic compatibility (EMC) Part 4: Testing and measurement techniques - Section 3: Radiated, radio-frequency, electromagnetic field immunity".
- EN61000-4-2:2009 "Electromagnetic compatibility (EMC) Part 4: Testing and measurement techniques- Section 2: Electrostatic discharge immunity test Basic EMC Publication"
- EN61000-4-5:2006 "Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test"
- EN61000-4-11:2004 " Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests"

## INSTALLATION, USE AND SAFETY INFORMATION

- EN61000-3-2:2006 + A1 "Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)"
- EN61000-3-3:2008 "Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current  $\leq 16$  A per phase and not subject to conditional connection"
- FCC 47 CFR, Part 15, Subpart B: 1998, Class B for Power Line Conducted Emissions.
- FCC 47 CFR, Part 15, Subpart B: 1998, Class B for Radiated Emissions.
- CES-003 2004, "Spectrum Management and Telecommunications Policy - Interference-Causing Equipment Standard - Digital Apparatus"

### Human Exposure to Electromagnetic Fields

- ACGIH, 2001 Threshold Limit Value (TLV) for "Sub-Radiofrequency (30 kHz and below) Magnetic Fields"
- IEEE C95.1-1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
- ICNIRP Guidelines 1998 Guidelines For Limiting Exposure To Time-Varying Electric, Magnetic, And Electromagnetic Fields (Up To 300 GHz)", International Commission on Non-Ionizing Radiation Protection, Health Phys. 1998 April, Vol.74, No.4, 494-522
- EC Directive 2004/40/EC of the European Parliament and of the Council on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields), 29. April 2004
- EN 50364 (Oct. 2001): Limitation of human exposure to electromagnetic fields from devices operating in the frequency range 0 Hz to 10 GHz, used in Electronic Article Surveillance (EAS), Radio Frequency Identification (RFID) and similar applications.
- EN 50357 (Oct. 2001): Evaluation of human exposure to electromagnetic fields from devices used in Electronic Article Surveillance (EAS), Radio Frequency Identification (RFID) and similar applications.
- European Council Recommendation 1999/519/EC on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz), 12. July 1999
- Safety Code 6, 1999: Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency range from 3 kHz to 300 GHz, Health Canada
- RPB-SC18, 1976: Recommended safety procedures for the selection, installation and use of active metal detectors, Health Canada
- CFR PART 1910.97 Occupational Safety and Health Standards – Nonionizing radiation.

### 2.8.1 Harmlessness to Magnetic Media

The device is safe for items carried by people, including all common magnetic media such as magnetic cards, floppy disks and tapes (conforming to NIST - NBS 500-101 "Care and Handling of Computer Magnetic Storage Media").

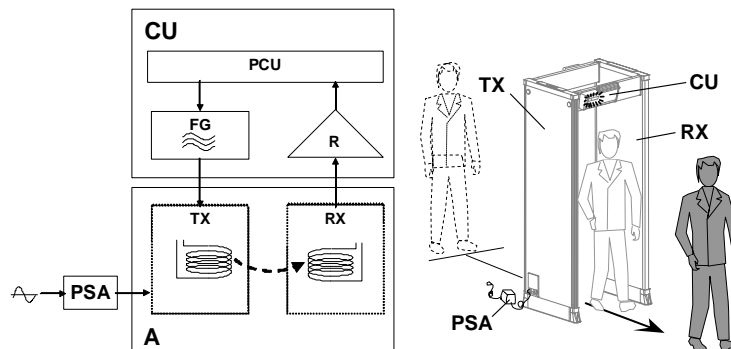
## 3 DESCRIPTION

### 3.1 Operating principle

A **Metal Detector** is a unit that reacts to the metal masses present on people in transit.

The Metal Detector comprises:

- a **control unit CU**, made up of :
  - a variable magnetic **field generator FG**
  - a **receiver R**
  - a **processing and control unit PCU**, which determines if the variation of the received signal is due to metal masses in transit of a certain shape, volume or composition
- a **transceiver antenna A** in the form of an archway, made up of :
  - a transmitter part **TX**
  - a receiver part **RX**
- a **power supply adapter (PSA)**



Block diagram of a metal detector

As part of the normal screening process, people are required to walk through the detector archway. A complete analysis requires a complete passage through the archway.

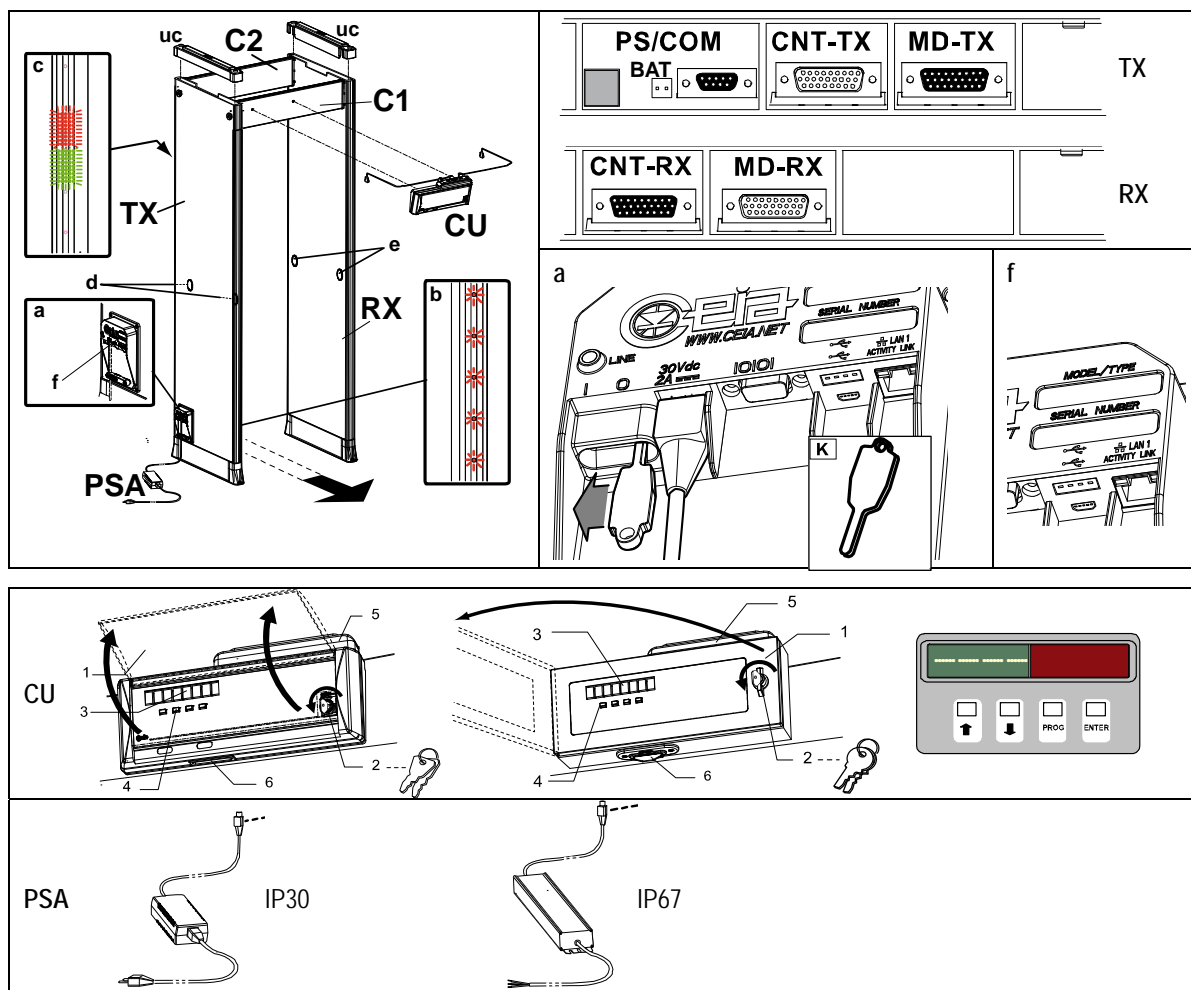
The equipment is calibrated by maintenance technicians according to the Security Responsible Authority requirements: therefore, an alarm is given (by means of various signals) if a person walks through the unit carrying more metal than the standard amount specified by the Security Responsible Authority.

Normal quantities of keys, coins, belt buckles and other personal objects are discriminated and do not give any alarm.

Furthermore, the Metal Detector could also give an alarm signal if people walk through carrying other sizeable metallic objects, such as cellular phones, multimedia players.

## DESCRIPTION

### 3.1.1 Composition



**CU** Control Unit

**TX** Transmitter antenna, called hereafter “TX”

a Lower Connection Module with anti-tamper on/off switch

b Zone indication light bar: in the case of an alarm, the bar located indicates the position of transit of the metal mass intercepted inside the archway.

c Entry pacing lights

d Photocells for transit counting (option)

**RX** Receiver antenna, called hereafter “RX”

b Zone indication light bar: in the case of an alarm, the bar located indicates the position of transit of the metal mass intercepted inside the archway. (option)

c Entry pacing lights (option)

e Reflectors for transit counting (option)

f Label with reference data (model and serial number)

**C1** crossbar fitted with holes for mounting the control unit

**C2** crossbar without holes

**PSA** Power Supply Adapter

**K** ON/OFF special key

### 3.1.2 Control unit

The control unit, which is extremely compact, is designed to be attached directly to the crossbar of the archway. The control unit is available in plastic casing or metal casing.

1 transparent panel

2 security lock

3 alphanumeric display, divided into two sections, the left part is green and the right one is red.

4 programming keypad

5 protection cover of the connections

6 slot of the chip card reader

### 3.1.3 Power Supply Adapter

**Indoor use:** protection degree: IP30 (IEC60529). Input voltage: 100-240 V~, -10% / +15%  
Dimensions: 145mm x 76mm x 45mm (LxWxH). Weight: 0,9 kg. Cable length: input side: 3m.  
output side: 2m. Available input plugs: CEE, UL 15P, UL I5-15P, UK.

**Outdoor use:** protection degree: IP67 (IEC60529). Input voltage: 100...240V ~, -10/+15%,  
47...63 Hz. Dimensions: 210mm x 68mm x 40mm (LxWxH). Weight: 1.3 kg. Cable length: input  
side: 2m; output side: 2m. The input side cable is not fitted with plug, to allow passing it inside  
conduits.

### 3.1.4 Archway

The archway consists of two treated panels containing the windings and the connectors to the control unit. A special protective boot renders the base of the archway waterproof, and therefore fully insulated even in the event of wet floors.

#### 3.1.4.1 Lower Connection Module with anti-tamper on/off switch

**LINE:** power indicator

**30Vdc:** power-supply input connector

**|0|0|:** serial communication port

**I / O :** Anti-tamper on/off switch, activated using a special tool (**K**)

**Connections operating only with Ethernet interface (option) installed:**

**LAN, LAN1:** Ethernet port

: USB port

#### 3.1.4.2 Upper Connections

**MD-RX, MD-TX:** control unit-antenna connections

**CNT-RX, CNT-TX:** auxiliary connectors (for advanced functions)

**PS/COM:** serial communication port and power supply input

**BAT:** emergency battery connector (panel shape version only)

**uc:** upper protection cover

### 3.1.5 Marking

**MODEL/TYPE:** Model

**SERIAL NUMBER:** Serial Number

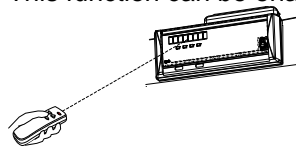
**MAC** address (with Ethernet interface only)

### 3.1.6 Wireless Interfaces

#### Infra Red Interface for Remote Control Unit

This function consists of an Infra Red interface embedded in the Metal Detector control unit. This interface allows the use of a remote control unit which acts as the control unit keypad.

This function can be enabled/disabled by programming.



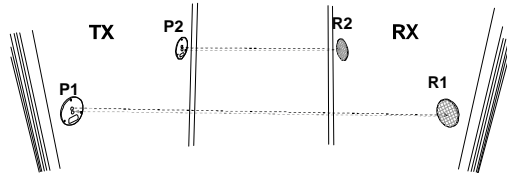
#### Bluetooth Interface

The detector is equipped with a BLUETOOTH™ interface, embedded in the control unit, which allows the wireless connection to a PC for service operations. The detector operation is not affected by the data communication process. Range distance (typical): 5m. This function can be enabled/disabled by programming.

### 3.1.7 Transit Counter: Photocells [OPTION]

The photocell system is composed of two photocell modules, built into the Transmitter Antenna, and two retroreflectors, built into the Receiver Antenna. They allow counting of people passing through the archway.

## DESCRIPTION



P1, P2: Photocells; R1, R2: Reflectors

### 3.1.8 Emergency battery with charger and under voltage protection [OPTION]

Two emergency batteries, included inside the Lower Connection Module, switch in automatically and allow the independent operation in the event of a mains failure: 40 minutes (standard configuration) – 35 minutes (full option configuration). The batteries recharge automatically when the metal detector is connected to the AC power supply and switched on. Recharge time is about 8 hours. The module provides an audible “flat battery” signal activated when the battery charge goes below the operational limit of the device (signal endurance: about 12 hours).

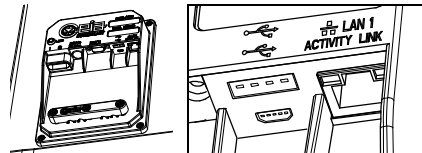
Code: APSM2Plus/P.

### 3.1.9 Ethernet interface with Web-Server & Logger [OPTION]

The Lower Connection Module with Ethernet module has the same features of the APSM2Plus unit, with the following additional functions:

- Built-in 10/100 base T Ethernet LAN interface; it includes an Ethernet port (labelled “LAN1”), a type-A host USB port and a micro-B device USB port (reserved)
- Real/Time clock with battery backup.
- Non-volatile Memory for Metal Detector events storage.
- Web server for set-up and remote data log

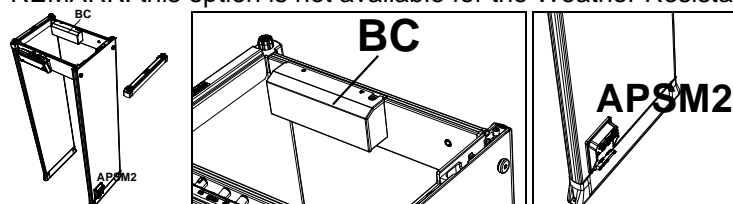
Code: APSIM2Plus/P



### 3.1.10 Long Life Crossbar Battery Back-Up with charger and under voltage protection [ACCESSORY]

This Battery Pack can be attached to the crossbar of the archway. Two 9Ah batteries switch in automatically and allow several hours independent of operation – 7 hours (Full-Option Configuration) / 8 hours (standard configuration) - when mains power is not available. The batteries recharge automatically when the metal detector is connected to the AC power supply and switched on. The Lower Connection Module includes the battery charger and provides an audible “flat battery” signal activated when the battery charge goes below the operational limit of the device (signal duration: about 12 hours). Code: 55681

REMARK: this option is not available for the Weather Resistant and Water Proof configurations.

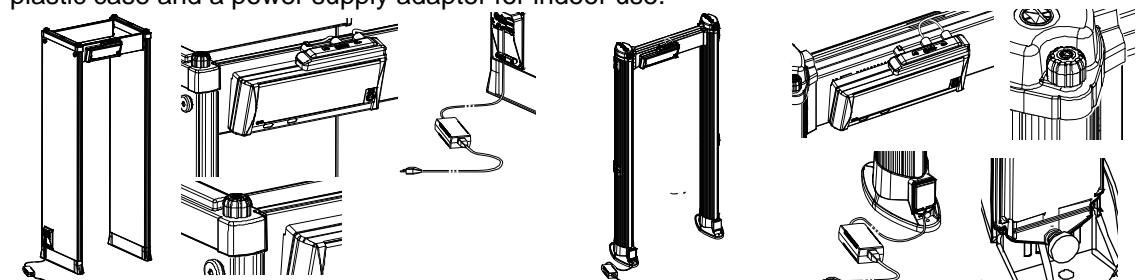


APSM2: Lower Connection Module; BC: Emergency Battery Pack

### 3.1.11 Available Protection Degree Configurations

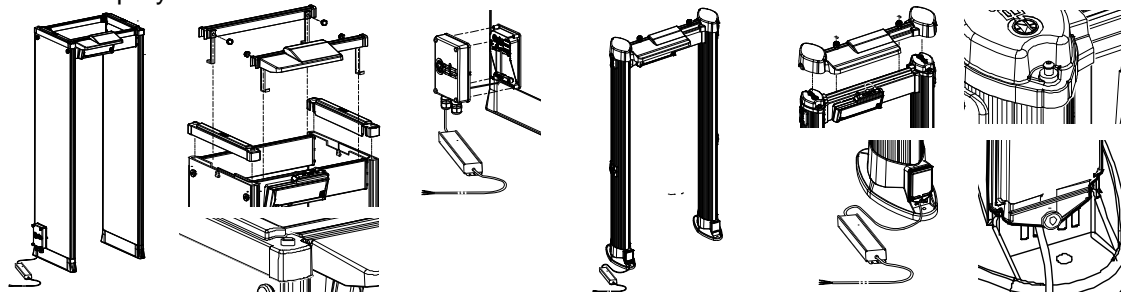
#### Standard Configuration

The configuration version is intended for indoor applications and is based on a control unit in plastic case and a power supply adapter for indoor use.



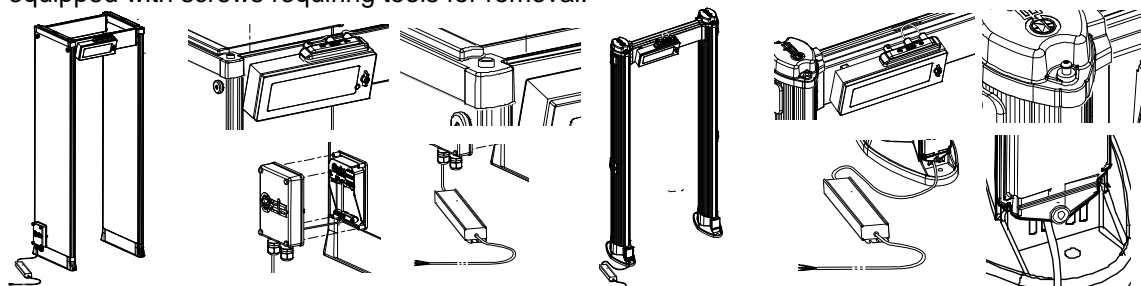
### Weather Resistant Configuration (OPTION)

This configuration is intended for outdoor applications, for instance, under a shelter, and adds to the standard configuration special covers for protecting the connections against the rain. The standard power supply adapter is replaced by the sealed type. The system is compliant with IEC 60950 ("Information technology equipment – Safety Part 22: Equipment to be installed outdoors") - Water spray test.



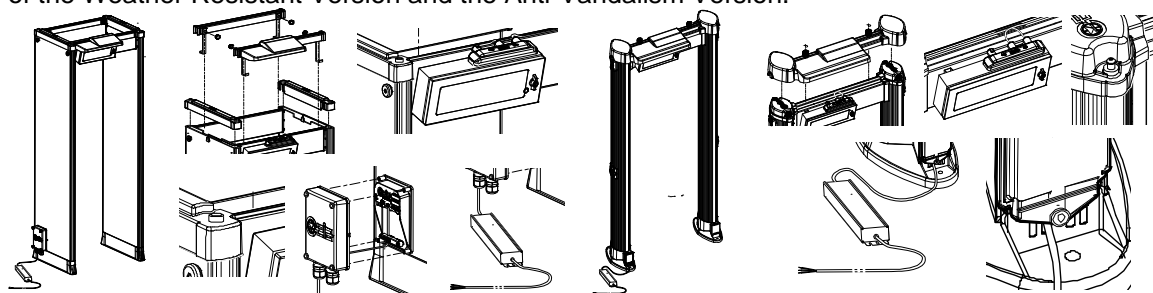
### Anti-Vandalism Configuration (OPTION)

This configuration provides a high anti-tampering protection and is based on a control unit and a power supply adapter in metal case. All archway connections are also protected by covers equipped with screws requiring tools for removal.



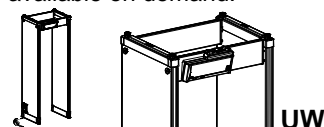
### IP65 (Water Proof) Configuration (OPTION)

This configuration is intended for heavy duty outdoor applications and combines the components of the Weather Resistant Version and the Anti-Vandalism Version.



### 3.1.12 Useful Width [OPTION]

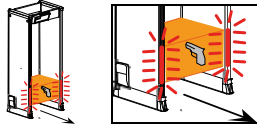
The standard useful width (**UW**) of the archway is 720mm. Optional 760mm and 820mm versions are available on demand.



## DESCRIPTION

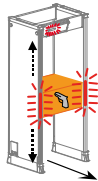
### 3.1.13 Light Bar on RX Panel [OPTION]

The RX panel can include a light bar identical to that of the TX panel. In this case all signal provided by the light bars are duplicated on both left and right side of the archway (power indicator, “ready” signal, alarm zone indication,...)

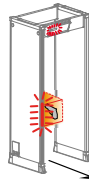


### 3.1.14 Signalling of the horizontal position of the detected metal mass [OPTION]

This feature requires that both panels are fitted with zone indication light bars. In the case of an alarm the two exit side light bars indicate both the vertical and horizontal positions of the detected metal mass.



metal mass on the centre of the archway



metal mass on the left side of the archway



metal mass on the right side of the archway



## 3.2 Specifications

### KEY FEATURES

Wide range of threat detection from guns to ½ cutter blade  
 Excellent discrimination of personal metal effects  
 20 High Precision localization zones (60 zones with left, centre and right indication, option)  
 Met-Identity technology identifies the metal type in real time  
 High precision bidirectional counter with automatic rescreening compensation (option) (option)  
 Chip Card capability for fast, simple, and secure programming  
 Random alarm capability programmable from 0% to 100%  
 Exceptional Immunity to external interferences  
 One touch automatic self installation (OTS)  
 Powered by safe low voltage DC  
 Standard Interfaces: RS-232, Bluetooth, Infrared. Other available interfaces: Ethernet, USB

### QUALITY

Continuous self-diagnostic system  
 Proven reliability  
 No periodic re-calibration and preventive maintenance required  
 No scheduled maintenance  
 Fully digital design

### WALK-THROUGH GATE STRUCTURE

State-of-the-art, robust and washable panels  
 Protected against aging, weather and wear

### CENTRAL CONTROL UNIT

Ergonomic and robust design  
 High visibility alphanumeric display and programming keyboard  
 Made of advanced plastics or stainless steel and anti-vandalism construction (option)  
 Access to the front panel protected by hardware key and two levels of passwords

### ALARM SIGNALLING

#### VISUAL SIGNALS

Multi-zone display bar for “height on person” localization  
 2 (4, option) light bars with selectable entry/exit and pacing indication  
 Green and red metering signals proportional to the mass of the detected target

#### AUDIO SIGNALS

10 selectable continuous and pulsed tone plus 34 special tones  
 10 selectable sound intensities ranging from 0 to 90 dbA at 1m

### TYPE OF SIGNALLING

#### VISUAL

Fixed or proportional to the mass in transit - visible from 6m under lighting of 4000lux

#### VISUAL ZONE INDICATION

2, 4, 8 or 20 independent zones selectable

### PROGRAMMING

Over 40 built-in security programs  
 Remote via RS-232, Infrared Remote Control Unit, Bluetooth™ or Ethernet 10/100 base T (option) interface  
 Local by Control Unit alphanumeric display and keyboard  
 Programming and chip card access protected by user and super-user passwords  
**SECURITY LEVEL:** International Standard (IS) command or Chip card

### OPERATIONAL FEATURES

Quick reset time as short as 0.2 seconds for high throughput rate  
 Very high detection speed (up to 50 ft/sec.)  
 Very high discrimination and transit flow rates

## DESCRIPTION

Built-in operational and technical functional verification  
One-touch key reading of inbound, outbound and Security Level Data

### INSTALLATION DATA

Automatic synchronisation between two or more metal detectors with distance of down to 5 cm without the use of external cables

### ENVIRONMENTAL DATA

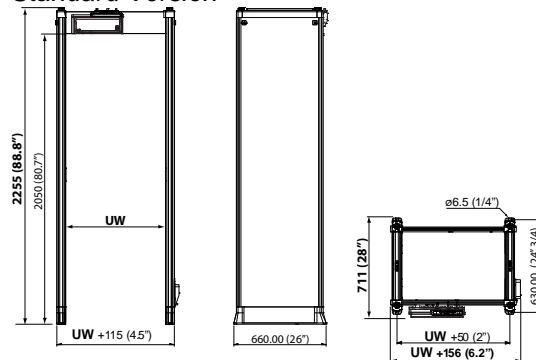
Power Supply: 100...240V~ -10/+15%, 47...63Hz, 30 VA  
Operating temperature: -20°C to +70°C (on demand: -37°C to +70°C)  
Storage temperature: -37°C to +70°C  
Relative humidity: 0 to 95% (without condensation)  
Protection degree: weather resistant configuration: IEC60950-22, water spray test; water proof configuration: IEC60529 IP65.

### CERTIFICATION AND COMPLIANCE

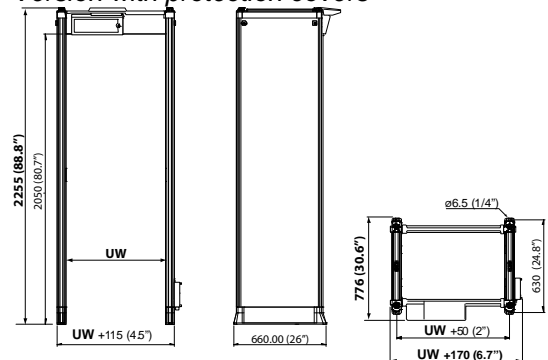
Compliant with the applicable Standards for Enhanced Metal Detectors  
Compliant with the applicable electromagnetic Standards on Human Exposure and pacemaker safety.  
Compliant with all Airport Security Standards worldwide  
Compliant with and certified to the applicable International Standards for electrical safety and EMC  
Harmless to magnetic media (floppy disks, tapes, etc.)

### Dimensions:

*Standard Version*



*Version with protection covers*



UW = 720mm (760mm or 820mm on demand)

## 4 INSTALLATION



Before proceeding to install the device read the warnings and instructions in this section and in the paragraph “**Installation, use and safety information**” carefully. Please note that CEIA is not responsible for any damage that may result from installations that do not follow these guidelines.

### 4.1 Installation procedure overview

#### 4.1.1 Personnel needed

- Two Installers or more
- One authorised Security Representative

#### 4.1.2 Knowledge required

This procedure requires knowledge of the following aspects:

- MD programming procedures: refer to the "Programming" section for the necessary information
- Some MD working parameters: refer to the "Programming" section for the necessary information
- Operating requirements established by the Security Authority

#### 4.1.3 Components needed

- SAT-SCR form, code P1902-0001
- Unpacking:
  - Scissors
  - Pliers
- Phillips screwdriver n.1
- C.E.I.A. FGA & TFV Kit
- C.E.I.A. FGA & TFV Kit
- Metal-free clothes (Clean Tester):
  - Tracksuit
  - Gym shoes
  - No metal personal effects (metal cases, metal watch, ...)
- Anchoring to the floor:
  - Anchoring by means of screws:
    - drill
    - ratchet tightener (socket wrench)
    - expansion anchor with Nr. 12-24 (or M6) screw
- Notebook PC with MDScope software (recommended)
- Tools for Verification of the Calibration (reference test pieces, ...)

#### 4.1.4 General rule for replacing a non-functioning component

Interrupt the installation procedure, replace the non-functioning component and RE-SAT the unit

#### 4.1.5 Re-installation in case of a movement of the Metal Detector

Advance notice must be given to the Security Manager regarding **any movement of the Metal Detector to a position different from that of the original installation**. The operation itself must be performed by technicians trained in the installation and validation of calibration procedures



If the Metal Detector has to be moved to a position different from that of the original installation, it is necessary to repeat the SAT procedure (called RE-SAT procedure), as generally the environmental interference level might vary.

## 4.2 Noting the Metal Detector Data

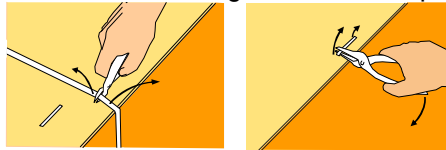
The first thing to do is to enter the MD and installation site data in the first box of the SAT form (SAT-SCR).

The Metal Detector Data are contained in the following documents/labels:

- Configuration Sheet: “FACTORY ACCEPTANCE TEST REPORT” (FAT), appended to the Installation and Maintenance manual (IMM)
- Configuration Form and Packing List, located on the packaging.
- Model, Serial Number and MAC address (with Ethernet interface only), on the Archway labels

## 4.3 Opening the package

Cut the bands using scissors and open the top of the box.



Caution! Before taking out the components, remove the staples that join the strips of cardboard with pliers to avoid injury or damage to the equipment..

### Unpacking

Take the components out of the packing, starting with the small loose parts.



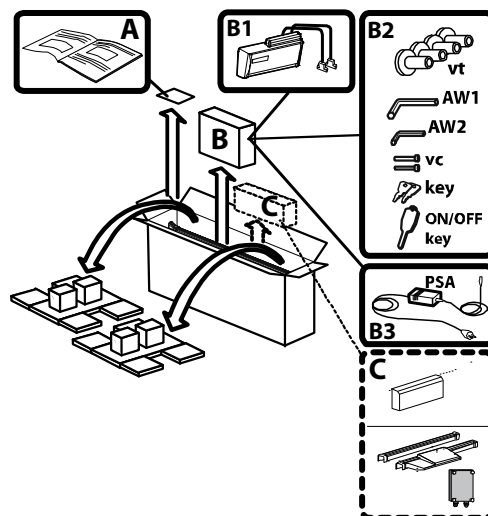
Handle the material with care during unpacking operations!

- A IMM manual (this document)
- B Small parts:
  - B1 Control unit
  - B2 Installation kit
  - B3 AC/DC power supply adapter (PSA)
- C Additional parts

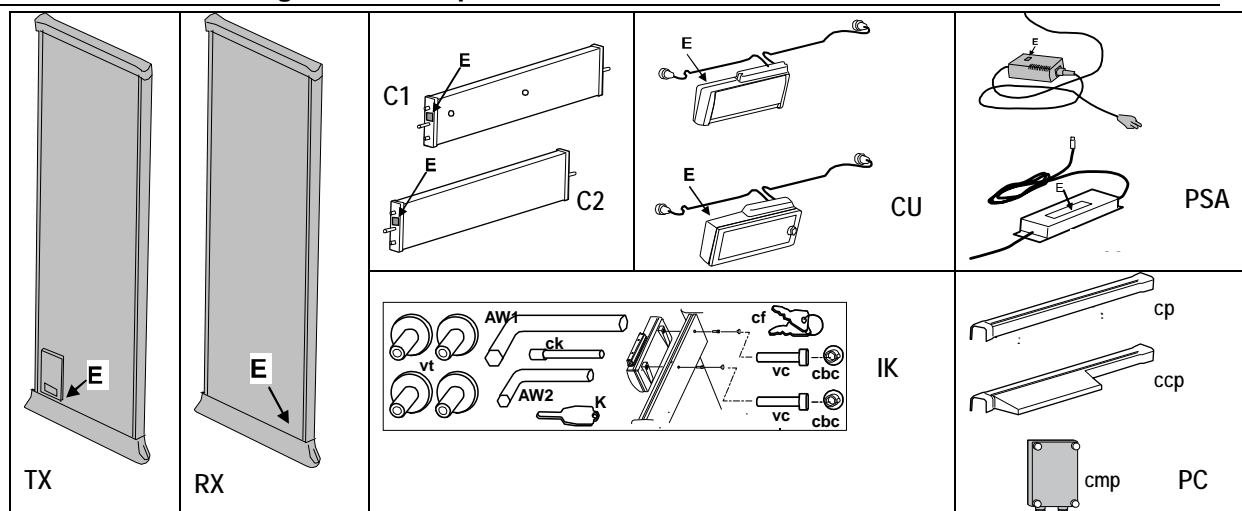
### Parts Inventory

Check that all components are present and undamaged.

Refer to the “Packing List” on the packaging or to the “Factory Acceptance Test Report” appended to the manual.



### 4.3.1 Pictures and labelling of main components



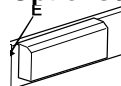
**E:** label with order code

TX TX panel or column  
RX RX panel or column  
C1 Crossbar fitted with holes for mounting the control unit  
C2 Crossbar without holes  
CU Control unit  
PSA AC/DC power supply adapter

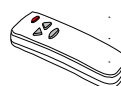
IK Installation kit:  
AW1 Allen wrench for crossbar  
AW2 Allen wrench for control unit  
cbc cap for crossbar fixing holes  
cf key of control unit lock  
ck screwdriver for upper connectors  
K on/off key  
vc control unit mounting screw  
vt crossbar fixing screw

PC Protection covers:  
cmp protection cover of the lower connection module  
ccp protection cover of CU control unit and C1 crossbar  
cp protection cover of C2 crossbar

### Options /Accessories



*Long Life Crossbar Battery Back-Up: battery compartment.*



*Infra-red remote control unit*

## INSTALLATION

### 4.4 Assembly



Please note that CEIA is not responsible for any damage that may result from installations that do not follow these guidelines.

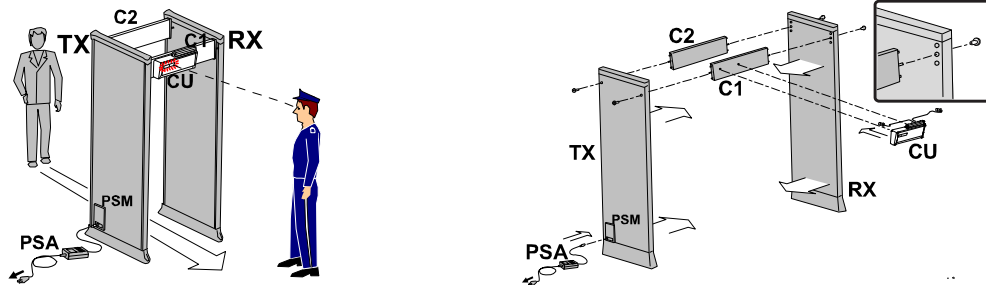


**Holes** It is strictly forbidden to make holes in the Metal Detector antenna or to insert screws in positions, or of lengths, not expressly indicated by CEIA. Damage due to such actions is not covered by the product warranty.

#### 4.4.1 Assembly rules

The control unit CU has to be mounted on the crossbar on the exit side of the gate, as it provides the screener with the alarm signals. The crossbar C1, fitted with holes for mounting the control unit, must be placed so that the control unit is located on the exit side of the gate. The part TX, including the lower connection panel, must be placed facing the available power supply outlet.

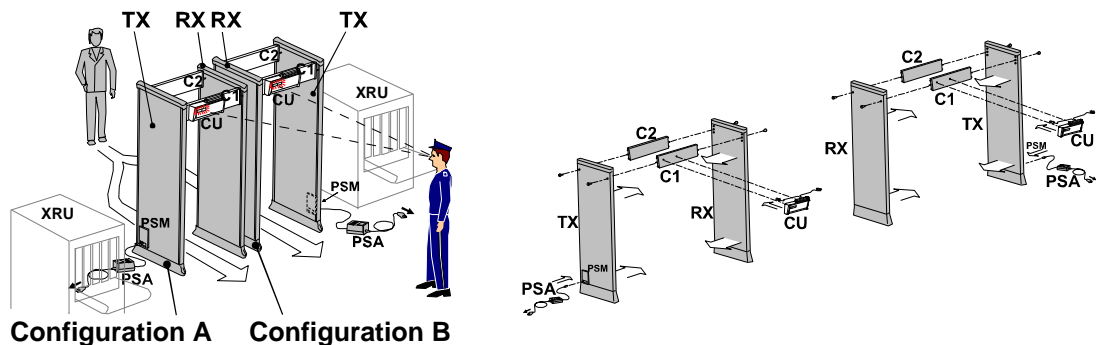
##### Stand alone installation



**Example: archway with TX panel on the left when facing the exit side**

##### Multiple installation

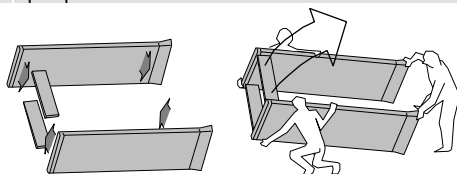
In case of a double installation the TX part must be placed facing the corresponding power supply outlets, usually located on the external sides. The two archways must be assembled in two different configurations (Configuration A or Configuration B), swapping the position of the TX and RX parts.



**Typical application in airport environment, fitted with two Metal Detectors and two X-Ray Units**



It is recommended that the archway is assembled on the floor, in horizontal position. Whenever needed, and specifically when lifting up the assembled archway from the floor and moving it to the final location, two or more people are recommended.

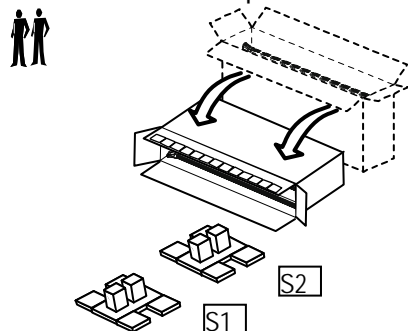


#### 4.4.2 Assembly Procedure of the Panel-Shape Version

##### Positioning the panels

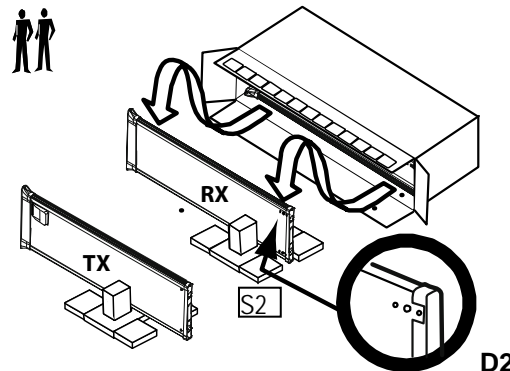
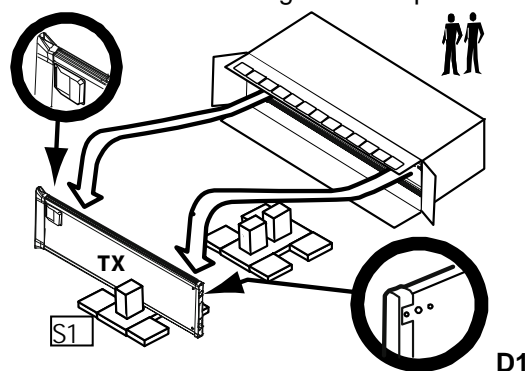
Tilt down the packaging containing the archway panels.

Place s1 and s2 spacers on the floor as illustrated in the figure on the left.



Extract the upper panel (TX) from the packaging and place it on the s1 spacer, making sure that its internal side is facing the packaging. The internal side of each panel is identified by the three holes in the cross-bar mounting area (detail D1).

Extract the lower panel (RX) from the packaging and place it on the s2 spacer, making sure that its internal side is facing the other panel.



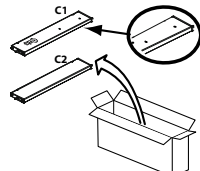
##### Attaching the crossbars.

**ATTENTION!** The crossbars must be attached to the panels, according to the suitable configuration.

##### **Remember:**

- TX panel is identified by the lower connection module, on the external side.
- The internal side of each panel is identified by the three holes in the cross-bar mounting area
- C1 crossbar is fitted with holes for mounting the control unit.
- C2 crossbar has no holes available.

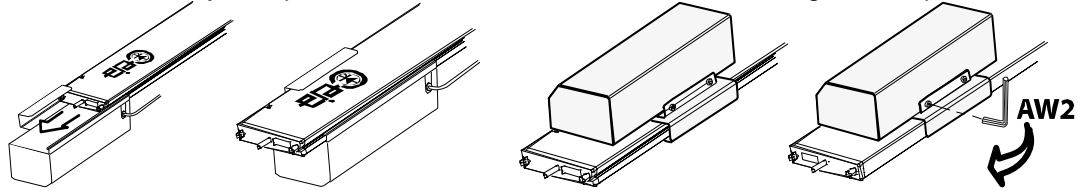
Extract the crossbars from the packaging.



## INSTALLATION

### [OPTION] Version with Long Life Crossbar Battery Back-Up

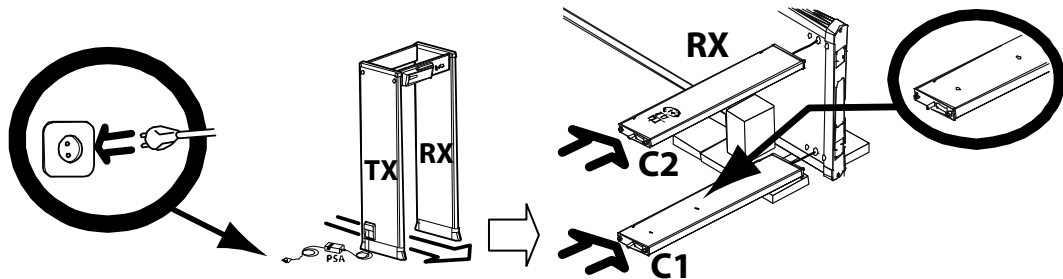
Attach the Battery Compartment to the C2 crossbar, before attaching it to the panel.



#### Configuration A (with TX panel on the left when facing the exit side)

Attach the C1 crossbar with holes to the lower part of the panel, taking care that the CEIA logo is facing the floor.

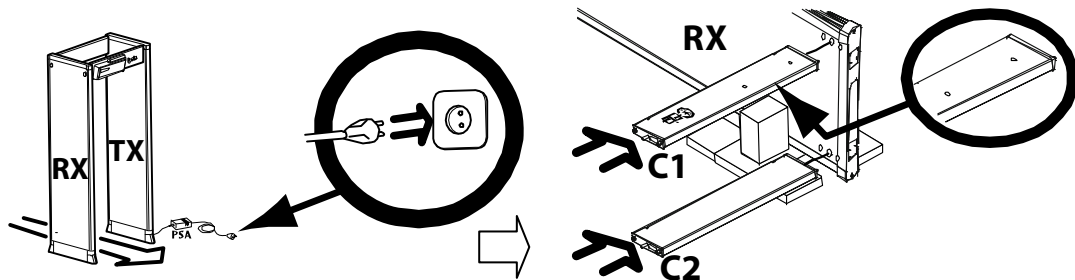
Attach the C2 crossbar with no holes to the upper part of the panel, making sure that the CEIA logo is facing up.



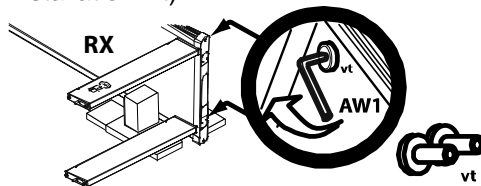
#### Configuration B (with TX panel on the left when facing the exit side)

Attach the C2 crossbar with no holes to the lower part of the panel, taking care that the CEIA logo is facing the floor.

Attach the C1 crossbar with holes to the upper part of the panel, making sure that the CEIA logo is facing up.



Secure the crossbars to one of the panels, using **vt** screws and **AW1** wrench (included in the installation kit).



Approach the other panel and attach the crossbars, using **vt** screws and **AW1** Allen key.





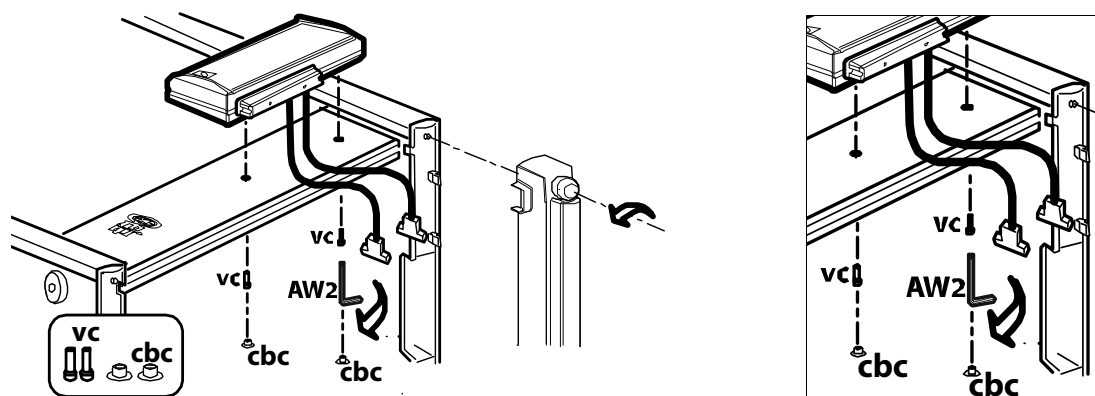
### Attaching the control unit

Remove the protection caps of the panels, to access the inner connectors.

NOTE: the protection caps of the standard protection degree configuration are fitted with locking knobs. For higher protection degrees, the knobs are replaced by screws: use Allen key AW2 to free them.

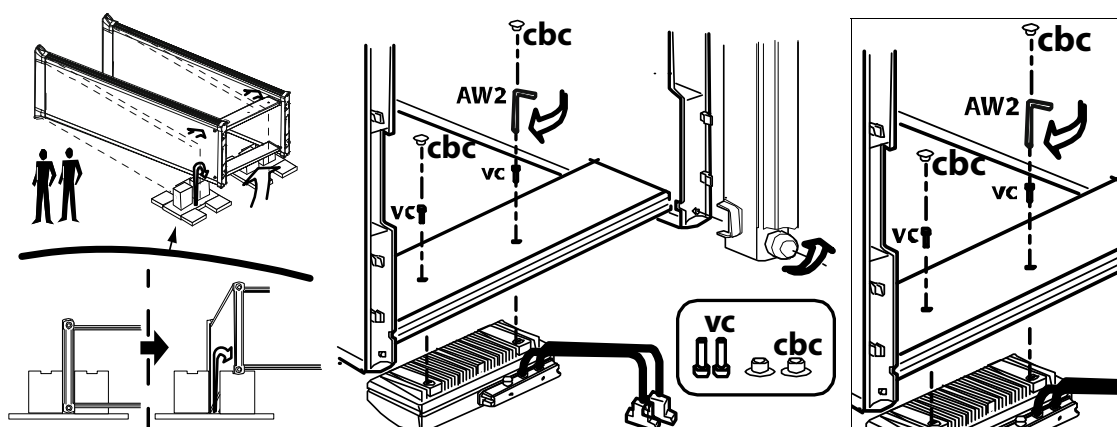
### Configuration B

Attach the control unit to the upper crossbar, using **vc** screws and **AW2** Allen key (included in the installation kit). Cover the entry side of the fixing holes with the **cbc** caps.



### Configuration A

Lift the archway, placing it on the supports S1 and S2. Attach the control unit to the lower crossbar, using **vc** screws and **AW2** Allen key (included in the installation kit). Cover the entry side of the fixing holes with the **cbc** caps.

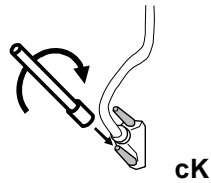


## INSTALLATION

### Connecting the control unit

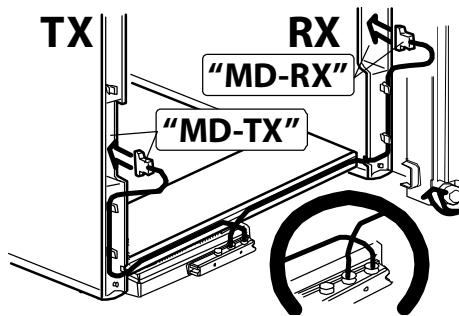
Connect the cables coming from the control unit to the panels, taking care to match the labels of each cable connector with the corresponding panel connector.

Lock the cable connectors, using the short screwdriver **cK** included into the installation kit.

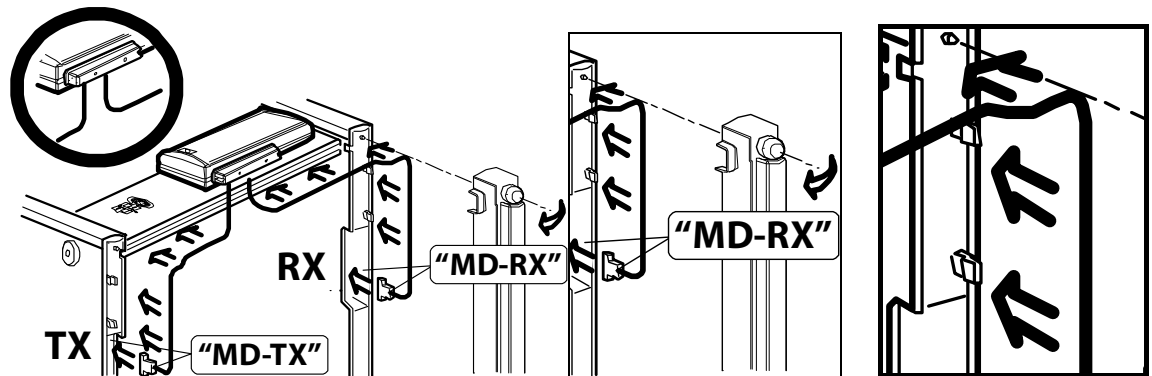


Insert the cables into the crossbar groove. Fix the cables in position using the clips on the panels.

Wind the cable in excess, if necessary. Remount the protection caps.



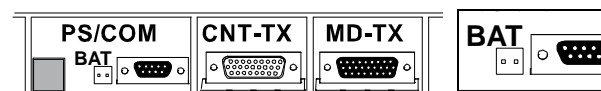
### Configuration A



### Configuration b

#### **[OPTION]** Version with Long Life Crossbar Battery Back-Up

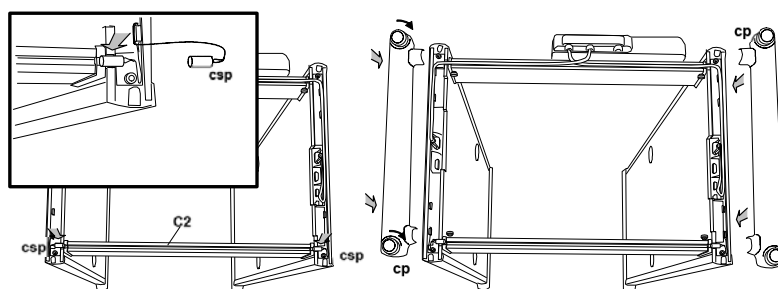
Connect the cable coming from the battery compartment to the 2-pole connector (BAT) located close to the 9-pole D-Sub "PS/COM" connector of the TX panel.



### Version with protection covers

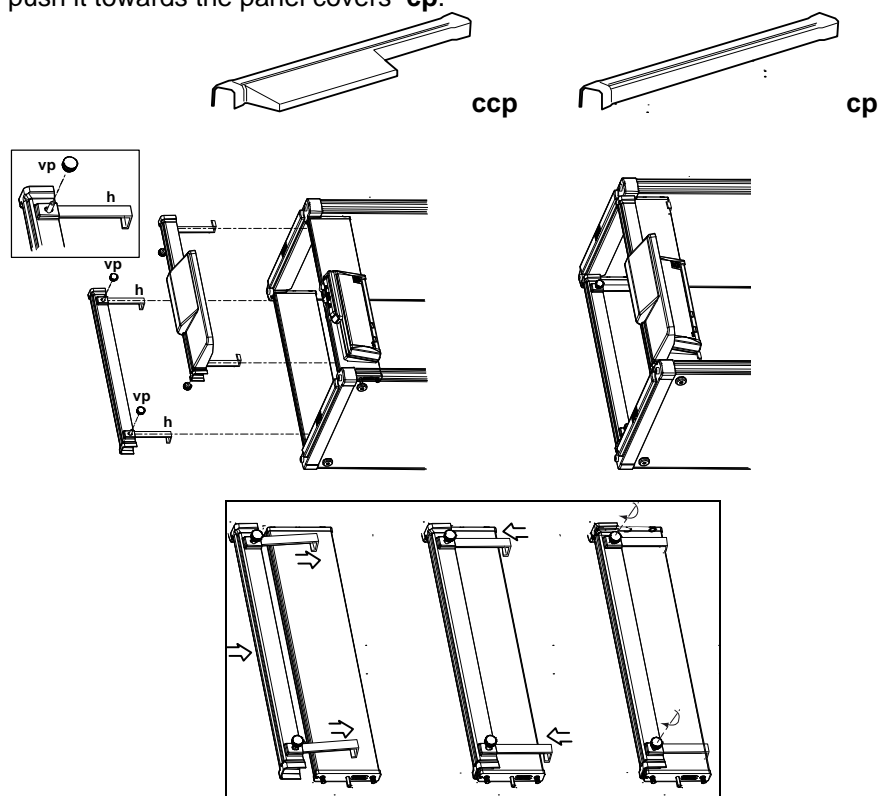
Insert caps **csp** into the grooves of the panels, located close to the crossbar **C2**. Each cap is secured by a short cord to a cable clip.

Remount covers **cp**.



Attach the protection cover **ccp** of the crossbar **C1**, using the hooks **h** and the knobs **vp**, taking care to push it towards the panel covers **cp**.

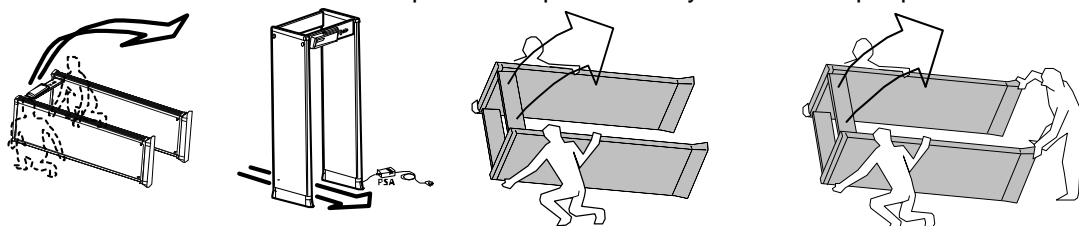
Attach the protection cover **tp** of the crossbar **C2**, using the hooks **h** and the knobs **vp**, taking care to push it towards the panel covers **cp**.



### Lifting the archway up

Lift up the assembled archway from the floor.

Remark: it is recommended that this operation is performed by two or more people.

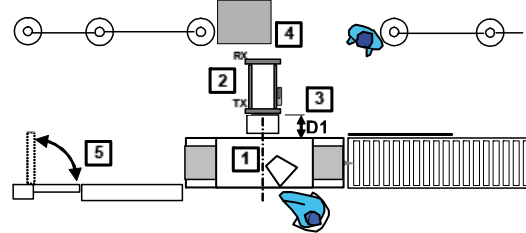


## 4.5 Positioning and Preliminary Layout inspection

### General Rules

- **Transit requirements** The Metal Detector will be positioned, according to the requirements dictated by the transit, in such a way as to allow the maximum flow of people and observance of the rules for installation.
- **Minimum distances - Electrical and mechanical compatibility** Move any possible sources of interference in general away from the metal detector probe: the distance depends on the type and power of the device. The following examples describe some relevant aspects related to the presence of an X-Ray Unit installed close to the Detector.

Examples of possible sources of interference<sup>5</sup> eventuale passaggio per personale di servizio.



Typical Layout of Access Point equipped with an X-Ray Unit

#### 1 MD centring with respect to the X-ray unit

Centre the MD with respect to the X-ray unit, as illustrated in the figure below. When the Metal Detector is centered with respect to the areas where luggage and metal personal effects are deposited or recovered, these objects are unlikely to move close to the device and cause alarms.

#### 2 MD orientation

The archway must be positioned with the TX panel (or column) on the side of the X-ray unit.

The X-ray unit, which is in the immediate vicinity of the EMD, contains two main potential sources of electrical interference:

- the monitor
- the conveyor belt motor

The position shown in the figure below places the RX panel (or column) as far as possible away from the X-ray unit. The RX panel (or column) is the part of the MD that is most sensitive to electromagnetic interference.

NOTE: with this configuration, the power supply socket for the MD must be on the X-ray unit side.

#### 3 Distance between the MD and the X-ray unit

Check the distance between the TX panel (or column) and the X-ray unit.

The X-ray unit is in the immediate vicinity of the MD and may provide several sources of interference:

- the monitor (electrical interference)
- the conveyor belt motor (electrical interference)
- the mechanical components of the conveyor belt (mechanical interference). Example: metal side-panel not firmly fixed

The higher the required security level is, the stronger the influence of the above mentioned sources might be. The distance indicated in the figure below (at least 60 cm) is usually sufficient to render the interference effect of the X-ray unit negligible.

#### 4 Anchoring the MD to the floor

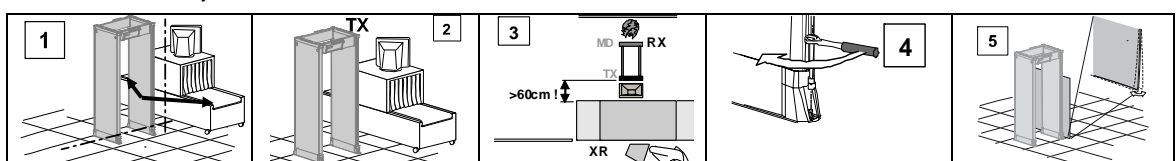
The MD must be firmly anchored to the floor.



ATTENTION: this step must be performed only once the setting and the environmental interference level have been tested and founded to be compatible. Refer to "Anchoring the MD to the floor" section for details.

#### 5 Distance between the MD and metal frames or walls

The Metal Detector is not affected by metal masses, even large ones, as long as they do not move. Check the distance between the archway and metal frames or walls which can vibrate or move or anchor them.

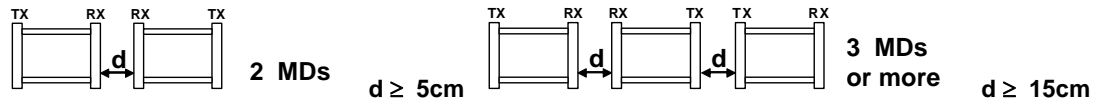


## Multiple installation

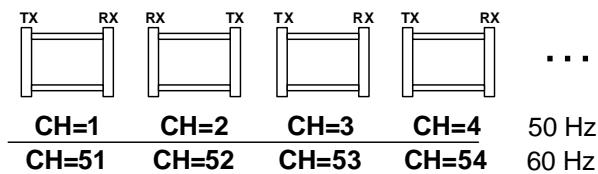
In case of the installation of multiple units it is necessary to respect the following rules, in order to synchronize each unit with the other ones.

### General rules

- Place the MDs following the sequence: TX-RX - RX-TX – TX-RX ...
- Ensure that the distances (“d” in the figure below) between the MDs are not less than the minimum required.



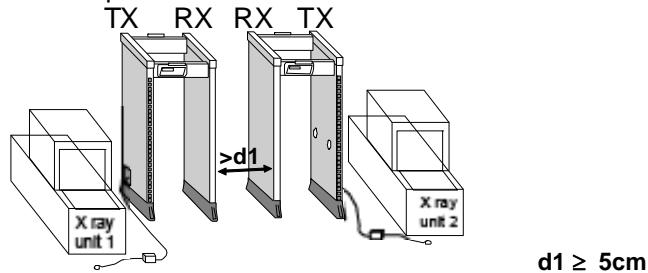
- Enter programming and set a different channel (CH) on each MD, according to its position (this can be performed during the OTS procedure, see the following steps).



## Examples of positioning

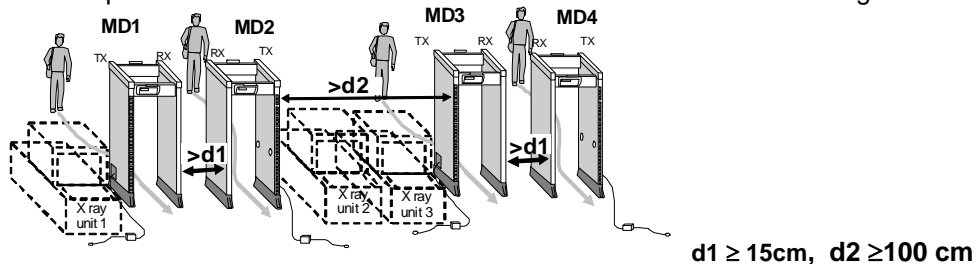
### Installation of two MDs.

- Place the MDs according to the figure below.
- Respect the minimum distance between the MDs indicated on the figure.



### Installation of up to 4 MDs

- Place the MDs according to the figure below.
- Respect the minimum distance between the MDs indicated on the figure.



## INSTALLATION

### 4.6 Power Supply Connection



#### WARNINGS

Check that the voltage supplied by the mains corresponds to the detector's supply voltage: this is indicated on the device's power supply adapter and on the factory test sheet at the end of this booklet. Use of the wrong voltage can seriously damage the Metal Detector.

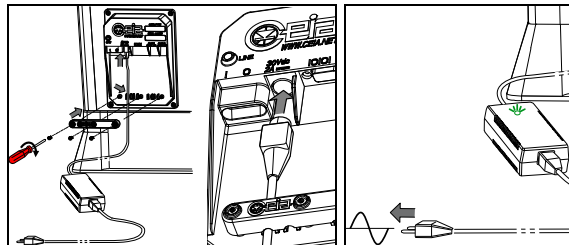
A protection switch should be connected up between the mains supply and the Power Supply Unit. The external grounding line should conform to standards and should not in any case have a resistance greater than 3 Ohm.

All connecting cables between the gate and the power supply or other external devices must be properly secured and protected so as to achieve the best performance from the detector and avoid accidental injury to people who might trip over them.

#### Lower Connection Module

##### Standard Version

- Insert the connector into the "30Vdc" socket in the connection panel.
- **Panel Version:** secure the cable by attaching the strain relief.
- Connect the AC/DC adapter to the mains socket: the LED power indicator on the adapter will light up.

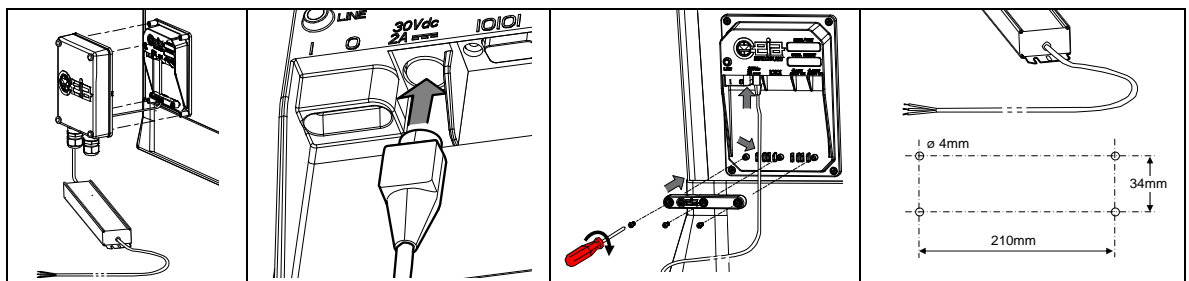


##### Version with protection covers

- Operate as described in the previous step, but passing the output cable of the AC/DC adapter through one of the strain reliefs present on the protection cover.
- Connect the input cable of the AC/DC adapter to the mains (the input cable is not fitted with plug, to allow it to pass inside conduits). NOTE: carry out the wiring ensuring that the overall protection degree of the system is not decreased.

Wire colour	Function
Brown	Line
Blue	Neutral
Green Yellow	Protection Ground

- The diagram below shows the drilling scheme for mounting the AC/DC adapter to a wall.

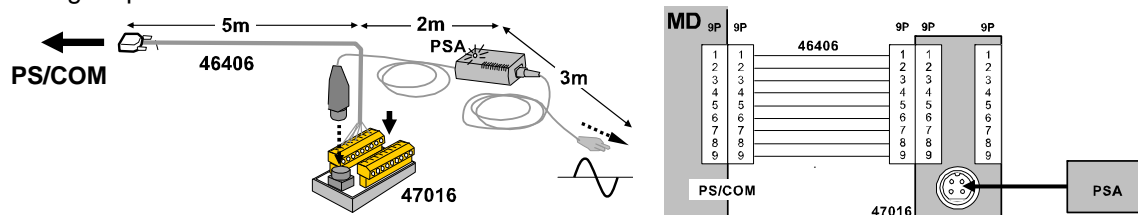


#### Upper Connection Module

**Top Power Extension Adapter (code 46550).** This kit contains a connection module, code 47016, and a 5m length extension cable, code 46406.

- Connect the cable 46406 to the port PS/COM.
- Connect the other end of the cable to one of the 9-pole connectors of the connection module (the two connectors have the same functions).

- Connect the **PSA** AC/DC adapter to the 4-pole connector of the connection module.
- Connect the AC/DC adapter to the mains socket: the LED power indicator on the adapter will light up.



## 4.7 First Power On and Setup

### 4.7.1 Power On Sequence

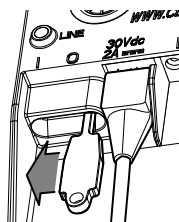
#### Switching on the MD

The ON/OFF switch is located on the lower connection module, at the bottom.

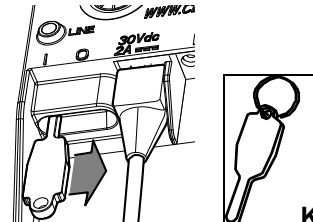
Insert the **K** key into the slot and slide it from "0" to "I" position.

The "**LINE**" power indicator located on the lower connection module should light up.

**NOTE: to switch off the WTMD** insert the key into the slot and slide it from "I" to "0" position.



Switching on the MD



Switching off the MD

At first the display shows:

- manufacturer's name
- the model
- the currently-selected security level
- then a start-up phase begins (message "START UP"). During this phase all main functions of the MD are checked, and the sounder is activated. Under normal conditions the maximum duration of the start-up phase is about 15 seconds
- after the start-up phase the "ready for use" signal appears (four dashes: ).

### 4.7.6 OTS (One-Touch Self-Installation)

The Metal Detector is equipped with an automatic function that guides the installation through a complete and thorough procedure, ensuring that all essential steps are performed. At the end of this, the following objectives are attained:

- making sure that the Metal Detector is working properly
- environmental compatibility is assessed.
- provide means for helping through possible interferences compensation

#### 4.7.6.1 Starting the OTS Procedure

The OTS procedure, according to the factory default settings, starts automatically at the first power on. Alternatively, it can be started through the OTS programming command, using the keypad, remotely or via a chip card

The following message appears on the Control Unit Display:


Run OTS ENTER to continue PROG to exit

## INSTALLATION

### 4.7.6.2 Light Bar Verification

The message “LED BARS LEDs ON” appears on the Control Unit Display.


All the light bars are completely activated. Check their proper operation.


Press  ENTER key to pass to the next step.

**Action in the case of nonconformity:** replace the faulty light bar, interrupt the procedure and RE-SAT the unit.

### 4.7.6.3 Control Unit Display Verification

The message “DISPLAY Pixels On” appears on the Control Unit Display.


Press  ENTER key: the display should be completely on. Check correct functioning of all the dots of the display.




Press  ENTER key to pass to the next step.


**Action in the case of nonconformity:** replace the control unit, interrupt the procedure and RE-SAT the unit.

### 4.7.6.4 Verification of the Photocells

The message “PHOTOCEL Engage EachPhot” appears on the Control Unit Display.  
NOTE: this step can be skipped if no photocells are installed.

Press  ENTER key and cover the photocells in sequence: the display should give the messages indicated below: (a star after the letters “I” or “O”, depending on which photocell has been covered). Note: photocell operation is related to the GD parameter setting

	no photocells engaged
	entry side photocell engaged
	exit side photocell engaged

Press  ENTER key to pass to the next step.


**Action in the case of nonconformity** Replace the photocells, interrupt the procedure and RE-SAT the unit

### 4.7.6.5 Input Power Supply Verification

The message “SUPPLY VOLTAGE” appears on the Control Unit Display.

Press  ENTER key: the reading on the display should be between 22.0 and 37.0 V. This number is the value of the control unit's low-voltage power supply.



	
---	---

Press  ENTER key to pass to the next step.

**Action in the case of nonconformity:** the step fails if the message “VIN FAIL” appears. If the mains voltage is outside the correct range (refer to “Technical Characteristics” section) change to a more suitable power supply source. Otherwise, replace the power supply adapter, stop the procedure and RE-SAT the unit.


### 4.7.6.6 Selection of the Security Level


The message “SECURITY LEVEL Press arrows to select” appears on the Control Unit Display (IS parameter: International Standard).

Press  ENTER key: the current IS setting is displayed. Press the arrows keys to change it, if necessary, and press  ENTER key to confirm and pass to the next step.

### 4.7.6.7 Selection of the Operating Channel

The message “CHANNEL SELECT.” appears on the Control Unit Display.

Press  ENTER key: the message “AutoCS ? Y” appears on the Control Unit Display (CS : Channel Search).

Press  ENTER key to perform an automatic search of the optimal operating channel. Otherwise select “N” (“NO”) by pressing an arrow key to set the operating channel manually (for instance, in case of multiple installation).

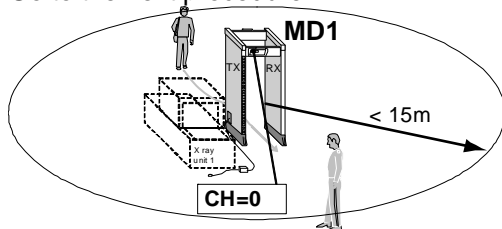


### Automatic channel search – Stand alone installation

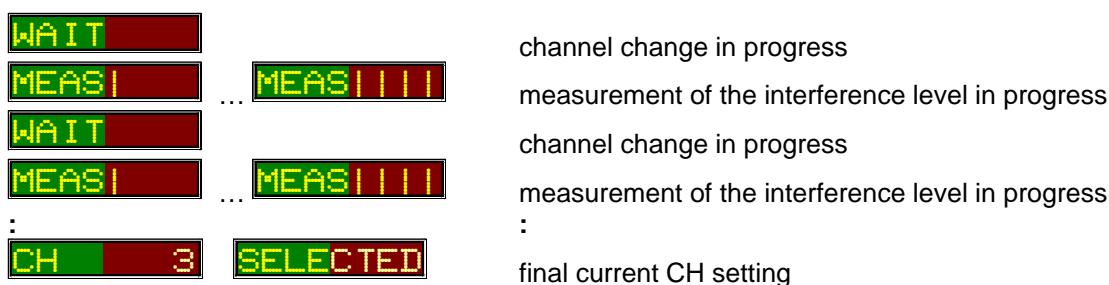
When there is only one MD within a range of 50ft (15m) the standard value **0 (50** for 60Hz power supply), preset in factory, is correct.

NOTE: different values can be set in case of external interferences.

Go to the next procedure.



Press ENTER key: the equipment starts to search a suitable channel (i.e., a channel with a minimum cross-interference with possible electromagnetic sources present in the environment). During the process the current CH setting is displayed (CH parameter: Transmission Channel).



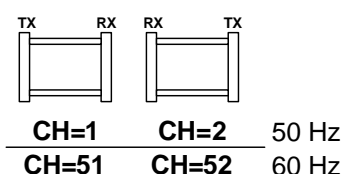
Press ENTER key to confirm and pass to the next step.

### Manual channel setting – Multiple installation

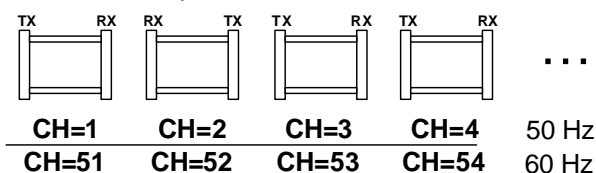
In case of multiple installation set a different channel on each MD, according to its position, in order to synchronize each unit with the other ones.

Examples

Installation of two MDs.



Installation of up to 4 MDs



#### 4.7.6.8 Selection of the Alarm Volume

The message "ALARM VOLUME SELECT " appears on the Control Unit Display.

Press ENTER key: the current AV setting is displayed. Press the arrows keys to change it , if necessary, and press ENTER key to confirm and pass to the next step.




#### 4.7.6.9 Selection of the Alarm Tone

The message "ALARM TONE SELECT " appears on the Control Unit Display.

Press ENTER key: the current AT setting is displayed. Press the arrows keys to change it ,


## INSTALLATION

if necessary, and press  ENTER key to confirm and pass to the next step.


### 4.7.6.10 Selection of the Transit Direction

The message "GATE DIR SELECT. Transit inbound" appears on the Control Unit Display.


Pass through the gate along the desired **inbound direction**: the equipment should set the GD parameter (Gate Direction) accordingly to the photocells readout. Press  ENTER key to confirm and pass to the next step.



NOTE: if the photocells are not installed, select the proper GD value using the arrows keys and press  ENTER key to confirm (GD=1: TX antenna on the left when facing the exit side of the archway, GD=2: TX antenna on the right when facing the exit side of the archway).




NOTE: to repeat the step, change "Y" to "N", using the arrow keys and press  ENTER key to confirm.


### 4.7.6.11 Evaluation and Compensation of Environmental Interferences




This step is not carried out if a customized security level is selected (see also IS parameter) or the specific detector model does not support the ENA function.

The message "ENVIRON ADJUST ." appears on the Control Unit Display.

Press  ENTER key: the message "Run ENA?Y" appears on the Control Unit Display (ENA parameter: Environmental Noise Adjustment).

Press  ENTER key to perform the ENA adjustment.



NOTE: select "N" using the arrow keys and press  ENTER key to skip the ENA adjustment.

The equipment starts to measure the noise level due to possible interference sources present in the environment and changes the settings, if necessary, to minimise it. The process may require several acquisition steps.

 ... 

measurement of the interference level in progress


At the end of the process, the message "ENA END" appears, together with the result: "COVERAGE 100% NOISE < 20%"

Press  ENTER key: the procedure is terminated with a noise verification.

 ... 

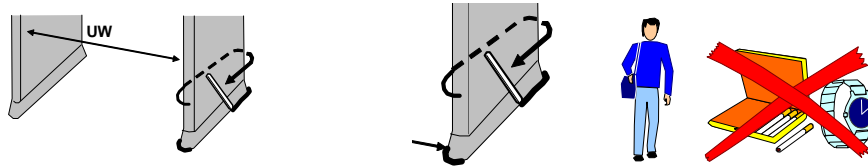
### 4.7.6.12 FGA Adjustment of Gain at ground level

The message "FLOOR ADJUST ." appears on the Control Unit Display.

Press  ENTER key: the message "Run FGA?Y" appears on the Control Unit Display.

#### Preparing the test

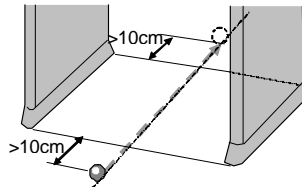
- Ensure that the useful width (UW) of the gate is correct (refer to the "Specifications" section).
- Mark the position of the archway on the floor (for instance, by tracing the outline of the panels with a felt-tip pen).
- The operator must carry out the test without wearing any metal objects!



### Carrying out the passes

**Transit height:** at ground level

**Trajectory:** midline of the gate. The transit should start at least 10cm from the MD entry point and end at least 10cm from the MD exit point. Speed: 0.5...1m/s.



- **First pass.** Bring the sample to the front of the gate in the starting position (at ground level, on the centreline). During this phase the display shows the message "WAIT". When the display shows the message "PASS", perform the transit. Return the test item only after the end of the sound indication (the display shows the message "WAIT")!
- **Second pass.** Bring the sample to the front of the gate in the starting position (at ground level, on the centreline). During this phase the display shows the message "WAIT". When the display shows the message "PASS", perform the transit.

### Positive test result

The test ends by saving the ground level gain setting. The display shows the message "FGA OK".

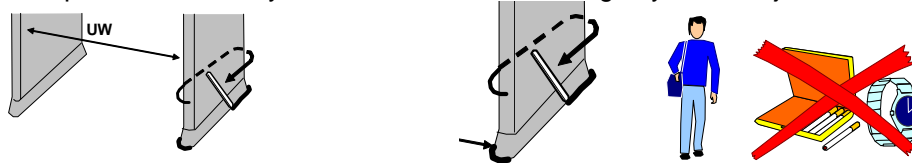
### 4.7.6.13 TFC Technical Functionality Verification

The message "TECHNIC FUNCT. VERIFIC." appears on the Control Unit Display.

Press ENTER key: the message "Run TFC?" appears on the Control Unit Display.

### Preparing the test

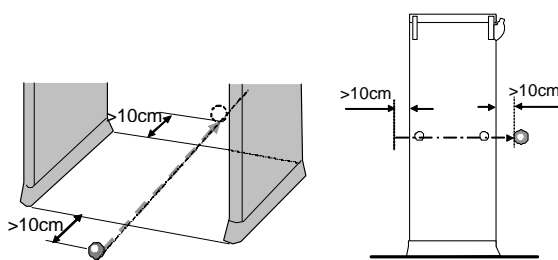
- Ensure that the useful width (UW) of the gate is correct (refer to the "Specifications" section).
- Mark the position of the archway on the floor (for instance, by tracing the outline of the panels with a felt-tip pen).
- The operator must carry out the test without wearing any metal objects!



### Carrying out the passes

**Transit height:** the LED bar built into the transmitter antenna lights up to indicate the height of the passage.;

**Trajectory:** midline of the gate; the transit should be as horizontal as possible. The transit should start at least 10cm from the MD entry point and end at least 10cm from the MD exit point. Speed: 0.5...1m/s.





## INSTALLATION

- Bring the sample to the front of the gate in the starting position, at the height indicated by the LED bar. During this phase the display shows the message “WAIT”. When the display shows the message “PASS”, perform the transit, along the center line, **as horizontal as possible!** Return the test item only after the end of the sound indication.
- Repeat the transits at the heights indicated by the LED bar, till ground.

### Positive test result

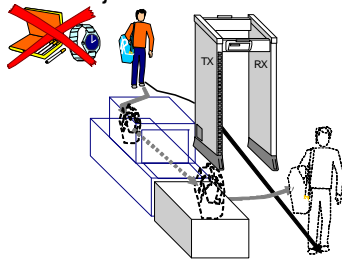
The test ends successfully when the display shows the message “TFV OK”.

#### 4.7.6.14 General Environmental Noise Measurement

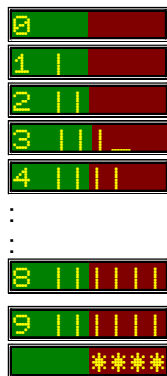
The message “GENERAL NOISE” appears on the Control Unit Display. Press  ENTER key: the message “GN” appears on the Control Unit Display (GN parameter: General Environmental Noise Measurement). Press  ENTER key: the equipment starts measuring the noise level due to possible interference sources present in the environment, both of a mechanical and an electrical nature.

Pass through the MD in the following configuration:

- Eliminate personal metal effects.
- Actuate the whole access system
- Activate any electrical devices that may cause interference
- Subject the objects and furniture in the access system to normal and above-normal stress (hit the furniture, drop a piece of luggage heavily onto the X-ray unit belt, ...).
- Subject the floor to normal and above-normal stress (walk heavily, change direction, ...).



During the test verify the noise level shown on the display:




acceptable interference level

above normal interference level:



the equipment is operational, but a corrective action on any possible interference source around the MD is recommended (see “Verification of the Compatibility” in the Maintenance section).

unacceptable interference level:

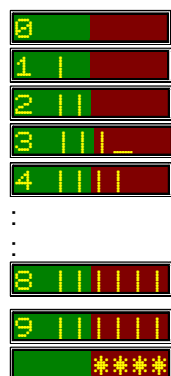
the equipment is NOT operational: a corrective action on any possible interference source around the MD is required (see “Verification of the Compatibility” in the Maintenance section).

Press  ENTER key to pass to the next step.

#### 4.7.6.15 Environmental Electromagnetic Noise Measurement

The message “ELECTR. NOISE” appears on the Control Unit Display. Press  ENTER key: The message “EN” appears on the Control Unit Display (EN parameter: Environmental Electromagnetic Noise Measurement). Press  ENTER key: the equipment starts measuring the noise level due to possible interference sources present in the environment, of an electrical nature only.

Activate any electrical devices that may cause interference (motors, monitors, ...) and verify the noise level shown on the display



acceptable interference level

above normal interference level:  
the equipment is operational, but a corrective action on any possible interference source around the MD is recommended (see "Verification of the Compatibility" in the Maintenance section).

unacceptable interference level:  
the equipment is NOT operational: a corrective action on any possible interference source around the MD is required (see "Verification of the Compatibility" in the Maintenance section).

Press ENTER key to pass to the next step.

#### 4.7.6.16 End of the OTS procedure

The message "OTS END" appears on the Control Unit Display: the procedure is terminated.

Press ENTER key to confirm: the equipment exits the procedure and shows the "ready to operate" message (four dashes).



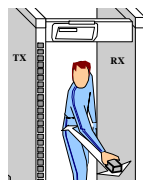
If a relevant improvement of the compatibility is performed during the EN and GN steps (for instance, a source of interference is identified and removed), it is recommended that the OTS procedure is repeated: enter programming and run the OTS command, skipping all configuration and functionality steps. In this condition the ENA process will likely achieve a better result.

## 4.9 Final Verifications

### 4.9.1 Verification of the Calibration

#### Additional SAT Verification Requirements: verification of the detection performance

This step has to be carried out on the basis of any specific detection requirements established by the Customer. Note the name and result of the procedure on the SAT-SCR form.



### 4.9.2 Anchoring the MD to the floor



**ATTENTION:** this step must be performed only once the setting and the environmental interference level have been tested and founded to be compatible.

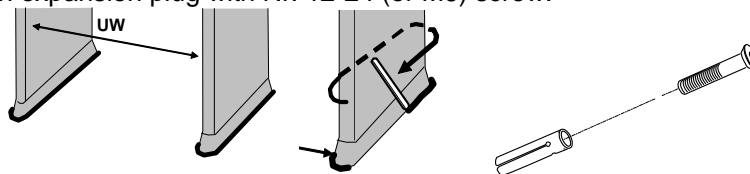
Anchoring the unit to the floor is highly recommended. Anchoring methods shall be agreed prior to proceeding with the following steps.

#### Marble or tiled floors or Carpeted floor - Anchoring with screws

- Ensure that the useful width UW of the archway is correct.
- Ensure that the archway is in the position marked during the previous steps.

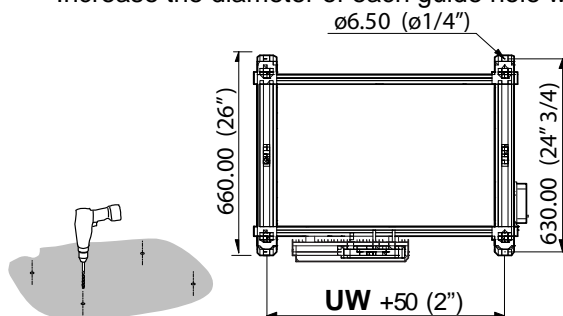
## INSTALLATION

- Use an expansion plug with Nr. 12-24 (or M6) screw.



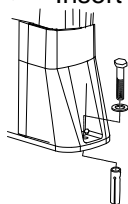
**NOTA** the floor cannot be drilled, use silicone adhesive. In any case, at the end of installation the MD must be stable and not subject to accidental movements or falls.

- For each anchor hole, drill a guide hole of  $\varnothing 6\text{mm}$
- Increase the diameter of each guide hole with a drill bit the right size for the plug to be used.

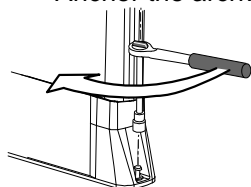


UW: 720mm (760mm or 820mm if applicable)

- Insert the plugs in the holes



- Position the MD so that the anchoring holes correspond to the holes that have been drilled
- Anchor the archway to the ground by tightening the screws completely.



## 4.10 Personalisation

### 4.10.1 Settings check

Enter programming **as Superuser**, entering the password if necessary.

Check that all values match the factory settings (see the "FAT" form supplied with the IMM equipment manual): correct any different values (except for those parameters modified via previous procedures). Make any adjustments according to the authorised security representative's instructions.

Note variations in the parameters on the SAT-SCR form.

Check that the software version is correct.

**NOTE:** the PO setting may vary according to the standard applicable in the country.



PROG

< superuser password > ENTER

```

=AD 1P
=AT 2
:
#PT
      S/N      Software version
      sn 211060250114  PV T8RC1030
      AC filter      ACF = OFF  *Alarm Duration AD = 1P
      Alarm Probab.  AP = 10   *Alarm Tone      AT = 2
      :
      :

```

#### 4.10.2 Verification of the User Access Level

Enter the UP command Scroll all the functions by pressing ENTER. Check that the functions enabled by the UP command are exactly those listed in the FAT form.  
In the case of mismatch, change the value from Y (accessible) to N (excluded) or vice versa (by pressing UP).

**superuser:** access to all functions  
**user:** access to a subset of functions

```

=UC
AC (Y)
:
IS (N)
:
#PT
      sn 209060250114  PV T8RC1030
      AC filter      ACF = OFF  *Alarm Duration AD = 1P
      Alarm Probab.  AP = 10   *Alarm Tone      AT = 2
      :
      :

```

Function disabled at user level:  
no stars before the parameter name

Function enabled at user level:  
a star before the parameter name

#### 4.10.3 Protecting operational parameters by password

Definition of a password at user level

Enter programming at user level and define a new password by means of NP command as indicated by the authorised Security representative.

```

-----
-----
:
-----
000000
100000
:
G00000
G00000
G10000
:
GATE01

```

PROG

↑

↑ selection of 1<sup>st</sup> character

↑

↑

ENTER confirmation of 1<sup>st</sup> character

↑ selection of 2<sup>nd</sup> character

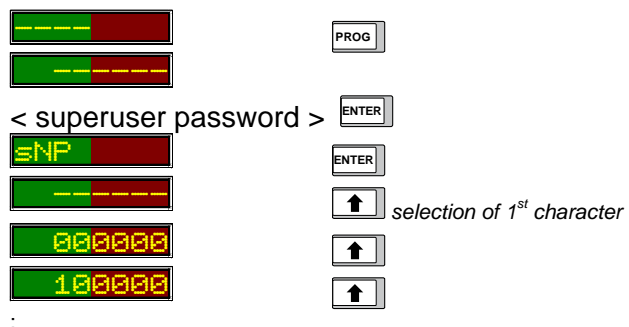
↑

ENTER confirmation of 6<sup>th</sup> character

Definition of a password at superuser level

Enter programming at superuser level and define a new password by means of NP command as indicated by the authorised Security representative.

## INSTALLATION



### 4.11 End of the installation

#### Handover of keys to authorised personnel

Close the control units, hand the keys over to the authorised user and fill in the SAT.SCR form.

#### Noting of the result of the Installation Procedure

Note the SAT total result on the first page of the SAT-SCR form. Sign the SAT-SCR form.



## 5 PROGRAMMING




Before working with the device read the warnings and instructions in this section and in the paragraph “**Installation, use and safety information**” carefully. Please note that CEIA is not responsible for any damage that may result from installations that do not follow these guidelines.


### 5.1 Programming levels

Access to the programming phase may be controlled by a **password** or be unprotected. There are two programming levels: the **super-user (supervisor) level** and the **user (operator) level**.

**super-user level**, accessed by entering the "super-user password":

- In remote programming, the terminal displays the " # " prompt ; in local programming the display shows "S" on the left:  .
- All the functions are available for the super-user.
- The super-user can define his/her own password using the **NP** function.
- The super-user can also decide **which functions are available for the user** (see function **UP**).

**user level**, accessed by entering the "user password":

- The terminal displays the " > " prompt ; in local programming the display shows "U" on the left:  .
- The user can define his/her own password using the **NP** function. .
- Only some of the functions are available to the user (these are selected by the super-user using the **UP** function)



At each programming level, only the password relating to that same level can be modified.



The equipment is usually delivered from CEIA with a password already set for super-user level, while user level access is unprotected . We recommend changing the password immediately after installation and at intervals thereafter, to prevent access to programming by unauthorized persons.


### 5.2 Time out




The programming session will be terminated automatically if no commands are entered for a period of **2 minutes**.

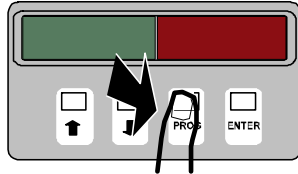
## PROGRAMMING

### 5.3 Local programming

Use the keypad on the inside panel of the control unit.





The  key is used to enter and exit the programming phase.

The  (increase) and  (decrease) keys are used to choose the function and select the data to enter; confirmation is via the  key.

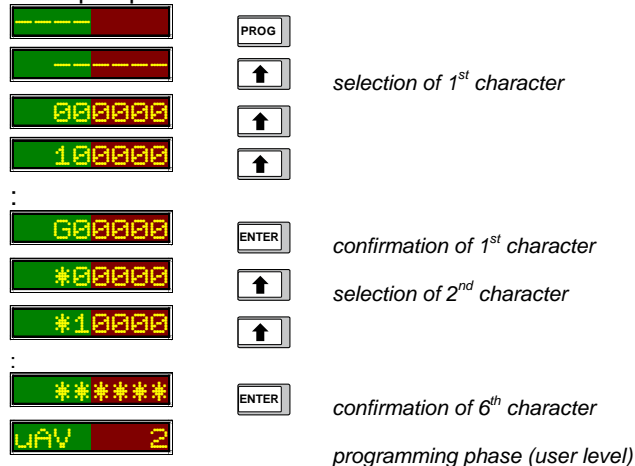



#### 5.3.1 Access to the local programming phase using the password

Starting from normal operation, enter the password using the built-in keypad (local programming) or the terminal keyboard (remote programming).



- The password is made up of 6 letters or numbers.
- Press PROG  key: 6 dashes will appear on the display: -----  
The first dash flashes to indicate the position of the cursor.
- Insert the password by activating the UP  and DOWN  keys to select the characters and then pressing the ENTER  key to confirm.
- After entering the last character, the programming phase starts. If the password is not recognised, the password must be re-entered (go to point b).

Example: password: "GATE01":

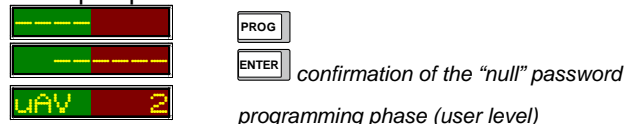


If a mistake is made, the display returns to the normal operation sign .

#### 5.3.2 Free access to local programming phase without password



To avoid having to use a password, the code "-----" (six dashes) must be assigned to the password. This can be done at both user and super-user level using the **NP** function. In this case, simply press the PROG  key and then the ENTER  key to access the programming phase, as the string of six dashes shown on the display corresponds to the password.

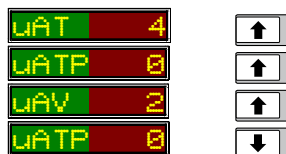
Example: password: "-----"






**ATTENTION!** If both levels (user and super-user) have free access, any subsequent programming request is at super-user level

### 5.3.3 Selection of the functions in local programming


The programming functions are scanned in a cyclical sequence. This can occur in two directions by pressing the UP  and DOWN  keys.



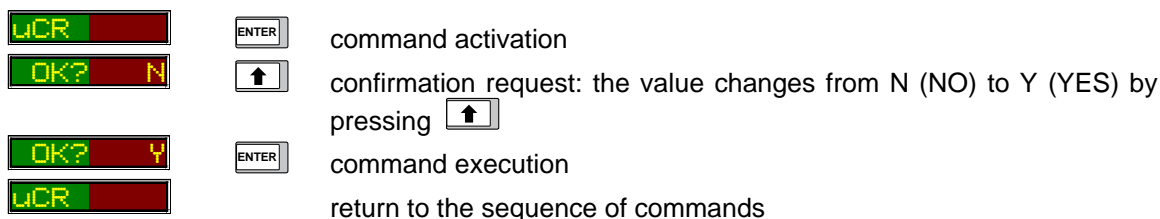
### 5.3.4 Command execution in local programming

The  (increase) and  (decrease) keys are used to choose the function and select the data to enter; confirmation is via the ENTER  key.



#### Executable commands

Some functions are purely **commands** and do not have a value assigned to them. In this case the function is activated by pressing ENTER . Some commands also require confirmation before execution.

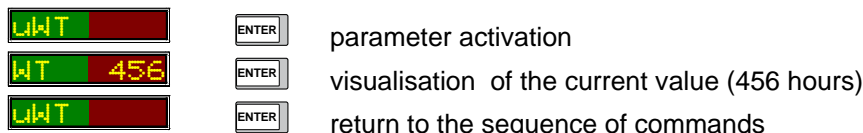
Example: Counter alarm reset:




#### Read only parameters

Other functions are parameters whose values are altered while the metal detector is in use (e.g. the alarm counter). In this case the current value can be read (**status request**) by pressing ENTER . To exit from the command press ENTER  once more.

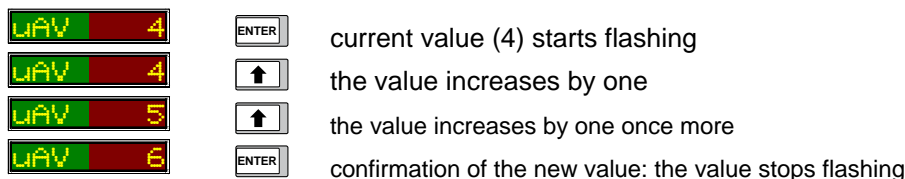
Example: value reading for working time.




#### Read/write parameters

The remaining parameters can be both visualised and modified by the operator (the parameter can therefore function as a **status request** or as a **command**). The current value of the parameter is visualised on the display to the right of the function code. Any modification of the value is activated by pressing ENTER .

Example: modifying the volume of the audible signal from value 4 to value 6.



### 5.3.5 Exit from local programming

At the end of the session, press PROG  key.



## 5.4 Remote programming

### 5.4.1 Serial communication

CEIA Metal Detectors can be programmed via the device's keypad and/or from a remote PC station via a serial line connection to the RS 232 interface.

The archway is fitted with two connection modules, one module in the lower part of the antenna (labelled "[0|0]") and another module at the top (labelled "PS/COM").

#### NOTES

- Make the connections for serial communication to the module used for the power supply connection. Place the power supply and serial communication cables together, in order to avoid loops.
- A +28V supply voltage for external accessories (f.i.: RCU ) is connected to pin 1 of the connectors ([0|0]) and **PS/COM**: in order to avoid any damage to the PC's interface, make sure that the cable connecting the metal detector to the PC does not include a connection to pin 1.

#### 5.4.1.1 Serial communication system configuration

**Metal Detector:** Select the baud rate on the **Metal Detector** (function **BR**)

**Terminal or computer:** select the function mode on the computer:

- type: ANSI/BBS, VT100
- baud rate
- 8 data bits
- 1 stop bit
- no transmission protocol
- automatic line feed
- tabulation every 8 characters
- full duplex (fdx)

### 5.4.2 Communication through other types of connection

Ethernet interface or Bluetooth™ interface, if available, can be used to connect the unit.

Models equipped with Ethernet interface can be programmed either via the RS232 ports or via the Ethernet port.

### 5.4.3 Access to the remote programming phase using the password

- After powering up the terminal and Metal Detector (wait the end of the initial warming up period), enter the password by means of the terminal keyboard.
- If the password is recognised, the programming phase prompt will appear (> for user level, # for super-user level). Otherwise the password must be re-entered. After the 5<sup>th</sup> failed attempt to enter the password, the device will pause for 10 seconds to avoid any computerised search for the password by ill-intentioned persons.

Example:

```
..... ENTER    entering of the password (no echo of the typed characters is provided)
>              prompt of the programming phase (user level)
```

**NOTE:** If a mistake is made, the prompt does not appear

### 5.4.4 Free access to remote programming phase without password

To avoid having to use a password, the code "-----" (six dashes) must be assigned to the password. This can be done at both user and super-user level using the **NP** function. In this case, simply press the **ENTER** key to access the programming phase.

Example:

```
ENTER    simply press the ENTER key
>        prompt of the programming phase (user level)
```

**ATTENTION!** If both levels (user and super-user) have free access, any subsequent programming request is at super-user level.

### 5.4.5 Command execution in remote programming

- Everything entered via the terminal keyboard will be displayed on the monitor.
- The delete key (BACKSPACE) can be used to correct any possible input errors.
- The command will be executed once the carriage return key has been pressed (ENTER) .**
- The syntax for the commands is strict. If any non-valid syntax is entered, an error message will be sent by the device. Either upper or lower case characters can be used to enter commands.

### 5.4.6 Exit from remote programming

At the end of the session, enter the PE command (Programming End, see below).

## 5.5 Description of the commands



To see the standard values and the full list of the commands available at user level see the TEST CARD at the end of this booklet ( \* : enabled command).

### 5.5.1 Summary of the parameters according to their function

Installation Parameters:	CH, CS, FGA, GD, IS, LD, NP, OTS, ST, TFV, UP.
Status Indicators:	ATD, DAD, DAT, DAV, GTA, L0...L19, MDO, PLI, PLO, TGI, TGO, TRI, TRO.
Metal Detector Audio Alarm:	AD, AT, ATP, AVMV.
Metal Detector Visual Alarm:	AD, ADB ADD, MTI, MTM.
Metal Detector Zone Alarm Indication:	ADB, LBI, LBO, NT, ZL, ZMO, ZN.
Random Alarm:	AP, CAT, CAV, RAA, RAB, RAM, RAT, RAV, RAW, RMA, TAR.
Self-Diagnosis Indication:	DAD, DAT, DAV, DV, BAI.
Statistics:	AC, ACF, CR, WT.
Controls:	CCC, CP, GTA, LD, MDO, NP, ST, UP.
Communications:	BR, BTE, IRE, NAM, NETV.
Service:	AVS, EN, ENA, ENS, ENM, EVA, FGA, GN, OTS, PO, RO, TFV.
Reception and Transmission Parameters:	DS, LC, LS, NL, SE, UC, UW, Z1... Z8
Test:	OFV, TFV



The reception signal parameters determine for the most part the Metal Detector's detection capability (just consider the sensitivity adjustment). If any variation is to be implemented, it must be checked for compatibility with security specifications.

### 5.5.2 Description of the commands available both in local and remote programming



The description of the commands accessible **from remote programming only** is in the following section.



**Function code :**

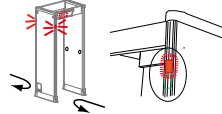

C= command R= status request

S= the command can only be accessed from the super-user level

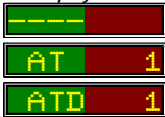
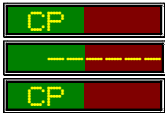






Code	Meaning	Possible values	Type	Notes
AC	Number of alarms detected	0-9999999	R	<p>It displays:</p> <ul style="list-style-type: none"> <li>- the number of passages through the gate (P)</li> <li>- the number of alarms detected since the last counter reset (command CR): this data is shown as:</li> <li>- total value of alarms (TA) with people passing through the gate</li> <li>- the alarms/passages ratio (TR) as a percentage of total alarms.</li> <li>- net value of alarms (NA) with people passing through the gate, based on a threshold selected using the NT command, which sets the maximum dimensions of the metal masses to be counted (in excess of these dimensions the alarm is not counted) .</li> <li>- the alarms/passages ratio (NR, ring rate) as a percentage of net alarms.</li> </ul> <p>Note: during local programming, the values are displayed according to a cyclical sequence by pressing the  and  keys.</p> <p>Example of local programming display :</p> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">AC</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">ENTER</div> </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P 10000</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;"></div> <div>number of passages through the antenna</div> </div>

## PROGRAMMING

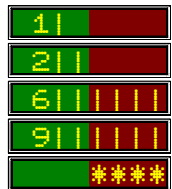

Code	Meaning	Possible values	Type	Notes
				<div><div>TA 1500</div><div>↑</div><div>the total number of passages with alarm</div></div> <div><div>TR 15.0</div><div>↑</div><div>the alarms/passages ratio as a percentage</div></div> <div><div>NA 892</div><div>↑</div><div>the net number of passages with alarm</div></div> <div><div>NR 8.9</div><div>↑</div><div>the net alarms/passages ratio as a percentage</div></div> <div><div>PA 10000</div><div>↑</div><div>number of passages through the antenna</div></div> <div>: :</div> <div>Example of remote-mode display:</div> <div>AC<div>ENTER</div></div> <div><div>TOTAL</div><div>NET</div><div>P 10000 10000</div><div>A 1500 892</div><div>R.R 15.0 8.9</div><div>number of transits</div><div>number of alarms</div><div>percentage</div></div> <div>Note: Passages carried out in the opposite direction to that selected with the GD function are not counted.</div> <div>Indication in case the Random Alarm option is enabled</div> <div>If the Random Alarm option is enabled, random alarms and metal alarms are distinguished in the AC readout. The new data visualized are as follows.</div> <div>In local programming the values are scrolled by pressing the UP arrow key <div>↑</div>.</div> <div><div>AC</div><div>ENTER</div></div> <div><div>P 10000</div><div>↑</div><div>number of passages through the antenna</div></div> <div><div>TA 2350</div><div>↑</div><div>the total number of passages with alarm</div></div> <div><div>TR 23.5</div><div>↑</div><div>the alarms/passages ratio as a percentage</div></div> <div><div>MA 1500</div><div>↑</div><div>number of passages with alarm due to a metal mass</div></div> <div><div>MR 15.0</div><div>↑</div><div>metal alarms/passages ratio</div></div> <div><div>RP 8500</div><div>↑</div><div>number of passages considered for random alarm generation</div></div> <div><div>RA 850</div><div>↑</div><div>number of passages with Random alarm</div></div> <div><div>RR 10.0</div><div>↑</div><div>random alarms/passages ratio</div></div> <div><div>NA 892</div><div>↑</div><div>the net number of passages with alarm</div></div> <div><div>NR 8.9</div><div>↑</div><div>the net alarms/passages ratio as a percentage</div></div> <div>Example of remote-mode display:</div> <div>Settings: AP= 10 (10%); RMA=NONE</div> <div>AC<div>ENTER</div></div> <div><div>TOTAL</div><div>METAL</div><div>RANDOM</div><div>NET</div><div>P 10000 10000 8500 *</div><div>A 2350 1500 850</div><div>R.R 23.5 15.0 10.0</div><div>10000</div><div>892</div><div>8.9</div><div>number of passages</div><div>number of alarms</div><div>percentages</div></div> <div>* if RMA=NONE the transits considered for the random alarm generation are: (total number of transits) - (transits with metal alarm) = 10000-1500=8500.</div>
ACF	Alarm counting filter	ON, OFF	C,R	<div>ON a backward transit after an alarm is not counted by AC function</div> <div>OFF any backward transit after an alarm is always counted by AC function</div> <div>NOTE: the counters CI (number of forwards transits) and CO (number of backwards transits), displayed by pressing the <div>↑</div> key, are not filtered !</div>
AD	Alarm duration	0P-5P 0C-5C	C,R	<div>First range: proportional alarm indication</div> <div>0P reset time = 0,3 s</div> <div>1P reset time = 1 s</div> <div>2P reset time = 2 s</div> <div>3P reset time = 3 s</div> <div>4P reset time = 4 s</div> <div>5P reset time = 5 s</div> <div>In this case the display will always provide an indication proportional to the metal mass in transit, using the red sector on the right when there is an alarm.</div> <div>Second range: constant alarm indication</div> <div>0C reset time = 0,3 s</div> <div>1C reset time = 1 s</div> <div>2C reset time = 2 s</div> <div>3C reset time = 3 s</div> <div>4C reset time = 4 s</div> <div>5C reset time = 5 s</div>

Code	Meaning	Possible values	Type	Notes
				In this case, during normal operation the display will indicate the selected sensitivity; when there is an alarm, the red section on the right lights up.  See also RAW parameter.
ADB	Alarm Duration on the luminous Bar	1-10	C,R	Selects the duration, in seconds, of the alarm indication on the luminous bar.
ADD	Alarm Duration on the control unit Display	1-10	C,R	Selects the duration, in seconds, of the alarm indication on the control unit display.
AP	Probability of random alarm	0-100 (%)	C,R	Selects the probability of random alarms (in percentage), for transits along the inbound direction (defined by the GD parameter)  See also GD, RAA, RMA and TAR parameters.
AT	Metal Mass Alarm tone	0-44	C,R	This parameter sets the tone of the metal alarm sound. During local programming, the device provides an audible signal using the selected tone.
ATD	Allowed Transit Direction	BI IN OUT NONE	C,R	<p>The parameter allows to set the unit to "offline" condition, by selecting the allowed transit direction(s) .</p> <p>Should a transit - either completed or interrupted - along a not allowed direction occur, an alarm signal is provided through the control unit ("PASSVIOL" – Passage Violation – message on the display), the sounder and a LED bar (completely lit)</p> <p>The "READY" signalling device located on the prohibited side of the archway lights on in red.</p> <p>BI both transit directions are allowed; note: both inbound and outbound sides are defined by the GD function.</p> <p>NONE both transit directions are prohibited (offline condition): a transit in whatever direction is signalled as a passage violation</p> <p>IN inbound transit allowed; as for BI setting, but an outbound-to-inbound transit - either completed or interrupted - is signalled as a passage violation</p> <p>OUT outbound transit allowed; as for BI setting, but an inbound-to-outbound transit - either completed or interrupted - is signalled as a passage violation</p> <p><b>Events identified and signalled in "offline" condition :</b> Offline unit: both transit directions are prohibited. (ATD=NONE) The pacing lights are red on both sides of the archway.</p>  <p>In this state the unit can signal the following events:</p> <p><b>Incomplete transit of people through the gate.</b> In this case, the unit provides an alarm signal with duration, volume and tone different from that of the metal alarm. See also DAD, DAV and DAT functions. The message "PASSVIOL" (passage violation) is provided on the control unit display.</p>  <p><b>Complete transit of people through the gate.</b> In this case, the unit provides, as for the previous point, an alarm signal with volume and tone different from that of the metal alarm. The message "PASSVIOL" (passage violation) is provided on the control unit display. The alarm signal is not automatically reset. The operator has to reset the alarm using a special chip card (command RE). See also DAV and DAT functions</p> <p><b>Detection of a metal mass over the alarm threshold without an effective transit of people through the gate.</b> In this case, the unit provides an alarm signal with duration and volume different from that of the metal alarm. On the contrary, the alarm tone is unchanged. See also DAD, DAV and AT functions</p>
ATP	Alarm Tone Rate	0-4	C,R	<p>This parameter sets the rates of pulsed alarm tone:</p> <p>0 Continuous tone</p> <p>1 Pulsed tone, with a 2 Hz rate</p> <p>2 Pulsed tone, with a 5 Hz rate</p> <p>3 Pulsed tone, with a 10 Hz rate</p> <p>4 Pulsed tone, with a 20 Hz rate</p> <p>During local programming, the device provides an audible signal using the selected tone.</p>


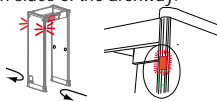
## PROGRAMMING

Code	Meaning	Possible values	Type	Notes
AV	Metal Mass Alarm volume	0-9	C,R	This parameter sets the volume of the alarm sound: 0 (disconnected alarm) 9 (maximum volume). During local programming, the device provides an audible signal using the selected tone.
AVS	Anti-vibration System	YES, NO	C,R	It enables/disables the embedded Anti-Vibration System. This system compensates the environmental mechanical vibrations acquired using the EVA command (see below) .  See also the acquisition procedure described in the "Maintenance" section.
BAI	Battery Indication	NO, YES	C,R	Command accessible at superuser level only NO the indication of the battery operation on the control unit display is disabled. YES the indication of the battery operation on the control unit display is enabled.
BR	Serial interface transmission speed (Baud rate)	300 : 115700	C,R	The change of serial transmission speed becomes operative when the programming session is terminated using the PE command.  Possible values: 300, 600, 1200, 2400, 4800, 9600, 19200, 28800, 38400, 57600, 115700.
BTE	BlueTooth Enabling	NO, YES	C,R	NO the BLUETOOTH™ interface is disabled. YES the BLUETOOTH™ interface is enabled: the detector can communicate with a PC equipped with a compatible interface.
CAT	Combined Alarm tone	0-44	C,R	This parameter sets the tone of the combined alarm sound (metal alarm contemporary with a random alarm). During local programming, the device provides an audible signal using the selected tone.
CAV	Combined Alarm volume	0-9	C,R	This parameter sets the volume of the combined alarm sound (metal alarm contemporary with a random alarm). Limit values: 0 (disconnected alarm) 9 (maximum volume). During local programming, the device provides an audible signal using the selected volume.
CCC	Chip card Confirmation	YES,NO	C,R	YES: when a chip card is inserted, the operator is asked for confirmation to program the equipment. NO: when a chip card is inserted, the equipment is programmed without confirmation NOTE: the confirmation is required only if the chip card affects detection parameters
CH	Transmission channel	0 - 99	C,R	0 - 49 for 50Hz power supply 50 - 99 for 60Hz power supply
CP	Chip card password	XXXXXX,  where X = any alpha-numeric character	C	<p>This command selects a new password for the chip card. The word must be made up of 6 letters (either upper or lower case) and/or numbers. The password is displayed to facilitate entry. The new password is memorised both on the chip card and at the control unit, and is effective immediately. If a chip card with a different password is inserted, the control unit will not accept the program settings, and will show the message PASS INVALID (or PASSINVA) on the display.</p> <p>ATTENTION! For security reasons, once a password has been entered it will no longer be possible to read it. Should the access code be forgotten, the password will have to be redefined for all chip cards in use.</p> <p>Note: to enable use of the card without a password, select the password ----- (six minus).</p> <p>Note: while the NP function involves the definition of two passwords, one for the operator level and one for the supervisor level, the CP function defines a single password for both levels, which is utilised only with the chip card.</p> <p>Note: for this function a chip card must be inserted into the reader!</p> <p>Ex.:</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p><i>display</i></p>  <p>...</p>  </div> <div> <p><i>keypad</i></p> <p> press <b>PROG</b> and <b>ENTER</b></p> <p><i>insert the chip card</i> </p> <p> select <b>CP</b> command using the arrow keys</p> <p></p> <p> press <b>ENTER</b></p> <p><i>enter the password</i></p> <p><i>extract the chip card</i> </p> </div> </div>
CR	Alarm counter reset	-	C	This command requests confirmation  NOTE There are two counters, one at operator level and one at supervisor level (see also "Advanced Programming" section): only the counter at the current level of programming is reset.
CS	Transmission channel search	-	C	This function search automatically a suitable transmission channel, i.e. a channel with minimum interaction with possible sources of interference present in the installation site. The selected transmission channel is shown at the end of the process



Code	Meaning	Possible values	Type	Notes
DAD	Alarm duration for incorrect transit	0-100	C,R	This parameter sets the duration, in seconds, if the audio signal triggered by an incorrect transit (for instance, an incomplete transit along a direction forbidden by the ATD parameter setting).
DAT	Alarm tone for diagnosis of incorrect transit	0-44	C,R	<p>This parameter sets the tone of the alarm sound triggered by the embedded self-diagnosis system or by an incorrect transit carried out along a not allowed direction (offline condition, refer to ATD function).</p> <p>During local programming, the device provides an audible signal using the selected tone.</p> <p>See also RE function, in Remote Programming section.</p>
DAV	Alarm volume for diagnosis of incorrect transit	0-9	C,R	<p>This parameter sets the volume of the alarm sound triggered by the embedded self-diagnosis system or by an incorrect transit carried out along a not allowed direction (offline condition, refer to ATD function).</p> <p>Limit settings: 0 (disconnected alarm) 9 (maximum volume).</p> <p>During local programming, the device provides an audible signal using the selected tone.</p> <p>See also RE function, in Remote Programming section.</p>
DS	Maximum detection speed	0-9	C,R	<p>This is correlated to the level of immunity to environmental interference: the lower the immunity level, the faster the maximum detection speed. 0 corresponds to the minimum detection speed (max. rejection of interference); 9 corresponds to the max. detection speed (min. rejection of interference).</p> <p>REMARK Decreasing of this parameter must be carried out according to the Security specifications.</p>
DV	Mains voltage absent signal	0-9	C,R	<p><i>Only on models fitted with emergency batteries</i></p> <p>This parameter sets the volume of the audible signal when mains voltage is absent. 0 sounder disabled and signal "B" on the display 1...9 sounder enabled and signal "MAINS ER" on the display (1: minimum volume, 9: maximum volume)</p>
EN	Environmental electromagnetic noise measurement	YES,NO	C	<p>Displays the value of the electromagnetic environmental noise.</p> <p>Local programming: display of the noise level is activated by selecting "YES" and exiting from the programming. Measuring ends when the function is turned off (GN= NO): on exiting from the programming mode the display will show the normal operating message (sensitivity level).</p> <p>100 different values ranging from 0 to 99 can be displayed. The value "10" corresponds to the alarm threshold. Readings under 6 are also displayed via bar-graph:</p> <div data-bbox="842 1339 1276 1527">  <p>noise level: 1</p> <p>noise level 2</p> <p>noise level 6</p> <p>noise level 9</p> <p>noise over the alarm threshold</p> </div> <p>Remote programming: this function is activated by pressing the ENTER key: the numeric values will then appear on the right, from 0 to 99, continually updated. To end measurement, press any key</p> <p> If both GN and EN functions are activated, function EN has priority.</p> <p>NOTE: the function is terminated automatically after 2 minutes.</p>
ENA	Environmental Noise Adjustment	-	C	<p>This function acquires the value of the signal received by the probe and adjusts the equipment in order to increase its immunity against possible sources of interferences. NOTE: this function can be not available if a customized security level is selected (see also IS and LD parameters)</p>
ENM	Electrical Noise Mapping	-	C	<p>It acquires the value of the signal received by the probe. The read out is provided as a percentage of the alarm threshold and is useful to identify a suitable detector position if the installation site contains sources of interferences. The noise level is acquired each time the ENTER key is pressed. The function is stopped by pressing the PROG key. As a remainder the display shows the best position found during measurements. Press ENTER key to exit ENM procedure</p>
ENS	Environmental Noise System	YES, NO	C,R	<p>It applies the ENA filtering (see ENA function). NO the ENA filtering is not applied: the unit uses the factory default filtering. YES the ENA filtering, calculated by the last ENA procedure, is applied NOTE: this function can be not available if a customized security level is selected (see also</p>

## PROGRAMMING

Code	Meaning	Possible values	Type	Notes
				IS and LD parameters)
EVA	Environmental vibration acquisition	-	C	It enables the procedure for acquiring the environmental mechanical vibrations; this procedure is described in detail in the "Maintenance" section.  See also the AVS parameter.
FGA	Adjustment of gain at ground level	-	C	Activates the procedure for adjustment of gain at ground level
GD	Gate direction	1,2	C,R	Selects the direction of transit relative to the positioning of the archway .  GD=1 if you look at the gate from the point of entry, the transmitter antenna should be on the right. GD=2 if you look at the gate from the point of entry, the transmitter antenna should be on the left.
GN	General environmental noise measurement	YES,NO	C	Displays the value of the signal received by the probe.  Local programming: display of the noise level is activated by selecting "YES" and exiting from the programming. Measuring ends when the function is turned off (GN= NO): on exiting from the programming mode the display will show the normal operating message (sensitivity level).  100 different values ranging from 0 to 99 can be displayed. The value "10" corresponds to the alarm threshold. Readings under 6 are also displayed via bar-graph:  <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">1 </div> <div>noise level: 1</div> </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">2  </div> <div>noise level 2</div> </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">6     </div> <div>noise level 6</div> </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">9     </div> <div>noise level 9</div> </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">****</div> <div>noise over the alarm threshold</div> </div> Remote programming: this function is activated by pressing the ENTER key: the numeric values will then appear on the right, from 0 to 99, continually updated. To end measurement, press any key   If both GN and EN functions are activated, function EN has priority.
GTA	Gate Access	OPEN,CLOS	C,R	This parameter sets the unit to a locked mode. OPEN the unit is operational. CLOS the unit is in locked mode, the detector is deactivated and the pacing lights are in red on both sides of the archway.  Events identified and signalled in "locked" condition : Offline unit: both transit directions are prohibited. (GTA=CLOS) The pacing lights are red on both sides of the archway.   In this operating mode the unit can signal the following incorrect transits (for further details, refer to ATD function): <ul style="list-style-type: none"> <li>- incomplete passage of people through the gate.</li> <li>- complete passage of people through the gate.</li> <li>- detection of a metal mass over the alarm threshold without an effective transit of people through the gate.</li> </ul>
IRE	Infra Red Enabling	NO, YES	C,R	This parameter enables or disables the use of the infra red remote control unit  NO the infra red interface is disabled.  YES the infra red interface is enabled: the keypad operation is completely replicated by the remote control unit.
IS	International Security Standard	1-22	C,R	
LBI	Alarm indication enabling at the entry side LED bar	ON OFF	C,R	ON the entry side LED bar provides an indication in case of an alarm  OFF the entry side LED bar does not provide an indication in case of an alarm.  NOTE: the entry and exit sides of the archway is defined by the GD parameter.
LBO	Alarm indication enabling at the exit side LED	ON OFF	C,R	ON the exit side LED bar provides an indication in case of an alarm  OFF the exit side LED bar does not provide an indication in case of an alarm.



Code	Meaning	Possible values	Type	Notes
	bar			NOTE: the entry and exit sides of the archway is defined by the GD parameter.
LC	Uniformity coefficient of the electromagnetic field emitted by the antenna - ground level	-20, : , -1, 0, 1, : , 20	C, R	-20 maximum field attenuation  0 no change (standard) +20 maximum field increment  This command is available on certain probe models only
LD	Loading	0-19	C, R	
LS	Minimum detection speed	0-9	C, R	0 = minimum limit 9 = maximum limit
MDO	Metal Detector Operativeness	ON, STBY	C, R	This parameter sets the unit to a stand-by mode. ON the unit is operational. STBY the unit is in stand-by mode, the detector is deactivated, all signalling devices are disabled and the power consumption is reduced.
MTI	Metal Type Indication	NO, YES	C, R	This parameter enables or disables the Metal Type Indication (Met-Identity). NO the alarm message is normal . YES the alarm message provides, on the display, the type of metal detected.  Ferr ferrous metal NoFe diamagnetic metal
MTM	Metal Type Indication Mode	CONT, BLIN	C, R	This determines the way the Metal Type Indication (Met-Identity) is provided: CONT in case of an alarm, the Metal Type Indication is provided continuously. BLIN in case of an alarm, the Metal Type Indication is provided alternating with the stars indication (see also AD parameter)
MV	Minimum alarm volume	0-9	C, R/S	0 (disconnected alarm) 9 (maximum volume).  This determines the minimum value of the AV parameter
NETV	Network Visibility	NO, YES	C, R	This parameter enables/disables the access to the equipment via an Internet browser. The factory default setting is YES. Once completed the network configuration this parameter can be set NO, to prevent unauthorized access to the unit via web. In this condition, the function must be adjusted via local programming, if necessary.  REMARK: when NETV is set to NO, the unit management through the NetID System Applications is still available.
NL	Noise limitation coefficient	0-9	C, R	0 automatic attenuation level 1 minimum attenuation 9 maximum attenuation  NOTE: setting 0 must be selected if synchronisation between two or more devices is required.
NP	New password	XXXXXX  X = any alpha-numeric character	C	This selects a new password to allow access the programming phase. The password must be made up of 6 characters (either upper or lower case). The password is displayed to facilitate entry. Once the new password has been entered, it will be effective immediately.  ATTENTION! For security reasons, once a password has been entered it will no longer be possible to read it. Should the access code be forgotten, assistance will be required from C.E.I.A. personnel.
NT	Net ring threshold	1.0-9.9	C, R	Selects the multiplication coefficient to apply to the alarm threshold (sensitivity SE) in order to calculate the net ring rate: in this processing any alarms with size superior to the threshold fixed by NT is not counted in the ring rate calculation.  In this case the alarm signal changes from continuous to intermittent.  NT=1.0 alarm always intermittent; tone defined by the AT parameter; no alarms counted in the net AC value.. NT=1.1...9.8 continuous alarm under the NT threshold, intermittent alarm above the NT threshold; tone defined by the AT parameter; alarms between the standard threshold and the NT threshold counted in the net AC value. NT=9.9 continuous or intermittent alarm, depending on the setting of the AT parameter; all alarms counted in the net AC value.
OFB	Locking in the case of failure of the functionality test at operator level	NO YES	C, R, S	Reset mode if the Metal Detector is locked by failure of the functionality test at operator level:  NO the detector goes back to operating as it did before the test; it is the operator's responsibility to record the failure of the functionality test. YES the detector enters an irreversible state of alarm because it is not operational: repeat the test; if the test fails again, it must be reset by the superuser.
OFC	Failed operator test reset	-	C, S	Resets the operational status of the Metal Detector if it is locked by failure of the functionality test at operator level See also the OFB command.
OFO	Functionality	NO	C, R, S	YES at start-up the metal detector requests that the operator-level functionality test be

## PROGRAMMING

Code	Meaning	Possible values	Type	Notes
	test at operator level required at start-up	YES		carried out NO metal detector start-up proceeds normally
OFV	Functionality check at operator level	-	C	Activates the OFV test  For details of the procedure see the following sections
OTS	One-Touch Self-Installation	-	C	This parameter starts the self-installation wizard. The self-installation procedure consists of a sequence of tests and adjustments, regarding the following aspects: operation of the signalling devices; relevant electrical parameters; archway configuration; and the electromagnetic compatibility with the installation site.
PLI	operating mode of the power indicator in the entry side LED bar	CONT BLIN BLI1 OFF	C,R	CONT during normal operation, a light at the top of the LED bar of the archway is continuously lit. BLIN, BLI1 during normal operation, a light at the top of the LED bar of the archway blinks. OFF during normal operation the bar is completely off.
PLO	operating mode of the power indicator in the exit side LED bar	CONT BLIN BLI1 OFF	C,R	CONT during normal operation, a light at the top of the LED bar of the archway is continuously lit. BLIN, BLI1 during normal operation, a light at the top of the LED bar of the archway blinks. OFF during normal operation the bar is completely off.
PO	Output level	HEA.C ASTM 50364 ACGIH IEEE 364LO ENVDE	C,R	The parameter is pre-set in the factory according to the regulations regarding human exposure to electromagnetic fields, applicable in the destination country. Any modification to this pre-setting is the responsibility of the installer. For further information contact the competent bodies. CEIA's technical/sales department can provide further clarification.  HEA.C Health Canada - Medical Devices Bureau ASTM ASTM FXXXX-99 "Standard Specification for Field Strength of Hand-Held Metal Detectors" (U.S.A.) 50364 EN50364:2001 (basic restrictions) ACGIH American Conference of Governmental Industrial Hygienists-1999 IEEE standard IEEE C95.1-1999 364LO EN50364: 2001 (derived reference levels) ENVDE VDE 0848-3-1
PV	Management program version	-	R	
RAA	Algorithm for random alarm generation	FULL EU100		It selects the operating mode for generating random alarms:  FULL <u>random generation</u> : the percentage of random alarms generated over a large number of transits converges to the value of AP parameter.  EU100 <u>random generation with convergence over 100 transits</u> : within any sequence of 100 transits valuable for random alarm generation (see also RMA parameter) the number of random alarms is equal to the value of AP parameter or more.  See also AP, RAB, RAM, RAV, RAT, RMA parameters.
RAB	Random Alarm Bar mode	ON, OFF	C,R	OFF in case of a random alarm the Bar Display operates in standard mode (off).  ON in case of a random alarm the Bar Display is completely ON.  See also AP, RMA parameters.
RAM	Random alarm signalling mode	**** QUOT SLCT	C,R	Random alarm signalling mode.  **** In case of a random alarm, the control unit display shows the message "★" (one star);  QUOT In case of a random alarm, the control unit display shows the message "QUOT" NOTE: if the parameter RMA is set to COMB, the message is in the green section on the left, otherwise it is on the red section on the right.  SLCT In case of a random alarm, the control unit display shows the message "SLCT" in the green section on the left. This setting forces also the metal alarm indication: in this case, the control unit display shows the message "ALRM" in the red section on the right.
RAT	Random-Alarm tone	0-44	C,R	It selects the type of acoustic alarm: continuous sounds sweep sounds pulsed sounds multi-tone sounds During local programming, the device provides an audible signal using the selected tone.
RAV	Random-Alarm volume	0-9	C,R	0 (disconnected alarm) 9 (maximum volume)

Code	Meaning	Possible values	Type	Notes
				During local programming, the device provides an audible signal using the selected volume.
RAW				
RMA	Random / Metal Alarm Priority	NOME ALL COMB	C,R	<p>RMA parameter sets the priority between the random alarm and the metal alarm, as follows:</p> <p>NOME (NO Metal) the random alarm generation is computed over the transits with no alarms due to metal masses</p> <p>ALL the random alarm generation is computed over all transits</p> <p>COMB the random alarm generation is computed over all transits, as for the ALL setting. The random alarm indication, according to the setting of RAM parameter, is provided in the green section of the display. The metal alarm indication is provided in the red section of the display. When a metal alarm contemporary with a random alarm occurs, both messages are shown on the display, one on the green section and the other one on the red section, in order to identify this particular event (example: "SLCTALRM").</p> <p>See also AP, RAA, RAB, RAM, RAV, RAT parameters.</p>
RO	Read out of the reception signal	NO, YES	C,R	<p>This displays the result of the processing of the reception signals, by means of a numerical indication. It can display values from 0 to 9,998.</p> <p><u>Display indication:</u> When the value is under the alarm threshold, the indication is green, when the value is above the alarm threshold, the indication is red.</p>
SE	Sensitivity of the Metal Detector	-100 : 0 : 99	C,R	<p>Selection of the Metal Detector Sensitivity :</p> <p>-100: minimum sensitivity, detection of large metal masses 99: maximum sensitivity, detection of small metal masses</p>
SL	Self-diagnostic level	P, C	C,R,S	<p>P limited program of checks, (without monitoring of TX, RX and control sections). C complete program of checks. Partial self-diagnosis (SL=P) is useful for technical testing.</p>
SN	Serial number of the Metal Detector	-	R	
ST	Stores a set of parameters selected by the user	0-19	C	<p>Each detector is equipped with several sets of parameters specifically designed for some of the most common applications (see IS command)</p> <p>The ST command, however, allows other sets of parameters to be stored in memory. These parameters are set by the user: in order to do so the operator simply programs the apparatus for the required operational application and then activates the ST command, assigning an identification number.</p> <p>From that moment onwards the detector stores that programming set-up in memory and the operator may retrieve it for use should the programming be modified for any reason. Obviously, if a set of parameters is recorded under an identification number that is already in use, the new program overwrites the previous one.</p> <p>ATTENTION! If a problem occurs in the programming memory, the "PROG" message will appear and the operation will not be executed.</p>
TAR	Total Alarm Rate	0-100	C,R	<p>This function sets the total alarm rate, intended as a sum of alarms due to a metal mass and random alarms. Setting TAR to a suitable value, obviously higher than AP value, the detector generates automatically a number of random alarms so as the total alarm events within any sequence of 100 transits is equal to the value of TAR parameter or more.</p> <p>See also AP, RAA parameters.</p>
TFV	Functionality check at technical level	-	C	Activates the TFV test
TGI	Operating mode of the green section of the entry pacing lights at the entry side	CONT BLIN BLI1 OFF	C,R	<p>CONT during normal operation, the green section of the entry pacing lights is continuously lit. BLIN, BLI1 during normal operation, the green section of the entry pacing lights blinks. OFF during normal operation the green section of the entry pacing lights is completely off.</p> <p>NOTE: the entry and exit sides of the archway are defined by the GD parameter.</p>
TGO	Operating mode of the green section of the entry pacing lights at the exit side	CONT BLIN BLI1 OFF	C,R	<p>CONT during normal operation, the green section of the exit pacing lights is continuously lit. BLIN, BLI1 during normal operation, the green section of the exit pacing lights blinks. OFF during normal operation the green section of the exit pacing lights is completely off.</p> <p>NOTE: the entry and exit sides of the archway are defined by the GD parameter.</p>

## PROGRAMMING

Code	Meaning	Possible values	Type	Notes
TRI	Operating mode of the red section of the entry pacing lights at the entry side	CONT BLIN BLI1 OFF	C,R	<p>CONT when activated, the red section of the entry pacing lights is continuously lit.</p> <p>BLIN, BLI1 when activated, the red section of the entry pacing lights blinks.</p> <p>OFF the red section of the entry pacing lights is always off.</p> <p>NOTE: the entry and exit sides of the archway are defined by the GD parameter.</p>
TRO	Operating mode of the red section of the entry pacing lights at the exit side	CONT BLIN BLI1 OFF	C,R	<p>CONT when activated, the red section of the entry pacing lights is continuously lit.</p> <p>BLIN, BLI1 when activated, the red section of the entry pacing lights blinks.</p> <p>OFF the red section of the exit pacing lights is always off.</p> <p>NOTE: the entry and exit sides of the archway are defined by the GD parameter.</p>
UC	Uniformity coefficient of the electromagnetic field emitted by the antenna - upper level	-20, : -1, 0, 1, : 20	C,R	<p>-20 maximum field attenuation</p> <p>0 no change (standard)</p> <p>+20 maximum field increment</p> <p>This command is available on certain probe models only</p>
UP	Selects the commands that can be accessed by the user	Y,N	C,S	<p>Command accessible at superuser level only</p> <p>The command codes will be displayed followed by an indication in brackets of the current status: (Y) = activated, (N) = deactivated</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>⌂UP</p> <p>⌂AC (Y) ENTER</p> <p>⌂ACF (N) ENTER</p> </div> <p>:</p> <p><i>Local programming</i></p> <p>The status of each command is changed by pressing the  or  keys. If you do not wish to change the state of the command you need only press ENTER and the display will scroll to show the following command. Press the PROG key to interrupt the selection procedure</p> <p><i>Remote programming (see below)</i></p> <p>The state of each command is changed by entering the opposite value to the current one to the right of the # character. If the user does not wish to change the command state, he/she can simply press ENTER, and the cursor will move on to the following command. Press "." to interrupt the selection procedure.</p>
UW	Useful archway width	720 760 820	C,R	<p>This parameter selects the effective useful width of the archway, in mm.</p> <p>The correct value is preset in factory and must be changed only if the archway is modified, for any reason, using crossbars and cables connecting the control unit to the antenna different from the original ones.</p> <p>ATTENTION! The compliance of the MD performance with the security standard selected by IS is non assured in case of wrong setting of UW.</p> <p>NOTE: widths larger than 720mm are available only if supported by the specific model.</p>
WT	Working time of the system	0-999999	R	-
Z1...Z4  Z1...Z8	Zone sensitivity adjustment	-99..+99	C,R	<p>In ZN=4 or ZN=8 mode, selects the gain of the individual zone. The rate of increase/decrease corresponds to that of the sensitivity setting SE.</p> <p>Ex.: Z3=0 : no correction in zone 3</p> <p>Ex.: Z3=-15 : reduction of 15 points in the sensitivity of zone 3 relative to the general sensitivity setting SE.</p> <p>NOTE: this function is not available on models with zones number limited to 2..</p> <p>NOTE: for each zone the sum of the general sensitivity setting SE and of the zonal sensitivity Zx must be in the range -100 to 99</p>
ZL	Lateral zone	NO, YES	C/R	<p>This parameter enables or disables the horizontal zone alarm indication:</p> <p>NO (the horizontal zone alarm indication is disabled. The vertical zone indication is supplied using both exit light bars);</p> <p>YES (the horizontal zone alarm indication is enabled).</p>
ZMO	Maximum number of zonal alarm signals	1...4	C,R	<p>It selects the maximum number of distinct zones signalled in case of an alarm.</p> <p>1 single zone signalled in case of an alarm</p> <p>4 up to four distinct zones signalled in case of an alarm</p>
ZN	Zones number	NONE, FLOA, 2, 4, 8	C,R	<p>Selects the LED bar signalling mode:</p> <p>NONE LED bar off.</p> <p>FLOA a single floating zone: a group of LEDs lights up at the height of transit of the metal mass.</p> <p>2 when a metal mass is detected, one of 2 distinct zones, each of fixed height and</p>

Code	Meaning	Possible values	Type	Notes
				<p>position, lights up.</p> <p>4 when a metal mass is detected, one of 4 distinct zones, each of fixed height and position, lights up.</p> <p>8 when a metal mass is detected, one of 8 distinct zones, each of fixed height and position, lights up.</p> <p>NOTE: if the model is fitted with four light bars, the indication is provided both by the TX and the RX part of the archway.</p>



## PROGRAMMING

### 5.5.3 Parameters accessible from remote programming only



#### Function code :

C= command R= status request S= the command can only be accessed from the super-user level

Code	Meaning	Possible values	Type	Notes
AA	Indication of the size of the metal mass detected	0-4	R	Displays the size of the metal mass detected (during an alarm in manual reset mode, see RM function). 5 different values can be adjusted, ranging from: <ul style="list-style-type: none"> <li>• 0 (no alarm)</li> <li>• 1 (small mass)</li> <li>• 2</li> <li>• 3</li> <li>• 4 (large mass).</li> </ul> Status reading does not reset the Metal Detector alarm.
CI	Number of inward transits	0-999999	R	This function displays the number of transits made through the gate, in the direction defined by parameter GD, since the last time the alarm counter was reset (command CR). During normal operation, the current value of this parameter can be seen on the display if the  key is pressed
CO	number of outward transits	0-999999	R	This function displays the number of transits made through the gate, in the direction opposite to that defined by parameter GD, since the last time the alarm counter was reset (command CR). During normal operation, the current value of this parameter can be seen on the display if the  key is pressed
HE	HELP	-	R	This selects a display of the meaning of the programming codes. The read-out will give the correspondence table (function – function code) The * character indicates that the command is enabled at user level (see the UP command).
NAM	Name	xxxxxxx x = any alpha-numeric character	R,C	User defined name of the device. The string can consist of up to 8 alpha-numeric characters.
PE	Programming end	-	C	This command will be executed automatically if no commands are entered for a period of 2 minutes.
PT	Parameter table	-	R	Displays the values of the operating parameters. The serial number of the device appears at the top. The character * indicates that the command is enabled at user level (see command UP).
RE	Alarm reset	-	C	ATTENTION! The metal detector will operate under manual reset only during a programming session and with the reset mode set on "manual" (see the RM function). Outside of the programming session, the device will operate under automatic reset.  NOTE This function resets also the audio signal triggered by an incorrect transit, for instance an incomplete passage along a not allowed direction (in "offline" or "locked" condition, refer to ATD and GTA commands).
RM	Alarm reset mode	M, A	C/R	M Mode: corresponds to manual reset via command RE. The alarm is kept in memory until the RE command is executed. A Mode: corresponds to automatic reset: the alarm stops shortly after the transit through the transducer is completed.



Code	Meaning	Possible values	Type	Notes																								
SC	Self-diagnosis	-	R	<p>Displays the status of the Metal Detector:</p> <table><tr><td>SC OK</td><td>device operating properly</td></tr><tr><td>SC BATT</td><td>battery operation</td></tr><tr><td>SC GATE</td><td>antenna fault</td></tr><tr><td>SC RX ERR</td><td>faulty reception section</td></tr><tr><td>STB</td><td>equipment in Stand-by mode</td></tr><tr><td>PHOTERR</td><td>photocells malfunction</td></tr><tr><td>PASSVIOL</td><td>incorrect transit</td></tr></table> <p>If one of the device's components is faulty, a message will be displayed (in descending order of priority). For more details see the "Maintenance" section.</p> <p>N.B.: The SC command can only be executed in remote programming. The self-diagnosis device is permanently active, and any indication of malfunction is given automatically on the display.</p>	SC OK	device operating properly	SC BATT	battery operation	SC GATE	antenna fault	SC RX ERR	faulty reception section	STB	equipment in Stand-by mode	PHOTERR	photocells malfunction	PASSVIOL	incorrect transit										
SC OK	device operating properly																											
SC BATT	battery operation																											
SC GATE	antenna fault																											
SC RX ERR	faulty reception section																											
STB	equipment in Stand-by mode																											
PHOTERR	photocells malfunction																											
PASSVIOL	incorrect transit																											
ZR	Zone report	See note on the right	R	<p>The metal detector transmits information about the state of the location bar. The information is transmitted via the built-in RS232 line when the command is activated</p> <p>The metal detector transmits a data string as described below:</p> <ul style="list-style-type: none"><li>- a "space" character (20H - hexadecimal)</li><li>- 20 characters corresponding to the 20 LED's on the bar, where:<ul style="list-style-type: none"><li>0 (30H - hexadecimal) corresponds to an OFF LED;</li><li>1 (31H - hexadecimal) corresponds to an ON LED;</li></ul></li><li>- a "carriage return" character (0DH - hexadecimal)</li><li>- a "prompt" character # (23H - hexadecimal) or &gt; (3EH - hexadecimal).</li></ul> <p>E.g.: Location of two metallic objects at the bottom of the monitored passage:</p> <table><tr><td></td><td></td><td></td><td>top</td><td>centre</td><td>bottom</td></tr><tr><td>ZR</td><td>ENTER</td><td>=&gt;sequence</td><td>00000000000000000000</td><td>1111</td><td></td></tr></table> <p>E.g.: Location of two metallic objects at the bottom and at the centre of the monitored passage:</p> <table><tr><td></td><td></td><td></td><td>top</td><td>centre</td><td>bottom</td></tr><tr><td>ZR</td><td>ENTER</td><td>=&gt;sequence</td><td>11111111111111111111</td><td></td><td></td></tr></table>				top	centre	bottom	ZR	ENTER	=>sequence	00000000000000000000	1111					top	centre	bottom	ZR	ENTER	=>sequence	11111111111111111111		
			top	centre	bottom																							
ZR	ENTER	=>sequence	00000000000000000000	1111																								
			top	centre	bottom																							
ZR	ENTER	=>sequence	11111111111111111111																									

## 6 MAINTENANCE



Before working with the device read the warnings and instructions in this section and in the paragraph “**Installation, use and safety information**” carefully. Please note that CEIA is not responsible for any damage that may result from installations that do not follow these guidelines.

### 6.1 Suggested Maintenance Schedule

Operation	Tools required	Execution		Period
		Operator	Local Technical Point of Contact	
Battery replacement	Supplied Allen Key N°5 2 batteries		•	Recommended: 3 years (maximum: 5 years)
General cleaning	A slightly moist, non-abrasive cloth	•		4 months
Visual check that all components of the metal detector are undamaged.	-	•		4 months
Visual inspection of connectors and power supply cables.	-		•	4 months
Floor anchoring inspection: ensure that the archway is firmly anchored to the floor. *	-		•	4 months
Cross-bars inspection: ensure that the cross-bar screws are properly tightened.	Supplied Allen Key N°8		•	4 months
Control unit inspection: ensure that the mounting screws are properly tightened.	Supplied Allen Key N°5		•	4 months
Verification of the visual indicators	-	•		Daily At shift changes In case of doubt of proper operation
Operator-level functionality test	OFV kit or Test piece specified by the Security Standard in use	•		Daily At shift changes In case of doubt of proper operation
Technical-level functionality test	TFV&FGA kit		•	6-12 months
Verification of the calibration	Test piece specified by the Security Standard in use		•	12 months

\* Advance notice must be given to the Security Manager regarding **any movement of the Metal Detector to a position** different from that of the original installation. The operation itself must be performed by technicians trained in the installation and validation of calibration procedures

## 6.2 Diagnosis

### Generic Messages

Display Message	Sounder *	Possible cause	Recommended action
FAULT RX ERR		fault in the receiving section	<ul style="list-style-type: none"> <li>Check the choice of transmission channel (function CH) if more than one metal detector is installed (see related para. in "Installation" section)</li> <li>replace the control unit</li> </ul>
FAULT GATE rx  FAULT GATE tx  x : 1, 2, ...		connecting cable damaged or disconnected  damaged control unit damaged antenna	<ul style="list-style-type: none"> <li>check the connections between control unit and antenna (GATE rx: check the RX antenna; GATE tx: check the TX antenna)</li> <li>check that no nails or screws have been driven into the antenna s without prior consultation with the technical department of CEIA.</li> <li>replace the connecting cable</li> <li>replace the control unit</li> <li>replace the transducer</li> </ul>
PROG	-	loading of data via the LD or IS commands from an unprogrammed memory cell	Program the memory cell (ST command) or use a pre-programmed memory cell.
WAIT		Metal detector not operative	Temporary adjustment phase following to the modification of either the receiving or the transmitting parameters (e.g.: channel "CH"): wait for normal functioning indication.
WAIT		Metal detector busy	Message given during functionality tests or adjustment of gain: wait.
MAINS ER		Mains voltage absent	Reconnect to the mains power supply
B	-	Mains voltage absent	Reconnect to the mains power supply
 display off	 Panel-shape only	Mains voltage absent  Emergency batteries discharged	Reconnect the mains power supply  Verify the batteries
	LINE light on	System in stand-by mode	Turn on the unit by using the MDO command
OFV NOIS TFV NOIS FGA NOIS		Excessive electromagnetic noise	Message given during functionality tests or adjustment of gain: remove the source of interference
OFV FAIL TFV FAIL FGA FAIL		Failure of functionality tests or adjustment of gain at ground level	Message given during functionality tests or adjustment of gain: repeat the test correctly
REP		Sample transit was wrong or did not happen	Message given during functionality tests: repeat the transit
PHOT ERR	pulsed	Dirty photocells	Clean the photocells with a non-abrasive cloth.
		Fault in the photocells	One or more photocells are always active: identify it/them by means of the OTS procedure if applicable) and replace it/them.
		Wrong connection of the photocells	Check photocells connections.
PASSVIOL		Transit of a person through the gate along a prohibited direction	Verify the reason of the transit.  Refer to the ATD function, Programming section.

\* the emitted sound can be adjusted through the DAV and DAT functions, see the Programming section.

### Messages related to the Chip Card use



When a self-diagnosis message appears using a chip card, try at first to perform again the operation completely and correctly. If the self-diagnosis message appears again, carry out the recommended action listed in the following table.

Display Message	Possible cause	Recommended action
PASS INVA	chip card with wrong password	set the correct chip card password (see CP command, "Programming" section)
	defective chip card	replace the chip card
DATAERRO	chip card removed from reader too soon	do not extract the card until the message "REMOVE" appears on the display
WRONVERS	chip card not compatible with the software configuration of the metal detector	use a compatible chip card

Display Message	Possible cause	Recommended action
CARD INVA	chip card not compatible with the software-hardware configuration of the metal detector or blank chip card	use a compatible chip card
	fault in the chip card reader	replace the control unit
CARDUNRE	blank chip card	use a compatible chip card
	fault in the chip card reader	replace the control unit
LOADING	Metal detector busy during data transfer from a chip card	wait completion of the process.


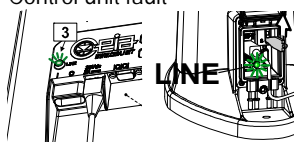

### 6.3 Troubleshooting



Before analysing possible faults, please check:

- that the connectors are properly connected
- that the operating parameters have the correct values (see the test check-sheet included at the end of the manual).

There follow some indications regarding possible causes of malfunction and check procedures to be carried out in order to restore the metal detector to its correct operational status.

Fault	Possible cause	Recommended action
Alarm signalling or high noise level (>  ) without transit of a metal mass.	Environmental compatibility problem.	Carry out the "Verification of Compatibility " (see the following sections).
Display off	Control unit fault 	Check all the power connections (mains cable, control unit - TX antenna connecting cable) If the power supply voltage is present at the control unit, replace the control unit If the LED power indicator lights up only when the control unit is disconnected, replace the control unit.
	Fault in the supply section  IOP card	check all the power connections (mains cable, control unit - TX antenna connecting cable) . Check that the LED LINE on the lower connection module is on. If the LED LINE is off, replace the external PSA power adapter. If the LED LINE is on, replace the internal card of the lower connection module .
	Model with emergency batteries Flat batteries	Connect the equipment to the mains supply and recharge the batteries.
	Malfunction of IOP card	Check the battery voltages. Replace damaged batteries. Replace the internal card of the lower connection module .
	System in stand-by mode (if supported).	Turn on the unit by using the MDO command (if supported).
Model with photocells: no passage detection	malfunction of the photocells	Wrong programming of GD function: refer to Programming section. Dirty or defective photocell: check with the OTS or Autotest procedure. If necessary, replace it.
If the Metal Detector still does not operate properly, please contact our Technical Department for advice.		

NOTE: antenna and control unit can be replaced with corresponding spare parts, with no need of balance or loss of performance.

### 6.4 Useful Parameters for Remote Maintenance

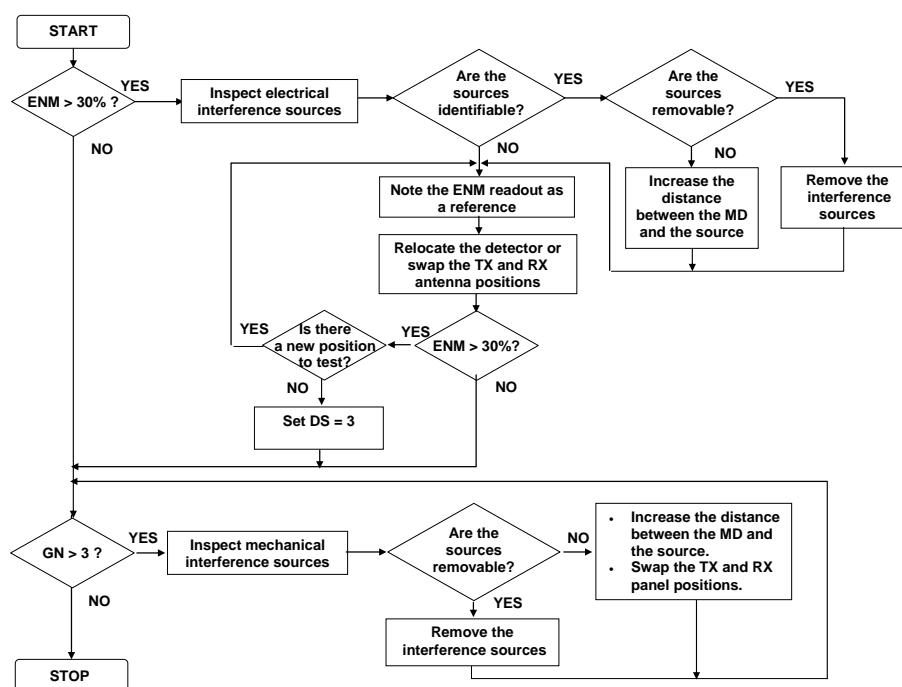
The maintenance operator can verify the unit status and modify the setting of all parameters accessible at his programming level (user level: a restricted number of functions; super-user level: access to all functions).

Code	Meaning	Purpose
PT	Parameter table	Verification of the current parameter setting.

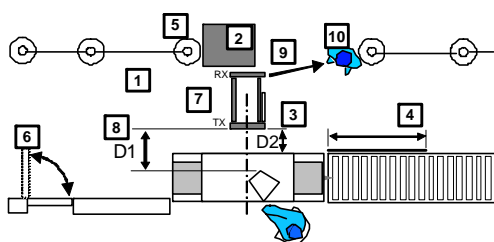
Code	Meaning	Purpose
AC	Number of alarms detected	Counting of transits and evaluation of the number of alarms, in absolute value and in percentage. Verification of the flow rate variations and of the alarm rate.
CI	Number of inward transits	Counting of transits
CO	Number of outward transits	
GN	General environmental noise measurement	Verification of environmental interferences.
EN	Environmental electromagnetic noise measurement	
SL	Self-diagnostic level	Selection of the self-diagnosis level.
SC	Self-diagnosis	Verification of the unit status.

## 6.5 Procedures

### 6.5.1 Verification of Compatibility



Flow diagram



Typical Layout of Access Point equipped with an X-Ray Unit.

- 1 Sources of vibration
- 2 Objects, panels or furniture in direct contact with the MD
- 3 X-Ray Unit
- 4 Separation panel/frame installed at the luggage exit of the X-ray unit
- 5 "Fixed" metal masses
- 6 Moving metal objects
- 7 Archway orientation
- 8 Distance of the Monitor of the X-Ray Unit
- 9 Electrical/Electronic Devices
- 10 Security Screener position

### 6.5.1.1 Inspection of possible sources of mechanical interference

#### GENERAL RULES

- Remove the interference source
- Increase the distance between the MD and the interference source.
- Swap the TX and RX antenna positions if sources are located near one of the Metal Detector.

**Measuring method:** GN function or  display bar-graph indication.



**REMARK:** all numeric distances indicated in the following notes are indicative and depend on the detection performance required by the specific application.

#### Sources of vibration

In case of perceptible vibration, the Metal Detector can generate alarms, even if no metal mass is present.

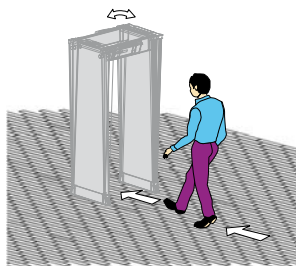
##### Unstable floor

This effect can happen if the Metal Detector rests on flooring which moves as people walk on it. This is the case of floors laid on frameworks, especially if made of wood .

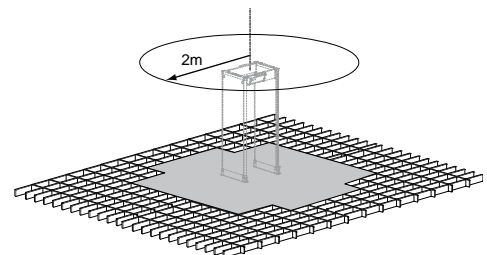
Check that the MD is installed on a stable floor. Simulate transit by a person, varying the direction taken and walking heavily. If the MD oscillates visibly, the floor support structure must be modified

**Action:** make the floor stable by constructing a complete supporting surface made of concrete. Perform the procedure for compensating the vibrations using the EVA command (see below).

**Minimum distance:** action to be taken in an area of about 2m (78"  $\frac{3}{4}$ ) radius around the Metal Detector.



Wood floor

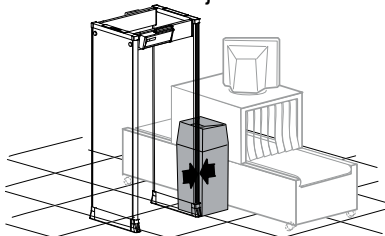


Construct a complete supporting surface made of concrete under the Metal Detector.

##### Objects, panels or furniture in direct contact with the MD

Check that no objects, panels or furniture are placed in direct contact with the EMD. This avoids MD vibration in the event of knocks.

**Action:** Move objects in direct contact away from the EMD.

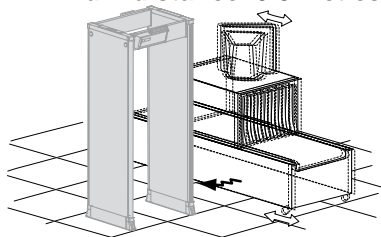


### X-Ray Unit inspection

A typical case of vibrating metal masses: **X-ray unit not anchored to the ground**: when a piece of luggage is placed on it, the structure can move and cause strong interference in the Metal Detector!

**Action**: anchor it firmly to the ground using provided levelling feet (column shape version)..

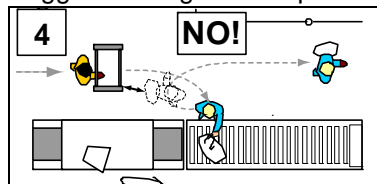
**Minimum distance**: 0.5 metres (19"  $\frac{3}{4}$ ) recommended.



### Separation panel/frame installed at the luggage exit of the X-ray unit

Check that a separation panel/frame, non-metallic is preferred, is installed at the luggage exit of the X-ray unit along the conveyor belt. This is in order to force people move away from the MD inspection area and at the same time retrieve their parcels in a position where they will not affect MD operation.

Suggested length of the panel: 59" ÷ 78"  $\frac{3}{4}$  (1,5 ÷ 2 m).

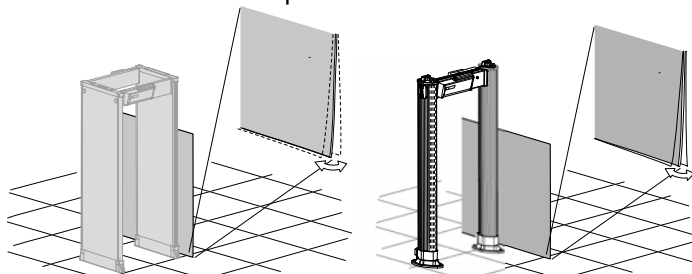


### "Fixed" metal masses

The Metal Detector is not affected by metal masses, even large ones, as long as they do not move. In the case of metal masses that can vibrate, the effect is very localised and generally negligible, unless they are located in the immediate vicinity of the Metal Detector.

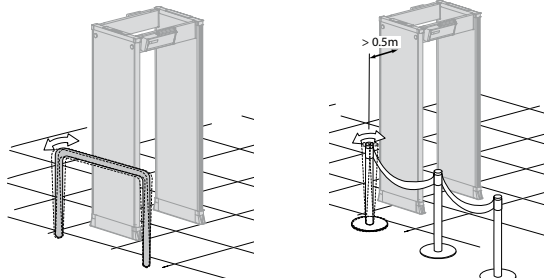
**Action**: stable anchoring of the external metal mass.

**Minimum distance**: depends on the dimensions and the shape of the metal mass.



**Metal panel** in the vicinity of the Metal Detector.. **Action**: anchor it firmly or move it away.

**Minimum distance**: depends on the dimensions. For example, a 1m x 1m metal sheet must be at a distance of at least 30 cm (11"  $\frac{3}{4}$ ).



**Metal barrier** placed near the Metal Detector; **Action**: anchor it firmly to the ground or move it away.

**Metal Tensabarrier**® placed near the Metal Detector. **Action**: move it at least 0.5 metres (19"  $\frac{3}{4}$ ) away.

### Moving metal objects

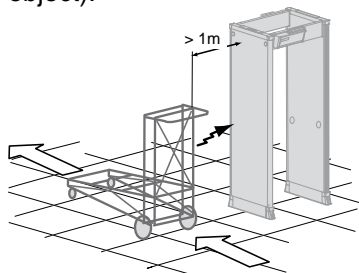
The Metal Detector is not affected by metal masses, even large ones, as long as they do not move. The effect depends on the mass and its distance from the Metal Detector.

Avoid the possibility of large metal masses moving near the EMD. For example, a baggage-trolley can pass close to a Metal Detector, but at a distance of at least 1 metre.

**Action**: use barriers to keep them the right distance away

## MAINTENANCE

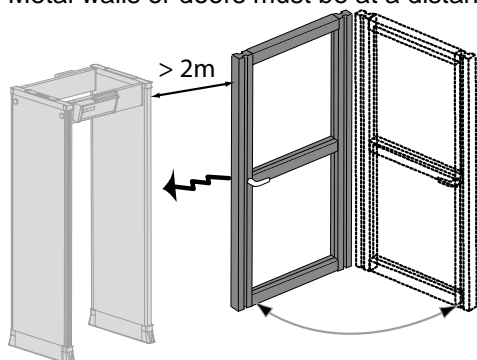
**Minimum distance:** about 1m (3.3 ft) from the Metal Detector (depends on the size of the object).



metal trolley

### Metal walls or doors

Metal walls or doors must be at a distance of 2m or more from the EMD.

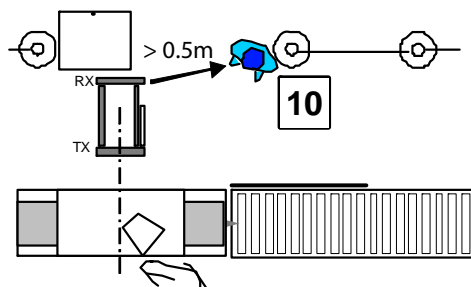


Metal door

### Distance between the MD and the Security Screener in charge

Ensure that the position provided for the Security Screener in charge does not cause the MD to detect his own metal objects (i.e. watch, walkie-talkie).

Suggested distance: 50cm minimum.





### 6.5.1.2 Inspection of possible sources of electrical interference

#### GENERAL RULES

- Remove the interference source.
- Change setting of DS (down to 3) and/or CH parameters.
- Increase the distance between the MD and the interference source.
- Swap the TX and RX antenna positions: the part most sensitive to environmental interference of electrical nature is the **receiver RX antenna** : if sources are located near one of the Metal Detector panel, make sure that this is the transmitter panel **TX** by rotating the gate and assembling it in a suitable configuration. This rule must be followed, for instance, in the case of the X-ray unit.

**Measuring method** : EN function, ENM function



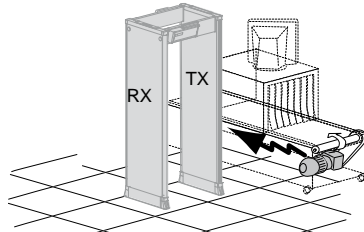
**REMARK:** all numeric distances indicated in the following notes are indicative and depend on the detection performance required by the specific application.

#### X-Ray Unit Motors

##### Action:

The TX antenna should be installed facing the X-Ray Unit

**Minimum distance:** at least 60cm from its body



**N.B.:** currently-available monitors generally use a switching-type section of mains power supply: in this case, they can cause interference similar to the previous point.

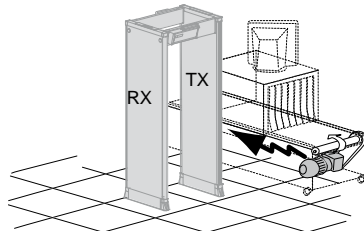
##### Monitor

During operation, these devices can generate electromagnetic interference if not properly shielded.

##### Action:

- Change the Metal Detector's work channel (CH command)
- Change the monitor's refresh frequency
- move the monitor away
- orient the monitor so as to minimize the interference
- replace with shielded equipment
- replace with LCD equipment

**Minimum distance:** about 1 m from the receiver RX antenna .



#### High-power electrical conductors

A strong current passing through electrical conductors generates a magnetic field of considerable strength.

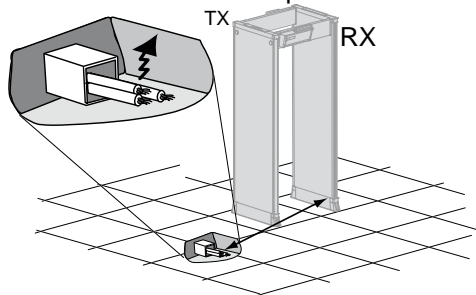
##### Action:

- Increase the distance between the Metal Detector and the electrical conductors.
- In general, the underground conduits for electrical conductors can not be moved. In this case:
- move the Metal Detector away

## MAINTENANCE

- if possible, orient it so as to minimize the interference (RX antenna as far as possible from the conductors).

**Minimum distance:** depends on the strength of the current and on the layout of the wiring.



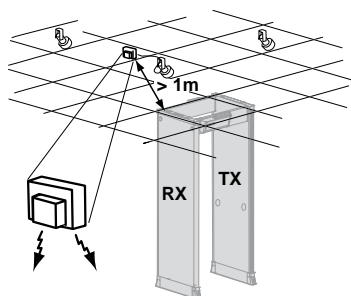
### Electrical/Electronic Devices

During operation, these devices can generate electromagnetic interference of considerable strength.

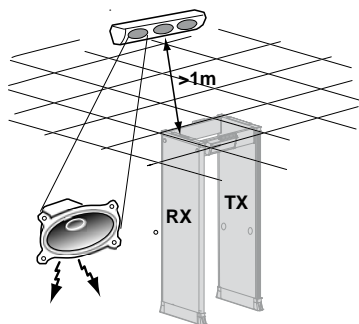
#### Action:

Increase the distance between the Metal Detector and the devices or eliminate the devices.

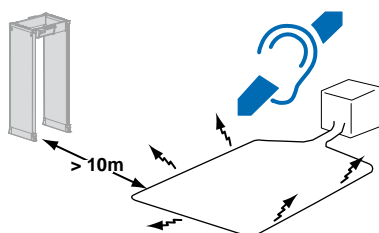
**Minimum distance:** about 1 metre from the receiver RX antenna (indicative value: this distance depends on the strength of the interference)



Example: power supply transformer for spot lights installed on the ceiling: **increase the distance!**



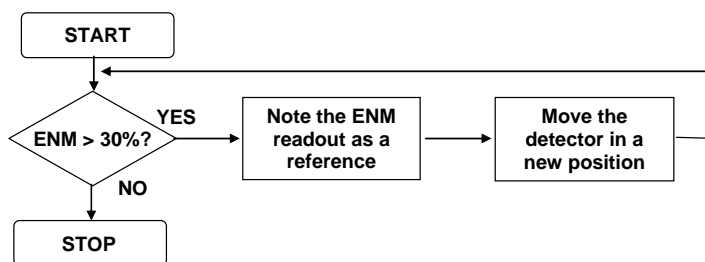
Example: high-power loudspeaker installed on the ceiling: **increase the distance!**



Example: Hearing loop for people with hearing aids installed close to the Metal Detector: measure the noise level by means of the EN function and increase the distance or eliminate the loop in a radius of about 10m around the archway, if necessary

## 6.5.2 Procedure for positioning the unit through ENM command in case of environmental interferences

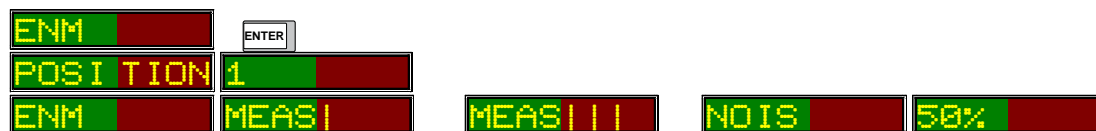
This procedure allows to evaluate the effect of possible non identified sources of interferences on the detector: the scope is to find the optimal detector position corresponding to the minimum readout of the ENM function provided as a percentage of the alarm threshold.



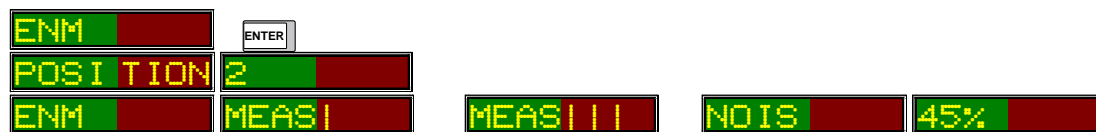
Flow diagram

### ENM Procedure

1. Run ENM function
2. Place the archway in the first position (POSITION 1)
3. Press ENTER key to start the noise acquisition. At the end of the measurement the noise level is provided, as a percentage of the alarm threshold:



4. Place the archway in a new position (POSITION 2)
5. Press ENTER key to start a new noise acquisition. At the end the noise level is provided, as a percentage of the alarm threshold:



6. Repeat measurements in other positions, until the result decreases under 30%.
7. Press PROG key to quit the acquisition phase.
8. As a reminder the display shows the best position found during measurements. Press ENTER key to exit ENM procedure.

## 6.5.3 Procedure for compensating the environmental vibrations through EVA command

This procedure allows acquiring and compensating the interferences generated by mechanical vibrations due, for instance, to floor oscillations, strong air compressions or wind.

### Acquisition

- Execute EVA programming command.
- When the "PUSH" message appears on the display, press the side of the archway, making it oscillate .



- As the device completes acquiring the applied vibration, the message "OK/EVA" appears on the display.

**ATTENTION!** This acquisition procedure must be carried out for all Security Levels in use. Select any other IS setting in use and repeat the acquisition procedure.

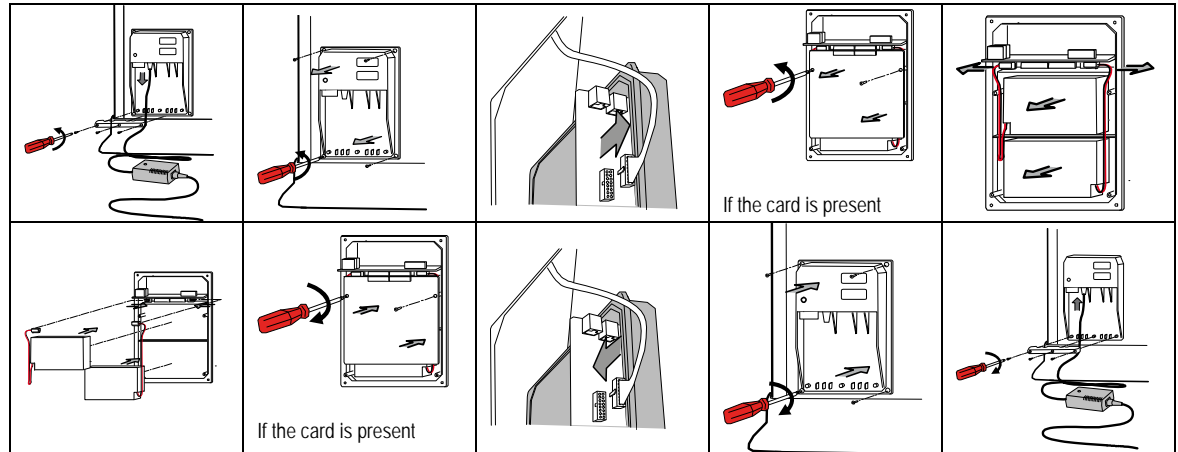
### 6.5.4 Battery Replacement Procedure

#### Standard capacity version

Necessary tools : PH1 Phillips screwdriver

Necessary items: CEIA spare batteries (2 pieces)

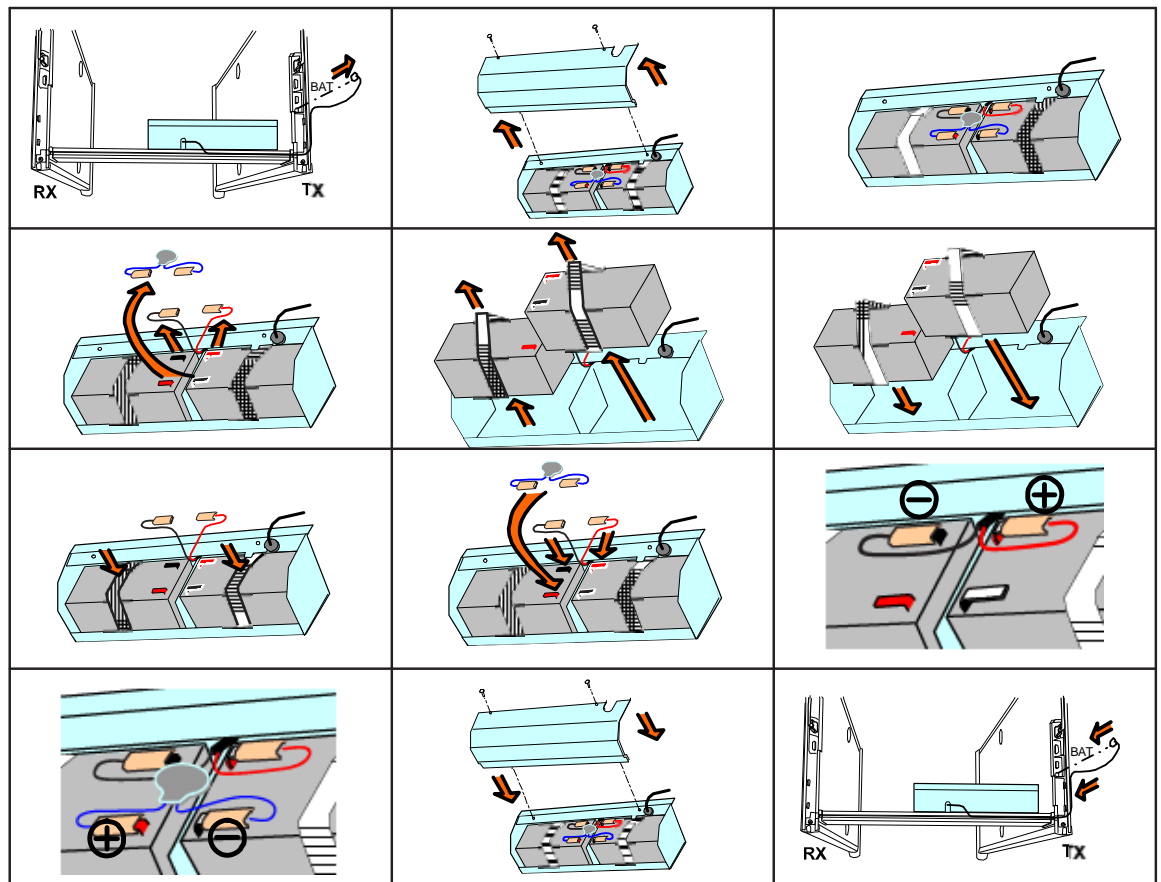
#### Lower Connection Module



#### High Capacity Version

Necessary tools Allen key n.5

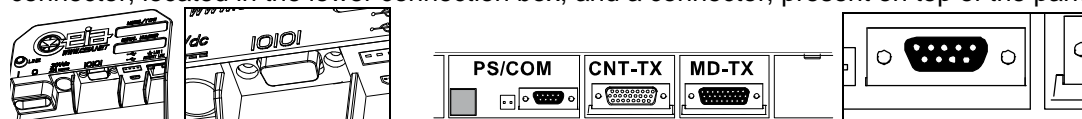
Necessary items CEIA spare batteries (2 pieces)



## 7 APPENDICES

### 7.1 Auxiliary Electrical Connections

Two serial communication and auxiliary connections ports are available: a 9 pole D-Sub connector, located in the lower connection box, and a connector, present on top of the panel.



Serial communication ports present on the archway are labelled “|O|O|” or “PS/COM”.

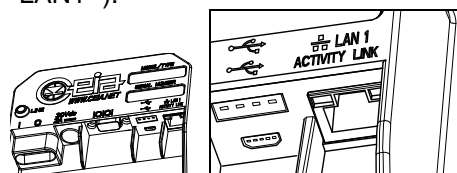
Pin	Function	Range
1	Supply output for external accessories	+30V, 0.1A max.
2	Serial communication data input	-
3	Serial communication data output	-
4	Power supply input	+22...+37V
5	Ground	0
6	RESERVED	-
7	RESERVED	-
8	Data output toward external accessories	0...5V
9	Ground	0

#### 7.1.2 Ethernet ports

On demand the lower connection box can include an Ethernet interface.

##### Connection with a cable coming from the floor

Connect the cable to the available port of the lower connection module (labelled “LAN” or “LAN1” ).

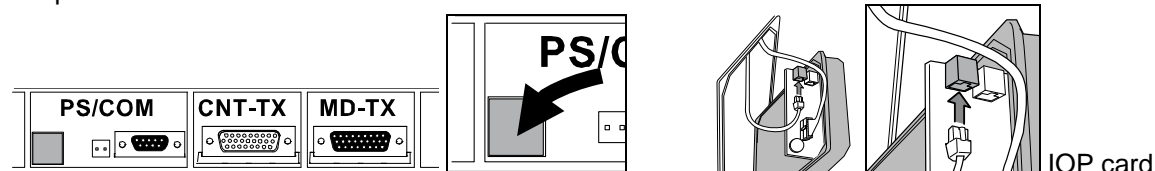


##### Connection with a cable coming from the ceiling

A conduit is provided to pass a cable through the TX panel till the lower connection module. The entrance of this conduit is close to the 9-pole PS/COM connector.

The cable must be plugged to the “LAN” connector of the internal IOP card of the lower connection module, as illustrated in the figure below.

REMARK: the IOP card connector is paralleled to the “LAN1” external connector: use only one of the ports at one time!



### Setting up the network data

- The Ethernet module is pre-set in factory with the following data:
  - Hostname: CEIA-<SN>, where <SN> is the serial number, indicated in the label present on the transmitter antenna of the archway . Example: "CEIA-21006012345".
  - IP address, Gateway and Subnet Mask: DHCP (Dynamic Host Configuration Protocol) or static ID address 192.168.0.1 if DHCP is not available
- The web server of the unit can be accessed simply by entering the hostname (DHCP only) or its IP address in the field "URL" of an internet browser.
- A login box appears, reporting the Metal Detector name and the Network Hostname of the device. Enter a valid programming password of the WTMD: using the superuser password a full access to the configuration features is provided, whilst using the user password some advanced functions are not available. NOTE: in case of repeated error messages, stating that a wrong password has been entered, verify, in local programming, whether the baud rate setting of the device is 57600 (BR parameter).
- Press SEND to submit the password: the device status is acquired and a summary window reporting the Metal Detector name and the device status appears. NOTE: the first time the device is accessed entering the date and time is requested.

- A menu of the available features is in the left box of the screen:

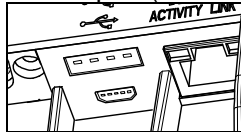
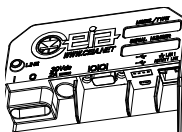
System	system info and status
Transit Chart	diagram of the transits occurred within a selected day
Group Statistics	diagram of the transits occurred within a selected period of time in the whole group
Monitor	diagram of all devices of the group, with the indication of their status and setting
Advanced	menu of functions reserved to maintenance and administration users:
Date Time Setup	setting of the system date and time
Network	setting of the network data
Firmware Upgrade	upgrade of the equipment firmware
System Upgrade	upgrade of the system
Metal detector Terminal	programming in terminal mode
Maintenance	advance maintenance features
About	reference data of the system
Logout	disconnection from the device

- The network data can be modified by entering new data in the page "**Network**". A new setting of the IP address is automatically updated as **Save** button is pressed and the page is redirected to the login box. If the hostname has been modified, a system reboot must be carried out: wait until the reboot phase is completed, then access the unit again by entering the new hostname in the URL field.
- Once completed the network configuration, the network access security can be increased by carrying out the command "**Network Visibility**" available in the **Network** page (or setting the NETV parameter to NO manually).


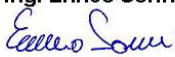
#### 7.1.3 USB Ports

The Ethernet interface, available on demand, includes an USB hub with two ports:

- a type A host USB port
- a micro-B device USB port (reserved for servicing)



## 7.2 DECLARATION OF CE CONFORMITY

<b>DECLARATION OF CONFORMITY CE/UE</b> <small>DECLARATION DE CONFORMITE CE/UE KONFORMITÄTSEKLRUNG CE/UE  DECLARACION DE CONFORMIDAD CE/UE DICHIARAZIONE DI CONFORMITÀ CE/UE</small>	
<p><i>This declaration of conformity is issued under the sole responsibility of the manufacturer / La présente déclaration de conformité est établie sous la seule responsabilité du fabricant / Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller / La presente declaración de conformidad se expide bajo la exclusiva responsabilidad del fabricante / La presente dichiarazione di conformità è rilasciata sotto la responsabilità esclusiva del fabbricante</i></p>	
<b>Manufacturer:</b> <small>Fabricant / Hersteller / Fabricante / Costruttore:</small>	<b>CEIA S.p.A.</b> Zona industriale Viciomaggio 54/G-56 52041 Viciomaggio Arezzo – ITALY
<b>Declares that the product</b> <small>déclare que ce produit / erklärt, daß das Produkt / declara que el producto / dichiara che il prodotto:</small>	
<p><b>Product name: Walk-Through Metal Detector</b>  <small>Nom du produit / Produktname: Détecteur de Métaux / Elektronischer Metalldetektor  Nombre del producto / Nome: Detectores de metales / Metal Detector Elettronico</small></p> <p><b>Model: HIPE/PZPlus</b>  <small>Série / Serie / Serie / Modello:</small></p> <p><b>Product Options: This declaration covers all options</b>  <small>Options / options: Cette déclaration est valide pour toutes les options / Diese Erklärung ist gültig für alle options  Opciones / opzioni: Este declaración es valida para todas las opciones / Questa dichiarazione è valida per tutte le opzioni</small></p>	
<b>conforms to the following Product Specifications</b> <small>est conforme aux spécifications suivantes / folgenden Produktspezifikationen entspricht  es conforme a las siguientes especificaciones / è conforme alle seguenti specifiche di prodotto:</small>	
<p><b>Safety / Sécurité / Sicherheit / Seguridad / Sicurezza:</b></p> <p><b>EN 61010-1:2010</b> Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements  <b>EN 50364:2010</b> Limitation of human exposure to electromagnetic fields from devices operating in the frequency range 0 Hz to 300 GHz, used in Electronic Article Surveillance (EAS), Radio Frequency Identification (RFID) and similar applications</p> <p><b>This product complies with the requirements of the Low Voltage Directive 2006/95/EC.</b>  <i>Le produit ci-dessus répond aux exigences de la Directive 2006/95/CE concernant la basse tension.  Dieses Produkt entspricht den Anforderungen an Niederspannungsgeräte gemäß der Norm 2006/95/EG  El producto indicado cumple los requisitos de la Low Voltage Directive 2006/95/CE.  Il prodotto è conforme alle norme della direttiva 2006/95/CE sulla bassa tensione.</i></p>	
<p><b>EMC</b></p> <p><b>EN 61000-6-1:2007</b> Electromagnetic compatibility (EMC) – Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments  <b>EN 61000-6-3:2007</b> Electromagnetic compatibility (EMC) – Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments</p> <p><b>This product complies with the requirements of the EMC Directive 2004/108/EC.</b>  <i>Le produit ci-dessus répond aux exigences de la Directive 2004/108/CE concernant les interférences électromagnétiques.  Dieses Produkt entspricht den Anforderungen der EMC-Norm 2004/108/EG  El producto indicado cumple los requisitos de la Directiva EMC 2004/108/CE.  Il prodotto è conforme alle norme della direttiva EMC 2004/108/CE.</i></p>	
<p><b>Last two digits of the year in which the CE marking was affixed: 11</b>  <i>Les deux derniers chiffres de l'année d'apposition du marquage CE: 11  Die beiden letzten Ziffern des Jahres, in dem die CE-Kennzeichnung angebracht wurde: 11  Las dos últimas cifras del año de colocación del marcado CE: 11  Ultime due cifre dell'anno in cui è stata affissa la marcatura CE: 11</i></p>	
<p><b>Signed for and on behalf of: / Signé par et au nom de: / Unterzeichnet für und im Namen von:</b>  <i>Firmado por y en nombre de: / Firmato in vece e per conto di:</i>  <b>CEIA S.p.A.</b> Zona industriale Viciomaggio 54/G-56 52041 Viciomaggio, Arezzo – ITALY</p>	
Arezzo, 2012-10-22	<div style="text-align: center;">   <b>Person in charge Lab. EMC</b>  <small>Resp. Laboratoire EMC / Verantwortlicher für EMC-Labor  Resp. Laboratorio EMC / Resp. Lab. EMC</small>  <b>Ing. Enrico Sorini</b>   </div>

Mod. P0401-0012rev0



### 7.3 Spare parts



Please quote the equipment serial number with every order for components!

#### HI-PE/PZPLUS Rev.1.000

Spare parts	
Description	Code
Plastic case control unit with connecting cables for 720mm crossbars	46110
Plastic case control unit with connecting cables for 760mm / 820mm crossbars	46111
Metal case control unit with connecting cables for 720mm crossbars	51758
Metal case control unit with connecting cables for 760mm / 820mm crossbars	51759
Front cover with lock of Plastic case control unit	24873
Installation kit for Plastic case control unit	49961
Installation kit for Metal case control unit	49962
Keys of the keypad (4)	29415
RX antenna (adapted for photocells installation) *	46105
TX antenna (adapted for round photocells installation) *	53100
Electronic cards of the antenna dual color luminous bar	45401
720mm cross-bar with holes	35639
720mm cross-bar without holes	55040
760mm cross-bar with holes	55652
760mm cross-bar without holes	55653
820mm cross-bar with holes	55641
820mm cross-bar without holes	55642
Upper cable protection cap of the panel with knobs	45663
Upper cable protection cap of the panel with screws	55154
Covers for round photocells receptacles, for version without transit counter	24345
2-beam round photocells module	32716
Protection cap for the lower connection module	55155
Protection caps for 720mm crossbars and control unit	55644
Protection caps for 760mm crossbars and control unit	55654
Protection caps for 820mm crossbars and control unit	55645
Lower connection module	55637
Emergency battery option APSM2Plus/P with Pb battery	APSM2Plus/P
Pb 12V-0,8Ah battery	19
Emergency battery and Ethernet option – connection module with Pb 0.8Ah batteries	APSIM2Plus/P
Long Life Crossbar Battery Back-Up option	55681
Crossbar Battery Back-Up case with cable	49510
Pb 12V - 9Ah battery	36891
100-240V~, 100W Power supply adaptor IP67	48092
100-240V~, 80W Power supply adaptor	44041
Cable for Power supply adaptor, CEE plug	1559
Cable for Power supply adaptor, UL plug	1574
Cable for Power supply adaptor, UL L5-15P twist lock plug	49040
Cable for Power supply adaptor, UK plug	1570

\* specify the options to include with the order. Example: TX antenna without emergency battery and without photocells:

- code of the TX Antenna (adapted for photocells installation)
- code of the PSM connection module
- code of the Kit of covers for photocell compartment
- code of the Electronic cards of the antenna luminous bar (2 pieces).

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