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METAL DETECTOR

HI-PE Multi-Zone Plus

Operator Manual

ATTENTION

Read this manual carefully before operating the device. Keep this booklet in a safe place for future reference.

TABLE OF CONTENTS

CONTENTS OF THE MANUAL

Aim of this manual is to provide the operator with all necessary information for a correct use of the described CEIA device(s).

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.

WARRANTY

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.

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 optionals, to the prices and conditions of sale.

Revisions

Code	Firmware Version	Date	Author	Reference	Changes
FI057GB60K10v1000	T8RC1001	2008-07-23	DTP-BC	-	First release
FI057GB60K10v1100	T8RC1001	2008-11-26	DTP-BC	-	New sequence of the arguments.
FI057GB60K10v1110	T8RC0120	2009-06-04	DTP-BC	-	MTI
FI057GB60K10v1200	T8RC0121, T8RC1010, T8RC1020	2010-09-29	DTP-BC	-	Options
FI060K0057v1300	T8RC1030	2011-08-31	DTP-BC	-	Protection degrees Locked mode and Stand-by mode
FI060K0057v1500	T8RC1032	2012-09-04	DTP-BC	-	Metal+ Random alarm indication. Incorrect transit signals.

1 USE AND SAFETY INFORMATION

1.1 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 use 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.
- 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.

1.2 Correct and Forbidden Use of the Device – Operating Limits

Correct use: A Walk-Through Metal Detector is a unit that reacts to the metal masses present on a person's body. As part of the normal screening process, people are required to walk through the detector archway. A correct analysis requires a complete passage through the archway.

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

Operating limits

Power supply	100…240V ~, -10/+15%, 47…63 Hz, 30 VA max
Installation category	II (IEC61010-1)
Pollution degree	2 (IEC61010-1)
Protection degree	IEC60950-22, water spray test (water resistant configuration); IEC60529 IP65 (water proof configuration)
Operating Temperature	-20…+70°C (on demand: -37 … +70°C)
Storage Temperature	-37…+70°C
Relative Humidity	0 – 95%, non-condensing.

1.3 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.

1.4 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.

1.5 Maintenance warnings

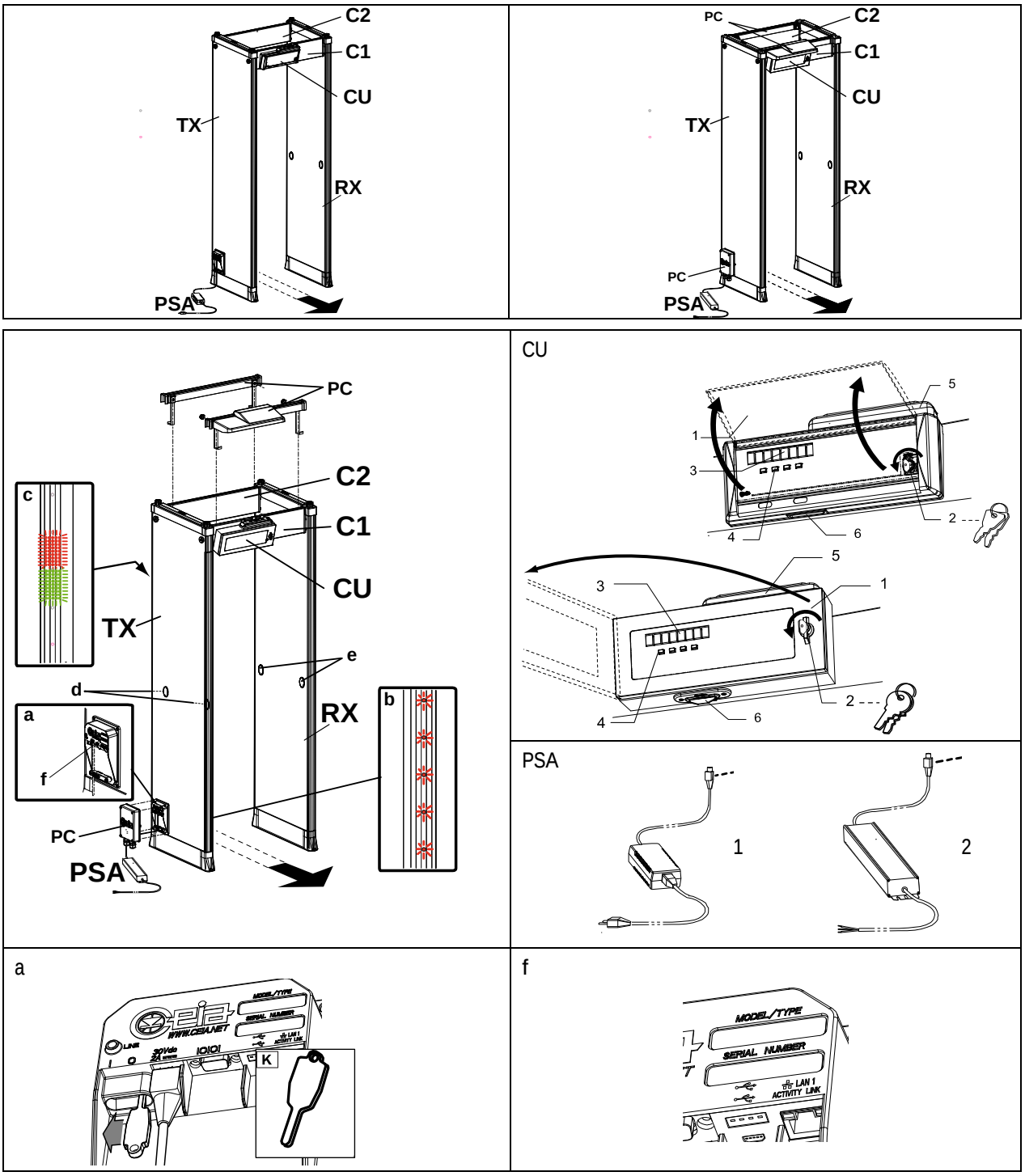
- Carry out the periodic maintenance regularly (see section on Maintenance).).
- Do not wash the device with water, liquid detergents or chemical substances. Use a slightly moist, non-abrasive cloth for cleaning.
- The device must be disconnected from all power sources before undergoing any maintenance 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.

1.6 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”).

2 DESCRIPTION

2.1 General Description



The main parts of a CEIA Panel Walk-Through Metal Detector are as follows:

Archway antenna
The archway consists of two treated panels containing the windings and the connectors to the control unit; the panels are covered externally with laminate (washable) and are also fitted with shockproof edges to protect against knocks. A special protective boot renders the base of the archway waterproof, and therefore fully insulated even in the event of wet floors.
The archway of the Walk-Through Metal Detector comprises of:

TX Transmitter panel , called hereafter "**TX**"
- a Lower Connection Module: it includes the main switch, operated by means of a special key K and the power input connection,
- 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). The Transit Counting System consists of two photocell modules fitted into the archway and allows counting of transits, alarms and percentage of alarms.

RX Receiver panel , called hereafter "**RX**"
- e reflectors for transit counting (option)
- f labels showing model and serial number of the walk-through metal detector:
  MODEL/TYPE: label showing the model
  SERIAL NUMBER: label showing the serial number
  MAC: MAC address (with an Ethernet interface installed)

C1 Exit side crossbar, fitted with holes for mounting the control unit
C2 Entry side crossbar

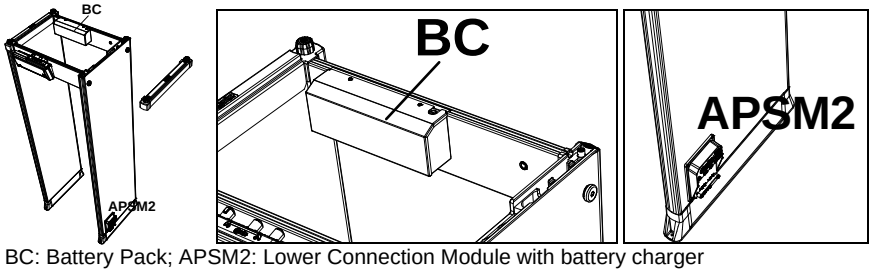
Control Unit
The control unit **CU**, which is extremely compact, is designed to be attached directly to the crossbar of the archway. The control unit is available in plastic casing or metal casing.
1 transparent panel
2 security lock
3 alphanumeric display, divided into two sections, the left part is green and the right one is red.
4 programming keypad
5 protection cover of the connections
6 slot of the chip card reader

Power Supply Adapter
The Power Supply Adapter **PSA** connects the Walk-Through Metal Detector to the power supply line
1 The standard power supply adapter is not water proof.
2 The device designed for outdoor applications is equipped with a sealed power supply adapter. In this case the Lower Connection Box is protected by a sealed cover. NOTE: the input side cable is not fitted with plug, to allow passing it inside conduits.

Minor or optional parts
K ON/OFF key
PC Protection covers (version for outdoor use only):
- Protection cover of the Lower Connection Box
- Cable protection cover-exit side
- Cable protection cover-entry side

2.1.1 Emergency battery with battery charger and under voltage protection [OPTION]

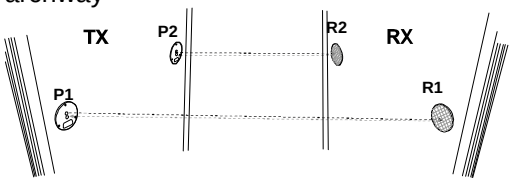
The Detector can be equipped on request with emergency batteries, built-into the archway, that switch in automatically, and allow the independent operation in the event of a mains failure. The batteries recharge automatically when the metal detector is connected to the AC power supply and switched on. An audible "flat battery" signal is activated when the battery charge goes below the operational limit of the Metal Detector (signal endurance: about 12 hours)Two battery set are available:
- 0.8 Ah: Emergency Battery, built-into Lower Connection Box; operating time: 35-40 minutes, depending on the configuration
- 9.0 Ah: Long Life Crossbar Battery Back-Up, installed on the cross-bar; operating time: 7-8 hours, depending on the configuration



BC: Battery Pack; APSM2: Lower Connection Module with battery charger

2.1.2 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

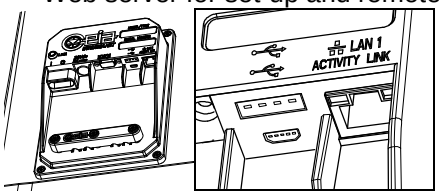


P1, P2: Photocells **R1, R2**: Reflectors

2.1.3 Ethernet interface [OPTION]

The Lower Connection Module can include an Ethernet module, with the following features:

- Built-in 10/100 base T Ethernet LAN interface; it includes an Ethernet port (labeled “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

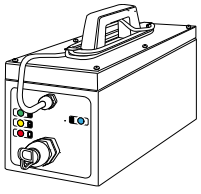


2.1.4 Infra Red Remote Control Unit [accessory]

This accessory consists of an infra red remote control unit which acts as the control unit keypad.
The remote control unit is powered by two AAA batteries (not included).
Remote control unit dimensions and weight: 118 x 46 x 27 mm (LxWxH); 45g (battery excluded).
Infrared Remote Control Unit mod. IRC-1, code 47180.

2.1.5 MBSU-2 Mains & Battery Supply Unit [accessory]

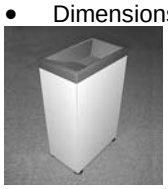
The MAINS & BATTERY SUPPLY UNIT is a portable device for providing power to CEIA Metal Detectors in outdoor applications or in particularly difficult environmental conditions. The unit is made up of two 12V, 12-15Ah batteries and a charger, and allows up to 15 hours (standard configuration) to 12 hours (full option configuration) of independent operation when mains power is not available. Recharging takes place automatically when mains voltage is present.
Protection level: IP65. Dimensions: 425x138x205mm. Weight: approx. 12.7 kg. Code: MBSU-2



2.1.6 Personal Effects Depository [accessory]

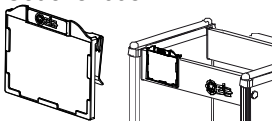
This article acts both as a spacer between the X-ray unit and the metal detector and as a temporary depository for metal personal effects which are not of dubious nature and therefore not required to undergo X-ray analysis (coins, keys and so on). Available in two versions:

- Dimensions: 610 x 370 x 975 mm. Weight: 25 kg. Code: 18074.
- Dimensions: 1200 x 370 x 975 mm. Weight: 50kg. Code: 39491.



2.1.7 ID-Holder [accessory]

This accessory is designed to be hung to a crossbar of the archway, either at the entrance or the exit side. It can hold, for instance, a notice or an ID number for waiting people or for the screener.
Code: 54095.



2.1.8 Chip cards [accessory] Chip cards [accessory] Chip cards [accessory] Chip cards [accessory] Chip cards [accessory]

CEIA Chip Cards allow the operator to adjust the detector without opening the front cover of the control unit.

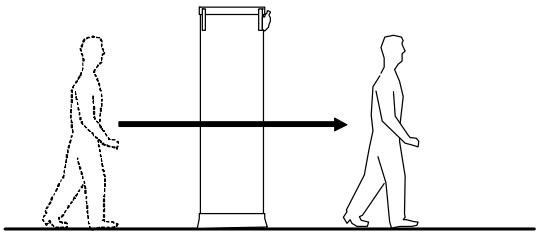
- **Alarm volume adjustment Chip Card** This Chip Card allows to adjust the volume of the acoustic alarm. Code: 3538.
- **Alarm tone adjustment Chip Card** This Chip Card allows to adjust the tone of the acoustic alarm. Code: 3539.
- **Counter reading Chip Card** This Chip Card allows reading of the alarm counter. Code: 3540.
- **Counter reset Chip Card** This Chip Card allows resetting of the alarm counter. Code: 17866.
- **Metal Detector Operativeness** This card allows setting the unit in stand-by mode. Code: 55480
- **Gate Access** This card allows setting the unit in locked mode. Code: 55784

3 OPERATION AND USE

3.1 Purpose of the Walk-Through Metal Detector

A Walk-Through Metal Detector is a unit that reacts to the metal masses present on a person's body. As part of the normal screening process, people are required to walk through the detector archway.

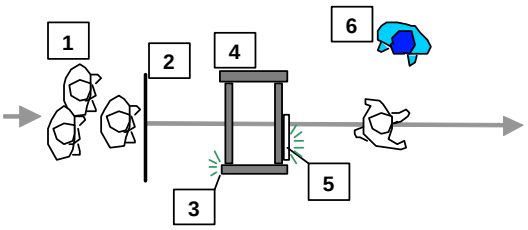
A complete analysis requires a complete passage through the archway.



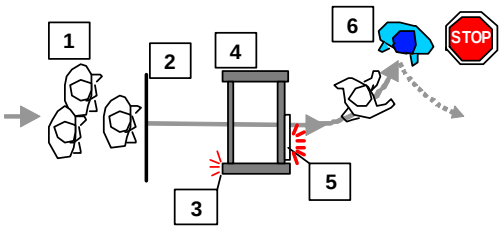
The equipment is calibrated by maintenance technicians according to the Security Responsible Authority requirements: therefore, an alarm is given (by means of optical and acoustical signals) if a person walks through the unit carrying more metal than the standard amount specified by the Security Authority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

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

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



Transit without alarm



Transit with alarm

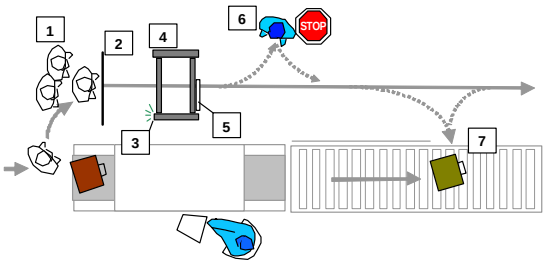
1: Line of people waiting to be inspected
2: Waiting line
3: Entry pacing lights
4: Walk-through Metal Detector
5: Walk-through Metal Detector control unit
6: Inspector

3.3 Using the Walk-Through Metal Detector

3.3.1 General Notes

To screen people using the Walk-Through Metal Detector, the guidelines described below should be followed.

- Instruct the people to deposit their **hand-luggage, belt bag, coats, cellular phones, cameras, walkmans, palm organizers, calculators** and **spectacle cases** on the X-ray conveyor belt or in special containers, maintaining a distance of at least one meter from the Walk-Through Metal Detector archway.



1: Line of people waiting to be inspected
2: Waiting line
3: Entry pacing lights
4: Walk-through Metal Detector archway
5: Walk-through Metal Detector control unit
6: Inspector
7: Luggage recovery area

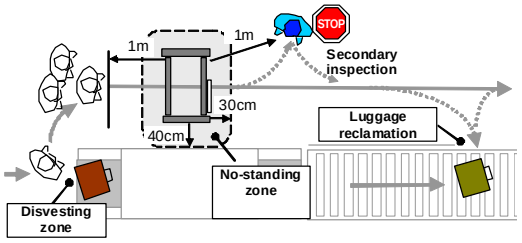
Example of people inspection

- Allow only one person at a time to walk through the unit. If two or more persons walk through the unit at the same time, instruct both persons to return to the entrance of the Walk-Through Metal Detector and wait for your signal to enter the unit, one at a time. During a transit the Entry pacing lights lights up in red ("STOP"), indicating to people standing in front of the archway they must wait until it becomes free again.

NOTE. Occasionally an adult person may enter the Walk-Through Metal Detector while carrying an infant in their arms. When this situation occurs, both persons may be allowed through the unit. If the alarm is not activated, no further search is required ; however, if the alarm is activated, both persons will need to be screened.

- If the alarm of the Walk-Through Metal Detector is not activated, no further search is required.
- If the alarm of the Walk-Through Metal Detector is activated it indicates that the person is carrying metal masses which could be dangerous. In these cases a second screening is necessary, in order to find the mass which caused the alarm, according to the search procedures specified by the Security Authority.
  Unless these secondary screening procedures are performed using different inspection devices (such as Walk-Through Metal Detectors, hand-held Metal Detectors, shoe analyzers, etc.), it is recommended that the screening process is completed with a final transit through the Metal Detector with no alarms, after removing all suspect metal masses.
- Whenever a Walk-Through Metal Detector alarm occurs the Entry pacing lights display turns red (message "STOP"), indicating to the other person that they must wait until the person has cleared the gate.
  Otherwise the display remains green, indicating that another person may go through the Walk-Through Metal Detector, once authorized by the screener.

Anyway, the Metal Detector operates continually for detection regardless to the state of the Entry pacing lights .



Recommended distances (refer to ASTM F2401-04).

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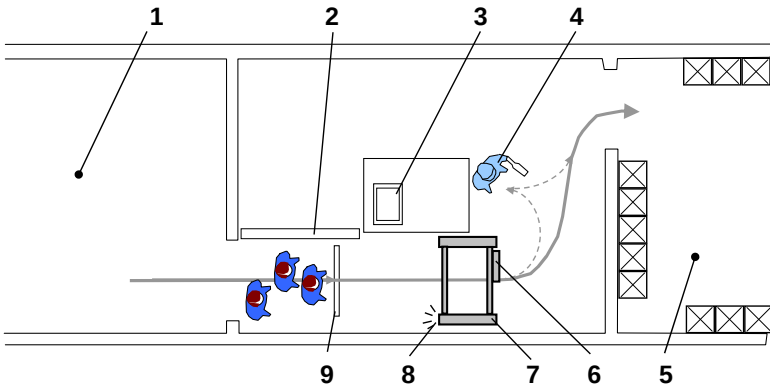
3.3.2 People screening in an industrial/general purpose application (Loss Prevention)



1 Monitored area (working area)
2 Barrier
3 Object-holding tray
4 Inspector
5 Exit area (changing room)
6 Walk-through Metal Detector control unit
7 Walk-through Metal Detector
8 Entry pacing lights
9 Waiting line

Example of application in an industrial environment

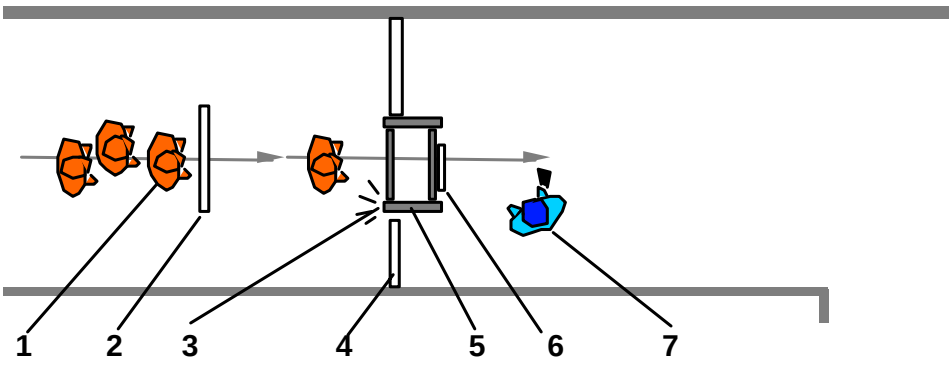
- Instruct the people to deposit their personal effects on an *object-holding tray*, maintaining a distance of at least one meter from the walk-through metal detector archway. **IMPORTANT!** In order to detect very small metal objects people passing through the archway must wear **clothes with no metal parts**!
- Instruct the people to wait for their inspection near the walk-through metal detector, but at a distance of at least one meter (see example in the figure below); barriers and cordons in insulating material may be used to form a line of people.
- Allow only one person at a time to walk through the unit. If two or more people walk through the unit at the same time, instruct both people to return to the entrance of the walk-through metal detector and wait for your signal to enter the unit, one at a time. During a transit the Entry pacing lights lights up in red ("STOP"), indicating to people standing in front of the archway they must wait until it becomes free again.
- If the alarm of the walk-through metal detector is not activated, no further search is required..
- If the alarm of the walk-through metal detector is activated, it indicates that the people is carrying metal masses. In these cases a second screening is necessary, in order to find the mass which caused the alarm, according to the search procedures specified by the Security Guidelines (for instance, inspection by means of a hand-held metal detector).
  Unless these secondary screening procedures are performed using different inspection devices (such as walk-through metal detectors, hand-held metal detectors, shoe analyzers, etc.), it is

recommended that the screening process is completed with a final transit through the metal detector with no alarms, after removing all suspect metal masses.

- Whenever a Walk-Through Metal Detector alarm occurs the Entry pacing lights display turns red (message "STOP"), indicating to the other person that they must wait until the person has cleared the gate.
  Otherwise the display remains green, indicating that another person may go through the Walk-Through Metal Detector, once authorized by the screener.
  Anyway, the Metal Detector operates continually for detection regardless to the state of the Signaling device.

3.3.2.1 Prisoner screening without personal effects inspection

In this case no X-ray unit are usually adopted. All the above mentioned notes are applicable, except for actions related to large metal personal effects. All advices mentioned in the previous paragraph are applicable, with the exception of the action related to the personal effects.



1 Line of people waiting to be inspected (prisoners)
2 Waiting line
3 Entry pacing lights
4 Barrier
5 Walk-through Metal Detector
6 Walk-through Metal Detector control unit
7 Inspector provided with a hand –held metal detector

Example of prisoners inspection checkpoint in a prison

3.3.3 Sources of interference

CAUTION!
The Walk-Through Metal Detector creates a magnetic field which extends inside and around the archway. Because of this, the unit is sensitive not only to metal masses carried by people in transit, but also to masses of metal which may be located nearby. For the Walk-Through Metal Detector to function correctly, the following guidelines should be followed:

- Do not move the Walk-Through Metal Detector unit.
- When coming on duty, inspect the area surrounding the unit to ensure that all movable metal objects such as baggage carts or wheelchairs are more than one metre (three feet) from the archway.
- During operation, do not allow any metal objects such as baggage carts or wheelchairs to come within one metre (three feet) from the unit.
- Ensure that all crowd control barriers, if made in metal, are also kept at least one metre (three feet) away from the Walk-Through Metal Detector.
- Ensure that only one person enters the unit at a time.
- Do not allow waiting people to come closer than one metre (three feet) from the entrance of the unit.
- Do not allow the Walk-Through Metal Detector to be used as an unattended public walk-through access.
- Instruct the people to walk through the center of the archway so that they do not bump into the structure. It is important in general to prevent any impact with the archway, in order to avoid possible false alarms.

3.3.4 Screener operations

The screener in charge must be able to effect various operations described below:

- **Power on sequence**
  This operation shall be carried out every time it is necessary. REMARK: the equipment can provide continuous operation.
- **Operational test** (OFV - Operational Level Functionality Verification)
  This operation shall be carried out by the supervisor or the screener in charge every time it is required by the security specifications (for instance, both at start-up times and when a new shift comes on duty).
- **Alarm volume adjustment**
- **Alarm tone adjustment**
  This operation is recommended, if several Metal Detectors are installed close each other, in order to distinguish the alarm signal of each unit.
- **Switching off of the Walk-Through Metal Detector**
  This operation shall be done every time it is required by the security specifications (for instance, every time a check-point is closed).

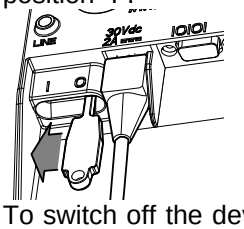
3.3.4.1 Calibration

The equipment is calibrated under close supervision of the Security Authority according to the Security Levels in use. This calibration is approved by a Security Authority representative, which is sole responsible for selecting the appropriate security level/sensitivity for its application. It is also the Security Authority representative's responsibility (or the screener in charge, if allowed by the Security Authority requirements) to verify calibration periodically using the test object(s) appropriate to the level of security selected, to insure no changes have occurred in the equipment.
REMARK: the current security level is shown at start-up on the control unit display and can be visualized at any moment, by pressing ↑ key.

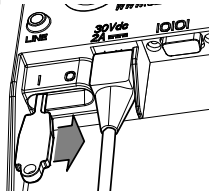
3.4 Controls

3.4.1 Main switch

To switch on the device insert the key **K** into the main switch **S1** in the position “0” and slide it to the position “I”.

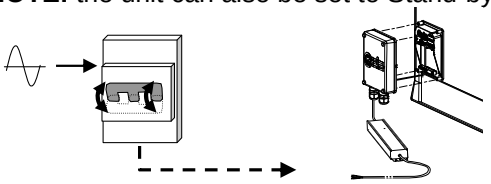


To switch off the device insert the key **K** into the main switch **S1** in the position “I” and slide it to the position “0”.



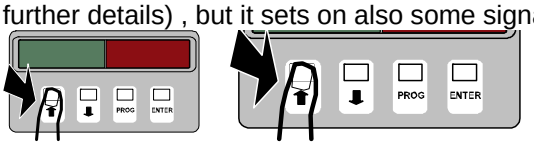
Version with protection caps: operate a switch in the upstream power circuitry to turn on and off the device.

NOTE: the unit can also be set to Stand-by mode by means of the MDO chip card.



3.4.2 Keypad

The keypad of the control unit is mainly used to adjust the device (see also section “Adjustments” for further details) , but it sets on also some signals directly.



Function out from programming mode

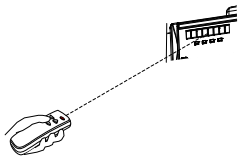
- ⬆ Display the current security level and the transit counter.
- ⬇ Test the audio and visual alarm signals.
- PROG Enter the programming mode.
- ENTER None.

Function in programming mode

- ⬆ Increase or Scroll up
- ⬇ Decrease or Scroll down
- PROG Exit from the programming mode.
- ENTER Confirm a data selection.

3.4.3 Infra-red remote control unit **ACCESSORY**

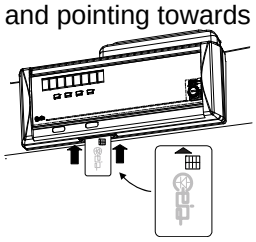
The remote control unit acts as the control unit keypad. This operation can be performed without opening the front panel of the control unit.



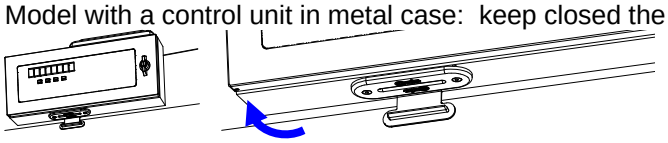
3.4.4 Chip card reader

The chip card reader is located on the bottom of the control unit. The operator can perform adjustments or visualise data by inserting a chip card into the reader, without opening the front panel of the control unit.
See also section “Adjustments” for further details.

Insert the chip card in the control unit's chip card reader, ensuring that the **arrow is turned upwards** and pointing towards the front of the control unit.



Model with a control unit in metal case: keep closed the slot when non in use .



WARNING! When the chip card is inserted, the unit is not operating: DO NOT USE THE CHIP CARD DURING THE SCREENING PROCEDURES !

WARNING! In case an error message is displayed (“CARDUNRE or CARDINVA or WRONVERS or DATAERRO), repeat the procedure completely.

3.5 Stand-by mode

The unit can be set to a stand-by mode by means of a specific chip card (MDO card). The card operates in toggle mode, exchanging the unit status (from the operational status to the stand-by status or viceversa) every time it is used.
When the unit is in stand-by mode, the detector is disabled, all signalling devices are deactivated and the power consumption is reduced.

NOTE: in this condition, the functions of the keypad remain available, as described above, with an inactivity timeout of 10 seconds (after this time the operation aborts).

Example: entering the stand-by mode

Display	Action	
---- / MDO STBY		Gently insert the card through the reader slot, until it is inserted all the way to the stop. Wait until the card has been recognized (the “MDO” message appears on the display).
MDO STBY		When the “MDO” message appears on the display the unit status has already been changed.
		Extract the card to quit: the unit enters the stand-by mode.

Example: entering the operational mode

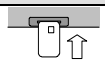
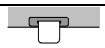
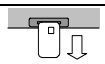
Display	Action	
MDO ON		Gently insert the card through the reader slot, until it is inserted all the way to the stop. Wait until the card has been recognized (the “MDO” message appears on the display).
MDO ON		When the “MDO” message appears on the display the unit status has already been changed.
----		Extract the card to quit: the unit is ready for use.

3.6 Locked mode

The unit can be set to a locked mode by means of a specific chip card (GTA card). The card operates in toggle mode, exchanging the unit status (from the operational status to the locked status or viceversa) every time it is used.
When the unit is in locked mode, the transit is forbidden and the pacing lights are in red on both sides.
Should a person pass through the gate, an alarm signal is provided:

- the PASSVIOL (PASSage VIOLation) message appears on the control unit display.
- both archway LED bars are completely lit
- the sounder is activated.

Example: entering the locking mode

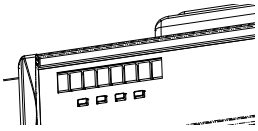
Display	Action	
---- / GTA CLOS		Gently insert the card through the reader slot, until it is inserted all the way to the stop. Wait until the card has been recognized (the “GTA” message appears on the display).
GTA CLOS		When the “GTA” message appears on the display the unit status has already been changed.
----		Extract the card to quit: the unit enters the locked mode.

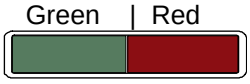
See also section “Indication of incorrect passages when the equipment is in “offline” or ”locked” condition.”

3.7 Indicators

3.7.1 Display

The display of the control unit is divided into two parts, a green section and a red section, and provides the following optical indications:





Indication proportional to the signal (bar-graph)

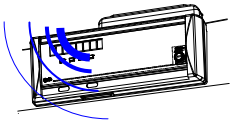
- Green section: signal under the alarm threshold
- Red section: signal over the alarm threshold

Messages

- Guiding messages during programming
- Self-diagnosis alerts
- Other information

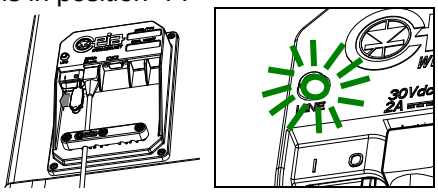
3.7.2 Sounder

The sounder of the control unit is activated in case of alarm or malfunction (Self-diagnosis).



3.7.3 Power optical indicator

The lower connection box includes a green optical indicator (LINE), which is on when the main switch is in position “I”.

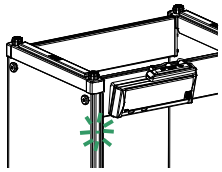


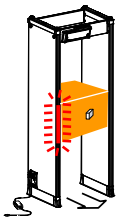
3.7.4 Zone indication light bar

The archway includes in the output side a zone indication light bar, whose length corresponds to the archway useful height. This bar provides the following indications:

1 **Power-indicator light**: a power-indicator light is located at the top of the zone indication light bar. Depending on the setting of the equipment, the indication might be continuous or blinking or always OFF

2 **Zone alarm indication**: In the case of an alarm, a group of LEDs of the bar lights up at the position of transit of the detected object.

1 

2 

3.7.5 Entry pacing lights

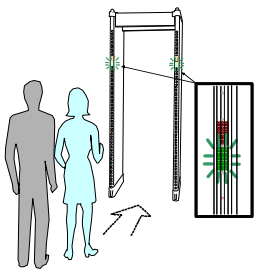
The Entry pacing light is located on the entry side of the archway. It indicates to waiting people the ready/busy state of the Metal Detector.

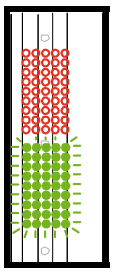
1 **GREEN indication.** Transit allowed: the detector is waiting for a transit.

2 **RED indication**. Transit not allowed:

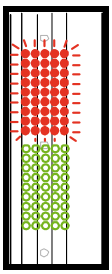
- a person is passing through the archway
- the detector is in alarm state, caused by the transit of a metal mass or by environmental interference or by a fault
- the detector is momentarily busy

NOTE: depending on the setting of the equipment, the indication might be continuous or blinking or always OFF.





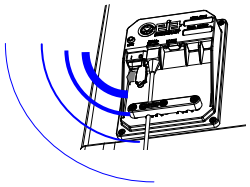
1



2

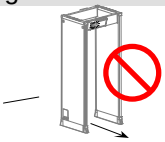
3.7.6 Audio indication of flat emergency battery

The versions fitted with emergency battery are provided with a sounder, located inside the Lower Connection Box, which is activated when the battery charge goes below the operational limit of the Metal Detector (signal endurance: about 12 hours).



3.8 Power on sequence

During the power-on sequence described below, ensure that no one passes through the Walk-Through Metal Detector until the “ready to operate” condition is reached.



Before switching on the Walk-Through Metal Detector make sure that it is in good condition and correctly installed (refer to the instructions in Section 2). If the Walk-Through Metal Detector does not conform to the description in section 2, or at any time functions differently from the way described in this section, stop people control operations and call for the Supervisor.

Once the power supply switch has been turned on the control unit will emit an acoustic alarm for a few seconds, and the exit control unit display will come on to show the sequence of messages described below:

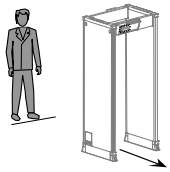
- Manufacturer
- Model
- Current security level
- Start-up phase
- Alarm indicator test
- Ready to operate

3.9 Signals from the Walk-Through Metal Detector during operation

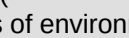
WARNING! If the Walk-Through Metal Detector gives signals different from the ones described below, stop people control operations and call for the supervisor.

3.9.1 Metal Detector waiting for a transit

When the Walk-Through Metal Detector is waiting for a transit it does not give any acoustic signal.

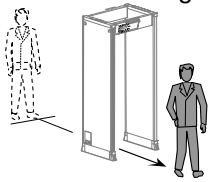


Display: “normal operation” indication ( four dashes in the green section)..
Sounder: off
Zone indication light bar: Power-indicator light
Entry pacing lights: GREEN: transit allowed

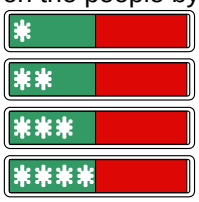
Environmental interferences
In case of non-negligible environmental interferences, the message  can appear: the device is still operational. For signals higher than one star ( or more), it is recommended that the service is contacted in order to verify possible sources of environmental interferences.

3.9.2 Metal Detector not in alarm

When the Walk-Through Metal Detector is not in alarm it does not give any acoustic signal.



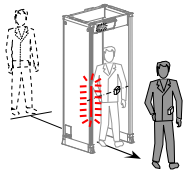
Display: "The green section of the control unit display gives an indication of the metal mass detected on the people by means of a number of luminous stars proportional to the mass:



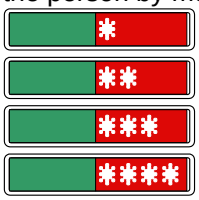
Sounder: off
Zone indication light bar: Power-indicator light.
Entry pacing lights: RED: transit in progress

3.9.3 Metal Detector in alarm state

When the Walk-Through Metal Detector gives an alarm signal it indicates that the person is carrying a quantity of metal exceeding the preselected alarm threshold.
In these cases the Walk-Through Metal Detector gives an acoustic signal.
The alarm state of the Walk-Through Metal Detector lasts a few seconds.



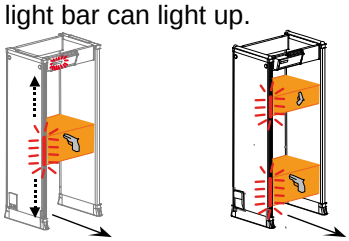
Display: the red section of the control unit display shows an indication of the metal mass detected on the person by means of a number of luminous stars proportional to the mass.



According to the pre-set programming of the unit, the display message could be replaced by 

.

Sounder: ON
Zone indication light bar: a group of LEDs lights up at the position of transit of the metal mass.
NOTE: if two or more metal masses transit the archway, two or more sections of the zone indication light bar can light up.



Entry pacing lights: RED: transit in progress and alarm signaling

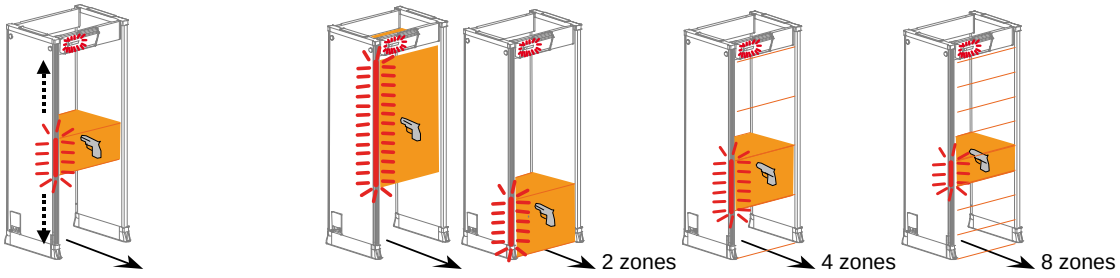
The Walk-Through Metal Detector can also go into alarm condition in the case of an accidental knock to the archway, environmental electromagnetic interferences or if there is a fault in the equipment.

3.9.3.1 Vertical zones alarm indication

Different choices of operating mode can be selected for the zone indication light bar:

- **Floating** (standard): a group of LEDs lights up at the height of transit of the metal mass (20 different zones of variable height and position).
- **Fixed zones** : the zone indication light bar is divided in sections of fixed height and position; when a metal mass is detected, one of these sections lights up.

Floating operation ***Fixed-zone operation***

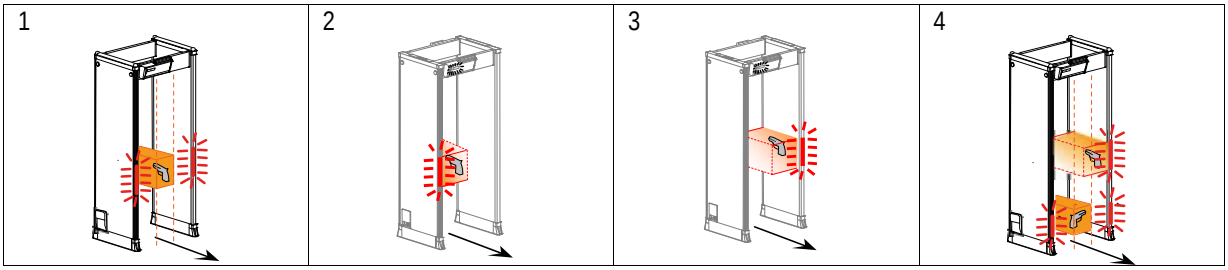


3.8.3.1.1 Horizontal zones alarm indication [OPTION]

In the case of an alarm the exit side bars light up to indicate the vertical and horizontal position of the detected mass.
If the metal mass is on the midline of the archway, both bars are activated.
If the metal mass is in the left zone or in the right zone of the archway, only one bar is activated.

1 Alarm indication for a single metal mass on the midline of the archway
2 Alarm indication for a single metal mass in the left zone of the archway
3 Alarm indication for a single metal mass in the right zone of the archway
4 Alarm indication for two metal masses:
v. - one mass in the lower zone, on the midline of the archway
vi. - the other mass in the right zone of the archway

According to the pre-set programming of the unit, this indication can be disabled.



3.9.3.2 Signalling of large metal mass

If the metal mass detected is much greater than the alarm threshold, a special signal is given (blinking zone indication light bar).
Security personnel can act suitably according to the type of signal given, for example by carrying out a thorough search of the person who has caused the alarm.

According to the pre-set programming of the unit, this indication can be disabled.

3.9.3.3 Signalling of Random Alarms

The Metal Detector can give an alarm signal even if the people walking through the unit is not carrying metal masses exceeding the alarm threshold. The random alarm probability is pre-set to a value between 0 (no random alarm) and 100 (alarm every transit).

Display: "QUOT" message on the display :

Sounder: ON; this kind of alarm is usually distinguished from that caused by a metal mass by an acoustic signal with different volume and tone.
Zone indication light bar: In the case of a random alarm, the light bar remains OFF.
Entry pacing lights: RED: transit in progress and alarm signaling

According to the pre-set programming of the unit, the display message could be replaced by  or  and the acoustic signal could even be the same of that caused by a metal mass.

According to the pre-set programming of the unit, the light bar could be completely ON.

3.9.3.6 Metal Type Indication [OPTION]

In the case of an alarm the control unit display indicates the type of the metal mass detected.

ferrous metal

non ferrous metal

According to the pre-set programming of the unit, this indication can be disabled.

3.11 Other messages

3.11.1 Self-diagnosis

Display: "Self-diagnosis message:

Example 1 message indicating antenna damaged or disconnected from the electronics unit:

Example 2: Implementation phase of operating parameter modification, Metal Detector not operational:

Sounder: ON

3.11.2 Emergency battery power – mains voltage absent

The following indications are provided only if the device is equipped with an emergency battery pack.

3.11.2.1 Device powered by the battery (example 1)

Display: power in use is signalled by a flashing error message on the right of the display (

).
Sounder: ON

According to the pre-set programming of the unit, this indication can be disabled.

3.11.2.2 Device powered by the battery (example 2)

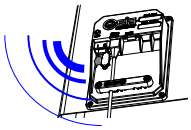
Display: power supply is indicated by a flashing letter "B" on the right of the display (

).
Sounder: off.

According to the pre-set programming of the unit, this indication can be disabled.

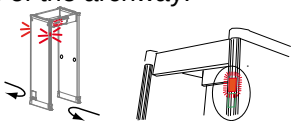
3.11.2.3 Emergency batteries discharged

The Metal Detector is not operational, and the power supply must be restored (mains supply or spare emergency batteries). .
Display: off ( ).
Sounder: An auxiliary sounder located inside the lower connection module is activated until the batteries are completely discharged



3.11.3 Indication of incorrect passages when the equipment is in “offline” or ”locked” condition

Offline or Locked condition: both transit directions are prohibited.
The pacing lights are red on both sides of the archway.



In this state the unit can signal the following events:

Incomplete transit of people through the gate.
In this case, the unit provides an alarm signal with duration, volume and tone different from that of the metal alarm.
The message “PASSVIOL” (passage violation) is provided on the control unit display.

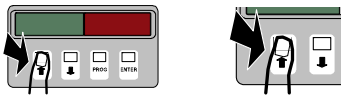
Complete transit of people through the gate.
In this case, the unit provides, as for the previous point, an alarm signal with volume and tone different from that of the metal alarm.
The message “PASSVIOL (passage violation) is provided on the control unit display.
The alarm signal is not automatically reset. The operator has to reset the alarm using a special chip card (command RE).

Detection of a metal mass over the alarm threshold without an effective transit of people through the gate.
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.

depending on the setting of the equipment, the indication might be disabled.

3.11.4 Information available via the keypad

When the key is pressed, the display shows, in sequence, the values of some operating parameters without having to enter programming mode.



Security level

The detector is delivered with some settings (security levels) pre-loaded in factory. Each one of these security levels identifies a specific set of test pieces to be detected. Usually the equipment is set to one of the available security levels, according to the specifications of the Security Authority.

The display shows the name of the Security Level currently selected. If this setting has been modified affecting detection capability, an additional “MODIFIED” indication appears.
If the current setting does not correspond to any Security levels pre-memorised in factory, a “NO SET” message is provided.

Number of inward transits
The display shows the number of transits (“CI”) carried out through the gate in the pre-defined inward direction. The read-out is updated in real time.

Number of outward transits
The display shows the number of transits (“C0”) carried out through the gate in the opposite direction to the pre-defined inward direction. The read-out is updated in real time.

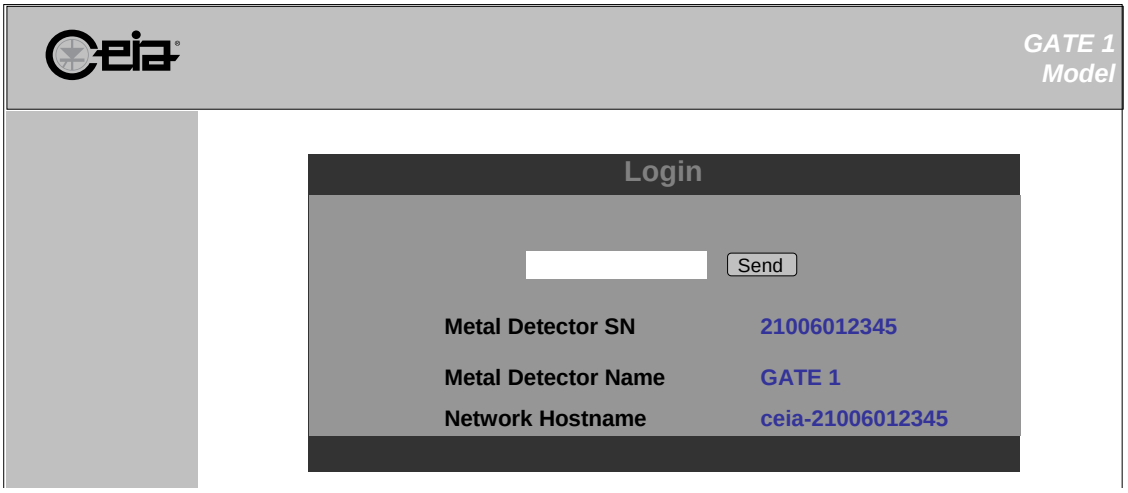
The messages described above remain activated for a maximum time of 2 minutes .

3.11.4.3 Alarm Test

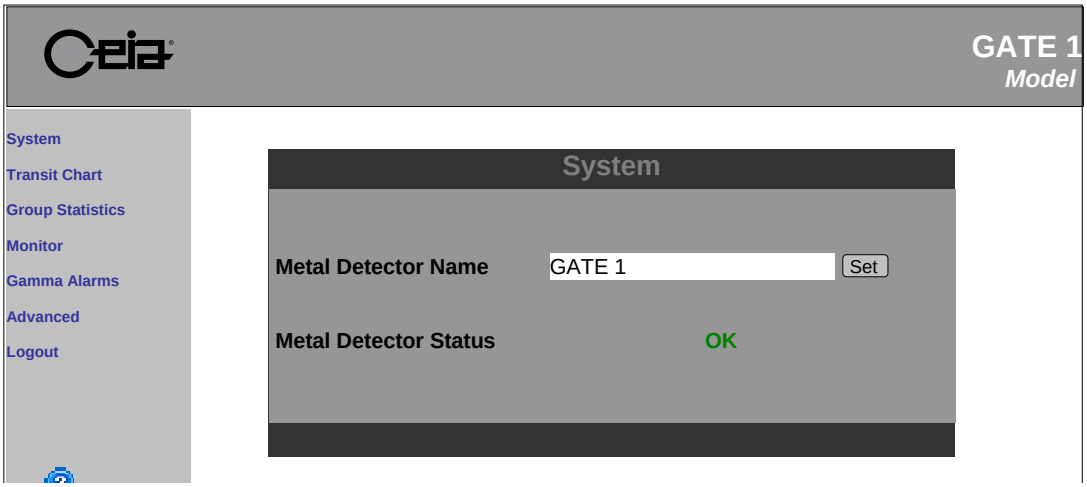
Pressing ↓ key several times, the visual and audible alarm signals are activated cyclically.

3.12 How to Access the Web Server (only with Ethernet interface installed)

- Run an Internet browser
- Search the available devices using the Bonjour utility: a list of the connected devices appears in a box on the left; select the desired device.
    - Otherwise, if Bonjour utility is not available, type the Metal Detector IP address (or its hostname, in DHCP mode only) in the URL field.
- A login box appears, reporting the Metal Detector name and the Network Hostname of the device. Enter a valid programming password of the WTMD.



- 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. .



- The menu of the available functions is displayed on the left. Press "Help" for detailed information.

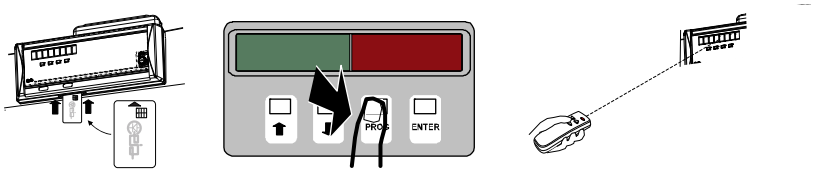
System	system info and status
Transits Chart	diagram of the transits occurred within a selected day
Transits Statistics	diagram of all the devices of the group , with the indication of their status and setting
Monitor	monitoring of the group devices, with indication of their status and setting
Logout	disconnection from the device

3.13 Adjustment

WARNING! It is recommended that, after each adjustment, whatever means has been used (local keyboard, chip card,…), a quick test of the detection capability and the indicators (light bar, sounder and display) is carried out. This can be performed by passing through a test piece such as the OFV sphere.

The unit can be adjusted using different means:

- **Chip card** (ACCESSORY)
- **Programming Keypad of the control unit**
- **Infra-red remote control unit** [ACCESSORY]:



Protection mode

- **Chip card**
  - Only the operating parameter supported by the chip card can be changed: any other modification of the settings is prevented as all other parameters cannot be accessed. The card can be used without opening the front panel to access the internal keypad.
  - If the chip card supports a command affecting the detection capability, a confirmation through the keypad is required (message “CONFIRM” on the display: press ENTER key to continue).
  - If necessary, the use of a chip card can be protected by a specific password.

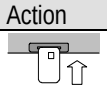
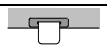
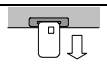
- **Programming Keypad of the control unit**
  - Hardware key: security lock of the front panel. The front panel protects the programming keypad.
  - Software key: password to access programming .

- **Infra-red remote control unit**
  - It acts as the control unit keypad, with no need to open its front panel.
  - Software key: password to access programming (the front panel can remain closed).

3.13.1 Adjustment by means of a chip card

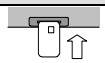
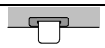
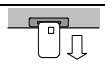
3.13.1.1 Alarm volume adjustment

Chip card id.: "Operator level: volume command"

Display	Action	
---- AV 2		Gently insert the card through the reader slot, until it is inserted all the way to the stop. Wait until the card has been recognized (the “AV” message appears on the display).
AV 2 AV 3 :		For the whole time the card is inserted the acoustic alarm is activated, slowly increasing in volume (cyclically).
AV 5 ----		To program the alarm volume, extract the card when the sound has the desired intensity; the walk-through metal detector will store the setting.

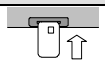
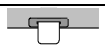
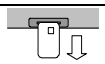
3.13.1.2 Alarm tone adjustment

Chip card id.: "Operator level: tone command"

Display	Action	
---- AT 1		Gently insert the card through the reader slot, until it is inserted all the way to the stop. Wait until the card has been recognized (the “AT” message appears on the display).
AT 1 AT 2 :		For the whole time the card is inserted the acoustic alarm is activated, slowly changing the tone (cyclically).
AT 6 ----		Extract the card when the sound has the desired tone; the walk-through metal detector will store the setting.

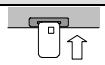
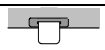
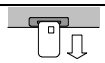
3.13.1.3 Alarm counter reading

Chip card id.: "Counter reading"

Display		Action	
---- P 100			Gently insert the card through the reader slot, until it is inserted all the way to the stop. Wait until the card has been recognized (the message on the display changes).
P 100	number of passages through the archway		For the whole time the card is inserted the display shows the alarm counter values in sequence.
TA 10	the total number of passages with alarm		
TR 10.0	the alarms/passages ratio as a percentage		
NA 8	the net number of passages with alarm		
NR 8.0	the net alarms/passages ratio as a percentage		
P 100 :	number of passages through the archway		
NA 8 ----			Extract the card to quit the reading mode.

3.13.1.4 Alarm counter reset

Chip card id.: "Counter reset"

Display	Action	
---- CR		Gently insert the card through the reader slot, until it is inserted all the way to the stop. Wait until the card has been recognized (the “CR” message appears on the display).
CR		When the “CR” message appears on the display the alarm counters are reset.
----		Extract the card to quit.

3.13.2 Programming by keypad

3.13.2.1 Alarm volume adjustment - Manual operation by programming

Display	Keypad	Action/Comment
----	PROG	Press the PROG key to enter the programming phase.
------		Six dashes will appear on the display (password prompt).

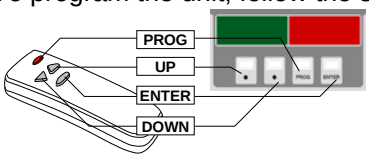
Display	Keypad	Action/Comment
000000 100000 : G00000 *10000 *A0000 : ****1	↑ ↑ : ENTER 1st character confirmation : ↑ : ENTER 2nd character confirmation ENTER last character confirmation	NOTE If no password has been defined, press the ENTER key and go to the next step. Enter the password (up to 6 letters or numbers). In the example on the left the password is "GATE01". Insert the password by pressing the arrow keys to select the characters and then pressing the ENTER key to confirm. Note: each confirmed character is replaced by a star ("*"). After entering the last character, the programming phase starts: the last used command will appear.
AV 4	↑ up ↓ down	Press the arrow keys to select the AV function, if a different one is displayed.
AV 4	ENTER	Press the ENTER key to change the AV setting: the acoustic alarm is activated.
AV 4	↑ increasing ↓ decreasing	Press the arrow keys to change the current value (for instance, from 4 to 7)
AV 7	ENTER	Press the ENTER key to confirm the new value (7).
AV 7	PROG	Press the PROG key to exit from the programming phase.
----	- -	The Metal Detector is ready to operate.

3.13.2.2 Alarm tone adjustment - Manual operation

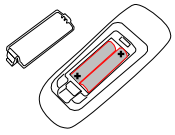
Display	Keypad	Action/Comment
AT 2	↑ Up ↓ Down	Operate as described in the previous paragraph, but select "AT" function, by pressing the arrow keys.

3.13.3 Programming using the Infra Red Remote Control Unit [ACCESSORY]

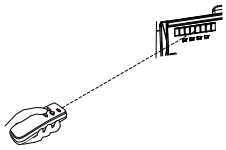
The remote control unit acts as the control unit keypad.
To program the unit, follow the same procedures illustrated in the previous paragraph.



Insert two AAA batteries to power it.
Respect the polarity indicated by the marks present in the battery compartment!



Press the keys while aiming the Remote Control Unit to the archway Control Unit .



REMARK: the detector can be adjusted without the need of opening the front cover of the archway control unit.

4 MAINTENANCE

4.1 Suggested Maintenance Schedule

Operation	Tools required	Suggested Period
Operational Test	OFV test kit, or other test pieces specified by the Security Authority	• Daily • At shift changes • In case of doubt of proper operation
General cleaning.	A slightly moist, non-abrasive cloth.	4 months
Visual check that all components of the Metal Detector are undamaged.	None.	• Daily • At shift changes • In case of doubt of proper operation

4.2 Self-diagnosis messages summary

4.2.1 Metal Detector Generic Messages

Display Message	Sounder	Possible cause	Recommended action
RX ERR	🔊	Fault	Discontinue equipment use and contact a technician
GATE Rx *x : 1,2,...*	🔊		
GATE Tx *x : 1,2,...*	🔊		
PROG	-		
RS232	-		
WAIT	🔊	Temporary adjustment phase	Wait for normal functioning indication.
WAIT			Message given during operational tests or adjustment of gain: wait.
MAINS ER	🔊	Emergency battery operation	Reconnect to the mains power supply
B	-		
 *Display OFF*	🔊 *	Power supply absent	
OFV NOIS TFV NOIS FGA NOIS	🔊	Possible environmental source of interference	Message given during a functionality test or gain adjustment at floor level: remove the source of interference
OFV FAIL TFV FAIL FGA FAIL	🔊	Wrong test procedure	Message given during a functionality test or gain adjustment at floor level: repeat the test correctly
REP	🔊		Repeat the transit.
PHOT ERR	🔊 ● ● ● ● ● pulsed sound	Photocell malfunction	Dirty photocells: Clean the photocells with a non-abrasive cloth Prolonged photocell activation (for instance, a person or an object may stand for a long time in front of the photocell): free the photocell beam. Fault in the photocells: contact a technician.
PASSVIOL	🔊	Transit of a person through the gate along a prohibited direction	Verify the reason of the transit.

* signal emitted by the lower connection box of a panel-shape model

4.2.2 Messages related to the Chip Card use

Display Message	Recommended action
PASSINVA	Contact a technician
DATAERRO	Replace the chip card Do not extract the card until the message "REMOVE" appears on the display
WRONVERS	Use a compatible chip card
CARDINVA	Use a compatible chip card
CARDUNRE	Use a compatible chip card
LOADING	Metal detector busy during data transfer from a chip card: wait.

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

Web site: www.ceia.net