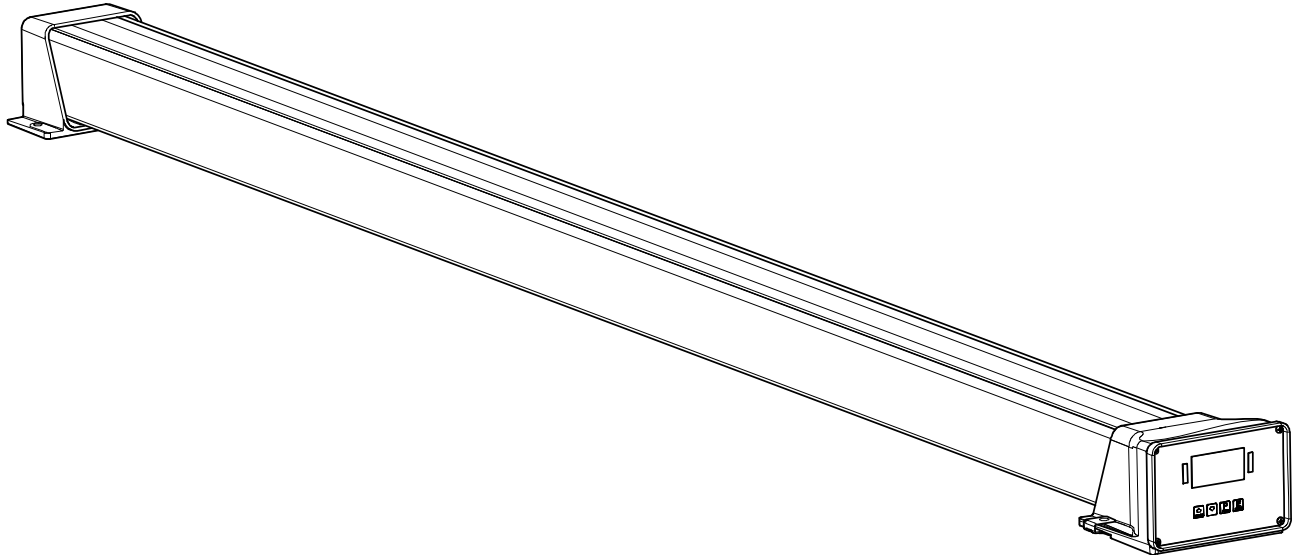




Metal Detector for the Textile Industry

TE

Installation, Use and Maintenance Manual

Document code	Date	Software version
FI001K0003v1200hUK	21/12/2021	v6.xxx



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. This manual must accompany the device described therein in the case of change of ownership, and until the device is broken up.

SYMBOLS



The equipment is marked with this pictogram in those places where the user is advised to refer to this instruction manual to prevent damage to the equipment. The pictogram also appears in the manual to indicate safety precautions, important operating instructions and other items of important information.



The equipment is marked with this pictogram in areas where high voltages are operating. Only skilled maintenance personnel are permitted to work in these areas. The same pictogram symbol appears in the manual where instructions or warnings are provided concerning these areas.



CEIA Metal Detectors employ low intensity electromagnetic fields in compliance with current legislation.

MAGNETIC FIELDS can affect pacemakers. Persons wearing pacemakers, cardiac defibrillators and other support devices must not operate close to the detection probe.

Persons wearing pacemakers who may need to approach this equipment should consult their medical practitioner beforehand.



This symbol appears in the manual where additional information, suggestions or other important notes are provided

REVISION TABLE

Rev.	Date	Author	Reference	Description
1000	15/02/2021	DTP – SF	-	First emission
1100	08/07/2021	DTP – SP	-	Small corrections
1110	13/09/2021	DTP – SF	2.8	Accessories update
1200	21/12/2021	DTP – SP	3.2.5.4 - 4.7	Remote programming

WARRANTY TERMS

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. Any form of tampering with the device, and in particular opening its container, is strictly forbidden and will invalidate the warranty.

Customer Satisfaction Report

C.E.I.A. objective is the maximum quality of products and services offered to the customer. Any comments and suggestions useful for achieving this objective will be highly appreciated and can be sent to us by compiling and returning the form available at:

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

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Read this manual carefully before installing, operating or carrying out maintenance on the device.

1 SAFETY INSTRUCTIONS - WARNINGS

1.1 General warnings

- The CEIA System is designed to be permanently installed in combination with equipment or devices assembled, installed and intended for permanent use at a predetermined location (fixed system).
- All personnel operating with or performing operations on the device must have adequate training and should be familiar with 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.
- Handle the device with care and without excessive force during installation, use and maintenance.
- Any modification to the configuration setup by CEIA is forbidden and voids all warranties and certifications.
- Follow the instructions contained in this manual for all operations relating to installation, use and maintenance of the device.

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.
- This manual must accompany the device described therein in the case of change of ownership, and until the device is broken up.
- It is the Customer's responsibility at the end of the installation to verify that the CEIA System's operation is not disturbed by any other device in the system where it is integrated and that the System itself does not interfere with the proper functioning of the other devices.

1.2 Use of the device

1.2.1 Correct uses

- The **TE** Metal Detector is an electronic device designed for the protection of calenders and quality of the final product, shearing machines and rolling mills from the introduction of magnetic and non-magnetic metal fragments that may be found in the incoming material (needles, screws, metal fragments, etc.).
- The final user is responsible for selecting the appropriate 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 ensure no changes have occurred in the equipment.
- The device is fitted with mechanical and electronic protections, described in this manual. Removing or reducing these protections is forbidden.

Application fields

- **Textile and Paper Industries:** protection of calenders, shearing machines and rolling mills from the introduction of magnetic and non-magnetic metal fragments.
- **Chemical Industry:** quality control of powders and limited-thickness products.

1.2.2 Prohibited uses

- Any use different from that described in this manual is forbidden.
- The **TE** Metal Detector is not suitable for installation or use in environments where, even accidentally, an explosive atmosphere could be present.

1.3 Installation warnings



Observe current regulations regarding electrical and personal safety for both the operator and the installer when installing the device.

- The power supply of the Metal Detector shall be fitted with appropriate protections against lightning.
- Make all electrical connections following the procedures described in the *Installation* section of this manual.
- This device contains electrical and electronic components, and may therefore be susceptible to fire. Do not install in explosive atmospheres or in contact with inflammable material, Do not use water or foam in the case of fire when the device is powered up.
- In order to ensure the degree of protection, it is mandatory to use cables with characteristics and diameter compliant with the device's cable glands and following the guidelines contained in this manual. Insert only a single cable for each gland and take care that all of them are connected correctly.
- Position the device as far as possible from sources of electromagnetic interference, such as transformers or motors.
- The device must be connected to a power supply circuit fitted with a switch or other device allowing the power to be cut off.
- The power supply cable must be connected to a socket containing an earth/ground contact. Any interruption in the conductor protection either inside or outside the device, or the detaching of the protective grounding terminal, renders the device dangerous. Intentional interruption is prohibited.
- Before connecting the device to the power supply, ensure that the power supply voltage corresponds to that indicated on the plate affixed to the device. Verification that the power supply conforms to the values specified 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 connections required for full installation have been carried out.
- After installation the device should be stable, and not subject to vibration or accidental movement. All connecting cables should be properly fastened down, in order to avoid knocks and accidental damage and to obtain optimum performance.
- Once the electrical connections have been completed, close the unused cable grips to stop water or other foreign bodies entering electronics unit.
- There are dangerous voltages inside the electronics unit. Close the cover and keep the key safe so that it is only available for use by trained personnel (Regulation EN 60204).

1.4 Operating warnings



STRONG MAGNETIC FIELDS can affect pacemakers. Wearers of pacemakers, cardiac defibrillators and other life supports should not work in the vicinity of the device.

Wearers MUST consult their doctor before ignoring this warning.

- 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 authorized service technicians should be called.

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

- *The device shows visible signs of wear and tear, especially on parts that ensures the device protections (boxes, gaskets, glands, fixing screws, etc.);*
- *The electrical cables or the equipotential ground connections are damaged.*
- *The power supply door is not correctly closed;*
- *The ground connections are not compliant to the safety standards;*
- *The device has suffered mechanical or electrical stress (shocks, bumps, etc...);*
- *The device does not operate correctly, respect on how described in this manual;*
- *The device has been stored for long periods in sub-optimal conditions;*
- *The device has suffered severe stress during transport;*
- *The inside of the device has come into contact with corrosive liquids.*
- *The device was present inside an environment where a fire or an explosion took place.*
- Do not supply power to the device when the power supply door is open.
- To avoid damage due to lightning, disconnect the power-supply cable during storms.
- Always remove dust that may be present on Metal Detector surfaces.

1.5 Maintenance warnings

- All maintenance and repairing operations shall only be carried out by trained personnel.
- The device must be disconnected from all power sources before undergoing any maintenance or cleaning, and before being moved.
- Perform all maintenance operations following the procedures described in the *Maintenance* section of this manual.
- Ensure that replacement fuses are of the correct rating and of the prescribed type. Makeshift fuses and short-circuiting of the fuse boards are strictly forbidden.
- Read the chapter on "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 with original components only.
- Any maintenance or repair of the device while open and energized should be avoided, and in any case should only be carried out by trained personnel who are fully aware of the risks which the operation entails, following the instructions given in the *Maintenance* section.
- Disposal of parts with environmental impact: follow the regulations in force in the country where the device is being used (refer to the *Maintenance* section).

2 DESCRIPTION

2.1 General description

The CEIA **TE** Metal Detector belongs to the family of micro-sensitive bar metal detectors whose high quality and reliability are universally recognised by leading world manufacturers of industrial machinery. These devices are the ideal means of protection for production lines against accidental damage caused by pieces of metal which can enter the manufacturing process along with the material.

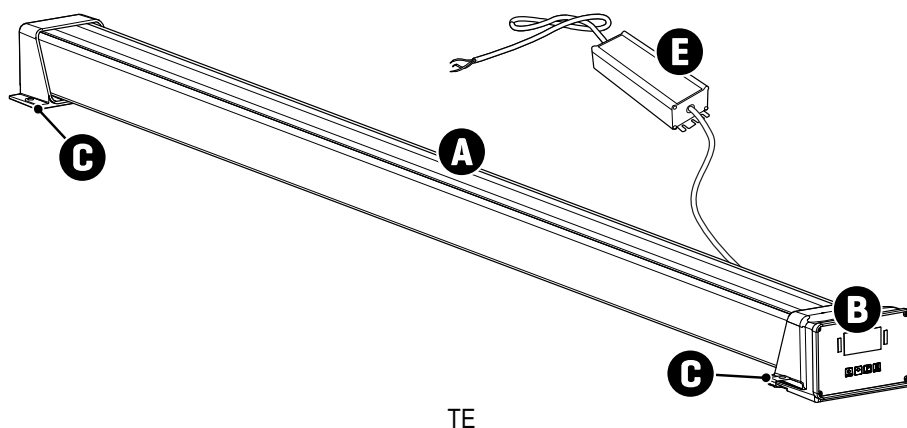
The **TE** Metal Detector signals the presence of magnetic and non-magnetic metal fragments, both on the exterior and in the interior of the product, and stops the machine. Sensitivity can be adjusted digitally depending on the size of the metal fragments which must be intercepted, and a special detection memory function also reveals the passage of several consecutive fragments.

Digital signal analysis allows the user to optimise detection with respect to the product's speed of passage and the metals to be intercepted, thus obtaining the best possible immunity to any external interference.

The **TE** Metal Detector is tested to conform to the Electrical Safety and Electromagnetic Compatibility Standards required for the CE mark.

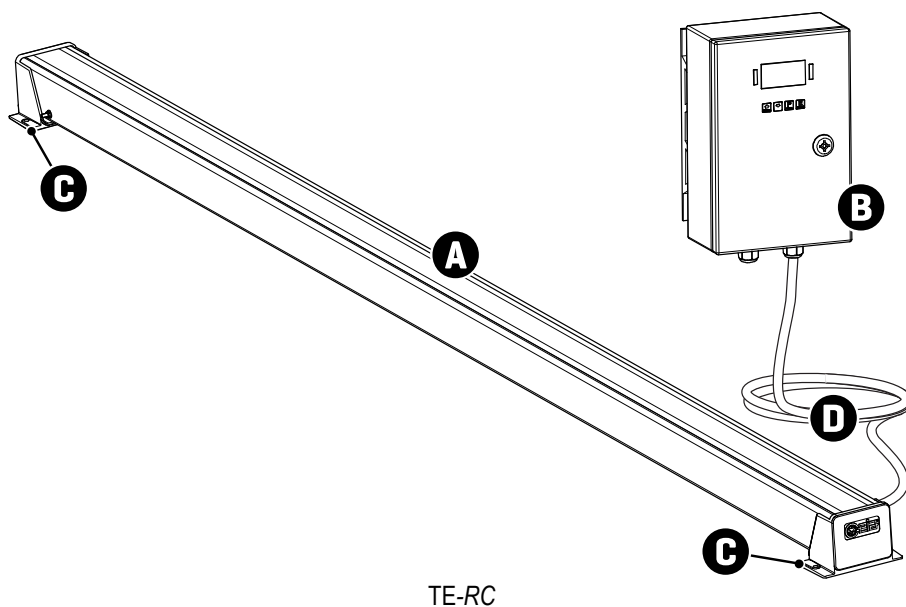
The other main features of the **TE** Metal Detector are as follows:

- Very high sensitivity
- Detection of both magnetic and non-magnetic metals
- Fast detection speed
- Maximum immunity to environmental interference
- Digital signal analysis
- Extraordinary reliability



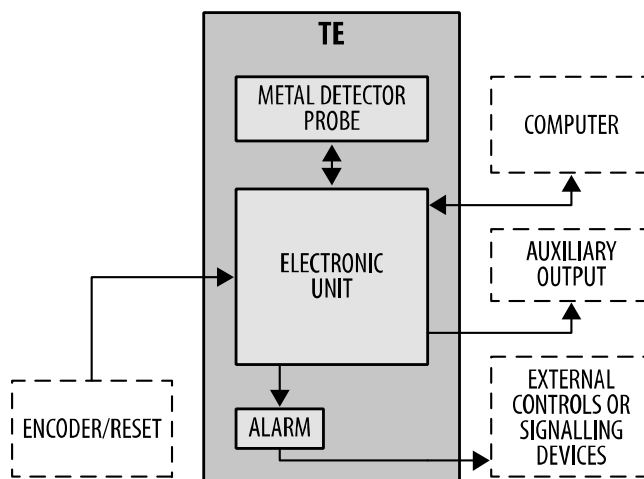
A	Detection probe
B	Electronics unit
C	Fixing supports

D	Electronics unit-probe connecting cable
E	AC/DC Power Supply Unit



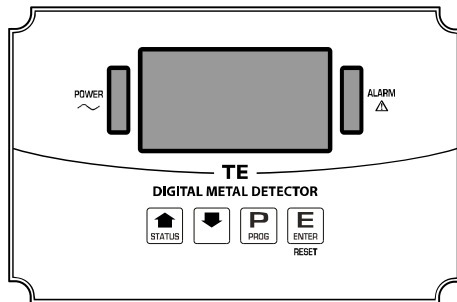
2.2 Functional Block Diagram

The Functional Block Diagram for the **TE** Metal Detector is shown here:



2.3 Control panel

The Control Panel includes the following elements:



POWER: a **green** indicator indicates the presence of power.

High-contrast graphic display to visualize the messages relating to use, programming and self-diagnosis of the device.

ALARM : a **red** indicator indicates the metal detector alarm (detection of a metal fragment or breakdown)



up/down keys, for parameter selection and modification of their values



P key (Programming), to enter and exit from programming phase



E key (Enter), to confirm any operation

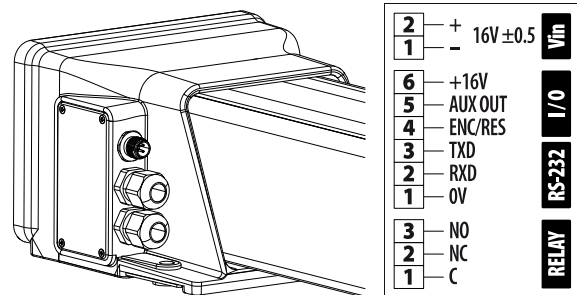
2.4 Connection panel

2.4.1 TE

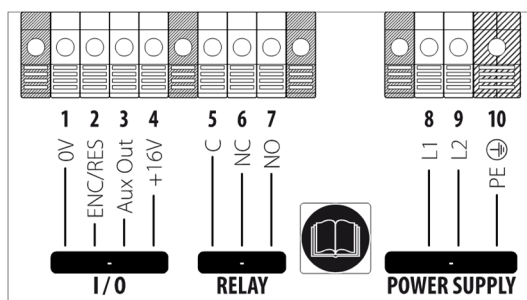
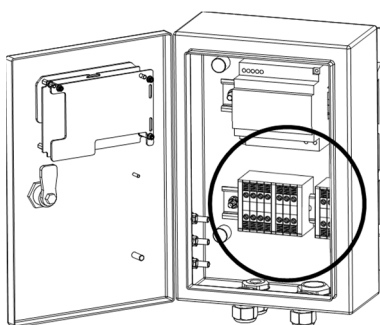
The contacts for connection of the power supply and external devices are positioned on the rear of the control panel.

In the compartment there is a connector for the power supply and a cable gland to pass a cable to connect any external inputs or slave devices.

The cable gland provides for the passage of a single cable with a defined diameter (see Installation chapter).



2.4.2 TE-RC



The contacts for the power supply connection and for all external devices are located inside the Electronics unit.

In the lower part of the Electronics unit there are some cable glands, provided to pass the power supply cable and all other connections to external devices.

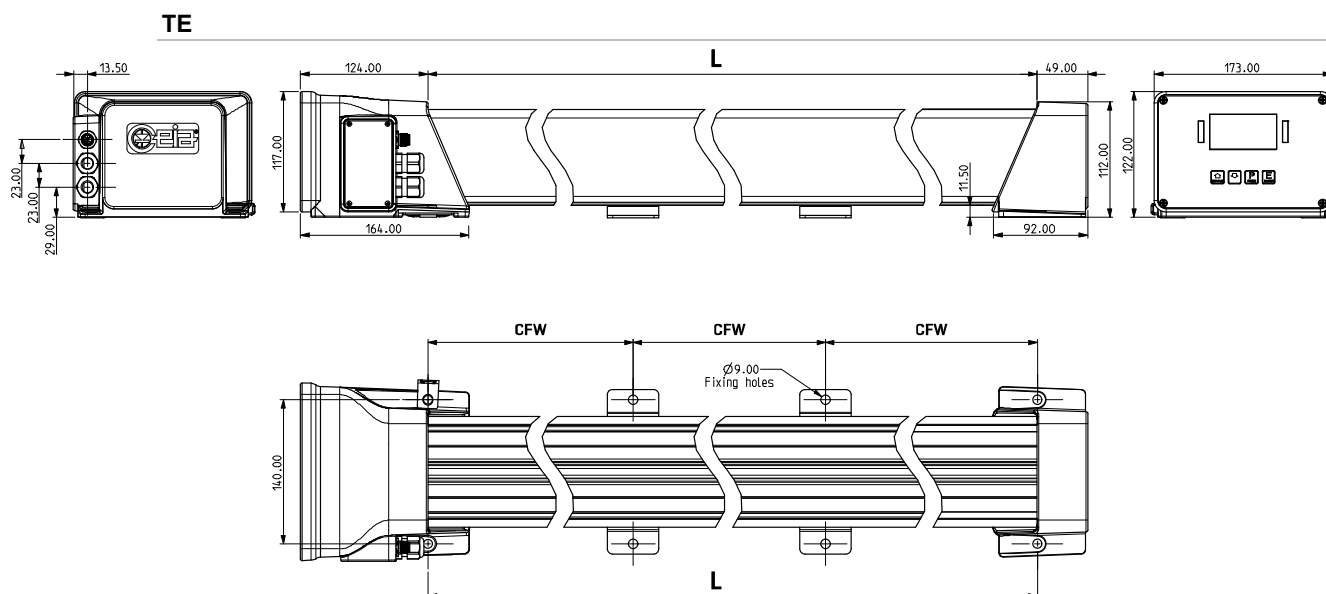
Each cable gland is designed to pass a single cable with a defined diameter (see Installation chapter).

2.5 Detection probe

The Metal Detector probe includes the following elements:

- Sensitive area (probe);
- Support feet to fix the probe to the production line;

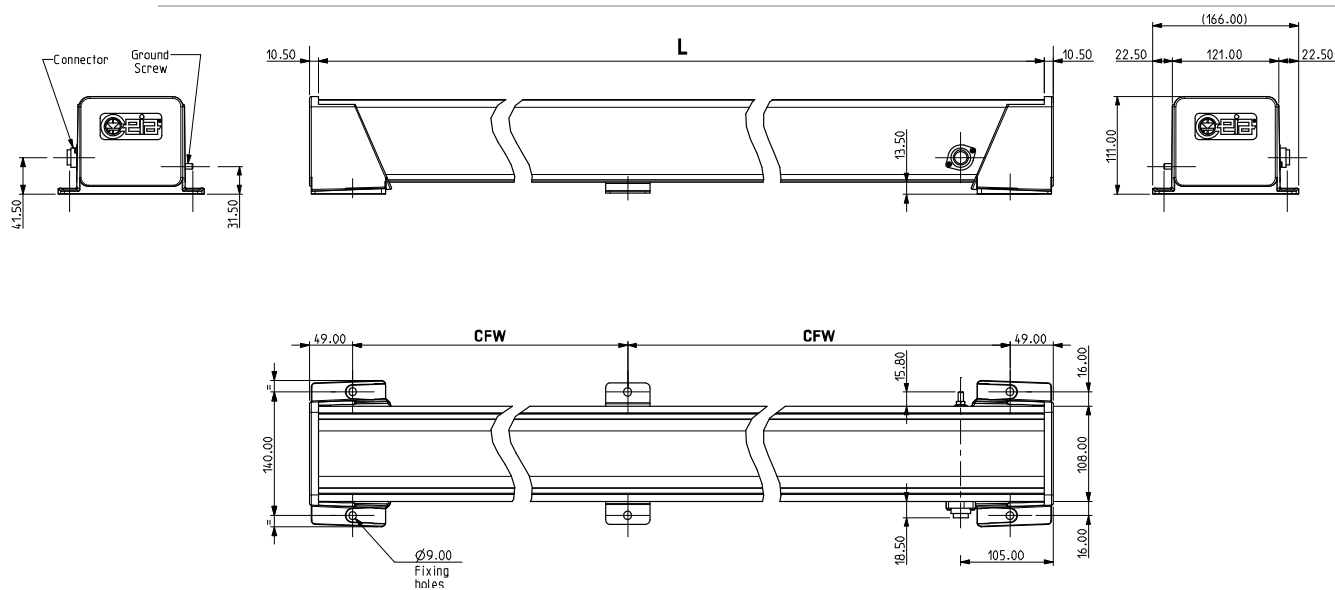
2.5.1 Probe dimensions



Model	Useful width L	Central Feet Quantity	CFW
TE-1300	1300 mm	-	-
TE-1500	1500 mm	-	-
TE-1700	1700 mm	-	-
TE-1900	1900 mm	-	-
TE-2100	2100 mm	-	-
TE-2300	2300 mm	-	-
TE-2500	2500 mm	-	-
TE-2700	2700 mm	-	-
TE-2900	2900 mm	-	-
TE-3100	3100 mm	1	1550 mm
TE-3300	3300 mm	1	1650 mm

Model	Useful width L	Central Feet Quantity	CFW
TE-3500	3500 mm	1	1750 mm
TE-3700	3700 mm	1	1850 mm
TE-3900	3900 mm	1	1950 mm
TE-4100	4100 mm	1	2050 mm
TE-4300	4300 mm	2	1433 mm
TE-4500	4500 mm	2	1500 mm
TE-4700	4700 mm	2	1567 mm
TE-4900	4900 mm	2	1633 mm
TE-5100	5100 mm	3	1275 mm
TE-5300	5300 mm	3	1325 mm

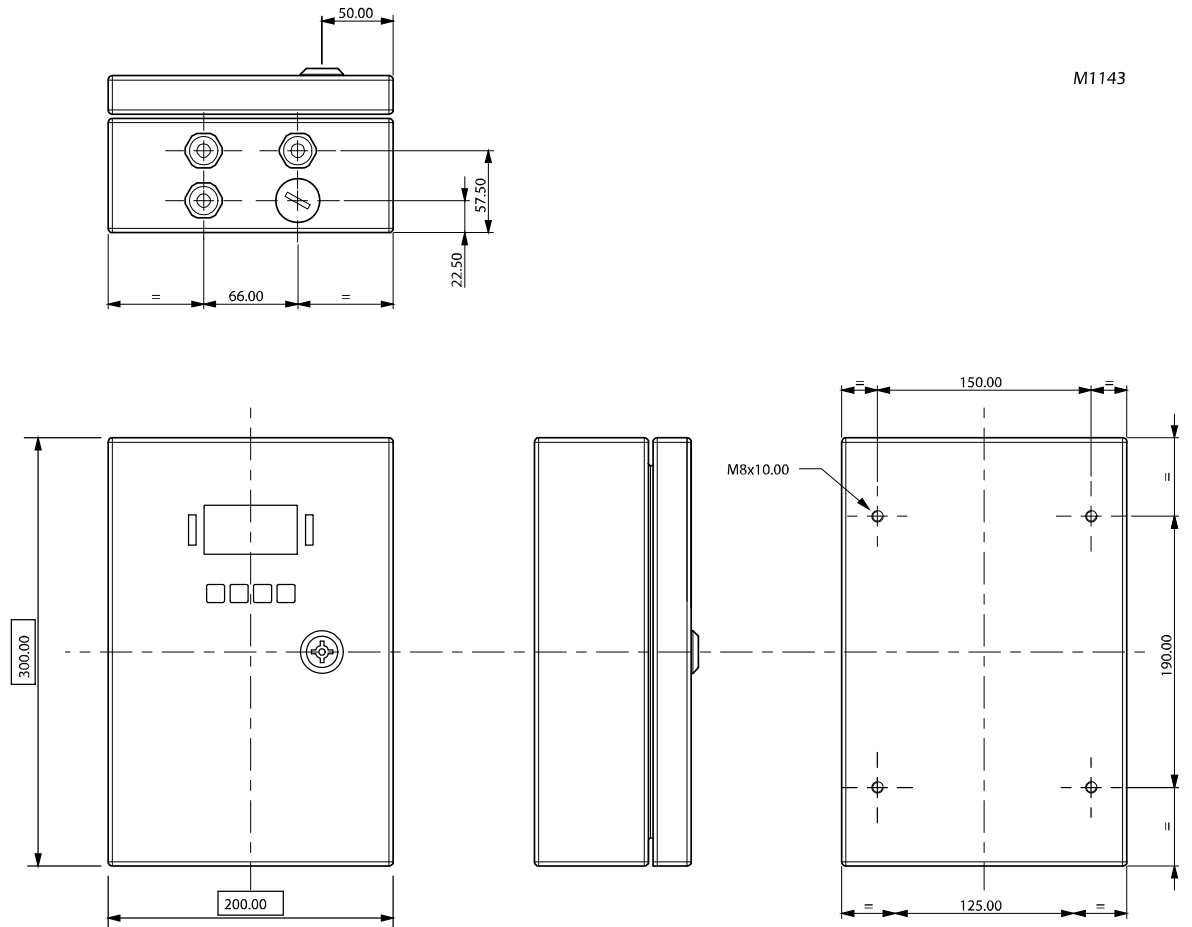
TE-RC



Model	Useful width L	Central Feet Quantity	CFW
TE-RC-1200	1265 mm	-	-
TE-RC-1300	1365 mm	-	-
TE-RC-1400	1465 mm	-	-
TE-RC-1500	1565 mm	-	-
TE-RC-1700	1765 mm	-	-
TE-RC-1800	1865 mm	-	-
TE-RC-1900	1965 mm	-	-
TE-RC-2000	2065 mm	-	-
TE-RC-2100	2165 mm	-	-

Model	Useful width L	Central Feet Quantity	CFW
TE-RC-2300	2365 mm	-	-
TE-RC-2400	2465 mm	-	-
TE-RC-2500	2565 mm	-	-
TE-RC-2700	2765 mm	-	-
TE-RC-2900	2965 mm	-	-
TE-RC-3000	3065 mm	1	1489 mm
TE-RC-3100	3165 mm	1	1539 mm
TE-RC-3200	3265 mm	1	1589 mm
TE-RC-3300	3365 mm	1	1639 mm

2.5.2 Electronic unit dimensions (TE-RC only)



2.5.3 Dimensions of the AC/DC Power Supply Unit (TE only)

TE



2.6 Safety devices and warning labels

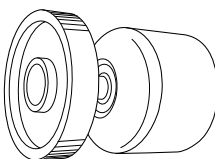
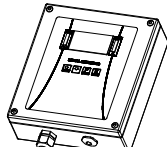
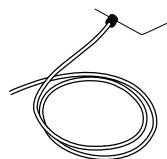
The **TE** is fitted with a list of safety features described below, in order to guarantee the proper protection level during correct use:

IP Protection degree	TE: IP40; TE-RC: IP65
Cable glands	In order to ensure the degree of protection, it is mandatory to use cables with characteristics and diameters compliant with the device glands and following the guidelines in this manual.
Self-diagnosis system	An internal self-diagnosis system constantly checks the Metal Detector's functionality. In the case of malfunction, a message is shown on the control display and all alarm indicators are activated together with corresponding relays.
Password	Access to Metal Detector parameters is protected by passwords.
Warning labels	There are some labels on the device to warn about opening the Electronics unit for maintenance.

2.7 Options

No options available for this device.

2.8 Accessories

Accessory		Code
	Encoder Kit	37995
	RCU Remote Control Unit	65307
	RCU cable	5 m
		custom lenght
	Test sample with sphere in ferrous material (AISI420)	ø 0.8 mm
		ø 1.0 mm
		ø 1.2 mm
		ø 1.5 mm
	Test sample with sphere in non-ferrous metal (CuSn7)	ø 1.0 mm
		ø 1.2 mm
		ø 1.5 mm
		ø 2.0 mm
	Test sample with sphere in stainless steel (AISI316)	ø 1.2 mm
		ø 1.5 mm
		ø 2.0 mm
		ø 2.5 mm
	Test samples kit	Fe 0.8 mm, Non-Fe 1.0 mm, AISI316 1.2 mm
		Fe 0.8 mm, Non-Fe 1.2 mm, AISI316 1.5 mm
		Fe 1.0 mm, Non-Fe 1.2 mm, AISI316 1.5 mm
		Fe 1.2 mm, Non-Fe 1.5 mm, AISI316 2.0 mm
		Fe 1.5 mm, Non-Fe 2.0 mm, AISI316 2.5 mm
		Fe 1.2 mm, Non-Fe 2.0 mm, AISI316 2.5 mm

2.9 Technical Characteristics

General Features	Adjustable sensitivity with wide dynamic range (0-299)		
	Interception speed programmable according to its application		
	Digital programming with OLED graphic display		
	Visual alarm signal		
	Built-in self-diagnosis system		
	Permanent settings memory without battery back-up		
Structures	Protection degree	TE	IP40
		TE-RC	IP65
	Overall dimensions (WxDxH)	See paragraph 2.5	
	Transit area (WxH)	See paragraph 2.5.1	
Power supply	Voltage	100-240 V~ monophase – 50-60 Hz	
	Current	0.64 A	
Programming	Type	Local	Through built-in keyboard
		Remote	BT Wireless
	Data capabilities	Internal memory	1000 events
			20 products
Signalling	Audible	Internal buzzer	
	Visual	Graphic display with bar-graph indication	
		Bright indicators	RED: Alarm or fault
		on Control Panel	GREEN: Line present
Security and Safety	Programming access	2 access levels: Operator and Supervisor.	
	Galvanic isolation of line voltage		
	Low operating voltage	No danger for the operator	
	In compliance with international standards of safety and radio interference		
Control inputs	Connection for	Alarm reset or Encoder input	
	BT Wireless interface	Incorporated	
Outputs	1 programmable relay	Alarm relay	
Environmental Data	Temperature	Working	0 – +50 °C
		Environmental	-10 – +55 °C
		Storage	-25 ÷ +55 °C
	Relative humidity	5 – 90 %, without condensation	
Certification and Conformity	Safety	EN 60204-1:2006 Safety of machinery – Electrical equipment of machines – Part 1: General requirements	
	EMC	EN61000-6-2:2005 Electromagnetic Compatibility(EMC) – Part 6-2: Generic standards – Emission standard for industrial environments	
		EN61000-6-4:2007 Electromagnetic Compatibility(EMC) – Part 6-4: Generic standards – Immunity for industrial environments	
		In line with the European Directive 2004/108/CE.	

3 INSTALLATION



Before performing any installation procedure on the device, read the **Safety instructions – Warnings** section of this manual carefully

3.1 Mechanical Installation

The detector will usually be mounted on the framework provided at the entrance to the machine as a cloth guide, or on a suitable support frame, also at the entrance to the machine (see picture below). When mounting, one must bear in mind the solidity of the structure to which the apparatus is to be fixed, so as to avoid oscillation or flexing which might damage the detector.

The following guidelines should also be observed:

- the guide-bars positioned before and after the detector, consisting of a drawn steel tube welded to the appropriate supports, must be placed at 150 mm from the apparatus;
- The bar-supports should be welded to the sides of the support stanchion, or screwed at one side and insulated at the other, to avoid loops;
- Where the bars consist of rotating cylinders, they should be:
 - insulated **at one support only** (point **A**), and the other ends connected to normal bearings to allow static electricity to escape during rotation. Similar insulation should be made in the case of the expander bars (point **B**).
 - Cylindrical and not outlaying.
- The whole structure must be welded.
- Electric motors and cables must be placed as far as possible from the detector.



It is strongly recommended that the material should be in light contact with the sensitive part of the Metal Detector.

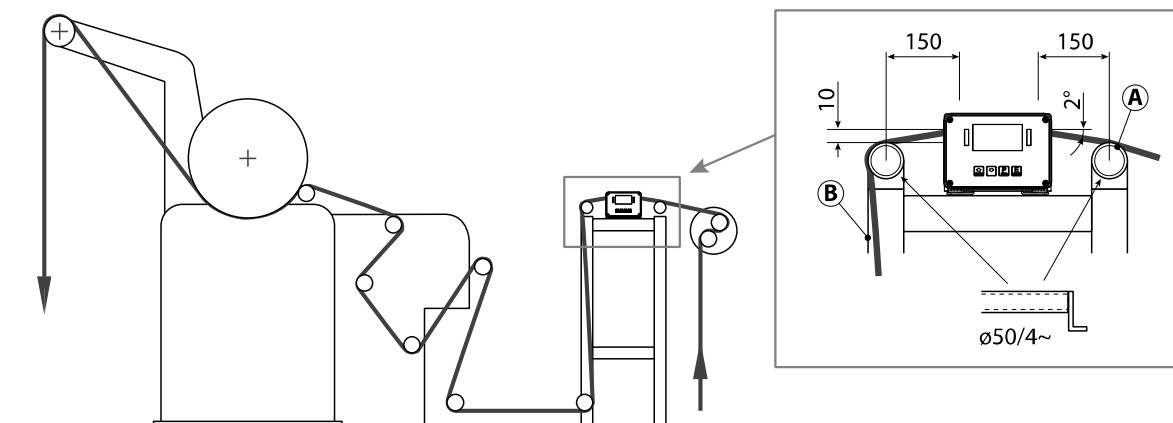


Fig. A - Mounting on a support frame at the cloth entry-point of a calender
A: steel tube $\varnothing 50 \times 42 \times C$; **B:** steel draw piece 62×42

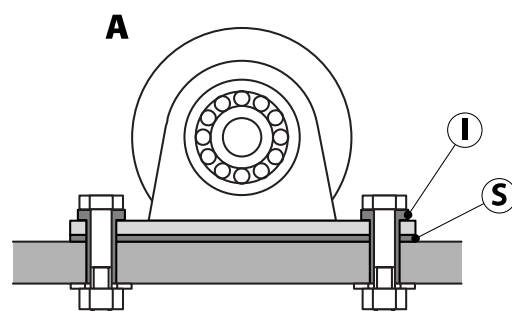
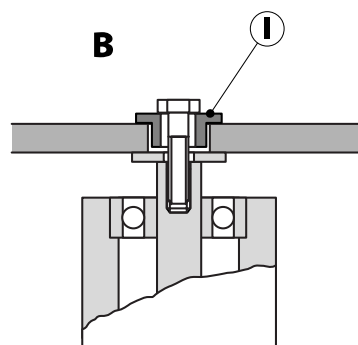
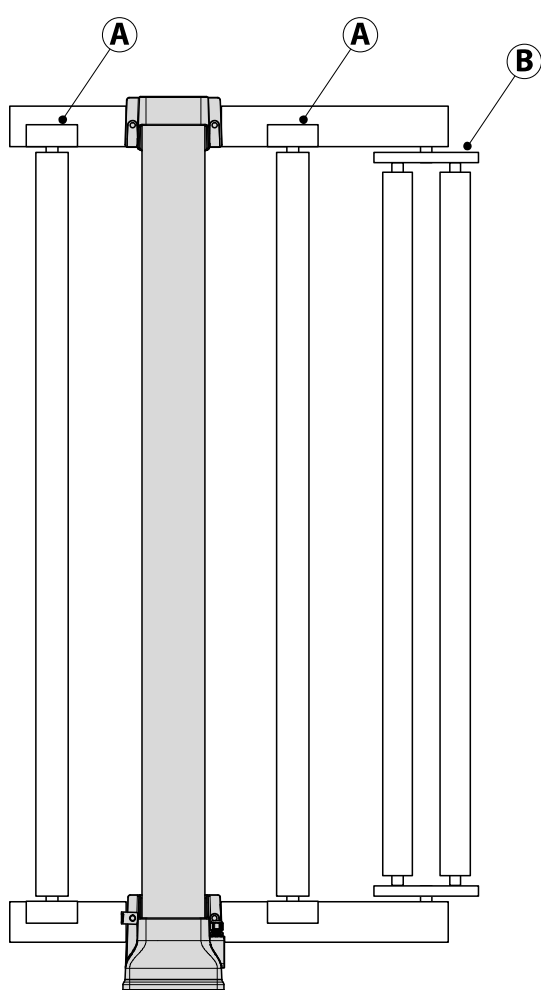


Fig. B - Mounting on a support frame at the cloth entry-point of a calender: detail of the roller mounting. (I: insulating ferrule; S: insulating spacer)

3.2 Electrical Installation

3.2.1 General guidelines

Possible sources of electrical interference may be power supply cables (electromagnetic fields generated by alternating currents) or impulsive electromagnetic sources (electrical motors with high start-up absorption of power and their power supply cables, inverters, fluorescent lights, emergency generators, remote control devices, etc.) located near the probe.

Power supply cables to other devices.

The power supply cables must be positioned as far as possible from the probe. In the event that the conductors have to pass near the probe of the metal detector, it is advisable that they be inserted into an iron tube, either electro-welded or drawn, which is at least 2 mm thick and has a suitable diameter.



WARNING: This method is valid only if the pipe is not subject to vibration and it does not touch the probe: if this is not the case, the solution can be counterproductive.

Impulsive electromagnetic sources

In general, impulsive electromagnetic sources must be distanced or eliminated. It is therefore recommended that, during installation, the following procedures be carried out:

1. Position as far as possible from the probe any motors, electrical power boards or electromagnetic actuators (it is recommended that they be replaced with similar pneumatic devices); position fluorescent lights and their respective reactors at a distance from the metal detector probe; where possible replace fluorescent lights with filament lights.
2. Equip electrical motors with special iron screens and mains filters of sufficient capacity. It is recommended that motors running on alternating current be used as opposed to those running on direct current. The table that follows provides some general guidelines for the distances to be placed between the probe and asynchronous motors, depending on their power.

Recommended minimum distance between the probe and motors with alternating current (without screening of the motor)	
Power (CV)	Minimum distance
less than 0,5	1 m
from 0.5 to 2	2 m
from 2 to 20	3 m (2 m if screened)



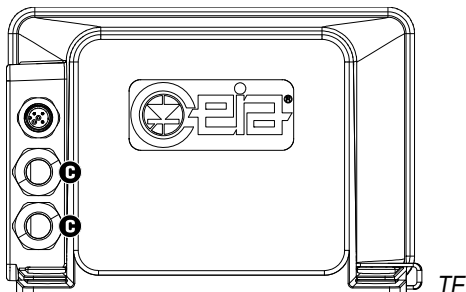
The table gives an indicative value that may vary depending on the engine type and of the sensitivity set on the Detector.

- 2.1. In the immediate proximity of the metal detector, the motors may be screened by means of cylindrical enveloping in iron; such cylinders must have a sufficiently large diameter in order to contain the motors and a thickness of not less than 2 mm. The cylinders must be of the un-welded type.

3.2.2 Selection and installation of connection cables

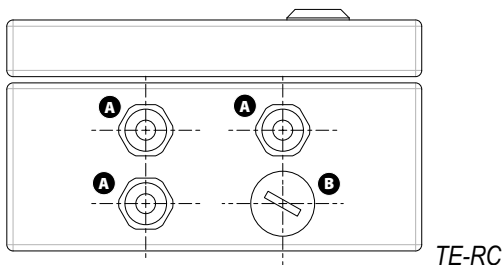
Respect the following indications to select the cables to connect the **TE** to the external devices.

- Use only cables with circular section, smooth surface.
- Use only one cable for each gland.
- At the end of the installation check that all glands are tightened in the correct way.



#	Gland	Only cable with external diameter in the range:
A	M20	Ø5.0 ÷ Ø 13.0 mm
B	Cap M25	-
C	M16	Ø3.0 ÷ Ø 10.0 mm
-	M25*	Ø8.0 ÷ Ø 17.0 mm

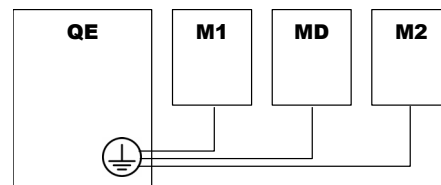
* supplied, not mounted



Grounding

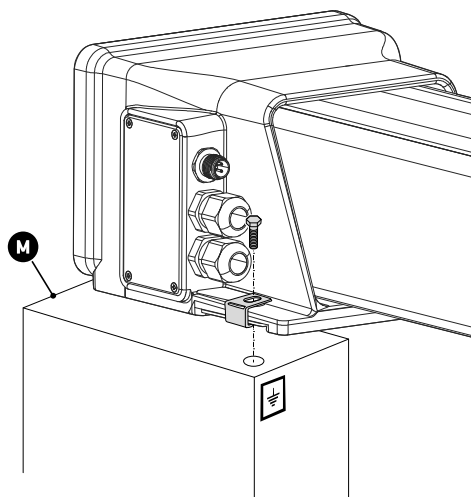
This connection must lead directly to the electrical power supply board and must not be derived from any other electrical devices.

QE: electrical board; M1: machine 1
M2: machine 2; MD: metal detector

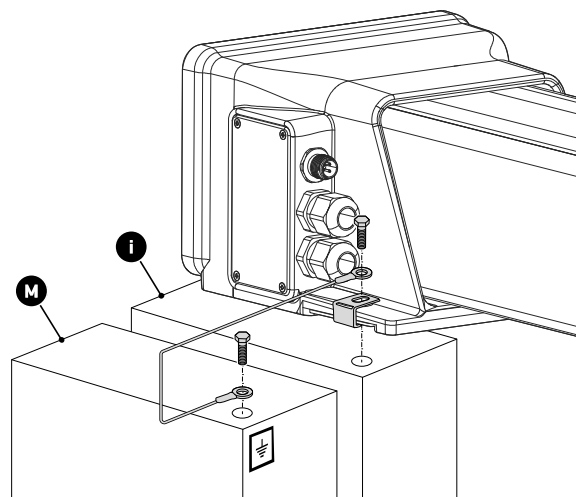


Do not connect other devices to the earth terminal of the TE.

3.2.3 Probe grounding



M: metal; i: insulating material



3.2.4 Connecting to the mains power supply



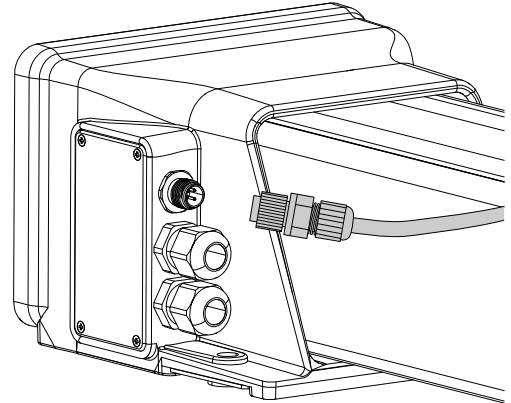
Put in a magnetothermic switch upstream: refer to the value indicated in the electrical diagrams (par. 3.2.6)



Insert a ground fault interrupter upstream with switching current **no lower than 30 mA**.

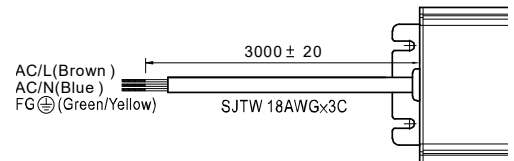
TE

Connect the external power supply unit directly to its connector positioned on the rear of the control panel. Tighten the ring nut fully.



Connect the input cable of the power supply unit to the power line and to a regulation earth/ground socket.

Colour	Function
Brown	L1
Blue	L0
Yellow-Green	Earth/Ground

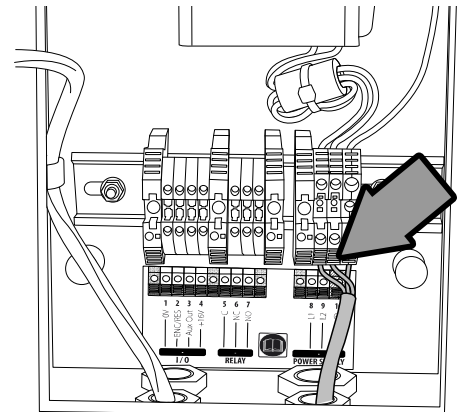


TE -RC

Insert the power supply cable into the cable gland (verify that the cable diameter is correct) and connect it directly to the terminals, as indicated in the label under it.

The terminals for the power supply connection are accessible by opening the Electronics unit.

- Connect the Detector to the mains (**100 ÷ 240V, 50÷60 Hz**) using terminals **8** and **9**.
- Connect a ground on terminal **PE (10)**. Use a wire with the same section of the phase conductors.



3.2.5 External connections

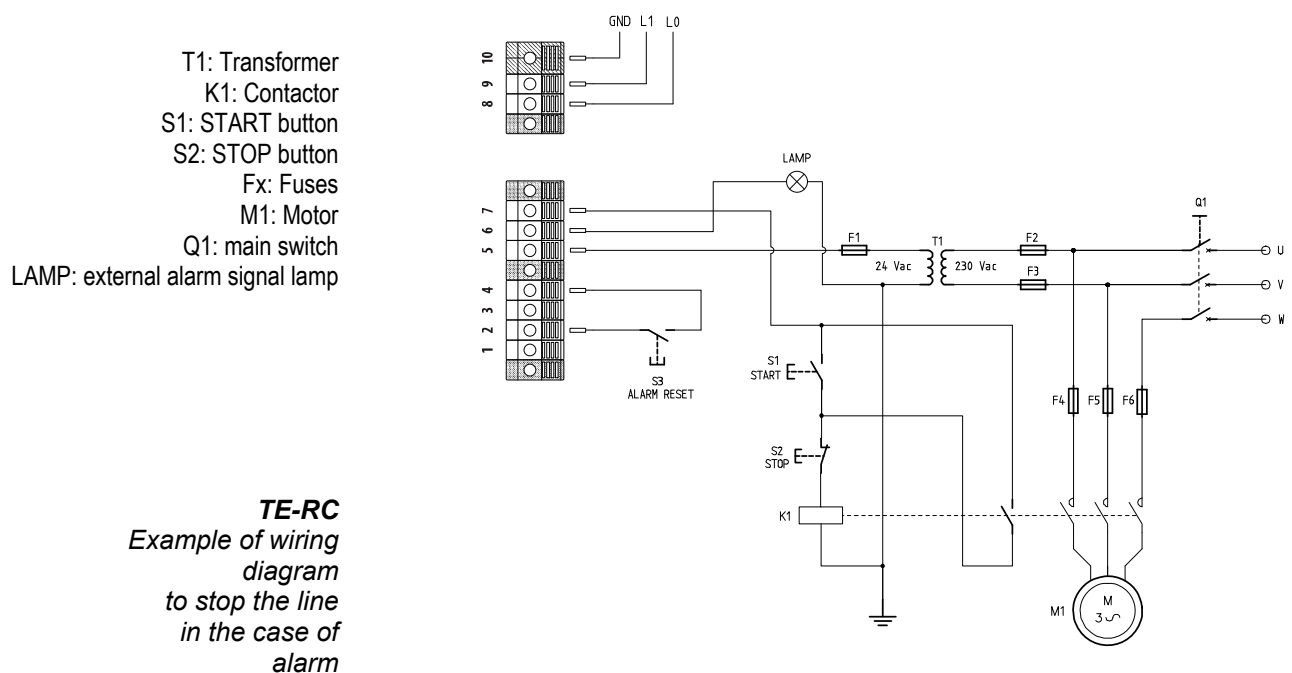
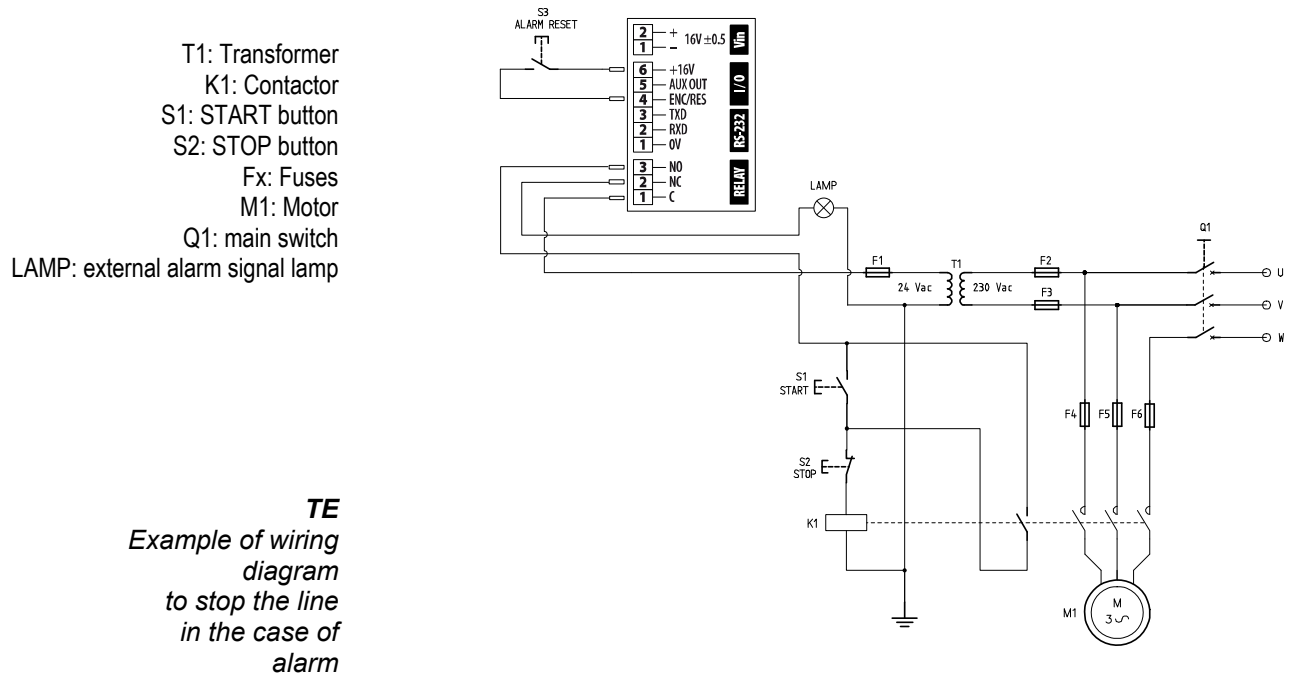
The electrical connections between the Detector and the external devices are also made through the terminals located inside the Electronics unit.

3.2.5.1 External alarm signalling with motor stop

Contacts (1, 2 & 3 for TE, 5, 6 & 7 for TE-RC), are designed for the connection of any device that must be activated in the case of a Metal Detector alarm, usually the motor that moves the production line.

The relay rating is 30V – 2.5A.

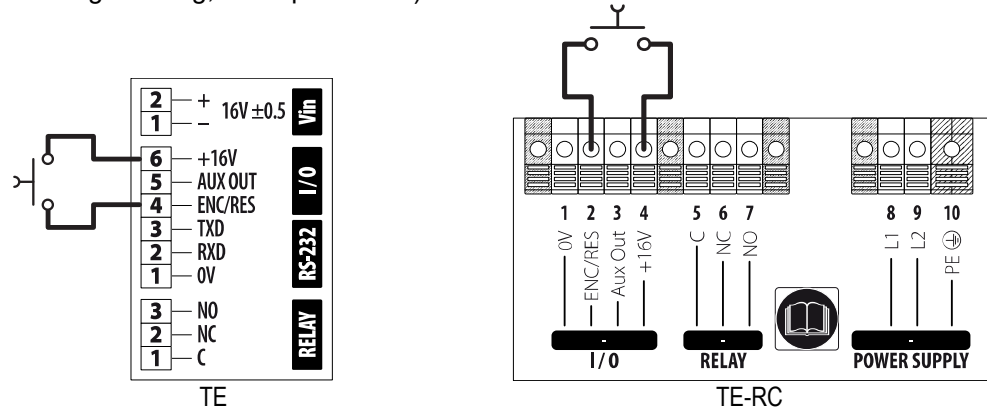
Here below an example of wiring diagram for the connection of the Metal Detector to the production line motor and to an external signal lamp:



3.2.5.2 Alarm reset

In case an external command for the alarm reset is needed, the push-button (normally open) must be connected to terminals **6** and **4** (**2** and **4** for the TE-RC).

To operate with automatic reset, any connection is required. It is possible, however, to reset from the keyboard (see Programming, KAR parameter).



If the input **4** (**2** on the TE-RC) is used for the alarm reset, it cannot be used for an encoder.

3.2.5.3 Connection of an encoder

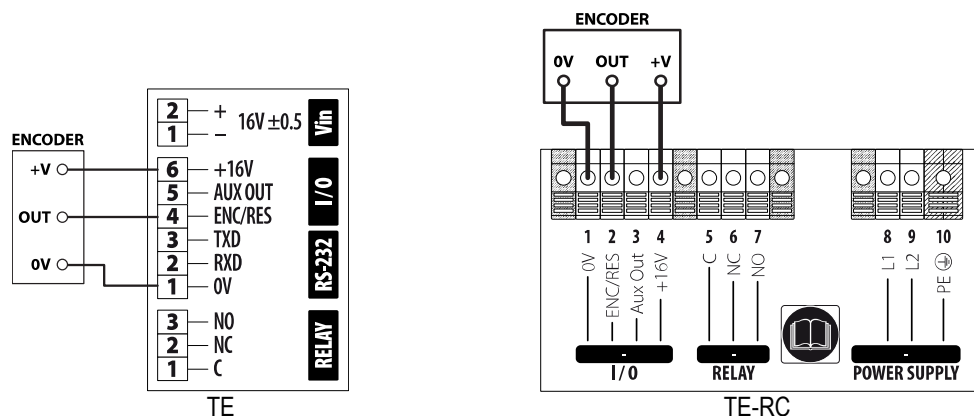
The use of an encoder is recommended when the line speed is variable.

In this case the activation delay for the alarm relay is automatically calculated based on the production line speed at that moment.

Encoder Characteristics

Output:	Push-Pull or P logic.
Power supply voltage:	10-30Vcc
Maximum frequency on the output impulses:	5 kHz

A voltage of +16V to power the encoder is provided on the metal detector's connection terminal board.



See parameters **KE** and **DI** for the programming.

Correct operation of the encoder can be checked in the I/O Status menu (item "Speed").



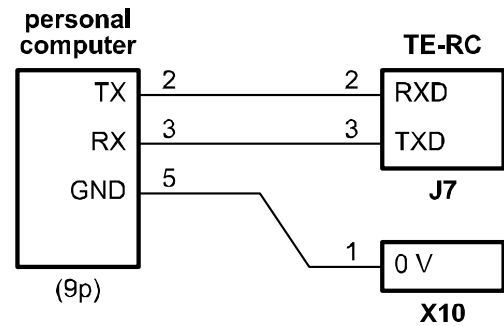
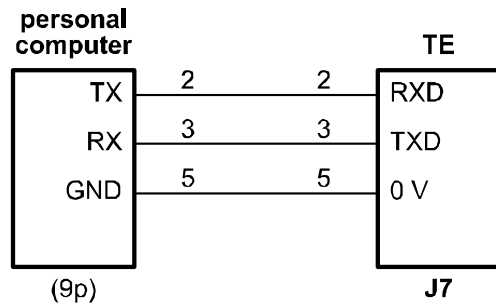
If input **2** is used to connect an encoder, it is not possible to connect an external alarm reset.



When the electrical connections are completed, check that all glands are well tightened around their cable and that the Electronics unit door is correctly closed.

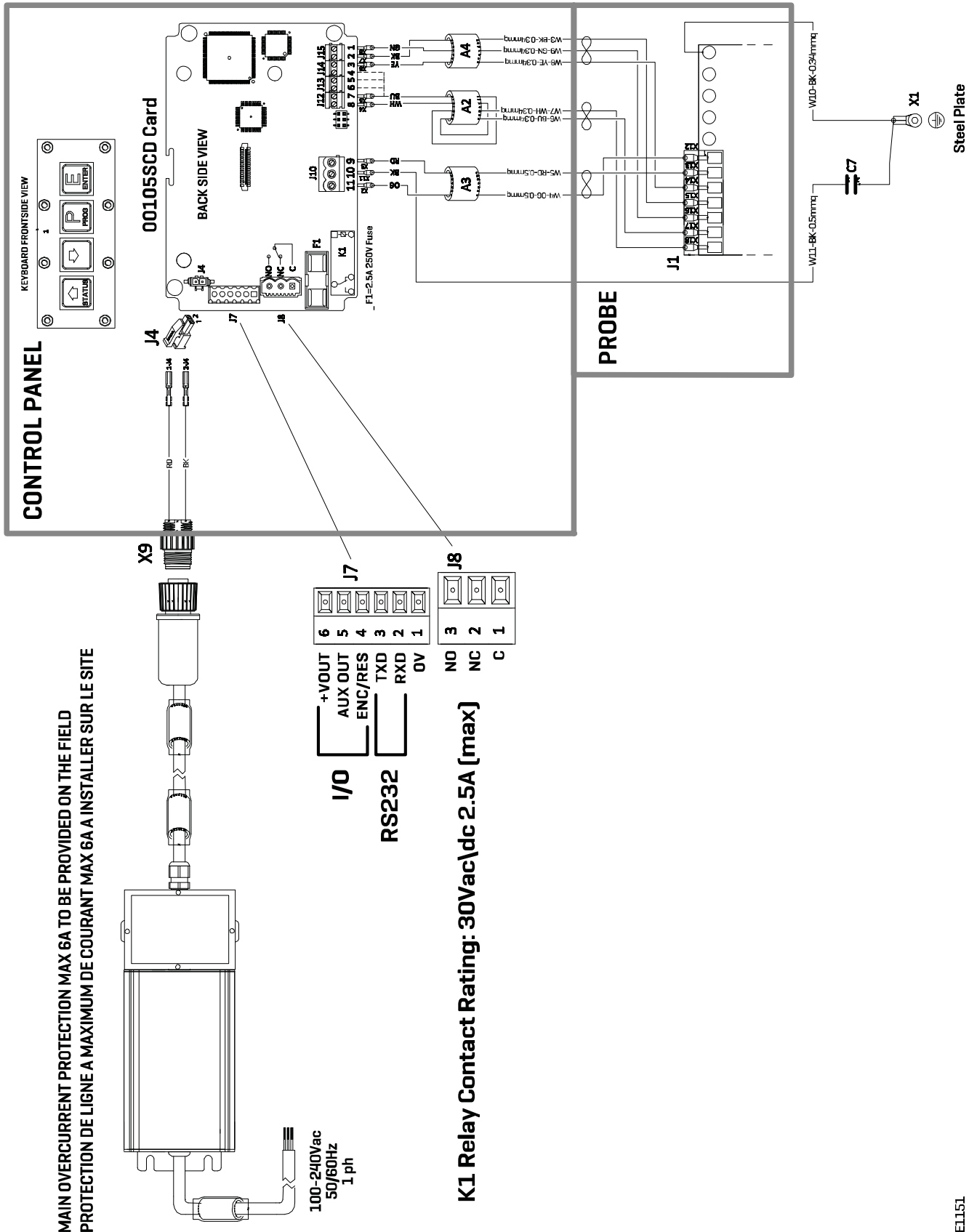
3.2.5.4 RS232 Serial port connections

The RS232 serial port is used by the CEIA MD Scope program, available on request. A standard serial communication program (like *Windows™ HyperTerminal*) can also be used. Read the paragraph **4.7 – Remote programming** for further information.

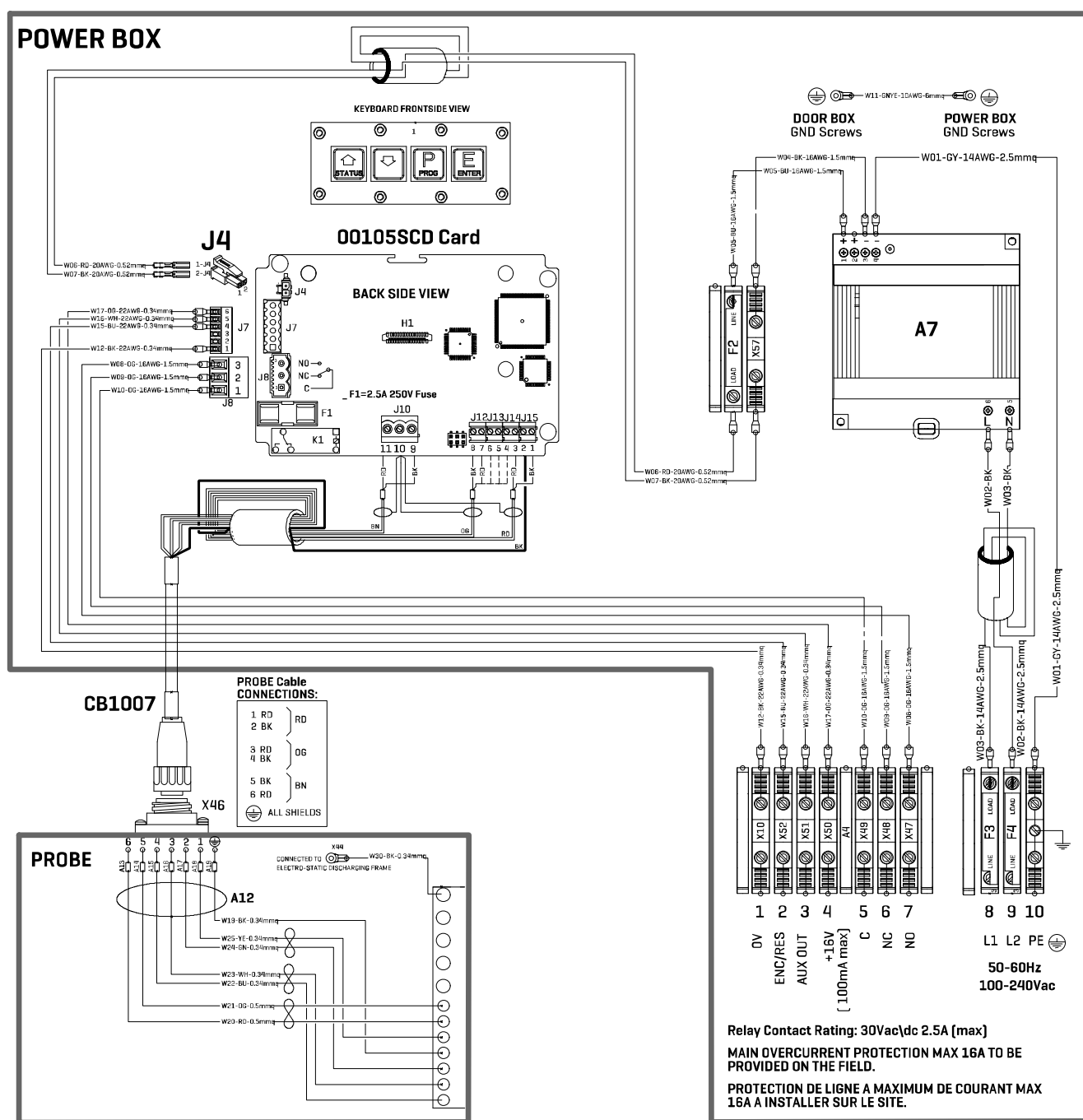


3.2.6 Electrical diagram

TE



TE-RC



E1164

3.3 Start-up

When first switched on, the Metal Detector is adjusted for optimum operation with non-magnetic, non-conductive product, and is configured with passwords pre-set in the factory and indicated in the Programming chapter.

The main normal operating screen appears on the display:



3.4 Correct installation verification procedure

In order to verify the correct installation of the device, perform the following operations:

1. Switch ON the Metal Detector.
2. Wait for the end of Metal Detector start-up phase.
3. The display will show the main screen.



4. Set all the parameters related to the installation (*Configuration* menu).
5. Set the Sensitivity according to the sample to be detected. With the hand, pass the sample over the sensitive zone of the metal detector, **without activating the production line**, and check that an alarm signal is given. NB: in the case of a thicker product, pass the sample over the sensitive zone at a distance corresponding to that of the product.

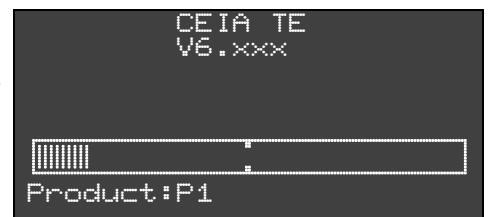
Example of a signal exceeding the alarm threshold. The “A” value gives the relationship in decibels between the maximum signal and alarm threshold. Adjust the sensitivity so as to obtain an **A** value of about 5-6 dB at the passage of the sample to be detected.



6. Start the line without product and check on the display the signal amplitude, that in this case corresponds to the environmental noise.

If such amplitude is higher than a $\frac{1}{4}$ of the alarm threshold (as shown beside) eliminate the causes of the noise and repeat from step 6. To eliminate the cause of the noise, see paragraph 3.2.1 and 3.4.1.

If the threshold is lower, continue with the next step.



INSTALLATION

7. Start the production line with the product. Check that the transit of the non-contaminated product does not set any alarm.
If the non-contaminated product sets off an alarm (probable presence of humidity or of magnetic or conductive fragments), perform the Autolearn procedure (see *Autolearn Procedure*).
8. Check the detection of the reference sample and the correct functioning of the system (stop of the line, alarm signalling, etc...).

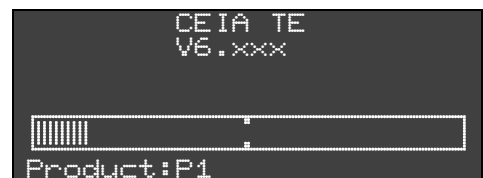
3.4.1 Checking for environmental electromagnetic interference

The existence of interference is indicated by false alarms or by the display of a signal higher than a $\frac{1}{4}$ of the alarm threshold, when there is no product in transit.

Example of signal well below the threshold level.



Example of signal just below a $\frac{1}{4}$ of the alarm threshold.
In normal conditions the bar-graph indication **should not show more than a $\frac{1}{4}$ of the alarm threshold**.



Example of signal above the alarm threshold (**alarm**).



To eliminate the interference, the General Compatibility Check procedure (see par. 3.4.2) must be carried out to locate the interference source.

To eliminate sources of interference, refer to paragraphs 3.1.1 and 3.2.1.

3.4.2 General Compatibility check

This command performs a complete set of automatic checks to verify the general compatibility of the system with the environment.

Access to Programming phase and select the **Configuration** menu.

```
Supervisor
Reset
Products
Autolearn
Detection
Ejection
Counters
Configuration.....+
```

Select the command **Gener.comp.check** by pressing E key and set it to "ON" by pressing an arrow key.

```
Gener.comp.check.....OFF+
Language          GB
Buzzer            ON
Transmission      ON
Keyb alarm reset  ON
Date
Time
Ejection          ON
```

The system will ask to stop the machinery that allow the transit of the product through the detector, if present.
When done, press E to continue.

```
=====
Stop transport
Press E when done
Press P to exit
=====
```

The system starts the General Compatibility check. This check is divided into 4 steps, clearly identified on the display, that shows also the progress of each step. The **pk** value indicates the maximum detected noise in this step (peak), meanwhile the **av** value indicates the average detected noise. A value of 1 indicates a noise equal to the alarm threshold.

At the end of each step, the system will change the configuration parameters, in order to continue with the procedure.

Before starting step 3, the system will ask to start the machinery that allow the transit of the product through the detector, if present, but without the product. When done, press E to continue.

At the end of the 4 steps, the display will show the result of the check: GOOD, SUFFICIENT, INSUFFICIENT or BAD.

If the result of the check is negative (INSUFFICIENT or BAD), the system also provides a note informing about the nature of the incompatibility. Refers to the Installation Manual instructions to improve the situation.

Pressing the down arrow, the display will show all data collected during the 4 steps.

Press P to return to the **Configuration** menu.



Message	Nature of the incompatibility
IMPROVE MECHANIC. COMPATIB.	Source of mechanical interference in the production line in the vicinity of the metal detector: identify and eliminate (see par. 3.1).
IMPROVE ELECTROM. COMPATIB.	Source of electrical interference in the production line in the vicinity of the metal detector: identify and eliminate (see par. 3.2).
IMPROV. TRANSPORT ELECTR. COMPATIB.	Source of electrical interference in the production line in the vicinity of the metal detector: identify and eliminate (see par. 3.2).
IMPROV. TRANSPORT GENER. COMPATIB.	Source of mechanical or electrical interference in the production line in the vicinity of the metal detector: identify and eliminate (see par. 3.1 & 3.2).

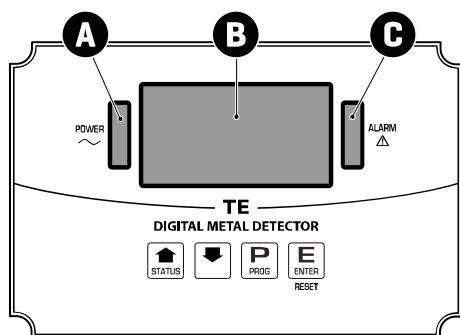
4 USE OF THE DEVICE



Before starting to use the device, read the **Safety instructions – Warnings** section of this manual carefully

4.1 Indicators

4.1.1 Optical indicators



A	POWER	A green indicator indicates the presence of power and, consequently, the Metal Detector powered status.
B	Display	A graphic display shows the messages relating to use, programming and self-diagnosis of the device.
C	ALARM	A red indicator indicates the metal detector alarm (detection of a metal fragment or breakdown).



The brightness of the display reduces automatically if the keypad is not used for a length of time (see function DDD in the "Programming" section):

4.1.2 Acoustic indicators

The control panel incorporates a buzzer which is activated in the case of detection of a metal mass or of malfunction.

4.2 Controls

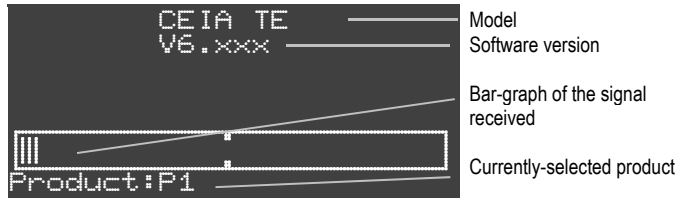
The control of the Metal Detector and the setting of the device parameters are performed through the control panel keyboard, as shown below:

Key	Function
	Metal Detector Status visualization.
	Choice of the programming menu.
	Choice of the parameters to be changed.
	Modification of the parameter values.
	Access and exit from the programming phase
	Return back from the submenus to the previous menu
	Exit from the Metal Detector Status visualization
	Selection of the selected submenu from the main menu
	Confirmation of the data entered
	Reset of some kinds of fault
	Alarm reset in "manual reset" operation (see parameter KAR, "Programming" section).

4.3 Signals given during normal use

4.3.1 Indication of the received signal

On the fourth line of the display the signal being received is displayed by means of a horizontal illuminating bar, subdivided into sections. When the signal increases, the bar extends towards the right. The alarm threshold corresponds to the centre of the bar: the sections on the left are vertical bars, those on the right fills a white area.



Signal well below the threshold level



Signal just below the threshold level



Signal above the threshold level (alarm)



After the alarm, the maximum signal is visualized for a few seconds together with its amplitude

4.3.2 Display of the status of the Metal Detector



If the STATUS key is pressed when the display shows normal operation, a list of information relating to the Metal Detector's status is shown:



Page scroll when arrow keys are pressed.



Press P (PROG) to return to normal display.



4.3.3 Display messages, acoustic and visual indicators

The Metal Detector display shows messages relating to its current mode of operation:

Signals		Meaning
Display	Alarm	
	OFF	The Metal Detector is in normal operating mode: it will detect metals and activate connected slave devices.
	ON	The Metal Detector is in alarm state due to detection of a metal mass.  NOTE: In operating mode with manual alarm reset, the message "ALARMS: x" appears on the display, where "x" is the number of distinct metal masses detected
	OFF	Immediately after the alarm signal, two indications relating to the metal mass detected appear on the display for a few seconds: The <u>Signal Amplitude</u> (A), expressed in dB relative to the alarm threshold; generally, the greater the metal mass, the higher the value of A. The graphic indication on the bar-graph of the maximum signal (the two arrows).
	OFF	The Metal Detector has been set to programming mode: accessible parameters can be modified.
	ON	Example of a fault condition.

4.3.4 Timers

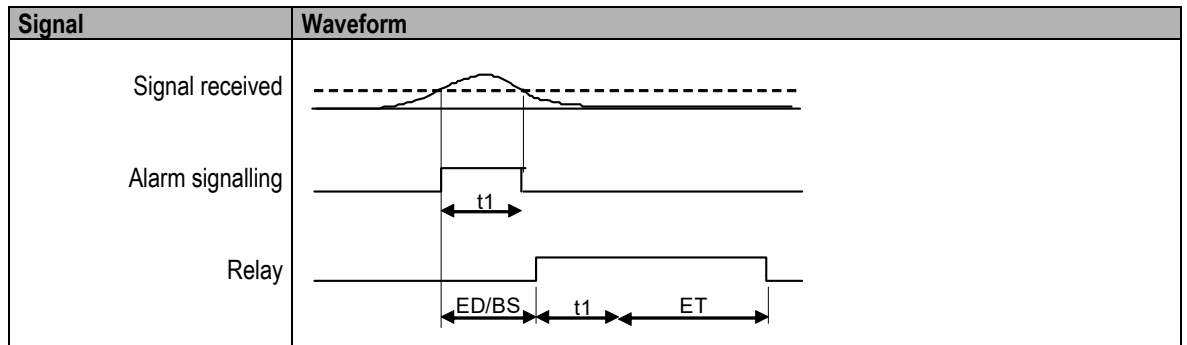
Automatic ejection with synchronization on the alarm (EM=F)

Operation with automatic marking of the contaminated material.

This mode provides for the following settings to be made:

- ejection distance (parameter ED)
- alarm relay activation time (parameter ET)

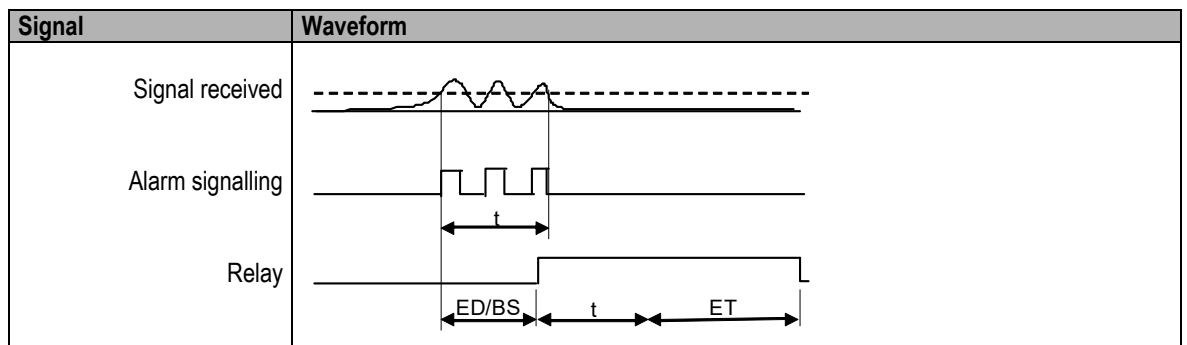
The alarm relay is activated for a time given by the sum of the alarm time (**t1**) – the time of the transit of the metal mass through the probe – and the time **ET**.



BS = transit speed.



In the case of multiple alarms close together, there may be a single activation of the alarm.

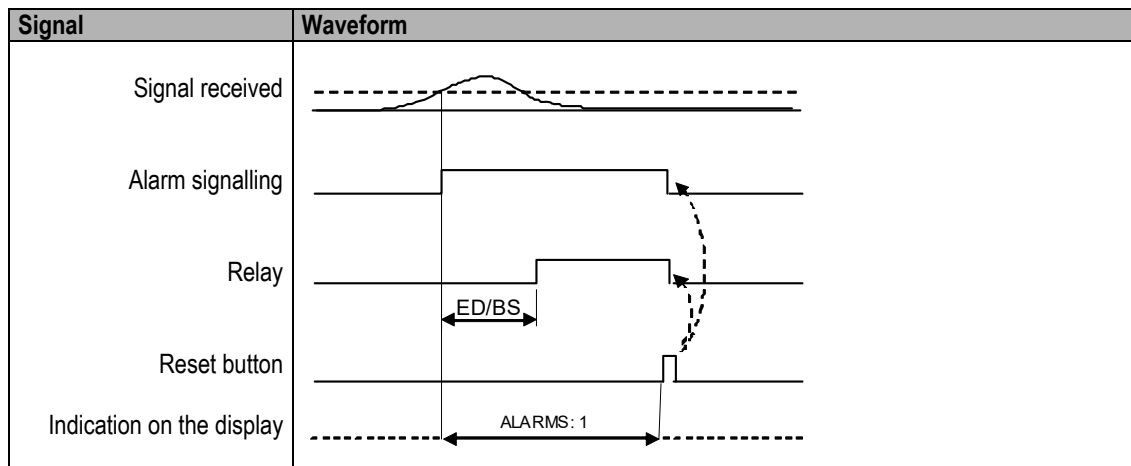


Arrest with manual alarm reset (EM=B)

Operation with halting of the production line, manual elimination or marking of the contaminated material and manual reset by the operator. The alarm relay remains activated until the reset button is pushed.

This mode provides for the following setting to be made

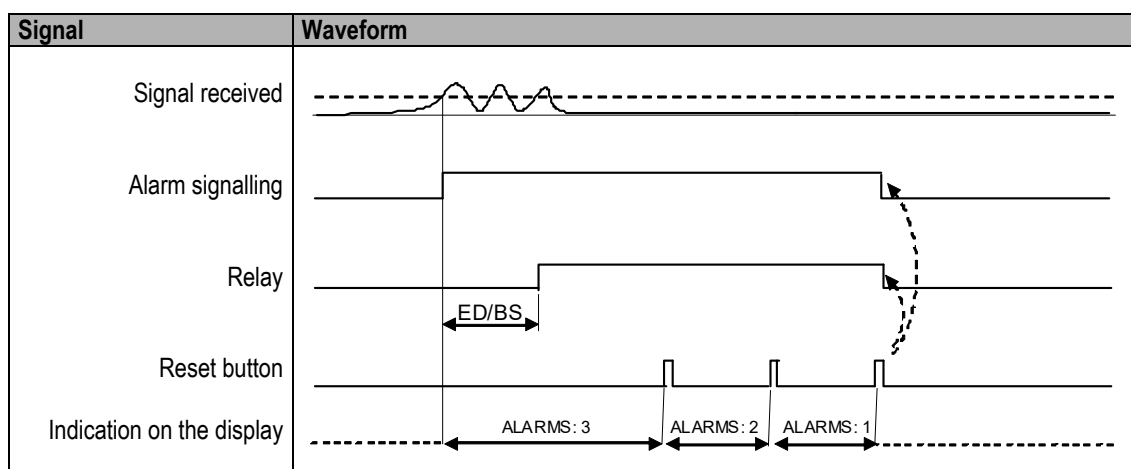
- Production line arrest delay (parameter ED)



BS = transit speed

NOTE: in the case of multiple alarms close together, the display indicates the total number of alarms. It is therefore necessary to reset every single alarm by pressing the reset button several times. Alarm signal and relay only change status when the last alarm is reset.

If the reset button is pressed and held down, all the alarms are reset at the same time.



4.4 Programming

4.4.1 Access to Programming

When first switched on, the metal detector is configured with passwords pre-set in the factory.

4.4.2 Operator

The operator profile is predefined as enabled only for the sensitivity adjustment.

The Operator predefined password is blank.

The Supervisor gives to the Operator:

- A password for access to Programming
- The indication of the operational parameters that the operator can modify or display.



It is extremely important that the person in charge of the detector modifies the passwords in order to avoid unauthorised access to programming.

4.4.3 Supervisor

The Supervisor has total control over the configuration of the Metal Detector and can define the roles of the staff that will be working with it. The Supervisor's prerogatives, therefore, are the following:

- Assignment of the programming access password to the operators.
- Authorization for operators to access operational parameters.
- Total access to all operating parameters.

The Administrator can program the detector independently to define its operational configuration, or can delegate one or more functions to the operators.

The Supervisor predefined password, is **000003**.



It is extremely important that the person in charge of the detector modifies the passwords in order to avoid unauthorised access to programming.

4.5 Entering programming

4.5.1 Keypad functions

 	- Scroll through the sequence of instructions - Choice of the parameters to be changed - Modification of the parameter values	- The parameters are selected via the  (increase) and  (decrease) keys, and are activated via the  (ENTER) key: when this happens, the current setting begins to flash. - Submenus are selected via the  (increase) and  (decrease) keys, and accessed via . - The parameter settings are modified via the  (increase) and  (decrease) keys. Pressing  the last entered character is deleted. - Modifications are confirmed by pressing . - Returns to the previous menu and exits from programming mode via .
	- Access and exit from the programming phase - Return back from the submenus to the previous menu - Cancel the last character entered	
	- Selection of the selected submenu from the main menu - Confirmation of the data entered	

4.5.2 Use of the keyboard to insert strings and characters

The insertion of a character is made by scrolling the list of the alphanumeric characters, ordered from 0 to Z, through the  and  keys, until the desired character is shown, and it is confirmed by pressing the  key.

After the insertion of each new character, the cursor moves on and you restart from the previously confirmed character; this allows you to press only the  key to confirm the same character, which is useful in the case of same-character sequences.

4.5.3 Entering the password (if requested)

Display	Keys pressed	Meaning
PASSWORD ■ _ _ _ _		As an example we will digit "000003".
PASSWORD 0 _ _ _ _		Press once the UP arrow key, to select the value 0. The cursor blinks on the same position of the 0.
PASSWORD *■ _ _ _ _		Press E to confirm the 0. The cursor moves on, repeating the last inserted character. An asterisk will hide the previously inserted character.
PASSWORD *****■	   	Press four times the E key to insert the other 4 zeroes.
PASSWORD *****3	  	Press the UP arrow key three times, to let the characters scroll and to select "3" as the last character.
PASSWORD *****■		Press E to confirm the password



The display will show an asterisk in the place of each character entered.

4.5.4 Restricted login

If the inserted username or password are not correct, the detector does not access programming and returns to the operating display screen.

4.6 Exit from programming

4.6.1 Exit from programming



To exit from programming mode or from a submenu, press the P key.

4.6.2 Time out

The programming session will be terminated automatically if no commands are entered for a period of **5 minutes**.

4.7 Remote programming

Programming can be carried out through a remote computer fitted with an **RS232 interface** or a **BT Wireless** connection, using a standard communications program (e.g. Windows™ *HyperTerminal*) or the CEIA MDScope program, available on request.

4.7.1.1 Communication parameter settings

RS232

Select the COM port used (with USB/RS232 adapter, check the COM port assigned). Set the port as indicated beside:

Port settings

- Baud rate: 57600 bit/s
- 8 data bits
- No parity
- 1 stop bit
- Flow control: OFF

BT wireless communication

- Open the BT software present in your computer.
- Create a new connection. The software will scan the area for available BT devices. In the list will appear a device named with the model and Serial Number. For example: **CDSN 99999999 TE**
- Selecting this unit, a PIN code will be requested. The device PIN is stored on the parameter **BPIN**, under **Supervisor** menu (the default value is 00000000).
- The BT connection software will connect now to the unit, showing a message that will indicate which virtual COM port has been created for the device. For example: **COM42**.
- Set the assigned COM port and Baud Rate (57600bps) in the communication parameter settings.

The successful connection via BT is indicated by a **B**.

The B will blink during data transmission.



4.7.1.2 Communication software**Terminal emulator settings**

- no communication protocol
- CR <- CR+LF
- Local echo = OFF

4.7.2 Connecting to a Metal Detector

Run the serial communication program (MD Scope) or another serial communication software.



Passwords for remote communication are the same as for local programming.

Enter by inserting the access password, according to parameters UPW (User password) or SPW (Supervisor password) and confirm with ENTER.

```
<ENTER>
```

```
#
```



When typing the password, nothing is displayed on the screen.

The > prompt will be shown only after a correct password authentication at **User** level.

The # prompt will be shown only after a correct password authentication at **Supervisor** level.

The default password is null for the User (simply send ENTER) and **000003** for the **Supervisor**.

4.7.3 Displaying a parameter setting

Type the code of the parameter and press **ENTER**.

```
#SE<ENTER>
```

The parameter setting will appear next to it.

```
#SE 260
```

```
#
```

4.7.4 Changing a parameter setting

Type the code of the parameter followed by a space, the new value and **ENTER**.

```
#SE 265<ENTER>
```

```
#
```

4.7.5 Executing a function

Key in the parameter code and press **ENTER**.

```
#PL<ENTER>
```

```
#
```

4.8 Programming instructions

List of submenus available in the **Programming** phase.

The programming menu structure is tree-type.

```
Supervisor
Reset
Products
Autolearn
Detection
Ejection
Counters
Configuration
Configuration(adv)
I/O status
Print
```

4.8.1 Supervisor Menu

List of commands available under the **Supervisor** menu

NOTE: the commands in this menu require confirmation of the modifications made.

```
Sup. password
User password
Bluetooth PIN
User lev. parameters
```

	Remote	Possible settings	Standard setting	Parameter
Sup. password	SPW	6 alphanumeric chars..	000003	Global
Description				
Setting of the Supervisor password				
 If during the password modification, the E key is pressed without the insertion of any character, the password request for this level will not be performed, allowing direct access to the programming phase.				

	Remote	Possible settings	Standard setting	Parameter
User password	UPW	6 alphanumeric chars..	-	Global
Description				
Setting of the User password				
If a "null" password is set, the user programming menu will be accessible by simply pressing the P key, without any password request. In this case, to access to Programming at Supervisor level, hold the P key pressed for a few seconds.				

	Remote	Possible settings	Standard setting	Parameter
Bluetooth PIN	BPIN	Up to 8 alphanumeric chars.	00000000	Global
Description				
Set the BT Wireless PIN				
Needed for the remote connection with a personal computer, via BT Wireless				

	Remote	Possible settings	Standard setting	Parameter
User lev. parameters	-	-	-	Global
Description				
Enabling of programming parameters available to the user				
From this screen it is possible to enable or disable menus and programming parameters that will be visible to the operator. Scroll the list using the arrow keys. Select the desired parameter pressing E change its status from Y to N or vice versa, using the arrow keys. Confirm by pressing E again.				

```
Prod.....Y+
Rename ProductY
New ProductY
Erase ProductY
AutolearnY
Sens. marginY
SensitivityY
Vibr.immunityY
```

4.8.2 Reset command

This command resets all alarms and faults.

4.8.3 Products Menu

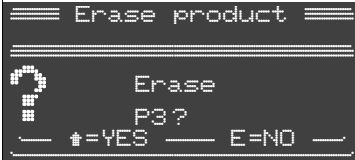
List of commands available under the **Products** menu.

```
Prod.
Rename product
New product
Erase product
```

Prod.	Remote	Possible settings	Standard setting	Parameter
	PI	12 alphanumeric chars.	-	Relative to the current product
Description				
Type of product selected				
Selection of optimized operating parameters for a specific type of product, previously entered and saved. The various defined products are shown on the display. Scroll them with the arrow keys and choose the desired product by pressing the E key. The detector is supplied with two products pre-stored in the factory:: DEFAULT: program optimized for non-magnetic, non-conductive product. This program, which can not be modified, can be useful to reset basic operation during servicing. P1: Identical to the DEFAULT program, but can be modified. This product is preset in the factory as the current operating product.				
<pre>===== Prod. ===== DEFAULT *P1 P2 P3 POW003 ZAP987</pre>				

Rename product	Remote	Possible settings	Standard setting	Parameter
	PN	12 alphanumeric chars.	-	Relative to the current product
Description				
Rename the product				
Changes the name of the current product.				
<pre>Prod. POW003 ===== Rename product ===== SUP■</pre>				

New product	Remote	Possible settings	Standard setting	Parameter
	NW	12 alphanumeric chars.	-	Relative to the current product
Description				
Creation of a new product				
Create a new product. Up to 20 products can be created. The initial parameters of the new product will be the same as the current selected product when the new product is created.				
<pre>Prod. P3 ===== New product ===== ZAP■</pre>				

	Remote	Possible settings	Standard setting	Parameter
Erase product	EP	-	-	Relative to the current product
Description				
Elimination of a product				
Elimination of an existing product: select the desired product in the list displayed using the arrow keys, and confirm with the E key.				
A confirmation is needed to complete the operation.				

4.8.4 Autolearn menu

List of commands available under the **Autolearn** menu.



	Remote	Possible settings	Standard setting	Parameter
Autolearn	LE	ON / OFF	OFF	Global
Description				
Autolearn				
Select ON and exit from programming to activate the Autolearn procedure. The parameter returns to OFF automatically at the end of procedure. See paragraph 4.9 – <i>Autolearn Procedure</i> .				
	Remote	Possible settings	Standard setting	Parameter
Sens. margin	SA	10 – 50	20	Global
Description				
Margin of sensitivity				
Margin of sensitivity below the limit used to set SE during the autolearn procedure: by lowering the sensitivity, false alarms are avoided in the case of significant variations in the characteristics of the product. If the value of SA is increased, the sensitivity determined by the autolearn procedure decreases.				

4.8.5 Detection menu

List of commands available under the **Detection** menu.

```
Sensitivity
Vibr. immunity
Aux Gain
TP
```

	Remote	Possible settings	Standard setting	Parameter
Sensitivity	SE	0 - 299	-	Relative to the current product

Description

Sensitivity

Alarm trigger threshold: the smaller the object to be detected, the greater the sensitivity must be. The parameter is set automatically during Autolearn.

	Remote	Possible settings	Standard setting	Parameter
Vibr. immunity	VI	HI / STD	STD	Relative to the current product

Description

Vibration immunity

STD: Standard immunity to vibrations.

HI: High immunity to vibrations. NB: check detection of the sample to be detected.

	Remote	Possible settings	Standard setting	Parameter
Aux Gain	GX	0 - 319	-	Relative to the current product

Description

Auxiliary gain

Internal parameter, automatically set during the Autolearn phase. Never change it.

	Remote	Possible settings	Standard setting	Parameter
TP	TP	0 - 36000	0	Relative to the current product

Description

Analysis parameter for the received signal

This parameter determines the optimal operational point to minimize the signal generated by the product to be inspected and it is automatically set by the detector during the Autolearn procedure.

4.8.6 Ejection menu

List of commands available under the **Ejection** menu.

```
Ejection mode
Ej. distance
Ejection time
```

Ejection mode	Remote	Possible settings	Standard setting	Parameter
	EM	B / F	F	Related to the current product
Description				
Ejection mode				
Selection of the Metal Detector behaviour in the case of alarm.				
Mode B	MANUAL : halting of the production line, manual elimination of the contaminated material and manual reset by the operator.			
Mode F	AUTOMATIC : automatic (through external device) set-aside of contaminated material.			

Ej. distance	Remote	Possible settings	Standard setting	Parameter
	ED	0 – 6000 mm	0	Relative to the current product
Description				
Delay of activation for the alarm relay				
Setting ED > 0 the activation of the alarm relay is delayed for a time ED/BS.				

Ejection time	Remote	Possible settings	Standard setting	Parameter
	ET	0 – 3000 hundredths of a second	-	Relative to the current product
Description				
Ejection relay activation time				
Minimum activation time for the alarm relay, which is then activated for a time given by the sum of::				
- the alarm time, i.e. the transit time of the metallic mass through the probe ; - time ET.				
This parameter is relevant only when EM = F.				

4.8.7 Counters menu

List of commands available under the **Counters** menu.

Tot.alarms
Work time

	Remote	Possible settings	Standard setting	Parameter
Tot.alarms	CA	0 – 999999999	-	Relative to the current product
Description				
Number of alarms caused by the current product (since last reset)				
To reset this counter select the parameter, press the  key and press the  (increase) key.				
	Remote	Possible settings	Standard setting	Parameter
Work time	WT	0 – 999999999	-	Global
Description				
Total working time (in hours)				
This parameter gives the number of operating hours of the Metal Detector, starting from its first test in CEIA.				

4.8.8 Configuration menu

List of commands available under the **Configuration** menu.

```
Gener.comp.check
Language
Buzzer
Transmission
Keyb alarm reset
Date
Time
Ejection
AUX OUT mode
```

	Remote	Possible settings	Standard setting	Parameter
Gener.comp.check.	-	ON / OFF	OFF	Global
Description				
General compatibility check				
This command performs a complete set of automatic checks to verify the general compatibility of the system with the environment.				

	Remote	Possible settings	Standard setting	Parameter
Language	LG	I, GB, F, D, E H, P, JP, NL, S	-	Global
Description				
Language for messages				

	Remote	Possible settings	Standard setting	Parameter
Buzzer	SO	ON / OFF	ON	Global
Description				
Activation of the incorporated buzzer				

	Remote	Possible settings	Standard setting	Parameter
Transmission	TX	ON / OFF	ON	Global
Description				
Enabling of the transmitter				
When TX=OFF the Detector does not detect metals. The parameter is automatically set to ON if the Detector is switched off and on again.				

	Remote	Possible settings	Standard setting	Parameter
Keyb alarm reset	KAR	ON / OFF	OFF	Global
Description				
Enabling of the keyboard for direct alarm reset				
If set to ON, in the case of an alarm just press E to reset. If set to OFF, in the case of an alarm it will be necessary to enter the Programming phase and to activate the Reset command.				

	Remote	Possible settings	Standard setting	Parameter
Date	DA	DD/MM/YY	-	Global
Description				
Actual date				
DD = Day; MM = Month; YY = Last two figures of the year.				

USE OF THE DEVICE

	Remote	Possible settings	Standard setting	Parameter
Time	TM	HH:MM	-	Global
Description				
Current time				
HH = Hours; MM = Minutes.				

	Remote	Possible settings	Standard setting	Parameter
Ejection	EJ	ON / OFF	ON	Global
Description				
Activation of the alarm relay				
Enabling/disabling of the alarm relay, used only for assistance services.				

	Remote	Possible settings	Standard setting	Parameter
AUX OUT mode	AUXM	FLT, ALR, ALL	FLT	Global
Description				
AUX OUT setting				
This parameter allows the programming of the AUX OUT auxiliary output:				
- FLT: The output is activated in case of fault				
- ALR: The output is activated in case of alarm				
- ALL: The output is activated both in case of fault and alarm.				

4.8.9 Configuration (advan) menu

List of parameters available under the **Configuration (advan)** menu.

```
Minimum speed
Speed
Maximum speed
K encoder
Enc. diameter
IX channel
IA1
IA2
TA autolearn
Display contrast
Dimming delay
AUT
```

Parameter	Remote	Possible settings	Standard setting	Parameter
Minimum speed	BL	From 2 to BM [m/min]	-	Global
Description				
Minimum transit speed				
Select the minimum operating speed.				
 By keeping this value as near as possible to BS <u>without adversely affecting correct operation of the device</u> , immunity to interference increases.				

Parameter	Remote	Possible settings	Standard setting	Parameter
Speed	BS	Between BL and BM	-	Relative to the current product
Description				
Transit speed				
In the case of a conveyor belt with fixed speed, insert the real value of the product transit speed. In the case of variable speed conveyors, insert the average speed, in the range between BL and BM. The parameter is not applicable if KE > 0.				

Parameter	Remote	Possible settings	Standard setting	Parameter
Maximum speed	BM	From BL to 600 [m/min]	-	Global
Description				
Maximum transit speed				
Select the maximum operating speed.				
 By keeping this value as near as possible to BS <u>without adversely affecting correct operation of the device</u> , immunity to interference increases.				

Parameter	Remote	Possible settings	Standard setting	Parameter
K encoder	KE	0 – 1000 pulses / revol.	0	Global
Description				
Encoder constant				
Number of pulses per revolution. If set to 0 the encoder is not present. See also parameter DI.				

Parameter	Remote	Possible settings	Standard setting	Parameter
Enc. diameter	DI	10 – 250 mm	-	Global
Description				
Diameter of encoder wheel				
Diameter of encoder wheel. Correlated parameter: K encoder.				

USE OF THE DEVICE

TX channel	Remote	Possible settings	Standard setting	Parameter
	CH	1 / 2	1	Global
Description				
Transmission channel				
Selection of different channels on adjacent detectors for automatic synchronisation.				

TA1	Remote	Possible settings	Standard setting	Parameter
	TA1	0 – 36000	-	Global
Description				
Correction of the received signal analysis parameter				
This parameter is specific to each device. This parameter must be automatically set up using the TL parameter if the SCD card is replaced.				

TA2	Remote	Possible settings	Standard setting	Parameter
	TA2	0 – 36000	-	Global
Description				
Correction of the received signal analysis parameter				
This parameter is specific to each device. This parameter must be automatically set up using the TL parameter in case the SCD card is replaced.				

TA autolearn	Remote	Possible settings	Standard setting	Parameter
	TL	ON / OFF	OFF	Global
Description				
Autolearn of parameters TA1 and TA2				
Select ON to activate the autolearn procedure and exit from Programming. When the message "TA Autolearn" appears on display, press the central area of the probe forcibly sideways, touching it with an insulation cloth, and causing small dips.				
 TL=OFF automatically at the end of procedure.				

Display contrast	Remote	Possible settings	Standard setting	Parameter
	DC	2 – 115	100	Global
Description				
Display contrast adjustment				

Dimming delay	Remote	Possible settings	Standard setting	Parameter
	DDD	10 – 900 s	60 s	Global
Description				
Selection of the dimming delay				
If DDD > 0, then the display waits for the amount of seconds set before lowering the contrast.				

AUT	Remote	Possible settings	Standard setting	Parameter
	AUT	OFF / ON	ON	Global
Description				
Reserved				

4.8.10 I/O Status menu

This menu shows, in real time, the list of input and output lines with indication of their status, together with the value of the measures performed by and variables set on the Metal Detector.

Speed: value, in m/s, of BS, or instantaneous speed if an encoder is used.

```
V1 157
V2 144
V3 140
V4 140
V6 140
Itx I6 0.15
V71 200
V72 200
V81 200
V82 200
Internal temp. 40
Speed 0
Reset button 335
APR1 596
APR2 596
ATP 333
AMR1 256
AMR2 199
ATM 266
IF 0
DU 4
ATFE 0
ATFR 0
OREL AUT
OALX AUTO
SDC 16
```

4.8.11 Print menu

List of commands available under the **Print** menu.

```
Print all events
Print last events
Erase printed ev
```

	Remote	Possible settings	Standard setting	Parameter
Print all events	PB	-	-	Global
Description				
Print all events				
This command prints all the last 1000 events.				
	Remote	Possible settings	Standard setting	Parameter
Print last events	PL	ON / OFF	OFF	Global
Description				
Print a list of the events not yet printed				
This command prints all the events that have occurred since the last print.				
	Remote	Possible settings	Standard setting	Parameter
Erase printed ev	EV	ON / OFF	OFF	Global
Description				
Delete printed events, through PL command, from buffer				
However it is possible to print all the latest 1000 events stored, using the command PB.				

4.9 Commands accessible only in Remote Programming

	Remote	Possible settings	Standard setting
-	DA	DD/MM/YY	-
Description			
Current date insertion			
DD = day, MM = month YY = last two figures of the year			#DA=16/05/10 <ENTER> #

	Remote	Possible settings	Standard setting
-	HE	-	-
Description			
Help			
Provides the list of commands available, their meanings and their current settings.			

	Remote	Possible settings	Standard setting
-	PE	-	-
Description			
Exit from remote programming			
If remote programming is not used for 3 minutes, the PE command is sent automatically by the Detector.			

	Remote	Possible settings	Standard setting
-	PS	-	-
Description			
List of operating parameters for the current product, together with their value			

	Remote	Possible settings	Standard setting
-	PT	-	-
Description			
Parameters list			
The list shows the parameters in their remote codification together with their values/settings.			

	Remote	Possible settings	Standard setting
-	PV	-	-
Description			
Software version			
Provides the software version loaded on the Detector.			#PV <ENTER> TE V6.XXX

	Remote	Possible settings	Standard setting
-	EPT	-	-
Description			
Parameters list for all products			
The list shows all the parameters together with their values, both global and related to the current product, followed by a list of all stored products with the relative parameters and settings.			

	Remote	Possible settings	Standard setting
-	CR	-	-
Description			
Reset of the current product counters			
Resets the alarm and object counters for the current product.			

	Remote	Possible settings	Standard setting
-	RO	-	-
Description			
Direct reading of the signal level			
When the system connected to the Detector sends the command “RO (CR)” the Metal Detector answer with “RO xxx (CR)(CR)#” where “xxx” are ASCII characters between 0 and 100. The metal alarm threshold is at 20. Resolution is 1.			
 (SP) stands for “space” and (CR) stands for “carriage return”.			

	Remote	Possible settings	Standard setting
-	SN	-	-
Description			
Serial number			

	Remote	Possible settings	Standard setting
-	TM	HH:MM	-
Description			
Current time			
HH = Hours; MM = Minutes.			
#TM=16:15 <ENTER> #			

4.9.1 Operations allowed during remote programming

- During remote programming the operator can see the current value of all parameters.
- During remote programming the modification of the parameter values is allowed.

4.10 Autolearn procedure

The factory settings are suitable for **non-magnetic, non-conductive products** (Product denomination “P1”).

If the material to be verified has conductive or magnetic characteristics (the bar-graph shows $\frac{1}{4}$ or more of the alarm threshold), its mandatory to perform the Autolearn procedure.



The goal of the Autolearn procedure is to obtain the following operating mode:

- The detector **does not set off an alarm** when the **pure product**, without any metal contamination, passes through the probe.
- The detector **sets off an alarm** when some of the **product containing a metal sample** passes through the probe.

This procedure comprises the automatic acquisition of product characteristics in order to identify the contribution to the received signal due to the metal mass to be detected. The characteristics are acquired by making the product pass through the metal detector several times.



The procedure must be completed once started. Do not change any parameter setting during the procedure.

4.10.1 Procedure

Phase	Step	Operation	Notes
Acquisition of the material characteristics	1.0	Select an existing product with operational characteristics similar to those required.	Selection of the Default product before creating a new one will copy its characteristics into it.
	1.1	Create a new product through the command <i>New Product</i> in the Product menu	
	1.2	Set Autolearn = ON , exit from the programming phase and follow the messages on the display.	
	1.3	The message “Pass product” appears on the display. Pass the product through the metal detector each time it is requested.	
	1.4	At the end of the Autolearn procedure, the Metal Detector exits from the autolearn phase and the standard message appears on the display.	The procedure changes the values of the following parameters: Sensitivity (SE) TP (TP)
Final detection verification	2.1	Pass some pure product through the detector: the device should not set off any alarm.	If the detector gives an alarm whenever some of the pure product passes through the probe, decrease the “Sensitivity” parameter until the detector does not give an alarm (this is probably due to non-uniformity of the product)
	2.2	Pass some of the product with the metallic sample : the detector should give an alarm. In this case the procedure has been completed successfully.	If not, repeat step 2.2 using bigger metal samples.

4.11 Sensitivity check with reference sample

It is important to check proper operation (sensitivity and ejection of material) of the metal detector periodically by carrying out a sensitivity test with a reference sample.

5 MAINTENANCE



Before starting any maintenance operation, read the Safety instructions - Warnings section of this manual carefully.

5.1 Periodic Maintenance

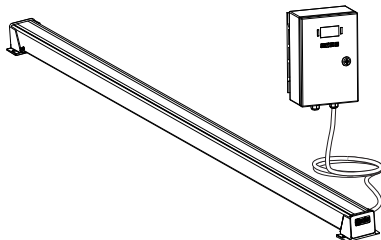
Operation	Frequency	Procedure
<i>Preventive maintenance</i>	At the beginning of each shift	Visual check of the integrity of the components
	On changing product type	
	Periodically	
<i>Detection check</i>	At the beginning of each shift	Check that the reference metal sample is detected.
	On changing product type	
	Periodically	
<i>External devices activation check</i>	At the beginning of each shift	Check that all external devices, connected to the Detector are activated when they should be (for example, the labelling device or the production halt in the case of an alarm).
	On changing product type	
	Periodically	



The operator must monitor the condition of the system and its suitability for use, and consult the maintenance personnel if necessary.

5.1.1 Checking the safety features

Before any power-up, check the integrity of the safety features the system is fitted with:



Close the cover of the Electronic Unit and keep the key safe so that it is only available for use by trained personnel (EN 60204 Standard) and avoid switching the system on without the door closed.



It is strictly forbidden to start up the system if all safety features are not properly functional. Tampering with the safety features is also forbidden, and voids all responsibility of the manufacturer for any damage caused.

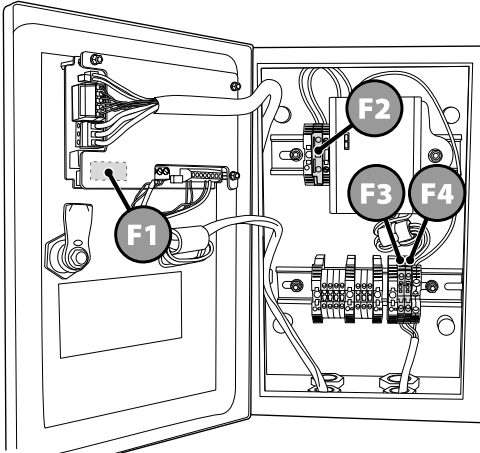
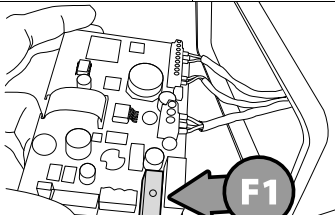
5.2 Troubleshooting

Symptom	Probable cause	Action
Metal Detector OFF	No line voltage	Check the power supply connections
	Unstable or partial connections	Check internal connections, the correct status of the fuses and of the supply module (green led ON)
	Malfunction of the power supply section	Replace SCD card
Metal detector does not give an alarm in the presence of metal masses of the same type as the sample indicated on FAT documentation, annexed to the manual, and of equal or greater mass	Wrong detection parameters for the current product	Select Default product: verify detection of the single metallic sample of the same type as the sample indicated on FAT documentation, annexed to the manual, and of equal or greater mass. In the case of correct detection, select the previous product and repeat the Autolearn procedure. Increase, if needed, the mass of the sample respect to the mass indicated on the documentation until it is possible to determine the mass of the minimum detectable sample with the current product.
	SCD card malfunction	Replace SCD card
Metal detector gives false alarms with no product in transit	Environmental interference	Carry out procedure 3.4.1 - <i>Checking for environmental electromagnetic interference.</i>
	Line voltage insufficient or unstable	Check the mains voltage is within the allowed range.
	SCD card malfunction	Replace SCD card
Metal detector gives false alarms when product is in transit	Magnetic and/or conductive material	Perform the Autolearn procedure for the current product.
	Stray currents.	Contact CEIA Service.
The alarm relay does not switch	Unstable or partial connections	Check internal connections and the correct status of the fuses.
	SCD card malfunction	Replace SCD card
	Encoder disconnected or wrongly programmed	Check the connections and programming of the encoder and check it is operating correctly via the I/O Status function.
	Wrong programming of the parameters in the Ejection and Configuration menus	Check the values of the parameters in the Ejection and Configuration menus relating to product transport, particularly ED & BS.

5.3 Extraordinary maintenance procedures

5.3.1 Fuse replacement

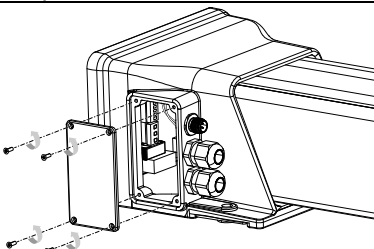
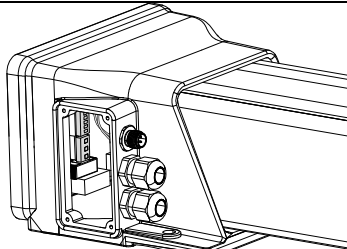
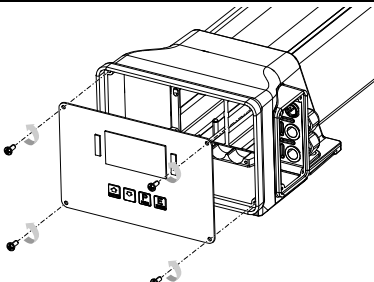
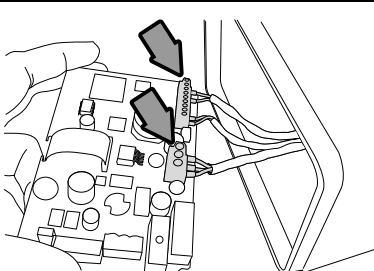
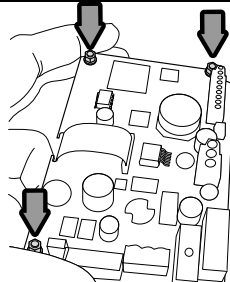
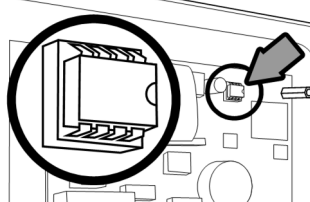
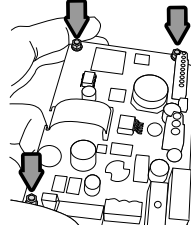
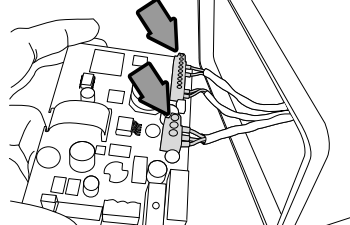
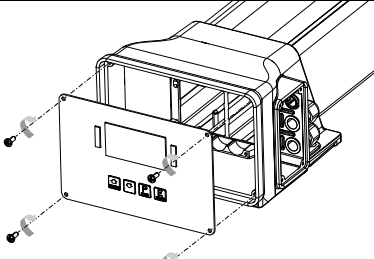
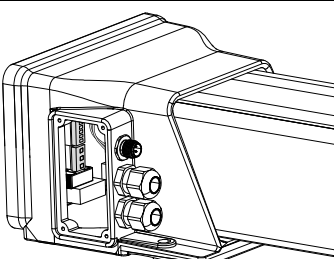
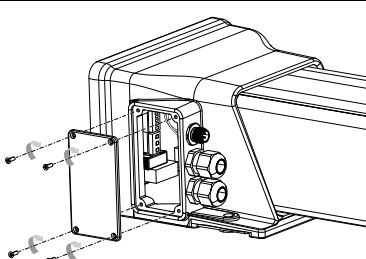
The figure shows the position and rating of the fuses fitted to the device.

Ref.	Type	Description	Position
F1	250V T2.5AH 5x20mm	Metal Detector Alarm relay protection	
F2	250V T2.5AH 5x20mm	+16V Power supply protection	
F3	250V F6.3AH 5x20mm	Line input protection	
F4	250V F6.3AH 5x20mm		
			TE
			TE-RC

5.3.2 Replacing Card SCD

TE

Tools: PH1 Philips screwdriver, N°5 spanner, thin-blade screwdriver

 Switch off the device and disconnect the system from all power sources.	 Open the connector compartment.	 Disconnect the three connectors inside. For the power supply connection, the lever must be pressed with a screwdriver.
 Unscrew the control panel.	 Disconnect the terminals indicated above, taking note of their position.	 Unscrew and remove the three indicated nuts. Remove the old SCD card from the base support, paying attention to the keyboard connector which is still connected to the door.
 Carefully remove the memory chip from the old SCD card and insert it into the new one, taking extreme care regarding its orientation and not to bend its contacts..	 Fix the new SCD card to the control panel.	 Reconnect the probe terminals, referring to the electrical diagram (par. 3.2.6).
 Reassemble the control panel.	 Reconnect the internal terminals.	 Close the connector compartment.

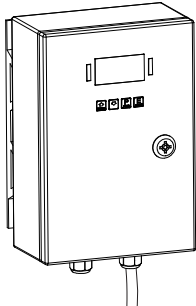
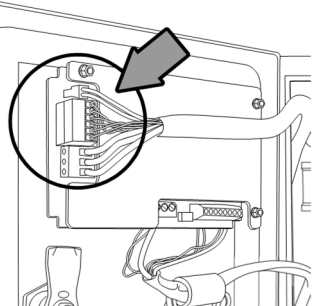
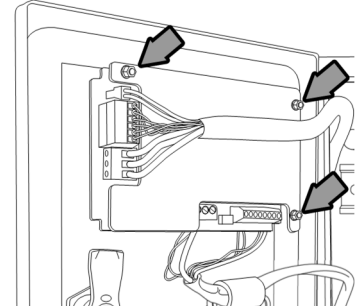
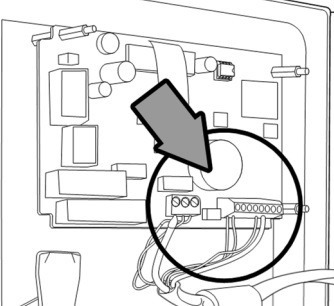
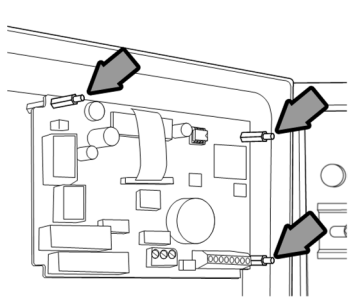
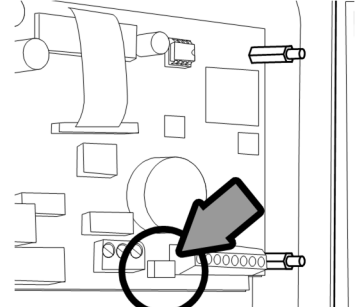
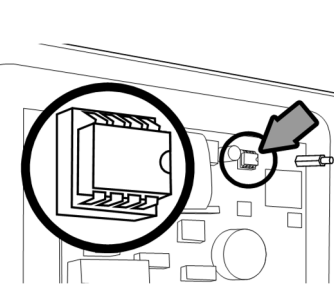
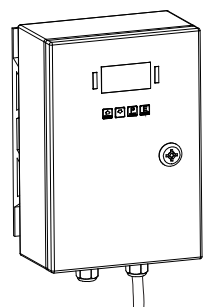


The memory chip contains all the stored programming and products for the device it was programmed for.
After replacing the card, perform the TA Autolearn procedure (see Programming chapter).

Check that the system operates properly with all the products stored in memory.

TE-RC

Tools: N°5 spanner, thin-blade screwdriver

 Switch off the device and disconnect the system from all power sources.	 Open the Electronics Unit door.	 Unplug the three indicated connectors from the SCD card to be replaced.
 Remove the metal protection panel, by removing the three fixing nuts.	 Disconnect the terminals indicate above, taking note of their position.	 Unscrew and remove the three indicated hexagonal spacers.
 Lift up the old SCD card from the base support, paying attention to the keyboard connector which is still connected to the door.	 Carefully remove the memory chip from the old SCD card and insert it into the new one, taking extreme care regarding its orientation and not to bend its contacts.	 Reassemble all components following the procedure in reverse. Reconnect the cables to the SCD card, referring to the electrical diagram (par. 3.2.6).



The memory chip contains all the stored programming and products for the device it was programmed for.



After replacing the card, perform the TA Autolearn procedure (see Programming chapter).

Check that the system operates properly with all the products stored in memory.

5.4 Self-diagnosis

The internal diagnostic system monitors the operational status of the metal detector. If a fault is detected, the following are activated in addition to a message on the display:

- The illuminating alarm indicator
- The alarm relay (if the parameter EF = ON)

Fault status can only be reset by eliminating the cause of the fault.

Message	Probable cause	Action
Vx SUPPLY LOW	Fault on SCD card	Replace SCD card
PROBE FAULT (x)	Fault on SCD card	Contact CEIA Replace SCD card
I6 TOO HIGH	Metallic masses near the probe	Wait for the automatic reset of the Metal Detector. If after 3 minutes the Metal Detector has not self-reset, the metallic masses are much too near to the probe. Remove them or change the probe position.
PROBE DISC.	Probe disconnected	Check the connection between the electronics unit and the probe.

5.5 Storage

Store the system inside its original packaging or in a way to preserve its integrity towards atmospheric agents or other possible causes of damage (moving objects, weights, solvents, etc...).

Storage temperature (standard EN 60204): -25°C - +55°C continuously, +70°C for max. 24 hours.

5.6 Transportation and movement



- Disconnect all connecting cables before carrying out any movement.
- Save the packaging apart for future transportation.

5.7 Disposal of the device and of consumables with environmental impact

For disposal follow the regulations in force in the country where the device is being used.

6 APPENDICES

6.1 Spare parts



When ordering spare parts please specify the Serial number of the device.

Code	Description	TE	TE-RC
53732	SCD card	●	●
105800	Control panel	●	
50953	Full electronics unit		●
50954	Probe/Electronics unit cable (length 2m)		●
50955	Probe/Electronics unit cable (custom length)		●
99779	External power supply unit	●	
100172	Memory chip	●	●

6.2 Declaration of Conformity CE

6.2.1 TE

EU DECLARATION OF CONFORMITY <i>(in accordance with EN ISO/IEC 17050-1:2010)</i> DECLARATION DE CONFORMITE UE (conformément à la norme EN ISO/IEC 17050-1:2010) EU-KONFORMITÄTSEKLÄRUNG (nach EN ISO/IEC 17050-1:2010) DECLARACION DE CONFORMIDAD UE (según EN ISO/IEC 17050-1:2010) DICHIARAZIONE DI CONFORMITÀ UE (in conformità con EN ISO/IEC 17050-1:2010) 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	
Manufacturer: CEIA S.p.A. Fabricant / Hersteller / Fabricante / Costruttore: Zona industriale Viciomaggio 54 52041 Viciomaggio Arezzo – ITALY	
Declares that the product déclare que ce produit / erklärt, daß das Produkt / declara que el producto / dichiara che il prodotto:	
Product name: Electronic Metal Detector Nom du produit: / Produktname: Détecteur de métaux / Elektronischer Metaldetektor Nombre del producto: / Nome: Electronic Metal Detector / Metal Detector Elettronico	
Model: Modelé / Modell / Modelo / Modello: TE (All configuration / toutes les configurations / alle Konfiguration / toda la configuración / tutte le configurazioni)	
Part Number: TE-XXXX⁽¹⁾ Code / Teilenummer / Código / Codice	
1) XXXX corresponds to the length of the sensitive surface in mm / correspond à la longueur de la surface sensible en mm / XXXX entspricht der Länge der sensiblen Fläche in mm / XXXX corresponde a la longitud de la superficie sensible en mm / XXXX corrisponde alla lunghezza della superficie sensibile in mm	
Product Options: This declaration covers all options 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	
conforms to the following Product Specifications est conforme aux spécifications suivantes / folgenden Produktspezifikationen entspricht es conforme a las siguientes especificaciones / è conforme alle seguenti specifiche di prodotto:	
Low Voltage (LVD) Directive 2014/35/EU EN 60204-1:2018 Safety of machinery - Electrical equipment of machines – Part 1: General requirements This product complies with the requirements of the Low Voltage Directive 2014/35/EU. Le produit ci-dessus répond aux exigences de la Directive 2014/35/UE concernant la basse tension. Dieses Produkt entspricht den Anforderungen an Niederspannungsgeräte gemäß der Norm 2014/35/EU. El producto indicado cumple los requisitos de la Low Voltage Directive 2014/35/UE. Il prodotto è conforme alle norme della direttiva 2014/35/UE sulla bassa tensione.	
Electromagnetic Compatibility (EMC) Directive 2014/30/EU EN 61000-6-4:2007 +EN61000-6-4:2007/A1:2011 Electromagnetic compatibility (EMC) – Part 6-4: Generic standards - Emission standard for industrial environments EN 61000-6-2:2005 + EN 61000-6-2:2005/AC:2005 Electromagnetic compatibility (EMC) – Part 6-2: Generic standards - Immunity for industrial environments This product complies with the requirements of the EMC Directive 2014/30/EU. Le produit ci-dessus répond aux exigences de la Directive 2014/30/UE concernant les interférences électromagnétiques. Dieses Produkt entspricht den Anforderungen der EMC-Norm 2014/30/EU. El producto indicado cumple los requisitos de la Directiva EMC 2014/30/UE. Il prodotto è conforme alle norme della direttiva EMC 2014/30/UE.	
RoHS Directive 2011/65/EU This product complies with the requirements of the RoHS Directive 2011/65/EU (RoHS 2) + (EU) 2015/863 (RoHS 3). Le produit ci-dessus répond aux exigences de la Directive 2011/65/UE (RoHS 2) + (UE) 2015/863 (RoHS 3) concernant les RoHS. Dieses Produkt entspricht den Anforderungen der RoHS -Norm 2011/65/EU (RoHS 2) + (EU) 2015/863 (RoHS 3). El producto indicado cumple los requisitos de la Directiva RoHS 2011/65/UE (RoHS 2) + (UE) 2015/863 (RoHS 3). Il prodotto è conforme alle norme della direttiva RoHS 2011/65/UE (RoHS 2) + (UE) 2015/863 (RoHS 3).	
This device, in its particular configuration, is designed to be incorporated in a fixed installation. The installer shall ensure that the device, when installed and operated, is not disturbed by other devices present in the installation site and does not interfere with the correct functioning of other equipment. Cet appareil, dans sa configuration particulière, est conçu pour être incorporé dans une installation fixe. L'installateur doit s'assurer que l'appareil, lorsqu'il est installé et utilisé, n'est pas perturbé par les autres appareils présents dans l'installation et ne perturbe pas le bon fonctionnement des autres appareils. Dieses Gerät ist in seiner besonderen Konfiguration so ausgelegt, dass es in eine feste Anlage integriert werden kann. Der Installateur muss sicherstellen, dass das Gerät bei der Installation und im Betrieb nicht von den in der Anlage vorhandenen Geräten gestört wird und die ordnungsgemäße Funktion der anderen Geräte nicht stört. Este dispositivo, en su configuración particular, está diseñado para ser incorporado en una instalación fija. El instalador se asegurará de que el dispositivo, cuando se instala y funciona, no sea perturbado por los otros dispositivos presentes en la instalación y no perturbe el correcto funcionamiento de los otros dispositivos. Questo dispositivo, nella sua particolare configurazione, è progettato per essere incorporato in un'installazione fissa. L'installatore deve accertarsi che il dispositivo, quando installato e utilizzato, non sia disturbato dagli altri dispositivi presenti nell'installazione e non disturbi il corretto funzionamento degli altri dispositivi.	
For parts and materials in CEIA products procured from external suppliers, we rely on the representation of our suppliers regarding the presence of ROHS substance in the parts and material. Our supplier contracts require compliance with our chemical substance restrictions. CEIA also has internal system in place to ensure ongoing compliance and all laws and regulations. These system include standard operating procedures that ensure that product safety, EMC and environmental compliance requirements are followed an internal auditing process to ensure compliance with all standard operating procedures.	
Signed for and on behalf of: / Signé par et au nom de: / Unterzeichnet für und im Namen von: / Firmado por y en nombre de: / Firmato in vece e per conto di: CEIA S.p.A. Zona industriale Viciomaggio 54 52041 Viciomaggio Arezzo – ITALY	
 SpA Arezzo, 2021-07-08 Ing. Enrico Sorini  Lab. EMC Person in charge Resp. Laboratoire EMC / Verantwortlicher für EMC-Labor Resp. Laboratorio EMC / Resp. Lab. EMC	

Doc. N° TE rev 4

Mod. P0401-0025 rev 0

6.2.2 TE-RC

EU DECLARATION OF CONFORMITY

(in accordance with EN ISO/IEC 17050-1:2010)

DECLARATION DE CONFORMITE UE (conformément à la norme EN ISO/IEC 17050-1:2010) EU-KONFORMITÄTSERKLÄRUNG (nach EN ISO/IEC 17050-1:2010)
 DECLARACION DE CONFORMIDAD UE (según EN ISO/IEC 17050-1:2010) DICHIARAZIONE DI CONFORMITÀ UE (in conformità con EN ISO/IEC 17050-1:2010)

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

Manufacturer: **CEIA S.p.A.**
Fabricant / Hersteller / Fabricante / Costruttore: **Zona industriale Viciomaggio 54**
52041 Viciomaggio Arezzo – ITALY

Declares that the product

déclare que ce produit / erklärt, daß das Produkt / declara que el producto / dichiara che il prodotto:

Product name: **Electronic Metal Detector**
 Nom du produit: / Produktname: Détecteur de métaux / Elektronischer Metaldetektor
 Nombre del producto: / Nome: Electronic Metal Detector / Metal Detector Elettronico

Model: Modelé / Modell / Modelo / Modello: **TE-RC** (All configuration / toutes les configurations / alle Konfiguration / toda la configuración / tutte le configurazioni)

Part Number: **TE-RC-XXXX⁽¹⁾**
 Code / Teilenummer / Código / Codice

1) XXXX corresponds to the length of the sensitive surface in mm / correspond à la longueur de la surface sensible en mm / XXXX entspricht der Länge der sensiblen Fläche in mm / XXXX corresponde a la longitud de la superficie sensible en mm / XXXX corrisponde alla lunghezza della superficie sensibile in mm

Product Options: This declaration covers all options
 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

conforms to the following Product Specifications

est conforme aux spécifications suivantes / folgenden Produktspezifikationen entspricht
 es conforme a las siguientes especificaciones / è conforme alle seguenti specifiche di prodotto:

Low Voltage (LVD) Directive 2014/35/EU

EN 60204-1:2018 Safety of machinery - Electrical equipment of machines – Part 1: General requirements

This product complies with the requirements of the **Low Voltage Directive 2014/35/EU**.

Le produit ci-dessus répond aux exigences de la Directive 2014/35/UE concernant la basse tension.

Dieses Produkt entspricht den Anforderungen an Niederspannungsgeräte gemäß der Norm 2014/35/EU.

El producto indicado cumple los requisitos de la Low Voltage Directive 2014/35/UE.

Il prodotto è conforme alle norme della direttiva 2014/35/UE sulla bassa tensione.

Electromagnetic Compatibility (EMC) Directive 2014/30/EU

EN 61000-6-4:2007 + EN 61000-6-4:2007/A1:2011 Electromagnetic compatibility (EMC) – Part 6-4: Generic standards - Emission standard for industrial environments

EN 61000-6-2:2005 + EN 61000-6-2:2005/AC:2005 Electromagnetic compatibility (EMC) – Part 6-2: Generic standards - Immunity for industrial environments

This product complies with the requirements of the **EMC Directive 2014/30/EU**.

Le produit ci-dessus répond aux exigences de la Directive 2014/30/UE concernant les interférences électromagnétiques.

Dieses Produkt entspricht den Anforderungen der EMC-Norm 2014/30/EU.

El producto indicado cumple los requisitos de la Directiva EMC 2014/30/UE.

Il prodotto è conforme alle norme della direttiva EMC 2014/30/UE.

RoHS Directive 2011/65/EU

This product complies with the requirements of the **RoHS Directive 2011/65/EU (RoHS 2) + (EU) 2015/863 (RoHS 3)**.

Le produit ci-dessus répond aux exigences de la Directive 2011/65/UE (RoHS 2) + (UE) 2015/863 (RoHS 3) concernant les RoHS.

Dieses Produkt entspricht den Anforderungen der RoHS-Norm 2011/65/EU (RoHS 2) + (EU) 2015/863 (RoHS 3).

El producto indicado cumple los requisitos de la Directiva RoHS 2011/65/UE (RoHS 2) + (UE) 2015/863 (RoHS 3).

Il prodotto è conforme alle norme della direttiva RoHS 2011/65/UE (RoHS 2) + (UE) 2015/863 (RoHS 3).

This device, in its particular configuration, is designed to be incorporated in a fixed installation. The installer shall ensure that the device, when installed and operated, is not disturbed by other devices present in the installation site and does not interfere with the correct functioning of other equipment.

Cet appareil, dans sa configuration particulière, est conçu pour être incorporé dans une installation fixe. L'installateur doit s'assurer que l'appareil, lorsqu'il est installé et utilisé, n'est pas perturbé par les autres appareils présents dans l'installation et ne perturbe pas le bon fonctionnement des autres appareils.

Dieses Gerät ist in seiner besonderen Konfiguration so ausgelegt, dass es in eine feste Anlage integriert werden kann. Der Installateur muss sicherstellen, dass das Gerät bei der Installation und im Betrieb nicht von den in der Anlage vorhandenen Geräten gestört wird und die ordnungsgemäße Funktion der anderen Geräte nicht stört.

Este dispositivo, en su configuración particular, está diseñado para ser incorporado en una instalación fija. El instalador se asegurará de que el dispositivo, cuando se instala y funciona, no sea perturbado por los otros dispositivos presentes en la instalación y no perturbe el correcto funcionamiento de los otros dispositivos.

Questo dispositivo, nella sua particolare configurazione, è progettato per essere incorporato in un'installazione fissa. L'installatore deve accertarsi che il dispositivo, quando installato e utilizzato, non sia disturbato dagli altri dispositivi presenti nell'installazione e non disturbi il corretto funzionamento degli altri dispositivi.

For parts and materials in CEIA products procured from external suppliers, we rely on the representation of our suppliers regarding the presence of ROHS substance in the parts and material. Our supplier contracts require compliance with our chemical substance restrictions.

CEIA also has internal system in place to ensure ongoing compliance and all laws and regulations. These system include standard operating procedures that ensure that product safety, EMC and environmental compliance requirements are followed an internal auditing process to ensure compliance with all standard operating procedures.

Signed for and on behalf of: / Signé par et au nom de: / Unterzeichnet für und im Namen von: / Firmado por y en nombre de: / Firmato in vece e per conto di:
CEIA S.p.A. Zona industriale Viciomaggio 54 52041 Viciomaggio Arezzo – ITALY

Arezzo, 2021-07-08



Ing. Enrico Sorini



Lab. EMC Person in charge

 Resp. Laboratoire EMC / Verantwortlicher für EMC-Labor
 Resp. Laboratorio EMC / Resp. Lab. EMC