



Multi Spectrum
ElectroMagnetic Analyzer
EMA-3 TYPE A
 Operator Manual

Program Version	Hardware version	Rev.	Date
Type A: PVEX: EMAX 5311 PVCT: EMAO 2100	3.xx	FI200K0015v1209 UK	2014-02-25

REVISION RECORD

Rev.	Firmware	Date	Author	Reference	Description
1.201	PVEX: EMAX 5110 PVCT: EMAO 2100	2011-10-26	DTP- BC	-	First edition.
1.203	PVEX: EMAX 5110 PVCT: EMAO 2100	2011-10-28	DTP- BC	-	Operational Verification.
1.206	PVEX: EMAX 5211 PVCT: EMAO 2100	2013-09-05	DTP- BC	-	Software version.
1.209	PVEX: EMAX 5311 PVCT: EMAO 2100	2014-02-25	DTP- BC	-	Software version.

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1 SAFETY INSTRUCTIONS - WARNINGS

READ THESE INSTRUCTIONS BEFORE WORKING WITH THE DEVICE.

1.1 General warnings

- Read this manual carefully before installing, operating or carrying out maintenance on the device. Keep the manual in a safe place for future reference, and in perfect condition.
- Follow the instructions contained in this manual for all operations relating to installation, use and maintenance of the device.
- 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.
- All personnel operating with or performing operations on the device must have an adequate preparation and shall know the procedures described in this manual.
- Observe current regulations regarding electrical and personal safety for both the operator and the installer when installing the device.
- Any modification to the configuration setup by CEIA is forbidden and voids all warranties and certifications.
- This manual must accompany the device described therein in the case of change of ownership, and until the device is broken up.

1.2 Safety Warnings

Compliance with standards for human exposure to electromagnetic fields

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

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

1.3 Correct and Forbidden Use of the Device – Operating Limits

1.3.1 Correct use

EMA-3 is a compact bench top machine (the dimensions of a small desktop printer) designed to quickly analyze liquids in order to detect the possible presence of dangerous substances such as explosive mixtures and their precursors, combustible, flammable, explosive liquids, acids and oxidizers.

1.3.2 Forbidden use

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

1.3.3 Operating Limits

Degree of protection: IP 20 (IEC 60529)

Overall Dimensions:

Base unit: 470x317x330 mm ; Base unit with external probe: 545x317x330mm.

Weight: 17.5kg

Power supply:

115/230V~ ±15%, 50 / 60 Hz ±10%, 15 W

Environmental conditions

Working temperature: 0 ... +40°C.

Storage temperature : -10 ... +60°C.

Working relative humidity: 0 ... 95%, without condensation.

Storage relative humidity: 0 ... 98%, without condensation.

1.4 Use warnings

- The final user is responsible for selecting the appropriate programming settings 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 appropriate test object(s). Additionally, this test should be carried out periodically to insure no changes have occurred in the equipment.
- The final user is responsible for determining and implementing the appropriate inspection procedures and for the training of personnel involved in carrying them out.
- The information contained in this manual is provided only as a technical reference for use and maintenance, and does not contain operational procedures.
- Handle the device with care and without excessive force during use.
- In case of damage to the Power Supply Adapter, input and output cables included, the unit should be returned to a CEIA qualified Technical Assistance Centre or directly to CEIA Headquarters for proper repair or replacement. Do not open, tamper with or attempt to repair the power supply unit or any other part of the device.
- If the device is stored for a long period in temperatures outside the operating range, wait for the temperature of the device to come back within that range before switching on
- Whenever there is any suggestion that the level of protection has been reduced, the device should be taken out of service and secured against any possibility of unintentional use, and authorised service technicians should be called.
The level of protection is considered to have been reduced when:
 - the device shows visible signs of deterioration;
 - the device does not operate correctly;
 - the device has been stored for a long period in sub-optimal conditions;
 - the device has suffered mechanical or electrical stress (shocks, bumps, etc.);
 - the device has suffered severe stress during transport;
 - the inside of the device has come into contact with liquids
- Always remove the plug by hand when disconnecting the power supply cable, never by pulling on the cable.
- The standard power-supply adapter is not waterproof: place it in a ventilated position where it is protected from water (rain, condensation, liquid detergents)! There is a risk of electric shocks for people and damage to the equipment.
- This device contains electrical and electronic components, and may therefore be susceptible to fire. Do not install in explosive atmosphere or avoid the inner components coming in contact with inflammable material. Do not use water or foam in the case of fire when the device is powered up.
- Do not use in an explosive atmosphere. Avoid contact with inflammable or explosive material!

1.5 Maintenance warnings

- Do not wash the device with water, liquid detergents or chemical substances. Use a slightly moist, non-abrasive cloth for cleaning.
- The device must be disconnected from all power sources before undergoing any maintenance or cleaning, and before being moved.
- Read the chapter "Maintenance" carefully before calling the service centre. Whatever the problem, only specialised service personnel authorised to work with CEIA equipment should be called.
- Any damaged parts of the device should be replaced by original components only.
- Any maintenance or repair involving the device being opened while powered should be avoided as far as possible: if this becomes inevitable, the operation must be carried out only by qualified personnel who are fully aware of the risks involved.

1.6 Disposal warnings

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

1.7 Regulatory Information

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

Electrical Safety

- Canadian Standard - CSA C22.2 NO 61010-1 3rd Edition, 2017 Safety Requirements for Measurement, Control and Laboratory Use, Part 1: General Requirements.
- US Standard - UL 61010-1 Edition 3 Edition Date: May 11, 2012 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use, Part 1: General Requirements.
- International Standard - IEC 61010-1 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use, Part 1: General Requirements.
- OSHA Regulation 1910.147 De-energizing Equipment.

Mechanical Tests

- IEC 60068-2-27 Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock
- IEC 60068-2-29 Environmental testing. Part 2: Tests. Test Eb and guidance: Bump
- IEC 60068-2-64 Environmental testing - Part 2: Test methods - Test Fh: Vibration, broad-band random (digital control) and guidance
- IEC 60529 Degrees of protection provided by enclosures (IP Code).

Electromagnetic Compatibility

- EN61000-6-1:2001 "Electromagnetic compatibility (EMC) - Part 6-1: Generic Standards - Immunity for residential, commercial and light-industrial environments"
- EN61000-6-3:2001 "Electromagnetic compatibility (EMC) - Part 6-3: Generic Standards - Emission standard for residential, commercial and light-industrial environments"
- EN55022:1998+A1:2000 "Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement";
- EN61000-4-6:1996 +A1 "Electromagnetic compatibility - Basic immunity Standard - Conducted disturbances induced by radio-frequency fields - Immunity test"
- EN61000-4-4:1995 +A1+A2 "Electromagnetic compatibility (EMC) Part 4: Testing and measurement techniques- Section 4: Electric fasts transient. Immunity test EMC Publication".
- ENV50204:1995 "Radiated electromagnetic field from digital radio telephones - Immunity test".
- EN 61000-4-3:1996 +A1+A2 "Electromagnetic compatibility (EMC) Part 4: Testing and measurement techniques - Section 3: Radiated, radio-frequency, electromagnetic field immunity".
- EN61000-4-2:1995 +A1+A2 "Electromagnetic compatibility (EMC) Part 4: Testing and measurement techniques- Section 2: Electrostatic discharge immunity test Basic EMC Publication"
- EN61000-4-5:1995 +A1"Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test"
- EN61000-4-11:1995 +A1" Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests"
- EN61000-3-2:2000 "Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)"
- EN61000-3-3:1995 +A1"Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection"
- FCC 47 CFR, Part 15, Subpart B: 1998, Class B for Power Line Conducted Emissions.
- FCC 47 CFR, Part 15, Subpart B: 1998, Class B for Radiated Emissions.
- ICES-003 2004, "Spectrum Management and Telecommunications Policy - Interference-Causing Equipment Standard - Digital Apparatus"

Human Exposure to Electromagnetic Fields

- ACGIH, 2001 Threshold Limit Value (TLV) for "Sub-Radiofrequency (30 kHz and below) Magnetic Fields"
- IEEE C95.1-1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz




- ICNIRP Guidelines 1998 Guidelines For Limiting Exposure To Time-Varying Electric, Magnetic, And Electromagnetic Fields (Up To 300 GHz)", International Commission on Non-Ionizing Radiation Protection, Health Phys. 1998 April, Vol.74, No.4, 494-522
- EC Directive 2004/40/EC of the European Parliament and of the Council on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields), 29. April 2004
- EN 50366 : Household and similar electrical appliances. Electromagnetic fields. Methods for evaluation and measurement
- European Council Recommendation 1999/519/EC on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz), 12. July 1999
- Safety Code 6, 1999: Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency range from 3 kHz to 300 GHz, Health Canada
- CFR PART 1910.97 Occupational Safety and Health Standards – Nonionizing radiation.

1.8 Harmlessness

The Analyzer uses very low power electromagnetic fields, completely harmless for the operator and with no effect on the liquid to inspect.

The equipment does not use any ionizing radiation emitter or radioactive sources.

SYMBOLS

	The device is marked with this symbol whenever the operator or the maintenance personnel, in order to avoid possible damage, have to refer to the present manual. The same symbol appears in the booklet at points where warnings or particularly important instructions are given - instructions that are vital to a safe and correct use of the device.
	The device is marked with this symbol in those areas where a dangerous amount of voltage is present. Only specialized maintenance personnel should make adjustments in these areas.
	This sign in the manual indicates tips for optimizing the device's performance.

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/security/satisfaction>

WARRANTY

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

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

2 DESCRIPTION

2.1 General Description

The **EMA-3** is an **Electromagnetic Analyzer** designed to check liquids carried by people in transit through Security Checkpoints, in order to verify whether their characteristics meet the requirements needed to access sensitive areas.

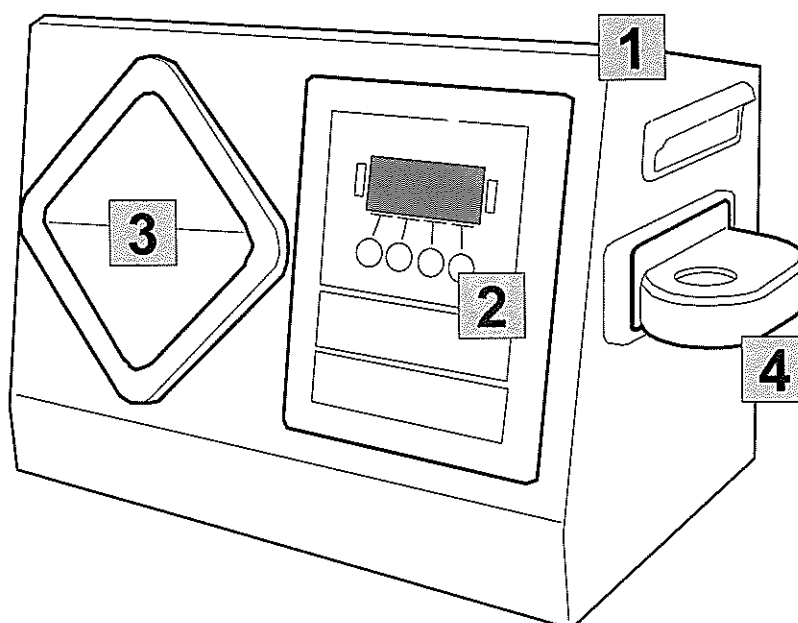
The device can inspect all types of consumable liquids in most general use, such as:

- water
- non-alcoholic drinks (fruit juices, lemonades, ...)
- slightly alcoholic drinks (beer, cider, ..)
- wine
- medium and high strength spirits.

The detection of dangerous substances is effected using non-ionizing electromagnetic fields in the R.F band.

The housing of the analyzer, which is extremely robust, durable and easy to clean, is made of Stainless Steel and anti-friction plastic.

The Analyzer consists of a **main body (1)**, a **control panel (2)**, an **inspection compartment (3)** for the analysis of closed containers (bottles) and an **external probe (4)**, for the analysis of loosen liquids, using disposable cuvettes (small plastic sample cups).



2.2 Operating Principle

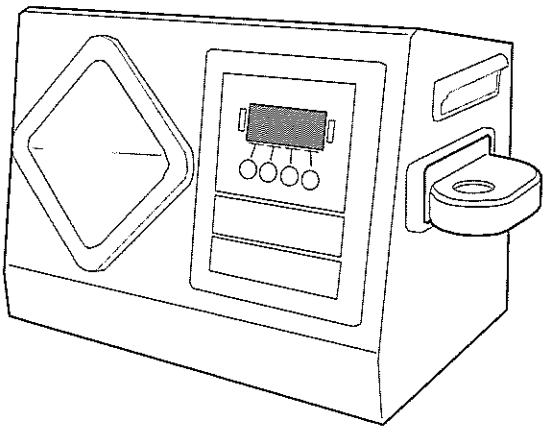



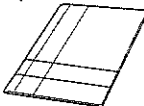
The operator places the liquid in the inspection cavity and starts the inspection process. After a few seconds, the unit provides a result message without requiring any data interpretation by the operator. Calibration is carried out automatically by the unit. The analysis is performed simultaneously on multiple electromagnetic spectra.

The electromagnetic fields, confined in the inspection cavity, are weak in intensity and non-ionizing, therefore completely safe for the liquids and for the operator. The fields interact with the liquid and the EMA-3 measures its RF Broadband Complex Electromagnetic Impedance.

If the results of the measurements correspond to the characteristics of innocuous liquids (e.g. soft drinks, water, wine, liquor), EMA-3 returns the "OK" message and a green light is displayed. **If the results of the measurements do not conform to the characteristics of innocuous liquids**, EMA-3 provides a "prohibited product" acoustic and optical signal.

2.3 Composition

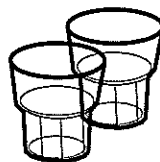
The device consists of:

<p>Probe complete with control unit</p> 	<p>Power Cord</p> 
<p>"PASS" test sample (green "PASS" label on the cap)</p> 	<p>"NO PASS" test sample (red "NO PASS" label on the cap)</p> 
<p>Operator Manual</p> 	

2.4 Accessories

2.4.1 Cuvettes kit

Kit of 1000 sampling cuvettes.



2.4.2 Transport Case

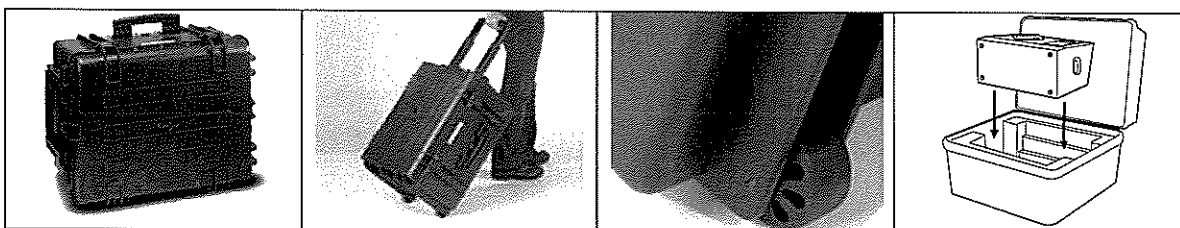
Easy to manage, the case has wheels and a telescopic handle, as well as two side handles for easy carrying by two people. It is exceptionally resistant to impact, corrosion, water, dust, and atmospheric agents in general. The case body is made of thick plastic resin. Sealing neoprene O-ring

Pressure valve quickly adjusts internal pressure in case of sudden changes in height or temperature.

Ergonomic handle; strong pressure locks can be padlocked. Can be stacked.

It includes 48 sampling cuvettes.

Dimension: 580mm x 440mm x 330mm. Weight: 11.7kg



2.5 Technical Features

Probe

Designed and built using advanced technological criteria, the probe is extremely robust and stable, yet elegant and fully protected against the effects of wear-and-tear. The device is completely housed in AISI 304 Stainless steel.

Degree of protection: IP 20 (IEC 60529)

Overall Dimensions:

Base unit: 470x317x330 mm

Base unit with external probe:

545x317x330mm

Weight: 17.5kg

Inputs/Outputs:

- **Power supply:**
115/230V~ ±15%, 50/60Hz ±10%, 15W
- RS-232C Serial interface.
- Ethernet interface (optional).

Environmental conditions

Working temperature:

0 ... +40°C.

Storage temperature :

-10 ... +60°C.

Working relative humidity:

0 ... 95%, without condensation.

Storage relative humidity:

0 ... 98%, without condensation

Positioning:

maximum inclination of the support
surface: ±5°

Signalling

- Detection of an anomalous object
- Internal self-diagnosis

Type of signalling

- Visual:
 - message on the display
 - optical indicator:
 - GREEN: allowed product
 - RED: not allowed product (alarm of high intensity)
 - YELLOW:
 - not allowed product (alarm of medium intensity);
 - self-diagnosis
- Acoustical: intermittent.

SPECIAL FEATURES

Technology

- High integrated SMT
- 32-bit flash-based microcontroller
- 32-bit DSP
- Low power and high reliability
- Very low power inspection field, confined in the inspection compartment, completely safe for both the operator and the liquid.
- No ionizing radiation.
- No radioactive sources.

Programmability

- Programmability of all the parameters protected by passwords.

Analysis

- Very reduced analysis time for a rapid flow-rate (typical value : 5 seconds).
- Very reduced start-up time (15 seconds max.)
- Substances to inspect conforming to the EU requirements for checking liquids in airports.

Remote control

- Capacity for total remote control through an RS-232C serial line.

Installation and maintenance

- Automatic adjustment to environmental parameters and absence of initial or periodic calibrations.
- Operational test carried out using the test samples provided
- Firmware upgradeable via RS232 or Ethernet interface.

Certification and conformity

- Conforms to the international standards currently applicable for electrical safety and EMC, and to the applicable EC Regulations.
- NATO STOCK NUMBER: 6665-151805236

3 USE

3.1 Indicators

3.1.1 Optical indicators

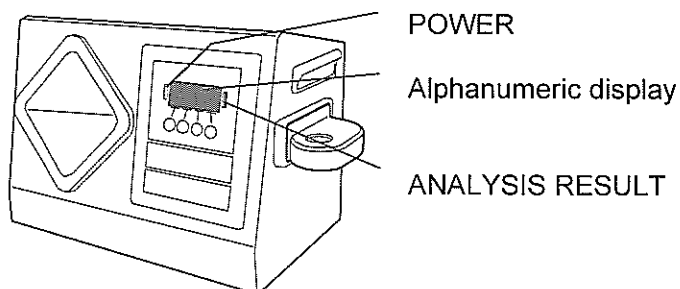
The optical indicators are located on the control panel:

POWER: this indicator is on when the device is switched on. Colour: white.

DISPLAY: this alphanumeric display provides the operator with guiding messages during use. NOTE: when the unit is not used for several second, the display goes automatically in low power mode (indicated by a reduced contrast).




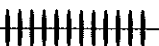

ANALYSIS RESULT: this indicator is normally off. It lights on at the end of an analysis or when the built-in self-diagnosis system detects a fault:

Colour	Meaning
GREEN	Analysis completed with "allowed product" result
RED	Analysis completed with "Not allowed product" result (alarm of high intensity)
YELLOW	<ul style="list-style-type: none"> Self-diagnosis Analysis completed with "Not allowed product" result (alarm of medium intensity)



3.1.2 Acoustic indicators

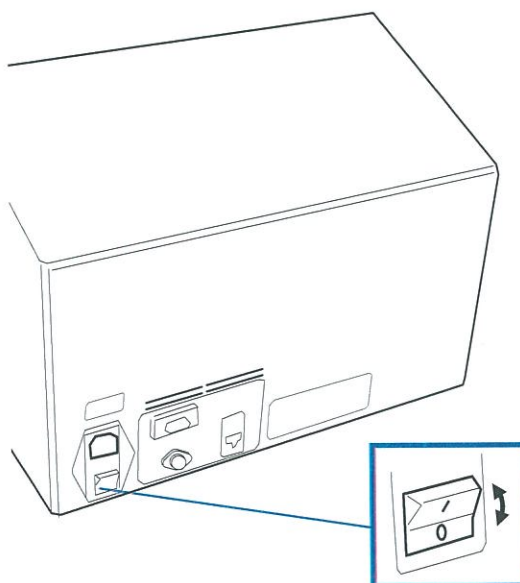
A sounder is located inside the device. It is activated at the end of an analysis, when the built-in self-diagnosis system detects a fault or when the attention/action of the operator is required.

Sound	Meaning
	<p>Repeated double beep.</p> <p>Start-up.</p>
	<p>Double beep.</p> <ul style="list-style-type: none"> Analysis completed with "allowed product" result. Other information messages.
	<p>Triple prolonged beep.</p> <ul style="list-style-type: none"> Analysis completed with "Not allowed product" result: (alarm of medium intensity).
	<p>Uninterrupted sequence of "beeps".</p> <ul style="list-style-type: none"> Analysis completed with "Not allowed product" result (alarm of high intensity).
	<p>Low frequency intermittent tone.</p> <ul style="list-style-type: none"> Self-diagnosis.

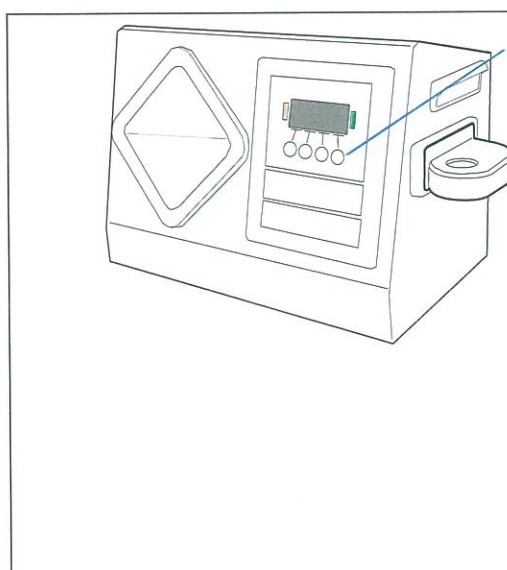
3.2 Controls

3.2.1 Main switch

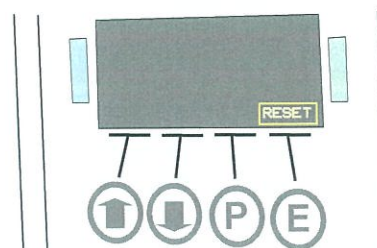
The main switch is located on the rear of the device.




3.2.2 Keypad



The normal function of the keys can change, if necessary, assuming the meaning indicated on the display:



In the example above the  key (normal meaning: exit from programming), assumes the meaning “acknowledge the alarm result of an analysis” (“RESET”).

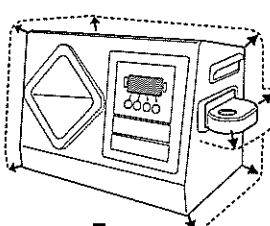
3.3 Switching power on

3.3.1 Checks to perform at start-up or before operating the unit at shift changes

Check List

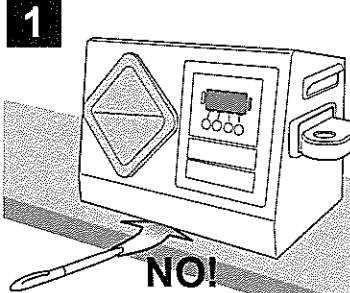
1	Clearance	Verify that no objects are in direct contact with the unit housing Verify that no objects are under the unit. Verify that no objects are on top of the unit.
2	Cavity emptiness	Verify that both the analysis compartments are empty.
3	Cavity cleanliness	Verify that both the analysis compartments are clean.
4	Operational test	At the end of the start-up / log-on phase, verify the unit operation by means of the PASS/NOPASS test samples.

1

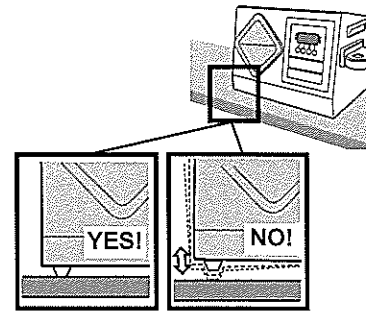


> 5cm
(2")

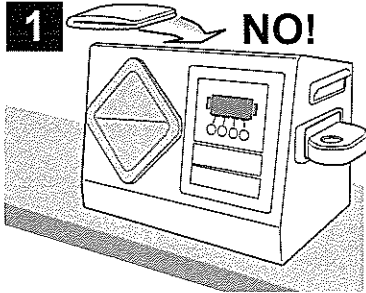
1



NO!

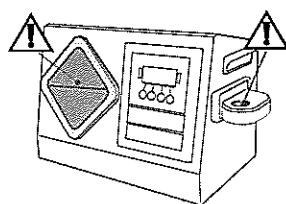


1

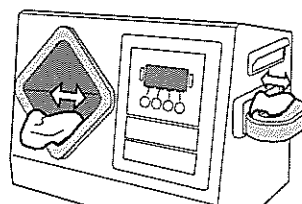



NO!

2




3



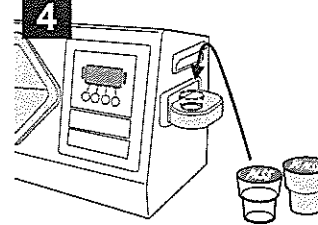


PASS
sample
(green)

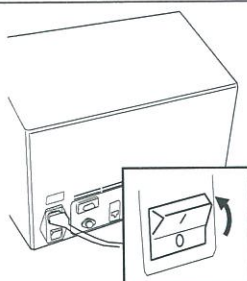
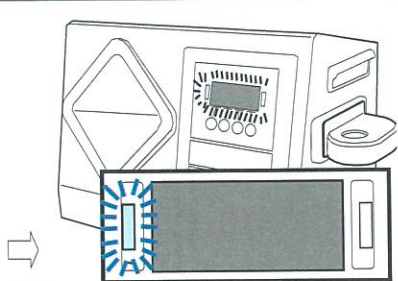
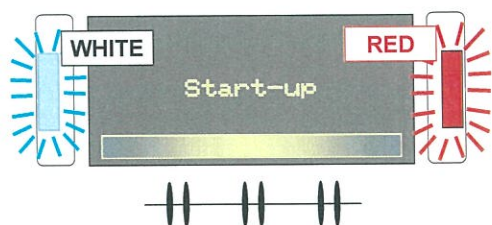
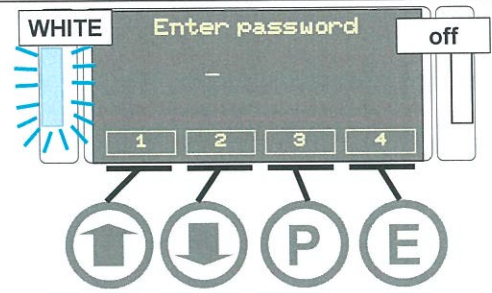


NO PASS
sample
(red)

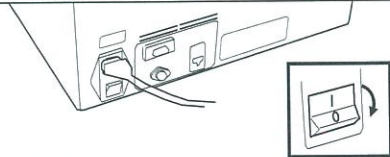
4



3.3.2 Start-up

Switch on the power switch at the rear of the analyzer.		
<p>The power indicator LED and the display screen come on.</p> <p>A repeated double beep is emitted.</p>		
At the end of the start-up phase (lasting max. 15 seconds), the ALARM indicator turns off:	 <p>Signals given when the device is switched on</p>	

3.4 Switching power off

	Switch off the power switch at the rear of the analyzer.
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3.5 Operator Log-On and Log-Off

3.5.1 Operator Log-On

After the start-up phase the device requests a password to be entered. The password is entered by pressing the keys, which during this phase, assume the meaning of the characters "1", "2", "3" and "4".

<p>Example: password "1234".</p> <p>Press the first key (during this phase it assumes the meaning of the "1" character).</p>	
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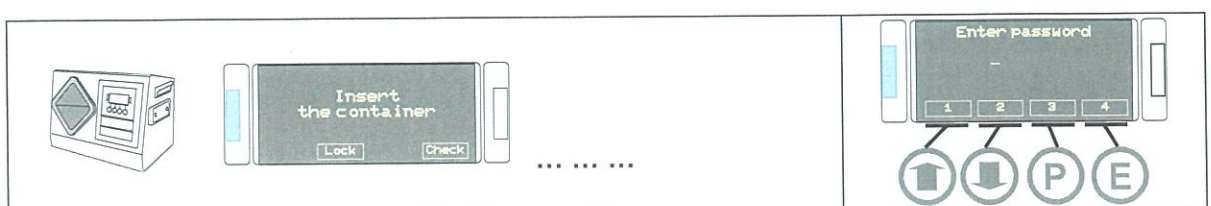
Press the second key (during this phase it assumes the meaning of the “2” character).	
Press the third key (during this phase it assumes the meaning of the “3” character).	
Press the fourth key (during this phase it assumes the meaning of the “4” character).	
The password “1234” has been completed: the device enters the operating mode and requests insertion of an object to be analysed.	

NOTES


If no password is entered, the device keeps waiting indefinitely.	
When needed, a start-up phase is automatically repeated after entering a password (for instance, after a prolonged inactivity time).	
<p>In case of a wrong password a message is given asking the operator to re-enter it correctly:</p> <ul style="list-style-type: none"> Wait until the “Wrong password” disappears. Re-enter the password correctly. 	

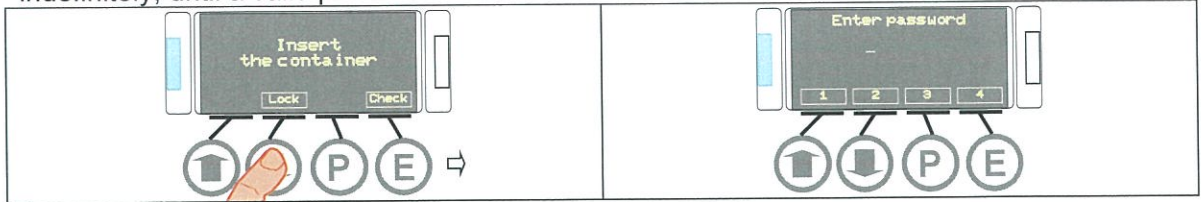
3.5.2 Automatic log-off in case of prolonged inactivity

If no analyses are performed within a pre-selected period, the device disables itself automatically, requesting the password again before analysis can be performed again. The unit remains in this status indefinitely, until a valid password is entered. The function can be disabled by programming.



3.5.3 Manual lock of the device

The device can be locked manually by pressing the  (decrease/LOCK) key. After that, the device disables itself, requesting the password again. The unit remains in this status indefinitely, until a valid password is entered.



3.5.4 Exiting the locked mode and re-entering the operating mode

If the device has been set to the locked status, either by manual operation or if the inactivity timeout occurs, it can be restarted by performing the same procedure used at start-up. Refer to the “Operator Log-On” section above.

3.6 Use of the device

3.6.1 Operational Verification through the OFV Test procedure


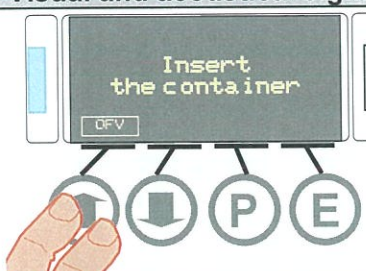

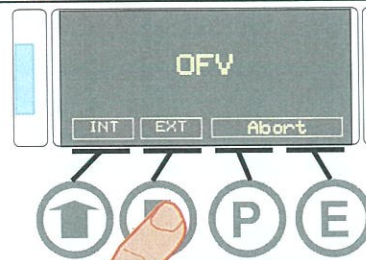

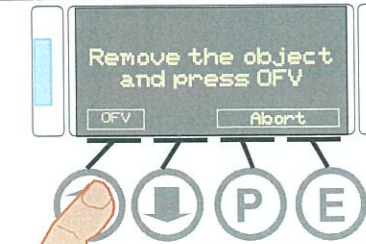
In order to verify the correct functionality of the external probe a quick operational check can be carried out by the operator.

This test should be carried out under the following circumstances:

- at power-up times (wait for completion of the start-up phase!).
- when a new shift comes on duty.
- any time there is the need to verify that the unit is functioning properly.



Before carrying out the test, always verify that the analysis compartment and the test samples are clean and dry.

Test of the external probe	Visual and acoustical signals	Status/Action
		The device is ready to operate. Press the “UP” key (“OFV”) and press it again to confirm. NOTE: press the E key (“Abort”) to quit.
		Select “EXT” to test the external probe. NOTE: “INT” selection starts the test of the embedded analysis compartment.
		Check that the inspection compartment is empty.

Test of the external probe	Visual and acoustical signals	Status/Action
		Wait.
		Insert the PASS test sample and confirm.
		Remove the test sample and confirm.
		Insert the NO PASS test sample and confirm.
		Remove the test sample and confirm: the result will be signalled. OFV test passed: green lamp ON. OFV test failed: red lamp ON. Switch the unit off and on again and repeat the procedure correctly. If the warning appears again, contact the service department.



The NO PASS test sample contains a substance completely harmless to the operator!

3.6.2 Intended Use of the device

The **EMA-3** is an **Electromagnetic Analyzer** designed to check liquids carried by people in transit through Security Checkpoints, in order to verify whether their characteristics meet the requirements needed to access sensitive areas.

The device can inspect all types of consumable liquids in most general use, such as:

- water
- non-alcoholic drinks (fruit juices, lemonades, ...)
- slightly alcoholic drinks (beer, cider, ..)
- wine
- medium and high strength spirits.

The liquid only has to be placed inside an inspection compartment of the device, using special disposable sampling cuvettes. Once the analysis has been completed, the device signals whether or not the contents are within acceptable limits.

- In case of an **allowed product**, the equipment signals a **NO ALARM** condition (GREEN status).
- In case of a **not allowed product**, the equipment signals an **ALARM** condition.
 - The unit can be pre-programmed to signal this condition as a RED status or to distinguish two intensity levels of alarm (medium: YELLOW status; high: RED status), on the basis of the amplitude of the received signal. The alarm message shown by the display can be pre-programmed according to the security specifications in use.
 - The alarm condition, either a one-level-alarm (RED) or a two-level-alarm (YELLOW or RED), must always be managed according to the security specifications in use.

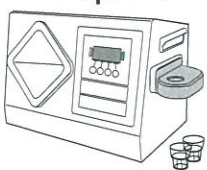
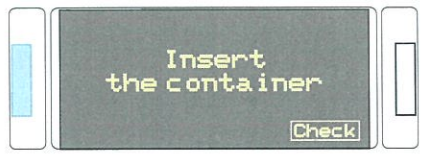






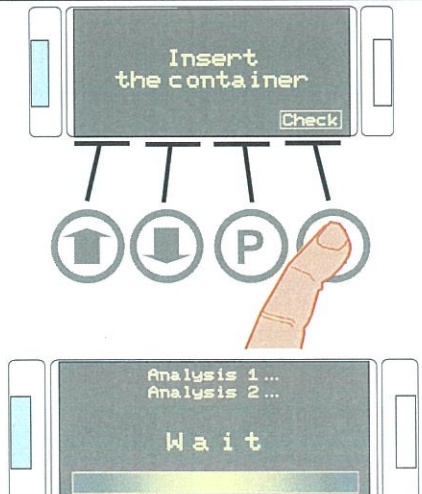

TABLE A1 - Operation with one-level-alarms


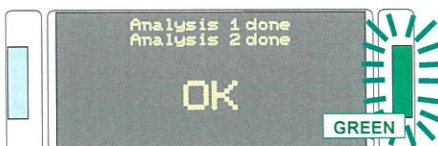

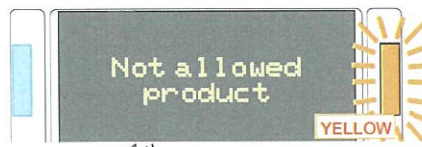

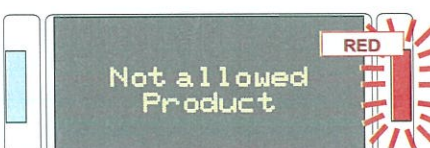


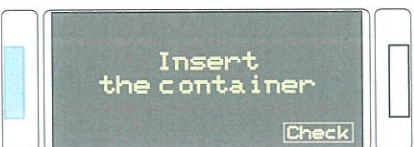
Status indication		Condition	Result of the Analysis
ANALYSIS RESULT lamp	Display Message		
GREEN	OK	NO ALARM	Allowed product
RED	One of the following messages: • Secondary Screening Required • Check the content • ATTENTION: Check the content • ALARM: Check the content • Not allowed product • ATTENTION: Not allowed product • ALARM: Not allowed product	ALARM	Not allowed product

TABLE A2 - Operation with two-level-alarms

Status indication		Condition	Result of the Analysis
ANALYSIS RESULT lamp	Display Message		
GREEN	OK	NO ALARM	Allowed product
YELLOW	One of the following messages: • Secondary Screening Required • Check the content • ATTENTION: Check the content • ALARM: Check the content • Not allowed product • ATTENTION: Not allowed product • ALARM: Not allowed product • Non Analyzable	MEDIUM INTENSITY ALARM	Not allowed product
RED	One of the following messages: • Secondary Screening Required • Check the content • ATTENTION: Check the content • ALARM: Check the content • Not allowed product • ATTENTION: Not allowed product • ALARM: Not allowed product	HIGH INTENSITY ALARM	Not allowed product

Below a description of the analysis phases with actions carried out by the operator and visual and acoustical signals provided by the device.

Phase	VISUAL AND ACOUSTICAL SIGNALS	Status/Action
1 - Device Ready to operate 		The device is ready to operate.
2 - Liquid insertion 		<p>Fill the cuvette at least as illustrated in the figure on the left of the substance to analyze, taking care not to leave air bubbles inside in case of gels.</p> <p> During the analysis the probe hole and the external surface of the cuvette must be dry and clean! Take care not to make dirty the external surface of the cuvette when pouring the liquid: in this case discard the cuvette and repeat the operation with a new one.</p> <p> In case the cuvette is damaged, do not use it and replace it with a new one.</p> <p> Fill the sampling cuvette just before the analysis. The analysis can be performed even if the cuvette has a reduced transparency.</p> <p>Place the cuvette into the probe hole.</p>
3 – Analysis 		<p>The analysis starts manually, by pressing the  key.</p> <p>During the analysis the display shows the analysis progress.</p>

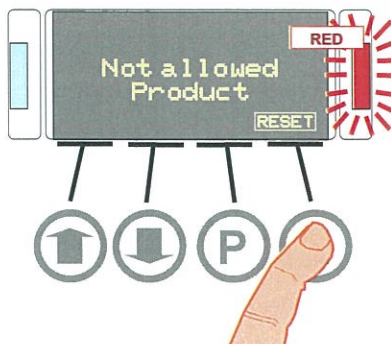
Phase	VISUAL AND ACOUSTICAL SIGNALS	Status/Action
4 - Analysis completed: 	  Double beep	NO ALARM If the container content is identified as conforming , the "OK" message and a GREEN light are displayed. A short "double beep" is emitted by the internal sounder.
	  Triple prolonged beep	If the container content is not conforming , an ALARM indication is displayed. ALARM Alarm of medium intensity. A YELLOW light and an ALARM message are displayed. A burst of prolonged "beeps" is emitted by the internal sounder.
	  Repeated beeps	ALARM Alarm of high intensity. A RED light and an ALARM message are displayed. An uninterrupted sequence of "beeps" is emitted by the internal sounder.
5 – Removing the cuvette 		Remove the cuvette from the probe, and dispose it. The unit turns to the ready condition, waiting for a new object.

NOTE 1: the ALARM message on the display can be adjusted by programming.

NOTE 2: the YELLOW ALARM can be disabled by programming: in this case a RED ALARM is signalled.


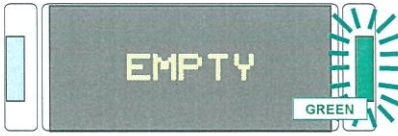
3.6.2.1 Manual Reset

The equipment can be pre-programmed for a Manual Reset operation: in this case, after an ALARM result, the operator must press “E” key (RESET) to acknowledge the alarm.




3.7 Other messages provided during use

3.7.1 Empty inspection compartment

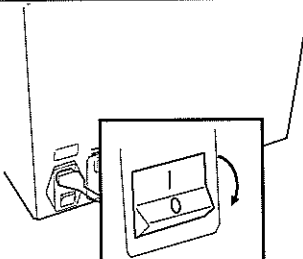
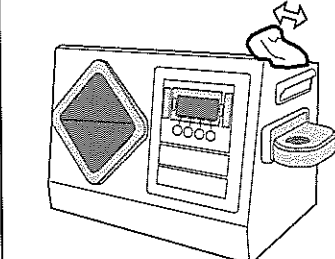
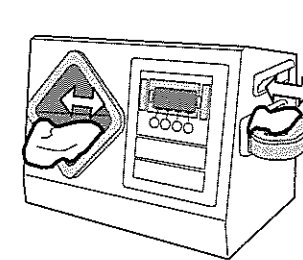
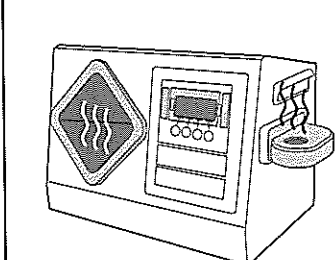
Sounder	Display	Event	Action
Double beep 		This message could be issued in the following cases: <ul style="list-style-type: none"> When starting an analysis with empty inspection compartment. If a cuvette has been inserted into the inspection compartment and immediately removed. 	Insert a non-empty cuvette to be analyzed.

3.7.2 Time out

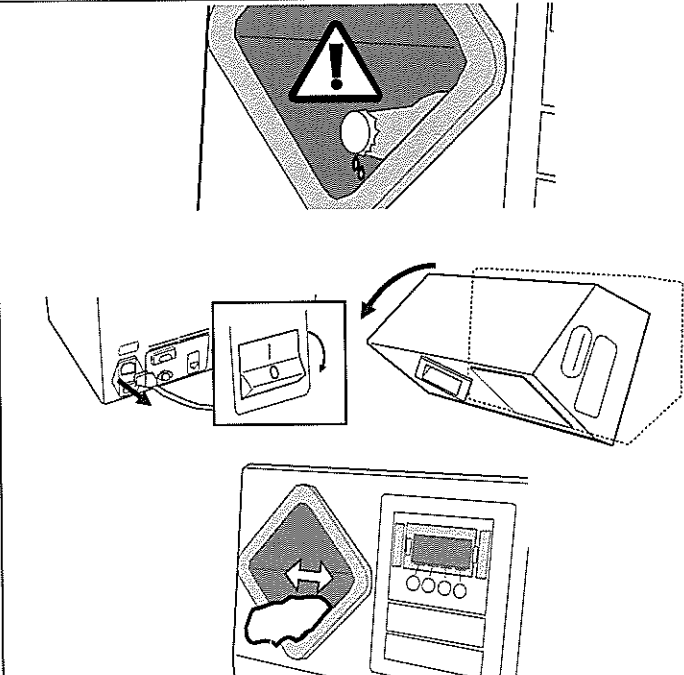
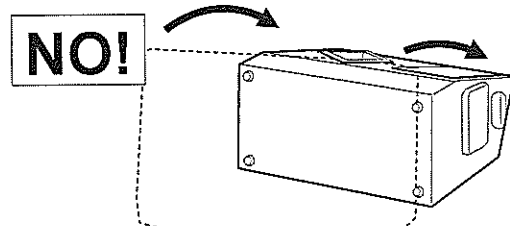
Sounder	Event	Action
Low frequency Intermittent tone 	Cuvette still in the inspection compartment 20 seconds after completion of an inspection.	Remove the cuvette.

3.8 Care

3.8.1 General Cleaning

		<p>Switch off the unit. Clean the equipment, using a slightly moist (with water), non-abrasive cloth. Clean the inspection compartments, using a slightly moist (with water), non-abrasive cloth. Let the inspection compartment dry before use.</p> <p>Do not wash the device with water, liquid detergents or chemical substances.</p>
		

3.8.2 Cleaning the main analysis compartment in case some liquid drops into it

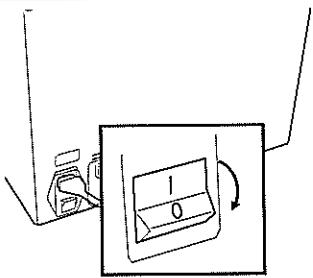
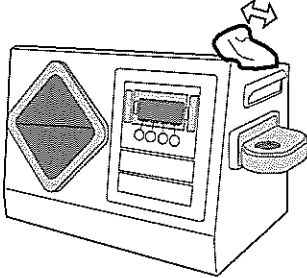
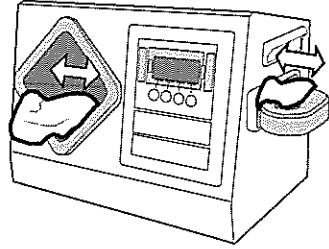
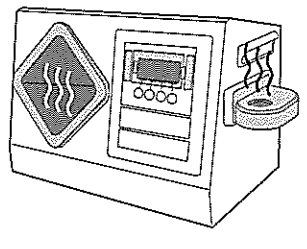
	<p>The inspection of the cuvette content is performed only if the main inspection cavity is non engaged.</p> <p>Should some liquid substance drop into the main inspection compartment, remove it as soon as possible and clean the cavity carefully:</p> <ul style="list-style-type: none"> ▪ switch off the unit and disconnect all cables from the rear panel ▪ tilt the unit, to let the liquid drop down from the cavity aperture ▪ clean the compartment carefully, using a moist (with water), non-abrasive cloth, until the leaked liquid is completely removed. ▪ wipe the inspection compartment, using a dry, non-abrasive cloth
	<p>REMARK! Whenever some liquid substance is inside the inspection compartment, do not tilt the unit backwards!</p>

4 MAINTENANCE

! Before working with the device read the warnings and instructions in this section and in the paragraph **"SAFETY INSTRUCTIONS - WARNINGS"** carefully. Please note that CEIA is not responsible for any damage that may result from installations that do not follow these guidelines.

4.1 Periodic Maintenance

4.1.1 General Cleaning




		<p>Switch off the unit. Clean the equipment , using a slightly moist (with water), non-abrasive cloth. Clean the inspection compartments, using a slightly moist (with water), non-abrasive cloth. Let the inspection compartment dry before use. Do not wash the device with water, liquid detergents or chemical substances.</p>
		

4.1.2 Periodical Operational Verification

Please refer to section "Use – Operational Verification through the OFV Test procedure".

4.2 Troubleshooting

Fault	Fault indication	Possible cause	Recommended action
Display off	Display off	Fault in the supply section or in the display control card	<ul style="list-style-type: none"> Check all the power connections (mains cable, fuse (1A 250V time delay) If the power connections are correct, discontinue equipment use and contact CEIA Service for replacement of the defective part.
Power comes on and goes off in succession	-	Power supply voltage unstable or too low.	<ul style="list-style-type: none"> Contact CEIA Service for checking the power supply voltage with instruments.

Fault	Fault indication	Possible cause	Recommended action
The device does not complete the start-up phase	Display: sequence of the start-up messages repeated indefinitely	<ul style="list-style-type: none"> • Dirty analysis compartment • Analysis compartment not empty • Object in direct contact with the housing • Object under the housing 	Procedure: <ul style="list-style-type: none"> • Switch off the unit. • Verify that the analysis compartment is clean. • Verify that the analysis compartment is empty. • Verify that no objects are in direct contact with the unit housing. • Verify that no objects are under the unit. • Switch on the unit. • Perform the operational test using the PASS / NO PASS test pieces.
Self-diagnosis message	Display: SCD FAULT SC FAULT ANALYSIS RESULT Lamp: yellow Sounder:  Low frequency Intermittent tone:	<ul style="list-style-type: none"> • Fault in an internal section 	If the procedure is passed successfully, the unit is operative. Otherwise, discontinue equipment use and contact CEIA Service for replacement of the defective part.
Self-diagnosis message	Display: ALM FAULT SPM FAULT ANALYSIS RESULT Lamp: yellow Sounder:  Low frequency Intermittent tone:	<ul style="list-style-type: none"> • Momentary power loss. • Fault in an internal section 	Procedure: <ul style="list-style-type: none"> • Switch off the unit. • Verify the power supply connections. • Switch on the unit. • Perform the operational test using the PASS / NO PASS test pieces. If the procedure is passed successfully, the unit is operative. Otherwise, discontinue equipment use and contact CEIA Service for replacement of the defective part.
OVF test failed	Display: OVF failed ANALYSIS RESULT Lamp: red Sounder:  Uninterrupted sequence of "beeps"	<ul style="list-style-type: none"> • OVF test failed 	Procedure: <ul style="list-style-type: none"> • Switch off the unit. • Verify that the analysis compartment is clean, dry and empty. • Switch on the unit. • Perform the operational test using the PASS / NO PASS test pieces. If the procedure is passed successfully, the unit is operative. Otherwise, discontinue equipment use and contact CEIA Service for replacement of the defective part.

If the source of the interference is still not clear, please contact our Technical Department and we will give you all the information you need.

4.2.1 Self-diagnosis system

The self-diagnosis system is always active and provides the operator with an alert message whenever a malfunction occurs. Once activated, the message is retained indefinitely until the unit is switched off.

The operator can identify the cause of the fault by carrying out the check procedures illustrated in the table above. Once the cause of a fault signalled by the self-diagnosis system has been corrected and the equipment has passed the operational test successfully, **the equipment is fully operative and is ready to use!**