NMO

Member State of OIML
United Kingdom of Great Britain
and Northern Ireland

OIML Certificate No
R76/2006-GB1-17.04

OIML CERTIFICATE OF CONFORMITY

Issuing authority: **NMO**

Person responsible: **Mannie Panesar – Head of Technical Services**

Applicant: **Tecnicas de Electronica y Automatismos, S.A.**
C\Espronceda 176 - 180
E-08018 Barcelona
Spain

Manufacturer: **The applicant**

Identification of the certified pattern: **MATRIX II**

This certificate attests the conformity of the above-mentioned pattern (represented by the samples identified in the associated test report) with the requirements of the following Recommendation of the International Organisation of Legal Metrology (OIML):

OIML R 76 - Edition 2006(E) for **accuracy class**: **[III]** and **[IIII]**

This certificate relates only to the metrological and technical characteristics of the pattern of the instrument concerned, as covered by the relevant OIML International Recommendation.

This certificate does not bestow any form of legal international approval.

Important note: Apart from the mention of the certificates reference number and the name of the OIML Member State in which the certificate was issued, partial quotation of the certificate or of the associated test report is not permitted, though they may be reproduced in full.

Issue Date: **03 April 2017**

M. Bokota

M Bokota
Technical Manager
For and on behalf of the Head of Technical Services

UKAS PRODUCT CERTIFICATION
0135

NMO I Stanton Avenue I Teddington I TW11 OJZ I United Kingdom
Tel +44 (0) 20 8943 7272 I Fax +44 (0) 20 8943 7270 I Web www.gov.uk/government/organisations/regulatory-delivery
NMO is part of the Regulatory Delivery directorate within the Department for Business, Energy & Industrial Strategy

The conformity was established by testing and examinations described in the associated Evaluation Report P02072 which includes 14 pages.

Characteristics of the instrument:

This indicating device, designated the MATRIX II, is designed to be used as part of a single or dual range, Class III or IIII, non-automatic weighing instrument. The indicator is self-indicating, and mains-powered or DC-powered.

The instrument is not designed for direct sales to the public.

Main features:

- Stainless Steel enclosure
- LCD display
- Operator keypad with 29 alpha-numerical, navigation and function keys

Devices:

- Initial zero setting device on power up (≤ 20% Max)
- Automatic zero setting (≤ 4% Max, optional)
- Semi-automatic zero setting (≤ 4% Max)
- Zero tracking (optional) (≤ 4% Max)
- Semi-automatic subtractive tare balancing (T = -Max)
- Preset tare
- Gross and Net enunciators
- Gross/Net toggle
- Zero enunciator
- Indication of stable equilibrium
- Data storage
- Printing
- Dual scales

Interfaces:

- Analog Load cell connection
- Digital Load cell connection
- RS232/485
- PS/2
- Ethernet (optional)

Load cell:

Any compatible load cell(s) may be used providing the following conditions are met:

- There is a respective OIML Certificate of Conformity (R60) issued for the load cell.
- The certificate contains the load cell types and the necessary load cell data required for the manufacturer's declaration of compatibility of modules, and any particular installation requirements. A load cell marked NH is allowed only if humidity testing to R76 has been conducted on this load cell.
- The compatibility of the load cells and indicator is established by the manufacturer by means of the compatibility of modules calculation at the time of verification.
- The load cell transmission conforms to a standard type.

Digital load cell: The interface for digital load cells is compatible with any–digital load cell compatible with Utilcell model 740D with a respective OIML Certificate of Conformity (R60).

Technical data:

Power supply (AC)	100-240 VAC, 50-60 Hz
Power supply (DC)	10-24 VDC
Maximum number of scale intervals	6,000 (Class III) 1,000 (Class IIII)
Operating temperature range	- 10 °C to + 40 °C
Maximum Tare value	- Max
Load cell excitation voltage	6 VDC
Minimum load cell impedance	43 Ω
Maximum load cell impedance	1100 Ω
Minimum input voltage per verification scale interval	0.6 μV
Measuring range minimum voltage	-25 mV
Measuring range maximum voltage	+25 mV
Fraction of maximum permissible error	Analog load cell: P_i = 0.5 Digital load cell: P_i = 0.0
Load cell cable (from indicator to load cell junction box) - Maximum length	4-wire configuration: load cell cable shall be connected directly to indicator without junction box 6-wire configuration: 400 m/mm^2

Software:

The software is held in firmware on the circuit board, and has the identification number "1.xxxx", with xxxx (between 0000 and 9999) reflecting non-legally relevant changes. The software version number is displayed via configuration menu: setup – F4 to access INDICATOR – F4 CONFIG – F2 to access SW.VERSION.

Access to the legally relevant parameters and download of software is prevented by two switches (one independent switch for each scale interface) at the back of the enclosure.

Non-editable counters register any changes to the legally relevant parameter and software.

Sealing:

Access to the switches described in the Software section is prevented by sealing a cover over the switches via a tamper-evident label or wire-and-seal. Access to the electronics is prevented when the switches are sealed.

The load cell connections are sealed using a tamper-evident label.

CERTIFICATE HISTORY

ISSUE NO.	DATE	DESCRIPTION
R76/2006-GB1-17.04	3 April 2017	Certificate first issued.
-	-	No revisions have been issued.

TEST CERTIFICATE

Third addition to number E-09.02.C09

INDICATING DEVICE TYPE MATRIX II

Issued by: LGAI TECHNOLOGICAL CENTER S.A.
Campus de la U.A.B.
Ronda de la Font del Carme, s/n.
E-08193 BELLATERRA SPAIN
O.N.0370.

In accordance with Paragraph 3.10 of the European Standard "Metrological aspects of non-automatic weighing instruments" EN 45501:2015. The applied error fraction p_{ind} with reference to paragraph 3.10.2.1 of this standard is 0,5.

Issued to: TÉCNICAS DE ELECTRÓNICA Y AUTOMATISMOS, S.A.
Calle Espronceda 176-180.
E-08018 BARCELONA. SPAIN.

In respect of: The model of an indicator, which is composed of modules 3, 4, 5, 6 and 7 in Figure 1 of EN 45501:2015, tested as part of a non-automatic weighing instrument.
Manufacturer: TÉCNICAS DE ELECTRÓNICA Y AUTOMATISMOS, S.A.
Type: MATRIX II.
This third addition complements the test certificate number E-09.02.C09 with changes relating to sealing system.

Characteristics: Suitable for a non-automatic weighing instrument with the following characteristics: electronic, graduated, self-indicating, single-range or multi-range, single-interval, with digital indication of weight values.

Classification	(III) y (IIII)
Maximum number of verification intervals n_{ind}	6000
Min	20 e
T	-Max

The main characteristics are shown in the descriptive annex, which is an integral part of the test certificate and consists of 4 pages.
The type is described in the technical documentation submitted, identified with number 14/09, the first addition certificate are described in the technical documentation submitted, identified with the number 07/13 and the second addition certificate are described in the technical documentation submitted, identified with the number 09/16. The changes covered by this third addition are described in the submitted additional technical documentation, identified with number 08/19 (19/34561403/D).

Managing Director
Product Conformity B.U.

Firmado por
XAVIER RUIZ PEÑA
LGAI TECHNOLOGICAL CENTER S.A.
MANAGING DIRECTOR

Xavier Ruiz Peña
Bellaterra, 20 December 2019.

Campus UAB –Ronda de la Font del Carme, s/n
E- 08193 Bellaterra (Barcelona)
T: +34 935 672 000
Fax: +34 935 672 001

Descriptive annex to third addition to the test certificate number E-09.02.C09.

0.- Index.

Campus UAB –Ronda de la Font del Carme, s/n
E- 08193 Bellaterra (Barcelona)
T: +34 935 672 000
Fax: +34 935 672 001

Descriptive annex to third addition to the test certificate number E-09.02.C09

1.- Name and type of the instrument.

Indicator type MATRIX II.

Manufactured by:

TÉCNICAS DE ELECTRÓNICA Y AUTOMATISMOS, S.A.
Calle Espronceda 176-180.
E-08018 BARCELONA. SPAIN.

They do not use any specific trademark.

2.- Description of the modification.

This annex to third addition to the test certificate number E-09.02.C09 describes a modification of the type MATRIX II.

This third addition to the test certificate number E-09.02.C09 affects changes in the sealing system.

This third addition affects paragraph 3.5 of the descriptive annex to second addition to the test certificate number E-09.02.C09.

3.- Text after modification

Paragraph 3.5 of the descriptive annex to second addition of the descriptive annex to test certificate E-09.02.C09 is canceled and replaced by paragraph 3.1 of this descriptive annex.

The annex to the test certificate number E-09.02.C09 become in following paragraphs.

Name	Document	Paragraph
Name and type of the instrument	Annex to the test certificate	1
Functional description	Annex to the test certificate	2
Technical characteristics	Annex to the test certificate	3
Devices	Annex to second addition	3.1
Metrological characteristics	Annex to second addition	3.2
Program version and its access.	Annex to the test certificate	3.3
Location of verification marks	Annex to the test certificate	3.4
Location of CE marking and of the descriptive markings	Annex to second addition	3.3
Peripheral devices and interfaces	Annex to the test certificate	4
Peripheral devices	Annex to the test certificate	4.1
Interfaces	Annex to second addition	3.4
Conditions for use	Annex to the test certificate	5
Location of seals	Annex to third addition	3.1
Load cell connector seals	Annex to third addition	3.1.1
Protection seal for metrological parameters and software	Annex to third addition	3.1.2
Mechanical seal	Annex to third addition	3.1.2.1
Electronic seal	Annex to third addition	3.1.2.2
Tests	Annex to second addition	3.6
Drawings	Annex to the test certificate	8
Figure 1.- Figure 4.8.1.1.	Annex to the test certificate	Figure 1
Figure 2.- Figure 4.6.1.	Annex to the test certificate	Figure 2
Figure 3.- Figure 4.8.1.3.	Annex to the test certificate	Figure 3
Figure 4.- Figure 4.3.1.	Annex to the test certificate	Figure 4

Campus UAB –Ronda de la Font del Carme, s/n
E- 08193 Bellaterra (Barcelona)
T: +34 935 672 000
Fax: +34 935 672 001

Descriptive annex to third addition to the test certificate number E-09.02.C09

Figure 5.- Position A or B of figure 2.1.3.1.	Annex to the test certificate	Figure 5
Figure 6.- Position M of figure 2.1.3.1.	Annex to the test certificate	Figure 6
Figure 7.- Position C of figure 2.1.4.1.	Annex to the test certificate	Figure 7
Figure 8.- Figure 2.1.1.3.	Annex to the test certificate	Figure 8
Figure 9.- Figure 2.1.1.1.	Annex to the test certificate	Figure 9
Figure 10.- Figure 2.1.1.4.	Annex to the test certificate	Figure 10

3.1.- Location of seals.

3.1.1.- Load cell connector seals

Sealing the connectors of the load cell (s) is essential and must be sealed using a plastic, self-adhesive and self-destructive label to protect the measurement chain.

The sealing of the connectors makes it impossible to access the metrological sensitive areas of the "scale interface" and therefore a sealing of the enclosure is not required.

3.1.2.- Protection seal for metrological parameters and software

The indicator device has two independent sealing systems for the protection of metrological parameters and software, one electronic and the other mechanical. The indistinct use of one or another seal system is allowed, being the application of any of them individually sufficient.

3.1.2.1.- Mechanical seal

The indicator device has a mechanical seal, by means of a plate with two hole head screws, that is located upon the blockade switches, in the later side of the indicating device. This plate will be able to be sealed by means of a plastic, self-adhesive, self-destructing label or by means of wire and seal with an inviolable system.

The mechanical seal protects the switch from the interface (s), and when it is in the locked position, the software cannot be modified or updated, nor can the metrological parameters.

3.1.2.2.- Electronic seal

The indicator device has an electronic seal that records any changes to the metrological parameters of the indicating devicet. This register is a non-resettable counter (called CALIBRATION COUNTER) that stores, in an unalterable parameter, an ordinal that indicates the number of times that some modification of the metrological parameters has been made. This ordinal can reach a maximum value of 60000 calibrations, after which the device does not allow further modifications of the protected parameters.

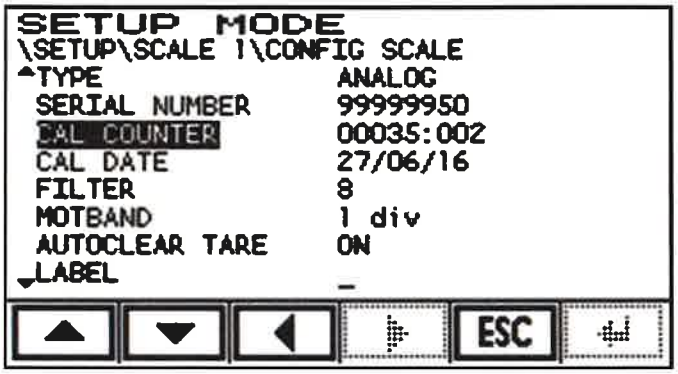
The indicator device also has an additional electronic seal that records any modification or update of the indicator software (called SOFTWARE UPDATE COUNTER). This seal stores, in an unalterable parameter, an ordinal that indicates the number of times that some modification or update of the equipment software has been made. This ordinal can reach a maximum value of 999 software modifications, after which the device does not allow further modifications.

The sequence of consultation of the electronic seal for the metrological parameters (CALIBRATION COUNTER) and of the software seal (SOFTWARE UPDATE COUNTER) is as follows:

- Pressing the SETUP key followed by the ENTER key to access to the SETUP of the indicating device.
- Pressing the F2 key to access to the menu of SCALE 1.
- Pressing twice the F4 key to access to the menu CONFIG SCALE.
- Pressing the F2 key several time until reaching the parameter CAL COUNTER.

Campus UAB –Ronda de la Font del Carme, s/n
E- 08193 Bellaterra (Barcelona)
T: +34 935 672 000
Fax: +34 935 672 001

Descriptive annex to third addition to the test certificate number E-09.02.C09



The CAL COUNTER parameter indicates the metrological parameters of the electronic seal (calibration counter) and the electronic seal of the software (software update counter).

CAL COUNTER → 00035:002 ←

Electronic seal to the metrological parameters.

Electronic seal for software.

Reference is made to Figure 8 (figure 2.1.1.3), Figure 9 (figure 2.1.1.1) and Figure 10 (figure 2.1.1.4) of the descriptive annex to test certificate number E-09.02.C09.

"The present document is a translation of the third addition to the Test Certificate number E-09.02.C09. In case of dispute, the valid document is the original Spanish version"

Campus UAB –Ronda de la Font del Carme, s/n
E- 08193 Bellaterra (Barcelona)
T: +34 935 672 000
Fax: +34 935 672 001

TEST CERTIFICATE

Second addition to number E-09.02.C09

INDICATING DEVICE TYPE MATRIX II

Issued by: LGAI TECHNOLOGICAL CENTER S.A.
Campus de la U.A.B.
Ronda de la Font del Carme, s/n.
E-08193 BELLATERRA SPAIN
O.N.0370.

In accordance with Paragraph 3.10 of the European Standard "Metrological aspects of non-automatic weighing instruments" EN 45501:2015. The applied error fraction p_{ind} with reference to paragraph 3.10.2.1 of this standard is 0,5.

Issued to: TÉCNICAS DE ELECTRÓNICA Y AUTOMATISMOS, S.A.
Calle Espronceda 176-180.
E-08018 BARCELONA. SPAIN.

In respect of: The model of an indicator, which is composed of modules 3, 4, 5, 6 and 7 in Figure 1 of EN 45501:2015, tested as part of a non-automatic weighing instrument.
Manufacturer: TÉCNICAS DE ELECTRÓNICA Y AUTOMATISMOS, S.A.
Type: MATRIX II.
This second addition complements the test certificate number E-09.02.C09 and reflects the addition of sensor function tests, devices, metrological characteristics, addition of metrological characteristics, descriptive markings, software seal and EMC tests for the adaptation to the new standard.

Characteristics: Suitable for a non-automatic weighing instrument with the following characteristics: electronic, graduated, self-indicating, single-range or multi-range, single-interval, with digital indication of weight values.

Classification	(III) y (IIII)
Maximum number of verification intervals n_{ind}	6000
Min	20 e
T	-Max

The main characteristics are shown in the descriptive annex, which is an integral part of the test certificate and consists of 7 pages.
The type is described in the technical documentation submitted, identified with number 14/09 and the first addition certificate are described in the technical documentation submitted, identified with the number 07/13. The changes covered by this second addition are described in the additional technical documentation submitted, identified with number 09/16 (16/34542469).

Managing Director
Product Conformity B.U.

LGAI Technological Center, S.A.

Xavier Ruiz Peña
Bellaterra, 27 october 2016.

Campus UAB –Ronda de la Font del Carme, s/n
E- 08193 Bellaterra (Barcelona)
T: +34 935 672 000
Fax: +34 935 672 001

Descriptive annex to second addition to the test certificate number E-09.02.C09.

0.- Index.

Campus UAB –Ronda de la Font del Carme, s/n
E- 08193 Bellaterra (Barcelona)
T: +34 935 672 000
Fax: +34 935 672 001

Descriptive annex to second addition to the test certificate number E-09.02.C09

1.- Name and type of the instrument.

Indicator type MATRIX II.

Manufactured by:

TÉCNICAS DE ELECTRÓNICA Y AUTOMATISMOS, S.A.
Calle Espronceda 176-180.
E-08018 BARCELONA. SPAIN.

They do not use any specific trademark.

2.- Description of the modification.

This annex to second addition to the test certificate number E-09.02.C09 describes a modification of the type MATRIX II.

This second addition to the test certificate number E-09.02.C09 reflects the addition of sensor function tests following paragraph C.3.3 of EN-45501:2015, devices, metrological characteristics, addition of metrological characteristics, descriptive markings, software seal and EMC tests for the adaptation to this new standard.

This second addition affects paragraph 3.1, 3.2, 3.5, 4.2 and 6 of the descriptive annex to test certificate number E-09.02.C09 and paragraph 3.2 of the descriptive annex to first addition to the test certificate number E-09.02.C09.

3.- Text after modification

Paragraph 3.1 of the descriptive annex to test certificate E-09.02.C09 is canceled and replaced by paragraph 3.1 of this descriptive annex.

Paragraph 3.2 of the descriptive annex to test certificate E-09.02.C09 is canceled and replaced by paragraph 3.2 of this descriptive annex.

Paragraph 3.5 of the descriptive annex to test certificate E-09.02.C09 is canceled and replaced by paragraph 3.3 of this descriptive annex.

Paragraph 4.2 of the descriptive annex to test certificate E-09.02.C09 is canceled and replaced by paragraph 3.4 of this descriptive annex.

Paragraph 6 of the descriptive annex to test certificate E-09.02.C09 is canceled and replaced by paragraph 3.5 of this descriptive annex.

Paragraph 3.2 of the descriptive annex to first addition to the test certificate number E-09.02.C09 is canceled and replaced by paragraph 3.6 of this descriptive annex.

Campus UAB –Ronda de la Font del Carme, s/n
E- 08193 Bellaterra (Barcelona)
T: +34 935 672 000
Fax: +34 935 672 001

Descriptive annex to second addition to the test certificate number E-09.02.C09

3.1.- Devices.

The indicating device type MATRIX II includes the following supplementary devices:

- Automatic initial zero-setting device.
- Automatic zero-setting device.
- Zero-tracking device.
- Semi-automatic zero-setting device.
- Semi-automatic subtractive tare-balancing device.
- Preset tare device.
- Non-automatic weighing instrument selection device.
- Data storage device (up to 10.000 weighings).

The supply voltage can be 100 V to 240 V (AC) with a frequency of 50 / 60 Hz. Power source is inside. It is possible an external supply voltage of 18 V (DC).

3.2.- Metrological characteristics.

The indicating device type MATRIX II has the following metrological characteristics and information for compatibility of modules:

- For an analogical interface:

Suitable for accuracy class of the weighing instrument		(III) and (IIII)	---
Maximum number of verification scale intervals	n_{ind}	6000	---
Voltage range of power supply AC		100-240	V (AC)
Frequency range (Hz) of the power supply		50-60 Hz (AC)	---
Voltage range of power supply DC		10-24	V (DC)
Load cell excitation voltage	U_{exc}	6	V (DC)
Minimum signal voltage for dead load		-25	mV
Maximum signal voltage for dead load		+25	mV
Minimum input voltage per verification scale interval, e	Δu_{min}	0,6	µV
Measuring range minimum voltage	u_{MRmin}	3,6	mV
Measuring range maximum voltage	u_{MRmax}	50 (-25 a +25)	mV
Minimum load cell resistance	R_{Lmin}	43	Ω
Maximum load cell resistance	R_{Lmax}	1250	Ω
Lower limit of temperature range	T_{min}	-10	°C
Upper limit of temperature range	T_{max}	+40	°C
Fraction of the maximum permissible error	p_{ind}	0,5	---

- Sense system

Sense system	Existing	---
Cable material	Copper	---
Specific cable length	400	m/ mm^2

Campus UAB –Ronda de la Font del Carme, s/n
E- 08193 Bellaterra (Barcelona)
T: +34 935 672 000
Fax: +34 935 672 001

Descriptive annex to second addition to the test certificate number E-09.02.C09

- For a digital interface:

Suitable for accuracy class of the weighing instrument		(III) and (IIII)	---
Maximum number of verification scale intervals	n_{ind}	6000	---
Lower limit of temperature range	T_{min}	-10	°C
Upper limit of temperature range	T_{max}	+40	°C
Fraction of the maximum permissible error	p_{ind}	0	---
Voltage range of power supply AC		100-240	V (AC)
Frequency range (Hz) of the power supply		50-60 Hz (AC)	---
Voltage range of power supply DC		10-24	V (DC)

3.3.- Location of CE marking and of the descriptive markings.

The location of the CE marking, with the number(s) of the notified body(ies) that perform CE verification, and of the M sticker, is in the plate that takes the descriptive markings, in positions A or B of Figure 5 (figure 2.1.3.1) of the descriptive annex to test certificate E-09.02.C09.

Reference is made to position M of Figure 6 (figure 2.1.3.1) and position C of Figure 7 (figure 2.1.4.1) of the descriptive annex to test certificate E-09.02.C09.

Reference is made to type, serial number and software version of indicating device is shown M position of Figure 6 (figure 2.1.3.1).

3.4.- Interfaces.

The interfaces comply with paragraph 5.3.6.1 of the standard EN-45501:2015, therefore according to 5.3.6.2 no protection is necessary.

3.5.- Location of seals.

The indicator device MATRIX II model has a set of sealed manner, consisting of three independent systems.

- A mechanical seal, by means of a plate with two hole head screws, that is located upon the blockade switches, in the later side of the indicating device. This plate will be able to be sealed by means of a plastic, self-adhesive, self-destructing label or by means of wire and seal with an inviolable system.

- An electronic seal that records any changes to the metrological parameters of the indicating device. This seal stores in an unalterable parameter he number of changes in the metrological parameters. This ordinal number can reach a maximum value of 60000, after which the indicating device does not allow further changes of any metrological parameter.

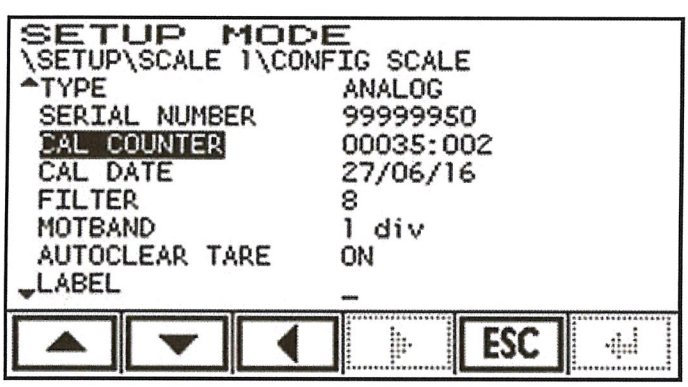
- An electronic seal for software which records any change or software update of the indicating device. This seal stores in an unalterable parameter the number of performed software modifications. This ordinal number can reach a maximum value of 999, after which the indicating device does not allow further software updates.

Campus UAB –Ronda de la Font del Carme, s/n
E- 08193 Bellaterra (Barcelona)
T: +34 935 672 000
Fax: +34 935 672 001

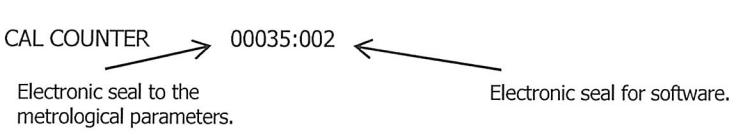
Descriptive annex to second addition to the test certificate number E-09.02.C09

The electronic seal of the number of changes of the metrological parameters and the modifications of the software can be checked in the configuration menu of the indicator:

- Pressing the SETUP key followed by the ENTER key to access to the SETUP of the indicating device.
- Pressing the F2 key ▼ to access to the menu of SCALE 1.
- Pressing twice the F4 key ▶ to access to the menu CONFIG SCALE.
- Pressing the F2 key ▼ several time until reaching the parameter CAL COUNTER..



This two labels can be seen acceding to CAL COUNTER paràmetres:



It is not possible to modify or update the software with the mechanical seal of any interface blocked.
It is not possible to modify any metrological parameter with the seal of the interface blocked.

Connectors of load cell(s) also can be sealed by means of a plastic, self-adhesive and self-destructing label.

Reference is made to Figure 8 (figure 2.1.1.3), Figure 9 (figure 2.1.1.1) and Figure 10 (figure 2.1.1.4) of the descriptive annex to test certificate number E-09.02.C09 and paragraph 2.2. of technical documentation submitted for second addition to test certificate number E-09.02.C09.

3.6.- Tests.

Tests have been performed with indicating devices with the following identifications:

Type	Serial number	Test
MATRIX II	780419	Tests of initial test certificate
MATRIX II	1122926	Tests of data storage device.
MATRIX II	846994	Test of Immunity to radiated electromagnetic fields and test of Immunity to conducted radio-frequency fields.

Campus UAB –Ronda de la Font del Carme, s/n
E- 08193 Bellaterra (Barcelona)
T: +34 935 672 000
Fax: +34 935 672 001

Descriptive annex to second addition to the test certificate number E-09.02.C09

MATRIX II	1437102	Test of sense function; additional requirements for electronic devices with embedded software; Voltage variations; AC mains voltage dips and short interruptions; Surge and checks of the functioning of automatic zero-setting device.

The list of tests carried out to issue the test certificate number E-09.02.C09 is as follows:

Tests	Approved
Temperature effect (at +20ºC, +40ºC, -10ºC, +5ºC and +20ºC).	+
Tare.	+
Warm-up time.	+
Voltage variations.	+
Short time power reductions.	+
Electrical bursts.	+
Electrostatic discharges.	+
Immunity to radiated electromagnetic fields.	+
Damp heat.	+
Span stability.	+
Checklist.	+
Repeatability.	+

The list of tests carried out to issue the first addition to test certificate number E-09.02.C09 is as follows:

Tests carried out to data storage device:

Tests (OIML R76-2:2007, page 62).	Approved
Sufficient storage capacity for the intended purpose (5.5.3.1; G.3.2).	+
Data are stored and given back correctly (5.5.3.1; G.3.2).	+
Sufficient description of measures to prevent data loss (5.5.3.1; G.3.2).	+
Storage of all relevant information necessary to reconstruct an earlier weighing (5.5.3.2; G.3.3).	+
Protection of the stored legally relevant data against accidental or intentional changes (5.5.3.3; G.3.4).	+
Protection of the stored legally relevant data at least with a parity check during transmission to the storage device (5.5.3.3; G.3.4).	+
Protection of the stored legally relevant data at least with a parity check of a storage device with embedded software (5.5.3.3; G.3.4).	+
Identification and indication of the stored legally relevant data with an identification number (5.5.3.3; G.3.4).	+
Record of the identification number on the official transaction medium (5.5.3.4; G.3.5).	+
Automatic storage of the legally relevant data (5.5.3.5; G.3.6).	+
A device subject to legal control prints or displays the stored legally relevant data for verifying (5.5.3.6; G.3.7).	+

Campus UAB –Ronda de la Font del Carme, s/n
E- 08193 Bellaterra (Barcelona)
T: +34 935 672 000
Fax: +34 935 672 001

Descriptive annex to second addition to the test certificate number E-09.02.C09

Tests carried out according OIML R76:2006 (B.3.5 y B.3.6):

Tests (OIML R76:2006, B.3.5 and B.3.6)	Approved
Immunity to radiated electromagnetic fields (B.3.5). With frequency range: 26-2000 MHz or 80-2000 MHz. Field strength: 10 V/m. Modulation: 80% AM, 1 kHz, sine wave.	+
Immunity to conducted radio-frequency fields (B.3.6). With frequency range: 0,15-80 MHz. RF amplitude (50 Ω) 10 V (emf). Modulation: 80% AM, 1 kHz, sine wave.	+

The list of tests carried out to issue the second addition to test certificate number E-09.02.C09 is as follows:

Test	Approved
Testing the sense function (EN 45501:2015, paragraph C.3.3) (with six wire load cell connection only)	+
Additional requirements for electronic devices tested with embedded software (EN 45501:2015, paragraph 5.5.1)	+
Voltage variations (EN 45501:2015, paragraph A.5.4)	+
C AC mains voltage dips and short interruptions (EN 45501:2015, paragraph B.3.1)	+
Surge (EN 45501:2015, paragraph B.3.3) -Communication terminals [1]. Common mode severity: 1 kV. Differential mode severity: N/A -Power terminals DC [2]. Common mode severity: --. Differential mode severity: -- -Power terminals AC. Common mode severity: 1 kV. Differential mode severity : 0,5 kV Note 1: Applicable to cell analog ports, digital cell and RS-485 port to be defined more than 30 meters. Not applicable to the RS-232 and PS / 2 to be defined less than 30 meters and not be external. Note 2: Not applicable to not supply through a CC line.	+
Checks of the functioning of automatic zero-setting device (EN 45501:2015, paragraph 4.5.6)	+

The indicating device type MATRIX II has passed all these tests.

Campus UAB –Ronda de la Font del Carme, s/n
E- 08193 Bellaterra (Barcelona)
T: +34 935 672 000
Fax: +34 935 672 001

Generalitat de Catalunya
Departament d'Empresa i Ocupació
Direcció General d'Energia, Mines i Seguretat Industrial

TEST CERTIFICATE

First addition to number E-09.02.C09

INDICATING DEVICE TYPE MATRIX II

Issued by: Direcció General d'Energia, Mines i Seguretat Industrial - Generalitat de Catalunya
(Notified Body number 0315)
Carrer Sepúlveda, 148-150
E-08011 BARCELONA SPAIN

In accordance with: Paragraph 8.1 of the European Standard "Metrological aspects of non-automatic weighing instruments" EN 45501:1992(+AC:1993). The applied error fraction p_i with reference to paragraph 3.5.4 of this standard is 0,5.

Issued to: TÉCNICAS DE ELECTRÓNICA Y AUTOMATISMOS, S.A.
Carrer Espronceda, núm.176-180
E-08018 BARCELONA SPAIN

In respect of: the model of an **indicating device**, tested as part of a non-automatic weighing instrument.
Manufacturer: TÉCNICAS DE ELECTRÓNICA Y AUTOMATISMOS, S.A.
Type: MATRIX II.
This first addition complements the test certificate number E-09.02.C09, with changes relating to inclusion of a new supplementary device.

Characteristics: Suitable for a non-automatic weighing instrument with the following characteristics: electronic, graduated, self-indicating, single-range or multi-range, single-interval, with digital indication of weight values.

Accuracy class	(III) and (IIII)
Number of verification scale intervals, n_{ind}	6000
Min	20·e
T	- Max

The main characteristics are shown in the descriptive annex, which is an integral part of the test certificate and consists of 4 pages.
The type is described in the submitted technical documentation, identified with number 14/09. The changes covered by this addition are described in the submitted additional technical documentation, identified with number 07/13.

THE DEPUTY DIRECTOR OF INDUSTRIAL SAFETY
by delegation of competences, according to the resolution EMO/991/2011, of 12 April 2011 (DOGC 5865, of 26/04/2011)

Isidre Masalles I Roman

Barcelona, 19 June 2013

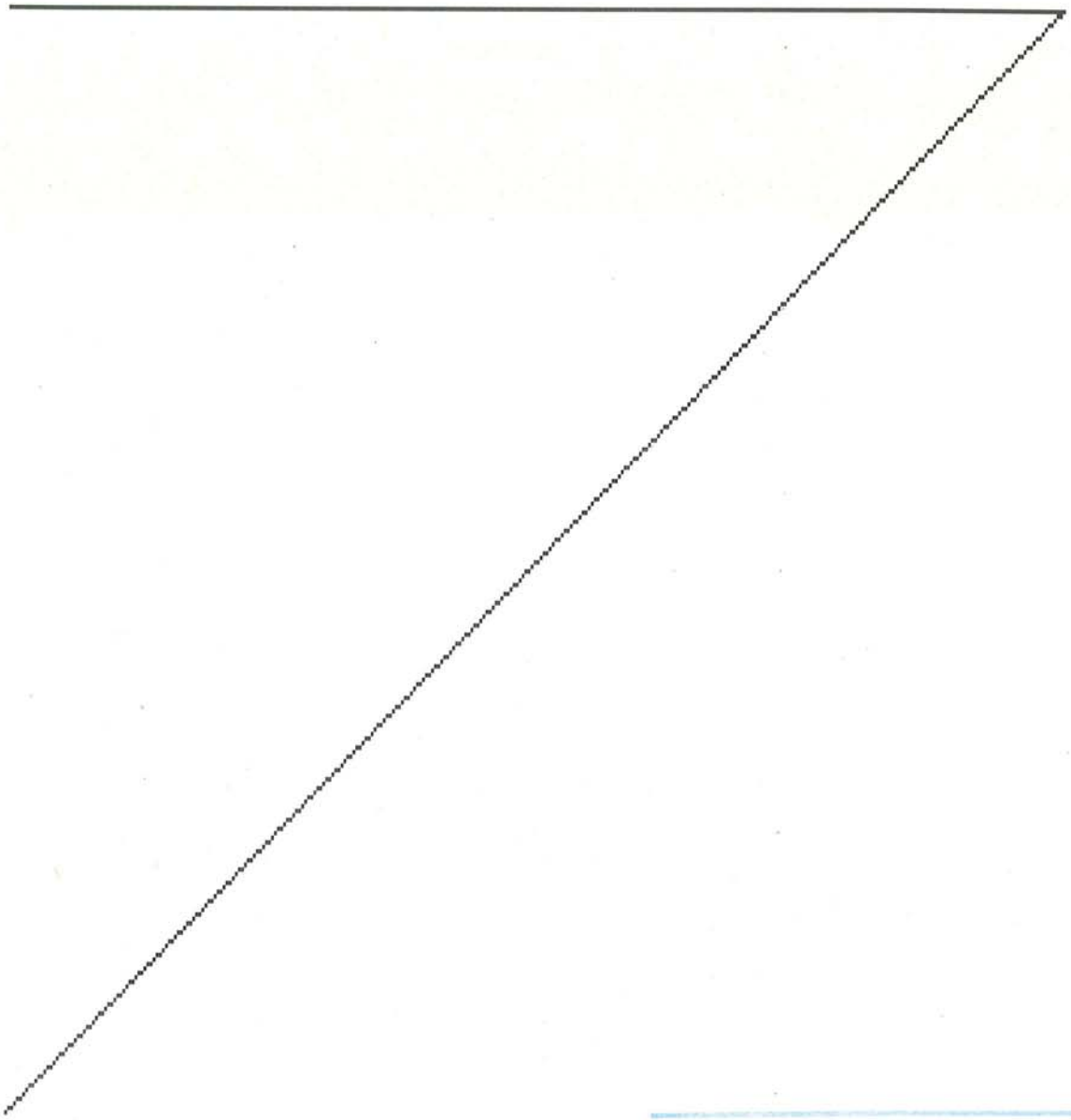
Generalitat de Catalunya
Departament d'Empresa i Ocupació
Direcció General d'Energia, Mines
i Seguretat Industrial
Subdirecció General de Seguretat Industrial

Carrer Sepúlveda, 148-150
08011 Barcelona
Telèfon 93 553 80 36
Telefax 93 552 41 99

Generalitat de Catalunya
Departament d'Empresa i Ocupació
Direcció General d'Energia, Mines i Seguretat Industrial

Descriptive annex to first addition to the test certificate number E-09.02.C09.

0.- Index.



Carrer Sepúlveda, 148-150
08011 Barcelona
Telèfon 93 553 80 36
Telefax 93 552 41 99

Descriptive annex to first addition to the test certificate number E-09.02.C09.

1.- Name and type of the instrument.

Indicating device type MATRIX II.

Manufactured by:

TÉCNICAS DE ELECTRÓNICA Y AUTOMATISMOS, S.A.
Carrer Espronceda, 176-180
E-08018 BARCELONA SPAIN

Not using any mark.

2.- Description of the modification.

This annex to first addition to the test certificate number E-09.02.C09 describes a modification of the type MATRIX II.

This first addition to the test certificate number E-09.02.C09 affects the inclusion of a new supplementary device

This addition affects paragraph 3.1 and paragraph 7 of the annex to the test certificate number E-09.02.C09.

3.- Text after modification.

Paragraph 3.1 of the annex to the test certificate number E-09.02.C09 becomes in paragraph 3.1 of this descriptive annex.

Paragraph 7 of the annex to the test certificate number E-09.02.C09 becomes in paragraph 3.2 of this descriptive annex.

3.1.- Devices.

The indicating device type MATRIX II includes the following supplementary devices:

- Automatic initial zero-setting device.
- Zero-tracking device.
- Semi-automatic zero-setting device.
- Semi-automatic subtractive tare-balancing device.
- Preset tare device.
- Non-automatic weighing instrument selection device.

Carrer Sepúlveda, 148-150
08011 Barcelona
Telèfon 93 553 80 36
Telefax 93 552 41 99

- Data storage device (up to 10.000 weighings).

The supply voltage can be 90 V and 230 V (AC) with a frequency of 50 / 60 Hz. Power source is inside. It is possible an external supply voltage of 18 V (DC).

3.2.- Tests.

Tests have been performed with indicating devices with the following identifications:

Type	Serial number	Test
MATRIX II	780419	Tests of test certificate number E-09.02.C09.
MATRIX II	1122926	Tests of data storage device.
MATRIX II	846994	Tests according OIML R76, edition 2006 (B.3.5 and B.3.6).

The list of tests carried out to issue the test certificate number E-09.02.C09 is as follows:

Tests	Approved
Temperature effect (at +20ºC, +40ºC, -10ºC, +5ºC and +20ºC).	+
Tare.	+
Warm-up time.	+
Voltage variations.	+
Short time power reductions.	+
Electrical bursts.	+
Electrostatic discharges.	+
Immunity to radiated electromagnetic fields.	+
Damp heat.	+
Span stability.	+
Checklist.	+
Repeatability.	+

The list of tests carried out to issue this data storage device is as follows:

Tests (OIML R76-2:2007, page 62)	Approved
Sufficient storage capacity for the intended purpose (5.5.3.1; G.3.2).	+
Data are stored and given back correctly (5.5.3.1; G.3.2).	+
Sufficient description of measures to prevent data loss (5.5.3.1; G.3.2).	+
Storage of all relevant information necessary to reconstruct an earlier weighing (5.5.3.2; G.3.3).	+
Protection of the stored legally relevant data against accidental or intentional changes (5.5.3.3; G.3.4).	+
Protection of the stored legally relevant data at least with a parity check during transmission to the storage device (5.5.3.3; G.3.4).	+
Protection of the stored legally relevant data at least with a parity check of a storage device with embedded software (5.5.3.3; G.3.4).	+

Carrer Sepúlveda, 148-150
08011 Barcelona
Telèfon 93 553 80 36
Telefax 93 552 41 99

Descriptive annex to first addition to the test certificate number E-09.02.C09.

Identification and indication of the stored legally relevant data with an identification number (5.5.3.3; G.3.4).	+
Record of the identification number on the official transaction medium (5.5.3.4; G.3.5).	+
Automatic storage of the legally relevant data (5.5.3.5; G.3.6).	+
A device subject to legal control prints or displays the stored legally relevant data for verifying (5.5.3.6; G.3.7).	+

The list of tests carried out to issue the indicating device MATRIX II according OIML R76, edition 2006 (B.3.5 and B.3.6) is as follows:

Tests (OIML R76, edition 2006, B.3.5 and B.3.6)	Approved
Immunity to radiated electromagnetic fields (B.3.5). With frequency range: 26-2000 MHz or 80-2000 MHz. Field strength: 10 V/m. Modulation: 80% AM, 1 kHz, sine wave.	+
Immunity to conducted radio-frequency fields (B.3.6). With frequency range: 0,15-80 MHz. RF amplitude (50 Ω) 10 V (emf). Modulation: 80% AM, 1 kHz, sine wave.	+

The indicating device type MATRIX II has passed all these tests.

Carrer Sepúlveda, 148-150
08011 Barcelona
Telèfon 93 553 80 36
Telefax 93 552 41 99

Generalitat de Catalunya
Departament d'Innovació, Universitats i Empresa
Secretaria d'Indústria i Empresa
Subdirecció General de Seguretat Industrial
Servei d'Automòbils, Productes i Metrologia

TEST CERTIFICATE
Number E-09.02.C09

INDICATING DEVICE TYPE MATRIX II

Issued by: Secretaria d'Indústria i Empresa - Generalitat de Catalunya
(Notified Body number 0315)
Avinguda de la Diagonal, 405 bis
E-08008 BARCELONA SPAIN

In accordance with: Paragraph 8.1 of the European Standard "Metrological aspects of non-automatic weighing instruments" EN 45501:1992(+AC:1993). The applied error fraction p_i with reference to paragraph 3.5.4 of this standard is 0,5 (analogical interface) or 0 (digital interface).

Issued to: TÉCNICAS DE ELECTRÓNICA Y AUTOMATISMOS, S.A.
Carrer Espronceda, núm.176-180
E-08018 BARCELONA SPAIN

In respect of: the model of an **indicating device**, tested as part of a non-automatic weighing instrument.
Manufacturer: TÉCNICAS DE ELECTRÓNICA Y AUTOMATISMOS, S.A.
Type: MATRIX II

Characteristics: Suitable for a non-automatic weighing instrument with the following characteristics: electronic, graduated, self-indicating, single-range or multi-range, single-interval, with digital indication of weight values.

Accuracy class	(III) and (IIII)
Number of verification scale intervals, n_{ind}	6000
Min	20·e
T	- Max

The main characteristics are shown in the descriptive annex, which is an integral part of the test certificate and consists of 16 pages.
The type is described in the submitted technical documentation, identified with number 14/09.
The summary of tests involved can be found in the descriptive annex.

For delegation
of Secretari d'Indústria I Empresa
THE HEAD OF THE SERVICE OF AUTOMOBILES,
PRODUCTS AND METROLOGY

Joan Pau Clar i Guevara

Barcelona, 30 September 2009

Generalitat de Catalunya
Departament d'Innovació,
Universitats i Empresa
Secretaria d'Indústria i Empresa
Subdirecció General de Seguretat Industrial
Servei d'Automòbils, Productes i Metrologia

Av. Diagonal, 405 bis
08008 Barcelona
Telèfon 93 484 92 95
Telefax 93 484 94 10

Generalitat de Catalunya
Departament d'Innovació, Universitats i Empresa
Secretaria d'Indústria i Empresa
Subdirecció General de Seguretat Industrial
Servei d'Automòbils, Productes i Metrologia

Descriptive annex to test certificate number E-09.02.C09.

0.- Index.

Av. Diagonal, 405 bis
08008 Barcelona
Telèfon 93 484 92 95
Telefax 93 484 94 10

Descriptive annex to test certificate number E-09.02.C09.

1.- Name and type of the instrument.

Indicating device type MATRIX II.

Manufactured by:

TÉCNICAS DE ELECTRÓNICA Y AUTOMATISMOS, S.A.
Carrer Espronceda, 176-180
E-08018 BARCELONA SPAIN

Not using any mark.

2.- Functional description.

The indicating device type MATRIX II is an indicating device for a non-automatic weighing instrument (NAWI), electronic, graduated, self-indicating, single-range or multi-range, single-interval, with digital indication of weight values.

The indicating device type MATRIX II has two interfaces of entrance to be able to be interconnected with two non-automatic weighing instruments operating simultaneously. These two interfaces of entrance can be analogical and/or digital.

Reference is made to Figure 1 (figure 4.8.1.1), Figure 2 (figure 4.6.1), Figure 3 (figure 4.8.1.3) and Figure 4 (figure 4.3.1) of this descriptive annex.

3.- Technical characteristics.

3.1.- Devices.

The indicating device type MATRIX II includes the following supplementary devices:

- Automatic initial zero-setting device.
- Zero-tracking device.
- Semi-automatic zero-setting device.
- Semi-automatic subtractive tare-balancing device.
- Preset tare device.
- Non-automatic weighing instrument selection device.

The supply voltage can be 90 V and 230 V (AC) with a frequency of 50 / 60 Hz. Power source is inside. It is possible an external supply voltage of 18 V (DC).

Av. Diagonal, 405 bis
08008 Barcelona
Telèfon 93 484 92 95
Telefax 93 484 94 10

Descriptive annex to test certificate number E-09.02.C09.

3.2.- Metrological characteristics.

The indicating device type MATRIX II has the following metrological characteristics and information for compatibility of modules:

- For an analogical interface:

Suitable for accuracy class of the weighing instrument		(III) and (IIII)	--
Maximum number of verification scale intervals	n_{ind}	6000	--
Load cell excitation voltage	U_{exc}	6	V (DC)
Minimum input voltage per verification scale interval	Δu_{min}	0,6	μV
Minimum load cell resistance	R_{Lmin}	43	Ω
Maximum load cell resistance	R_{Lmax}	2000	Ω
Lower limit of temperature range	T_{min}	-10	°C
Upper limit of temperature range	T_{max}	+40	°C
Maximum lenght for cross section connecting 6-wire-system $(L/A)_{6max}$		400	m/mm^2
Maximum lenght for cross section connecting 4-wire-system $(L/A)_{4max}$		30	m/mm^2
Fraction of the maximum permissible error	p_{ind}	0,5	--

- For a digital interface:

Suitable for accuracy class of the weighing instrument		(III) and (IIII)	--
Maximum number of verification scale intervals	n_{ind}	6000	--
Lower limit of temperature range	T_{min}	-10	°C
Upper limit of temperature range	T_{max}	+40	°C
Fraction of the maximum permissible error	p_{ind}	0	--

3.3.- Program version and its access.

The generally name of the tested program version is 1.XXXX..

This program version can be seen acceding to the configuration general menu of the indicating device. The sequence of consultation of the version of software is the following:

- Pressing the key SETUP to acceding to SETUP menu.
- Pressing the key ENTER to acceding to SETUP menu of protected way.
- Pressing the key ▶ to acceding to options of INDICATOR menu.
- Pressing the key ▶ again to acceding to CONFIG option.
- Pressing key ▼ up to arriving at the SW.VERSION option.
- Next to the SW.VERSION option it appears the version of software of the indicating device.

Av. Diagonal, 405 bis
08008 Barcelona
Telèfon 93 484 92 95
Telefax 93 484 94 10

3.4.- Location of verification marks.

The location for the verification marks is in the plate that takes the descriptive markings, in positions A or B of Figure 5 (figure 2.1.3.1) of this descriptive annex.

3.5.- Location of CE marking and of the descriptive markings.

The location of the CE marking, with the number(s) of the notified body(ies) that perform CE verification, and of the M sticker, is in the plate that takes the descriptive markings, in positions A or B of Figure 5 (figure 2.1.3.1) of this descriptive annex.

Reference is made to position M of Figure 6 (figure 2.1.3.1) and position C of Figure 7 (figure 2.1.4.1) of this descriptive annex.

4.- Peripheral devices and interfaces.

4.1.- Peripheral devices.

For the connexion of peripheral devices, this elements will have a test certificate issued by a notified body, in accordance with EN 45501:1992(+AC:1993).

External peripheral devices may be connected through the following connections:

- RS232C (x2) (COM1 i COM2).
- RS485 (COM3).
- Load cell / non-automatic weighing instrument connector (x2) (analogical or digital).
- Standard PC keyboard connector.
- Ethernet connector (LAN).
- Communications module connector (optional).
- External supply voltage connector (optional).

4.2.- Interfaces.

The interfaces comply with paragraph 5.3.6.1 of the standard EN 45501:1992(+AC:1993) (impossibility of falsifying the primary indications of the non-automatic weighing instruments) and there is no need to secure them.

Av. Diagonal, 405 bis
08008 Barcelona
Telèfon 93 484 92 95
Telefax 93 484 94 10

Descriptive annex to test certificate number E-09.02.C09.

5.- Conditions for use.

No property of this instrument, whether described or not, may be in conflict with the standard and international recommendation mentioned in the test certificate.

6.- Location of seals.

The indicating device type MATRIX II has two independent systems of sealed:

- A mechanical seal, by means of a plate with two hole head screws, that is located upon the blockade switches, in the later side of the indicating device. This plate will be able to be sealed by means of a plastic, self-adhesive, self-destructing label or by means of wire and seal with an inviolable system.
- A permanent electronic seal, that does not allow the modification of the protected parameters, if a numerical code is not introduced when indicating device asks it and that it registers the number of accesses to the program and the date in which been they have realised.

It is not possible to modify any parameter protected without retiring both seals in released position (correct numerical code and blockade switch).

Connectors of load cell(s) also can be sealed by means of a plastic, self-adhesive and self-destructing label.

Reference is made to Figure 7 (figure 2.1.1.3), Figure 9 (figure 2.1.1.1) and Figure 10 (figure 2.1.1.4) of this descriptive annex.

7.- Tests.

Tests have been performed with a indicating device with the following identification:

Type	Serial number
MATRIX II	780419

The list of tests carried out to issue this test certificate is as follows:

Tests	Approved
Temperature effect (at +20ºC, +40ºC, -10ºC, +5ºC and +20ºC).	+
Tare.	+
Warm-up time.	+
Voltage variations.	+
Short time power redutions.	+
Electrical bursts.	+
Electrostatic discharges.	+
Immunity to radiated electromagnetic fields.	+

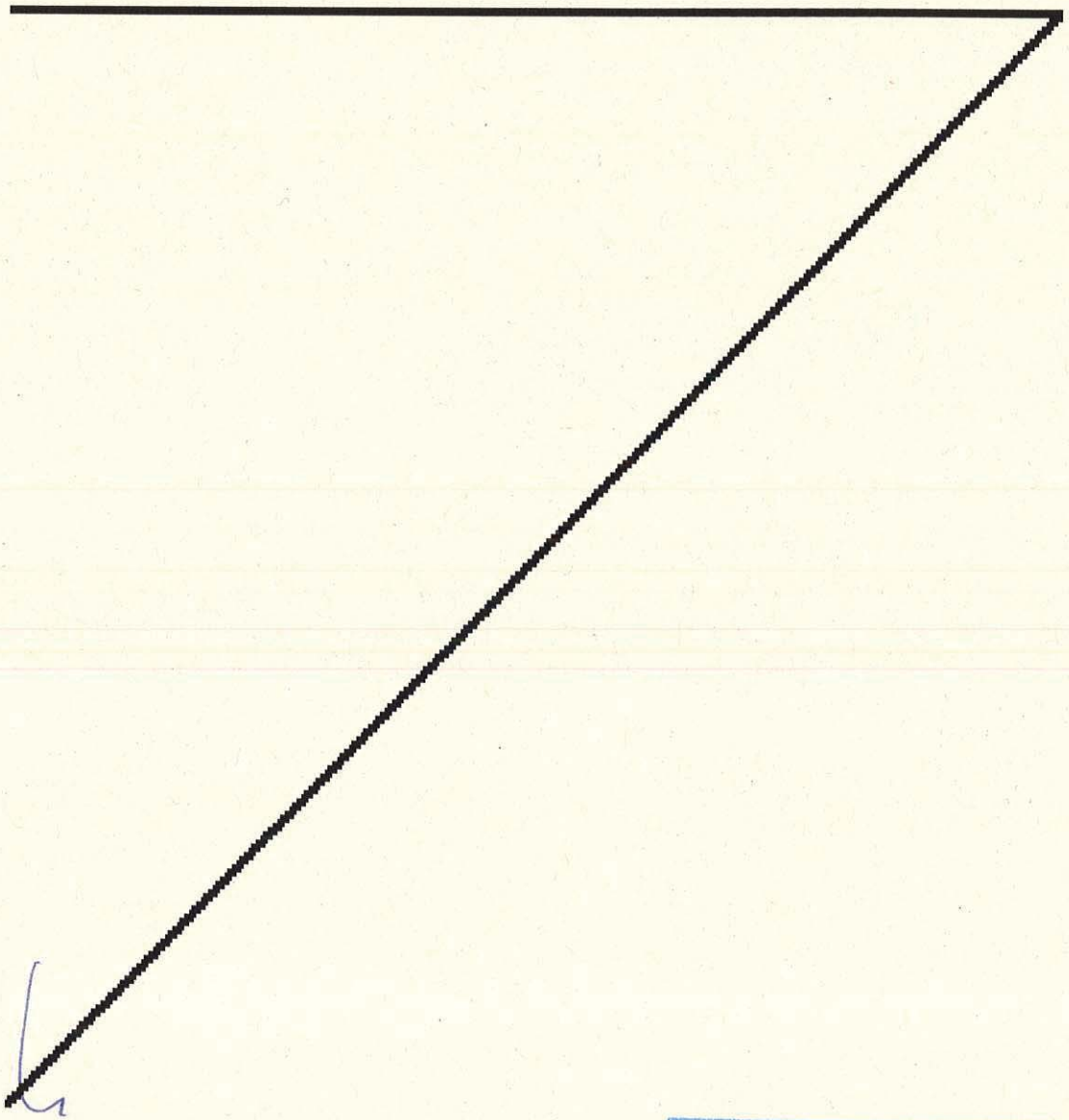
Descriptive annex to test certificate number E-09.02.C09.

Damp heat.	+
Span stability.	+
Checklist.	+
Repetibility.	+

The indicating device type MATRIX II has passed all these tests.

8.- Drawings.

Dimensions indicate in this drawings are given in milimeters.



Av. Diagonal, 405 bis
08008 Barcelona
Telèfon 93 484 92 95
Telefax 93 484 94 10

Generalitat de Catalunya
Departament d'Innovació, Universitats i Empresa
Secretaria d'Indústria i Empresa
Subdirecció General de Seguretat Industrial
Servei d'Automòbils, Productes i Metrologia

Descriptive annex to test certificate number E-09.02.C09.

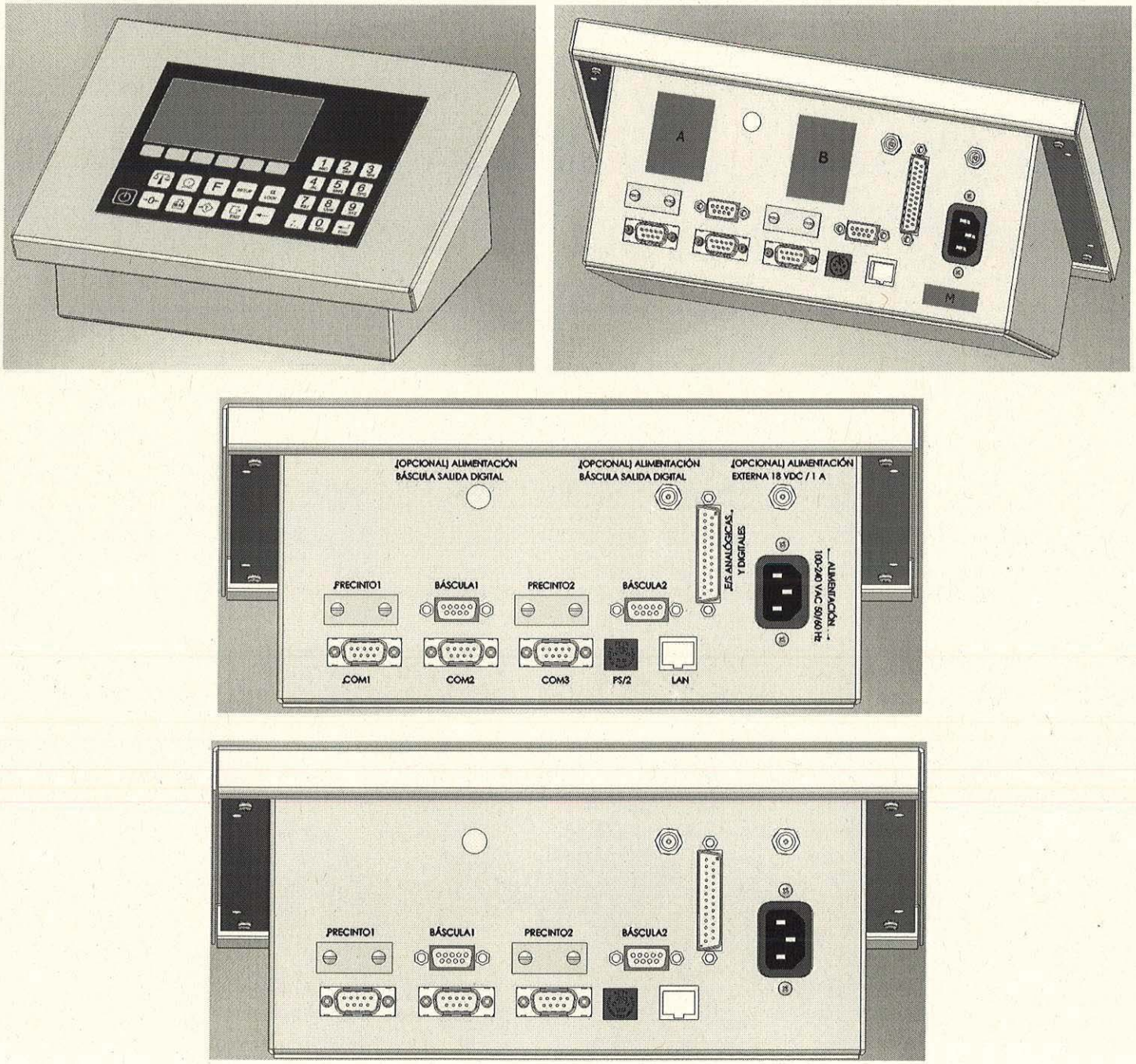
Figure 1.- Figure 4.8.1.1.

Vista frontal del indicador

Av. Diagonal, 405 bis
08008 Barcelona
Telèfon 93 484 92 95
Telefax 93 484 94 10

Descriptive annex to test certificate number E-09.02.C09.

Figure 2.- Figure 4.6.1.

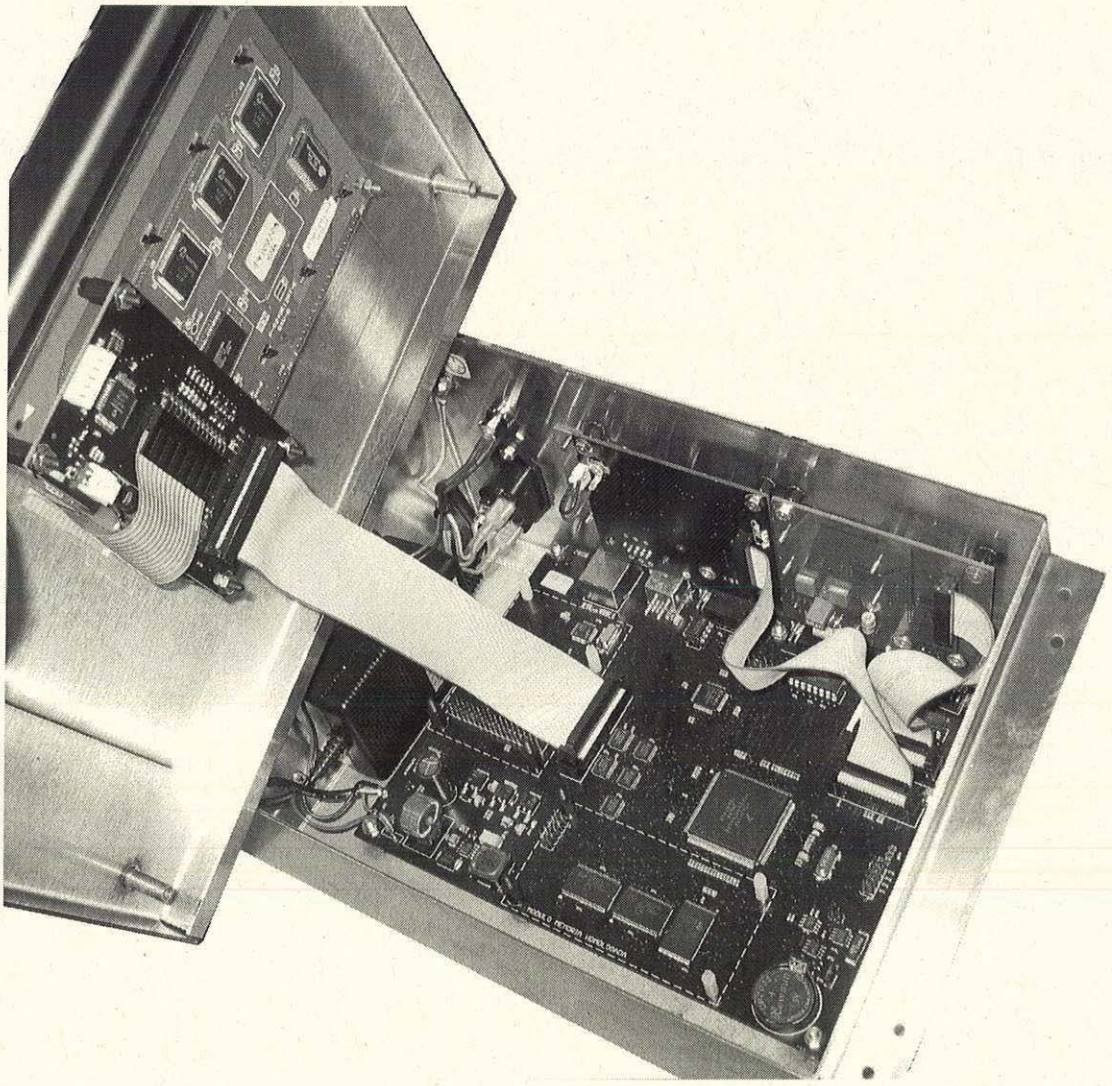


Presentación del dispositivo indicador

Av. Diagonal, 405 bis
08008 Barcelona
Telèfon 93 484 92 95
Telefax 93 484 94 10

Descriptive annex to test certificate number E-09.02.C09.

Figure 3.- Figure 4.8.1.3.

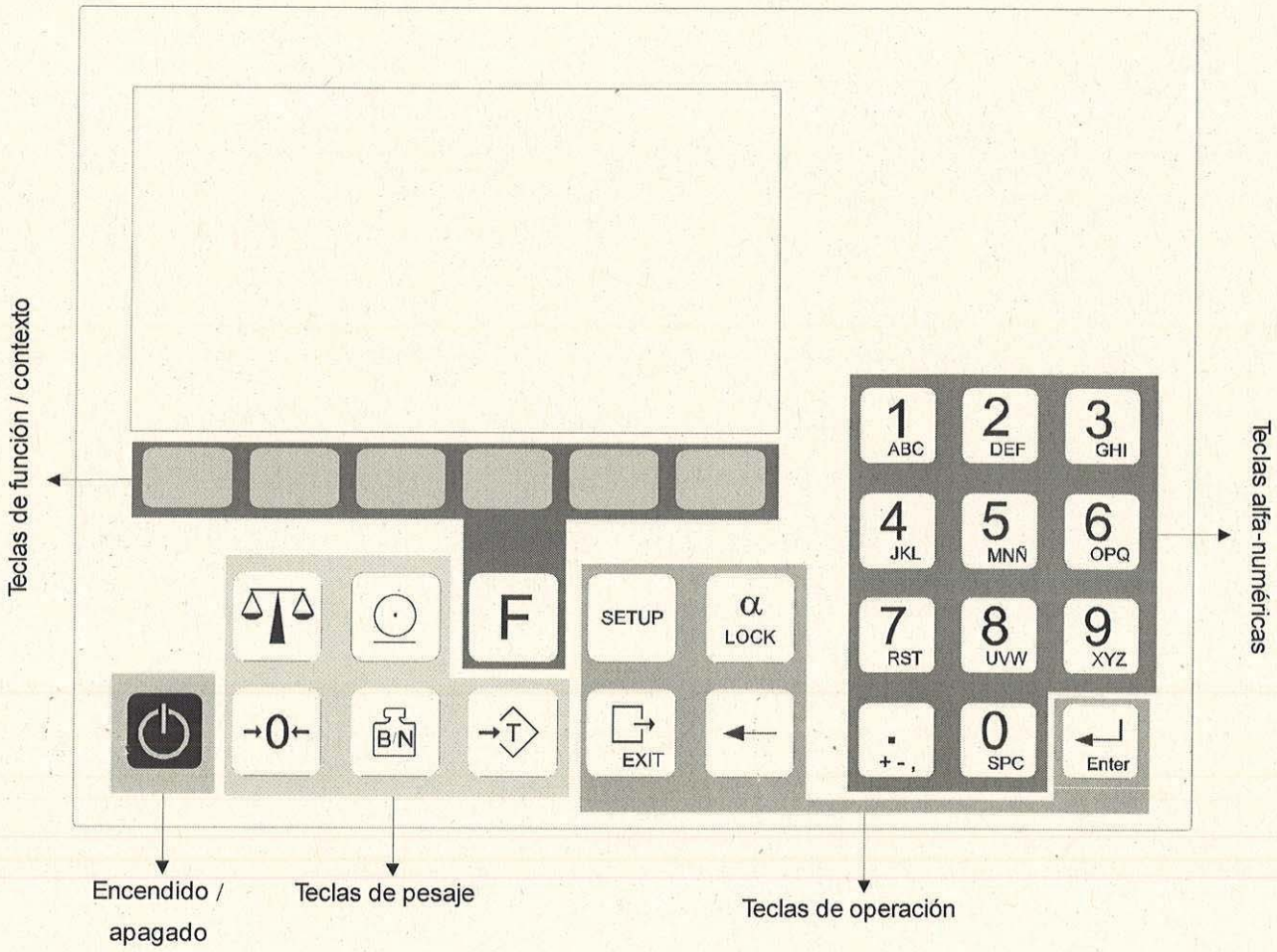


Dispositivo indicador abierto

Av. Diagonal, 405 bis
08008 Barcelona
Telèfon 93 484 92 95
Telefax 93 484 94 10

Descriptive annex to test certificate number E-09.02.C09.

Figure 4.- Figure 4.3.1.



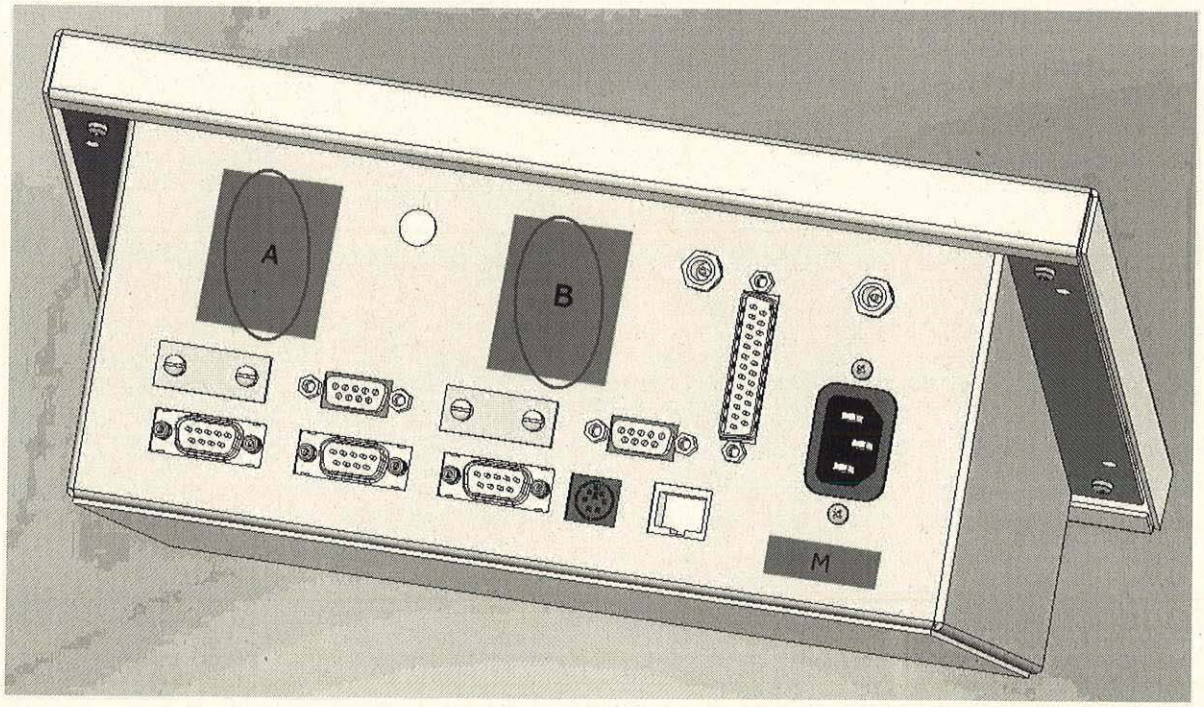
Disposición del teclado

Av. Diagonal, 405 bis
08008 Barcelona
Telèfon 93 484 92 95
Telefax 93 484 94 10

Generalitat de Catalunya
Departament d'Innovació, Universitats i Empresa
Secretaria d'Indústria i Empresa
Subdirecció General de Seguretat Industrial
Servei d'Automòbils, Productes i Metrologia

Descriptive annex to test certificate number E-09.02.C09.

Figure 5.- Position A or B of figure 2.1.3.1.



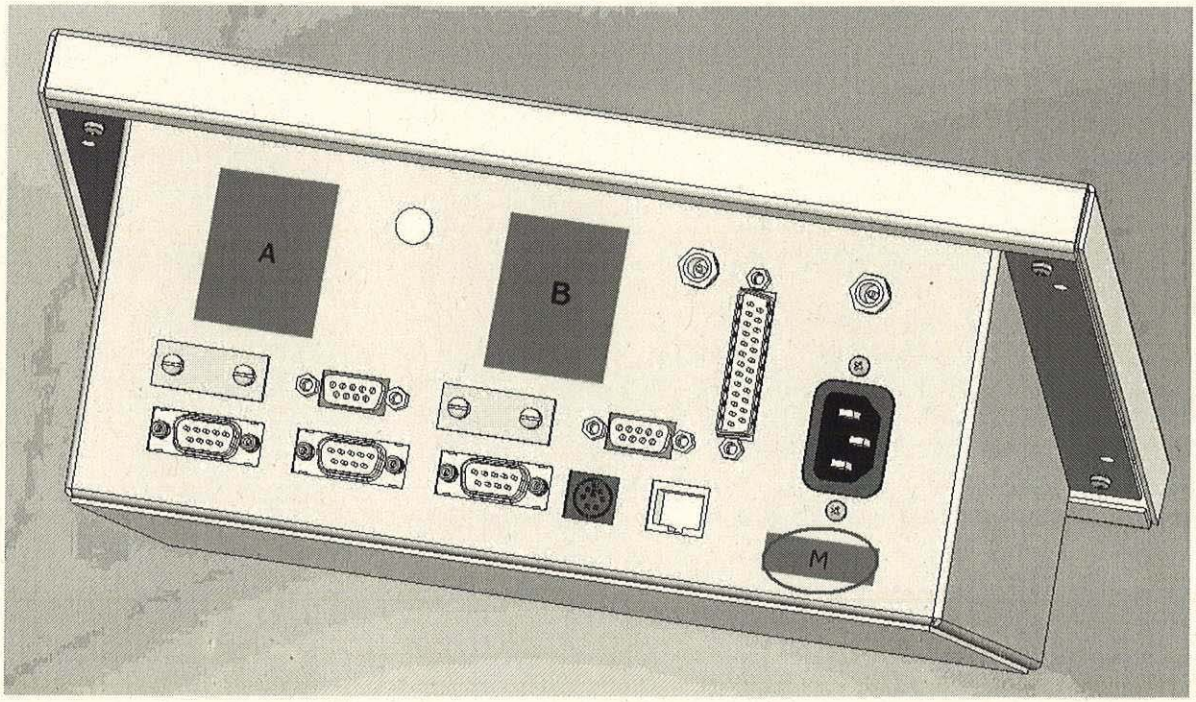
Aplicación de marcado CE y placa de características

Av. Diagonal, 405 bis
08008 Barcelona
Telèfon 93 484 92 95
Telefax 93 484 94 10

Generalitat de Catalunya
Departament d'Innovació, Universitats i Empresa
Secretaria d'Indústria i Empresa
Subdirecció General de Seguretat Industrial
Servei d'Automòbils, Productes i Metrologia

Descriptive annex to test certificate number E-09.02.C09.

Figure 6.- Position M of figure 2.1.3.1.

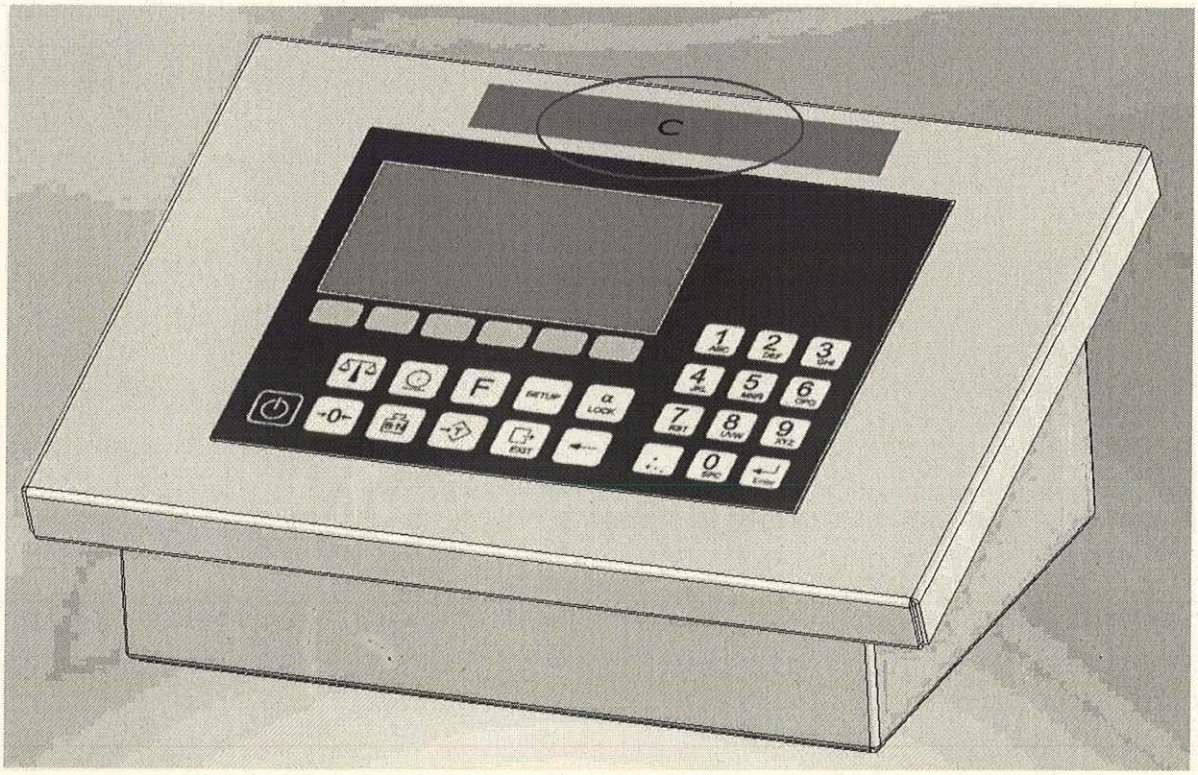


Aplicación de marcado CE y placa de características

Av. Diagonal, 405 bis
08008 Barcelona
Telèfon 93 484 92 95
Telefax 93 484 94 10

Descriptive annex to test certificate number E-09.02.C09.

Figure 7.- Position C of figure 2.1.4.1.

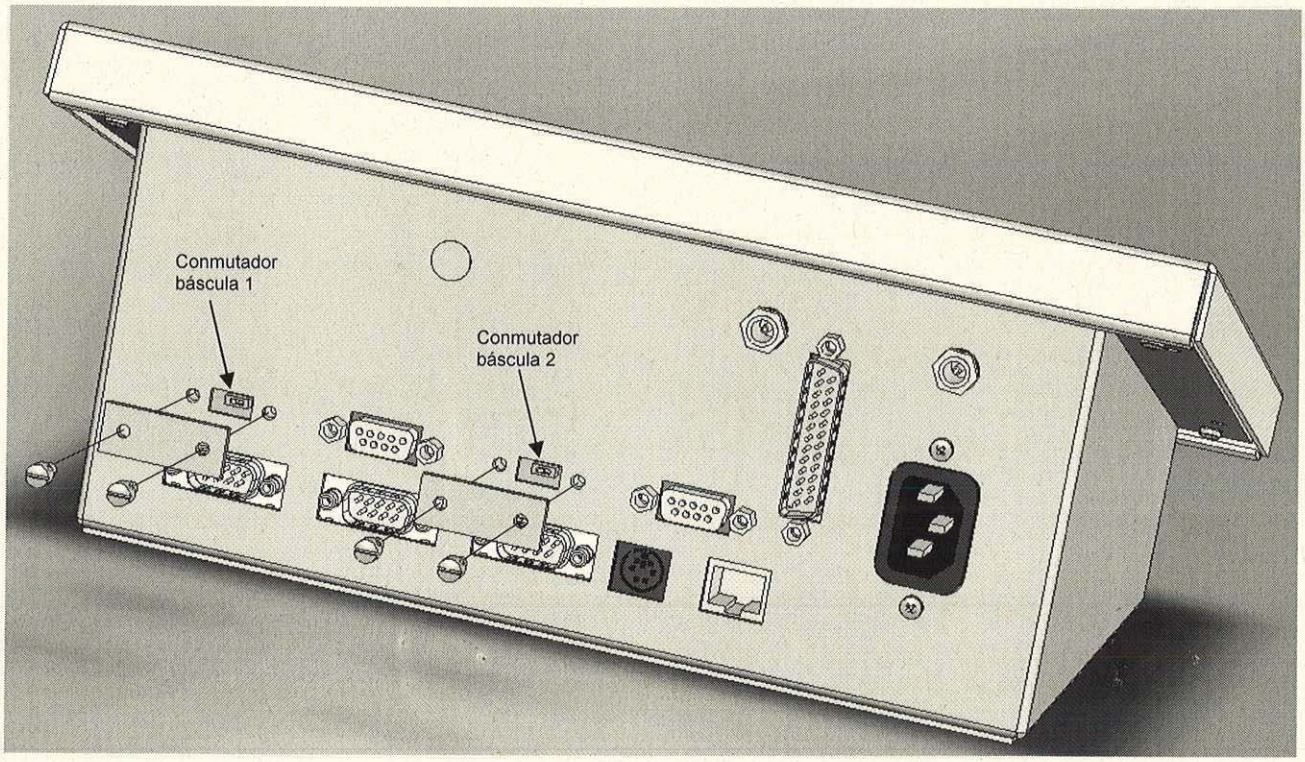


Aplicación del marcado Max, Min y e

Av. Diagonal, 405 bis
08008 Barcelona
Telèfon 93 484 92 95
Telefax 93 484 94 10

Descriptive annex to test certificate number E-09.02.C09.

Figure 8.- Figure 2.1.1.3.

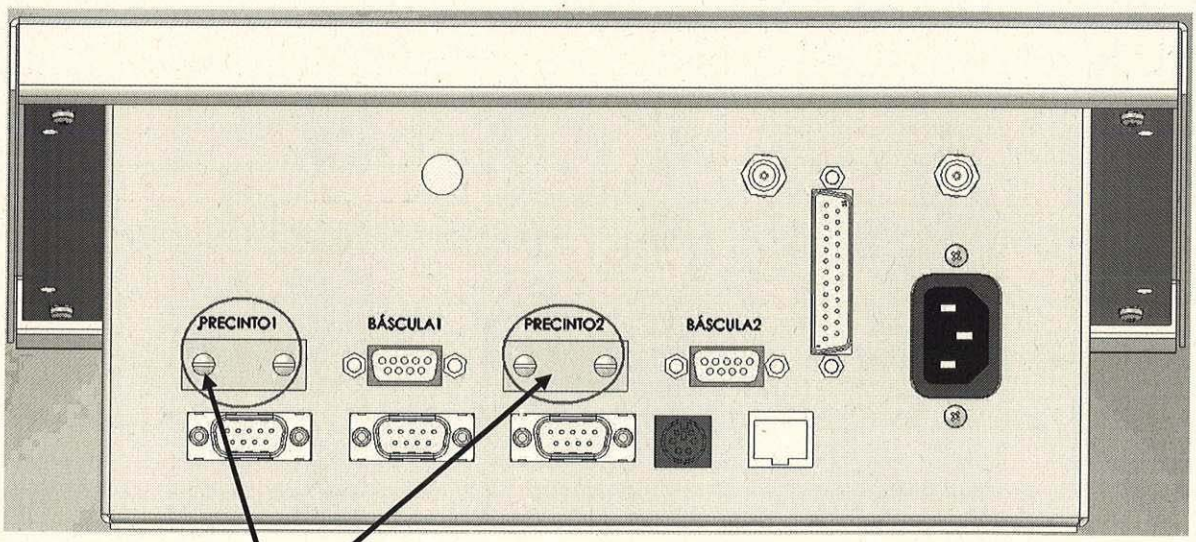


Precinto mecánico

Av. Diagonal, 405 bis
08008 Barcelona
Telèfon 93 484 92 95
Telefax 93 484 94 10

Descriptive annex to test certificate number E-09.02.C09.

Figure 9.- Figure 2.1.1.1.



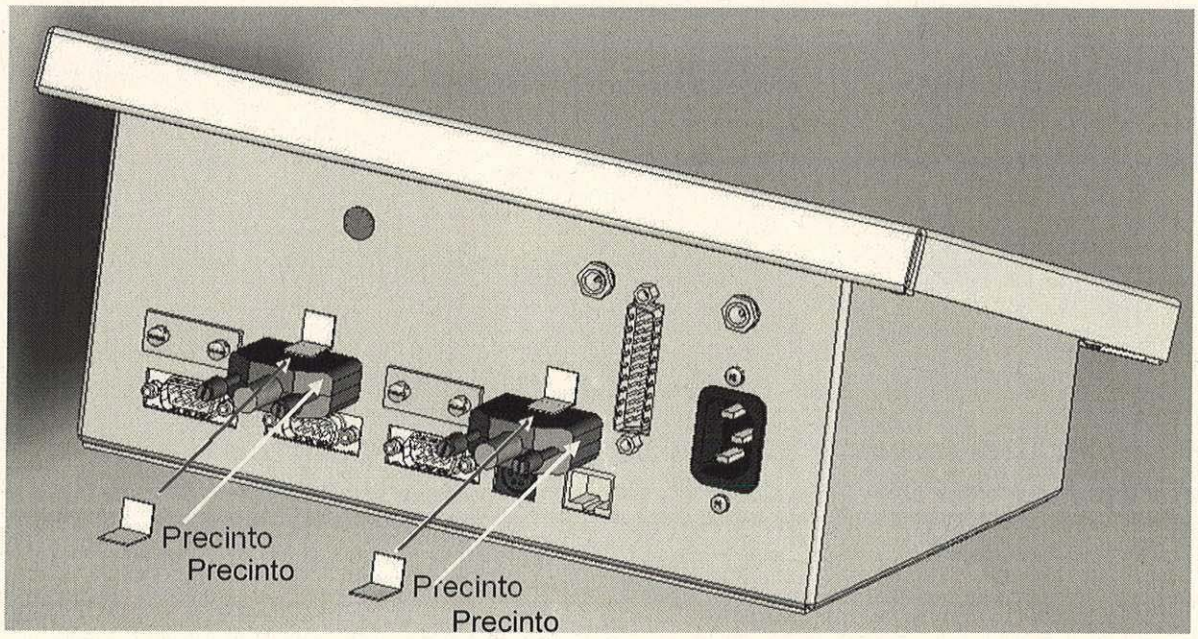
Precinto mecánico

Tapa precinto: se precinta mediante etiqueta autodestructible o hilo entre los tornillos que quede sellado con un sistema inviolable

Av. Diagonal, 405 bis
08008 Barcelona
Telèfon 93 484 92 95
Telefax 93 484 94 10

Descriptive annex to test certificate number E-09.02.C09.

Figure 10.- Figura 2.1.1.4.



Precintado de los conectores de célula de carga

Av. Diagonal, 405 bis
08008 Barcelona
Telèfon 93 484 92 95
Telefax 93 484 94 10