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EC Type-Approval Certificate

No. DK 0199.390 revision 2

V7-20 / V7-40 / V7-50 / V7-60 / B7-20 / B7-40 / B7-50 / B7-60 /
C7-20 / C7-40 / C7-50 / C7-60 / CS7-20 / CS7-40 / CS7-50 / CS7-60 /
S7-20 / S7-40 / S7-50 / S7-60 / NS7-20 / NS7-40 / NS7-50 / NS7-60 /
T7-20 / T7-40 / T7-50 / T7-60 / C8-20 / C8-40 / C8-50 / C8-60 /
U8-20 / U8-40 / U8-50 / U8-60 / M7-90

NON-AUTOMATIC WEIGHING INSTRUMENT

Issued by **DELTA Danish Electronics, Light & Acoustics**
EU - Notified Body No. 0199

In accordance with the requirements for the non-automatic weighing instrument of EC Council Directive 2009/23/EC.

Issued to **Tscale Electronics Mfg. (Kunshan) Co., Ltd.**
No. 99 Shunchang Road,
Zhoushi, Kunshan, Jiangsu
CHINA

In respect of Non-automatic weighing instrument designated V7-20 / V7-40 / V7-50 / V7-60 / B7-20 / B7-40 / B7-50 / B7-60 / C7-20 / C7-40 / C7-50 / C7-60 / CS7-20 / CS7-40 / CS7-50 / CS7-60 / S7-20 / S7-40 / S7-50 / S7-60 / NS7-20 / NS7-40 / NS7-50 / NS7-60 / T7-20 / T7-40 / T7-50 / T7-60 / C8-20 / C8-40 / C8-50 / C8-60 / U8-20 / U8-40 / U8-50 / U8-60 / M7-90 with variants of modules of load receptors, load cells and peripheral equipment.
Accuracy class III
Maximum capacity, Max: From 1 kg up to 150 000 kg
Verification scale interval: e = Max / n
Maximum number of verification scale intervals: $n \leq 3000$
(however, dependent on environment and the composition of the modules).
Variants of modules and conditions for the composition of the modules are set out in the annex.

The conformity with the essential requirements in annex 1 of the Directive is met by the application of the European Standard EN 45501:1992/AC:1993, OIML R76:2006 and WELMEC 2.1:2001.

Note: This certificate is a revised edition which replaces previous revisions.

The principal characteristics and approval conditions are set out in the descriptive annex to this certificate.

The annex comprises 25 pages.

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Descriptive annex

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1. Name and type of instrument and modules

The weighing instrument is designated V7-20 / V7-40 / V7-50 / V7-60 / B7-20 / B7-40 / B7-50 / B7-60 / C7-20 / C7-40 / C7-50 / C7-60 / CS7-20 / CS7-40 / CS7-50 / CS7-60 / S7-20 / S7-40 / S7-50 / S7-60 / NS7-20 / NS7-40 / NS7-50 / NS7-60 / T7-20 / T7-40 / T7-50 / T7-60 / C8-20 / C8-40 / C8-50 / C8-60 / U8-20 / U8-40 / U8-50 / U8-60 / M7-90. It is a system of modules consisting of an electronic indicator connected to a separate load receptor and peripheral equipment, such as printers or other devices, as appropriate. The instrument is a Class III, self-indicating weighing instrument with single-interval, an external AC mains adapter, and an internal rechargeable battery (optional).

The xn-20 indicator models are primarily intended for manual check weighing,
the xn-40 indicator models are primarily intended for counting,
the xn-50 indicator models are primarily intended for truck weighing, and
the xn-60 indicator models are for 'all-in-one' weighing.
where x is V, B,C, S, NS, T or U and n is 7 or 8.
The M7-90 indicator model is intended for medical scales.

The indicators consist of analogue to digital conversion circuitry, microprocessor control circuitry, power supply, keyboard, non-volatile memory for storage of calibration and setup data, and a weight display contained within a single enclosure.

The modules appear from Sections 3.1, 3.2.1, and 3.2.2; the principle of the composition of the modules is set out in Sections 6.1 and 10.

2. Description of the construction and function

2.1 Construction

2.1.1 Indicator

The indicator is specified in Section 3.1.

Enclosures and keyboard

The indicators are housed in an enclosure made of ABS plastic (B7-xx, C7-xx, C8-xx, T7-xx, U8-xx, V7-xx and M7-90 models) or of stainless steel (CS7-xx, NS7-xx and S7-xx models).

The front panels of the indicator comprise of

- Either a 7" touch-screen LCD display with backlight incorporating appropriate state indicators (models x7-xx),
- Or a 8" touch-screen LCD display with backlight incorporating appropriate state indicators (models x8-xx)
- The indicators have in addition to the key-in possibilities on the touch screen, a keyboard containing 4 keys used to enter commands into the weight indicator, plus a key for turning the indicator on/off. Each key is identified with a pictograph.

Electronics

The instruments have the following printed circuit boards, a mainboard, a piggy-back for A/D conversion and a piggy-back for battery charging circuits, which together contain all of the instrument circuitry. The metrological circuitry for the models of weight indicators are identical.

All instrument calibration and metrological setup data are contained in non-volatile memory. The power supply accepts an input voltage of 12 VDC from the external power adapter with input from 100 – 240 VAC 50/60 Hz. The indicator produces a load cell excitation voltage of 5 VDC.

2.1.2 Load receptors, load cells and load receptor supports

Set out in Section 3.2.

2.1.3 Interfaces and peripheral equipment

Set out in Section 4.

2.2 Functions

The weight indicating instruments are microcontroller based electronic weight indicators that require the external connection of strain gauge load cell(s). The weight information appears in the digital display located on the front panel and may be transmitted to peripheral equipment for recording, processing or display.

The primary functions provided are detailed below.

2.2.1 Power-up

On power-up, the indicator will first perform a check of its integrity. After that the indicators will automatically establish the current weight as a new zero reference.

2.2.2 Display test

No display test is performed as it is a graphic display.

2.2.3 Display range

The weight indicators will display weight from –Max (tare function) to Max (gross weight).

2.2.4 Zero-setting

Zero-setting range: ±2% of Max.
Automatic zero-tracking range: ±2% of Max.
Initial zero-setting range: ≤ ±10% of Max.
Zero-setting is only possible when the load receptor is not in motion.

2.2.4.1 Semi-automatic zero-setting

Pressing the “ZERO” key causes a new zero reference to be established and ZERO annunciator to turn on, indicating that the display is at the centre of zero.

2.2.4.2 Zero-tracking

The indicators are equipped with a zero-tracking feature, which operates over a range of ±2% of Max and only when the scale is at gross zero and there is no motion in the weight display. The zero-tracking shall be set to 0.5 d per second.

2.2.5 Tare

The instrument models are provided with a semi-automatic subtractive tare.

2.2.5.1 Semi-automatic tare

Pressing the “TARE” key will enter the currently weight value as the new tare weight value, if the tare function is not already active or setup allows multi-tare operation.
The weight display will automatically change to the net weight display mode and turn on the NET annunciator and the tare value will be displayed. This tare value can be cleared by pressing the TARE key when there is no load on the load receptor. This tare entry cannot take place if the load receptor is in motion.

2.2.5.2 Preset tare

The xn-60 indicators have a preset tare function with possibility for storing 4 different preset tare values in memory.

2.2.6 Check weighing

The indicators can be set to check the actual weight against a high and/or a low limit by the user pressing “Hi-Lo” key and then setting the appropriate parameters. In the xn-20 and xn-60 indicators are additional graphic aids for the operator.

2.2.7 Checkweighing limits Look Up (PLU)

The xn-20 and xn-60 indicators can store up to 9999 high and/or low limits for checkweighing. These are accessed using the PLU keys, the three product category keys and the two arrow keys.

Access to editing them can be obtained using the menu key and selecting products.

2.2.8 Counting

The xn-40 and xn-60 indicators have a counting function. The number of samples on the load receptor can be keyed in using the “SAMPLES” key, or the unit weight of one piece can be keyed in using the “U.W.” key, or it can be recalled from the look-up table of unit weights using the “PRODUCT” key.

Neither the unit weight nor the count shown in counting mode is to be regarded as an approved weighing results.

2.2.9 Piece unit weight Look Up (PLU)

The xn-40 and xn-60 scales can store up to 9999 piece unit weight values. These are accessed using the PLU keys, the product category key, and the two arrow keys.

Access to editing them can be obtained using the menu key and selecting products.

2.2.10 Truck weighing

The xn-50 indicators have special features for facilitating 2-stage weighing of trucks – empty/full or full/empty – keeping track of it based on the registration plate of the truck.

2.2.11 Printing

A printer may be connected to an USB port or to the RS232 interface. The weight indicator will transmit the current to the printer when the “PRINT - SAVE” key is pressed.

The printing will not take place if the load receptor is not stable, if the gross weight is less than zero, or if the weight exceeds Max.

2.2.12 Facilitated weighing operations

The xn-60 indicators have a number of functions facilitating weighing operations. These are,

Class operation	for sorting items into 5 different grades based on weight.
Take out operation	for display of removed weight during down weighing and also accumulating the removed weight.
Target operation	for comparing the accumulated weight of a number of separate weighings against a target
Recipe operation	assisted weighing of components for a recipe.

2.2.13 Extended resolution (×10)

The indicators have an extended resolution function. Pressing the key will show the weight with d = 0.1e for 5 seconds.

2.2.14 Totalisation

The indicators – except M7-90 - have a totalisation function, adding actual weight display values to the memory when pressing "Print-SAVE" key, if the equilibrium is stable.

The totalised value is a calculated value and shall be marked as such when printed using the "TOTAL" key.

2.2.15 Hold function (only indicator model M7-90)

Pressing the LOCK key will turn on the "LOCK" indicator and the weight value will be hold on the display, until the LOCK key is pressed again.
If the Hold function has been active for 10 seconds, it will automatically turns off and unlock the weight display.

This feature is not to be used in trade applications, but may be convenient in clinical or health care weighing applications.

2.2.16 BMI (only indicator model M7-90)

The BMI key is used to access the Body Mass Index feature of the indicator. This allows the operator to enter the height and the gender of the person on the load receptor for calculation and display of the Body Mass Index (BMI).

As an alternative to entering the height a height rod can be connected to the indicator for automatic reading of the height.

2.2.17 Operator information messages

The weight indicator has a number of general and diagnostic messages, which are described in detail in the user's guide.

2.2.18 Software version

The software is separated in a weighing software and an application software.

The software version of the weighing software is shown under system settings in the menu, while the software version of the application soft is displayed in the top line of the T-Touch screen.

The approved software versions are,
weighing software: V1.10
application software: A1.xx

2.2.19 Gravity compensation

The indicators have a gravity compensentation function making it possible to perform the verification at a place with another gravity constant than the place of use.
The function is sealed.

2.2.20 Battery operation

The indicators can optionally be operated from the internal rechargeable battery.

3. Technical data

The weighing instruments are composed of separate modules, which are set out as follows:

3.1 Indicator

The indicators have the following characteristics:

Type:	V7-20 / V7-40 / V7-50 / V7-60 / B7-20 / B7-40 / B7-50 / B7-60 / C7-20 / C7-40 / C7-50 / C7-60 / S7-20 / S7-40 / S7-50 / S7-60 / NS7-20 / NS7-40 / NS7-50 / NS7-60 / T7-20 / T7-40 / T7-50 / T7-60 / C8-20 / C8-40 / C8-50 / C8-60 / U8-20 / U8-40 / U8-50 / U8-60
Accuracy class:	III
Weighing range:	Single-interval
Maximum capacity (Max):	from 1 kg to 150 000 kg
Maximum number of Verification Scale Intervals:	≤ 3000
Maximum tare effect:	-Max
Fractional factor:	p'i = 0.5
Minimum input voltage per VSI:	1.5 µV
Excitation voltage:	5 VDC
Circuit for remote sense:	present
Minimum input impedance:	87 ohm
Maximum input impedance:	1200 ohm
Mains power supply:	12 VDC / 100-240 VAC, 50/60 Hz using external adapter 6 V battery (optional)
Operational temperature:	0°C to 40°C
Peripheral interface:	Set out in Section 4

3.1.1 Connecting cable between the indicator and load cell / junction box for load cell(s)

3.1.1.1 4-wire system

Cable between indicator and load cell(s):	4 wires (no sense), shielded
Maximum length:	the certified length of the load cell cable, which shall be connected directly to the indicator.

3.1.1.2 6-wire system

Cable between indicator and load cell(s): 6 wires (sense), shielded.

Maximum cable length between indicator and junction box (J-box) for load cell(s): 580 m/mm^2

3.2 Load receptors, load cells, and load receptor supports

Removable platforms shall be equipped with level indicators.

3.2.1 General acceptance of modules

Any load cell(s) may be used for instruments under this certificate of type approval provided the following conditions are met:

1) A test certificate (EN 45501) or OIML Certificate of Conformity (R60) respectively issued for the load cell by a Notified Body responsible for type examination under the Directive 2009/23/EC.

2) The certificate contains the load cell types and the necessary load cell data required for the manufacturer's declaration of compatibility of modules (WELMEC 2, Issue 5, 2009), and any particular installation requirements). A load cell marked NH is allowed only if humidity testing to EN 45501 has been conducted on this load cell.

3) The compatibility of load cells and indicator is established by the manufacturer by means of the compatibility of modules form, contained in the above WELMEC 2 document, or the like, at the time of EC verification or declaration of EC conformity of type.

4) The load transmission must conform to one of the examples shown in the WELMEC 2.4 Guide for load cells.

3.2.2 Platforms, weigh bridge platforms

Construction in brief	Metal or steel-reinforced concrete construction, surface or pit mounted
Reduction ratio	1
Junction box	Mounted in or on the platform
Load cells	Load cell according to Section 3.2.1
Drawings	Various

3.2.3 Bin, tank, hopper and non-standard systems

Construction in brief	Load cell assemblies each consisting of a load cell stand assembly to support one of the mounting feet bin, tank or hopper
Reduction ratio	1
Junction box	Mounted on dead structure
Load cell	Load cell according to Section 3.2.1
Drawings	Various

3.3 Composition of modules

In case of composition of modules, EN 45501 paragraph 3.5 and 4.12 shall be satisfied.

3.4 Documents

The documents filed at DELTA (reference No. T205512) are valid for the weighing instruments described here.

4. Interfaces and peripheral equipment

4.1 Interfaces

The interfaces are characterised “Protective interfaces” according to paragraph 8.4 in the Directive.

4.1.1 Load cell input

A 7-terminal connector for the load cell is positioned on the back of the enclosure.

4.1.2 Load cell input from second platform load receptor (optional)

A 7-terminal connector for connection of the load cell cable from a second platform type load receptor.

4.1.3 RS-232 interface

The indicator is equipped with one or two RS-232 interfaces for connection to a computer or to a printer.

4.1.4 USB interface

The indicator is equipped with two USB interfaces for connection to peripheral equipment.
The length of the USB cables is specified to be less than 3 meter.

4.1.5 Ethernet interface

The indicators may be equipped with a RJ45 connector for connection of the scale to a Local Area Network.

4.1.6 Wi-Fi interface (optional)

The scale can be equipped with a Wi-Fi interface.

4.2 Peripheral equipment

Connection between the indicator and peripheral equipment is allowed by screened cable.

The instrument may be connected to any simple peripheral device with a CE mark of conformity.

5. Approval conditions

5.1 Measurement functions other than non-automatic functions

Measurement functions that will enable the use of the instrument as an automatic weighing instrument are not covered by this type approval.

5.2 Counting operation is not approved for NAWI

The count shown as result of the counting function is not covered by this NAWI approval.

5.3 Totalised weight is not a legal value.

When using the totalisation function creating a sum of several weighing results, this sum is only informative, as it is not a legal value.

5.4 Compatibility of modules

In case of composition of modules, WELMEC 2 (Issue 5) 2009, paragraph 11 shall be satisfied.

6. Special conditions for verification

6.1 Composition of modules

The environmental conditions should be taken into consideration by the composition of modules for a complete weighing instrument, for example instruments with load receptors placed outdoors and having no special protection against the weather.

The composition of modules shall agree with Section 5.4

An example of a declaration of conformity document is shown in Section 10.

7. Securing and location of seals and verification marks

7.1 Securing and sealing

Seals shall bear the verification mark of a notified body or alternative mark of the manufacturer according to ANNEX II, section 2.3 of the Directive 2009/23/EC.

7.1.1 Indicator

Access to the configuration and calibration facility requires that the calibration switch is depressed.

On V7-xx indicators is the calibration switch accessed through a hole in the rear of the enclosure. Sealing the cover plate for this hole and the access to one of the screws of the enclosure with brittle plastic stickers prevent access to the calibration jumper and secure the electronics against dismantling/adjustment.

On C7-xx and C8-xx indicators is the calibration switch (/jumper) placed on the mainboard inside the enclosure. Sealing of the cover of the enclosure - to prevent access to the calibration jumper and to secure the electronics against dismantling/adjustment - is accomplished with a brittle plastic sticker, which is placed so access to one of the screws of the enclosure is prohibited

On B7-xx indicators is the calibration switch (/jumper) placed on the mainboard inside the enclosure. Sealing of the cover of the enclosure - to prevent access to the calibration jumper and to secure the electronics against dismantling/adjustment - is accomplished using wire and seal. The wire is feed through the head of a hexagon screw and a hole next to the screw.

On the S7-xx and NS7-xx indicators is the calibration switch (/jumper) placed on the mainboard inside the enclosure. Sealing of the cover of the enclosure - to prevent access to the calibration jumper and to secure the electronics against dismantling/adjustment - is accomplished using wire and seal. The wire is feed through the head of two screws.

On T7-xx and U8-xx indicators is the calibration switch accessed through a hole in the rear of the enclosure. Sealing the cover plate for this hole with a brittle plastic sticker, while sealing the enclosure - to prevent access to the calibration jumper and to secure the electronics against dismantling/adjustment - is accomplished using wire and seal. The wire is feed through the head of an enclosure assembly screw and a hole next to the screw.

7.1.2 Indicator - load cell connector - load receptor

Securing of the indicator, load receptor and load cell combined is done the following way:

- Sealing of the load cell connector with the indicator by a lead wire seal.

In special cases where the place of installation makes it impossible to use the above sealing.

- Inserting the serial number of the load receptor as part of the principal inscriptions contained on the indicator identification label.

- The load receptor bears the serial number of the indicator on its data plate.

7.1.3 Peripheral interfaces

All peripheral interfaces are “protective”; they neither allow manipulation with weighing data or legal setup, nor change of the performance of the weighing instrument in any way that would alter the legality of the weighing.

7.2 Verification marks

7.2.1 Indicator

A green M-sticker shall be placed next to the CE mark on the inscription plate.

The sticker with verification marks may be placed on or next to the inscription plate or on the front of the indicator.

7.2.2 Printers used for legal transactions

Printers covered by this type approval and other printers according to section 4.2, which have been subject to the conformity assessment procedure, shall not bear a separate green M-sticker in order to be used for legal transactions.

8. Location of CE mark of conformity and inscriptions

8.1 Indicator

8.1.1 CE mark

A sticker with the CE mark of conformity and year of production is located on the identification plate, which is located on the enclosure of the weight indicator.

8.1.2 Inscriptions

Manufacturer’s trademark and/or name and the type designation is located on the front panel overlay.

In the top line of the display:

- Max, Min, e = , software version

On the inscription plate:

- Manufacturer’s name and/or logo, model no., serial no., type-approval certificate no., accuracy class, temperature range, electrical data and other inscriptions.

8.1.2.1 Load receptors

On a data plate:

- Manufacturer's name, type, serial number, capacity

In special cases as provided in Section 7.1.2:

- Serial no. of the indicator

9. Pictures

Figure 1 V7-20 indicator.

Figure 2 V7-40 indicator.

Figure 3 V7-50 indicator.

Figure 4 B7-20 indicator.

Figure 5 B7-40 indicator.

Figure 6 B7-50 indicator.

Figure 7 C7-20 indicator.

Figure 8 C7-40 indicator.

Figure 9 C7-50 indicator.

Figure 10 S7-20 indicator.

Figure 11 S-40 indicator.

Figure 12 S-50 indicator.

Figure 13 NS7-20 indicator.

Figure 14 NS7-40 indicator.

Figure 15 NS7-50 indicator.

Figure 16 T7-20 indicator.

Figure 17 T7-40 indicator.

Figure 18 T7-50 indicator.

Figure 19 C8-20 indicator.

Figure 20 C8-40 indicator.

Figure 21 C8-50 indicator.

Figure 22 U8-20 indicator.

Figure 23 U8-40 indicator.

Figure 24 U8-50 indicator.

Figure 25 V7-60 indicator.

Figure 26 B7-60 indicator.

Figure 27 C7-60 indicator.

Figure 28 NS7-60 indicator.

Figure 29 S7-60 indicator.

Figure 30 T7-60 indicator.

Figure 31 C8-60 indicator.

Figure 32 U8-60 indicator.

Figure 33 CS7-20 indicator.

Figure 34 CS7-40 indicator.

Figure 35 CS7-50 indicator.

Figure 36 CS7-60 indicator.

Figure 37 M7-90 medical indicator.

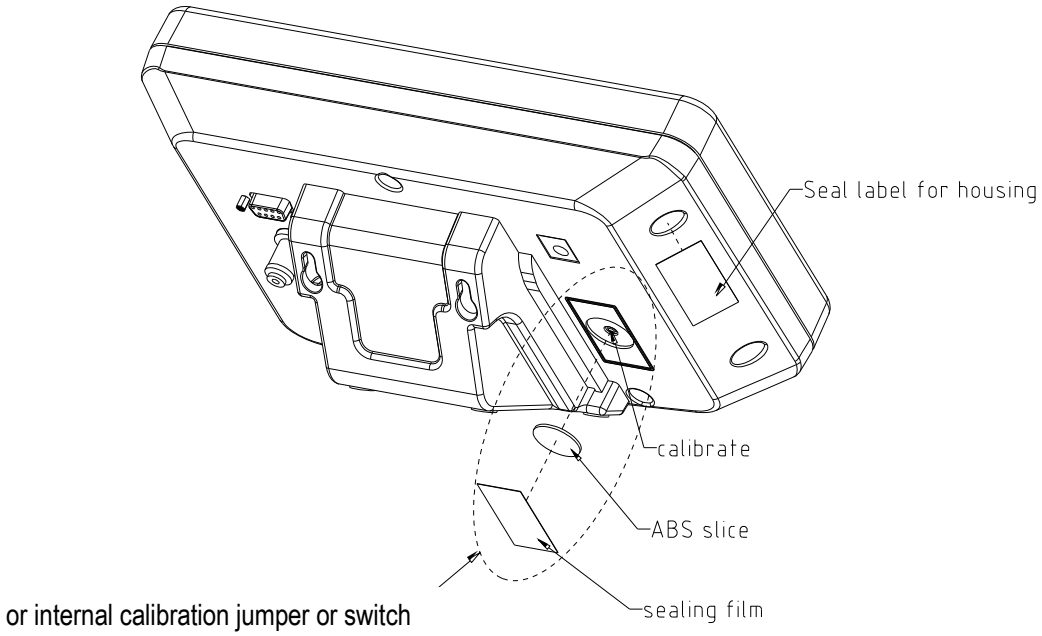

Figure 38 Sealing of V7-20 / V7-40 / V7-50 / V7-60 indicators with stickers.

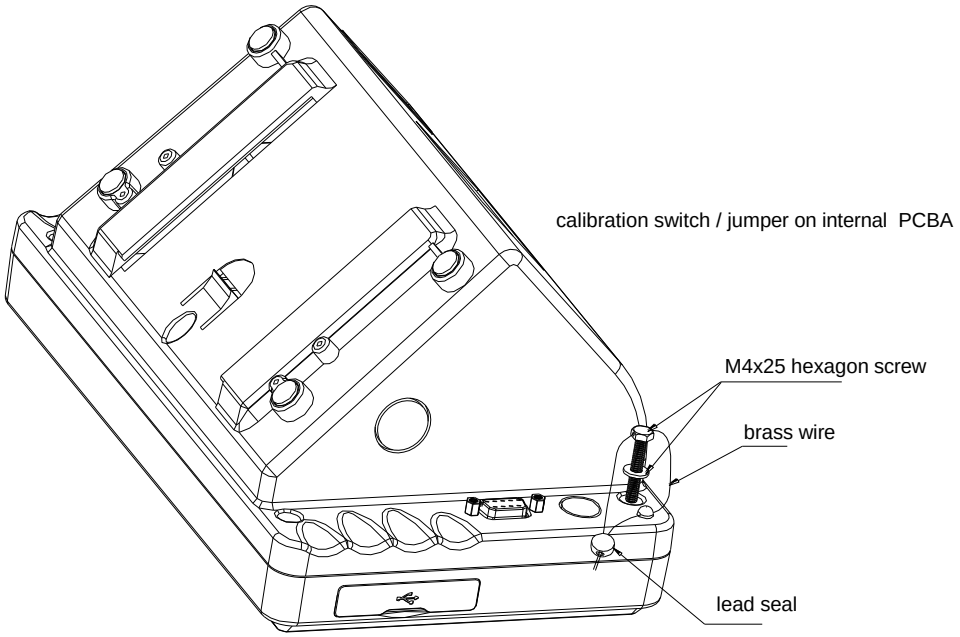

Figure 39 Sealing of B7-20 / B7-40 / B7-50 /B7-60 indicators with wire and seal (type A).

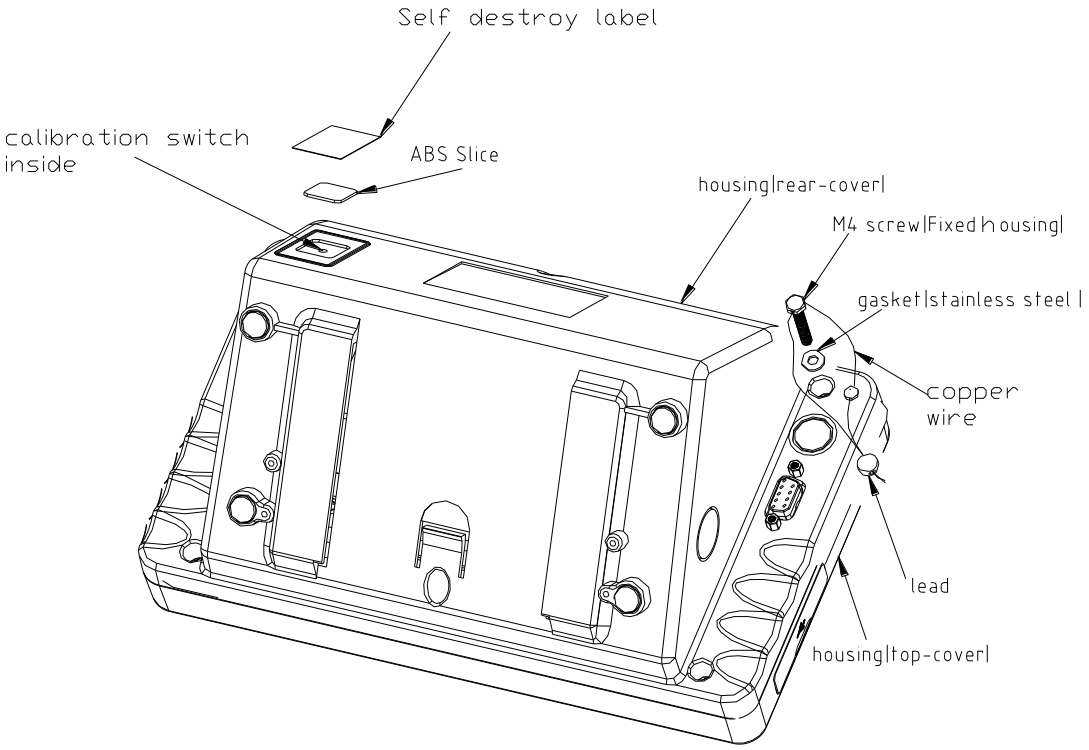

Figure 40 Sealing of B7-20 / B7-40 / B7-50 / B7-60 indicators with wire and seal (type B).

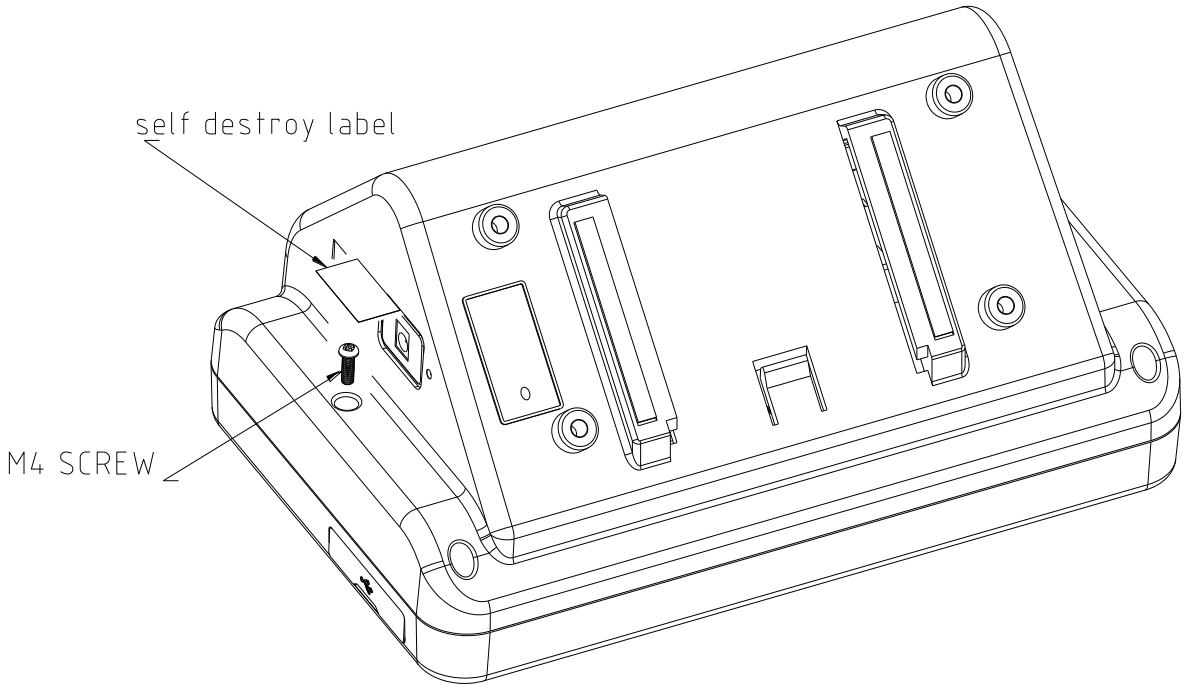

Figure 41 Sealing of C7-20 / C7-40 / C7-50 / C7-60 / C8-20 / C8-40 / C8-50/ C8-60 indicators with sticker.

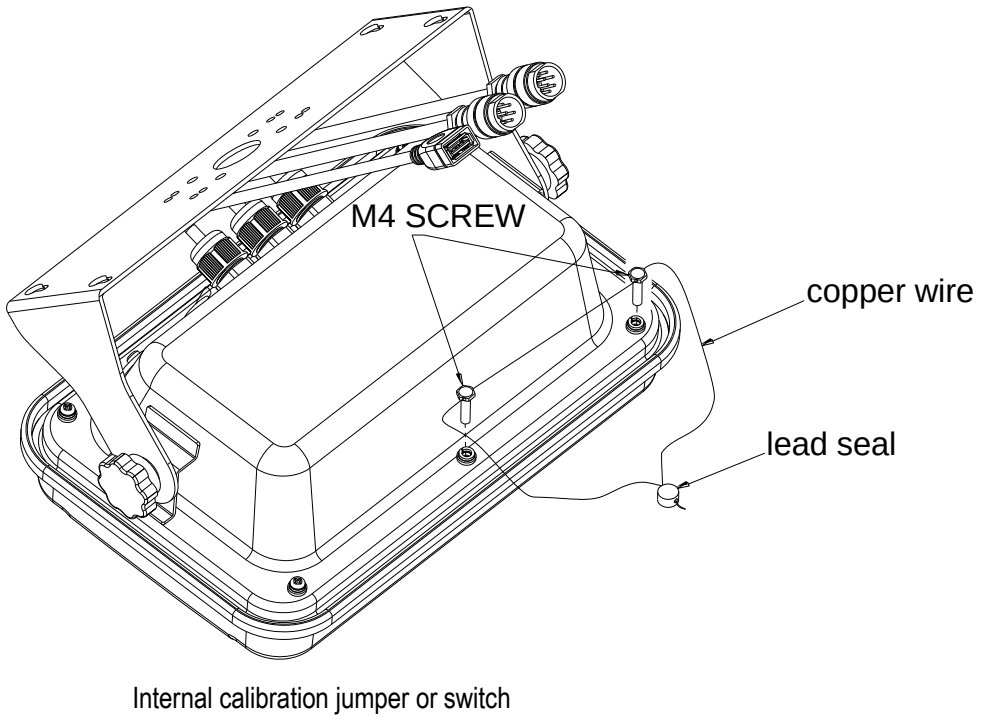

Figure 42 Sealing of S7-20 / S7-40 / S7-50 / S7-60 indicators with wire and seal (type A).

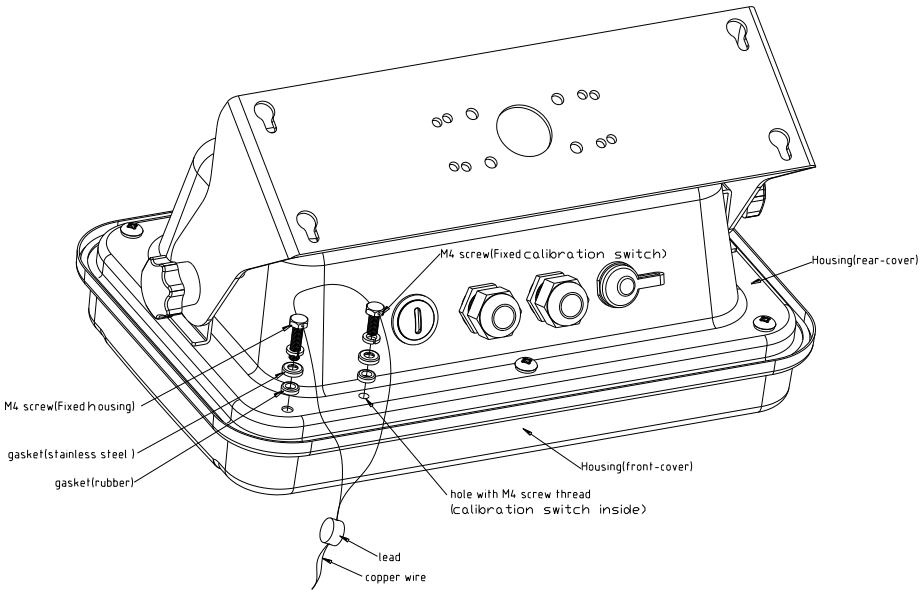

Figure 43 Sealing of S7-20 / S7-40 / S7-50 / S7-60 indicators with wire and seal (type B).

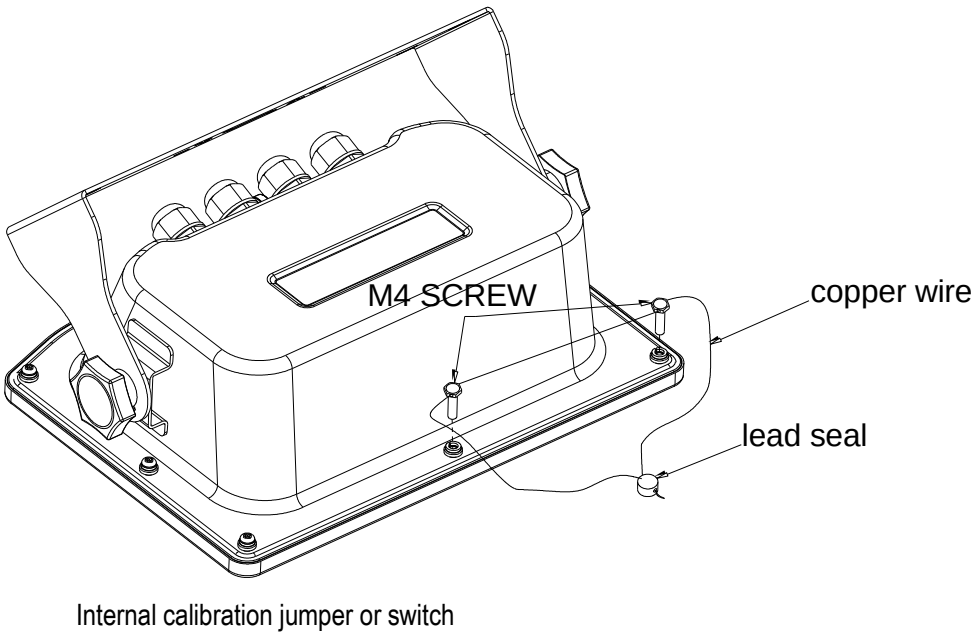

Figure 44 Sealing of NS7-20 / NS7-40 / NS7-50 / NS7-60 indicators with wire and seal.

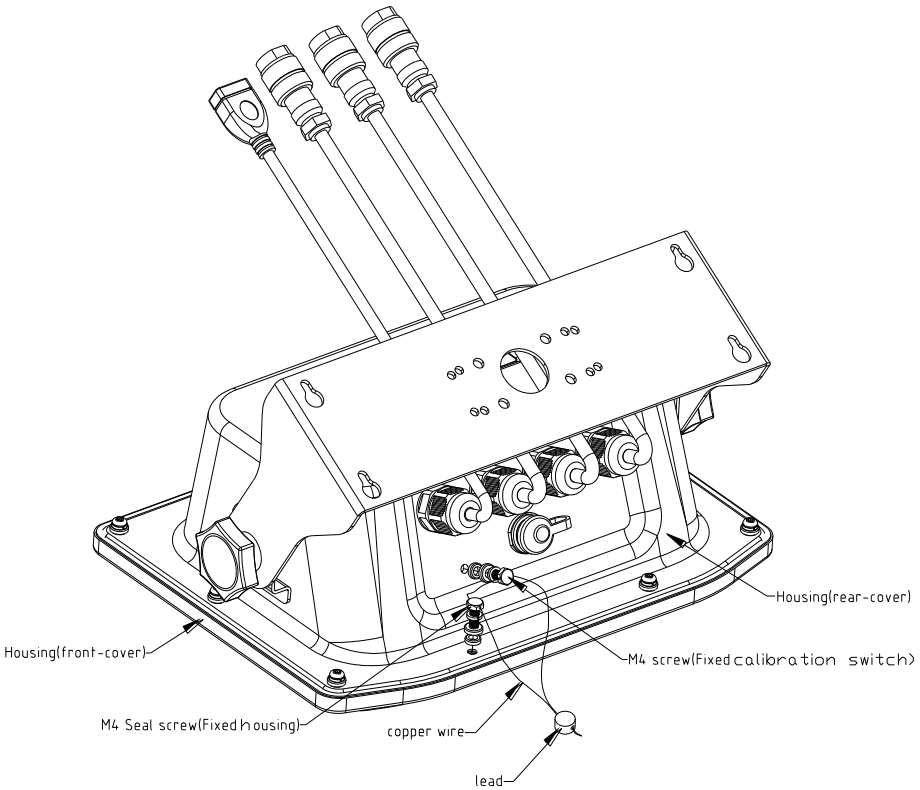

Figure 45 Sealing of NS7-20 / NS7-40 / NS7-50 / NS7-60 indicators with wire and seal.

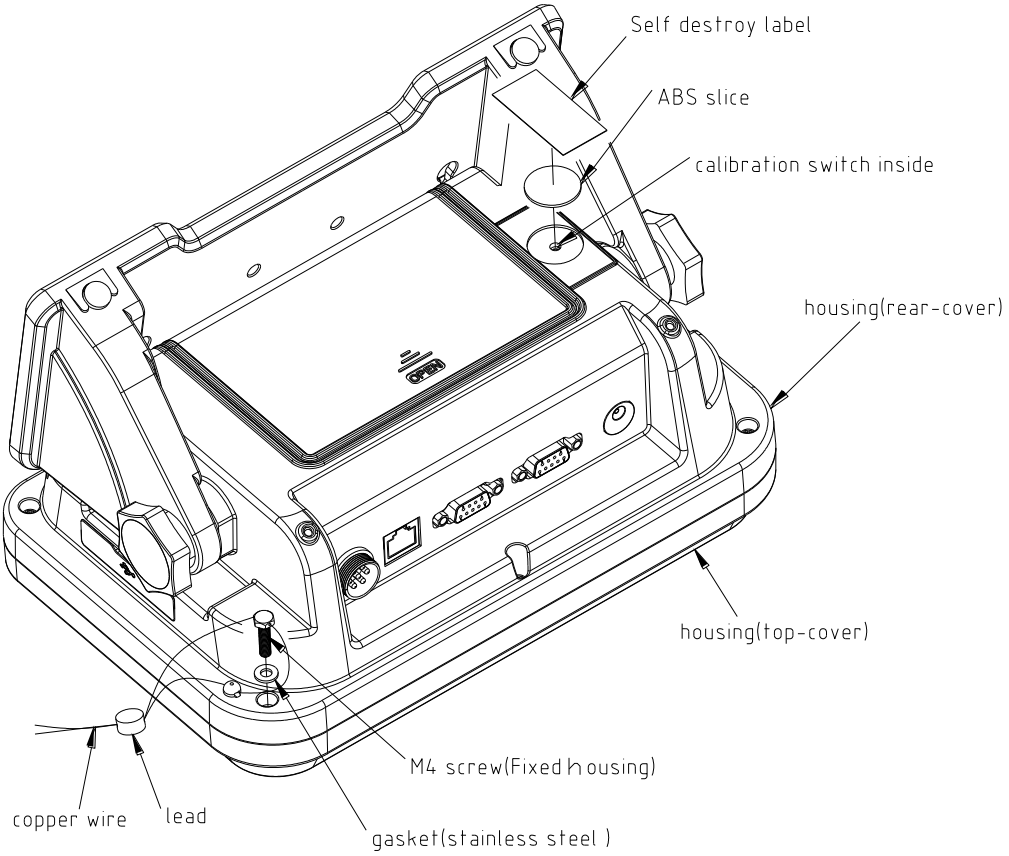

Figure 46 Sealing of T7-20 / T7-40 / T7-50 / T7-60 indicators with wire and seal.

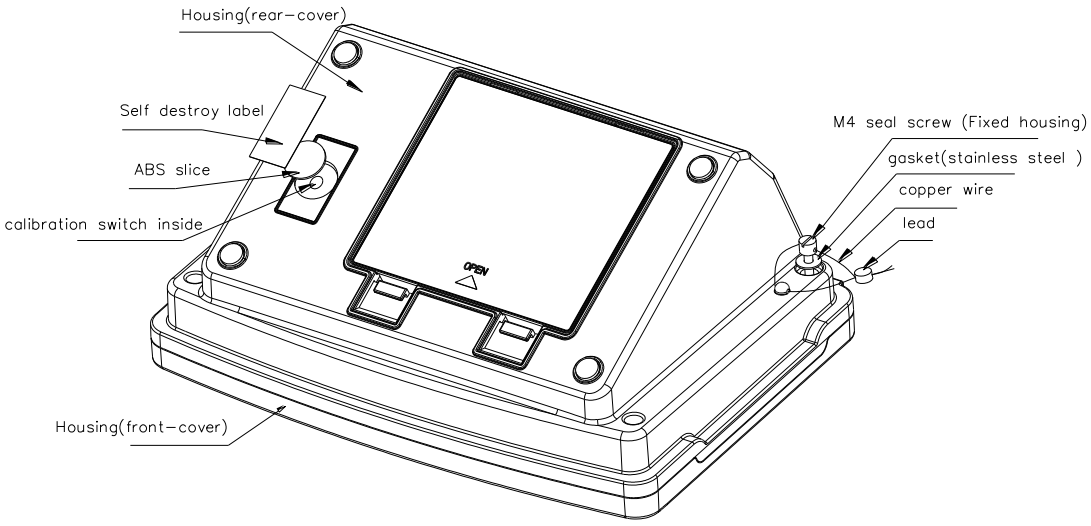

Figure 47 Sealing of U8-20 / U8-40 / U8-50 / U8-60 indicators with sticker plus wire and seal.

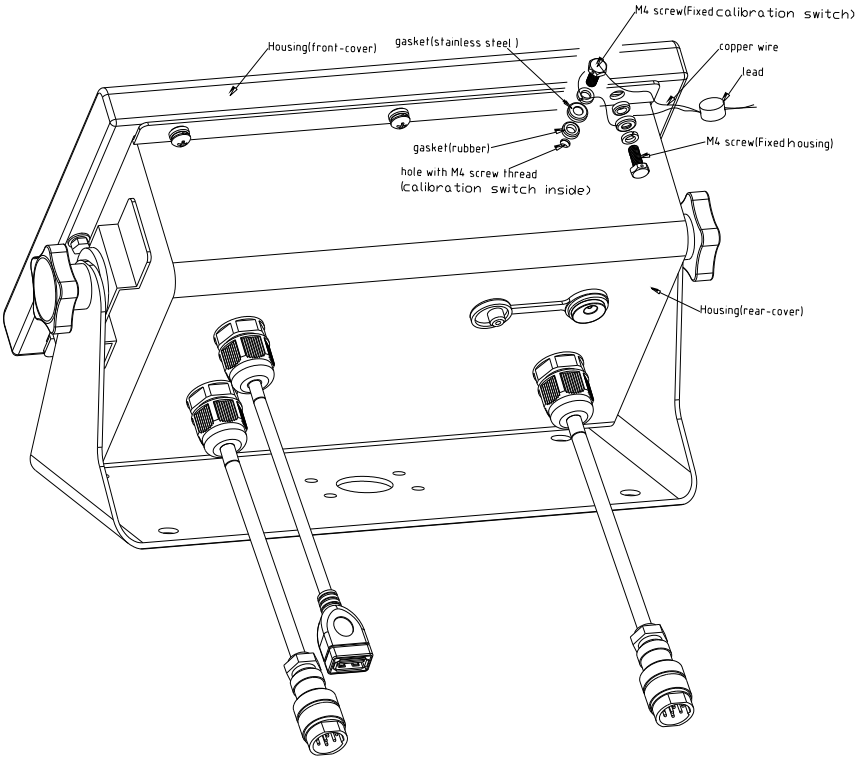

Figure 48 Sealing of CS7-20 / CS7-40 / CS7-50 / CS7-60 indicators with wire and seal.

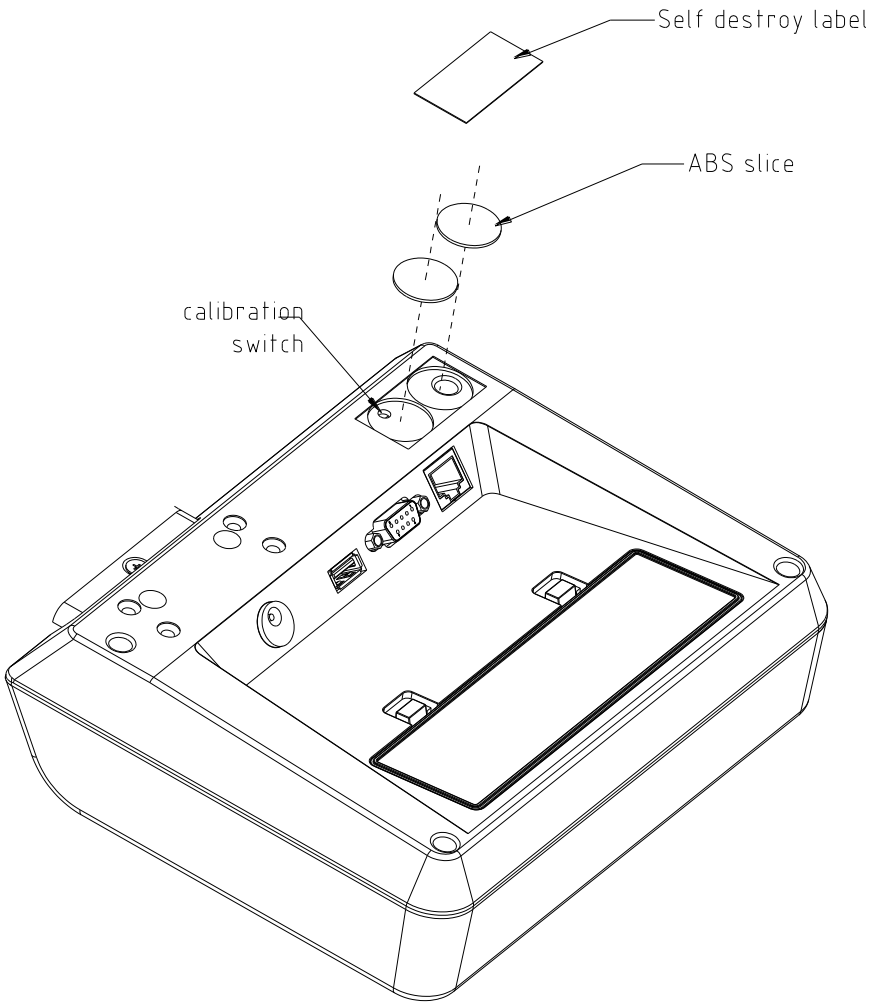

Figure 49 Sealing of M7-90 indicator with sticker.

10. Composition of modules – an example

COMPATIBILITY OF MODULES

Ref.: WELMEC 2

Non-Automatic Weighing Instrument, single-interval

Certificate of EU Type-Approval N°: TAC: DK0199.390

INDICATOR A/D (Module 1)	Type:	NS7-20				
Accuracy class according to EN 45501 and OIML R76:		$Class_{ind}$ (I, II, III or IIII)		III		
Maximum number of verification scale intervals (n_{max}):		n_{ind}		3000		
Fraction of maximum permissible error (mpe):		p_1		0,5		
Load cell excitation voltage:		U_{exc}	[Vdc]	5		
Minimum input-voltage per verification scale interval:		Δu_{min}	[µV]	1,5		
Minimum load cell impedance:		R_{Lmin}	[Ω]	87		
Coefficient of temperature of the span error:		Es	[% / 25°C]			
Coefficient of resistance for the wires in the J-box cable:		Sx	[% / Ω]			
Specific J-box cable-Length to the junction box for load cells:		$(L/A)_{max}$	[m / mm²]	580		
Load cell interface:		6-wire (remote sense)				
Additive tare, if available:		T^+	[% of Max]	0		
Initial zero setting range:		IZSR	[% of Max]	-10	/	10
Temperature range:		T_{min} / T_{max}	[°C]	0	/	40
Test report (TR), Test Certificate (TC) or OIML Certificate of Conformity:						
LOAD RECEPTOR (Module 2)	Type:					
Construction:		Platform				
Fraction of mpe:		p_2		0,5		
Number of load cells:		N		4		
Reduction ratio of the load transmitting device:		$R=F_M / F_L$		1		
Dead load of load receptor:		DL	[% of Max]	10		
Non uniform distribution of the load:		NUD	[% of Max]	20		
Correction factor:	$Q = 1 + (DL + T^+ + IZSR^+ + NUD) / 100$			1,4		
LOAD CELL ANALOG (Module 3)	Type:	H8C				
Accuracy class according to OIML R60:		$Class_{LC}$ (A, B, C or D)		C		
Maximum number of load cell intervals:		n_{LC}		3000		
Fraction of mpe:		p_3		0,7		
Rated output (sensitivity):		C	[mV / V]	2		
Input resistance of single load cell:		R_{LC}	[Ω]	350		
Minimum load cell verification interval:	$(v_{min\%} = 100 / Y)$	$v_{min\%}$	[% of Emax]	0,01		
Rated capacity:		E_{max}	[kg]	100		
Minimum dead load, relative:		$(E_{min} / E_{max}) * 100$	[%]	0		
Temperature range:		T_{min} / T_{max}	[°C]	-10	/	40
Test report (TR) or Test Certificate (TC/OIML) as appropriate:		TC8012				
COMPLETE WEIGHING INSTRUMENT		Single-interval				
Manufacturer: Tscale Electronics	Type:	NS7-20				
Accuracy class according to EN 45501 and OIML R76:		$Class_{WI}$ (I, II, III or IIII)		III		
Fractions: $p_i = p_1^2 + p_2^2 + p_3^2$:		p_i		1,0		
Maximum capacity:		Max	[kg]	150		
Number of verification scale intervals:		n		300		
Verification scale interval:		e	[kg]	0,5		
Utilisation ratio of the load cell:		$\alpha = (Max / E_{max}) * (R / N)$		0,38		
Input voltage (from the load cells):		$\Delta_u = C * U_{exc} * \alpha * 1000 / n$	[µV/e]	12,50		
Cross-section of each wire in the J-box cable:		A	[mm²]	0,22		
J-box cable-Length:		L	[m]	10		
Temperature range to be marked on the instrument:		T_{min} / T_{max}	[°C]	0	/	40
Peripheral Equipment subject to legal control:						

Acceptance criteria for compatibility				Passed, provided no result below is < 0	
$Class_{WI}$	<=	$Class_{ind}$ & $Class_{LC}$	(WELMEC 2: 1)	$Class_{WI}$:	PASSED
pi	<=	1	(R76: 3.5.4.1)	1 - pi =	0,0
n	<=	n_{max} for the class	(R76: 3.2)	n_{max} for the class - n =	9700
n	<=	n_{ind}	(WELMEC 2: 4)	n_{ind} - n =	2700
n	<=	n_{LC}	(R76: 4.12.2)	n_{LC} - n =	2700
E_{min}	<=	DL * R / N	(WELMEC 2: 6d)	(DL * R / N) - E_{min} =	3,75
$v_{min} * \sqrt{N} / R$	<=	e	(R76: 4.12.3)	e - (v_{min} * $\sqrt{N}$ / R) =	0,480
or (if v_{min} is not given)				Alternative solutions: ↑ ↓	
$(E_{max} / n_{LC}) * (\sqrt{N} / R)$	<=	e	(WELMEC 2: 7)	e - $((E_{max} / n_{LC}) * (\sqrt{N} / R))$ =	
Δu_{min}	<=	Δu	(WELMEC 2: 8)	$\Delta u - \Delta u_{min}$ =	11,00
R_{Lmin}	<=	R_{LC} / N	(WELMEC 2: 9)	(R_{LC} / N) - R_{Lmin} =	1
L / A	<=	$(L / A)_{max}^{WI}$	(WELMEC 2: 10)	$(L / A)_{max}^{WI}$ - (L / A) =	535
T_{range}	<=	T_{max} - T_{min}	(R76: 3.9.2.2)	(T_{max} - T_{min}) - T_{range} =	10
Q * Max * R / N	<=	E_{max}	(R76: 4.12.1)	E_{max} - (Q * Max * R / N) =	47,5

Signature and date:

Conclusion . . . . . PASSED

This is an authentic document made from the program: "Compatibility of NAWI-modules version 3.2".