EC Type-Approval Certificate

No. DK 0199.36 Revision 3

MCE9625
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   Eilersen Electric A/S
Kokkedal Industripark 4
2980 Kokkedal
Denmark

In respect of   Non-automatic weighing instrument designated
MCE9625B, L or G with variants of modules.
Accuracy class III
Maximum capacity, Max 0.1 kg up to 999,999 kg
Verification scale interval: $e = Max / n$
$nmax = 6000$ (depending on the compatibility of 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.

Note: This revised edition of the certificate extend the validation period by 10 years.

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

The annex comprises 17 pages.

Issued on   **2011-04-01**
Valid until   **2021-02-07**

Signatory: J. Hovgård

Descriptive annex

Contents   Page

1.   Name and type of instrument and modules

The instrument is a non-automatic weighing instrument, designated Eilersen Electric MCE9625, consisting of a Display module MCE9625B in the front (see Figure 1), a Connection unit MCE9623 at the rear (see Figure 2) and a microprocessor board sandwiched in between the MCE9625B and MCE9623, all mounted in a stainless steel enclosure (see Figure 2) and a load receptor equipped with digital load cell(s), and with each load cell communicating with the MCE9625 through its Digital load cell module MCE9610/MCE2010.

The total number of digital load cells connected to one MCE9625 through their digital load cell modules may not exceed 16.

In this way up to 16 load cell platforms can be connected to the MCE9625.

The digital load cell modules are connected to a dedicated RS485 port at the MCE9623 Connection unit.

Peripheral interfaces are provided at the Connection unit at the rear for connection to peripheral equipment, as appropriate.

The instrument is a class III, 24 Vdc powered, self-indicating weighing module with single-interval or multi-interval.

The instrument is produced in three versions:

- A basic version MCE9625B with limited capabilities consisting of the Display module alone with the Connection unit MCE9623 mounted in stainless steel housing.

- The MCE9625L (LED display) consisting of the MCE9625B Display module, the MCE9623 Connection unit and the microprocessor unit, all mounted in a stainless steel housing, and

- the MCE9625G (graphic LCD display) where the only difference is that the Display module MCE9625B is substituted by a graphic LCD unit.

The weighing instrument is composed of separate modules and units that are listed in the Sections 3.1 to 3.5; the principle of composition of modules is set out in Section 6.2.

2.   Description of the construction and function

2.1   Construction

2.1.1   Display module (see Figure 1 and 3)

The MCE9625B, L and G versions all having an IP 65 water resistant front panel mounted on a stainless steel enclosure which is closed at the rear with the Connection unit board (Figure 2).

All versions may be mounted in a stainless steel IP 65 / IP 67 enclosure (Figure 3) with a rear cover with cable glands for the cables.

A gasket provides tightness between the front and rear housing.

The front panel comprises:

For the MCE9625B and L:

- A Primary Weight display: Six digits, 7 segment LEDs.

- A Secondary Data and Parameter display: Six digits, 7 segment LEDs.

- Weighing unit annunciators, "kg", "g", (optionally "lb" and "oz").

- Two status annunciators placed at the >0< and the AT keys.

For the MCE9625G:

The functions of the abovementioned LED displays and LED annunciators are obtained by the implementation of an graphic LCD display unit and, as appropriate; the annunciator "x10".

For MCE9625B, L and G:

- Twenty five keys with the inscriptions: Start, Stop, Print, Shift, five Functions keys, >0<, AT,

- +/-, Enter, Del, decimal point and the numericals 0 to 9.
  By operating the Shift key five extra functions keys, four arrow keys, Ins key, Esc key and the Hex Numbers A to F may be obtained for use in a variety of application programs.

The rear side of the Connection unit MCE9623:

- Eight terminal blocks for: 24 Vdc power for the system, a dedicated RS485 for the high speed Digital load cell bus, RS485, RS422/485 (brought out on two terminal blocks) and dual RS232 for general purposes, three digital inputs and three digital outputs.
  A 64 pole DIN flat cable connector provides access to the abovementioned functions when the MCE 9625 is used in systems.

Electronics

The main PCB in the MCE9625L and G, which contains the micro-controllers for all the functions apart from the display function and connection function, is mounted in the stainless steel box between the display unit and the connection unit.

This main PCB handles all weighing functions and the application programs, where they are stored and handled by separate memory locations and functions separated from the weighing functions.

For very basic weighing functions only, the main PCB may be dispensed with, and the functions zero, tare and one digital input plus one digital output are handled by the LED Display module MCE9625B.

The only RS485 port available is used by the digital load cell bus.

2.1.2   Load receptors as modules

The load receptors are set out in Section 3.5.

2.1.3   Load cells as modules

The load cells are set out in Section 3.3 and 3.5.

2.1.4   Interfaces and peripheral equipment

Set out in Section 4.

2.1.5   Tilt sensor for scales mounted on trucks

Scales mounted on trucks shall use a tilt sensor type TS969 (see Figure 6) fixed mounted to the same construction as the load cells. The sensor consists of an insulated pendulum which contacts the grounded housing when tilted more than 5 %. The pendulum is damped by silicone oil which fills the housing. Two wires from the sensor are connected to the MCE9623 unit.

When contact is established between the pendulum and the housing, an input on the MCE9623 is activated, which in turn blanks the weight display.

The dimensions of the Tilt sensor housing: 150 mm x 60 mmø.

2.2   Function

The instrument is a microprocessor based electronic indicator for connection to load receptors with digital load cells with RS485 output and the Eilersen Electric load cell protocol. The instrument consists of a display unit in the front and a connection unit at the rear side of the stainless steel box containing the main PCB with the data processing microcontrollers and the resources for the serial ports and the digital I/O.

Inputs are provided for up to sixteen separate load receptors, but only one is displayed at a time. The individual digital load cells each have their own address, keyed in on DIP switches on the Digital load cell module(s) MCE9610/MCE2010 and the ID of the relevant load receptor may be displayed in the secondary LED display or in the dedicated area on the graphic LCD screen.

All variants of instruments have the same verified weighing software contents.

The Primary Weight Display on the LED version is only used to display weighing results and the secondary LED display is used for displaying parameters, error messages etc.

The Primary Weight area on the LCD display is in the same way used only to display weighing results and other information such as parameters, error codes, is displayed in a clearly separated display area of the LCD screen.

The functions provided are detailed below.

2.2.1   Power-up

On power-up, the MCE9625B and L first display the number 8 on all seven segment displays and all annunciators light up. Then the download bios date and version is shown followed by an indication on whether the checksum is correct.

If OK, "Start" is followed by installed program version with compilation date and time.

Next, after initial zero-setting, the Primary Weight is displayed.

The load receptor displayed is the one used prior to power-down or reset.

On power-up, the MCE9625G shows the download bios date and version followed by an indication on whether the checksum is correct.

2.2.2   Zero-setting

The instrument is equipped with a semi-automatic zero-setting device operated by the key marked >0< The semi-automatic zero device has a maximum effect of 4 % of Max.

The instrument is also equipped with an initial zero-setting device with the effect of +/- 10 % of Max.

Zero-setting is possible only when the load receptor is not in motion.

The annunciator besides the >0< key illuminates when the weight result is within 0.25 d of the zero-point.

2.2.3   Zero-tracking

The instrument is optionally equipped with a zero-tracking device, which operates up to 4 % (±2 %) of Max from the initial zero-setting, when the load receptor is not in motion and the indication is at zero, or shows a negative net value when the load receptor is empty. The corrections are not more than 0.5 e within one second, and the maximum step at a time is 0.5 e.

2.2.4   Tare

The instrument is equipped with a semi-automatic tare balancing device operated by the AT key.

2.2.4.1   Semi-automatic tare

A weighed value is entered as a tare by pressing the AT key. Repeated pressing causes the actual tare to be cleared and the new tare to be entered in its place. The tare is cancelled by pressing either the >0< key with no load on the load receptor or pressing the +/- key.

The secondary LED display or the dedicated area of the LCD display signals when the tare device is in operation.

The tare device is a subtractive tare device with maximum effect T = -Max.

When the instrument is used in multi range applications, Tare set in the higher weighing range will be cancelled when the indicator is switched to the lower weighing range.

2.2.5   High resolution of the weight value

Ten times higher resolution can be accessed. This feature is only intended as an aid during evaluation and testing. When high resolution is active, the indicator will not change weighing ranges but uses the same resolution from zero to max.

2.2.6   No-motion indication

The MCE9625 indicates no-motion by an optional no-motion annunciator, which extinguishes when the load receptor is in motion.

2.2.7   Keypad

The keypad has twenty-five keys with the inscriptions: Start, Stop, Print, Shift, five Functions keys, >0<, AT, +/-, Enter, Del, decimal point and the numericals 0 to 9.

By operating the Shift key five extra functions keys, four arrow keys, Ins key, Esc key and the Hex - Numbers A to F may be obtained for use in a variety of application programs.

The >0<, AT and +/- keys are for the basic weighing functions and the numerical, decimal point and plus-minus keys are for entering data. The rest of the keys have functions, which depends on the actual application program.

2.2.8   Printing

The MCE9625 has the possibility of controlling a standard RS232 or RS485 printer by activating the "Print" key, by a digital input or automatically through the application program.

2.2.9   Fault detecting

If an error is detected, a 4 digit hex error code is displayed in the primary weight display instead of a weighing result.

The error conditions monitored are:

0001   Sample ID missing, poor connection between Load cell module(s) and display

0002   Load cell time out, no load cell connected to module

0004   No load cell synchronisation, load cell error

0008   No synchronisation between load cell modules

000E   All of above error codes OR'ed together

0010   MCE9610/MCE2010 Load cell module nominal 24 VDC power below 18 VDC

0020   MCE9610/MCE2010 internal overflow error

0040   Latch ID wrong or missing

0080   Load cell module not answering

0400   Weight buffer overflow, weighing time too long

0800   No Load cell modules found

If the instrument is outside the zero range when ">0<" is keyed, an error code is displayed for 3 seconds: "Zero UL Err" when below zero range and "Zero OL Err" when above zero range.

After this, normal display is restored.

If the load is more than 9 d above the instrument capacity the error code OL is displayed, and if the load is more than 9 d below zero the error code UL is displayed.

2.2.10   Software version

Identification of the software version is performed during power-up (see Section 2.2.1).

2.3   Available options

2.3.1   Tilt sensing

If the instrument is equipped with the optional TS969 tilt sensor, a tilting of the instrument on more than 5 % will be detected and cause the display to flash or to be blanked.

3. Technical data

3.1 Display unit

Manufacturer	:	Eilersen Electric A/S
Versions	:	MCE9625B, L and G
Accuracy Class	:	III
Weighing ranges	:	Single-interval or multi-interval
Maximum number of verification scale intervals	:	6000 with the Load cell type SD (see Section 3.3)
Internal resolution	:	24 bit
Maximum tare effect	:	-Max
Operating temperature range	:	-10 °C / +40 °C
Power supply	:	24 Vdc ± 10 %, 2 A
Peripheral interfaces	:	Set out in Section 4

3.2 Digital load cell module MCE9610/MCE2010

The Digital load cell module is connected to the Digital load cell by a standard RG58 coaxial cable with a standard BNC connector at the module end, the cable Digital load cell module and the coded pulse signal from the load cell to the module.

The digital load cell module converts the coded pulse signal to the actual load on the load cell expressed in g with an exponent of 10.

3.3 Digital load cell type SD

The digital load cell SD (see Figure 5) is a module, the characteristics of which appear from the OIML certificate R60/2000-DK-00.01.

3.4 Connection cable between MCE9625 and MCE9610/MCE2010

Connecting cable for the RS485 connection between the MC9625 and the MCE9610/MCE2010 Digital load cell module(s) should be a shielded 2 x 2 twisted pair 0.22 - 0.50 mm² data cable, which may be up to 500 m long.

3.5 Load receptors, load cells and load receptor supports

Digital load cell(s) with RS485 made by Eilersen Electric may be used for instruments under this certificate of type approval provided the following conditions are met:

1) There is a respective OIML Certificate of Conformity (R60) or a test certificate (EN 45501) 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), 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.

3.6 Load receptor mounted on truck

Dimensions	According to dimensions of the truck
Capacities	From 3000 kg up to 36000 kg
Number of load cells	4, 6, 8 or 10
Construction, in brief	The load cells are positioned on the chassis of the truck on supporting brackets. The load is transferred to the load cells by means of mounting kits welded or bolted to the load receptor.
Reduction ratio	1
Load cells	SSBM65, SSBM5000 or SDM
Junction box	Mounted on the Chassis
Drawings	see Figure 7 and 8

3.7 Composition of modules

At the composition of modules, EN 45501 paragraph 3.5 and 4.12 shall be satisfied.

4. Interfaces and peripheral equipment

4.1 Interfaces

The MCE9625B, L and G have one RS485 interface reserved for the digital load cell bus and the MCE9625L and G have respectively three and four additional peripheral interfaces designated RS485/422, AUX (RS485) and RS232 (with two channels), which allow peripheral equipment to be connected.

These additional interfaces are characterised "Protective interfaces" according to paragraph 8.4 in the Directive.

The interfaces may be connected to

a) Non-verified peripheral equipment, not used for legal transactions.

b) Non-verified peripheral equipment used for legal transactions, if the indicator is also connected to a Verified Printer, which prints any legal transaction for the purpose of documentation and receipt (tally roll records).

c) Non-verified peripheral equipment used for legal transactions, and as documentation for legal transactions, the transactions are recorded in alibi memory and can be printed out.

d) Verified peripheral equipment used for legal transactions.

The RS485 AUX channel is a 115.2 or 230.4 Kb interface with a protocol optimised for the digital load cells.

The additional RS485 and RS422 interfaces are configured according to the relevant standards and the actual application.

The RS232 channels are standard RS232 bidirectional interfaces, 1200 to 115200 Baud, 7 or 8 data bits and even or odd or no parity. The RS232 ports may be used as general purpose data communication interfaces under the control of application software, but the most common use of RS232-A is for software debug and loading and RS232-B is used for weight data.

4.1.1 Specification of connecting cables to peripheral equipment

The RS485 cables are shielded 2 x 2 twisted pairs with a cross section corresponding to the actual distance.

The RS232 interface cables are shielded, four wire, 0.22 - 0.5 mm².

4.2 Peripheral equipment

4.2.1 Printers authorised to legal transactions

The instrument may be connected to any simple recipient printer with a CE mark of conformity (see WELMEC 2). A printer like this may be used for legal transactions.

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 Retaining of tally roll records

Conditions for retaining of tally roll records as documentation for legal transactions carried out using non-verified peripheral equipment are not covered by this type approval as no common rule is adopted by the member states as yet. It is up to the national authority to decide on these conditions until a common rule is adopted.

5.3 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 Removable Platforms

For instruments liable to be tilted, Section 3.9.1 of the Standard EN 45501 applies.

The digital tilt sensor type DT10 may be connected to the load cell bus through a Digital load cell module MCE9610/MCE2010 fitted with tilt-compensating software.

6.2   Scales mounted on trucks.

For scales mounted on the trucks, section 3.9.1 of the Standard EN 45501 applies.

6.3   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 5.3.

An example of a declaration of conformity for the composition of modules 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   Display module

The Display module is sealed by means of brittle plastic stickers inscribed with verification mark of a notified body. Any attempt to remove the cover plate will result in damage to the seal.

Alternatively, the sealing may be achieved by means of a lead wire seal placed through the holes in the cover plate mounting screws.

7.1.2   Display module – load cell connector – load receptor

Securing of the display unit, load cell receptor and load cell combined is done by one of the following ways:

- Sealing of the load cell connector with the Load cell module by lead wire seal or plastic brittle sticker on the enclosure containing the load cell module.

- Inserting the serial number of the load cell receptor as part of the principle inscriptions contained on the Display module identification label.

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

7.1.3   Box for Digital load cell module(s) MCE9610/MCE2010

Access to the box is, if it is separate and not a part of a sealed enclosure, prevented by means of sealing by plastic stickers or lead seals.

7.1.4   Peripheral interfaces

All peripheral interfaces are "protective"; they neither allow manipulation of 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   Display Module

A green M-sticker and a sticker with verification marks are placed on left side of the enclosure.

7.2.2   Printers used for legal transactions

Printers according to Section 4.2.1 shall bear a green M-sticker, if they are used for legal transaction.

7.2.3   Non-verified peripheral equipment

If such equipment is connected to the weighing instrument, it shall bear a red M-sticker.

8.   Location of CE mark of conformity and inscriptions

8.1   Display module

8.1.1   CE mark

A sticker with the CE mark of conformity and year of production is placed on the left side of the MCE9625.

8.1.2   Inscriptions

On the front of the Display module the following is inserted on a rating plate above the primary Weight Display:

- Max, Min, e =, accuracy class, serial number, certificate no. and type designation.

On the front panel are the following inscriptions:

- Manufacturer's name and the type designation.

8.2   Load receptors

On a rating plate:

- Manufacturer's name, type designation, serial number, Max.

9. Pictures

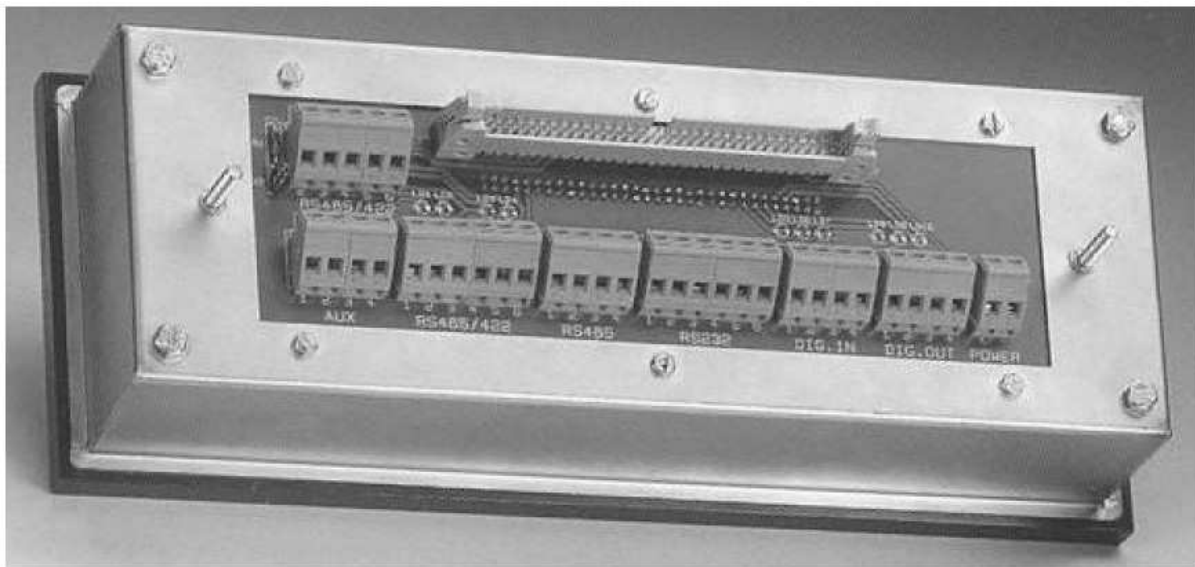Figure 1. MCE9625L or B Display module.

Figure 2. MCE9623 Connection unit.

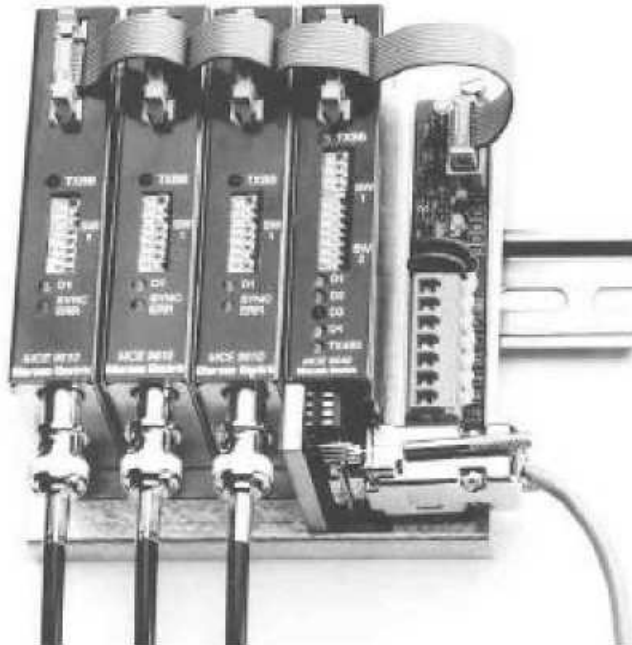Figure 3. MCE9625G. Display module in IP 65 / 67 enclosure.

Figure 4. MCE9610/MCE2010 Digital load cell modules.
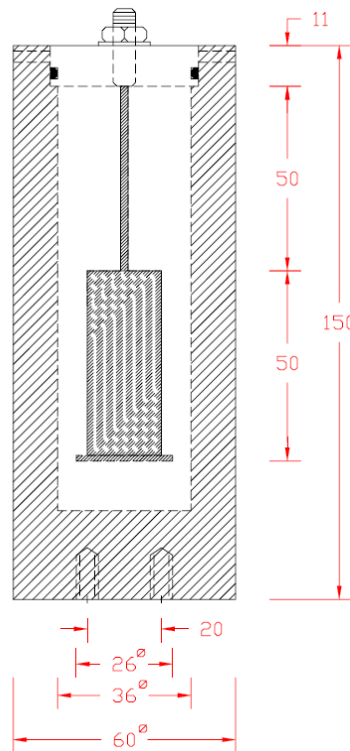
Figure 5. Digital load cell type SD.
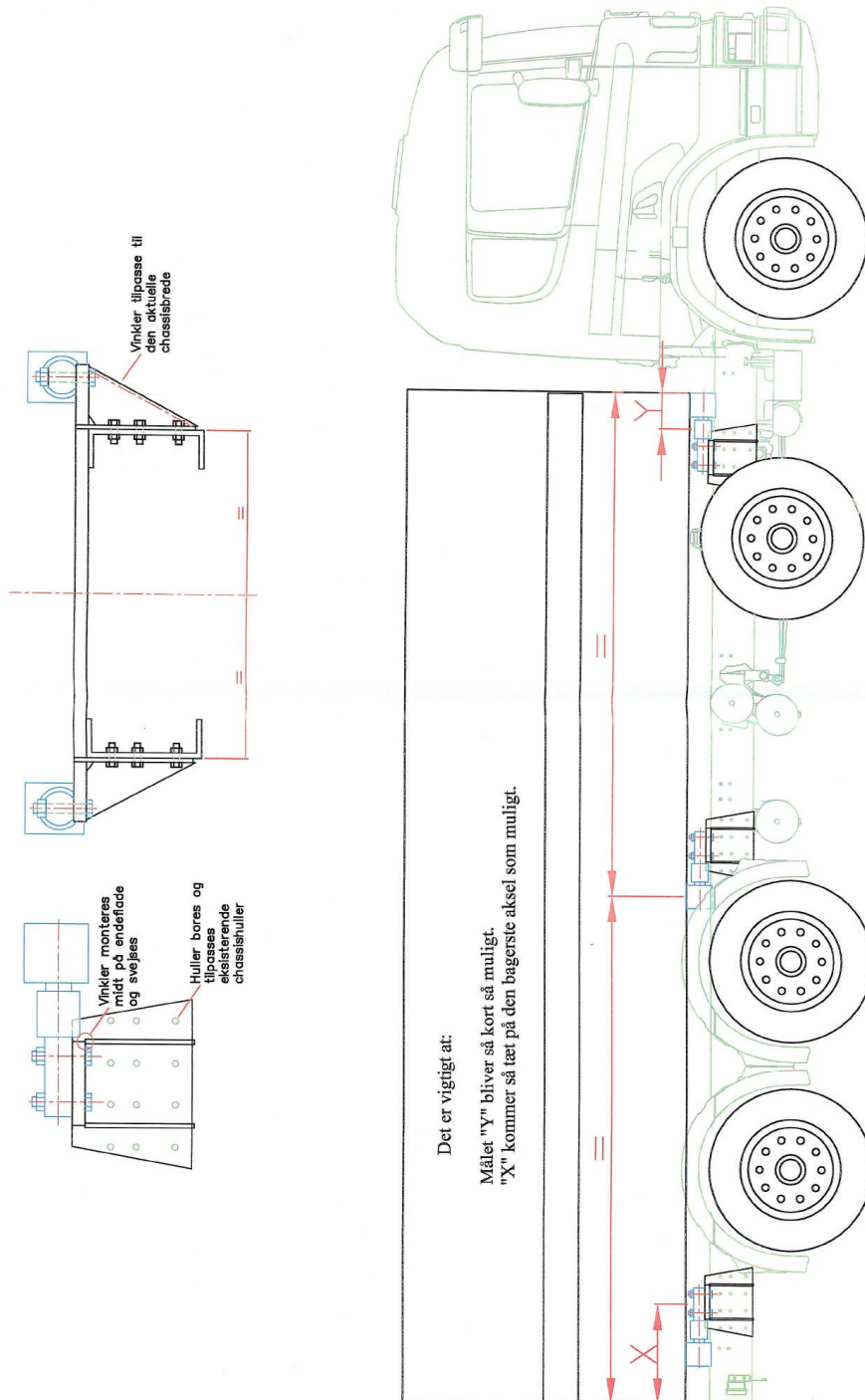

Figure 6. TS969 tilt sensor.

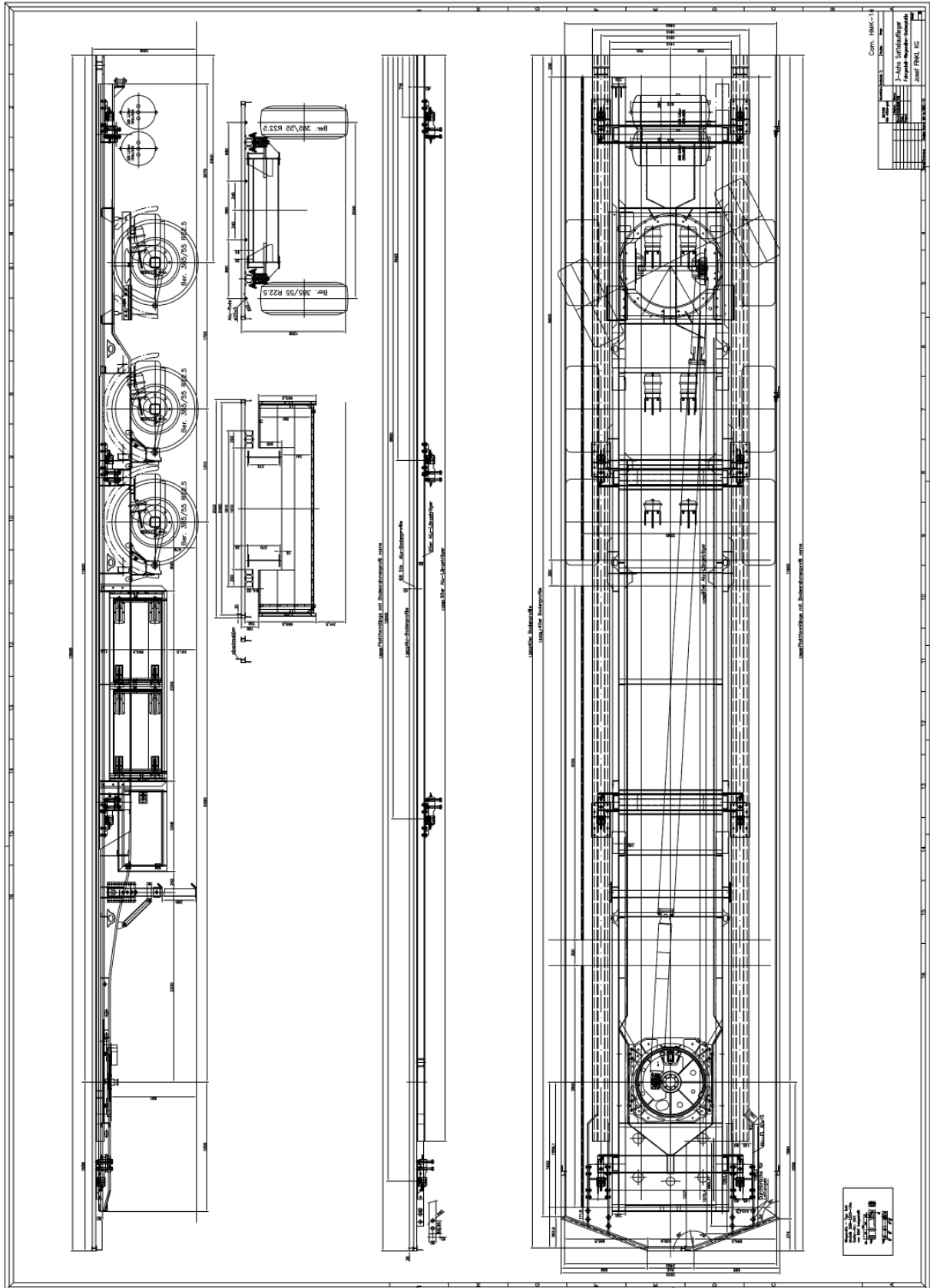Figure 7. Load receptor construction for scales mounted on trucks.

Figure 8. Load receptor construction for scales mounted on trucks/trailers.

10. Composition of modules - illustrated

COMPATIBILITY OF MODULES
Ref.: WELMEC 2
Non-Automatic Weighing Instrument, multi-interval.

Certificate of EU Type-Approval N°:				TAC:	DK0199.36

DISPLAY MODULE (digital)	(Module 1)	Type:		MCE9625L	
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} or lower):		n_{ind}			6000
Fraction of maximum permissible error (mpe):		p_1			0
Load cell excitation voltage:		U_{exc}	[Vdc]		Not applicable (N/A)
Minimum input-voltage per verification scale interval:		Δu_{min}	[µV]		N/A
Minimum load cell impedance:		R_{Lmin}	[Ω]		N/A
Coefficient of temperature of the span error:		Es	[% / 25°C]		N/A
Coefficient of resistance for the wires in the J-box cable:		Sx	[% / Ω]		N/A
Specific J-box cable-Length to the junction box for load cells:		$(L/A)_{max}$	[m / mm²]		N/A
Load cell interface:					N/A
Additive tare, if available:		T^+	[% of Max]		0
Initial zero setting range:		IZSR	[% of Max]	-10 /	10
Temperature range:		T_{min} / T_{max}	[°C]	-10 /	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]		25
Non uniform distribution of the load:		NUD	[% of Max]		20
Correction factor:	$Q = 1 + (DL + T^+ + IZSR^+ + NUD) / 100$				1,55

LOAD CELL	**DIGITAL** (Module 3)	Type:		SD	
Accuracy class according to OIML R60:		$Class_{LC}$ (A, B, C or D)			C
Maximum number of load cell intervals:		n_{Lc}			6000
Fraction of mpe:		p_3			0,8
Rated output (sensitivity):		C	[mV / V]		Digital output
Input resistance of single load cell:		R_{LC}	[Ω]		Not applicable
Minimum load cell verification interval:	($v_{min\%} = 100 / Y$)	$v_{min\%}$	[% of Emax]		0,0013
Rated capacity:		E_{max}	[kg]		50
Minimum dead load, relative:		$(E_{min} / E_{max}) * 100$	[%]		0
Minimum dead load output return:	($DR_\% = 50 / Z$)	$DR_\%$	[% of Emax]		0,005
Temperature range:		T_{min} / T_{max}	[°C]	-10 /	40
Test report (TR) or Test Certificate (TC/OIML) as appropriate:		R60/2000-DK-00.01			

COMPLETE WEIGHING INSTRUMENT			**Multi-interval**		

Manufacturer:	Eilersen Electric A/S	Type:		MCE9625L		
Accuracy class according to EN 45501 and OIML R76:		$Class_{WI}$ (I, II, III or IIII)			III	
Fractions: $p_i = \sqrt{p_1^2 + p_2^2 + p_3^2}$		p_i			0,9	
Maximum capacity:		Max	[kg]	>>>>>>>>>>>>>>>		50
Maximum capacity for each partial weighing range:		$Max_1 / Max_2 / Max_3$	[kg]	10	25	50
Number of verification scale intervals for each weighing range:		$n_1 / n_2 / n_3$		2000	2500	2500
Verification scale interval for each weighing range:		$e_1 / e_2 / e_3$	[kg]	0,005	0,01	0,02
Utilisation ratio of the load cell:		$\alpha = (Max_i / E_{max}) * (R / N)$		0,05	0,13	0,25
Input voltage (from the load cells):		$\Delta_u = C * U_{exc} * \alpha * 1000 / n$	[µV/e]		Not applicable (N/A)	
Cross-section of each wire in the J-box cable:		A	[mm²]	>>>>>>>>>>>>>>>		N/A
J-box cable-Length:		L	[m]	>>>>>>>>>>>>>>>		N/A
Temperature range to be marked on the instrument:	Not required	T_{min} / T_{max}	[°C]			
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**		
p_i	<=	1	(R76: 3.5.4.1)	$1 - p_i$ = >>>>>>>>>>>>>>>			0,1
n_i	<=	n_{max} for the class	(R76: 3.2)	n_{max} for the class - n_i =	8000	7500	7500
n_i	<=	n_{ind}	(WELMEC 2: 4)	$n_{ind} - n_i$ =	4000	3500	3500
n_i	<=	n_{LC}	(R76: 4.12.2)	$n_{LC} - n_i$ =	4000	3500	3500
E_{min}	<=	$DL * R / N$	(WELMEC 2: 6d)	$(DL * R / N) - E_{min}$ =	3,125 <<<<<<<<<<<<<<<		
$v_{min} * \sqrt{N} / R$	<=	e_i	(R76: 4.12.3)	$e_i - (v_{min} * \sqrt{N} / R)$ =	0,004	0,009	0,019
or (if v_{min} is not given)				Alternative solutions:	↑ ↓		
$(E_{max} / n_{LC}) \cdot (\sqrt{N} / R)$	<=	e_i	(WELMEC 2: 7)	$e_i - ((E_{max} / n_{LC}) * (\sqrt{N} / R))$ =			
Δu_{min}	<=	Δu	(WELMEC 2: 8)	$\Delta u - \Delta u_{min}$ =	N/A	N/A	N/A
R_{Lmin}	<=	R_{LC} / N	(WELMEC 2: 9)	$(R_{LC} / N) - R_{Lmin}$ = >>>>>>>>>>>>>>>			N/A
L / A	<=	$(L / A)_{max}$	(WELMEC 2: 10)	$(L / A)_{max} - (L / A)$ = >>>>>>>>>>>>>>>			N/A
T_{range}	<=	$T_{max} - T_{min}$	(R76: 3.9.2.2)	$(T_{max} - T_{min}) - T_{range}$ =			20
$Q* Max * R / N$	<=	E_{max}	(R76: 4.12.1)	$E_{max} - (Q * Max * R / N)$ = >>>>>>>>>>>>>>>			30,6
$DR_\%$	<=	$50 * e_1 / Max$	(WELMEC 2: 6b)	$(50 * e_1 / Max) - DR_\%$ =	0,0000 <<<<<<<<<<<<<<<		
or (if $DR_\%$ is not given)				Alternative solutions:	↑ ↓		
Max / e_1	<=	n_{Lc}	(WELMEC 2: 6b)	$n_{LC} - (Max / e_1)$ =			

Signature and date:

Conclusion . . . . .   **PASSED**

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