

EU Type Examination Certificate

No. 0200-MID-04998

Scaletronic 330

AUTOMATIC CATCHWEIGHING INSTRUMENT

Issued by **FORCE Certification**
EU - Notified Body No. 0200

In accordance with the requirements for the automatic weighing instruments in Directive 2014/32/EU of the European Parliament and Council of February 26, 2014 on Measuring Instruments (MID).

Issued to **Scaletronic ApS**
Meterbuen 6
2740 Skovlunde
Denmark

In respect of Automatic catchweighing instrument designated Scaletronic 330 with variants of modules of load receptors, load cells and peripheral equipment.
Accuracy class Y(a).
Maximum capacity 50 to 1500 kg.
Verification scale interval: $e \geq 0.02$ kg
Maximum number of verification scale intervals: $n = 3000$
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 and the specific requirements in Annex VIII (MI-006), chapter I & II of the Directive 2014/32/EU is met by the application of OIML R51-1:2006, WELMEC Guide 7.2:2015 and WELMEC Guide 8.16-1:2013.

Note: This certificate is a revised version of DK0199.533

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

The annex comprises 10 pages.

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FORCE Certification references:

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Descriptive annex

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1. Name and type of instrument and modules

The automatic catchweighing instruments designated Scaletronic 330 are dynamic catchweigher class Y(a) intended for the weighing of post or freight parcels. It consists of an electronic weighing indicator and a separate load receptor made as a belt or roller conveyor.

The modules appear from Sections 3.1, 3.2, and 3.3; 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 1020 weighing indicator

The weighing indicator of the SCALETRONIC 330 catchweigher is Penko's 1020 weigh controller (Evaluation Certificate DK0199-R51-14.02) for conversion of the analogue load cells.

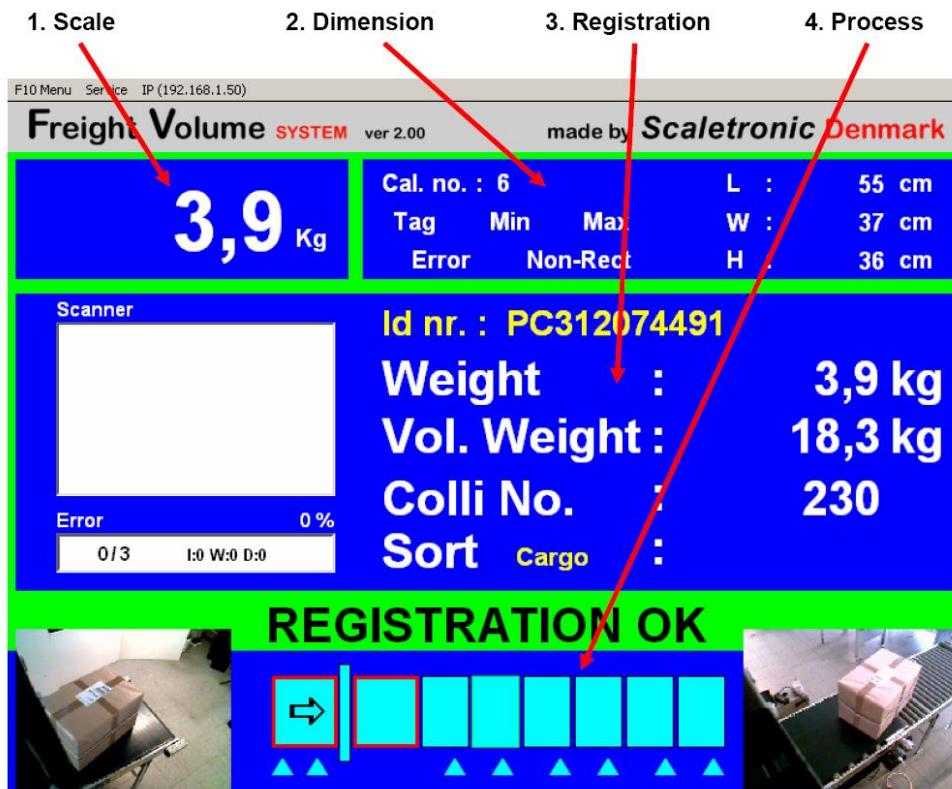
The module is specified in Section 3.2.

The weighing results are transmitted via a RS232 communication line to the combined secondary display and alibi unit.

2.1.2 Secondary display and data storage device

A PC running Scaletronic's 'Freight Volume System' program shall always be used as a secondary display and data storage device.

The weighing result is shown in the upper left corner of the screen, and the border around the result has the following meaning, green: OK, yellow: weight below Min, red: error.



2.1.3 Load cells

Set out in Section 3.3.

2.1.4 Load receptor

Set out in Section 3.4.

2.1.5 Interfaces and peripheral equipment

Set out in Section 4.

2.2 Functions

2.2.1 Functions and devices

The automatic catchweighing instrument has the following permitted functions and devices:

- Self-test function
- Initial zero-setting – within 20 % of Max
- Semi-automatic zero-setting – within 4 % of Max
- Automatic zero-setting – within 4 % of Max
- Zero-tracking – within 4 % of Max
- Semi-automatic tare – up to 100 % of Max
- Preset tare – up to 100 % of Max
- Printing device
- Extended resolution
- Real Time Clock
- Data storage device - Alibi memory

SW counter

New software version can be downloaded into the 1020 indicator without breaking the physical sealing. Therefore, 1020 has a non-resettable SW-counter, which increments each time a new software version is downloaded.

TAC counter

The 1020 indicator has a non-resettable TAC counter, which increments each time the legal relevant part of the setup is changed.

CAL counter

The 1020 indicator has a non-resettable CAL counter, which increments each time a calibration is performed.

Event log

The 1020 indicator has an event log in which all system events are logged with a time stamp.

Software version

The 1020 indicator has software separation. All the legal relevant software is contained in a dll-file, which integrity is checked at start up. Version, time stamp, and checksum of the dll-file can be viewed in 'Main Menu' -> 'Certified Info'.

The tested legal relevant software version is:

- . Ver. 1.0.0.91
- Date: 6-2-2014 15:23:31
- Checksum: 11A9167A

The non-legally relevant software versions, serial number, and hardware versions can be viewed in 'Main Menu' -> 'Info'.

Software version of 'Freight Volume System' is 2.00.

3. Technical data

The automatic catchweighing instruments and its modules are set out as follows:

3.1 Scaletronic 330 automatic catchweighing instrument

Accuracy class:	Y(a)
Maximum capacity (Max):	50 kg to 1500 kg
Minimum capacity for postal/freight use (Min):	5×e
Minimum capacity for all other use (Min):	20×e
Verification scale interval (e):	$e \geq 0.02$ kg
Weighing range:	Single-interval
Number of Verification Scale Intervals (n):	≤ 3000
Maximum tare effect:	≤ 100 % of Max
Temperature range:	-10 °C to 40 °C
Weighing mode:	dynamic
Automatic zero setting:	between each weighing, if sufficient time available
Maximum time between automatic zero-setting:	50 minutes
Minimum warm-up time ¹⁾ :	29 minutes for $e < 1.0$ μV, 12 minutes for $e \geq 1.0$ μV
Electromagnetic class:	E2
Humidity:	Non-condensing
Conveyor speed	≤ 56 m/min

¹⁾ Unless automatic zero-setting is performed as part of every weighing cycle.

3.2 Weighing indicator

The weighing indicator has the following characteristics:

Type:	1020
Temperature range:	-10 °C to 40 °C
Accuracy class:	III
Weighing range:	Single-interval
Maximum number of Verification Scale Intervals:	10000
Maximum tare effect:	-Max
Fractional factor:	$\pi = 0.5$
Minimum input-voltage per VSI:	0.4 μ V
Minimum signal voltage for dead load:	0 mV
Excitation voltage:	5Vdc
Maximum input voltage:	11 mV for range 2 mV/V 16.5 mV for range 3 mV/V
Circuit for remote sense:	Active
Minimum input impedance:	43.75 ohm
Maximum input impedance:	1200 ohm
External mains power supply:	230 Vac
Peripheral interface:	Set out in Section 4

3.2.1 Connecting cable between the Weighing indicator and Junction box for load cells

Line:	6 wires (sensing), shielded
Maximum length:	2147 m/mm ²

3.3 Load cells

3.3.1 General acceptance of modules

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

- 1) There is a respective part / evaluation / test certificate (EN 45501) or an OIML Certificate of Conformity (R60) issued for the load cell by a Notified Body responsible for type examination under the Directive 2014/31/EU.
- 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 2:2015), 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.

3.4 Load receptors

The load receptor of Scaletronic 330 has either a built-in belt conveyor or a built-in roller conveyor. Both load receptors use 4 load cells.

3.5 Composition of modules

In case of composition of modules, EN 45501:2015 annex F shall be satisfied.

4. Interfaces and peripheral equipment

4.1 Interfaces

The weight indicator is equipped with one or more of the following protective interfaces:

- USB
- Ethernet
- Digital I/O
- Analog output (optional)
- CAN bus (optional)
- RS232/RS422 (optional)
- Profibus (optional)

The interfaces are characterised “Protective interfaces” according to Section 8.1 in the Directive 2004/22/EC annex I and do not have to be secured.

4.2 Peripheral equipment

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

The instrument may be connected to any simple recipient printer with a CE mark of conformity.

5. Approval conditions

5.1 Connection of cables

All cables shall be shielded, and the shield shall be properly EMC wise connected to the housing / connector in both ends.

5.2 Compatibility of modules

In case of composition of modules, EN 45501:2015 annex F shall be satisfied.

6. Special conditions for verification

6.1 Composition of modules

The alibi memory device shall be installed in the weighing indicator.

The composition of modules shall agree with Section 5.2.

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

7. Securing and location of seals

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, module F or D of Directive 2014/32/EU.

Access to the configuration and calibration facilities of the 1020 weighing controller is secured by a TAC counter and a CAL counter. The legally relevant software is secured by a SW counter. The value of the three counters shall be marked on the instrument at time of verification.

The electronic of the 1020 indicator shall be protected against exchange by sealing of the enclosure against opening with brittle stickers.

7.1.1 Mechanical sealing

The identification plate shall be secured against removal with a brittle plastic sticker.

7.1.2 Junction box for load cells

Access to the junction box, if any, is prevented by means of sealing by plastic stickers or lead seals.

8. Location of CE mark of conformity and inscriptions

8.1 Identification plate

All inscriptions for the instrument shall be placed on the identification plate, which is to be located on a clearly visible place on the instrument.

8.1.1 CE mark and metrological M

A CE mark of conformity and for the metrological M with year of production shall be grouped together and located on the identification plate.

8.1.2 Inscriptions

The identification plate shall bear the following inscriptions:

- Manufacturer's trademark and / or name
- Postal address of manufacturer
- Type designation
- Serial number
- Max, Min and $e=$ (these shall additional be duplicated near the display unless the description plate is located near the display)
- Accuracy class
- Conveyer speed
- Temperature range: -10 / +40 °C
- Electromagnetic class: E2
- Humidity: Non-condensing
- Type examination certificate number

9. Pictures



Figure 1 The 1020 weighing controller.



Figure 2 Load receptor with belt conveyor for Scaletronic 330.



Figure 3 Load receptor with roller conveyor for Scaletronic 330.

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: 0200-MID-04998

INDICATOR

A/D (Module 1)

Type: 1020

Accuracy class according to EN 45501 and OIML R76:
 Maximum number of verification scale intervals (n_{max}):
 Fraction of maximum permissible error (mpe):
 Load cell excitation voltage:
 Minimum input-voltage per verification scale interval:
 Minimum load cell impedance:
 Coefficient of temperature of the span error:
 Coefficient of resistance for the wires in the J-box cable:
 Specific J-box cable-Length to the junction box for load cells:
 Load cell interface:
 Additive tare, if available:
 Initial zero setting range:
 Temperature range:

Class _{ind} (I, II, III or IIII)	III
n_{ind}	10000
p_1	0,5
U_{exc} [Vdc]	5
ΔU_{min} [μV]	0,4
R_{Lmin} [Ω]	43,75
E_s [% / 25°C]	
S_x [% / Ω]	
$(L/A)_{max}$ [m / mm ²]	2147
6-wire (remote sense)	
T^+ [% of Max]	0
IZSR [% of Max]	-10 / 10
T_{min} / T_{max} [°C]	-10 / 40

Test report (TR), Test Certificate (TC) or OIML Certificate of Conformity: DK0199-R51-14.02

LOAD RECEPTOR

(Module 2)

Type: Conveyor belt resting on weigh table

Construction:
 Fraction of mpe:
 Number of load cells:
 Reduction ratio of the load transmitting device:
 Dead load of load receptor:
 Non uniform distribution of the load:
 Correction factor:

p_2	0,5
N	4
$R = F_M / F_L$	1
DL [% of Max]	25
NUD [% of Max]	20
$Q = 1 + (DL + T^+ + IZSR^+ + NUD) / 100$	1,55

LOAD CELL

ANALOG (Module 3)

Type: Utilicell M300

Accuracy class according to OIML R60:
 Maximum number of load cell intervals:
 Fraction of mpe:
 Rated output (sensitivity):
 Input resistance of single load cell:
 Minimum load cell verification interval: ($v_{min\%} = 100 / Y$)
 Rated capacity:
 Minimum dead load, relative:
 Temperature range:
 Test report (TR) or Test Certificate (TC/OIML) as appropriate:

Class _{LC} (A, B, C or D)	C
n_{LC}	3000
p_3	0,7
C [mV / V]	2
R_{LC} [Ω]	400
$v_{min\%}$ [% of Emax]	0,01
E_{max} [kg]	100
$(E_{min} / E_{max}) * 100$ [%]	0
T_{min} / T_{max} [°C]	-10 / 40

COMPLETE WEIGHING INSTRUMENT

Single-interval

Manufacturer: Scaletronic

Type: Scaletronic 330

Accuracy class according to EN 45501 and OIML R76:

Fractions: $p_i = p_1^2 + p_2^2 + p_3^2$:
 Maximum capacity:
 Number of verification scale intervals:
 Verification scale interval:
 Utilisation ratio of the load cell:
 Input voltage (from the load cells):
 Cross-section of each wire in the J-box cable:
 J-box cable-Length:
 Temperature range to be marked on the instrument: Not required
 Peripheral Equipment subject to legal control:

Class _{WI} (I, II, III or IIII)	III
p_i	1,0
Max [kg]	60
n	1200
e [kg]	0,05
$\alpha = (Max / E_{max}) * (R / N)$	0,15
$\Delta_u = C * U_{exc} * \alpha * 1000 / n$ [$\mu V / e$]	1,25
A [mm ²]	0,22
L [m]	5
T_{min} / T_{max} [°C]	

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)	$1 - p_i$	=	0,0
n	<=	n_{max} for the class (R76: 3.2)	n_{max} for the class - n	=	8800
n	<=	n_{ind} (WELMEC 2: 4)	$n_{ind} - n$	=	8800
n	<=	n_{LC} (R76: 4.12.2)	$n_{LC} - n$	=	1800
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)	$e - (v_{min} * \sqrt{N} / R)$	=	0,030
or (if v_{min} is not given)			Alternative solutions:		
$(E_{max} / n_{LC}) * (\sqrt{N} / R)$	<=	e (WELMEC 2: 7)	$e - ((E_{max} / n_{LC}) * (\sqrt{N} / R))$	=	0,85
ΔU_{min}	<=	Δu (WELMEC 2: 8)	$\Delta u - \Delta U_{min}$	=	56
R_{Lmin}	<=	R_{LC} / N (WELMEC 2: 9)	$(R_{LC} / N) - R_{Lmin}$	=	56
L / A	<=	$(L / A)_{max}^{WI}$ (WELMEC 2: 10)	$(L / A)_{max}^{WI} - (L / A)$	=	2124
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)	$E_{max} - (Q * Max * R / N)$	=	76,8

Signature and date:

Conclusion PASSED

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