



**Ministry of Business,  
Innovation & Employment**  
Wellington, New Zealand

# CERTIFICATE OF APPROVAL

## Weights and Measures Regulations 1999 Part 1 Regulations 5 and 6

Current Date of Issue: 06 January 2020  
Original Date of Issue: 06 January 2020

### Certificate 2351

This certifies that the ScaleLogic SXS and SXM Series, Instrument described overleaf has been approved as suitable for trade use subject to any conditions stated in the schedule:

Figure 1 - Model SXS and SXM Basework (with no weigh platter)



Model SXS Series (Stainless Steel construction)



Model SXM Series (Mild Steel construction)

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Under delegated authority from the Chief Executive of The Ministry of Business, Innovation & Employment

*Note: This is not an approval to any person but only with respect to the type and pattern of weight, measure, or weighing or measuring instrument.*

## SCHEDULE

<b>Pattern:</b>	NAWI – Bench & Counter Type
<b>Make:</b>	ScaleLogic
<b>Model:</b>	SXS and SXM Series
<b>Submitter:</b>	ScaleLogic Limited (AP 74.0)
<b>Maximum Capacity (Max):</b>	30 kg ≤ Max ≤ 300 kg
<b>Minimum Capacity:</b>	20e
<b>Verification Scale Interval:</b>	≥ 0.01 kg (n = 3000 max)
<b>Class:</b>	III
<b>Load Receptors:</b>	See Table 1

<b>Conditions of Approval:</b>	<ol style="list-style-type: none"><li>1. Where any other approved compatible indicator is used, the indicator must the Criteria detailed in this certificate</li><li>2. Instruments shall carry a notice stating NOT TO BE USED FOR TRADING DIRECT WITH PUBLIC, or similar wording</li><li>3. Subject to condition '2', instrument when used for trading direct with public must be located such that all primary indications and the weighing platform are clearly and simultaneously visible to both the vendor and the customer. If the display is mounted separately, it shall be located in a clear visual relationship and proximity to the weighing platform.</li><li>4. Trading Standards reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.</li></ol>
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### Description:

The ScaleLogic Model model SXS & SXM Series (Figure 1 and 2) are a Class III non-automatic, self-indicating weighing instrument with a maximum capacity as detailed below in Table 1. The instruments are either configured as a single range or multi-range.

NOTE: The model number has a suffix of numerical characters that relate to the dimension of the load receptor.  
For example SXM3040 has a load receptor (weigh platter) size of 300 x 400 mm.

### CONSTRUCTION DETAILS:

#### Basework:

Instruments have load receptor directly supported by a single point load cell. The basework is either constructed of stainless steel or mild steel and is supported on four adjustable rubber feet. SXS represents Stainless Steel construction and SXM represents Mild Steel construction.

The weigh platter is larger than the actual base frame. See Table 1 for more details.

#### Load Cells:

A single point Zemic Type L6G or a BM6G load cell is used. The load cells are tested in accordance to OIML R60, Table 2A and 2B gives technical specifications.

#### NOTE:

The Emax capacity of the load cell used depends on the weighing instruments maximum capacity and must meet the following:

(i) Correction factor (Q) > 1

$$Q = ( \text{Max} + \text{DL} + \text{IZSR} + \text{NUD} + \text{T+} ) / \text{Max}$$

Max = maximum capacity of instrument

DL = dead load of the load receptor (including any attachments/mechanism)

NUD = 20% of Max Cap of the weighing instrument

T+ = additive tare (if applicable)

$$(ii) E_{\text{max}} \geq Q \times \text{Max} \times R/N$$

E<sub>max</sub> = Load cell maximum cap

Q = Correction factor (see above)

Max = maximum cap of instrument

R = Reduction ratio = 1 (for complete load cell instrument)

N = number of load cells

$$(iii) E_{\text{min}} \leq \text{DL} \times R/N$$

E<sub>min</sub> = load cell minimum capacity

DL = Dead load of the load receptor (including any attachments/mechanism)

R = Reduction ratio = 1

N = number of load cells

(iv) Minimum Verification interval for the load cell (V<sub>min</sub>):

When configuring the instrument, the minimum value of the verification interval for the load cell (V<sub>min</sub>) must be  $\leq e/\sqrt{N}$ , (where 'e' = verification scale interval of the weighing instrument, and 'N' = total number of load cells).

**Indicator:**

A Rinstrum X320 digital indicator is used, the indicator is described in the certificate of approval #1736.

Note: Any other Trading Standards approved compatible indicator may be used and must meet the criteria detailed in this certificate.

The indicator is mounted on a column or it may also be located separately.

Criteria to use an approved compatible indicator – The conditions to be met are:

a) The excitation voltage used is within the range approved for the basework

b) The maximum load applied to the basework (live load plus any dead load does not exceed the load cell maximum capacity)

c) The verification scale interval is not less than the minimum value specified

d) The number of verification scale intervals is less than or equal to the n max specified. In the case of multi-interval or multiple range instruments, the number of verification scale intervals refers to the largest number in any weighing range or partial weighing range (i.e. the largest of Max1/e1, Max2/e2 etc).

e) The signal voltage per verification scale interval is not less than the minimum sensitivity value per verification scale interval for the indicator (as specified in the approval document / technical specifications of the indicator).

i.e. Indicator Sensitivity  $\leq (1000 \times E_x \times \text{LC\_Sens} \times e) / (N \times E_{\text{max}})$ , where

E<sub>x</sub> = Excitation from indicator (V)

LC\_Sens = load cell sensitivity (mV/V)

e = verification scale interval of the instrument (kg)

N = number of load cells

Indicator Sensitivity = Minimum sensitivity value per verification scale interval for the indicator (µV)

Additional requirement for multiple range operation: In the case of indicators which are configured to form a multiple range weighing instrument the instrument shall comply with one of the following conditions:

(i) The smallest verification scale interval (e1) shall satisfy the following:

$$e1 \geq 0.4 \times \text{Max}_r / n\text{LC}$$

(ii) Or, the smallest verification scale interval (e1) shall satisfy the following:

$$e1 \geq \text{DR} \times \text{Max}_r / E_{\text{max}}$$

Note: condition (ii) cannot apply where a value of 'Deadload return' DR is not given.

### ZERO SETTING DEVICES:

The Initial zero setting device has a nominal range of not more than 20% of the maximum capacity of the instrument.

Semi-automatic zero setting: The Instrument has a semi-automatic zero setting device (zero button) with a nominal range of not more than 4% of the maximum capacity of the instrument.

Zero-tracking:

Zero-tracking operates provided that the instrument is within range of not more than 4% of its capacity.

### METROLOGICAL MARKINGS:

A plate, which carries the metrological markings must be affixed to the side of the instrument.

Manufacturer's name	.....
Serial number	.....
Accuracy class	....
Pattern approval No	<b>TS 2351**</b>
Max cap*	.....
Temperature Range	.....
Min cap*	.....
Verification scale interval*	.....
Tare capacity	....

\*These markings shall also be shown near the display.

\*\* Approval number TS 2351 must be shown near the display along with approval number of the indicator.

The markings below are to be affixed to the load cell.

Manufacturer's name	.....
Model number	.....
Serial number	.....
Pattern approval number	.....
Maximum capacity Emax	.....
Class	.....

**Components:**

- Zemic Type L6G load cell; or
- Zemic Type BM6G load cell

**Sealing:** As required on the approved indicator.

**Mark of Verification:** The sealing must carry a mark of verification.

**Levelling:** Instruments are provided with adjustable feet and a level indicator (underneath the weigh platter\*). Adjacent to the level indicator must be a notice stating 'instrument must be level when in use' or similar wording.  
(\* ) Instruments with a permanently fixed weigh platter must have a level bubble fixed in a visible location.

Figure 2 - Model SMS4050-60 (with oversized platter of 600 x 600 mm)



TABLE 1 - Configuration Details (Single Range and Multi-Range)

Model	Max Capacity	Verification Scale Interval (e)	Load Cell model	BASE Dimensions (mm)	Load receptor size (Weigh platter) mm
SXM3040-30	30	0.01	L6G	240*340	300*400
SXM3040-60	60	0.02	L6G	240*340	300*400
SXM3040-150	150	0.05	L6G	240 * 340	300*400
SXM3040-300	300	0.1	L6G	240 * 340	300*400
SXM5060-60	60	0.02	L6G	440 * 540	500*600
SXM5060-150	150	0.05	L6G	440 * 540	500*600
SXM5060-300	300	0.1	L6G	440 * 540	500*600
SXM5060-60150	60/150	0.02/0.05	L6G	440*540	500*600
SXM5060-150300	150/300	0.05/0.1	L6G	440 * 540	500*600
SXS4050-30	30	0.01	BM6G	340 * 440	400*500
SXS4050-60	60	0.02	BM6G	340 * 440	up to 600*600 oversized platter
SXS4050-150	150	0.05	BM6G	340 * 440	400*500
SXS4050-300	300	0.1	BM6G	340 * 440	400*500
SXS4050-1530	15/30	0.005/0.01	BM6G	340 * 440	400*500
SXS4050-3060	30/60	0.01/0.02	BM6G	340 * 440	up to 600*600 oversized platter
SXS4050-60150	60/150	0.02/0.05	BM6G	340 * 440	400*500
SXS4050-150300	150/300	0.05/0.1	BM6G	340 * 440	400*500

**TABLE 2A - ZEMIC TYPE L6G Load Cell Specifications**

Accuracy class acc. to OIML R60			C3	C3	C4
Output sensitivity	RO	mV/V	2,0 ± 0,2		
Maximum capacity	E <sub>max</sub>	kg	50 / 100	150 / 200 / 250 / 300 / 500 / 600	
Max. number of load cell intervals	n <sub>LC</sub>		3000	3000	4000
Ratio of maximum capacity to min. load cell verification interval	Y = E <sub>max</sub> / v <sub>min</sub>	1)	12000	12000	15000
Minimum dead load	E <sub>min</sub>		0		
Safe overload		% · E <sub>max</sub>	150		
Excitation, recommended		V	5 - 12		
Excitation, maximum		V	18		
Zero balance		% · RO	≤ ± 2		
Input resistance	R <sub>LC</sub>	Ω	409 ± 6		
Output resistance	R <sub>out</sub>	Ω	350 ± 3		
Insulation impedance		MΩ	≥ 5000		
Cable length			nach Kundenwunsch / according to the user		
Temperature range, compensated		°C	- 10 ... + 40		
Temperature range, operating		°C	- 35 ... + 65		
Transducer material			Aluminium / aluminium		
Atmospheric protection (DIN 40.050 / EN 60.529)			Adhesive silicone rubber (IP65)		
Maximal platform size, recommended		mm <sup>2</sup>	600 x 600		

1) Smaller values of Y are possible, the value is indicated on the load cell

**TABLE 2B - ZEMIC TYPE BM6G Load Cell Specifications**

Genauigkeitsklasse nach OIML R60 Accuracy class acc. to OIML R60			C3	C3_MR	C4 MR
Nennwert Rated output	RO	mV/V	2.0 ± 0.2		
Nennlast Maximum capacity	E <sub>max</sub>	kg	10 / 20 / 50 / 100 / 150 / 200 / 300 / 400 / 500		10 / 20 / 50 /
Anzahl der Teilungswerte Max. number of load cell intervals	n <sub>LC</sub>		3000		4000
Mindestteilungswert d. Wägezelle Min. load cell verification interval	v <sub>min</sub>		E <sub>max</sub> / 10000	E <sub>max</sub> / 20000	E <sub>max</sub> / 40000
Vorlastsignallrückkehr Minimum dead load output return (MDLOR)	DR		½ E <sub>max</sub> / 6000		
Mindestvorlast Minimum dead load		% · E <sub>max</sub>	0		
Grenzlast Safe load limit		% · E <sub>max</sub>	150		
Nullsignaltoleranz Zero balance		% · RO	< ± 2.0		
Empfohlene Speisespannung Excitation voltage, recommended		V	5 – 12 DC		
Maximale Speisespannung Excitation voltage, maximum		V	18 DC		
Eingangswiderstand Input resistance	R <sub>LC</sub>	Ω	350 ± 3,5		
Ausgangswiderstand Output resistance	R <sub>out</sub>	Ω	350 ± 3,5		
Isolationswiderstand Insulation resistance		MΩ	≥ 5000 (50VDC)		
Nenntemperaturbereich Compensated temperature range		°C	- 10 ... + 40		
Werkstoff Load cell material			rostfreier Stahl / Stainless steel 1.4548		
Schutzart nach DIN 40050 Protection according to DIN 40 050			IP68 / IP69K		
Schutz vor Umwelteinflüssen Environmental Protection			hermetisch gekapselt / hermetically sealed		
Empf. Anzugsmoment d. Schrauben Torque on fixation screws		Nm	10 – 50 kg: 10	100 – 500 kg: 20	