



Australian Government
Department of Industry,
Innovation and Science

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 6/14G/12

Issued by the Chief Metrologist under Regulation 60
of the
National Measurement Regulations 1999

This is to certify that an approval for use for trade has been granted in respect of the instruments herein described.

Scale Components Model SC4000 Automatic Catchweighing Instrument

submitted by SCACO Pty Ltd
(formerly Scale Components Pty Ltd)
4 Dan Street
Slacks Creek QLD 4127.

NOTE: This Certificate relates to the suitability of the pattern of the instrument for use as a legal measuring instrument only in respect of its metrological characteristics. This Certificate does not constitute or imply any guarantee of compliance by the manufacturer or any other person with any requirements regarding safety.

This approval has been granted with reference to document NMI R 51, *Automatic Catchweighing Instruments*, dated August 2009.

This approval becomes subject to review on 1/09/15, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern provisionally approved – interim certificate issued	22/08/05
1	Pattern & variants 1 & 2 approved – interim certificate issued	20/07/06
2	Pattern & variants 1 & 2 approved – certificate issued	8/11/06
3	Pattern & variants 1 & 2 amended (address) – variant 3 approved – interim certificate issued	12/11/10
4	Pattern & variants 1 & 2 reviewed & amended (address) – variant 3 approved – certificate issued	6/12/10

Document History (cont...)

Rev	Reason/Details	Date
5	Variant 4 approved – certificate issued	28/09/12
6	Certificate amended (name) and variants 5 & 6 approved – interim certificate issued	1/05/19
7	Variants 5 & 6 approved – certificate issued	01/10/19

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI (or NSC) 6/14G/12' and only by persons authorised by the submitter.

It is the submitter's responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the National Measurement Institute (NMI) and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act and may result in cancellation or withdrawal of the approval, in accordance with document NMI P 106.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificates No S1/0/A or No S1/0B.

This approval shall NOT be used in conjunction with General Certificate No 6B/0.

Signed by a person authorised by the Chief Metrologist to exercise their powers under Regulation 60 of the *National Measurement Regulations 1999*.



Darryl Hines
Manager
Policy and Regulatory
Services

TECHNICAL SCHEDULE No 6/14G/12

1. Description of Pattern **provisionally approved on 22/08/05**
approved on 8/11/06

A Scale Components model SC4000 class Y(a) automatic catchweighing instrument (Figures 1 and 2) with a maximum capacity of 40 kg, a verification scale interval of 0.02 kg and a minimum capacity of 0.4 kg which is approved for use to weigh objects while in motion. The system is approved with conveyor speeds up to a maximum of 35 m/min.

1.1 Details

The Scale Components SC4000 class Y(a) automatic catchweighing instrument (Figure 1) comprises:

- (a) The Systec model IT8000 indicator using version IT CHECK 3.1b software.
- (b) The Scale Components model SC4000 weighing unit on which the centre conveyor forms the weighing platform. The weighing platform has maximum nominal dimensions of 900 x 615 mm.
- (c) Infeed and outfeed conveyors and three Allen Bradley model Powerflex4 AC drive controllers, or other compatible controllers, which run the conveyors.

A label printing system may also be included.

The weighing platform and optical sensors are connected to the Systec model IT8000 indicator (Figure 2) which filters the weight values to arrive at the final weight value.

1.2 Operation

The system is designed to operate in dynamic weighing mode. A static mode is available for calibration purposes when the conveyor is stopped.

Optical sensors connected to the IT8000 provide information regarding the position of the package on the conveyor. The sensors signal the beginning of weighing operations once the package arrives on the weighing receptor.

An object to be weighed moves from the infeed conveyor onto the weighing platform conveyor and is weighed while in motion. After weighing, the object continues onto the outfeed conveyor and the weight data is displayed on the IT8000 indicator and provided to a label printer or computer system for invoicing purposes.

1.3 Indicator

A Systec model IT8000 digital indicator running version IT CHECK 3.1b software is used (Figure 2). It displays the weight (in kg). This indicator is also described in the documentation of approval NSC S439.

1.3.1 Zero

The instrument has a semi-automatic zero-setting device with a nominal range of not more than 4% of the maximum capacity of the instrument.

The instrument has a zero tracking device which maintains the zero reading whenever the load receptor is empty and within the zero setting range.

1.4 Weighing and Conveyor System

The weighing unit contains four Revere Transducers model SHBxR load cells of 50 kg maximum capacity.

The conveyor system comprises separate infeed and outfeed conveyors (Figure 1) and an associated electric motor drive arrangement for each conveyor. Optical sensors are provided, located alongside the conveyors, which signal the position of the item on the conveyors.

1.5 Item Separation

Suitable means shall be provided in an installation of this instrument to ensure that incorrect measurements do not occur due to items being provided to the instrument without adequate spacing. This may be through methods such as:

- Provision of infeed arrangements to prevent occurrence of such situations; and/or
- Detection of inadequate spacing and prevention of measuring in such conditions.

1.6 Sealing Provision

Provision is made for the calibration adjustments to be sealed as described in the approval documentation for the indicator used.

1.7 Verification Provision

Provision is made for the application of a verification mark.

1.8 Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Scale Components
Model designation	SC4000
Serial number
Accuracy class	Y(a)
Pattern approval mark	NMI 6/14G/12
Maximum capacity	<i>Max</i> kg
Minimum capacity	<i>Min</i> kg
Verification scale interval	<i>e</i> =..... kg
Maximum conveyor speed m/s
Minimum conveyor speed m/s
Maximum object length	<i>Max</i> cm
Minimum object length	<i>Min</i> cm

2. Description of Variant 1

approved on 20/07/06

With the Systec model IT8000 digital indicator now used with version IT SCWIM V1.0 Weigh-In-Motion software. This software version differs from the 'IT CHECK 3.1b' used with the pattern, in that it removes the unused check weighing features including the product database and changes data output format. In-motion weighing functions are the same as version 'IT CHECK 3.1b' software.

3. Description of Variant 2 **approved on 20/07/06**

The instrument with a maximum capacity of 60 kg, a verification scale interval of 0.05 kg, and a minimum capacity of 1 kg, with a larger weighing platform (from 1300 to 1500 mm long × 1000 mm wide) and with a conveyor speed up to a maximum of 60 m/min. The instrument uses four Revere Transducers model SHBxR load cells of 100 kg maximum capacity.

A sensor on the infeed conveyor provides a signal to reduce the conveyor speed when the length of the item being weighed exceeds approximately 70 cm.

The Systec model IT8000 indicator now uses versions IT CHECK 3.1b, or SCWIM 1.0 or SCWIM 1.1 software.

4. Description of Variant 3 **approved on 12/11/10**

The pattern and variants now having the weighing platform of up to 1900 mm in length and with conveyor speeds of up to a maximum of 70 m/min.

5. Description of Variant 4 **approved on 28/09/12**

The instrument is similar to variant 3 but with conveyor speeds of up to a maximum of 120 m/min.

A Systec model IT9000E digital indicator (Figure 3) running version SC4000E V1.03 software is used. It displays the weight (in kg). This indicator is also described in the documentation of approval NMI S556.

The system is designed to operate in dynamic weighing mode. A static mode with a maximum capacity of 65 kg is available for calibration purposes when the conveyor is stopped.

6. Description of Variant 5 **approved on 1/05/19**

The instrument (Figure 4) with a maximum capacity of 1500 kg, a verification scale interval of 1 kg, and a minimum capacity of 20 kg.

The instrument having a weighing platform of up to 3000 x 1240 mm and with conveyor speeds of up to 20 m/min.

The weighing unit uses four Flintec model SB14-2.5klb-BH C3 load cells of 1134 kg maximum capacity.

A Systec model IT8000E digital indicator (Figure 3) running version SC4000E V1.04 software is used. It displays the weight (in kg). This indicator is also described in the documentation of approval NMI S556.

The software version can be seen during power-up process.

7. Description of Variant 6 **approved on 1/05/19**

The pattern and variants 1 to 4 having a Systec model IT8000E running version SC4000E v1.04 software.

TEST PROCEDURE No 6/14G/12

Instruments shall be tested in accordance with any relevant tests specified in the National Instrument Test Procedures.

Maximum Permissible Errors

The maximum permissible errors are specified in Schedule 1 of the *National Trade Measurement Regulations 2009*.

Tests

Non-automatic (static) Operation

- With the conveyor switched off, carry out a load test and an eccentricity test.

Automatic (dynamic) Operation

- Prepare two test objects, one close to minimum capacity and the other close to the maximum capacity. The uncertainty of the test masses shall be equal to or better than 0.5e.
- The tests shall be conducted at the maximum rate at which the system will operate (i.e. introduce packages immediately after each other).
- Vary the position of the test masses across the load receptor.
- Conduct a test to ensure incorrect measurements do not occur due to items being provided to the instrument without adequate spacing (see clause **1.5 Item Separation**).

FIGURE 6/14G/12 – 1



Scale Components Model SC4000 Automatic Catchweighing Instrument

FIGURE 6/14G/12 – 2



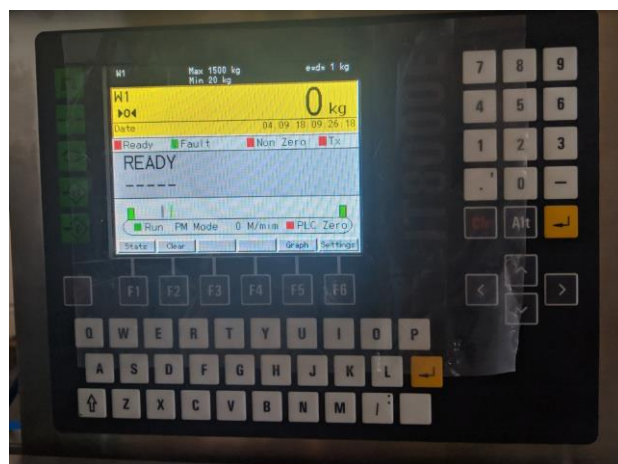
Systec Model IT8000 Digital Indicator

FIGURE 6/14G/12 – 3



Systemc Model IT9000E Digital Indicator

FIGURE 6/14G/12 – 4



Scale Components Model SC4000 Automatic Catchweighing Instrument
– Variant 5

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