Australian Government

Department of Industry, Science, Energy and Resources

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Supplementary Certificate of Approval

NMI S731

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.

SysTec Model IT1 Digital Indicator

submitted by   Diverseco Pty Ltd
                             (formerly SCACO Pty Ltd)
                             12 Kembla Way
                             Willetton   WA   6155.

NOTE: This Certificate relates to the suitability of the pattern of the instrument for use for trade 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 76, *Non-automatic weighing instruments, Parts 1 and 2*, dated October 2015.

This approval becomes subject to review on 1/01/22, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variant 1 approved – certificate issued	6/12/16
1	Variant 1 (correction) – certificate issued	22/03/19
2	Pattern & variants amended (submittor name) & variants 2 to 3 approved – certificate issued	24/06/20

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI S731' and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S731' in addition to the approval number of the instrument, and only by persons authorised by the submittor.

It is the submittor'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 Certificate No S1/0B.

The values of the performance criteria (maximum number of scale intervals etc.) applicable to an instrument incorporating the pattern approved herein shall be within the limits specified herein and in any approval documentation for the other components.

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 S731

1.   Description of Pattern   approved on 6/12/16

A SysTec model IT1 digital mass indicator (Figure 1) which may be configured to form part of:

- A class ⑪ weighing instrument with a single weighing range of up to 6000 verification scale intervals; or

- A class ⑪ weighing instrument with a single weighing range of up to 1000 verification scale intervals.

- A class ⑪ multi-interval weighing instrument with up to three partial weighing ranges (each with its own verification scale interval) in which case it is approved for use with up to 6000 verification scale intervals per partial weighing range; or

- A class ⑪ multi-interval weighing instrument with up to three partial weighing ranges (each with its own verification scale interval) in which case it is approved for use with up to 1000 verification scale intervals per partial weighing range.

- A class ⑪ multiple range weighing instrument with up to three weighing ranges, in which case it is approved for use with up to 6000 verification scale intervals per weighing range.

- A class ⑪ multiple range weighing instrument with up to three weighing ranges, in which case it is approved for use with up to 1000 verification scale intervals per weighing range.

The changeover between weighing ranges is automatic.

The instrument has a stainless steel enclosure with a LCD display for display of the weight value.

The pattern may be fitted with output sockets (output interfacing capability) for the connection of auxiliary and/or peripheral devices (see **clause 1.7** below).

TABLE 1 – Specifications

Maximum number of verification scale intervals	6 000 (class ⑪)
	1000 (class ⑪)
Minimum sensitivity	0.3 µV/scale interval
Excitation voltage	5 V DC
Maximum excitation current	116 mA
Fraction of maximum permissible error	$p_i = 0.5$
Minimum load cell impedance	43 Ω
Maximum load cell impedance	3300 Ω
Measuring range minimum voltage	0 mV
Measuring range maximum voltage	16 mV
Maximum tare range	-100%Max
Operating temperature range	-10°C to +40°C
Maximum value of load cell cable length per wire cross section	202 m/mm^2 (6-wire)
Load cell connection	4 or 6 wire plus shield

This approval does not include the use of the indicator as an automatic weighing instrument, unless specifically mentioned in a certificate of approval for such an instrument.

1.1   Zero

A zero-tracking device may be fitted.

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

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.

1.2   Tare

A semi-automatic tare device of up to the maximum capacity of the instrument may be fitted.

1.3   Linearisation Facility

Instruments are fitted with a linearisation correction facility having up to six points.

1.4   Display Check

A display check is initiated whenever power is applied.

1.5   Power Supply

The power supply may be either 110 – 240 V AC (mains power) or 24 V DC (not suitable for a road vehicle power supply).

1.6   Additional Features

Instruments may be fitted with counting, filling and check functions (o.k./minus/plus). The additional functions (other than the indications of measured mass, i.e. gross, tare, net, totals, displayed either on the indicator or on an auxiliary or peripheral device) are not approved for trade use.

Note: In particular circumstances (e.g. in regard to weighbridge or public weighbridge operation), Trade Measurement legislation or other NMI Certificates of Approval may impose requirements in regard to specific features, methods of operation, or records to be provided (and in what form).

Certain features of this instrument are able to be configured by the installer or user. Whilst NMI believes that an acceptable configuration can be achieved for typical basic modes of operation, it may also be possible for the instrument to be configured to produce unacceptable configurations, and use of some configurations may be inappropriate in different situations. It is the responsibility of the installer and user to ensure that the configuration is acceptable and meets relevant requirements for any particular situation.

1.7 Interfaces

The indicator may be fitted with interfaces for the connection of auxiliary and/or peripheral devices. Any interfaces shall comply with clause 5.3.6 of document NMI R76 (the basic intent of which is that it shall not be possible to alter weighing results via the interfaces).

Any measurement data output from the instrument or its interfaces shall only be used for trade in compliance with Supplementary Certificate No NMI S1/0B (in particular in regard to the data and its format).

Indications other than the indications of measured mass (i.e. gross, tare, net, totals) displayed either on the indicator or on an auxiliary or peripheral device, are not for trade use.

Instruments may be fitted with RS-232/RS485 serial data interfaces, Profibus, ProfiNET, Modbus, Ethernet, Ethernet/IP, USB interfaces, Bluetooth, digital inputs/outputs and analogue inputs/outputs.

1.8 Data Storage Memory

The indicator may contain memory for the storage of weighing results.

For each weighing, weighing results together with identification including date and time are stored into the storage device.

The use of this feature for trade use is subject to the agreement of the applicable trade measurement authority. In any case, data from the storage device shall only be used for trade if the format of the output complies with General Supplementary Certificates S1/0B.

1.9 Verification Provision

Provision is made for the application of a verification mark.

1.10 Sealing Provision

Provision is made for the calibration adjustments to be sealed by the use of at least two destructible adhesive labels one at each side of the instrument case.

The calibration parameters are stored within the ADM module. The ability to change these parameters is inhibited when the jumper 'W1' on the ADM module is in the protected location (connecting pins 1 and 2, as shown in Figure 2).

1.11 Software Version

The software is identified by a checksum number 15487782 and designated version V4.x.y, where 'x.y' refers to the identification of non-legally relevant software.

The instructions for accessing the software id are as follows (starting from the normal weighing mode):

• Press the 'Upward Pointing Arrow ↑' key and then 'Enter' key to enter Supervisor Mode.
• Press the 'F1' key repeat until 'Software ID' is displayed.
• Press the 'Enter' key and then the software ID information is displayed.

1.12 Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Systec Systemtechnik and Industrieautomation GmbH, Germany
Name or mark of manufacturer's agent	Diverseco Pty Ltd #4
Model number	…….....
Indication of accuracy class	⬭ or ⬭
Maximum capacity	*Max* ..... kg #1
Minimum capacity	*Min* ...... kg #1
Verification scale interval	*e* = ... kg #1
Maximum subtractive tare	*T* = - ..... kg #2
Serial number of the instrument	…….....
Pattern approval mark for the indicator	NMI S731
Pattern approval mark for other components	.... #3

#1   These markings are shown near the display of the result.

#2   This marking is required if *T* is not equal to *Max*.

#3   May be located separately from the other markings.

#4   'Diverseco Pty Ltd' may also be shown as 'SCACO Pty Ltd'.

In addition, instruments not greater than 100 kg capacity shall carry a notice stating NOT TO BE USED FOR TRADING DIRECT WITH THE PUBLIC, or similar wording.

Note:

For multi-interval instruments the markings shall be as above, with the exception that the 'Maximum capacity' and 'Verification scale interval' shall be marked for both interval ranges, e.g. as follows:

Maximum capacity	Max …. / …. kg
Verification scale interval	*e* = ….. / ….. kg

For multiple range instruments, the maximum capacity, minimum capacity and verification scale interval for each range shall be marked, with an indication of the range to which they apply, e.g.

Range	W1.1	W1.2	W1.3
Max	…. kg	…. kg	…. kg
Min	…. kg	…. kg	…. kg
e =	…. kg	…. kg	…. Kg

2.   Description of Variant 1   approved on 6/12/16

The SysTec model IT1 which is similar to the pattern but having a SysTec DWB interface circuit board, in which case the indicator shall only be used with the NMI approved Flintec RC3 series digital load cells.

The maximum number of verification scale intervals (VSI) applicable is determined by the number of VSI given in the approval documentation for the load cell used.

3.   Description of Variant 2   approved on 24/06/20

The SysTec model IT3 (Figure 3) which is similar to the pattern but having an alphanumeric keypad.

3.1   Power Supply

Power supply may be:

•   110 – 240 V AC (mains power); or

•   12 – 30 V DC power source; or

•   12 – 30 V DC road vehicle battery.

3.2   Software Version

The software is identified by a checksum number 15487782 and designated version V4.xx.yy, where 'xx.yy' refers to the identification of non-legally relevant software.

The instructions for accessing the software id are as follows (starting from the normal weighing mode):

•   Press the 'Upward Pointing Arrow ↑' key and then 'F1' key to enter Supervisor Mode.
•   Press the 'F1' key repeat until 'Software ID' is displayed.
•   Press the 'Enter' key and then the software ID information is displayed.

4.   Description of Variant 3   approved on 24/06/20

The SysTec model IT3 which is similar to variant 2 but having a SysTec DWB interface circuit board, in which case the indicator shall only be used with the NMI approved Flintec RC3 series digital load cells.

The maximum number of verification scale intervals (VSI) applicable is determined by the number of VSI given in the approval documentation for the load cell used.

TEST PROCEDURE No S731

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*.
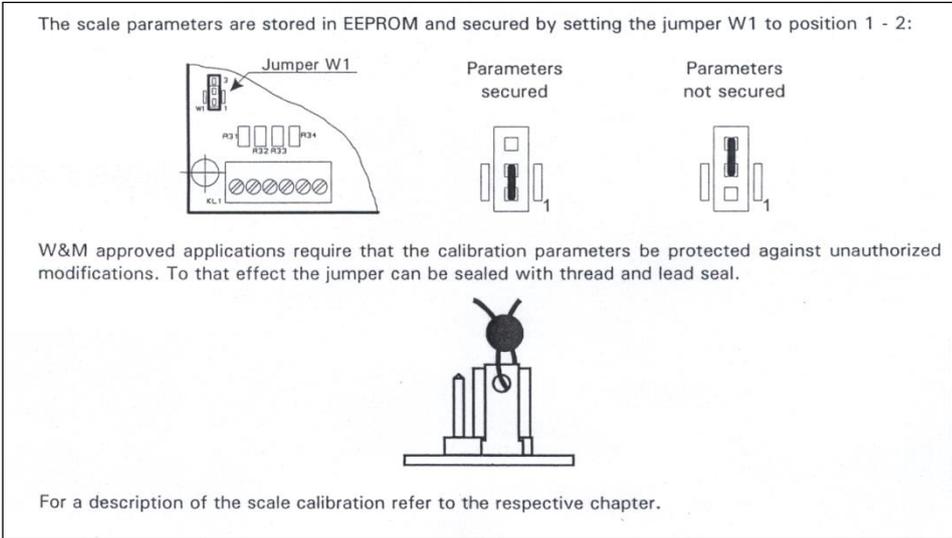
Tests

For multi-interval and multiple range instruments with verification scale intervals of e_1, e_2 …, apply e_1 for zero adjustment, and maximum permissible errors apply e_1, e_2 …, as applicable for the load.

FIGURE S731 – 1

SysTec Model IT1 Indicator (Pattern)

FIGURE S731 – 2

Showing Jumper W1 Sealing – Model IT1 or IT3

Typical Sealing Methods

FIGURE S731 – 3

SysTec Model IT3 Indicator (Variant 2)

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