Australian Government
National Measurement Institute
Bradfield Road, West Lindfield NSW 2070

Supplementary Certificate of Approval

No S611

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.

CAS Model CI-200SC Digital Indicator

submitted by CAS Corporation
482-841, 19 Ganap-Ri, Gwangjoek-myeon
Yangju-si, Gyeonggi-do
Republic of Korea

Republic of Korea **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 July 2004.

This approval becomes subject to review on 1/06/18, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 to 3 approved –certificate issued	24/05/13

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI S611' and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S611' 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*.

Dr A Rawlinson

TECHNICAL SCHEDULE No S611

1. Description of Pattern approved on 24/05/13

A CAS model CI-200SC digital mass indicator (Figure 1 and Table 1) which may be configured to form part of:

- A weighing instrument with a single weighing range of up to 10000 verification scale intervals; or
- A multi-interval instrument with up to two 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.

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

Instruments may be fitted with output sockets (output interfacing capability) for the connection of auxiliary and/or peripheral devices (see clause 1.6 below).

TABLE 1 – Specifications

Maximum number of verification scale intervals	10000 (class III) 1000 (class IIII)
Minimum sensitivity	0.5 µV / scale interval
Excitation voltage	5 V DC
Maximum excitation current	114 mA #
Fraction of maximum permissible error	$p_i = 0.5$
Minimum load cell impedance	43.75 Ω
Maximum load cell impedance	1000 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	22 m/mm^2
Load cell connection	4-wire or 6-wire shielded

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 subtractive tare device of up to maximum capacity of the instrument may be fitted.

1.3 Display Check

A display check is initiated whenever power is applied.

1.4 Power Supply

Power for the CAS model CI-200SC instrument may be supplied by:

- an 12 V AC/DC mains adaptor; and/or
- an internal 6 V rechargeable battery.

Note: The AC/DC mains adaptor supplied for the instrument was a Perfect Power mains adaptor model PA-120150SN (12 V DC, 1.5 A) – the submittor should be consulted regarding the acceptability of alternative power supply units.

1.5 Additional Features

Other functions such as counting, percentage, peak hold, and checkweighing are available, however these are not approved for trade use.

1.6 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 NMI General Supplementary Certificate No S1/0/B (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-232C/485 serial data interfaces.

1.7 Linearisation Facility

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

1.8 Verification Provision

Provision is made for the application of a verification mark.

1.9 Sealing Provision

Provision is made for access to the calibration switch within the instrument to be sealed using a ‘lead and wire’ or similar type seal with drilled screws as shown in Figure 2.

1.5 Descriptive Markings and Notices

Instruments are marked with the following data, together in one location, in the form shown at right:

Manufacturer's mark, or name written in full	CAS Corp Korea
Indication of accuracy class	(III) or (IIII)
Maximum capacity (for each range)	*Max* ..... kg #1
Minimum capacity (for each range)	*Min* ..... kg #1
Verification scale interval (for each range)	*e* = ... kg #1
Maximum subtractive tare	*T* = - ..... kg #2
Serial number of the instrument	…….
Pattern approval mark for the indicator	NMI SS611
Pattern approval mark for other components	..... #3

#1 These markings are also shown near the display of the result if they are not already located there.

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

#3 May be located separately from the other markings.

In addition, instruments not greater than 100 kg capacity 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

2. Description of Variant 1 **approved on 24/05/13**

The CAS model CI-200S (Figure 3a) which is similar to the pattern but without the checkweighing function.

Provision is made for the instrument to be sealed as shown in Figure 2.

3. Description of Variant 2 **approved on 24/05/13**

The CAS model CI-201A (Figure 3b) which is similar to the pattern but having a plastic housing and an LCD display.

Provision is made for the instrument to be sealed as shown in Figure 4.

4. Description of Variant 3 **approved on 24/05/13**

The CAS model CI-200A (Figure 3c) which is similar to the pattern but having a plastic housing and without the checkweighing function.

Provision is made for the instrument to be sealed as shown in Figure 4.

TEST PROCEDURE No S611

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

The instrument shall not be adjusted to anything other than as close as practical to zero error, even when these values are within the maximum permissible errors.

Maximum Permissible Errors

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

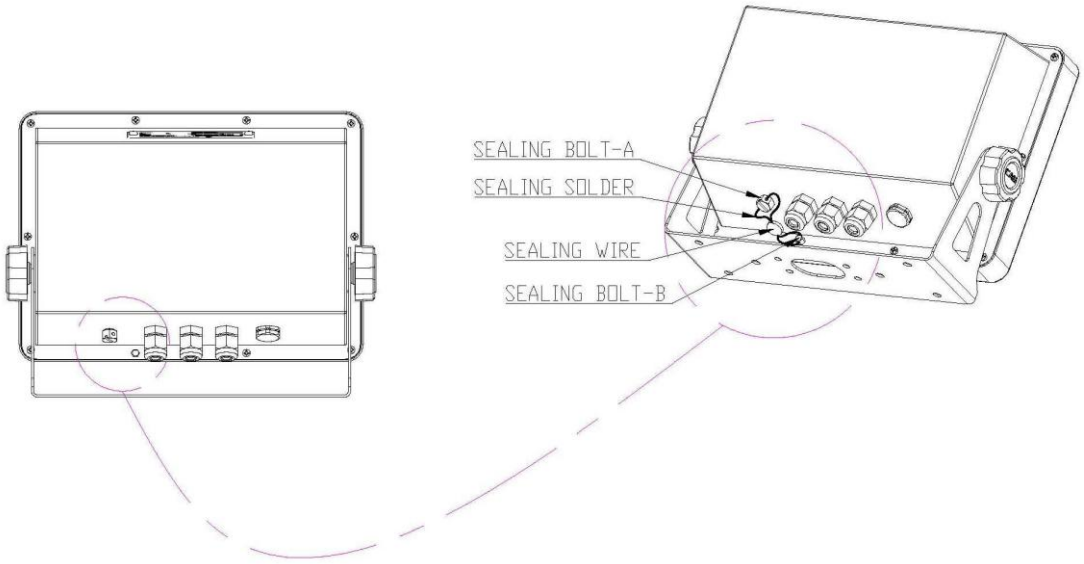
Tests

For multi-interval 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 S611 – 1

CAS Model CI-200SC Digital Indicator

FIGURE S611 – 2



Typical Sealing – Models CI-200SC (the pattern) and CI-200S (variant 1)

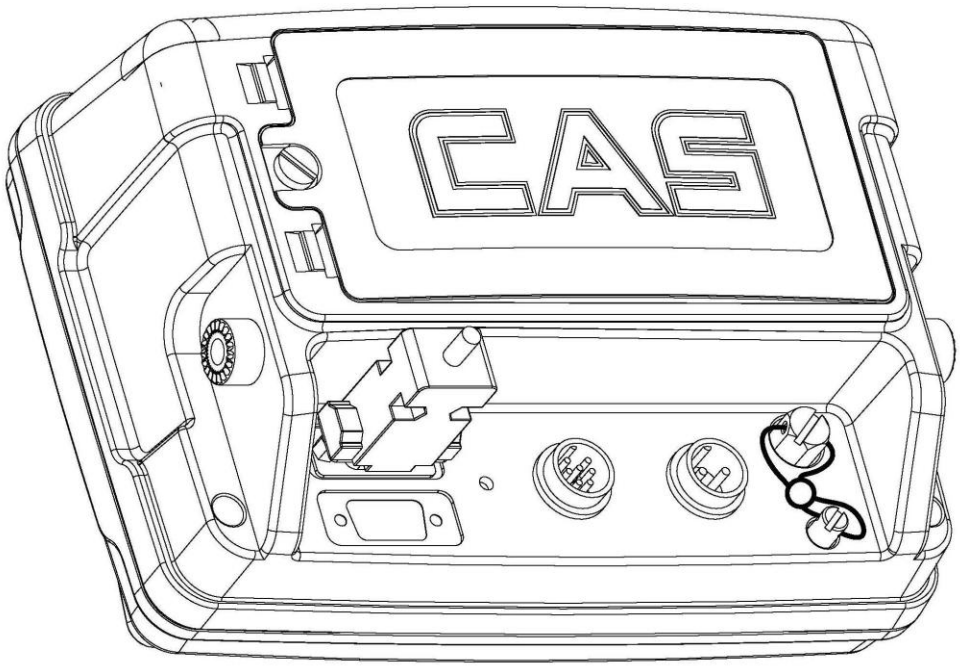
FIGURE S611 – 3

(a) CAS Model CI-200S Digital Indicator

(b) CAS Model CI-201A Digital Indicator

(c) CAS Model CI-200A Digital Indicator

FIGURE S611 – 4



Typical Sealing – Models CI-201A and CI-200A (variants 2 & 3)

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