



Australian Government  
Department of Industry,  
Innovation and Science

## National Measurement Institute

### Certificate of Approval NMI 6/4C/260

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 SW-1S Weighing Instrument

submitted by CAS Corporation  
now of #262 Geurugogae-Ro, Gwangjeok-Myeon  
Yangju-Si, Gyeonggi-Do  
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 **1/05/21**, and then every 5 years thereafter.

#### DOCUMENT HISTORY

| Rev | Reason/Details   | Date     |
|-----|--|----------|
| 0   | Pattern & variants 1 to 3 approved – interim certificate issued          | 16/04/09 |
| 1   | Pattern & variants 1 to 5 approved – certificate issued                  | 18/08/09 |
| 2   | Pattern & variants 1 to 5 <b>reviewed</b> & updated – certificate issued | 3/11/16  |
|     |  |          |

## CONDITIONS OF APPROVAL

### General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 6/4C/260' 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.

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

A handwritten signature in black ink, appearing to read 'A Rawlinson', with a horizontal line underneath.

**Dr A Rawlinson**

TECHNICAL SCHEDULE No 6/4C/260

**1. Description of Pattern** **approved on 16/4/09**

A CAS model SW-1S class  $\text{III}$  self-indicating multi-interval non-automatic weighing instrument (Figure 1) with a verification scale interval ( $e_1$ ) of 0.005 kg up to 15 kg and a verification scale interval ( $e_2$ ) of 0.010 kg from 15 kg up to the maximum capacity of 30 kg.

The instrument may be provided with a single liquid crystal display (LCD) for the operator, or may also be provided with a customer display integrated into the body of the instrument. Instruments shall be marked 'NOT FOR TRADING DIRECT WITH THE PUBLIC' (or similar wording) unless two displays are present or unless the single display is located such that all primary indications are clearly and simultaneously displayed to both the vendor and the customer.

The instrument may have an additional 'HOLD' function which is not approved for trade use.

The platter size of the instrument is 230 mm × 190 mm.

Power for the SW-1S instrument may be supplied by either:

- an AC/DC mains adaptor; or
- batteries (6 × D size).

Note: The AC/DC mains adaptor supplied for the instrument was a CAS model LK-D090030 (9 V DC, 300 mA) – the submitter should be consulted regarding the acceptability of alternative power supply units.

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

**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 -14.995 kg may be fitted.

**1.3 Levelling**

The instrument is provided with adjustable feet and adjacent to the level indicator is a notice stating 'Instrument must be level when in use'.

**1.4 Display Check**

A display check is initiated whenever power is applied.

**1.5 Verification Provision**

Provision is made for the application of a verification mark.

## 1.6 Sealing Provision

Provision is made for the calibration adjustments to be sealed by applying a lead and wire (or similar) seal through screws with drilled heads which secure a cover plate on the underside of the base (Figure 2) thereby preventing access to the calibration switch and also removal access within the instrument housing. Alternatively a destructible adhesive label (or labels) may be used to restrict access to the calibration switch and within the instrument housing.

## 1.7 Descriptive Markings

Instruments carry the following markings:

|  |                                   |
|--|-----------------------------------|
| Manufacturer's mark, or name written in full | CAS Corporation                   |
| Indication of accuracy class                 | Ⓜ                                 |
| Pattern approval number for the instrument   | NMI 6/4C/260                      |
| Maximum capacity                             | <i>Max</i> ...../..... g or kg #1 |
| Minimum capacity                             | <i>Min</i> ..... g or kg #1       |
| Verification scale interval                  | <i>e</i> = ...../..... g or kg #1 |
| Maximum subtractive tare                     | <i>T</i> = - ..... g or kg #2     |
| Serial number of the instrument              | .....                             |

#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*.

## 2. Description of Variant 1 approved on 16/4/09

The CAS model SW-1S multi-interval instrument in certain other capacities as shown below.

- (i) With a verification scale interval of 0.0005 kg up to 1 kg and with a verification scale interval of 0.001 kg from 1 kg up to 2 kg, and with a maximum semi-automatic and pre-set tare capacity of 0.9995 kg;
- (ii) With a verification scale interval of 0.001 kg up to 2.5 kg and with a verification scale interval of 0.002 kg from 2.5 kg up to 5 kg, and with a maximum semi-automatic and pre-set tare capacity of 2.499 kg;
- (iii) With a verification scale interval of 0.002 kg up to 4 kg and with a verification scale interval of 0.005 kg from 4 kg up to 10 kg, and with a maximum semi-automatic and pre-set tare capacity of 3.998 kg; and
- (iv) With a verification scale interval of 0.005 kg up to 10 kg and with a verification scale interval of 0.01 kg from 10 kg up to 20 kg, and with a maximum semi-automatic and pre-set tare capacity of 9.995 kg.

## 3. Description of Variant 2 approved on 16/4/09

The CAS model SW-1C instruments (Figure 3a) are similar to the model SW-1S but may have additional 'COMPARATOR' and COUNTING functions which are not approved for trade use.

The model SW-1C instruments may be in any capacity listed for the model SW-1S (the pattern and variant 1).

The platter size of the model SW-1C is 230 mm × 190 mm.

**3. Description of Variant 3** **approved on 16/4/09**

The CAS model SW-1W instruments (Figure 3b) are similar to the model SW-1S but are intended by the manufacturer to be of waterproof or water-resistant construction (NMI has not carried out any testing in this regard).

This model is not fitted with the 'HOLD' function described for the pattern (model SW-1S).

The model SW-1W instruments may be in any capacity listed for the model SW-1S (the pattern and variant 1).

The platter size of the model SW-1W is 247 mm × 195 mm.

**3. Description of Variant 4** **approved on 18/08/09**

The CAS model SW-LR instruments (Figure 4a) which are similar to the model SW-1C (variant 2) but have an LED type display rather than the LCD type display.

This model is not fitted with the 'HOLD' function described for the pattern (model SW-1S).

The model SW-LR instruments may be in any capacity listed for the model SW-1S (the pattern and variant 1).

The platter size of the model SW-1LR is 230 mm × 190 mm.

Power for model SW-LR instruments may be supplied by either:

- an AC/DC mains adaptor; or
- an internal rechargeable battery.

Note: The AC/DC mains adaptor supplied for the instrument was a CAS model SW15-1A (12 V DC, 1.25 A) – the submitter should be consulted regarding the acceptability of alternative power supply units.

**3. Description of Variant 5** **approved on 18/08/09**

The CAS model SW-1WR instruments (Figure 4b) which are similar to the model SW-1W (variant 3) but have an LED type display rather than the LCD type display.

The platter size of the model SW-1WR is 247 mm × 195 mm.

The SW-1WR instruments may be in any capacity listed for the model SW-1S (the pattern and variant 1).

Power for model SW-1WR instruments may be supplied by either:

- an AC/DC mains adaptor; or
- an internal rechargeable battery.

Note: The AC/DC mains adaptor supplied for the instrument was a CAS model SW15-1A (12 V DC, 1.25 A) – the submitter should be consulted regarding the acceptability of alternative power supply units.

## TEST PROCEDURE

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 the *National Trade Measurement Regulations 2009*.

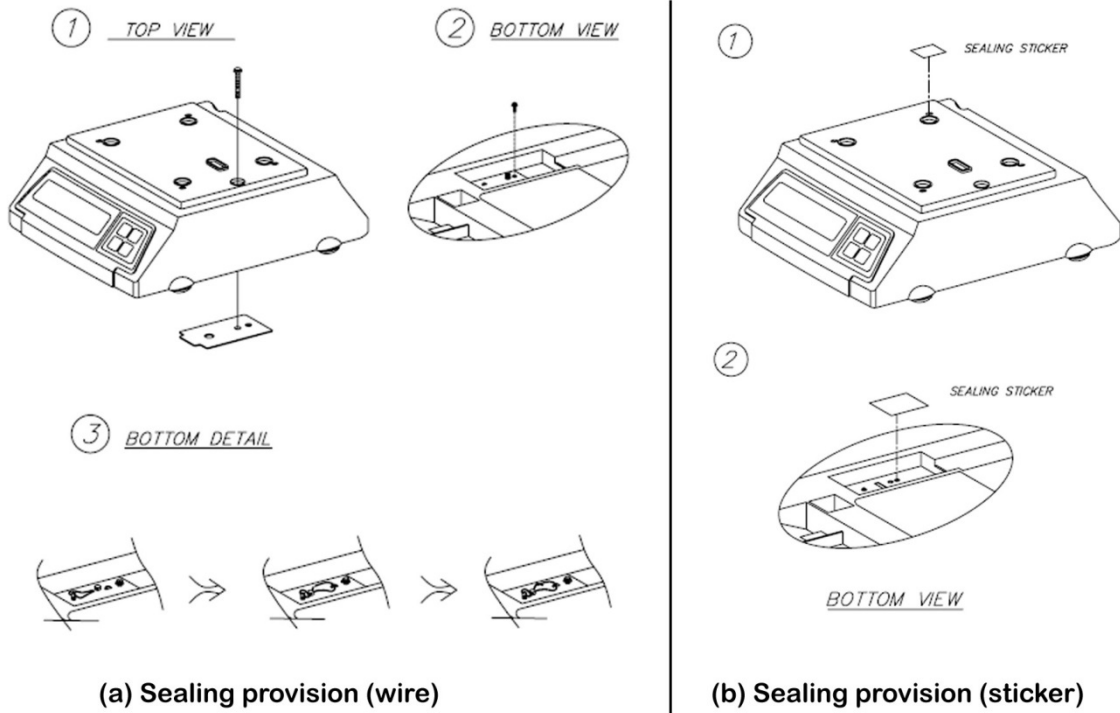
For multi-interval instruments with verification scale intervals of  $e_1, e_2 \dots$ , apply  $e_1$  for zero adjustment, and maximum permissible errors apply  $e_1, e_2 \dots$ , as applicable for the load.

FIGURE 6/4C/260 – 1

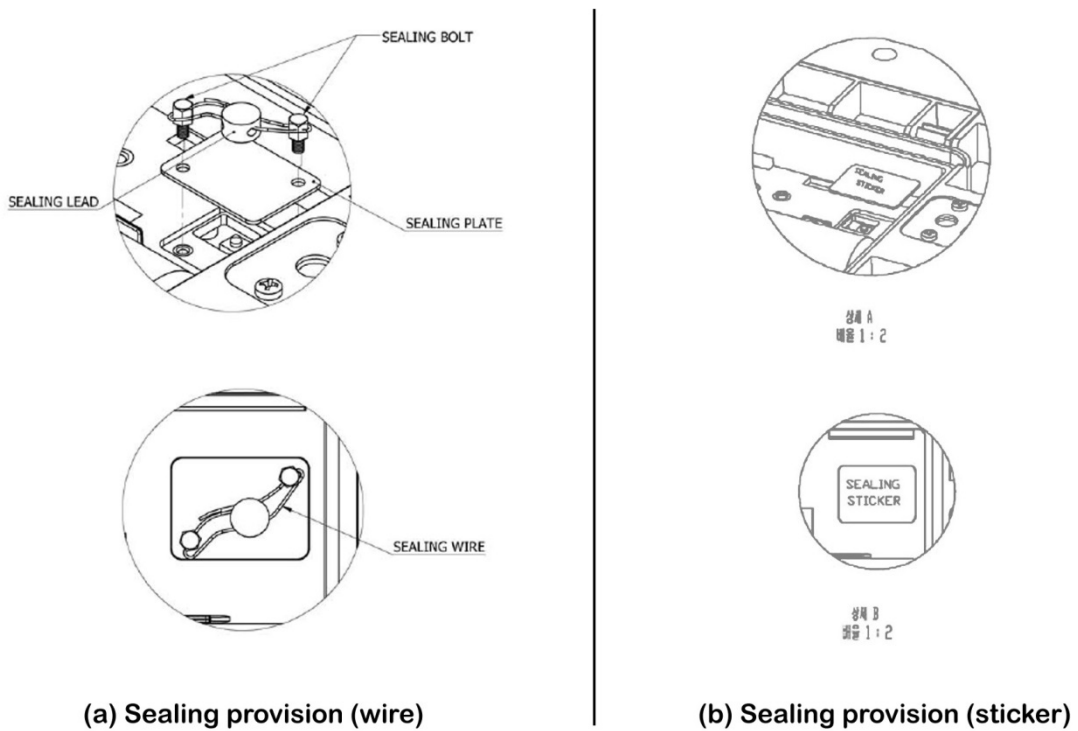


CAS Model SW-1S Weighing Instrument (Pattern)

FIGURE 6/4C/260 – 2



**A. Non - Waterproof models (SW-1S / SW-1C / SW-LR)**



**B. Waterproof models (SW-1W / SW-1WR)**

CAS SW Series – Typical Sealing arrangements



FIGURE 6/4C/260 – 3



(a) CAS Model SW-1C Weighing Instrument (Variant 2)



(b) CAS Model SW-1W Weighing Instrument (Variant 3)

FIGURE 6/4C/260 – 4



(a) CAS Model SW-LR Weighing Instrument (Variant 4)



(b) CAS Model SW-1WR Weighing Instrument (Variant 5)

~ End of Document ~