

Australian Government

National Measurement Institute Bradfield Road, West Lindfield NSW 2070

Supplementary Certificate of Approval

NMI S477

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 NT-201S Digital Indicator

submitted by CAS Corporation 19 Kanap-Ri, Gwangjuk-Myoun 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 1/11/16, and then every 5 years thereafter.

Rev	Reason/Details	Date
0	Pattern & variants 1 & 2 approved – interim certificate issued	6/10/06
1	Pattern & variants 1 & 2 approved – certificate issued	18/10/06
2	Pattern & variants 1 & 2 reviewed & updated – certificate issued	19/03/12

DOCUMENT HISTORY

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with approval number 'NMI S477' and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S477' 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 Certificates No S1/0/A or 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 his powers under Regulation 60 of the *National Measurement Regulations 1999*.

TECHNICAL SCHEDULE No S477

1. **Description of Pattern**

A CAS model NT-201S digital mass indicator (Table 1 and Figure 1) which may be

configured to form part of a weighing instrument with a single weighing range of up to 5750 verification scale intervals as listed in Table 1.

Note: The model may also be known as 'Newton' 201S ('NT-' indicates 'Newton').

The instrument has a liquid crystal display (LCD) including provision 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.

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.

TABLE 1 – Specifications

Maximum number of verification	up to 5750 (Class $igodold D$) or	
scale intervals	up to 1000 (Class 💷)	
Minimum sensitivity	2 μV/scale interval	
Excitation voltage	5 V DC	
Maximum excitation current	113.6 mA	

1.1 Zero

Zero may be automatically corrected to within ±0.25e whenever the instrument comes to rest within 0.5e of zero or whenever power is applied.

If the instrument comes to rest outside that range but within the zero setting range, zero may be set by pressing the zero button.

The instrument has a semi-automatic zero-setting device (to set the instrument to within ±0.25e of zero) with a nominal range of not more than 4% of the maximum capacity of the instrument.

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

1.2 Tare

The instrument has provision for subtractive semi-automatic and pre-set tare devices of up to maximum capacity.

Pre-set tare values may be stored and recalled.

1.3 **Display Check**

A display check is initiated whenever power is applied.

Linearisation Facility 1.4

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

1.5 Power Supply

Power supply is 9 V DC supplied by an AC/DC mains adaptor or other DC power source.

Note: The AC/DC mains adaptor supplied was a Dipos model CK-2309600 (output 9 V DC, 600 mA) power supply unit – the submittor should be consulted regarding the acceptability of alternative power supply units.

1.6 Additional Features

The indicator also has certain additional functions (e.g. hold functions, target, counting, percentage) which can be assigned to function keys of the indicator. The additional functions (other than the indications of measured mass, i.e. gross, tare, net, displayed either on the indicator or on an auxiliary or peripheral device), are not approved for trade use.

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 S1/0/A (in particular in regard to the data and its format).

Note particularly that 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.

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.

Data derived from any analog output or interface shall not be used for trade use.

Instruments may be fitted RS232 and/or RS422/485 serial data interfaces.

1.8 Sealing Provision

Provision is made for the calibration adjustments to be sealed by use of a lead and wire seal to prevent removal of the 'calibration switch bolt' on the back of the indicator (Figure 2), thereby preventing access to the calibration switch.

1.9 Verification Provision

Provision is made for the application of a verification mark.

1.10 Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	CAS	
Name or mark of manufacturer's agent		
Indication of accuracy class	I or I	
Maximum capacity	<i>Max</i> kg	#1
Minimum capacity	<i>Min</i> kg	#1
Verification scale interval	<i>e</i> = kg	#1
Maximum subtractive tare	<i>T</i> = kg	#2
Serial number of the instrument		
Pattern approval mark for the instrument	S477	
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 shall carry a notice stating NOT TO BE USED FOR TRADING DIRECT WITH THE PUBLIC, or similar wording.

2. Description of Variant 1

approved on 6/10/06

The model NT-200S is similar to the pattern, except as follows:

- (i) the NT-200S uses a light emitting diode (LED) display for the weight value.
- (ii) the NT-200S has a reduced set of features (e.g. the functions described in clause **1.6 Additional Features** are not available).

3. Description of Variant 2

approved on 6/10/06

The models NT-201A and NT-200A (Figure 3).

These are similar to the models NT-201S and NT-200S respectively, except that they use a plastic rather than a metal housing, and sockets are provided on the rear of the indicators for connection of power, load cell and interfaces, whereas for the NT-201S and NT-200S these connections are via cable entry.

TEST PROCEDURE No S477

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*.

FIGURE S477 – 1



CAS Model NT-201S Digital Indicator

FIGURE S477 - 2



Typical Sealing Arrangement



CAS Model NT-200A Digital Indicator