



Australian Government

National Measurement
Institute

Bradfield Road, West Lindfield NSW 2070

Supplementary Certificate of Approval

NMI S483

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.

Mettler Toledo Model IND560 Digital Indicator

submitted by Mettler-Toledo Limited
 Unit 3, 220 Turner Street
 Port Melbourne VIC 3207

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 **1/12/16**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variant 1 approved – interim certificate issued	22/11/06
1	Pattern & variant 1 – certificate issued	27/06/07
2	Variant 2 – approved – certificate issued	22/07/10
3	Pattern & variants 1 & 2 reviewed & updated – variant 3 approved – certificate issued	27/10/11

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with approval number 'NMI S483' and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S483' 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.

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

A handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke at the bottom.

TECHNICAL SCHEDULE No S483

1. Description of Pattern **approved on 22/11/06**

A Mettler Toledo model IND560 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 7500 verification scale intervals; or
- A multiple range weighing instrument with up to three weighing ranges, in which case it is approved for use with up to 3000 verification scale intervals per weighing range.

The changeover between weighing ranges is automatic.

The instrument has a vacuum fluorescent display (VCF) including provision for display of the weight value and for programmable softkey icons.

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

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.

The instrument operates from mains AC power.

TABLE 1 – Specifications

Maximum number of verification scale intervals	7500 or 3000 per range
Minimum sensitivity	0.9 μ V / scale interval
Excitation voltage	10 V DC
Maximum excitation current	229 mA

1.1 Zero

Zero may be automatically corrected to within $\pm 0.25e$ whenever the instrument comes to rest within $0.5e$ of zero or whenever power is applied (in the case of multiple range configurations, e in this sentence refers to e_1). This feature may, or may not, be enabled.

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 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 (to set the instrument to within $\pm 0.25e$ of zero) with a nominal range of not more than 4% of the maximum capacity of the instrument.

1.2 Tare

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

Pre-set tare values may be stored and recalled, and may be associated with the product or item look-up tables.

1.3 Display Check

A display check is initiated whenever power is applied.

1.4 Data Storage Memory

The indicator may contain memory for the storage of weighing results. For each weighing, weighing results together with identification including transaction counter value, 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 No S1/0/A or No S1/0B.

1.5 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 Certificates No S1/0/A or No 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.

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

Interfaces of the following types may be fitted:

- An RS232 serial data interface
- PLC interfaces including analog output, Allen-Bradley (A-B) RIO and Profibus L2DP
- Serial data interfaces RS232 and RS422/485
- Ethernet interface
- Discrete I/O interface with a total of 12 inputs and 18 outputs

1.6 Additional Features

The indicator may incorporate software intended by the manufacturer for particular applications. The software and related hardware may include process control related facilities for set-point and product flow control, e.g. 'MinWeigh', 'Material Transfer Application', 'Over/Under Application' etc.

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.

Notes: The use of the abovementioned features may or may not be appropriate in different situations. The acceptability in any particular situation must be assessed in-situ and may require consultation with the appropriate trade measurement authority. In some situations it may be necessary for a print-out of the weighing result to be produced for the method of operation to be considered acceptable. In such situations General Supplementary Certificates No S1/0/A or No S1/0/B should be consulted.

1.7 Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Mettler-Toledo Limited
Indication of accuracy class	Ⓜ
Pattern approval mark for the instrument	NMI S483
Maximum capacity (for each range)	<i>Max</i> kg #1
Minimum capacity (for each range)	<i>Min</i> kg #1
Verification scale interval (for each range)	<i>e</i> = kg #1
Maximum subtractive tare	<i>T</i> = - kg #2
Serial number of the instrument	.....
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.

For multiple range instruments the markings shall be as above, with the exception of the following:

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, as shown in the instrument display, e.g. '→|1|←, →|2|← or →|3|←'.

Range	→|1|←	→|2|←	→|3|← (#)
<i>Max</i>	.... kg	.... kg	.... kg
<i>Min</i>	.... kg	.... kg	.... kg
<i>e</i> =	.... kg	.... kg	.... kg

(#) The markings for each weighing range shall be clearly associated with an indication of the corresponding range (i.e. →|1|←, →|2|← or →|3|←) to correspond to the weighing range designations shown in the instrument display.

1.8 Sealing Provision

Sealing of the instrument is achieved by restricting access to the calibration switch within the instrument housing. This may be by two destructible adhesive labels one over the casing join on opposite sides of the instrument as shown in Figure 2 or by lead and wire as shown in Figure 3.

1.9 Verification Provision

Provision is made for the application of a verification mark.

2. Description of Variant 1

approved on 22/11/06

In a stainless steel ('Harsh') enclosure.

3. Description of Variant 2

approved on 21/07/10

With a Mettler Toledo POWERCELL PDX interface card, in which case the indicator shall only be used with the NMI approved Mettler Toledo POWERCELL PDX series load cells. The load cells may also be known as model SLC820.

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.

4. Description of Variant 3

approved on 27/10/11

The Mettler Toledo model IND560x indicator which is similar to the model IND 560 but with the parameters as shown in Table 2. This model is intended for use in hazardous locations, however this approval does not relate to safety aspects in any respect.

The indicator is powered by either an AC power supply or a dedicated 12 V battery power supply, according to the manufacturer's specifications.

TABLE 2 – Specifications

Maximum number of verification scale intervals	10 000 or 3000 per range
Minimum sensitivity	0.25 μ V / scale interval
Excitation voltage	4.8 V DC
Minimum input impedance	86 Ω
Maximum excitation current	56 mA

TEST PROCEDURE No S483

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*.

For multiple range 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 S483 – 1



(a) Panel mount (the pattern)



(b) Stainless steel ('Harsh') enclosure (variant 1)

FIGURE S483 – 2



Typical Sealing Arrangement Using Destructible Adhesive Labels

FIGURE S483 – 3



Typical Sealing Arrangement Using Lead and Wire Seals