



Australian Government

Department of Industry,  
Science and Resources

**National  
Measurement  
Institute**

36 Bradfield Road, West Lindfield NSW 2070

## Supplementary Certificate of Approval

### NMI S846

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 IND500x 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 October 2015.

This approval is subject to review at the decision of the Chief Metrologist in accordance with the conditions specified in the document NMI P 106.

#### DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern approved – certificate issued	08/03/24

## CONDITIONS OF APPROVAL

### General

Instruments purporting to comply with this approval shall be marked with approval number 'NMI S846' and only by persons authorised by the submitter.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S846' in addition to the approval number of the instrument, 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 Certificate of Approval 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 S846

**1. Description of Pattern**

**approved on 08/03/24**

A Mettler Toledo model IND500x digital mass indicator (Figure 1 and Table 1) which may be configured to form part of:

- A class  $\text{III}$  weighing instrument with a single weighing range of up to 10 000 verification scale intervals; or
- A class  $\text{III}$  weighing instrument with a single weighing range of up to 1000 verification scale intervals.
- A class  $\text{III}$  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 10 000 verification scale intervals per partial weighing range; or
- A class  $\text{III}$  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  $\text{III}$  multiple range weighing instrument with up to three weighing ranges, in which case it is approved for use with up to 10 000 verification scale intervals per weighing range.
- A class  $\text{III}$  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 5.7 inch LCD touchscreen display for display of the weight value and for alphanumeric information and/or menu.

Instruments 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	10 000 (class $\text{III}$ ) 1000 (class $\text{III}$ )
Minimum sensitivity	0.3 $\mu\text{V}$ / scale interval
Excitation voltage	4.8 V DC
Maximum excitation current	250 mA
Fraction of maximum permissible error	$p_i = 0.5$
Minimum load cell impedance	80 $\Omega$
Maximum load cell impedance	3000 $\Omega$
Measuring range minimum voltage	0 mV
Measuring range maximum voltage	30 mV
Maximum tare range	-100% Max
Operating temperature range	-10°C to +40°C
Load cell connection	4-wire or 6-wire shielded
Maximum value of load cell cable length per wire cross section (*)	4487 m/mm <sup>2</sup> (6-wire only)

(\*) Additional connection cable between indicator and load cell or load cell junction box. In case a 4-wire connection is used, the load cells are connected directly without a junction box or lengthening the load cell(s) cable.

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 is intended for use in hazardous locations, however this approval does not relate to safety aspects in any respect.

### **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 taring device of up to the maximum capacity of the instrument may be fitted.

A pre-set taring device (keyboard-entered and/or stored) of up to the maximum capacity (or up to  $Max_1$  for multi-interval instruments) may also be fitted.

### **1.3 Linearisation Facility**

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

### **1.4 Display Check**

A display check is initiated whenever power is applied.

### **1.5 Power Supply**

The instrument is powered by a dedicated AC power supply Mettler Toledo model APS768x-230V (Figure 2).

### **1.6 Additional Features**

Instruments may be fitted with MinWeigh, target comparison (Over/OK/Under), comparators, manual filling, SmartTrac (bar graph or three-zone graph (<, ✓, >)), and totalisation functions. 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 NMI General Supplementary Certificate of Approval 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.



Instruments may be fitted with RS-232, current loop, fibre optic, digital inputs/outputs and analogue inputs/outputs (4-20 mA).

## 1.8 Verification Provision

Provision is made for the application of a verification mark.

## 1.9 Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Mettler Toledo
Indication of accuracy class	 or 
Maximum capacity (for each range)	<i>Max</i> ..... g or kg or t #1
Minimum capacity (for each range)	<i>Min</i> ..... g or kg or t #1
Verification scale interval (for each range)	<i>e</i> = ..... g or kg or t #1
Serial number of the instrument	.....
Pattern approval mark for the indicator	NMI S846
Pattern approval mark for other components	..... #2

#1 These markings are shown in the electronic markings field above the display of the result.

#2 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	<i>e</i> = ..... / ...../ .... 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	W2	W3
Max	.... kg	.... kg	.... kg
Min	.... kg	.... kg	.... kg
e =	.... kg	.... kg	.... kg

### 1.10 Software

The embedded software version is designed 1.xx.yyyy, where 'xx' represents the identification of major updates of the non-legally relevant software and 'yyyy' the identification of minor updates of the non-legally relevant software.

The instructions for accessing the legally relevant version numbers are as follows (starting from the normal weighing mode):

- Press the Information Recall  key.
- Press the Metrology Recall  key. The software version is displayed.

### 1.11 Sealing Provision

Provision is made for the calibration to be sealed by setting SW1-1 switch on the main board within the instrument to 'ON' position, and then preventing access within the instrument housing.

Sealing to prevent access within the instrument housing may be achieved by using a destructible adhesive label placed over one of securing screws in the instrument housing (Figure 3) or using destructible adhesive labels placed over the opposite sides of a join in the instrument housing.

## TEST PROCEDURE No S846

Instruments should 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*.

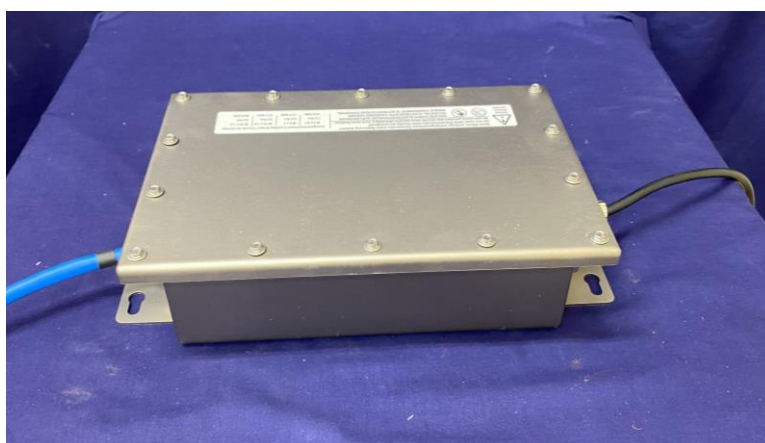
For multi-interval and multiple range instruments with verification scale intervals of  $e_1, e_2 \dots$ , apply  $e_1$  for zero adjustment, and maximum permissible errors apply  $e_1, e_2 \dots$ , as applicable for the load.

FIGURE S846 – 1



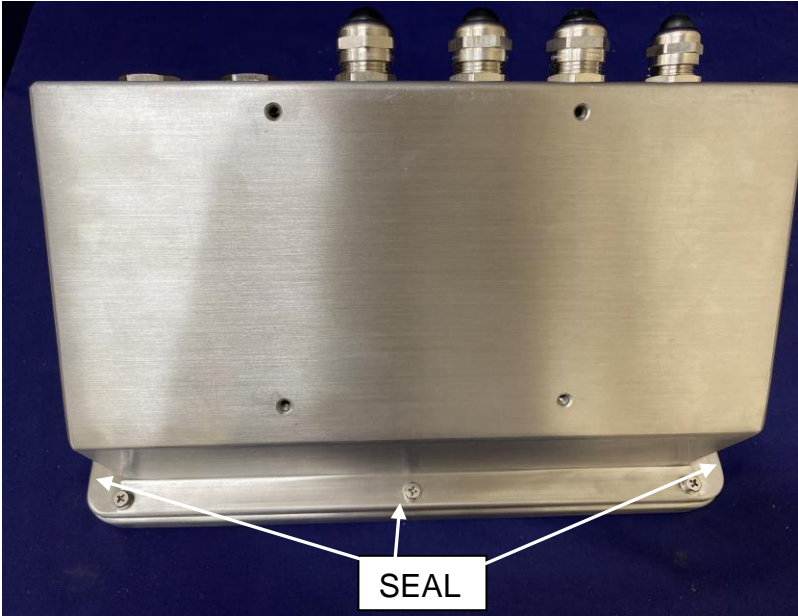
Mettler Toledo Model IND500x Digital Indicator (Pattern)

FIGURE S846 – 2



Mettler Toledo Model APS768x-230V Power Supply

FIGURE S846 – 3



Typical Sealing Methods

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