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

# Supplementary Certificate of Approval

# No S486

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 IND221 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 **1/03/17**, and then every 5 years thereafter.

DOCUMENT HISTORY

| Rev | Reason/Details | Date |
|---|---|---|
| 0 | Pattern & variant 1 approved – certificate issued | 19/02/07 |
| 1 | Pattern & variant 1 reviewed & updated – certificate issued | 31/01/13 |
| | | |

CONDITIONS OF APPROVAL

**General**

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI S486' and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S486' 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 their powers under Regulation 60 of the *National Measurement Regulations 1999*.

Dr A Rawlinson

TECHNICAL SCHEDULE No S486

## 1. Description of Pattern approved on 19/02/07

A Mettler Toledo model IND221 class (III) 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 6000 verification scale intervals;
- A multiple range weighing instrument with up to two 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 range in use is indicated by an arrow pointing to →I 1 I← or →I 2 I←.

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 scale intervals | Up to 6000 (single range) or<br>Up to 3000 per range (multiple range) |
| Minimum sensitivity | 0.8 µV/scale interval |
| Excitation voltage | 5 V DC |
| Maximum excitation current | 57 mA |

### 1.1 Zero

Zero may be automatically corrected to within ±0.25*e* whenever the instrument comes to rest within 0.5*e* of zero or whenever power is applied (in the case of multiple range configurations e in this sentence refers to $e_1$). It has a nominal range of not more than 4% of the maximum capacity of the instrument.

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

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

### 1.2 Tare

The instrument has provision for a subtractive semi-automatic tare device of up to maximum capacity.

### 1.3 Display Check

A display check is initiated whenever power is applied.

### 1.4 Power Supply

The instrument may be powered from an internal rechargeable battery, or from mains AC power.

### 1.5 Linearisation Facility

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

### 1.6 Interfaces

The indicator may be fitted with a serial RS-232 interface 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).

### 1.7 Additional Features

The model IND221 indicator may be provided with certain other features such as under/OK/over and counting functions.

Notes: The use of these 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 S1/0B should be consulted.

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.

### 1.8 Verification Provision

Provision is made for the application of a verification mark.

### 1.9 Sealing Provision

A switch which permits adjustment of the calibration is provided within the instrument casing, and the casing of the indicator is held together with four screws. A destructible adhesive label covering one of these recessed screws and hence preventing access within the indicator casing may therefore be used to seal the instrument (other means of restricting access within the indicator casing may also provide suitable sealing).

Note: The instrument is approved only in its ‘OIML’ mode. To ensure that the indicator is in this mode prior to sealing: Press the enter key (⏎) for two seconds, a display showing 0I ΠΠL J appears temporarily (if it does not the instrument is in an incorrect mode), the display then changes to ΠASEEr press the enter key to return to normal operation.

### 1.10 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 | Mettler Toledo |
| Indication of accuracy class | (III) |
| Maximum capacity | *Max* ..... kg #1 |
| Minimum capacity | *Min* ..... kg #1 |
| Verification scale interval | *e* = .... .. kg #1 |
| Maximum subtractive tare | *T* = - .. .. kg #2 |
| Serial number of the instrument | ……..... |
| Pattern approval mark for the instrument | S486 |
| 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 that 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 | 1 | 2 |
|---|---|---|
| *Max* | …. kg | …. kg |
| *Min* | …. kg | …. kg |
| *e* = | …. kg | …. kg |

## 2. Description of Variant 1 **approved on19/02/07**

Mettler Toledo model IND226 indicator which is similar to the pattern but in a stainless steel housing (Figure 2).

The stainless steel housing has click-in type latches to secure the two parts of the housing (with slots providing access to release the latches).

Sealing is achieved by restricting access within the instrument casing, for example by use of a destructible adhesive label to cover one of the slots that provide access to the latches (other means such as use of a lead and wire type seal to prevent access within the housing may also be used).

TEST PROCEDURE No S486

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.

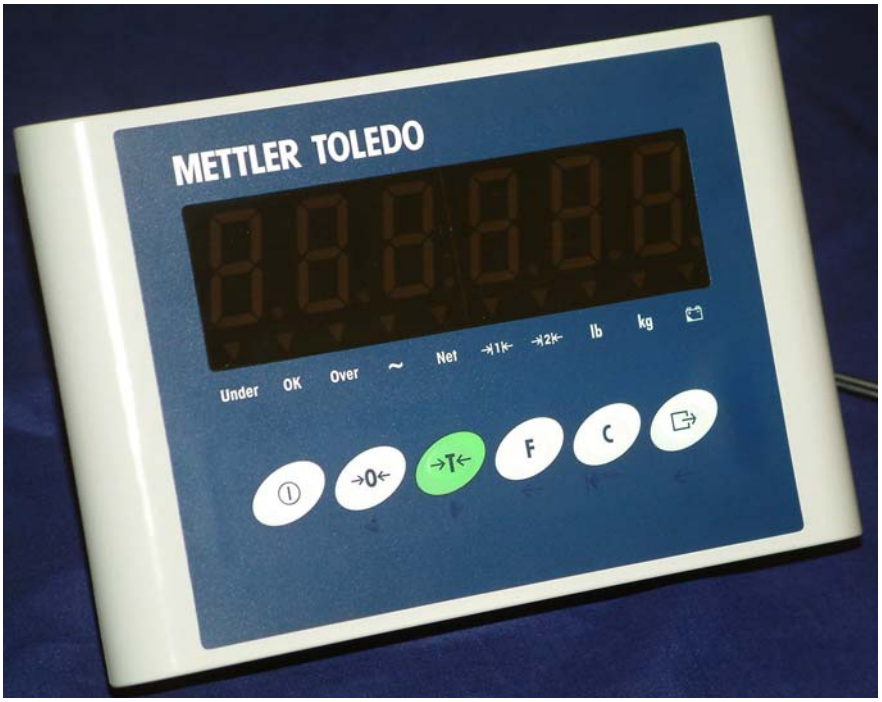
## Maximum Permissible Errors

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

## Tests

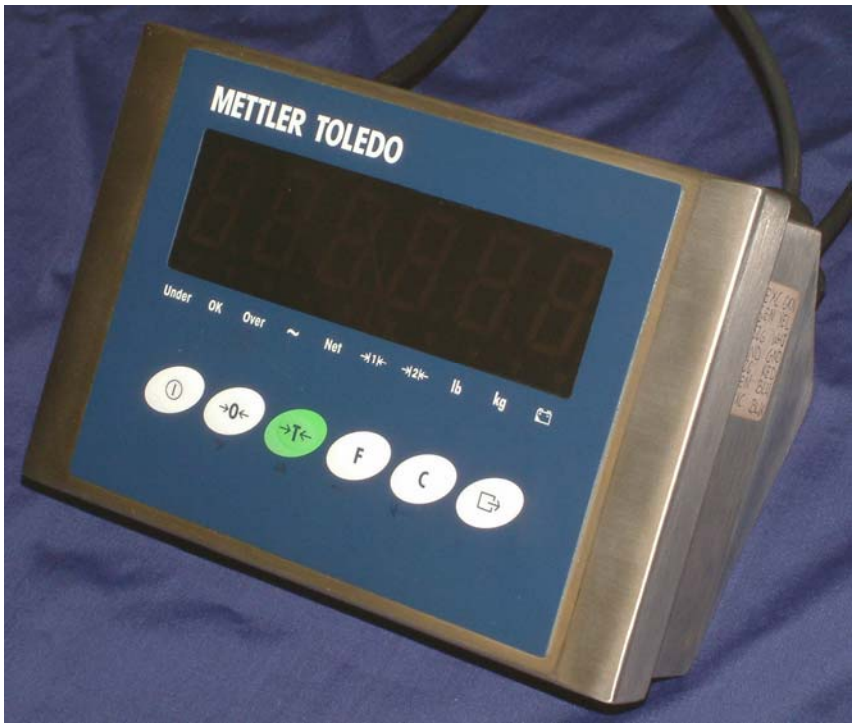
For multiple range instruments with verification scale intervals of $e_1$, $e_2$ …, apply $e_1$ for zero adjustment, and maximum permissible errors apply $e_1$, $e_2$ …, as applicable for the load.

FIGURE S486 – 1




Mettler Toledo Model IND221 Digital Indicator

FIGURE S486 – 2




Model IND226 Digital Indicator

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