Australian Government
National Measurement Institute

Bradfield Road, West Lindfield NSW 2070

Cancellation

Supplementary Certificate of Approval

No S480

Issued by the Chief Metrologist under Regulation 60
of the
National Measurement Regulations 1999

This is to certify that the approval for use for trade granted in respect of the

Mettler Toledo Model IND465 Digital Indicator

submitted by Mettler Toledo Limited
220 Turner Street
Port Melbourne VIC 3207

has been cancelled in respect of new instruments as from 1 May 2012.

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

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This is to certify that an approval for use for trade has been granted in respect of the

Mettler Toledo Model IND465 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.

CONDITIONS OF APPROVAL

This approval becomes subject to review on 1 January 2011, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked with approval number 'NMI S480' and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S480' in addition to the approval number of the instrument.

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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.

The National Measurement Institute reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificate No S1/0/A.

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.

DESCRIPTIVE ADVICE

Pattern: approved 1 December 2006

- A Mettler Toledo model IND465 single interval digital indicator.

Variants: approved 1 December 2006

1. Certain other models of the IND4## series.
2. With an additional basework.
3. Model BBK instruments (NMI 6/4C/244) as indicator to an additional basework.
4. Model BBA instruments (NMI 6/4C/246) as indicator to an additional basework.
5. Certain other models of the IND4## series in stainless steel enclosures.
6. Certain models with a colour display.

Technical Schedule No S480 describes the pattern and variants 1 to 6.

FILING ADVICE

The documentation for this approval comprises:

Supplementary Certificate of Approval No S480 dated 4 July 2007
Technical Schedule No S480 dated 4 July 2007 (incl. Table 1 and Test Procedure)
Figures 1 to 4 dated 4 July 2007

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 S480

Pattern: Mettler Toledo Model IND465 Digital Indicator

Submittor: Mettler Toledo Limited
Unit 3, 220 Turner Street
Port Melbourne VIC 3207

1. Description of Pattern

A Mettler Toledo model IND465 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 7000 verification scale intervals; or
- A multi-interval weighing instrument with two partial weighing ranges (each with its own verification scale interval) in which case it is approved for use with up to 7000 verification scale intervals per partial weighing range; or
- A multiple range weighing instrument with two weighing ranges, in which case it is approved for use with up to 7000 verification scale intervals per weighing range.

The changeover between weighing ranges is automatic.

The instrument has a liquid crystal display (LCD) including provision for display of the weight value and for two lines of alphanumeric information/menus.

Instruments are not for trading direct with the public, and are so marked.

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	7000 or 7000 per range
Minimum sensitivity	1.3 µV / scale interval
Excitation voltage	8.2 V DC
Maximum excitation current	103 mA

Power supply may be either:

- supplied by an AC/DC mains adaptor. Note: The AC/DC mains adaptor supplied was a uniV Power model SA-180A6F-S (18 V DC, 0.6 A);
- other DC power source (12 to 24 V), this may include batteries (rechargeable or otherwise) or an external DC power supply.

Note: The submittor should be consulted regarding the acceptability of alternative power supplies.

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

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 multi-interval or 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 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 (except for instruments configured as multi-interval or multiple range instruments, in which case the maximum pre-set tare value is Max_1).

The values of gross, net and tare are displayed simultaneously in a smaller format to the main mass display (unless the 'Big Dis' display function activated, in which case the net value only is displayed). Pre-set tare values may be stored and recalled, and may be associated with product or item look-up tables.

1.3 Display Check

A display check is initiated whenever power is applied.

Software identification information is displayed during the start-up.

1.4 Verification/Certification Provision

Provision is made for the application of a verification/certification mark.

1.5 Sealing Provision

Sealing of the internal components and calibration switch is achieved by applying a destructible adhesive label over one of the retaining screws holding the base cover (underneath the indicator) to the housing, typically as shown in Figure 2.

1.6 Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Mettler Toledo Limited	
Indication of accuracy class	(III)	
Pattern approval mark for the instrument	S480	
Maximum capacity (for each range)	*Max* ..... kg	#1
Minimum capacity (for each range)	*Min* ..... kg	#1
Verification scale interval (for each range)	*e* = ... kg	#1
Maximum subtractive tare	*T* = - ..... kg	#2
Serial number of the instrument	…….	
Pattern approval mark for the indicator	NMI S480	
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 carry a notice stating NOT TO BE USED FOR TRADING DIRECT WITH THE PUBLIC, or similar wording.

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

(i) For multi-interval instruments;

Maximum capacity	*Max …../…..* kg
Verification scale interval	*e = …../…..* kg

(ii) 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, as shown in the instrument display, e.g. '|↔|1'.

Range	1	2
Max	…. kg	…. kg
Min	…. kg	…. kg
e =	…. kg	…. kg

1.7 Data Storage Memory

The indicator may contain memory for the storage of weighing results.

For each weighing, weighing results together with identification including 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 Certificate No S1/0/A.

1.8 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).

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 analogue output or interface shall not be used for trade use.

Interfaces of the following types may be fitted:

- serial data interfaces: RS232, RS422/RS485, PS2, USB, Ethernet
- analogue output
- digital I/O

1.9 Additional Features

The indicator may incorporate additional software packages intended by the manufacturer for particular applications.

Such software may include facilities such as setting of set-points and target values, implementation of ‘under/accept/over’ checking, counting and ‘percentage’ display, databases of product information, analysis of weighing results, programming of sequences of operations, etc.

In addition the indicator may have facilities for a number of dialogue (menu access) and function keys to be programmed to perform various functions. Any use of this feature shall be implemented so as not to cause confusion with the normal weighing results.

However this approval relates only to use for trade of the instrument as a non-automatic weighing instrument, in which static weighing (gross or net) of product on the weighing platform is carried out.

In particular, **the approval does not extend to, nor provide any endorsement by the National Measurement Institute, of the additional software or functionality.** 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 Certificate No S1/0/A should be consulted.

2. Description of Variants

2.1 Variant 1

Certain other models of the IND4## series indicators as described below.

The indicator is available in various versions, namely the IND425 (basic functions only – Figure 3a), IND435 (includes counting – Figure 3b) and IND445 (additional counting functions – Figure 4a). These versions are similar to the pattern but have reduced features/functions including fewer interfaces, and also may have a reduced set of operational keys, and differing displays.

2.2 Variant 2

The indicator may be connected to up to two baseworks.

The basework to be used is selected using a key marked with a SCALE symbol and is indicated by a scale symbol indicating either ‘SCALE 1’ or ‘SCALE 2’ appearing in the display.

The counting functions of the two platforms may interact, however the weighing and taring functions are independent and do not interact.

The specifications of Table 1 (for the pattern) apply in the case of each basework separately. This indicator is able to supply a maximum excitation current of 103 mA to each basework. Where two baseworks are connected the total of the excitation currents required by both baseworks shall not exceed 206 mA.

2.3 Variant 3

Instruments in accordance with NMI Certificate of Approval No 6/4C/244 (various Mettler Toledo BBK series instruments), which have an integral basework, and which may be connected with an additional (external) basework, in which case they are considered to be a digital indicator approved under this approval in respect of the additional basework, and shall be marked ‘NMI S480’ in addition to ‘NMI 6/4C/244’.

The specifications of Table 1 and description of Variant 2 above apply – the maximum excitation current for the additional basework is 103 mA.

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2.4 Variant 4

Instruments in accordance with NMI Certificate of Approval 6/4C/246 (various Mettler Toledo BBA series instruments), which have an integral basework, and which may be connected with an additional (external) basework, in which case they are considered to be a digital indicator approved under this approval in respect of the additional basework, and shall be marked 'NMI S480' in addition to 'NMI 6/4C/246'.

The specifications of Table 1 and description of Variant 2 above apply – the maximum excitation current for the additional basework is 103 mA.

2.5 Variant 5

Certain other models of the IND4## series indicators as described below.

The indicator in versions with a stainless steel housing, namely the IND429 (basic functions only – Figure 4b), IND439 (includes counting) and IND449 (additional counting functions). These versions are similar to the pattern and corresponding models described in variant 1 (i.e. IND429 similar to IND425).

2.6 Variant 6

The pattern or variants may be provided with a colour display and associated software intended to facilitate under/accept/over checking. The model numbers include 'check' or 'check +' to indicate the presence of this feature (e.g. 'IND449 check+').

TEST PROCEDURE

Instruments should be tested in accordance with any relevant tests specified in the Uniform Test Procedures.

Maximum Permissible Errors at Verification/Certification

For single range instruments, the maximum permissible errors for increasing and decreasing loads on initial verification/certification for loads, *m*, expressed in verification scale intervals, *e*, are:

$\pm 0.5e$ for loads $0 \leq m \leq 500$;
$\pm 1.0e$ for loads $500 < m \leq 2\,000$; and
$\pm 1.5e$ for loads $2\,000 < m \leq 10\,000$.

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

FIGURE S480 – 1

Mettler Toledo Model IND465 Digital Indicator

FIGURE S480 – 2

Typical Sealing

FIGURE S480 – 3

(a) Mettler Toledo Model IND425 Digital Indicator (basic functions only)

(b) Mettler Toledo Model IND435 Digital Indicator (includes counting)

FIGURE S480 – 4

(a) Mettler Toledo Model IND445 Digital Indicator (additional counting functions)

(b) Mettler Toledo Model IND429 Digital Indicator (basic functions only)