



Australian Government  
Department of Industry,  
Innovation and Science

## National Measurement Institute

# Supplementary Certificate of Approval

## NMI S727

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 IND570 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 becomes subject to review on 1/11/21, and then every 5 years thereafter.

### DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variant 1 approved – certificate issued	27/10/16

## CONDITIONS OF APPROVAL

### General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI S727' and only by persons authorised by the submitter.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S727' 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 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 S727

**1. Description of Pattern** **approved on 27/10/16**

A Mettler Toledo model IND570 digital mass indicator (Figures 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  $\text{II}$  weighing instrument with a single weighing range of up to 1000 verification scale intervals; 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 10 000 verification scale intervals per partial weighing range; or
- A class  $\text{II}$  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; or
- 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; or
- A class  $\text{II}$  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 dot graphic LCD 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 (see clause 1.6 below).

TABLE 1 – Specifications

Maximum number of verification scale intervals	10 000 (class $\text{III}$ )
	1000 (class $\text{II}$ )
Minimum sensitivity	0.3 $\mu\text{V}$ /scale interval
Excitation voltage	10 V DC
Maximum excitation current	345 mA
Fraction of maximum permissible error	$p_i = 0.5$
Minimum load cell impedance	29 $\Omega$
Maximum load cell impedance	1236 $\Omega$
Measuring range minimum voltage	0.001 mV
Measuring range maximum voltage	30 mV
Maximum tare range	-100%Max
Operating temperature range	-10°C to +40°C
Maximum value of load cell cable length per wire cross section	482 m/mm <sup>2</sup> (6-wire)
Load cell connection	4 or 6 wire plus shield

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.

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

A pre-set subtractive tare device of up to the maximum capacity of the instrument may be fitted.

### **1.3 Linearisation Facility**

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

### **1.4 Display Check**

A display check is initiated whenever power is applied.

### **1.5 Power Supply**

The indicator operates from 100-240 V mains AC power or 24 V DC power source.

### **1.6 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 NMI 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 one RS232/RS422/RS485 serial data interface, Ethernet, USB interface, DeviceNet, ControlNet, Profinet, Profibus, Modbus, CC-Link, analogue outputs and digital inputs/outputs module Bluetooth, WiFi.

## 1.7 Additional Features

The indicator may be provided with certain additional functions as indicated below:

- (a) Vehicle Weighing Function intended specifically for truck weighing applications, including provision for 'vehicle and product' identification data and pre-set tare values to be stored in memory.

The vehicle weighing functions provide for:

- simple vehicle weighing, where the gross weight of a vehicle is determined by a single weighing;
- Inbound/Outbound weighing, where a vehicle is weighed before and after a loading or unloading operation; and
- weighing with preset vehicle weight, where the net weight of a vehicle is determined from the gross weighing operation and the application of a pre-set tare value.

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. 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 S1/0B should be consulted.

- (b) Other functions such as comparator, filling, checkweighing, setpoints 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.

## 1.8 Verification Provision

Provision is made for the application of a verification mark.



## 1.9 Sealing Provision

The instrument is sealed by preventing access to the security switch. This may be achieved by using a 'lead and wire' type seal as shown Figure 2 or by the use of one or more destructible adhesive labels.

## 1.10 Software Version



The software version is designated 1.00.xxxx, where 'xxxx' refers to the identification of non-legally relevant software.

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

- Press the RECALL softkey 
- Press the METROLOGY RECALL softkey 
- The legally relevant version is displayed.

**1.11 Descriptive Markings and Notices**

Instruments carry the following markings:

Manufacturer’s mark, or name written in full	Mettler Toledo
Model number	.....
Indication of accuracy class	 or 
Maximum capacity	<i>Max</i> ..... kg #1
Minimum capacity	<i>Min</i> ..... kg #1
Verification scale interval	<i>e</i> = ..... kg #1
Serial number of the instrument	.....
Pattern approval number for the indicator	NMI S727
Maximum subtractive tare	<i>T</i> = - ..... kg #2
Pattern approval mark for other components	..... #2

- #1 These markings are shown near the display of the result.
- #2 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.

Notes:

- (i) 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	<i>Max</i> ...../..... kg
Verification scale interval	<i>e</i> = ...../..... 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, e.g.

Range (*)	W1		W2
<i>Max</i> <sub>1</sub>	.... kg	<i>Max</i> <sub>2</sub>	.... kg
<i>Min</i> <sub>1</sub>	.... kg	<i>Min</i> <sub>2</sub>	.... kg
<i>e</i> <sub>1</sub> =	.... kg	<i>e</i> <sub>2</sub> =	.... kg

**2. Description of Variant 1 approved on 27/10/16**

The Mettler Toledo model IND570 which is similar to the pattern but having a Mettler Toledo POWERCELL PDX interface circuit board, in which case the indicator shall only be used with the NMI approved Mettler Toledo POWERCELL PDX series load cells.

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.

## TEST PROCEDURE

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**

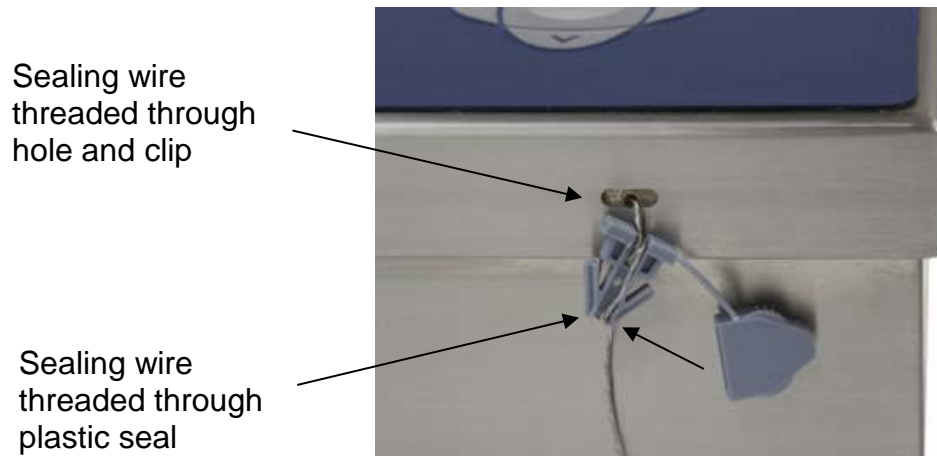
For multi-interval and multiple range instruments with verification scale intervals of  $e_1, e_2 \dots$ , apply  $e_1$  for zero adjustment, and maximum permissible errors apply  $e_1, e_2 \dots$ , as applicable for the load.

FIGURE S727 – 1



Mettler Toledo Model IND570 Digital Indicator (Pattern & variant 1)

FIGURE S727 – 2



Sealing wire  
threaded through  
hole and clip

Sealing wire  
threaded through  
plastic seal

Typical Sealing Methods (alternatively by the use of one or more destructible adhesive labels)

~ End of Document ~