Australian Government
Department of Industry, Innovation and Science

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Supplementary Certificate of Approval

NMI S669

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.

Precia Molen Model i20 Digital Indicator

submitted by Precia SA
BP 106
07000 Privas
FRANCE

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 1/10/19, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 to 3 approved – certificate issued	10/09/14
1	Pattern amended – variant 4 approved – certificate issued	29/05/15
2	Pattern amended and variant 5 approved – certificate issued	26/09/18

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI S669' and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S669' 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 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*.

Phillip Mitchell
Acting Manager
Pattern Approval, Policy and
Licensing Section

TECHNICAL SCHEDULE No S669

1. Description of Pattern

approved on 10/09/14
amended on 26/09/18

A Precia Molen model i20 digital mass indicator (Table 1 and Figures 1 & 2) which is part of X112-B series. It may be configured to form part of:

- A class (III) weighing instrument with a single weighing range of up to 6000 verification scale intervals; or
- A class (IIII) weighing instrument with a single weighing range of up to 1000 verification scale intervals; or
- A class (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 3000 verification scale intervals per partial weighing range; or
- A class (IIII) 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 (III) multiple range weighing instrument with up to two weighing ranges, in which case it is approved for use with up to 6000 verification scale intervals per weighing range.
- A class (IIII) multiple range weighing instrument with up to two 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.

TABLE 1 – Specifications

Accuracy class	(III) or (IIII)
Minimum sensitivity	0.5 µV/scale interval
Excitation voltage	5 V DC
Maximum excitation current	114.29 mA
Fraction of maximum permissible error	$p_i = 0.4$
Minimum load cell impedance	43.75 Ω
Maximum load cell impedance	1245 Ω
Measuring range minimum voltage	0 mV
Measuring range maximum voltage	16 mV
Operating temperature range	-10°C to +40°C
Load cell connection	6 wire plus shield
Maximum cable length	150 m for a cable section of 0.68 mm^2 or 220 m for a cable section of 1 mm^2

The pattern has a 7 segment liquid crystal display for displaying metrological data.

Use of units other than kilograms (kg) or grams (g) is not approved for trade use.

The pattern is powered by the 230 VAC mains power, or by a 24 volt battery.

The pattern 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.

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).

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.

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

Instruments have a combined semi-automatic zero-setting and subtractive tare balancing device

1.2 Tare

The instrument has the subtractive semi-automatic tare device of up to maximum capacity.

The instrument has the subtractive semi-automatic preset tare device of up to maximum capacity for single and multiple ranges or up to the maximum of the lowest partial weighing range for a multi-interval instrument.

1.3 Display Check

A display check is initiated whenever power is applied.

1.4 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.

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

Instruments may be fitted with RS232, RS485, Ethernet, Bluetooth and WiFi interfaces.

1.5 Additional Features

The indicator may be provided with a number of additional functions including counting, tolerance checking, formulation, and calculation and totalisation (batch). 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.

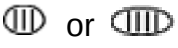
Note that this approval does not include the use of the indicator as an automatic weighing instrument, unless specifically mentioned in a certificate of approval for such an instrument.

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.

1.6 Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Precia Molen
Model number	…….....
Indication of accuracy class	
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 indicator	NMI S669

#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*.

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 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, as shown in the instrument display (e.g. 'Range 1')

Range	Range 1	Range 2	(*)
Max	…. kg	…. kg	
Min	…. kg	…. kg	
e =	…. kg	…. kg	

(*) The markings for each weighing range shall be clearly associated with an indication of the corresponding range (i.e. 'Range 1') to correspond to the weighing range designations shown in the instrument display.

(ii) 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	*e* = .../..... kg

1.7 Verification Provision

Provision is made for the application of a verification mark.

1.8 Sealing Provision

The calibration and configuration of the indicator can be secured with a password and calibration/configuration event counter.

The event counter increments each time that any parameter or calibration is changed and saved.

To access the event counter of the instrument, press the 'M' key (which is for displaying the metrological characteristics) and then the appropriate key to navigate to the right (the '6' key, 'B/G' key, or '>' key depending on the keyboard model). Observe and record the number of the event counter (Figure 3).

The value of the event counter at the time of verification shall be recorded on a destructive adhesive label applied to the instrument. Any subsequent alteration to the calibration or configuration will be evident as the recorded value and the current value will differ.

In addition physical sealing (Figure 4) may be provided (using lead and wire or similar type seal) to secure the housing against any opening.

1.9 Software Version

The software version is identified as 'V2xy', where 'x' and 'y' each represent a number between 0 and 255. 'V2' represents the legally relevant part of software. The software version is viewable during the power-up sequence of the instrument.

1.10 Linearisation Facility

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

2. Description of Variant 1 approved on 10/09/14

The Precia Molen model i30 indicator (Figure 5) which is part of X112-B series, and similar to the pattern but has additional features intended for use in a weighbridge system.

3. Description of Variant 2 approved on 10/09/14

The Precia Molen model i35 indicator (Figure 6) which is part of X112-B series, and similar to the pattern. It is also designed for use in weighbridge system. The model i35 has:

- single weighing with predetermined (preset) tare,
- single weighing with semi-automatic tare,
- single weighing (gross weight) with last 30 weighing stored.

Physical sealing (see clause **1.8 Sealing Provision**) may be provided as shown in Figure 7.

4. Description of Variant 3 approved on 10/09/14

The Precia Molen model i40 indicator (Figure 8) which is part of X112-B series, and similar to the pattern, but it is primarily designed for use within an industrial process system. It may be in the form of a panel mount version or a DIN rail version (Figure 8).

Physical sealing (see clause **1.8 Sealing Provision**) may be provided as shown in Figure 9.

To access the event counter of the on a model i40 instrument, it is necessary to use the procedure below:

- Press key 'Menu' 

and scroll through the various functions with the navigation keys (#)
- Select the metrology label 'MET. INFO' and then validate 
- Press key  or 

(depending on the keyboard) to view the value of MAX, MIN, e, and event-counter value

(#) The navigation keys can be any of the following (depending on the keyboard), either  and  or 

and 

5. Description of Variant 4 approved on 29/05/15

The pattern and variants may be fitted with a Precia Molen model X112-PMNet interface board, in which case the indicator shall only be used with NMI approved Precia Molen digital 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.

6. Description of Variant 5 approved on 26/09/18

The pattern and variants having a different stainless steel enclosure intended for use in explosive atmospheres (Figure 10).

Physical sealing (see clause **1.8 Sealing Provision**) may be provided as shown in Figure 11.

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 …, apply e_1 for zero adjustment, and maximum permissible errors apply e_1, e_2 …, as applicable for the load.

FIGURE S669 – 1

Precia Molen Model i20 Indicator

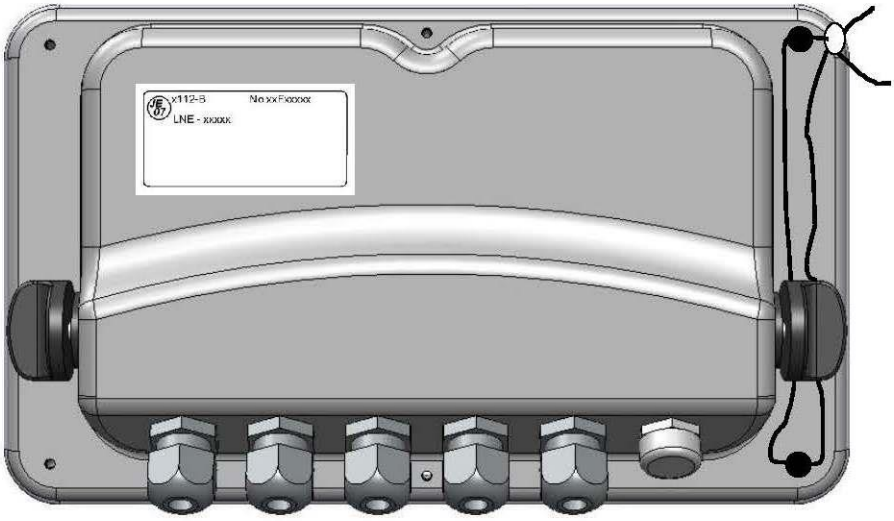
FIGURE S669 – 2

Precia Molen Model i20 Indicator in IP69K Protective Cover

FIGURE S669 – 3

Event Counter

FIGURE S669 – 4



Typical Mechanical Sealing of the Model i20 (pattern) & i30 (variant 1)

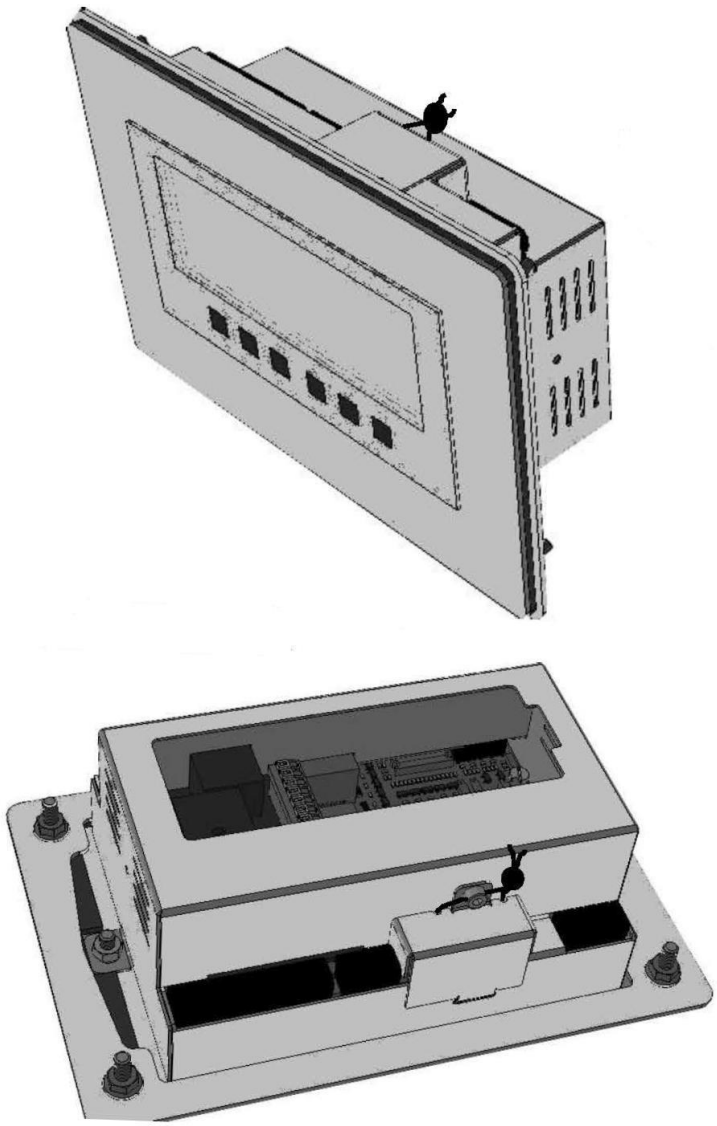
FIGURE S669 – 5

Model i30 (variant 1)

FIGURE S669 – 6

Model i35 (variant 2)

FIGURE S669 – 7

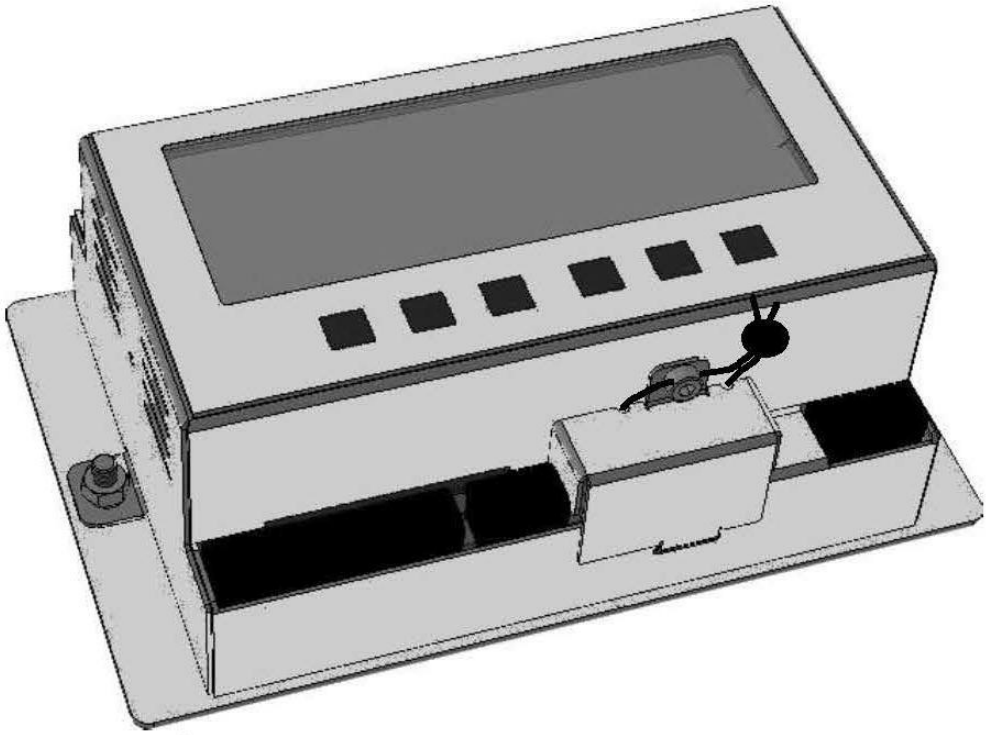


Typical Mechanical Sealing of the Model i35 (variant 2)

FIGURE S669 – 8

Model i40 (variant 3)

FIGURE S669 – 9

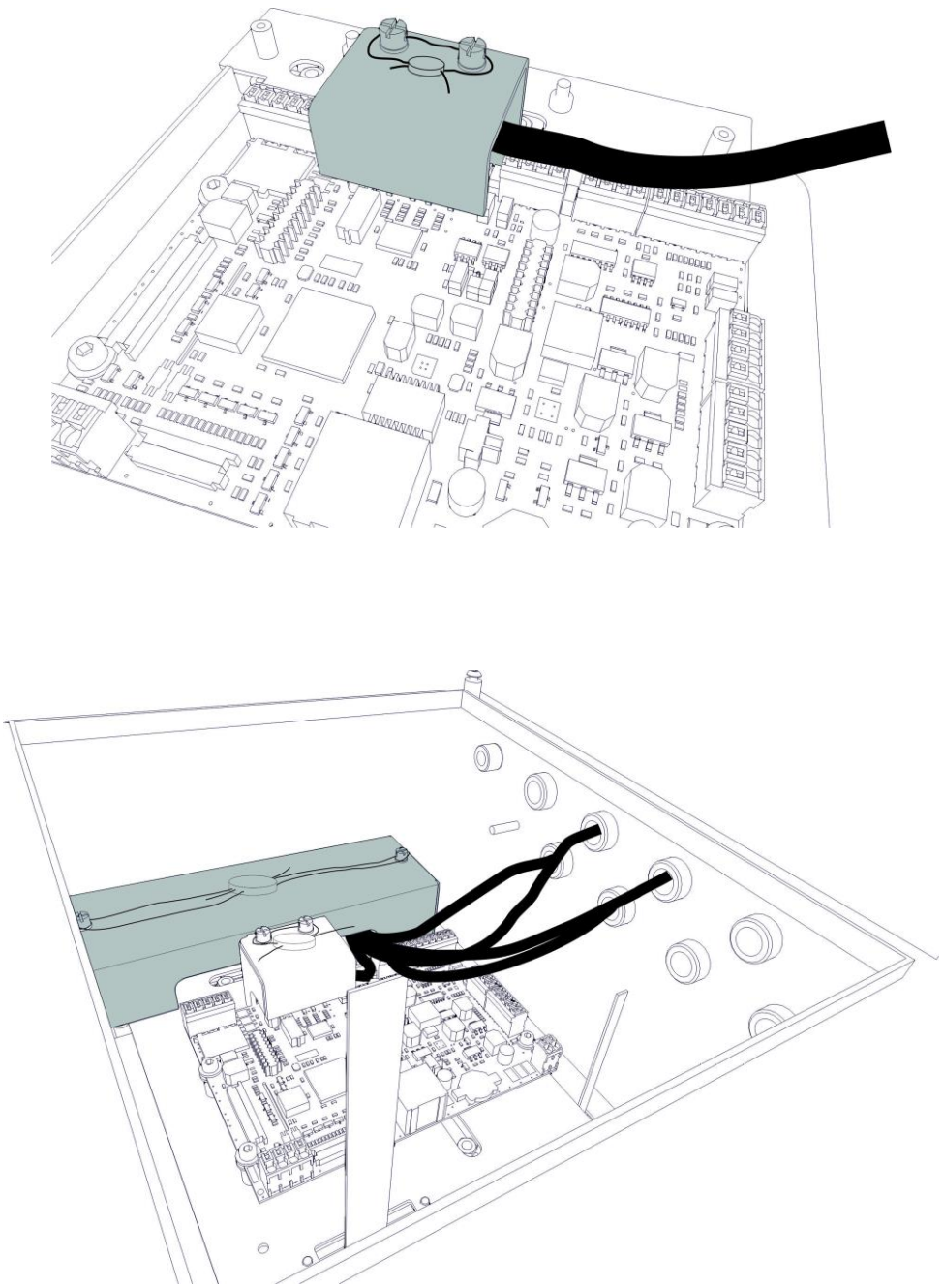


Typical Mechanical Sealing of the Model i40 (variant 3)

FIGURE S669 – 10

Precia Molen Model X112-B Indicator in *Ex* Protective Housing (variant 5)

FIGURE S669 – 11



Typical Mechanical Sealing of the *Ex* Protective Enclosure (variant 5)

~ End of Document ~