



Australian Government

Department of Industry,
Science and Resources

**National
Measurement
Institute**

36 Bradfield Road, West Lindfield NSW 2070

**Supplementary Certificate of Approval
NMI S824**

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.

Vishay Precision Group Model VPGTransducers VT300 Digital Indicator

submitted by B.A Whitehead & E.L Whitehead
T/A SILO SMART SOLUTIONS
33 Overdale Drive
WAGGA WAGGA NSW 2650

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 & variant 1 approved – certificate issued	08/07/22

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI S824' and only by persons authorised by the submitter.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S824' 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 S824

1. Description of Pattern

approved on 08/07/22

A Vishay Precision Group model VPGTransducers VT300 digital mass indicator (Figure 1) which may be configured to form part of:

- A class III weighing instrument with a single weighing range of up to 10 000 verification scale intervals; or
- A class III multi-interval weighing instrument with up to two 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 III multiple range weighing instrument with up to two weighing ranges, in which case it is approved for use with up to 10 000 verification scale intervals per weighing range. The changeover between weighing ranges is automatic.

The instrument has a stainless steel enclosure with an LCD display for display of the weight value, and cable glands for connecting load cells and peripherals.

The pattern 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 III)
Minimum sensitivity	0.25 $\mu\text{V}/\text{scale interval}$
Excitation voltage	5 V DC
Maximum excitation current	172 mA
Fraction of maximum permissible error	$p_i = 0.5$
Minimum load cell impedance	29 Ω
Maximum load cell impedance	2000 Ω
Measuring range minimum voltage	0 mV
Measuring range maximum voltage	19.5 mV
Maximum tare range	-100%Max
Operating temperature range	-10°C to +40°C
Load cell connection	4 or 6 wire plus shield
Maximum cable length between indicator and junction box (*)	1564 m/mm ² (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.

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 and a pre-set subtractive tare device, each of up to maximum capacity, may be fitted.

1.3 Display Check

A display check is initiated whenever power is applied.

1.4 Power Supply

The power supply may be either 110 – 240 V AC (mains power) or 12 - 24 V DC or internal rechargeable battery.

1.5 Additional Features

Instruments may be fitted with counting and batch 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.

1.6 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 R76-1 (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 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 the following interfaces:

- RS-232;
- RS485;
- USB interfaces (slave);
- Digital inputs/outputs;
- Analogue outputs.

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 of Approval S1/0B.

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	Vishay Precision Group
Name or mark of manufacturer's agent	SILO SMART SOLUTIONS
Model number	VPGTransducers VT300
Indication of accuracy class	
Maximum capacity	<i>Max</i> kg #1
Minimum capacity	<i>Min</i> kg #1
Verification scale interval	<i>e</i> = kg #1
Maximum subtractive tare	<i>T</i> = - kg #2
Serial number of the instrument
Pattern approval mark for the indicator	NMI S824
Pattern approval mark for other components #3

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

#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.

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
<i>Max</i> kg kg
<i>Min</i> kg kg
<i>e</i> = kg kg

1.10 Sealing Provision

Provision is made for the configuration and calibration to be sealed by installing a jumper to bridge the calibration 'JP1' pins on the main board as shown in Figure 2a, and then preventing access within the instrument enclosure.

The seal status of the instrument can be determined as follows:

- Press the 'MENU' key until 'Weigh' appears on the screen.
- Use the UP or DOWN arrow key to scroll through until 'MISC' is displayed, then press the 'ENTER' key.
- Use the UP or DOWN arrow key to scroll through until '1OIML' is displayed, then press the 'ENTER' key.
- If the jumper is in the correct position, the instrument will display 'SEALED' (Figure 2b). In this case the instrument may be verified.
- Otherwise, the configuration and calibration parameters are not secured and the instrument should not be verified until the jumper has been placed in the correct position.

Sealing to prevent access within the instrument enclosure may be achieved by the use of at least two destructible adhesive labels over the screws on opposite sides of the instrument enclosure as shown in Figure 2c.

1.11 Software

The software is designated
VT300A_AWB.E
Ver: 11-02-19

where 11-02-19 is the firmware date and used as version control. The approved software version is 11-02-19.

The software version and number can be seen in the power-up display sequence (when the power is first applied to the instrument).

TEST PROCEDURE No S824

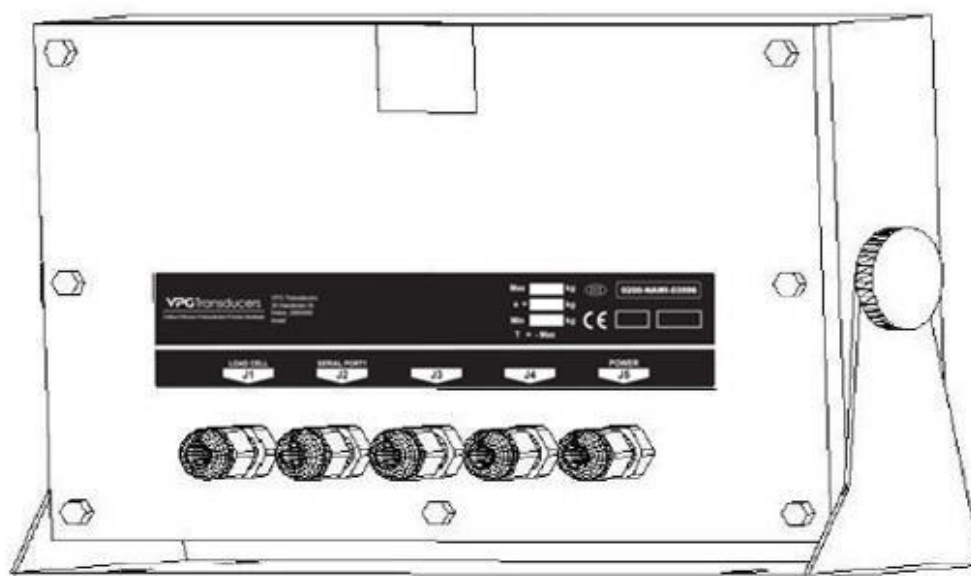
Instruments shall be tested in accordance with any relevant tests specified in the National Instrument Test Procedures.

Maximum Permissible Errors

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

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.

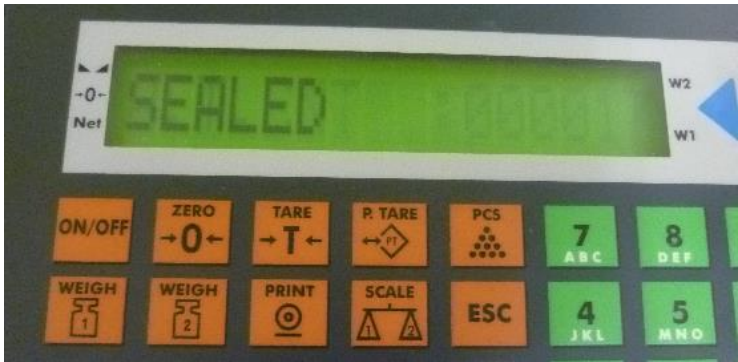


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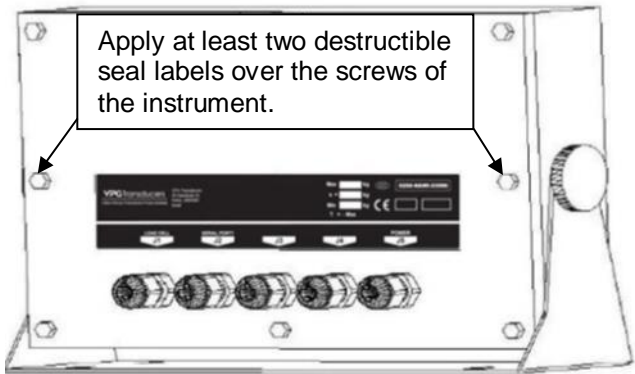
FIGURE S824 – 2



(a) Bridging JP1 Pins



(b) Instrument Sealed Status



(c) Typical Destructible Adhesive Labels Location

Typical Sealing Method

~ End of Document ~