



Australian Government
Department of Industry,
Innovation and Science

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Supplementary Certificate of Approval NMI S624

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.

Gallagher Model Pulse Calculator/Indicator for Fuel Dispensers for Motor Vehicles

submitted by Gallagher Fuel Systems Ltd
2 Station Road
Marton 4741 New Zealand

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 117, Measuring Systems for Liquids Other than Water, dated July 2004.

This approval becomes subject to review on 1/04/18, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern provisionally approved – interim certificate issued	7/03/13
1	Pattern amended (additional sites) – interim certificate issued	29/04/13
2	Pattern approved – interim certificate issued	27/05/13
3	Pattern approved – certificate issued	25/07/13
4	Variant 1 provisionally approved – interim certificate issued	7/07/16
5	Variant 1 approved – certificate issued	22/09/16
6	Variant 2 approved – certificate issued	8/03/18
7	Pattern and Test Procedure amended – software version number and checking method – certificate issued	29/01/20

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI S624' and only by persons authorised by the submitter.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S624' in addition to the approval number of the instrument, and only by persons authorised by the submitter.

Instruments purporting to comply with this approval and currently marked 'NMI PS624' may be re-marked 'NMI S624' but 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.

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 S624

1. Description of Pattern **provisionally approved on 7/03/13**
approved on 27/05/13
amended on 29/01/20

A Gallagher model Pulse calculator/indicator (Figure 1) for use with an NMI-approved Gallagher pulse generator or any other approved measurement transducer generating compatible (#) pulse output proportional to volume throughput. The instrument is mounted in a suitable enclosure and fitted to compatible (#) approved fuel dispensers for motor vehicles.

(#) 'Compatible' is defined to mean that no additions/changes to the hardware/software specified in this approval are required for satisfactory operation of the complete system.

1.1 Field of Operation

The field of operation of the pattern is determined by the following characteristics:

- Accuracy class: 0.5
- Environmental temperature range: -10°C to 55°C (class N)
- Power supply input: 240 V mains (nominal)
- For use in interruptible metering systems (fuel dispensers)

1.2 Indicator

The indicator (Figure 1) comprises a single dot matrix displays showing the price, volume, any pre-set amount, plus separate displays for unit prices as well as totaliser displays for each product. The display panel is also be fitted with a pre-set keypad.

Price	up to \$99999.99 in \$0.01 increments
Volume	up to 99999.99 L in 0.01 L increments
Unit price	up to 9999.9¢/L in 0.1 ¢ increments
Totaliser	up to 99999999 L in 1 L increments
Preset	up to \$999 in \$1 increments

In attended-operated mode, electronic totals for volume are displayed at the bottom of the unit price windows.

A separate electro-mechanical totaliser may be provided to display the accumulated volume up to 9 999 999 litres.

The software version number is 1.2x.xx. The software version number is displayed by entering service mode. Service mode is access by holding down the Fill button on the keypad for 3 seconds. The word FILL appears on the preset display then disappears. Enter the service mode password and press the Fill button again. The service mode password should be obtained from a site manager or representative. The software version is shown on the FIRMW page and does not display decimal places in the number.

As a standalone unit the unit price is changed by means of the front panel keypad and the price service menu function. The unit price may also be changed remotely when interfaced to a compatible NMI-approved fuel dispenser self-service control device.

1.3 Pulse Generator

The pattern may be used with any NMI-approved Gallagher dual channel pulse generator with each channel producing 200 pulses per shaft revolution, for a total of 400 pulses per revolution. When the shaft of the pulse generator is rotated once, the indicator displays a volume of 0.5 litres

1.4 Power Supply

The pattern requires a power supply unit which converts the 240 V AC power supply to the required voltage for the calculator/indicator.

1.5 Checking Facilities

An automatic segment test is performed at the start of each delivery.

The calculator monitors the presence and correct transmission of signal from the measurement transducer, and in the event of detecting a fault the instrument indicates an error and stops the delivery. Error information is written to an error log stored on an SD card.

In the event of a power failure the displayed value for a delivery is retained.

1.6 Verification Provision

Provision is made for the application of a verification mark.

1.7 Sealing Provision

There is no requirement to seal the calculator/indicator however the measurement transducer should be sealed as described in its NMI approval documentation.

1.8 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
Model number
Serial number
Pattern approval mark	NMI No S624
Year of manufacture
Accuracy class	0.5
Environmental class	N

The minimum measured quantity specified for the fuel dispenser is marked or displayed on the face of the indicator in the form 'Minimum Delivery 2 L'.

2. Description of Variant 1 **provisionally approved on 7/07/16** **approved on 22/09/16**

The processor of the pattern now with an upgraded controller board and ARM A8 processor. The pump operating code remains unchanged. The upgraded processor adds a linux operating system to allow additional data collection functions via an Ethernet port.

3. Description of Variant 2

approved on 8/03/18

The display panel Preset indicator mentioned in Section **1.2 Indicator** is changed to read:

Up to \$999999 in \$1 increments.

TEST PROCEDURE No S624

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 applicable are those applicable to the fuel dispensers to which the instrument approved herein is fitted, as stated in the approval documentation for the fuel dispensers or in Schedule 1 of the *National Trade Measurement Regulations 2009*.

TESTS

1. Check the software version number.

Note: Certificate of approval S624 revision 7 amended the instrument software version number. Instruments verified using earlier revisions of this Certificate of Approval having a version less than described in the technical schedule must have the software updated before subsequent verification. Software updates may be applied only by persons authorised by the submitter

FIGURE S624 – 1



Gallagher Model Pulse Calculator/Indicator

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