



Australian Government

National Measurement
Institute

Bradfield Road, West Lindfield NSW 2070

Supplementary Certificate of Approval

No S504

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.

ROMTECK Model Delta FMS 1000 Control System for Liquid-measuring Systems

submitted by ROMTECK Pty Ltd
37 Collingwood Street
Osborne Park WA 6017

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 June 2011.

This approval becomes subject to review on **1/12/17**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern approved – interim certificate issued	7/11/07
1	Pattern approved – certificate issued	19/05/08
2	Pattern reviewed & updated – certificate issued	14/06/13

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with approval number 'NMI S504' and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S504' in addition to the approval number of the instrument.

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 Certificates No S1/0/A or 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*.

A handwritten signature in black ink, appearing to read 'Dr A Rawlinson', with a horizontal line underneath.

Dr A Rawlinson

TECHNICAL SCHEDULE No S504

1. Description of Pattern

approved on 7/11/07

A ROMTECK model Delta FMS 1000 unattended self-service flowmetering controller/indicator (Figure 1) for use with compatible (#) approved liquid-measuring systems.

(#) 'Compatible' is defined to mean that no additions/changes to hardware/software are required for satisfactory operation of the complete system including all checking facilities.

1.1 Field of Operation

The field of operation is determined by the following characteristics:

- Ambient temperature range -25°C to 55°C (class C)
- Power supply AC mains supply – 240 V (nominal)
(range 204 V to 264 V)
- Accuracy class Class 0.5
- For use by registered clients

1.2 Design/Features

The system (Figures 1 and 2) consists of the following components housed in a stainless steel waterproof enclosure:

- A 20 character × 4 line alphanumeric liquid crystal display (LCD) for user prompts and error messages;
- A touch key reader;
- An alphanumeric keypad; and
- A battery back up.

Attached to this unit may be:

- Up to 4 volume indicating LCDs in a waterproof powder-coated mild steel enclosure fixed to the main unit; and
- Up to 4 pulse generators located remotely.

The volume displays are 8 digit 7 segment type and display up to maximum of 999999.99 L in 0.01 L increments.

The model Delta FMS 1000 controller/indicator may control up to 4 pumps and/or solenoid valves.

The model DELTA FMS 1000 is approved for use with ROMTECK version V1.69.xx (*) software; the version number is displayed at power-up, or by pressing the button labelled SW2 on the microprocessor board.

(*) Minor revisions are denoted by 'xx'.

The delivery operation is authorised by the user placing their authorised key against the touch key reader sensors and entering the outlet (hose) number.

Note: ID number, odometer number and other information may be added to the information required to initiate a transaction.

The delivery operation is completed when either the model Delta FMS 1000 detects the stop of flow or when the nozzle is returned to its holster activating the nozzle switch which in turn shuts off the relays which control the pumps/solenoid valves.

1.3 Pulse Generators

The model DELTA FMS 1000 is approved for use with up to 4 FMS model FMM2xx or other compatible (#) approved dual channel pulse generators which have the following characteristics:

Pulse per revolution	200 P/rev
Frequency range	0 to 20Hz

(#) 'Compatible' is defined to mean that no additions/changes to hardware/software are required for satisfactory operation of the complete system including all checking facilities.

1.4 Checking Facilities

- (i) An automatic segment test for the volume display is performed at the start of each delivery.
- (ii) The controller monitors the presence and correct transmission of signals from the measurement transducer and to the volume display. In the event of detecting a fault the instrument stops the delivery and prevents further deliveries until the fault is corrected.
- (iii) In the event of a power failure while a delivery is in progress, the delivery will stop and the system will finalise the transaction. Further deliveries cannot be authorised until the problems are rectified.

1.5 Verification Provision

Provision is made for the application of a verification mark.

1.6 Sealing Provision

Provision is made for the pattern to be sealed as shown in Figure 3 to prevent unauthorised use of the dongle which is used for calibration.

1.7 Markings and Notices

Instruments are marked with the following data, together in one location:

Manufacturer's name or mark	
Model number
Serial number
Pattern approval mark	NMI S504
Year of manufacture
Environmental class	Class C

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

TEST PROCEDURE No S504

Instruments shall be tested in conjunction with any tests specified in the approval documentation for the instruments to which the pattern is connected, as appropriate, and 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

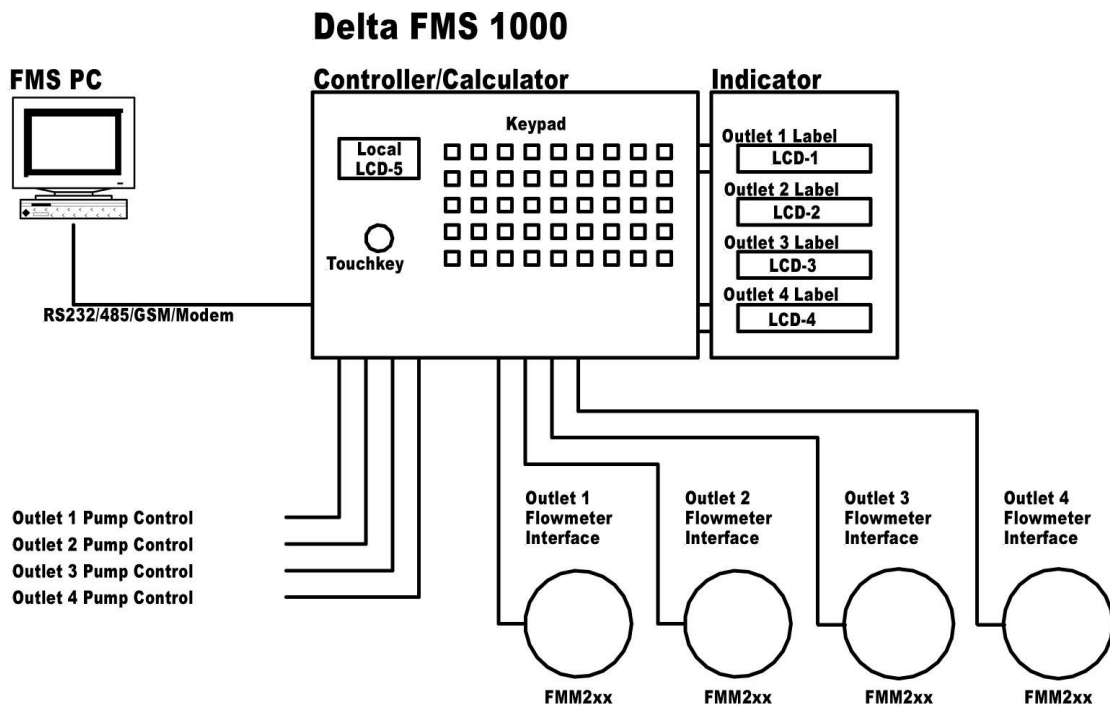
The maximum permissible errors are specified in Schedule 1 of the *National Trade Measurement Regulations 2009*.

FIGURE S504 – 1



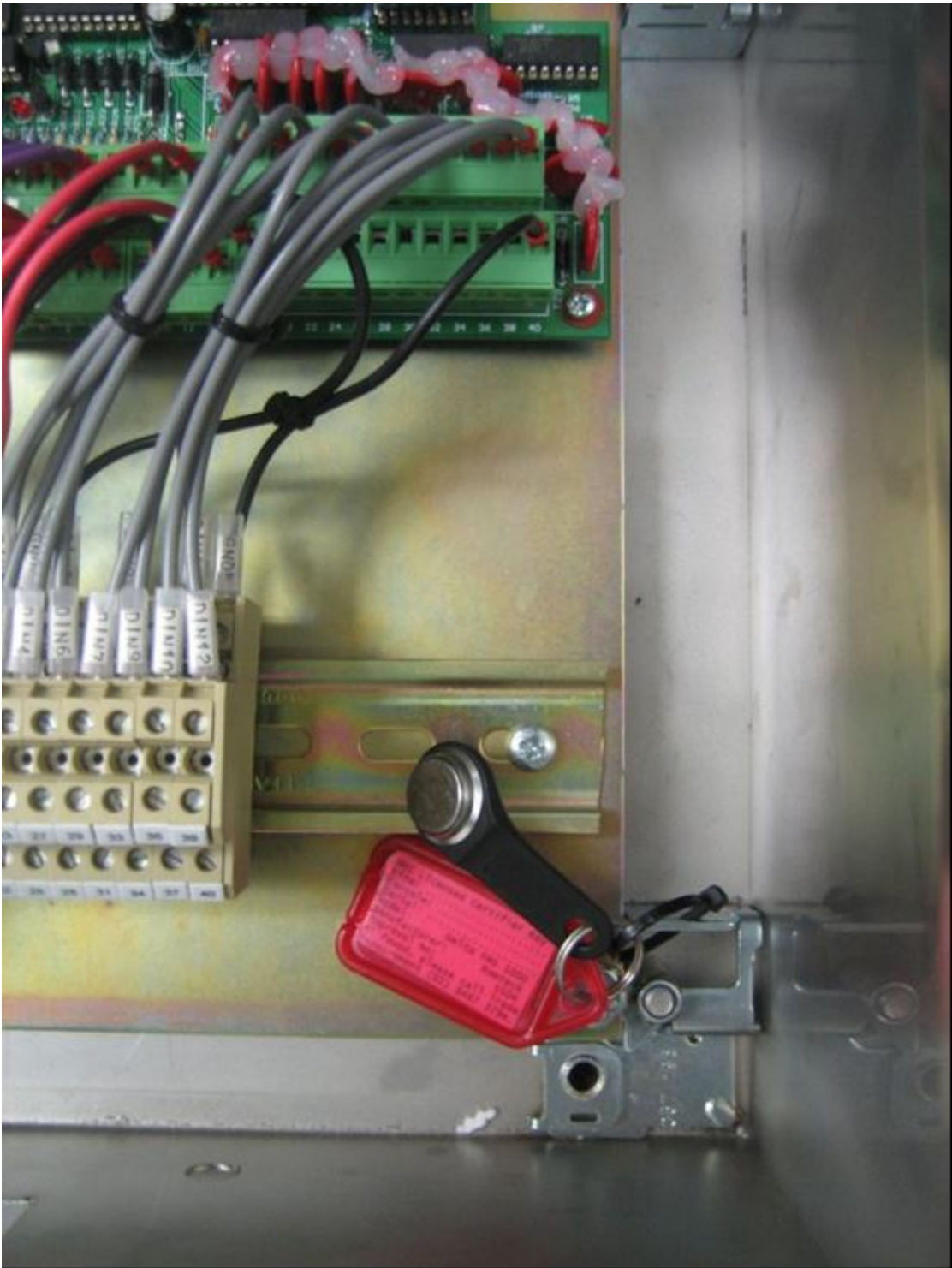
ROMTECK Model Delta FMS 1000 Controller/Indicator

FIGURE S504 – 2



Typical System Overview

FIGURE S504 – 3



Typical Calibration Dongle (to be sealed by an appropriate method)

~ End of Document ~