Australian Government
National Measurement Institute
Bradfield Road, West Lindfield NSW 2070

Supplementary Certificate of Approval

NMI S494

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.

Smart-Fill Model Version 10 Controller/Indicator for Liquid-measuring Systems

submitted by Fluid Management Technology Pty Ltd
(formerly submitted by Fuel Equipment Services)
39 Marryatt Street
Port Adelaide SA 5015

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 117-1, Measuring Systems for Liquids Other than Water, dated July 2004.

This approval becomes subject to review on **1/04/17**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern approved – interim certificate issued	16/03/07
1	Pattern approved – certificate issued	30/04/07
2	Pattern reviewed & updated – variant 1 approved – certificate issued	4/04/12
3	Pattern & variant 1 amended (submittor details) – certificate issued	14/08/12

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number ‘NMI S494’ and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked ‘NMI S494’ 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 Certificates No S1/0/A or No S1/0B.

Signed by a person authorised by the Chief Metrologist to exercise his powers under Regulation 60 of the *National Measurement Regulations 1999*.

TECHNICAL SCHEDULE No S494

1. Description of Pattern approved on 16/03/07

The Smart-Fill model Version 10 (*) unattended self-service flowmetering controller/indicator (Figures 1 and 2) for use with compatible (#) approved liquid-measuring systems. May also be known as Fluid Management Technology (or FMT) instruments of the same models.

(*) The model number may have additional alphanumeric characters in the form 'Version 10.xxx'

(#) '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 -10°C to 55°C (class N)
- Power supply AC mains supply – 240 V (nominal) (range 204 V to 264 V)
  DC supply – 12 V or 24 V
- Accuracy class Class 0.5
- For use by registered clients

1.2 Design/Features

The Smart-Fill model Version 10 flowmetering controller/indicator (Figure 1) has features including:

- A touch key reader and key;
- A numeric keypad;
- A 20 character × 4 line or 16 character × 2 line alphanumeric liquid-crystal display (LCD) for user prompts and error messages;
- An Acme model 6000 calculator/indicator;
- An Acme model EPU 200 pulse generator; and
- A Citizen model CBM-270 printer or equivalent (**).

The model Version 10 may control up to a maximum of two (2) hoses provided that it is fitted with dual relay outputs enabling the selection of one of the two hoses via a solenoid valve. Note that only one output can be selected once a transaction has been started, until that transaction has been completed.

Instruments may be fitted with output sockets (output interfacing capability) for the connection of auxiliary and/or peripheral devices.

(**) 'Equivalent' is defined to mean other proprietary equipment of the same or better specifications requiring no changes to software for satisfactory operation of the complete system.

The Smart-Fill model Version 10 is approved for use with Fuel Equipment Services version v10.*** software; the software version number is displayed at the completion of each delivery and on power-up.

The delivery operation is authorised by the user placing their authorised key against the touch key reader sensors and entering the speedometer reading (not compulsory) followed by the personal identification number (PIN).

The delivery operation is completed when either the nozzle is returned to its holster activating the nozzle switch which in turn shuts off the relays which control the pumps/solenoid valves, or when the 'STOP' button (on the Acme model 6000), or when a defined timeout period expires.

1.3 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 signal 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.

1.4 Calculator/Indicator

The Smart-Fill model Version 10 uses an Acme model 6000 calculator/indicator which is also described in the documentation of approval NMI S170C, or any other (#) compatible approved calculator/indicator

1.5 Pulse Generator

The controller/indicator is approved for use with an Acme model EPU 200 pulse generator as described in the documentation of approval NSC S189B or any other compatible (#) approved measurement transducer.

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

1.6 Markings and Notices

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

Manufacturer's name or mark	Fuel Equipment Services or Fluid Management Technology Pty Ltd
Model number	……..
Serial number	……..
Pattern approval number	NMI S494
Year of manufacture	……..
Environmental class	Class N

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

1.7 Verification Provision

Provision is made for the application of a verification mark.

1.8 Sealing Provision

Provision is made for the calibration adjustments in the indicator to be sealed as described in the approval documentation for the Acme model 6000 calculator/ indicator used.

2. Description of Variant 1 approved on 4/04/12

The Smart-Fill model Version 11 (*) controller/indicator which is similar to the pattern except that it may control up to a maximum of eight (8) hoses.

(*) The model number may have additional alphanumeric characters in the form ‘Version 11.xxx’

TEST PROCEDURE No S494

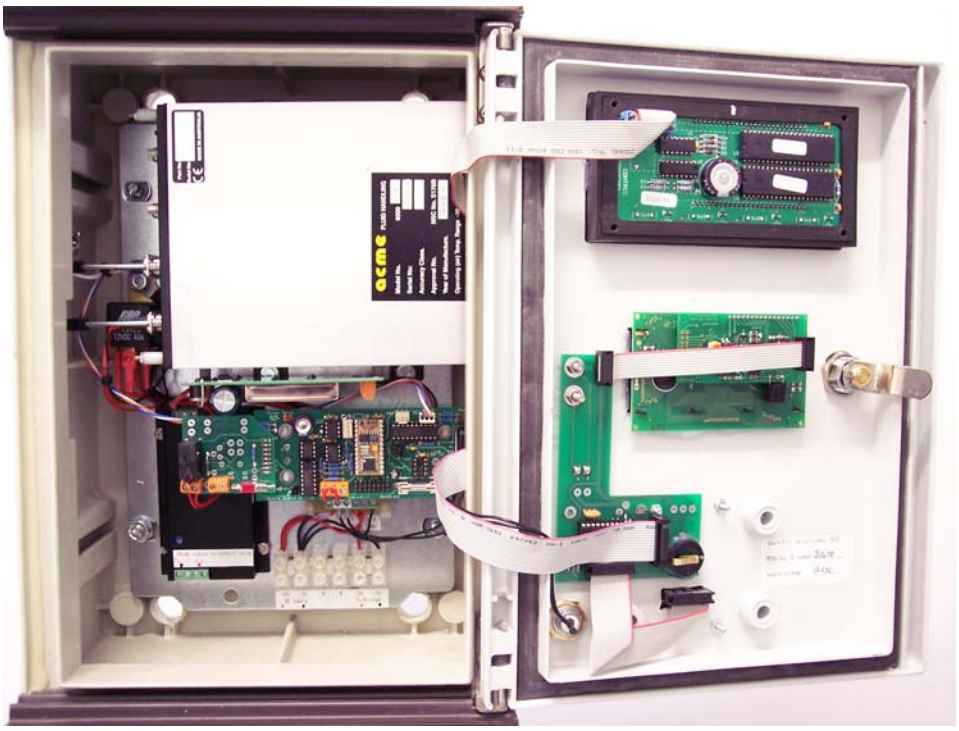
Instruments shall be tested in conjunction with any tests specified in the approval documentation for the instruments to which the pattern is connected, as appropriate, and in accordance with any relevant tests specified in the National Instrument Test Procedures.

Maximum Permissible Errors

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

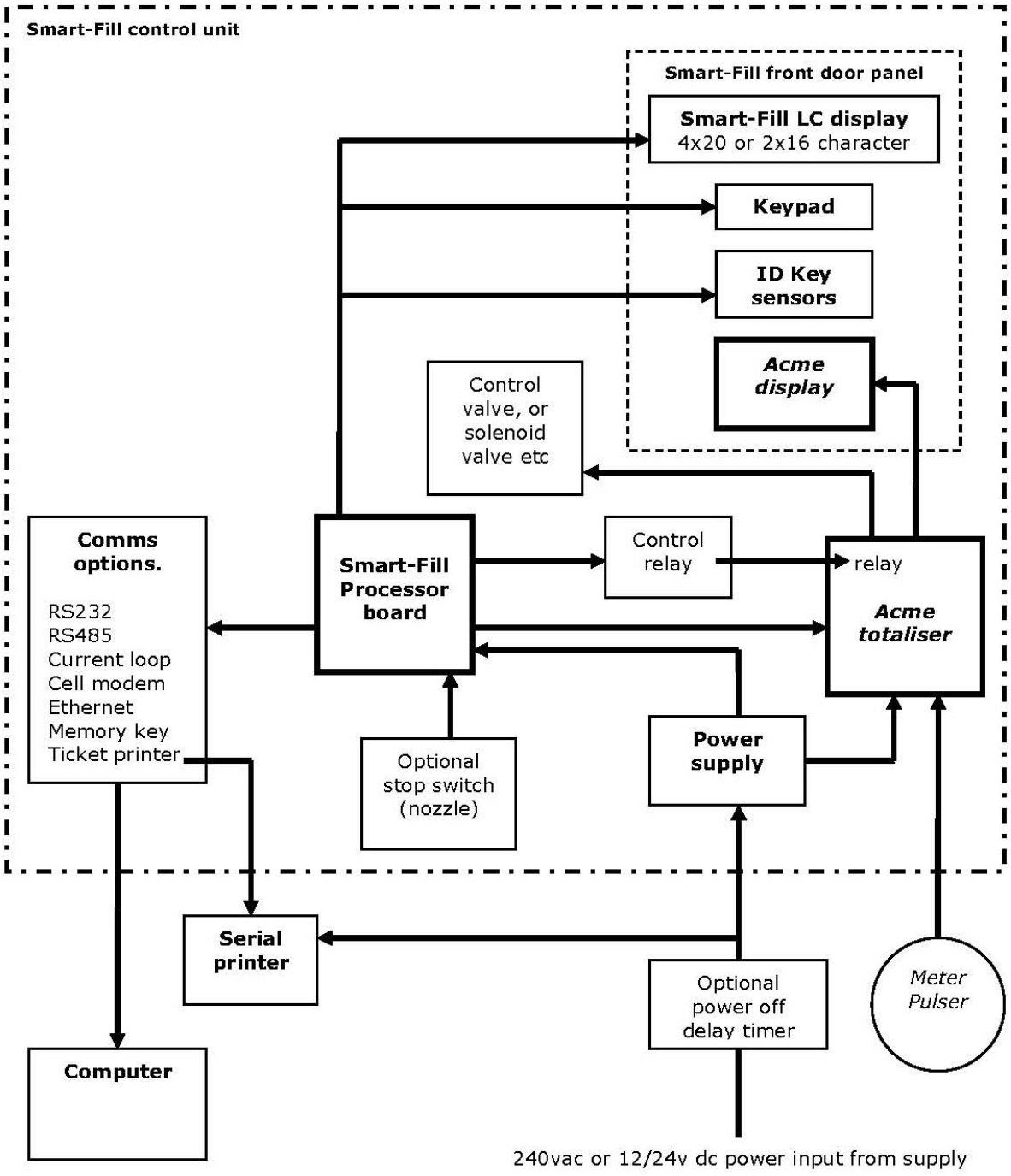
The maximum permissible errors applicable are those applicable to the fuel dispensers to which the instrument approved herein is fitted, as stated in the approval documentation for the fuel dispensers or in Schedule 1 of the *National Trade Measurement Regulations 2009*.

FIGURE S494 – 1



Smart-Fill Model Version 10 Controller/Indicator

FIGURE S494 – 2



Typical System Overview

~ End of Document ~