Australian Government
Department of Industry, Innovation and Science

National Measurement Institute

Supplementary Certificate of Approval

NMI S734

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.

MCS Model Sapphire Plus Control System for Fuel Dispensers for Motor Vehicles

submitted by Fuelchief Pty Ltd
31 Richmond Road
Homebush West NSW 2140

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 1/12/21, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern approved – certificate issued	14/11/16

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI S734' 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.

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

Dr A Rawlinson

TECHNICAL SCHEDULE No S734

1. Description of Pattern approved on 14/11/16

An MCS model Sapphire Plus control system (Figure 1) to provide unattended self-service facility for compatible (#) NMI-approved fuel dispensers for motor vehicles for registered account customers only.

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

1.1 Field of Operation

- The MCS model Sapphire Plus authorisation terminal may provide unattended self-service facility for registered account customers only.
- The MCS Sapphire Plus terminal is approved for outdoor use between -40°C and 55°C.
- The system can provide unattended self-service arrangement for approved Compac model MR40P fuel dispensers (as described in the documentation of approval NMI 5/6A/91B) or other compatible (#) NMI-approved fuel dispensers.
- The nominal supply voltage is 240 V AC.

1.2 System Description

The MCS model Sapphire Plus terminal (Figure 2) is a standalone card-operated terminal that allows unattended self-service operation of fuel dispensers.

Measurement is authorised prior to delivering fuel via a magnetic-stripe card, key reader (proximity type of various OEM) and/or by keyboard entry.

The Sapphire Plus terminal records measurement transactions and transfers the data to the Total Site Manager software (Figure 1).

The Sapphire Plus terminal is housed in a weatherproof housing for outdoor use, and includes a magnetic-stripe card or key reader, a keypad, and a liquid-crystal display (LCD), in a single unit.

A MCS model current loop adapter is connected to the terminal to provide the communication interface to the fuel dispensers.

The MCS Sapphire Plus terminal operates software modules with the following version numbers:

Software Module	Version Number
Application Loader	AppLoader-A:2.4.3-B:xxx-xxxxxxxx
Fuel Application	SAP.xxxxxx-A:1.01-B:xxx-xxxxxxxx-N:x.xx
SCCard	SCCard-A:4.6.3-B:xxx-xxxxxxxx

1.3 Checking Facilities

(i) Power Supply

The battery backup system monitors the condition of the power supply, and if a power failure is detected, all transactions in progress are stopped and the system shuts down. No new transactions can be authorised. Measurement data is stored on a non-volatile memory.

1.4 Verification Provision

The MCS model Sapphire Plus terminal has provision for the application of a verification mark.

1.5 Sealing Provision

The MCS model Sapphire Plus terminal does not require sealing.

1.6 Descriptive Markings

The terminal is marked with the following data, together in one location:

Manufacturer's name or mark	MCS
Manufacturer's designation (model number)	……
Year of manufacture	……
Serial number or other unique identifier	……
Pattern approval mark	NMI S734
Environmental class	-40°C and 55°C

TEST PROCEDURE

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

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 dispenser to which the instrument approved herein is fitted.

Note: Testing should be carried out on initial installation. Thereafter, it need not be done at every verification/certification of the fuel dispensers but may be done periodically at the discretion of the verifying authority. Operation with an authorised test card can only be done in the presence of a representative of the submittor.

The MCS model Sapphire Plus terminal shall be tested as follows:

1. Check the Sapphire Plus software version number.

   The Software Module version numbers are shown at the front display during the power on initialisation sequence.

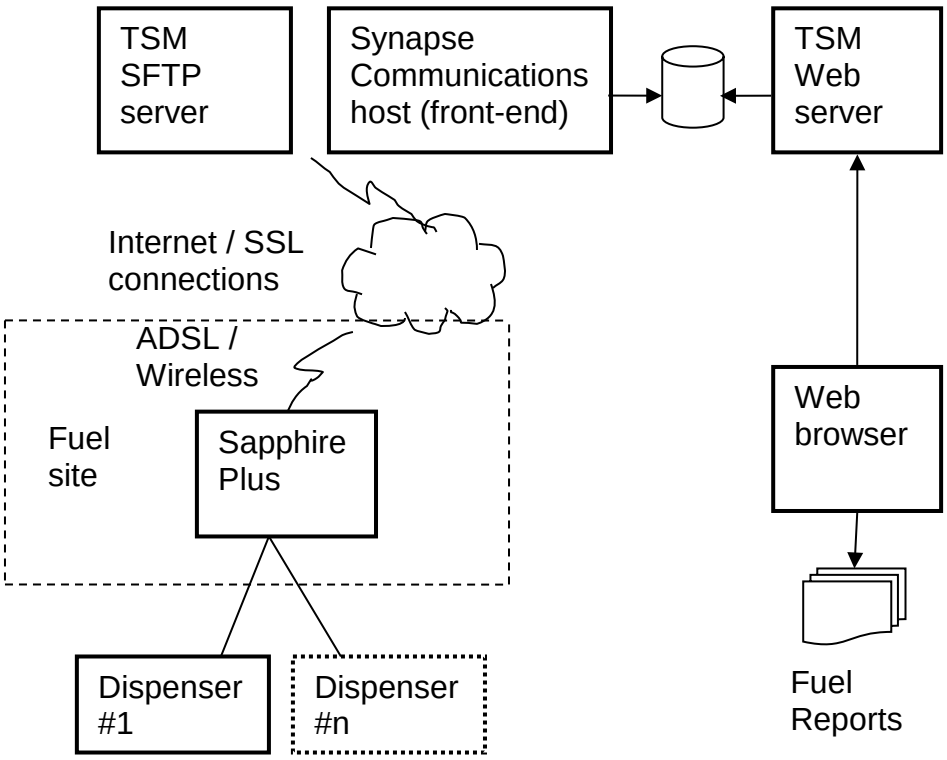
   It shows the version numbers one by one, 3 seconds per program. If at any stage during this sequence the 'V' button is pressed, the version will be shown for an extended time period, giving time to read the information carefully. Each Software Module will then be shown for 1 minute. Progress in procedure can be done by pressing a key. For each key press, the next Software Module is shown.

2. Check that the unit price change for the grade of fuel is implemented to the allocated fuel dispensers when they are available for authorisation.

3. Authorise a delivery and check that the delivery details on the fuel dispenser agree with the value indicated by the Sapphire Plus system.

4. Authorise a delivery and check that the corresponding number allocated to the fuel dispenser and the delivery details on the fuel dispenser, agree with the values recorded in the Total Site Manager web portal (TSM) against the delivery including time/date, Vehicle ID, Litres, $ and price per litre. Access to TSM requires a valid login, in order to check the delivery details and extract reports. Last delivered volume is also visible on the display of the Sapphire Plus, for verification.

FIGURE S734 – 1



MCS Model Sapphire Plus Control System – Typical System Overview

FIGURE S734 – 2

MCS Model Sapphire Plus Terminal

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