Australian Government
Department of Industry, Science and Resources

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

Supplementary Certificate of Approval

NMI S707

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.

HYDIP Model HFT-3G-S1 Control System for Fuel Dispensers for Motor Vehicles

submitted by IOR Petroleum Pty Ltd
99 Southgate Ave
Cannon Hill QLD 4170

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 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 & variants 1 to 3 provisionally approved – interim certificate issued	19/11/15
1	Pattern & variants 1 to 3 approved – interim certificate issued	28/04/16
2	Pattern & variants 1 to 3 approved – certificate issued	23/11/16
3	Variant 4 approved – certificate issued	10/09/18

Document History (cont…)

Rev	Reason/Details	Date
4	Variant 5 provisionally approved – certificate issued	13/07/21
5	Variant 5 amended (Special Conditions of Approval) – certificate issued	04/08/22
6	Variant 5 approved – certificate issued	08/03/24

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI S707' and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S707' in addition to the approval number of the instrument, and only by persons authorised by the submittor.

Instruments purporting to comply with this approval and currently marked 'NMI PS707' may be re-marked 'NMI S707' but 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.

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 S707

1. Description of Pattern provisionally approved on 19/11/15 approved on 28/04/16

A HYDIP model HFT-3G-S1 control system (Figure 1) to provide unattended self-service operation for use with Compac model MR40P fuel dispensers or other compatible (#) NMI-approved fuel dispensers 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 HYDIP model HFT-3G-S1 authorisation terminal may provide unattended self-service facility for registered account customers only.
- The HYDIP HFT-3G-S1 terminal is approved for environmental class N for outdoor use between -10°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 Features/Functions

The HYDIP model HYDIP HFT-3G-S1 terminal is a standalone RFID tag-operated terminal that allows unattended self-service operation of fuel dispensers.

The HYDIP HFT-3G-S1 terminal (Figure 2) is housed in a weatherproof housing for outdoor use, and includes a keypad and liquid-crystal display (LCD) for configuration and setup. A 3G modem synchronises fuel delivery data with an internet connected server (Figure 1).

An RF-ID tag reader and/or a pinpad and display are connected to the terminal to verify the authorisation credentials and record fuel delivery information of a customer.

A HYDIP model current loop adapter is connected to the terminal to provide the communication interface to the fuel dispensers, if required.

The HYDIP HFT-3G-S1 terminal uses IOR Petroleum version 02.xxx.xxxx software.

Tank level sensors may also be connected to the HYDIP HFT-3G-S1 for monitoring reserve volumes in storage tanks. The volumes indicated through these devices are not in use for trade.

1.3 Checking Facilities

(i) Power Supply

The system is powered by the power supply of the approved fuel dispenser. If an error or power failure is detected the system will terminate any deliveries in progress and stores the measurement details on non-volatile memory. The system synchronises data with the internet connected server.

The ability to authorise any further transactions will be prevented until the detected error condition is resolved.

1.4 Sealing Provision

The HYDIP model HYDIP HFT-3G-S1 terminal does not require sealing.

1.5 Verification Provision

Provision is made for the application of a verification mark.

1.6 Descriptive Markings

The authorisation terminal is marked with the following data:

Manufacturer's name or mark	……
Manufacturer's designation (model number)	……
Serial number	……
Pattern approval number	NMI S707
Environmental class	Class N

2. Description of Variant 1 provisionally approved on 19/11/15 approved on 28/04/16

The HYDIP model HYDIP HFT-ETH-S-1 system using an Ethernet communication network.

3. Description of Variant 2 provisionally approved on 19/11/15 approved on 28/04/16

The HYDIP model HYDIP HFT-4G-S-1 system using a 4G communication network and Pinpad/RFID reader that may also support other forms of wireless user communication technologies.

4. Description of Variant 3 provisionally approved on 19/11/15 approved on 28/04/16

Using an external 12 -24 V DC/1.5 A (18 W) power supply.

5. Description of Variant 4 approved on 10/09/18

The HYDIP model HFTX2 which is similar to the pattern but with a larger LCD display, updated housing, keypad and RF-ID tag reader and keypad integrated into a single unit (Figure 3).

6. Description of Variant 5 provisionally approved on 13/07/21 approved on 08/03/24

The HYDIP model HFTX2 control system (Figure 4) to provide unattended self-service facility for compatible (#) NMI-approved liquid-measuring systems. This variant allows authorisation of fuel by registered account customers only including suppliers utilising the Fuelcharge payment application.

The control system operates as a calculator/indicator with Veeder-Root model 7671 series pulse generators or any other compatible (#) NMI-approved dual channel measurement transducer generating compatible pulse output proportional to volume throughput.

6.1 Field of Operation

The field of operation is determined by the following characteristics:

- Environmental class C outdoor use between -25°C and 55°C.
- Maximum input frequency 1500 Hz per channel
- Environmental class -25°C to 55°C
- Accuracy class Class 0.5
- Can operate on 12 V DC or 100 to 240 V AC

6.2 System Description

The HYDIP model HFTX2 control system comprises the HFTX2 as described in Variant 4, a HYDIP Pump Display, battery-backed power supply and 4G communication network housed in a metal, weatherproof enclosure.

The HFTX2 interfaces to a HYDIP Pump Display unit which includes additional LCD displays for the indication of Volume, Price and Unit price. The indicators display to the maximum of the following values:

Volume	9999.99 L in 0.01 L increments
Price	$9999.99 in $0.01 increments
Price per litre	99999.9 in 0.1 cent increments

The HFTX2 operates firmware version year.xx. (e.g. 2023.10) The software version number is displayed in the status menu which is accessed by pressing the CLEAR button on the keypad and selecting STATUS menu option. A site manager may need to provide the service PIN to access the status menu.

The system controls solenoids/valves and/or motors on NMI-approved liquid measuring systems.

For registered account customers, the delivery operation is authorised by the user placing an authorised key against the RF-ID tag reader sensors or entering a PIN (personal identification number) to identify the equipment to be fuelled and, if required, using their key or PIN to identify the user and entering their odometer reading.

Authorisation may also be controlled by registered account customers using the Fuelcharge mobile payment application (Figure 5). The HFTX2 can be controlled by the application and paired with a keypad, card reader and contactless card reading device. (Figure 6).

6.3 Pulse Generator

The HYDIP model HFTX2 is approved for use with Veeder-Root model 7671 series pulse generator as described in the documentation of approval NMI S261A, or any other compatible (#) NMI-approved dual channel measurement transducer.

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

6.4 Checking Facilities

- The HYDIP Pump Display unit performs an automatic segment test at the start of each delivery.
- The HFTX2 monitors the presence and correct transmission of dual channel signal from the measurement transducer, and in the event of detecting a fault the instrument indicates an error code and has provision for controlling electrically-operated valves to stop the delivery.
- 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.

6.5 Verification Provision

Provision is made for the application of a verification mark.

6.6 Sealing Provision

Provision is made for the pattern to be sealed via electronic sealing devices. Parameters are accessed via a code and previous interventions are recorded in an audit log.

6.7 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 of the instrument	……..
Serial number of the instrument	……..
Pattern approval number for the instrument	NMI S707
Year of manufacture	.....
Accuracy class	0.5
Environmental class	Class C

The minimum measured quantity specified for Variant 5 is marked or displayed on the face of the indicator in the form 'Minimum Delivery x L'. (Note that this notice is NOT required for the pattern or variants that are used with NMI-Approved fuel dispensers.)

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*.

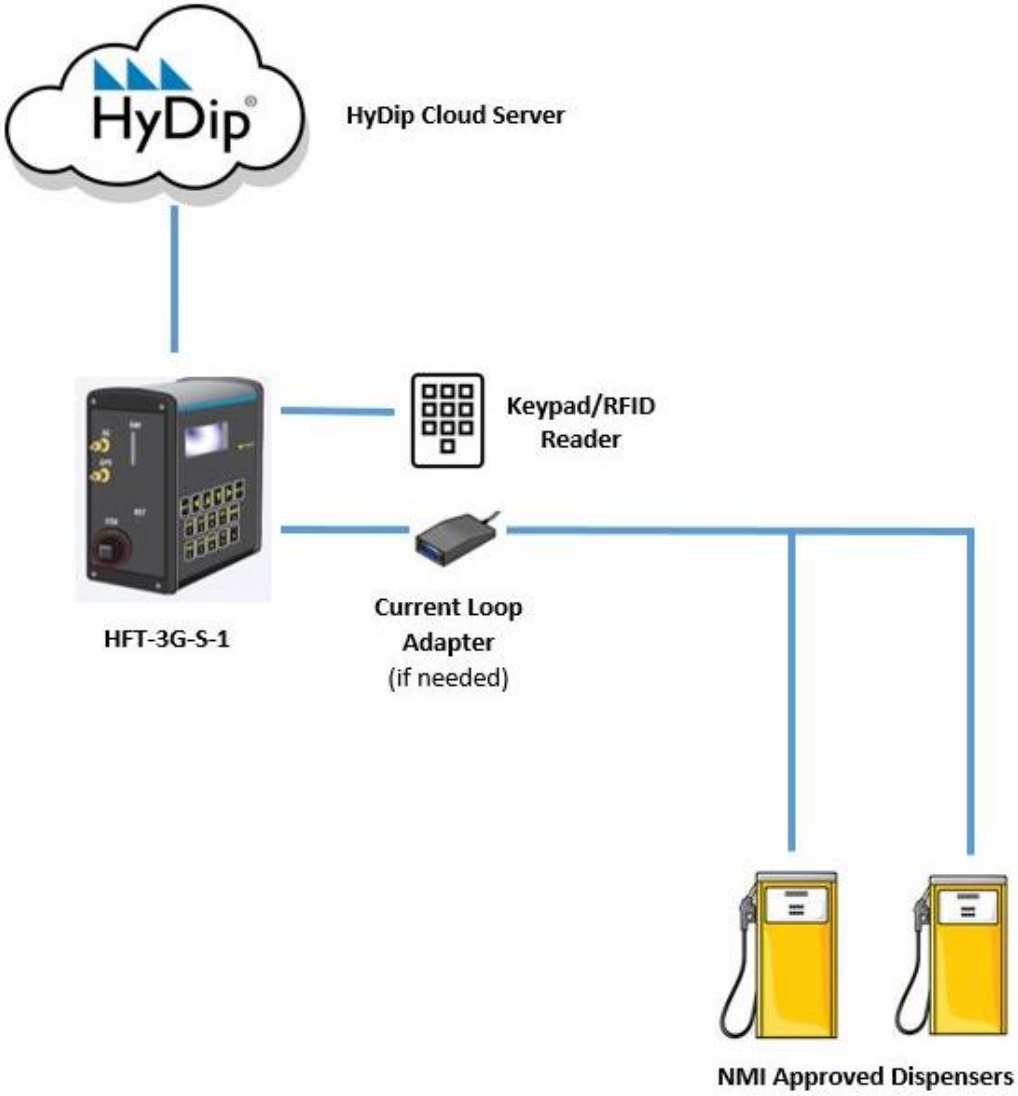
The maximum permissible errors applicable are those applicable to the fuel dispenser to which the instrument approved herein is fitted.

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 control system shall be tested as follows:

1. Check the software version number. The version number is displayed under the Status menu option
2. Check that the system identifies, displays and records the correct data for the corresponding number allocated to the fuel dispenser. Authorise a delivery and check that the delivery details on the fuel dispenser agree with the measurement data that has been stored on the remote server. An internet connected device and software application may be required

FIGURE S707 – 1



Typical HYDIP Model HYDIP HFT-3G-S-1 Control System Layout

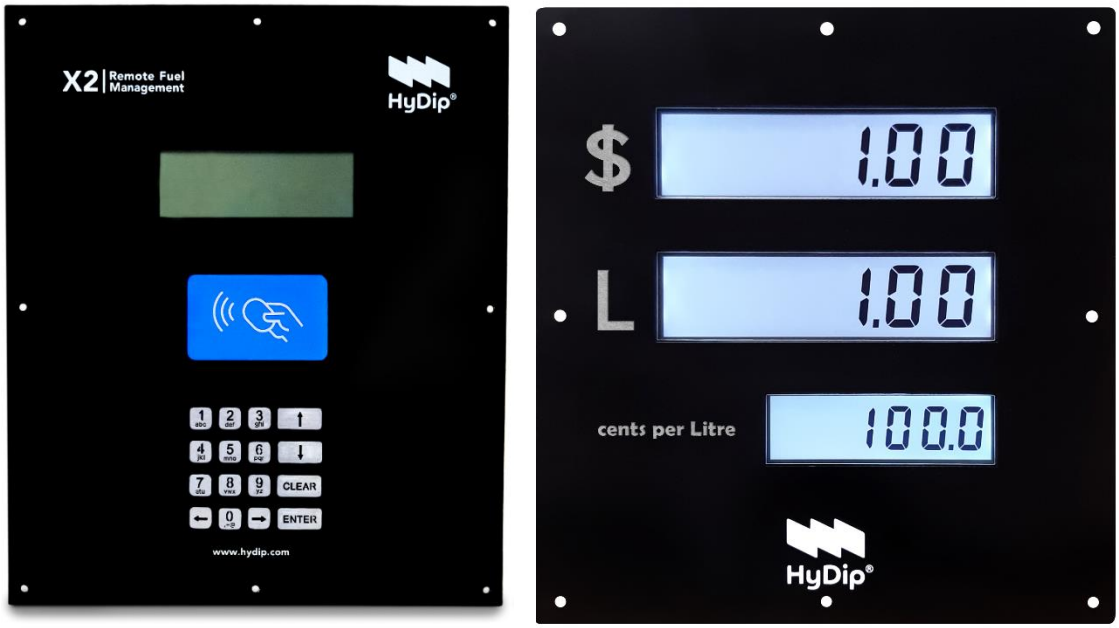
FIGURE S707 – 2

Typical HYDIP Model HYDIP HFT-3G-S-1 Terminal

FIGURE S707 – 3

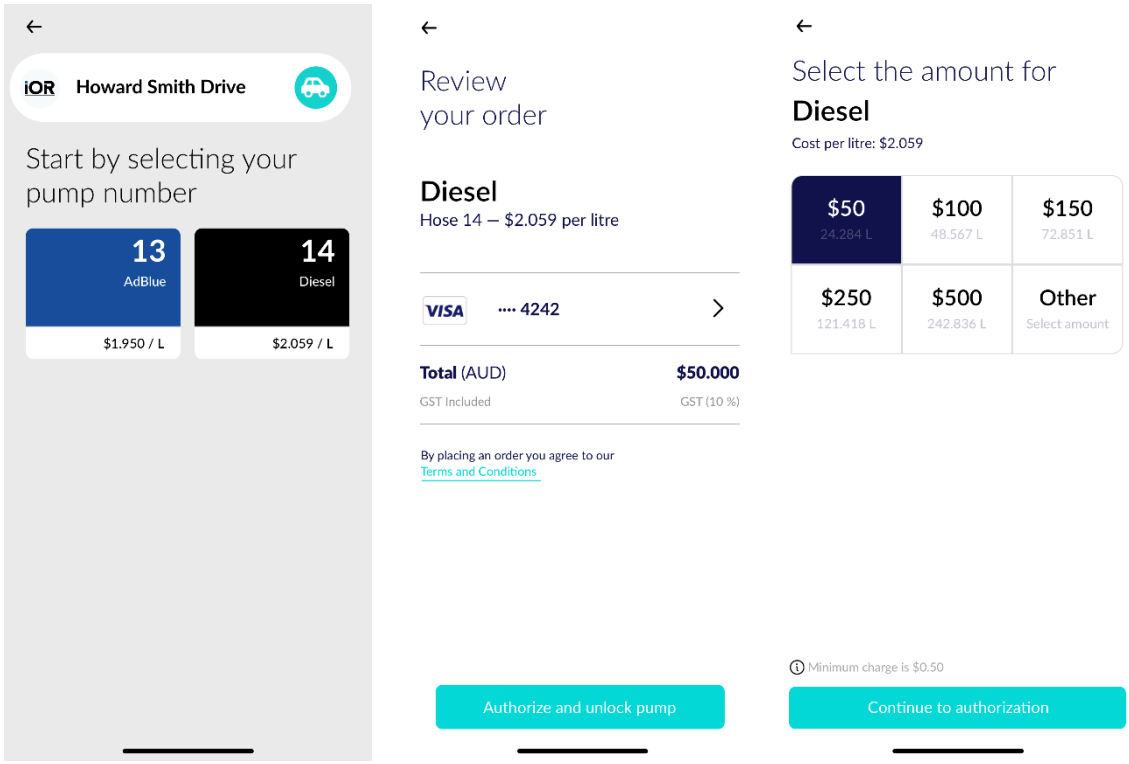
HYDIP Model HYDIP HFT2 Terminal (Variant 4)

FIGURE S707 – 4



HYDIP Model HYDIP HFTX2 and Pump Display (Variant 5)

FIGURE S707-5

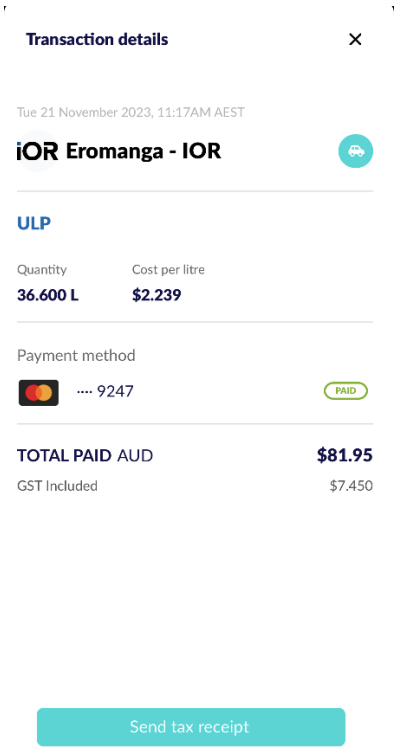


Example Fuelcharge Mobile Application (Variant 5)

FIGURE S707- 6

Typical Payment Terminal Installation & Diagram (Variant 5)

FIGURE S707- 7



Example Electronic Transaction Detail (Variant 5)

FIGURE S707- 8

Fuelcharge

Invoice date: Nov. 21, 2023

TAX INVOICE

Drew Leishman
IOR Petroleum
91737291
[redacted]

Fuelcharge Pty Ltd
99 Southgate Ave
Cannon Hill
4170
Australia
ABN 32616 990 339

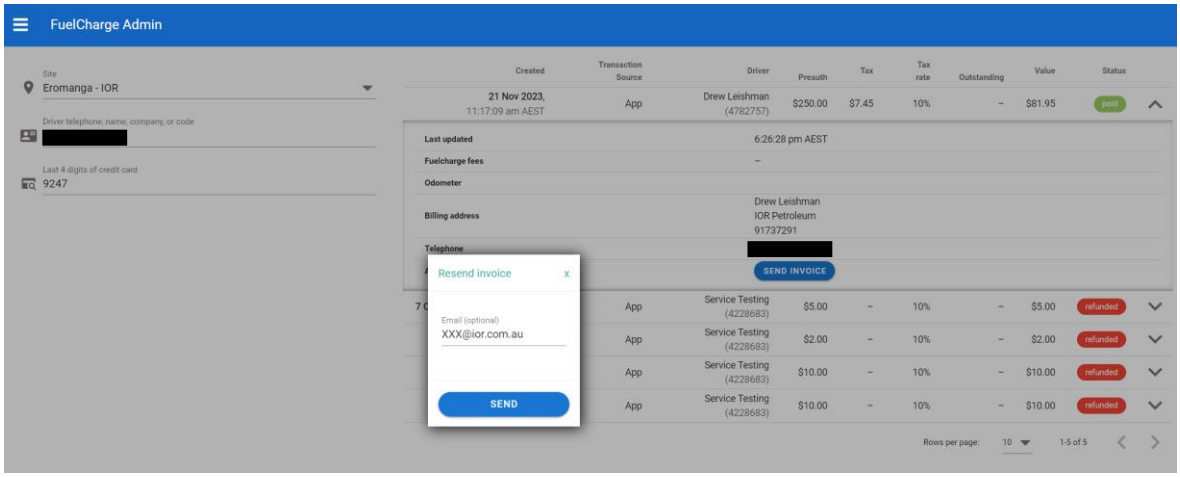
Description	Litres	CPL	Amount AUD
ULP	36.600	223.9	AUD 81.95
Site name Eromanga - IOR Hose number #2 Time & date 2023-11-21 11:17:10 Australia/Brisbane			
		TOTAL	**AUD 81.95**
		Includes GST (10 %)	**AUD 7.45**

Payments

Time & date	Reference	Amount
2023-11-21 11:19:16 Australia/Brisbane	ch_3OEiaQAq01aJDm3u1zVVG0mW (mastercard **** 9247)	AUD 81.95
	Balance owing	**AUD 0.00**

Example Receipt for the User (Variant 5)

FIGURE S707- 9



Example Resending Invoice - Admin Platform (Variant 5)

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