



Australian Government
**Department of Industry, Science,
Energy and Resources**

**National
Measurement
Institute**

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval
NMI 5/6A/236

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.

Compac Industries Model MA30STK Tank Kits for dispensing Fuel to Motor Vehicles
submitted by Compac Industries Ltd
 52 Walls Road
 Penrose Auckland 1061
 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 June 2011.

This approval becomes subject to review on 1/06/25, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern provisionally approved – interim certificate issued	22/07/17
1	Added 5 more sites & Extended date– interim certificate issued	6/07/18

DOCUMENT HISTORY (cont...)

Rev	Reason/Details	Date
2	Pattern Amended (Any compatible NMI approved Calculator/indicator) and Extended date - certificate issued	21/01/19
3	Pattern and variants 1 to 4 approved – Certificate issued	21/05/20

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 5/6A/236' and only by persons authorised by the submittor.

Instruments purporting to comply with this approval and currently marked 'NMI P5/6A/236' may be re-marked 'NMI 5/6A/236' 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.

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 5/6A/236

1. Description of Pattern **provisionally approved on 22/07/17**
approved on 21/05/20

A Compac Industries model MA30STK & MMA30STK (Figure 1) which are designed for dispensing fuel out of skids for certain (#1) motor vehicles is approved to dispense AdBlue (urea solution). The meter is adjusted to be correct for the liquid for which it is to be verified.

(#1) Vehicles having heavy duty diesel engines fitted with a Selective Catalytic Reduction (SCR) unit.

1.1 Field of Operation

The field of operation of the measuring system is determined by the following characteristics:

- Minimum measured quantity, V_{min} 2 L
- Maximum flow rate, Q_{max} 30 L/min
- Minimum flow rate, Q_{min} 3 L/min
- Maximum pressure of the liquid, P_{max} 320 kPa
- Minimum pressure of the liquid, P_{min} 50 kPa
- Dynamic viscosity (at 25°C) 1.4 mPa.s (#2)
- Maximum temperature of the liquid, T_{max} 30°C
- Minimum temperature of the liquid, T_{min} 0°C
- Ambient temperature range -25 to 55°C
- Accuracy class 0.5

(#2) The flowmeter is adjusted to be correct for AdBlue fluid AUS32 (aqueous urea solution 32.5%) for which it is to be verified.

1.2 System Description

The instrument (Figure 1) incorporates the following components:

- (i) With an external centrifugal or vane type pump installed in flooded suction and with the supply tank installed above ground. The supply tank is fitted with a low level device which prevents measurements when the device is activated.
- (ii) A measurement transducer comprising a Compac model V50 coriolis principle mass flowmeter (Figure 2) which provides a Modbus RS485 output to the calculator/indicator. This data is safeguarded with a CRC checksum over the data package. Also includes an air detection cut-out.
- (iii) A hose/nozzle, mounted on the side of the dispenser housing. The nozzle used is an Elaflex ZVA 16 mm; the hose used is an Elaflex Adblue 16 mm of 6 metres maximum length.
- (iv) A Compac model S2-350 solenoid valve is used.
- (v) A Compac model C4000 calculator/indicator (Figure 3) or any other compatible (#) NMI-approved calculator/indicator, which has 3 displays for indicating the following:
 - Volume up to 9999.99 L
 - Price up to 9999.99 \$
 - Unit price up to 999.9 ¢/L

The instrument is approved with software version HIA29253. The version number is written on the chip, or can be viewed by pressing the parameter switch once.

For any other compatible (#) NMI-approved calculator/indicator, see the NMI-approval.

1.3 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 code and has provision for controlling the electrically-operated solenoid valve to stop the delivery.

1.4 Sealing Provision

Access to the electronic meter calibration switch has provision for sealing. The lid of the measurement transducer is sealed in place during manufacture and cannot be removed without damaging the transducer.

Provision is made for the calibration adjustments of the C4000 indicator to be sealed. Figure 4 shows a typical method.

For any other compatible (#) NMI-approved calculator/indicator, see the NMI-approval.

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

1.5 Verification Provision

Provision is made for the application of a verification mark.

1.6 Markings

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

Pattern approval sign	5/6A/236	
Manufacturer's identification mark or trade mark	.....
Manufacturer's designation (model number)	.....
Serial number	.....
Year of manufacture	.....
Maximum flow rate (Q_{max})	..... L/min	
Minimum flow rate (Q_{min})	..... L/min	
Minimum measured quantity (V_{min})	..... L	(#1)
Maximum operating pressure (P_{max})	..... kPa	
Minimum operating pressure (P_{min})	..... kPa	
Nature of liquids to be measured	.....	(#2)
Maximum temperature of the liquid, T_{max}	°C	
Minimum temperature of the liquid, T_{min}	°C	
Environmental class	class C	

(#1) In addition, the minimum measured quantity (V_{min}) shall be clearly visible on any indicating device visible to the user during measurement, in the form 'Minimum delivery 2 L'.

(#2) AdBlue fluid AUS32 (aqueous urea solution 32.5%).

2. Description of Variant 1 **provisionally approved on 22/07/17**
approved on 21/05/20

Model MR80STK, MMR80STK, MR160STK, & MMR160STK (Figure 5)

The Model MR80STK, MMR80STK, MR160STK, & MMR160STK tank kits are based on certificate of Approval 5/6A/91B using submersible pumps as per variant 2.

The kits includes:

- C4000 Calculator/Indicator, as per certificate of approval 5/6A/91B or any other compatible (#) NMI-approved calculator/indicator
- 1 or 2 Commercial (litres only) or Retail (litres, Price, & Unit price) indicators, as per 5/6A/91B
- Measurement transducer: COM50(S) or COM125 rotary vane meter as per 5/6A/91B
- Parker two stage solenoid valve as per certificate of approval 5/6A/91B
- May include a preset facility which would use the above two stage solenoid to facilitate a pre-set delivery as per certificate of approval 5/6A/91B
- May have a totaliser as per certificate of approval 5/6A/91B
- May include the ComFutra self-service device as per variant 13 of certificate of approval 5/6A/91B
- May be used with a third party approved self-service device or a Compac DCA as per certificate of approval S454

The field of operation of the measuring system is as per certificate of approval 5/6A/91B

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3. Description of Variant 2 **provisionally approved on 22/07/17**
approved on 21/05/20

Model MMA30-80STK & MMA30-160STK (Figure 6)

The MMA30-80STK and MMA30-160STK Tank Kits are based on certificate of approval 5/6A/91B variant 11.

The kit includes:

- C4000 Calculator/Indicator, as per certificate of approval 5/6A/91B or any other compatible (#) NMI-approved calculator/indicator
- 1 or 2 Commercial (litres only) or Retail (litres, Price, & Unit price) indicators, as per certificate of approval 5/6A/91B
- May include the ComFutra self-service device as per variant 13 of certificate of approval 5/6A/91B
- May be used with an approved third party self-service device or a Compac DCA as per certificate of approval S454

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

Adblue Hose

- Measurement transducer: Compac V50 meter, includes air detection cut-off as per certificate of approval certificate of approval 5/6A/223
- Compac S2-350 Solenoid valve(s). This is not as per certificate of certificate of approval 5/6A/223. This solenoid is used in the CNG dispenser (12/1/8). There is no preset here so the solenoid is not critical to the measurement.

Diesel Hose

- Measurement transducer: COM50(S) or COM125 rotary vane meter as per 5/6A/91B
- Parker two stage solenoid valve as per 5/6A/91B
- May include a preset facility which would use the above two stage solenoid to facilitate a pre-set delivery as per 5/6A/91B

The field of operation of the measuring system is as per certificates of approval 5/6A/223 and 5/6A/91B

4. Description of Variant 3 provisionally approved on 22/07/17 approved on 21/05/20

Model MR400STK, MMR400-80STK, & MMR400-160STK.

The MR400STK, MMR400-80STK and MMR400-160STK Tank Kits are based on certificates 5/6B/208 and 5/6A/91B.

The kit includes:

- C4000 Calculator/Indicator, as per certificate of approval 5/6A/91B or any other compatible (#) NMI-approved calculator/indicator
- 1 or 2 Commercial (litres only) or Retail (litres, Price, & Unit price) indicators, as per certificates of approvals 5/6A/91B & 5/6B/208
- It may include the ComFutra self-service device as per variant 13 of certificate of approval certificate of approval 5/6A/91B
- It may be used with an approved third party self-service device or a Compac DCA as per certificate of approval S454

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

400lpm Hose

- Measurement transducer: Compac COM250 meter as per certificate of approval 5/6B/208
- Parker 2" solenoid valve as per certificate of approval 5/6B/208

80 or 160lpm Hose

- Measurement transducer: COM50(S) or COM125 rotary vane meter as per certificate of approval 5/6A/91B
- Parker two stage solenoid valve as per 5/6A/91B
- May include a preset facility which would use the above two stage solenoid to facilitate a pre-set delivery as per 5/6A/91B

The field of operation of the measuring system is as per 5/6B/208 and 5/6A/91B

5. Description of Variant 4

approved on 21/05/20

With the calculator/indicator of the pattern and variants now using a Compac C5000 calculator/indicator as described in the approval NMI S783

TEST PROCEDURE No 5/6A/236

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 the *National Trade Measurement Regulations 2009*.

FIGURE 5/6A/236 – 1



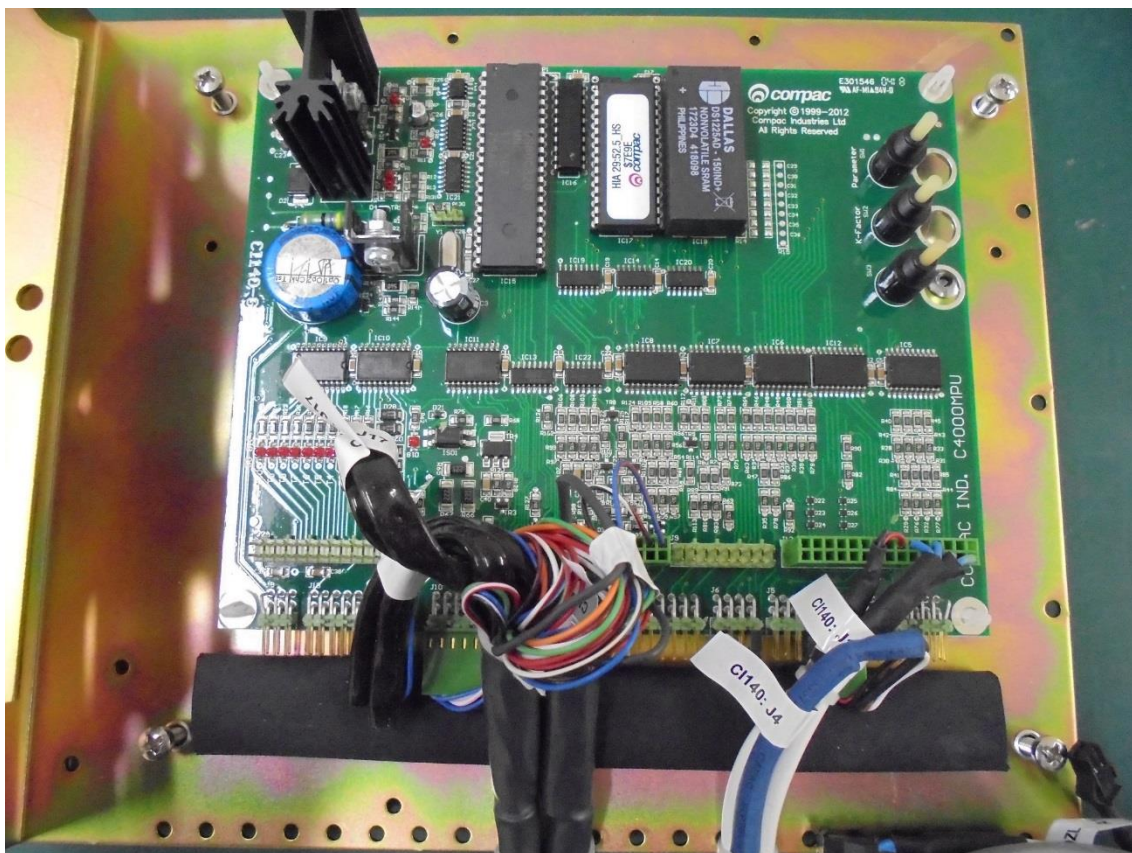
Compac Industries model MA30STK – The Pattern

FIGURE 5/6A/236 – 2



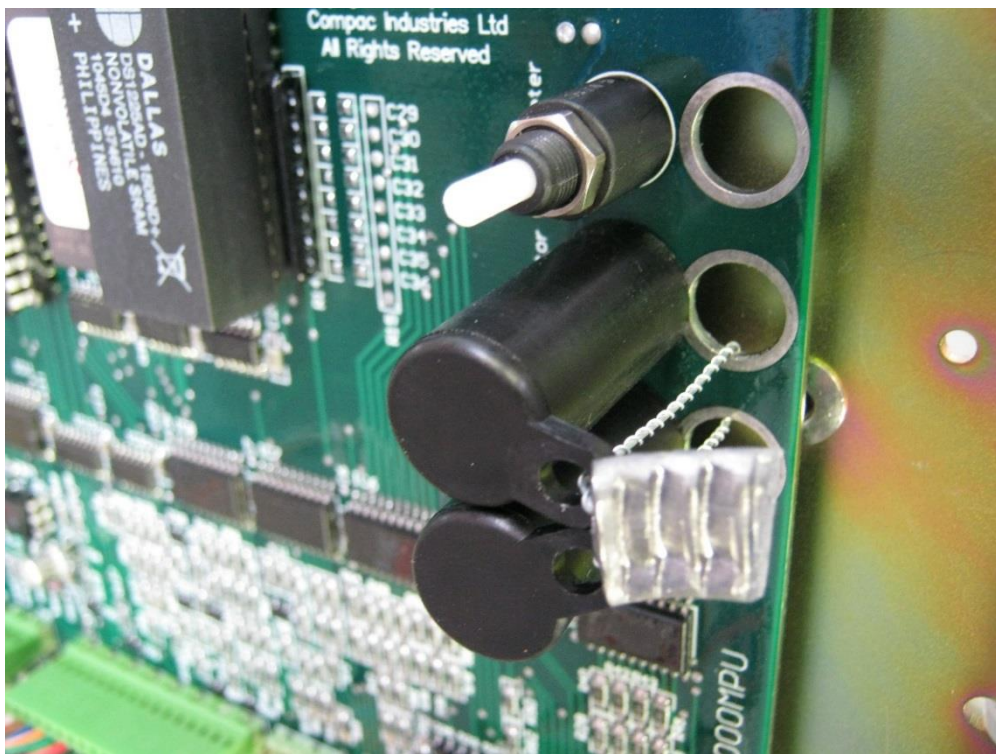
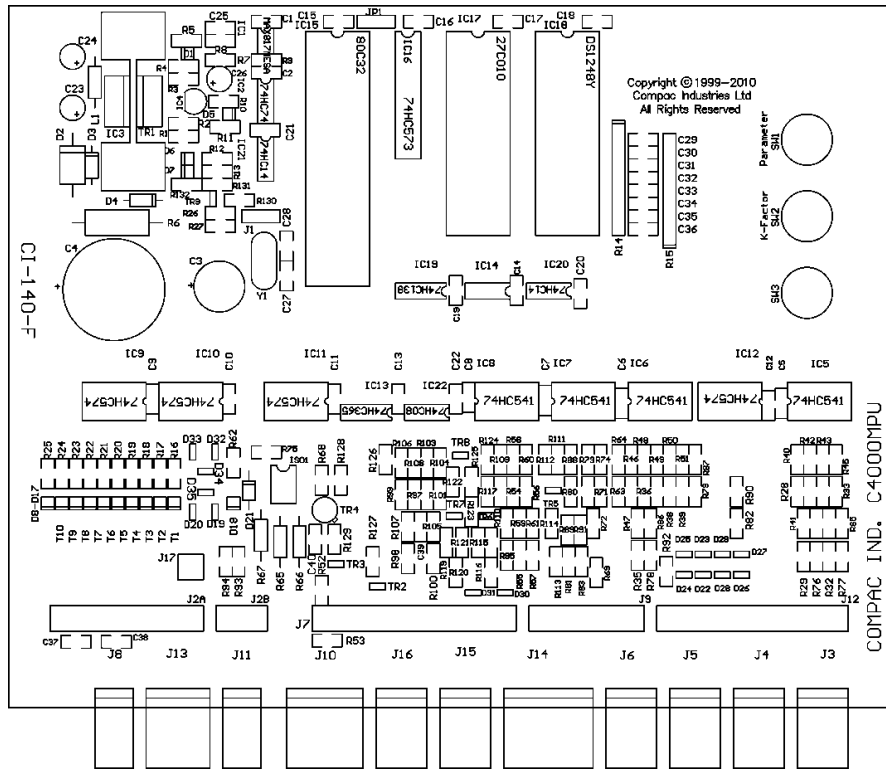
Compac Model V50 LPG Flowmeter

FIGURE 5/6A/236 – 3



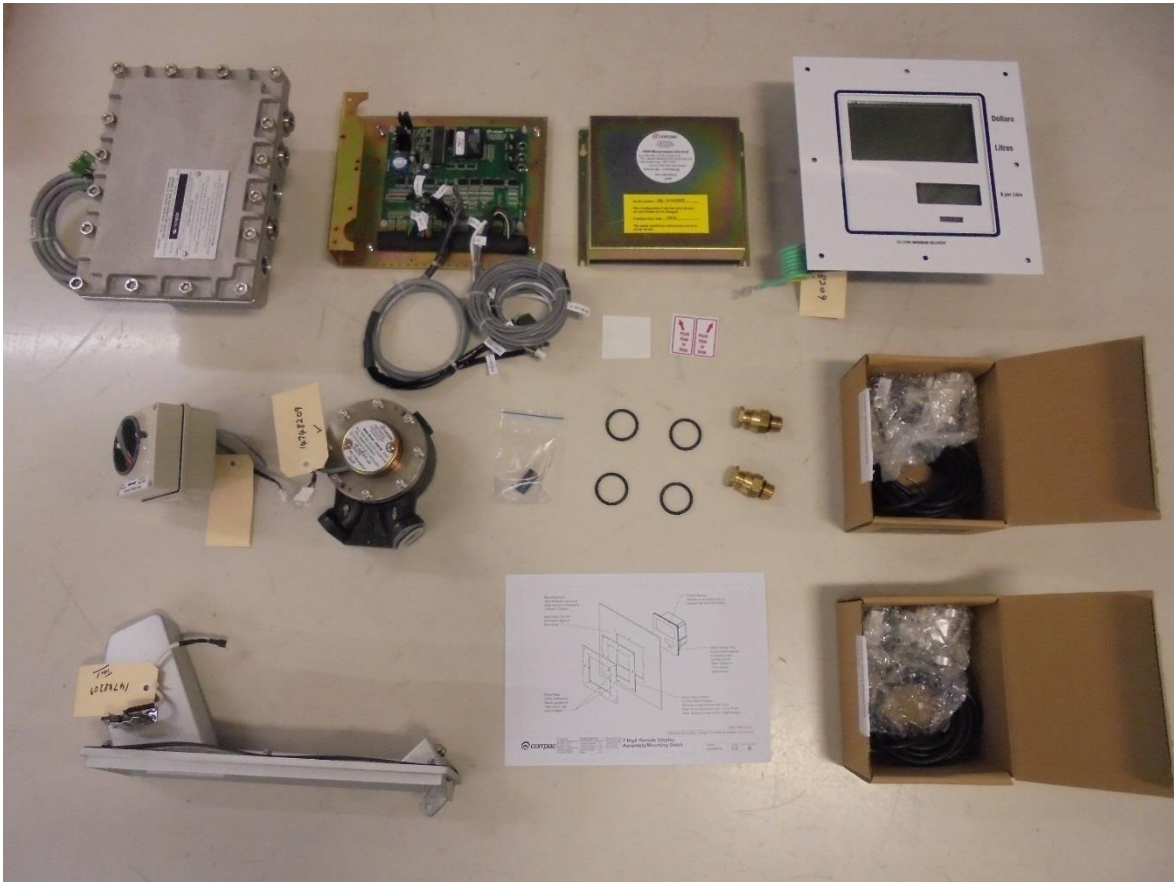
Compac Model C4000 Calculator/Indicator

FIGURE 5/6A/236 – 4



Showing Location and Typical Sealing of Configuration Switches on Processing Circuit Board

FIGURE 5/6A/236 – 5



Model MR80STK, MMR80STK, MR160STK, & MMR160STK (Variant 1)

FIGURES 5/6A/236 – 6



Model MMA30-80STK & MMA30-160STK (Variant 2)

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