S382 24 October 2006



**Australian Government** 

National Measurement Institute

Bradfield Road, West Lindfield NSW 2070

# Notification of Change Supplementary Certificate of Approval No S382 Change No 1

Issued by the Chief Metrologist under Regulation 60 of the National Measurement Regulations 1999

The following changes are made to the approval documentation for the

Ultrakust Model PETRODAT 3002 Calculator/Indicator for Liquid Measuring Systems

submitted by BARTEC Componenten und Systeme GmbH Schulstraße 30 94239 Gotteszell Germany.

 A. In Supplementary Certificate of Approval No S382 and its Technical Schedule both dated 18 May 2001, all references to the name of the submittor should be amended to read: "BARTEC GmbH"

The address remains unchanged.

- B. In Supplementary Certificate of Approval No S382 dated 18 May 2001;
  - (i) the Condition of Approval referring to the review of the approval should be amended to read:

"This approval becomes subject to review on 1 January **2011**, and then every 5 years thereafter."

(ii) the FILING ADVICE should be amended by adding the following:"Notification of Change No 1 dated 24 October 2006"

<u>Noti</u>	ficatio	n of Change No 1 to Approval S382	P	<u>age 2</u>	
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C.	In Technical Schedule No S382 dated 18 May 2001;				
	(i)	clause <b>1.1 Field of Operation</b> should be a to the density setting range to read:	amended by changing the refe	erence	
		"Density setting range for volume conve	rsion device:		
		for generalised products	660 to 1076 kg	J/m³	
		for LPG	505 to 545 kg/	m³"	
<ul> <li>(ii) clause 1.2 Calculator/Indicator should be amended by c reference to the 'main' software version to read:</li> <li>" main (version PETCO 1.28 [#])</li> </ul>				ig the	
	[#]	The main software version number is displayed at the start-up display."			
	(iii)	clause <b>1.11 Markings</b> should be amended by adding (after 'Environmental class'):			
		"Density range	505 kg/m <sup>3</sup> to 1076 kg/m <sup>3</sup>	(*)	
		Liquid temperature range	-10°C to 50°C	(*)	

(\*) Required for variant 1 instruments initially verified/certified after 1 January 2007; may be absent on 'older' instruments. May be located separately from the other markings but should be on, or adjacent to, the indicator reading face."

(iv) clause 2. Description of Variant 1 should be amended by changing the reference to the density range for liquefied petroleum gas (in the first 'bullet' point) to read, in part:

"... density between 500 and 545 kg/m<sup>3</sup> ..."

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

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# **National Standards Commission**

12 Lyonpark Road, North Ryde NSW

## **Supplementary Certificate of Approval**

## No S382

Issued 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

Ultrakust Model PETRODAT 3002 Calculator/Indicator for Liquid-measuring Systems

submitted by BARTEC Componenten und Systeme GmbH Werk Gotteszell Schulstraße 30 94239 Gotteszell Germany.

**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.

#### Supplementary Certificate of Approval No S382 Page 2

#### CONDITIONS OF APPROVAL

This approval becomes subject to review on 1 January 2006, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked NSC No S382 and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked NSC No S382 in addition to the approval number of the instrument.

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 Commission 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 the Commission's Document NSC P106.

The Commission reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

#### DESCRIPTIVE ADVICE

#### Pattern: approved 18 December 2000

• An Ultrakust model PETRODAT 3002 calculator/indicator interfaced to a Ultrakust pulse generator or any Commission-approved measurement transducer for use in a Commission-approved liquid-measuring system.

Variant: approved 18 December 2000

1. With an electronic volume conversion for temperature facility.

Technical Schedule No S382 describes the pattern and variant 1.

#### FILING ADVICE

The documentation for this approval comprises:

Certificate of Approval No S382 dated 18 May 2001 Technical Schedule No S382 dated 18 May 2001 (incl. Test Procedure) Figures 1 to 3 dated 18 May 2001

Signed by a person authorised under Regulation 60 of the National Measurement Regulations 1999 to exercise the powers and functions of the Commission under this Regulation.

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#### TECHNICAL SCHEDULE No S382

**Pattern:** Ultrakust Model PETRODAT 3002 Calculator/Indicator for Liquidmeasuring Systems.

Submittor: BARTEC Componenten und Systeme GmbH Schulstraße 30 94239 Gotteszell Germany.

#### 1. Description of Pattern

An Ultrakust model PETRODAT 3002 calculator/indicator (Figure 1) for use in liquidmeasuring systems (fixed or mobile) incorporating an Ultrakust pulse generator or any other Commission-approved compatible measurement transducer.

#### **1.1 Field of Operation**

 Ambient temperature ranges: for the calculator/indicator
 -25 to 55°C
 for the printer
 -10 to 55°C

• For use with measurement transducers approved for accuracy class 0.3 or greater In addition, for variant 1:

•	Liquid temperature conversion range	-10 to 50°C
•	Density setting range of conversion device	505 to 1076 kg/m³ at 15°C

#### 1.2 Calculator/Indicator

- (i) The calculator/indicator has a liquid crystal display, an alphanumeric keypad and four software-controlled keys to input information. The pattern uses PETCO software having version numbers as follows: main (version 1.XX [#]), print (version V100), display (version V101), T/M-Umw (version V102), Impulsg. (version V105), and BIOS (version V111).
  - [#] can be any number.

The indicator displays a maximum volume as follows:

Volume (resettable)	999999.9 in 0.1 L or 9999999 in 1 L increments
Totaliser (total counter)	9999999 in 1 L increments

#### (ii) Set-up functions

The following functions are accessed via the calibration switch situated on the front of the calculator/indicator.

- Reset of totals
- Cal-factor (range 0.01 to 99.999901)
- Flowmeter identification number
- Product data
- Transducer parameters
- Density setting (variant 1)
- Temperature calibration (variant 1)
- Temperature conversion product selection (variant 1)
- Temperature sensor (variant 1)

The calibration switch has provision for sealing (Figure 2).

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#### (iii) Batch Pre-set Facility

The calculator/indicator can be configured such that a delivery takes place only when a pre-set quantity is entered. With this facility enabled the calculator/indicator will prompt for pre-set quantity when the "start delivery" button is pressed.

A compatible flow control valve shall be connected to the signal interface module.

Note: The pre-set value is not for trade use and is only used to facilitate a delivery.

#### 1.3 Printer

The calculator/indicator may be connected to an Ultrakust Type 6881-1 slip printer via a signal interface module for providing the delivery details. (For variant 1 the printer is mandatory).

#### 1.4 Power Supply

The instrument is approved for use within a power supply voltage range of 20.4 to 26.4 volts DC.

#### 1.5 Signal Interface Module

An Ultrakust Type 6718-20 signal interface module is provided for interfacing up to two 100-ohm temperature probes, two pulse generators, and four control valves. Alternatively, an Ultrakust Type 6718-10 signal interface module may be used for interfacing one temperature probe and one pulse generator. The signal obtained by the interface module is conveyed to the calculator/indicator.

#### 1.6 Power Monitoring Module

An Ultrakust Type 6781-12 power monitoring module is provided for monitoring the input supply voltage.

#### 1.7 Pulse Generator

The calculator/indicator is approved for use with an Ultrakust Type 6716-19 pulse generator (Figure 3) producing 25 pulses per revolution with a shaft speed not exceeding 300 revolutions per minute, or any other compatible Commission-approved measurement transducer with a pulse output rate not exceeding 125 pulses/second.

#### **1.8 Checking Facilities**

When the pulse generator or measurement transducer is disconnected from the calculator/indicator, "Vol-Cont #, input phase error " will be displayed on the calculator/ indicator.

#### 1.9 Verification/Certification

Provision is made for the application of a verification/certification mark.

#### 1.10 Sealing Provision

Provision is made for the calibration adjustment switch situated on the front of the calculator/indicator to be sealed by means of a lead and wire seal preventing rotation (Figure 2).

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#### 1.11 Markings

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

Manufacturer's name or mark	BARTEC GmbH, Germany
Model number	PETRODAT 3002
Serial number	
Pattern approval sign	NSC No S382
Year of manufacture	
Environmental class	class I

When the electronic volume conversion for temperature facility (variant 1) is activated, the indicator reading face shall be marked "Litres at 15°C" (or similar) for applications other than LPG.

Note: The printer has an operating temperature range of -10 to 55°C, Environmental Class N.

The minimum measured quantity of the measuring system shall in all cases be clearly marked on any indicating device and visible to the user during the measurement.

#### 2. Description of Variant 1

With the electronic volume conversion for temperature facility enabled to convert the measured volume to volume at 15°C for the following products:

- Liquefied petroleum gas with a density between 500 and 600 kg/m<sup>3</sup> at 15°C in steps of 1 kg/m<sup>3</sup>, based on ASTM-IP-API Petroleum Measurement Tables, metric editions, Table 54 for LPG.
- Generalised products with a density range from 660 to 1076 kg/m<sup>3</sup> at 15°C, in steps of 1 kg/m<sup>3</sup>, based on ASTM-IP-API Petroleum Measurement Tables, metric editions, Table 54B for Generalised products.

For use with an Ultrakust Type 6702-30 100 ohm temperature sensor, or any other compatible temperature sensor.

A printer is required for this variant to print the manually-set density

#### 2.1 Checking Facility for Variant 1

- 1. If the temperature is out of range, "Value not within user-defined limits Short circuit" will be displayed on the calculator/indicator.
- 2. If the density is out of range the message "Value entered higher/lower than permitted" will be displayed on the calculator/indicator.
- 3. A printer is required for this variant to print the manually-set density. If the printer is disconnected or if the printer is out of paper, "Paper out" will be displayed on the calculator/indicator.

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#### TEST PROCEDURE

Instruments should be tested in accordance with any tests included in the approval documentation for the system in which the pattern is fitted, and in accordance with any relevant tests specified in the Inspector's Handbook.

The maximum permissible errors applicable are those specified below and those specified for the flowmetering system in which the pattern is fitted, as stated in the approval documentation for the system.

# Recommended Procedure For Systems With Volume Conversion for Temperature Facility Enabled.

- 1. Carry out not less than three deliveries.
- 2. Record the displayed volume at 15°C (converted volume), and provided that the "page 2" feature has been enabled, use the soft key to view page 2 and record the following:
  - volume at operating conditions (i.e. the unconverted volume);
  - density setting; and
  - average temperature of the liquid.
- 3. Check that the density setting is within ±1 kg/m<sup>3</sup> for accuracy class 0.5 and 0.3 applications, and within ±2 kg/m<sup>3</sup> for class 1.0 applications, using a reference hydrometer.
- 4. Check that the displayed average temperature of the liquid is within  $\pm 0.3^{\circ}$ C for accuracy class 0.3 and  $\pm 0.5^{\circ}$ C for both class 0.5 and class 1.0, of the temperature measured by a reference thermometer.
- 5. Check that the difference between the displayed volume at 15°C and the calculated converted volume is within the maximum permissible errors specified for the conversion device, i.e.

±0.4% for accuracy class 1.0 applications;

±0.2% for accuracy class 0.5 applications; and

±0.1% for accuracy class 0.3 applications.

FIGURE S382 - 1



Ultrakust Model PETRODAT 3002 Calculator/Indicator

### FIGURE S382 - 2



Calibration Switch (Closed Position)

FIGURE S382 - 3



**Pulse Generator**