

# National Standards Commission



## Supplementary Certificate of Approval

**No S296**

Issued under Regulation 9  
of the  
National Measurement (Patterns of Measuring Instruments) Regulations

This is to certify that an approval for use for trade has been granted in respect of the

Contrec Model 405L Indicator for Liquid-measuring Systems

submitted by Contrec Systems Pty Ltd  
22 Hall Street  
Hawthorn East VIC 3123.

**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.

### CONDITIONS OF APPROVAL

This approval is subject to review on or after 1/1/98.  
This approval expires in respect of new instruments on 1/1/99.

Instruments purporting to comply with this approval shall be marked NSC No S296 and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked NSC No S296 in addition to the approval number of the instrument.

It is the submitter'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 106.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificate No S1/0/A.

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

#### DESCRIPTIVE ADVICE

**Pattern:** approved 14/12/92

- . A Contrec model 405L indicator for use in Commission-approved liquid-measuring systems.

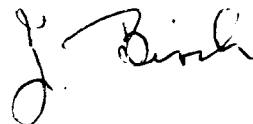
Technical Schedule No S296 describes the pattern.

#### FILING ADVICE

The documentation for this approval comprises:

Supplementary Certificate of Approval No S296 dated 19/4/93  
Technical Schedule No S296 dated 19/4/93 (incl. Test Procedure)  
Figures 1 and 2 dated 19/4/93

Signed and sealed by a person authorised under Regulation 9 of the National Measurement (Patterns of Measuring Instruments) Regulations to exercise the powers and functions of the Commission under this Regulation.





# National Standards Commission

## TECHNICAL SCHEDULE No S296

**Pattern:** Contrec Model 405L Indicator for Liquid-measuring Systems.

**Submittor:** Contrec Systems Pty Ltd  
22 Hall Street  
Hawthorn East VIC 3123.

### 1. Description of Pattern

A Contrec model 405L indicator for use in Commission-approved liquid-measuring systems. The indicator may be as shown in Figure 1 or in alternative housings including in a 'flameproof' enclosure similar to that shown in Figure 2 (which has an additional display and different button labels).

#### 1.1 Signal Interface

The indicator shall be used with a Veeder-Root 7671 series pulse generator (as described in the documentation of NSC approval No 216A) or other compatible Commission-approved pulse generators. The indicator and pulse generator shall be interfaced in accordance with the manufacturer's recommendations. The flowmeter shall be used within a flow rate range such that the pulse generator output does not exceed 420 000 pulses per minute.

#### 1.2 Power Supply

The instrument operates with either AC mains supply or DC supply (12 to 28 V). If power is disconnected, the totaliser value and the last volume delivered are retained in a non-volatile memory. The AC supply version also has a battery back-up for indication recall.

#### 1.3 Display

When power is applied, a display check is initiated causing all segments to illuminate for about 5 seconds, after which the last volume delivered is displayed.

Volume (resettable)	99999.9 in 0.1 L increments
Totaliser	999999 in 1 L increments

Note: The volume indicator may be set to read in litres or decalitres; the net (resettable \*) total may be viewed while depressing the TOTAL button, and the accumulated (non-resettable #) total may be viewed while depressing the DISPLAY button. (\* - resettable via the RESET button on the front panel; # - not resettable via the front panel).

#### 1.4 Volume Conversion For Temperature

A volume conversion for temperature facility is fitted for use with liquids having a temperature range of 0°C to 40°C and for the range of densities from 0.510 kg/L to 1.000 kg/L at 15°C.

### 1.5 Linearisation

A multipoint linearisation facility is available to linearise the calibration curve of the meter over a total of 10 points all of which are presettable within the flow rate range of the meter.

### 1.6 Markings

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

Manufacturer's name or mark	
Model number	
Serial number	
NSC approval number	NSC No S296
Liquid temperature range	0°C to 40°C
Liquid density range	.....
Density for which the conversion device is set	..... kg/L(*)

When the volume conversion device is activated, the indicator reading face shall be marked 'Reference Temperature 15°C' or 'Litres at 15°C', or similar wording.

### 1.7 Sealing and Verification/Certification Provision

Provision is made for sealing the calibration functions by preventing access to the relevant terminals on the terminal block on the rear of the indicator.

Provision is made for a verification/certification mark to be applied

## TEST PROCEDURE

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

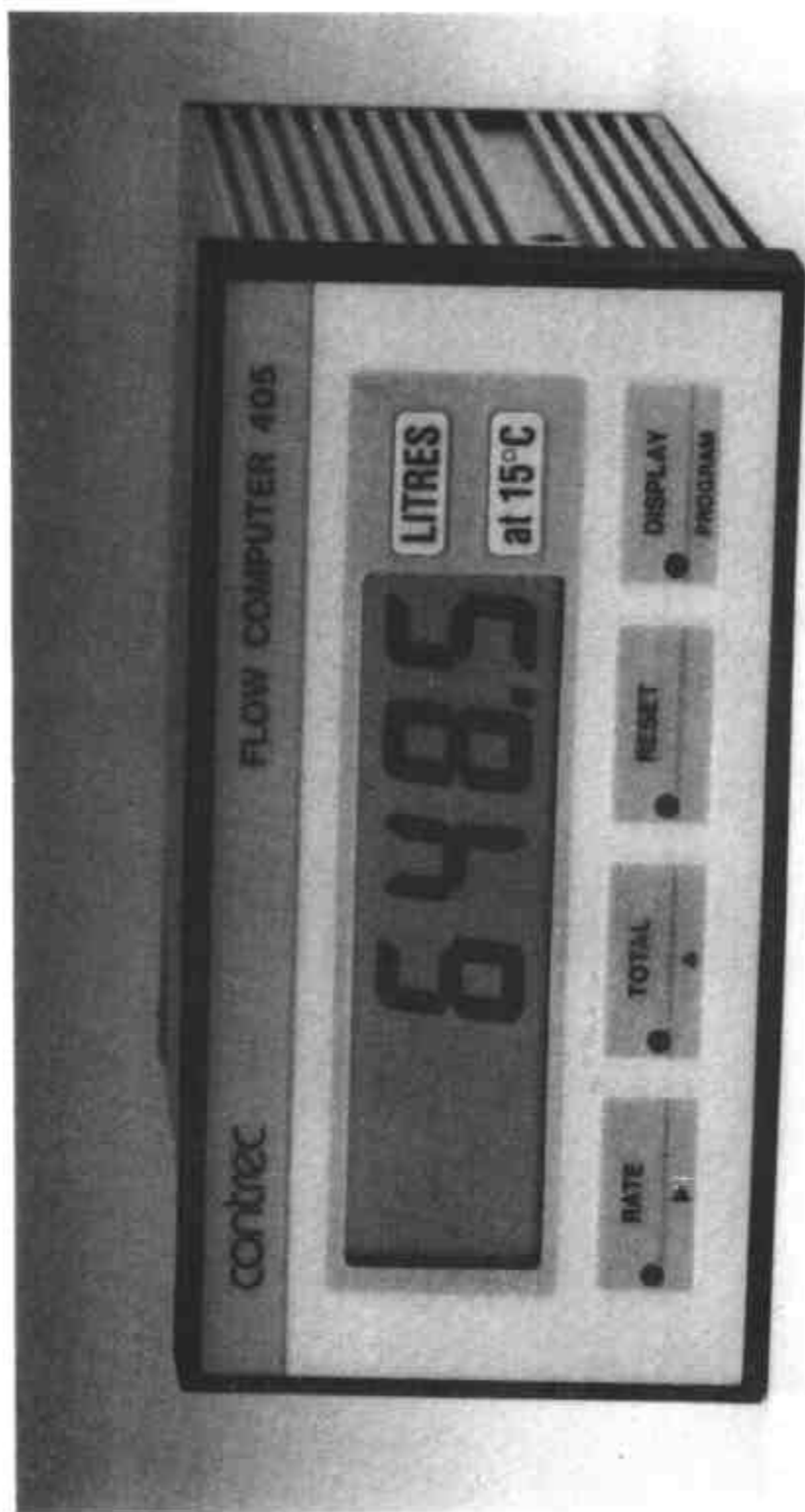
### Maximum Permissible Errors at Verification/Certification

The maximum permissible errors applicable are those applicable to the system to which the instrument approved herein is fitted, as stated in the approval documentation for the system.

Where an instrument is fitted with a device to convert the indication of volume to volume at reference conditions, the maximum permissible error specified above is increased by 0.2% when the volume convertor is activated.

Reference conditions for petroleum liquids are specified in Australian Standard 2649 - 1983, *Petroleum Liquids and Gases - Measurement - Standard Reference Conditions*.

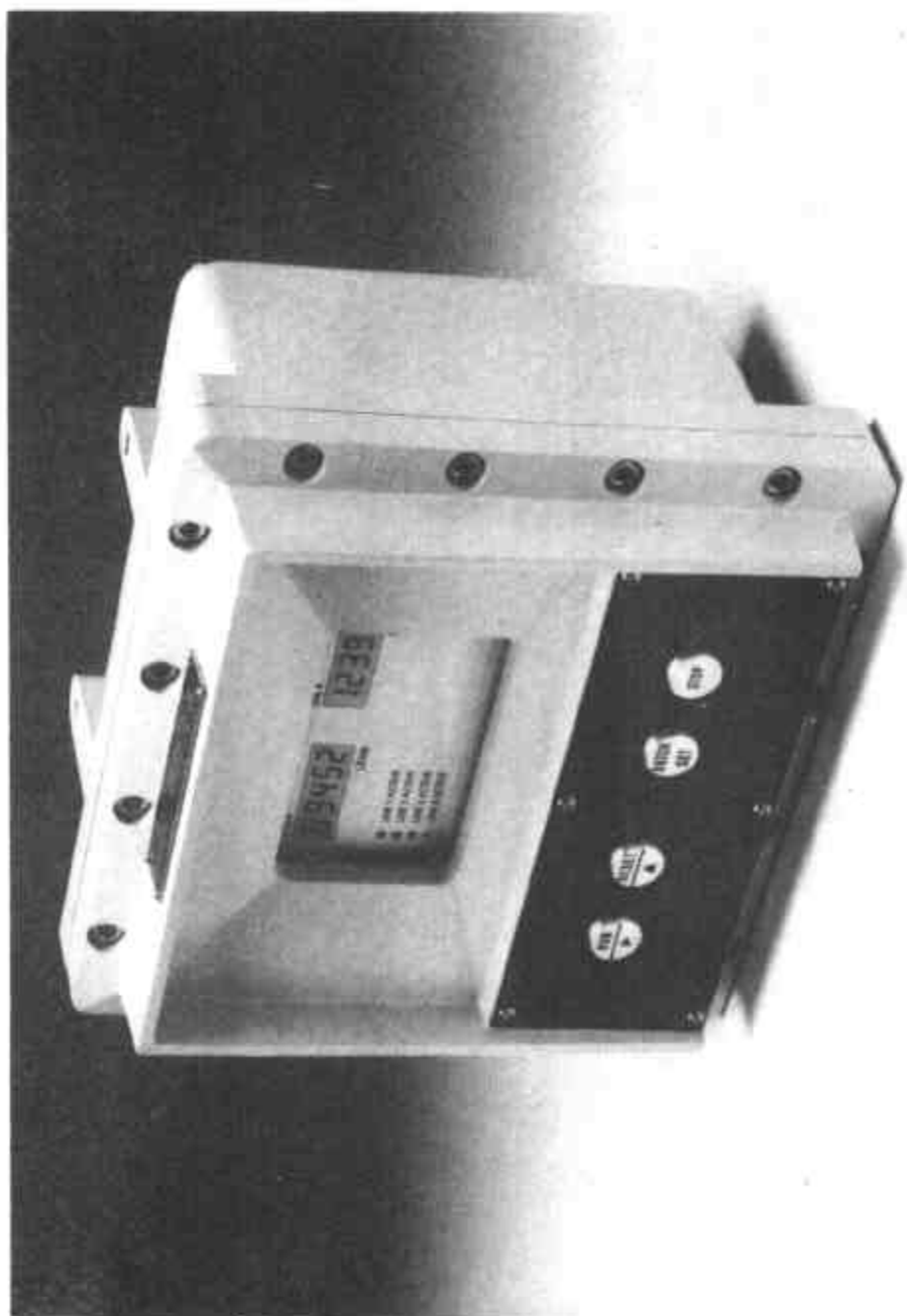
FIGURE S296 - 1



S296  
19/4/93

Contrec Model 405L Flowmetering Indicator

FIGURE S296 - 2



( An Alternative ('Flameproof') Housing )