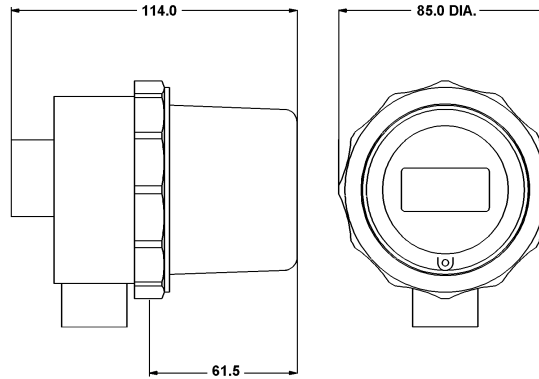
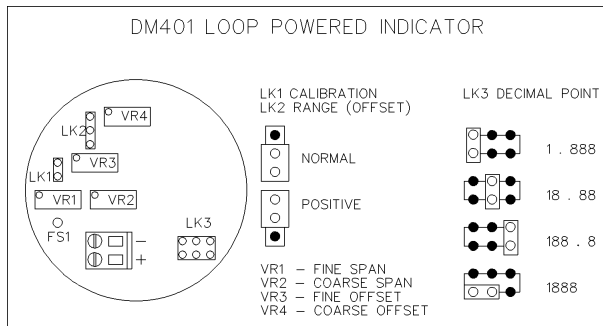
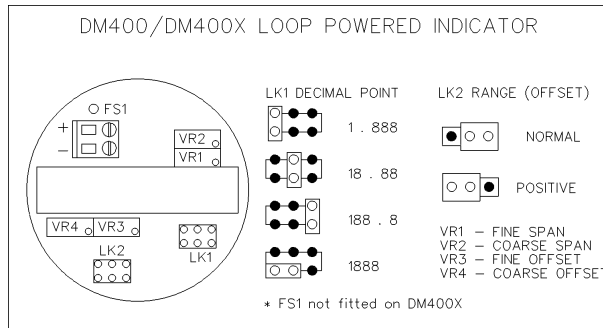


**5.2.1 Example Range 50/150 °C, Span 100 °C For DM400/DM400X.**

- Check 'Decimal Point' link set to 100.0 °C.
- Ensure 'Range' link is set to normal position.
- Turn coarse offset potentiometer fully clockwise.
- Set current to 16mA and adjust coarse and then fine span potentiometers until display reads 100.0 °C.
- Set current to 4mA and adjust coarse and the fine offset potentiometers until display reads 50 °C.
- Set current to 20mA and check display reads 150 °C.
- Set current to 12mA and check display reads 100 °C, +/- count.
- Switch off supply and remove test equipment.

**6.0 COMPONENT LOCATION**

Figure 1. DM400/DM400X Links



**7.0 MECHANICAL DETAILS**

Diameter : 85mm including retaining nut, (indicator only)  
Length : 61.5mm, (indicator only)

**Notes :** SCH4 body is purchased separately.

# DM400 SERIES LOOP POWERED INDICATORS

Designed, manufactured & supported by :



Green Lane , Tewkesbury  
Glos, GL20 8DE, UK  
Telephone : 01684 296818  
Fax : 01684 293746  
Email : support@status.co.uk

Every effort has been taken to ensure the accuracy of this specification, however we do not accept responsibility for damage, injury, loss or expense resulting from errors and omissions, and we reserve the right of amendment without notice.

Stock code : 52-314-2031-01

Issue: 02

## 1.0 RECEIVING & UNPACKING

The packaging has been designed to afford maximum protection and to ensure that the instrument arrives in perfect condition, however we cannot guarantee that the instrument has not been exposed to unduly rough handling in transit.

Unpack the instrument carefully and if there is any sign of damage or discrepancies, please notify the sales office immediately and retain all packaging materials.

The unit is packed in a re-usable container. After removal of the unit, the packing should be retained for future use. If returning to factory for re-calibration or service please use original packing to provide maximum protection.

## 2.0 DESCRIPTION

The DM400 series loop powered indicators are designed for series connection into a 4/20mA current loop and to display digitally, in engineering units, the process variable represented by the current flow. The 3½ digit LCD display is incorporated into a cap which can be fitted to a SCH4 body. This base is equipped with a variety of fittings, which enable it to be probe or wall mounted. The assembly is fully sealed to IP67.

The DM400 needs only 1 volt from the loop.

The DM401 is identical to the DM400 except that it requires 3 volts from the loop.

The DM400X is a version approved for Hazardous Area use and requires 1.6 volts from the loop.

All units are CE compliant in accordance with BS EN 50081-1 and BSEN 50082-1.

## 3.0 INSTALLATION & WIRING

### 3.1 General Precautions

- The indicator should remain in its packaging prior to installation and stored in a dry environment not subject to extremes of temperature.
- The indicator should not be installed adjacent to switch gear, electromagnetic starters, contactors, thyristor power units or motors.
- The signal cables connected to the indicator should not **run** in the same trunking as power cables. Screened cables are recommended at all times.
- Always fit the correct size cable glands and 'O' ring seal to the SCH4 base unit to preserve the IP67 sealing. The electronic circuit will be affected by moisture and in some cases be damaged beyond repair.
- Always ensure the cap retaining nut is screwed down tightly.
- The indicator must be correctly installed on a base for "CE" compliance.

used in hazardous areas :

- 1) The electrical circuit in the hazardous area must be capable of withstanding an A.C. test voltage of 500v RMS to earth or frame of the apparatus.
- 2) The capacitance and either the inductance or the inductance to resistance (L/R) ratio of the hazardous area cables must not exceed the parameters specified in the schedule of the appropriate safety barrier certificate and/or systems certificate.
- 3) The installation must comply with requirement as specified in BS5345 Part 4 1977.
- 4) For further information ask for systems drawing SD3-1247-01.

### 3.2 Installation

- a) Legends are fitted by the user into a pocket on the under side of the product label. Units are supplied with the label and legend sheet loose, the required legend must be cut from the sheet provided and inserted into the pocket BEFORE the label is fixed to the indicator.

Note : on the DM400X the label and legend are fitted during manufacture.

- b) The indicator cap mounts directly onto a SCH4 base unit. The base unit may be directly mounted onto a probe assembly or surface mounted. Room is provided in the base to house a two wire transmitter. Base units are available with up to three entries.
- c) Indicators are normally supplied factory calibrated to the specified range at the time of ordering and no further adjustments are required. If the range was not specified the unit will be set for 0.0 to 100.0 °C range. If a new range or calibration check is required refer to section 5.0.
- d) Once installation has been completed remove the protective film from the label.

### 3.3 Wiring

**WARNING: Wiring directly across 24v supply will blow the fuse.**

- a) The indicator is a two wire device, designed to be connected in series with a 4/20mA current loop. Connection can be made at any point. Refer to section 6.0 for connection details.
- b) A two part screw terminal block is provided for connection. The screw terminal section unplugs from the indicator PCB to allow easy connection.

## 4.0 TROUBLESHOOTING

If the indicator is connected and found not to function correctly review the following procedures :

- a) Check all electrical connections are clean and tight and of the correct polarity. Check correct links are set.
- b) Verify that the loop supply available to the indicator is greater than the minimum operating voltage.
- c) Connect a current meter in series with the current loop and check current is between 4/20 mA. If possible vary current over the working range. If no current is present check the PCB mounted fuse FS1 (not fitted to DM400X) and replace if blown. For more details refer to section 6.0.
- d) Check the polarity of the wiring is correct.
- e) If the above tests fail to provide a working system, replace the indicator with a new unit and return faulty unit for repair.

## 5.0 CALIBRATION

- **CAUTION** Calibration **MUST NOT** be carried out in the Hazardous Area.

### 5.1 Equipment

Current calibrator range 0/20 mA dc. Accuracy 0.01%

### 5.2 Procedure

- a) Connect calibrator to indicator terminals in order to simulate current loop. Set to 20mA and allow two minutes warm up period.
- b) Set the required decimal point position by fitting 'Decimal Point' link to the correct position. Refer to Fig 1 for the correct position.
- c) DM400 & DM400X set 'Range' link to 'Normal' position. On the DM401 remove 'Range' link and fit to 'Calibration' position. Turn coarse offset potentiometer to fully clockwise position.
- d) Set current to 16mA, adjust coarse and then fine span potentiometers to obtain the required display span. Note span equals the expected 20mA reading minus the expected 4mA reading.
- e) On the DM401 only remove the link from the 'Calibration' position and return the link to the 'Range' position.
- f) Set the current to 4mA and adjust coarse and then fine off set potentiometers to obtain the required reading at 4mA. If the required reading is positive and cannot be obtained move 'Range' link to 'Positive' position to obtain more adjustment.
- g) Set current to 20mA and check display for the correct 20mA reading. Small errors of up to two counts may be trimmed out using the fine potentiometer. Errors greater than two counts point to incorrect calibration in step d) possibly due to the incorrect calculation of span. return to step c) and repeat procedure.
- h) Set current to 12mA and check display reads mid scale +/-1 count.
- i) Switch off supply and remove test equipment.