BATTERY POWERED DIGITAL THERMOMETER

1.0 DESCRIPTION

The DM640 series is a range of battery powered temperature indicators. The DM640/P accepts an RTD sensor.

The sensor type, temperature units and other flexible configuration settings are selectable via a simple to use menu system, which is navigated by the use of three push-button keys located on the rear of the display.

The entire assembly is sealed into a cap that fits directly onto the SCH4 series of connecting heads. Please refer to the datasheet for further information. ATEX versions are available for hazardous area use.

2.0 RECEIVING AND UNPACKING

Please inspect the packaging and instrument thoroughly for any signs of transit damage. If the instrument has been damaged, please notify your supplier immediately.

3.0 SPECIFICATION @ 20°C

DM640/P

Accuracy	±0.2°C ±0.1% of reading (plus sensor error)
Resolution	0.1 °C
Measuring range	-100 to 800°C
Stability	Zero 0.01°C/°C
	Span 0.005%/°C
Sensor	3 wire Pt100 to BS EN 60751 (adjustable) or Ni120
Lead Effect	10W per leg insignificant effect
Units	°C (default) or °F
Sensor Type	Pt100 (default) or Ni120

DM640 General

Display	4 digit LCD
Battery Standard	ANSI AA ER14505: IEC ER6
Type	3.6 V Lithium Thionyl Chloride (2.4 A/Hr.)
Operating Current	80mA average
Battery Life	> 1 year @ 68°F
Ambient Temperature	-10 to 70°C (Storage -20 to 85°C)
ATEX Approval	Optional
EMC Approval	Tested to BS EN 61326
Mechanical	Low profile SCH4 Head ABS, IP67 rating when used with base unit
Connection	Sensor three way screw terminal block to accept 18-22 AWG wire

4.0 INSTALLATION AND WIRING

4.1 Configuration

Fit the battery as described in section 4.4, then follow the simple configuration menus printed on the reverse side of this sheet. This procedure can be performed with or without the sensor connected. Fit the correct units legend to the front panel face.

4.2 Enclosure

The SCH4 case offers various options for sensor entry. Please refer to the data sheet for further details. The sensor may be fixed directly to the SCH4 housing, or remotely connected using cable and gland. Cable length must be no greater than 20 meters to comply with CE certification. All external cabling/sensor entries must maintain IP67 rating.

4.3 Wiring

DM640/P Connection

Use correct compensating wire.
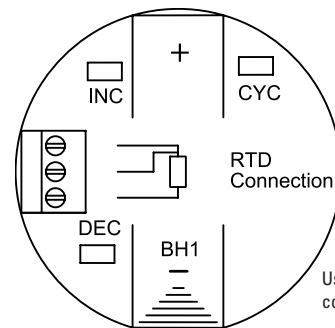
4.4 Battery
BATTERY WARNING

- **Fire, Explosion and severe burn hazard, DO NOT Recharge, Crush, Disassemble, Heat above 100°C (212°F), Incinerate or expose contents to water.**

- **NEVER short circuit the battery.**

- **Disposal, the battery may be regulated by national and local regulations. Please follow the instructions of the proper regulator.**

To install battery, first gain access to the battery by unscrewing the SCH4 cap retaining nut and removing cap from base. To remove old battery, ease out the positive end of the battery from the holder, using a screw driver blade. To fit battery, insert battery negative into the spring contact end of the battery holder BH1, then press battery into place.

The DM640 devices monitor their batteries. When the battery approaches the end of its lifetime (over 1 year under normal conditions), the display will toggle the message "LO BAT".

5.0 MAINTENANCE

Apart from battery replacement this equipment requires no user maintenance. If re-calibration is required please contact your supplier for further information. Under certain circumstances, it may be possible to re-calibrate the device while it is still out in an application.

6.0 GENERAL RECOMMENDATIONS

Please observe the battery warning.

Ensure the instrument is installed with adequate protection against the environment. IP67 rating must be maintained.

Try to avoid installing the equipment close to sources of extreme temperature and electrical or electromagnetic interference.

Any cleaning of the instrument should be carried out using a mild detergent and a soft cloth. No solvents or abrasive cleaner should be used.
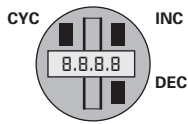
7.0 MECHANICAL DETAIL

Typical example shows In-head Indicator with rotating head temperature sensor assembly.

85.0mm
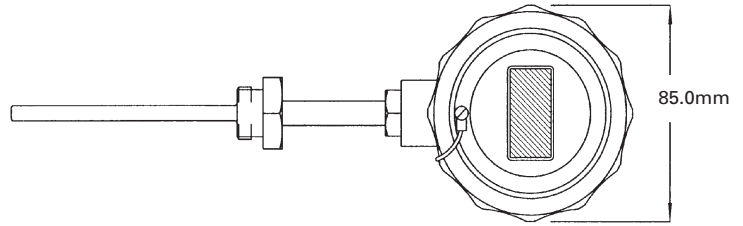
7.1 DM640/P CONFIGURATION MENU GUIDE

There are three buttons, which the operator must press in various combinations in order to configure and or calibrate the device. These buttons are located on the underside of the indicator's circuit board. Viewed from the front, the three buttons (**CYC**le, **INC**rement and **DEC**rement) are shown in black and located as shown in the diagram to the left. Pressing 2 buttons simultaneously causes **ENT**er or **ESC**ape actions.
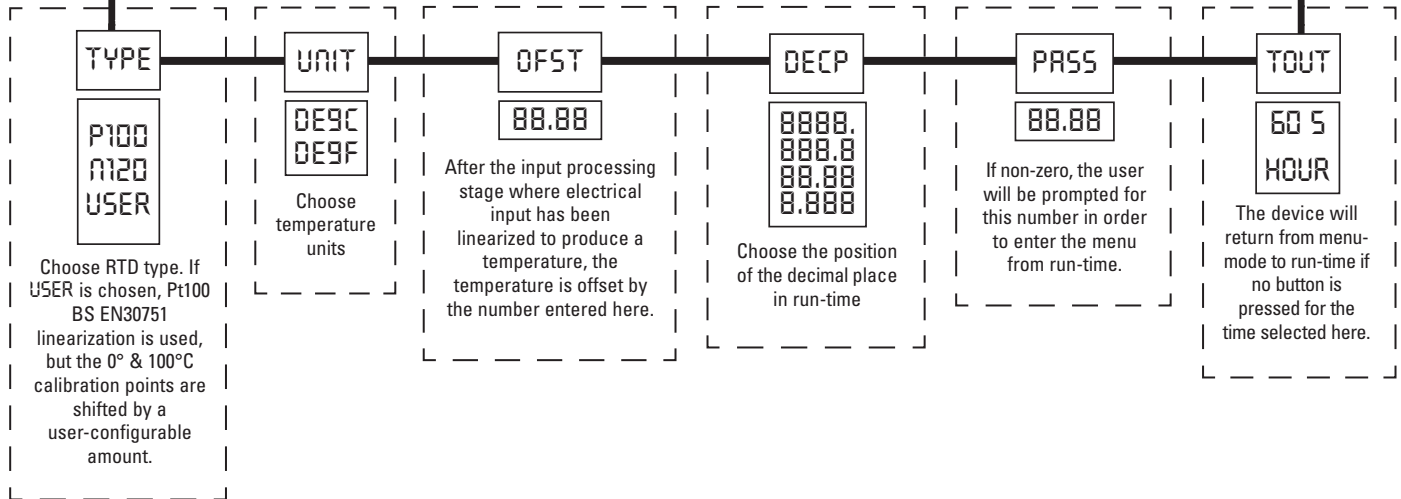
CYC **INC**

8.8.8.8

DEC

If no buttons are pressed for a minute or more, the device assumes run-time mode. The LCD shows the temperature (if the input is in range) or shows ‾‾‾‾ or ____ to indicate over/under range. In order to access menu configuration mode, the user must press **ENT**er followed immediately by **CYC**le. In order to exit the menu and return to run-time, a user must press **ESC**ape.

Run-Time

8.8.8.8

then

When cycling around menu, the title (e.g. TYPE, UNIT etc.) is displayed for a second, then the menu entry is displayed ready for editing. Then use INC/DEC to move through entries in a list, or to edit a real number.

CYCle around menu

INCrement menu entry

DECrement menu entry

ENTer to confirm entry, or:

CYCle to next menu entry

ESCape

TYPE	UNIT	OFST	DECP	PASS	TOUT
P100 N120 USER	DEGC DEGF	88.88	8888. 888.8 88.88 8.888	88.88	60 S HOUR

TYPE — Choose RTD type. If USER is chosen, Pt100 BS EN30751 linearization is used, but the 0° & 100°C calibration points are shifted by a user-configurable amount.

UNIT — Choose temperature units

OFST — After the input processing stage where electrical input has been linearized to produce a temperature, the temperature is offset by the number entered here.

DECP — Choose the position of the decimal place in run-time

PASS — If non-zero, the user will be prompted for this number in order to enter the menu from run-time.

TOUT — The device will return from menu-mode to run-time if no button is pressed for the time selected here.