

### BATTERY POWERED DIGITAL THERMOMETER

#### 1.0 DESCRIPTION

The DM640 series is a range of battery powered temperature indicators. The DM640/TC accepts an thermocouple 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 of the rear 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/TC

|                        |                                  |
|------------------------|----------------------------------|
| Accuracy               | ±0.1% of FS ±0.5°C (plus sensor) |
| Resolution             | 0.1 °C                           |
| Measuring range        | See table below                  |
| Stability              | Zero 0.02°C/°C<br>Span 0.01%/°C  |
| Cold Junction Accuracy | ±0.05°C/°C                       |
| Units                  | °C (default) or °F               |
| Sensor Type            | K (default), T, J, N, R, S, E, F |

| Sensor | Range (°C)   |
|--------|--------------|
| K      | -200 to 1370 |
| T      | -210 to 400  |
| J      | -100 to 1200 |
| N      | -180 to 1300 |
| R      | -10 to 1760  |
| S      | -10 to 1760  |
| E      | -200 to 1000 |
| F      | -100 to 600  |

**NOTE:** For type R S and B sensors accuracy only applies between 800 and 1760°C

##### 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.

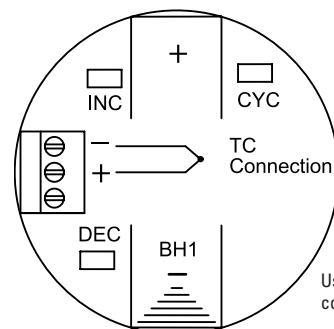
##### 4.2 Enclosure

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/TC Connection



##### 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.

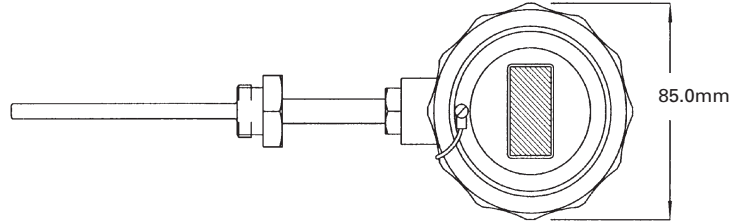
Ensure the instrument is installed with adequate protection against the environment. IP67 rating must be maintained.

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.

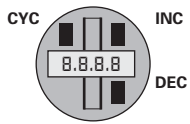
## 7.0 MECHANICAL DETAIL

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



## 7.1 DM640/TC 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 (CYCLE, INCREMENT and DECREMENT) are shown in black and located as shown in the diagram to the left. Pressing 2 buttons simultaneously causes ENTER or ESCAPE actions.



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.

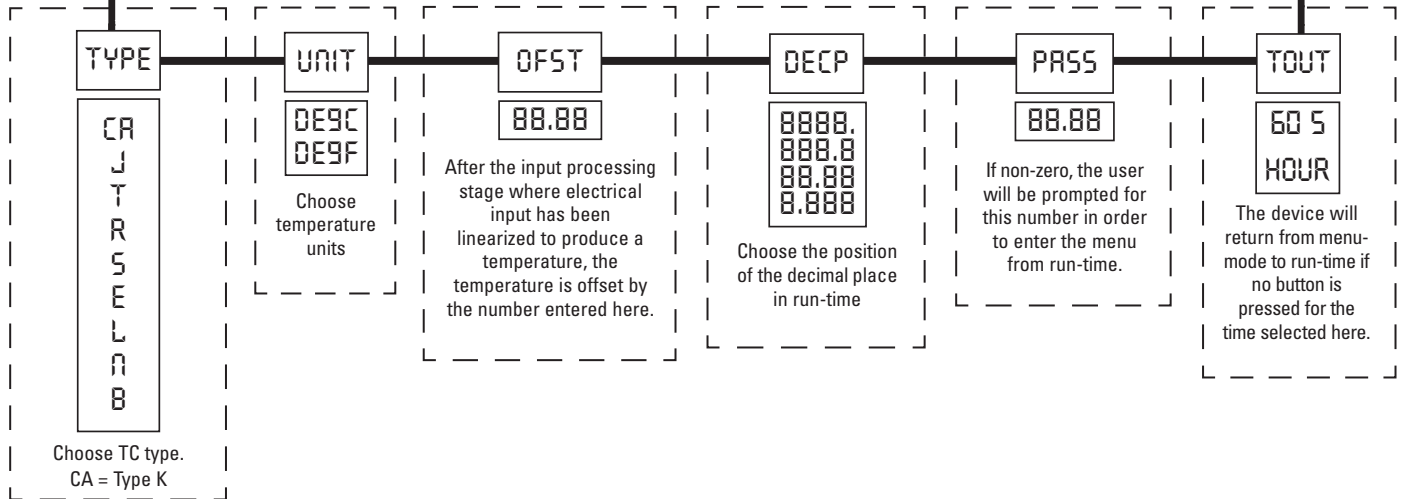
Run-Time



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 ENTER followed immediately by CYCLE. In order to exit the menu and return to run-time, a user must press ESCAPE.

CYCLE around menu

- INCREMENT menu entry
- DECREMENT menu entry
- ENTER to confirm entry, or:
- CYCLE to next menu entry
- ESCAPE



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.



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