

# DM650TM SENSOR/WALL MOUNTED TEMPERATURE DISPLAY

## DM650TM

- UNIVERSAL RTD OR THERMOCOUPLE INPUT
- BATTERY POWERED
- USB AND NFC INTERFACE
- ALARM RELAY / USER SET-DISPLAY MESSAGES
- 5000 POINT DATA LOGGER (USB or COMPATIBLE ANDROID DEVICE)

- INTRODUCTION

The DM650TM battery powered indicator accepts RTD or thermocouple temperature sensors and displays the sensor temperature in °C or °F on a 6-digit LCD display. The instrument offers an advanced display mode allowing the user to also display one or two (1 to 32) character messages. Additional to the messages, the user may select an alert-event to occur when the temperature is within a band. The change-over relay can be used together with the messaging and alert to provide switching at user-set switch points. In addition to this, on board datalogging is also available to record process details at up to 5000 points.

- FEATURE HIGHLIGHTS

### RELAY TRIP

The instrument is equipped with a volt-free changeover type relay. The user may select one of seven actions, including deviation operation, with fully adjustable set-point and hysteresis. The Relay may be turned off if not required to extend battery life. An option is provided to trigger a display alert-event when the relay contact is on. The relay can optionally be used to indicate a low battery condition.

### DATA LOGGING FUNCTION

DM650TM also provides a powerful data logging function. The log points can be set up to 5000 points, each point is time and date stamped together with temperature and relay state information. The log rate is selectable in steps. The start of log can be delayed if required. Either fixed or rolling logs may be performed.

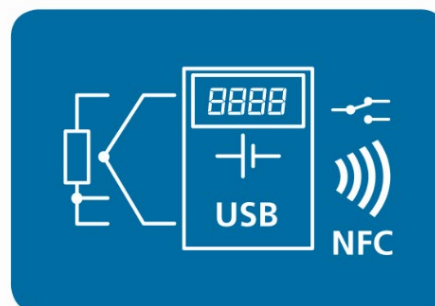
Two methods of reading the log are available. USB interfaced software reads the log and allows the user to save to a text file for export to other programmes. The NFC android interface allows data transfer to compatible android phones or tablets by using the downloadable App. The data can be graphed and forwarded by email, Bluetooth etc. The NFC interface is also capable of starting a new log with different log period and modes.

### BATTERY POWERED

The instrument is powered by a single AA 3.6 V lithium battery. The battery life is dependent on the number of active features such as the relay contact and alert LED. Battery life 1-year minimum (longer depending on options selected)

### REAL-TIME CLOCK (RTC)

Date and time can also be displayed with the input temperature. The RTC is also used to time stamp the data logged points which will also give relay state.



# DM650TM SENSOR/WALL MOUNTED TEMPERATURE DISPLAY

INPUT RTD (3 Wire)		SPECIFICATIONS @20°C
Type	Range	Accuracy/stability
Pt100 (IEC)	(-200 to 850) °C	±0.2°C ±0.05% of reading (plus, sensor error)
Ni100	(-60 to 180) °C	
Ni120	(-70 to 180) °C	
Cu53	(-40 to 180) °C	
Cu100	(-80 to 260) °C	
Thermal drift	0°C at 20°C	Typically, 0.01 Ω/°C Example Pt100 0.03°C/°C
To maintain full accuracy annual calibration is required: contact support@status.co.uk for details		

INPUT Thermocouple		SPECIFICATIONS @20°C
Type	Range	Accuracy/stability
K	(-150 to 1370) °C	±0.1% of full scale ±0.5°C ± CJ error (plus, sensor error)
J	(-200 to 1200) °C	
N	(-270 to 1300) °C	
E	(-260 to 1000) °C	
T	(-270 to 400) °C	±0.2% of full scale ±0.5°C ± CJ error (plus, sensor error)
R	(0 to 1760) °C	±0.1% of full scale ±0.5°C ± CJ error (plus, sensor error) over range (800 to 1760) °C
S	(0 to 1760) °C	
L	(-200 to 900) °C	±0.1% of full scale ±0.5°C ± CJ error (plus, sensor error)
U	(0 to 600) °C	
B	(0 to 1820) °C	
C	(0 to 2300) °C	
D	(0 to 2300) °C	
G	(0 to 2300) °C	
Thermal drift	0°C at 20°C	Typically, ±5 uV/°C
To maintain full accuracy annual calibration is required: contact support@status.co.uk for details		

CASE SENSOR / COLD JUNCTION (CJ)		SPECIFICATIONS @20°C
Type	Range	Accuracy/stability
Thermistor 10K Beta 3380	(-30 to 70) °C	±0.2°C
Thermal drift	0°C at 20°C	±0.05°C/°C

DISPLAY	
Type/options/function	Description
Display height	7.9 mm non-backlit
Display information options some information is displayed scrolling.	6 digits 14 segment input value plus "Warning", "Transmit", "NFC", "USB", "Log", icons, 8 segment log volume indicators. Maximum, minimum, average *1. Date and time, case temperature. Custom messages for visual alarms/information. Relay condition.
High intensity LED	Alarm and warning options
*1 Rolling average log is independent of data logging	

RELAY	
Type/options/function	Description
Type	Single pole change-over (common, N/o, N/c)
Rating	48 VDC maximum @ 1 A (5 mA minimum) 28 VAC RMS maximum @ 1 A

# DM650TM SENSOR/WALL MOUNTED TEMPERATURE DISPLAY

USB CONFIGURATION USER INTERFACE		
Type/options/function	Description	Notes
Configuration hardware	USB mini B port	Cable not included
Configuration software	USBSpeedLink	Download <a href="http://www.status.co.uk">www.status.co.uk</a>
Operating system	Microsoft Windows	Win 7 or later
Sensor configuration	Select sensor type Trim sensor offset Sensor fail	TC options/RTD options ± 10 °C, ± 18 °F High/low
Display configuration	Display mode Set display units Display offset for zero (-270 to 5000) °C range	Basic or advanced °C or °F Differential from set point is displayed
Pre-set sensor to setpoint	Locks display value	For diagnostics
Advanced display mode *1	Temperature and/or message A, B (32 character) and/or alert LED flash. Update every 5 seconds/alternates between message A and B	
Basic display mode	Temperature	
Display Pre-set display messages	Seven custom messages Eight user-adjustable temperature bands	Message A and message B options
LED alert	Eight user-adjustable temperature bands	Alert LED flash
Warning symbol	Out of range Open circuit Low battery level	Warning symbol will flash on LCD display
Battery monitor	Alert LED plus message	Relay option
Logger	Set device passkey number Clear, start new log	Device passkey is used to protect the NFC interface.
Other device options	Synchronise clock Write tag, contact address Read, reset maximum and minimum values Set device location	To PC system date and time  Latitude and Longitude
Relay control	Name Action Set-point Dead band	10 characters High/low/band/low battery °C °F °C °F
Live data	Read sensor temperature Read cold junction Relay 1 state	°C °F Internal case temperature Off, on

\*1 Advanced display reverts to basic display below -5 °C case temperature.

USB LOGGER USER INTERFACE		
Type/options/function	Description	Notes
Logger hardware	USB mini B	
Logger software	USBLogLink	Download <a href="http://www.status.co.uk">www.status.co.uk</a>
Operating system	Microsoft Windows	Win 7 or later
Logger	Start, set log parameters	Interval, rate, (delay) start, number of points, rolling or fixed log
	Read log parameters	
	Stop, start new log Reset maximum and minimum Synchronise, read clock	
	View log data, graph log data	Save data to CSV file

# DM650TM SENSOR/WALL MOUNTED TEMPERATURE DISPLAY

NFC ENABLED ANDROID DEVICE REQUIREMENTS	
Tag Type	NFC Forum Tag Type 4 (max capacity 65536 Bytes)
RF Interface	ISO/IEC 14443 Type B Compliant (13.56 MHz)
Android device	Compatibility to read NFC Tag type 4 to full capacity 65536 bytes
Note: If the android device cannot read full bytes the maximum number of log points will be reduced.	

NFC LOGGER USER INTERFACE ANDROID		
Type/options/function	Description	Notes
Logger software	NFCLogLink	Download <a href="http://www.status.co.uk">www.status.co.uk</a>
Operating system	Android V4.4 Kitkat or later	NFC enabled
Logger	Start, set log parameters	Interval, rate, (delay) start, number of points, rolling or fixed log
	Read log parameters	
	Stop and start new log, Synchronise, read clock	
	Reset maximum and minimum	
	View log data, graph log data	Save data to text file
	Transfer data via email etc.	Standard Android functions

GENERAL	
Function	Description
Update rate	5 seconds
Relay response time	< 10 seconds
Battery	1 x (AA 3.6 V lithium)
Battery life	1-year minimum (longer depending on options selected)
Clock accuracy	±2 seconds per month typically

ENVIRONMENTAL	
Function	Description
Ambient temperature	Operating/storage (-30 to 70) °C
Ambient humidity	Operating/storage (10 to 90) %RH non-condensing
Protection	IP67, cable/probe entries must be sealed to IP67 to maintain
USB configuration ambient	(10 to 30) °C

CONNECTIONS	
Function	Description
Input sensor	Two-part screw connector
Output relays	2 x Two-part screw connectors
USB connection	USB mini B socket

MECHANICAL	
Function	Description
Enclosure	ABS, grey base, grey clamp ring
Display cover	Polycarbonate, clear
Case entries	Base and side entry options see ORDER CODES below
Front of display diameter	65 mm
Weight (approximate)	170 g

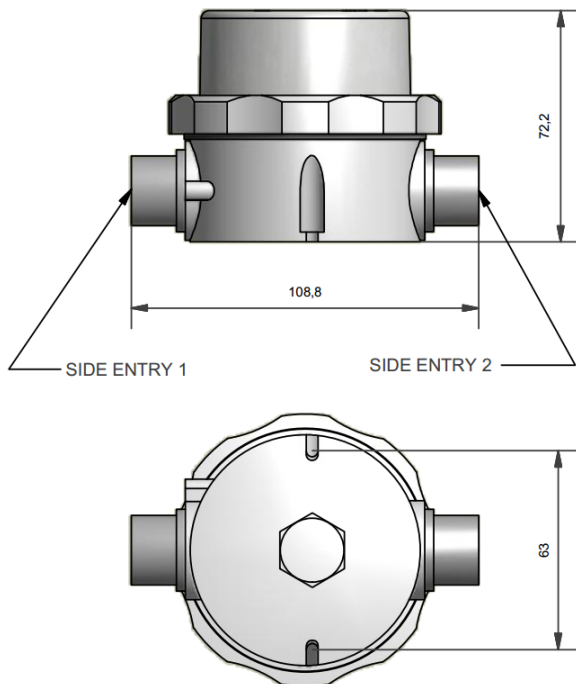
APPROVALS	
EMC	BS EN 61326: Note - Sensor input wires to be less than 3 m to comply
Ingress protection	BS EN 60529
RoHS	Directive 2011/65/EU

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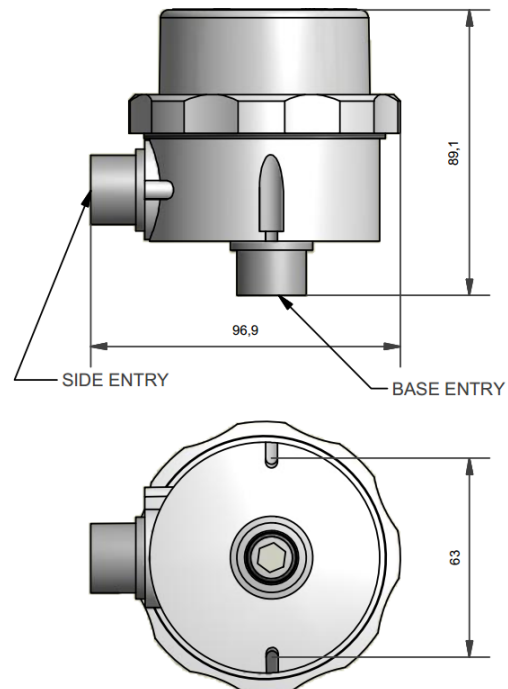
<b>ORDER CODE</b>	<b>DM650TM</b> (See below for housing code)
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<b>ORDER CODE</b>	<b>SCH4 HOUSING</b>				
	Body type		Base entry	Side entry A	Side entry B
<b>SCH4</b>	<b>B or C</b>	<b>0</b>	Thread option	Thread option	Thread option
B: Double side entry C: Single side with base entry		0	<u>Thread options</u>		
			00 = None fitted 24 = M24	16 = M16 .5BSP = 1/2" BSP	20 = M20 .5NPT = 1/2" NPT
Example: 1 base entry (M24) with side entry A (M16)					
<b>SCH4</b>	<b>C</b>	<b>0</b>	<b>24</b>	<b>16</b>	<b>00</b>
For further options please contact sales@status.co.uk					

**Body type B: 2 x side entry**



**Body type C: 1 x side entry with 1 x base entry**



Dimensions in mm

<b>ACCESSORIES</b>	
USB configuration software	USBSpeedLink free of charge from <a href="http://www.status.co.uk">www.status.co.uk</a>
USB logging software	USBLogLink free of charge from <a href="http://www.status.co.uk">www.status.co.uk</a>
NFC logging software	NFCLogLink free of charge from <a href="http://www.status.co.uk">www.status.co.uk</a>
USB programming lead	USB programming lead, part number 42-200-0001-01
Battery AA 3.6 V lithium	Refer to sales@status.co.uk
Calibration certificates	Refer to sales@status.co.uk
Temperature probe options	Refer to <a href="http://www.status.co.uk">www.status.co.uk</a>

To maintain full accuracy annual calibration is required contact support@status.co.uk for details  
The data in this document is subject to change. Status Instruments assumes no responsibility for errors