DM670TM FIELD/WALL MOUNTED TEMPERATURE DISPLAY

> **UNIVERSAL RTD OR THERMOCOUPLE INPUT**

> **BATTERY POWERED, USB AND NFC INTERFACE**

> **DUAL RELAYS, MAX/MIN INFORMATION**

> **USER-SET DISPLAY MESSAGING**

> **5000 POINT LOGGER (USB or COMPATIBLE ANDROID DEVICE)**

> INTRODUCTION

The DM670TM series of battery powered indicators accept RTD or Thermocouple temperature sensors and display 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 two changeover relays 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 up to 5000 points.

> FEATURE HIGHLIGHTS

DUAL RELAYS
The instrument is equipped with 2 volt-free changeover-type relays, operating independently. The user may select one of seven actions, including deviation, latched or non-latched operation, with fully adjustable set-point and hysteresis. The Relays may be turned off if not required to extend battery life. An option is provided to trigger an alert-event when a relay contact is on.

DATA LOGGING FUNCTION
DM670TM 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. The USB configuration reads the log and allows the user to save to a text file for export to other programmes. While 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 3.6 V lithium battery. The battery life is dependent on the number of active features such as the relay contacts and alert LED. Battery life 1 year minimum (longer depending on options selected)

REAL-TIME CLOCK
Date and time-stamped maximum, minimum and average temperature values, as well as relay on and relay off data, is recorded and can be displayed along with the current time and date. The RTC is also used to record the data logged points.

STATUS INSTRUMENTS
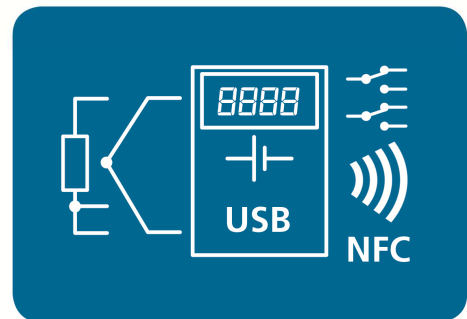
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INPUT RTD (3 Wire)

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

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

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	15.8 mm non-backlit
Display information options Some information is displayed scrolling.	6 digits 14 segment input value plus "Warning"," Transmit", "NFC", "USB", "Log", "Battery" 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	

RELAYS Relay 1 and Relay 2

Type/options/function	Description
2 x independent relays	Single pole changeover (common, N/o, N/c)
Rating	48 VDC maximum @ 1 A (5 mA minimum) 28 VAC RMS maximum @ 1 A

STATUS INSTRUMENTS

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USB CONFIGURATION USER INTERFACE

Type/options/function	Description	Notes
Configuration hardware	USB Mini B port	Cable not included
Configuration software	USBSpeedLink	Download www.status.co.uk
Operating system	Microsoft Windows	Win 7 or later
Sensor configuration	Select sensor type Trim sensor offset	TC options/RTD options ± 10 ˚C, ± 18 ˚F
Display configuration	Display mode Set display units Display offset for zero (-270 to 5000)˚C range Rolling average	Basic or advanced ˚C or ˚F Differential from set-point is displayed Count/update rate
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	
Relay control	Name(s) Action Set-point Dead band Latch	10 character High/low/band/low battery ˚C ˚F ˚C ˚F On/Off
Live data	Read sensor temperature Read cold junction Relay 1 state. Relay 2 state	˚C ˚F Internal case temperature
*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 www.status.co.uk
Operating system	Microsoft Windows	Win 7 or later
Logger	Start/set log parameters	Interval/rate/(delay) start
	Read log parameters	number of points/rolling or fixed log
	Stop/start new log Synchronise device clock Reset maximum and minimum Synchronise/read clock	
	View log data/graph log data	Save data to CSV file

STATUS
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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	@ Google Play Store
Operating system	Android V4.4 Kitkat or later	NFC enabled
Logger	Start/set log parameters	Interval/rate/(delay) start
	Read log parameters	number of points/rolling or fixed log
	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

PUSH BUTTON USER INTERFACE

Button	Description	Notes
Maximum and minimum	Display/ display and reset	Time stamp option
	Rolling average option	Number and rate options
Relay	Display relay configuration Reset latched relay	Time stamp option
Set point adjustment is not possible using front panel buttons, USBSpeedLink required		
Buttons can be locked out		

GENERAL

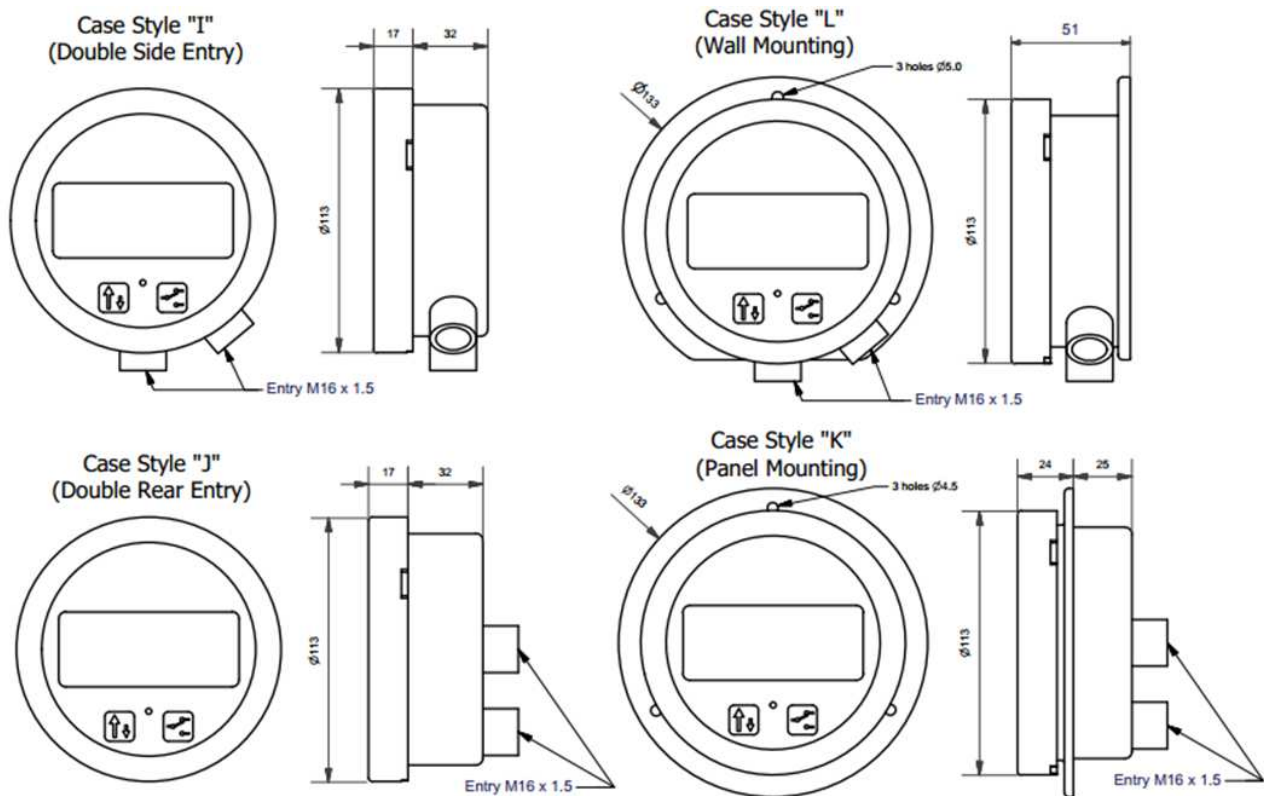| Function	Description
Update rate	5 seconds
Relay response time	< 10 seconds
Battery	1 x (AA 3.6 V lithium)
Battery life	1 year minimum (longer depending on options selected)
Clock accuracy	±2 seconds per month typically

ENVIRONMENTAL

Function	Description
Ambient temperature	Operating/storage (-30 to 70) °C
Ambient humidity	Operating/storage (10 to 90) %RH non-condensing
Protection	IP65, cable/probe entries must be sealed to IP65 to maintain
USB configuration ambient	(10 to 30) °C

MECHANICAL

Enclosure	Stainless steel, various mounting options
Case entries	2 x M16 female thread, one blanking plug supplied
Front bezel diameter	113 mm
Weight (approximate)	540 g
Input sensor	Two-part screw connector
Output relays	2 x Two-part screw connectors
USB connection	USB Mini B socket

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DM670TM FIELD/WALL MOUNTED TEMPERATURE DISPLAY

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

ORDER CODE

DM670TM /	Choose case type from below	
Case option	Cable and probe entries: M16	
Double side entry	**I**	
Double rear entry	**J**	
Panel mount	**K**	100 mm diameter cut-out to panel
Wall mount	**L**	
Example: - for double side entry **DM670TM/I**		

Case Style "I" (Double Side Entry)

Case Style "L" (Wall Mounting)

Case Style "J" (Double Rear Entry)

Case Style "K" (Panel Mounting)

ACCESSORIES	
Configuration software	USBSpeedLink free of charge from www.status.co.uk
USB logging software	USBLogLink free of charge from www.status.co.uk
NFC logging software	NFCLogLink free of charge refer to Google Play Store
USB programming lead	USB programming lead, part number 42-200-0001-01
Battery 3.6 V lithium	Part number 28-302-0036-00
Probe options	Refer to www.status.co.uk

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.

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