

# DM650LP SENSOR/WALL MOUNTED LOOP POWERED DISPLAY

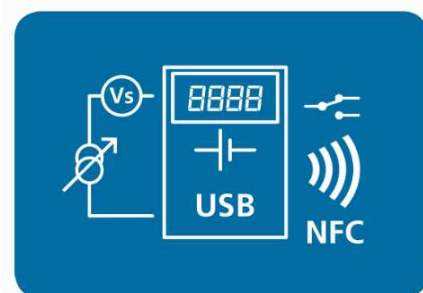
## DM650LP

- > (4 to 20) mA LOOP POWERED
- > ALARM RELAY, USER-SET DISPLAY MESSAGING
- > USB AND NFC INTERFACE
- > BATTERY BACKUP
- > 5000 POINT DATA LOGGER (USB or COMPATIBLE ANDROID DEVICE)
- > INTRODUCTION

The DM650LP loop powered indicator with battery backup accepts a (4 to 20) mA signal and provides a powerful display interface based on a 6-digit 14 segment LCD display.

User-set scaling is provided to allow the user to set process ranges between -999999 and 999999. Maths functions are provided working on the actual (4 to 20) mA signal for requirements such as square root extraction.

A 22-segment user-set linearisation/correction function is offered, as well as advanced messaging, allowing the user to display custom messages for pre-set input ranges.



## > FEATURE HIGHLIGHTS

**LOOP POWERED** The instrument is powered by the loop current. A single AA 3.6V lithium battery is also fitted to allow display function and datalogging to continue on mA loop current loss. This is useful for displaying error messages and maintains the log function, allowing the user to determine the loop loss period.

The battery life is dependent on the number of active features such as the alert LED and logging options. Battery life 2-year minimum (longer depending on options selected).

**RELAY TRIP** The instrument is equipped with a volt-free changeover-type relay. The user may select one of several actions, including deviation operation, with adjustable set point and hysteresis. The Relay may be turned off if not required. An option is provided to trigger a display alert-event when the relay contact is on.

**DATA LOGGING FUNCTION** DM650LP also provides a powerful data logging function. The number of log points can be set up to 5000; each point is time and date-stamped together with input process value (PV) 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 via the Android app.

**TEMPERATURE TRANSMITTER COMPATIBLE** As well as working with any (4 to 20) mA signal the DM650LP has space inside its housing to mount a Status Instruments (4 to 20) mA temperature transmitter. The SEM203, SEM206, TTR200 and TTC200 range of temperature transmitters can be used with the DM650LP to give a local temperature display.

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## DM650LP SPECIFICATIONS

ELECTRICAL INPUT mA		SPECIFICATIONS @20 °C
Type	Accuracy	Stability
(0 to 20) mA	0.01 % (0.002 mA)	0.005 %/ °C (0.001 mA/ °C)
Low signal operating threshold	0 mA only with battery fitted *1	
(4 to 20) mA	0.01 % (0.002 mA)	0.005 %/ °C (0.001 mA/ °C)
Low signal operating threshold	< 1.0 mA *1	
Type/options/function	Description	Notes
Maximum current	±50 mA	
Loop voltage drop	(2.8 to 3.0) V	
Protection	Resettable fuse 50 mA	Reverse connection
*1 Range warning will show below 3.5 mA and above 23 mA		
To maintain full accuracy annual calibration is required: contact support@status.co.uk for details		

DISPLAY	
Type /options /function	Description
Display height	7.9 mm non-backlit
Display information options some information is displayed scrolling *1	6 digits 14 segment input value plus “Warning”, “Transmit”, “NFC”, “USB”, “Log”, icons, 8 segment log volume/signal indicators. Date and time. Custom messages for visual alarms/information. Relay condition.
Temperature mode	-999999 to 999999 numeric with °C, °F, °R, K
Decimal place	None to 5 places
High intensity LED	Alarm and warning options
*1 Below -5 °C ambient temperatures, scrolling messages are not practical due to the update speed of the LCD display. Below this use basic mode only.	

RELAY Relay 1	
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

USB CONFIGURATION USER INTERFACE		
Type/options/function	Description	Notes
Configuration hardware	USB mini B port	A to mini B cable required
Configuration software	USBSpeedLink	Download <a href="http://www.status.co.uk">www.status.co.uk</a>
Operating system	Microsoft Windows	Win 7 or later
Configuration	Select linear or maths functions	Power and root options ^ (1/2), ^ (1/3), ^ (3/2), ^ (5/2), ^ (2), ^ (3)
	Select user non-linearization	Up to 22 data points
	Decimal point	Adjustable
Display configuration	Display mode	Basic and Advanced
Pre-set sensor to setpoint mA	Locks display value	For diagnostics
Basic display mode	Bar graph as mA or % log fill and alert LED options	
Advanced display mode *1	Process value and or message A, B (32 character) and or alert LED flash. Update every 5 seconds, alternates between message A and B	
Display	Seven custom messages	Message A and message B
Pre-set display messages	Eight user-adjustable temperature bands	options
LED alert	Eight user-adjustable temperature bands	Alert LED flash
Warning symbol	Out of range	Warning symbol will flash on

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USB CONFIGURATION USER INTERFACE (continued)		
Type/options/function	Description	Notes
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 Location settings Android passkey	To PC time setting 24 characters Non-volatile memory  Latitude and longitude Set for Android app
Relay control	Name Action Set point Dead band	10 characters High/low/band/low battery Displayed units Displayed units
Live data	Read input value Read display value Relay state	mA loop signal Scaled mA value Off/on
*1 Below -5°C ambient temperatures, scrolling messages are not practical due to the update speed of the LCD display. Below this use basic mode only.		

USB LOGGER USER INTERFACE		
Type/options/function	Description	Notes
Logger hardware	USB mini B port	A to mini B cable required
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 Read log parameters	Interval/rate/(delay) start/ number of points/rolling or fixed log
	Stop/start new log Reset maximum and minimum Synchronise/read clock	
	View log data/graph log data	Save data to CSV file

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 Read log parameters	Interval/rate/(delay) start/ number of points/rolling or fixed log
	Stop/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

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GENERAL	
Function	Description
Update rate	500 ms
Relay response time	< 1 s
Battery	1 x (AA 3.6 V lithium)
Battery life	2-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	Screw connector
Output relay	Screw connector
USB connection	USB mini B socket
Care must be taken with cable routing when used with temperature transmitters fitted inside the DM650LP housing to avoid trapping cables	

MECHANICAL	
Function	Description
Enclosure	ABS grey base, grey clamp ring: Polycarbonate screen
Display cover	Polycarbonate, clear
Case entries	M24 or M20 see ORDER CODES below
Front of display diameter	65 mm
Weight (approximate)	170 g

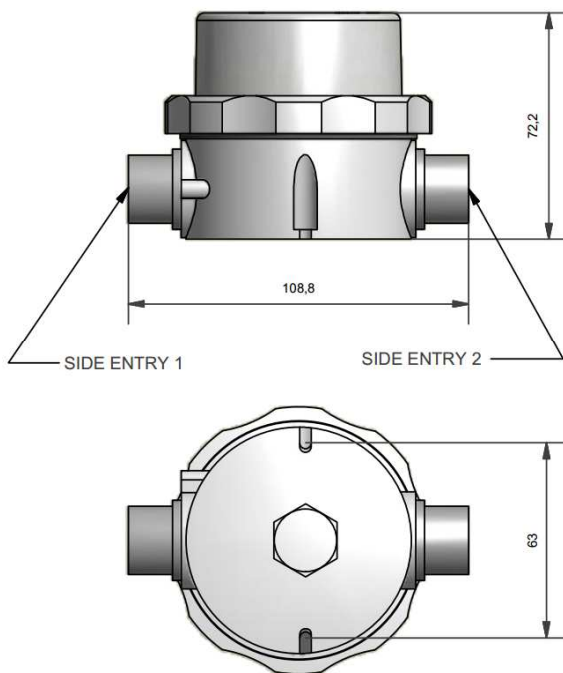
APPROVALS	
Function	Description
EMC	BS EN 61326
Ingress protection	BS EN 60529
RoHS	Directive 2011/65/EU

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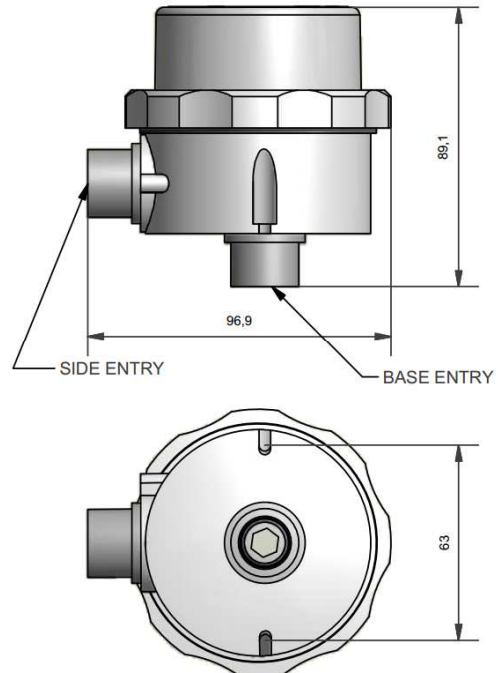
<b>ORDER CODE</b>	<b>DM650LP</b> (See below for housing code)
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<b>ORDER CODE</b>	<b>SCH4 HOUSING</b>				
	Body type		Base entry	Side entry A	Side entry B
<b>SCH4</b>	<b>B or C</b>	<b>0</b>	<b>Thread option</b>	<b>Thread option</b>	<b>Thread option</b>
B: Double side entry C: Single side with base entry		0	<u>Thread options</u>		
			00 = None fitted	16 = M16	20 = M20
			24 = M24	.5BSP = 1/2" BSP	.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