

DM670PM USER GUIDE

DM670PM BATTERY POWERED DIGITAL PRESSURE DISPLAY WITH RELAY AND NFC INTERFACE LOGGING FUNCTION USER GUIDE

Important - Please read this document before installing.

Every effort has been taken to ensure the accuracy of this document; 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.

IMPORTANT – CE, UKCA & SAFETY REQUIREMENTS.

The instrument is designed to be either directly attached to a sensor probe assembly or surface mounted. The user must ensure all sensor and cable entries maintain environmental protection to at least IP65 rating.

Battery - Fire Explosion and Severe Burn Hazard. Do not attempt to re-charge, Crush, Incinerate, Disassemble, Heat above 100 °C (212 °F) or expose to water.

Disposal of the battery must conform with the regulations applicable for the area of use.

The product contains no serviceable parts, or internal adjustments. No attempt must be made to repair this product. Faulty units must be returned to supplier for repair.

This product must be installed by a qualified person. All electrical wiring must be carried out in accordance with the appropriate regulations for the place of installation.

Before attempting any electrical connection work, please ensure the battery is removed

ABSOLUTE MAXIMUM CONDITIONS: To exceed may cause damage to the device.	
Battery voltage	3.7 Vdc (Protected for reverse connection)
Relay	50 Vdc, 40 Vac rms
Ambient	Temperature (-30 to 70) °C, Humidity (10 to 95) % RH noncondensing)
Overpressure	Range specific refer to datasheet



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1~DESCRIPTION.

The DM670PM series of battery powered indicators accept gauge or absolute pressure and displays the sensor pressure in BAR, PSI or the user's engineering unit 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 pressure is within a band. The two change-over relays can be used together with the messaging and alerts to provide switching at user-set points. In addition to this, on-board datalogging is also available to record pressure and process temperature process details at up to 3600 points.

2~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~SPECIFICATION.

Configuration : Refer to data sheet for full specification.	
Factory default	Display unit = bar, relays off, LED off

4~ INSTALLATION AND WIRING.

4.1~MECHANICAL.

The instrument is a high accuracy, digital pressure, battery powered, display. In order to ensure correct operation, the following must be observed:

The product must be stored in a dry clean environment and remain in original packaging prior to installation.

The instrument must not be installed adjacent to electro-mechanical starters, controllers, thyristor power units or electrical switch gear.

Any cleaning of the instrument must be done using a mild detergent and soft cloth. No solvents or abrasive cleaners should be used.

Stated ambient operating conditions must not be exceeded. Battery life will reduce with higher ambient temperature operating conditions.

The pressure sensor is prewired to the DM670PM assembly and is not user serviceable, the instrument should be returned to the supplier for replacement of a damaged or faulty sensor.

4.2~ELECTRICAL.

For a wiring diagram please refer to the rear panel of the DM670PM inside the case housing and Fig.1 in this document.

Two-part connectors are used for the relay connections.

On insertion of the battery the unit will run through a power-up check; during this time the relay may change state.

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IMPORTANT: Always remove battery before any wiring takes place. Gain access to the connectors and battery holder by twisting cap ring to release front panel assembly from case.

RELAY CONNECTION: A relay with changeover contacts is available. Screw terminals are provided for connection for wire size 16 to 20 AWG. The relay contacts are rated at 48 VDC, 28 VAC RMS @ 1 A (5 mA minimum current) see DM670PM data sheet. The relay connections are marked "NO" for normally open, "NC" for normally closed and "C" for common.

BATTERY: To remove battery, use screwdriver to ease the positive end of the battery out of holder. Insert new battery negative end first then press into place. (Observe polarity). Battery type 3.6 V Lithium (2.4 A/HR) CR14505 (IEC) AA case style. Please dispose of the battery in a responsible way.

WARNING

For configuring, reading live data or reading logged data if using a grounded sensor on the input, it is important not to connect the programming USB lead to a mains-powered computer. It is possible to damage the instrument if connected in this way.

To avoid damage, use one of the following methods:

- Ensure any sensor connected and DM670 housing are not in contact with any conductive parts during configuration.
- Use a laptop-type computer running from its battery power supply, not connected to a mains supply. This is recommended for reading lived data or offsetting a unit if already installed in the field.
- Use a USB isolator between the computer and the DM670.

5~USER CONFIGURATION.

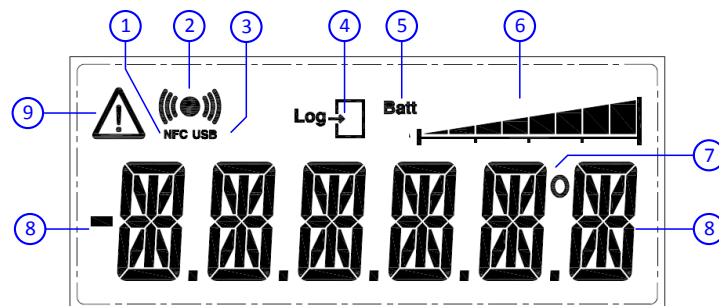
IMPORTANT READ COMPLETE SECTION BEFORE ATTEMPTING CONFIGURATION.

The instrument is provided with a USB interface for direct connection to a PC. Free software USBSpeedLink is available. Please refer to the USBSpeedLink software for further information on configuration. The software can be downloaded from www.status.co.uk.

DISPLAY: The display provides six 14-segment characters for display of temperature and alpha-numeric messages, together with an 8-segment bar graph and six icons. The display can operate in an ambient temperature range of (-30 to 70) °C, but at temperatures lower than -5 °C (due to the slower LCD speed) scrolled messaging is not practical for screen updates.

The display's high contrast, coupled with a digit height of 15.8 mm, offers clear readouts at low as well as high ambient light and direct sunlight.

The display layout is as follows:



1. NFC - The Symbol is on when an NFC field is detected. When a detected field is lost the symbol will turn off after a few seconds.

2. TRANSMIT/RECEIVE: Symbol on when either NFC or USB communication is active.

3. USB: Symbol on when USB port is connected to a PC. Please note battery is not required during configuration.

4. LOG: Not used

5. Batt: On when battery voltage is low.

6. BAR GRAPH: Indicates the state of the logger. The condition is dependent on the selected logger mode, either Single or Rolling mode.

Single Mode (Log to the maximum number of logs then stop)

Start of Log Mid Log End of Log (alternating)



Rolling Mode (Log to the maximum number of logs then as each new log is taken the oldest log is discarded)

Start of Log Mid Log Rolled over Log (max bar toggles)



7. DEG: Degree symbol "°" used to indicate either °C, °F on the last digit when the temperature display option is selected with the main process value display.

8. DIGITS: Six-digit 14-segment display with - sign, range 9999.9 to -9999.9. Advanced mode offers two process value-dependent 32-character message options.

9. WARNING ICON: This symbol will toggle on and off to indicate a warning. The warning symbol will be active either when the sensor signal is out of range, not connected or when the battery is low

5~USER CONFIGURATION (continued).



MULTI-FUNCTION ALERT LED

The alert LED normal state is off, on alert the LED will emit a intense white light pulse every 5 seconds. The LED can be programmed to pulse on any of the following combined events:

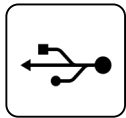
- Mode Description
- No events The LED never operates, extending battery life. (Factory default setting)
- Battery Alert on low battery detect.
- Trip Alert when relay 1 or 2 trip is on.
- Process In advanced mode only the alert LED can be made to alert in any one of eight user-set process value bands. Example, to alert operator when process value is outside a safe operating range. The function of the alert LED can be further enhanced with the option of displaying an alert message in advanced display mode.



NFC LOGGER INTERFACE *

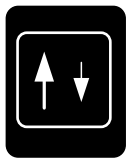
The NFC interface allows the instrument to communicate with an Android device using NFC connectivity. The prime function of the interface is to read logged data from the device using a free app, which is available for downloading to Android devices.

The app allows the user to read existing logs, change the log manifest, start a new log, synchronise the instrument clock and reset the maximum/minimum/average readings. Logs can run to a fixed number and stop or continually roll over, up to 3600 log points can be recorded. The start of the log can be delayed up to one month. Note: For larger logs the data may take over a minute to fully download via the NFC interface.



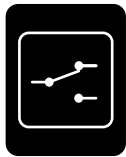
USB LOGGER INTERFACE (connector inside housing)

The USB interface allows the instrument to communicate with a PC running the USBLogLink software. The prime function of the interface is to read logged data from the device using free software available to download. The software allows the user to read existing logs, change the log manifest, start a new log, synchronise the instrument clock and reset the maximum/minimum readings. USBLogLink is available from www.status.co.uk.



MAX/MIN BUTTON

This button allows the user to display recorded values with or without time stamp dependent on the option selected by the configuration software:-
Timestamp off - the maximum, minimum temperatures. (Factory default setting)
Timestamp on - the maximum, minimum, average and current (now) value with time stamps, format "day" + "date" + "month" + "Year" + "time".
To clear maximum/minimum/average data press and hold the max/min button, the Alert LED will pulse, after 3 short pulses the LED will give a longer pulse. Keep the button held on until the last pulse goes out. The data and time stamps will now be cleared.



RELAY BUTTON

This button allows the user to display the relay state with or without a time stamp dependent on the option selected by the configuration software:-
Timestamp off - Relay 1(2) Title, State, Action, Set point. (Factory default setting)
Timestamp on - Relay 1(2) Title, State, Action, set point, last trip on time date, last trip off time date, format "day" + "date" + "month" + "year" + "time" (see note *1).
To clear latched relay(s) press and hold the relay button, the Alert LED will give 4 short pulses. Keep the button held on until the last pulse goes out. The latched relays will now be cleared (as long as the alarm condition has also cleared).
In the case of latched relays, the time stamp will apply to the latch set and clear.

5~1 USBLogLink DATA LOGGER SOFTWARE*

LIVE DEVICE READING TAB	
Display	Live process value, Pressure (scaled) and Temperature
RETRIEVE LOGGED DATA TAB	
Download and graph recorded logged data, Pressure (scaled), Relay condition	
CONFIGURE LOGGER	
Set new log (rolling or fixed), interval time, number of logs, delay start	
Enter (tag and contact), Reset (max and min) Sync clock	

5~2 USBSpeedLink CONFIGURATION SOFTWARE*

TRANSDUCER OPTIONS TAB	
Select	User-calibration functions, Pre-set input value.
When the DM670PM is first connected allow the software to do an auto read to establish the sensor range.	
Pre-set Sensor Signal to Set-Point the input value can be fixed to a pre-determined value. The messaging display and relay will respond accordingly (2 to 5) point user calibration of the sensor is possible	

PROCESS SCALING TAB	
Select	Engineering units, range, user-linearisation table, decimal place, null least significant digit(s) if required.

Transducer Options | Process Scaling | Relay Options | Basic Display Options | Advanced Display Options | Other Device Options

0.000 to 30.000 bar Custom (user set scale)

User Scale: Low Scale: 0.000 bar = 0.000 Units: High Scale: 30.000 bar = 1000.000 Units: a

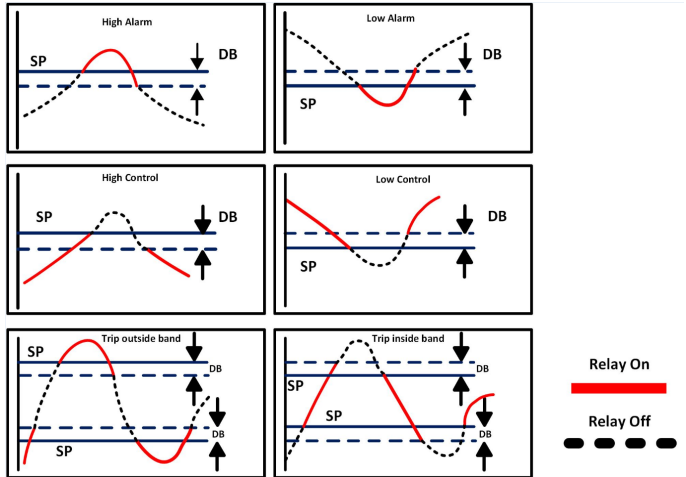
Select Optional (x-y) Profile: (X-Y)

Set Decimal Place: 0000.00 Display range (0.00 to 1000.00) a

Digit 4 - 6 Null option used to eliminate digit roll by setting digits to always read "0": Not Set

Pressure: 0.000 bar
Temperature: 23.2 deg C
Display: 0.01 a
Relay 1: Off
Relay 2: Off
Time: 04:56:48
Date: 08/01/10
Sync Clock
Clear Log

RELAY OPTIONS TAB	
Select	Select relay operation, set-point, dead band, relay name, latching
A low battery relay alarm can also be set on relay 2	



BASIC DISPLAY OPTIONS TAB	
Select	Display options pressure/units/temperature (°C, °F)
Update rate,	
LED alert for battery, relay	

ADVANCED DISPLAY OPTIONS TAB	
Select	Message bands, custom messages
Use this software tab to set up advanced scrolling user-messaging	

OTHER DEVICE OPTIONS TAB	
Enter	Tag, contact details
Enter	Android passkey (protect logged data)
Enter	Device location
Read/clear	Maximum and minimum reading
Synchronise	Clock

*Logging and configuration software can be downloaded from www.status.co.uk

*Android device must be compatible to read NFC Tag type 4 to full capacity 65536 bytes

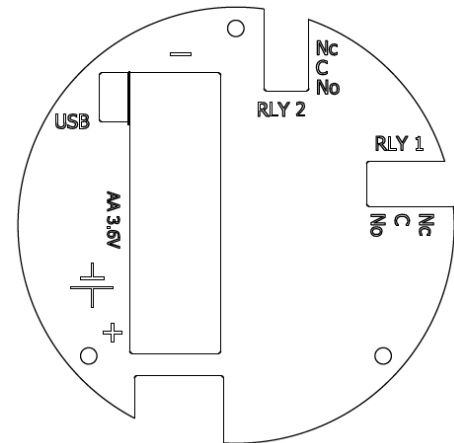


Fig.1

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