

IM/P851 Issue 2

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## ABB Instrumentation



**Client Warranty**

Prior to installation, the equipment referred to in this manual must be stored in a clean, dry environment, in accordance with the Company's published specification. Periodic checks must be made on the equipment's condition. In the event of a failure under warranty, the following documentation must be provided as substantiation:

1. A listing evidencing process operation and alarm logs at time of failure.
2. Copies of operating and maintenance records relating to the alleged faulty unit.

**Health and Safety**

To ensure that our products are safe and without risk to health, the following points must be noted:

1. The relevant sections of these instructions must be read carefully before proceeding.
2. Warning labels on containers and packages must be observed.
3. Installation, operation, maintenance and servicing must only be carried out by suitably trained personnel and in accordance with the information given.
4. Normal safety precautions must be taken to avoid the possibility of an accident occurring when operating in conditions of high pressure and/or temperature.
5. Chemicals must be stored away from heat, protected from temperature extremes and powders kept dry. Normal safe handling procedures must be used.
6. When disposing of chemicals ensure that no two chemicals are mixed.

Safety advice concerning the use of the equipment described in this manual or any relevant hazard data sheets (where applicable) may be obtained from the Company address on the back cover, together with servicing and spares.

**Customer Support**

ABB Instrumentation provides a comprehensive after sales service via a Worldwide Service Organization. Contact one of the following offices for details on your nearest Service and Repair Centre.

<b>United Kingdom</b> ABB Instrumentation Limited Tel: +44 (0)1480 475321 Fax: +44 (0)1480 470787	<b>United States of America</b> ABB Instrumentation Inc. Tel: +1 716 2926050 Fax: +1 716 2736207
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Information in this manual is intended only to assist our customers in the efficient operation of our equipment. Use of this manual for any other purpose is specifically prohibited and its contents are not to be reproduced in full or part without prior approval of Technical Communications Department, ABB Instrumentation Ltd.

Although **Warning** hazards are related to personal injury, and **Caution** hazards are associated with equipment or property damage, it must be understood that operation of damaged equipment could, under certain operational conditions, result in degraded process system performance leading to personal injury or death. Therefore, comply fully with all **Warning** and **Caution** notices.

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## Use of Instructions

**Warning.** An instruction that draws attention to the risk of injury or death.

**Caution.** An instruction that draws attention to the risk of damage to the product, process or surroundings.

**Note.** Clarification of an instruction or additional information.

**Information.** Further reference for more detailed information or technical details.

# 1 INTRODUCTION

**i Information.**

- Pressure range must be compatible with the maximum pressure being measured.
- The air vent tube must not be blocked.
- Pressure media must be compatible with the transmitter wetted parts listed in these instructions.
- Liquid must not be allowed to freeze in the pressure port.
- Exposed ends of cables must be free from moisture.
- Wetted parts:  
 P851 316 stainless steel. Acetyl. Polyurethane. Alumina Ceramic.  
 P861 316 stainless steel. Polypropelene. Polyurethane. Acetyl.  
 Alumina Ceramic

The **DATUM P851** has a range of 3 to 400m (9.8 to 1312.3 ft) and with a diameter of only 38mm is ideally suited for use in boreholes. The **DATUM P861** is designed for use in reservoirs and has a range of 1.5 to 25m . The sensor may be mounted via an optional tank adaptor to allow for external mounting on associated tanks or pipework.

Both types can only be used as a primary sensor with **DATUM P865 Telemetry** or **L150/160 Level** systems.

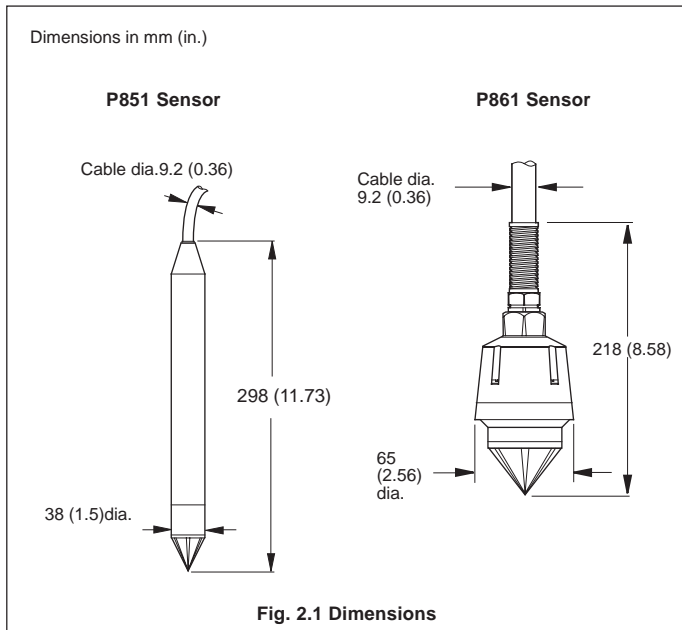
# 2 MECHANICAL INSTALLATION

## 2.1 Environmental Limits

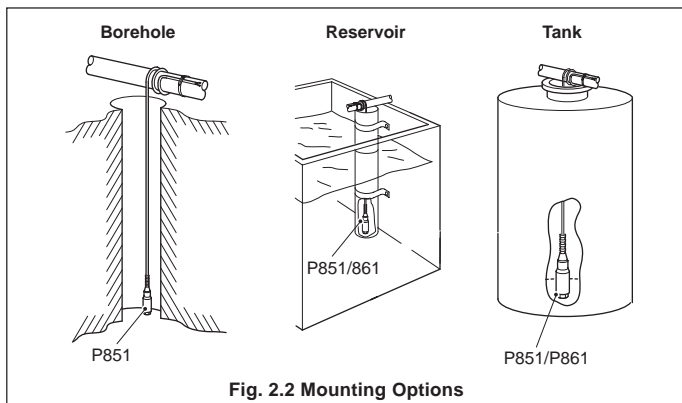
- Temperature limits 0°C to 60°C (32°F to 140°F).
- P851 rated IP68 to 500m
- P861 rated IP68 to 40m

**Caution.** In high humidity environments, condensation must be prevented from entering the sensor vent (breather) tube.

## 2.2 Dimensions – Figs. 2.1 and 2.2

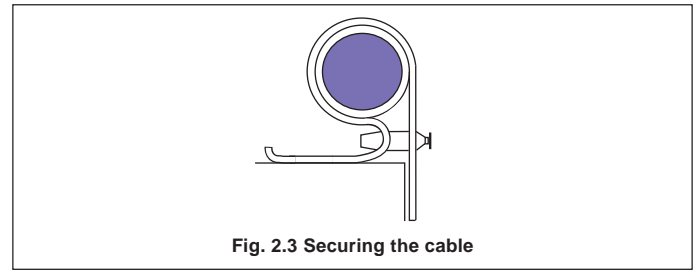


## 2.4 Mounting – Figs. 2.2 and 2.3



# ...2 MECHANICAL INSTALLATION

When mounting the sensors, wrap the cable a minimum of two turns around a structural support (minimum bend radius 50mm [1.96 in.] ) and secure using a suitable cable clamp – see Fig. 2.3 Avoid sharp edges which may damage or deform the cable.



# 3 ELECTRICAL INSTALLATION

**i Information.** To combat the effects of lightning strikes the sensors are fitted with suppression devices providing surge immunity to withstand transients of 0.4 Joules for 100 microseconds. It is recommended that the receiving equipment be fitted with a Lightning Protection Unit (LPU) at the point of cable entry into the building.

## 3.1 Electrical Connections

See Table 3.1 for electrical connections.

Red	Blue	White	Yellow	Screen	Black & Air vent tube
+ve	-ve	0V	Signal	Earth	Trim back to insulation

**Table 3.1 Electrical Connections and Specifications**

## 3.2 Electrical Specifications

Sensor output 1 to 10mA proportional to range, with -3V to +3V d.c. power supply from the DATUM level system.

## 3.3 Grounding

All versions should be grounded by the installation pipework. If this is not possible, the sensor should be grounded at the instrumentation end via the appropriate pin or green lead. For maximum protection against RFI all versions should be installed using screened cable with the screen grounded at the instrumentation end.

## 3.4 Applying Power

**Caution.** Before applying power, ensure the correct polarity and excitation levels are applied. The instrument is not reverse polarity protected and can be damaged by incorrect connection.

## 3.5 Calibration

Sensors are calibrated to a fixed range at time of order; this can be identified from the product code.

# 4 MAINTENANCE

## 4.1 Routine Inspection

Limited to periodic inspection of the cable and connector to ensure that these are neither damaged nor softened by incompatible liquid.

## 4.2 Repair

The instruments cannot be repaired locally. If damaged, return to the Company at the address shown overleaf or to accredited dealers when a replacement/repair is required.