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.

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**United States of America**
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**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.

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**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 in the manual. Improper handling of the equipment could result in personal injury or death.
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. Correct procedures must be observed. Incorrect procedures must not be used.
7. Operation and maintenance must be carried out in accordance with the Company's instructions. Prior to installation, the equipment must be stored in a clean, dry environment.

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**Use of Instructions**

- **Note.** Clarification of an instruction or additional information.
- **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.
- **Information.** Further reference for more detailed information or technical details.

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The Company's policy is one of continuous product improvement and the right is reserved to modify the information contained herein without notice.

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1 INTRODUCTION

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:

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

Dimensions in mm (in.)

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Cable dia.</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>P851</td>
<td>9.2 (0.36)</td>
<td>38 (1.5)dia.</td>
</tr>
<tr>
<td>P861</td>
<td>9.2 (0.36)</td>
<td>298 (11.73)</td>
</tr>
</tbody>
</table>

Fig. 2.1 Dimensions

2.4 Mounting – Figs. 2.2 and 2.3

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.

Fig. 2.3 Securing the cable

3 ELECTRICAL INSTALLATION

3.1 Electrical Connections
See Table 3.1 for electrical connections.

<table>
<thead>
<tr>
<th>Color</th>
<th>Description</th>
<th>Table 3.1 Electrical Connections and Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>+ve</td>
<td>–ve</td>
</tr>
<tr>
<td>Blue</td>
<td>0V</td>
<td>White</td>
</tr>
<tr>
<td>Yellow</td>
<td>Signal</td>
<td>Yellow</td>
</tr>
<tr>
<td>Screen</td>
<td>Earth</td>
<td>Screen</td>
</tr>
<tr>
<td>Black &amp; Air vent tube</td>
<td>Trim back to insulation</td>
<td></td>
</tr>
</tbody>
</table>

Caution. 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.

3.3 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.