User manual

JOFRA STS-103 B
Probe 150

© Copyright 2006 AMETEK DENMARK A/S
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 General information</td>
<td>4</td>
</tr>
<tr>
<td>2.0 Introduction</td>
<td>5</td>
</tr>
<tr>
<td>3.0 Functionality</td>
<td>6</td>
</tr>
<tr>
<td>3.1 Functional description</td>
<td>6</td>
</tr>
<tr>
<td>3.2 Connections</td>
<td>6</td>
</tr>
<tr>
<td>3.3 Serial number</td>
<td>8</td>
</tr>
<tr>
<td>4.0 Operation</td>
<td>9</td>
</tr>
<tr>
<td>4.1 Operation area</td>
<td>9</td>
</tr>
<tr>
<td>5.0 Maintenance</td>
<td>10</td>
</tr>
<tr>
<td>6.0 Technical specifications</td>
<td>11</td>
</tr>
</tbody>
</table>
1.0 General information

This manual is only effective for the following product:

JOFRA STS-103 B - 150 mm

The product is manufactured by:

AMETEK Denmark A/S
GYDEVANG 32-34
DK-3450 ALLERØD
DENMARK
TEL: +45 48 16 80 00
FAX: +45 48 16 80 80
2.0 Introduction

The JOFRA STS-103 B probe is designed for fast and traceable calibration and temperature measurement with AMETEK DTI- and ATC-systems, and is ready for use.

Please read this manual carefully before use, to obtain maximum value of your calibration system.

Warning

- Read this manual before use.
- Do not use in hazardous area.
- Handle carefully.
- Never exceed temperature range
3.0 Functionality

3.1 Functional description

The sensor can be used for measuring temperature in the range -50°C to 400°C (-58°F to 752°F).

Sensors may be supplied with certificates for a limited temperature range.

The resistance of the JOFRA STS-103 B sensor is converted to temperature according to IEC-751 (ITS-90) (calculated coefficients specific for the sensor are stated on the certificate).

3.2 Connections

The sensor is delivered with a connecting cable and with the following options:
Model with banana plugs:
2 meter cable

Use the ground terminal in order to reduce noise.

Model with LEMO connection:
2 meter or 0.5 meter cable
3.3 Serial number

The serial number is placed on the sensor as shown on the figure below:

![Serial number diagram]
4.0 Operation

4.1 Operation area

The sensor is intended for use in areas, which meet the following:

Ambient temperature range : -20°C to 70°C (-4°F to 158°F)
Humidity : 0% to 90%

Protection class : IP 50

Warning
Do not use in hazardous areas.
5.0 Maintenance

The sensor does not require specific maintenance before or after use. The user may carry out the following procedure himself:

- **Cleaning sensor**: Use alcohol or water and a soft cloth.

Caution…
- The sensor must always be protected against any mechanical damage.
- The sensor must never be exposed to mechanical shock effects.
- Avoid thermal shock
- Any bending of the sensor may cause permanent damage
6.0 Technical specifications

Sensor specifications:

Sensor type : Platinum sensor Pt100.
\[ \alpha = 0.00385 \]
Sensor length : 150 mm
Temperature range : -50°C to 400°C (-58°F to 752°F)
Accuracy :
  Repeatability : 0.005°C
  Hysteresis\(^1\) : 0.01°C @ 0°C
  Stability\(^2\) : typ. 0.014°C @ 0°C
Self heating effect : 0.06°C/mW
Diameter : OD3 mm
Immersion depth : 40 mm
Media compatibility : INCONEL 600

1) When used in the range –45°C to 400°C (-49°F to 752°F)
2) Stability when exposed to 400°C (752°F) for 100 hours. Stability will depend on actual use of the sensor.

Response time : A: \[ \tau(50\%) = 5 \text{ sec.} \]
\[ \tau(90\%) = 15 \text{ sec.} \]
Recommended meas. current : 1 mA
Connections : LEMO plugs are standard

Certificate:

The sensor is supplied with an accredited certificate according to the ITS 90 temperature scale. The sensor is as standard calibrated in the range –45°C to 400°C (-49°F to 752°F).

Calibration is carried out at:

- -45°C/-49°F
- -20°C/-4°F
- 0°C/32°F
- 50°C/122°F
- 100°C/212°F
- 200°C/392°F
- 320°C/608°F
- 400°C/752°F