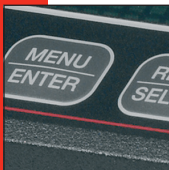


User manual

Jofra STS-120 A



User manual
JOFRA STS-120 A

© Copyright 2016 AMETEK Denmark A/S



List of contents

1.0	General information	3
2.0	Safety instructions	4
3.0	Introduction.....	5
4.0	Functionality	6
4.1	Functional description	6
4.2	Connections	6
4.3	Serial number	7
5.0	Operation	8
5.1	Operation area	8
6.0	Maintenance.....	9
7.0	Technical specifications	10

1.0 General information

This manual is only effective for the following products:

JOFRA STS-120 A 915 (90°)

JOFRA STS-120 A 935 (90°)

JOFRA STS-120 A 966 (90°)

The products are manufactured by:



AMETEK Denmark A/S
Gydevang 32-34
3450 Allerød - Denmark

TEL: +45 48 16 80 00

FAX: +45 48 16 80 80

2.0 Safety instructions



Read this manual carefully before using the sensor!

In order to avoid any personal injuries and/or damage to the sensor all safety instructions and warnings must be observed.



Warning

- Do not use in hazardous area.
- Handle carefully.
- Never exceed temperature range



Caution...

- When measuring temperature in fluids (e.g. at re-calibration) the enclosed protection tube must be used.
- The probe must **always** be protected against any mechanical damage.
- The probe must **never** be exposed to mechanical shock effects.
- Avoid thermal shock
- Any bending of the probe may cause permanent damage
- **Never** use power or tools to place the probe.

3.0 Introduction

The JOFRA STS-120 A probes are specially designed for fast and traceable calibration and temperature measuring with your JOFRA CTC temperature calibrator and are ready for use.

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



Warning

- Do not use in hazardous area.
- Handle carefully.
- Never exceed temperature range

4.0 Functionality

4.1 Functional description

The sensors can be used for measuring temperatures in the range:

- -45°C to 155°C / -49°F to 311°F (915)
- 0°C to 350°C / 32°F to 662°F (935)
- 0°C to 660°C / 32°F to 1220°F (966)

The JOFRA STS-120 A probes may be supplied with certificates for a limited temperature range.

The resistance of the JOFRA STS-120 A probe is converted to temperature according to ITS-90 (calculated coefficients specific for the probe is stated on the certificate).

4.2 Connections

The pin-layout is as follows:

Pin 1 : RTD I-

Pin 2 : RTD S-

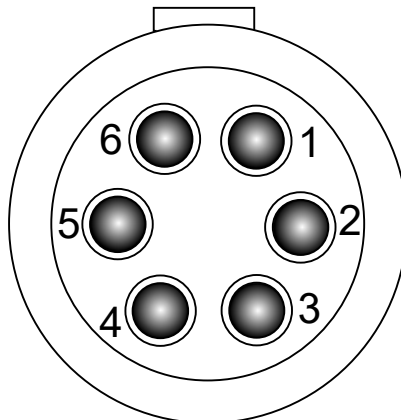
Pin 3 : RTD S+

Pin 4 : RTD I+

Pin 5 : Memory GND

Pin 6 : Memory I/O

The figure below is shown from the connector side of the probe connector.



4.3 Serial number

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



5.0 Operation

5.1 Operation area

All the probes are intended for use in areas, which meet the following operating conditions:

Probe connector

and cable : -20°C to 70°C (-4°F to 158°F)

Storage temp. : -20°C to 70°C (-4°F to 158°F)

Humidity : 5% to 90% RH, non-condensing

Protection class: DIN 40050, IP 50



Warning

Do not use in hazardous areas.

6.0 Maintenance

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

Cleaning the probe : Use alcohol or water and a soft cloth.



Caution...

- The probe must **always** be protected against any mechanical damage.
- The probe must **never** be exposed to mechanical shock effects.
- Avoid thermal shock
- Any bending of the probe may cause permanent damage

7.0 Technical specifications

Sensor type	:	Platinum sensor Pt100.
STS-120 A		$\alpha = 0.00385$
Probe length		
(915)	:	140 mm/5.51 inch (90° angle)
(935)	:	135 mm/5.32 inch (90° angle)
(966)	:	151 mm/5.95 inch (90° angle)
Temperature range		
(915)	:	-45°C to 155°C / -49°F to 311°F
(935)	:	0°C to 350°C / 32°F to 662°F
(966)	:	0°C to 660° / 32°F to 1220°F
Accuracy	:	
Repeatability	:	0.004°C (0.007°F)
Dead band ¹⁾	:	0.01°C @ 0°C (0.02°F@32°F)
Stability ²⁾	:	typ. 0.014°C @ 0°C (0.025°F@32°F)
Self heating effect	:	0.06°C/mW / 0.11°F/mW
Diameter	:	OD4 mm
Immersion depth		
(915/935)	:	60 mm (2.36 in)
(966)	:	100 mm (3.94 in)
Media compatibility	:	INCONEL 600

1)When used in the range -45°C to 155°C / -49°F to 311°F (STS-120 A 915), 0°C to 350°C / 32°F to 662°F (STS-120 A 935) or 0°C to 660°C / 32°F to 1220°F (STS-120 A/B 966).

2)Stability when exposed to maximum temperature for 100 hours. Stability will depend on actual use of the probe.

Response time

(915/935) : $\tau(50\%) = 7 \text{ sec.}$
 $\tau(90\%) = 18 \text{ sec.}$

(966) : $\tau(50\%) = 8 \text{ sec.}$
 $\tau(90\%) = 26 \text{ sec.}$

Recommended

meas. current : 1 mA

Connection

(915/935) : Cable with REDEL connector

(966) : LEMO plug with build in memory is standard

Certificate:

If the STS-120 A reference probe is supplied with a certificate, the calibration is carried out as recommended below according to the ITS 90 temperature scale.

The STS-120 A type 915 probe is as standard calibrated in the range :
-45°C to 155°C (-49°F to 311°F).

The STS-120 A type 935 probe is as standard calibrated in the range :
0°C to 350°C (32°F to 662°F)

The STS-120 A type 966 probe is as standard calibrated in the range :
0°C to 660°C (32°F to 1220°F)

It is recommended to calibrate in minimum 3 – 6 calibration points (depending on the temperature range) above 0°C and in minimum 2 calibration points beneath 0°C.

AMETEK Sensors, Test & Calibration

A business unit of AMETEK Measurement & Calibration Technologies Division offering the following industry leading brands for test and calibration instrumentation.

JOFRA Calibration Instruments

Temperature Calibrators

Portable dry-block calibrators, precision thermometers and liquid baths. Temperature sensors for industrial and marine use.

Pressure Calibrators

Convenient electronic systems ranging from -25 mbar to 1000 bar - fully temperature-compensated for problem-free and accurate field use.

Signal Instruments

Process signal measurement and simulation for easy control loop calibration and measurement tasks.

M&G Deadweight Testers & Pumps

Pneumatic floating-ball or hydraulic piston dead weight testers with accuracies to 0.015% of reading. Pressure generators delivering up to 1,000 bar.

Crystal Pressure

Digital pressure gauges and calibrators that are accurate, easy-to-use and reliable. Designed for use in the harshest environments; most products carry an IS, IP67 and DNV rating.

Lloyd Materials Testing

Materials testing machines and software that guarantees expert materials testing solutions. Also covering Texture Analysers to perform rapid, general food testing and detailed texture analysis on a diverse range of foods and cosmetics.

Davenport Polymer Test Equipment

Allows measurement and characterization of moisture-sensitive PET polymers and polymer density.

Chatillon Force Measurement

The hand held force gauges and motorized testers have earned their reputation for quality, reliability and accuracy and they represent the de facto standard for force measurement.

Newage Hardness Testing

Hardness testers, durometers, optical systems and software for data acquisition and analysis.



United Kingdom

Tel +44 (0)1243 833 302
jofra@ametek.co.uk

France

Tel +33 (0)1 30 68 89 40
general.lloyd-instruments@ametek.fr

Germany

Tel +49 (0)2159 9136 510
info.mct-de@ametek.de

Denmark

Tel +45 4816 8000
jofra@ametek.com

USA

Florida
Tel +1 (800) 527 9999
cal.info@ametek.com

California

Tel +1 (800) 444 1850
crystal@ametek.com

India

Tel +91 22 2836 4750
jofra@ametek.com

Singapore

Tel +65 6484 2388
jofra@ametek.com

China

Shanghai
Tel +86 21 5868 5111

Beijing

Tel +86 10 8526 2111
jofra.sales@ametek.com.cn

www.ametekcalibration.com