Specification Sheet
SS-CP-2290-US

NOTICE
New updated version of the JOFRA DTI-1000

JOFRA DTI-1000 Reference Digital Temperature Indicator and JOFRA STS Superior Temperature Standard Probes

Wherever there is a demand for reliable and accurate temperature measurement, you can rely on the JOFRA DTI-1000 reference thermometer and the JOFRA STS reference probes; backed on more than 50 years of experience.

Wide temperature range
DTI-1000: -200 to 750°C (-328 to 1382°F)
A single probe may cover complete temperature spans
STS probe: -150 to 650°C (-238 to 1202°F)

Improve your accuracy
DTI-1000:
accuracy to ±0.005°C (±0.009°F)
DTI-1000 + STS probe:
±0.03°C (±0.054°F) ± LSD

Resolution
0.1, 0.01 or 0.001 °C/°F/K
0.01, 0.001 or 0.0001 Ω

Reliable temperature readings
The measuring principle is a 4-wire True Ohm Measurement, which eliminates the EMF in cables, sockets, and sensors

Dual channel inputs
Sensor 1 and sensor 2, with differential value 1 - 2, peak hold etc.

Minimize paperwork
RS232 communication, special calibration and data storage software are included

Fast response time
Ensures correct monitoring of the temperature stability

Specified low drift
Maintains a minimum uncertainty budget over the entire period between re-calibration intervals

Wide selection of probes
Including 90° angled or cable probe, offering flexibility in test methods and sensors-under-test

ISO 9001 Manufacturer

PRODUCT DESCRIPTION

The JOFRA DTI-1000 with an STS-probe is a fully traceable thermometer recommended as the reference instrument to verify the true temperature in any type of temperature calibrator, liquid bath, or dry-block calibrator.

Use the JOFRA DTI-1000 and the STS probes as your working temperature reference in any calibration application or use the set-up directly in custody transfer applications where high accuracy (low uncertainty) means money.

The superior specifications combined with a long history of reliability and low drift have made the JOFRA DTI-1000 and the STS probes the working standard in many national laboratories worldwide.

The JOFRA STS industrial temperature reference probes are built to last. All JOFRA Superior Temperature Standard probes are economical and offer fast response times, low immersion depths, compact physical sizes, and specified low drift rates; even at high temperatures.

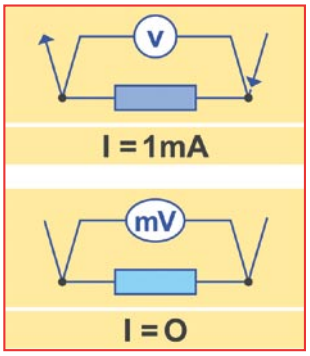
AMETEK®
CALIBRATION INSTRUMENTS

JOFRA™ DTI-1000

Precise Digital Thermometer Indicator

True Ohm Measurement

The DTI-1000 has been designed to employ state-of-the-art DC measuring techniques in combination with powerful microprocessor technology. To achieve high accuracy, the measuring principle used by the DTI-1000 is True Ohm Measurement thus eliminating the EMF from cables, sockets, and sensors.



True Ohm Measurement is a proven method to achieve accurate compensation for errors induced by thermal effects.

The resistance is measured through the 4-wire system at 1 mA, after which the instrument takes a reading without any applied current; this second reading is the “error EMF”.

Reference resistors

To minimize the effect of any drift caused by ambient temperature, humidity and /or aging, the DTI series is designed with built-in high precision and extremely stable reference resistors. This technique minimizes drift.

Linearity

To obtain high accuracy, it is necessary to know the characteristics of the Pt100 sensor to be used with the DTI-1000 e.g. one of the JOFRA STS probes.

The DTI-1000 provides 3 different linearity setups:

- Certified data pairs of ohm and reference temperature. Use JOFRACAL for calculating and downloading of individual coefficients from a certified sensor e.g. a STS JOFRA probe based on “best curve fit”
- Coefficients, according to IEC 751 (Callender van Dusen) coefficients according to ITS-90
- Coefficients according to ITS-90

Conversion to temperature

DTI-1000 will accept Callendar van Dusen coefficients R_0, A, B and C or ITS-90 coefficients for converting resistance to temperature. If you do not have these coefficients available from the certificate for the sensor, but have measurement data (temperature and resistance), JOFRACAL can help you calculate the coefficients required.

Combining a DTI-1000 and a STS reference sensor with the use of ITS-90 coefficients ensures the best overall accuracy.

Simplified operation

The DTI-1000 features an easy-to-read VFD display and dedicated function keys. All operations are performed from the instrument’s front panel.

The ON/OFF key automatically initiates a self-test routine and the display indicates tested parameter results plus the date of the last calibration.

The MODE key allows the user to specify temperature modes on the dual channel inputs; sensor 1 and sensor 2, with differential values 1-2, peak hold etc.

The MENU/ENTER key includes intelligent prompts that guide the user through setup and operation. This key allows the user to specify measuring units, resolution, sensor identification, and coefficients.

The RESET/SELECT key allows the user to enter peakholds and to change settings in the MENU mode.

Documentation and verification of measuring data

The instrument features an RS232 serial data communication interface. This allows the DTI-1000 to be serially connected to a personal computer for data storage and reporting. The JOFRACAL software package is included as a standard accessory.

The software is menu-driven and easy to use:

- Storage of all sensor coefficients. Quick downloading to the DTI-1000 through the software. Facilitates the easy use of multiple sensors for various applications.
- Complete software controlled calibration procedure, which saves time.
- For further information please see JOFRA specification sheet SS-CP-2510 on www. jofra.com

Reference probes and system accuracy

To get an ideal reference system JOFRA offers a range of reference probes. (For details please see the JOFRA™ STS series of reference probes on page 5 to 8.)

All sensors are supplied with an accredited and traceable certificate from National Accredited Laboratory, stating the sensor coefficients.

When using JOFRA STS reference probes together with the DTI-1000, the system accuracy will typically be: ±0.030°C (0.054°F).

FUNCTIONAL SPECIFICATIONS

Input range

DTI-1000 A (Pt100 / Pt25) 0-360Ω
DTI-1000 B (Pt25) 0-95Ω

Accuracy, 12 months use

DTI-1000 A ..... ±(6 ppm rdg + 1,4 mΩ)
DTI-1000 B ..... ±(6 ppm rdg + 0,7 mΩ)

For accuracies in °C and °F please see table below

System accuracy using STS-100 sensor, 12 months use*

-50 to 400°C / -58°F to 752°F .....±0.030°C / ±0.054°F 1) 2)
-50 to 400°C / -58°F to 752°F .....±0.050°C / ±0.090°F 1) 3)
-50 to 650°C / -58°F to 1202°F ..... ±0.060°C / ±0.108°F 1) 2)
-50 to 650°C / -58°F to 1202°F ..... ±0.090°C / ±0.162°F 1) 3)

*) Order system calibration for full documentation / traceability

1) Specified at 95% confidence interval k=2, over full range, including calibration uncertainty, excluding 1 LSD (Least Significant Digit).

2) Excl. sensor drift (please see long term stability at page 5)

3) Incl. sensor drift (please see long term stability at page 5) after 100 hours at max. temperature.

OTHER SPECIFICATIONS

Temperature range .....-200 to 750°C / -328 to 1382°F
Temperature coeffecient 0-50°C / 32-122°F .....
..... 0.8 ppm/°C / 0.45 ppm/°F
Input channels 2
Termination....Goldplated LEMO / 4 mm banana test sockets
Resolution (user-selectable) .... 0.1, 0.01 or 0.001 °C/°F/K/Ω
Update rate (0.1 / 0.01 / 0.001°) ..... 2 / 3 / 12 seconds
Measuring units ..... °C, °F, K and Ω
Measuring current 1mA

Power supply

Mains ..... 9 VDC / 200 mA
Batteries ..... 8 x 1.5 V (type AA)
Battery life ..... 5 hours typically

JOFRACAL software

Minimum hardware requirements:

- INTEL™ 486 processor (PENTIUM™ 200 MHz recommended)
- 16 MB RAM (32 MB recommended)
- 40 MB free disk space on hard disk prior to installation
- Standard VGA (800 x 600, 16 colors) compatible screen (1024 x 786, 256 colors recommended)
- CD-ROM drive for installation of the program
- 1 free RS232 serial port

PHYSICAL SPECIFICATIONS

Instrument dimensions

L x W x H:..... 225 x 135 x 195 mm / 8.9 x 5.3 x 7.7 in.

Instrument weight

Net weight ..... 2.2 kg / 4.9 lb

Shipping (+ std. accessories + carrying case)

Weight ..... 10 kg / 22.1 lb
Size: L x W x H. 600 x 380 x 280 mm / 23.6 x 15.0 x 11.0 in.

Shipping (+ std. accessories but no carrying case)

Weight: ..... 3.5 kg / 7.7 lb
Size: L x W x H.. 320 x 240 x 270 mm / 12.6 x 9.5 x 10.6 in.

Shipping (carrying case only)

Weight: ..... 6.5 kg / 14.3 lb
Size: L x W x H. 600 x 380 x 280 mm / 23.6 x 15.0 x 11.0 in.

Miscellaneous

Serial data interface RS232
Display: VFD, two lines, 20 characters alphanumeric
Operating (ambient) temperature ..... 0 to 50°C / 32 to 122°F
Storage (ambient) temperature..... -20 to 60°C / -4 to 140°F
Humidity ..... 0 to 90% RH
CE Conformity..... EN 50081-1 / EN 50082-1

Accuracy - 12 months Temperature range	DTI-1000 A with Pt-100 (excl. sensor uncertainty)	DTI-1000 A with Pt-25 (excl. sensor uncertainty)	DTI-1000 B with Pt-25 (excl. sensor uncertainty)
-200°C / -328°F	±0.004°C / ±0.006°F	±0.014°C / ±0.026°F	±0.007°C / ±0.013°F
0°C / -32°F	±0.005°C / ±0.009°F	±0.016°C / ±0.028°F	±0.009°C / ±0.015°F
-155°C / -311°F	±0.006°C / ±0.011°F	±0.017°C / ±0.031°F	±0.010°C / ±0.018°F
200°C / 392°F	±0.007°C / ±0.013°F	±0.018°C / ±0.032°F	±0.010°C / ±0.019°F
320°C / 608°F	±0.008°C / ±0.014°F	±0.019°C / ±0.035°F	±0.012°C / ±0.021°F
400°C / 752°F	±0.008°C / ±0.015°F	±0.020°C / ±0.037°F	±0.012°C / ±0.022°F
600°C / 1112°F	±0.010°C / ±0.019°F	±0.023°C / ±0.041°F	±0.014°C / ±0.026°F
650°C / 1202°F	±0.011°C / ±0.020°F	±0.024°C / ±0.043°F	±0.015°C / ±0.027°F
750°C / 1382°F	±0.012°C / ±0.021°F	±0.026°C / ±0.047°F	±0.017°C / ±0.030°F

ORDERING INFORMATION

Model DTI-1000 - Reference Digital Temperature Indicator

Order number **Description**

Base model number - 1st thru 8th characters

DTI-1000A	DTI-1000 A, -200 to 750°C (-328 to 1382°F) - Pt-25 or Pt-100
DTI-1000B	DTI-1000 B, -200 to 750°C (-328 to 1382°F) - only Pt-25

Options: 9th thru 10th characters

C	Carrying case, aluminum
F	NPL traceable certificate (standard delivery)
G	NIST traceable
H	Accredited certificate traceable to NPL under EA
S	Special certification certificate - custom specified
X	Placeholder character for unused option

DTI1000ACF **Sample order number**

JOFRA DTI-1000 A, mains adapter, aluminum carrying case, NPL traceable certificate.

Standard delivery

- DTI-1000
- JOFRACAL software
- AmeTrim ATC/DTI to adjust the DTI-1000
- RS232 cable, 9 pin connector
- 8 batteries
- User manual
- Calibration certificate, traceable to International Standards
- Mains adapter

Optional accessories

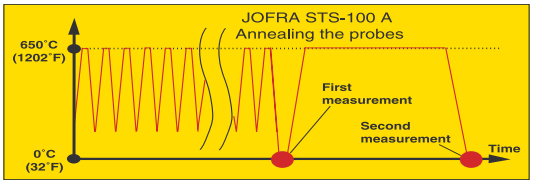
- Aluminum carrying case for complete systems
- An accredited 124656-xxx system calibration for a DTI-1000 and a STS-100 A probe (page 6) consists of the following calibration points: -40, 0, 50, 100, 200, 320, 450 and 650°C (-40, 32, 122, 212, 392, 608, 842 and 1202°F).
- An accredited 124657-xxx system calibration for a DTI-1000 and a STS-102 A probe (page 7) consists of the following calibration points: -45, 0, 50, 100 and 155°C (-49, 32, 122, 212 and 311°F).
- Rechargeable battery pack

ACCESSORIES

Part no.	Description
60D024	Batteries (4 units - the DTI-1000 requires 8 units)
124944	Aluminum carrying case
124656-090	Accredited system certificate, DTI-1000 + 1 STS-100 A 901 X H (see p. 8)
124656-250	Accredited system certificate, DTI-1000 + 1 STS-100 A 250 X H (see p. 8)
124656-350	Accredited system certificate, DTI-1000 + 1 STS-100 A 350 X H (see p. 8)
124656-500	Accredited system certificate, DTI-1000 + 1 STS-100 A 500 X H (see p. 8)
124657	Accredited system certificate, DTI-1000 + 1 STS-102 A 030 S H (see p. 8)
124716	Rechargeable batteries (4 units - the DTI-1000 requires 8 units)
124718	Charger for 124716 batteries, 115/230 VAC
124315	Trolley for carrying case

JOFRA™ STS Series

Secondary Temperature Standard Probes



Quality defined

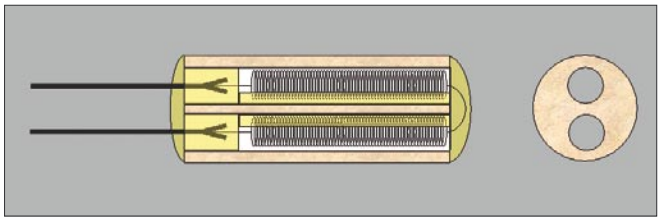
It is not easy to make a good quality reference probe. The main requirement of a reference probe is stability. This means minimal drift as a function of operating time at the actual temperature. The less the probe drifts, the lower the measurement uncertainty.

Small diameter - fast response

The STS-100 A series has a relatively small diameter. This leaves optimum space for sensors-under-test in the dry-block and ensures a fast response time. A fast reacting sensor will optimize the measurement information.

Reduced hysteresis and drift

The sensing element is comprised of a pure platinum coil. This coil is suspended in a way that minimizes stress and ensures a near zero hysteresis value.



The main reason for drift within a sensor assembly is impurities within the element, especially at temperatures above 350°C (660°F). All internal parts must be cleaned thoroughly. AMETEK has developed a unique cleaning method for the internal bore of the Inconel® sheath. The platinum sensor is embedded within an ultra-clean, temperature resistant ceramic, and assembly of the components is performed in a clean room. These precautions ensure minimum contamination of the element during use and provide the user with the best possible performance.

Ageing/annealing

Once the probes are assembled, they are subjected to a long approval process. This includes mechanical stress reduction of the entire assembly as well as ageing the sensor element itself. The purpose of ageing the sensor is to remove the initial drift.

The procedure involves heating the sensor up to 650°C (1202°F) and holding it for 1 hour before cooling down. This process is repeated over a period of several days. The resistance is then measured at 0°C (32°F) and recorded. The sensor is again heated up to 650°C (1202°F), and this time the temperature is held constant for 100 hours.

Finally, the output from the sensor is again measured at 0°C (32°F) and recorded. The difference between the first and the second measurement is recorded. The difference between these two measurements is our verification of the stability qualities of the sensor. To be accepted for final calibration and certification, the probe must meet our minimum tolerance, which we document in a quality certificate.

Reduced isolation-resistance-error

Electrical isolation resistance (parasite-resistance-error), when measured at the highest operating temperature, should be as high as possible. A low isolation resistance would cause the output signal to be incorrect in relation to the temperature. JOFRA STS-100 A series probes meet the IEC-751 requirements of isolation resistance by several hundred percent.

The final quality-certificate-check

Upon completion of every certificate, after final calibration of the probe, examination and approval cycles are performed according to our established procedures. The critical verification is to ensure that the difference between the initial and the final 0°C (32°F) measurement on the certificate meets our minimum tolerance. These requirements are based on a vast amount of data, which has been evaluated statistically. This value indicates if the probe has a sufficient long-term stability. AMETEK also checks that the linearization coefficients have values that correlate to an acceptable curve sequence in accordance with our requirements.

Certification

The final documentation on the probe is the calibration certificate. The JOFRA STS-100 A probes have the following calibration options:

Accredited certificate (standard):
(Traceable to the European Accreditation Organisation)
Temperature range from -45 to 650°C (-40 to 1202°F).
The certificate contains min. 6 temperature points starting and ending at 0°C (32°F). The certificate also contains calculated liniearization coefficients .

The entire temperature calibration uncertainty:

-40 to 399°C (-40 to 750°F)	0.02°C (0.036°F)
400 to 650°C (752 to 1202°F)	0.05°C (0.09°F)

Traceable certificate (optional):
Temperature range from -45 to 650°C (-49 to 1202°F).
The certificate contains 8 temperature points starting and ending at 0°C (32°F). The certificate also contains calculated liniearization coefficients .

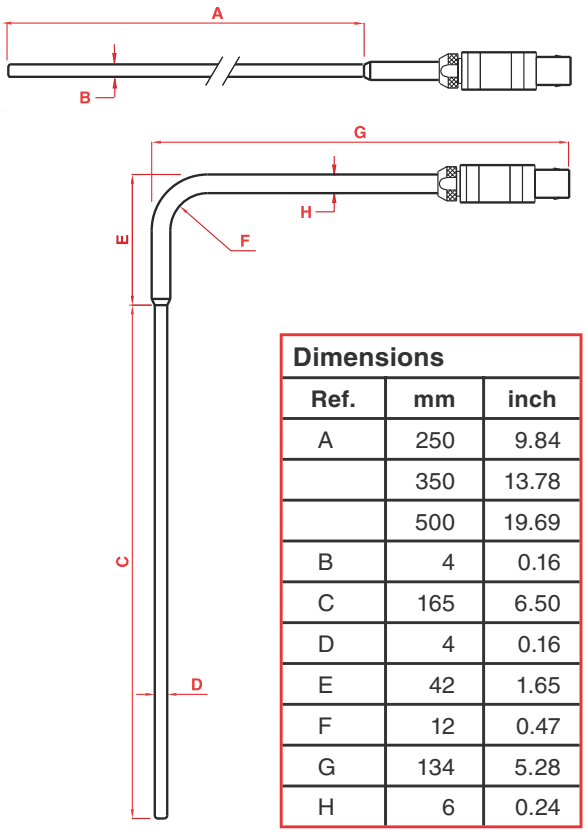
Calibration uncertainty:

-45 to 650°C (-49 to 1202°F)	0.05°C (0.09°F)
-45 to 155°C (-49 to 311°F)	0.05°C (0.09°F)
-33 to 320°C (91 to 608°F)	0.05°C (0.09°F)
-33 to 650°C (91 to 1202°F)	0.05°C (0.09°F)

Delivery without certificate (annealed only) - (optional):
In some cases, the customer may prefer to calibrate the probe. It is possible to purchase the probe without any certification. AMETEK does not recommend this option because we are not able to complete the final ”quality-certificate-check”.

Custom-made certificate (optional):
The traceable certificate and the accredited certificates may both be customized to meet customer requirements; extra calibration points, different temperature points, limited or extended temperature ranges are available.

JOFRA™ STS-100 A



Dimensions		
Ref.	mm	inch
A	250	9.84
	350	13.78
	500	19.69
B	4	0.16
C	165	6.50
D	4	0.16
E	42	1.65
F	12	0.47
G	134	5.28
H	6	0.24

ACCESSORIES

Part no.	Description
65-PT100-LL-CABLE	Cable LEMO to LEMO length: 2 m (6.6 ft.)
65-PT100-LB-CABLE	Cable LEMO to banana length: 2 m (6.6 ft.)
122801	Cable LEMO to LEMO length: 0.5 m (1.6 ft.)
124868	Aluminum case

Compatible JOFRA instruments

The probes of JOFRA STS sensors can be used with the following JOFRA instruments:

JOFRA DTI-1000, page 1 to 4
JOFRA ATC series, spec. sheet no. SS-CP-2285
JOFRA ASC-300, spec. sheet no. SS-CP-2350
JOFRA AMC-900, spec. sheet no. SS-CP-2380

See the above-mentioned specification sheets and further information about the JOFRA instruments at www.jofra.com.

Ordering information on page 8 (back page)

SPECIFICATIONS

Temperature range

All probes ..... -150 to 650°C / -238 to 1202°F

Accuracy

Hysteresis[1] @0°C / 32°F ..... 0.01°C / 0.02°F
Long term stability [2] @0°C / 32°F .....typ. 0.014°C / 0.025°F
Repeatability [1] ..... 0.002°C / 0.0036°F

1) when used in the range -80 to 650°C / -112 to 1202°F.
2) when exposed to 650°C / 1202°F for 100 h. Stability will depend on actual use of the sensor.

Sensing element

Type Pt100
Nominal resistance @0°C / 32°F ..... 100 Ω
Length ..... 40 mm / 1.6 in.
Temperature coefficient ..... α_{100}=0.00385 1/°C

Minimum immersion depth

70 mm / 2.8 in.

Self-heating effect

0.06°C/mW / 0.108°F/mW

Response time

$\tau_{0.5}$ (50%) ..... 8 seconds
$\tau_{0.9}$ (90%) ..... 26 seconds
Liquid in motion v=0.4m/s.

Electrical connections

Cable ..... 4 wire + shield
Connection ..... LEMO goldplated

Insulation resistance

@ 23°C / 73°F ..... 100 Gohm
@ 650°C / 1202°F ..... 70 Mohm

Outer tube

Inconel 600

Operating conditions

(Probe, connection, and cable) ..... Max. 70°C / 158°F
Storage temperature ..... -20 to 60°C / -4 to 140°F
Humidity ..... 0 to 90% RH
Protection class (connectors) ..... DIN 40050 IP-50

Shipping dimensions

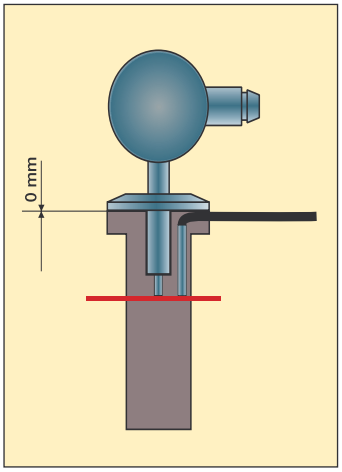
Straight probes (including aluminum case):
L x W x H ..... 740 x 140 x 135 mm / 29.1 x 5.5 x 5.3 in.
90° angled probe (including carrying case):
L x W x H ..... 220 x 250 x 60 mm / 8.7 x 9.8 x 2.4 in.
Shipping weight including packing
Straight probes ..... 1.9 kg / 4.2 lb
90° angled probe ..... 550 g / 1.2 lb

Standard delivery

- JOFRA STS-100 A probe
- Cable - according to order number
- Accredited certificate, points: -40, -20, 0, 50, 100, 200, 320, 450 and 650°C (-40, -4, 32, 122, 212, 392, 608, 842 and 1202°F).
- 90° angled probe: Plastic carrying case with foam insert
- Straight probes: Aluminium case with foam insert
- User guide

JOFRA™ STS-102 A

JOFRA has also designed a special cable type reference sensor, the STS-102 A. Due to the small size and flexible connection, the design permits positioning of the sensor throughout the depth of the well in a dry-block, eg. under a sanitary flange.



The reference sensor must be placed at the same level and in parallel with the sensor-under-test as indicated in the illustration to the right. The illustration shows calibration of a sanitary sensor. The sensor is in contact with the insert.

Below you see the custom insert and STS-102 A reference sensor placed in a JOFRA ATC-156 B dry-block calibrator. On the right, the sanitary sensor has been fitted into the insert and is ready for calibration. Note that the design makes room for the reference sensor cable.

To learn more about the possibilities with the JOFRA STS-102 A reference sensor, see accessory sheet AS-CP-2201-US available on www.jofra.com or from your local distributor.

Compatible JOFRA instruments

The probes of JOFRA STS sensors can be used with the following JOFRA instruments:

JOFRA DTI-1000, page 1 to 4
JOFRA ATC series, spec. sheet no. SS-CP-2285
JOFRA ASC300, spec. sheet no. SS-CP-2350
JOFRA AMC900, spec. sheet no. SS-CP-2380

See the above-mentioned specification sheets and further information about the JOFRA instruments on www.jofra.com.

Ordering information on page 8 (back page)

SPECIFICATIONS

Temperature range

All probes ..... -50 to 155°C / -58 to 311°F

Accuracy

Hysteresis @0°C / 32°F .....0.01°C / 0.018°F
Long term stability [1] @0°C / 32°F..... typ. 0.025°C / 0.045°F
Repeatability .....0.002°C / 0.0036°F

[1] when exposed to 155°C (311°F) for 200 hours. stability will depend on actual use of the sensor.

Sensing element

Type.....Pt100
Nominal resistance@0°C / 32°F..... 100 Ω
Length .....30 mm / 1.18 in.
Temperature coefficient ..... α_{100}=0.00385 1/°C

Minimum immersion depth

40 mm / 1.6 in.

Self-heating effect

0.06°C/mW / 0.108°F/mW)

Response time

$\tau_{0.9}$ (90%)..... 16 seconds
Measured in water

Electrical connections

Cable .....4 wire + shield
Connection .....LEMO goldplated

Insulation resistance

@ 23°C / 73°F ..... 100 Gohm

Outer tube

AISI 316TI

Operating conditions

(Probe, connection, and cable) . 0°C to 50°C / 32°F to 122°F
Humidity ..... 0 to 90% RH
Protection class (connectors) .....DIN 40050 IP-50

Shipping dimensions

STS-102 A probe (including carrying case):
L x W x H.....220 x 250 x 60 mm / 8.7 x 9.8 x 2.4 in.
Shipping weight including packing
STS-102 A probe.....550 g / 1.2 lb

Standard delivery

- JOFRA STS-102 A probe
- Plastic carrying case with foam insert
- Accredited certificate, points: -45, -20, 0, 50, 100 and 155°C (-49, -4, 32, 122, 212 and 311°F).
- User guide
- Calibration tube

ORDERING INFORMATION

Model JOFRA STS-100 A Superior Temperature Standard Probe

Order no.	Description
	Base model number- 1st thru 6th characters
STS100	Pt100 reference probe, solid, -150 to 650°C (-238 to 1207°F)
	Diameter of the probe - 7th character
A	Overall diameter 4 mm (0.16 in.)
	Shape and length - 8th thru 10th characters
250	Straight probe, 250 mm (9.8 in.) in length delivered in an aluminum case
350	Straight probe, 350 mm (13.8 in.) in length delivered in an aluminum case
500	Straight probe, 500 mm (19.7 in.) in length delivered in a plastic carrying case
901	90° angled probe, 207 mm (8.1 in.) in length delivered in a plastic carrying case
	Cable length and termination - 11th character
A	Cable 0.5 m (1.6 ft.) + LEMO connector - for use with JOFRA dry-block calibrators
B	Cable 2 m (6.6 ft.) + LEMO connector
C	Cable 2 m (6.6 ft.) + Banana plug connectors
	Calibration certificate - 12th character
	(8 temperature points)
H	Accredited calibration certificate - Standard delivery
F	NPL traceable calibration certificate
G	NIST traceable calibration certificate
I	No certificate - Annealed only (Useless without calibration certificate/coefficients)
S	Special calibration certificate - Custom-defined

STS100 A 901 A H	**Sample order number**
	Reference Pt100 probe angled 90° - Cable length 0.5 m (1.6 ft.) with LEMO termination - Accredited certificate 8 temperature points

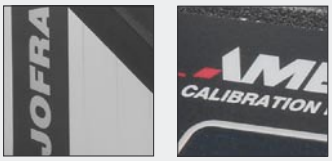
ORDERING INFORMATION

Model JOFRA STS-102 A Superior Temperature Standard Probe

Order no.	Description
	Base model number- 1st thru 6th characters
STS102	Pt100 reference probe, cable, -50 to 155°C (-58 to 311°F)
	Diameter of the probe - 7th character
A	Overall diameter 4 mm (0.16 in.)
	Shape and length - 8th thru 10th characters
030	Short sensor 30 mm / 1.18 in. delivered in a plastic carrying case
	Cable length and termination - 11th character
S	Cable 1 m (3.3 ft.) - Integrated Teflon cable - LEMO connector
	Calibration certificate - 12th character
	(8 temperature points)
H	Accredited calibration certificate - Standard delivery
F	NPL traceable calibration certificate
G	NIST traceable calibration certificate
I	No certificate - Annealed only (Useless without calibration certificate/co-efficients)
S	Special calibration certificate - Custom-defined

STS102 A 030 S H	**Sample order number**
	Reference Pt100 probe - short sensor - Cable length 1 m (3.3 ft.) with LEMO termination - Accredited certificate 8 temperature points

temperature
software
pressure
signal



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Calibration Instruments
offers a complete range of calibration equipment for pressure, temperature, and signal - including software.

JOFRA Temperature standards
Portable precision thermometer. Dry-block calibrators: 4 series, more than 20 models - featuring speed, portability, accuracy, and advanced documenting functions.

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Pneumatic floating-ball or hydraulic piston deadweight testers - easy-to-use with accuracies up to 0.015% of reading.

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Convenient electronic systems ranging from -1 to 700 bar (25 inHg to 10,000 psi) - multiple choices of pressure ranges, pumps, and accuracies, fully temperature-compensated for problem-free and accurate field use.

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...because calibration is a matter of confidence

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