t e m p e r a t u r e

JOFRA® calibration

Digital Temperature Indicator and STS Reference Sensor
DTI050 and STS-100

» Wide temperature range
DTI050:
-200 to 2500°C / -328 to 4532°F

STS-100 sensor:
-150 to 650°C / -238 to 1202°F

STS-102 sensor:
-45 to 155°C / -49 to 311°F

» Improve your accuracy
DTI050:
accuracy to ±0.012°C / ±0.021°F

DTI050 + STS sensor:
accuracy to ±0.04°C / ±0.072°F

» Fast response time
Ensures correct monitoring of the temperature stability

» Specified low drift
Maintains a minimum uncertainty budget throughout the period between re-calibration intervals

» Wide selection of sensors
Straight sensors, 90° angled sensors or cable sensors, offering flexibility in test methods depending on the sensor-under-test

» True field instrument
Low temperature coefficient - high accuracy in the lab and in the field

» Documentation made easy
RS232 communication and JOFRACAL calibration software are included in the standard delivery

The JOFRA DTI050 handheld digital temperature indicator, offers a measurement accuracy to ±0.012°C.

Combined with an accurate JOFRA STS-100 temperature reference sensor, the DTI050 temperature reference indicator is the perfect reference thermometer.

This simple to use instrument offers great flexibility, being able to work with both 'smart' and standard temperature sensors. A fast response time ensures precise monitoring of temperature stability and low drift reduces uncertainty of measurement between calibration intervals.

Use the DTI050 and the STS sensors as the working temperature reference in any calibration application or use the set-up directly for critical measurements in the process.

The superior specifications, combined with a long history of reliability and low drift, makes the DTI050 and the STS sensors the perfect choice.

The graphical display makes it is easy to recognize the status of the instrument and take readings. The DTI050 may also handle signals from 4-wire RTD's, TC's and thermistors.

ISO 9001 Manufacturer

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![JOFRA calibration]

JOFRA DTI050 INDICATOR

Graphical display
Large digits display the temperature, info lines show current status and mode, and the small digits show the details of the sensor.

Indicator for low battery
Running low on battery an icon in the display clearly shows this.

ON / OFF
Auto shut-off to extend battery life (user-programmable).

Resolution
1 °C - 0.001 °C. Maximum resolution depends on the selected sensor type.

Hold
Makes it possible to "freeze" the results when doing measurement. The results are saved in the EEPROM, when it is switched off.

External power supply
It is possible to connect the DTI050 to external 9V supply.

Intelligent sensor reading
Capable of reading calibration data and other information from the memory of the sensor.

Input
1 input channel with 6-pin REDEL connector.

Type
Select type of sensor. When using an STS reference sensor with intelligence, the indicator automatically finds the sensor and the data.

Serial interface
RS232 serial interface to communicate with JOFRACAL calibration software. Also used if adjustment of the unit is necessary.

MAX / MIN
Reads the highest and lowest value from last reset. Monitor a safety alarm or look for temperature spikes in the process. Min and max are saved in the EEPROM, when it is switched off.

ORDERING INFORMATION DTI050

Order No.		Description
		Temperature Indicator
DTI050		DTI050 Temperature Indicator
		Calibration certificate
	G	NIST traceable certificate (standard)
	H	Accredited certificate
		Options
	C	Carrying Case (max. 350 mm. straight sensor)
	X	No option used
DTI050GX		**Sample order number**
		JOFRA DTI050 temperature indicator with standard NIST traceable calibration certificate.

ACCESSORIES

DTI050 power supply accessories

124720	Mains adapter 9VDC/200mA - 230VAC/115VAC
124717	1x 9 Volt rechargeable battery
124718	Charger for rechargeable batteries - 115/230 VAC
125002	Edge port Converter with 4 pcs of RS232 ports

DTI050 connectors and cables

125702	Connector for RTD sensors without intelligence
125703	Connector for RTD sensors with intelligence
125759	Connector for TC sensors without intelligence
125704	Connector for TC sensors with intelligence
125522	Cable 2 m with LEMO / Redel for DTI050 with intelligence
125523	Cable to mini TC-connector with intelligence
125521	LEMO/Banana cable,STS100/STS102,with intelligence

STANDARD DELIVERY

- DTI050 indicator
- NIST traceable calibration certificate in ohm and mV
- Softcase and shoulder strap
- User manual
- 9V battery
- RS232 cable
- JOFRACAL calibration software
- CON050 configuration software

Softcase (Standard) - SPK-HHC-002
The DTI050 is supplied in a handy softcase designed for easy transportation and vertical operation during the calibration.

Carrying case (Optional) - 125812
A complete ready-to-use system may be delivered in a practical aluminum carrying case, which can hold the DTI050 and all standard accessories as well as a STS reference sensor.

SPECIFICATIONS DTI050

Environmental conditions

Operating temperature .... -10 to 50°C / 14 to 122°F
Storage temperature .... -20 to 60°C / -4 to 140°F
Atmospheric humidity .... 0 to 90%
All specifications specified
at ambient temperature .... 23°C ±5°C / 73°F ±9°F
Outside ambient 23°C ±5°C .... ±0.001% rdg/°C
Outside ambient 73°F ±9°F .... ±0.0028% rdg/°F
CJ compensation 18 to 28°C / 64 to 83°F ... 0.2°C / 0.36°F
CJC outside above .... 0.05°C/°C / 0.05°F/°F

Power supply

Mains adapter .... 9 VDC / 200 mA
Battery .... 1 x 9 VDC Alkaline
Battery life .... Minimum 10 hours
Low battery indicator .... at 6 VDC
Auto off .... user selectable, 1-30 minutes

Display

LCD .... Graphical display
Display resolution .... 1°C - 0.001°C. *
Display update .... twice per second
* Maximum resolution depends on the selected sensor type.

RS232 communication interface

Connector .... 3-pin JACK
Communication rate .... 9600 baud, ASCII

Instrument dimensions

Indicator L x W x H ..... 188 x 84 x 52 mm / 7.4 x 3.3 x 2.1 in
Indicator weight (including battery) .... 400 g / 14.1 oz

Shipping dimensions

Indicator L x W x H . 250 x 160 x 100 mm / 9.8 x 6.3 x 3.9 in
Indicator weight (including battery) .... 1.1 kg / 2.4 lb

INPUT SPECIFICATIONS FOR DTI050

4-wire RTD Type	Temperature range				12 months accuracy	
	°C		°F		°C	°F
	From	To	From	To		
PT385, 100 ohm	-200	-80	-328	-112	0.012	0.021
	-80	100	-112	212	0.020	0.036
	100	300	212	572	0.030	0.054
	300	400	572	752	0.035	0.063
	400	630	752	1166	0.047	0.084
	630	800	1166	1472	0.057	0.102

Ohm	Range		Accuracy ±
	min	max	12 months
Ohm read (low)	0.000	400.000	0.004% rdg +0.002 ohm

JOFRA STS REFERENCE SENSORS

To get an ideal reference system, JOFRA offers a range of reference sensors. JOFRA STS Superior Temperature reference Sensors are based on more than 50 years of industrial temperature sensor manufacturing experience. The main requirement of a reference sensor is stability: The less the sensor drifts, the lower the measurement uncertainty. All Superior Temperature Standard sensors are economical and offer fast response times, low immersion depths, compact physical sizes, and specified low drift rates: even at high temperatures. These are all important considerations when selecting a reference sensor.

All sensors are supplied with an accredited or traceable certificate stating the sensor coefficients.

System accuracy for JOFRA DTI050 with STS-100/102

STS-100 sensor:

-50 to 250°C (-58 to 482°F):	±0.040°C (±0.072°F) [1,2]
	±0.055°C (±0.099°F) [1,3]
-50 to 320°C (-58 to 608°F):	±0.050°C (±0.090°F) [1,2]
	±0.060°C (±0.108°F) [1,3]
-50 to 400°C (-58 to 752°F):	±0.065°C (±0.117°F) [1,2]
	±0.080°C (±0.144°F) [1,3]
-50 to 650°C (-58 to 1202°F):	±0.090°C (±0.162°F) [1,2]
	±0.100°C (±0.180°F) [1,3]

STS-102 cable sensor:

-45 to 155°C (-49 to 311°F):	±0.040°C (±0.072°F) [1,2]
	±0.070°C (±0.126°F) [1,3]

All sensors are as standard supplied with an accredited certificate stating the sensor coefficients. A traceable certificate is optional.

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

Note 2: Excl. sensor drift

Note 3: Incl. sensor drift after 100 hours at max. temperature.

ORDERING JOFRA DTI050 AND STS-100

DTI050						**Base model number** DTI050 Temperature Indicator
	G H					**Calibration certificate DTI050** NIST traceable certificate (standard) Accredited calibration certificate
		100				**STS reference sensor** Pt100 reference sensor, solid, -150 to 650°C (-238 to 1207°F)
			A B			**Diameter of the sensor** Overall diameter 4 mm (0.16 in) Overall diameter 6.35 mm (0.25 in)
				250 350 500 901		**Shape and length** Straight sensor, 250 mm (9.8 in) in alu case Straight sensor, 350 mm (13.8 in) in alu case Straight sensor, 500 mm (19.7 in) in alu case 90° angled sensor, 207 mm (8.1 in) in plastic case
					F H FS HS	**Calibration certificate** NPL traceable calibration certificate on sensor Accredited calibration certificate on sensor (**standard**) NPL traceable system calibration certificate Accredited system calibration certificate
						C **Options** System carrying case (max. 350 mm. sensor)

DTI050G100A250HC   **Sample order number**
JOFRA DTI050 with NIST traceable certificate and 4 mm
STS-100 reference sensor, straight 250 mm. with accredited
calibration certificate, carrying case and Cable with LEMO / Redel.

ORDERING JOFRA DTI050 AND STS-102 A

DTI050						**Base model number** DTI050 Temperature Indicator
	G H					**Calibration certificate DTI050** NIST traceable certificate (standard) Accredited calibration certificate
		102				**STS reference sensor** Pt100 reference sensor, cable, -50 to 155°C (-58 to 311°F)
			A			**Diameter of the sensor** Overall diameter 4 mm (0.16 in)
				030		**Shape and lengthd** Short sensor 30 mm / 1.18 in in plastic case
					F H FS HS	**Calibration certificate** NPL traceable calibration certificate on sensor Accredited calibration certificate on sensor (**standard**) NPL traceable system calibration certificate Accredited system calibration certificate
						C **Options** System carrying case (max. 350 mm. sensor)

DTI050G102A030HC   **Sample order number**
JOFRA DTI050 with NIST traceable certificate and 4 mm
STS-100, short 30 mm reference sensor with accredited
calibration certificate, carrying case and Cable with LEMO / Redel.

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