

Documented Calibration –  
The Complete Range

**DIGISTANT® 4423**

**burster**

**mechanical**

**electrical**

**thermal**



# The complete range of th

## mechanical



## electrical



Measured quantity	Measuring range	Source	Measure
Voltage	1 $\mu$ V ... 20 V	X	X
Current	1 $\mu$ A ... 24 mA	X	X
Resistance	5 $\Omega$ ... 4 k $\Omega$	X	X
HART®	250 $\Omega$	X	X
Freq./Pulse	2 CPM ... 10 kHz	X	X
RTD	Pt 100 – 1000, Ni	X	X
TC	J, K, T, E, R, S, B, C ...	X	X
Pressure	-1 bar ... 700 bar	*	X
Force	5 N ... 200 kN		X
Torque	1 Ncm ... 5000 Nm		X
Displacement	1 $\mu$ m ... 200 mm		X

\* with pressure pump

High quality LCD display



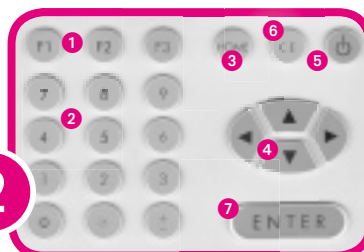
1

- 1 Primary parameters
- 2 Input/output switch-over
- 3 Additional settings only for TC/RTD
- 4 Numerical display
- 5 Menu functions
- 6 Increment display for mA and mA/LOOP
- 7 Sensor types
- 8 Units

Clearly laid out control panel



2



- 1 Function keys F1, F2, F3
- 2 Numerical keypad
- 3 Back to main menu
- 4 Cursor keys
- 5 On/Off switch
- 6 CLEAR/delete
- 7 Confirm entry



# the DIGISTANT® 4423

## The first calibrator for thermal, electrical and mechanical values

Whether in the laboratory or on the production site, the DIGISTANT® is the equipment for all your calibrating assignments. The results can be stored in the equipment for generating documentation and logging, then later read out via the integrated USB interface. The calibration software DIGICAL also simplifies the establishing of DIN ISO 9000 conformity calibration procedures.

**thermal**



3

Rear view showing connection options

- Basic accuracy 0.015 % of set point
- Simultaneous source/measure for transmitter calibration
- Storing of calibration routines for 50 calibrating objects (as found/as left)
- Plug and measure connection for all connected sensors
- 24 V DC supply for transmitter calibration
- Battery with > 10 h operating time

The DIGISTANT® has a robust aluminum console housing and offers a wide range of: measure and source of 13 types of thermal elements, 13 RTD types, resistance, current, voltage, frequency, pressure, force, torque and sourcing of impulse packets. The user interface is self-explanatory, menu navigation is via a background lit graphic display. The built-in Ni-MH battery is overload and low discharge protected. The device can also operate in buffer mode using the mains adapter provided. A test certificate with traceability confirmation, a mains adapter and measurement cable are included in the supply.



### DIGICAL

Using the DIGICAL software developed for the DIGISTANT®, you can support the complete calibration process from establishing procedures to documenting the results. You can find further information on pages 6 - 7.

**USB**



USB Connection



PC Control

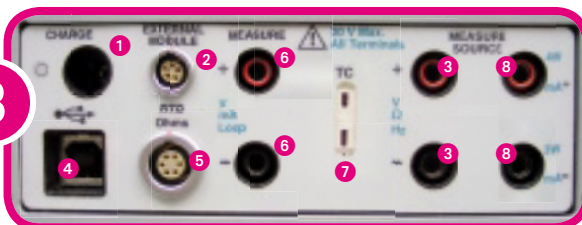


Logging



Archiving

3



- 1 Mains adapter connection
- 2 Pressure module/sensor interface connection
- 3 Source/measure V, Hz, RTD (2-wire)
- 4 USB interface
- 5 LEMO socket for connecting RTD measurements
- 6 Isolated measurement U, I
- 7 TC input/output
- 8 Source/measure mA, RTD (3 or 4 wire)

# DIGISTANT® 4423:

## The complete range overview

The Smart Sensor Interface has been developed to enable the carrying out of force or torque calibrations. Thus virtually any sensors may be connected to the DIGISTANT® calibrator.

The Smart Sensor Interface holds all special calibration data from the connected sensors in a non-volatile memory. Via the plug and measure connection, the DIGISTANT® recognizes all connected sensors automatically.



**electrical**

Reference value for a voltage controlled 10 A current supply



Testing a heating plant

**thermal**



Force calibration of a press

**mechanical**



## Simulation and measurement of temperature

13 of the most common types are available for the measurement and simulation of thermal elements (see techn. data). The thermal elements are connected via the internal or external reference junction.

### Simulation of resistance thermometers

Electronic simulator for e.g. Ni 100, Pt 100, Pt 200, Pt 500, Pt 1000 and more. The temperature range for "simulating" extends from -200 °C to +800 °C. The units °C, °F and ohms are selectable.

### Accessories

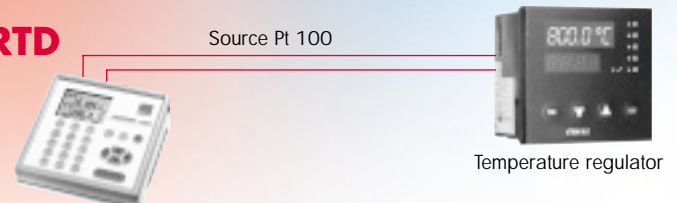
#### External reference junction 4485-V001

- for precision measurement/simulation
- with built-in Pt 100 sensor
- with thermally stable and decoupled configuration
- connectable via miniature thermo plug



Reference junction 4485-V001

### RTD



#### Pt 100 measurement sensor 42510

- Standard laboratory sensor class A, 1/6 DIN at 0 °C
- Temperature range -50 °C ... 500 °C
- Dimensions (ø x L) 6 x 250 [mm]



### Temperature measurement

Used in conjunction with a connected Pt 100 sensor, the DIGISTANT® constitutes a high precision thermometer which can be utilized with a DKD certificate for the entire measurement stream and a fluid bath or metal block calibrator as reference for testing sensors.



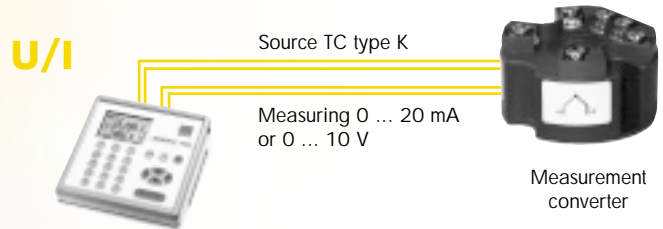
Temperature measurement in water bath



## Electrical simulation and measurement

### Process control: Simultaneous simulation and measurement of process magnitudes

The DIGISTANT® 4423 simulates a temperature sensor at the measurement converter input. The voltage or current output signal is measured and indicated on the calibrator's display.



## Measurement of mechanical magnitudes

### Measurement of forces and torques

F/M

Force, torque and displacement sensors can be connected via the Smart Sensor Interface 7160. Data from the connected sensor is recognized via the "plug and measure" connection.



Torque measurement: Torque tolerance and repeat accuracy with setting a torque can be determined very accurately using the DIGISTANT® in conjunction with a torque sensor 8628.

### Pressure measurement

P

For pressure measurement, the basic module can be simply and quickly connected to one of the 28 pressure modules. The pressure function "against atmospheric/gauge" extends over 16 ranges to 700 bar. Using the other modules, vacuum, absolute and differential pressure can also be measured and documented very accurately and economically. Where water is the medium, the correction factor for water density at 4 °C or 20 °C can be adjusted.

Depending on application and range, an isolated or non-isolated measurement can be set.

Select between two different modes for each measurement. A static measurement over a long measurement period followed by a mean value determination (average) will achieve a very high degree of accuracy. With dynamic detection, the measurement of peak values is possible by means of a high measurement speed.

The module consists of a high resolution 24 bit A/D converter, a "Flash" programmable microprocessor with low power consumption and an EEPROM. All specific technical data, e.g. serial numbers and calibration data, as well as the calculation of necessary data, e.g. sampling rate or mean value determination, are managed by the microprocessor. The serial output signal from the module is a simple ASCII-based data stream which can be read by the DIGISTANT® 4423.

In conjunction with the Smart Sensor Interface and for instance a force sensor, the DIGISTANT® creates a universal reference measurement stream which can also be supplied with a WKS (works calibration) or DKD (German Calibration Service) certificate.



Force calibration using the DIGISTANT®, Smart Sensor Interface and force sensor



Testing a pressure plant



Pressure generation with hand pump

# Two routes

## to DIN ISO conformity documentation



Quality assurance systems for production processes today require the regular recalibration of measurement equipment or transmitters as well as documentation of the results. With the DIGISTANT® 4423, you have a calibrator with which you can not only calibrate virtually anything but the documentation of the calibration results is also effectively supported. You can either refer to the device's internal document function or you can control the equipment conveniently via the DIGICAL PC software developed by us.

### 1

## Direct document function in the DIGISTANT® 4423

To use the device's internal document function, select the appropriate document from the menu and then the input and output mode, e.g. "source thermal element" and "measure voltage", before starting with the calibration. Should your test object have no interface, you can also enter the measurement value manually, e.g. the voltage.

For the calibration itself, connect the DIGISTANT® 4423 to the device to be calibrated and proceed as normal. After each calibration point, save the value via the "SAVE" key. When the points have been completed, close the measuring with the "DONE" key. After entering the designation, manufacturer, model, serial number, tester, ambient conditions etc., the "as found" stage of your calibration has been completed. Should the values not lie within the tolerance,

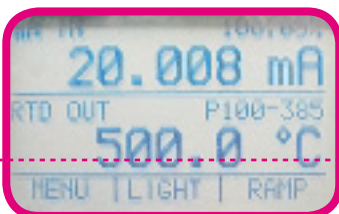
it is possible to adjust the measured values beforehand. If all data is within tolerance, you can save the so-called "as found/as left" data thereby documenting the complete data before and after the calibration.

An automatic "good/bad" statement with the analysis of the device's permitted tolerance error can also be set.

AS FOUND | AS LEFT | EXIT

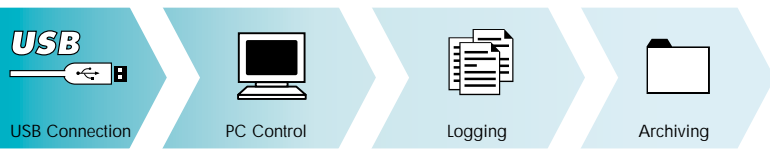
VIEW | TRANSMIT | CLEAR

TEST | REVIEW | EXIT



# 2

## DIGICAL – PC software for documentation and device control



In DIGICAL we have developed a software with which routine calibration work – be it on-site or in the laboratory – has been considerably simplified. The DIGISTANT® 4423 can be totally controlled and parameterized via the USB interface.

The user is in the position of being able to generate calibration procedures – particularly with the simultaneous source and measure function – conveniently at the computer. All device settings can be saved to a file as backup, reloaded and edited. All measured values can be saved as Excel or raw files and printed out as measurement logs. Printer settings are itemized in a list.

A safety concept has been integrated into the software which is activated by the allocation of a password. Thereafter, only one administrator has full access to all software functions. Thus the test routines are protected from inadvertent alterations. The software is regularly maintained and further developed: updates can be downloaded free of charge via our homepage.

DIGICAL runs under Windows 98/98SE, Windows ME, Windows 2000, Windows XP, Windows 2003 and Windows Vista.

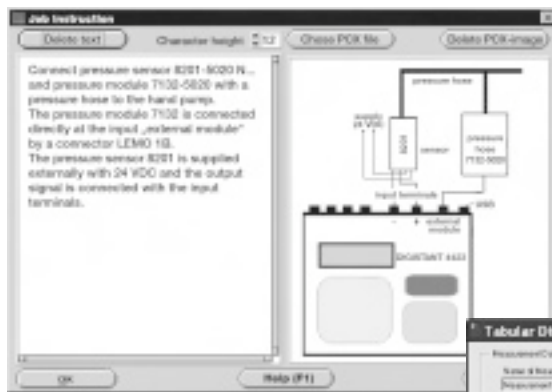
- Creating automatic calibration procedures
- DIN ISO 9000 conformity calibration
- Direct storage of measurement data in the database
- Online display of measured values
- Download of calibration results and logging
- Processing the saved data
- Password protection for various program levels
- Total controllability of the DIGISTANT® 4423

### Remote control

Apart from control via our DIGICAL software, the DIGISTANT® 4423 can also be remote controlled via user programs. To this end, a Lab-View driver is supplied with the device free of charge. Connection is via a standard USB plug type B. To be able to control the calibrator remotely, it must be changed over from "local" to "remote". The keyboard is then blocked and the device can then only be addressed via the interface.

Should the remote control need to be cancelled, e.g. to use the device portably, one simply presses the clearance function key GO TO LOCAL. All interface commands are documented in the handbook.

Establishment of test point and specified tolerance/  
job instruction in text and image format



Graphic or tabular illustration  
of the measurement results  
with good/bad display

The screenshot shows a window titled 'Tabular Display of Measurement Data'. It contains a table with columns: No., P Model, Actual Value, Measured Value, Max. Tol., Min. Tol., and End. The table lists several measurement points with their respective values and tolerance ranges.

No.	P Model	Actual Value	Measured Value	Max. Tol.	Min. Tol.	End
1	7102	1.000	1.000	1.000	1.000	Warning
2	7102	1.000	1.000	1.000	1.000	Warning
3	7102	1.000	1.000	1.000	1.000	Warning
4	7102	1.000	1.000	1.000	1.000	Warning
5	7102	1.000	1.000	1.000	1.000	Warning
6	7102	1.000	1.000	1.000	1.000	Warning
7	7102	1.000	1.000	1.000	1.000	Warning
8	7102	1.000	1.000	1.000	1.000	Warning
9	7102	1.000	1.000	1.000	1.000	Warning
10	7102	1.000	1.000	1.000	1.000	Warning
11	7102	1.000	1.000	1.000	1.000	Warning
12	7102	1.000	1.000	1.000	1.000	Warning
13	7102	1.000	1.000	1.000	1.000	Warning
14	7102	1.000	1.000	1.000	1.000	Warning
15	7102	1.000	1.000	1.000	1.000	Warning
16	7102	1.000	1.000	1.000	1.000	Warning
17	7102	1.000	1.000	1.000	1.000	Warning
18	7102	1.000	1.000	1.000	1.000	Warning
19	7102	1.000	1.000	1.000	1.000	Warning
20	7102	1.000	1.000	1.000	1.000	Warning



Measurement parameter entry on-site/  
pressure module connection, pump and sensor

The screenshot shows a 'Test Certificate' window. It contains a table with columns: No., Measured Value, Actual Value, Measured Value, Max. Tol., Min. Tol., and End. The table lists several measurement points with their respective values and tolerance ranges.

No.	Measured Value	Actual Value	Measured Value	Max. Tol.	Min. Tol.	End
1	1.000	1.000	1.000	1.000	1.000	Warning
2	1.000	1.000	1.000	1.000	1.000	Warning
3	1.000	1.000	1.000	1.000	1.000	Warning
4	1.000	1.000	1.000	1.000	1.000	Warning
5	1.000	1.000	1.000	1.000	1.000	Warning
6	1.000	1.000	1.000	1.000	1.000	Warning
7	1.000	1.000	1.000	1.000	1.000	Warning
8	1.000	1.000	1.000	1.000	1.000	Warning
9	1.000	1.000	1.000	1.000	1.000	Warning
10	1.000	1.000	1.000	1.000	1.000	Warning
11	1.000	1.000	1.000	1.000	1.000	Warning
12	1.000	1.000	1.000	1.000	1.000	Warning
13	1.000	1.000	1.000	1.000	1.000	Warning
14	1.000	1.000	1.000	1.000	1.000	Warning
15	1.000	1.000	1.000	1.000	1.000	Warning
16	1.000	1.000	1.000	1.000	1.000	Warning
17	1.000	1.000	1.000	1.000	1.000	Warning
18	1.000	1.000	1.000	1.000	1.000	Warning
19	1.000	1.000	1.000	1.000	1.000	Warning
20	1.000	1.000	1.000	1.000	1.000	Warning

# High precision calibrators from the burster range



## High precision calibration source DIGISTANT® model 4462

for voltage, current and thermal elements

- High precision current and voltage sensor  $\pm 52 \text{ mA}$ ,  $\pm 30 \text{ V}$   
Option:  $\pm 22 \text{ mA}$ ,  $\pm 60 \text{ V}$
- Precise simulation for all established thermo element types (option)
- Basic accuracy 0.003 % of set point
- RS232 and optional IEEE488 interface



## Pt 100 simulator model 4506

- 24 fixed temperature values
- Calibration in acc. with DIN EN 60751
- Resistance material ZERANIN®,  $\text{TK} < 2 \text{ ppm/K}$
- Pt 100, Pt 500, Pt 1000
- Robust aluminum housing



## Precision RTD simulator model 4530

- Simulation of Pt 100, Pt 200, Pt 500, Pt 1000, Ni 100 and Ni 1000 measurement sensors
- Accuracy  $0.02 \text{ }^\circ\text{C}$
- Linearization selectable to ITS 90, IPTS 68
- True ohmic simulation
- Manual operation or control via RS332/IEEE488

## The fast track to further information:



burster gmbh & co kg  
high-precision measuring equipment

**A-Tech Instruments Ltd.**

Phone Toronto: 416 754 7008 · Fax 416 754 2351 Montreal : 514 695 5147  
sales@a-tech.ca · www.a-tech.ca Call Toll Free 1888 754 7008