DOSTMANN electronic

®

**Precision Measuring Instruments
P700, P705, P710, P715, P750,
P755, P770, P755-LOG, P770-LOG**

SERIE P700

Operation Manual

Unit diagram

Retractable stand

Mounting device for
probe handle

Big
LC-Display

Keyboard

Measuring port 1

Measuring port 2
(P705, P715, P755,
P770, P755-LOG,
P770-LOG)

USB PC interface
port

2

Operation Manual

Summary

1. Handling

1.1 General advice

• For cleaning the instrument please do not use abrasive cleaner but a dry or wet piece of cloth.
• Please store the measuring instrument in a dry and clean place.
• Avoid any force like shocks or pressure to the instrument.
• Do not use force to connect the probe or interface plugs in. The interface plug is different from the probe plug.
• If no sensor is connected to the instrument while switching on „open" shows on the display (Please refer to chapter error codes/troubleshooting).
• A retractable stand on the back of the instrument allows it to be used as a bench top instrument.

1.2 Operation

Before switching on the instrument, connect the probe/s to the instrument and insert the battery (Please refer to chapter 6. Power supply / battery changing). A number on the instrument's housing marks each port.

1.3 Switching on and off

By operating the ON/OFF-key the instrument switched on or off. After switching on the instrument indicates a full segment test for 1,5 sec., afterwards the instrument shows the calibration-code and the adjusted measurement category for channel 1. (Only 2-channel instruments: After additionally 1,5 sec. the instrument shows the calibration-code and the adjusted measurement category for channel 2.) Then it starts operating in measurement mode indicating the actual measurement value (for example: temperature). All instruments display the measurement value of channel 1 on the top display line (big display line). Directly below you will see the trending bargraph. The second channel of our 2-channel instruments you will see on the bottom line (small display line).

Fig 1:
Example of channel information after switching on.:

channel 1
Line 1: **[oFF P** = calibration code of channel 1 according to standard linearization (DIN), probe selection of channel 1 = Pt100.

channel 2
Line 2: **[oFF P** = calibration code of channel 2 according to standard linearization (DIN), probe selection of channel 2 = Pt100.

Note: On all instruments you can select the measurement category (chapter 1.4.2. Prob) according to the model version. Instruments that are delivered only with one probe the correct measurement category is preset. In other case please check chapter 1.4.2. (Prob) for the correct set-up.

Important!

1.4 Menu

The adjustments of the instruments like the measurement value, calibration of Up and down keys probes, deactivation of channels and so on are resulting from the structure of the menu. You will reach into the main menu by pushing [ENTER/MENUE]. With the up and down keys [▲▼] you can choose your required menu item. Push [ESC] to be back in the measuring mode.

❶ up and down keys
❷ key [ESC]
❸ key
   [ENTER/MENUE]

Menu structure

Unit	Prob	Lin2	CAL	Chnl	ArEA	Lo6
°C	P	T1-T2	oFF	OFF	c	OFF
°F	J		oP1	ON	m	ON
m/s	K		oP2			
%rh	L					
g/m³	N					
°C td	R					
°F td	S					
Pa	T					
hPa	RH					
m³/s	D					
	Pr					
	H					

1.4.1 Measuring unit switching °C and °F
respective %rH, td or g/m³ / [Unit]

Unit = Measuring unit
Measuring unit temperature
(°C=Celsius, °F=Fahrenheit)

Measuring unit humidity
(%rH=relative humidity, td=dew point, g/m³=absolute humidity)

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To change the measuring unit push [ENTER/MENUE].
Use the up and down keys [▲▼] to select **Unit.**
Push again [ENTER/MENUE]. On the left corner of
the display appears a small **1**, which indicates the
selected channel. For changing the channel use the
up and down keys [▲▼] Push [ENTER/MENUE] to
confirm. On the right corner of the display appears
°C or **°F**, or **%rH, td** or **gm³** (depending on the selec-
ted probe). Use the up and down keys [▲▼] again to
adjust the requested measuring unit and push
[ENTER/MENUE] to confirm. Push [ESC] to be back
in the measuring mode.

1.4.2 Probe selection / [Prob]

Push [ENTER/MENUE] to change a probe. Use the
up and down keys [▲▼] to select **Prob**. Push
[ENTER/MENUE] to confirm.

On the left corner of the display appears a small **1**,
which indicates the selected channel. For changing
the channel use the up and down keys [▲▼]. Push
again [ENTER/MENUE] to confirm. On the right cor-
ner of the display appears the active probe. Use the
up and down keys [▲▼] to change the probe. Push
[ENTER/MENUE] to confirm the requested probe.
Push [ESC] to be back in the measuring mode.

Measurement	Probe selection (Prob)	LC-Display	Suitable for these types of measuring instruments:
Temperature	Pt100 (RTD)	P	P700/P705/ P750/P755/P770 P755-LOG/P770-LOG
Temperature	Fe-CuNi Typ J	⌐	for all P700- instruments
Temperature	NiCr-Ni Typ K	K	for all P700- instruments
Temperature	Fe-CuNi Typ L	L	for all P700- instruments
Temperature	NiCrSi-NiSi Typ N	N	for all P700- instruments
Temperature	Pt13Rh-Pt Typ R	R	P700/P705/ P750/P755/P770 P755-LOG/P770-LOG
Temperature	Pt10Rh-Pt Typ S	S	P700/P705/ P750/P755/P770 P755-LOG/P770-LOG

Measurement	Probe selection (Prob)	LC-Display	Suitable for these types of measuring instruments:
Temperature	Cu-CuNi Typ T	**ℙ**	for all P700-instruments
Humidity	%rF	**ℙh**	P750/P755/P770 P755-LOG/P770-LOG
Flow	m/s	**d**	P750/P755/P770 P755-LOG/P770-LOG
Pressure	Pa	**PR**	P750/P755/P770 P755-LOG/P770-LOG
Thermal flow probe	m/s	**H**	P750/P755/P770 P755-LOG/P770-LOG

Note: Please check the probe selection to be sure that the correct probe is entered. If a measurement value is changed with the ENTER-key at the menu Prob, the standard calibration will be automatically used.
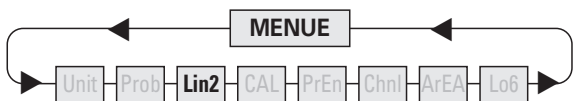
Important!

Indications for the combination probes (temperature and humidity):
Please adjust relatively humidity as measurement value for the channel on which the combination probe is plugged. If you want that the measured temperature of the plugged combination probe is shown as well, you have to deactivate the channel on which no probe is plugged on (see chapter 1.4.6./**Chnl**).

Important!

1.4.3 Difference temperature (only 2-channel instruments) / [Lin2]

To display the difference temperature push [ENTER/MENUE]. Use the up and down keys [▲▼] to select **Lin2**. Push again [ENTER/MENUE]. On the right corner of the display appears a **T_1-T_2**. Use the up and down keys [▲▼] to adjust the requested selection. Push [ENTER/MENUE] to confirm. Push [ESC] to be back in the measuring mode.

Note: Both channel have to be activated for showing the difference temperature.

Important!

### 1.4.4 Calibration function / [CAL]

Despite high quality manufacturing techniques, each probe is slightly different from specified standards. To eliminate inaccuracies caused by exchanging or ageing of probes, the instrument offer easy calibration functions which guarantee that the system accuracy is always as good as if the instrument was specifically calibrated to the individual probes in our laboratory.

The instruments offer three calibration options:

1) [OFF]:Standard characteristic curve (e.g. Pt100-resistance according DIN IEC 60751)
2) [OP1]:Calibration by code (2 x four digit code) is equivalent to a 2-point calibration
   The code is marked clearly by a label on each standard probe.
3) [OP2]:Calibration by physical standard references (1-point, 2-point or 3-point calibration)

CAL = calibration

Push [ENTER/MENUE] to calibrate the instrument with sensor. Use the up and down keys [▲▼] to select **CAL**. Push again [ENTER/MENUE]. On the left corner of the display appears a small **1**, which indicates the selected channel. For changing the channel use the up and down keys [▲▼]. Push [ENTER/MENUE] to confirm.
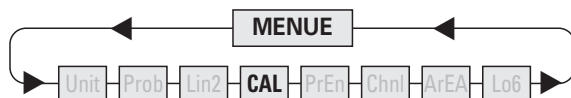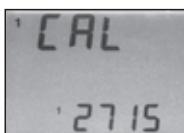

Use the up and down keys [▲▼] to select the requested calibration option. Push [ENTER/MENUE] to confirm.
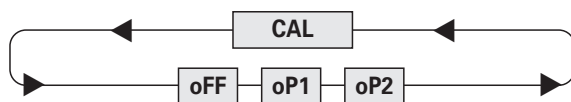
Standard linearization according DIN IEC 60751 / [oFF

Use the up and down keys [▲▼] to select **[oFF**. Push [ENTER/MENUE] to confirm.
Push [ESC] to be back in the measuring mode.

Calibration by code / oP1

Use the up and down keys [▲▼] to select **oP1**. Push [ENTER/MENUE] to confirm.
On the bottom of the display appears a very small **1**, after this number a four-digit number (Hex-Code/0..F) is displayed. For changing the number use the up key [▲]. For stepping to the next number use the down key [▼]. If the requested number is complete then push [ENTER/MENUE] to confirm. Now on the bottom of the display appears a very small **2**, after this number a second four-digit number is displayed. For changing the number please follow the manual as before. Push [ESC] to be back in the measuring mode.

Important!

Note: After confirming **oP1** by pushing [ENTER/MENUE] the function **oP1** (calibration by code) is activated, even though you leave the menu by pressing [ESC].

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Display-indication with active calibration code(OP1):

The **CAL** -segment and the small 1 on the left indicates to the user that **oP1** is activated.
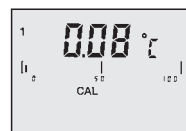
Calibration by physical standard references / oP2

Use the up and down keys [▲▼] to select **oP2**. Push [ENTER/MENUE] to confirm.
On the bottom of the display appears **1 P**. For changing between a 1-Point **[1 P]**, 2-Point **[2 P]** or 3-Point **[3 P]** - calibration use the up and down keys [▲▼].
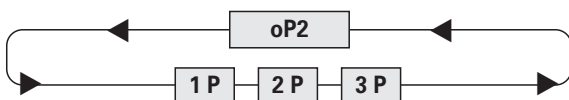
Example of a 1-Point calibration:

Push [ENTER/MENUE] to confirm. On the display appears **Go**. After the displayed measuring value is stabile push [ENTER/MENUE]. App. 2 seconds later in the first display line appears **P1** (measuring value 1); in the second display line appears **dP.** (standing for decimal point).

Use the up and down keys [▲▼] to select the number of digits after decimal point:
dP. = two decimal digits
dP . = one decimal digit
        (decimal point is jumping one digit to the right)

Push [ENTER/MENUE] to confirm. On the second line of the display appears **Si -**. Use the up and down keys [▲▼] to select the requested sign.
Si _ = reference standard shows
        a negative measuring value (below 0,00C°)
Si ⌐ = reference standard shows
        a positive measuring value (above 0,00C°)

Push [ENTER/MENUE] to confirm. On the second line of the display appears **Fd 0**.
Use the up and down keys [▲▼] to select the requested range:
Fd 0 = below 100,00°C
Fd 1 = above 100,00°C

Push [ENTER/MENUE] to confirm. On the display appears **00.00**. For changing the value use the up key [▲] . For stepping to the next number use the down key [▼]. If the requested value is complete then push [ENTER/MENUE] to confirm.
Push [ESC] to be back in the measuring mode.
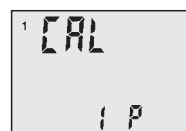
Note: A break of the physical calibration cannot be done by the [ESC]-button. Switching off the instrument can only do a break of the physical calibration.

Important!

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0.08 °C

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CAL

Display-indication with active calibration code (OP2):

The **CAL**-segment and the small 2 on the left indicates to the user that **oP2** is activated.

1.4.4.1 Calibration function of the combination probe (humidity/temperature) [CAL]

Each humidity probe of Dostmann electronic is a combination probe. That means that beside the humidity sensor these probes also contain a temperature sensor. Both measurement values are plugged in the same channel over one probe. Before the calibrating of both measurement values **(humidity and temperature)** the calibrated measurement value must be adjusted at the menu item Prob **(Probe selection 1.4.2).**

The instruments offer three calibration options:

1) [OFF]:Standard characteristic curve (no specific probes correction will be carried out)
2) [OP1]:Calibration by code (2 x four digit code) is equivalent to a 2-point calibration
   The code is marked clearly by a label on each standard probe/rH = humidity & P°C = temperature.
3) [OP2]:Calibration by physical standard references (1-point, 2-point or 3-point calibration) is only for the measurement value rH humidity possible

CAL = calibration

Push [ENTER/MENUE] to calibrate the instrument with sensor. Use the up and down keys [▲▼] to select **CAL**. Push again [ENTER/MENUE]. On the left corner of the display appears a small **1**, which indicates the selected channel. For changing the channel use the up and down keys [▲▼] . Push [ENTER/MENUE] to confirm.

MENUE

Unit — Prob — Lin2 — **CAL** — PrEn — Chnl — ArEA — Lo6

With the up and down keys [▲▼] you can now choose between rH for calibration of humidity and P°C for calibration of temperature.
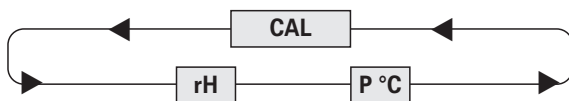
CAL

rH   **P °C**
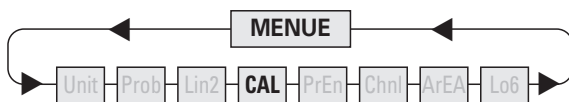
Use the up and down keys [▲▼] to select the requested calibration option. Push [ENTER/MENUE] to confirm.

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```
        ◄─────────┌─────────┐─────────◄
        │         │   CAL   │         │
        ▼   ┌─────┬┴─────┬──┴──┐      ▼
        ──► │ oFF ├─ oP1 ─┤ oP2 ├─────►
            └─────┴───────┴─────┘
```
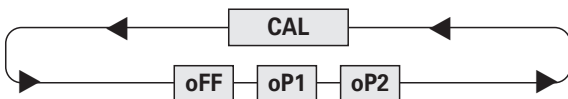
Standard linearization / [oFF

Use the up and down keys [▲▼] to select **[oFF**.
Push [ENTER/MENUE] to confirm.

Calibration by code / oP1

Use the up and down keys [▲▼] to select **oP1**. Push
[ENTER/MENUE] to confirm the desired setting. On
the bottom of the display a small **1** appears, after
this number a four-digit number (Hex-Code /0..F) is
displayed. For changing the number use the up key
[▲] . For stepping to the next number use the key
down [▼] . If the requested number is complete
then push [ENTER/MENUE] to confirm. Now on the
bottom of the display appears a small **2** and after this
number a second four-digit number is displayed. For
changing the number please follow the manual as
before. Push [ESC] to be back in the measuring
mode.

1.4.5 Channel activation
(only 2-channel instruments) / [Chnl]

Chnl = channel

To activate or deactivate a measuring channel
push [ENTER/MENUE]. Use the up and down keys
[▲▼] to select **Chnl**. Push again [ENTER/MENUE].
On the left corner of the display appears a small **1**,
which indicates the selected channel. For chang-
ing the channel use the up and down keys [▲▼].
Push [ENTER/MENUE] to confirm. Use the up and
down keys [▲▼] again to activate **on** or deactivate
off the requested measuring channel and push
[ENTER/MENUE] to confirm. Push [ESC] to be back
in the measuring mode.

Short-Cut: Press 2 seconds the HOLD/MAX/MIN-
Button for activate or deactivate channel 2.

Note: As a minimum one channel is active!   **Important!**

```
    ◄─────────┌───────────┐─────────◄
    │         │   MENUE   │         │
    ▼ ┌────┬──┴──┬──┬─────┴┬─────┬──┴──┬──────┬────┐  ▼
    ─►│Unit├Prob├Lin2├ CAL ├PrEn├Chnl├**ArEA**├ Lo6├─►
      └────┴────┴────┴─────┴────┴────┴──────┴────┘
```

1.4.6 Enter Area for volume flow [ArEA]

To enter the area dimensions is only able with instru-
ments for measuring airflow.

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Push [ENTER/MENUE] and use the up and down keys [▲▼] to select **ArEA.** Push [ENTER/MENUE] to confirm. On the left corner of the display appears a small **1**, which indicates the selected channel. For changing the channel use the up and down keys [▲▼] . Push [ENTER/MENUE] to confirm. Use the up and down keys [▲▼] to select the dimension unit:
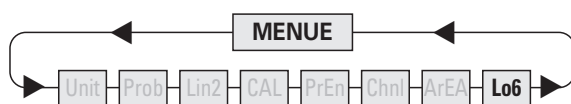
c = Centimeter^2
m = Meter^2

Push [ENTER/MENUE] to confirm.
On the display bottom appears:

00.00

For changing the number use the up key [▲] . For stepping to the next number use the key down [▼]. If the requested dimension is complete then push [ENTER/MENUE] to confirm.

1.4.7 Memory Setup [Lo6]

Only instrument with extension –LOG (e.g. P755-LOG) have got an internal memory.

Push [ENTER/MENUE] and use the up and down keys [▲▼] to select Lo6. Push [ENTER/MENUE] to confirm. Use the up and down keys [▲▼] again to start **[on]** or Stop **[off]** the logger. Push [ENTER/MENUE] to confirm. Use the up and down keys [▲▼] again to select between automatic storage **[Auto]** or manually operated storage **[SPot]**. Push [ENTER/MENUE] to confirm]. Use the up and down keys [▲▼] again to select between to add on data **[Add]** and creating a new file **[nLo6]**. Push [ENTER/MENUE] to confirm. By selected automatic storage at the end you have to select the time interval:

1 S	1 second
5 S	5 seconds
10 S	10 seconds
20 S	20 seconds
30 S	30 seconds
1 M	1 minute
2 M	2 minutes
5 M	5 minutes
10 M	10 minutes
20 M	20 minutes

By selected manually operated storage you are able to save the measurement by pressing ESC by each time.

Push [ENTER/MENUE] to confirm. Push [ESC] to be back in the measuring mode. Manual storing [Spot]. Press the key [ESC] to store manually the measuring values.

1.5 Recalling the memory data
(HOLD MAX MIN AVE)

After pushing first time the key [HOLD MAX MIN AVE] the actual value will be hold on the top display line (big display). Pushing again the key [HOLD MAX MIN AVE], the saved maximum-, minimum and average value will be displayed in the bottom display line (small display). Note for 2-channel instruments: First the MAX-MIN-AVE-values of channel 1 will be displayed – afterwards the values of the channel 2 will be displayed. Is there only one probe on a 2-channel instrument we suggest to deactivate the channel without probe (menu Chnl).

Note: **Important!**

During the recall of the memory data the extremes (MAX MIN) and the average value (AVE) will not be calculated or carried on.

Clearing the memory (MAX MIN AVE)
Press [CLEAR] key once to erase the stored maximum, minimum and average from memory. On the display appears **Clr.** – After erasing the memory the instrument automatically switches back to measuring mode indicating the actual measured value again.

1.6 Measuring rate (FAST-mode)

Press [FAST/▼]key once to change the measuring rate. Now the measuring rate is app. 4 measurements per second. Press [FAST/▼] key again and the instrument is back in the standard mode (1 measurement per second).

Note: **Important!**

In the fast mode the battery consumption is three times higher than in the standard mode.

1.7 AUTO-OFF-function

dAoF = Disable Auto-off
EAoF = Enable Auto-off
Press [ESC/AUTO-OFF] key once. On the display appears **EAoF**. Now the instrument switches off automatically after app. 30 minutes. Press [ESC/AUTO-OFF] key again. On the display appears **dAoF**. Now the Auto-Off-function is deactivated.

1.8 Special-functions
(Ohm/Micro volt/Volt/Hertz-display)

If you want to get the shown value displayed according to the basic units you will have to push, when you switch on, the keys FAST and ON/OFF at the same time for approximately 3 seconds till the next basic unit appears:

o = Ohm (Pt100)
H = Hertz (flow m/s)
u = Micro volt (thermocouples)
U = Volt (humidity)

1.8.2 Zero adjustment

A long press on the F1 button (approx. 3 s) enables you to set the displayed value on 0. Before pressing the button make sure that the actual value also amounts to 0 (no current/pressure at the probe).

1.8.3 Deactivation of the 2nd channel (toggle)

A long press on the HOLD button (approx. 3 s) enables you to activate or deactivate the 2nd measuring channel.

2. Power supply

For the power supply of the instrument a 9 Volt dry battery is used. To exchange the battery switch of the instrument and open the battery cover on the backside of the instrument. Remove and disconnect the battery from the instrument. Connect a new 9 V battery to the plug and put the battery back into the instrument.

By showing the ▭ segment the instrument indicates, that the battery has to be exchanged. After showing the ▭ segment the instrument allows app. 1 hour of further measuring.

Attention:
Please do not dispose of old electronic devices and empty batteries in household waste. To protect the environment, take them to your retail store or to appropriate collection sites according to national or local regulations.

Attention:
When using a rechargeable battery, the slide switch must set to "Akku" to charge the battery by the USB interface. When using a standard battery (non rechargeable) the slide switch must set to "Batt" to prevent any damage to battery or instrument.

3. Error Codes

By displaying the following error codes the instru-
ment support the operation of the instrument.

Error	Meaning
oPEn	no probe or wrong probe is connected
ᴦoLo	„too low" – underflow of the measuring range
ᴦoHi	„too high" – exceeding of the measuring range
ᴦEr1	temperature of the cold junction above the measuring range
ᴦEr2	temperature of the cold junction above the measuring range
E15	low battery – (battery is completely exhausted)
E19	low battery – (battery is completely exhausted)
E1d	low battery – (battery is completely exhausted)
E16	time out / auto-off-function
E1o	time out / auto-off-function
E1e	time out / auto-off-function
E23	EE-prom destroyed or EE-prom index is wrong
E25	EE-prom destroyed or EE-prom index is wrong
E31	temperature of cold junction out of range

4. Technical data

P700 (1-channel) / P705 (2-channel)

Inputs 1/2   Pt100,
                        thermocouple:
                        type K, J, L, N, R, S, T

Measuring range
Pt100   -200...+850 °C
Thermocouple   according DIN (-200...1760°C)

Accuracy
Pt100   ±0,1 °C from -100 °C...+200 °C
                        0,1% remaining range

Thermocouple
R, S   ±1,0 °C +0,1%

K, J, L, N, T   ±0,2°C from 0°C...+200 °C
                        ±0,5°C to 1000 °C
                        ±1,0 °C remaining range

Resolution   0,1°C

Ex-mark   ——

Battery life   appr. 20 hours

Connectors   DIN 8-pole

**Allowable
operating temp.**   0 °C ... +40 °C

Display   2-line LCD

Housing   plastic

Dimensions   200 x 93 x 44 mm (LxWxH)

Weight   350 g

Power supply   9 V battery

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P710 (1-channel) / P715 (2-channel)

Inputs 1/2	thermocouple: type K, J, L, N, T

Measuring range

Pt100	——
Thermocouple	according DIN (-200...1370°C)

Accuracy

Pt100	——
Thermocouple	
R, S	——
K, J, L, N, T	±0.2 °C from 0 °C...+200 °C ±0.5 °C to 1000 °C ±1.0°C remaining range

Resolution	0.1°C
Ex-mark	——
Battery life	appr. 20 hours
Connectors	DIN 8-pole
Allowable operating temp.	0 °C ... +40 °C
Display	2-line LCD
Housing	plastic
Dimensions	200 x 93 x 44 mm (LxWxH)
Weight	350 g
Power supply	9 V battery

P750 (1-channel) / P755 (2-channel)

Inputs 1/2	Pt100, thermocouple: type K, J, L, N, R, S, T, humidity, flow resistance, voltage

Measuring range

Pt100	-200...+850 °C
Thermocouple	according DIN (-200...1760°C)
Resistance	0 ... 400 Ω
Humidity	0 %...100 %rH
Flow	0 ... 40 m/s

Accuracy

Pt100	±0.03°C from -50°C...+199.99°C ±0.05°C from -200°C...-50.01°C otherwise 0.05%
Thermocouple R, S	±1.0 °C +0.1%
K, J, L, N, T	±0.2 °C from 0 °C...+200 °C ±0.5 °C to 1000 °C ±1.0°C remaining range
Humidity	±1.5%rH
Flow	1% of end value
Resistance	0.5%
Resolution	0.0 1°C from -200 °C...+200 °C, otherwise 0.1°C, respectively 0.1%
Ex-mark	——
Battery life	appr. 20 hours
Connectors	DIN 8-pole
Allowable operating temp.	0 °C ... +40 °C
Display	2-line LCD
Housing	plastic
Dimensions	200 x 93 x 44 mm (LxWxH)
Weight	350 g
Power supply	9 V battery

P770 (2-channel)

Inputs 1/2	Pt100, thermocouple: type K, J, L, N, R, S, T, humidity, flow

Measuring range

Pt100	-200...+850 °C
Thermocouple	according DIN (-200...1760°C)
Resistance	——
Humidity	0 %...100 %rH
Flow	0 ... 40 m/s

Accuracy

Pt100	±0.1 °C from -100 °C...+200 °C otherwise 0.1%
Thermocouple R, S	±1.0 °C +0.1%
K, J, L, N, T	±0.2 °C from 0 °C...+200 °C ±0,5 °C to 1000 °C ±1.0°C im remaining range
Humidity	±1.5%rH
Flow	1% of the final value
Resistance	——

Resolution	0.1°C, 0.1% and 0.1 m/s
Ex-mark	——
Battery life	appr. 20 hours
Connectors	DIN 8-pole
Allowable operating temp.	0 °C ... +40 °C
Display	2-line LCD
Housing	plastic
Dimensions	200 x 93 x 44 mm (LxWxH)
Weight	350 g
Power supply	9 V battery

P755-LOG (2-channel)

Inputs 1/2	Pt100, thermocouple: type K, J, L, N, R, S, T, humidity, flow resistance, voltage

Measuring range

Pt100	-200...+850 °C
Thermocouple	according DIN (-200...1760°C)
Resistance	0 ... 400 Ω
Humidity	0 %...100 %rH
Flow	0 ... 40 m/s

Accuracy

Pt100	±0.03°C from -50°C...+199.99°C ±0.05°C from -200°C...-50.01°C otherwise 0.05%
Thermocouple R, S	±1.0 °C +0.1%
K, J, L, N, T	±0.2 °C from 0 °C...+200 °C ±0.5 °C to 1000 °C ±1.0°C remaining range
Humidity	±1.5%rH
Flow	1% of end value
Resistance	0.5%
Memory	appr. 6,000 measurements
Resolution	0.0 1°C from -200 °C...+200 °C, otherwise 0.1°C, respectively 0.1%
Ex-mark	——
Battery life	appr. 20 Std.
Connectors	DIN 8-pole
Allowable operating temp.	0 °C ... +40 °C
Display	2-line LCD
Housing	plastic
Dimensions	200 x 93 x 44 mm (LxWxH)
Weight	300 g
Power supply	9 V battery

P770-LOG (2-channel)

Inputs 1/2	Pt100, thermocouple: type K, J, L, N, R, S, T, humidity, flow

Measuring range

Pt100	-200...+850 °C
Thermocouple	according DIN (-200...1760°C)
Resistance	———
Humidity	0 %...100 %rH
Flow	0 ... 40 m/s

Accuracy

Pt100	±0.1 °C from -100 °C...+200 °C otherwise 0.1%
Thermocouple R, S	±1.0 °C +0.1%
K, J, L, N, T	±0.2 °C from 0 °C...+200 °C ±0,5 °C to 1000 °C ±1.0°C im remaining range
Humidity	±1.5%rH
Flow	1% of the final value
Resistance	———

Memory	appr. 6,000 measurements
Resolution	0.1°C, 0.1% and 0.1 m/s
Ex-mark	———
Battery life	appr. 20 hours
Connectors	DIN 8-pole
Allowable operating temp.	0 °C ... +40 °C
Display	2-line LCD
Housing	plastic
Dimensions	200 x 93 x 44 mm (LxWxH)
Weight	350 g
Power supply	9 V battery

5. Interface protocol

	P700
Measuring value 1 + 2 autom. recognize	FC (hex)
Enabling the keyboard	0 (hex)
Read version number of firmware	l (ASCII)
Read memory (only LOG-instruments)	n (ASCII)

Attention: By sending the command FC (hex) you will get the complete data, the instrument lock automatically the keyboard. To release the keyboard you have to send the command 0 (hex).

The datas would be sent in the following format.
Data Type = String
The length of the string depends on the instrument (a two-channel or one-channel instrument).

For PC communication with the P700 series via the USB interface, it is necessary to use a driver (VCP Virtual Com Port).
The required driver can be found on the optional "DE-Graph" software for P700-series (order code 5090-0081). It is also possible to download the driver from the Internet at: www.ftdichip.com.

Depending which PC operating system Used (Windows7, XP etc.), there are different driver versions to select.
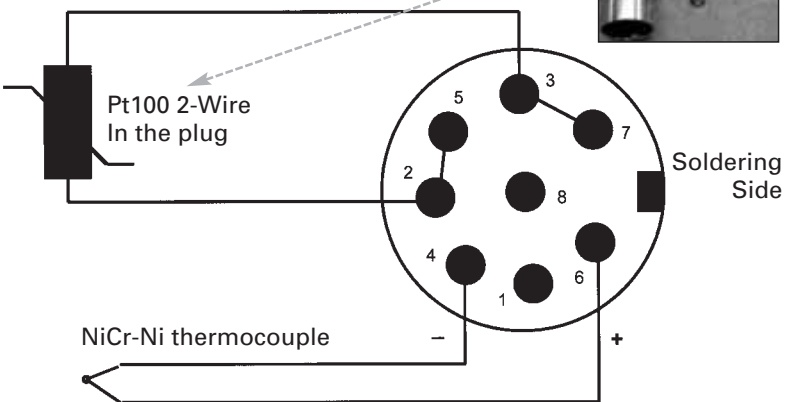
6. Connector layout

Connector layout Pt100 4-wire (series P700)

Measuring channel 1 /2

Pt100 4-Wire

Soldering Side
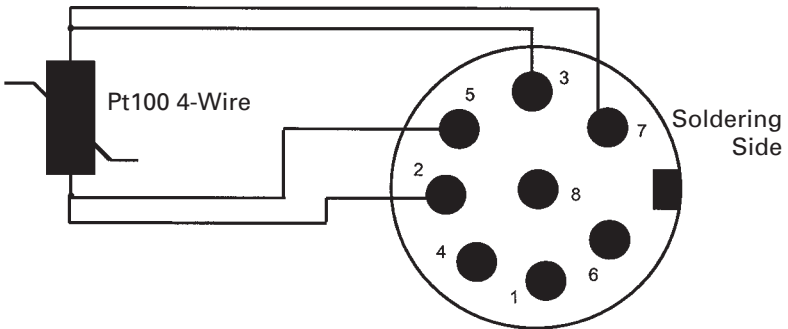
Connector layout thermocouple (series P700)

Measuring channel 1 /2

Pt100 2-Wire
In the plug

Soldering Side

NiCr-Ni thermocouple   –   +

International colours of thermocouples

Thermocouple	DIN 43 722	DIN 43 710	ANSI MC 96.1
Type R Pt13Rh-Pt	**orange** + orange – white	**white** + red - white	**green** + black - red
Type S Pt10Rh-Pt	**orange** + orange – white	**white** + red - white	**green** + black - red
Type J Fe-CuNi	**black** + black - white		**black** + white - red
Type T Cu-CuNi	**brown** + brown - white		**blue** + blue - red
Type K NiCr-Ni	**green** + green - white	**....green** + red - green	**yellow** + yellow - red
Type N NiCrSi-NiSi	**rosa** + pink - white		
Type L Fe-CuNi		**brown** + red - blue	

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Connector layout of a probe for flow Mini Air6 (series P750/P755/670)

Measuring channel 1 /2

Soldering side

yellow   white   black

Mini Air6 Impeller
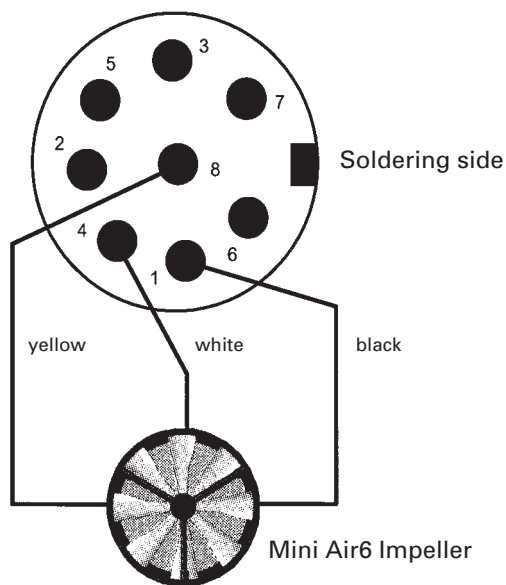
Adaptor DIN Connector for Thermocouples Socket (series P700)

Measuring channel 1 /2

Pt100 2-wire
In the plug

Soldering
side

midget thermocouple connector

gn (ws)

K

+

rt (gn)

cable length 12 cm
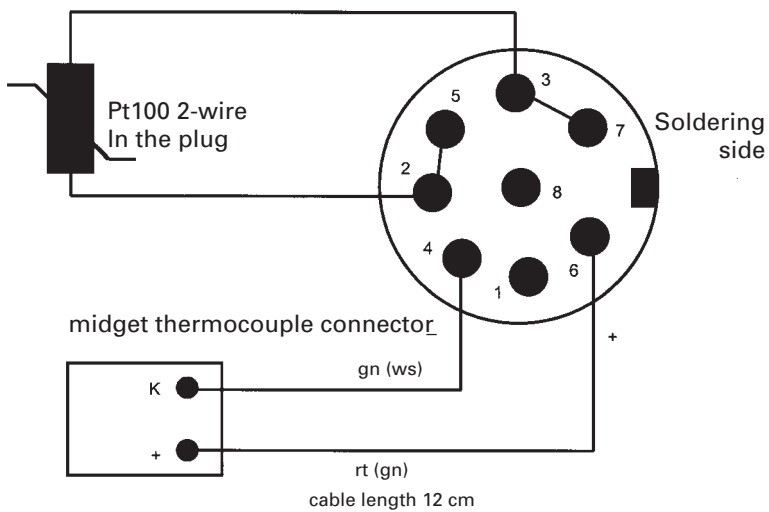
7. Data of probe-calibration

Our quality-probes are the main reason for the precision and quality of your measuring. To facilitate the exchange of a probe without a loss of precision, our probes were measured in our company and added with a code that describes the characteristic line of the probe. The code is attached well visible on a label on the probe.

If you change the probe you have to enter the code into the measuring instrument. In order to avoid any problems later on (esp. if the probe is installed somewhere hard accessible, or if there are several of those external probes in use), we recommend to note down the two values:

Art.No.: _____

Appellation: _____

Serial number: _____

Calibration data: _____

Art.No.: _____

Appellation: _____

Serial number: _____

Calibration data: _____

Art.No.: _____

Appellation: _____

Serial number: _____

Calibration data: _____

Art.No.: _____

Appellation: _____

Serial number: _____

Calibration data: _____

Art.No.: _____

Appellation: _____

Serial number: _____

Calibration data: _____

8. Guarantee

With regular use guarantee lasts 12 months for the instruments and 6 months for the probes and sensors. Opening of the instruments leads to expiration of guarantee.

The producer guarantees that his product will not have any material defect or defect in workmanship during the above-mentioned period if the product is accordingly used and maintained. Exceptions are defined in the following way:

The guarantee does not apply for batteries and fuses. The guarantee does not enclose products that are damaged, used improperly or negligent, practised or stored improper.

These guarantee conditions replace all possible expressly or tacitly confirmations. No liability will be assumed for special, casual or constructive damages when it occurs through unauthorized act or through another way even if it is within the contract.