DO 9709


Dissolved Oxygen Data Logger
DO 9709
REL
Relative
HOLD
ON
OFF
Auto Power Off
Serial Output
PROG
Data Call
Min-Max-Min
CAL
RCD
ENTER
Start-Stop
TP 870
SCHOTT GERATE
9009/2

DISSOLVED OXYGEN - DATA-LOGGER DO9709

The **DO 9709** Dissolved Oxygen - Data Logger allows the measurement of the concentration (expressed in mg/l) of dissolved oxygen in liquids and of the saturation index (expressed in %), using a combined measurement of a polarographic type with two or three electrodes, and a temperature sensor inside the probe.
Normally the instrument measures the partial pressure of the oxygen in the water, measuring the current generated by the polarographic probe. The temperature
sensor, contained in the oxygen probe, and the atmospheric pressure sensor housed inside the instrument allow calculation of the saturation index and of the oxygen concentration in the liquid being examined. The instrument contemplates automatic compensation of the membrane permeability, used in the oxygen probe, and of the salinity of the liquid being examined.
Temperature probes with a 4-wire Pt100 sensor may be connected to the instruments, or active probes of series TP 870, for taking temperature measurements in the range from -50 to +200°C:
The fast calibration function of the dissolved oxygen probe guarantees lasting correctness of the measurements taken.
The instrument's Data Logger function enables it to store up to 30,000 readings. The sampling period is variable from 1 second to 12 hours.
The data acquired may later be transferred to a Personal Computer or a printer by means of the opto-insulated serial line RS 232C. For each value stored the date and time of acquisition is indicated; each acquisition block is ended with a report which provides the maximum, minimum and mean values.
With the Serial Output function it is possible to obtain the instantaneous values measured by the instrument at the output of the serial line RS 232C, in order to send them to a printer or a computer.
Other functions such as HOLD (which blocks the display), REL (for taking relative measurements) and RECORD (for storing the maximum, minimum and mean values) further enrich the instrument's performance.
Thanks to its versatility and to its storage capacity, the instrument is particularly suitable for monitoring activities, for example in fish breeding establishments, purification plants, for the environmental control of waters and finally for laboratory measurements: in the medical, biochemical, microbiological field and in the food industry.

TECHNICAL CHARACTERISTICS DO 9709

* Display: double LCD 3½ digit, figure height 12.5 mm. and symbols.
* Instrument conversion frequency: 2 per second.
* Instrument working temperature: -5...+50°C, 0...90% R.H., no condensation.
* Storage temperature: -20...+60°C.
* Power supply: 9V battery, lifetime with a good alkaline battery 100 hours (about 1 year with the instrument switched off).
* Connectors: input A and B, DIN 41524 female 8-pole circular connector, serial gate SUB D male 9-pole.
* Instrument case: ABS.
* Dimensions: instrument alone 210x72x40 mm., kit 370x295x85 mm.
* Weight: instrument alone 350 gr., kit 1600 gr.

Measuring the concentration of dissolved Oxygen (input A)

Measuring range:	0.00 to 90.0 mg/l
Resolution:	0.01 mg/l in the range 0.00 to 19.99 mg/l 0.1 mg/l in the range 20.0 to 90.0 mg/l automatic change of scale
Accuracy of instrument alone:	±0.03 mg/l in condition 60 to 110%, 1013 mbar, 20 to 25°C
Temperature probe measuring range:	0 to 45°C

Measuring the saturation index of dissolved Oxygen (input A)

Measuring range:	0.0 to 600.0 %
Resolution:	0.1% in the range 0.00 to 199.9% 1% in the range 200 to 600% automatic change of scale
Accuracy of instrument alone:	±0.3% between 0 and 1999.9% ±2% between 200 and 600%
Temperature probe measuring range:	0 to 45°C

Temperature measurement with the sensor inside the Oxygen probe (input A)

Measuring range:	0 to 45°C
Resolution:	0.1°C
Accuracy of instrument alone:	0.2°C in the range 18 to 25°C 0.2°C +0.01°C/°C in the range -5 to 18°C and 25 to 45°C
Accuracy with NTC sensor:	0.4°C in the range 18 to 25°C 0.4°C +0.015°C/°C in the range -5 to 18°C and 25 to 45°C

Measurement of atmospheric pressure

Measuring range:	600 to 1100 mbar
Resolution:	1 mbar
Accuracy of instrument alone:	±2 mbar in the range 18 to 25°C ±2 mbar +0.1 mbar in the range -5 to 18°C and 25 to 45°C

Setting water salinity

Setting range:	0.0 to 70.0 g/l
Resolution:	0.1 g/l

Temperature measurement (input B)

* Temperature probe: Pt100 platinum probe (100 ohm at 0°C).
* Input for temperature probes of the series TP 870, TP 870A, TP 870/C, TP 870/P (Pt100 sensor with amplification and linearization circuit) or Pt100 4-wire probes with direct input.
* Instrument temperature measuring range: -50...+200°C.
* Resolution: 0.1°C in the range -50.0...+199.9°C.

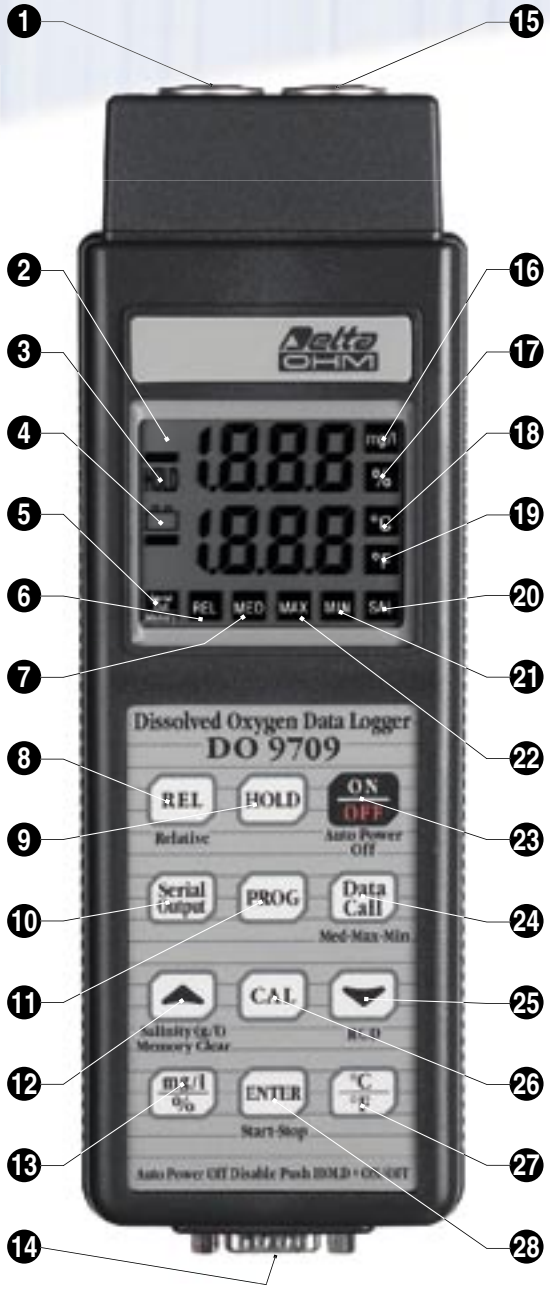
ORDER CODES

DO 9709: Diplomatic carrying case, instrument DO 9709, manual, 9V alkaline battery, temperature probe TP 870, connecting cable CP RS 232C and software DELTALOG-1, calibrator DO 9709/20, electrolyte solution for O2 DO 9701 and zero solution DO 9700.
The probe for measuring dissolved Oxygen must be ordered separately.

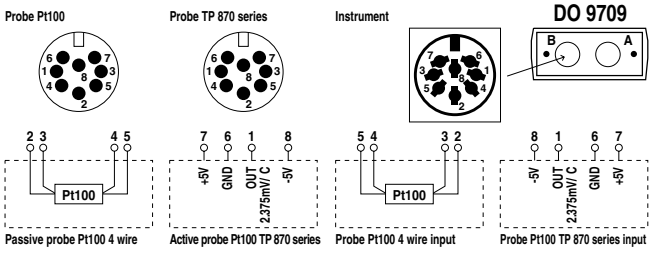
Probes and connecting cables

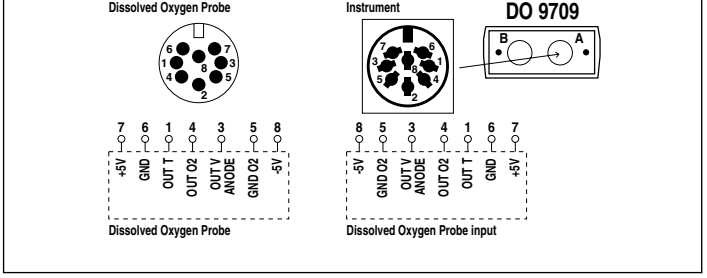
DO 9709SS: Combined probe for measuring dissolved Oxygen and temperature with possibility of changing the membrane. 3 membranes. Cable length 2 metres.
DO9709 SS.5: The kit includes: combined probe for measurement of O_2 and temperature, replaceable membrane, Ø 12mm x Ø 12mm. Cable lenght 5m, three membranes.
DO9709 SS.10: The kit includes: combined probe for measurement of O_2 and temperature, replaceable membrane, Ø 12mm x Ø 12mm. Cable lenght 10m, three membranes.
TP 870: Immersion temperature probe, diam. 3x230 mm., measuring range -50...+400°C.
TP 870P: Penetration temperature probe, diam. 4x150 mm., measuring range -50...+400°C.
TP 870C: Contact temperature probe, diam. 5x230 mm., measuring range -50...+400°C.
TP 870A: Air temperature probe, diam. 4x230 mm., measuring range -50…+250°C
CP RS 232C: Connecting cable from SUB D female 9-pole to SUB D female 9-pole, for serial output RS 232C.

The temperature probes must be ordered separately. The instrument may be fitted with all probes in the TP 870... series or with any type of Pt100 probe by other manufacturers as long as they have 4 wires and comply with the diagram.



1 Input A: probe for measuring dissolved oxygen.
2 Double LCD display.
3 The symbol indicates that the HOLD key has been pressed.
4 H symbol. If permanently lit, the battery is flat. If flashing at 1 Hz, the Auto Power Off function is disabled. If flashing at 2 Hz, the Record function is active: storage of the maximum, mean and minimum values.
5 The display shows the mean value.
6 The symbol indicates that the serial output function is switched on (flashing symbol) or that the instrument is storing (symbol permanently lit).
7 The display shows the relative value.
8 REL key for taking relative measurements.
9 HOLD key for blocking the reading.
10 Key for selecting the serial output function.
11 PROG key for selecting the various programs. Activates calibration and confirms the calibration values.
12 ▲ key (Salinity sub-function), selects salinity compensation, when measuring the concentration of dissolved oxygen.
When enabled, it increases the values on the display.
13 mg/l % key, selects measurement of the concentration of dissolved oxygen in mg/l or the measurement of the saturation index in %.
14 Output for RS 232C (SUB D male 9-pole).
15 Input B, temperature measurement probe.
16 The upper display measures the concentration of dissolved oxygen in mg/l.
17 The upper display measures the saturation index of dissolved oxygen in %.
18 The lower display indicates the temperature in °C, in the measurement of dissolved oxygen.
19 The lower display indicates the temperature in °F, in the measurement of dissolved oxygen.
20 Indicates that water salinity is compensated in the measurement of the concentration of dissolved oxygen (this is not present when the saturation index of dissolved oxygen in % is displayed).
21 The display shows the minimum value.
22 The display shows the maximum value.
23 Key for switching the instrument on and off.
24 When the DATA CALL button is pressed in sequence, the display indicates the MAX, MIN and MEAN value, normal display.
25 ▼ key (RCD sub-function), for activating and suspending storage of the maximum, minimum and mean value or, if held down for more than 2 seconds, for resetting the maximum, minimum and mean values and activating the storage function. When enabled, the key decreases the value shown on the display.
26 When the CAL button is held down for more than 2 seconds it activates calibration of the dissolved oxygen probe, the modification of salinity or modification of the default temperature.
27 °C/°F key for selecting temperature measurement in °C or °F.
28 The ENTER key (Start-Stop sub-function) starts and stops storage. When enabled, the ENTER key shows the desired parameters and confirms the set values.

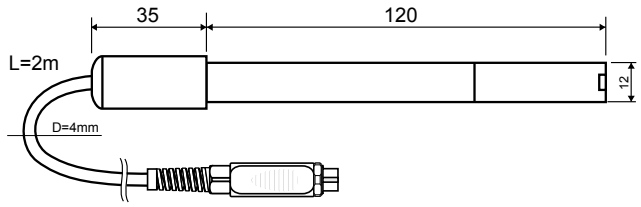


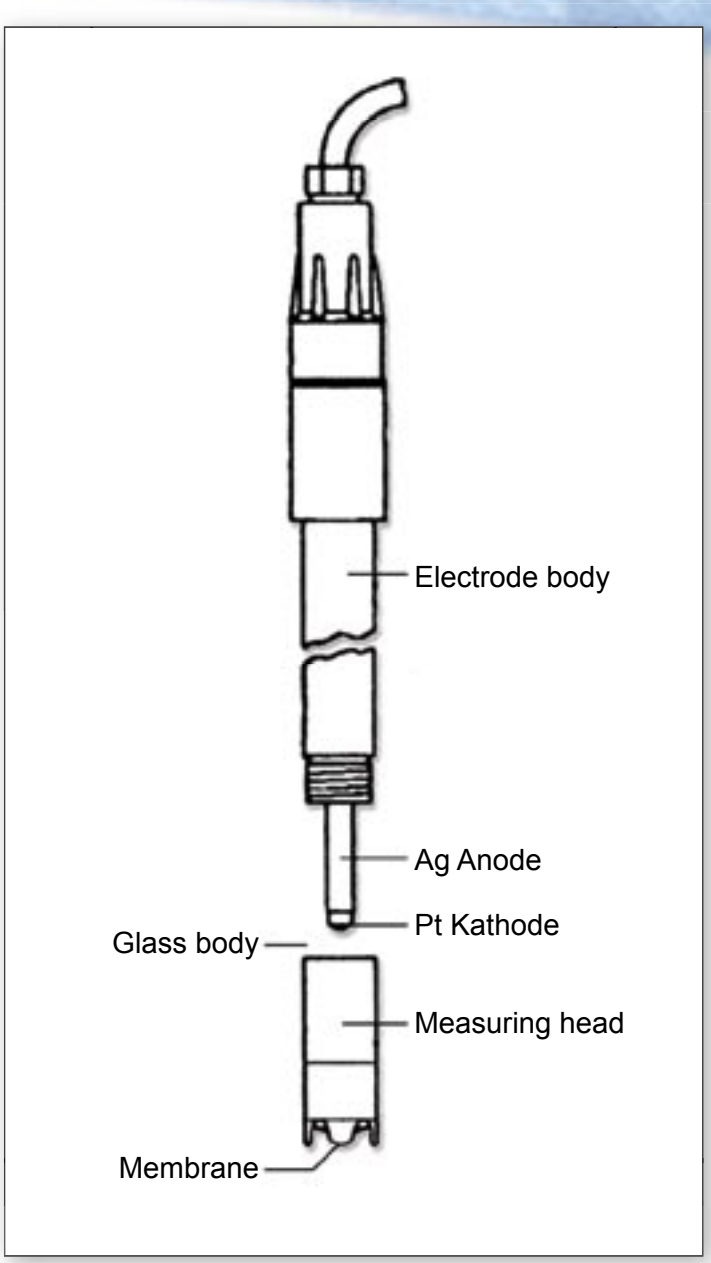


INSTRUMENT ACCURACY IN TEMPERATURE MEASUREMENTS				
Type of probe	**Measuring range**	**Resolution**	**Accuracy with instrument temperature from 18 to 25°C**	**Accuracy with instrument temperature from -10 to 18 and from 25 to 50°C**
Instrument alone:	-50..+200°C	0,1°C	0,2°C	0,2°C+0,01°C/°C
Instrument with TP 870:	-50...+200°C	0,1°C	0,4°C	0,4°C+0,015°C/°C
Instrument with Pt100 class A:	-50...+200°C	0,1°C	0,4°C	0,4°C+0,01°C/°C

Oxygen probe – dimensions and characteristics

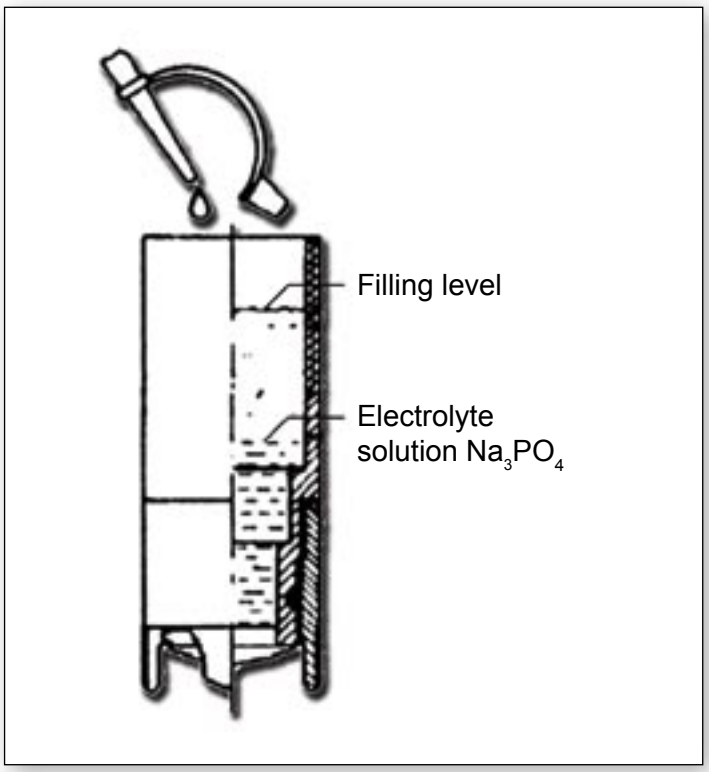
Model	DO9709 SS
Type	Polarographic probe, Silver anode, Platinum cathode
Application range	
Oxygen concentration	0.00…60.00mg/l
Functioning temperature	0…45°C
Accuracy instrument + probe	1% FS
Membrane	Replaceable











Probes

- Pt100, Pt1000 temperature probes.
- Thermocouple temperature probes.
- Temperature and relative humidity probes.
- Pressure probes.
- Air speed probes.
- Photometric and radiometric probes.
- Probes for sound level meters.
- Probes for multifunction instrument.



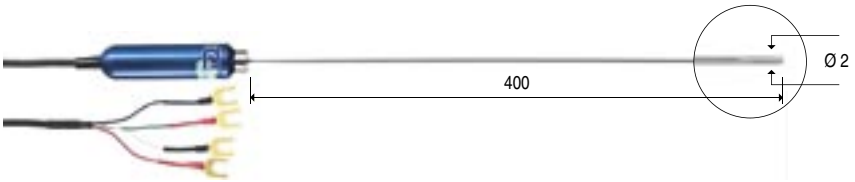
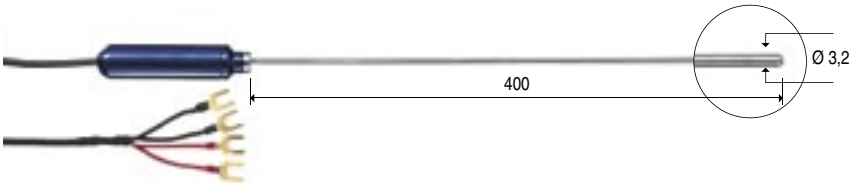


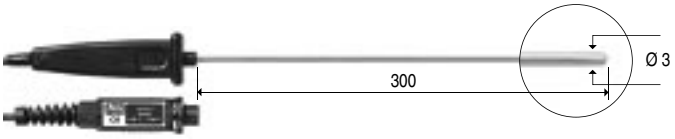
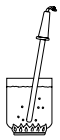
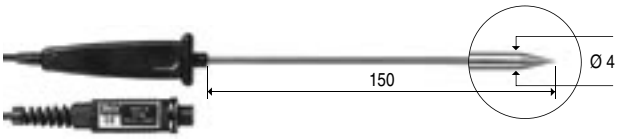
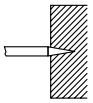
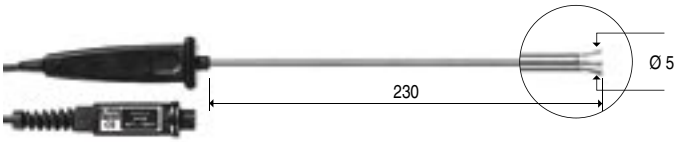
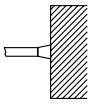
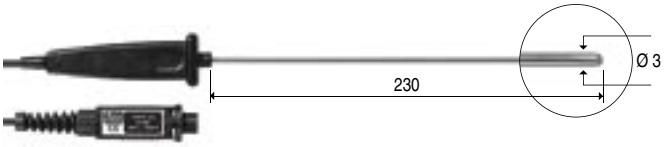
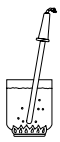
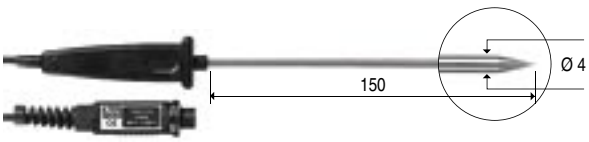
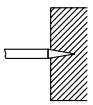




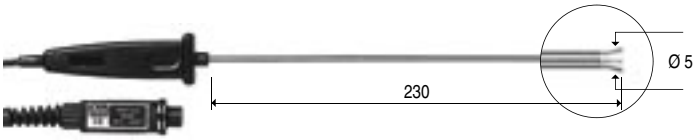
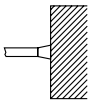
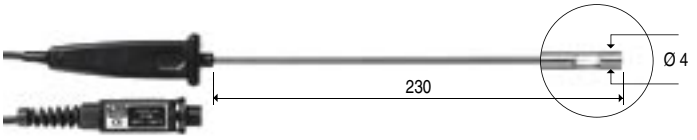
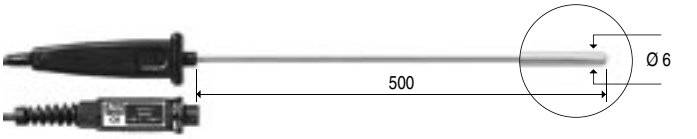
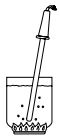
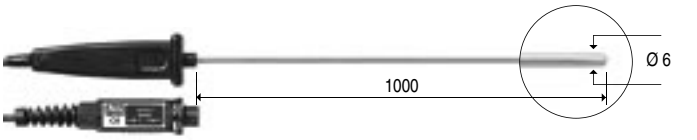
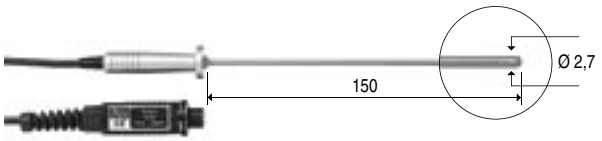
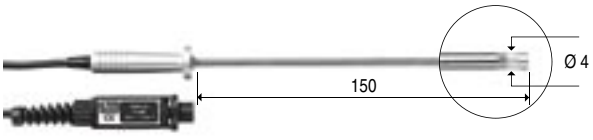
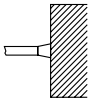
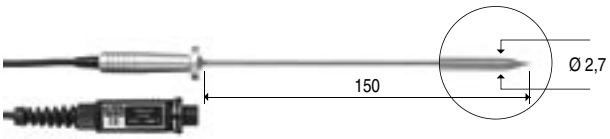
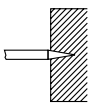
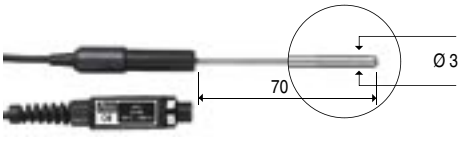
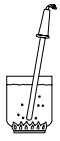


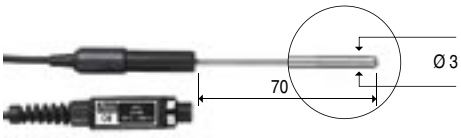
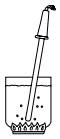
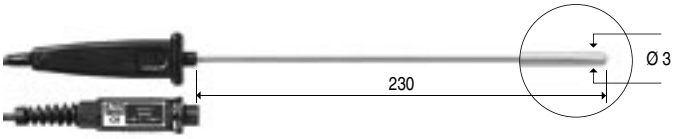
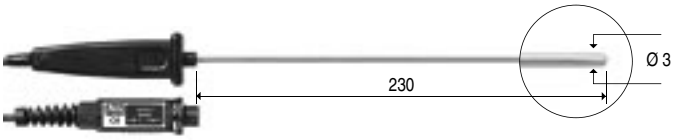


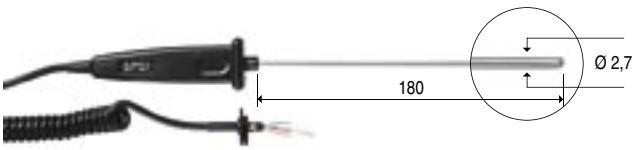
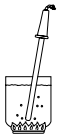
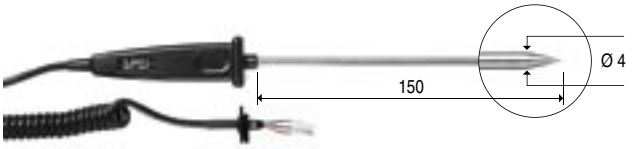
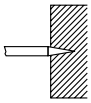
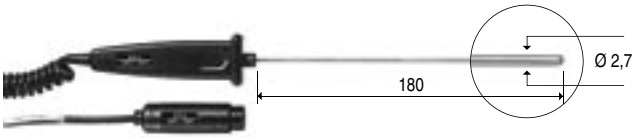
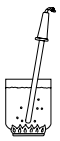
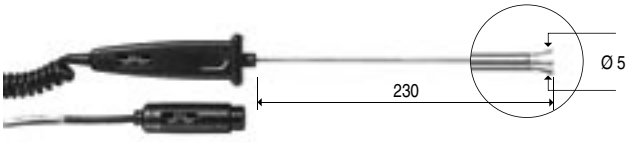
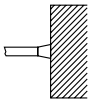
TEMPERATURE PROBES FOR METROLOGICAL LABORATORY	
CODE	**DIMENSIONS**
TPMSN 350 240	 Thermometer with a **Pt100 Platinum** resistance α=0,00385°C^{-1} for metrological temperature laboratory. External diameter 2mm, length 400mm under the head, 4-wire extension cable L=2000mm, range -200... +400°C, recommended –200÷ +250°C. Stainless steel sheath AISI 316 SS. Stability/repeatability: ±0,01°C/400 hours. Complete with carrying case.
TPMSN 140 340	 Thermometer with a **Pt100 Platinum** resistance α=0,00385°C^{-1} for metrological temperature laboratory. External diameter 3,2mm, length 400mm under the head, 4-wire extension cable L=2000mm, range -200°C... +400°C, recommended –80÷ +400°C. Stainless steel sheath AISI 316 SS. Stability/repeatability: ±0,01°C/400 hours. Complete with carrying case.

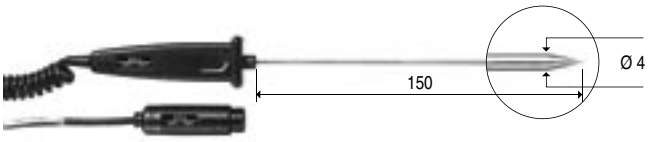
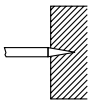
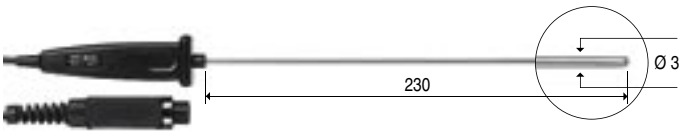
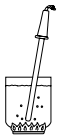
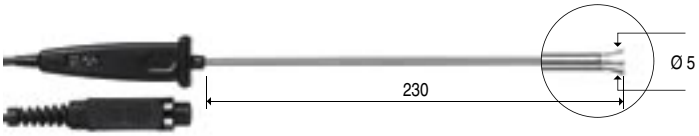
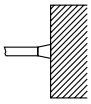
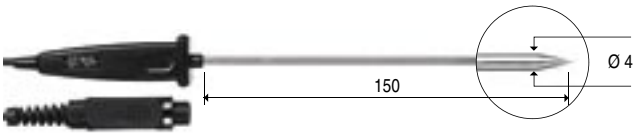
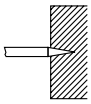
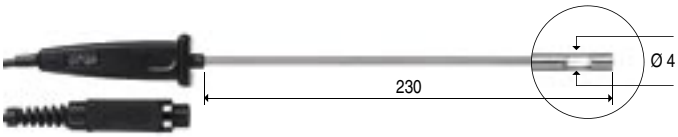
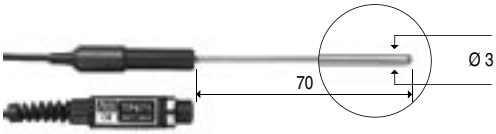
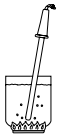
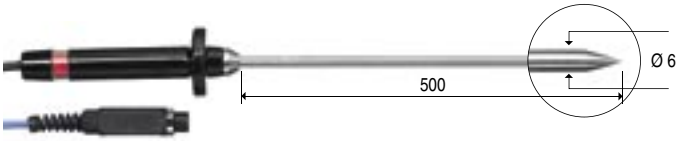
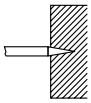
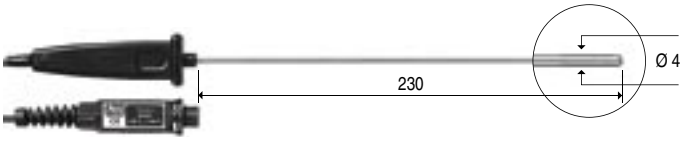
Pt100 PROBES WITH SICRAM MODULE FOR PORTABLE INSTRUMENTS					
CODE	**°C max**	**τ s**	**DIMENSIONS**	**USE**	
TP472I	-196 +500	3s			HD2101.1 HD2101.2 HD2103.1 HD2103.2 HD2105.1 HD2105.2 HD2106.1 HD2106.2 HD2156.1 HD2156.2 HD2107.1 HD2107.2 HD2109.1 HD2109.2 HD2114.0 HD2114.2 HD2134.0 HD2134.2 HD2164.0 HD2164.2 HD2114B.0 HD2114B.2 HD2124.1 HD2124.2 HD2127.1 HD2127.2 HD2178.1 HD2178.2 HD2301.0 HD2303.0 HD2304.0 HD2305.0 HD2306.0 HD2307.0
TP473P	-50 +400	5s			
TP474C	-60 +400	5s			
TP472I.0	-50 +400	3s			
TP473P.0	-50 +400	5s			

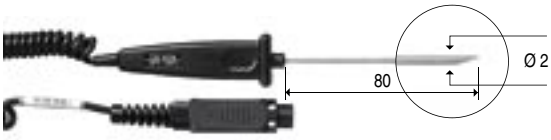
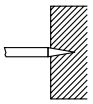
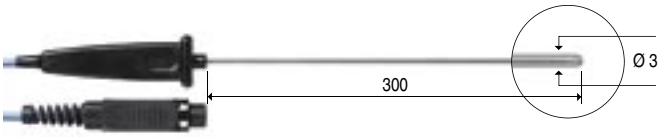
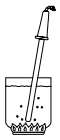
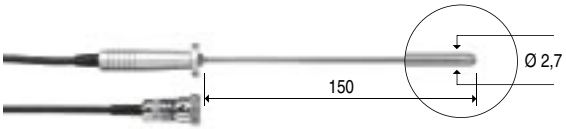
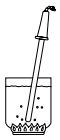
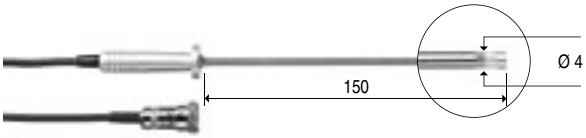
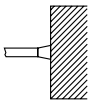
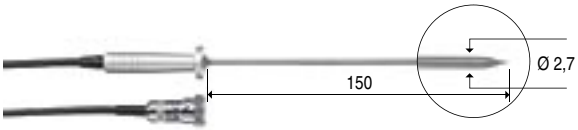
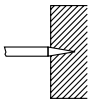
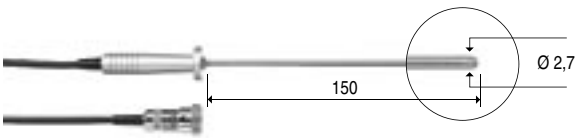
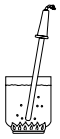
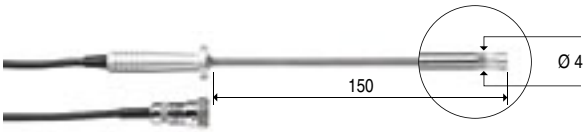
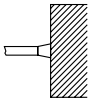
Pt100 PROBES WITH SICRAM MODULE FOR PORTABLE INSTRUMENTS

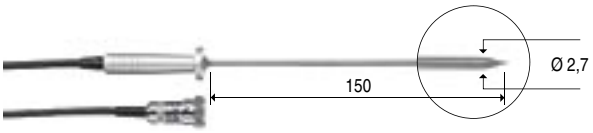
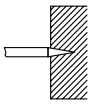
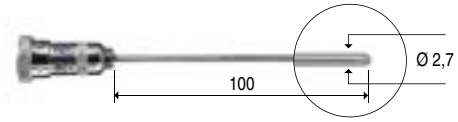
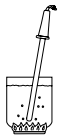
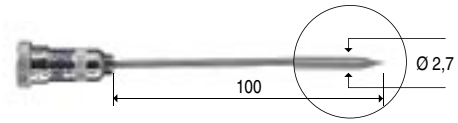
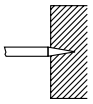
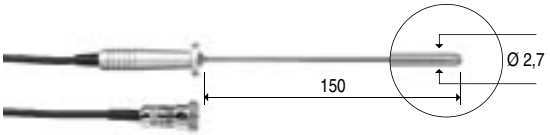
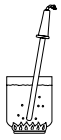
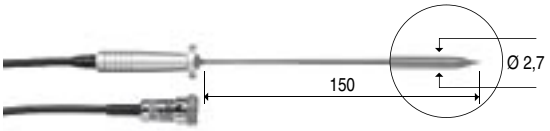
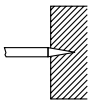
CODE	°C max	τ s	DIMENSIONS	USE	
TP474C.0	-50 +400	5s			HD2101.1 HD2101.2 HD2103.1 HD2103.2 HD2105.1 HD2105.2 HD2106.1 HD2106.2 HD2156.1 HD2156.2 HD2107.1 HD2107.2 HD2109.1 HD2109.2 HD2114.0 HD2114.2 HD2134.0 HD2134.2 HD2164.0 HD2164.2 HD2114B.0 HD2114B.2 HD2124.1 HD2124.2 HD2127.1 HD2127.2 HD2178.1 HD2178.2 HD2301.0 HD2303.0 HD2304.0 HD2305.0 HD2306.0 HD2307.0
TP475A.0	-50 +250	10s			
TP472I.5	-50 +400	3s			
TP472I.10	-50 +400	3s			
TP49A	-70 +400	3,5s			
TP49AC	-70 +400	5,5s			
TP49AP	-70 +400	4s			
TP87	-50 +200	3s			

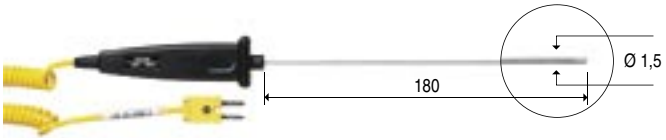
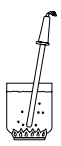
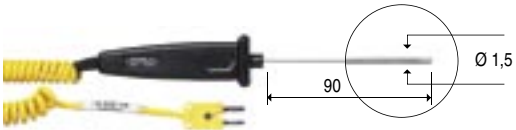
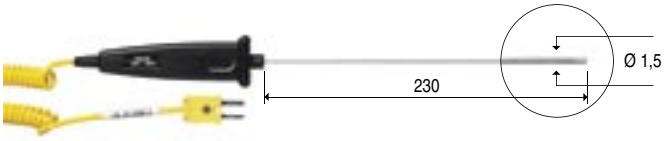
PROBES FOR PORTABLE INSTRUMENTS WITH TP47 MODULE					
CODE	**°C max**	**τ s**	**DIMENSIONS**	**USE**	
TP87.100 (Pt100) **TP87.1000 (Pt1000)**	-50 +200	3s			HD2101.1 HD2101.2 HD2103.1 HD2103.2 HD2105.1 HD2105.2 HD2106.1 HD2106.2 HD2156.1 HD2156.2 HD2107.1 HD2107.2 HD2109.1 HD2109.2 HD2114.0 HD2114.2 HD2134.0 HD2134.2 HD2164.0 HD2164.2 HD2114B.0 HD2114B.2 HD2124.1 HD2124.2 HD2127.1 HD2127.2 HD2178.1 HD2178.2 HD2301.0 HD2303.0 HD2304.0 HD2305.0 HD2306.0 HD2307.0
TP47.100 (Pt100)	-50 +400	3s			
TP47.1000 (Pt100)	-50 +400	3s			
TP47	Only connector for probe connection: direct 4 wire Pt100, 3 wire Pt100, 2 wire Pt1000 and 2 wire Ni1000				

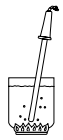
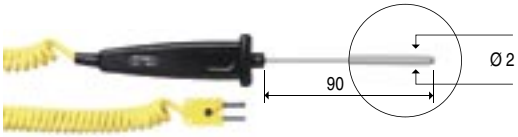
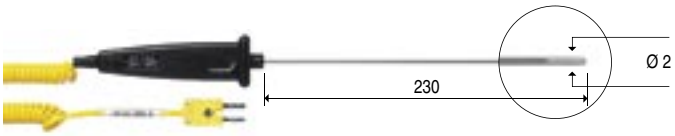
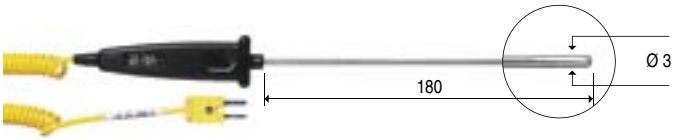
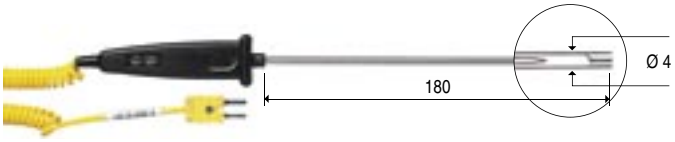
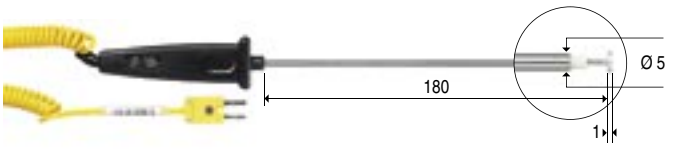
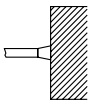
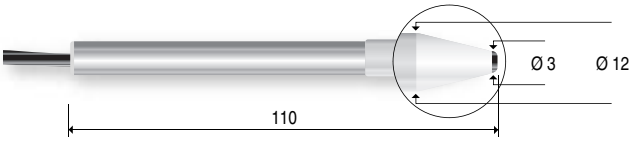
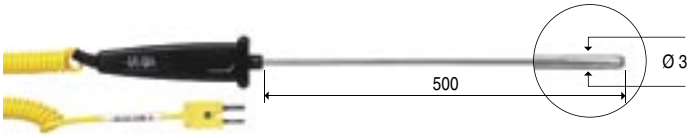
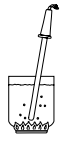
Pt100 SENSOR PROBES					
CODE	**°C max**	**τ s**	**DIMENSIONS**	**USE**	
S8601P	-50 +200	3,5s			HD8601
S8601PP	-50+200	5s			HD8601/P
STS3	-50 +150	3,5s			HD8501
STS3/C	-50 +150	5s			

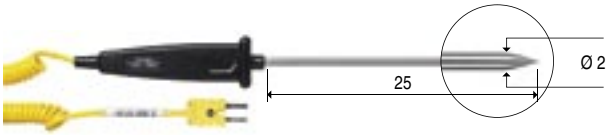
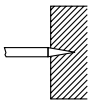
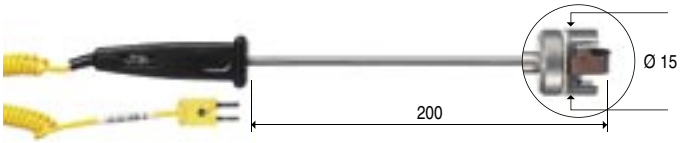
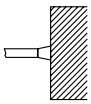
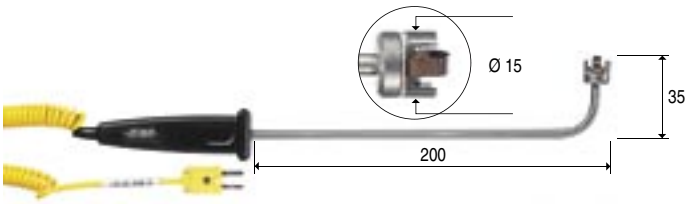
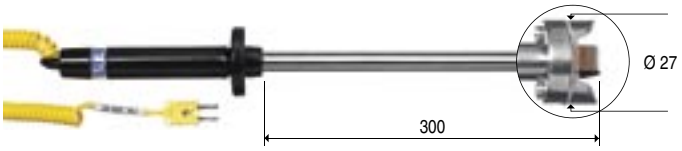
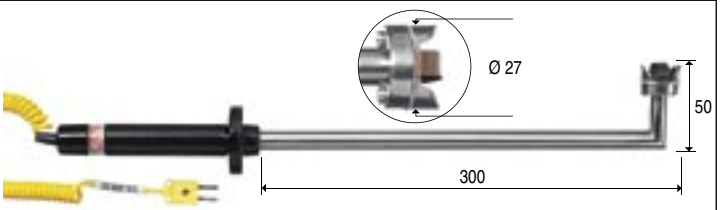
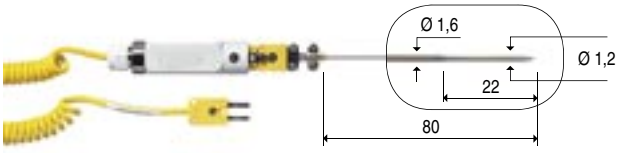
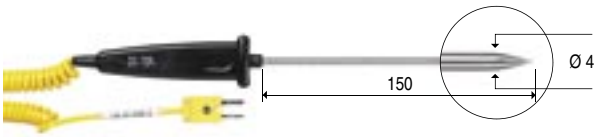
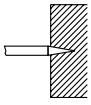
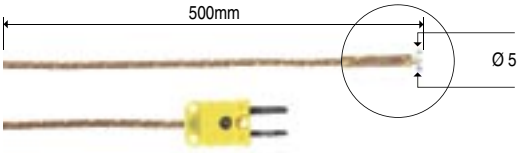
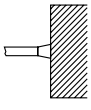
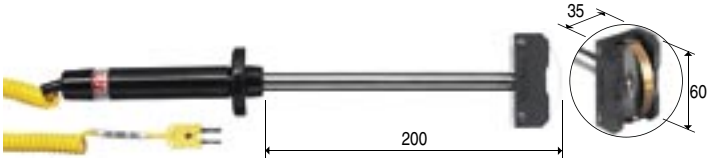
Pt100 SENSOR PROBES					
CODE	**°C max**	**τ s**	**DIMENSIONS**	**USE**	
STS3/P	-50 +150	5s			HD8501
TP870	-50 +400	3s			HD9010 HD8602 HD8705 HD8706 HD8804 HD8901 HD9117 HD9021 DO9406 DO9505 DO9417 DO9704 DO9709 DO9721
TP870C	-50 +400	5s			
TP870P	-50 +400	3s			
TP870A	-50 +250	12s			
TP871	-50 +200	3s			
TP872/500	-50 +400	10s			
TP872/1000					
TP873	-50 +500	6s			

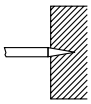
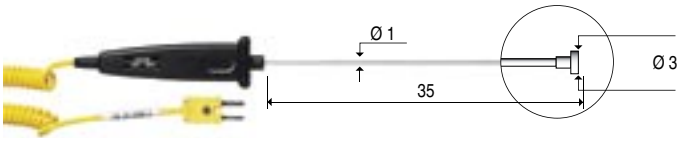
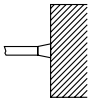
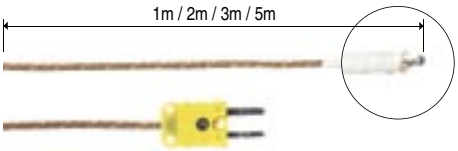
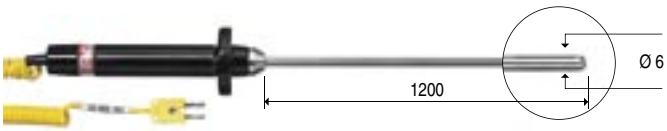
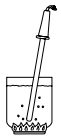
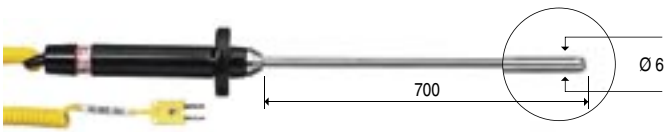
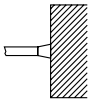
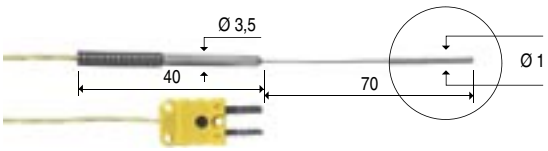
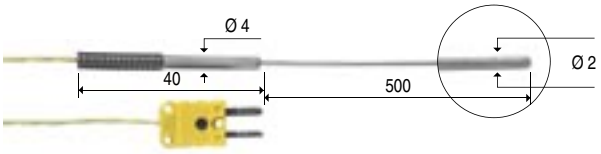
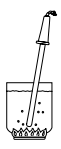
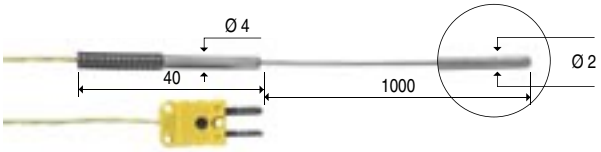
Pt100 SENSOR PROBES					
CODE	**°C max**	**τ s**	**DIMENSIONS**	**USE**	
TP874	-30 +200	3s			HD9010 HD8602 HD8705 HD8706 HD8804 HD8901 HD9117 HD9021 DO9406 DO9505 DO9417 DO9704 DO9709 DO9721
TP875	-10 +100		 Globe-thermometer probe for measurement of radiant heat with ø 150mm. ISO 7243 ISO 7726. Pt100 sensor, 4-wire cable, L=2m.		
TP876	-10 +100		 Globe-thermometer probe for measurement of radiant heat with ø 50mm. ISO 7243 ISO 7726. Pt100 sensor, 4-wire cable, L=2m.		
TP877	-200 +400	3s			
TP9A **CLASS A**	-70 +400	3,5s			HD9212 HD9213 HD9214 HD9215 HD9216 HD9219 HD9220
TP9AC **CLASS A**	-70 +400	5,5s			
TP9AP **CLASS A**	-70 +400	4s			
TP93 **CLASS 1/3 DIN**	-70 +400	3,5s			
TP93C **CLASS 1/3 DIN**	-70 +400	5,5s			

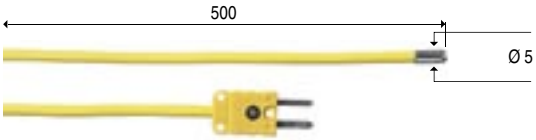
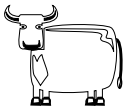
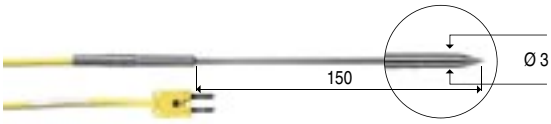
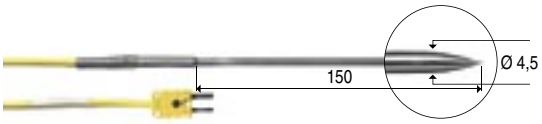
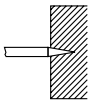
Pt100 SENSOR PROBES					
CODE	**°C max**	**τ s**	**DIMENSIONS**	**USE**	
TP93P **CLASS 1/3 DIN**	-70 +400	4s			HD9212 HD9213 HD9214 HD9215 HD9216 HD9219 HD9220
TP932 **CLASS 1/3 DIN**	-70 +200	3,5s			
TP932P **CLASS 1/3 DIN**	-70 +40	4s			
TP95 **CLASS 1/5 DIN**	-70 +400	3,5s			
TP95P **CLASS 1/5 DIN**	-70 +400	4s			

THERMOCOUPLE K TYPE PROBES (CHROMEL - ALUMEL)					
CODE	**°C max**	**τ s**	**DIMENSIONS**	**USE**	
TP741	800	2s			HD8802 HD8704 HD9016 HD9218 DO9416 DO9847 HD2328 HD2108.1 HD2108.2 HD2128.1 HD2128.2 HD2178.1 HD2178.2 HD2114P.0 HD2114P.2 HD2134P.0 HD2134P.2
TP741/1	400	2s			
TP741/2	800	2s			

THERMOCOUPLE K TYPE PROBES (CHROMEL - ALUMEL)					
CODE	**°C max**	**τ s**	**DIMENSIONS**	**USE**	
TP742	800	2s			HD8802 HD8704 HD9016 HD9218 DO9416 DO9847 HD2328 HD2108.1 HD2108.2 HD2128.1 HD2128.2 HD2178.1 HD2178.2 HD2114P.0 HD2114P.2 HD2134P.0 HD2134P.2
TP742/1	800	2s			
TP742/2	800	2s			
TP743	800	3s			
TP744	400	4s			
TP745	500	3s			
TP746	250	2s			
TP750	1000	3s			
TP750.0	800	3s			

THERMOCOUPLE K TYPE PROBES (CHROMEL - ALUMEL)					
CODE	**°C max**	**τ s**	**DIMENSIONS**	**USE**	
TP751	250	2s			HD8802 HD8704 HD9016 HD9218 DO9416 DO9847 HD2328 HD2108.1 HD2108.2 HD2128.1 HD2128.2 HD2178.1 HD2178.2 HD2114P.0 HD2114P.2 HD2134P.0 HD2134P.2
TP754	500	2s			
TP754/9	500	2s			
TP755	800	2s			
TP755/9	800	2s			
TP756	200	2s			
TP758	400	4s			
TP772	400	3s			
TP774	250	2s			

THERMOCOUPLE K TYPE PROBES (CHROMEL - ALUMEL)					
CODE	**°C max**	**τ s**	**DIMENSIONS**	**USE**	
TP776	400	2s			HD8802 HD8704 HD9016 HD9218 DO9416 DO9847 HD2328 HD2108.1 HD2108.2 HD2128.1 HD2128.2 HD2178.1 HD2178.2 HD2114P.0 HD2114P.2 HD2134P.0 HD2134P.2
TP777	400	3s			
TP647 **TP647/2** **TP647/3** **TP647/5**	400 400 400 400	2s 2s 2s 2s			
TP651	1200	6s			
TP652	1200	6s			
TP655	180	2s			
TP656	400	1s			
TP656/1	1000	1s			
TP656/2	1000	1s			

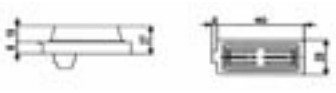
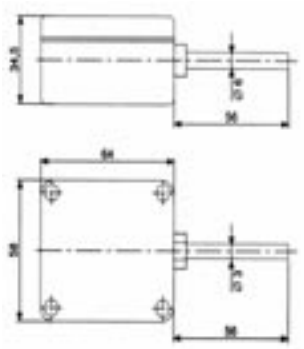
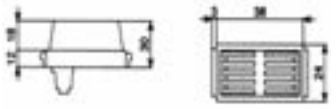
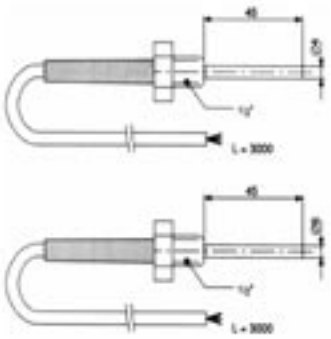
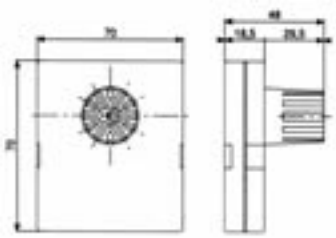
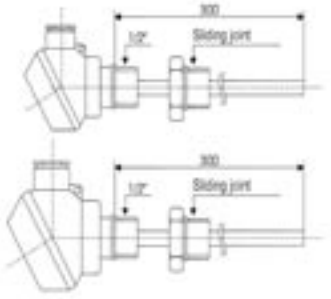
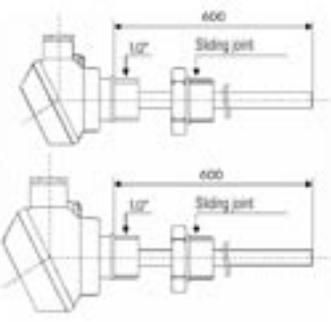
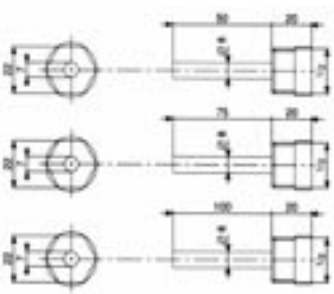
THERMOCOUPLE K TYPE PROBES (CHROMEL - ALUMEL)					
CODE	**°C max**	**τ s**	**DIMENSIONS**	**USE**	
TP657/1	200	5s			HD8802 HD8704 HD9016 HD9218 DO9416 DO9847 HD2328 HD2108.1 HD2108.2 HD2128.1 HD2128.2 HD2178.1 HD2178.2 HD2114P.0 HD2114P.2 HD2134P.0 HD2134P.2
TP658	100	2s			
TP659	500	3s			
TP660	500	4s			
TP661	-60 +50	30s			
CN **CS**	"K" "K"				
PW	"K"				

Response time for a 63% variation ($\tau_{0.63}$)

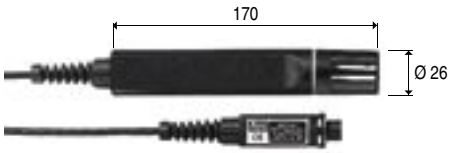
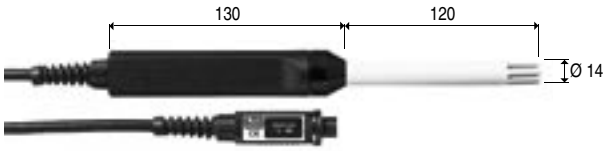
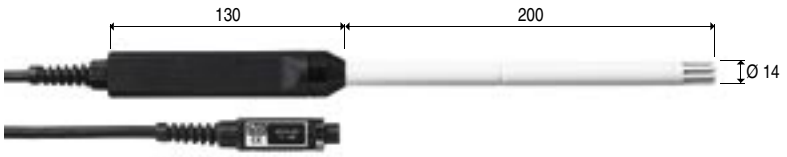
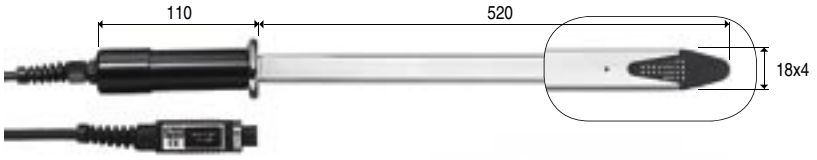
The response time τ **s** is the reaction time of the sensor to a temperature variation, with a signal variation when measuring that corresponds to a given percentage (63%) of the variation.
Response time is referred:

For immersion probes in water at 100°C
For surface probes in contact with metals surface at 200°C
For air probe at an air temperature of 100°C

At temperature above 400°C avoid hard knocks or thermal shocks which could cause irremediable damage to the Pt100 Sensor

TEMPERATURE PROBES FOR PANEL INSTRUMENTS			
CODE	**DESCRIPTION**	**CODE**	**DESCRIPTION**
HD 882/CK SENSOR KTY81 0...36°C HD 882/C100 SENSOR Pt100 0...36°C		HD 882/GK SENSOR KTY81 -50...+100°C HD 882/G100 SENSOR Pt100 -50...+100°C	
HD 782/1 SENSOR KTY81 0…36°C HD 782/2 SENSOR Pt100 0…36°C		HD 882/L104 0…+250°C SENSOR Pt100 HD 882/L106 0…+250°C SENSOR Pt100	
HD 882/DK SENSOR KTY81 0...36°C HD 882/D100 SENSOR Pt100 0...36°C		HD 882 M100/300 -50...+450 °C SENSOR Pt100 Miniature Head HD 882 DM100/300 -50...+450 °C SENSOR Pt100 DIN B Head	
HD 882/EK SENSOR KTY81 -40...+150 °C		HD 882 M100/600 -50...+450 °C SENSOR Pt100 Miniature Head HD 882 DM100/600 -50...+450 °C SENSOR Pt100 DIN B Head	
HD882/E100 SENSOR Pt100 -50...+300 °C		PS1 PS2 PS3	

RELATIVE HUMIDITY AND TEMPERATURE PROBES FOR PORTABLE INSTRUMENTS - ACCESSORIES

Code	Sensors	Range RH - Temp.		
HD472AC	RH Pt100	5 ÷ 98% RH -20°C…+80°C		HD2101.1 HD2101.2 HD2301.0
HD572AC	RH TC.K			
HD473AC	RH Pt100			
HD474AC		5 ÷ 98% RH -40°C…+150°C		
HD475AC				
HD477AC				

SATURATED SOLUTION **HD75** **HD33** **HD11**		**Probe fixing adapter 24x1,5** **HD472AC - HD572AC - HD85015S - HD8501SMC** **HD9216S** **Probe fixing adapter 12x1** **HD473AC - HD474AC - HD475AC - HD8501SAT500** **HD9216 SAT500**

PROTECTIONS **P1** **P2** **P3** **P4**	Ø 26	M 24x1,5	
P5 **P6** **P7**	Ø 14	M 12x1	

PRESSURE PROBES: RELATIVE, ABSOLUTE, DIFFERENTIAL, FOR PORTABLE INSTRUMENTS

PRESSURE PROBE TABLE

Full scale pressure	Maximum overpressure	ORDER CODE			Accuracy From 20 to 25°C	Functioning temperature	Connection	
		Differential pressure	Relative pressure (compared to atmosphere)	Absolute pressure				
		NON insulated membrane	Insulated membrane	Insulated membrane				
10.0 mbar	20.0 mbar	**TP705-10MBD**			0.50 % FSO	0…60°C	Tube ∅ 5mm	HD2124.1 HD2124.2 HD2304.0 HD2114.0 HD2114.2 HD2134.0 HD2134.2 HD2164.0 HD2164.2 HD2114B.0 HD2114B.2 DO9704
20.0 mbar	40.0 mbar	**TP705-20MBD**			0.50 % FSO	0…60°C	Tube ∅ 5mm	
50.0 mbar	100 mbar	**TP705-50MBD**			0.50 % FSO	0…60°C	Tube ∅ 5mm	
100 mbar	200 mbar	**TP705-100MBD**			0.25 % FSO	0…60°C	Tube ∅ 5mm	
200 mbar	400 mbar	**TP705-200MBD**			0.25 % FSO	0…60°C	Tube ∅ 5mm	
			TP704-200MBGI		0.25 % FSO	0…80°C	¼ BSP	
500 mbar	1000 mbar	**TP705-500MBD**			0.25 % FSO	0…60°C	Tube ∅ 5mm	
			TP704-500MBGI		0.25 % FSO	0…80°C	¼ BSP	
1.00 bar	2.00 bar	**TP705-1BD**	**TP705BARO**		0.25 % FSO	0…60°C	Tube ∅ 5mm	
			TP705-1BGI		0.25 % FSO	0…80°C	¼ BSP	
2.00 bar	4.00 bar	**TP705-2BD**			0.25 % FSO	0…60°C	Tube ∅ 5mm	
			TP704-2BGI	**TP704-2BAI**	0.40 % FSO	0…80°C	¼ BSP	
5.00 bar	10.00 bar		**TP704-5BGI**	**TP704-5BAI**	0.40 % FSO	0…80°C	¼ BSP	
10.0 bar	20.0 bar		**TP704-10BGI**	**TP704-10BAI**	0.40 % FSO	0…80°C	¼ BSP	
20.0 bar	40.0 bar		**TP704-20BGI**	**TP704-20BAI**	0.40 % FSO	0…80°C	¼ BSP	
50.0 bar	100.0 bar		**TP704-50BGI**	**TP704-50BAI**	0.40 % FSO	0…80°C	¼ BSP	
100 bar	200 bar			**TP704-100BAI**	0.40 % FSO	0…80°C	¼ BSP	
200 bar	400 bar			**TP704-200BAI**	0.40 % FSO	0…80°C	¼ BSP	
500 bar	750 bar			**TP704-500BAI**	0.40 % FSO	0…80°C	¼ BSP	



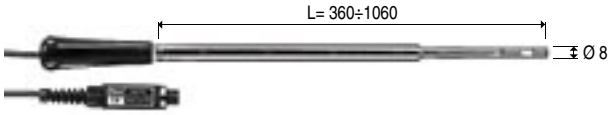
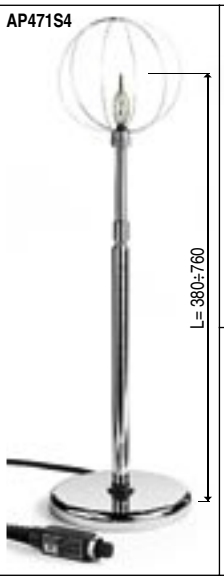
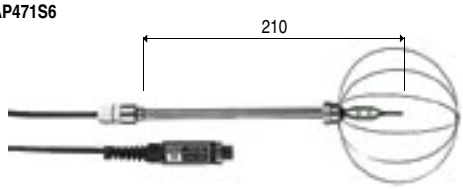






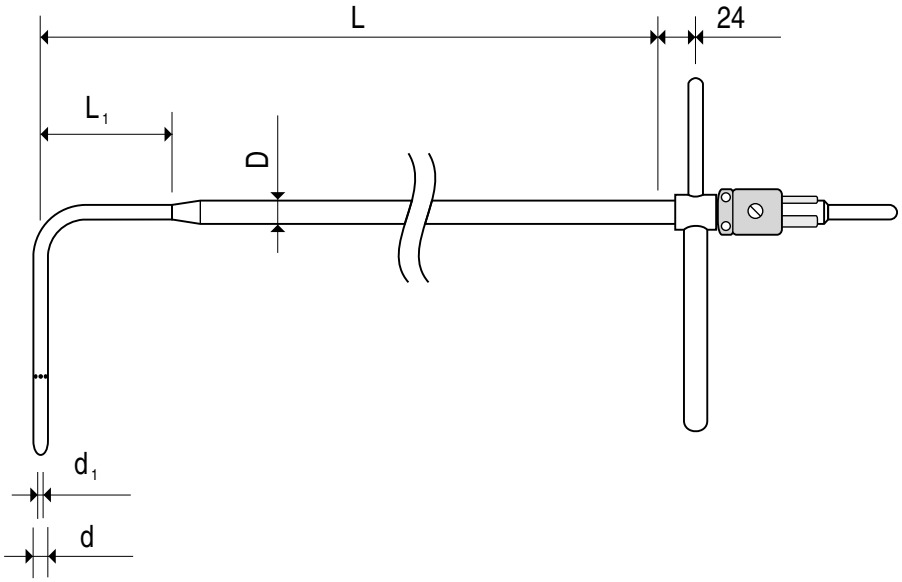
PRESSURE PROBES: RELATIVE, ABSOLUTE, DIFFERENTIAL, FOR PORTABLE INSTRUMENTS				
Code	**Differential pressure f.s.**	**Max. overpressure**		
PP472 Barometric	600÷1100 mbar absolute	3 bar		DO2003 DO9847
PP473S1	10 mbar	200 mbar		
PP473S2	20 mbar			
PP473S3	50 mbar			
PP473S4	100 mbar	300 mbar		
PP473S5	200 mbar	1 bar		
PP473S6	500 mbar			
PP473S7	1000 mbar	3 bar		
PP473S8	2000 mbar	6 bar		

AIR SPEED PROBES FOR PORTABLE INSTRUMENTS

Code	Range m/s	Range Temp. °C		
HOT-WIRE				DO2003 DO9847 HD2103.1 HD2103.2 HD2303.0
AP471S1	0÷40	-30÷110		
AP471S2	0÷5			
AP471S3	0÷40			
AP471S4	0÷5	0÷80	**AP471S4** 	
AP471S5			**AP471S5** 	
AP471S6			**AP471S6** 	
VANE				
AP472S1L	0,6÷20	-25÷80		
AP472S1H	10÷30			
AP472S2	0,25÷20			
AP472S4L	0,6÷20			
AP472S4LT	0,6÷20	-30÷120		
AP472S4H	10÷50	-25÷80		
AP472S4HT	10÷50	-30÷120		
AST1	Telescopic shaft min. length 220 mm Telescopic shaft max. length 870 mm			

MODULES FOR PITOT TUBES				
Code	**Range Press. Diff. mbar**	**Range Speed m/s**		
AP473S1	10 f.s.	2÷40		DO2003 DO9847
AP473S2	20 f.s.	2÷55		
AP473S3	50 f.s.	2÷90		
AP473S4	100 f.s.	2÷130		
PW	Connection cable between module AP473S... and Pitot tube provided with TC			

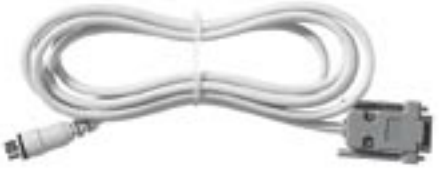
PITOT TUBES
Stainless steel Pitot tubes to measure air speed and temperature for models provided with 'K' thermocouple. They can be connected to the SICRAM modules AP473S1, AP473S2, AP473S3 and AP473S4



	d mm	d_1 mm	D mm	L mm	L_1 mm	Temp. °C	Thermocouple K	Material
T1-300	3	1	6	300	30	0…600°C	---	AISI 316
T2-400	5	2	8	400	45		---	
T2-600	5	2	8	600	45		---	
T3-500	8	3.2	8	500	---		---	
T3-800	8	3.2	8	800	---		---	
T3-800TC	8	3.2	8	800	---		TC	
T4-500	10	4.0	10	500	---		---	
T4-800	10	4.0	10	800	---		---	
T4-800TC	10	4.0	10	800	---		TC	
T4-1000	10	4.0	10	1000	---		---	
T4-1000TC	10	4.0	10	1000	---		TC	

PHOTOMETRIC AND RADIOMETRIC PROBES FOR PORTABLE INSTRUMENTS			
Code	**Description**		
LP471PHOT	Photometric probe for **ILLUMINANCE** measurement, spectral response in agreement with standard photopic vision, diffuser for cosine correction. Measurement range: 0.01 lux…200·10³ lux. CIE69, UNI11142		**HD2102.1** **HD2102.2** **HD2302.0**
LP471LUM2	Photometric probe for **LUMINANCE** measurement, spectral response in agreement with standard photopic vision, vision angle 2°. Measurement range: 0.1 cd/m²…2000·10³ cd/m².		
LP471PAR	Quantum radiometric probe for the measurement of the photon flow across the chlorophyll range **PAR** (Photosynthetically Active Radiation 400nm…700nm), measurement in μmol/m²s. Measurement range: 0.01μmol/m²s…10·10³μmol/m²s.		
LP471RAD	Radiometric probe for **IRRADIANCE** measurement in the spectral range 400nm…1050nm, diffuser for cosine correction. Measurement range: 0.1·10⁻³W/m² …2000 W/m².		
LP471UVA	Radiometric probe for **IRRADIANCE** measurement, in the 315nm…400nm, peak 360nm, **UVA** spectral range. Measurement range: 0.1·10⁻³W/m²…2000 W/m².		
LP471UVB	Radiometric probe for **IRRADIANCE** measurement, in the spectral range 280nm…315nm, peak 305nm, **UVB.** Measurement range: 0.1·10⁻³W/m²…2000 W/m².		
LP471UVC	Radiometric probe for **IRRADIANCE** measurement, in the spectral range 220nm…280nm, peak 260nm, **UVC**. Measurement range: 0.1·10⁻³W/m²…2000 W/m².		
LP471ERY	Radiometric probe for **EFFECTIVE TOTAL IRRADIANCE** (W_{eff} /m²) according to the UV action curve (CIE EN 60335-2-27). Spectral range: 250 nm…400 nm, Measurement range: 0.1·10⁻³W_{eff} /m² … 2000 W_{eff} /m²		
LP BL	Base with levelling device. On request for assembly with the probes at the time of order. (not for LUM probes)		

ACOUSTICS: MICROPHONES, PREAMPLIFIERS, ACCESSORIES			
Code	**Description**		
HD8701S	Spare probe for HD 8701		**HD8701** **HD9020** **HD2010** **HD2110**
HD9101S1	Class 1 microphone ½" type WS2F for free field measurements		
MK221	Class 1 microphone ½" type WS2F for free field measurements		
MK231	Class 1 microphone ½" type WS2D for diffuse field measurements		
MK223	Class 1 microphone with coated membrane for free-field measurements ½"type WS2F		
UC-52	Class 2 microphone for free-field measurements, ½" type WS2F		
HDSAV	Windshield for ½" microphones		
HDSAV2	Windshield with bird spikes for weatherproof microphone unit HDWME950, HDWME950N		
HDSAVP	Spare rain shield for weatherproof microphone unit HDWME950, HDWME950N		

ACOUSTICS: MICROPHONES, PREAMPLIFIERS, ACCESSORIES			
Code	**Description**		
CPA/3 **CPA/5** **CPA/10** **CPA/20** **CPA/50**	3m microphone extension cable 5m microphone extension cable 10m microphone extension cable 20m microphone extension cable 50m microphone extension cable		**HD8701** **HD9020** **HD2010** **HD2110**
HD2010PN	Microphone preamplifier with standard connector for ½". It's provided with CTC device for electrical calibration		
HD2010PNW	Microphone preamplifier for HDWME950 with standard connector for ½". Provided with heater and CTC device for electrical calibration		
HD2110P	Microphone preamplifier with standard connector for ½". It's provided with CTC device for electrical calibration and with a driver for extension cable up to 100m		
HD2110PW	Microphone preamplifier for HDWME950 with standard connector for ½". Provided with heater and CTC device for electrical calibration, and driver for extension cable up to 100m		
9CPRS23	Null-modem cable of RS232 interface for sound level meters HD 9019 and HD 9020 to connect to a PC (COM interface)		
HD2110/CSNM	Null-modem serial cable with standard D9B connector		
HD2110/CSM	Serial cable for modem with standard DB25 connector		
HD2110/CSP	Serial cable for printer with standard DB9 connector		
VTRAP	Tripod, max hight 1550mm		

SICRAM MODULES FOR MULTIFUNCTION DO9847		
Code	**Description**	
TP471	Temperature measurement with platinum temperature probes with resistance values PRT @ 0°C (Pt25Ω, 100Ω, or 500Ω) Measuring range Pt25, Pt100 -200…+850°C Measuring range Pt500 -200…+500°C	
TP471DO	Module for temperature measurement with thermocouple sensors, 1 input	
PP471D	Module for temperature measurement with thermocouple sensor, 1 input	
TP471D1	Module for for temperature measurement with thermocouple sensors, 2 inputs	
VP472	Module for the connection of pyranometers and albedometers. The signal produced by the thermopile of pyranometer can be read in mV or W/m^2, the net radiation of the albedometer is read in W/m^2 . The thermopile sensitivity can be set from 5 to 30μV/(Wm^{-2}).	
VP473	Module for reading and storing the continuous voltage. Measuring range : ±20Vdc , input impedance: 1MΩ.	
IP472	Module for reading and storing the continuous current. Measuring range: 0…24mA , input impedance: 25Ω.	
PP471	Module for reading pressure with the probes of **TP704 / TP705** series. The module is complete with 2 meter cable and 8 pole DIN 45326, female connector.	

Certificates





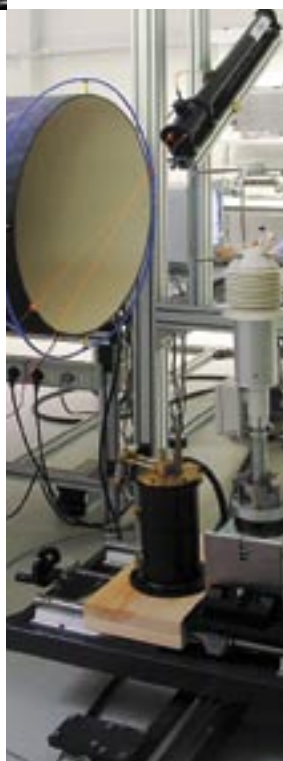




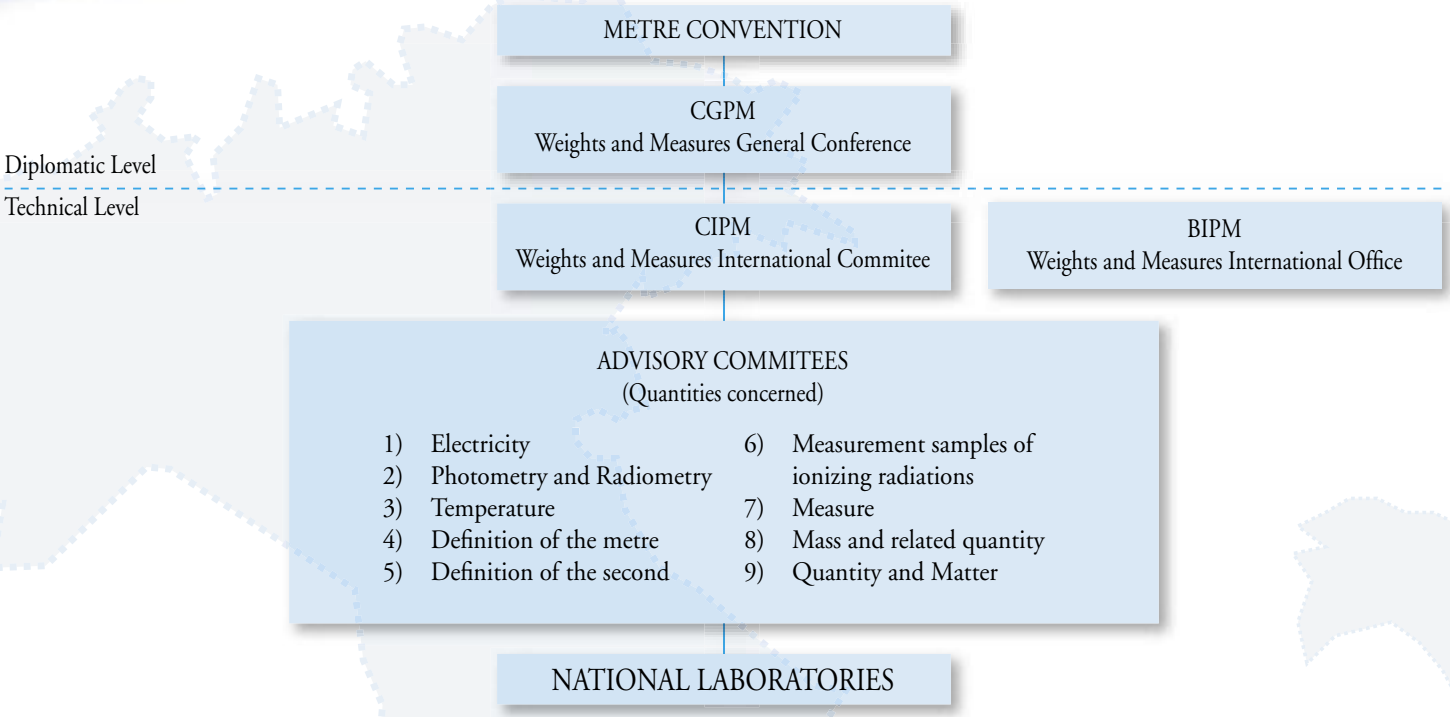
- Temperature.
- Humidity.
- Pressure.
- Acoustics.
- Photometry/Radiometry.
- Air Speed.



SIT Calibration Centre N° 124
First accreditation 1/12/1999



International Measuring System (SI)
XI Weight and Measures General Conference (CGPM) in 1960 and subsequent ones



National System of Calibration (SNT):

Primary Metrological Institutes
Calibration Centres
Ministry of Productive Activities (MAP)
Ministry of University, Scientific and Technological Reasearch (MIUR)

Primary Metrological Institutes:

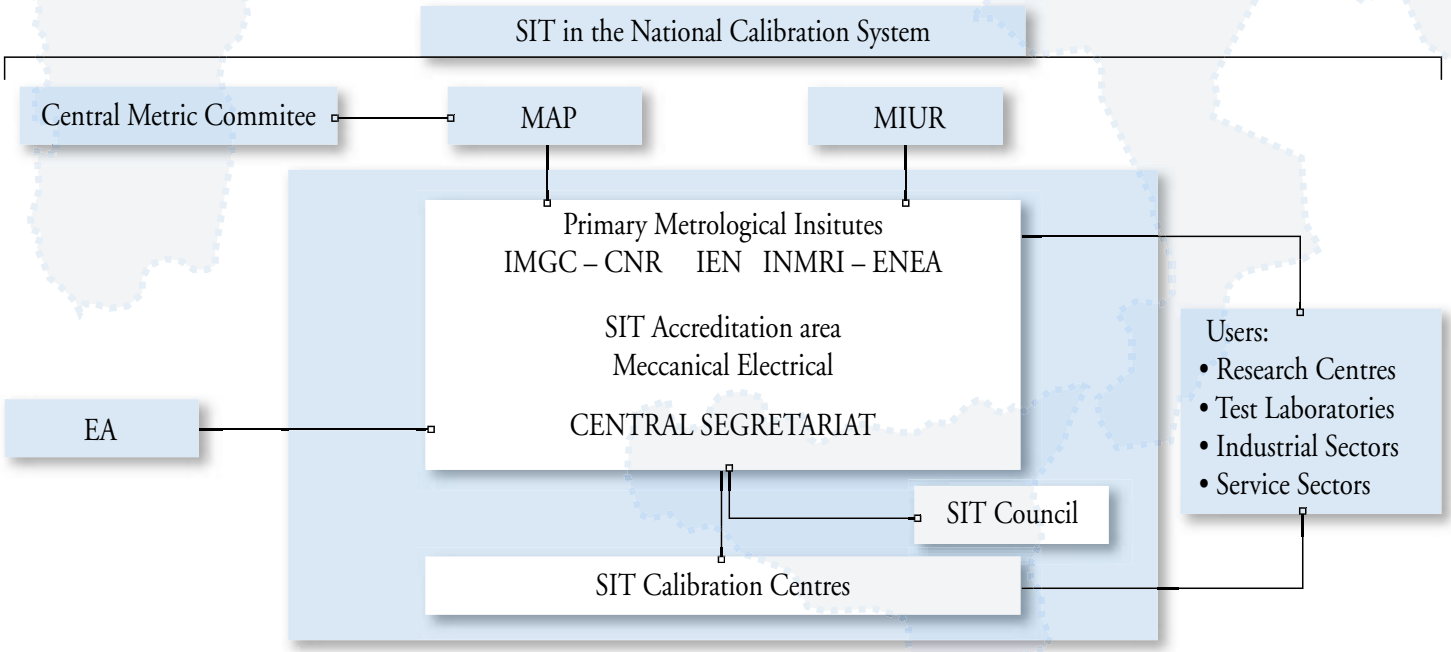
INRIM: National Institute for Metrological Research (Ex IMGC & IEN)
IEN: National Institute for Metrology and Ionizing Radiations
INMRI - ENEA
New Technologies, Energy and Environment Board

Calibration Centres SIT:

Calibration Service in Italy

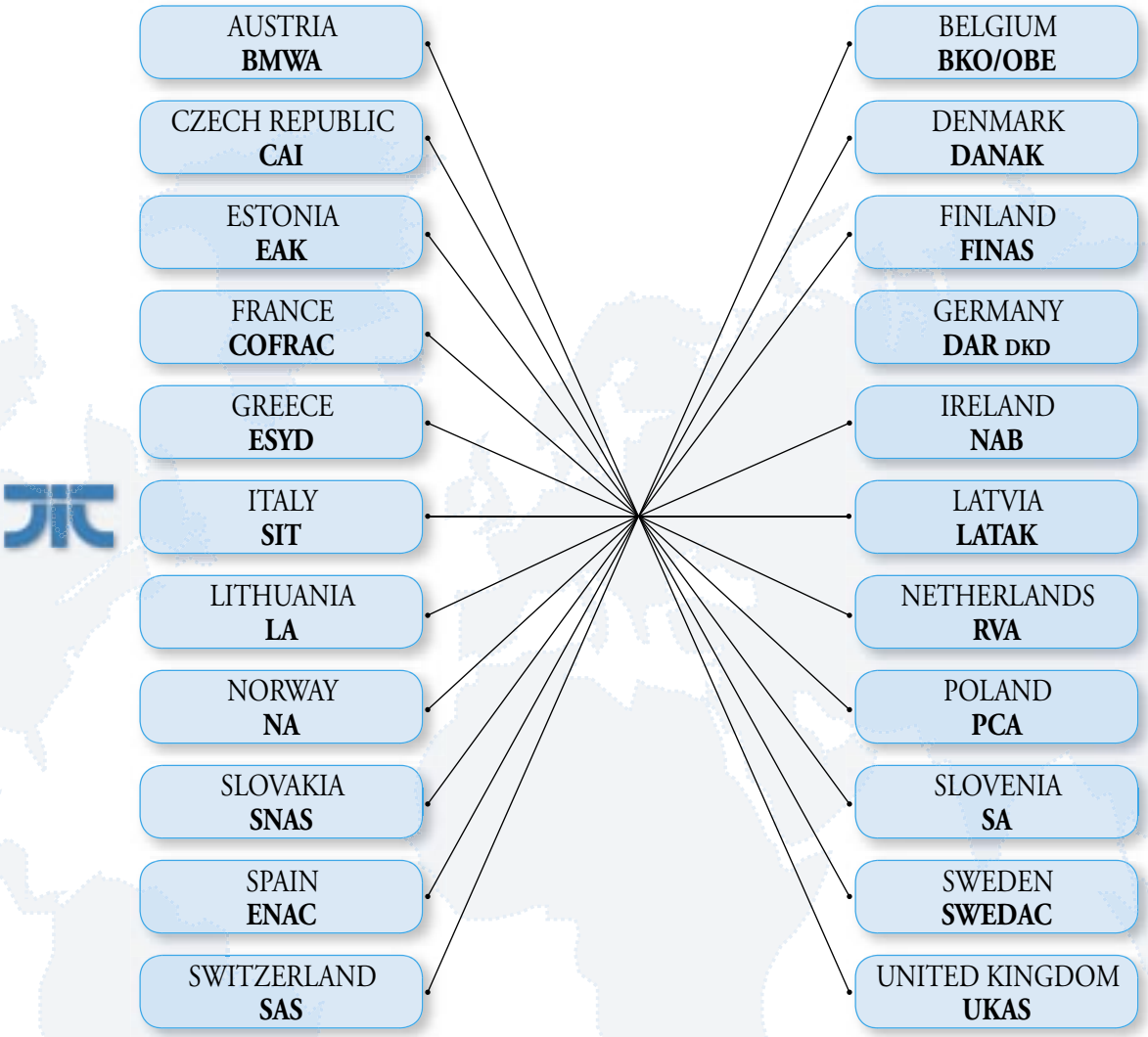
Legend

MAP	Ministry of Productive Activities
MIUR	Ministry of Instruction, University and Research
EA	European co-operation for accreditation
SNT	National Calibration System
INRIM	National Institute of Metrological Research
SIT	Calibration Service in Italy
INMRI-ENEA	National Institute for Metrology and Ionizing Radiations – New Technologies, Energy and Environment Board



International Agreements of SIT: MLA (Multilateral Agreement)
ILACMRA (Mutual Recognition Agreement)

Countries which have signed Multilateral Agreements for the Calibration laboratories (MLA)



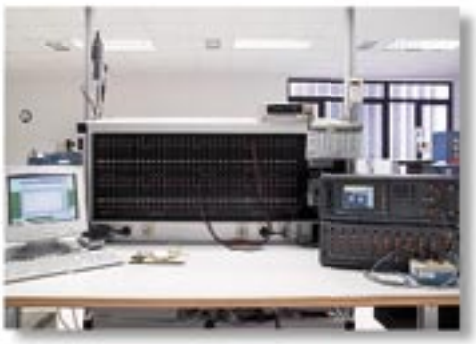
Countries which have signed Mutual Recognition Agreements MLA - ILAC MRA for Calibration Laboratories



SIT Laboratory for temperature measurements













ACCREDITATION TABLE FOR THE LABORATORY OF TEMPERATURE MEASUREMENTS

Quantity	Instruments calibrated	Measuring range	Uncertainty(*)	Note
Temperature	Noble metal thermocouples	-196 °C from –80°C to 250 °C from 250°C to 600 °C from 600°C to 1100 °C from 1100°C to 1250 °C	0,4 °C 0,3 °C 0,4 °C 1,0 °C 2,0 °C	
	Common metal thermocouples	-196 °C from –80°C to 250 °C from 250°C to 600 °C from 600°C to 1100 °C from 1100°C to 1250 °C	0,40 °C 0,40 °C 0,53 °C 1,1 °C 2,2 °C	
	Resistance thermometers	-196 °C from da -80°C to 0 °C from da 0°C to 100 °C from da 100°C to 250 °C from da 250°C to 600 °C	0,20 °C 0,15 °C 0,05 °C 0,10 °C 0,20 °C	
	Thermometric chains Temperature indicators and transmitters			
	- Noble metal thermocouples	-196 °C from –80°C to 250 °C from 250°C to 600 °C from 600°C to 1100 °C from 1100°C to 1250 °C	$2\sqrt{0,20^2+u_{ris}^2}$ °C $2\sqrt{0,15^2+u_{ris}^2}$ °C $2\sqrt{0,20^2+u_{ris}^2}$ °C $2\sqrt{0,50^2+u_{ris}^2}$ °C $2\sqrt{1,0^2+u_{ris}^2}$ °C	①
	Thermometric chains Temperature indicators and transmitters			
	- Common metal thermocouples	-196 °C from da –80°C to a 250 °C from 250°C to 600 °C from 600°C to 1100 °C from 1100°C to 1250 °C	$2\sqrt{0,20^2+u_{ris}^2}$ °C $2\sqrt{0,15^2+u_{ris}^2}$ °C $2\sqrt{0,26^2+u_{ris}^2}$ °C $2\sqrt{0,55^2+u_{ris}^2}$ °C $2\sqrt{1,1^2+u_{ris}^2}$ °C	①
	- Resistance thermometers	-196 °C from -80°C to 0 °C from 0°C to 100 °C from 100°C to 250 °C from 250°C to 600 °C	$2\sqrt{0,10^2+u_{ris}^2}$ °C $2\sqrt{0,075^2+u_{ris}^2}$ °C $2\sqrt{0,025^2+u_{ris}^2}$ °C $2\sqrt{0,050^2+u_{ris}^2}$ °C $2\sqrt{0,10^2+u_{ris}^2}$ °C	①
	Calibrators - Simulators	National and international standards for temperature sensors		
	- for resistance thermometers		$2\sqrt{0,025^2+u_{ris}^2}$ °C	①
	- for thermocouples		$2\sqrt{0,10^2+u_{ris}^2}$ °C	
Temperature External Calibrations	Temperature indicators	National and international standards for temperature sensors		
	- for resistance probes		$2\sqrt{0,5^2+u_{ris}^2}$ °C	① ②
	- for noble metal thermocouples		$2\sqrt{0,075^2+u_{ris}^2}$ °C	
	- for common metal probes		$2\sqrt{1,0^2+u_{ris}^2}$ °C	

(*) The uncertainties are expressed on a confidence level of about 95%.
① u_{ris} is the uncertainty value expressed in °C depending on the resolution of the instrument.
② fixed component of the compound uncertainty of type is indicated for ambient temperatures of 23 °C ± 5 °C.



SIT Laboratory for relative humidity measurements











ACCREDITATION TABLE FOR THE LABORATORY OF HUMIDITY MEASUREMENTS

Quantity	Instruments to be calibrated	Measuring range	Uncertainty (*)	Note
Relative Humidity	Electrical and mechanical hygrometers and thermohygrometers	from 10 to 92 % R.H. (with air temperature from 0°C to 60°C)	from 0,5 to 1,8 % R.H.	④
	Electrical psycrometers	from 10 to 92 % R.H (with air temperature from 0°C to 60°C)	from 0,5 to 1,8 % R.H.	④
	Saturated salt solutions	from 10 to 90 % R.H. (with air temperature from 20°C to 25°C)	1,4 % R.H.	
Dew Point Temperature	Condensing mirror hygrometers	-20°C ÷ 60°C	0,16°C	

(*)The uncertainties are expressed on a confidence level of about 95%.
④ Total extended uncertainty caused by propagation of the uncertainties of the reference quantities (t_{dew} and t_{air}).







SIT Laboratory for pressure measurements













ACCREDITATION TABLE FOR THE LABORATORY OF PRESSURE MEASUREMENTS

Quantity	Instruments to be calibrated	Measuring range	Uncertainty (*)	Note
Pressure	Secondary pressure transducers			
	- In liquid medium and gauge mode	from 0,075 MPa to 100 MPa	0,01 %	
	- In gaseous medium and gauge mode	from 1,4 kPa to 12 MPa	0,01 %	
	- In gaseous medium and absolute mode	from 1,4 kPa to 6,9 MPa	0,01 %	

(*)The uncertainties are expressed on a confidence level of about 95%.





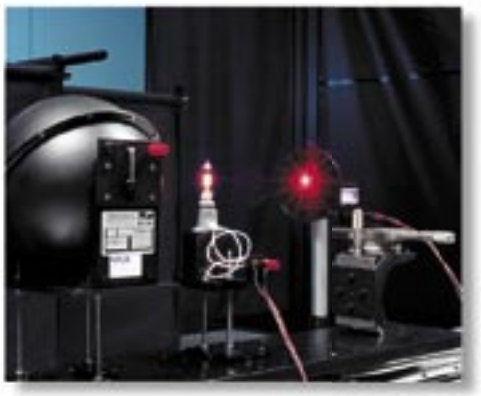


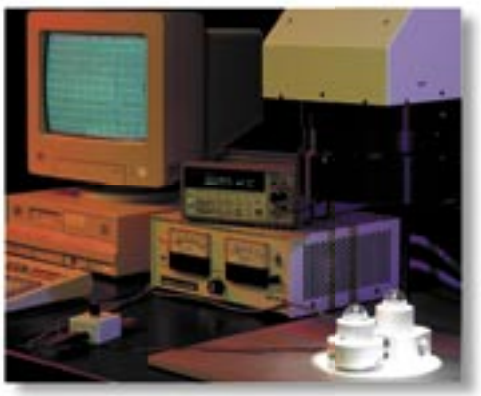


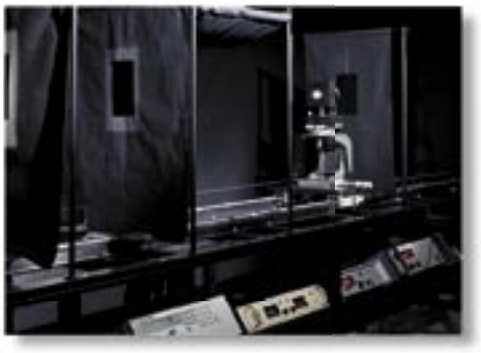
SIT Laboratory for photo-radiometry measurements













ACCREDITATION TABLE FOR THE LABORATORY OF PHOTO-RADIOMETRY MEASUREMENTS

Quantity	Instruments to be calibrated	Measuring range	Measiring conditions	Uncertainty (*)
Illuminance	Luxmeter	(2,5 ÷ 4000) lux		2 %
Luminous intensity	Incandescence lamp	(1 ÷ 3000) cd		2,7 %
Luminance	Luminance meter	(1 ÷ 10000) cd m^{-2}		3,2 %
Colour temperature	Incandescence lamp	(2200 ÷ 3300) K		50 K
Spectrale Radiance	Source	$(4 \cdot 10^{-5} \div 3 \cdot 10^{0})$ W·m^{-2}·sr^{-1}·nm^{-1}	(300 ÷ 400) nm (400 ÷ 800) nm	5 % 4,4 %
Spectrale Irradiance	Source	$(1 \cdot 10^{-5} \div 1 \cdot 10^{0})$ W·m^{-2}·nm^{-1}	(200 ÷ 250) nm (250 ÷ 300) nm (300 ÷ 350) nm (350 ÷ 400) nm (400 ÷ 700) nm (700 ÷ 800) nm	10% 7,0% 4,4% 3,8% 3,2% 3,6%
Irradiance 365 nm	UV-A Radiometer	1 ÷ 50 W·m^{-2}	355,5 ÷ 374,5 nm	5,0%
Irradiance 311 nm	UV-B Radiometer	1 W·m^{-2}		
Irradiance 254 nm	UV-C Radiometer	1 W·m^{-2}		
Spectral Sensitivity	Detectors	$(1 \cdot 10^{-2} \div 1 \cdot 10^{1})$ A·W^{-1} $(1 \cdot 10^{-3} \div 1 \cdot 10^{1})$ A·W^{-1} $(1 \cdot 10^{-4} \div 1 \cdot 10^{1})$ A·W^{-1} $(1 \cdot 10^{-4} \div 1 \cdot 10^{1})$ A·W^{-1} $(1 \cdot 10^{-4} \div 1 \cdot 10^{1})$ A·W^{-1} $(1 \cdot 10^{-4} \div 1 \cdot 10^{1})$ A·W^{-1} $(1 \cdot 10^{-4} \div 1 \cdot 10^{1})$ A·W^{-1}	(200 ÷ 240) nm (240 ÷ 375) nm (375 ÷ 920) nm (920 ÷ 1000) nm (1000 ÷ 1100) nm (1100 ÷ 1550) nm (1550 ÷ 1650) nm	6,6% 3,7% 1,9% 2,0% 2,2% 2,0% 2,6%

(*) The uncertainty is expressed on a confidence level of about 95%.







SIT Laboratory for acoustics











ACCREDITATION TABLE FOR THE LABORATORY OF ACOUSTICS

Quantity	Instruments to be calibrated	Measuring range	Measuring conditions	Uncertainty (*)	Note
Acoustics pressure level	Pistonphones	124 dB	250 Hz	0,10 dB	
	½"Calibrators	94 ÷ 114 dB	250,1000 Hz	0,11 dB	
	Multifrequency calibrators	94 ÷ 124 dB	31,5 ÷ 125 Hz 250 ÷ 500 Hz 2000 ÷ 4000 Hz 8000 Hz 12500 ÷ 16000 Hz	0,30 dB 0,25 dB 0,30 dB 0,27 dB 0,63 dB	
	Sound level meters	25 ÷ 140 dB	31,5 ÷ 16000 Hz	0,3 ÷ 1,9 dB	⑥
	Octave bands and octave fractional band filters		20 Hz < *fc* < 20000 Hz	0,1 ÷ 0,5 dB	⑦
Sensitivity of the acoustic pressure	1" Reference microphones	124 dB	250 Hz	0,10 dB	
	½" Reference microphones	124 dB	250 Hz	0,12 dB	⑥
	½" Microphones	94 dB	31,5 ÷ 12500 Hz	0,3 ÷ 0,9 dB	
	¼" Microphones	124 dB	250 Hz	0,16 dB	

(*) The uncertainty is expressed on a confidence level of about 95%.
⑥ The uncertainty depends on the frequency.
⑦ *fc* is the central frequency of the filter working band.

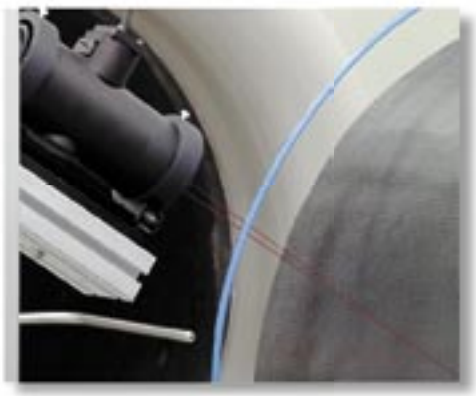


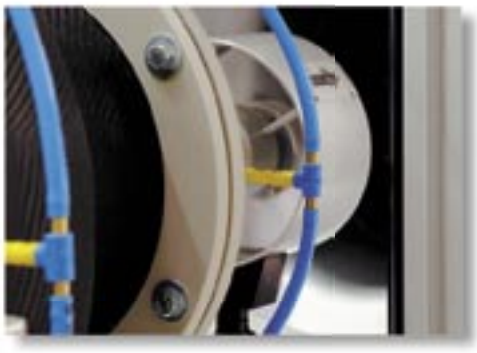
Laboratory for air speed measurements

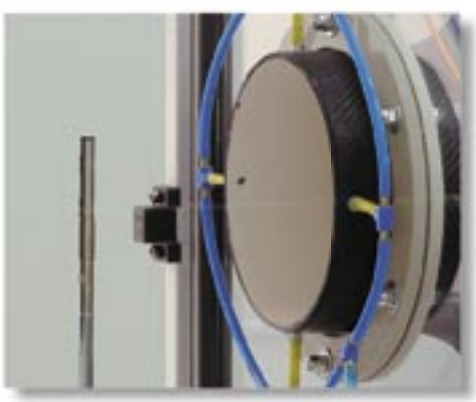












LABORATORY FOR AIR SPEED MEASUREMENTS
CALIBRATION REPORTS WITH PTB TRACEABILITY (Physikalisch –Technische Bundesanstalt)

Quantity	Instruments to be calibrated	Measuring Range	Uncertainty (*)	Note
Air speed	Hot wire anemometer Vane anemometer Propeller anemometer Cupel anemometer Pitot tube anemometer Utrasonic anemometer	0,2 ÷ 60 m/s	1.0% min.0.3m/s	Calibration by means of comparison with Laser Doppler Anemometer

(*) The uncertainty is expressed on a confidence level of about 95%







CE CONFORMITY	
Safety	EN61000-4-2, EN61010-1 Level 3
Electrostatic discharge	EN61000-4-2 Level 3
Electric fast transients	EN61000-4-4 livello 3, EN61000-4-5 Level 3
Voltage variations	EN61000-4-11
Electromagnetic interference sucseptibility	IEC1000-4-3
Electromagnetic interference emission	EN55020 class B

We improve continually our products and reserve us the right to modify them without prior notice.