



PORTABLE MULTIFUNCTION DATA-LOGGER INSTRUMENT DO 9847

DO9847 is a multifunctional handheld board instrument and datalogger. It is provided with a 128x64 pixel (56x38 mm) graphic display and three independent inputs. Each input can be connected to one channel or two channel dual probes (ex. two thermocouples, relative humidity/temperature, etc.). The instrument automatically acknowledges SICRAM probes connected to the input (memory equipped and configurable intelligent probe).

Functions: watch, hold, max., min., average, record, immediate or deferred start record logging, difference between the two inputs, relative measures, three input channel measurement and inside reference temperature display.

Sampling time: one per second/input.

Probe calibration through SICRAM module; calibration data permanent storage inside the probe.

Storage capacity: 32.000 readings per input.

Storage interval and printing can be configured between one second and 1 hour.

RS232C serial output: from 300 up to 115.200 baud rate.

Immediate or deferred print-out.

Stored data can be displayed and stored data blocks can be deleted.

Automatic shutout after 8 minutes can be disabled.

Units of measurement can be selected according to the physical quantity of the connected probe.

Firmware update through RS232C serial port. Different types of SICRAM modules or probes can be connected to the input: Platinum sensor temperature, thermocouple, relative humidity/temperature, Discomfort index, continuous voltage ($\pm 20V$), current (0...24mA), pressure, air speed and light.

Technical data of the instrument DO 9847

- Power supply:

Battery: 4 1.5V AA alkaline batteries; operating time with high quality batteries: about 60 hours.

Mains: through 9Vdc, 250mA external power supply, 2 pole connector.

- Operating conditions:

Working temperature: -10...+50°C. Storage temperature: -25...+65°C.

Relative Humidity: 0...90%R.H., not condensing.

- LCD display: 128x64 pixel (56x38 mm) graphic LCD.

- Keyboard: 18 multifunction Keys and 3 function keys.

- Recorded data safety: independently from batteries charging conditions.

- Measured values storage: on 16 files divided into 16-sample pages.

- Quantity: 32.000 samples per input channel.

- Storage interval: 1 s...1 h. Time and date, real time.

Accuracy: 1 minute/month maximum error margin.

- Serial interface:

RS232C type galvanically insulated SUB D 9 male connector.

Baud rate: 300...115.200 baud. Data bit: 8.

Parity: none. Stop bit: 1.

Flow control: Xon/Xoff. RS232C cable max.length: 15 m.

- immediate printing interval: 1 s...1 h.

- Firmware can be updated through PC using the instrument serial port.

- Probes connections: n° 3 DIN45326 8 pole connectors

- Dimensions and weight: 245x100x50 mm - 300 gr.

- Case: ABS - Protection: rubber.

DO 9847 - Characteristics of SICRAM modules

When the instrument is used together with the available SICRAM modules, its accuracy and resolution are stated in the section where these modules are described.

SICRAM modules for DO 9847

TP471	Temperature measure through PRT Platinum sensor
	PRT resistance values @ 0°C 25 Ω , 100 Ω , 500 Ω
	temperature range Pt25, Pt100 -200°C ... +850°C
	temperature range Pt500 -200°C ... +500°C
	Accuracy with Pt25, Pt100 sensor $\pm 0.03^\circ\text{C}$ up to 350°C
	$\pm 0.3^\circ\text{C}$ up to 850°C
	Accuracy with Pt500 sensor $\pm 0.5^\circ\text{C}$ up to 500°C
	Resolution 0.01°C from -200°C to 350°C
	0.1°C from 350°C to 800°C
	Temperature drift @20°C 0.002%/°C
	Excitation current 400 μA impulse, length=100ms, time=1s

TP471D0 - Temperature measure for thermocouple with cold joint (inside ice at 0°C)

TP471D - Temperature measure for 1 input thermocouple

TP471D1 - Temperature measure for 2 input thermocouple

VP472 module to connect pyranometers or albedometers. The measurements produced during the time by a pyranometer or an albedometer can be taken, verified and stored. The signal produced by the thermopile can be read in mV or in W/m^2 , the net radiation of the albedometer is read in W/m^2 . The thermopile sensitivity can be set from 5000 to 30000nV/(Wm^{-2}) that is between 5 and 30 $\mu\text{V}/(\text{Wm}^{-2})$.

VP473 module for reading the continuous voltage. When connected to the output of a transmitter with voltage signal it can read and take the relevant value. Measuring range: $\pm 20V\text{dc}$. Input impedance: 1M Ω .

IP472 module for mA reading of continuous current. When connected to the output of a transmitter with current signal, it can read and take the relevant value. Measuring range: 0...24mA. Input impedance: 25 Ω .

PP471 module for measuring absolute, relative and differential pressure. It can be connected with pressure probes **TP704** and **TP705** series. It measure the instantaneous value and peak value of pressure. The module is complete with 2m cable and DIN 45326 8 pole female connector.

Accuracy: $\pm 0.05\%$ of full scale	Peak time $\geq 5\text{ms}$
Peak accuracy: $\pm 0.5\%$ f.s.	Peak dead band $\leq 2\%$ f.s.

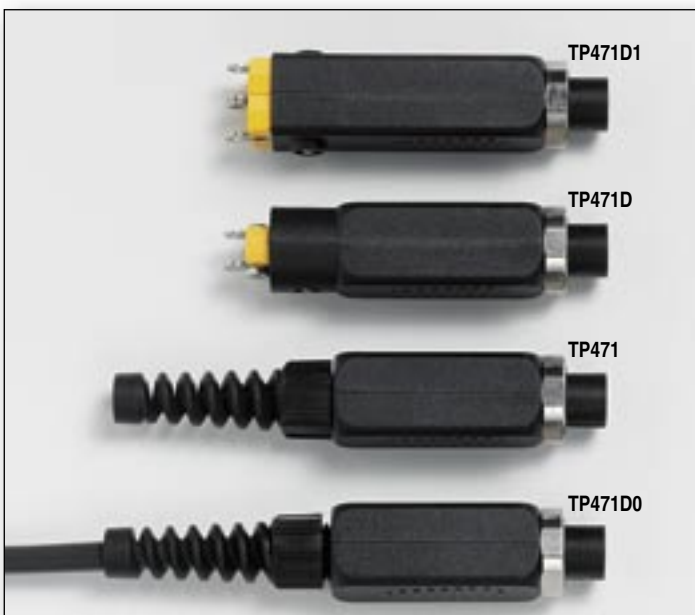
Probes complete with SICRAM module

Pt100 sensor temperature probes

TP472I wire Pt100 immersion probe. Tube \varnothing 3 mm, length 300 mm. 4 wire cable 2m long.
Working range: -196°C...+500°C.
Accuracy: $\pm 0.25^\circ\text{C}$ (-196°C...+350°C) / $\pm 0.4^\circ\text{C}$ (+350°C...+500°C)

TP473P wire Pt100 pointed probe. Tube \varnothing 4 mm, length 150 mm.. 4 wire cable 2m long
Working range: -100°C...+400°C.
Accuracy: $\pm 0.25^\circ\text{C}$ (-100°C...+350°C) / $\pm 0.4^\circ\text{C}$ (+350°C...+400°C)

TP474C Thin film Pt100 contact probe. Tube \varnothing 4 mm, length 230 mm, contact surface made of silver \varnothing 5 mm. 4 wire cable 2m long
Working range: -50°C...+400°C
Accuracy: $\pm 0.2^\circ\text{C}$ (-50°C...+350°C) / $\pm 0.4^\circ\text{C}$ (+350°C...+400°C)



Accuracy of the instrument with SICRAM module for TC

TC type	Measuring range	Accuracy	Resolution
K	-200°C... 1370°C	±0.1°C up to 600°C / ±0.2°C above 600°C	0.05°C from scale beginning to 350°C 0.1°C from 350°C to full scale.
J	-100°C... 750°C	±0.05°C up to 400°C / ±0.1°C above 400°C	
T	-200°C... 400°C	±0.1°C	
E	-200°C... 750°C	±0.05°C up to 300°C / ±0.08°C above 300°C	0.1°C all over the scale
N	-200°C ... 1300°C	±0.1°C up to 600°C / ±0.2°C above 600°C	
R	+200°C ... 1480°C	±0.25°C	
S	+200°C ... 1480°C	±0.3°C	
B	+200°C ... 1800°C	±0.35°C	

N.B.: The accuracy regards the instrument complete with module; the probe's error is not included.

Relative humidity and temperature combined probes

Typical characteristics of module of relative humidity and temperature probes

Relative Humidity

Sensor	Mk-33 capacitive
Typical capacity @30%RH	300pF±40pF
Probe temperature working range	-40°C...+150°C
Working range	0 ... 100%R.H.
Accuracy	±1%UR in the range 20...90%RH ±2%UR in the range 10...99%RH
Resolution	0.1%RH
Temperature drift @20°C	0.02%RH/°C
%RH response time at constant temperature	10sec (10→80%RH; air speed=2m/s)

Temperature

Temperature sensor	Pt100 (100Ω @ 0°C)
Working range	-50°C...+200°C.
Accuracy	±0.1°C
Resolution	0.1°C
Temperature drift @20°C	0.003%/°C
Temperature sensor (HP572AC) K thermocouple	
Working range	-50°C...+200°C.
Accuracy	±0.5°C
Resolution	0.05°C
Temperature drift @20°C	0.02%/°C

HP472AC RH% and temperature combined probe, dimensions Ø 26x170 mm. Connecting cable: 2m long. Working range: -20°C...+80°C, 5...98% RH.
RH% accuracy ±2% °C accuracy: ±0.30°C.

HP572AC RH% and K thermocouple temperature combined probe Dimensions Ø 26x170 mm. Connecting cable: 2m long. Working range: -20°C...+80°C, 5...98% RH.
UR% accuracy: ±2% °C accuracy in: ±0.5°C.

HP473AC RH% and temperature combined probe. Handle Ø 26x130 mm, Probe Ø 14x110 mm. Connecting cable: 2m long. Working range -20°C...80°C, 5...98% RH.
RH% accuracy: ±2% °C accuracy: ±0.30°C.

HP474AC RH% and temperature combined probe. Handle Ø 26x130 mm, probe Ø 14x210 mm. Connecting cable: 2m long. Working range: -40°C...+150°C, 5...98% RH.
RH% accuracy: ±2,5% °C accuracy:±0.30°C



HP475AC RH% and temperature combined probe. Handle Ø 26x110 mm. Stainless steel tube Ø12x560 mm. Terminal tip Ø 13,5x75 mm. Connecting cable: 2m long.
 Working range: -40°C...+150°C, 5...98% RH.
 RH% accuracy: ±2,5% °C accuracy: ±0.35°C

HP477DC %RH and temperature sword combined probe, handle Ø 26x110 mm. Tube 18x4 mm. Length: 520 mm. Connecting cable: 2m.
 Working range -40°C...+150°C, 5...98% RH.
 RH% accuracy: ±2,5% °C accuracy: ±0.35°C

Pressure Probes

PP472 Probe for measuring barometric pressure.
 Working range: 600 ... 1100mbar Resolution: 0.1mbar
 Accuracy @ 20°C: ±0.3mbar Temperature range: -10 ... +60°C

TP704-705 Probes to couple to the **SICRAM PP471** module to measure the absolute, relative or differential pressure.

PP473 S1...S8 Differential pressure probes

Working range S1=f.s.10mbar, S2=f.s.20mbar, S3=f.s.50mbar,
 S4=f.s.100mbar, S5=f.s.200mbar, S6=f.s.500mbar,
 S7=f.s.1bar, S8=f.s.2bar
 Maximum over-pressure S1,S2,S3=200mbar S4=300mbar S5,S6=1bar
 S7=3bar S8=6bar
 Accuracy @ 25°C ±0.5%f.s. (10, 20, ±0.25%f.s. (100mbar) ±0.12%f.s. (200, 500, 1000, 2000mbar)
 Temperature range -10 ... +60°C
 Fluid in contact with the membrane: non-corrosive and dry gas or air
 Connection tube Ø 5mm

Full Scale Pressure	Maximum overpressure	Differential Pressure	Relative Pressure (with respect to the atmospheric pressure)	ABSOLUTE Pressure	ACCURACY from 20 to 25°C	Working Temperature	Connection
		NON- isolated membrane	isolated membrane	isolated membrane			
10.0 mbar	20.0 mbar	TP705-10MBD			0.50% FS	0...60°C	Tube Ø5mm
20.0 mbar	40.0 mbar	TP705-20MBD			0.50% FS	0...60°C	Tube Ø5mm
50.0 mbar	100 mbar	TP705-50MBD			0.50% FS	0...60°C	Tube Ø5mm
100 mbar	200 mbar	TP705-100MBD			0.25% FS	0...60°C	Tube Ø5mm
200 mbar	400 mbar	TP705-200MBD			0.25% FS	0...60°C	Tube Ø5mm
			TP704-200MBGI		0.25% FS	0...80°C	¼ BSP
500 mbar	1000 mbar	TP705-500MBD			0.25% FS	0...60°C	Tube Ø5mm
			TP704-500MBGI		0.25% FS	0...80°C	¼ BSP
1.00 bar	2.00 bar	TP705-1BD			0.25% FS	0...60°C	Tube Ø5mm
			TP705-1BGI		0.25% FS	0...80°C	¼ BSP
2.00 bar	4.00 bar	TP705-2BD			0.25% FS	0...60°C	Tube Ø5mm
			TP704-2BGI	TP704-2BAI	0.40% FS	0...80°C	¼ BSP
5.00 bar	10.00 bar		TP704-5BGI	TP704-5BAI	0.40% FS	0...80°C	¼ BSP
10.0 bar	20.0 bar		TP704-10BGI	TP704-10BAI	0.40% FS	0...80°C	¼ BSP
20.0 bar	40.0 bar		TP704-20BGI	TP704-20BAI	0.40% FS	0...80°C	¼ BSP
50.0 bar	100.0 bar		TP704-50BGI	TP704-50BAI	0.40% FS	0...80°C	¼ BSP
100 bar	200 bar			TP704-100BAI	0.40% FS	0...80°C	¼ BSP
200 bar	400 bar			TP704-200BAI	0.40% FS	0...80°C	¼ BSP
500 bar	750 bar			TP704-500BAI	0.40% FS	0...80°C	¼ BSP



Probes for air speed measurements

Hot-wire probes: AP471 S1 - AP471 S2 - AP471 S3 - AP471 S4 - AP471 S5

	AP471 S1 - AP471 S3		AP471 S2		AP471 S4 AP471 S5	
Kind of measure	Air velocity, calculated flow, air temperature					
Working range	0...40m/s		0...5m/s			
Speed	-30...+110°C		-30...+110°C		0...+80°C	
Temperature						
Resolution	0.01 m/s (0...40 m/s)		0.01 m/s (0...5 m/s)			
Speed	0.1 km/h 1 ft/min 0.1 mph 0.1 knots		0.1 km/h 1 ft/min 0.1 mph 0.1 knots			
Temperature	0.1°C (-30...+110°C)		0.1°C (-30...+110°C)			
Accuracy	±0.05 m/s (0...0.99 m/s)		±0.02m/s (0...0.99 m/s)			
Speed	±0.2 m/s (1.00...9.99 m/s)		±0.1m/s (1.00...5.00 m/s)			
Temperature	±0.6 m/s (10.00...40.00 m/s)		±0.4°C (-30...+110°C)			
Minimum Speed	0 m/s					
Air temperature compensation	0...80°C					
Unit of Measurement	m/s – km/h – ft/min – mph – knots					
Speed	l/s – m³/s – m³/min – ft³/s – ft³/min					
Flow	100...100.000 cm² 0.01...10 m²					
Duct section for flow Calculation						
Cable length	~2m					

Vane probe: AP472 S1 - AP472 S2 - AP472 S4

	AP472 ...		AP472 S2		AP472 ...			
	S1L	S1H			S4L	S4LT	S4H	S4HT
Type of measurements	Air speed, calculated flow, air temperature		Air speed, calculated flow		Air speed, calculated flow	Air speed, calculated flow, air temperature	Air speed, calculated flow	Air speed, calculated flow, air temperature
Diameter	100 mm		60 mm		16 mm			
Type of measurement	Vane Tc K		Vane ---		Vane Tc K			
Measuring range	0.6...20 10...30		0.25...20		0.6...20		10...50	
Speed	-25...+80		-25...+80 (*)		-25...+80 (*)		-30...+120 (**)	
Temperature (*)								
Resolution	0.01 m/s - 0.1 km/h - 1 ft/min - 0.1 mph - 0.1 knots							
Speed	0.1°C							
Temperature								
Accuracy	±(0.1 m/s +1.5%f.s.)		±(0.1 m/s +1.5%f.s.)		±(0.2 m/s +1.0%f.s.)			
Speed	±0.5°C		---		±0.5°C			
Temperature								
Min. speed	0.6m/s 10m/s		0.25m/s		0.60m/s		10m/s	
Unit of measurement	m/s – km/h – ft/min – mph – knots							
Speed	l/s – m³/s – m³/min – ft³/s – ft³/min							
Flow	100...100000 cm² 0.01...10 m²							
Duct section for flow calculation								
Cable length	~2m							

(*) The indicated value refers to the vane working range.

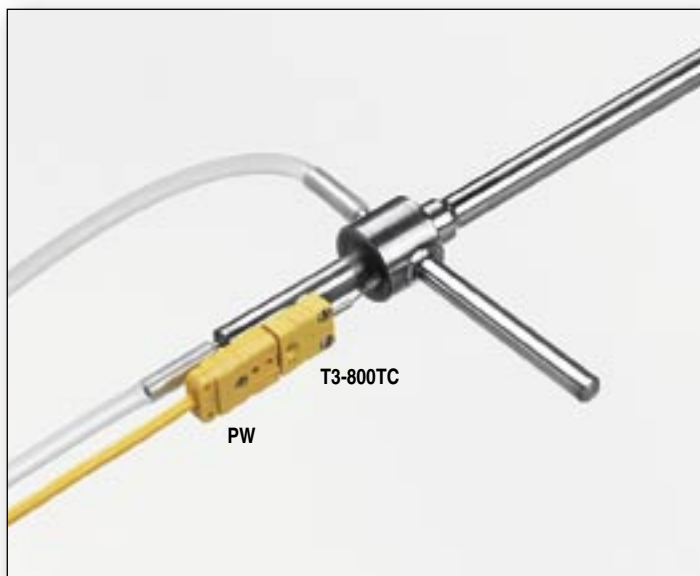
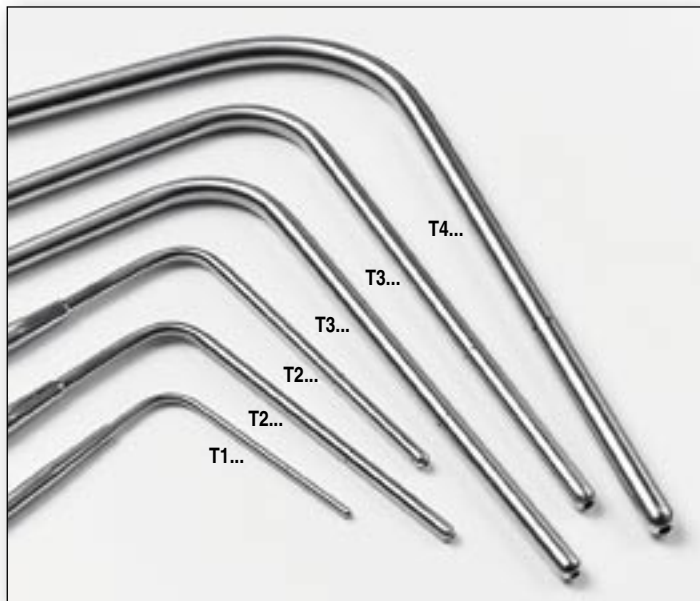
(**) The temperature range refers to the probe head where the vane and the temperature sensor are located and not the handle, the cable and the telescopic shaft which can withstand up to a temperature of 80°C.



**Pitot tube air speed probes:
AP473 S1 - AP473 S2 - AP473 S3 - AP473 S4**

	AP473 S1	AP473 S2	AP473 S3	AP473 S4
Type of measure	Air speed, calculated flow, differential pressure, air temperature			
Measuring range				
Diff. Pressure	10 mbar f.s.	20mbar f.s.	50mbar f.s.	100mbar f.s.
Speed (*)	2 ... 40m/s	2 ... 55m/s	2 ... 90m/s	2 ... 130m/s
Temperature	-200...+600°C	-200...+600°C	-200...+600°C	-200...+600°C
Resolution				
Speed	0.1 m/s - 1 km/h - 1 ft/min - 1 mph - 1 knots			
Temperature	0.1°C			
Accuracy				
Speed	±0.4%f.s. of pressure		±0.25%f.s. of pressure	
Temperature	±0.1°C		±0.1°C	
Minimum speed	2 m/s			
Compensation of air temperature	-200...+600°C (if 'K' thermocouple is connected to the module)			
Unit of measure				
Speed	m/s - km/h - ft/min - mph - knots			
Flow	l/s - m³/s - m³/min - ft³/s - ft³/min			
Section of the pipe for flow calculation	100...100000 cm² 0.01...10 m²			

(*) At 20°C, 1013mbar and Ps negligible.



Photometric / Radiometric Probes

LP 471 PHOT Probe for measuring the ILLUMINANCE

Measuring range (lux):	0.01...199.99	...1999	...19.99×10³	...199.9×10³
Resolution (lux):	0.01	1	0.01×10³	0.1×10³
Spectral range:	according to the photopic standard curve V(λ)			
Calibration uncertainty:	<4% Class C (CIE n°69 - UNI 11142)			
Working temperature:	0...50°C			

LP 471 LUM 2 Probe for measuring the LUMINANCE

Measuring range (cd/m²):	1...1999	...19.99×10³	...199.9×10³	...1.999×10⁶
Resolution (cd/m²):	0.1/1	0.01×10³	0.1×10³	0.001×10⁶
Field of view:	2°			
Spectral range:	according to the photopic standard curve V(λ)			
Calibration uncertainty:	<5% Class C (CIE n°69 - UNI 11142)			
Working temperature:	0...50°C			



LP 471 RAD Probe for measuring the IRRADIANCE

Measuring range (W/m ²):	0.1×10 ⁻³ ...1.999	...19.99	...199.9	...1999
Resolution (W/m ²):	0.1×10 ⁻³ / 0.001	0.01	0.1	1
Spectral range:	400nm...1050nm			
Calibration uncertainty:	<5%			
Working range:	0...50°C			

LP 471 PAR Quantum-radiometric probe for measuring the photons flow in the PAR chlorophyll field

Measuring range (μmol/m ² s):	0.01... 19.99	...199.9	...1999	...9.99×10 ³
Resolution (μmol/m ² s):	0.01	0.1	1	0.01×10 ³
Spectral range:	400nm...700nm			
Calibration uncertainty:	<5%			
Working range:	0...50°C			

LP 471 UVA Probe for measuring the IRRADIANCE

Measuring range (W/m ²):	0.1×10 ⁻³ ...1.999	...19.99	...199.9	...1999
Resolution (W/m ²):	0.1×10 ⁻³ / 0.001	0.01	0.1	1
Spectral range:	315nm...400nm (Peak 360nm)			
Calibration uncertainty:	<5%			
Working range:	0...50°C			

LP 471 UVB Probe for measuring the IRRADIANCE

Measuring range (W/m ²):	0.1×10 ⁻³ ...1.999	...19.99	...199.9	...1999
Resolution (W/m ²):	0.1×10 ⁻³ / 0.001	0.01	0.1	1
Spectral range:	280nm...315nm (Peak 305nm)			
Calibration uncertainty:	<5%			
Working range:	0...50°C			

LP 471 UVC Probe for measuring the IRRADIANCE

Measuring range (W/m ²):	0.1×10 ⁻³ ...1.999	...19.99	...199.9	...1999
Resolution (W/m ²):	0.1×10 ⁻³ / 0.001	0.01	0.1	1
Spectral range:	220nm...280nm (Peak 260nm)			
Calibration uncertainty:	<5%			
Working range:	0...50°C			

Ordering codes

DO 9847K: The kit is provided with multifunctional instrument, 9CPRS232 serial output cable, 4 1.5V alkaline batteries, instruction manual and carrying case.

Modules and probes have to be ordered separately .

9CPRS232: Female/female sub D 9 pole extension cable for RS232C (null modem).

DeltaLog3: Software for downloading and PC data management.

SICRAM modules for DO9847

TP471: Module for PRT sensors, 4 wire input, the user can connect Pt 25, 100, 500Platinum sensor temperature probe. The probe Callendar - Van Dusen parameters can be stored and the probe can be calibrated.

TP471D0: Module for thermocouple sensors, 1 input, without compensation of cold joint, 2 wire copper made output cable, length 1.5m for connection with thermocouple, cold joint at 0°C inside ice. **Thermocouples type K-J-E-T-N-R-S-B can be connected.**

TP471D: Module for thermocouple with 1 MINIATURE connector. **Thermocouples type K-J-E-T-N-R-S-B can be connected.**

TP471D1: Module for thermocouple with 2 MINIATURE connector. **Two thermocouples type K-J-E-T-N-R-S-B can be connected**, same kind of thermocouple, even if different shape. **'K' probes available in the price-list can be connected to TP471D0, TP471D and TP471D1 SICRAM modules.**

VP472: Module for connecting pyranometers or albedometers

VP473: Module for reading continuous voltage ±20Vdc. Input impedance: 1MΩ.

IP472: Module for reading continuous current 0...24mA. Input impedance: 25Ω.

PP471: Module for measuring pressure. All the **TP704** and **TP705** series probes can be connected.

Probes equipped with SICRAM modules**TEMPERATURE PROBES**

TP472I: Immersion probe, Pt100 sensor. Tube Ø 3 mm, length 300 mm. 4 wire cable, length 2 m.

TP473P: Penetration probe, Pt100 wire sensor. Tube Ø4 mm, length 150 mm. 4 wire cable, length 2 m.

TP474C: Contact probe, Pt100 thin film sensor. Tube Ø4 mm, length 230 mm, contact surface Ø 5 mm. 4 wire cable, length 2 m.

All temperature probes fitted, with SICRAM module at the series TP47... may be connected.

RELATIVE HUMIDITY AND TEMPERATURE PROBES

HP472AC: Combined relative humidity and temperature probe, dimensions Ø 26x170 mm. 2m connecting cable.

HP572AC: Combined relative humidity and temperature probe, K thermocouple sensor. Dimensions Ø 26x170 mm. 2 m connecting cable.

HP473AC: Combined relative humidity and temperature probe. Handgrip size Ø 26x130 mm, probe Ø 14x110 mm. 2 m connecting cable.

HP474AC: Combined relative humidity and temperature probe. Handgrip size Ø 26x130 mm, probe Ø 14x210 mm. 2 m connecting cable.

HP475AC: Combined relative humidity and temperature probe. 2 m connecting cable. Handgrip size Ø 26x110 mm. Stainless steel tube Ø 12x560 mm. Terminal tip Ø 13.5x75 mm.

HP477DC: Combined relative humidity and temperature sword probe. 2 m connecting cable. Handgrip size Ø 26x110 mm. Tube 18x4 mm, length 520 mm.



LP471LUM2
LP471PHOT
LP471RAD
LP471PAR
LP471UVA
LP471UVB
LP471UVC



PRESSURE PROBES

PP472: Barometric probe, measuring range 600...1100mbar.

TP704.../TP705....: Probes to connect to **SICRAM module PP471** for measuring relative, absolute or differential pressure.

		ORDER CODE			
Full scale pressure	Maximum over-pressure	Differential Pressure	Relative pressure (with respect to the atmospheric pressure)		Connection
			NON-isolated membrane	Isolated membrane	
10.0 mbar	20.0 mbar	TP705-10MBD			Tube Ø5mm
20.0 mbar	40.0 mbar	TP705-20MBD			Tube Ø5mm
50.0 mbar	100 mbar	TP705-50MBD			Tube Ø5mm
100 mbar	200 mbar	TP705-100MBD			Tube Ø5mm
200 mbar	400 mbar	TP705-200MBD			Tube Ø5mm
			TP704-200MBGI		¼ BSP
500 mbar	1000 mbar	TP705-500MBD			Tube Ø5mm
			TP704-500MBGI		¼ BSP
1.00 bar	2.00 bar	TP705-1BD			Tube Ø5mm
			TP705-1BGI		¼ BSP
2.00 bar	4.00 bar	TP705-2BD			Tube Ø5mm
			TP704-2BGI	TP704-2BAI	¼ BSP
5.00 bar	10.00 bar		TP704-5BGI	TP704-5BAI	¼ BSP
10.0 bar	20.0 bar		TP704-10BGI	TP704-10BAI	¼ BSP
20.0 bar	40.0 bar		TP704-20BGI	TP704-20BAI	¼ BSP
50.0 bar	100.0 bar		TP704-50BGI	TP704-50BAI	¼ BSP
100 bar	200 bar			TP704-100BAI	¼ BSP
200 bar	400 bar			TP704-200BAI	¼ BSP
500 bar	750 bar			TP704-500BAI	¼ BSP

PP473 S1: Differential pressure probe. Full scale 10mbar

PP473 S2: Differential pressure probe. Full scale 20mbar

PP473 S3: Differential pressure probe. Full scale 50mbar

PP473 S4: Differential pressure probe. Full scale 100mbar

PP473 S5: Differential pressure probe. Full scale 200mbar

PP473 S6: Differential pressure probe. Full scale 500mbar

PP473 S7: Differential pressure probe. Full scale 1bar

PP473 S8: Differential pressure probe. Full scale 2bar

PROBES FOR AIR SPEED MEASUREMENT HOT-WIRE PROBES

AP471 S1: Hot-wire telescopic probe, measuring range: 0...40m/s. Cable length 2 metres.

AP471 S2: Omnidirectional hot-wire probe, measuring range: 0...5m/s. Cable length 2 metres.

AP471 S3: Hot-wire telescopic probe with terminal tip for easy position, measuring range: 0...40m/s. Cable length 2 metres.

AP471 S4: Omnidirectional hot-wire telescopic probe with base, measuring range: 0...5m/s. Cable length 2 metres.

AP471 S5: Omnidirectional hot-wire telescopic probe, measuring range: 0...5m/s. Cable length 2 metres.

VANE PROBES:

AP472 S1L: Vane probe with thermocouple, Ø 100mm. Speed from 0.6 to 20m/s; temperature from -25 to 80°C. Cable length 2 metres.

AP472 S1H: Vane probe with thermocouple, Ø 100mm speed from 10 to 30m/s; temperature from -25 to 80°C. Cable length 2 metres.

AP472 S2: Vane probe, Ø 60mm. Measurement range: 0.25...20m/s. Cable length 2 metres.

AP472 S4L: Vane probe, Ø 16mm. speed from 0.6 to 20m/s. Cable length 2 metres.

AP472 S4LT: Vane probe with thermocouple, Ø 16mm, speed from 0.6 to 20m/s. Temperature from -30 to 120°C with thermocouple K sensor⁽¹⁾. Cable length 2 metres.

AP472 S4H: Vane probe, Ø 16mm speed from 10 to 50m/s. Cable length 2 metres.

AP472 S4HT: Vane probe with thermocouple, Ø 16mm speed from 10 to 50m/s. Temperature from -30 to 120°C with thermocouple K sensor⁽¹⁾. Cable length 2 metres.

PITOT TUBE PROBES

AP473 S1: Pitot tube probe, 10mbar f.s. differential pressure. Air speed from 2 to 40m/s. The Pitot tubes have to be ordered separately.

AP473 S2: Pitot tube probe, 20mbar f.s. differential pressure. Air speed from 2 to 55m/s. The Pitot tubes have to be ordered separately.

AP473 S3: Pitot tube probe, 50mbar f.s. differential pressure. Air speed from 2 to 90m/s. The Pitot tubes have to be ordered separately.

AP473 S4: Pitot tube probe, 100mbar f.s. differential pressure. Air speed from 22 to 130m/s. The Pitot tubes have to be ordered separately.

PROBES FOR PHOTOMETRIC/RADIOMETRIC MEASUREMENTS

LP 471 PHOT: Probe for measuring **ILLUMINANCE**. Measuring range: from 0.01 lux to 200.000 lux.

LP 471 LUM 2: Probe for measuring **LUMINANCE**. Measuring range: from 0.1 cd/m² to 1.999×10⁶ cd/m².

LP 471 RAD: Probe for measuring **IRRADIANCE**. Measuring range: from 0.1×10⁻³ W/m² to 1999 W/m².

LP 471 PAR: Quantum-radiometric probe for measuring **chlorophyll photons flow**. Measuring range: from 0.01 μmol/m²s to 9.99×10³ μmol/m²s

LP 471 UVA: Probe for measuring **IRRADIANCE** in the **UVA** spectral range 315 nm...400 nm, peak at 360 nm. Measuring range: from 0.1×10⁻³ W/m² to 1999 W/m².

LP 471 UVB: Probe for measuring **IRRADIANCE** in the **UVB** spectral range 280 nm...315 nm, peak at 305 nm. Measuring range: from 0.1×10⁻³ W/m² to 1999 W/m².

LP 471 UVC: Probe for measuring **IRRADIANCE** in the **UVC** spectral range 220 nm...280 nm, peak at 260 nm. Measuring range: from 0.1×10⁻³ W/m² to 1999 W/m².

LP BL: Base for supporting and levelling of the probes.

