



CRN TECNOPART, S.A.

Sant Roc 30
08340 VILASSAR DE MAR (Barcelona)
Tel 902 404 748 - 937 591 484 Fax 937 591 547
e-mail: crn@crntp.com [http:// www.crntp.com](http://www.crntp.com)



DO 2003 HVACR DATALOGGER AIR SPEED AND FLOW RATE - TEMPERATURE TEMPERATURE/RELATIVE HUMIDITY - PRESSURE



DO2003 is a portable instrument, datalogger specially designed to be used in the fields of air-conditioning, heating, ventilation, environmental comfort, energy saving both for industrial and residential application by means of a complete probes series. It measures:

- Air speed and flow rate inside pipeline with hot-wire probes, vane probes or Pitot tube probes
- relative humidity and temperature with combined probes
- differential pressure up to 2000 mbar and barometric pressure
- temperature with immersion, pointed or contact probes.

This datalogger stores up to 12.000 readings which can be downloaded to a PC connected to the instrument through RS232C serial port. Storage interval, printing, baud rate can be configured on the menu.

"Record" (RCD) function calculates maximum, average and minimum values. A big size dual display and a led series make the reading of data easy.

The instrument is provided also with these further functions: relative measurement, Hold function, zero correction for differential pressure probes and hot-wire probes.

CHARACTERISTICS OF THE INSTRUMENT

Display: 3 1/2 digit, dual LCD, figure height 12,5 mm. Unit of measure and other additional information are supplied with a led series.

No. 2 inputs: **input A** for air speed and pressure probes,
input B only for combined temperature/humidity probes.

Storage capacity: 12.000 readings.

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

Safety of stored data and battery charge situation unrelated.

Automatic switch-off after 8 minutes can be disabled.

Operating conditions:

Working temperature: -5°C..50°C.

Relative humidity 0-90% RH. not condensing.

Storage temperature: -20°C..+60°C.

Power supply: four 1.5V alkaline AA batteries, operating time with alkaline batteries 100 hours approx.

Probes input: 2 circular 8 pole DIN 45326 male connectors.

9 pole SUB D male RS232C serial output.

Baud rate from 300 to 38400 baud.

housing: ABS.

Dimensions and weight: 72x210x40 mm - 320gr.



ORDER CODES

DO 2003: The kit is provided with instrument, 9CPRS232 serial output cable, 4 1.5V alkaline batteries, instructions manual, carrying case and software DeltaLog3.

Probes have to be ordered separately.

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

DeltaLog3: (vers.4.0 and following ones) Software for downloading and PC data management

Probes The following pages detail the various models of sensors, capable of being connected to this instrument

PROBES FOR DO2003 EQUIPPED WITH SICRAM MODULE

RELATIVE HUMIDITY AND TEMPERATURE PROBES



Relative humidity and temperature probes

Relative humidity

Sensor	Mk-33 Capacitive
Typical capacity @ 30% HR	300pF $\pm$ 4 pF
Temperature working range	-40...150 °C
Working range	0...100%HR
Accuracy	$\pm$ 1% HR in the range 20...90 % HR $\pm$ 2% HR in the range 10...99 % HR
Resolution	0,1 % HR
Temperature drift @ 20 °C	0,02 % HR/°C
%RH response time at constant temperature	10sec (10→80%RH; air speed=2m/s)

Temperature

Temperature sensor	Pt 100 (100 Ω @ 0 °C)
Working range	-50...200 °C
Accuracy	$\pm$ 0,03 °C
Resolution	0,01 °C
Temperature drift @ 20 °C	0,003 %/°C

Temperature sensor (HP572AC)	K Thermocouple
Working range	-50...200 °C
Accuracy	$\pm$ 0,03 °C
Resolution	0,05 °C
Temperature drift @ 20 °C	0,02 %/°C

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

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

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

HP474AC %RH and temperature combined probe. Handle $\varnothing$ 26x130 mm,
probe $\varnothing$ 14x210 mm. Connecting cable: 2 m long .
Working range: -40°C...+150°C, 5...98% RH.
%RH accuracy: $\pm$ 2.5% °C accuracy: $\pm$ 0.30°C

HP475AC %RH and temperature combined probe. Handle $\varnothing$ 26x110 mm.
Steel probe $\varnothing$ 12x560 mm. Terminal tip $\varnothing$ 13,5x75 mm.
Connecting cable: 2 m long.
Working range -40°C...+150°C, 5...98% RH.
%RH accuracy: $\pm$ 2.5% °C accuracy: $\pm$ 0.35°C

HP477DC %RH and temperature sword combined probe, handle $\varnothing$ 26x110 mm
Probe 18x4 mm, length: 520 mm. Connecting cable: 2 m long.
Working range -40°C...+150°C, 5...98% RH.
%RH accuracy: $\pm$ 2.5% °C accuracy: $\pm$ 0.35°C



TEMPERATURE PROBES

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

TP473P: Pointed probe, Pt100 wire sensor. Tube $\varnothing$ 4 mm, length 150 mm.
4 wire cable, length 2 m.

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

All temperature probes fitted with SICRAM module of the series TP47... may be connected to the instrument

PRESSURE PROBES



PP472 Probe for measuring barometric pressure.
Working range: 600 ... 1100mbar
Resolution: 1mbar
Accuracy @ 20°C: ±1mbar
Temperature range: -10 ... +60°C

PP473 S1...S8 Differential pressure probes

Working range	S1	F.S. 10 mbar
	S2	F.S. 20 mbar
	S3	F.S. 50 mbar
	S4	F.S. 100 mbar
	S5	F.S. 200 mbar
	S6	F.S. 500 mbar
	S7	F.S. 1 bar
	S8	F.S. 2 bar
Maximum overpressure	S1, S2, S3	= 200 mbar
	S4	= 300 mbar
	S5, S6	= 1 bar
	S7	= 3 bar
	S8	= 6 bar
Accuracy @ 25 °C	S1, S2, S3	± 0,5 F.S.
	S4	± 0,25% F.S.
	S5, S6, S7, S8	± 0,12 % F.S.
Temperature range	-10...60 °C	
Fluid in contact with the membrane	non-corrosive dry gas or air	
Connection	tube Ø 5mm	

PROBES FOR AIR SPEED MEASUREMENTS

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



	AP471 S1 – AP471 – S3	AP471 S2
Type of measure	Air speed, calculated flow rate, air temperature	
Measurement range		
Speed	0... 40 m/s	0...5 m/s
Temperature	-30...110 °C	-30...110 °C
Resolution		
Speed	0.01m/s (0...19.99) - 0.1m/s above 0.1 km/h 1 ft/min (0...1999) - 10ft/min above 0.1 mph	0,01 m/s (0...5 m/s) 0,1 km/h 1 f/min 0,1 mph
Temperature	0,1 °C (-30...110 °C)	0,1 °C (-30...110 °C)
Accuracy		
Speed	±0,05 m/s (0...0,99 m/s) ±0,2 m/s (1,00...9,99 m/s) ±0,6 m/s (0,00..40,00 m/s)	±0,02 m/s (0...0,99 m/s) ±,1 m/s (1,00..5,00 m/s)
Temperature	±0,4 °C (-30...110 °C)	±0,4 °C (-30...110 °C)
Minimum speed	0 m/s	
Air temperature compensation	0...80 °C	
Unit of measurement		
Speed	ms – km/h – ft/min – mph – knots	
Flow rate	l/s – m³/s - m³/min – ft³/s – ft³/min	
Pipeline section for flow rate calculation	0,001...1,999 m	
Cable length	~ 2 m	

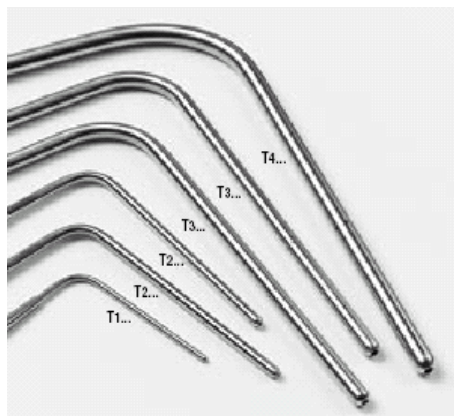
Vane probe : AP472 S1 – AP472 S2 – AP472 S4



	AP472 S1	AP472 S2	AP472 S4
Diámetro	100 mm	60 mm	16 mm
Type of measure	Air speed, calculated flow rate air temperature	Air speed, calculated flow rate	Air speed, calculated flow rate air temperature
Speed	Vane	Vane	Vane
Temperature	K Thermocouple	---	K Thermocouple
Measurement range			
Speed	0,4...30 m/s	0,25...20 m/s	0,4...60 m/s
Temperature	-25 ... 80 °C (*)	-25... 80 °C (*)	-30...140 °C (*)
Resolution	0,01 m/s (ad 19,99 m/s) – 0,1 m/s (from 20,0 m/s) 0,1 km/h 1ft/min (ad 1999 ft/min) - 10ft/min (from 2,00x10 ³ ft/min) 0,1 mph		
Speed			
Temperature	0,1 °C	---	0,1 °C
Accuracy			
Speed	±(0,1m/s+1,5% F.S.)	±(0,1m/s+1,5%F.S.)	±(0, m/s+1,0% F.S.)
Temperature	± 0,1 °C (-25...80 °C)	---	±0,1 °C(-30...140 °C)
Minimum speed	0,40 m/s	0,25 m/s	0,40 m/s
Unit of measurement	m/s – km/h – ft/min – mph l/s – m ³ /h – cfm		
Speed			
Flow rate			
Pipeline section for flow rate calculation	0,001...1,999 m		

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

Pitot tube probes: AP473 S1 - AP473 S2 - AP473 S3 - AP473 S4



	AP473 S1	AP473 S2	AP473 S3	AP 473 S4
Type of measure	Air speed, calculated flow, differential pressure, Air temperature			
Measurement range				
Diff. pressure	10 mbar F.S.	20 mbar FS.	50 mbar F.S.	100 mbar F.S.
Speed (*)	1...40 m/s	1...55 m/s	1...90 m/s	1...130 m/s
Temperature	-200...600 °C	-200...600 °C	-200...600 °C	-200...600 °C
Resolution				
Speed	0,01 to 19,99 - 0,1 from 20,0 0,1 to 199,9 - 1 from 200 1 to 1999 - 10 to 2,00x10 ³ - 100 from 20,0x10 ³ 0,1 0,1 °C			
m/s				
km/h				
ft/min				
mph				
Temperature				
Accuracy				
Speed	±0, 4% F.S. of pressure		±0,25 % F.S. of pressure	
Temperature	±0,1 °C		±0,1 °C	
Minimum speed	1 m/s			
Air temperature compensation	-200...600 °C (if K thermocouple is connected to the module)			
Unit of measurement				
Speed	m/s – km/h – ft/min – mph			
Flow rate	l/s – m ³ /h - cfm			
Pipeline section for flow rate calculation	0,001...1,999 m			