Member of GHM GROUP

HD32.7, HD32.8.8, HD32.8.16

HD32.7 - 8 INPUTS DATA LOGGER FOR Pt100 Pt1000 SENSOR PROBES

The **HD32.7** is a data logger that can capture, log and then send to a PC or serial printer the data coming from 8 temperature probes connected to the inputs. All 8 inputs are simoultaneosly displayed. The probes can be Pt100 with SICRAM module, direct 4-wire Pt100 or direct 2-wire Pt1000. All the connected probes must be of the same type.

The captured data can be displayed and processed on the PC using the DeltaLog9 software. The instrument has a total capacity of 96.000 acquisitions for each one of the 8 inputs. Storage can be managed in two ways: when the available memory is full, data are overwritten by starting from the oldest ones (circular memory), otherwise storage stops when the available memory is full. Maximum, minimum or average of the stored values are calculated.

12 Vdc 1A | USB 1.1 - 2.0 | RS232C

Technical specifications	
Measuring Range	-200°C...+650°C
Resolution	0.01°C (in the range ±199.99°C) 0.1°C in the remaing range
Internal clock accuracy	1min/month max drift
Unit of measurement	°C - °F - K configurable
Memory capacity	96,000 storages for each one of the inputs, max 64 logging session
Data Logging	istantaneous or delayed, with the possibility of selecting the storage start and end time
Storage interval can be selected among	2,5,10,15,30 s; 1,2,5,10,15,20,30 min.; 1 hour
Data download	RS232C from 1,200 to 38,400 baud, galvanically isolated. Sub D 9-pole male connector. USB 1.1 - 2.0 galvanically isolated.
Security of stored data	unlimited
Instrument accuracy when storing	±0.01°C ±1 digit (in the range ±199.99°C) ±0.1°C ±1 digit in the remaining range
Power Supply	4 per 1.5V alkaline batteries type C-BABY External 12Vdc-1A power supply. Connector, external Ø 5.5mm, internal Ø 2.1mm
Current consumption @6Vdc	<60µA when the instrumen is off <60µA in sleep mode with 8 probes connected <40mA during data logging with 8 probes connected
Autonomy	200 hours with 7800mAh alkaline batteries and 8 probes connected
Operating conditions	
Operating Temperature	-5...50°C
Storage temperature	-25 … 65°C
Working relative humidity	0 … 90%RH, no condensation
Protection degree	IP64
General characteristics	
Dimensions (Length x Width x Height)	220x180x50mm
Weight	1100 g (complete with batteries)
Materials	ABS, polycarbonate and aluminium
Display	Backlit graphic LCD 128x64 pixel
Keyboard	15 keys configurable also without PC. Security password for keyboard locking

All Delta OHM Pt100 probes equipped with SICRAM module belonging to the series TP47..., TP49..., TP87 4 wires Pt100 or 2 wires Pt1000 sensor probes can be connected. Probes of different form can be supplied upon request.

ORDERING CODES

HD32.7: Data logger with 8 inputs for temperature Pt100 sensor probes equipped with SICRAM module, 4 wires Pt100 and 2 wires Pt1000 probes. The kit consists of instrument HD32.7, 4 per 1.5Vdc alkaline C-Baby type batteries, instruction manual, software Deltalog9 downloadable from Delta OHM website and support/transport strap. Probes, tripod, carrying case and cables have to be ordered separately.

9CPRS232: Connection cable with Sub D 9-pole female connectors for RS232C (null modem)

CP22: Connection cable USB 2.0 connector type A - connector type B.

BAG32.2: Carrying case for the HD32.7 instrument and accessories.

HD32CS: Support and transport strap

SWD10: 100-240VAC/12VDC-1A stabilized mains power supply

VTRAP32: Tripod complete with 6-input head and 5 probe holders code HD3218K

HD3218K: Clamp shaft for a further probe.

TEMPERATURE PROBES – RESISTANCE THERMOMETERS

Delta OHM offers a wide choice of Platinum resistance thermometers with resistance equal to 100 Ω at 0 °C and temperature coefficient α as defined by the IEC 60751 standard: Pt100, R_0=100 Ω, α= $3.851 \cdot 10^{-3}$ $°C^{-1}$.

For particular applications, probes with Pt1000 sensor or with a thermistor sensor are available. The response time $\tau_{0.63}$ indicated for each probe is the response time of the sensor to a temperature variation, with a variation of the measured signal corresponding to the 63% of the total variation. The response times are referred:

• in water at 100 °C for immersion probes;

• to the contact with a metal surface at 200 °C for surface probes;

• to an air temperature of 100 °C for air probes.

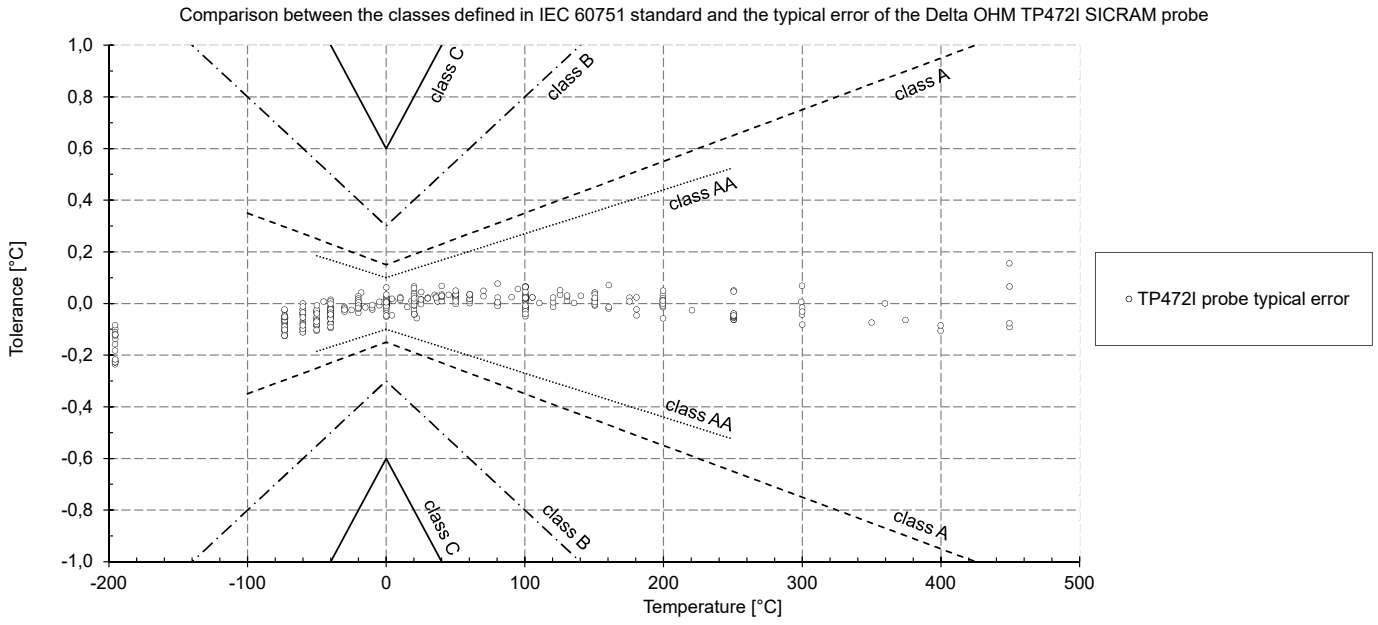
The IEC 60751:2008 standard defines the tolerance classes of the resistance thermometers as summarized in the following table:

	Temperature Range		
Tolerance class	WIRE WOUND sensor	THIN FILM sensor	Tolerance [°C]
classe AA (1/3 DIN)	from -50 °C to 250 °C	from 0 °C to 150 °C	±(0.1+0.0017·|t|)
classe A	from -100 °C to 450 °C	from -30 °C to 300 °C	±(0.15+0.002·|t|)
classe B	from -196 °C to 600 °C	from -50 °C to 500 °C	±(0.3+0.005·|t|)
classe C	from -196 °C to 600 °C	from -50 °C to 600 °C	±(0.6+0.01·|t|)

On request, the probes can be assembled with a compatible connector chosen from TP471 and TP47.

The TP471 connector developed by Delta OHM contains an electronic module **(SICRAM)** that allows the probe error to be adjusted. During the Quality Control, the probes provided with this module are individually checked in our laboratories, linearizing the characteristic and allowing more stringent accuracy over the entire working range.

The following graph shows the Delta OHM SICRAM module probe TP472I typical error values obtained from the calibrations performed in our ISO17025 calibration laboratory. The graph highlights the effectiveness of the linearization performed on the probes.



Tolerance as a function of temperature. The temperature range refers to the platinum wire wound probes.

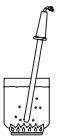
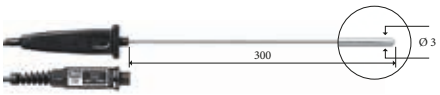
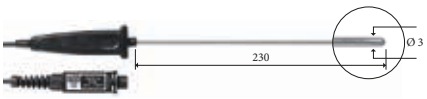
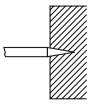
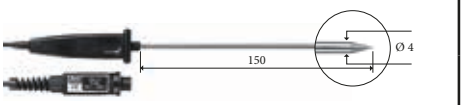
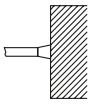
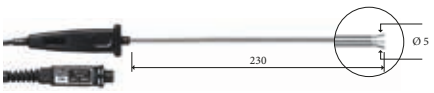
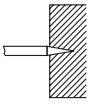
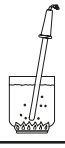
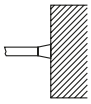
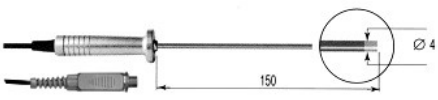
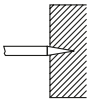
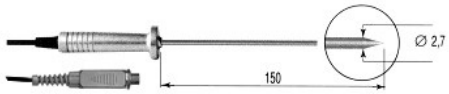
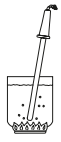
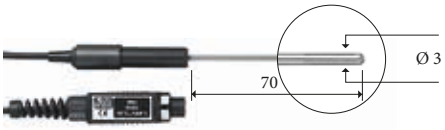
	Temperature [°C]										
Tolerance [°C]	-196	-100	-50	0	100	250	300	350	450	500	600
class AA	---	± 0.27	± 0.19	± 0.10	± 0.27	± 0.53	± 0.61	± 0.70	---	---	---
class A	---	± 0.35	± 0.25	± 0.15	± 0.35	± 0.65	± 0.75	± 0.85	± 1.05	---	---
class B	± 1.28	± 0.80	± 0.55	± 0.30	± 0.80	± 1.55	± 1.80	± 2.05	± 2.55	± 2.80	± 3.30
class C	± 2.56	± 1.60	± 1.10	± 0.60	± 1.60	± 3.10	± 3.60	± 4.10	± 5.10	± 5.60	± 6.60
accuracy TP472I	± 0.30	± 0.30	± 0.20	± 0.10	± 0.20	± 0.20	± 0.30	± 0.30	± 0.30	± 0.30	---

By means of the calibration, the purchased instrument can be metrologically characterized, determining the systematic error of the thermometer and ensuring at the same time the traceability to international standards. Delta OHM Laboratories are able to provide this service by issuing calibration reports according to **ISO 9001** or **ACCREDIA LAT** certificates in compliance with **ISO/IEC 17025** standard, recognized internationally through **ILAC MRA** agreements.

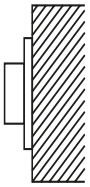
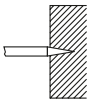
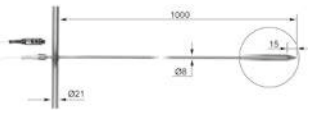
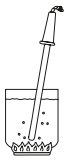
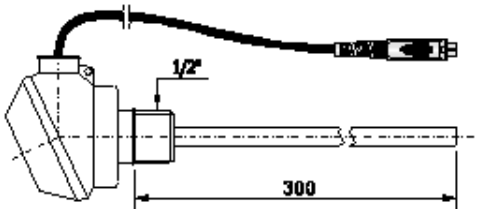
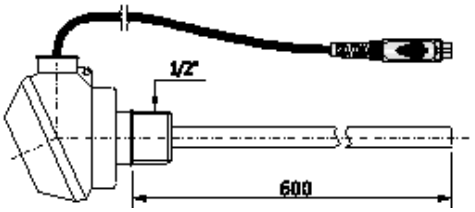
ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO
LAT N° 124

Temperature - Humidity - Pressure - Air speed
Photometry/Radiometry - Acoustics

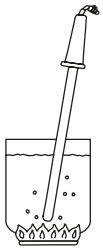
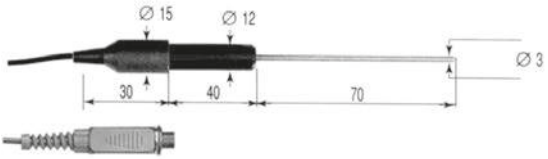
Pt100 PROBES WITH TP471 SICRAM MODULE

CODE	T (°C)	ACCURACY	USE	$\tau_{0.63}$	DIMENSIONS
TP472I	-196 +500	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C) ±0.3 °C (t < -50 °C; t > 250 °C)		3s	
TP472I.O	-50 +300	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C) ±0.3 °C (t < -50 °C; t > 250 °C)		3s	
TP473P.I	-50 +400	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C) ±0.3 °C (t < -50 °C; t > 250 °C)		5s	
TP473P.O	-50 +300	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C) ±0.3 °C (t < -50 °C; t > 250 °C)			
TP474C.O	-50 +300	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C) ±0.3 °C (t < -50 °C; t > 250 °C)		5s	
TP475A.O	-50 +250	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C)		12s	
TP472I.5	-50 +400	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C) ±0.3 °C (t < -50 °C; t > 250 °C)		3s	
TP472I.10	-50 +400	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C) ±0.3 °C (t < -50 °C; t > 250 °C)		3s	
TP49A.I	-70 +250	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C) ±0.3 °C (t < -50 °C; t > 250 °C)		3,5s	
TP49AC.I	-70 +250	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C) ±0.3 °C (t < -50 °C; t > 250 °C		5,5s	
TP49AP.I	-70 +250	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C)		4s	
TP87.O	-50 +200	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C)		3s	

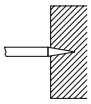
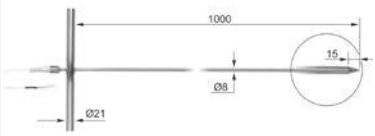
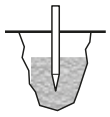
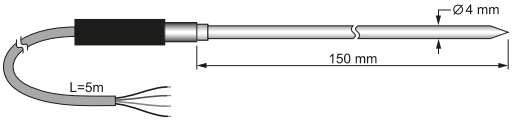
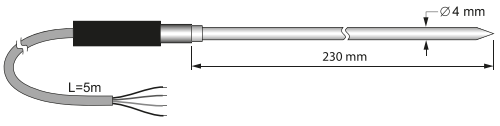
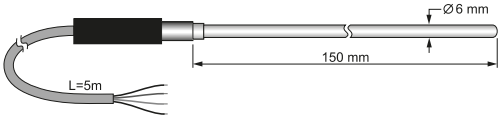
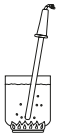
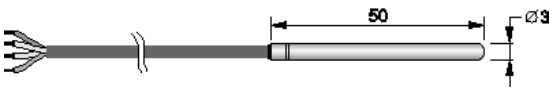
Pt100 PROBES WITH TP471 SICRAM MODULE

CODE	T (°C)	ACCURACY	USE	$\tau_{0.63}$	DIMENSIONS	
TP878.O	-40 +85	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C)		60s	Contact probe for solar panels, with SICRAM module. Cable L = 2 m	
TP878.1.O	-40 +85	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C)			Contact probe for solar panels, with SICRAM module. Cable L = 5 m	
TP879.O	-20 +120	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C)		60s	Penetration probe for compost, with SICRAM module. Cable L = 5 m	
TP880/300.I	-50 +450	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C) ±0.3 °C (t < -50 °C; t > 250 °C)		60s	Mignon head, cable length = 2m	
TP880/600.I	-50 +450	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C) ±0.3 °C (t < -50 °C; t > 250 °C)			Mignon head, cable length = 2m	
TP35.5AF.5S	-110 +180	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C) ±0.3 °C (t < -50 °C; t > 250 °C)		3s	 Cable L = 5 m. Shield in Inox + PTFE	
TP875.I	-30 +120	±0.1 °C (@ 0 °C) ±0.2 °C (-50 °C ≤ t ≤ 250°C)		15'	Globe-thermometer probe for measurement of radiant heat with Ø150mm. Accuracy according to ISO 7243 ISO 7726. Pt100 sensor, 4-wire cable L=2 m. Supplied with SICRAM module.	
TP876.I					Globe-thermometer probe for measurement of radiant heat with Ø 50mm. Accuracy according to ISO 7243 ISO 7726. Pt100 sensor, 4-wire cable L=2 m. Supplied with SICRAM module.	

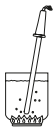
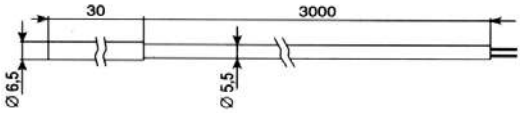
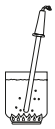
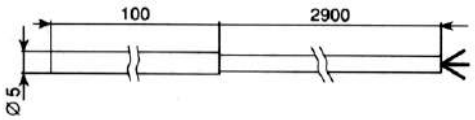
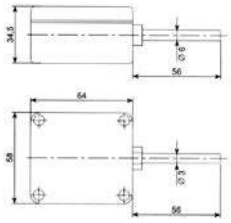
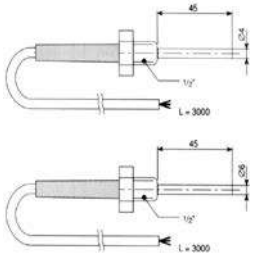
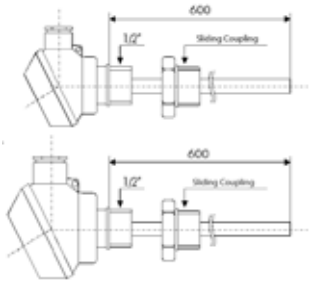
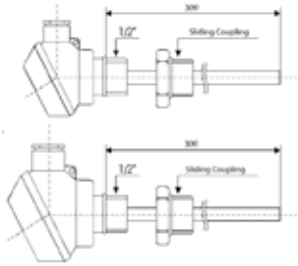
Pt100/Pt1000 PROBES WITH TP47 CONNECTOR WITHOUT SICRAM MODULE

CODE	T (°C)	CLASS	USE	$\tau_{0.63}$	DIMENSIONS
TP47.100.O (Pt100)	-50 +250	Class A		3s	
TP47.1000.O (Pt1000)					
TP87.100.O (Pt100)	-50 +250				
TP87.1000.O (Pt1000)					

Pt100 PROBES ENDING WITH FREE WIRES

TP875.1.I	-30 +120	Class A		15s	Globe-thermometer probe for measurement of radiant heat with Ø150mm. Accuracy according to ISO 7243 ISO 7726. Pt100 sensor, 4-wire cable L=2 m .
TP876.1.I					Globe-thermometer probe for measurement of radiant heat with Ø50mm. Accuracy according to ISO 7243 - ISO 7726. Pt100 sensor, 4-wire cable L=2 m.
TP878.1SS.O	-40 +85	Class A		60s	Contact probe for solar panels 4-wire cable L = 5 m 
TP879.1.O	-20 +120	Class A		60s	Penetration probe for compost 4-wire cable L = 5 m 
TP32MT.1P.I	-40 +100	Class A		40s	
TP32MT.1P.2	-50 +250	Class A		40s	
TP32MT.2.I	-40 +100	Class A		60s	
TP35.5AF.5	-110 +180	Class A		3s	 Cable L = 5 m. Shield in Inox + PTFE

TEMPERATURE PROBES FOR INDUSTRIAL USE

CODE	T (°C)	CLASS	USE	$\tau_{0.63}$	DIMENSIONS
HD882/EK (KTY81)	-40 +150	Not applicable		5s	
HD882/ E/100 (Pt100)	-50 +300	Class A		5s	
HD882/GK (KTY81)	-50 +100	Not applicable	Environmental	5s	
HD882/G100 (Pt100)	-50 +100	Class A	Environmental	5s	
HD882/L104 (Pt100)	0 +250	Class A	Process Thread	7s	
HD882/L106 (Pt100)	0 +250	Class A	Process Thread	15s	
HD882M100/600 (Pt100)	-50 +450	Class A	Process Thread - Miniature Head	15s	
HD882DM100/600 (Pt100)	-50 +450	Class A	Process Thread - DIN B Head	15s	
HD882M100/300 (Pt100)	-40 +100	Class A	Process Thread - Miniature Head	15s	
HD882DM100/300 (Pt100)	-50 +250	Class A	Process Thread - DIN B Head	15s	

CONNECTORS

TP47	Connector without SICRAM module. It can be connected to 4-wire Pt100 probes (and 3-wire with some instruments) or 2-wire Pt1000 probes.	
TP471	Connector with SICRAM electronic module for the connection of resistance thermometers and the correction of the characteristic of the sensor. It can be connected to 3-wire or 4-wire Pt100Ω platinum temperature probes. assembling and calibration only in Delta OHM