

AIR TEMPERATURE AND RELATIVE HUMIDITY



Thermo-Hygrometer

A thermo-hygrometer is a combined humidity and temperature probe designed for meteorological and general outdoor applications. Operation from DC voltage and low power consumption makes it suitable for operation at remote locations. The linear output signals are consistent with the requirements of most data acquisition systems. For outdoor application it should be coupled with a radiation shield.



Features

- Temperature Sensor PT100 RTD and Capacitive Humidity Sensor
- High long-term stability
- Analogue and Digital outputs for humidity and temperature depending upon the models
- Early return after saturation
- Highly efficient radiation shield
- High protection from salty and polluted air
- Design and performances addressed to meteorological applications

Applications

Weather Stations, Agriculture, etc.

Technical Specifications

	SS-TH-01	SS-TH-02
Temperature Measuring Range	-40 °C to +85 °C	-40 °C to +60 °C
Humidity Measuring Range	0 to 100%	0 to 100%
Output	Digital: RS485	Analog: Voltage (0 – 1 VDC / 0 – 2.5 VDC / 0 – 5 VDC / 0 – 10 VDC)
Input Power	5 – 28 VDC	5 – 28 VDC


Common Technical Specifications

Temperature	Sensor Type	RTD PT100
	Accuracy	±0.1 °C (@23 °C), ±0.2 °C (Full Scale)
	Resolution	0.01 °C
	Long Term Stability	<0.1 °C/Year
Relative Humidity	Sensor Type	Capacitive
	Accuracy	± 2.5% RH
	Resolution	0.01% RH
	Long Term Stability	<± 1% / Year
General Specifications	ESD Protection	± 25 KV
	Cable	2m Standard
	Protection (without shield)	IP64
	Operating Temperature	-50 °C to +90 °C
	Housing	ABS+PC, flame resistant, toxicity and halogen free
	Dimensions (Probe only)	Φ18.6 x 140mm
Weight (Probe only)	26g	

Thermo-Hygrometer



Accessories

	SS-TH-RS	SS-TH-RS is a natural ventilated all weather radiation shield made of 10 nos. thermoplastic louvered plates. Complete with all accessories such as aluminium mounting bracket (boom) with suitable provision for fitting shield on the boom at desired heights and stainless-steel U bolt clamp.
	Calibration Certificate	Calibration certificate from India Meteorological Department or any other NABL accredited national laboratory
	SS-TH-C1	3m Cable
	SS-TH-C2	5m Cable



- ▶ Design and performances addressed to meteorological applications
- ▶ Fast return after saturation
- ▶ High protection from salty and polluted air
- ▶ High efficiency radiant screen
- ▶ Optional forced ventilation radiant screen
- ▶ ISO17025 traceability

Precise and reliable, this sensor is suitable for continuous meteorological measurements also in severe environments and in presence of steep thermal and hygrometric variations. DMA672.1, DMA672.4, DMA672.5 temperature output is Pt100 element and 0-1 Vdc output for RH%. DMA672.5 output is 0-1 Vdc for both Temperature and RH%. DMA672.3 is very suitable for tropical weather in continuous high temperature and RH conditions. For outdoor application it should be coupled with a radiant screen.

Technical Specifications

Codice	DMA672.1	DMA672.4	DMA672.5	DMA672.3
Output	RH%:0÷1 Vdc. °C:Pt100 DIN-IEC 751 table (EN 60751). UART (P1-A-Log uses)	UART	RH%:0÷1 Vdc. °C:Pt100 DIN-IEC 751 table (EN 60751)	2X0÷1 V
Power supply	5÷24 Vdc	5÷24 Vdc	5÷24 Vdc	5÷24 Vdc
Power consumption	2 mA	2 mA	2 mA	<5 mA
Cable and connector	L.3 m free wires (8 wires)	L.1 m + Male connector for ELU00x enclosures	L.3 m + Male connector for DWA9xx extension cables	L.5 m free wires (8 wires), detachable
Data logger compatibility	M-Log (ELO008) A/E-Log (all models) P1 (RS232 output)	Pluvi-ONE and Alpha-Log with ELU00x enclosures	Using DWA9nn extensión cable: M-Log (ELO008) E-Log A-Log (using ALIEM module)	M-Log (008) E-Log A-Log (using ALIEM module)




Common Technical Specifications

Temperature	Principle	RTD Pt100 1/3 DIN B (Class AA EN60751)
	Measuring range	-50÷100°C (DMA672.3: -40÷60°C)
	Accuracy	0,1°C (@0°C)
	Resolution	0,01°C (A/M/R/ELog, P1)
	Response time (T90)	Typical 4 sec, (1 m/sec air flow)
	Long term stability	<0,1°C/year

Common Technical Specifications

Relative Humidity	Principle	Capacitive
	Measuring range	0÷100%
	Accuracy	±1% (@5÷95%); DMA672.3: 0,5% RH (@10 ÷95%);
	Long term stability	<±1% / year
	Response time (T90)	Typical 10 sec (1m/sec air flow)
	Hysteresis	<1%
	Resolution	0,1% (A/M/R/ELog, P1). 0,01% configurable on data logger
General Information	Protection type	IP65
	Operative temperature	-50÷100°C

Accessories

	DYA230	N.7 Luran made plates natural ventilation radiant screen. Complete with arm. Black paint on the bottom side to increase natural air circulation inside the screen. DYA049 collar required to fix it on the lateral side of Ø 45÷65 mm poles. Dimensions: H.156 mm. Diameter 124 mm
	DYA233	N.7 Luran made plates natural ventilation radiant screen for DYA046 arm. Complete with arm. Black paint on the bottom side to increase natural air circulation inside the screen. Dimensions: H.156 mm. Diameter 124 mm
	DYA231	N.7 Luran made plates forced ventilation radiant screen. 12 Vdc power supply. Complete with arm. Air speed inside the screen. DYA049 collar required to fix it on the lateral side of Ø 45÷65 mm poles.
	SVICA0003	ISO9000 type calibration certificate (Temperature)
	SVACA0006	ISO17025-ACCREDIA type calibration certificate (Temperature)
	SVICA1003	ISO9000 type calibration certificate (RH%)
	SVICA1005.1	ISO17025-ACCREDIA type calibration certificate (RH%)
	DYA049	Mast-mounting device for ø 45-65 mm pipe
	DWA910	Extension cable L.10 m for DMA672.3
	DWA925	Extension cable L.25 m for DMA672.3



Environmental Monitoring Solutions

AIR TEMPERATURE AND RELATIVE HUMIDITY






Thermohygrometer (Analogue, Digital, Radio outputs)



- ▶ 4÷20 mA, RS485-Modbus RTU, Radio output versions
- ▶ Forced ventilation radiant screen (DMA867)
- ▶ Replaceable sensitive element
- ▶ Programmable air temperature measurement range

Instruments for accurate measurement of air temperature and relative humidity in severe outdoor environments. On models DMA980-975-875, an high efficiency natural ventilation radiant screen (with special black painting on the lower surface of the plates) ensures that the sensing element is protected by sun rays for accurate air temperature readings. For even better results in low wind and high solar radiation conditions, models DMA867 are equipped with a forced ventilation screen. DMA980 model measures Temperature and Relative Humidity and Barometric Pressure. Output of the models DMA980-975 is RS485 using Modbus RTU® or TTY-ASCII protocols. EXP815_model is equipped with an internal radio to send measurement up to 600 m far to data logger equipped with radio receiver

Technical Specifications

					
Codice	EXP815	DMA980	DMA975	DMA875	DMA867
Measurements	°C/RH%	°C/RH%/hPa	°C/RH%	°C/RH%	°C/RH%
Output	Radio	RS485	RS485	2x0-4÷20 mA	2x0-4÷20 mA
Frequency	868 MHz				
Radio transmission power	25 ± 3 mW				
Radio transmission distance (line-of-sight)	600 m.				
Transmission rate	10'				
Battery life	>2 years				
Protocol		Modbus RTU®, TTY-ASCII	Modbus RTU®, TTY-ASCII		
Configuration		Hyperterminal	Hyperterminal		
RS485 protection		Galvanic insulation (3 kV, UL1577)	Galvanic insulation (3 kV, UL1577)		



Thermohygrometer (analogue, RS485, radio outputs)


Technical Specifications

Code	EXP815	DMA980	DMA975	DMA875	DMA867
RS485 speed		1200÷115 kbps	1200÷115 kbps		
hPa measurement range		800÷1100 hPa			
hPa uncertainty		0,5 hPa			
hPa thermal drift		-0,025 hPa/°C			
Power supply	Battery (AA 3,6 V)	10÷30 Vac/dc	10÷30 Vac/dc	10÷30 Vac/dc	10÷30 Vac/dc
Power consumption	<10 µW stand-by 120 mW in transmission	1 W	1 W	1 W	3 W
Electric protections	NO (electrically insulated system)	Tranzorb and Emifilter	Tranzorb and Emifilter	Tranzorb and Emifilter	Tranzorb and Emifilter
Ventilation	Natural	Natural	Natural	Natural	Forced
Resolution	Temp.: 0,01 °C RH: 0,1%	Temp.: 0,01 °C RH: 0,1%	Temp.: 0,01 °C RH: 0,1%	Depending by Data acquisition	Depending by Data acquisition

Common Technical Specifications

Temperature	Principle	RTD Pt100 1/3 DIN B (Class AA EN60751)
	Measuring range	Programmable: -40÷60°C, -50÷60°C, -50÷70°C, -30÷100°C
	Accuracy	0,1°C (@0°C)
	Output	Pt100 DIN-IEC 751 table (EN 60751)
	Response time (T90)	Typical 4 sec, (1 m/sec air flow)
	Long term stability	<0,1°C/year
Relative Humidity	Principle	Capacitive
	Measuring range	0÷100%
	Accuracy	±1% (@5÷95%)
	Output	Programmable: RH% or Dew Point
	Long term stability	<±1% / year
	Response time (T90)	Typical 10 sec (1m/sec air flow)
	Hysteresis	<1%
General Information	Protection type	IP66
	Temperature	-40÷80°C

Accessoris

	SVICA0003	ISO9000 type calibration certificate (Temperature)
	SVACA0006	ISO17025-ACCREDIA type calibration certificate (Temperature)
	SVICA1003	ISO9000 type calibration certificate (RH%)
	SVACA1005.1	ISO17025-ACCREDIA type calibration certificate (RH%)
	DYA049	Mast-mounting device for \varnothing 45-65 mm pipe
	DWA505	Cable L.= 5 m.
	DWA510	Cable L.= 10 m.
	DWA525	Cable L.= 25 m.
	DWA526	Cable L.= 50 m.
	DWA527	Cable L.= 100 m.
	MG2251	7 pin free female connector
	ML3015	Sensitive element (spare part) for EXP815, DMA980-975-875-867
	EXP301	Radio signal receiver from EXP875 EXP815 radio sensors Output compatible with data loggers (M/E-Log) <ul style="list-style-type: none"> • Maximum number of receivable sensors: 200 • Battery: NiCd 9 V • Power supply: 12 Vdc • Connection cable to data logger: DWA601