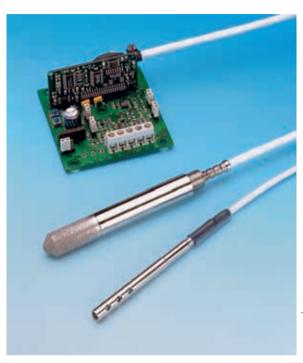


上海萨海测量技术有限公司

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HMM210 Series Humidity Modules for Environmental Chambers



The HMM210 Series Humidity Modules provide fast real-time measurement in a wide temperature range. The modules are especially suitable for demanding OEM applications, e.g. environmental chambers and incubators.

The HMM210 Series Modules are designed for OEM type applications needing humidity or dewpoint measurement in demanding environments, e.g. in environmental chambers growth chambers and incubators.

Demanding applications

The HMM210 Modules are optimized for harsh environments with both high humidities and a wide temperature range. The humidity measurement is fully temperature compensated. In addition, the modules remain accurate and reliable under extreme conditions where a combination of high humidity and rapidly changing temperature can result in condensation on the sensor head.

The modules are highly versatile and flexible. They provide either relative humidity and temperature or dewpoint measurement with various configurations. All modules have microprocessor based electronics and are equipped with analog or digital outputs.

Unique warmed probe

The warmed probe and composite sensor, available on the dewpoint probe configuration, is warmed to always remain a few degrees higher than ambient. Advantages of this patented technique include:

- No condensation problems on the sensor, as the temperature of the probe always remains higher than the ambient.
- Fast response time, especially in rapidly changing temperatures.
- Improved stability and accuracy in high humidities.

HUMICAP® Sensor and chemical purge option

The HMM210 Modules use HUMICAP® Sensor, which has high accuracy, excellent long-term stability and neglible hysteresis. The sensor is insensitive to dust and to most chemicals. In conditions of extraordinary high levels of chemicals and cleaning agents, chemical purge is available as an option. With chemical purge, contaminants are evaporated from the sensor and performance is returned to normal.

Features/Benefits

- Three probe configurations
- Relative humidity (RH) plus temperature (T) probe.
- Dewpoint probe features Vaisala's unique Composite Sensor, which remains heated a few degrees above ambient to prevent dew formation (condensation) on the sensor.
- Dewpoint probe described above, together with a temperature probe for obtaining relative humidity and temperature outputs.
- Three moduleconfigurations
- Different probe and cable lengths
- Chemical purge option maintains high measurement performance in demanding chemical conditions.
- All HMM210 Series Modules have excellent EMC charasteristics.
- NIST traceable (certificate included)

VAISALA HMM210 HUMIDITY

Technical Data

Relative Humidity

110101010	
Measurement range	0100 %RH
Achievable accuracy when calibrated	against
high quality humidity standards	±2 %RH (0100 %RH)
Accuracy against salt solutions	
(ASTM E104-85)	±2 %RH (090 %RH)
	±3 %RH (90100 %RH)
Response time (90% at +20 °C)	
in still air (with sintered filter)	15 s
Typical temperature dependence	
of electronics	0.02 %RH/°C
Humidity sensor	HUMICAP®180
·	

Temperature

Measurement range	-70+180 °C
Typical accuracy of electronics	
at +20 °C	±0.1 °C
Typical temperature dependence of electro	onics 0.0025°C/°C
Temperature sensor in RH+T probe:	
HMM211 and HMM213	Pt 100 RTD
	IEC 751 1/3 Class B
HMM212	Pt 1000 RTD
	IEC 751 1/3 Class B
Additional temperature probe	Pt 100 RTD
	IEC 751 1/4 Class B

Outputs

Two analog outputs selectable	
HMM211	01 V, 05 V, 010V
	020 mA
HMM212	420mA (loop powered)
Digital output	• •
HMM 213	RS232

General

Operating temperature range	
Probe	-70+180 °C
Electronics	-5+55 °C
Storage temperature range	
(Electronics)	-40+70 °C
Sensor protection (standard)	stainless steel sintered filter
Connections	screw terminals for
	0.5 1.5 mm ² wires

Complies with EMC standard EN61326-1:1997 + Am1:1998; Generic Environment.

Power Supply

Power Supply	
Operating voltage	1035 VDC
In modules with analog outputs the supply range depends to a	
certain extent on the selected output range.	
Current consumption without sensor head	
warming or re-gaining option	
HMM211 & HMM213	12 mA at 35 VDC

Configuration Options

	Compatible with modules:		
Probes	HMM 211	HMM 212	HMM 213
RH+T	yes	yes	yes
Dewpoint (heated	yes		yes
composite sensor)			
Temperature	yes		yes

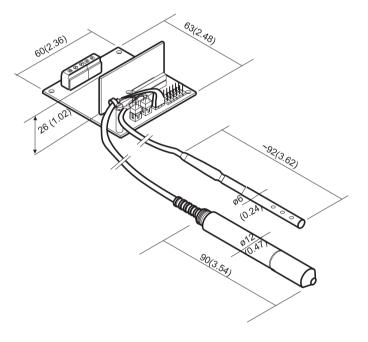
Cable lengths

RH+T and Dewpoint probes	65, 150 and 300 cm
Temperature probe	150 and 300 cm

Chemical Purge Automatically takes place at power-up

Dimensions

Dimensions in mm (inches).



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