

HygroSmart WM Series

Advanced Wall Mount Relative Humidity & Temperature Transmitters

The WM Series advanced wall mount transmitters are designed to reliably and accurately measure moisture and temperature in a wide variety of industrial and process applications. These rugged and flexible transmitters feature the new generation HygroSmart I7000XP interchangeable sensor — minimizing downtime and reducing maintenance costs.



Highlights

- Accuracy $\pm 1.25\%$ RH
- Calculated hygrometric outputs
- Flexible analog output configurations
- Interchangeable sensor for rapid maintenance
- Digital RS485 Modbus multidrop output
- Optional integral LCD display
- Rugged heavy industrial housing
- Customer configuration software for flexibility
- Traceable 5-point calibration certificate
- Operating temperature -40 to $+85^{\circ}\text{C}$ (-40 to $+185^{\circ}\text{F}$)

Applications

- Food processing
- Pharmaceutical
- Environmental
- Meteorological
- Agricultural
- Power
- Energy
- Nuclear
- Paper processing
- Transportation



HygroSmart WM281 & WM291

The Adaptable Transmitter

Process control customers need to have reliable and stable instrumentation giving repeatable data to the control system to minimize downtime, ensuring long-term process accuracy.

The HygroSmart WM281/291 advanced wall mount relative humidity and temperature transmitter allows flexible on-site reconfiguration with user-friendly software.

It uses the latest Michell advanced H8000 capacitive polymer element, developed over 40 years of specialization in challenging moisture measurements and now incorporated into the new I7000XP (extra performance) interchangeable sensor, within the transmitter.

Flexible Customer Outputs

The HygroSmart WM Series has a choice of many analog and digital outputs, ensuring it is compatible with a variety of data acquisition systems.

- 4–20 mA / 0–20 mA
- 0–1, 5, 10 V
- RS485 Modbus RTU output
- Outputs are configurable at ordering or on site
- Configuration is achieved via the display or the Digicor2 software communication kit

Measurement Performance

The new H8000 capacitive polymer element and high resolution electronic hybrid within the interchangeable sensor, gives the new HygroSmart WM281/291 outstanding accuracy across the complete RH and temperature spectrum.

- WM281/291 system accuracy $\pm 1.25\%$ RH
- $\pm 1\%$ RH long-term stability per year

Integral Display

The optional display and keypad of the advanced transmitter allows for quick readings of data as well as easy on-site reconfiguration of measured parameters.

Ease of Maintenance

The WM281/291 transmitters feature an interchangeable sensor, which holds its own calibration data, giving a 30

second maintenance time to replace the measurement sensor, minimizing system downtime.

- No on-site calibration required
- Economical cost for the interchangeable sensor
- Minimizes downtime

User Flexibility

The WM281/291 transmitters have an RS485 Modbus RTU digital interface, which can be used for either digital multidrop outputting or for transmitter reconfiguration.

- Reconfiguration of analog mA, voltage outputs
- Reconfiguration of third calculated hygrometric output
- Adjustment of the display settings

Reliability of Supply

The transmitters are manufactured within Michell's high-volume manufacturing facility, which ensures a reliable on-time delivery.

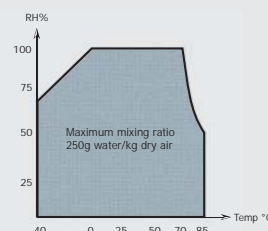
- Field supported by a network of Michell's global service centers
- Calibration manufacturing system is traceable to national standards

System Customization

If your application requires a customized sensor solution, we have a specialized design and manufacturing capability to cover your requirements.

Measurement Operating Envelope

The new HygroSmart WM281/291 transmitters operate to the defined technical specifications within the following operating condition envelope:

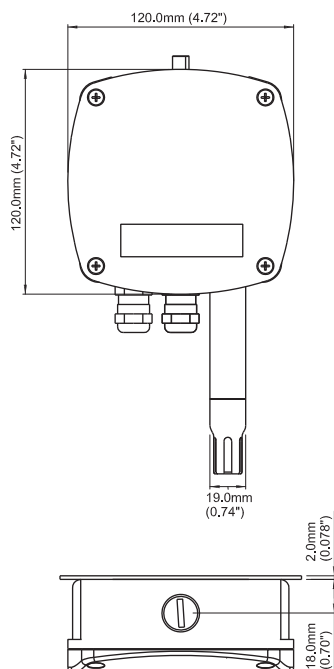


Technical Specifications

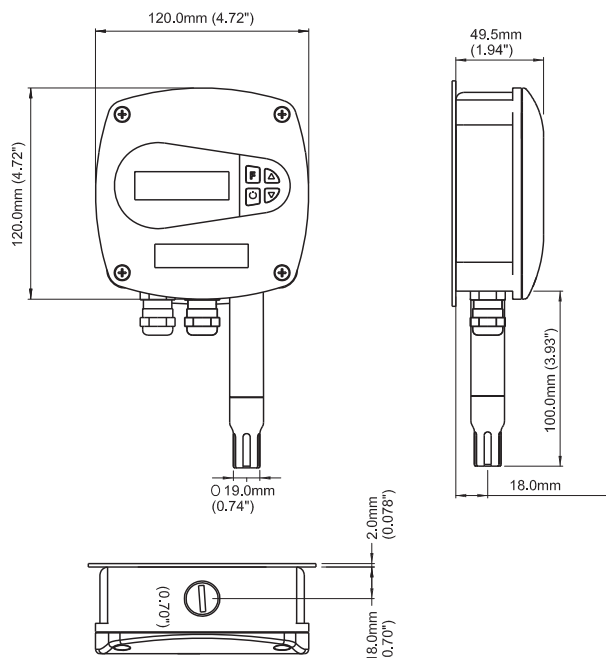
Product	WM281-XP	WM291-XP Display
Performance Specifications		
RH measurement range	0 to 100% RH	
RH accuracy @ 23°C (73°F)	±1.25% RH (5 to 95% RH)	
RH thermal coefficient	<0.03% RH/°C typical	
RH measurement response time	Less than 10 seconds	
RH element	Michell H8000	
RH long term stability	±1% RH per year	
Temperature measurement range	−40 to +85°C	
Temperature accuracy	±0.2°C	
Temperature analog output accuracy	±0.2°C pro-rata per 100°C output signal span	
Temperature resolution	0.01°C	
Temperature technology	PT100 1/3 DIN	
Recommended storage range	+10 to +40°C (+50 to +104°F)	
Calibration	Traceable 5-point calibration certificate	
Electrical Specifications		
Output signals	0–1 V, 0–5 V, 0–10 V, 4–20 mA, 0–20 mA	
Digital output signal	Modbus RTU over RS485 2 wire	
mA load resistance	Max 500 Ω over voltage supply range	
Supply voltage range	15 to 21 V AC or 18 to 30 V DC	
Power consumption	1.7 W max	
Calculated 3rd output scales/range	Dew point:	−40 to +100°C (−40 to +212°F)
	Mixing ratio:	0 to 500 g/kg
	Absolute humidity:	0 to 600 g/m ³
	Specific enthalpy:	0 to 1500 KJ/kg
	Frost point:	−50 to +10°C (−58 to +50°F)
CE conformity	2004/108/EC, 94/9/E	
Communication kit (optional)	Digicor2 280/290 software, USB to RS485 interface cable (Digicor2-CK-01)	
Display Specifications		
Display type	LCD, 2 lines x 16 characters	
Display configuration	Digicor2 communication kit and display keypad	
Display configuration variables	Contrast, temperature averaging, RH averaging, temperature units	
Display configuration output variables	Output RH signal, output temperature signal, calculated 3rd output, Modbus set-up	
Operating Specifications		
Operating temperature	Probe:	−40 to +85°C (−40 to +185°F)
	Housing:	−30 to +70°C (−22 to +158°F)
	Storage:	−40 to +70°C (−40 to +158°F)
Mechanical Specifications		
Ingress protection	IP65 (NEMA 4 level)	
Material	Probe:	Delrin
	Housing:	Aluminum die casting
	Filter assembly:	Stainless steel sintered filter
		Stainless steel sintered filter with Teflon
		Slotted Delrin cap with stainless steel mesh filter
Slotted Delrin cap with PTFE filter		
Dimensions	Probe:	L=100mm (3.9"), ø19mm (ø0.7")
	Housing:	120 x 120 x 49.5mm (4.7 x 4.7 x 1.9")
Weight	450g (1lbs) approx	
Electrical connections	Internal screw terminals	

Product Dimensions

WM281-XP



WM291-XP



The orange HygroSmart symbol is used to identify any Michell RH product which has the latest generation HS3 interchangeable sensor



The blue HygroSmart symbol identifies products using the I7000XP generation interchangeable sensor

Related Products from Michell Instruments



HS3 Probe & OEM Sensor
Advanced interchangeable
RH and Temperature Probe



DT282/292
Advanced 19mm Duct
Mount RH and Temperature
Transmitter



DT284/294
Advanced 12mm Duct
Mount RH and Temperature
Transmitter



WR283/293
Advanced Remote Probe
RH and Temperature
Transmitter



PR285
Advanced Pressurized
Remote RH Transmitter



PCMini 52
12mm RH and
Temperature Mini Probe



HygroCal100
Humidity Validator



S904
Humidity and
Temperature Calibrator



OptiCal
Advanced Humidity
Calibrator

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Michell Instruments adopts a continuous development programme which sometimes necessitates specification changes without notice.

Issue no: WM281 291_97185_V2_US_0216