

# 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  $+85^{\circ}\text{C}$

### 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.

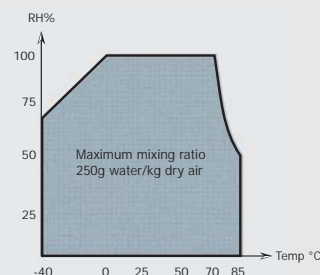
- Field supported by a network of Michell’s global service centers
- Calibration manufacturing system is traceable to national standards

### 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:

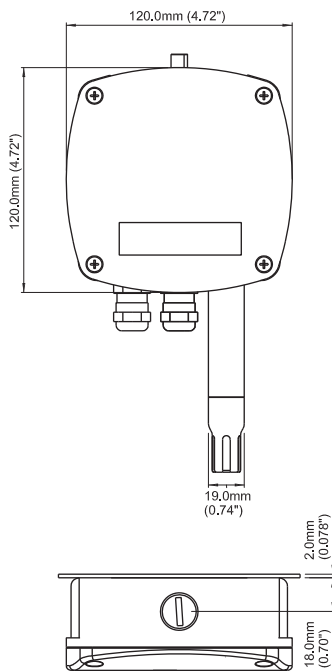


## Technical Specifications

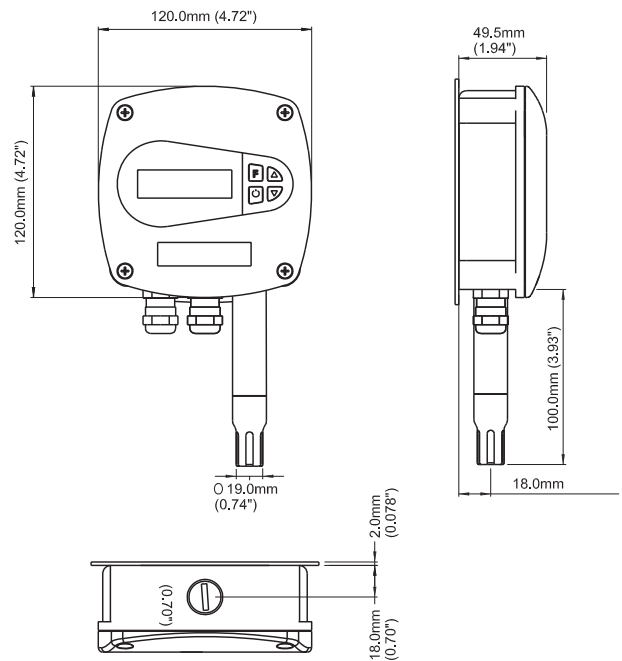
Product	WM281-XP	WM291-XP Display
<b>Performance Specifications</b>		
RH measurement range	0 to 100% RH	
RH accuracy @ 23°C	±1.25% RH (5 to 95% RH)	
RH thermal coefficient	<0.03% RH/°C typical	
RH measurement response time	Less than 10 seconds	
RH element	H8000	
RH long term stability	±1% RH per year	
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	
Calibration	Traceable 5-point calibration certificate	
<b>Electrical Specifications</b>		
Output signals	0-1 V, 0-5 V, 0-10 V, 4-20 mA, 0-20 mA	
Digital output signal	RS485 ModBus RTU 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	<b>Dew point:</b> -40 to +100°C <b>Mixing ratio:</b> 0 to 500 g/kg <b>Absolute humidity:</b> 0 to 600 g/m <sup>3</sup> <b>Specific enthalpy:</b> 0 to 1500 KJ/kg <b>Frost point:</b> -50 to +10°C	
CE conformity	2004/108/EC, 94/9/E	
Communication kit (optional)	Digicor2 280/290 software, USB to RS485 interface cable ( <i>Digicor2-CK-01</i> )	
<b>Display Specifications</b>		
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	
<b>Operating Specifications</b>		
Operating temperature	<b>Probe:</b> -40 to +85°C <b>Housing:</b> -30 to +70°C <b>Storage:</b> -40 to +70°C	
<b>Mechanical Specifications</b>		
Ingress protection	IP65 (NEMA 4 level)	
Material	<b>Probe:</b> Delrin <b>Housing:</b> Aluminum die casting <b>Filter assembly:</b> 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	<b>Probe:</b> L=100mm, ø19mm <b>Housing:</b> 120 x 120 x 49.5mm	
Weight	450g approx	
Electrical connections	Internal screw terminals	

Product Dimensions

WM281-XP



WM291-XP



This HygroSmart symbol is used to identify any Michell RH product which has an interchangeable sensor.

Related HygroSmart Products

Below are some of examples of other HygroSmart products from Michell Instruments:



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

Other RH Probes and Calibration Products



PCMini 52

12mm RH and Temperature Mini Probe



S503

Portable Humidity Calibrator



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.  
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