

HygroSmart WR Series

Advanced Remote Probe Relative Humidity & Temperature Transmitters

The WR Series advanced remote probe transmitters are designed to reliably and remotely measure moisture and temperature in a wide variety of process applications. These rugged and flexible transmitters feature the new generation HygroSmart USTE interchangeable remote sensor — minimizing downtime and reducing maintenance costs.



Highlights

- Accuracy $\pm 1.25\%$ RH
- Calculated hygrometric outputs
- Flexible output configurations
- Interchangeable sensor for rapid maintenance
- Digital RS485 Modbus multidrop output
- Optional LCD integral display
- Rugged heavy industrial housing
- Customer configuration software for flexibility
- Traceable 5-point calibration certificate
- Operating temperature -40 to $+200^{\circ}\text{C}$ (-40 to $+392^{\circ}\text{F}$)

Applications

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



HygroSmart WR283 & WR293

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 WR283/293 advanced remote probe relative humidity and temperature transmitters allow flexible on-site reconfiguration with user-friendly software.

The WR Series uses the latest Michell advanced H8000 capacitive polymer element, developed over 40 years of specialization in challenging moisture measurements, and now incorporated into the latest generation USTE interchangeable sensor assembly connected to the transmitter.

Flexible Customer Outputs

The WR 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 HygroSmart WR283/293 outstanding accuracy across the complete RH and temperature spectrum.

- WR283/293 system accuracy $\pm 1.25\%$ RH
- $\pm 1\%$ RH long-term stability per year

Integral Display

The advanced transmitters have an optional display and keypad to provide local display of any measured parameter and also provides security protected on-site transmitter reconfiguration.

Ease of Maintenance

The WR283/293 transmitters feature an interchangeable remote UTSE sensor assembly, which holds its own calibration data, giving a 2 minute maintenance time to

replace the remote measurement sensor, minimizing system downtime.

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

User Flexibility

The WR Series has 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
- Reducing installation wiring cost

Reliability of Supply

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

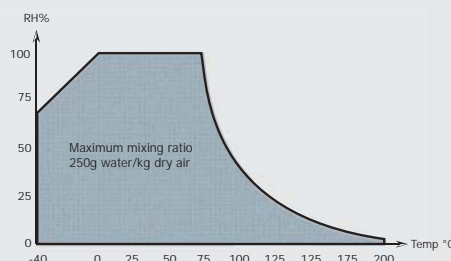
- Field supported by a network of Michell's global service centers
- Calibration manufacturing system is traceable to national standards

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 WR283/293 transmitters operate to the defined technical specifications within the following operating condition envelope:

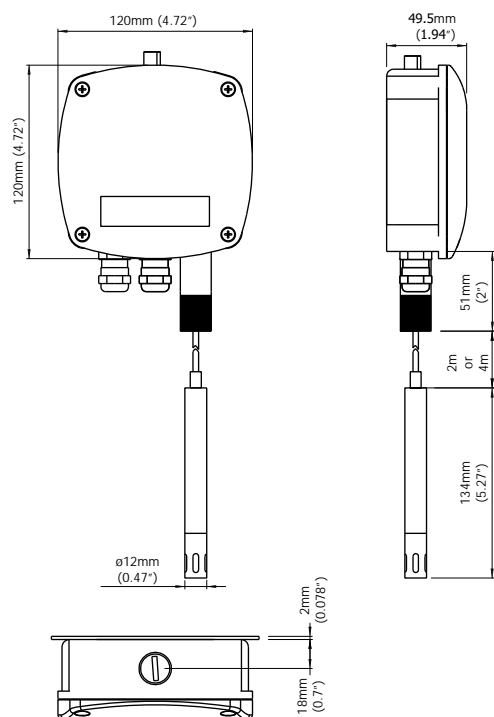


Technical Specifications

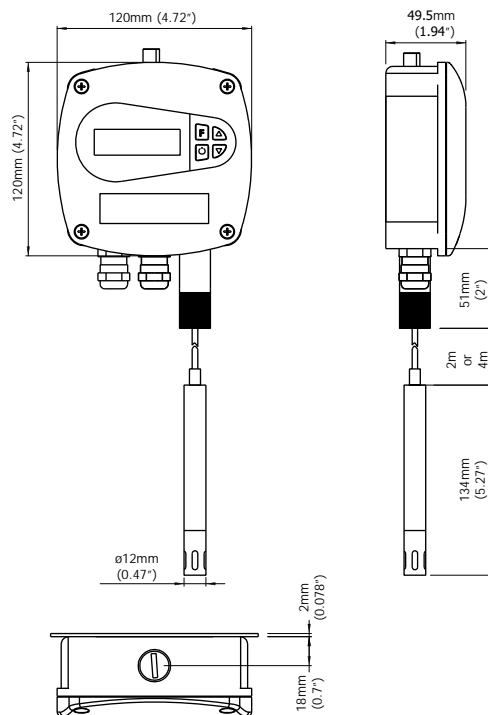
Product	WR283-XP	WR293-XP Display
Performance Specifications		
RH measurement range	0 to 100% RH	
RH accuracy @ 23°C	±1.25% RH (5 to 95% RH)	
RH thermal coefficient	<0.03% RH/°C typical	
RH measurement response time	Less than 10 seconds	
RH element	Michell H8000	
RH long term stability	±1% RH per year	
Temperature measurement range	−40 to +200°C (−40 to +392°F)	
Temperature accuracy	±0.2°C (±0.36°F)	
Temperature analog output accuracy	±0.2°C (±0.36°F) pro-rata per 100°C output signal span	
Temperature resolution	0.01°C (±0.018°F)	
Temperature technology	PT100 1/3 DIN	
Recommended storage range	+10 to +40°C	
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	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	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	USTE probe:	−40 to +200°C (−40 to +392°F)
	USTE cable:	−40 to +200°C (−40 to +392°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	USTE probe:	Stainless steel
	USTE cable:	PTFE white
	Housing:	Aluminum die casting
	Filter assembly:	Stainless steel sintered filter
		Stainless steel sintered filter with Teflon
Dimensions	USTE probe:	L=134mm (5.3"), ø12mm (ø0.5")
	USTE cable:	L=2m (78.7") (optional extra 2m)
	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

WR283-XP



WR293-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



WM281/291
Advanced Wall Mount 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.

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