

HygroSmart DT Series

Advanced Duct Mount Relative Humidity & Temperature Transmitters

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



Highlights

- Accuracy $\pm 1.25\%$ RH
- Calculated hygrometric outputs
- Flexible analog output configurations
- Interchangeable sensor assembly for rapid maintenance
- Digital RS485 Modbus multidrop output
- Optional integral LCD display
- Rugged heavy industrial housing
- Flexible probe and filter configurations
- Traceable 5-point calibration certificate
- Operating temperature -40 to $+85^{\circ}\text{C}$ ($\varnothing 19\text{mm}$)
- Operating temperature -40 to $+140^{\circ}\text{C}$ ($\varnothing 12\text{mm}$)

Applications

- Pharmaceutical
- Agricultural
- Power
- Energy
- Nuclear
- Paper processing
- Transportation
- Marine
- Metallurgy
- Food and beverage



HygroSmart DT282/292 & DT284/294

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 DT Series is available in the following models for a wide variety of duct mount applications:

Model	Operating temp °C	Probe diameter	Probe length	Display	Sensor type
DT282/292	-40 to +85	ø19mm	250mm 500mm	DT292	I7000XP
DT284/294	-40 to +140	ø12mm		DT294	USTE assembly

It uses the latest Michell advanced capacitive polymer element, developed over 40 years of specialization in moisture measurements and now incorporated into the new I7000XP (extra performance) and USTE interchangeable sensors, positioned in the probe measuring point.

Flexible Customer Outputs

The HygroSmart DT Series has a choice of both 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, gives the new HygroSmart DT Series outstanding accuracy across the complete RH and temperature spectrum.

- DT Series 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 reconfiguration.

Ease of Maintenance

The transmitters feature an I7000XP interchangeable sensor or USTE sensor assembly, which contains its own calibration data — giving the duct-mount transmitters rapid maintenance time to replace the measurement technology, minimizing system downtime.

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

User Flexibility

The DT Series has an RS485 Modbus RTU digital interface, which can be used for either digital multidrop outputting or 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.

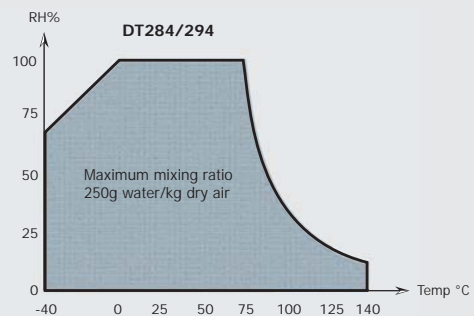
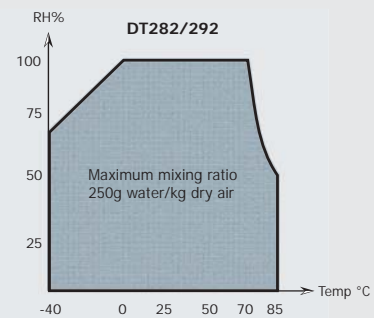
- Field supported by a network of Michell’s global service centers
- Calibration manufacturing system is traceable to national standards

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 HygroSmart DT Series operates to the defined technical specifications within the following operating condition envelopes:

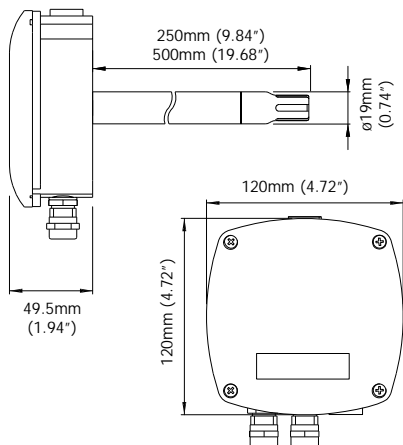


Technical Specifications

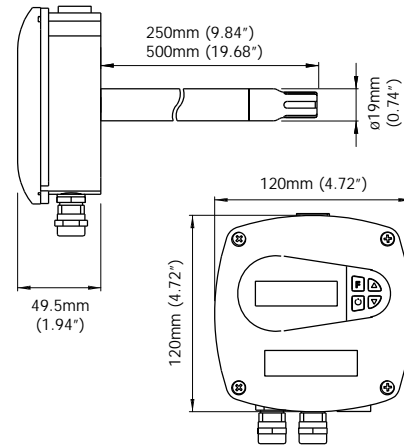
Product	DT282/284-XP	DT292/294-XP Display
Performance Specifications		
RH measurement range	0 to 100% RH	
RH accuracy @ 23°C	±1.25% RH (5 to 95% RH)	
RH thermal coefficient	<0.03% RH/°C typical	
RH measurement response time	Less than 10 seconds	
RH element	Michell H8000	
RH long term stability	±1% RH per year	
Temperature measurement range	-40 to +85°C (DT282/292) -40 to +140°C (DT284/294)	
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	
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 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	
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>)	
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 (DT282/292) -40 to +140°C (DT284/294) Housing: -30 to +70°C Storage: -40 to +70°C	
Mechanical Specifications		
Ingress protection	IP65 (NEMA 4 level)	
Material	Probe: Stainless steel (DT282/292) Stainless steel, PEEK (DT284/294) Housing: Aluminum die casting Filter assembly (DT282/292): Stainless steel sintered filter Stainless steel sintered filter with Teflon Slotted stainless steel cap with stainless steel mesh filter Slotted stainless steel cap with PTFE filter Filter assembly (DT284/294): Stainless steel sintered filter Stainless steel sintered filter with Teflon Slotted stainless steel cap with stainless steel mesh filter Slotted PEEK cap with stainless steel mesh filter	
Dimensions	Probe: ø19mm, 250mm or 500mm length (DT282/292) ø12mm, 250mm or 500mm length (DT284/294) Housing: 120 x 120 x 49.5mm	
Weight	450g (approx)	
Electrical connections	Internal screw terminals	

Product Dimensions

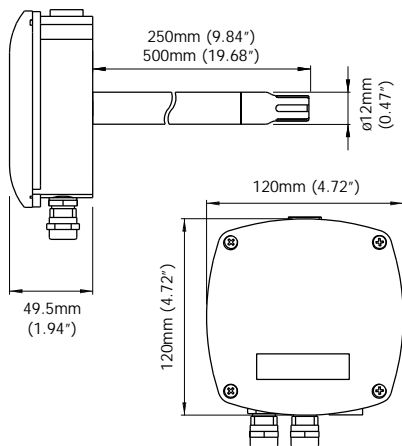
DT282-XP



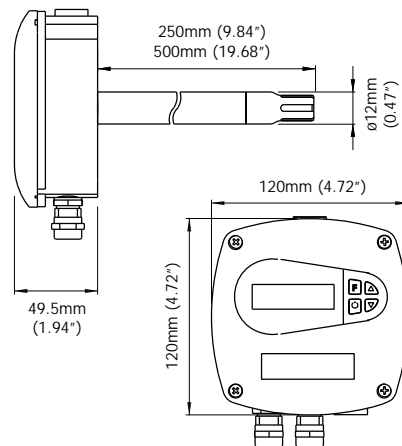
DT292-XP




DT284-XP



DT294-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

 <p>HS3 Probe & OEM Sensor Advanced interchangeable RH and Temperature Probe</p>	 <p>WM281/291 Advanced Wall Mount RH and Temperature Transmitter</p>	 <p>WR283/293 Advanced Remote Probe RH and Temperature Transmitter</p>	 <p>PR285 Advanced Pressurized Remote RH Transmitter</p>	 <p>HygroCal100 Humidity Validator</p>
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Michell Instruments adopts a continuous development programme which sometimes necessitates specification changes without notice.
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