YUA

Fast · Accurate · Managing

Anti-condensation,
Anti-particle Contamination

-110 … +60 °Ctd
Optional measuring range

Ex ia IIC T4 Ga
Ex ia IIIC T130°C Da



F171x-Ex Series

Dewpoint Meter

Intrinsically Safe Explosion-proof Dewpoint Meter

DEWPOINT METER

Product Overview

The F171x-Ex series intrinsically safe explosion-proof dewpoint transmitter is designed for dewpoint monitoring in harsh environments and industrial hazardous sites. It is widely used in petrochemical, electric power, pharmaceutical, industrial gas, heat treatment, aviation, natural gas, drying equipment and medical industries. It provides users a safe and reliable dewpoint monitoring solution

F171x-Ex can integrate a variety of latest technology humidity sensors: FIXIINST-P polymer film capacitive sensor, FIXINST-A ultra-fast response alumina sensor that innovates humidity-sensitive materials and processes, allowing F171x-Ex to accurately measure from -110 ... +60 °Ctd wide range dew point

It adopts intrinsically safe explosion-proof design and has the explosion-proof certificate issued by the state:
Explosion-proof class: Ex ia IIC T4 Ga / Ex ia IIIC T130°C Da
Protection grade: IP66

Revolutionary auto-calibration circuit design automatically compensates for measuring drift caused by temperature, contamination, and aging, providing long-term stability and high accuracy measurements

The innovative temperature compensation algorithm and multi-point temperature compensation calibration before leaving the factory greatly improve the temperature drift of the sensor and ensure high-precision measurement in a wide temperature range

Product Advantages

Excellent Anti-pollution Ability
Anti-condensation,
Anti-particle Contamination

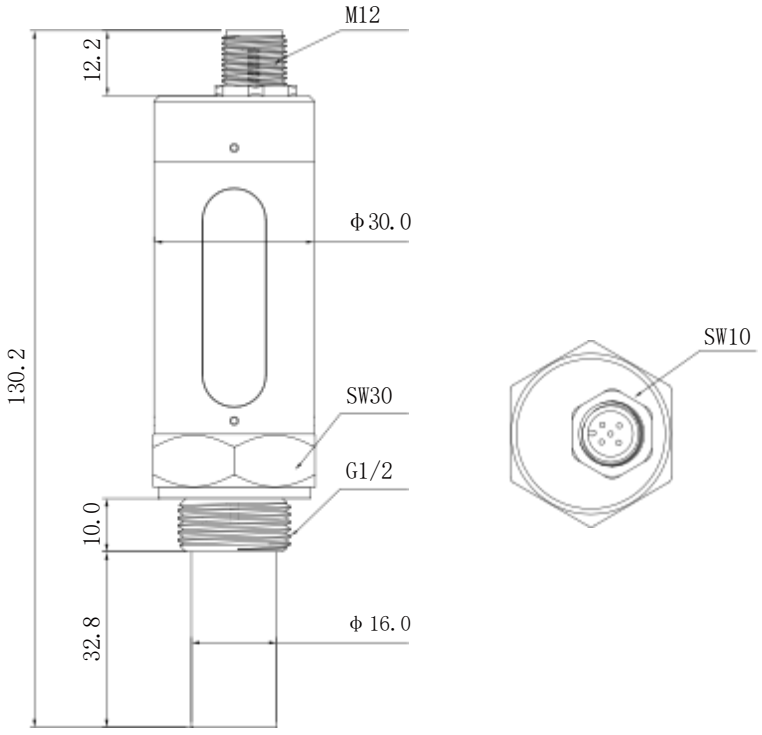
Ultra-wide Range
-110 ... +60 °Ctd
Optional

Explosion-proof Certification
Ex ia IIC T4 Ga
Ex ia IIIC T130°C Da

Fast Response
Fast response to moisture changes

- Compatible with various sensor technologies: polymer thin film, aluminum oxide, that can be used in different measurement ranges
- Explosion-proof certification: Ex ia IIC T4 Ga / Ex ia IIIC T130°C Da
- MEMS based pressure sensor for online pressure and atmospheric dewpoint (Abs. pressure 0 ... 1.7 MPa.a) monitoring
- Accurate to ±2 °Ctd with up to 10+ dewpoint calibration and multi-point temperature compensation (Refer to “Technical Data”)
- Ultra-fast response time
- Outstanding long-term stability
- Anti-condensation, resistant to particulate contimination, oil vapor and most chemicals
- High resistance to electrical disturbance

Product Dimensions



Sensor Model	FixInst-P	FIXINST-A	FIXINST-Q
Sensor Type	Polymer Capacitive Sensors	Aluminum Oxide Sensors	QCM Sensor
Sensor View			
Application in > -60 °Ctd: Refrigerant Dryer, Desiccant Dryer, Industrial Gas	✓		
Application in -80 … -60 °Ctd: Desiccant Dryer, Nitrogen Generators, Industrial Gas		✓	
Application in -120 … -80 °Ctd: High-purity industrial gas		○	✓
Containing contaminated particles	✓	✓	

* Sensor FIXINST-A FIXINST-Q have obtained relevant patents

○ Model F139C-Puri, F305B

Product Applications

Dew point meters are widely used in dry purification, chemical, petrochemical, power engineering, and food & medicine etc.



Gas monitoring of drying equipment

* Refrigeration Dryer Desiccant dryer Membrane dryer



Vessel and pipeline gas monitoring



Medical and surgical gas monitoring



Moisture monitoring of industrial gases



Monitoring of dry and clean environments



Dryness test for food and drug additives

Technical Data

Measuring Range

Dewpoint	
F171A-Ex	-60 … +60 °Ctd
F171B-Ex	-110 … +20 °Ctd
Temperature	-40 … +100 °C
Pressure	0 … 1.7 MPa(a) (Option)

Output

Analog Output (Customized)	4 … 20 mA (3-wire)
Analog Resolution	0.002 mA
Analog Drift	0.01 % of span/°C
Analog Load	Max. 500 ohm
Digital Output	Modbus RTU (RS485)
Connector	5pin M12, Female

Accuracy

Dewpoint (Air or Nitrogen)	
+20 … -60 °Ctd	±2 °Ctd
-60 … -100 °Ctd	±3 °Ctd
Temperature (Customizable)	
0 … +50 °C	±0.3 °C (Standard)
-40 … 0 °C & +50 … +100 °C	±0.5 °C (Standard)
Pressure	
Accuracy @23 °C	±0.3 %FS
Pressure drift with temperature	±0.001 MPa/10 °C

Operating Environment

Operating Temperature	-30 … +70 °C
Storage Temperature	-40 … +80 °C
Relative Humidity	0 … 95 %RH
Sample Gas Flow Rate	> 1 L/min
Pressure	
(Integrated pressure sensor)	0 … 1.7 MPa(a)
(Without presssure sensor)	0 … 5 MPa(a)

Response Time

Dewpoint 63% [90%], Reference: 20 °C, 1bar(a), 4L/min

-50→+20 °Ctd	20 sec [40 sec]
+20→-50 °Ctd	1 min [3 min]
Pressure	< 1 sec

Other

Process Connection	ISO G1/2" thread (Standard) 3/4" - 16 UNF thread (Customized) 5/8" - 18 UNF thread (Customized)
Protection Code	IP66
Explosion-proof Class	Ex ia IIC T4 Ga / Ex ia IIIC T130°C Da
Housing Material	SUS304
Sensor Filter	Stainless steel sinter filter (Filtration class 30~45 μm)
EMC	Compliant with IEC 61326-1

Power

Measuring State	10 … 13VDC	Max 0.55W @ 12VDC

Order Information

Model	Description
F171A-Ex	-60 … +60 °Ctd, Intrinsically safe explosion-proof dewpoint meter
F171A-P-Ex	-60 … +60 °Ctd, Intrinsically safe explosion-proof dewpoint meter, Integrated pressure sensor
F171B-Ex	-110 … +20 °Ctd, Intrinsically safe explosion-proof dewpoint meter
F171B-P-Ex	-110 … +20 °Ctd, Intrinsically safe explosion-proof dewpoint meter, Integrated pressure sensor

* To have customized thread type, please consult sales

Safety Barrier Selection:

Model	Description
E1701 0039	Module, Zener Barrier, [Ex ia Ga]IIC [Ex ia Da]IIIC, suitable for F171x-Ex RS485 interface
E1701 0040	Module, Zener Barrier, [Ex ia Ga]IIC [Ex ia Da]IIIC, suitable for F171x-Ex 4 … 20 mA output
E1701 0041	Module, Zener Barrier, [Ex ia Ga]IIC [Ex ia Da]IIIC, suitable for F171x-Ex 12 VDC power input