



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: FIXINST-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

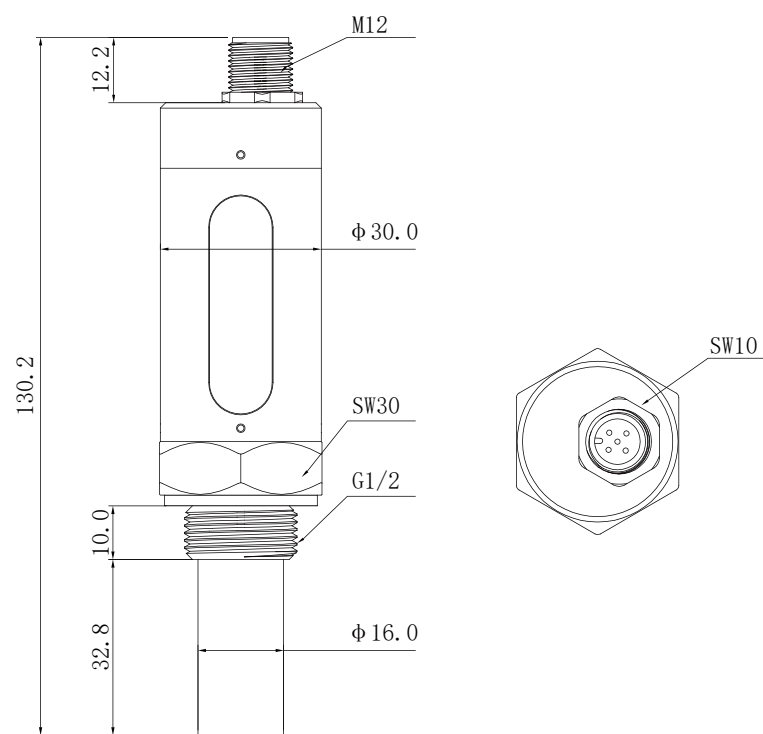





### Fast Response

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  $\pm 2$  °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 contamination, 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

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



01

Gas monitoring of drying equipment

\* Refrigeration Dryer    Desiccant dryer  
 Membrane dryer



02

Vessel and pipeline gas monitoring



03

Medical and surgical gas monitoring



04

Moisture monitoring of industrial gases



05

Monitoring of dry and clean environments



06

Dryness test for food and drug additives

# Technical Data

Measuring Range		Output	
Dewpoint		Analog Output (Customized)	4 ... 20 mA (3-wire)
F171A-Ex	-60 ... +60 °Ctd	Analog Resolution	0.002 mA
F171B-Ex	-110 ... +20 °Ctd	Analog Drift	0.01 % of span/°C
Temperature	-40 ... +100 °C	Analog Load	Max. 500 ohm
Pressure	0 ... 1.7 MPa(a) (Option)	Digital Output	Modbus RTU (RS485)
		Connector	5pin M12, Female
Accuracy		Operating Environment	
Dewpoint (Air or Nitrogen)		Operating Temperature	-30 ... +70 °C
+20 ... -60 °Ctd	±2 °Ctd	Storage Temperature	-40 ... +80 °C
-60 ... -100 °Ctd	±3 °Ctd	Relative Humidity	0 ... 95 %RH
Temperature (Customizable)		Sample Gas Flow Rate	> 1 L/min
0 ... +50 °C	±0.3 °C (Standard)	Pressure	
-40 ... 0 °C & +50 ... +100 °C	±0.5 °C (Standard)	(Integrated pressure sensor)	0 ... 1.7 MPa(a)
Pressure		(Without pressure sensor)	0 ... 5 MPa(a)
Accuracy @23 °C	±0.3 %FS		
Pressure drift with temperature	±0.001 MPa/10 °C		
Response Time		Other	
Dewpoint 63% [90%], Reference: 20 °C, 1bar(a), 4L/min		Process Connection	ISO G1/2" thread (Standard) 3/4" - 16 UNF thread (Customized) 5/8" - 18 UNF thread (Customized)
-50 → +20 °Ctd	20 sec [40 sec]	Protection Code	IP66
+20 → -50 °Ctd	1 min [3 min]	Explosion-proof Class	Ex ia IIC T4 Ga / Ex ia IIIC T130°C Da
Pressure	< 1 sec	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