YUA

Fast · Accurate · Managing

-120 … +20 °Ctd Ultra Low Dewpoint Measurement

Advanced QCM Technology
Automatic compensation contamination

Ultra-fast Response Time




# F138x Series
# Dewpoint Meter

## QCM Dewpoint & Pressure Multi-Parameter Transmitter

DEWPOINT METER

# Product Overview

The F138x series integrates 3 sensors: temperature, humidity and pressure in a very compact space. It measures the dew point and simultaneously monitors the online pressure and outputs both the pressure dew point and the atmospheric dew point at the same time.

QCM sensor technology is a revolutionary humidity measurement technology. Combined with the newly developed moisture sensitive material, it has excellent signal sensitivity in ultra-low humidity conditions and can measure humidity down to ppb level stably

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

Innovative temperature compensation algorithm and multi-point temperature compensation calibration, greatly improving the sensor's temperature drift and ensuring high-precision dew point measurement over a wide temperature range

# Product Advantages

### FixInst-Q Sensor Tech

Automatic compensation for signal drift due to contamination

### PPb Class Ultra Low Dewpoint Measurement

-120 … 0 °Ctd

### Auto-calibration Circuit

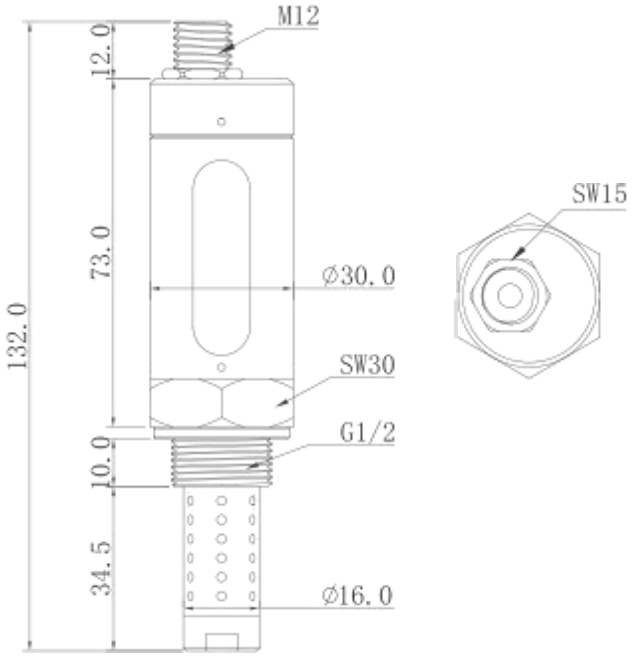
Provides accurate and stable measurements

### Fast Response Time

Fast response to moisture changes

- Revolutionary FixInst-Q QCM humidity sensitive material, lower limit of dewpoint down to -120 °Ctd, ppb level of humidity
- Application in dewpoint < -80 °Ctd:
  High-purity industrial gas, clean gas
- MEMS based pressure sensor for simultaneous monitoring of dewpoint and pressure
- Accurate measurements up to ±2 °Ctd
- Ultra-fast response time and outstanding long-term stability
- High resistance to electrical disturbance
- Excellent immunity to interference
- IP65 protection class, providing good protection even in harsh environments
- Provides comprehensive sensor setup, data transfer, software upgrades, and maintenance via Modbus RTU (RS485) interface and powerful service APP

# 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



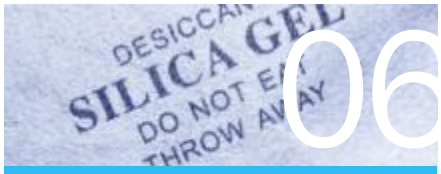

Medical and surgical gas monitoring




Moisture monitoring of industrial gases




Monitoring of dry and clean environments




Dryness test for food and drug additives

# Technical Data

## Measurement Range

| | |
|---|---|
| Dewpoint | |
| F138B | -110 ... 0 °Ctd |
| F138C | -120 ... 0 °Ctd |
| Temperature | -40 ... +100 °C |
| Pressure | 0 ... 1.7 MPa(a) |

## Accuracy

| | |
|---|---|
| Dewpoint (Air or Nitrogen) | |
| -20 … -80°Ctd | ±2 °Ctd |
| -80 … -110°Ctd | ±3 °Ctd |
| Temperature (Customizable) | |
| 0 ... +50 °C | ± 0.3 °C (Standard) |
| -40 … 0 °C and +50 … +100 °C | ± 0.5 °C (Standard) |
| Pressure Accuracy @23 °C | ± 0.3 %FS |
| Pressure Drift With Temperature | ± 0.01 bar/10 °C |

## Response Time

| | |
|---|---|
| Dewpoint: 63% [90%], Reference: 20 °C, 1bar(a), 4L/min | |
| -80 → -30 °Ctd | 20 sec [40 sec] |
| -30 → -70 °Ctd | 5 min [20 min] |
| Pressure | < 1 sec |

## Power

| | | |
|---|---|---|
| Measuring State | 10 … 30VDC | Max 1.5W @ 24VDC |

## 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 |

## Operating Environment

| | |
|---|---|
| Operating Temperature | -20 ... +70 °C |
| Storage Temperature | -30 ... +80 °C |
| Relative Humidity | 0 ... 95 %RH |
| Sample Gas Flow Rate | > 1 L/min |
| Pressure | 0 ... 1.7 MPa(a) |

## Other

| | |
|---|---|
| Process Connection | ISO G1/2″ thread (Standard)<br>3/4″ - 16 UNF thread (Customized)<br>5/8" - 18 UNF thread (Customized) |
| Protection Code | IP65 |
| Casing Material | SUS304 |
| Sensor Filter | Stainless steel mesh filter<br>(Filtration class 70 um) |
| EMC | Compliant with IEC 61326-1 |

# Order Information

| Model | Digital Output | Analog Output | Sensor Filter | Cable / Connector | Analog Output Unit | Pressure | Description |
|---|---|---|---|---|---|---|---|
| F138B | | | | | | | -110 … 0 °Ctd, QCM sensor, Integrated pressure sensor, Standard stainless steel housing, G1/2" thread |
| F138B-U1 | | | | | | | -110 … 0 °Ctd, QCM sensor, Integrated pressure sensor, Standard stainless steel housing, 3/4" -16 UNF thread |
| F138B-U2 | | | | | | | -110 … 0 °Ctd, QCM sensor, Integrated pressure sensor, Standard stainless steel housing, 5/8" -18 UNF thread |
| F138C | | | | | | | -120 … 0 °Ctd, QCM sensor, Integrated pressure sensor, Standard stainless steel housing, G1/2" thread |
| F138C-U1 | | | | | | | -120 … 0 °Ctd, QCM sensor, Integrated pressure sensor, Standard stainless steel housing, 3/4" -16 UNF thread |
| F138C-U2 | | | | | | | -120 … 0 °Ctd, QCM sensor, Integrated pressure sensor, Standard stainless steel housing, 5/8" -18 UNF thread |
| | 1 | | | | | | Modbus RTU (RS485) |
| | | 1 | | | | | 4 … 20 mA |
| | | | S0301 0005 | | | | Stainless steel mesh filter (Filtration class 70 um, Default) |
| | | | | M2701 0004 | | | M12 female straight connectors, IP67, With 2m cable (Default) |
| | | | | | V0101 0001 | | Default output unit |
| | | | | | V0101 0002 | | Output unit (Customized) |
| | | | | | | V0103 0001 | Defualt 0 bar(g) |
| | | | | | | V0103 0002 | Customized |

* Wi-SUN wireless is available as an option. Please consult sales staff for details

* For other accessories please refer to **YUA Instruments** Product Catalog or consult sales