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# 2026-2027

# PRODUCT CATALOG

Experts in compressed air &
fluid measurement

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# FixInst Product Series

## Energy Monitoring

- Pitot Tube Flow Meter



- Vortex Flow Meter



- Thermal Mass Flow meter





- Power Meter



- Ultrasonic Leak Detector



- Pressure Sensor



- Temperature Sensor



## Gas Quality

- Dewpoint Meter



- Portable Dewpoint Meter



- Oil Vapor Sensor



- Particle Counter



## System Monitoring

- Compressed Air Audit Suit



- Display & Data Logger

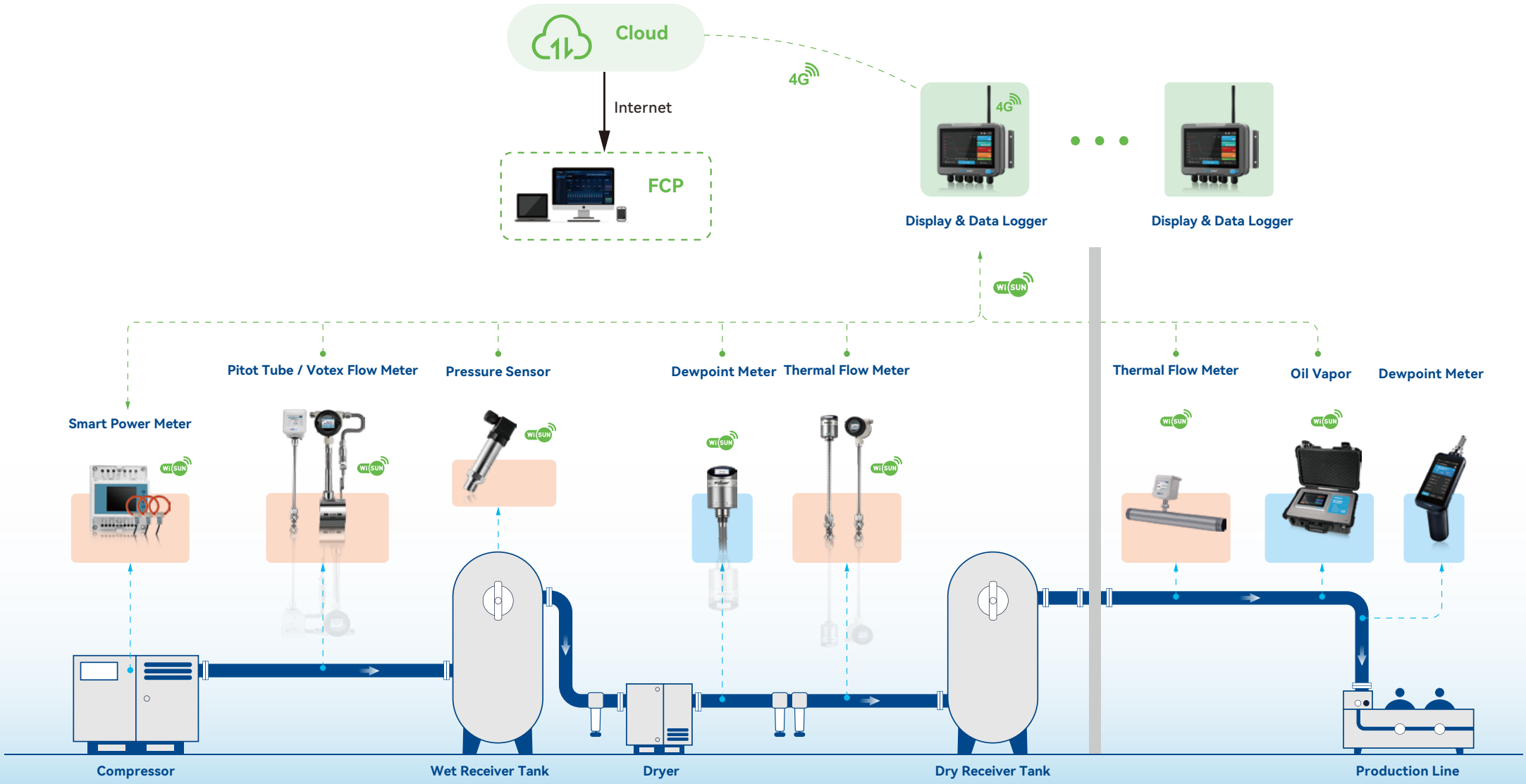




<*Only representative products are displayed>

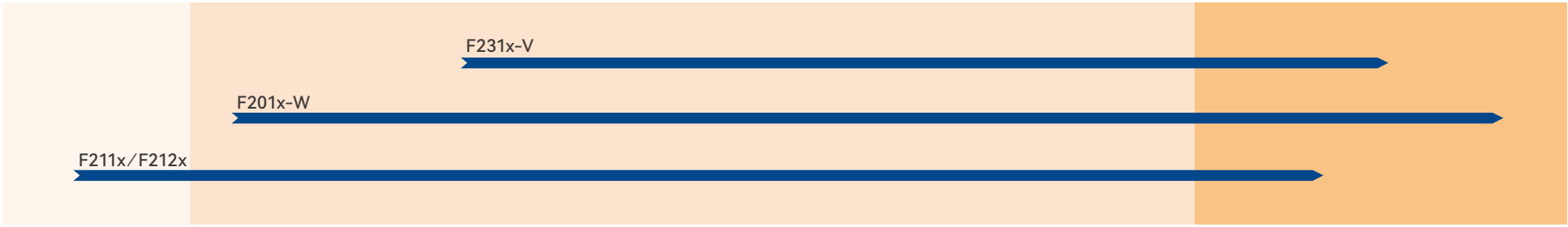
# Integrated Compressed Air Monitoring Solution

<*Only representative products are displayed>



# Order Information

Optimal Use Range




# Selection Recommendation

| Modle | F201x-W<br>Pitot Tube Flow Meter | F211x<br>Thermal Mass Flow Meter | F212x<br>Thermal Mass Flow Meter | F231x-V<br>Vortex Flow Meter |
|---|---|---|---|---|
| Appearance |  |  |  |  |
| Description | Pitot Tube Flow Meter | Thermal Mass Flow Meter | Thermal Mass Flow Meter | Vortex Flow Meter |
| Installation | Insert type, install under pressure | Insert type, install under pressure | Flange-style, downtime required | Wafer/Flange-style, downtime required |
| Measuring Range | 5 … 300 Nm/s | 0.1 … 250 Nm/s | 0.1 … 250 Nm/s | 1.5 … 80 m/s (Act Flow) |
| Operating Pressure | 0 … 1.7 MPa(a) | 0 … 6.4 MPa(a) (>1.7 MPa.a, High pressure jig required) | 0 …1.7 MPa(a) (6.4 MPa.a Option) | 0 …1.7 MPa(a) (6.4 MPa.a Option) |
| Medium Temperature | -40 … +150 °C | -40 … +150 °C | -40 … +150 °C | -40 … +160 °C (280 °C/350 °C Option) |
| Actual Flow Measurement | ✓ | | | ✓ |
| Temperature Measurement | ✓ | ✓ | ✓ | ✓ |
| Online Auto-Calibration | ✓ | | | |
| Modbus RTU Communication | ✓ | ✓ | ✓ | ✓ |
| Bluetooth Communication | ✓ | ✓ | ✓ | ✓ |
| 4~20 mA & Pulse Output | ✓ | ✓ | ✓ | ✓ |
| LCD Display | ✓ | ✓ | ✓ | ✓ |
| Data Log | ✓ | ✓ | ✓ | |
| Accuracy | ±(1.5% RD + 0.3% FS)<br>[1% RD Option] | ±(1.5% RD + 0.3% FS)<br>[1% RD Option] | ±(1.5% RD + 0.3% FS)<br>[1% RD Option] | Class 1 |

# Selection Recommendation

| Modle | | F201x-W<br>Pitot Tube Flow Meter | F211x<br>Thermal Mass Flow Meter | F212x<br>Thermal Mass Flow Meter | F231x-V<br>Vortex Flow Meter |
|---|---|---|---|---|---|
| Appearance | |  |  |  |  |
| Harsh Working Condition | | | | | ✓ |
| Install under Pressure | Clean Gas | | ✓ | | |
| | Unclean Gas | ✓ | | | |
| Diameter > DN300 | | ✓ | ✓ | | |
| Diameter ≤ DN32 | | | | ✓ | |
| Low Flow Application:<br>Branch Pipe & Single Unit Gas Consumption | | | ✓ | ✓ | |
| Vacuum Flow Measurement<br>Clean Working Conditon | | | ✓ | ✓ | |
| Blower Flow Measurement<br>(Low Pressure & Large Pipe) | | ✓ | ✓ | | |
| Steam Measurement | | | | | ✓ |


安装直管段要求

F201x-W Series

# Anti-Condensation Auto-Calibration

## Pitot Tube Flow Meter




# Product Overview

### Performance:

Auto-drain: Pitot tube differential pressure measurement principle, which is usually limited by the influence of condensate, dirty air pollution and clogging,The F201x-W, as the new generation flow meter, has an Auto-Drain function; it can realize pollution resistance

Auto-heating: Accurate measurements in the moisture-saturated gas

Ultra-wide measurement range: The very low measuring limit which can reach 5 Nm/s, and turndown ratio 1:60

Online auto-calibration: Automatic compensates the impacts of temperature change, pressure change, and sensor pollution

Excellent vibration resistance: It is not affected by pipeline vibration

### Installation:

Suitable for different pipe size: One flow meter can use in various diameter pipe

Install under pressure: Non-intrusive installation without downtime

Install at outlet of the compressor: Outstanding adaptability to working conditions

Powerful working condition adaptability: Applicable for most pipelines, avoding pipe rework

# Product Advantages

**Anti-pollution**
Auto-heating and auto-cleaning functions, applicable to various harsh pipeline working conditions

**Online Auto-calibration**
Online auto-calibration reduces measuring data drift from sensor aging

**Smart Terminal**
Optional Bluetooth, 4G or Wi-SUN wireless communication modules

**Data Logging**
Data recording and analysis via IoT or USB memory stick

- Applicable to the measurement of dirty and wet air, e.g. at the outlet of compressor
- Super high sensitivity, the lower limit is down to 5 Nm/s
- Bidirectional flow measurement
- Integrates pressure and temperature sensors to monitor online gas pressure and temperature
- The fully isolated electrical structure can completely filter out field disturbance
- The capacitive touch 2.8" IPS LCD with an ultra-wide viewing angle
- No moving parts, low pressure drop
- Data logging function with max. 10,000,000 values
- Optional Bluetooth, 4G, and Wi-SUN wireless communication modules enable wireless sensor configuration and data transmission
- Standard Modbus RTU (RS485) interface
- Optional FAD module for Gas-to-power ratio monitoring
- Insert type enables the flowmeter to be installed on different pipe diameters under pressure via 1/2" ball valve

# Technical Data

| Flow | |
|---|---|
| Measuring Range | 5 … 300 Nm/s |
| Accuracy | ±(1.5% RD + 0.3% FS) [1% RD Option] |
| Medium | Dry / wet air and non-corrosive gases |
| Reference Conditions | 20 °C, 1 bar(a) - ISO 1217 (Configurable) |
| Gas-to-power Monitor | FAD Flow Real-time Conversion (Option) |

| Pressure | |
|---|---|
| Measuring Range | 0 … 1.7 MPa(a) |
| Accuracy | ±0.5% FS |

| Temperaure | |
|---|---|
| Measuring Range | -40 … +150 °C |
| Accuracy | ±0.5 °C |

| Output | |
|---|---|
| 4~20 mA Output (Standard) | Flow rate / Temperature / Pressure (Configurable) |
| Pulse (Standard) | Consumption / Alarm |
| Digital Output | Modbus RTU (RS485) |
| Wireless Output (Choose one of three) | Bluetooth (Option)<br>Wi-SUN (Option)<br>IoT-4G (Option) |
| Connector | 2 × 5pin M12, Male |

| Power | |
|---|---|
| Supply Voltage & Power | 18 … 30VDC 24W @ 24VDC |

| Display & Data Log | |
|---|---|
| Display | 2.8" IPS LCD with capacitive touch |
| Data Log | max. 10,000,000 values |

| Operating Environment | |
|---|---|
| Environment Temperature | -20 … +60 °C |
| Medium Temperature | -40 … +150 °C |
| Operating Pressure | 0 … 1.7 MPa(a) |

| Other | |
|---|---|
| Process Connection | G1/2" (ISO 228-1) |
| EMC | Compliant with IEC 61326-1 |
| Pole Section Material | SUS304 (Standard)<br>SUS316 (Option) |
| Housing Material | ABS+PC |

* For operating conditions with severe pollution, please consult our sales staff

# Measuring Range

| Inch | DN | ID (mm) | Min Flow ($Nm^3/h$) | Max Flow ($Nm^3/h$) |
|---|---|---|---|---|
| 1 | 25 | 25 | 8.8 | 530 |
| $1^{1/4}$ | 32 | 32 | 14.5 | 868 |
| $1^{1/2}$ | 40 | 40 | 22.6 | 1357 |
| 2 | 50 | 50 | 35.3 | 2120 |
| $2^{1/2}$ | 65 | 65 | 59.7 | 3583 |
| 3 | 80 | 80 | 90.5 | 5428 |
| 4 | 100 | 100 | 141.4 | 8482 |
| 5 | 125 | 125 | 220.9 | 13253 |
| 6 | 150 | 150 | 318.1 | 19085 |
| 8 | 200 | 200 | 565.5 | 33929 |
| 10 | 250 | 250 | 883.6 | 53014 |
| 12 | 300 | 300 | 1272.3 | 76340 |

* For more pipe sizes and flow ranges, please consult sales

# Order Information

| Model | Process Connection | Digital Output | Flow Range | Analog Output | Wireless Comm. | Gas type | Accuracy | Monitor | Description |
|---|---|---|---|---|---|---|---|---|---|
| F201A-W | | | | | | | | | Pitot Tube Flow Meter, Insert type, 250 mm pole length (Suitable for pipe diameter up to DN250) |
| F201B-W | | | | | | | | | Pitot Tube Flow Meter, Insert type, 400 mm pole length (Suitable for pipe diameter up to DN600) |
| F201C-W | | | | | | | | | Pitot Tube Flow Meter, Insert type, 600 mm pole length (Suitable for pipe diameter up to DN1000) |
| F201A-W-B | | | | | | | | | Pitot Tube Flow Meter, Insert type, 250 mm pole length bi-directional flow measurement (Suitable for pipe diameter up to DN250) |
| F201B-W-B | | | | | | | | | Pitot Tube Flow Meter, Insert type, 400 mm pole length bi-directional flow measurement (Suitable for pipe diameter up to DN600) |
| F201C-W-B | | | | | | | | | Pitot Tube Flow Meter, Insert type, 600 mm pole length bi-directional flow measurement (Suitable for pipe diameter up to DN1000) |
| | 1 | | | | | | | | ISO G1/2" Screw |
| | | 1 | | | | | | | Modbus RTU (RS485) |
| | | | 1 | | | | | | Flow range (5 ... 300 Nm/s) |
| | | | | V0208 0007 | | | | | 4 … 20 mA + Pulse Output |
| | | | | S1701 0029 | | | | | FAD Flow Real-time Conversion Module; Pipeline installation (temperature / pressure / humidity) |
| | | | | S1701 0030 | | | | | FAD Flow Real-time Conversion Module; Wall-mounted installation (temperature / pressure / humidity) |
| | | | | S1701 0041 | | | | | FAD Flow Real-time Conversion Module; DIN-Rail installation (temperature / pressure / humidity) |
| | | | | | V0013 0001 | | | | None (Default) |
| | | | | | S1701 0044 | | | | Bluetooth Module |
| | | | | | S1701 0010 | | | | FixInst IoT-4G Module |
| | | | | | S1701 0043 | | | | Third-party IoT-4G Module |
| | | | | | S1701 0024 | | | | Built-in Wi-SUN Sub-module, 915 frequency band, mainly suitable for Asia, America and Australia |
| | | | | | S1701 0025 | | | | Built- in Wi-SUN Sub-module, 868 frequency band, mainly suitable for Europe and the Middle East |
| | | | | | | V0202 0001 | | | Air |
| | | | | | | V0202 0002 | | | Oxygen ($O_2$) |
| | | | | | | V0202 0003 | | | Nitrogen ($N_2$) |
| | | | | | | V0202 0004 | | | Hydrogen ($H_2$), Real Gas Calibration |
| | | | | | | V0202 0005 | | | Nitroous Oxide ($N_2O$) |
| | | | | | | V0202 0006 | | | Carbon Dioxide ($CO_2$) |
| | | | | | | V0202 0007 | | | Natural Gas (NG) |
| | | | | | | V0202 0008 | | | Argon (Ar) |
| | | | | | | V0202 0009 | | | Helium (He), Real Gas Calibration |
| | | | | | | V0202 0010 | | | Other Specified Gases (Specify Gas or Gas Mix) |
| | | | | | | | V0204 0001 | | Standard accuracy calibration ±(1.5% RD + 0.3% FS) |
| | | | | | | | V0204 0002 | | High accuracy calibration ±(1% RD + 0.3% FS) |
| | | | | | | | | S0105 0001 | New-generation capacitive touch 2.8" IPS LCD with an ultra-wide viewing angle + Data logging function |
| | | | | | | | | S0105 0001A | Without LCD version |

*For more pole length, please consult sales

*Portable protective case is available as an option. Please refer to the accessories list (P126) for details

*There are difference in regulations and standards between countries and regions. Please select according to the local Wi-SUN frequency band

F211x / F212x Series

# Ultra-wide flow measuring range

## Thermal Mass Flow Meter



## Product Overview

F211x & F212x flow meter is based on thermal measurement technology. It can measure the standard flow, mass flow, consumption, and gas temperature directly

No moving parts, stable signal, vibration proof, high reliability, long-term measuring accuracy

Full-digital signal processing is used instead of the conventional analog bridge design, resulting in a wider range and more accurate measurement.

The low measuring limit can reach 0.1Nm/s, and the turndown ratio can reach 1:2500. It has a wider measuring range than common flow meters on the market, making it suitable for measuring extremely volatile flow, low-flow bypass, and the gas consumption of single equipment.

With the innovative, intelligent diagnosis technology, it can sense the sensor pollution online and protect the sensor from overheating

## Product Advantages

### Low Measuring Lower Limit

0.1 Nm/s

The low measuring limit can reach 0.1 Nm/s

### Full-digital Signal Processing

01010

Eliminates zero point drift and provides highly accurate measurements

### Smart Terminal

Optional Bluetooth, 4G or Wi-SUN wireless communication modules

### 30+ Points of Calibration

Overcome the nonlinear defects which occur in thermal measurement

### Installation under Pressure

Non-intrusive installation without downtime, almost zero pressure drop

- Full-digital signal processing, higher accuracy, long-term stability
- Based on the thermal flow measurement principle, it's not required to compensate gas pressure and temperature, integrated temperature measurement
- With an ultra-wide 1:2500 turndown ratio, the measuring range is from 0.1 Nm/s to 250 Nm/s
- The fully isolated electrical structure can completely filter out field disturbance
- The capacitive touch 2.8" IPS LCD with an ultra-wide viewing angle
- Data logging function with max. 10,000,000 values
- Optional Bluetooth, 4G, and Wi-SUN wireless communication modules enable wireless sensor configuration and data transmission.
- Standard Modbus RTU (RS485) interface
- Optional FAD module for Gas-to-power ratio monitoring
- Insert type F211x: Suitable for pipes with diameters from DN20 to DN1000, and can be installed under pressure via a 1/2" ball valve.
- Pipe type F212x:
  Pipe size: DN15, DN20, DN32, DN40, DN50, DN65, DN80
  The process for connection: R-type thread, Flange EN1092-1, ANSI / B16.5

# Technical Data

| Flow | |
|---|---|
| Measuring Range | 0(0.1) … 250 Nm/s |
| Accuracy | ±(1.5% RD + 0.3% FS) [1% RD Option] |
| Sampling Rate | > 20 Samples / sec |
| Medium | Compressed air, nitrogen, oxygen, Carbon dioxide & other non-condensing gases |
| Reference Conditions | 20 °C, 1 bar(a) -ISO 1217 (Configurable) |
| Gas-to-power Monitor | FAD Flow Real-time Conversion (Option) |

| Output | |
|---|---|
| 4~20 mA Output (Standard) | Flow rate / Temperature (Configurable) |
| Pulse Output (Standard) | Consumption / Alarm |
| Digital Output (Standard) | Modbus RTU (RS485) |
| Wireless Output (Choose one of three) | Bluetooth (Option)<br>Wi-SUN (Option)<br>IoT-4G (Option) |
| Connector | 2 × 5pin M12, Male |

| Power | |
|---|---|
| Supply Voltage & Power | 18 … 30VDC 5W @ 24VDC |

| Display & Data log | |
|---|---|
| Display | 2.8" IPS LCD with capacitive touch |
| Data Log | max. 10,000,000 values |

| Operating Environment | |
|---|---|
| Environment Temperature | -30 … +70 °C |
| Medium Temperature | -40 … 150 °C |
| Operating Pressure | F211x: 0 … 6.3 MPa(a)<br>(>1.7 MPa.a High pressure jig required)<br>F212x: 0 … 1.7 MPa(a)<br>(4.0 / 6.3 MPa.a Option) |

| Other | |
|---|---|
| Process Connection | G1/2" (ISO 228-1) (F211x Insert type) |
| EMC | Compliant with IEC 61326-1 |
| Pole/Pipe Section Material | SUS304 (Standard)<br>SUS316 (Option) |
| Housing Material | ABS+PC |

# Measuring Range

## F211x Measuring range

| Inch | DN | ID (mm) | Min Flow ($Nm^3/h$) | Max Flow -Std ($Nm^3/h$) | Max Flow -High ($Nm^3/h$) |
|---|---|---|---|---|---|
| 3/4 | 20 | 20 | 0.1 | 135 | 282 |
| 1 | 25 | 25 | 0.2 | 212 | 441 |
| 1 1/4 | 32 | 32 | 0.3 | 347 | 723 |
| 1 1/2 | 40 | 40 | 0.5 | 542 | 1131 |
| 2 | 50 | 50 | 0.7 | 848 | 1767 |
| 2 1/2 | 65 | 65 | 1.2 | 1433 | 2986 |
| 3 | 80 | 80 | 1.8 | 2171 | 4523 |
| 4 | 100 | 100 | 2.8 | 3392 | 7068 |
| 5 | 125 | 125 | 4.4 | 5301 | 11044 |
| 6 | 150 | 150 | 6.4 | 7634 | 15904 |
| 8 | 200 | 200 | 11.3 | 13571 | 28274 |
| 10 | 250 | 250 | 17.7 | 21205 | 44178 |
| 12 | 300 | 300 | 25.4 | 30536 | 63617 |

* For more pipe sizes and flow ranges, please consult sales

## F212x Measuring range

| Inch | DN | ID (mm) | Min Flow ($Nm^3/h$) | Max Flow ($Nm^3/h$) |
|---|---|---|---|---|
| 1/2 | 15 | 15 | 0.06 | 76 |
| 3/4 | 20 | 20 | 0.1 | 135 |
| 1 | 25 | 25 | 0.2 | 212 |
| 1 1/4 | 32 | 32 | 0.3 | 347 |
| 1 1/2 | 40 | 40 | 0.5 | 542 |
| 2 | 50 | 50 | 0.7 | 848 |
| 2 1/2 | 65 | 65 | 1.2 | 1433 |
| 3 | 80 | 80 | 1.8 | 2171 |

* For more pipe sizes and flow ranges, please consult sales

# Order Information

| Model | Process Conn. | Digital Output | Analog Output | Wireless Comm. | Flow Range | Gas type | Accuracy | Monitor | Description |
|---|---|---|---|---|---|---|---|---|---|
| F211A | | | | | | | | | Thermal Mass Flow Meter, Insert type, 250 mm pole length (Suitable for pipe diameter DN20 ~ 250) |
| F211B | | | | | | | | | Thermal Mass Flow Meter, Insert type, 400 mm pole length (Suitable for pipe diameter DN20 ~ 600) |
| F211C | | | | | | | | | Thermal Mass Flow Meter, Insert type, 600 mm pole length (Suitable for pipe diameter DN20 ~ 1000) |
| | 1 | | | | | | | | ISO G1/2" Screw |
| | | 1 | | | | | | | Modbus RTU (RS485) |
| | | | V0208 0007 | | | | | | 4 … 20 mA + Pulse Output |
| | | | S1701 0029 | | | | | | FAD Flow Real-time Conversion Module; Pipeline installation (temperature / pressure / humidity) |
| | | | S1701 0030 | | | | | | FAD Flow Real-time Conversion Module; Wall-mounted installation (temperature / pressure / humidity) |
| | | | S1701 0041 | | | | | | FAD Flow Real-time Conversion Module; DIN-Rail installation (temperature / pressure / humidity) |
| | | | | V0013 0001 | | | | | None (Defalt) |
| | | | | S1701 0044 | | | | | Bluetooth Module |
| | | | | S1701 0010 | | | | | FixInst IoT-4G Module |
| | | | | S1701 0043 | | | | | Third-party IoT-4G Module |
| | | | | S1701 0024 | | | | | Built-in Wi-SUN Sub-module, 915 frequency band, mainly suitable for Asia, America and Australia |
| | | | | S1701 0025 | | | | | Built- in Wi-SUN Sub-module, 868 frequency band, mainly suitable for Europe and the Middle East |
| | | | | | V0205 0002 | | | | Standard Range (0~120 Nm/s) |
| | | | | | V0205 0003 | | | | Extended Range (0~250 Nm/s) |
| | | | | | | V0202 0001 | | | Air |
| | | | | | | V0202 0002 | | | Oxygen ($O_2$) |
| | | | | | | V0202 0003 | | | Nitrogen ($N_2$) |
| | | | | | | V0202 0004 | | | Hydrogen ($H_2$), Real Gas Calibration |
| | | | | | | V0202 0005 | | | Nitroous Oxide ($N_2O$) |
| | | | | | | V0202 0006 | | | Carbon Dioxide ($CO_2$) |
| | | | | | | V0202 0007 | | | Natural Gas (NG) |
| | | | | | | V0202 0008 | | | Argon (Ar) |
| | | | | | | V0202 0009 | | | Helium (He), Real Gas Calibration |
| | | | | | | V0202 0010 | | | Other Specified Gases (Specify Gas or Gas Mix) |
| | | | | | | | V0204 0001 | | Standard Accuracy Calibration ±(1.5% RD + 0.3% FS) |
| | | | | | | | V0204 0002 | | High Accuracy Calibration ±(1% RD + 0.3% FS) |
| | | | | | | | | S0105 0001 | New-generation capacitive touch 2.8" IPS LCD with an ultra-wide view + Data logging function |
| | | | | | | | | S0105 0001A | Without LCD version |

*For more pole length, please consult sales

*Portable protective case is available as an option. Please refer to the accessories list (P126) for details

*There are difference in regulations and standards between countries and regions. Please select according to the local Wi-SUN frequency band

# Order Information

| Model | Digital Output | Analog Output | Wireless Comm. | Process Connection | Gas type | Accuracy | Monitor | Description |
|---|---|---|---|---|---|---|---|---|
| F212A | | | | | | | | Thermal Mass Flow Meter, Pipe type, Maximum pressure: 1.6 MPa(a) |
| F212B | | | | | | | | Thermal Mass Flow Meter, Pipe type, Maximum pressure: 4.0 MPa(a) |
| F212C | | | | | | | | Thermal Mass Flow Meter, Pipe type, Maximum pressure: 6.3 MPa(a) |
| | 1 | | | | | | | Modbus RTU (RS485) |
| | | V0208 0007 | | | | | | 4 … 20 mA + Pulse Output |
| | | S1701 0029 | | | | | | FAD Flow Real-time Conversion Module; Pipeline installation (temperature / pressure / humidity) |
| | | S1701 0030 | | | | | | FAD Flow Real-time Conversion Module; Wall-mounted installation (temperature / pressure / humidity) |
| | | S1701 0041 | | | | | | FAD Flow Real-time Conversion Module; DIN-Rail installation (temperature / pressure / humidity) |
| | | | V0013 0001 | | | | | None (Defalt) |
| | | | S1701 0044 | | | | | Bluetooth Module |
| | | | S1701 0010 | | | | | FixInst IoT-4G Module |
| | | | S1701 0043 | | | | | Third-party IoT-4G Module |
| | | | S1701 0024 | | | | | Built-in Wi-SUN Sub-module, 915 frequency band, mainly suitable for Asia, America and Australia |
| | | | S1701 0025 | | | | | Built- in Wi-SUN Sub-module, 868 frequency band, mainly suitable for Europe and the Middle East |
| | | | | V0207 0001 | | | | R thread (ISO-7-1), DN15, 1/2″ |
| | | | | V0207 0002 | | | | R thread (ISO-7-1) , DN20, 3/4″ |
| | | | | V0207 0003 | | | | R thread (ISO-7-1), DN25, 1″ |
| | | | | V0207 0004 | | | | R thread (ISO-7-1), DN32, 1.25″ |
| | | | | V0207 0005 | | | | R thread (ISO-7-1), DN40, 1.5″ |
| | | | | V0207 0006 | | | | R thread (ISO-7-1), DN50, 2″ |
| | | | | V0207 0023 | | | | R thread (ISO-7-1), DN65, 2.5" |
| | | | | FLG-15 | | | | Flange (EN 1092-1), DN15, 1/2″ |
| | | | | FLG-20 | | | | Flange (EN 1092-1), DN20, 3/4″ |
| | | | | FLG-25 | | | | Flange (EN 1092-1), DN25, 1″ |
| | | | | FLG-32 | | | | Flange (EN 1092-1), DN32, 1.25″ |
| | | | | FLG-40 | | | | Flange (EN 1092-1), DN40, 1.5″ |
| | | | | FLG-50 | | | | Flange (EN 1092-1), DN50, 2″ |
| | | | | FLG-65 | | | | Flange (EN 1092-1), DN65, 2.5″ |
| | | | | FLG-80 | | | | Flange (EN 1092-1), DN80, 3″ |
| | | | | | V0202 0001 | | | Air |
| | | | | | V0202 0002 | | | Oxygen ($O_2$) |
| | | | | | V0202 0003 | | | Nitrogen ($N_2$) |
| | | | | | V0202 0004 | | | Hydrogen ($H_2$), Real Gas Calibration |
| | | | | | V0202 0005 | | | Nitroous Oxide ($N_2O$) |
| | | | | | V0202 0006 | | | Carbon Dioxide ($CO_2$) |
| | | | | | V0202 0007 | | | Natural Gas (NG) |
| | | | | | V0202 0008 | | | Argon (Ar) |
| | | | | | V0202 0009 | | | Helium (He), Real Gas Calibration |
| | | | | | V0202 0010 | | | Other Specified Gases (Specify Gas or Gas Mix) |
| | | | | | | V0204 0001 | | Standard Accuracy Calibration ±(1.5% RD + 0.3% FS) |
| | | | | | | V0204 0002 | | High Accuracy Calibration ±(1% RD + 0.3% FS) |
| | | | | | | | S0105 0001 | The capacitive touch 2.8" IPS LCD with an ultra-wide view + Data logging function |
| | | | | | | | S0105 0001A | Without LCD version |

*There are difference in regulations and standards between countries and regions.
Please select according to the local Wi-SUN frequency band

F231x-V Series

# 1.5m/s low limit of measurement Dual vortex sensors

## New-generation Anti-vibration Vortex Flow Meter



## Product Overview

The F231x-V vortex flow meter is based on the Karman vortex principle to measure gas, or liquid volume flow. It is widely used for industrial measurement because of its anti-pollution ability, simplified structure, and high reliability.

Due to the built-in ultra-high sensitivity dual vortex sensor, the flowmeter can simultaneously detect the flow signal and disturbance signal, through the algorithm can automatically identify the flow signal and vibration, electromagnetic disturbance signal.

In comparison to the traditional vortex flow meter, the newly developed DSA (Digital Spectrum Analysis) technology greatly improves the low measuring limit, turndown ratio, anti-vibration, and anti-disturbance performance of flow meters, providing users with high accuracy and long-term stability.

Explosion-proof structure design, having certificate issued by the state:
**Explosion-proof class:** Ex db IIC T6 Gb / Ex tb IIIC T80°C Db **Protection code:** IP67 **TS Celibration:** TS2744698-2029

## Product Advantages

### High Sensitivity

The low measuring limit of gas flow rate can reach 1.5 m/s

### Wide Measuring Range

The turndown ratio is 1:53, which exceeds the traditional vortex flow meters

### The Explosion-proof Certification

Ex db IIC T6 Gb
Ex tb IIIC T80°C Db

### FAD Flow Real-time Conversion Module

### Anti-vibration

Ultrasensitive dual vortex sensor for simultaneous detection of flow and vibration.

- Wide measurement range, the low measuring limit can reach 1.5m/s (Actual Flow)
- Suitable for measuring dirty and wet compressed air, oxygen, natural gas and other industrial gases, steam, and etc
- Ultrasensitive dual vortex sensor, provides a wider range ratio
- FAD Flow Real-time Conversion Module. The air compressor outlet flow can be converted into the FAD flow at the air compressor inlet in real time, helping customers to more accurately calculate the “Gas-to-Power Ratio" and perform energy efficiency evaluation
- The explosion-proof certification: Ex db IIC T6 Gb / Ex tb IIIC T80°C Db Protection code: IP67
- Combining with DSA (digital full spectrum analysis technology), the flowmeter can accurately identify flow, vibration, and electromagnetic disturbance signals, greatly improving the anti-vibration ability of the flowmeter
- Integrates pressure and temperature sensors to monitor online gas pressure and temperature
- No moving parts, low pressure drop
- Standard Modbus RTU (RS485) interface, 4 to 20 mA current and pulse output
- Optional Bluetooth, 4G, and Wi-SUN wireless communication modules enable wireless sensor configuration and data transmission
- The capacitive touch 2.0" IPS LCD with an ultra-wide viewing angle, user-friendly and multi-functional HMI
- The fully welded structure has better corrosion and high pressure and temperature resistance

# Technical Data

| Measuring Medium | |
|---|---|
| Medium | Gas / Liquid |

| Flow | |
|---|---|
| Measuring Range | 1.5 m/s ... 80 m/s (Gas, actual velocity)<br>0.15 m/s ... 8 m/s (Liquid) |
| Accuracy | Class 1.0 |
| Repeatability | ±0.2% RD |
| Reference Condition | 20 °C, 1 bar(a) - ISO 1217 (Configurable) |
| Gas-to-power Monitor | FAD Flow Real-time Conversion (Option) |

| Pressure | |
|---|---|
| Measuring Range | 0 …1.7 MPa(a) (6.4 MPa.a Option) |
| Accuracy | ±0.5% FS |

| Temperature | |
|---|---|
| Measuring Range | -40 ... +160 °C (Standard) |
| Accuracy | ±0.5 °C (±1.0 %FS @ >100 °C) |

| Explosion-proof Class & Protection Code | |
|---|---|
| Explosion-proof Class | Ex db IIC T6 Gb / Ex tb IIIC T80°C Db<br>(Explosion-proof medium temperature -40 ... +80 °C) |
| Protection Code | IP67 |

| Power | |
|---|---|
| Supply Voltage & Power | 18 ... 30 VDC 10W @ 24VDC |

| Display | |
|---|---|
| Display | 2.0" IPS LCD with capacitive touch |

| Output | |
|---|---|
| 4~20 mA Output (Standard) | Flow rate / Temperature / Pressure (Configurable) |
| Frequency Output (Standard) | Actual flow rate |
| Pulse (Standard) | Consumption / Alarm |
| Digital Output | Modbus RTU (RS485)<br>HART (Option) |
| Wireless Output (Choose one of two) | Bluetooth (Standard)<br>Wi-SUN (Option)<br>IoT-4G (Option) |
| Connector | Wiring terminal |

| Operating Environment | |
|---|---|
| Environment Temperature | -40 ... +85 °C |
| Environment Humidity | 0 ... 95 %RH |

| Other | |
|---|---|
| Process Connection | Wafer-type / Flange-type |
| Product Material | Main Body: 304 / 316L<br>Vortex Sensor: 316L<br>Meter Housing: Aluminum / Stainless steel |
| EMC | Compliant with IEC 61326-1 |

# Measuring Range

| Inch | DN | ID (mm) | Flow Velocity (m/s) | Flow Rate ($m^3/h$) |
|---|---|---|---|---|
| 1/2 | 15 | 15 | 5.5 ... 80 | 3.5 ... 50.9 |
| 3/4 | 20 | 20 | 5.0 ... 80 | 5.7 ... 90.4 |
| 1 | 25 | 25 | 4.0 ... 80 | 7.1 ... 141.3 |
| $1^{1/4}$ | 32 | 32 | 3.0 ... 80 | 8.7 ... 231.5 |
| $1^{1/2}$ | 40 | 40 | 2.0 ... 80 | 9.0 ... 361.7 |
| 2 | 50 | 50 | 1.5 ... 80 | 10.6 ... 565.2 |
| $2^{1/2}$ | 65 | 65 | 1.5 ... 80 | 17.9 ... 955.2 |
| 3 | 80 | 80 | 1.5 ... 80 | 27.1 ... 1446.9 |
| 4 | 100 | 100 | 1.5 ... 80 | 42.4 ... 2260.8 |
| 5 | 125 | 125 | 1.5 ... 80 | 66.2 ... 3532.5 |
| 6 | 150 | 150 | 1.5 ... 80 | 95.4 ... 5086.8 |
| 8 | 200 | 200 | 1.5 ... 80 | 169.6 ... 9043.2 |
| 10 | 250 | 250 | 1.5 ... 80 | 265.1 ... 14130.0 |
| 12 | 300 | 300 | 1.5 ... 80 | 381.7 ... 20347.2 |

* The above is the gas flow range. Steam, liquid and other medium flow range, please consult the sale staff

# UI Design

### ◎ High-resolution 2.0" IPS-LCD

Clear and complete data presentation

### ◎ Capacitive touch for operation

Excellent intuitive operation. What you see, what you get. Eliminate the complicated learning cost

### ◎ IPS Ultra-wide view

HD display, information is displayed in high definition from any angle




# Order Information

| Model | Diameter | Medium Pressure | Wireless Comm. | Extended Function | Monitor | Housing Material | Medium Type | Description |
|---|---|---|---|---|---|---|---|---|
| F231A-V | | | | | | | | New Generation Anti-vibration Vortex Flow Meter, with Temperature and Pressure Compensation, Modbus Output, -40 ... +160 ℃, Class 1.0 Accuracy, Wafer-type, (with special fanges, bolts, nuts, metal gaskets) |
| F231B-V | | | | | | | | New Generation Anti-vibration Vortex Flow Meter, with Temperature and Pressure Compensation, Modbus Output, -40 ... +160 ℃, Class 1.0 Accuracy, Flange-type |
| | DN15 ~ DN350 | | | | | | | Nominal Diameter |
| | | PN16 | | | | | | 1.7 MPa(a) |
| | | PN63 | | | | | | 6.4 MPa(a) |
| | | | V0013 0001 | | | | | None (Defalt) |
| | | | S1701 0031 | | | | | Fixinst IoT-4G Module |
| | | | S1701 0045 | | | | | Third-party IoT-4G Module |
| | | | S1701 0036 | | | | | Built-in Wi-SUN Sub-module, 915 frequency band, mainly suitable for Asia, America and Australia |
| | | | S1701 0037 | | | | | Built- in Wi-SUN Sub-module, 868 frequency band, mainly suitable for Europe and the Middle East |
| | | | | V0013 0001 | | | | None (Default) |
| | | | | S1701 0022 | | | | HART communication |
| | | | | S1701 0029 | | | | FAD Flow Real-time Conversion Module; Pipeline installation (temperature / pressure / humidity) |
| | | | | S1701 0030 | | | | FAD Flow Real-time Conversion Module; Wall-mounted installation (temperature / pressure / humidity) |
| | | | | S1701 0041 | | | | FAD Flow Real-time Conversion Module; DIN-Rail installation (temperature / pressure / humidity) |
| | | | | | S0105 0002 | | | All-in-one display, The capacitive touch 2.0" IPS LCD with an ultra-wide view |
| | | | | | S0105 0002A | | | Split display, The capacitive touch 2.0" IPS LCD with an ultra-wide view |
| | | | | | | S0302 0050 | | Non-explosive aluminum housing |
| | | | | | | S0302 0051 | | Explosion-proof aluminum housing |
| | | | | | | S0302 0052 | | Non-explosion proof stainless steel housing |
| | | | | | | S0302 0053 | | Explosion-proof stainless steel housing |
| | | | | | | | V0202 0011 | Gas |
| | | | | | | | V0202 0013 | Liquid |

* Customized supporting special flanges, bolts, nuts, metal winding pads and other materials please consult the sales staff.
* Built-in 4G or Wi-SUN module, not compatible with explosion-proof function
* There are difference in regulations and standards between countries and regions. Please select according to the local Wi-SUN frequency band

F231x-VS Series

# 1.5m/s low limit of measurement
# High temperature resistance

## New-generation Steam Vortex Flow Meter




## Product Overview

The F231x-VS vortex flow meter is based on the Karman vortex principle to measure gas, steam, or liquid volume flow. It is widely used for industrial measurement because of its anti-pollution ability, simplified structure, and high reliability.

F231x-VS integrated temperature and pressure sensor, automatically calculates the mass flow of the medium through the international standard density compensation algorithm.

Due to the built-in ultra-high sensitivity dual vortex sensor, the flowmeter can simultaneously detect the flow signal and interference signal, through the algorithm can automatically identify the flow signal and vibration, electromagnetic disturbance signal.

In comparison to the traditional vortex flow meter, the newly developed DSA (Digital Spectrum Analysis) technology greatly improves the low limit of measurement, turndown ratio, anti-vibration and anti-disturbance performance of flow meters, providing users with high accuracy and long-term stability.

Explosion-proof structure design, having certificate issued by the state:
**Explosion-proof class:** Ex db IIC T6 Gb / Ex tb IIIC T80°C Db **Protection code:** IP67 **TS Celibration:** TS2744698-2029

## Product Advantages

### High Sensitivity

The low measuring limit of gas flow rate can reach 1.5 m/s

### Wide Measuring Range

The turndown range ratio is 1:53, which exceeds the traditional vortex flow meters

### The Explosion-proof Certification

Ex db IIC T6 Gb
Ex tb IIIC T80°C Db

### FAD Flow Real-time Conversion Module

### Anti-vibration

Ultrasensitive dual vortex sensor for simultaneous detection of flow and vibration.

- Wide measuring range, the low measuring limit can reach 1.5m/s (Actual Flow)
- Suitable for measuring dirty and wet compressed air, oxygen, natural gas and other industrial gases, steam, and etc
- Ultrasensitive dual vortex sensor, provides a wider range ratio
- FAD Flow Real-time Conversion Module. The air compressor outlet flow can be converted into the FAD flow at the air compressor inlet in real time, helping customers to more accurately calculate the “Gas-to-Power Ratio" and perform energy efficiency evaluation
- The explosion-proof certification: Ex db IIC T6 Gb / Ex tb IIIC T80°C Db
  Protection code: IP67
- Combining with DSA (Digital full spectrum analysis technology), the flowmeter can accurately identify flow, vibration, and electromagnetic disturbance signals, greatly improving the anti-vibration ability of the flowmeter
- Integrates pressure and temperature sensors to monitor online gas pressure and temperature
- No moving parts, low pressure drop
- Standard Modbus RTU (RS485) interface, 4 to 20 mA current and pulse output
- Optional Bluetooth, 4G, and Wi-SUN wireless communication modules enable wireless sensor configuration and data transmission
- The capacitive touch 2.0" IPS LCD with an ultra-wide viewing angle, user-friendly and multi-functional HMI
- The fully welded structure has better corrosion and high pressure and temperature resistance

# Technical Data

| Measuring Medium | |
|---|---|
| Medium | Gas / Steam / Liquid |

| Flow | |
|---|---|
| Measuring Range | 1.5 m/s ... 80 m/s (Gas/Steam, actual velocity)<br>0.15 m/s ... 8 m/s ( Liquid) |
| Accuracy | Class 1.0 |
| Repeatability | ±0.2% RD |
| Reference Conditon | 20 °C, 1 bar(a) - ISO 1217 (Configurable) |
| Gas-to-power Monitor | FAD Flow Real-time Conversion (Option) |

| Pressure | |
|---|---|
| Measuring Range | 0 …1.7 MPa(a) (6.4 MPa.a Option) |
| Accuracy | ±0.5% FS |

| Temperature | |
|---|---|
| Measuring Range | -40 ... +160 °C (Standard)<br>-40 ... +280 °C (Mid temperature)<br>-40 ... +350 °C (High temperature)<br>-180 ... +40 °C (Low temperature) |
| Accuracy | ±0.5 °C (±1.0 %FS @ >100 °C) |

| Explosion-proof Class & Protection Code | |
|---|---|
| Explosion-proof Class | Ex db IIC T6 Gb / Ex tb IIIC T80°C Db<br>(Explosion-proof medium temperature -40 ... +80 °C) |
| Protection Code | IP67 |

| Display | |
|---|---|
| Display | 2.0" IPS LCD with capacitive touch |

| Output | |
|---|---|
| 4~20 mA Output (Standard) | Flow rate / Temperature / Pressure (Configurable) |
| Frequency Output (Standard) | Actual flow rate |
| Pulse (Standard) | Consumption / Alarm |
| Digital Output | Modbus RTU (RS485)<br>HART (Option) |
| Wireless Output (choose one of two) | Bluetooth (Standard)<br>Wi-SUN (Option)<br>IoT-4G (Option) |
| Connector | Wiring terminal |

| Operating Environment | |
|---|---|
| Environment Temperature | -40 ... +85 °C |
| Environment Humidity | 0 ... 95 %RH |

| Power | |
|---|---|
| Supply Voltage & Power | 18 ... 30 VDC 10W @ 24VDC |

| Other | |
|---|---|
| Process Connection | Wafer-type / Flange-type |
| Product Material | Main Body: 304 / 316L<br>Vortex Sensor: 316L<br>Meter Housing: Aluminum / Stainless steel |
| EMC | Compliant with IEC 61326-1 |

# Measuring Range

| Inch | DN | ID (mm) | Flow Velocity (m/s) | Flow Rate ($m^3/h$) | Mass Flow Rate (kg/h) |
|---|---|---|---|---|---|
| 1/2 | 15 | 15 | 5.5 ... 80 | 3.5 ... 50.9 | 16.1 ... 233.6 |
| 3/4 | 20 | 20 | 5.0 ... 80 | 5.7 ... 90.4 | 26.2 ... 414.9 |
| 1 | 25 | 25 | 4.0 ... 80 | 7.1 ... 141.3 | 32.6 ... 648.4 |
| $1^{1/4}$ | 32 | 32 | 3.0 ... 80 | 8.7 ... 231.5 | 39.9 ... 1062.4 |
| $1^{1/2}$ | 40 | 40 | 2.0 ... 80 | 9.0 ... 361.7 | 41.3 ... 1659.9 |
| 2 | 50 | 50 | 1.5 ... 80 | 10.6 ... 565.2 | 48.6 ... 2593.8 |
| $2^{1/2}$ | 65 | 65 | 1.5 ... 80 | 17.9 ... 955.2 | 82.1 ... 4383.5 |
| 3 | 80 | 80 | 1.5 ... 80 | 27.1 ... 1446.9 | 124.4 ... 6640.0 |
| 4 | 100 | 100 | 1.5 ... 80 | 42.4 ... 2260.8 | 194.6 ... 10375.1 |
| 5 | 125 | 125 | 1.5 ... 80 | 66.2 ... 3532.5 | 303.8 ... 16211.1 |
| 6 | 150 | 150 | 1.5 ... 80 | 95.4 ... 5086.8 | 437.8 ... 23344.0 |
| 8 | 200 | 200 | 1.5 ... 80 | 169.6 ... 9043.2 | 778.3 ... 41500.4 |
| 10 | 250 | 250 | 1.5 ... 80 | 265.1 ... 14130.0 | 1216.6 ... 64844.3 |
| 12 | 300 | 300 | 1.5 ... 80 | 381.7 ... 20347.2 | 1751.7 ... 93375.8 |

* Mass flow rate is the saturated steam mass flow rate at a temperature of 180 °C, a pressure of 0.9 MPa(a), and a density of 4.5891 kg/m3

# Order Information

| Model | Diameter | Medium Pressure | Medium Temp. | Wireless Comm. | Extended Function | Monitor | Housing Material | Medium Type | Description |
|---|---|---|---|---|---|---|---|---|---|
| F231A-VS | | | | | | | | | Steam Vortex Flow Meter, with Temperature and Pressure Compensation, Modbus Output, Class 1.0 Accuracy, Wafer-type, with special flanges, Bolts, nuts, metal gaskets |
| F231B-VS | | | | | | | | | Steam Vortex Flow Meter, with Temperature and Pressure Compensation, Modbus Output, Class 1.0 Accuracy, Flange type |
| | DN15 ~ DN350 | | | | | | | | Nominal Diameter |
| | | PN16 | | | | | | | 1.7 MPa(a) |
| | | PN63 | | | | | | | 6.4 MPa(a) |
| | | | V0210 0001 | | | | | | Standard (-40 ... +160 °C) |
| | | | V0210 0002 | | | | | | Mid temperature (-40 ... +280 °C) |
| | | | V0210 0003 | | | | | | High temperature (-40 ... +350 °C) |
| | | | V0210 0004 | | | | | | Low temperature (-180 ... +40 °C) |
| | | | | V0013 0001 | | | | | None (Defalt) |
| | | | | S1701 0031 | | | | | FixInst IoT-4G Module |
| | | | | S1701 0031 | | | | | Third-party IoT-4G Module |
| | | | | S1701 0024 | | | | | Built-in Wi-SUN Sub-module, 915 frequency band, mainly suitable for Asia, America and Australia |
| | | | | S1701 0025 | | | | | Built- in Wi-SUN Sub-module, 868 frequency band, mainly suitable for Europe and the Middle East |
| | | | | | V0013 0001 | | | | None (Default) |
| | | | | | S1701 0022 | | | | HART communication |
| | | | | | S1701 0029 | | | | FAD Flow Real-time Conversion Module; Pipeline installation (temperature / pressure / humidity) |
| | | | | | S1701 0030 | | | | FAD Flow Real-time Conversion Module; Wall-mounted installation (temperature / pressure / humidity) |
| | | | | | S1701 0041 | | | | FAD Flow Real-time Conversion Module; DIN-Rail installation (temperature / pressure / humidity) |
| | | | | | | S0105 0002 | | | Integrated display. The capacitive touch 2.0"IPS LCD with an ultra-wide view |
| | | | | | | S0105 0002A | | | Split display. The capacitive touch 2.0" IPS LCD with an ultra-wide view |
| | | | | | | | S0302 0050 | | Non-explosive aluminum housing |
| | | | | | | | S0302 0051 | | Explosion-proof aluminum housing |
| | | | | | | | S0302 0052 | | Non-explosion proof stainless steel housing |
| | | | | | | | S0302 0053 | | Explosion-proof stainless steel housing |
| | | | | | | | | V0202 0011 | Gas |
| | | | | | | | | V0202 0012 | Steam |
| | | | | | | | | V0202 0013 | Liquid |

* Customized supporting special flanges, bolts, nuts, metal winding pads and other materials please consult the sales staff.

* Built-in 4G or Wi-SUN module, not compatible with explosion-proof function

* There are difference in regulations and standards between countries and regions. Please select according to the local Wi-SUN frequency band

F211x-Ex / F212x-Ex Series

# Ultra-wide flow measuring range

## Explosion-proof Thermal Mass Flow Meter



## Product Overview

F211x-Ex & F212x-Ex flow meter is based on thermal measurement technology. It can measure the standard flow, mass flow, consumption, and gas temperature directly.

Explosion-proof structure design, having certificate issued by the state:
Explosion-proof class: Ex db IIC T6 Gb / Ex tb IIIC T80°C Db  Protection code: IP67

No moving parts, stable signal, vibration proof, high reliability, long-term measuring accuracy

Full-digital signal processing is used instead of the conventional analog bridge design, resulting in a wider range and more accurate measurement.

The low measuring limit can reach 0.1Nm/s, and the turndown ratio can reach 1:2500. It has a wider measuring range than common flow meters on the market, making it suitable for measuring extremely volatile flow, low-flow bypass, and the gas consumption of single equipment.

With the innovative, intelligent diagnosis technology, it can sense the sensor pollution online and protect the sensor from overheating

## Product Advantages

0.1 Nm/s

### Low Measuring Lower Limit

The low measuring limit
can reach 0.1 Nm/s

01010

### Full-digital Signal Processing

Eliminates zero point drift and provides highly accurate measurements

Ex

### The Explosion-proof Certification

Ex db IIC T6 Gb
Ex tb IIIC T80°C Db

### Smart Terminal

Optional Bluetooth, 4G or Wi-SUN wireless communication modules

### Protection Code IP67

- Full-digital signal processing, higher accuracy, long-term stability
- Based on the thermal flow measurement principle, it's not required to compensate gas pressure and temperature, integrated temperature measurement
- With an ultra-wide 1:2500 turndown ratio, the measuring range is from 0.1 Nm/s to 250 Nm/s
- Explosion-proof class: Ex db IIC T6 Gb / Ex tb IIIC T80°C Db
  Protection code: IP67
- The capacitive touch 2.0" IPS LCD with an ultra-wide view
- Optional Bluetooth, 4G, and Wi-SUN wireless communication modules enable wireless sensor configuration and data transmission
- Standard Modbus RTU (RS485) interface, 4 to 20 mA current and pulse output
- Insert type F211x-Ex:
  Suitable for pipes with diameters from DN20 to DN1000.
- Pipe type F212x-Ex:
  Pipe size: DN15, DN20, DN32, DN40, DN50, DN65, DN80
  The process for connection: R-type thread, Flange EN1092-1, ANSI / B16.5

# Technical Data

| Flow | |
|---|---|
| Measuring Range | 0(0.1) … 250 Nm/s |
| Accuracy | ±(1.5% RD + 0.3% FS) [1% RD Option] |
| Sampling Rate | > 20 Samples/sec |
| Medium | Compressed air, nitrogen, oxygen, carbon dioxide and other non-condensing gases |
| Reference Condition | 20 ℃, 1 bar(a) -ISO 1217 (Configurable) |

| Output | |
|---|---|
| 4~20 mA Output (Standard) | Flow rate/Temperature (Configurable) |
| Pulse Output (Standard) | Consumption/Alarm |
| Digital Output (Standard) | Modbus RTU (RS485) |
| Wireless Output (choose one of two) | Bluetooth (Standard)<br>Wi-SUN (Option)<br>IoT-4G (Option) |

| Power | |
|---|---|
| Supply Voltage & Power | 18 … 30VDC 5W @ 24VDC |

| Display | |
|---|---|
| Display | 2.0" IPS LCD with capacitive touch |

| Operating Environment | |
|---|---|
| Environment Temperature | -30 … +60 ℃ |
| Medium Temperature | -40 … +80 ℃ |
| Operating Pressure | F211x-Ex: 0 … 1.7 MPa(a)<br>F212x-Ex: 0 … 1.7 MPa(a)<br>(4.1 / 6.4 MPa.a Option) |

| Explosion-proof Class & Protection Code | |
|---|---|
| Explosion-proof Class | Ex db IIC T6 Gb/Ex tb IIIC T80℃ Db |
| Protection Code | IP67 |

| Other | |
|---|---|
| Process Connection | G1/2" (ISO 228-1) (F211x-Ex Insert type) |
| EMC | Compliant with IEC 61326-1 |
| Pole / Pipe Section Material | SUS304 (Standard)<br>SUS316 (Option) |
| Housing Material | Die-cast aluminum |

# Measuring Range

## F211x-Ex Measuring range

| Inch | DN | ID (mm) | Min Flow (Nm³/h) | Max Flow -Std (Nm³/h) | Max Flow -High (Nm³/h) |
|---|---|---|---|---|---|
| 3/4 | 20 | 20 | 0.1 | 135 | 282 |
| 1 | 25 | 25 | 0.2 | 212 | 441 |
| 1 1/4 | 32 | 32 | 0.3 | 347 | 723 |
| 1 1/2 | 40 | 40 | 0.5 | 542 | 1131 |
| 2 | 50 | 50 | 0.7 | 848 | 1767 |
| 2 1/2 | 65 | 65 | 1.2 | 1433 | 2986 |
| 3 | 80 | 80 | 1.8 | 2171 | 4523 |
| 4 | 100 | 100 | 2.8 | 3392 | 7068 |
| 5 | 125 | 125 | 4.4 | 5301 | 11044 |
| 6 | 150 | 150 | 6.4 | 7634 | 15904 |
| 8 | 200 | 200 | 11.3 | 13571 | 28274 |
| 10 | 250 | 250 | 17.7 | 21205 | 44178 |
| 12 | 300 | 300 | 25.4 | 30536 | 63617 |

* For more pipe sizes and flow ranges, please consult sales

## F212x-Ex Measuring range

| Inch | DN | ID (mm) | Min Flow (Nm³/h) | Max Flow (Nm³/h) |
|---|---|---|---|---|
| 1/2 | 15 | 15 | 0.06 | 76 |
| 3/4 | 20 | 20 | 0.1 | 135 |
| 1 | 25 | 25 | 0.2 | 212 |
| 1 1/4 | 32 | 32 | 0.3 | 347 |
| 1 1/2 | 40 | 40 | 0.5 | 542 |
| 2 | 50 | 50 | 0.7 | 848 |
| 2 1/2 | 65 | 65 | 1.2 | 1433 |
| 3 | 80 | 80 | 1.8 | 2171 |

* For more pipe sizes and flow ranges, please consult sales

# Order Information

| Model | Process Conn. | Digital Output | Analog Output | Wireless Comm. | Flow range | Extended Function | Gas Type | Accuracy | Monitor | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| F211A-Ex | | | | | | | | | | Explosion-proof Thermal Mass FlowMeter, Insert type, 250 mm pole length (Suitable for pipe diameter up to DN250) |
| F211B-Ex | | | | | | | | | | Explosion-proof Thermal Mass FlowMeter, Insert type, 400 mm pole length (Suitable for pipe diameter up to DN600) |
| F211C-Ex | | | | | | | | | | Explosion-proof Thermal Mass FlowMeter, Insert type, 600 mm pole length (Suitable for pipe diameter up to DN1000) |
| | 1 | | | | | | | | | ISO G1/2" Screw |
| | | 1 | | | | | | | | Modbus RTU (RS485) |
| | | | 1 | | | | | | | 4 … 20 mA + Pulse Output |
| | | | | V0013 0001 | | | | | | None (Default) |
| | | | | S1701 0031 | | | | | | FixInst IoT-4G Module |
| | | | | S1701 0031 | | | | | | Third-party IoT-4G Module |
| | | | | S1701 0036 | | | | | | Built-in Wi-SUN Sub-module, 915 frequency band, mainly suitable for Asia, America and Australia |
| | | | | S1701 0037 | | | | | | Built- in Wi-SUN Sub-module, 868 frequency band, mainly suitable for Europe and the Middle East |
| | | | | | V0205 0002 | | | | | Standard Range (0~120 Nm/s) |
| | | | | | V0205 0003 | | | | | Extended Range (0~250 Nm/s) |
| | | | | | | V0013 0001 | | | | None (Default) |
| | | | | | | S1701 0022 | | | | HART Communication |
| | | | | | | | V0202 0001 | | | Air |
| | | | | | | | V0202 0002 | | | Oxygen ($O_2$) |
| | | | | | | | V0202 0003 | | | Nitrogen ($N_2$) |
| | | | | | | | V0202 0004 | | | Hydrogen ($H_2$), Real Gas Calibration |
| | | | | | | | V0202 0005 | | | Nitroous Oxide ($N_2O$) |
| | | | | | | | V0202 0006 | | | Carbon Dioxide ($CO_2$) |
| | | | | | | | V0202 0007 | | | Natural Gas (NG) |
| | | | | | | | V0202 0008 | | | Argon (Ar) |
| | | | | | | | V0202 0009 | | | Helium (He), Real Gas Calibration |
| | | | | | | | V0202 0010 | | | Other Specified Gases (Specify Gas or Gas Mix) |
| | | | | | | | | V0204 0001 | | Standard Accuracy Calibration ±(1.5% RD + 0.3% FS) |
| | | | | | | | | V0204 0002 | | High Accuracy Calibration ±(1% RD + 0.3% FS) |
| | | | | | | | | | S0105 0003 | Integrated display. The capacitive touch 2.0" IPS LCD with an ultra-wide view |
| | | | | | | | | | S0105 0003A | Split display. The capacitive touch 2.0" IPS LCD with an ultra-wide view |

* For more pole length, please consult sales
* Portable protective case is available as an option. Please refer to the accessories list (P126) for details
* Built-in 4G or Wi-SUN module, not compatible with explosion-proof function
* There are difference in regulations and standards between contuntries and regions.
Please select according to the local Wi-SUN frequency band

# Order Information

| Model | Digital Output | Analog output | Wireless Comm. | Extended Function | Process Connection | Gas type | Accuracy | Monitor | Description |
|---|---|---|---|---|---|---|---|---|---|
| F212A-Ex | | | | | | | | | Explosion-proof Thermal Mass Flow Meter, Inline type, Max pressure: 1.7 MPa(a) |
| F212B-Ex | | | | | | | | | Explosion-proof Thermal Mass Flow Meter, Inline type, Max pressure: 4.1 MPa(a) |
| F212C-Ex | | | | | | | | | Explosion-proof Thermal Mass Flow Meter, Inline type, Max pressure: 6.4 MPa(a) |
| | 1 | | | | | | | | Modbus RTU (RS485) |
| | | 1 | | | | | | | 4 … 20 mA + Pulse output |
| | | | V0013 0001 | | | | | | None (Default) |
| | | | S1701 0031 | | | | | | FixInst IoT-4G Module |
| | | | S1701 0045 | | | | | | Third-party IoT-4G Module |
| | | | S1701 0036 | | | | | | Built-in Wi-SUN Sub-module, 915 frequency band, mainly suitable for Asia, America and Australia |
| | | | S1701 0037 | | | | | | Built- in Wi-SUN Sub-module, 868 frequency band, mainly suitable for Europe and the Middle East |
| | | | | V0013 0001 | | | | | None (Default) |
| | | | | S1701 0022 | | | | | HART Communication |
| | | | | | V0207 0001 | | | | R thread (ISO-7-1), DN15, 1/2″ |
| | | | | | V0207 0002 | | | | R thread (ISO-7-1) , DN20, 3/4″ |
| | | | | | V0207 0003 | | | | R thread (ISO-7-1), DN25, 1″ |
| | | | | | V0207 0004 | | | | R thread (ISO-7-1), DN32, 1.25″ |
| | | | | | V0207 0005 | | | | R thread (ISO-7-1), DN40, 1.5″ |
| | | | | | V0207 0006 | | | | R thread (ISO-7-1), DN50, 2″ |
| | | | | | V0207 0023 | | | | R thread (ISO-7-1), DN65, 2.5″ |
| | | | | | FLG-15 | | | | Flange (EN 1092-1), DN15, 1/2″ |
| | | | | | FLG-20 | | | | Flange (EN 1092-1), DN20, 3/4″ |
| | | | | | FLG-25 | | | | Flange (EN 1092-1), DN25, 1″ |
| | | | | | FLG-32 | | | | Flange (EN 1092-1), DN32, 1.25″ |
| | | | | | FLG-40 | | | | Flange (EN 1092-1), DN40, 1.5″ |
| | | | | | FLG-50 | | | | Flange (EN 1092-1), DN50, 2″ |
| | | | | | FLG-65 | | | | Flange (EN 1092-1), DN65, 2.5″ |
| | | | | | FLG-80 | | | | Flange (EN 1092-1), DN80, 3″ |
| | | | | | | V0202 0001 | | | Air |
| | | | | | | V0202 0002 | | | Oxygen ($O_2$) |
| | | | | | | V0202 0003 | | | Nitrogen ($N_2$) |
| | | | | | | V0202 0004 | | | Hydrogen ($H_2$), Real Gas Calibration |
| | | | | | | V0202 0005 | | | Nitroous Oxide ($N_2O$) |
| | | | | | | V0202 0006 | | | Carbon Dioxide ($CO_2$) |
| | | | | | | V0202 0007 | | | Natural Gas (NG) |
| | | | | | | V0202 0008 | | | Argon (Ar) |
| | | | | | | V0202 0009 | | | Helium (He), Real Gas Calibration |
| | | | | | | V0202 0010 | | | Other Specified Gases (Specify Gas or Gas Mix) |
| | | | | | | | V0204 0001 | | Standard Accuracy Calibration ±(1.5% RD + 0.3% FS) |
| | | | | | | | V0204 0002 | | High Accuracy Calibration ±(1% RD + 0.3% FS) |
| | | | | | | | | S0105 0003 | Integrated display. The capacitive touch 2.0" IPS LCD with an ultra-wide view |
| | | | | | | | | S0105 0003A | Split display. The capacitive touch 2.0" IPS LCD with an ultra-wide view |

* Built-in 4G or Wi-SUN module, not compatible with explosion-proof function

* There are difference in regulations and standards between contuntries and regions. Please select according to the local Wi-SUN frequency band

F221x / F222x Series

# Ultra-wide flow measuring range

## OEM Type Thermal Mass Flow Meter



## Product Overview

F221x & F222x flow meter is based on thermal measurement technology. It can measure the standard flow, mass flow, consumption, and gas temperature directly

No moving parts, stable signal, vibration proof, high reliability, long-term measuring accuracy

Full-digital signal processing is used instead of the conventional analog bridge design, resulting in a wider range and more accurate measurement.

The low measuring limit can reach 0.1Nm/s, and the turndown ratio can reach 1:2500. It has a wider measuring range than common flow meters on the market, making it suitable for measuring extremely volatile flow, low-flow bypass, and the gas consumption of single equipment.

With the innovative, intelligent diagnosis technology, it can sense the sensor pollution online and protect the sensor from overheating

## Product Advantages

### Low Measuring Lower Limit

The low measuring limit can reach 0.1 Nm/s

### Full-digital Signal Processing

Eliminates zero point drift and provides highly accurate measurements

### 30+ Points of Calibration

Overcome the nonlinear defects which occur in thermal measurement

### Installation under Pressure

Non-intrusive installation without downtime, almost zero pressure drop

- Full-digital signal processing, higher accuracy, long-term stability
- Based on the thermal flow measurement principle, it's not required to compensate gas pressure and temperature, integrated temperature measurement
- With an ultra-wide 1:2500 turndown ratio, the measuring range is from 0.1 Nm/s to 250 Nm/s
- The fully isolated electrical structure can completely filter out field disturbrance
- The capacitive touch 1.5" IPS LCD with an ultra-wide viewing angle
- Standard Modbus RTU (RS485) interface, 4 to 20 mA current and pulse output
- Insert type F221x: Suitable for pipes with diameters from DN20 to DN1000, and can be installed under pressure via a 1/2" ball valve.
- Pipe type F222x:
  Pipe size: DN15, DN20, DN32, DN40, DN50, DN65, DN80
  The process for connection: R-type thread, Flange EN1092-1, ANSI/B16.5

# Technical Data

## Flow

| | |
|---|---|
| Measuring Range | 0(0.1) … 250 Nm/s |
| Accuracy | ±(1.5% RD + 0.3% FS) [1% RD Option] |
| Sampling Rate | > 20 Samples / sec |
| Medium | Compressed air, nitrogen, oxygen, Carbon dioxide & other non-condensing gases |
| Reference Conditions | 20 ℃, 1 bar(a) -ISO 1217 (Configurable) |

## Output

| | |
|---|---|
| 4~20 mA Output (Standard) | Flow rate / Temperature (Configurable) |
| Pulse Output (Standard) | Consumption / Alarm |
| Digital Output (Standard) | Modbus RTU (RS485) |
| Wireless Output (choose one of two) | External Wi-SUN Wireless (Option)<br>External IoT-4G Wireless (Option) |
| Connector | 2 × 5pin M12, Male |

## Power

| | |
|---|---|
| Supply Voltage & Power | 18 … 30VDC 5W @ 24VDC |

## Display

| | |
|---|---|
| Display | 1.5" IPS LCD with capacitive touch |

## Operating Environment

| | |
|---|---|
| Environment Temperature | -30 … +70 ℃ |
| Medium Temperature | -40 … 150 ℃ |
| Operating Pressure | F221x: 0 … 1.7 MPa(a)<br>F222x: 0 … 1.7MPa(a)<br>(4.1 / 6.4 MPa.a Option) |

## Other

| | |
|---|---|
| Process Connection | G1/2" (ISO 228-1) (F221x Insert type) |
| EMC | Compliant with IEC 61326-1 |
| Pole / Pipe Section Material | SUS304 (Standard)<br>SUS316 (Option) |
| Housing Material | AL6063 |

# Measuring Range

## F221x Measuring range

| Inch | DN | ID (mm) | Min Flow (Nm³/h) | Max Flow -Std (Nm³/h) | Max Flow -High (Nm³/h) |
|---|---|---|---|---|---|
| 3/4 | 20 | 20 | 0.1 | 135 | 282 |
| 1 | 25 | 25 | 0.2 | 212 | 441 |
| 1 1/4 | 32 | 32 | 0.3 | 347 | 723 |
| 1 1/2 | 40 | 40 | 0.5 | 542 | 1131 |
| 2 | 50 | 50 | 0.7 | 848 | 1767 |
| 2 1/2 | 65 | 65 | 1.2 | 1433 | 2986 |
| 3 | 80 | 80 | 1.8 | 2171 | 4523 |
| 4 | 100 | 100 | 2.8 | 3392 | 7068 |
| 5 | 125 | 125 | 4.4 | 5301 | 11044 |
| 6 | 150 | 150 | 6.4 | 7634 | 15904 |
| 8 | 200 | 200 | 11.3 | 13571 | 28274 |
| 10 | 250 | 250 | 17.7 | 21205 | 44178 |
| 12 | 300 | 300 | 25.4 | 30536 | 63617 |

* For more pipe sizes and flow ranges, please consult sales

## F222x Measuring range

| Inch | DN | ID (mm) | Min Flow (Nm³/h) | Max Flow (Nm³/h) |
|---|---|---|---|---|
| 1/2 | 15 | 15 | 0.06 | 76 |
| 3/4 | 20 | 20 | 0.1 | 135 |
| 1 | 25 | 25 | 0.2 | 212 |
| 1 1/4 | 32 | 32 | 0.3 | 347 |
| 1 1/2 | 40 | 40 | 0.5 | 542 |
| 2 | 50 | 50 | 0.7 | 848 |
| 2 1/2 | 65 | 65 | 1.2 | 1433 |
| 3 | 80 | 80 | 1.8 | 2171 |

* For more pipe sizes and flow ranges, please consult sales

# Order Information

| Model | Process Connection | Digital Output | Analog Output | Flow Range | Gas type | Accuracy | Description |
|---|---|---|---|---|---|---|---|
| F221A | | | | | | | Thermal Mass Flow Meter, Insert type, 160 mm pole length (Suitable for pipe diameter DN20 ~ 100) |
| F221B | | | | | | | Thermal Mass Flow Meter, Insert type, 250 mm pole length (Suitable for pipe diameter DN20 ~ 250) |
| F221C | | | | | | | Thermal Mass Flow Meter, Insert type, 400 mm pole length (Suitable for pipe diameter DN20 ~ 600) |
| | 1 | | | | | | ISO G1/2" Screw |
| | | 1 | | | | | Modbus RTU (RS485) |
| | | | 1 | | | | 4 … 20 mA + Pulse Output |
| | | | | V0205 0002 | | | Standard Range (0~120 Nm/s) |
| | | | | V0205 0003 | | | Extended Range (0~250 Nm/s) |
| | | | | | V0202 0001 | | Air |
| | | | | | V0202 0002 | | Oxygen ($O_2$) |
| | | | | | V0202 0003 | | Nitrogen ($N_2$) |
| | | | | | V0202 0004 | | Hydrogen ($H_2$), Real Gas Calibration |
| | | | | | V0202 0005 | | Nitroous Oxide ($N_2O$) |
| | | | | | V0202 0006 | | Carbon Dioxide ($CO_2$) |
| | | | | | V0202 0007 | | Natural Gas (NG) |
| | | | | | V0202 0008 | | Argon (Ar) |
| | | | | | V0202 0009 | | Helium (He), Real Gas Calibration |
| | | | | | V0202 0010 | | Other Specified Gases (Specify Gas or Gas Mix) |
| | | | | | | V0204 0001 | Standard Accuracy Calibration ±(1.5% RD + 0.3% FS) |
| | | | | | | V0204 0002 | High Accuracy Calibration ±(1% RD + 0.3% FS) |

* For more pole length, please consult sales
* Portable protective case is available as an option. Please refer to the accessories list (P126) for details
* Optional external Wi-SUN/4G wireless communication module. Please refer to the accessories list (P126) for details

# Order Information

| Model | Digital Output | Analog Output | Process Connection | Gas type | Accuracy | Description |
|---|---|---|---|---|---|---|
| F222A | | | | | | Thermal Mass Flow Meter, Pipe type, Maximum pressure: 1.7 MPa(a) |
| F222B | | | | | | Thermal Mass Flow Meter, Pipe type, Maximum pressure: 4.1 MPa(a) |
| F222C | | | | | | Thermal Mass Flow Meter, Pipe type, Maximum pressure: 6.4 MPa(a) |
| | 1 | | | | | Modbus RTU (RS485) |
| | | 1 | | | | 4 … 20 mA + Pulse Output |
| | | | V0207 0001 | | | R thread (ISO-7-1), DN15, 1/2″ |
| | | | V0207 0002 | | | R thread (ISO-7-1) , DN20, 3/4″ |
| | | | V0207 0003 | | | R thread (ISO-7-1), DN25, 1″ |
| | | | V0207 0004 | | | R thread (ISO-7-1), DN32, 1.25″ |
| | | | V0207 0005 | | | R thread (ISO-7-1), DN40, 1.5″ |
| | | | V0207 0006 | | | R thread (ISO-7-1), DN50, 2″ |
| | | | V0207 0023 | | | R thread (ISO-7-1), DN65, 2.5″ |
| | | | FLG-15 | | | Flange (EN 1092-1), DN15, 1/2″ |
| | | | FLG-20 | | | Flange (EN 1092-1), DN20, 3/4″ |
| | | | FLG-25 | | | Flange (EN 1092-1), DN25, 1″ |
| | | | FLG-32 | | | Flange (EN 1092-1), DN32, $1^{1/4}$″ |
| | | | FLG-40 | | | Flange (EN 1092-1), DN40, $1^{1/2}$″ |
| | | | FLG-50 | | | Flange (EN 1092-1), DN50, 2″ |
| | | | FLG-65 | | | Flange (EN 1092-1), DN65, 2.5″ |
| | | | FLG-80 | | | Flange (EN 1092-1), DN80, 3″ |
| | | | | V0202 0001 | | Air |
| | | | | V0202 0002 | | Oxygen ($O_2$) |
| | | | | V0202 0003 | | Nitrogen ($N_2$) |
| | | | | V0202 0004 | | Hydrogen ($H_2$), Real Gas Calibration |
| | | | | V0202 0005 | | Nitroous Oxide ($N_2O$) |
| | | | | V0202 0006 | | Carbon Dioxide ($CO_2$) |
| | | | | V0202 0007 | | Natural Gas (NG) |
| | | | | V0202 0008 | | Argon (Ar) |
| | | | | V0202 0009 | | Helium (He), Real Gas Calibration |
| | | | | V0202 0010 | | Other Specified Gases (Specify Gas or Gas Mix) |
| | | | | | V0204 0001 | Standard Accuracy Calibration ±(1.5% RD + 0.3% FS) |
| | | | | | V0204 0002 | High Accuracy Calibration ±(1% RD + 0.3% FS) |

* Optional external Wi-SUN/4G wireless communication module. Please refer to the accessories list (P126) for details

F235 Series

# 1:100 Ultra-wide turndown ratio

## Compact Thermal Mass Flow Meter




## Product Overview

The F235 series is used to accurately measure the gas mass flow. It is based on thermal measurement technology. It can measure the mass flow directly, pressure and temperature compensation is not required. It integrates MEMS (Micro-Electro-Mechanical Systems), signal processing, digital simulation and other technologies

Its principle and technical foundation ensure the outstanding performance of the F235 series in terms of sensitivity, pressure loss, turndown ratio, response time and micro flow measurement

The F235 series displays flow consumption via a local display. Additionally, analog and digital outputs support remote data access

## Product Advantages

1:100

### Ultra-wide turndown ratio

Ultra-wide 1:100 turndown ratio, Lower limit can reach 0.04 SLM (DN3)

### MEMS

Micro-sensor based on CMOS semiconductor process

01010

### Full-digital Signal Processin

Adaptive signal processing to effectively suppress random errors

### 30+ Points of Calibration

Overcome the nonlinear defects which occur in thermal measurement

- Based on the thermal flow measurement principle, it's not required to compensate gas pressure and temperature, integrated temperature measurement
- Based on microelectromechanical systems (MEMS) made with CMOS semiconductor processes, enabling high-precision measurements in millimeter dimension
- Ultra-wide 1:100 turndown ratio, lower limit can reach 0.04 SLM (DN3)
- Integrates digital adaptive signal processing technology to effectively suppress random errors
- The fully isolated electrical structure can completely filter out field disturbance
- Standard Modbus RTU (RS485) interface and 4 to 20 current output

# Technical Data

| Measuring Medium | |
|---|---|
| Medium | Compressed air, oxygen, nitrogen, hydrogen, laughing gas (nitrous oxide), carbon dioxide, natural gas, argon, helium, silane, ammonia, phosphorus oxychloride, nitrogen trifluoride and other non-condensable gases |

| Flow | |
|---|---|
| Measuring Range | Refer to “Flow Range” table |
| Accuracy | ±1.5% FS |
| Reference Condictions | 20 °C, 1 bar(a) - ISO 1217 |
| Repeatability | ±0.25% FS |
| Zero Point Drift | <0.1% FS |
| Response Time | <20 ms |
| Operating Pressure | 1.7 MPa(a) |
| Pressure Loss | 3 kPa (Full range) |

| Temperature | |
|---|---|
| Medium Temperature | -20 ... +60 °C |

| Power | |
|---|---|
| Supply Voltage & Power | 24 VDC 0.5W @ 24VDC |

| Output | |
|---|---|
| 4 ... 20 mA Output (Standard) | Flow rate |
| Digital Output | Modbus RTU RS485 (Standard) |
| Connector | Wiring terminal |

| Material | |
|---|---|
| Flow Channel | SUS304 or SUS316L |
| Seal | Fluorine rubber, EPDM rubber, Other (Customized) |
| Connector | SUS304 or SUS316L |

| Mechanical | |
|---|---|
| Process Connection | Refer to “Flow Range” table |
| Dimension | Refer to “Flow Range” table |
| Weight | <1.0 kg |
| Protection Code | IP54 |

# Flow Range

## F235 Dimension & Flow Range

| DN (mm) | Process Connection (Inch) | L (mm) | W (mm) | H (mm) | Flow Range (SLM) |
|---|---|---|---|---|---|
| 40 | G1$^{1/2}$” female thread | 133 | 58 | 90 | 30 ... 3000 |
| 32 | G1$^{1/4}$” female thread | 133 | 54 | 85 | 20 ... 2000 |
| 25 | G1” female thread | 133 | 49 | 78 | 15 ... 1500 |
| 20 | G3/4” female thread | 88 | 38 | 72 | 8 ... 800 |
| 15 | G1/2” female thread | 88 | 38 | 72 | 3 ... 300 |
| 10 | G3/8” female thread | 88 | 38 | 56 | 1 ... 100 |
| 10 | NPT 3/8” female thread | 88 | 38 | 56 | 1 ... 100 |
| 10 | LOK 3/8” double ferrule male thread | 124 | 38 | 56 | 1 ... 100 |
| 6 | NPT 1/4” female thread | 88 | 38 | 56 | 0.5 ... 50 |
| 6 | LOK 1/4”double ferrule male thread | 124 | 38 | 56 | 0.5 ... 50 |
| 3 | NPT 1/8” female thread | 88 | 38 | 56 | 0.02 ... 2 |
| 3 | LOK 1/8”double ferrule male thread | 124 | 38 | 56 | 0.02 ... 2 |

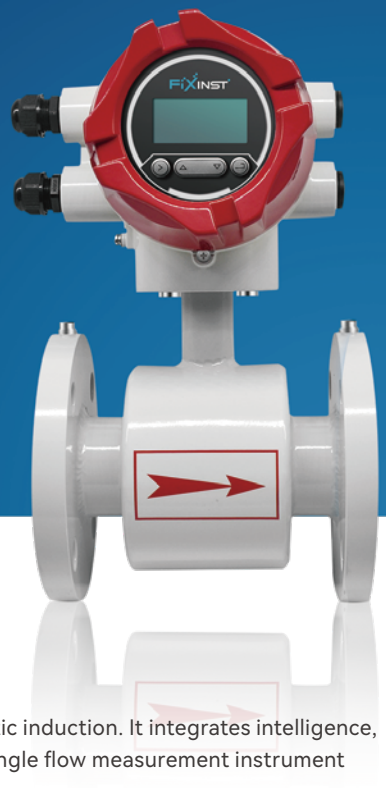
# Order Information

| Model | Pressure | Digital Output | Analog Output | Body Material | Process Connection | Gas Type | Accuracy | Description |
|---|---|---|---|---|---|---|---|---|
| F235 | | | | | | | | Compact Thermal Mass Flow Meter |
| | PN16 | | | | | | | 1.6 MPa(a) |
| | | 1 | | | | | | Modbus RTU (RS485) |
| | | | 1 | | | | | 4 ... 20 mA output |
| | | | | V0212 0001 | | | | SUS 304 stainless steel |
| | | | | V0212 0005 | | | | SUS 316L stainless steel |
| | | | | V0212 0006 | | | | Aluminum alloy |
| | | | | | LOK-3 | | | Male thread, Double tube fittings LOK 1/8″, DN3 |
| | | | | | LOK-6 | | | Male thread, Double tube fittings LOK 1/4″, DN6 |
| | | | | | LOK-10 | | | Male thread, Double tube fittings LOK 3/8″, DN10 |
| | | | | | NPT-3 | | | Female thread, NPT 1/8″,DN3 |
| | | | | | NPT-6 | | | Female thread, NPT 1/4″,DN6 |
| | | | | | NPT-10 | | | Female thread, NPT 3/8″,DN10 |
| | | | | | G-10 | | | Female thread, G3/8″,DN10 |
| | | | | | G-15 | | | Female thread, G1/2″,DN15 |
| | | | | | G-20 | | | Female thread, G3/4″,DN20 |
| | | | | | G-25 | | | Female thread, G1″,DN25 |
| | | | | | G-32 | | | Female thread, $G1^{1/4}$″,DN32 |
| | | | | | G-40 | | | Female thread, $G1^{1/2}$″,DN40 |
| | | | | | | V0202 0001 | | Air |
| | | | | | | V0202 0002 | | Oxygen ($O_2$) |
| | | | | | | V0202 0003 | | Nitrogen ($N_2$) |
| | | | | | | V0202 0004 | | Hydrogen ($H_2$), Real Gas Calibration |
| | | | | | | V0202 0005 | | Nitrous Oxide ($N_2O$) |
| | | | | | | V0202 0006 | | Carbon Dioxide ($CO_2$) |
| | | | | | | V0202 0007 | | Natural Gas (NG) |
| | | | | | | V0202 0008 | | Argon (Ar) |
| | | | | | | V0202 0009 | | Helium (He), Real Gas Calibration |
| | | | | | | V0202 0010 | | Other Specified Gases (Specify Gas or Gas Mix) |
| | | | | | | | V0204 0001 | Standard Accuracy Calibration ±1.5% FS |

F232x Series

# Intelligent & High-Precision Measurement

## New-generation Liquid Electromagnetic Flow Meter



## Product Overview

The F232x electromagnetic flowmeter measures flow based on Faraday's law of electromagnetic induction. It integrates intelligence, compact and lightweight design, multifunctionality, high accuracy, and high reliability into a single flow measurement instrument

With no moving parts and no flow obstruction components, it has almost no pressure loss and high reliability, providing long-term measurement accuracy. The excellent sensor materials give the product strong corrosion resistance, making it suitable for measuring almost any conductive liquid. As a result, it is widely used in industrial measurement applications.

## Product Advantages

0.5

### High-Precision Measurement

Class 0.5 accuracy, achieving precise flow measurement

### Excellent Anti-Corrosion Capability

Excellent anti-corrosion capability, capable of measuring almost any conductive liquid

### Strong Anti-Interference Capability

Excellent anti-interference capability, virtually unaffected by external disturbances

### Range Modifiable Online

The range can be modified online on-site according to the user requirement

- Excellent anti-corrosion capability, capable of measuring almost any conductive liquid
- Stronge anti-interference capability, virtually unaffected by external disturbances
- Measurement is not influenced by changes in fluid density, viscosity, temperature, pressure and conductivity
- No obstruction components in the measuring tube, no pressure loss, and low straight pipe section requirements
- No moving parts inside the pipeline, no obstruction components, and almost no pressure loss
- Features self-check and self-diagnosis functions
- The range can be modified online on-site according to the user requirement
- Standard with Modbus RTU (RS485) interface and 4 … 20 mA current/pulse output
- Options for separate or integrated display, inertion or flange type, depending on actual working conditions
- Suitable for a wide range of pipe dia: DN10 ~ DN2000

# Measuring Range

| Diameter DN/Inch | | Lower Limit | 1 | 2 | 3 | 4 | Upper Limit |
|---|---|---|---|---|---|---|---|
| | | Velocity (m/s) | | | | | |
| | | Flow ($m^3/h$) | | | | | |
| 10 | 3/8″ | 0.14 | 0.28 | 0.57 | 0.85 | 1.1 | 1.4 |
| 15 | 1/2″ | 0.4 | 0.65 | 1.3 | 1.9 | 2.5 | 4 |
| 20 | 3/4″ | 0.8 | 1.1 | 2.3 | 3.4 | 4.5 | 8 |
| 25 | 1″ | 1.2 | 1.8 | 3.5 | 5.3 | 7.1 | 12 |
| 32 | 1.2″ | 2.0 | 2.9 | 5.8 | 8.7 | 12 | 20 |
| 40 | 1.5″ | 3.0 | 4.5 | 9.0 | 14 | 18 | 30 |
| 50 | 2″ | 5.0 | 7.1 | 14 | 21 | 28 | 50 |
| 65 | 2.5″ | 8.0 | 12 | 24 | 36 | 48 | 80 |
| 80 | 3″ | 12 | 18 | 36 | 54 | 72 | 120 |
| 100 | 4″ | 20 | 28 | 57 | 85 | 113 | 200 |
| 125 | 5″ | 22 | 44 | 88 | 132 | 177 | 221 |
| 150 | 6″ | 32 | 64 | 127 | 191 | 254 | 318 |
| 200 | 8″ | 57 | 113 | 226 | 339 | 452 | 565 |
| 250 | 10″ | 88 | 177 | 353 | 530 | 707 | 883 |
| 300 | 12″ | 127 | 254 | 509 | 763 | 1017 | 1272 |
| 350 | 14″ | 173 | 346 | 692 | 1039 | 1385 | 1731 |
| 400 | 16″ | 226 | 452 | 904 | 1356 | 1809 | 2261 |
| 450 | 18″ | 286 | 572 | 1145 | 1717 | 2289 | 2861 |
| 500 | 20″ | 353 | 707 | 1413 | 2120 | 2826 | 3533 |
| 550 | 22″ | 430 | 860 | 1720 | 2580 | 3400 | 4300 |
| 600 | 24″ | 503 | 1017 | 2035 | 3052 | 4069 | 5087 |
| 650 | 26″ | 600 | 1200 | 2400 | 3600 | 4800 | 6000 |
| 700 | 28″ | 692 | 1385 | 2769 | 4150 | 5539 | 6924 |
| 750 | 30″ | 800 | 1600 | 3200 | 4800 | 6400 | 8000 |
| 800 | 32″ | 904 | 1809 | 3617 | 5426 | 7235 | 9043 |
| 850 | 34″ | 1000 | 2000 | 4000 | 6000 | 8000 | 10000 |
| 900 | 36″ | 1145 | 2289 | 4578 | 6867 | 9156 | 11445 |
| 950 | 38″ | 1300 | 2600 | 5200 | 7800 | 10400 | 13000 |
| 1000 | 40″ | 1412 | 2826 | 5652 | 8478 | 11304 | 14130 |

* The above data represents the default upper and lower limits. For customized range, please consult sales

# Technical Data

## Measuring Medium

| | |
|---|---|
| Medium | Water (Conductivity > 30 μS/cm)<br>Others (Conductivity > 30 μS/cm) |

## Flow

| | |
|---|---|
| Measuring Range | 0.7 m/s ... 7 m/s (Customizable) |
| Accuracy | Class 0.5 (Flange type)<br>Class 1.5 (Insertion type) |
| Repeatability | ± 0.15% RD |

## Output

| | |
|---|---|
| 4~20mA(Standard) | Flow |
| Digital Output | Modbus RTU (RS485)<br>HART (Option) |

## Temperature

| | |
|---|---|
| Measuring Range | -10 ... +70 °C |
| Accuracy | ±0.1 °C |

## Power

| | |
|---|---|
| Supply Voltage & Power | 22 … 26 VDC, 15W @ 24VDC<br>100 … 240 VAC, 50/60 Hz, 15W @ 220VAC |

## Protection Code

| | |
|---|---|
| Integrated type | IP65 |
| Separated type | Housing IP65<br>Body IP65 / IP68 |

## Display

| | |
|---|---|
| Screen | Monochrome LCD screen with white backlight |
| Resolution | 128 × 64 px |

## Operating Environment

| | |
|---|---|
| Operating Temperature | Integrated type: -10 °C … 55 °C<br>Separated type sensor part: -10 °C … 60 °C<br>Separated type gateway part: -10 °C … 55 °C |
| Storage Temperature | -40 °C ... 65 °C |
| Rated Pressure Class (High Pressure Customizable) | DN10 ... DN250, PN <1.6 MPa<br>DN300 ... DN1000, PN <1.0 MPa<br>DN1200 ... DN2200, PN <0.6 MPa |
| Burying Capability | < 5m<br>(Only for separated type with IP68 casing) |
| Water Immersion Depth | < 3m<br>(Only for separated type with IP68 casing) |

## Other

| | |
|---|---|
| Flange | Carbon steel (Optional stainless steel / Other types customizable) |
| Diameter | DN10 ... DN2000 |
| Sensor Casing | Standard die-cast aluminum |
| Lining Material | Neoprene rubber (CR),<br>Polytetra fluoroethylene PTFE (F4),<br>Perfluoroalkoxy (FEP F46), Teflon (PFA) |
| Electrode | Stainless steel 316L, Hastelloy HB/HC, Titanium, Tantalum, Platinum (Optional) |

# Order Information

| Model | Diameter | Cold/Heat Energy Measurement | HART Comm. | Pressure | Power | Description |
|---|---|---|---|---|---|---|
| F232A-P | | | | | | Flange integrated type electromagnetic flow meter, with PTFE lining, 4 … 20 mA output, RS485 communication, class 0.5 accuracy |
| F232A-R | | | | | | Flange integrated type electromagnetic flow meter, with rubber lining, 4 … 20 mA output, RS485 communication, class 0.5 accuracy |
| F232B-P | | | | | | Flange separated type electromagnetic flow meter, with PTFE lining, 4 … 20 mA output, RS485 communication, class 0.5 accuracy |
| F232B-R | | | | | | Flange separated type electromagnetic flow meter, with PTFE lining, 4 … 20 mA output, RS485 communication, class 0.5 accuracy |
| F232C | | | | | | Insertion separated type electromagnetic flow meter, 4 ... 20mA output, RS485 communication, class 1.5 accuracy |
| | DN10 - DN2000 | | | | | Norminal Diameter |
| | | V0013 0001 | | | | None (Default) |
| | | V0214 0002 | | | | With cold/heart energy measurement |
| | | | V0013 0001 | | | None (Default) |
| | | | V0208 0003 | | | HART protocol output |
| | | | | PN16 | | 1.6 MPa(g) |
| | | | | PN25 | | 2.5 MPa(g) |
| | | | | PN40 | | 4.0 MPa(g) |
| | | | | | V0215 0001 | 22 … 26 VDC, 15W @ 24VDC |
| | | | | | V0215 0002 | 100 … 240 VAC, 50/60 HZ, 15W @ 220VAC |

* For more selection parameters, please consult sales
* F232C insertion separated type electromagnetic flow meter max operating pressure is 1.6 MPa(a)

F233x Series

# High Accuracy High Pressure Resistant

## Turbine Liquid Flow Meter



## Product Overview

The F233x series liquid turbine flowmeter achieves high precision measurement by using the kinetic energy of the liquid to drive the internal turbine. The flow sensor is connected to a converter to provide pulse output, current output, on-site display and other functions. The flowmeter features high accuracy, a wide measurement range, long lifespan, and simple operation and maintenance.

The flow meter is suitable for liquids without fibers and particles that are non-corrosive to 304 SS, 2Cr13 SS, Corundum ($Al_2O_3$), and Cemented Carbide.

Widely applied in industries such as food, pharmaceuticals, petrochemicals, metallurgy, and papermaking, it is an ideal instrument for flow measurement.

## Product Advantages

0.5

### High Accuracy Measurement

Class 0.5 high accuracy measurement

### Strong Anti-Interference Capability

Excellent anti-interference capability, virtually unaffected by external disturbances

### Intelligent Low-Power Cuicuit

Power supply current as low as 20 mA, which is 1/5 of conventional operational amplifier circuit

### Protection code IP65

- Signal conversion efficiency is twice of conventional circuits, enabling efficient filtering and rapid measurement
- Precision micro power reference and 1.8 V low-power single-supply operational amplifier, with a power supply current as low as 20 mA, which is 1/5 of conventional op-amp circuits
- Supports switching among six international standard units
- Quick response and low-power stable measurement
- Standard Modbus RTU (RS485) interface and 4 … 20 mA current / pulse output
- Can be equipped with threaded, clamp or flanged connections based on actual working conditions
- Compact structure with high reliability
- Suitable for pipe diameters ranging from DN4 to DN200

# Technical Data

## Measuring Medium

| | |
|---|---|
| Medium | Liquids (water, organic liquids, inorganic liquids and etc., without fiber or particle impurities |
| Viscosity | < $5\times10^{-6}$ $m^2/s$ (for liquids ≥ $5\times10^{-6}$ $m^2/s$, the flow meter must be calibrated with actual liquid before use) |

## Output

| | |
|---|---|
| Analog | Output type: 4 … 20 mA<br>Output accuracy: 0.02%<br>Output load: 0 … 750 Ω |
| Pulse | Pulse width: auto or 10 ms<br>Pulse frequency: 1 … 2000 Hz<br>Pulse coefficient: 1 … 20000 P/L |
| Digital | Modbus RTU (RS485) |
| Connector | M20 PG Interface |

## Flow

| | |
|---|---|
| Measuring Range | Please refer to "Measuring Range" |
| Accuracy | Class 1 (optional Class 0.5) |
| Repeatability | ±0.15% RD |
| Response Time | 20 ms |

## Operating Environment

| | |
|---|---|
| Operating Temperature | -20 … +60 °C |
| Medium Temperature | -20 … +80 °C<br>(Standard temperature version)<br>-20 … +120 °C<br>(Medium temperature version) |
| Operating Pressure | Please refer to "Measuring Range" |

## Power

| | |
|---|---|
| Supply Voltage & Power | 24 VDC 0.5W @ 24VDC |

## Protection Code

| | |
|---|---|
| Protection Code | IP65 (IP67 and IP68 customizable) |

# Measuring Range

| Norminal Diameter (mm) | Standard Flow Range ($m^3/h$) | Extended Flow Range ($m^3/h$) | Pressure Rating with Thread Connection (MPa) | Pressure Rating with Flange Connection (MPa) | Pressure Rating with Clamp Connection (MPa) |
|---|---|---|---|---|---|
| DN4 | 0.04 ... 0.24 | —— | 6.3、25、32 | —— | —— |
| DN6 | 0.1 ... 0.6 | —— | 6.3、25、32 | —— | —— |
| DN10 | 0.2 ... 1.2 | —— | 6.3、25、32 | —— | —— |
| DN15 | 0.6 ... 6 | 0.3 ... 6 | 6.3、32 | —— | 1.6 |
| DN20 | 0.8 ... 8 | 0.4 ... 8 | 6.3 | —— | —— |
| DN25 | 1.0 ... 10 | 0.5 ... 10 | 6.3、32 | 1.6、2.5、4.0 | 1.6 |
| DN32 | 1.5 ... 15 | 1 ... 14 | 6.3 | 1.6、2.5、4.0 | —— |
| DN40 | 2.0 ... 20 | 1 ... 20 | 6.3 | 1.6、2.5、4.0 | 1.6 |
| DN50 | 4.0 ... 40 | 2 ... 40 | —— | 1.6、2.5、4.0 | 1.6 |
| DN65 | 7.0 ... 70 | —— | —— | 1.6、2.5、4.0 | 1.6 |
| DN80 | 10 ... 100 | 5 ... 100 | —— | 1.6、2.5、4.0 | 1.6 |
| DN100 | 20 ... 200 | 10 ... 200 | —— | 1.6、2.5 | 1.6 |
| DN150 | 30 ... 300 | 15 ... 300 | —— | 1.6、2.5 | —— |
| DN200 | 80 ... 800 | 40 ... 800 | —— | 1.6 | —— |

# Order Information

| Model | Diameter | Display & Output | Body Material | Impeller Material | Flow Range | Temperature Range | Accuracy | Description |
|---|---|---|---|---|---|---|---|---|
| F233A-PN16 | | | | | | | | Turbine liquid flow meter, 24 VDC power supply, Flange type GB/T9119 (PN16,DN4-DN200) |
| F233A-PN40 | | | | | | | | Turbine liquid flow meter, 24 VDC power supply, Flange type GB/T9119 (PN40,DN4-DN50) |
| F233B-PN63 | | | | | | | | Turbine liquid flow meter, 24 VDC power supply, Thread connection Imperial G thread (PN63, DN4-DN100) |
| F233C | | | | | | | | Turbine liquid flow meter, 24 VDC power supply, Card hoop connection, ISO 2852 (DN4-DN80) |
| | DN4 - DN250 | | | | | | | Norminal Diameter |
| | | V0211 0001 | | | | | | All-in-one display, Modbus RTU (RS485), 4...20 mA and pulse output |
| | | V0211 0003 | | | | | | Pulse version (no display), pulse output |
| | | | V0212 0001 | | | | | Stainless steel, SUS304 |
| | | | V0212 0002 | | | | | Stainless steel, SUS316 |
| | | | | V0212 0003 | | | | 2Cr13 SS |
| | | | | V0212 0004 | | | | Duplex stainless steel 2205,DN10 |
| | | | | | V0205 0002 | | | Standard range, refer to "Measuring Range" |
| | | | | | V0205 0003 | | | Extended range, refer to "Measuring Range" |
| | | | | | | V0210 0005 | | Temperature (-20 ... +80 °C) |
| | | | | | | V0210 0006 | | Temperature (-20 ... +120 °C) |
| | | | | | | | V0204 0003 | Standard accuracy class 1.0 |
| | | | | | | | V0204 0004 | Standard accuracy class 0.5 |

* For more selection parameters, please consult sales

F203B Series

# High Accuracy Bubble -Resistant

## New-generation Clamp-type Ultrasonic Liquid Flow Meter




## Product Overview

The working principle of the F203B ultrasonic flowmeter is mainly based on the propagation characteristics of ultrasonic waves in a fluid, measuring flow rate by detecting time delays. Because the ultrasonic flowmeter uses a non-contact measurement method and does not need to directly contact the fluid, it has a wide range of applications

Utilizing FPGA integrated circuit technology, the algorithm integrates threshold comparison gate circuit delay methods and high-speed ADC correlation methods, achieving a measurement rate greater than 300 times per second. Compared to traditional capacitive charging algorithms with measurement rates below 50 times per second, this ensures more accurate and reliable measurement results

There is also a significant improvement in the bubble tolerance within the measurement pipe diameter, with the capability to withstand continuous bubbles or impurities for up to 5 seconds

The unique flip cover design hides all screws after installation, and the use of longer-lasting membrane buttons provides a more comfortable key feel

## Product Advantages

### Non-contact Measurement

Ultrasonic properties are not affected by changes in fluid properties

### Ultra-wide Turndown Ratio

1:400

Ultra-wide turndow ratio of 1:400

### High Bubble and Impurity Tolerance

Maintain stable and accurate measurement in complex working conditions

### Sensor Protection Code IP68

- Non-contact measurement, unaffected by changes in fluid properties, capable of maintaining stable and accurate measurement in complex environments
- Ultra-wide turndown ratio of 1:400, with a measuring range from 0.03 m/s to 12 m/s
- FPGA integrated circuit combined with high-speed ADC algorithm, with a measuring rate greater than 300 times per second to ensure the accuracy
- Fully isolated electrical structure, completely filtering out field disturbances
- With data logging function, allows long-term data recording via an internal SD card (Optional)
- Standard RS232/RS485 Modbus interface
- Senosr protection code IP68, applicalbe to various harsh environments
- Clamp-type installation, suitable for pipe diameter DN25 ... DN1200

# Technical Data

## Flow

| | |
|---|---|
| Measuring Range | ±0.03 ... ±12 m/s |
| Accuracy | ±1 %RD |
| Repeatability | 0.2 %RD |
| Linearity | ±1 %RD |
| Diameter | DN25 ... DN1200 |

## Output

| | |
|---|---|
| Analog Output | 4 … 20 mA, max load 750 Ω |
| Pulse Output | 0 ... 10 KHz |
| Digital Output | Modbus RTU (RS485) |

## Power

| | |
|---|---|
| Supply Voltage & Power | 10 … 36 VDC / 90 … 245 VAC |

## Display

| | |
|---|---|
| Screen | Single-color LCD display 240 × 128 px |

## Operating Environment

| | |
|---|---|
| Operating Temperature | Transmitter: -20 … +60 °C<br>-40 … +80 °C (Standard temperature)<br>-40 … +130 °C (High temperature)<br>-40 … +180 °C (Special high temperature) |
| Ambient Humidity | 0 … 99% RH, non-condensing |

## Other

| | |
|---|---|
| Protection Code | Transmitter: IP65<br>Sensor: IP68 |
| Material | Transmitter: ABS + PC |
| Cable | Standard 9 m (max: 300 m) |

# Order Information

| Model | Sensor | Data Logging | Description |
|---|---|---|---|
| F203B | | | New-generation ultrasonic flow meter, wall-mounted transmitter, With Modbus / 4 ... 20 mA / OCT pulse output, Class 1.0 accuracy with 5m cable, with metal tensioner and coupling agent (suitable for pipe diameter DN25 ... DN1200) |
| F203B-T | | | New-generation ultrasonic flow meter, wall-mounted transmitter, With Modbus / 4 ... 20 mA / OCT pulse output, Class 1.0 accuracy with 5m cable, with metal tensioner and coupling agent, With temperature sensor and cooling/heating energy measurement functions (suitable for pipe diameter DN25 ... DN1200) |
| | F0105 0004 | | Calmp-type, IP68, operating temperature -40 °C ... +80 °C (Default) |
| | F0105 0007 | | Calmp-type, IP68, operating temperature -40 °C ... +130 °C |
| | F0105 0008 | | Calmp-type, IP68, operating temperature -40 °C ... +180 °C |
| | | V0013 0001 | None (Default) |
| | | F0105 0005 | Data logging function + SD card (32G memory) |

* For more selection parameters, please consult sales

FIXINST



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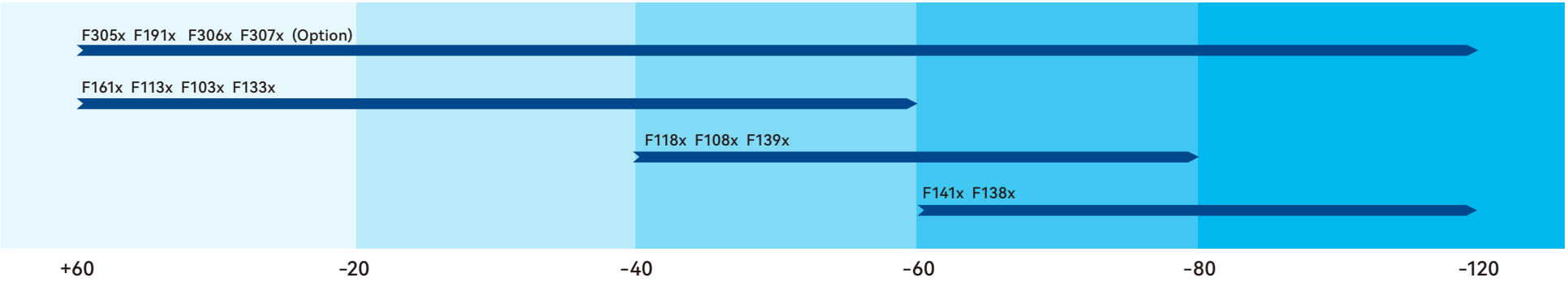
# Order Information

Optimal Use Range




| Modle | F161x | F113x | F103x | F133x | F118x | F108x | F139x | F141x | F138x | F305x | F191x |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Appearance |  |  |  | |  | |  | | |  |  |
| Sensor Type | FIXINST-P Polymer Capacitive Sensor | | | | FIXINST-A Aluminum Oxide Sensor | | | FIXINST-Q Dual QCM Sensor | | Option | Option |
| Optimal Use Range | -60 ... +60 °Ctd | | | | -80 ... -40 °Ctd | | | -120 ... -60 °Ctd | | Option | Option |
| Contains Contaminated Particles | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ |
| LCD Display | | | | | | | | | | ✓ | ✓ |
| Alarm Function | | | | | | | | | | | ✓ |
| Atm. Dewpoint & Pressure Measurement | | | | ✓ | | | ✓ | | ✓ | ✓ | ✓ |
| Portable | | | | | | | | | | ✓ | |
| Plot & Data Log | | | | | | | | | | ✓ | |
| Bluetooth & WIFI | | | | | | | | | | ✓ | |
| Modbus RTU | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |
| Compact, Aluminum Housing (For small space installation, economic) | ✓ | | | | | | | | | | |
| Compact, Stainless Steel Housing (For small space installation) | | ✓ | | | ✓ | | | | | | |
| Standard, Stainless Steel Housing (For harsh environment installation) | | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | | |
| High pressure (> 5 MPa.a) | | | ✓ | | | ✓ | | | | | ✓ |

# Sensor comparison

| Sensor Model | FIXINST-P | FIXINST-A | FIXINST-Q |
|---|---|---|---|
| Sensor Type | Polymer Capacitive Sensor | Aluminum Oxide Sensor | QCM Sensor |
| Sensor Appearance |  |  |  |
| Applicable to > -60 °Ctd: Refrigerant Dryer, Desiccant Dryer, Industrial Gas | ✓ | | |
| Applicable to -80 … -40 °Ctd: Desiccant Dryer, Nitrogen Generator, Industrial Gas | | ✓ | |
| Applicable to -120 … -60 °Ctd: High-purity Industrial Gas | | ○ | ✓ |
| Containing Contaminated Particles | ✓ | ✓ | |

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

○ Suitable for model F139C-Puri, F305B

For online display of the following humidity units (PPMv, g/kg, Atm. Dewpoint), please select a model with integrated pressure sensor


Dew Point 1
18.85℃td
Dew Point 2
43.89℃td
FIXINST
Td : -60...60 ℃
: 4...20 mA
Supply 12...30 VDC

F191x Series

# -110 … +60 °Ctd Option

## Dewpoint Meter Integrated with Display and Alarm Function




## Product Overview

The F191x series dewpoint meter can integrate a variety of the most advanced humidity sensors: FIXINST-P polymer film capacitive sensors, FIXINST-A ultra-fast response aluminum oxide sensors with innovative moisture sensitive materials and processes, and FIXINST-Q dual resonance QCM sensors with sensitivity at ultra-low dewpoint. These sensors provide F191x with the ability to accurately measure a wide range of dewpoints from -110 to +60 °Ctd

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

Innovative temperature compensation algorithm and multi-point temperature-compensated calibration, greatly reduces temperature-dependent dewpoint drift and ensuring high-precision dewpoint measurement over a wide temperature range

## Product Advantages

### Integrated Display

Display various dewpoint parameters simultaneously

### Ultra-wide Range

-110 … +60 °Ctd
Optional measuring range

### Alarm Output

Relay alarm output and alarm information display

### Innovative Technology

FixInst patented sensor materials and processes

- Compatible with various sensor technologies: polymer thin film, aluminum oxide, QCM crystal type sensors that can be used in different measuring ranges
- 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+ dew point 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
- 1.5" IPS wide viewing angle LCD with capacitive touch
- Relay alarm output
- IP66 metal housing provides good protection even in harsh industrial environments

# Technical Data

## Measuring Range

| | |
|---|---|
| Dewpoint | |
| F191A | -60 … +60 °Ctd |
| F191B | -80 … +20 °Ctd |
| F191C | -110 … +20 °Ctd |
| Temperature | -40 … +100 °C |
| Pressure | 0 … 1.7 MPa(a) (Option) |

## Output

| | |
|---|---|
| Analog Output (Customized) | 4 … 20 mA (4-wire) |
| Analog Resolution | 0.002 mA |
| Analog Drift | 0.01% of span/°C |
| Analog Load | Max. 500 ohm |
| Digital Output | Modbus RTU (RS485) |
| Relay Output | Normal open 32 VDC/500 mA |
| Connector | 2 × 5pin M12, Male |

## Accuracy

| | |
|---|---|
| Dewpoint (Air or Nitrogen) | |
| +20 … -60 °Ctd | ±2 °Ctd |
| -60 … -100 °Ctd | ±3 °Ctd |
| Temperature (Customized) | |
| 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

| | |
|---|---|
| Environment 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 Pressure Sensor) | 0 … 5 MPa(a) |
| | 0 … 25 MPa(a) (Option) |

## 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)<br>3/4" - 16 UNF thread (Customized)<br>5/8" - 18 UNF thread (Customized) |
| Protection Code | IP66 |
| Housing Material | AL6063 aerospace-grade aluminum |
| Sensor Filter | Stainless steel sinter filter<br>(Filtration class 30~45 um) |
| EMC | Compliant with IEC 61326-1 |

## Power

| | | |
|---|---|---|
| Supply Voltage & Power | 16 … 30 VDC | Max 4.5W @ 24VDC |

# UI Design

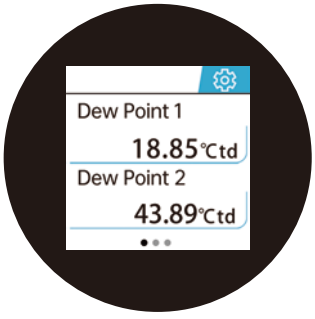
User friendly and powerful UI

### ◎ Capactivie touch operation

Excellent intuitive operability, what you see is what you get, eliminating the cost of learning complex button operations

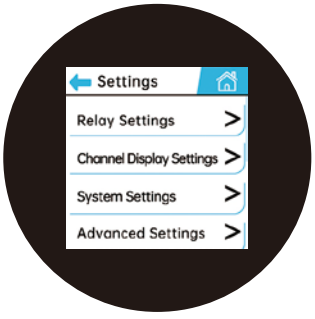
### ◎ IPS ultra-wide viewing

No matter from which angle, the information is accurately presented in high definition and accurately









# Order Information

| P/N | Description |
|---|---|
| F191A | -60 ... +60 °Ctd, 1.5" capacitive touch screen, Alarm relay output, G1/2" thread |
| F191A-P | -60 ... +60 °Ctd, 1.5" capacitive touch screen, Alarm relay output, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint, G1/2" thread |
| F191A-U1 | -60 ... +60 °Ctd, 1.5" capacitive touch screen, Alarm relay output, 3/4" – 16 UNF thread |
| F191A-P-U1 | -60 ... +60 °Ctd, 1.5" capacitive touch screen, Alarm relay output, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint, 3/4" – 16 UNF thread |
| F191A-U2 | -60 ... +60 °Ctd, 1.5" capacitive touch screen, Alarm relay output, 5/8" – 16 UNF thread |
| F191A-P-U2 | -60 ... +60 °Ctd, 1.5" capacitive touch screen, Alarm relay output, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint, 5/8" – 16 UNF thread |
| F191B | -80 ... +20 °Ctd, 1.5" capacitive touch screen, Alarm relay output, G1/2" thread |
| F191B-P | -80 ... +20 °Ctd, 1.5" capacitive touch screen, Alarm relay output, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint, G1/2" thread |
| F191B-U1 | -80 ... +20 °Ctd, 1.5" capacitive touch screen, Alarm relay output, 3/4" – 16 UNF thread |
| F191B-P-U1 | -80 ... +20 °Ctd, 1.5" capacitive touch screen, Alarm relay output, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint, 3/4" – 16 UNF thread |
| F191B-U2 | -80 ... +20 °Ctd, 1.5" capacitive touch screen, Alarm relay output, 5/8" – 16 UNF thread |
| F191B-P-U2 | -80 ... +20 °Ctd, 1.5" capacitive touch screen, Alarm relay output, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint, 5/8" – 16 UNF thread |
| F191C | -110 ... +20 °Ctd, 1.5" capacitive touch screen, Alarm relay output, G1/2" thread |
| F191C-P | -110 ... +20 °Ctd, 1.5" capacitive touch screen, Alarm relay output, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint, G1/2" thread |
| F191C-U1 | -110 ... +20 °Ctd, 1.5" capacitive touch screen, Alarm relay output, 3/4" – 16 UNF thread |
| F191C-P-U1 | -110 ... +20 °Ctd, 1.5" capacitive touch screen, Alarm relay output, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint, 3/4" – 16 UNF thread |
| F191C-U2 | -110 ... +20 °Ctd, 1.5" capacitive touch screen, Alarm relay output, 5/8" – 16 UNF thread |
| F191C-P-U2 | -110 ... +20 °Ctd, 1.5" capacitive touch screen, Alarm relay output, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint, 5/8" – 16 UNF thread |

* Portable protective case is available as an option. Please refer to the accessories list (P126) for details
* Wi-SUN wireless is available as an option. Please refer to the accessories list (P126) for details
* For other accessories please refer to the accessories list (P127) or consult sales

F305x Series

# Portable Measuring Smart Analysis

## Handheld Dewpoint Meter




## Product Overview

The F305x handheld dew point meter is a handheld instrument that integrates dew point measurement, data analysis and recording. It is suitable for on-site inspection, working condition analysis and diagnosis, and can simultaneously measure temperature, pressure and humidity parameters.

Integrating FIXINST-P polymer film capacitive sensor and FIXINST-A ultra-fast response Al2O3 sensor with updated moisture-sensitive materials and processes, enabling F305x to accurately measure a wide range of dew points from -110 ... +60 °Ctd

The dewpoint curve prediction algorithm quickly and accurately predicts the final stable value and time required, thus efficiently complete on-site inspections. Curve sparse and data recording functions, real-time sparse dew point, temperature, pressure and other data measurement curves, record on-site working condition data, and easily analyze gas state change trends

The measuring chamber is equipped with a drying system that protects and dries the sensor when the instrument is not measuring, ensuring a quick response to the next measurement.

## Product Advantages

### Display & Analysis

Display various dewpoint parameters simultaneously and also the graph

### Ultra-wide Range

-110 … +60 °Ctd Optional measuring range

### Innovative Technology

FixInst patented sensor materials and processes

### Handheld

Handheld, easy to operate and taken anywhere

- Compatible with various sensor technologies: polymer thin film, aluminum oxide sensors that can be used in different measuring ranges
- MEMS based pressure sensor for monitoring dewpoint and online pressure simultaneously (Abs. pressure 0 … 1.7 MPa.a)
- Accurate to ±2 °Ctd with up to 10+ dewpoint calibration and multi-point temperature compensation (Refer to “Technical Data”)
- Dewpoint steady-state prediction helps customers predict the trend in advance to save waiting time
- Data logging and graphing
- Equipped with a dry measuring chamber to ensure ultra-fast response and high accuracy
- Outstanding long-term stability
- 4.3″ IPS wide viewing angle LCD with capacitive touch, data clearly displayed and user-friendly HMI
- Handheld so easy to use, start measurement by connecting the PTFE tube to the measuring chamber, no site restriction, no operational technical difficulties

# Technical Data

## Measuring Range

| | |
|---|---|
| **Dewpoint** | |
| F305A | -60 … +60 °Ctd |
| F305B | -110 … +60 °Ctd |
| Temperature | -40 … +100 °C |
| Pressure | 0 … 1.7 MPa(a) |

## Accuracy

| | |
|---|---|
| **Dewpoint (Air or Nitrogen)** | |
| +20 … -60 °Ctd | ±2 °Ctd |
| -60 … -100 °Ctd | ±3 °Ctd |
| **Temperature (Customized)** | |
| 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 |

## 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 |

## Power

| | |
|---|---|
| Battery Charging | PD fast charger, 20VDC 1A |
| Charging Interface | Type-C interface |
| Charging Time | 2.5 h |
| Battery Life | 16 h (At 20 °C operating temperature) |

## Operating Environment

| | |
|---|---|
| Medium Temperature | -30 … +70 °C |
| Operating Temperature | 0 … +50 °C |
| Storage Temperature | -10 … +60 °C |
| Relative Humidity | 0 … 95 %RH |
| Sample Gas Flow Rate | ≥ 2 L/min |
| Pressure | 0 … 1.7 MPa(a) |

## Output

| | |
|---|---|
| File Export | Type-C interface |

## Other

| | |
|---|---|
| Display | 4.3″ IPS LCD with capacitive touch |
| Data Log | 1.5 G storage, 200,000,000 values |
| Process Connection | Dewpoint sensor: ISO G 1/2″ thread<br>Measuring chamber: 6 mm hose with quick connector |
| Housing Material | ABS+PC |
| Measuring Chamber | AL6063 |

# Order Information

| Model | Charger | Mobile USB Flash | Quick Connector | PTFE Tubes | Suitcase | Measuring Chamber | Connection Kit | Wireless Comm. | Discription |
|---|---|---|---|---|---|---|---|---|---|
| F305A | | | | | | | | | Handled dewpoint meter, -60 … +60 °Ctd, 4.3" Touch LCD screen, with Data logging function |
| F305B | | | | | | | | | Handled dewpoint meter, -110 … +60 °Ctd, 4.3" Touch LCD screen, with Data logging function |
| | E1701 0032 | | | | | | | | PD Fast Charger-CN, with 1m Type-C Cable |
| | S1701 0026 | | | | | | | | PD Fast Charger-US, with 1m Type-C Cable |
| | S1701 0026A | | | | | | | | PD Fast Charger-UK, with 1m Type-C Cable |
| | S1701 0026B | | | | | | | | PD Fast Charger-EU, with 1m Type-C Cable |
| | S1701 0026C | | | | | | | | PD Fast Charger-AU, with 1m Type-C Cable |
| | | E1701 0035 | | | | | | | OTG USB flash drive, Type-A & Type-C dual ports, 32G memory |
| | | | S0303 0002 | | | | | | Self-locking quick connector to Φ6 mm quick connector |
| | | | | M0104 0001 | | | | | PTFE tubes, Φ6mm (Std. 2m) |
| | | | | | M3501 0008 | | | | Suitcase, Suitable for F305x handled dewpoint meter, PP material |
| | | | | | | F0102A 0001 | | | Stainless steel measuring chamber with storage and drying function, G1/2″ sensor connection<br>Outlet: Flow control valve with silencer (Adjustable with screwdriver) |
| | | | | | | F0102A 0002 | | | Stainless steel measuring chamber with storage and drying function, G1/2″ sensor connection<br>Outlet: Stainless steel fast connector for 6 mm tube |
| | | | | | | F0102A 0003 | | | Stainless steel measuring chamber with storage and drying function, G1/2″ sensor connection<br>Outlet: Flow control valve with silencer (Default) |
| | | | | | | | V0013 0001 | | None (Default) |
| | | | | | | | F0103 0003 | | FixInst on-line dewpoint meter connection kit, for F305x calibrate online dewpoint meter |
| | | | | | | | | V0013 0001 | None (Default) |
| | | | | | | | | S1701 0010 | IoT-4G Module |




# A GOOD ASSISTANT FOR ON-SITE INSPECTION

The replaceable desiccant that comes with the measuring chamber can protect and dry the sensor when the instrument is not measuring, ensuring quick response to the next measurement.

The measuring chamber can be directly connected to a PTFE tube to introduce gas for measurement. It is not restricted by space and on-site, measure and move, very suitable for on-site inspection.

## 01.

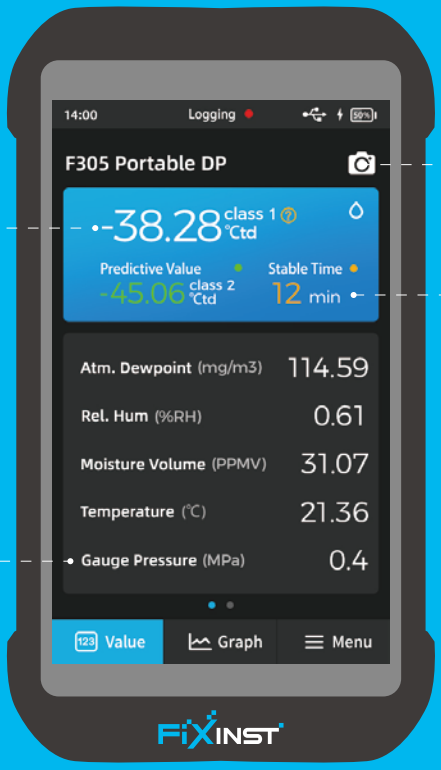
### Dewpoint Value

High-precision dewpoint measurement, with purity class according to ISO 8573

## 02.

### Screenshot

With this feature customer could retain the important data , to facilitate your later data and system analysis, etc




## 03.

### Customize Data Channel

This area indicates the value and allows you to customize the relevant channel according to the site situation

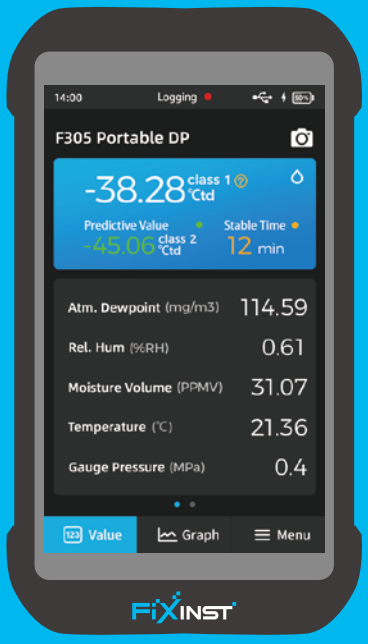
## 04.

### Dewpoint Steady-state Prediction

This indicates the predicted final stable dewpoint and the time required to reach stability, helping field engineers predict the system dewpont in advance and save detection / inspection time

# UI design

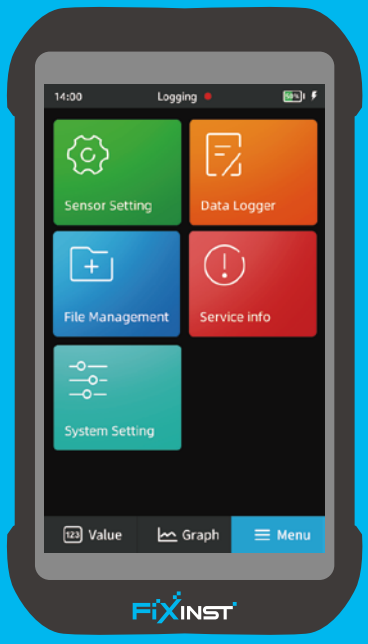
Featuring a 4.3" IPS ultra-wide viewing angle capacitive touch LCD screen, providing clear data display on a large screen from all angles, with simple and easy-to-use human-machine interaction



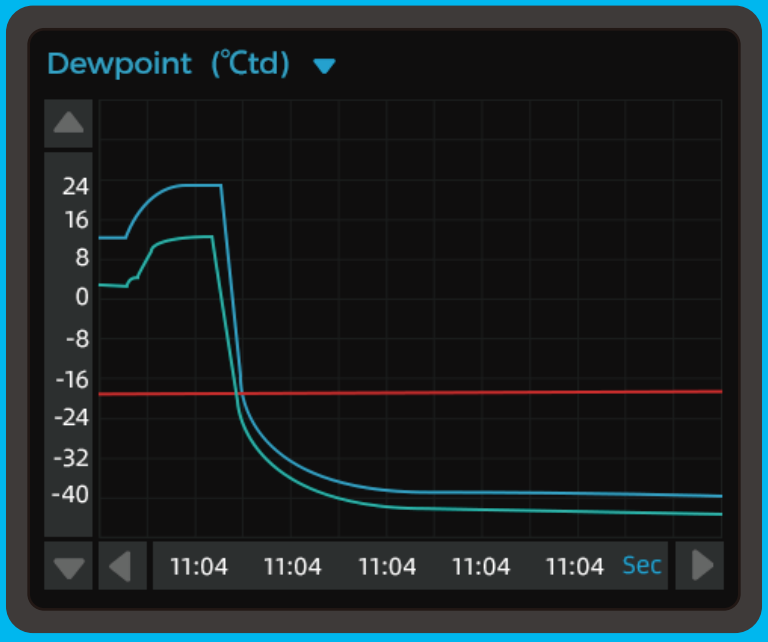

◎ **Value**




◎ **Graph**




◎ **Setting**




**01.**

Large-screen curve display for easy data comparison and analysis

**02.**

Dynamic curve and trend / freely switch the data channel

**03.**

Flexible selection of time period and measuring range

F161x Series

# -60 … +60 °Ctd Range

## FIXINST-P Polymer Capacitor OEM Dewpoint Transmitter




## Product Overview

When the dewpoint of the measuring medium is above -40 °Ctd, the polymer capacitive sensor has the best accuracy, response speed, long-term stability and price performance in comparison with other types of sensors

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

Innovative temperature compensation algorithm and multi-point temperature-compensated calibration, greatly reduces temperature-dependent dewpoint drift and ensuring high-precision dewpoint measurement over a wide temperature range

## Product Advantages

### Excellent Pollution Resistance

Anti-condensation
Anti-particle contamination

### Ultra-wide Range

-60 … +60 °Ctd

### Auto-calibration Circuit

Provides accurate and stable measurements

### Fast Response

Fast response to moisture changes

- Based on polymer thin film capacitive sensor technology
- Application in dewpoint > -60 °Ctd:
  Refrigerant dryers, desiccant dryers, industrial gases
- Accurate to ± 2 °Ctd with up to 10+ dewpoint calibration and multi-point temperature compensation (Refer to “Technical Data”)
- Ultra-fast response time and outstanding long-term stability
- Anti-condensation, resistant to particulate contamination, oil vapor and most chemicals
- High resistance to electrical disturbance
- 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
- Calibration is valid for two years, reducing maintenance
- Stable and cost-effective, low cost of use

# Technical Data

## Measuring Range

| | |
|---|---|
| Dewpoint | |
| F161A | -60 … +20 °Ctd |
| F161B | -60 … +60 °Ctd |
| Temperature | -40 … +100 °C |

## Accuracy

| | |
|---|---|
| Dewpoint (Air or Nitrogen) | |
| +60… -20 °Ctd | ±2 °Ctd (Standard) |
| | ±0.5 °Ctd (Customized) |
| -20 … -60 °Ctd | ±2 °Ctd |
| Temperature (Customizable) | |
| 0 … +50 °C | ± 0.3 °C (Standard) |
| -40 … 0 °C & +50 … +100 °C | ± 0.5 °C (Standard) |

## 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] |

## Power

| | |
|---|---|
| Supply Voltage & Power | 10 … 30VDC Max 1W @ 24VDC |

## Output

| | |
|---|---|
| Analog Output (Customized) | 4 … 20 mA (3-wire) |
| Analog Resolution | 0.002 mA |
| Analog Drift | 0.01 % of span/°C |
| Digital Output | Max. 500 ohm |
| Digital Output | Modbus RTU (RS485) |
| Connector | 5pin M8, Male |

## Operating Environment

| | |
|---|---|
| Environment Temperature | -30 … +70 °C |
| Storage Temperature | -40 … +80 °C |
| Relative Humidity | 0 … 95 %RH |
| Sample Gas Flow Rate | > 1 L/min |
| Pressure | 0 … 5 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 |
| Housing Material | SUS304 + AL6061 |
| Sensor Filter | Stainless steel sinter filter<br>(Filtration class 40~50 um) |
| EMC | Compliant with IEC 61326-1 |

# Order Information

| Model | Digital Output | Analog Output | Sensor Filter | Cable / Connector | Analog Output Unit | Pressure | Description |
|---|---|---|---|---|---|---|---|
| F161A | | | | | | | -60 … +20 °Ctd, Polymer film capacitive sensor, Compact aluminum housing, G1/2" thread |
| F161A-U1 | | | | | | | -60 … +20 °Ctd, Polymer film capacitive sensor, Compact aluminum housing, 3/4" -16 UNF thread |
| F161A-U2 | | | | | | | -60 … +20 °Ctd, Polymer film capacitive sensor, Compact aluminum housing, 5/8" -18 UNF thread |
| F161B | | | | | | | -60 … +60 °Ctd, Polymer film capacitive sensor, Compact aluminum housing, G1/2" thread |
| F161B-U1 | | | | | | | -60 … +60 °Ctd, Polymer film capacitive sensor, Compact aluminum housing, 3/4" -16 UNF thread |
| F161B-U2 | | | | | | | -60 … +60 °Ctd, Polymer film capacitive sensor, Compact aluminum housing, 5/8" -18 UNF thread |
| | 1 | | | | | | Modbus RTU (RS485) |
| | | 1 | | | | | 4 … 20 mA |
| | | | M1801 0004 | | | | Stainless steel sinter filter (Filtration class 40-50 µm, Default) |
| | | | S0301 0006 | | | | Stainless steel mesh filter (Filtration class 70 µm) |
| | | | | M2701 0008 | | | M8 female straight connectors, IP67, With 2m cable (Default) |
| | | | | | V0101 0001 | | Default output unit |
| | | | | | V0101 0002 | | Output unit (Customized) |
| | | | | | | V0103 0001 | Default 0 bar(g) |
| | | | | | | V0103 0002 | Customized |

* Optional external Wi-SUN/4G wireless communication module. Please refer to the accessories list (P126) for details

* For other accessories please refer to the accessories list (P127) or consult sales

F113x Series

# –60 … +60 °Ctd Range

## FIXINST-P Polymer Capacitor Compact Dewpoint Transmitter




## Product Overview

Compared with other types of sensors, polymer capacitive sensors are the best in terms of accuracy, response times, long-term stability, and price performance when the dewpoint of the measurement medium is above -40 °Ctd.

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 dewpoint measurement over a wide temperature range

## Product Advantages

### Excellent Pollution Resistance

Anti-Condensation,
Anti-Particle Contamination

### Ultra-wide Range

-60 … +60 °Ctd

### Auto-calibration Circuit

Provides measurement accuracy and stability

### Fast Response

Fast response to moisture changes

- Based on polymer thin film capacitive sensor technology
- Application in dewpoint > -60 °Ctd:
  Refrigerant dryers, desiccant dryers, industrial gases
- 10+ points of dewpoint calibration and multi-point temperature compensation provide accurate measurements up to ±2 °Ctd (Refer to “Technical Data”)
- Ultra-fast response time and outstanding long-term stability
- Anti-condensation, resistant to particulate contamination, oil vapor and most chemicals
- 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
- Calibration is valid for two years, reducing maintenance
- Compact size, easy to install in small spaces

# Technical Data

## Measuring Range

| | |
|---|---|
| **Dewpoint** | |
| **F113A** | -60 … +20 °Ctd |
| **F113B** | -60 … +60 °Ctd |
| **Temperature** | -40 … +100 °C |

## Accuracy

| | |
|---|---|
| **Dewpoint (Air or Nitrogen)** | |
| **+60… -20 °Ctd** | ±2 °Ctd (Standard)<br>±0.5 °Ctd (Customized) |
| **-20 … -60 °Ctd** | ±2 °Ctd |
| **Temperature (Customizable)** | |
| **0 … +50 °C** | ± 0.3 °C (Standard) |
| **-40 … 0 °C & +50 … +100 °C** | ± 0.5 °C (Standard) |

## 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] |

## Power

| | |
|---|---|
| **Supply Voltage & Power** | 10 … 30VDC Max 1W @ 24VDC |

## Output

| | |
|---|---|
| **Analog Output (Customized)** | 4 … 20 mA (3-wire) |
| **Analog Resolution** | 0.002 mA |
| **Analog Drift** | 0.01 % of span/°C |
| **Digital Output** | Max. 500 ohm |
| **Digital Output** | Modbus RTU (RS485) |
| **Connector** | 5pin M8, Male |

## 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** | 0 … 5 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 |
| **Housing Material** | SUS304 |
| **Sensor Filter** | Stainless steel sinter filter<br>(Filtration class 40~50 um) |
| **EMC** | Compliant with IEC 61326-1 |

# Order Information

| Model | Digital Output | Analog Output | Sensor Filter | Cable / Connector | Analog Output Unit | Pressure | Description |
|---|---|---|---|---|---|---|---|
| F113A | | | | | | | -60 … +20 °Ctd, Polymer film capacitive sensor, Compact stainless steel housing, G1/2" thread |
| F113A-U1 | | | | | | | -60 … +20 °Ctd, Polymer film capacitive sensor, Compact stainless steel housing, 3/4" -16 UNF thread |
| F113A-U2 | | | | | | | -60 … +20 °Ctd, Polymer film capacitive sensor, Compact stainless steel housing, 5/8" -18 UNF thread |
| F113B | | | | | | | -60 … +60 °Ctd, Polymer film capacitive sensor, Compact stainless steel housing, G1/2" thread |
| F113B-U1 | | | | | | | -60 … +60 °Ctd, Polymer film capacitive sensor, Compact stainless steel housing, 3/4" -16 UNF thread |
| F113B-U2 | | | | | | | -60 … +60 °Ctd, Polymer film capacitive sensor, Compact stainless steel housing, 5/8" -18 UNF thread |
| | 1 | | | | | | Modbus RTU (RS485) |
| | | 1 | | | | | 4 … 20 mA |
| | | | M1801 0004 | | | | Stainless steel sinter filter (Filtration class 40-50 µm, Default) |
| | | | S0301 0006 | | | | Stainless steel mesh filter (Filtration class 70 µm) |
| | | | | M2701 0008 | | | M8 female straight connectors, IP67, With 2m cable (Default) |
| | | | | | V0101 0001 | | Default output unit |
| | | | | | V0101 0002 | | Output unit (Customized) |
| | | | | | | V0103 0001 | Default 0 bar(g) |
| | | | | | | V0103 0002 | Customized |

* Optional external Wi-SUN/4G wireless communication module. Please refer to the accessories list (P126) for details
* For other accessories please refer to the accessories list (P127) or consult sales

F103x Series

# –60 … +60 °Ctd Range

## FIXINST-P Polymer Capacitor Standard Dewpoint Transmitter



## Product Overview

Compared with other types of sensors, polymer capacitive sensors are the best in terms of accuracy, response times, long-term stability, and price performance when the dewpoint of the measurement medium is above -40 °Ctd

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 dewpoint measurement over a wide temperature range

## Product Advantages

### Excellent Pollution Resistance

Anti-Condensation,
Anti-Particle Contamination

### Ultra-wide Range

-60 … +60 °Ctd

### Auto-calibration Circuit

Provides measurement accuracy and stability

### Fast Response

Fast response to moisture changes

- Based on polymer thin film capacitive sensor technology
- Application in dewpoint > -60 °Ctd:
  Refrigerant dryers, desiccant dryers, industrial gases
- 10+ points of dewpoint calibration and multi-point temperature compensation provide accurate measurements up to ±2 °Ctd (Refer to “Technical Data”)
- Ultra-fast response time and outstanding long-term stability
- Anti-condensation, resistant to particulate contamination, oil vapor and most chemicals
- 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
- Calibration is valid for two years, reducing maintenance

# Technical Data

## Measuring Range

| | |
|---|---|
| Dewpoint | |
| F103A | -60 … +20 °Ctd |
| F103B | -60 … +60 °Ctd |
| Temperature | -40 … +100 °C |

## Accuracy

| | |
|---|---|
| Dewpoint (Air or Nitrogen) | |
| +60… -20 °Ctd | ±2 °Ctd (Standard) |
| | ±0.5 °Ctd (Customized) |
| -20 … -60 °Ctd | ±2 °Ctd |
| Temperature (Customizable) | |
| 0 … +50 °C | ± 0.3 °C (Standard) |
| -40 … 0 °C & +50 … +100 °C | ± 0.5 °C (Standard) |

## 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] |

## Power

| | | |
|---|---|---|
| Supply Voltage & Power | 10 … 30VDC | Max 1W @ 24VDC |

## Output

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

## 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 | 0 … 5 MPa(a)<br>0 … 35 MPa(a) (Option) |

## 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 sinter filter<br>(Filtration class 30~45 um) |
| EMC | Compliant with IEC 61326-1 |

# Order Information

| Model | Digital Output | Analog Output | Sensor Filter | Cable / Connector | Analog Output Unit | Pressure | Withstand Pressure | Description |
|---|---|---|---|---|---|---|---|---|
| F103A | | | | | | | | -60 … +20 °Ctd, Polymer film capacitive sensor, Standard stainless steel housing, G1/2" thread |
| F103A-U1 | | | | | | | | -60 … +20 °Ctd, Polymer film capacitive sensor, Standard stainless steel housing, 3/4" -16 UNF thread |
| F103A-U2 | | | | | | | | -60 … +20 °Ctd, Polymer film capacitive sensor, Standard stainless steel housing, 5/8" -18 UNF thread |
| F103B | | | | | | | | -60 … +60 °Ctd, Polymer film capacitive sensor, Standard stainless steel housing, G1/2" thread |
| F103B-U1 | | | | | | | | -60 … +60 °Ctd, Polymer film capacitive sensor, Standard stainless steel housing, 3/4" -16 UNF thread |
| F103B-U2 | | | | | | | | -60 … +60 °Ctd, Polymer film capacitive sensor, Standard stainless steel housing, 5/8" -18 UNF thread |
| | 1 | | | | | | | Modbus RTU (RS485) |
| | | 1 | | | | | | 4 … 20 mA |
| | | | M1801 0001 | | | | | Stainless steel sinter filter (Filtration class 30-45 μm, 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 |
| | | | | | | | V0103 0003 | Maximum operating pressure: 0 … 35 MPa(a) |
| | | | | | | | V0103 0004 | Maximum operating pressure: 0 … 5 MPa(a) |

* Wi-SUN wireless is available as an option. Please refer to the accessories list (P126) for details
* For other accessories please refer to the accessories list (P127) or consult sales

F133x Series

# –60 … +60 °Ctd Range

## Polymer Capacitor Dewpoint & Pressure Multi-Parameter Transmitter



## Product Overview

The F133x 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 dewpoint and the atmospheric dew point at the same time.

Compared with other types of sensors, polymer capacitive sensors are the best in terms of accuracy, response times, long-term stability, and price performance when the dewpoint of the measurement medium is above -40 °Ctd.

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 dewpoint measurement over a wide temperature range

## Product Advantages

### Excellent Pollution Resistance

Anti-Condensation,
Anti-Particle Contamination

### Ultra-wide Range

-60 … +60 °Ctd

### Auto-calibration Circuit

Provides measurement accuracy and stability

### Fast Response

Fast response to moisture changes

- Based on polymer thin film capacitive sensor technology
- MEMS based pressure sensor for simultaneous monitoring of dewpoint and pressure
- Application in dewpoint > -60 °Ctd:
  Refrigerant dryers, desiccant dryers, industrial gases
- 10+ points of dewpoint calibration and multi-point temperature compensation provide accurate measurements up to ±2 °Ctd (Refer to “Technical Data”)
- Ultra-fast response time and outstanding long-term stability
- Anti-condensation, resistant to particulate contamination, oil vapor and most chemicals
- 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
- Calibration is valid for two years, reducing maintenance

# Technical Data

## Measuring Range

| | |
|---|---|
| Dewpoint | |
| F133A | -60 … +20 °Ctd |
| F133B | -60 … +60 °Ctd |
| Temperature | -40 … +100 °C |
| Pressure | 0 … 1.7 MPa(a) |

## Accuracy

| | |
|---|---|
| Dewpoint (Air or Nitrogen) | |
| +60… -20 °Ctd | ±2 °Ctd (Standard) |
| | ±0.5 °Ctd (Customized) |
| -20 … -60 °Ctd | ±2 °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 |

## 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 |

## Output

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

## 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 | 0 … 1.7 MPa(a) |

## Other

| | |
|---|---|
| Process Connection | ISO G1/2" thread (Standard)<br>3/4" - 16 UNF thread (Sustomized)<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 |

## Power

| | |
|---|---|
| Supply Voltage & Power | 10 … 30VDC Max 1W @ 24VDC |

# Order Information

| Model | Digital Output | Analog Output | Sensor Filter | Cable / Connector | Analog Output Unit | Pressure | Description |
|---|---|---|---|---|---|---|---|
| F133A | | | | | | | -60 … +20 °Ctd, Polymer film capacitive sensor, Integrated pressure sensor, Standard stainless steel housing, G1/2" thread |
| F133A-U1 | | | | | | | -60 … +20 °Ctd, Polymer film capacitive sensor, Integrated pressure sensor, Standard stainless steel housing, 3/4" -16 UNF thread |
| F133A-U2 | | | | | | | -60 … +20 °Ctd, Polymer film capacitive sensor, Integrated pressure sensor, Standard stainless steel housing, 5/8" -18 UNF thread |
| F133B | | | | | | | -60 … +60 °Ctd, Polymer film capacitive sensor, Integrated pressure sensor, Standard stainless steel housing, G1/2" thread |
| F133B-U1 | | | | | | | -60 … +60 °Ctd, Polymer film capacitive sensor, Integrated pressure sensor, Standard stainless steel housing, 3/4" -16 UNF thread |
| F133B-U2 | | | | | | | -60 … +60 °Ctd, Polymer film capacitive 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<br>(Filtration class 70 um, Default) |
| | | | | M2701 0004 | | | M12 female straight connectors, IP67,<br>With 2m cable (Default) |
| | | | | | V0101 0001 | | Default output unit |
| | | | | | V0101 0002 | | Output unit (Customized) |
| | | | | | | V0103 0001 | Default 0 bar(g) |
| | | | | | | V0103 0002 | Customized |

* Optional external Wi-SUN/4G wireless communication module. Please refer to the accessories list (P126) for details
* For other accessories please refer to the accessories list (P127) or consult sales

F118x Series

# -110 … +20 °Ctd Range

## FIXINST-A New-generation $Al_2O_3$ Compact Dewpoint Transmitter




## Product Overview

When the dewpoint of the measuring medium is below -40 °Ctd, the aluminum oxide sensor is the most accurate, responsive and long-term stability in comparison with other types of sensors. Meanwhile, it has excellent anti-pollution ability

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

Innovative temperature compensation algorithm and multi-point temperature-compensated calibration, greatly reduces temperature-dependent dewpoint drift and ensuring high-precision dewpoint measurement over a wide temperature range

## Product Advantages

### Innovative Sensor Tech

Low dewpoint,
high humidity resistance,
long-term stability

### Excellent Pollution Resistance

Anti-condensation
Anti-particle contamination

### Ultra-wide Range

-110 … +20 °Ctd

### Auto-calibration Circuit

Provides accurate and stable measurements

### Fast Response

Dewpoint can be down to -70 °Ctd or lower within 30 min

- FixInst new generation ultra-fast response aluminum oxide sensor technology
- Application in dewpoint < -60 °Ctd:
  Desiccant dryers, nitrogen generators, industrial gases
- Accurate to ± 2 °Ctd with up to 9 dewpoint calibration and multi-point temperature compensation (Refer to “Technical Data”)
- Ultra-fast response time and outstanding long-term stability
- Anti-condensation, resistant to particulate contamination, oil vapor and most chemicals
- High resistance to electrical disturbance
- 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
- Calibration is valid for two years, reducing maintenance
- Best price/performance ratio among most types of dewpoint meters in the same measuring range

# Technical Data

## Measuring Range

| | |
|---|---|
| Dewpoint | |
| F118A | -80 … +20 °Ctd |
| F118B | -110 … +20 °Ctd |
| Temperature | -40 … +100 °C |

## 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) |

## 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] |

## Power

| | | |
|---|---|---|
| Supply Voltage & Power | 10 … 30VDC | Max 1W @ 24VDC |

## Output

| | |
|---|---|
| Analog Output (Customized) | 4 … 20 mA (3-wire) |
| Analog Resolution | 0.002 mA |
| Analog Drift | 0.01 % of span/°C |
| Digital Output | Max. 500 ohm |
| Digital Output | Modbus RTU (RS485) |
| Connector | 5pin M8, Male |

## Operating Environment

| | |
|---|---|
| Environment Temperature | -30 … +70 °C |
| Storage Temperature | -40 … +80 °C |
| Relative Humidity | 0 … 95 %RH |
| Sample Gas Flow Rate | > 1 L/min |
| Pressure | 0 … 5 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 |
| Housing 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 |
|---|---|---|---|---|---|---|---|
| F118A | | | | | | | -80 … +20 °Ctd, $Al_2O_3$ sensor, Compact stainless steel housing, G1/2" thread, Standard materials |
| F118A-U1 | | | | | | | -80 … +20 °Ctd, $Al_2O_3$ sensor, Compact stainless steel housing, 3/4" -16 UNF thread, Standard materials |
| F118A-U2 | | | | | | | -80 … +20 °Ctd, $Al_2O_3$ sensor, Compact stainless steel housing, 5/8" -18 UNF thread, Standard materials |
| F118B | | | | | | | -110 … +20 °Ctd, $Al_2O_3$ sensor, Compact stainless steel housing, G1/2" thread, Standard materials |
| F118B-U1 | | | | | | | -110 … +20 °Ctd, $Al_2O_3$ sensor, Compact stainless steel housing, 3/4" -16 UNF thread, Standard materials |
| F118B-U2 | | | | | | | -110 … +20 °Ctd, $Al_2O_3$ sensor, Compact stainless steel housing, 5/8" -18 UNF thread, Standard materials |
| | 1 | | | | | | Modbus RTU (RS485) |
| | | 1 | | | | | 4 … 20 mA |
| | | | S0301 0006 | | | | Stainless steel mesh filter<br>(Filtration class 70 μm, Default) |
| | | | | M2701 0008 | | | M8 female straight connectors, IP67,<br>With 2m cable (Default) |
| | | | | | V0101 0001 | | Default output unit |
| | | | | | V0101 0002 | | Output unit (Customized) |
| | | | | | | V0103 0001 | Default 0 bar(g) |
| | | | | | | V0103 0002 | Customized |

* Optional external Wi-SUN/4G wireless communication module. Please refer to the accessories list (P126) for details
* For other accessories please refer to the accessories list (P127) or consult sales

F108x Series

# -110 … +20 °Ctd Range

## FIXINST-A New-generation $Al_2O_3$ Standard Dewpoint Transmitter



## Product Overview

When the dewpoint of the measuring medium is below -40 °Ctd, the aluminum oxide sensor is the most accurate, responsive and long-term stability in comparison with other types of sensors. Meanwhile, it has excellent anti-pollution ability

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 dewpoint measurement over a wide temperature range

## Product Advantages

### Innovative Sensor Tech

Low dewpoint, high humidity resistance, long-term stability

### Excellent Anti-pollution Ability

Anti-condensation, Anti-particle Contamination

### Ultra-wide Range

-110 … +20 °Ctd

### Auto-calibration Circuit

Provides measurement accuracy and stability

### Fast Response

Dewpoint can be down to -70 °Ctd or lower within 30 min

- FixInst new generation ultra-fast response aluminum oxide sensor technology
- Application in dewpoint < -60 °Ctd: Cold dryers, suction dryers, industrial gases
- 10+ points of dewpoint calibration and multi-point temperature compensation provide accurate measurements up to ±2 °Ctd (Refer to “Technical Data”)
- Ultra-fast response time and outstanding long-term stability
- Anti-condensation, resistant to particulate contamination, oil vapor and most chemicals
- 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
- Calibration is valid for two years, reducing maintenance

# Technical Data

## Measuring Range

| | |
|---|---|
| Dewpoint | |
| F108A | -80 … +20 °Ctd |
| F108B | -110 … +20 °Ctd |
| Temperature | -40 … +100 °C |

## 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) |

## 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] |

## Power

Supply Voltage & Power 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 |
| Digital Output | Max. 500 ohm |
| Digital Output | Modbus RTU (RS485) |
| Connector | 5pin M8, Male |

## 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 | 0 … 5 MPa(a)<br>0 … 35 MPa(a) (Option) |

## 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 |
| Housing 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 | Withstand Pressure | Description |
|---|---|---|---|---|---|---|---|---|
| F108A | | | | | | | | -80 … +20 °Ctd, $Al_2O_3$ sensor, Standard stainless steel housing, G1/2" thread |
| F108A-U1 | | | | | | | | -80 … +20 °Ctd, $Al_2O_3$ sensor, Standard stainless steel housing, 3/4" -16 UNF thread |
| F108A-U2 | | | | | | | | -80 … +20 °Ctd, $Al_2O_3$ sensor, Standard stainless steel housing, 5/8" -18 UNF thread |
| F108B | | | | | | | | -110 … +20 °Ctd, $Al_2O_3$ sensor, Standard stainless steel housing, G1/2" thread |
| F108B-U1 | | | | | | | | -110 … +20 °Ctd, $Al_2O_3$ sensor, Standard stainless steel housing, 3/4" -16 UNF thread |
| F108B-U2 | | | | | | | | -110 … +20 °Ctd, $Al_2O_3$ sensor, Standard stainless steel housing, 5/8" -18 UNF thread |
| | 1 | | | | | | | Modbus RTU (RS485) |
| | | 1 | | | | | | 4 … 20 mA |
| | | | S0301 0005 | | | | | Stainless steel mesh filter<br>(Filtration class 70 um, Default) |
| | | | | M2701 0004 | | | | M12 female straight connectors, IP67,<br>With 2m cable (Default) |
| | | | | | V0101 0001 | | | Default output unit |
| | | | | | V0101 0002 | | | Output unit (Customized) |
| | | | | | | V0103 0001 | | Defualt 0 bar(g) |
| | | | | | | V0103 0002 | | Customized |
| | | | | | | | V0103 0003 | Maximum operating pressure: 0 … 35 MPa(a) |
| | | | | | | | V0103 0004 | Maximum operating pressure: 0 … 5 MPa(a) |

* Optional external Wi-SUN/4G wireless communication module. Please refer to the accessories list (P126) for details
* For other accessories please refer to the accessories list (P127) or consult sales

F139x Series

# -110 … +20 °Ctd Range

## $Al_2O_3$ Dewpoint & Pressure Multi-Parameter Transmitter



## Product Overview

The F139x series integrates 3 sensors: temperature, humidity and pressure in a very compact space. It measures the dewpoint and simultaneously monitors the online pressure and outputs both the pressure dewpoint and the atmospheric dewpoint at the same time.

When the dewpoint of the measuring medium is below -40 °Ctd, the aluminum oxide sensor is the most accurate, responsive and long-term stability in comparison with other types of sensors. Meanwhile, it has excellent anti-pollution ability

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 dewpoint measurement over a wide temperature range

## Product Advantages

### Innovative Sensor Tech
Low dewpoint, high humidity resistance, long-term stability

### Excellent Anti-pollution Ability
Anti-Condensation, Anti-Particle Contamination

### Ultra-wide Range
-110 … +20 °Ctd

### Auto-calibration Circuit
Provides measurement accuracy and stability

### Fast Response
Dewpoint can be down to -70 °Ctd or lower within 30 min

- FixInst new generation ultra-fast response aluminum oxide sensor technology
- MEMS based pressure sensor for simultaneous monitoring of dewpoint and pressure
- Application in dewpoint < -60 °Ctd: Desiccant dryers, nitrogen generators, industrial gases
- 10+ points of dewpoint calibration and multi-point temperature compensation provide accurate measurements up to ±2 °Ctd (Refer to “Technical Data”)
- Ultra-fast response time and outstanding long-term stability
- Anti-condensation, resistant to particulate contamination, oil vapor and most chemicals
- 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
- Calibration is valid for two years, reducing maintenance

# Technical Data

## Measuring Range

| | |
|---|---|
| Dewpoint | |
| F139A | -80 … +20 °Ctd |
| F139B | -110 … +20 °Ctd |
| Temperature | -40 … +100 °C |
| Pressure | 0 … 1.7 MPa(a) |

## Accuracy

| | |
|---|---|
| Dewpoint (Air or Nitrogen) | |
| +60 … -20 °Ctd | ±2 °Ctd |
| -20 … -60 °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 |

## 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 |

## Power

| | | |
|---|---|---|
| Supply Voltage & Power | 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, Male |

## 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 | 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 |
| Housing 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 |
|---|---|---|---|---|---|---|---|
| F139A | | | | | | | -80 … +20 °Ctd, $Al_2O_3$ sensor, Integrated pressure sensor, Standard stainless steel housing, G1/2" thread |
| F139A-U1 | | | | | | | -80 … +20 °Ctd, $Al_2O_3$ sensor, Integrated pressure sensor, Standard stainless steel housing, 3/4" -16 UNF thread |
| F139A-U2 | | | | | | | -80 … +20 °Ctd, $Al_2O_3$ sensor, Integrated pressure sensor, Standard stainless steel housing, 5/8" -18 UNF thread |
| F139B | | | | | | | -110 … +20 °Ctd, $Al_2O_3$ sensor, Integrated pressure sensor, Standard stainless steel housing, G1/2" thread |
| F139B-U1 | | | | | | | -110 … +20 °Ctd, $Al_2O_3$ sensor, Integrated pressure sensor, Standard stainless steel housing, 3/4" -16 UNF thread |
| F139B-U2 | | | | | | | -110 … +20 °Ctd, $Al_2O_3$ 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 | Default 0 bar(g) |
| | | | | | | V0103 0002 | Customized |

* Optional external Wi-SUN/4G wireless communication module. Please refer to the accessories list (P126) for details
* For other accessories please refer to the accessories list (P127) or consult sales

F141x Series

# -120 … 0 °Ctd Range

## FIXINST-Q Dual QCM Standard Dewpoint Transmitter



## Product Overview

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

Patented dual QCM sensors, one for humidity signal and one for pollution signal, automatically compensate for the drift caused by pollution which is common in QCM humidity measurement technology

Innovative temperature compensation algorithm and multi-point temperature-compensated calibration, greatly reduces temperature-dependent dewpoint drift and ensuring high-precision dewpoint measurement over a wide temperature range. Combined with the ultra-high stability of QCM sensor technology, recalibration intervals can be extended to more than two years

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

## Product Advantages

### Dual QCM Sensor Tech

One for humidity signal and one for pollution signal

### Ultra-wide Range

-120 … 0 °Ctd
Ultra-low dewpoint measurement

### Auto-calibration Circuit

Provides accurate and stable measurements

### Fast Response

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
- Patented dual QCM sensors, one for humidity signal and one for pollution signal, automatically compensate for the drift caused by pollution
- Accurate measurements up to ±2 °Ctd
- Ultra-fast response time and outstanding long-term stability
- Multi-point temperature compensation calibration
- High resistance to electrical disturbance
- 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

# Technical Data

## Measuring Range

| | |
|---|---|
| **Dewpoint** | |
| **F141B** | -110 … 0 °Ctd |
| **F141C** | -120 … 0 °Ctd |
| **Temperature** | -40 … +100 °C |

## Accuracy

| | |
|---|---|
| **Dewpoint (Air or Nitrogen)** | |
| **+20… -80 °Ctd** | ±2 °Ctd |
| **-80 … -120 °Ctd** | ±3 °Ctd |
| **Temperature (Customized)** | |
| **0 … +50 °C** | ± 0.3 °C (Standard) |
| **-40 … 0 °C & +50 … +100 °C** | ± 0.5 °C (Standard) |

## 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] |

## Power

| | | |
|---|---|---|
| **Supply Voltage & Power** | 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 |
| **Digital Output** | Max. 500 ohm |
| **Digital Output** | Modbus RTU (RS485) |
| **Connector** | 5pin M12, Male |

## Operating Environment

| | |
|---|---|
| **Environment Temperature** | -20 … +70 °C |
| **Storage Temperature** | -30 … +80 °C |
| **Relative Humidity** | 0 … 95 %RH |
| **Sample Gas Flow Rate** | > 1 L/min |
| **Pressure** | 0 … 5 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 |
| **Housing 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 |
|---|---|---|---|---|---|---|---|
| F141B | | | | | | | -110 … 0 °Ctd, Dual QCM sensor,<br>Standard stainless steel housing, G1/2" thread |
| F141B-U1 | | | | | | | -110 … 0 °Ctd, Dual QCM sensor,<br>Standard stainless steel housing, 3/4" -16 UNF thread |
| F141B-U2 | | | | | | | -110 … 0 °Ctd, Dual QCM sensor,<br>Standard stainless steel housing, 5/8" -18 UNF thread |
| F141C | | | | | | | -120 … 0 °Ctd, Dual QCM sensor,<br>Standard stainless steel housing, G1/2" thread |
| F141C-U1 | | | | | | | -120 … 0 °Ctd, Dual QCM sensor,<br>Standard stainless steel housing, 3/4" -16 UNF thread |
| F141C-U2 | | | | | | | -120 … 0 °Ctd, Dual QCM sensor,<br>Standard stainless steel housing, 5/8" -18 UNF thread |
| | 1 | | | | | | Modbus RTU (RS485) |
| | | 1 | | | | | 4 … 20 mA |
| | | | S0301 0005 | | | | Stainless steel mesh filter<br>(Filtration class 70 um, Default) |
| | | | | M2701 0004 | | | M12 female straight connectors, IP67,<br>With 2m cable (Default) |
| | | | | | V0101 0001 | | Default output unit |
| | | | | | V0101 0002 | | Output unit (Customized) |
| | | | | | | V0103 0001 | Default 0 bar(g) |
| | | | | | | V0103 0002 | Customized |

* Optional external Wi-SUN/4G wireless communication module. Please refer to the accessories list (P126) for details
* For other accessories please refer to the accessories list (P127) or consult sales

F138x Series

# -120 … 0 °Ctd Range

## QCM Dewpoint & Pressure Multi-Parameter Transmitter



## Product Overview

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

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

# Technical Data

## Measuring Range

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

## 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, Male |

## 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 |

## 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) |

## 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 |

## 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 |

## Power

| | |
|---|---|
| Supply Voltage & Power | 10 … 30VDC Max 1.5W @ 24VDC |

# 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 | Default 0 bar(g) |
| | | | | | | V0103 0002 | Customized |

* Optional external Wi-SUN/4G wireless communication module. Please refer to the accessories list (P126) for details
* For other accessories please refer to the accessories list (P127) or consult sales

F306x Series

# -110 … +60 °Ctd Optional

## Dewpoint & Pressure Multi-parameter Wall-mounted Monitor




## Product Overview

The F306x series dewpoint meter can integrate a variety of the most advanced humidity sensors: polymer film capacitive sensors, ultra-fast response aluminum oxide sensors with innovative moisture sensitive materials and processes, and dual resonance QCM sensors with sensitivity at ultra-low dewpoint. These sensors provide F302x with the ability to accurately measure a wide range of dewpoints from -110 to +60 °Ctd

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 dewpoint measurement over a wide temperature range

## Product Advantages

### Integrated Display

Display various dewpoint parameters simultaneously

### Ultra-wide Range

-110 … +60 °Ctd
Optional measuring range

### Alarm Output

Relay alarm output and alarm information display

### Innovative Technology

FixInst patented sensor materials and processes

- Compatible with various sensor technologies: polymer thin film, aluminum oxide, QCM crystal type sensors that can be used in different measuring ranges
- MEMS based pressure sensor for simultaneous monitoring of dewpoint and pressure
- 10+ points of dewpoint calibration and multi-point temperature compensation provide accurate measurements up to ±2 °Ctd (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
- 4.3" Touch LCD screen, easy to operate, what you see is what you get
- Dual-color alarm light and buzzer alarm
- Easy to install and view data, start measuring by connecting the gas via a 6 mm quick connector

# Technical Data

## Measuring Range

| | |
|---|---|
| Dewpoint | |
| F306Ax | -60 … +60 °Ctd |
| F306Bx | -80 … +20 °Ctd |
| F306Cx | -110 … +20 °Ctd |
| Temperature | -40 … +100 °C |
| Pressure | 0 … 1.7 MPa(a) (Option) |

## Accuracy

| | |
|---|---|
| Dewpoint (Air or Nitrogen) | |
| +60… -20 °Ctd | ±2 °Ctd |
| -20 … -60 °Ctd | ±3 °Ctd |
| Temperature (Customized) | |
| 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 |

## 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 |

## Dispiay

| | |
|---|---|
| Display | 4.3" Touch LCD screen |

## Power

| | |
|---|---|
| Supply Voltage & Power | 220 VAC 10 W |

## Output

| | |
|---|---|
| Alarm Output | Dual-color alarm light and buzzer alarm |
| Connector | 2 × PG Plug |

## 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 | 0 … 1.7 MPa(a) |

## Other

| | |
|---|---|
| Process Connection | 6 mm Stainless steel quick connector |
| Sensor Filter | Stainless steel sinter filter (Filtration class 30~45 um) |
| EMC | Compliant with IEC 61326-1 |

# Order Information

| Model | Output | Power | Description |
|---|---|---|---|
| F306A | | | Dewpoint monitor -60 ... +60 °Ctd, 4.3" Touch LCD screen, Wall-mounted |
| F306A-P | | | Dewpoint monitor -60 ... +60 °Ctd, 4.3" Touch LCD screen, Wall-mounted, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint |
| F306B | | | Dewpoint monitor -80 ... +20 °Ctd, 4.3" Touch LCD screen, Wall-mounted |
| F306B-P | | | Dewpoint monitor -80 ... +20 °Ctd, 4.3" Touch LCD screen, Wall-mounted, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint |
| F306C | | | Dewpoint monitor -110 ... +20 °Ctd, 4.3" Touch LCD screen, Wall-mounted |
| F306C-P | | | Dewpoint monitor -110 ... +20 °Ctd, 4.3" Touch LCD screen, Wall-mounted, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint |
| | S0304 0002 | | None (Default) |
| | S0304 0003 | | Modbus RTU（RS485）output |
| | S0304 0004 | | 4~20 mA output + alarm relay output |
| | S0304 0005 | | Red and green alarm lights and buzzer alarm |
| | S0304 0006 | | Red and green alarm lights and buzzer alarm + Modbus RTU (RS485) output |
| | S0304 0007 | | Red and green alarm lights and buzzer alarm + 4~20 mA output + alarm relay output |
| | | M2501 0001 | Power socket-CN，Three holes，0.75 ㎡，1.5m (Default) |
| | | M2501 0002 | Power socket -US，0.75 ㎡，1.5m |
| | | M2501 0003 | Power socket -EU，0.75 ㎡，1.5m |
| | | M2501 0004 | Power socket -UK，0.75 ㎡，1.5m |
| | | M2501 0005 | Power socket -India，0.75 ㎡，1.5m |
| | | M2501 0007 | Power socket-AU，Three holes，0.75 ㎡，1.5m |

* This product can be equipped with a carrying case; please consult FixInst sales personnel for details.

F307x Series

# -110 … +60 °Ctd Optional

## Dewpoint & Pressure Multi-parameter Portable Monitor



## Product Overview

The F307x series dewpoint meter can integrate a variety of the most advanced humidity sensors: polymer film capacitive sensors, ultra-fast response aluminum oxide sensors with innovative moisture sensitive materials and processes, and dual resonance QCM sensors with sensitivity at ultra-low dewpoint. These sensors provide F307x with the ability to accurately measure a wide range of dewpoints from -110 to +60 °Ctd

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 dewpoint measurement over a wide temperature range

## Product Advantages

### Integrated Display

Display various dewpoint parameters simultaneously

### Ultra-wide Range

-110 … +60 °Ctd
Optional measuring range

### Portable Measurement

Portable and easy to install
Simple to operate

### Innovative Technology

FixInst patented sensor materials and processes

- Compatible with various sensor technologies: polymer thin film, aluminum oxide, QCM crystal type sensors that can be used in different measuring ranges
- MEMS based pressure sensor for simultaneous monitoring of dewpoint and pressure
- 10+ points of dewpoint calibration and multi-point temperature compensation provide accurate measurements up to ±2 °Ctd (Refer to “Technical Data”)
- Built-in 135 Wh high-capacity lithium battery to avoid interruption of data recording due to accidental power failure
- Ultra-fast response time
- Outstanding long-term stability
- Anti-Condensation, resistant to particulate contamination, oil vapor and most chemicals
- High resistance to electrical disturbance
- 7.0" Touch LCD screen, easy to operate, what you see is what you get
- Easy to install and view data, start measuring by connecting the gas via a 6 mm quick connector

# Technical Data

## Measuring Range

| | |
|---|---|
| Dewpoint | |
| F307Ax | -60 … +60 °Ctd |
| F307Bx | -80 … +20 °Ctd |
| F307Cx | -110 … 0 °Ctd |
| Temperature | -40 … +100 °C |
| Pressure | 0 … 1.7 MPa(a) (Option) |

## Display / Data Log

| | |
|---|---|
| Display | 7.0" Touch LCD screen |
| Data Log | Max 16G USB Flash Disk |

## Power

| | |
|---|---|
| Power | 220 VAC 10 W |
| Battery Capacity | 135 Wh |
| Charging Batteries | 100 ~ 240 VAC, 50 ~ 60 Hz |

## Accuracy

| | |
|---|---|
| Dewpoint (Air or Nitrogen) | |
| +60 … -60 °Ctd | ±2 °Ctd |
| -60 … -100 °Ctd | ±3 °Ctd |
| Temperature (Customized) | |
| 0 … +50 °C | ± 0.3 °C (Standard) |
| -40 … 0 °C & +50 … +100 °C | ± 0.5 °C (Standard) |
| Pressure Accuracy | |
| Accuracy @23 °C | ±0.3 %FS |
| Pressure Drift With Temperature | ±0.001 MPa/10 °C |

## Operating Environment

| | |
|---|---|
| Operating Temperature | 0 … +50 °C |
| Storage Temperature | -40 … +80 °C |
| Relative Humidity | 0 … 95 %RH |
| Sample Gas Flow Rate | > 1 L/min |
| Pressure | 0 … 1.7 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 | 6 mm Stainless steel quick connector |
| Sensor Filter | Stainless steel sinter filter (Filtration class 30~45 um) |
| EMC | Compliant with IEC 61326-1 |

# Order Information

| Model | Power | Description |
|---|---|---|
| F307A | | Dewpoint monitor -60 ... +60 °Ctd, 7.0" Touch LCD screen, Portable case type |
| F307A-P | | Dewpoint monitor -60 ... +60 °Ctd, 7.0" Touch LCD screen, Portable case type, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint |
| F307B | | Dewpoint monitor -80 ... +20 °Ctd, 7.0" Touch LCD screen, Portable case type |
| F307B-P | | Dewpoint monitor -80 ... +20 °Ctd, 7.0" Touch LCD screen, Portable case type, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint |
| F307C | | Dewpoint monitor -110 ... 0 °Ctd, 7.0" Touch LCD screen, Portable case type |
| F307C-P | | Dewpoint monitor -110 ... 0 °Ctd, 7.0" Touch LCD screen, Portable case type, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint |
| | M2501 0008 | Power socket-EU, 2-core figure-8 tail, 0.75 $m^2$, 1.5m |
| | M2501 0009 | Power socket-CN, 2-core figure-8 tail, 0.75 $m^2$, 1.5m (Default) |
| | M2501 0010 | Power socket-AU, 2-core figure-8 tail, 0.75 $m^2$, 1.5m |

F191x-Ex Series

# -110 ... +60 °Ctd Optional

## FixInst Explosion-proof Dewpoint Meter Integrated with Display




## Product Overview

The F191x-Ex series explosion-proof dewpoint meter 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, providing users a safe and reliable dewpoint monitoring solution

F191x-Ex can integrate a variety of latest technology humidity sensors: FIXINST-P polymer film capacitive sensor, FIXINST-A ultra-fast response aluminum oxide sensor with innovative moisture sensitive materials and processes, and dual resonance QCM sensors with sensitive at ultra-low dewpoint. These sensors provide F191x-Ex with the ability to accurately measure a wide range of dewpoint from -110 ... +60 °Ctd

**Explosion-proof class:** Ex db IIC T6 Gb / Ex tb IIIC T80°C Db **Protection class:** IP67

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, ensuring high-precision measurement within a wide temperature range

## Product Advantages

### Integrated Display

Display various dewpoint parameters simultaneously

### Ultra-wide Range

-110 … +60 °Ctd Optional measuring range

### Protection Code IP67

### Explosion-proof Certification

Ex db IIC T6 Gb
Ex tb IIIC T80°C Db

- Compatible with various sensor technologies: polymer thin film, aluminum oxide, QCM crystal type sensors that can be used in different measuring ranges
- Explosion-proof certification: Ex db IIC T6 Gb / Ex tb IIIC T80°C Db
- IP67 metal housing provides good protection even in harsh industrial environments
- 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 and outstanding long-term stability
- Anti-condensation, resistant to particulate contamination, oil vapor and most chemicals
- The capacitive touch 2.0” IPS LCD with an ultra-wide viewing angle
- Relay alarm output

# Technical Data

## Measuring Range

| | |
|---|---|
| Dewpoint | |
| F191A-Ex | -60 … +60 °Ctd |
| F191B-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) |
| Relay Output | Normal open 32 VDC/500 mA |
| Connector | Wiring terminal |

## 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 … +50 °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 pressure sensor) | 0 … 5 MPa(a)<br>0 … 35 MPa(a) (Option) |

## 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)<br>3/4" - 16 UNF thread (Customized)<br>5/8" - 18 UNF thread (Customized) |
| Explosion-proof Class | Ex db IIC T6 Gb / Ex tb IIIC T80°C Db |
| Protection Code | IP67 |
| Housing Material | SUS304 + ZL102 |
| Sensor Filter | Stainless steel sinter filter<br>(Filtration class 30~45 μm) |
| EMC | Compliant with IEC 61326-1 |

## Power

| | | |
|---|---|---|
| Supply Voltage & Power | 16 … 30VDC | Max 4.5W @ 24VDC |

# Order Information

| Model | Description |
|---|---|
| F191A-Ex | -60 … +60 °Ctd, 2.0″ Capacitive touch screen, Alarm relay output |
| F191A-P-Ex | -60 … +60 °Ctd, 2.0″ Capacitive touch screen, Alarm relay output, Integrated pressure sensor |
| F191B-Ex | -110 … +20 °Ctd, 2.0″ Capacitive touch screen, Alarm relay output |
| F191B-P-Ex | -110 … +20 °Ctd, 2.0″ Capacitive touch screen, Alarm relay output, Integrated pressure sensor |

* To have customized thread type, please consult sales
* Wi-SUN wireless is available as an option. Please refer to the accessories list (P126) for details

F171x-Ex Series

# -110 ... +60 °Ctd Optional

## FixInst Intrinsically Safe Explosioin-proof 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 dewpoint

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 measuring 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

# 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, Male |

## 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 pressure 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)<br>3/4" - 16 UNF thread (Customized)<br>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<br>(Filtration class 30~45 μm) |
| EMC | Compliant with IEC 61326-1 |

## Power

| | | |
|---|---|---|
| Supply Voltage & Power | 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 |

## 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 |

F139C-Puri Series

# -120 ... +20 °Ctd Optional

## High Purity Gas Dewpoint Transmitter



## Product Overview

F139C-Puri is a dewpoint measuring instrument specially designed for high-purity gas conditions. It uses FIXINST-A, an ultra-fast response aluminum oxide sensor with innovative moisture sensitive materials and processes. It has extremely high sensitivity and stability and can accurately capture small moisture changes in the medium, stable measurement of humidity as low as ppb level, providing accurate and reliable key data for gas analysis, quality control and process optimization

Revolutionary auto-calibration circuit design automatically compensates for measuring 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

The VCR process is used for connection, with high connection strength and good air-tight performance, is widely used for special gas or high purity gas pipelines

## Product Advantages

### Innovative Sensor Tech

Low dewpoint, high humidity resistance, long-term stability

### Excellent Pollution Resistance

Anti-condensation, Anti-particle contamination

### Ultra-wide Range

-120 … +20 °Ctd

### Auto-calibration Circuit

Provides accurate and stable measurements

### VCR Connection

Excellent air tightness

- FixInst newly developped ultra-high sensitivity aluminum oxide sensor technoclogy, lower limit of dewpoint down to -120 °Ctd, ppb level of humidity
- MEMS based pressure sensor for simultaneous monitoring of dewpoint and pressure
- Application in dewpoint < -80 °Ctd: High-purity industrial gas, electronic speciality gas and etc.
- 10+ points of dewpoint calibration and multi-point temperature compensation provide accurate measurements up to ±2 °Ctd (Refer to “Technical Data”)
- Ultra-fast response time and outstanding long-term stability
- Anti-condensation, resistant to particulate contamination, oil vapor and most chemicals
- High resistance to electrical disturbance
- IP65 protection class, providing good protection even in harsh environments
- Provides comprehensive sensor setup, data transfer, software upgrades, and maintenance via standard Modbus RTU (RS485) interface and powerful service APP
- Calibration is valid for two years, reducing maintenance

# Technical Data

## Measuring Range

| | |
|---|---|
| Dewpoint | -120 … +20 °Ctd |
| Temperature | -40 … +100 °C |
| Pressure | 0 … 1.7 MPa(a) |

## Accuracy

| | |
|---|---|
| Dewpoint (Air or Nitrogen) | |
| +20 … -60 °Ctd | ±2 °Ctd (Standard) |
| -60 … -120 °Ctd | ±3 °Ctd (Standard) |
| Temperature (Customizable) | |
| 0 … + 50 °C | ±0.3 °C (Standard) |
| -40 … 0 °C & +50 … +100 °C | ±0.5 °C (Standard) |
| Pressure Accuracy | ± 0.3 %FS |

## 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 |

## Power

| | |
|---|---|
| Supply Voltage & Power | 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, Male |

## 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 | 0 … 1.7 MPa(a) |

## Other

| | |
|---|---|
| Process Connection | VCR 1/4" (Gas inlet/oulet) |
| Protection Code | IP65 |
| Housing Material | SUS304 |
| EMC | Compliant with IEC 61326-1 |

# Order Information

| Model | Installation | Digital Output | Analog Output | Cable Connector | Aanlog Output Unit | Pressure | Description |
|---|---|---|---|---|---|---|---|
| F139C-Puri | | | | | | | -120 … +20 °Ctd, High purity gas dewpoint transmitter, Integrated pressure sensor, Standard stainless steel housing |
| | 1 | | | | | | VCR 1/4" (Gas inlet/outlet) (Standard) |
| | | 1 | | | | | Modbus RTU(RS485) |
| | | | 1 | | | | 4 … 20 mA |
| | | | | M2701 0004 | | | M12 female straight connectors, IP67, With 2m cable (Default) |
| | | | | M2701 0005 | | | M12 female straight connectors, IP67, With 5m cable |
| | | | | M2701 0001 | | | M12 plastic female straight connectors, Assembled type, IP67 |
| | | | | M2701 0002 | | | M12 metal female straight connectors, Assembled type, IP67, With shielding |
| | | | | | V0101 0001 | | Default output unit |
| | | | | | V0101 0002 | | Output unit (Customized) |
| | | | | | | V0103 0001 | Defualt 0 bar(g) |
| | | | | | | V0103 0002 | Customized |

* Optional external Wi-SUN/4G wireless communication module. Please refer to the accessories list (P126) for details

FAD01 Series

# Three-in-one High Accuracy

FAD Flow Real-time Conversion Module




## Product Overview

The FAD01 FAD Flow Real-Time Conversion Module is a multi-parameter device that simultaneously measures ambient temperature, humidity, and pressure

In the gas sales business, using standard flow to evaluate air compressor output presents a problem: when the air compressor operates under varying environmental conditions (such as altitude, humidity, or inlet air temperature), the standard flow will vary with the actual environment, but the performance of the compressor itself remains unchanged. Free Air Delivery (FAD) converts the compressed air volume at the compressor outlet to the flow rate at the inlet intake (i.e., the actual ambient temperature, pressure, and humidity). This measurement method eliminates the impact of environmental variables on gas volume and more directly reflects the compressor's compression efficiency and actual gas production capacity

The air compressor outlet flow can be converted into the FAD flow at the air compressor inlet in real time, helping customers to more accurately calculate the “Gas-to-Power Ratio" and perform energy efficiency evaluation

### Three-in-one

Integrated temperature, humidity & pressure sensors

### Real-time FAD Conversion

Convert standard flow rate to compressor inlet flow rate in real time

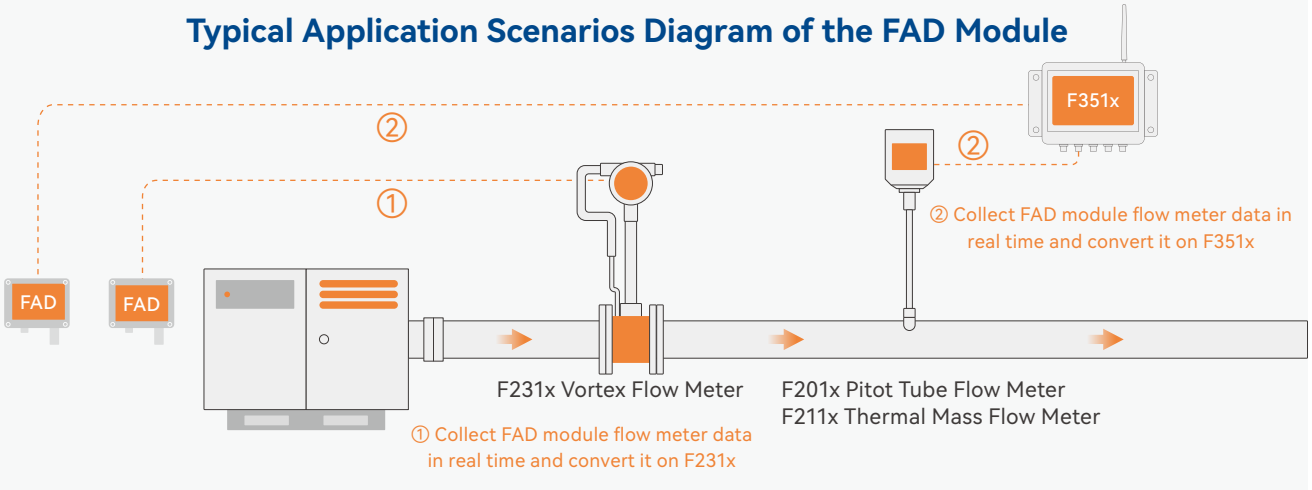
### High Accuracy

High-precision sensor
Long-term stable & reliable

### Easy to Integrate

Modbus RTU (RS485) compatible with various devices/industrial networks

### Typical Application Scenarios Diagram of the FAD Module



# Technical Data

| Temperature | |
|---|---|
| Measuring Range | -40 ... +85 ℃ |
| Measuring Accuracy | ±0.5 ℃ |
| Measuring Resolution | 0.001 |
| Effect of Temperature on Accuracy | ±0.2% ... ±1.8% (-40 … +85 ℃)<br>Typical values:<br>±0.6% @35 ℃<br>±0.9% @50 ℃ |

| Pressure | |
|---|---|
| Measuring Range | 60 ... 110 kPa(a)<br>Altitude: -500 m ... 4200 m |
| Measuring Accuracy | ±0.2% RD |
| Measuring Resolution | 0.01 |

| Humidity | |
|---|---|
| Measuring Range | 0 ... 100 %RH |
| Measuring Accuracy | ±2.0% RD |
| Measuring Resolution | 0.01 |

| Output | |
|---|---|
| Digital output | Modbus RTU (RS485) |
| Connector | 5pin M12, Female |

| Power | |
|---|---|
| Supply Voltage & Power | 18 ... 36 VDC  Max 2W @ 24VDC |

| Operating Environment | |
|---|---|
| Operating Temperature | -40 ... +85 ℃ |
| Storage Temperature | -40 ... +85 ℃ |
| Relative Humidity | 0 ... 95 %RH |

| Other | |
|---|---|
| EMC | Compliant with IEC 61326-1 |
| Housing Material | ABS + AL6063 |
| Weight | 0.2 kg |
| Dimensions | 104 × 40 × 79 mm (L×W×H) |
| Installation | Pipeline / Wall-mounted / DIN-rail |

# Order Information

| Model | Digital Output | Installation | Connector | Description |
|---|---|---|---|---|
| FAD01 | | | | FAD Flow Real-Time Conversion Module |
| | 1 | | | Modbus RTU (RS485) |
| | | S0305 0007 | | Pipeline installation |
| | | S0305 0008 | | DIN-Rail installation |
| | | S0305 0009 | | Wall-mounted installation |
| | | | M2701 0001 | M12 plastic female straight connector, IP67 |

F401x/F402x Series

# Accurate · Wide Range

## Standard Smart Pressure Transmitter



## Product Overview

F401x standard smart pressure transmitter adopts fully welded oil-filled sensor and high-precision special chip, small in size, high precision, suitable for various industries needing to measure fluid pressure precisely

## Product Advantages

**Accurate Amplifier Circuit**

**Wide Range Temperature Compensation**

**High Reliability Pressure Sensor**

**Modbus RTU Port**

- Adoption of digital compensation and nonlinear correction technology
- Wide measuring range for absolute, gauge and negative pressures
- No moving parts, high reliability
- Advanced structure to ensure product reliability
- Excellent on-site interchangeability
- 4~20mA or Modbus RTU output optional

# Technical Data

| Pressure | |
|---|---|
| Measuring Range | -100 ~ 0 kPa to 10 kPa ~ 40 MPa ~ 100 MPa |
| Pressure Type | Gauge, Absolute, Negative pressure |
| Accuracy | 0.5% (0.25% or 0.1% optional) |
| Hysteresis | ±0.1% FS |
| Repeatability | ±0.1% FS |
| Response | ≤1 ms (Up to 90% FS) |
| Measuring Medium | Various liquids, gases or vapors compatible with 316 stainless steel |
| Overload Pressure | 2 times full scale |

| Power | |
|---|---|
| Supply Voltage | 16 ... 30 VDC |

| Output | |
|---|---|
| Analog Output | 4 ... 20 mA (2-wire) |
| Digital Output | Modbus RTU (RS485) |

| Operating Environment | |
|---|---|
| Medium Temperature | -30 ... +85 °C |
| Environment Temperature | -40 ... +85 °C |

| Others | |
|---|---|
| Process Connection | G1/2" (M20x1.5, G1/4", 1/2"NPT, 1/4"NPT optional) |
| Electrical Connector | Hirschmann DIN connectors (Direct line out, airline connectors optional) |
| Protection Code | IP65 |
| Housing Material | SUS304 (SUS316 optional) |
| Diaphragm Material | SUS316L |

# Order Information

| Model | Description |
|---|---|
| F401A | Pressure Transmitter, 0 ... 1.6 MPa(g), 0.5%, G1/2" thread, Modbus RTU (RS485) communication |
| F401A-1 | Pressure Transmitter, 0 … 6.0 MPa(g), 0.5%, G1/2" thread, Modbus RTU (RS485) communication |
| F401A-2 | Pressure Transmitter, -80 … 0 kPa(g), 0.5%, G1/2" thread, Modbus RTU (RS485) communication |
| F401A-3 | Pressure Transmitter, -100 … 0 kPa(g), 0.5%, G1/2" thread, Modbus RTU (RS485) communication |
| F401B | Pressure Transmitter, 0 ... 1.6 MPa(g), 0.5%, G1/2" thread, 4 … 20 mA analog output |
| F401B-1 | Pressure Transmitter, -10 … 0 kPa(g), 0.5%, R1/4" thread, 4 … 20 mA analog output |
| F401B-2 | Pressure Transmitter, -10 … 50 kPa(g), 0.5%, R1/4" thread, 4 … 20 mA analog output |
| F401B-3 | Pressure Transmitter, 0 … 1.5 MPa(g), 0.25%, G1/2" thread, 4 … 20 mA analog output |
| F401B-4 | Pressure Transmitter, 0 … 1.6 MPa(g), 0.25%, R1/4" thread, 4 … 20 mA analog output |
| F401B-5 | Pressure Transmitter, 0 … 0.6 MPa(g), 0.25%, R1/4" thread, 4 … 20 mA analog output |
| F401B-6 | Pressure Transmitter, -100… 0 kPa(g), 0.5%, G1/2" thread, 4 … 20 mA analog output |
| F401B-7 | Pressure Transmitter, -50 … 50 kPa(g), 0.5%, R1/4" thread, 4 … 20 mA analog output |
| F401C | Pressure Transmitter with LED Digital Display, 0 … 1.6 Mpa(g), ±0.5%, G1/4" thread, Modbus RTU (RS485) output, 24VDC power supply |
| F402C | Pressure Transmitter, Monocrystalline Silicon, 0.075%, Direct Mount, G1/2" thread, Explosion-Proof, 0 …1.6 MPa(g), with LCD Display + 4 … 20 mA analog output + HART communication |
| F402D | Pressure Transmitter, Monocrystalline Silicon, 0.075%, Direct Mount, G1/2" thread, Explosion-Proof, -100 … 0 kPa(g), with LCD Display + 4 … 20 mA analog output + HART communication |

* For other measurement requirements, please consult sales

F601A(B) Series

# Portable Installation

Rogowski Coil
Smart Power Meter




## Product Overview

The F601A(B) is designed to measure current from 10 to 1000 A or 30 to 3000 A, and voltage from 80 to 620 V. The measurement is made using Rogowski coils, which allows for universal measurement across the entire current range without the need for complex transformer selection for different current. In addition, flexible Rokowski coils are very easy to use with large, irregularly shaped conductors or in places where space is tight and handling is limited

F601A(B) can accurately measure electrical energy, current, voltage, power factor and harmonic distortion, which enables users to better manage power consumption to achieve energy saving, quality and efficiency purposes

## Product Advantages

### Convenient Installation

Flexible Roche coils for easy installation even in tight spaces

### Good Universality

Universal current up to 1000/3000 A, no need to match different current transformers to site conditions

### Integral Calibration

The meter and coils are calibrated as a whole to ensure accurate measurement

### Multiple Data Output Optioins

Standard with Modbus RTU interfce output, with optional wireless 4G output, allowing for more flexible data analysis

- Wide measuring range: current from 10 to 1000 A or 30 to 3000 A, and voltage from 80 to 620 V
- Suitable for both online and portable measurements
- Easy to install with simple operation, no need to consider complex transformer selection
- Flexible Rogowski coils are compact and versatile, by using insulated gloves  live installation of equipment without power interruption is realizable
- Fully isolated electrical structure, completely filtering out field disturbances
- Multi data output options available: standard with Modbus RTU, and optionally wireless 4G output. This enables more flexible remote and data analysis
- With harmonic distortion analysis to analyze power quality
- Easy-to-use, powerful HMI with 2.0" TFT color LCD display

# Technical Data

| Measuring Range | |
|---|---|
| Voltage Input | 80 ~ 620 VAC (P-P) |
| Current Input | 10 ~ 1000 A (F601x)<br>30 ~ 3000 A (F601x-H) |
| Frequency Range | 45 ~ 65 Hz |

| Output | |
|---|---|
| Digital Output (Standard) | Modbus RTU (RS485) |
| Wireless Output (Option) | IoT-4G / Wi-SUN Comm. |

| Accuracy | |
|---|---|
| Voltage Accuracy | 0.2% |
| Current Accuracy | 0.5% (10~1000 A, Accuracy not guaranteed below 10 A) |
| Power Factor Accuracy | ±0.005 |
| Active Power | IEC62053-22 Class 0.2 |
| Active Energy | IEC62053-22 Class 0.2S |

| Operating Environment | |
|---|---|
| Operating Temperature | -25 ... +55 °C |
| Storage Temperature | -40 ... +85 °C |
| Humidity | 5 ... 95 %RH @ 50 °C (Non-condensing) |

| Specification | |
|---|---|
| Wiring Methods | 3PH3W / 3PH4W / 1PH2W / 1PH3W |
| Display | 2.0" TFT color LCD display (F601A) |
| Power | 85 ~ 265VAC, 5W, 45 ~ 65 Hz (F601A)<br>24 VDC, 3.5 W (F601B) |
| Installation | DIN-Rail |
| Optional Features | 1GB SD card storage |

| Dimension | |
|---|---|
| Weight | 212 g (F601A)<br>125 g (F601B)<br>1540 g (F601A-P)<br>1453 g (F601B-P) |
| Size | 76 × 95 × 71 mm (L×W×H) (F601A)<br>145 × 91 × 41 mm (L×W×H) (F601B)<br>247.5 × 168.5 × 90 mm (L×W×H) (F601x-IoT) |
| Material | ABS+PC |

| EMC | | | |
|---|---|---|---|
| Electrostatic Discharge | Level IV (IEC61000-4-2) | Conductivity Resistance | Level III (IEC61000-4-6) |
| Radiation Immunity | Level III (IEC61000-4-3) | Magnetic Fields Immunity | 0.5mT (IEC61000-4-8) |
| Rapid Transient Immunity | Level IV (IEC61000-4-4) | Conducted & Radiated Emissions | Class B (EN55022) |
| Surge Immunity | Level IV (IEC61000-4-5) | | |

# Order Information

| Model | Description |
|---|---|
| F601A | Smart Power Meter, with display, with 1kA / 50mm diameter Rogowski coil and voltage test cables, DIN-Rail installation, 85 … 265 VAC power supply |
| F601A-H | Smart Power Meter, with display, with 3kA / 50mm diameter Rogowski coil and voltage test cables, DIN-Rail installation, 85 … 265 VAC power supply |
| F601B | Smart Power Meter, with 1kA / 50mm diameter Rogowski coil and voltage test cables, DIN-Rail installation, 24 VDC power supply |
| F601B-H | Smart Power Meter, with 3kA / 50mm diameter Rogowski coil and voltage test cables, DIN-Rail installation, 24 VDC power supply |
| F601A-P-IoT | Smart Power Meter Suit, with IoT-4G module, with display, with 1kA / 50mm diameter Rogowski coil and voltage test cables, wall-mounted installation, 85 … 265 VAC power supply |
| F601A-H-P-IoT | Smart Power Meter Suit, with IoT-4G module, with display, with 3kA / 50mm diameter Rogowski coil and voltage test cables, wall-mounted installation, 85 … 265 VAC power supply |
| F601B-P-IoT | Smart Power Meter Suit, with IoT-4G module, with 1kA / 50mm diameter Rogowski coil and voltage test cables, wall-mounted installation, 24VDC power supply |
| F601B-H-P-IoT | Smart Power Meter Suit, with IoT-4G module, with 3kA / 50mm diameter Rogowski coil and voltage test cables, wall-mounted installation, 24VDC power supply |

* For other measurement requirements, please consult sales
* Portable protective case is available as an option. Please refer to the accessories list (P126) for details
* Wi-SUN wireless is available as an option

F601C(D) Series

# Economical Multi-parameter Measurement

## Economical Multi-parameter Smart Measurement




## Product Overview

Smart power meter is one of the basic equipments for data collection of smart grid (especially smart distribution grid), which undertakes the tasks of original electric energy data collection, metering and transmission, and is the basis for realizing information integration, analysis and optimization, and information presentation

The F601C(D) is an economical on-line smart meter for use with current transformers.If used with a voltage transformer, it can measure equipment with a voltage of 10 kV or above, and the specific current and voltage measuring range will depend on the type of transformer selected. The product is small in size and high in precision, and can accurately measure electrical energy, current, voltage, power factor and other signals and harmonic distortion, allowing the user to better manage the power consumption, in order to achieve energy saving, improve quality and efficiency

## Product Advantages

### Wide Measuring Range

With different transformers, it covers the vast majority of application conditions

### No separate power supply required

The meter directly gets power supply from the voltage inputs

### Standard Modbus RTU Interface

Connectable to the host computer for remote data analysis

- Three-phase, three-wire or three-phase, four-wire connections available
- Wide measuring range, with access voltages of conventional 380 V or high voltage 10 kV.
- Fully isolated electrical structure, completely filtering out field disturbances
- Compatible with many different sizes of transformer access
- High measurement precision, accuracy class 0.5S
- Standard RS485 Modbus RTU interface also supports DL/T 645
- With voltage total harmonic distortion analysis to analyze power quality

# Technical Data

| Measuring Range | |
|---|---|
| Voltage Input | 3 × 100 V; 3 × 380 V; 3 × 57.7 /100 V; 3 × 220 / 380 V |
| Current Input | 3 × 1(6) A, 3 × 10(80) A |
| Frequency Range | 45 ~ 65 Hz |

| Output | |
|---|---|
| Digital Output (Standard) | Modbus RTU (RS485) / DL/T645 |

| Accuracy | |
|---|---|
| Voltage Accuracy | 0.2% (Excluding transformer error) |
| Current Accuracy | 0.2% (Excluding transformer error) |
| Active Power | 0.5% |
| Active Energe | 0.5 S |

| Operating Environment | |
|---|---|
| Operating Temperature | -25 ... +55 °C |
| Storage Temperature | -40 ... +85 °C |
| Humidity | 5 ... 95 %RH @ 50°C (Non-condensing) |

| Specification | |
|---|---|
| Wiring Methods | 3PH3W / 3PH4W |
| Display | 12-Bit LCD display, Backlight display |
| Installation | DIN-Rail |

| Dimension | |
|---|---|
| Size | 72 × 90 × 65 mm (L×W×H) |

# Order Information

| Model | Description |
|---|---|
| F601C | Smart power meter, with display, DIN-Rail, 3 × 220(380)V / 3 × 1(6)A |
| F601D | Smart power meter, with display, DIN-Rail, 3 × 57.7(100)V / 3 × 1(6)A |

* For other measurement requirements, please consult sales

F501A Series

# High Precision Cloud Connectivity

## Portable Oil Vapor Monitor




## Product Overview

The F501A is a high-precision, wide-range portable instrument. It measures oil vapor concentrations from 0.001 … 5.000 mg/m³ and simultaneously monitors pressure dewpoint, pressure, and temperature, delivering excellent cost-performance

Refer to the ISO 8573-1, the F501A features oil vapor and dewpoint class evaluation functions for compressed air, making it an ideal choice for on-site inspections

A 7" touchscreen provides real-time curve display, data recording, and USB export. With 25 GB of onboard storage, users can easily perform professional data analysis directly in the field

Automatic background calibration and self-cleaning at shutdown ensure reliable accuracy and extend sensor lifetime. Multi-color LED indicators, combined with on-screen alarms, clearly display the status of power, measurement environment, sensor, and filter, providing users with full visibility into system operation

## Product Advantages

### Three-in-one

Oil vapor/Dewpoint/Pressure Three-in-one measurement

### Ultra-wide Measurement Range

ppb level accuracy with an extremely low detection limit

### Auto-calibration/ Auto cleaning

Ensure measurement accuracy & stability, extend sensor lifetime

### Ultra-wide viewing angle LCD

Large-screen data and dynamic curve displays are clear, with smooth operation

- ppb level accuracy with an extremely low detection limit, wide range 0.001 … 5.000 mg/m³
- Automatic background calibration and self-cleaning at shutdown, ensuring accuracy and extending the lifetime
- FixInst newly developed ultra-fast aluminum oxide sensor technology, measuring dewpoint from −110 … +20 °Ctd
- Integrated temperature and pressure sensors for online temperature and pressure monitoring
- Two isolated Modbus RTU (RS485) interfaces
- (Optional) 4G and Wi-SUN wireless modules, support uploading data to the cloud wirelessly and device networking
- Portable instrument, connects via Ø6 mm PTFE quick-connect fittings, easy to install and move between sites
- Large-screen dynamic curve displays for real-time monitoring of gas concentration changes
- The capacitive touch 7″ IPS LCD with an ultra-wide viewing angle, offering smooth and intuitive user interaction

# UI Design

The capacitive touch 7" IPS LCD with an ultra-wide viewing angle, offering clear full-screen data display and an intuitive, user-friendly interface

## 01 Large-Screen Data Trend Graph

Full-screen dynamic display. Switch between multiple curves at will for effortless data comparison and analysis

## 02 Oil Vapor/Dewpoint Class

Refer to the ISO 8573-1, with oil vapor and dewpoint class evaluation functions for compressed air




## 03 Multi-Parameter

Simultaneously monitors key parameters such as pressure, dewpoint, oil vapor and temperature, delivering excellent cost performance

## 04 25GB Large Storage Capacity

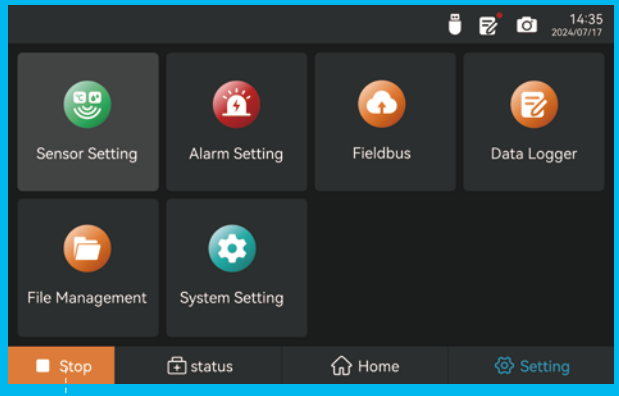
3 billion recorded points, ultra-large storage capacity, supports USB data export

◎ Home

◎ Status




◎ Setting




## 05

Monitor sensor operational status in real time and efficiently manage device

## 06

Background auto-calibration and self-cleaning during shutdown improve measurement accuracy and stability while extending device life time

# Technical Data

## Oil Vapor

| | |
|---|---|
| Measuring Range | 0.001 ... 5.000 mg/m³ |
| Accuracy | ±(1.5%RD + 0.3%FS) |
| Resolution | 0.001 |

## Dewpoint

| | |
|---|---|
| Measuring Range | -110 ... +20 °Ctd |
| Accuracy | ±2 °Ctd (-60 ... +20 °Ctd)<br>±3 °Ctd (-110 ... -60 °Ctd) |

## Pressure

| | |
|---|---|
| Measuring Range | 0 … 1.7 Mpa(a) |
| Accuracy | ±0.3 %FS @23℃ |
| Resolution | 0.01 |

## Temperature

| | |
|---|---|
| Measuring Range | 0 … 50 ℃ |
| Accuracy | ±0.3 ℃ |
| Resolution | 0.01 |

## Data Logging

| | |
|---|---|
| Storage | 25 G, 3,000,000,000 values |
| Data Export | USB Type-C |

## Power

| | |
|---|---|
| Supply Voltage & Power | 18 ... 30 VDC Max 50 W @ 24 VDC |

## Display

| | |
|---|---|
| Display | 7″ IPS touch LCD |
| Resolution | 1280 × 800 px |

## Signal Output

| | |
|---|---|
| Analog Signal | 4 ... 20 mA |
| Digital Signal | Modbus RTU (RS485)<br>Modbus TCP (Ethernet) |
| Alarm Signal | 2 × Relay alarm channel (Oil Vapor, Dewpoint) |
| Wireless Signal | Wi-SUN（Optional）<br>IoT-4G（Optional） |

## Operating Environment

| | |
|---|---|
| Measuring Medium | Compressed air and non-corrosive, non-explosive gases |
| Medium Temperature | 0 ... +50 ℃ |
| Medium Pressure | 0.3 ... 1.7 Mpa(a) |
| Relative Humidity | 0 ... 40 %RH (Non-condensing) @20℃, 100KPa |
| Sample Gas Flow Rate | 0.5 ... 2 Nl/min |
| Environment Temperature | -20 ... +45 ℃ |
| Storage Temperature | -20 ... +45 ℃ |

## Other

| | |
|---|---|
| Zero Filter Life Time | 2 Year @ 2 ppm |
| UV Lamp Life Time | 8000 h |
| Case Material | PP |
| Dimension | 445 × 319 × 177 mm (L×W×H) |

# Order Information

| Model | 4G Comm. | Wi-SUN Comm. | Power Cable | Description |
|---|---|---|---|---|
| F501A | | | | Portable Oil Vapor Monitor，0.001...5.000mg/m³，7" IPS capacitive touch screen, with data logging function，Pressure Dewpoint -110...+20°Ctd，0...16 bar，0...50 ℃ |
| | V0013 0001 | | | None (Default) |
| | S1701 0010 | | | Built-in 4G-IoT module |
| | | V0013 0001 | | None (Default) |
| | | S1701 0017 | | Built-in Wi-SUN Sub-module, 915 frequency band (mainly suitable for Asia, America and Australia) |
| | | S1701 0018 | | Built-in Wi-SUN Sub-module, 868 frequency band (mainly suitable for Europe and the Middle East) |
| | | | V0013 0001 | None (Default) |
| | | | S1701 0046 | Power module with M12 connector, US standard plug, 24 VDC 1.04 A / 50 W output, 100 ... 240 VAC input |
| | | | S1701 0047 | Power module with M12 connector, EU standard plug, 24 VDC 1.04 A / 50 W output, 100 ... 240 VAC input |
| | | | S1701 0048 | Power module with M12 connector, UK standard plug, 24 VDC 1.04 A / 50 W output, 100 ... 240 VAC input |
| | | | S1701 0049 | Power module with M12 connector, CN standard plug, 24 VDC 1.04 A / 50 W output, 100 ... 240 VAC input |

* There are difference in regulations and standards between countries and regions.
Please select according to the local Wi-SUN frequency band

F351x Series

# Multi-sensor Logging · Analysis

## Multi-function Display and Data Logger




## Product Overview

F351x integrates multi-sensor data collection, display and logging functions, providing an economical solution for field instrument central control and process data analysis

F351x collects and records several groups of sensor measurement data with various methods such as digital interfaces, analog interfaces and wireless transmission.The real-time data curves can be used to realize local data visualization and data integration on the cloud. Analyze production process data from the trend view, accurately formulate production and process optimization plans, and efficiently complete daily equipment maintenance

Based on the standard Modbus RTU protocol, F351x supports connection of third-party devices. With FixInst configuration software, field devices can be quickly configured

Using a 7" ultra-wide viewing angle touch LCD screen and a high-performance display platform, F351x has clear data display and smooth operation

Supports up to 255 sensors access, local display, curve trend analysis and data recording

## Product Advantages

### Data Display & Analysis

Display data and plot curve, analyze process data effectively

### Support 4 Device Types

Modbus RTU (RS485)/Analog Device/ Virtual Device/Wi-SUN Device

### Data Upload to the Cloud

Ethernet interface, supports LAN and data upload to the cloud (4G)

### Up to 255 Sensor Inputs

Supports wireless sensor connection (Wi-SUN), avoiding high cost field wiring

- On-site central control display and data curve plotting, effective analysis of process data
- (Option) with data logger, 3,000,000,000 values
- With 7"IPS ultra-wide viewing angle LCD, high resolution data display, easy and smooth operation
- Two isolated Modbus RTU (RS485) interface, supports up to 255 sensor inputs
- Support customized virtual devices (preset Pressure Drop, Calculation of Heat and Cold, Vacuum Flow, Gas-to-Power Ratio, FAD)
- (Option) Built-in Wi-SUN Master Node, supports connecting field FixInst sensors and third-party devices via wireless connection
- Standard Ethernet interface, supports LAN connection and data upload to the cloud
- (Option) 4G could platform gateway, support uploading data to cloud wirelessly
- IP65 protection, applicable to various industrial fields

# Technical Data

## Display

| | |
|---|---|
| Display | 7″ IPS touch LCD |
| Resolution | 1280 × 800 |

## Signal Inputs

| | |
|---|---|
| Digital Signal | 2 isolated RS485 inputs, supports up to 255 Modbus RTU sensor inputs |
| Aanalog Signal (Option) | 4 x [0 ... 20 mA / 4 ... 20 mA / 0 ... 1 VDC / 0 ... 10 VDC] channel |
| Wireless Signal (Option) | Sensor wireless gateway (Built-in Wi-SUN Master Node) |

## Output

| | |
|---|---|
| Digital Signal | Modbus RTU (RS485)<br>Modbus TCP (Ethernet)<br>USB Type-C |
| Alarm Signal | 2 x Relay alarm channel, 230 VAC, 3A |
| Wireless Signal (Option) | 4G cloud platform gateway |

## Data Logging

| | |
|---|---|
| Storage | 25 G, 30,000,000,000 values |
| Data Export | USB Type-C |

## Operating Environment

| | |
|---|---|
| Operating Temperature | 0 … +50 °C |
| Storage Temperature | -20 … +70 °C |
| Relative Humidity | 0 … 95 %RH |

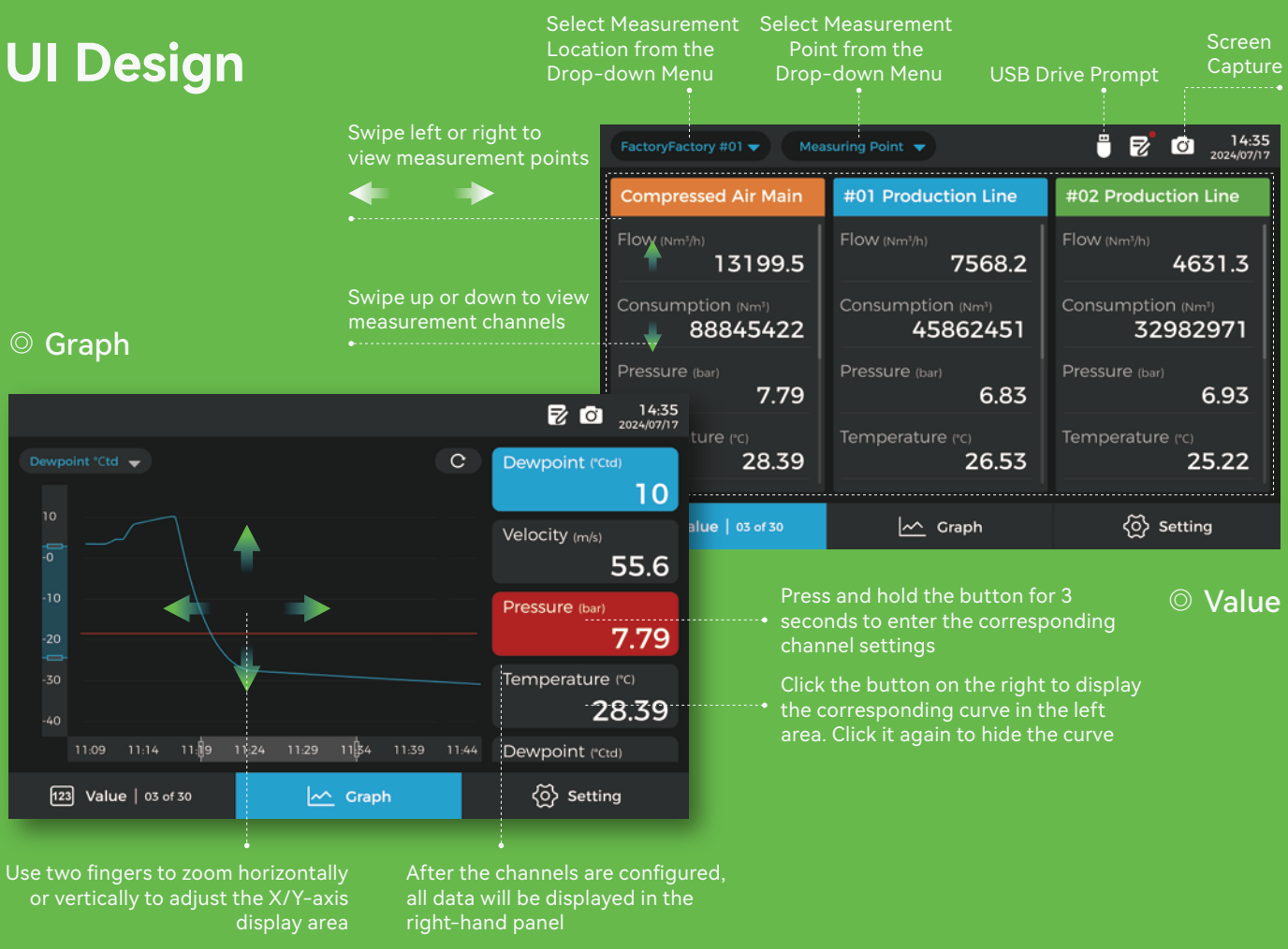
## Other

| | |
|---|---|
| Connector | Wiring terminal |
| Protection | IP65 |
| Housing Material | PC + ABS |
| Housing Dimension | Refer to “Product Dimensions” |
| Installation | Panel / Wall-mounted / DIN-rail (For use with wall-mounted casing) |
| Cable Diamter | 4 ... 8 mm |
| Certification | Conforms to CE marking standard |

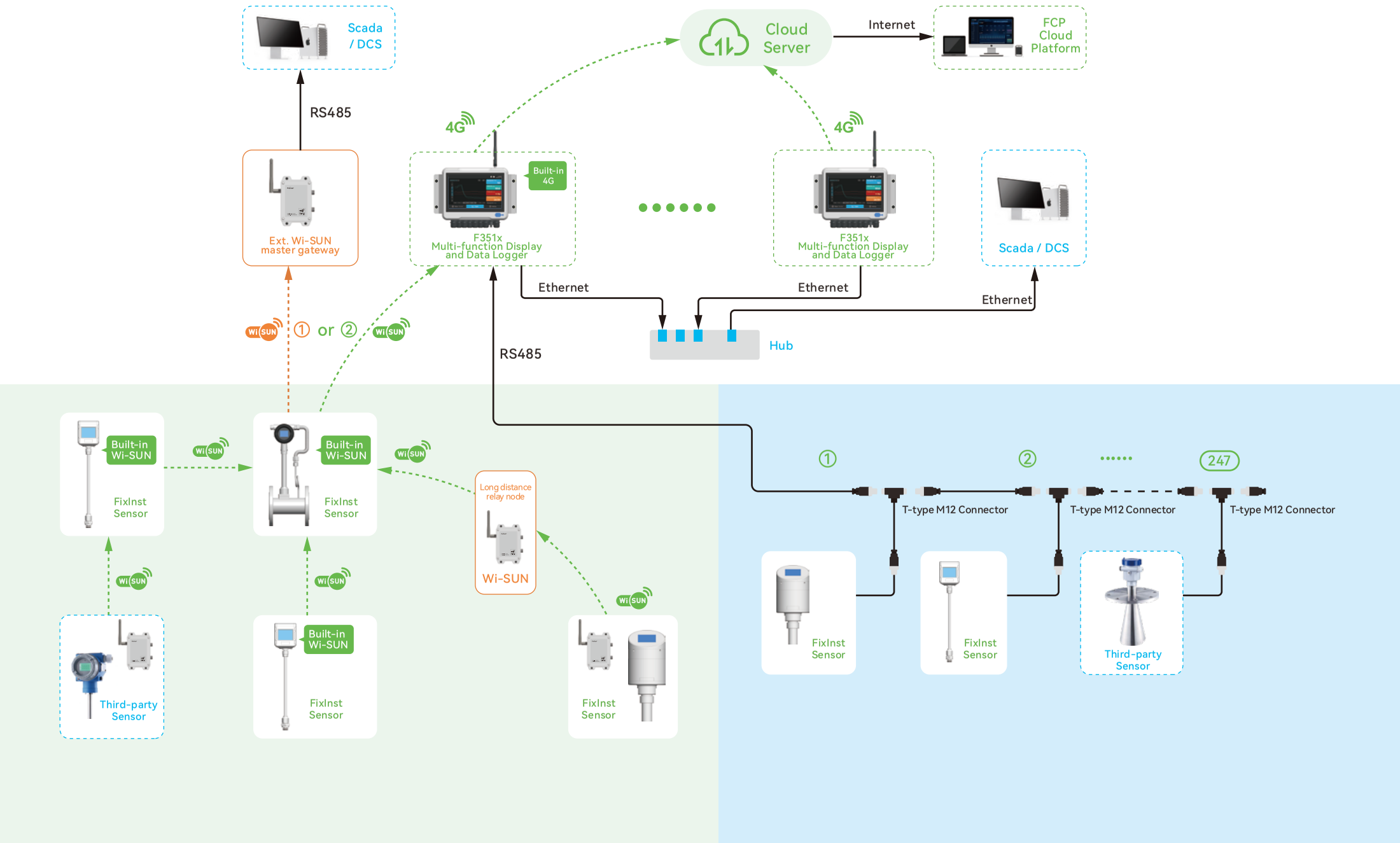
## Power

| | |
|---|---|
| AC power | 100 ... 240 VAC, total power 75W, Power supply for sensors 60W |
| DC power | 24 ... 30 VDC, total power 75W, Power supply for sensors 60W |

# UI Design



# F351x Product Application Scenario Connection Topology Diagram



# Order Information

| Model | Power Supply | Modbus RTU Node | Analog Output | Installation | Wall-mounted Casing | 4G Comm. | Wi-SUN Comm. | Description |
|---|---|---|---|---|---|---|---|---|
| F351A | | | | | | | | Multi-function display, 7" IPS capacitive touch screen, panel installation, 2 Modbus RTU inputs, 1 Modbus RTU output, 1 Ethernet output, 1 USB-C interface, without Data logging function |
| F351B | | | | | | | | Multi-function display, 7" IPS capacitive touch screen, panel installation, 2 Modbus RTU inputs, 1 Modbus RTU output, 1 Ethernet output, 1 USB-C interface, with Data logging function |
| | S1701 0011 | | | | | | | Input 100 … 240 VAC / 75 W, Output 24 VDC / 60 W, 2 alarm output relay |
| | S1701 0012 | | | | | | | Input 24...30 VDC / 75 W, Output 24 VDC / 60 W, 2 alarm output relay |
| | | V0014 0001 | | | | | | 30 Modbus RTU sensor inputs (Default) |
| | | V0014 0002 | | | | | | 255 Modbus RTU sensor inputs |
| | | | V0013 0001 | | | | | None (Default) |
| | | | S1701 0019 | | | | | 4 analog input functions (4~20mA / 0~20 mA / 0~1 VDC / 0~10 VDC) |
| | | | | S1701 0013 | | | | Panel installation (Default) |
| | | | | S1701 0014 | | | | Wall-mounted installation |
| | | | | S1701 0015 | | | | DIN-Rail installation (For use with wall-mounted casing) |
| | | | | | V0013 0001 | | | None (Default) |
| | | | | | S0305 0001 | | | 4 cable glands |
| | | | | | S0305 0002 | | | 8 cable glands + Ethernet port |
| | | | | | | V0013 0001 | | None (Default) |
| | | | | | | S1701 0010 | | Built-in 4G cloud platform upload gateway |
| | | | | | | | V0013 0001 | None (Default) |
| | | | | | | | S1701 0017 | Built-in Wi-SUN Gateway, 915 frequency band (mainly applicable in Asia, America and Australia) |
| | | | | | | | S1701 0018 | Built-in Wi-SUN Gateway, 868 frequency band (mainly applicable in Europe and the Middle East) |

* There are difference in regulations and standards between contuntries and regions.
Please select according to the local Wi-SUN frequency band

## Optional accessory:

| Model | Description |
|---|---|
| F0110 0002 | External Wi-SUN Sub-module, 915 frequency band (mainly applicable in Asia, America and Australia) |
| F0110 0003 | External Wi-SUN Sub-module, 868 frequency band (mainly applicable in Europe and the Middle East) |
| M2901 0001 | Sensor cable, 5 pin, AWG22, Black (Per meter) |
| E1701 0035 | OTG USB flash drive, Type-A & Type-C dual ports, 32G memory |

F351x-P Series

# Multi-sensor Logging · Analysis

## Portable Multi-function Display and Data Logger



## Product Overview

F351x integrates multi-sensor data collection, display and logging functions, providing an economical solution for field instrument central control and process data analysis

F351x collects and records several groups of sensor measurement data with various methods such as digital interfaces, analog interfaces and wireless transmission.The real-time data curves can be used to realize local data visualization and data integration on the cloud. Analyze production process data from the trend view, accurately formulate production and process optimization plans, and efficiently complete daily equipment maintenance

Based on the standard Modbus RTU protocol, F351x supports connection of third-party devices. With FixInst configuration software, field devices can be quickly configured

Using a 7" ultra-wide viewing angle touch LCD screen and a high-performance display platform, F351x has clear data display and smooth operation

Supports up to 255 sensors access, local display, curve trend analysis and data recording, built-in battery, handheld, taken anywhere

## Product Advantages

### Data Display & Analysis

Display data and plot curve, analyze process data effectively

### Support 4 Device Types

Modbus RTU (RS485)/Analog Device/ Virtual Device/Wi-SUN Device

### Built-in Power Meter

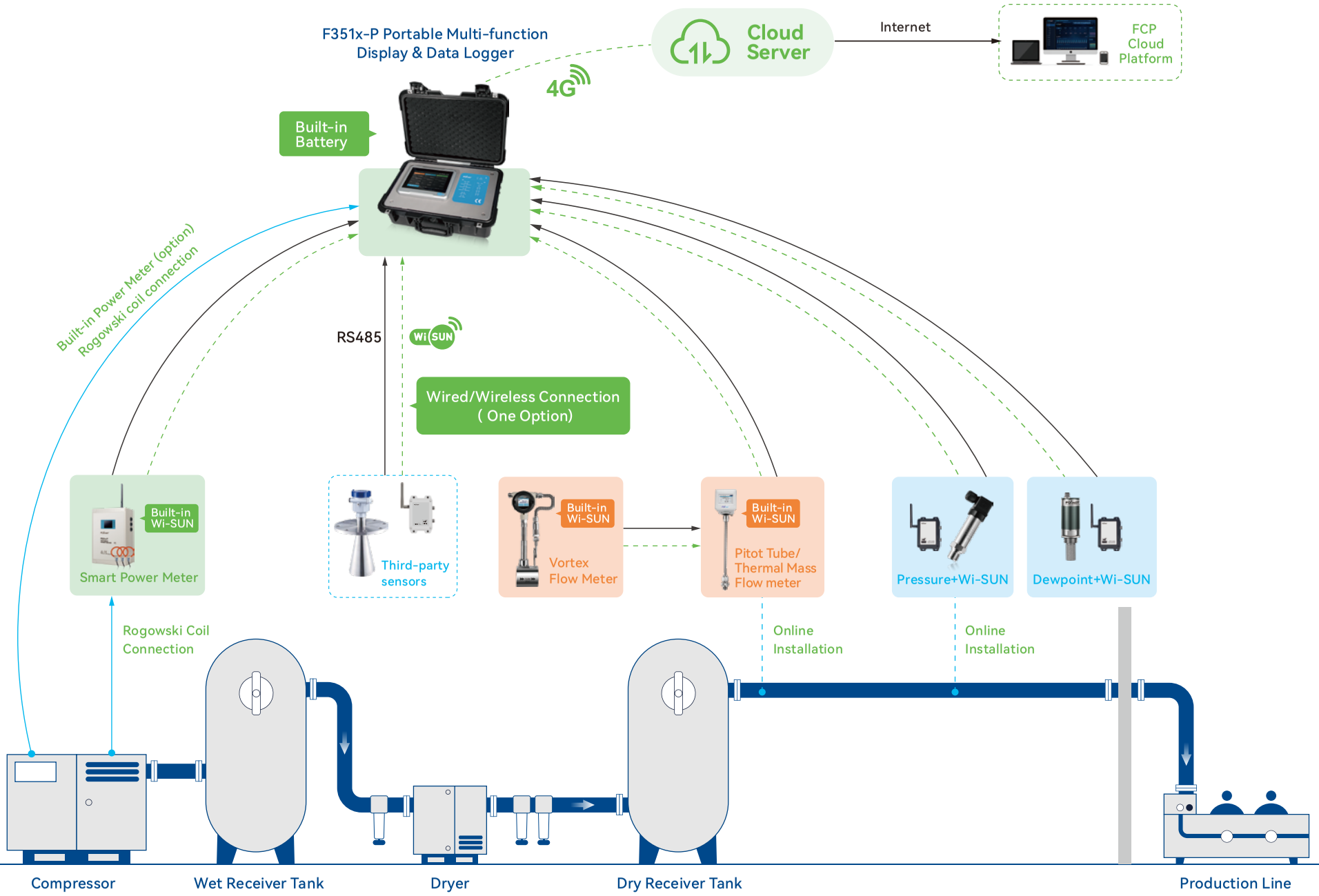
Highly integrated, cost-effective, portable

### Up to 255 Sensor Inputs

Supports wireless sensor connection (Wi-SUN), avoiding high cost field wiring

- On-site central control display and data curve plotting, effective analysis of process data
- (Option) with data logger, 3,000,000,000 values
- With 7"IPS ultra-wide viewing angle LCD, high resolution data display, easy and smooth operation
- Built-in high-capacity lithium battery, handheld and taken anywhere
- Integrated power meter, with a standard Rogowski coil for connection to air compressors, enables quick calculation of the Gas-to-Power Ratio
- Support customized virtual devices (preset Pressure Drop, Calculation of Heat and Cold, Vacuum Flow, Gas-to-Power Ratio, FAD)
- Two isolated Modbus RTU (RS485) interface, supports up to 255 sensor inputs
- (Option) Built-in Wi-SUN Master Node, supports connecting field FixInst sensors and third-party devices via wireless connection
- (Option) 4G could platform gateway, support uploading data to cloud wirelessly

# F351x-P Product Application Scenario Connection Topology Diagram



# Technical Data

## Display

| | |
|---|---|
| Display | 7″ IPS touch LCD |
| Resolution | 1280 × 800 |

## Signal Inputs

| | |
|---|---|
| Digital Signal | 2 isolated RS485 inputs, supports up to 255 Modbus RTU sensor inputs |
| Aanalog Signal (Option) | 4 x [0 ... 20 mA / 4 ... 20 mA / 0 ... 1 VDC / 0 ... 10 VDC] channel |
| Wireless Signal (Option) | Sensor wireless gateway (Built-in Wi-SUN Master Node) |

## Output

| | |
|---|---|
| Digital Signal | Modbus RTU (RS485)<br>Modbus TCP (Ethernet)<br>USB Type-C |
| Alarm Signal | 2 x Relay alarm channel, 230 VAC, 3A |
| Wireless Signal (Option) | 4G cloud platform gateway |

## Power

| | |
|---|---|
| Battery Capacity | 96 Wh |
| Charging Batteries | 100~240 VAC，50~60 Hz |

## Data Logging

| | |
|---|---|
| Storage | 25 G，30,000,000,000 values |
| Data Export | USB Type-C |

## Operating Environment

| | |
|---|---|
| Operating Temperature | 0 … +50 °C |
| Storage Temperature | -20 … +70 °C |
| Relative Humidity | 0 … 95 %RH |

## Built-in Power Meter

| | |
|---|---|
| **Measuring Range** | |
| Voltage Input | 80 ~ 620 VAC (P-P) |
| Current Input | 10 ~ 1000 A |
| Frequency Range | 45 ~ 65 Hz |
| **Accuracy** | |
| Voltage Accuracy | 0.2 % |
| Current Accuracy | 0.5 % (10~1000A 10A Accuracy not guaranteed below 10 A) |
| Power Factor Accuracy | ±0.005 |
| Active Power | IEC62053-22 Class 0.2 |
| Active Energy | IEC62053-22 Class 0.2S |
| **Electrical Connection** | |
| Wiring Methods | 3PH3W |

## Other

| | |
|---|---|
| Connector | Push-pull self-locking connector (compatible with ODU connectors) |
| Protection | IP54 |
| Housing Material | PP |
| Housing Dimension | Refer to “Product Dimension” |
| Cable Diameter | 4 ... 8 mm |
| Certification | Conforms to CE marking standard |

# Order Information

| Model | Power Meter | Modbus RTU Node | Analog Input | 4G Comm. | Wi-SUN Comm. | Power Socket | Description |
|---|---|---|---|---|---|---|---|
| F351A-P | | | | | | | Multi-function display, 7" IPS capacitive touch screen, panel installation, 2 Modbus RTU inputs, 1 Modbus RTU output, 1 Ethernet output, 1 USB-C interface, without Data logging function |
| F351B-P | | | | | | | Multi-function display, 7" IPS capacitive touch screen, panel installation, 2 Modbus RTU inputs, 1 Modbus RTU output, 1 Ethernet output, 1 USB-C interface, with Data logging function |
| | V0013 0001 | | | | | | None (Default) |
| | S0303 0001 | | | | | | Power meter, Modbus/RTU, 24 VDC power supply, with 1kA/50mm diameter Rogowski coil and voltage test leads |
| | | V0014 0001 | | | | | 30 Modbus RTU sensor inputs (Default) |
| | | V0014 0002 | | | | | 255 Modbus RTU sensor inputs |
| | | | V0013 0001 | | | | None (Default) |
| | | | S1701 0052 | | | | 4 analog input functions (4~20mA / 0~20 mA / 0~1 VDC / 0~10 VDC) |
| | | | | V0013 0001 | | | None (Default) |
| | | | | S1701 0051 | | | Built-in 4G cloud platform upload gateway |
| | | | | | V0013 0001 | | None (Default) |
| | | | | | S1701 0017 | | Built-in Wi-SUN Gateway, 915 frequency band (mainly applicable in Asia, America and Australia) |
| | | | | | S1701 0018 | | Built-in Wi-SUN Gateway, 868 frequency band (mainly applicable in Europe and the Middle East) |
| | | | | | | M2501 0008 | Power socket-EU, 2-core figure-8 tail, 0.75 $m^2$, 1.5m |
| | | | | | | M2501 0009 | Power socket-CN, 2-core figure-8 tail, 0.75 $m^2$, 1.5m (Default) |
| | | | | | | M2501 0010 | Power socket-AU, 2-core figure-8 tail, 0.75 $m^2$, 1.5m |

*There are difference in regulations and standards between contuntries and regions.
Please select according to the local Wi-SUN frequency band

F350x Series

# Cloud Data Upload Logging · Analysis

## New-generation Economical Multi-function Display




## Product Overview

F350x New-generation Economical Multi-function Display, designed for real-time monitoring and data visualization in industrial fields

Can be configured to connect up to 5 sensors independently.It not only works with FixInst devices but also supports third-party sensors with Modbus RTU (RS485) interfaces, enabling rapid field data centralized collection and display

Integrated with Modbus RTU (RS485) output and relay alarm interfaces, it easily connects to host systems or performs linkage control, greatly enhancing system integration capability

Optional 4G module enables fast data upload to the cloud

Using a 4.3" color touch screen, F350x provides clear real-time measurements and trend curves with smooth, intuitive operation

Focusing on real-time display and core functionality, it delivers an efficient and practical monitoring solution in a compact, high cost effective design

## Product Advantages

### Customized Sensor Inputs

Flexibly configure sensor inputs as needed to quickly enable field data collection

### Data Display & Analysis

Display data and plot curve, analyze process data effectively

### Color Touch Screen

4.3" IPS compact screen with high clarity and smooth, intuitive operation

### Optional 4G Upload to the Cloud

Real-time data upload to the cloud, effortlessly enabling remote monitoring

- Centralized data collection from multiple sensors for efficient process analysis
- Supports FixInst and third-party Modbus RTU (RS485) sensors for flexible configuration
- Modbus RTU (RS485) output and relay alarm interfaces for easy system integration
- Alarm output enables real-time alerts for measurement data to transition from reactive maintenance to proactive prevention and control.
- (Option) 4G could platform gateway, support uploading data to cloud
- Compact 4.3″ capacitive touch design saves space while maintaining clear display
- Intuitive user interface ensures smooth and efficient operation
- Real-time trend curves help quickly identify key parameter changes
- Focused on core functions and high cost-efficiency for low costs and simplified deployment
- Outstanding long-term stability suitable for diverse industrial environments

# Technical Data

## Display

| | |
|---|---|
| Display | 4.3″ IPS touch LCD |
| Resolution | 800 × 480 px |

## Signal Output

| | |
|---|---|
| Digital Signal | Modbus RTU (RS485)<br>USB Type-C |
| Alarm Signal | 2 × Relay alarm channel，230 VAC，0.25A<br>1 × Acoustic and visual alarm（Option） |
| Wireless Signal | IoT-4G（Option） |

## Signal Input

| | |
|---|---|
| Digital Signal | Modbus RTU (RS485)，<br>supports up to 5 Modbus RTU sensor inputs |

## Power

| | |
|---|---|
| Supply Voltage & Power | Panel 18 ... 30 VDC Max 15 W @ 24 VDC<br>Wall-mounted<br>18 ... 30 VDC Max 15 W @ 24 VDC (device itself)<br>18 ... 30 VDC Max 30 W @ 24 VDC (for sensors) |

## Operating Environment

| | |
|---|---|
| Operating Temperature | 0 ... +50 °C |
| Storage Temperature | -40 ... +80 °C |
| Relative Humidity | 0 ... 95 %RH |

## Other

| | |
|---|---|
| Housing Material | ABS + PC |
| Installation | Panel / Wall-mounted |
| Certification | Conforms to CE marking standard |

# Order Information

| Model | 4G Comm. | Installation | Alarm * | Power Cable * | Description |
|---|---|---|---|---|---|
| F350A | | | | | New-generation Economical Multi-function Display, 4.3" IPS capacitive touch screen, 24VDC, 1 Modbus RTU input, 1 Modbus RTU output, 2 relay alarm output, 1 USB-C interface |
| | V0013 0001 | | | | None (Default) |
| | S1701 0010 | | | | Built-in 4G-IoT module |
| | | S0305 0010 | | | Panel installation (Default) * |
| | | S0305 0011 | | | Wall-mounted installation |
| | | | M2402 0001 | | Acoustic and visual alarm, with buzzer, three-color (red, yellow, green), black, 24V power supply |
| | | | M2402 0002 | | Acoustic and visual alarm, with buzzer, three-color (red, yellow, green), black, 24V power supply, with mounting base |
| | | | | V0013 0001 | None (Default) |
| | | | | M2501 0001 | Power socket -CN, three-hole, 0.75 $mm^2$, 1.5 m |
| | | | | M2501 0002 | Power socket -US, 0.75 $mm^2$, 1.5 m |
| | | | | M2501 0003 | Power socket -EU, 0.75 $mm^2$, 1.5 m |
| | | | | M2501 0004 | Power socket -UK, 0.75 $mm^2$, 1.5 m |
| | | | | M2501 0005 | Power socket -India, 0.75 $mm^2$, 1.5 m |
| | | | | M2501 0007 | Power socket -AU, three-pin, 0.75 $mm^2$, 1.5 m |

* Alarm and power cable are only available for panel installation

F0110 Series

# High Speed Long Distance

## Wi-SUN Wireless Communication Module




## Product Overview

The FixInst Wi-SUN wireless communication module is a wireless communication device that supports both 915 MHz and 868 MHz frequency bands, solving the challenge of ultra-long-distance and stable wireless communication in complex industrial scenarios

It not only works with FixInst devices but also supports third-party sensors with Modbus RTU (RS485) interfaces, enabling rapid wireless communication network construction and reducing wiring and construction costs

**Save wiring and construction costs**

**High speed Low power consumption**

**Ultra-long communication distance**

**Supports FixInst and third-party device access**

## Technical Data

### Communication

| | |
|---|---|
| Frequency Bands | 915 MHz (Asia, America and Australia)<br>868 MHz (Europe and the Middle East) |
| Network Topology | Mesh Network |
| Transmit Power | ≤ 20 dBm |
| Data Transfer Rate | ≤ 300 kbps |
| Number of Nodes | ≤ 300 |
| Number of Relay Nodes | ≤ 24 |

### Communication Distance

| | |
|---|---|
| **915 MHz Frequency Band** | |
| Single-node Distance | ≤ 500 m (Standard Antenna)<br>≤ 800 m (Enhanced Antenna) |
| Number of Walls Penetrated | ≤ 4 |
| **868 MHz Frequency Band** | |
| Single-node Distance | ≤ 400 m (Standard Antenna)<br>≤ 600 m (Enhanced Antenna) |
| Number of walls penetrated | ≤ 3 |

### Signal Input

| | |
|---|---|
| Digital Signal | 1 Modbus RTU (RS485) |

### Power

| | |
|---|---|
| Supply Voltage & Power | 18 ... 36 VDC 1.5W @ 24VDC |

### Operating Environment

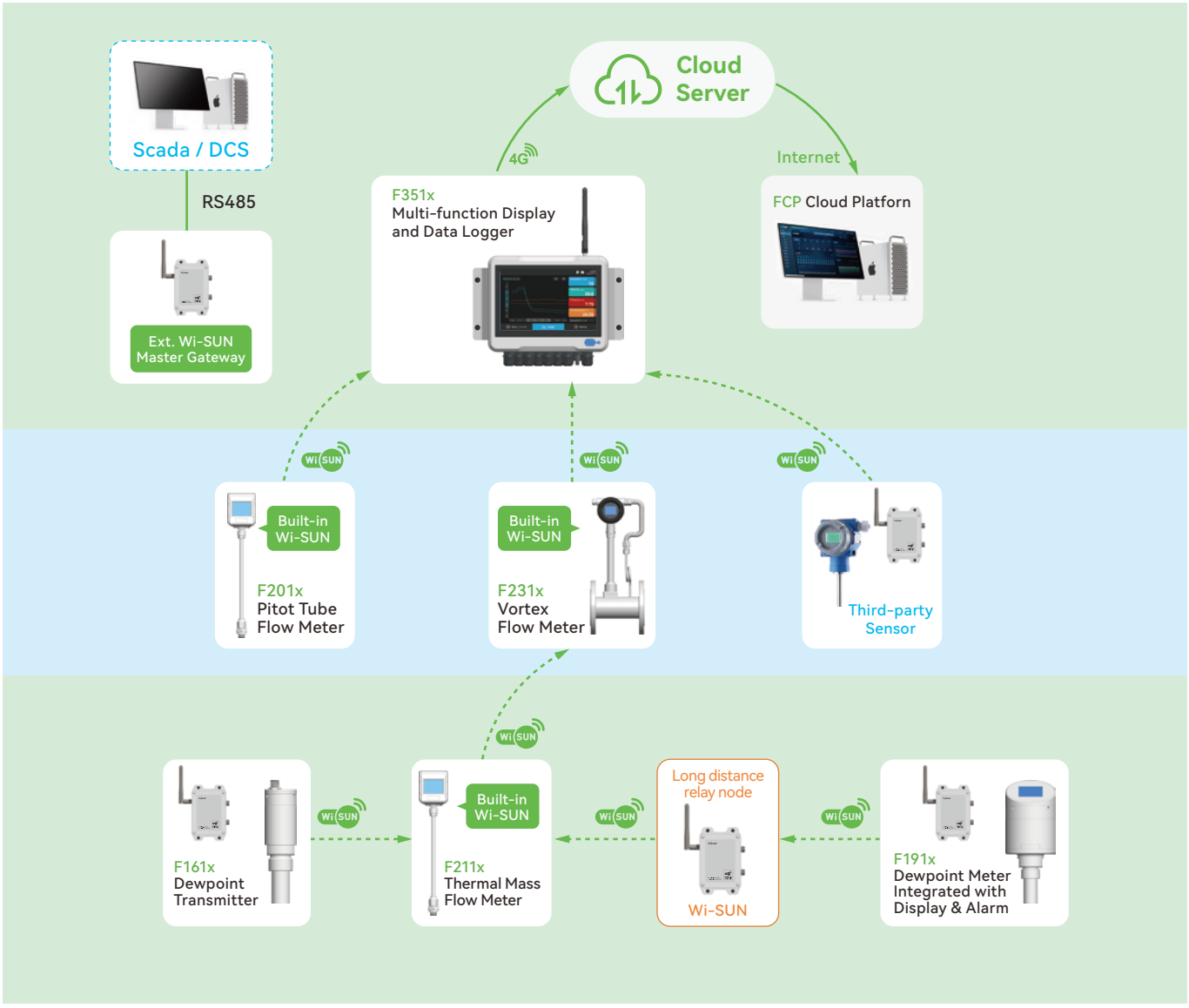
| | |
|---|---|
| Environment Temperature | -40 ... +85 °C |
| Storage Temperature | -40 ... +85 °C |
| Relative Humidity | 10 ... 90 %RH |

### Other

| | |
|---|---|
| Wireless Protocol | Physical Layer: IEEE 802.15.4g<br>Data Link Layer: Frequency-Hopping MAC<br>Network Layer:<br>IPv6, ICMPv6, RPL, 6LoWPAN<br>Transport Layer: UDP |
| Security Mechanisms | Wi-SUN® FAN v1.0.0 Security Specification<br>IEEE 802.1X & 802.11i Authentication and Encryption Mechanisms<br>EAP-TLS Security Authentication<br>AES-128 Encryption Algorithm<br>ECC Key Exchange and Digital Signature Verification<br>True Random Number Generator (TRNG)<br>IEEE 802.1AR X.509 Certificate Management Mechanism |
| EMC | FCC, CE |
| Protection Code | IP54 |
| Housing Material | Aluminum Alloy |
| Weight | 0.42 kg |
| Dimension | 79×128×38.8 mm (L×W×H) |
| Installation | Pipeline / Wall-mounted / DIN-rail |

*To extend communication distance, add a Wi-SUN repeater (See Solution Diagram)

# Wi-SUN Wireless Data Transmission Solution Diagram




# Order Information

| Model | Signal Input | Installation | Connector | Antenna | Description |
|---|---|---|---|---|---|
| F0110 0002 | | | | | Wi-SUN Wireless communication module, 915 frequency band (mainly for Asia, America & Australia) |
| F0110 0003 | | | | | Wi-SUN Wireless communication module, 915 frequency band (mainly for Europe & the Middle East) |
| | 1 | | | | Modbus RTU (RS485) |
| | | S0305 0006 | | | Wall-mounted installation |
| | | S0305 0007 | | | Pipeline installation |
| | | S0305 0008 | | | DIN-Rail installation |
| | | | M2701 0001 | | M12 plastic female straight connector, IP67 (default) ×2 |
| | | | | M2901 0023 | Standard antenna (default) |
| | | | | M2901 0026 | Enhanced antenna, strong magnetic suction cup, 165mm copper rod with 1m wire |

F0112 Series

# High-Speed Data to Cloud Remote Monitoring

## 4G Wireless Communication Module




## Product Overview

In field monitoring and industrial automation applications, traditional communication methods suffer from long deployment cycles, high costs, and difficult maintenance due to limited cabling space, complex terrain, or difficult construction

The FixInst 4G-IoT wireless communication module is  a wireless communication device built for high-speed, stable sensor data upload to the FCP cloud platform in complex industrial environments (with dispersed sites, multiple connections, and frequent updates)

This plug-and-play module eliminates the need for local servers or gateways. It not only works with FixInst devices but also supports third-party sensors with Modbus RTU (RS485) interfaces. Its adaptability and ease of integration allow for rapid construction of remote monitoring networks, improved device connectivity, streamlined processes, and data visualization, real-time analysis, and diagnostic report generation

**Supports FCP cloud platform Enables remote data management**

**High-speed data transmission**

**High reliability High security**

**Big data traffic Achieve second-level monitoring**

## Technical Data

### Communication

| | |
|---|---|
| Frequency Bands | LTE-TDD: B34/B38/B39/B40/B41<br>LTE-FDD: B1/B3/B5/B8 |
| Comm. Category | LTE Cat.1 |
| Data Rates | LTE-TDD:<br>Uplink/Downlink Ratio 2:<br>Downlink (DL) ≤ 8 Mbps/Uplink (UL) ≤ 2 Mbps<br>Uplink/Downlink Ratio 1:<br>Downlink (DL) ≤ 6 Mbps/Uplink (UL) ≤ 4 Mbps<br>LTE-FDD:<br>Downlink (DL) ≤ 10 Mbps/Uplink (UL) ≤ 5 Mbps |

### Data Plan

| | |
|---|---|
| SIM Data | 1G/month, with a validity period of 6 years (default, China region only) |

### Power

| | |
|---|---|
| Supply Voltage & Power | 18 ... 36 VDC  Max 6W @ 24VDC |

### Signal Input

| | |
|---|---|
| Digital Signal | 1 Modbus RTU (RS485) |

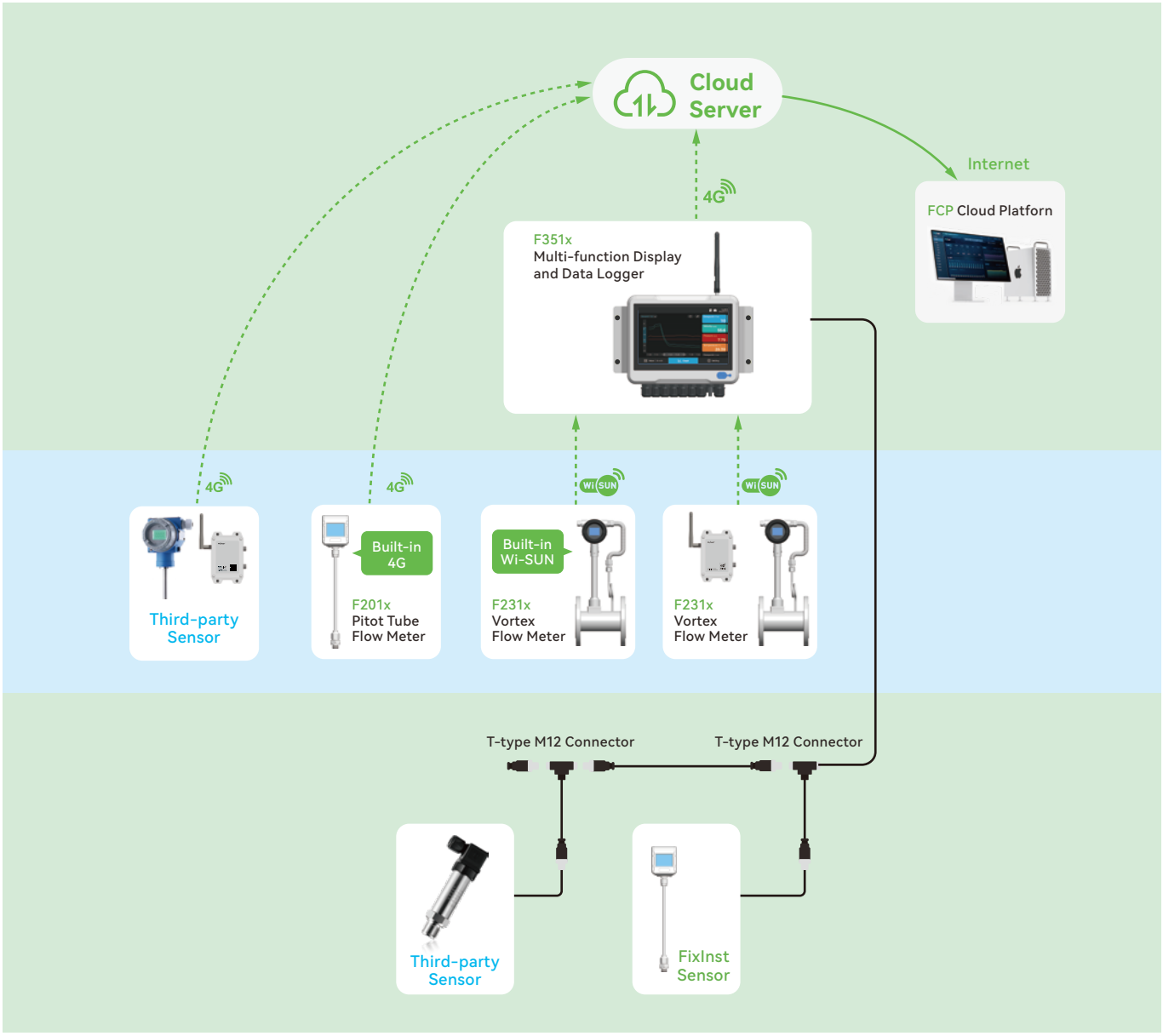
### Operating Environment

| | |
|---|---|
| Environment Temperature | -40 ... +85 °C |
| Storage Temperature | -40 ... +85 °C |
| Relative Humidity | 10 ... 90 %RH |

### Other

| | |
|---|---|
| Protection Code | IP54 |
| Housing Material | Aluminum alloy |
| Weight | 0.42 kg |
| Dimension | 79×128×38.8 mm (L×W×H) |
| Installation | Pipeline / Wall-mounted / DIN-rail |

# 4G Wireless Data Upload to Cloud Solution Diagram



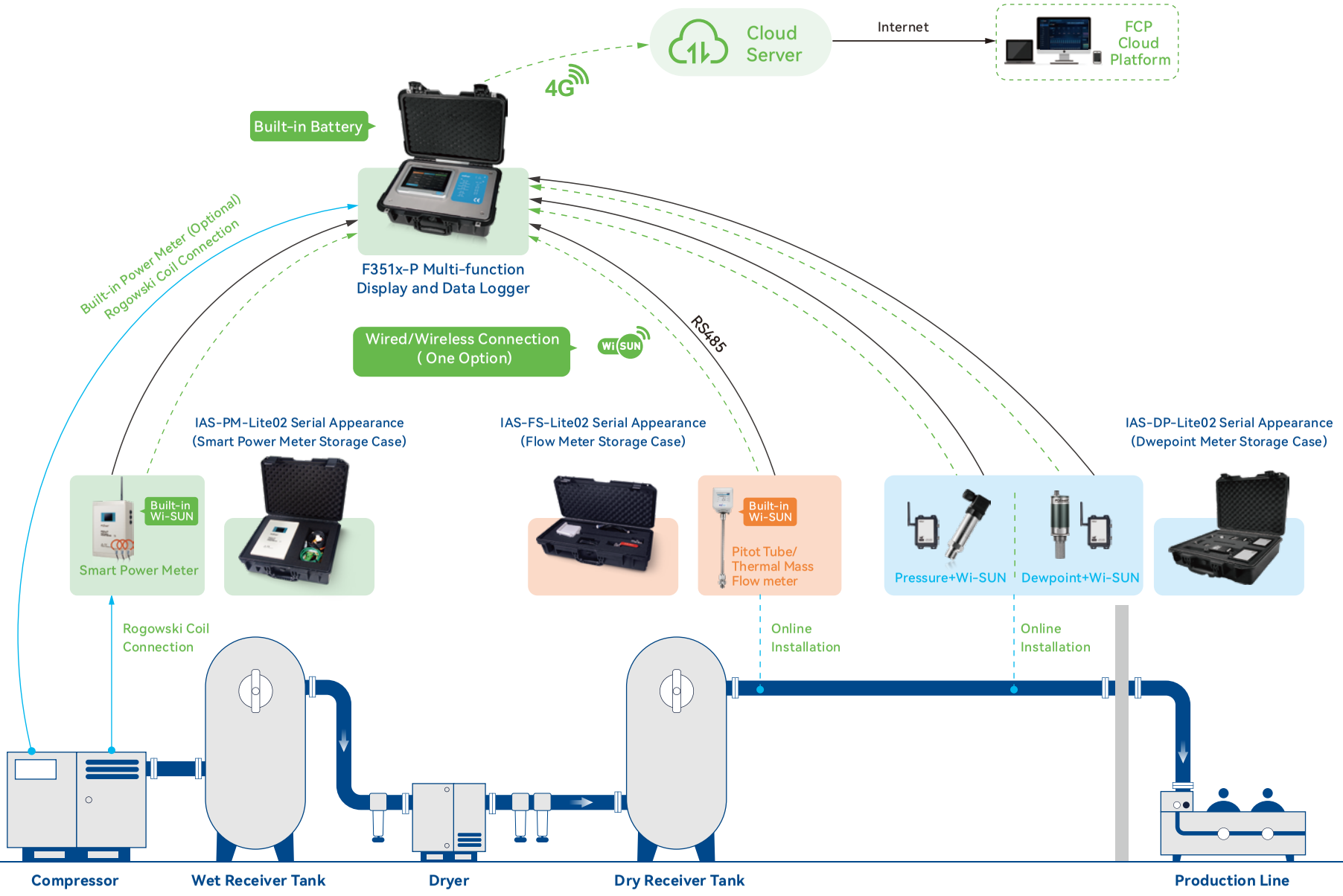

# Order Information

| Model | Signal Input | Installation | Connector | SIM data | Description |
|---|---|---|---|---|---|
| F0112 0001 | | | | | 4G wireless communication module |
| | 1 | | | | Modbus RTU (RS485) |
| | | S0305 0006 | | | Wall-mounted installation |
| | | S0305 0007 | | | Pipeline installation |
| | | S0305 0008 | | | DIN-Rail installation |
| | | | M2701 0001 | | M12 plastic female straight connector, IP67 (default) ×2 |
| | | | | M2606 0002 | 1G/month, with a validity period of 6 years (default, China region) |

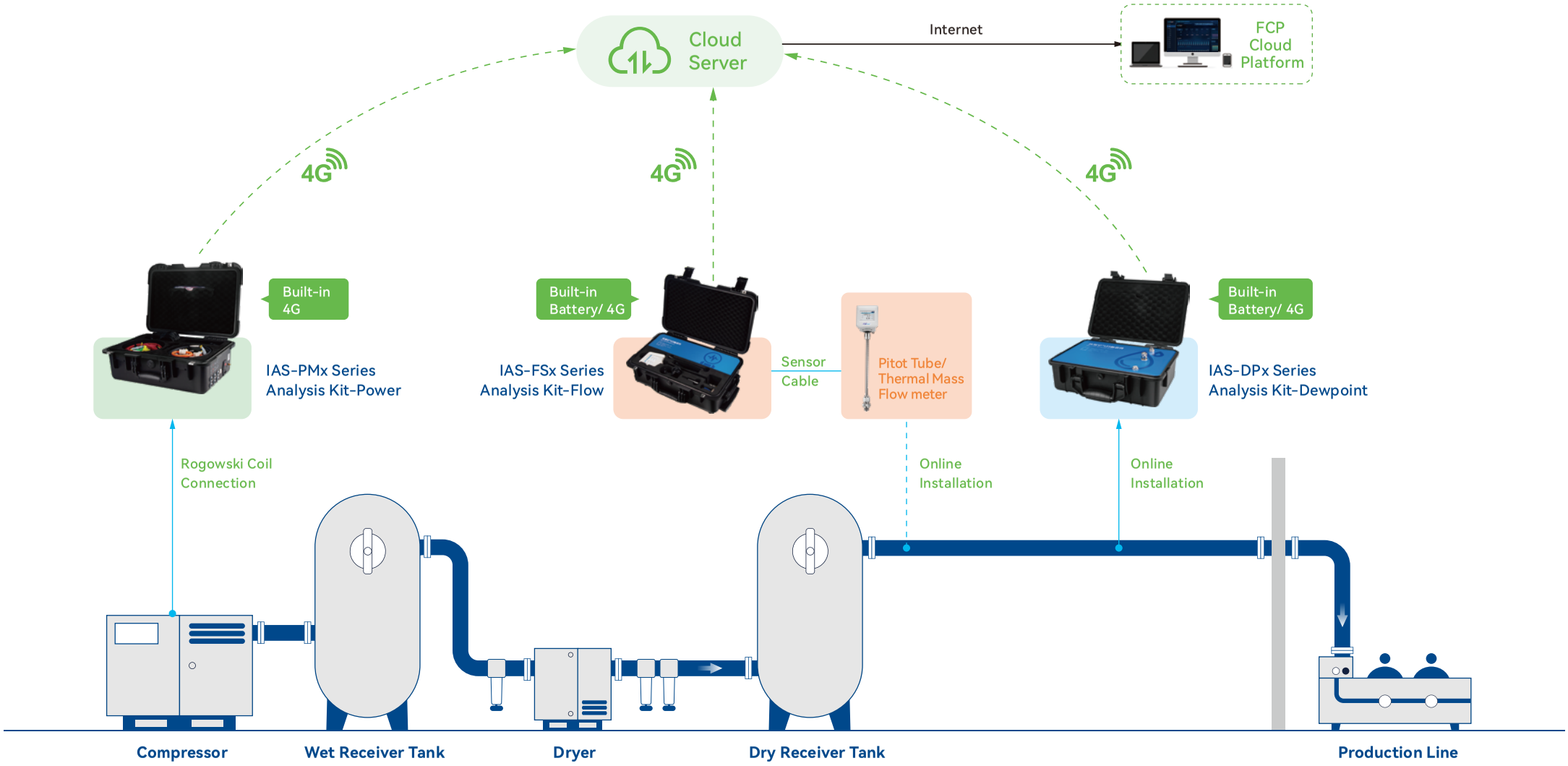
* The standard SIM card is only applicable in China. Please prepare your own local SIM card for overseas use

# Compressed Air Analysis Kit Comprehensive Monitoring Solutions

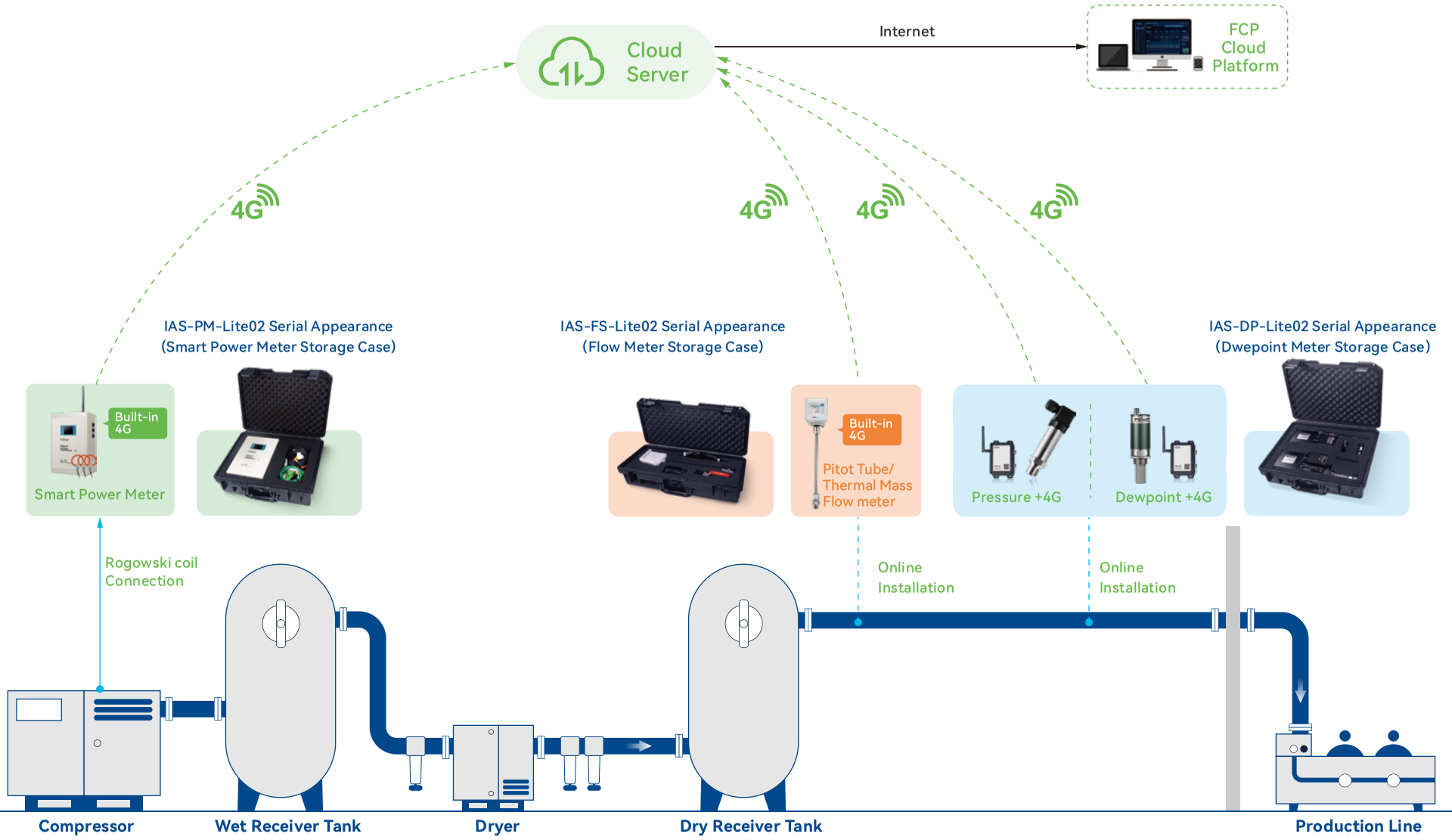
## Solution 1: Battery-powered, on-site data collection & display, centralized 4G cloud upload



# Solution 2: Battery-powered, independent 4G cloud upload



# Solution 3: No Battery Power, independent 4G cloud upload (Economical version)



# Compressed Air Analysis Kit Comprehensive Monitoring Solutions Comparison

| Solusion | Solution 1:<br>Battery-powered,<br>on-site data collection & display,<br>centralized 4G cloud upload | Solution 2:<br>Battery-powered,<br>independent 4G cloud upload | Solution 3:<br>No Battery Power,<br>independent 4G cloud upload<br>(Economical version) |
|---|---|---|---|
| Battery-powered | ✓ | ✓ | |
| On-site data collection & display | ✓ | | |
| Independent 4G cloud upload | | ✓ | ✓ |
| Remote Monitoring | ✓ | ✓ | ✓ |
| Wireless node expansion | | ✓ | ✓ |
| Generate intelligent reports | | ✓ | |
| Investment budget | Reasonable | Premium | Economical |

IAS-FS01 Series

# Portable Measurement Intelligent Analysis

## Compressed Air Analysis - Flow



## Product Overview

IAS-FS01 is a portable flow measurement kit for compressed air systems with a built-in large-capacity lithium battery. Built-in 4G module enables remote monitoring. True wireless solution, set-and-forget installation and setup, plug and play. The plug-in pitot flowmeter can be installed online without shutdown and can be adapted to different pipe diameters (optional: plug-in thermal mass flow meter). Extremely high sensitivity, the lower limit of gas measurement can reach 5 Nm/s. Innovative online auto- calibration function and professional anti-condensation technology

**Large capacity battery**
**Super long standby**

**4G Module For**
**Remote Monitoring**

**5Nm/s**
**Extreme lower limit of measurement**

**Easy Installation**
**Plug and play**

## Measuring Range

| Inch | DN | ID (mm) | Min Flow ($Nm^3/h$) | Max Flow ($Nm^3/h$) |
|---|---|---|---|---|
| 1 | 25 | 25 | 8.8 | 530 |
| $1^{1/4}$ | 32 | 32 | 14.5 | 868 |
| $1^{1/2}$ | 40 | 40 | 22.6 | 1357 |
| 2 | 50 | 50 | 35.3 | 2120 |
| $2^{1/2}$ | 65 | 65 | 59.7 | 3583 |
| 3 | 80 | 80 | 90.5 | 5428 |
| 4 | 100 | 100 | 141.4 | 8482 |
| 5 | 125 | 125 | 220.9 | 13253 |
| 6 | 150 | 150 | 318.1 | 19085 |
| 8 | 200 | 200 | 565.5 | 33929 |
| 10 | 250 | 250 | 883.6 | 53014 |
| 12 | 300 | 300 | 1272.3 | 76340 |

* For more pipe sizes and flow ranges, please consult sales

# Technical Data

| Flow | |
|---|---|
| Measuring Range | 5 … 300 Nm/s |
| Accuracy | ±(1.5% RD + 0.3% FS) [1% RD Option] |
| Medium | Dry / wet air and non-corrosive gases |
| Reference Conditions | 20 °C, 1 bar(a) – ISO 1217 (Configurable) |

| Operating Environment | |
|---|---|
| Battery Box Operating Temperature | -20 … +60 °C |
| Medium Temperature | -40 … +150 °C |
| Operating Pressure | 0 … 1.7 MPa(a) |

| Pressure | |
|---|---|
| Measuring Range | 0 … 1.7 MPa(a) |
| Accuracy | ±0.5% FS |

| Display & Data Log | |
|---|---|
| Display | 2.8" IPS LCD with capacitive touch |
| Data Log | Max. 10,000,000 values |

| Temperature | |
|---|---|
| Measuring Range | -40 … +150 °C |
| Accuracy | ±0.5 °C |

| Power | |
|---|---|
| Battery Capacity | 337 Wh |
| Charging Battery | 100 ~ 240 VAC 50 ~60 Hz |

| Output | |
|---|---|
| Analog Output (Standard) | 4 … 20 mA (Isolated) / Pulse Output (Consumption) |
| Digital Output (Standard) | Modbus RTU (RS485) |
| Wireless Output (Choose one of three) | Bluetooth (Default)<br>Wi-SUN (Option)<br>IoT-4G (Option) |
| Connector | 2 × 5pin M12, Male |

| Others | |
|---|---|
| Process Connection | G1/2"(ISO 228-1) |
| EMC | Compliant with IEC 61326-1 |
| Weight | 13.9 kg |
| Dimension | 560 × 325 × 193 mm (L×W×H) |
| Material | PP |

* The above are the technical data of pitot tube flow meter. For thermal mass flow meter, please consult sales

# Order Information

| Model | Description |
|---|---|
| IAS-FS01 | Compressed Air Audit Suit - Flow, pole length 250mm, flow rate 5...300 Nm/s, built-in 337 Wh rechargeable battery, built-in 4G-IoT module |

* For more order information plase consult sales

IAS-DPx Series

# Portable Measurement Intelligent Analysis

## Compressed Air Analysis - Dewpoint



## Product Overview

IAS-DPx is a portable dewpoint measurement kit for compressed air systems. It has a built-in large-capacity lithium battery with a standby time of more than a week. Built-in 4G module enables remote monitoring. True wireless solution, set-and-forget installation and setup, plug and play. Just connect the gas through the Φ6 mm quick connector to start measuring

It can integrate a variety of the most advanced humidity sensors: FIXINST-P polymer film capacitive sensor, FIXINST-A ultra-fast response aluminum oxide sensors with innovative moisture sensitive materials and processes, FIXINST-Q ultra-low dewpoint sensitivity dual-resonance QCM sensor. It provides IAS-DPx the ability to accurately measure a wide range of dewpoint from -110 ... +60 °Ctd

MEMS-based pressure sensor can monitor dewpoint and online pressure simultaneously. FixInst's patented sensor materials and processes provide measurements with high sensitivity and ultra-fast response speed. Up to 10+ points of dewpoint calibration and multi-point temperature compensation provide measurement accuracy up to ±2 °Ctd (see technical data sheet). Resistant to condensation, particulate pollution, oil vapor and most chemicals

## Product Advantages

**Large capacity battery**
**Super long standby**

**4G module for**
**remote monitoring**

**High accuracy**
**Ultra-fast response**

**Easy Installation**
**Plug and play**

# Technical Data

## Measuring Range

| | |
|---|---|
| Dewpoint | |
| IAS-DP01 | -60 … +60 °Ctd |
| IAS-DP02 | -80 … +20 °Ctd |
| IAS-DP03 | -110 … +20 °Ctd |
| Temperature | -40 … +100 °C |
| Pressure | 0 … 1.7 MPa(a) (Option) |

## Accuracy

| | |
|---|---|
| Dewpoint (Air or Nitrogen) | |
| +20 … -60 °Ctd | ±2 °Ctd |
| -60 … -110 °Ctd | ±3 °Ctd |
| Temperature (Customizable) | |
| 0 … +50 °C | ±0.3 °C (Standard) |
| -40 … 0 °C & +50 … +100 °C | ±0.5 °C (Standard) |
| Pressure Accuracy | |
| Accuracy @23 °C | ±0.3 %FS |
| Pressure Drift With Temperature | ±0.001 MPa/10 °C |

## 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 |

## Operating Environment

| | |
|---|---|
| Battery Box Operating Temperature | -30 … +70 °C |
| Storage Temperature | -40 … +80 °C |
| Relative Humidity | 0 … 95 %RH |
| Sample Gas Flow Rate | > 1 L/min |
| Pressure | 0 … 1.7 MPa(a) |

## Power

| | |
|---|---|
| Battery Capacity | 135 Wh |
| Charging Battery | 100 ~ 240 VAC 50 ~60 Hz |

## Others

| | |
|---|---|
| Process Connection | 6 mm Stainless steel quick connectors |
| Sensor Filter | Stainless steel sinter filter (Filtration class 30~45 µm) |
| EMC | Compliant with IEC 61326-1 |
| Dimension | 346 × 221 × 103 mm (L×W×H) |
| Weight | 5.5Kg |
| Material | PP |

# Order Information

| Model | Description |
|---|---|
| IAS-DP01 | -60 … +60 °Ctd, Compressed Air Audit Suit-Dewpoint, built-in 124 Wh rechargeable battery, built-in 4G-IoT module |
| IAS-DP02 | -80 … +20 °Ctd, Compressed Air Audit Suit-Dewpoint, built-in 124 Wh rechargeable battery, built-in 4G-IoT module |
| IAS-DP03 | -110 … +20 °Ctd, Compressed Air Audit Suit-Dewpoint, built-in 124 Wh rechargeable battery, built-in 4G-IoT module |

IAS-PM01 Series

# Portable Measurement Intelligent Analysis

## Compressed Air Analysis Kit - Power



# Product Overview

IAS-PM01 is a portable power measurement kit for compressed air systems. It has a built-in large-capacity lithium battery and a standby time of more than a week. Flexible Rogowski coil can be easily installed even in small spaces. Universal current up to 1000 A, no need to match different current transformers according to on-site working conditions. It can measure power, electric energy, current, voltage and power factor, etc. Each sensor connector has a unique set-and-forget socket, eliminating the need for any complicated and professional wiring skills

**Large capacity battery**
**Super long standby**

**4G module for**
**remote monitoring**

**Rogowski coil**
**Easy installation**

# Technical Data

| Voltage Input | |
|---|---|
| Voltage Input | 80 … 620 VAC (P-P) |
| Current Input | 10 ~ 1000 A |
| Frequency | 45 ~ 65 Hz |

| Operating Environment | |
|---|---|
| Storage Temperature | -40 … +85 °C |
| Humidity | 5 … 95% RH @ 50°C (Non- condensing) |

| Accuracy | |
|---|---|
| Voltage | 0.2 % |
| Current | 0.5 % (10~1000 A accuracy not guaranteed for current below 10 A) |
| Power Factor | ±0.005 |
| Active Power | IEC62053-22 Class 0.2 |
| Active Energy | IEC62053-22 Class 0.2S |

| Others | |
|---|---|
| Wiring Methods | 3PH3W |
| Weight | 7.8 kg |
| Size | 431 × 285 × 123 mm (L×W×H) |
| Material | PP |

| EMC | | | |
|---|---|---|---|
| Electrostatic Discharge | Level IV (IEC61000-4-2) | Conductivity Resistance | Level III (IEC61000-4-6) |
| Radiation Immunity | Level III (IEC61000-4-3) | Magnetic Fields Immunity | 0.5mT (IEC61000-4-8) |
| Rapid Transient Immunity | Level IV (IEC61000-4-4) | Conducted & Radiated Emissions | Class B (EN55022) |
| Surge Immunity | Level IV (IEC61000-4-5) | | |

# Order Information

| Model | Description |
|---|---|
| IAS-PM01 | Compressed Air Audit Suit – Power Meter |

IAS-FS-Lite Series

# Portable Measurement Intelligent Analysis

## Lite Compressed Air Analysis - Flow



## Product Overview

IAS-FS-Lite is a portable flow measurement kit for compressed air systems. Optional 4G module enables remote monitoring. Optional Wi-SUN module can be paired with the F351x-P to enable on-site data collection, set-and-forget installation and setup, plug and play. The plug-in pitot flowmeter can be installed without shutdown and can be adapted to different pipe diameters (optional: plug-in thermal mass flow meter). Extremely high sensitivity, the lower limit of gas measurement can reach 5 Nm/s. Innovative online auto- calibration function and professional anti-condensation technology, ensures the accuracy and stability of the product

**Optional 4G / Wi-SUN module**

**5Nm/s**

**Extreme lower limit of measurement (Pitot Tube)**

**Easy Installation Plug and play**

## Measuring Range

| Inch | DN | ID (mm) | Min Flow ($Nm^3/h$) | Max Flow ($Nm^3/h$) |
|---|---|---|---|---|
| 1 | 25 | 25 | 8.8 | 530 |
| $1^{1/4}$ | 32 | 32 | 14.5 | 868 |
| $1^{1/2}$ | 40 | 40 | 22.6 | 1357 |
| 2 | 50 | 50 | 35.3 | 2120 |
| $2^{1/2}$ | 65 | 65 | 59.7 | 3583 |
| 3 | 80 | 80 | 90.5 | 5428 |
| 4 | 100 | 100 | 141.4 | 8482 |
| 5 | 125 | 125 | 220.9 | 13253 |
| 6 | 150 | 150 | 318.1 | 19085 |
| 8 | 200 | 200 | 565.5 | 33929 |
| 10 | 250 | 250 | 883.6 | 53014 |
| 12 | 300 | 300 | 1272.3 | 76340 |

* For more pipe sizes and flow ranges, please consult sales

*The above are the measuring range parameters of pitot tube flow meter. For thermal mass flow meter, please consult sales

# Technical Data

| Flow | |
|---|---|
| Measuring Range | 5 … 300 Nm/s |
| Accuracy | ±(1.5% RD + 0.3% FS) [1% RD Option] |
| Medium | Dry / wet air and non-corrosive gases |
| Reference Conditions | 20 °C, 1 bar(a) – ISO 1217 (Configurable) |

| Operating Environment | |
|---|---|
| Battery Box Operating Temperature | -20 … +60 °C |
| Medium Temperature | -40 … +150 °C |
| Operating Pressure | 0 … 1.7 MPa(a) |

| Pressure | |
|---|---|
| Measuring Range | 0 … 1.7 MPa(a) |
| Accuracy | ±0.5% FS |

| Display & Data Log | |
|---|---|
| Display | 2.8″ IPS LCD with capacitive touch |
| Data Log | Max. 10,000,000 values |

| Temperature | |
|---|---|
| Measuring Range | -40 … +150 °C |
| Accuracy | ±0.5 °C |

| Power | |
|---|---|
| Supply Voltage & Power | 18 … 30 VDC 24W @ 24VDC |

| Output | |
|---|---|
| Analog Output (Standard) | 4 … 20 mA (Isolated) / Pulse Output (Consumption) |
| Digital Output (Standard) | Modbus RTU (RS485) |
| Wireless Output (Choose one of three) | Bluetooth (Default)<br>Wi-SUN (Option)<br>IoT-4G (Option) |
| Connector | 2 × 5pin M12,Male |

| Others | |
|---|---|
| Process Connection | G1/2″ (ISO 228-1) |
| EMC | Compliant with IEC 61326-1 |
| Weight | 4.3 kg |
| Dimension | 558 × 261 × 135 mm (L×W×H) |
| Material | PP |

* The above are the technical data of pitot tube flow meter. For thermal mass flow meter, please consult sales

# Order Information

| Model | Description |
|---|---|
| IAS-FS01-Lite01 | Lite Compressed Air Audit Suit - Flow, pitot tube flow meter, pole length 250mm, flow rate 5 ... 300 Nm/s, built-in 4G-IoT module |
| IAS-FS02-Lite01 | Lite Compressed Air Audit Suit - Flow, pitot tube flow meter, pole length 400mm, flow rate 5 ... 300 Nm/s, built-in 4G-IoT module |
| IAS-FS03-Lite01 | Lite Compressed Air Audit Suit - Flow, thermal mass flow meter, pole length 250mm, flow rate 0.1 ... 120 Nm/s, built-in 4G-IoT module |
| IAS-FS04-Lite01 | Lite Compressed Air Audit Suit - Flow, thermal mass flow meter, pole length 400mm, flow rate 0.1 ... 120 Nm/s, built-in 4G-IoT module |
| IAS-FS01-Lite02 | Lite Compressed Air Audit Suit - Flow, pitot tube flow meter, pole length 250mm, flow rate 5 ... 300 Nm/s, built-in Wi-SUN module |
| IAS-FS02-Lite02 | Lite Compressed Air Audit Suit - Flow, pitot tube flow meter, pole length 400mm, flow rate 5 ... 300 Nm/s, built-in Wi-SUN module |
| IAS-FS03-Lite02 | Lite Compressed Air Audit Suit - Flow, thermal mass flow meter, pole length 250mm, flow rate 0.1 ... 120 Nm/s, built-in Wi-SUN module |
| IAS-FS04-Lite02 | Lite Compressed Air Audit Suit - Flow, thermal mass flow meter, pole length 400mm, flow rate 0.1 ... 120 Nm/s, built-in Wi-SUN module |

* For more order information plase consult sales

IAS-DPPS-Lite Series

# Portable Measurement Intelligent Analysis

## Lite Compressed Air Analysis - Dewpoint / Pressure



## Product Overview

IAS-DP-Lite is a portable dewpoint measurement kit for compressed air systems. Optional 4G module enables remote monitoring. TOptional Wi-SUN module can be paired with the F351x-P to enable on-site data collection, set-and-forget installation and setup, plug and play. Just connect the gas through the Φ6 mm quick connector to start measuring

It can integrate a variety of the most advanced humidity sensors: FIXINST-P polymer film capacitive sensor, FIXINST-A ultra-fast response aluminum oxide sensors with innovative moisture sensitive materials and processes, FIXINST-Q ultra-low dewpoint sensitivity dual-resonance QCM sensor. It provides IAS-DPx the ability to accurately measure a wide range of dewpoint from -110 ... +60 °Ctd

MEMS-based pressure sensor can monitor dewpoint and online pressure simultaneously. FixInst's patented sensor materials and processes provide measurements with high sensitivity and ultra-fast response speed. Up to 10+ points of dewpoint calibration and multi-point temperature compensation provide measurement accuracy up to ±2 °Ctd (see technical data sheet). Resistant to condensation, particulate pollution, oil vapor and most chemicals

## Product Advantages

**Optional 4G / Wi-SUN module**

**High accuracy Ultra-fast response**

**Handheld Taken anywhere**

# Technical Data

## Measuring Range

| | |
|---|---|
| Dewpoint | |
| IAS-DPPS01-Lite | -60 … +60 °Ctd |
| IAS-DPPS02-Lite | -80 … +20 °Ctd |
| IAS-DPPS03-Lite | -110 … +20 °Ctd |
| Temperature | -40 … +100 °C |
| Pressure | 0 … 1.7 MPa(a) (Option) |

## Operating Environment

| | |
|---|---|
| Battery Box Operating Temperature | -30 … +70 °C |
| Storage Temperature | -40 … +80 °C |
| Relative Humidity | 0 … 95 %RH |
| Sample Gas Flow Rate | > 1 L/min |
| Pressure | 0 … 1.7 MPa(a) |

## Accuracy

| | |
|---|---|
| Dewpoint (Air or Nitrogen) | |
| +20 … -60 °Ctd | ±2 °Ctd |
| -60 … -110 °Ctd | ±3 °Ctd |
| Temperature (Customizable) | |
| 0 … +50 °C | ±0.3 °C (Standard) |
| -40 … 0 °C & +50 … +100 °C | ±0.5 °C (Standard) |
| Pressure Accuracy | |
| Accuracy @23 °C | ±0.3 %FS |
| Pressure drift with temperature | ±0.001 MPa/10 °C |

## Power

| | |
|---|---|
| Supply Voltage & Power | 18 ... 36 VDC 1.5W @ 24VDC (Wi-SUN) |
| | 18 ... 36 VDC 6W @ 24VDC (IoT-4G) |

## Others

| | |
|---|---|
| Process Connection | 6 mm Stainless steel quick connectors |
| Sensor Filter | Stainless steel sinter filter (Filtration class 30~45 μm) |
| EMC | Compliant with IEC 61326-1 |
| Dimension | 410×335×145 mm(L×W×H) |
| Weight | 4.4 Kg |
| Material | PP |

## 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 |

# Order Information

| Model | Description |
|---|---|
| IAS-DPPS01-Lite01 | -60 ... +60 °Ctd, Pressure range 0 … 16 bar(g), Lite Compressed Air Audit Suit-Dewpoint & Pressure, with IoT-4G module |
| IAS-DPPS02-Lite01 | -80 ... +20 °Ctd, Pressure range 0 … 16 bar(g), Lite Compressed Air Audit Suit-Dewpoint & Pressure, with IoT-4G module |
| IAS-DPPS03-Lite01 | -110 ... +20 °Ctd, Pressure range 0 … 16 bar(g), Lite Compressed Air Audit Suit-Dewpoint & Pressure, with IoT-4G module |
| IAS-DPPS01-Lite02 | -60 ... +60 °Ctd, Pressure range 0 … 16 bar(g), Lite Compressed Air Audit Suit-Dewpoint & Pressure, with Wi-SUN module |
| IAS-DPPS02-Lite02 | -80 ... +20 °Ctd, Pressure range 0 … 16 bar(g), Lite Compressed Air Audit Suit-Dewpoint & Pressure, with Wi-SUN module |
| IAS-DPPS03-Lite02 | -110 ... +20 °Ctd, Pressure range 0 … 16 bar(g), Lite Compressed Air Audit Suit-Dewpoint & Pressure, with Wi-SUN module |

IAS-PM01-Lite Series

# Portable Measurement Intelligent Analysis

## Lite Compressed Air Analysis Kit - Power



# Product Overview

IAS-PM01-Lite is a portable power measurement kit for compressed air systems. Optional 4G module enables remote monitoring. Optional Wi-SUN module can be paired with the F351x-P to enable on-site data collection, set-and-forget installation and setup, plug and play.Flexible Rogowski coil can be easily installed even in small spaces. Universal current up to 1000 A, no need to match different current transformers according to on-site working conditions. It can measure power, electric energy, current, voltage and power factor, etc. Each sensor connector has a unique set-and-forget socket, eliminating the need for any complicated and professional wiring skills

**Optional 4G / Wi-SUN module**

**Rogowski coil Easy installation**

**Handheld Taken anywhere**

# Technical Data

| Voltage Input | |
|---|---|
| Voltage Input | 80 … 620 VAC (P-P) |
| Current Input | 10 ~ 1000 A |
| Frequency | 45 ~ 65 Hz |

| Operating Environment | |
|---|---|
| Storage Temperature | -40 … +85 °C |
| Humidity | 5 … 95% RH @ 50°C (non-condensing) |

| Accuracy | |
|---|---|
| Voltage | 0.2 % |
| Current | 0.5 % (10~1000 A accuracy not guaranteed for current below 10 A) |
| Power Factor | ±0.005 |
| Active Power | IEC62053-22 Class 0.2 |
| Active Energ | IEC62053-22 Class 0.2S |

| Others | |
|---|---|
| Wiring Methods | 3PH3W |
| Weight | 4.2 kg |
| Size | 410 × 335 × 145 mm (L×W×H) |

| EMC | | | |
|---|---|---|---|
| Electrostatic Discharge | Level IV (IEC61000-4-2) | Conductivity Resistance | Level III (IEC61000-4-6) |
| Radiation Immunity | Level III (IEC61000-4-3) | Magnetic Fields Immunity | 0.5mT (IEC61000-4-8) |
| Rapid Transient Immunity | Level IV (IEC61000-4-4) | Conducted & Radiated Emissions | Class B (EN55022) |
| Surge Immunity | Level IV (IEC61000-4-5) | | |

# Order Information

| Model | Description |
|---|---|
| IAS-PM01-Lite01 | Lite Compressed Air Audit Suit – Power Meter, built-in 4G-IoT module |
| IAS-PM01-Lite01 | Lite Compressed Air Audit Suit – Power Meter, built-in 4G-IoT module |

E1601 0001/3 Series

# Dual Four-digit LED Digital Display

## Panel Mount Digital Display Meter




## Product Overview

Supports current, voltage, thermocouple, and thermal resistance signal input. It can display and transmit output industrial process parameters, such as dewpoint, pressure, temeprature and liquid level

**Class 0.3**
**Measuring Accuracy**

**Set-and-forget**
**Operation**

**Dual**
**4-digit LED**

**24 VDC**
**Power Supply Output**

## Order Information

| Model | Description |
|---|---|
| E1601 0001 | Panel mount digital display meter, 96 x 48 mm (Horizontal), With 24V 100mA power output |
| E1601 0001A | Panel mount digital display meter, 96 x 48 mm (Horizontal), With 24V 100mA power output, 4~20 mA output |
| E1601 0003 | Panel mount digital display meter, 48 x 96 mm (Vertical), With 24V 100mA supply output |

E1601 0002 Series

# Dual Four-digit LED Digital Display

## Wall-mounted Digital Display Meter




## Product Overview

Supports current, voltage, thermocouple, and thermal resistance signal input. It can display, alarm & control transmit output industrial process parameters, such as dewpoint, pressure, temeprature and liquid level

**Reinforced PC Casing**

**Fast Mounting Easy Dismounting**

**Dual 4-digit LED**

**Two Alarms**

## Order Information

| Model | Description |
|---|---|
| E1601 0002 | Wall-mounted digital meter display, With 24 VDC power output, 2-way alarm relay outputs |
| E1601 0002A | Wall-mounted digital display meter, With 24 VDC power output, 2-way alarm relay outputs, With 4 ~ 20 mA output |

SPDR01 Series

# Hot Tapping

## New Generation Hot Tapping Driller



## Product Overview

This product is used for hot tapping in water and compressed air pipelines through ball valves

**Operation under Pressure**

**Maximum Operating pressure up to 32 bar**

**Innovative Construction Prevents Drill Bit Jamming or Breakage**

**Maximum Drilling Depth up to 200 mm**

## Technical Data

| Iterm | Parameter | | | |
|---|---|---|---|---|
| Bit diameter (mm) | 8 | 14.5 | 19.5 | 24.5 |
| Matching Ball Valve (inch) | 1/4″ | 1/2″ | 3/4″ | 1″ |
| Bit length (mm) | 200 | | | |
| Bit Material | Cobalt-containing high-performance steel | | | |
| Casing Material | Aluminum / Copper | | | |

| Iterm | Parameter |
|---|---|
| Operating Temperature | -50 ... +200 ℃ |
| Operating Pressure | Max 32 bar |
| Size | 380 × 48 × 48 mm (L×W×H) |
| Weight | 1.6 kg |

## Order Information

| Model | Description | Model | Discription |
|---|---|---|---|
| SPDR01 | Driller, With Φ14.5 mm bit, For G1/2″ ball valve | F0104 0008 | Bit Φ8 mm |
| SPDR02 | Driller, With Φ19.5 mm bit, For G3/4″ ball valve | F0104 0009 | Bit Φ14.5 mm |
| SPDR03 | Driller, With Φ24.5 mm bit, For G1″ ball valve | F0104 00010 | Bit Φ19.5 mm |
| SPDR04 | Driller, With Φ14.5 mm & Φ19.5 mm bit | F0104 00011 | Bit Φ24.5 mm |
| SPDR05 | Driller, With Φ14.5 mm & Φ24.5 mm bit | | |
| SPDR06 | Driller, With Φ19.5 mm & Φ24.5 mm bit | | |
| SPDR07 | Driller, With Φ8 mm & Φ14.5 mm & Φ19.5 mm & Φ24.5 mm bit | | |

F0108 Series

# Waterproof & Dustproof

## Waterproof Box for Outdoor Flow Meter Installation



## Product Overview

This product is used to protect the flow meter against water and dust in harsh working conditions (e.g. outdoors) to ensure the safe and reliable operation of the flow meter

**Transparent PC Casing**

**Quick Installation Simple Disassembly**

**Waterproof and Dustproof Anti-pollution**

**Ambient Temperature -40 ... +80 °C**

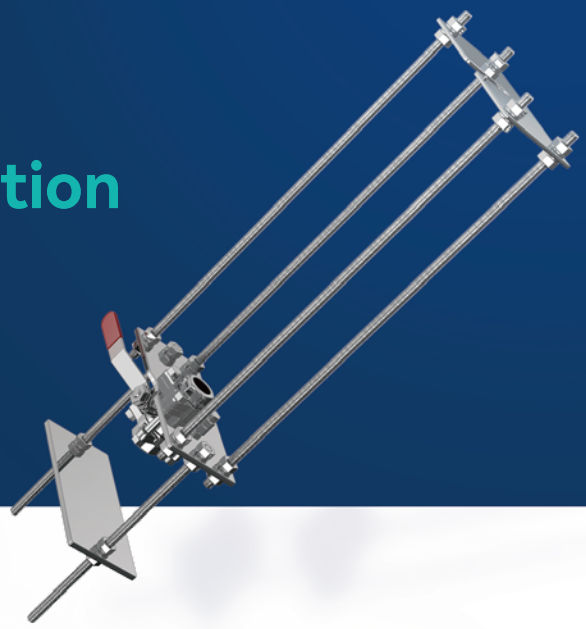
## Order Information

| Model | Description |
|---|---|
| F0108 0001 | FixInst waterproof box for outdoor flow meter installation, transparent PC housing, IP66 |

F0109 Series

# Double security protection

## Flow Meter High Pressure Mounting Bracket



## Product Overview

This product is designed to assist the installation of insertion flow meters at high pressures (up to 6.4 MPa.a) for increased safety and convenience

**Full Stainless Steel Material**

**Operating Pressure Up to 6.4 MPa.a**

**Double Protection Extremely High Security**

## Order Information

| Model | Description |
|---|---|
| F0109 0001 | High-pressure installation equipment for pipe diameters up to DN125 |
| F0109 0002 | High-pressure installation equipment for DN125-DN200 pipe diameters |

* For other pipe diameters, please consult sales.

# Accessories Selection List

## FixInst Accessory Series




### General Accessories

| Appearance | Model | Description |
|---|---|---|
|  | S1701 0003A | Power module with M12 connector, US standard plug, 24VDC 1.04 A / 25 W output, 100 ~ 240 VAC input |
|  | S1701 0003B | Power module with M12 connector, EU plug adapter, 24VDC 1.04 A / 25 W output, 100 ~ 240 VAC input |
|  | S1701 0003C | Power module with M12 connector, UK plug adapter, 24VDC 1.04 A / 25 W output, 100 ~ 240 VAC input |
|  | S1701 0004 | Power module with M12 connector, 24VDC 1.04 A / 25 W output, 100 ~ 240 VAC input |
|  | E1701 0018 | Power module, 24VDC 1.04 A / 25 W output, 100 ~ 240 VAC input |

## General Accessories

| Appearance | Model | Description |
|---|---|---|
|  | E1701 0024 | DIN-Rail power supply<br>24VDC 1 A / 24 W output, 100 ~ 240 VAC input |
|  | M2801 0017 | Thread adapter, NPT1/2" male thread<br>to G1/2" female thread, SUS304, 14mm bore |
|  | M2801 0025 | 3-way adapter, Single G1/2" female thread<br>to dual G1/2" male thread, SUS304 |
|  | M2901 0001 | Sensor cable, 5 pin, AWG22, black (per meter) |
|  | M2701 0001<br>M2701 0002 | M12 plastic female straight connector, assembled type, IP67<br>M12 metal female straight connector, assembled type, IP67, with shielding |
|  | M2701 0003 | Y-type M12 connector, for daisy-chain connection<br>of RS485 signals of multiple sensors |
|  | M2701 0004<br>M2701 0005 | M12 female straight connector, IP67, with 2m cable<br>M12 female straight connector, IP67, with 5m cable |
|  | M2701 0008<br>M2701 0009<br>M2701 0010 | M8 female straight connector, IP67, with 2m cable<br>M8 female straight connector, IP67, with 5m cable<br>M8 female elbow connector, IP67, with 2m cable |
|  | M2701 0014 | Connector, M12 male to M8 female,<br>5 pin, length 0.15m, wire diameter 5.0 mm |
|  | M2701 0015 | M12 plastic straight connector, assembled type, IP67 |
|  | M2701 0016 | M12 female one-to-two connector, with 1m cable |

## General Accessories

| Appearance | Model | Description |
|---|---|---|
|  | F0103 0001 | Service kit with 24 VDC power supply and RS485 to USB adapter. Used for computer service software to connect sensors for parameter setting and data reading |
|  | M3501 0003 | Suitcase, suitable for F302 / F601x-P / F191x series, PP material |
|  | M3501 0004 | Suitcase, suitable for F201A-W & F211A insertion flow meter, 250 mm pole length, PP material |
|  | M3501 0008 | Suitcase, suitable for F305x handheld dewpoint meter / driller, PP material |
|  | M3202 0010 | Full-pass two-piece ball valve, 1.6 MPa(a), DN15 (1/2″), G1/2″ female thread, SUS304 |
|  | M3202 0013 | Full-pass three-piece ball valve, 4.1 MPa(a), DN15 (1/2"), G1/2" female thread, SUS304 |
|  | F0110 0002<br>F0110 0003 | Wi-SUN wireless communication module, 915 frequency band (Mainly applicable in Asia, America and Australia)<br>Wi-SUN wireless communication module, 868 frequency band (Mainly applicable in Europe and the Middle East) |
|  | F0112 0001 | 4G Wireless communication module (Standard SIM card is only applicable in China) |

## Dewpoint Meter Accessories

| Appearance | Model | Description |
|---|---|---|
|  | M1801 0001 | Stainless steel sinter filter, 30~45um, standard case dewpoint meter series |
| | M1801 0002 | Stainless steel sinter filter, 50~60um, standard case dewpoint meter series |
| | M1801 0003 | Stainless steel sinter filter, 60~70um, standard case dewpoint meter series |
| | M1801 0004 | Stainless steel sinter filter, 40~50um, compact case dewpoint meter series |
|  | S0301 0005 | Stainless mesh filter cap, standard case dewpoint meter series (Filtration class 70 um) |
| | S0301 0006 | Stainless mesh filter cap, compact case dewpoint meter series (Filtration class 70 um) |
| | M1601 0015 | Stainless steel protective cap, standard case dewpoint meter series |
| | M1601 0034 | Stainless steel protective cap, standard case dewpoint meter series |
|  | M2801 0012 | Self-Locking quick connectors, Male, RC1/2" Thread |
|  | M1601 0001 | Stainless steel measuring chamber, G1/2″ sensor connection, G1/4″ Air inlet/outlet interface |
|  | F0102 0001 | Stainless steel measuring chamber, G1/2″ sensor connection,<br>Inlet: Stainless steel bite type fittings for 1/4″ tube<br>Outlet: Stainless steel bite type fittings for 1/4″ tube |
|  | F0102 0002 | Stainless steel measuring chamber, G1/2″ sensor connection,<br>Inlet: Stainless steel bite type fittings for 1/4″ tube<br>Outlet: Flow control valves with silencer (Adjust with screwdriver) |
|  | F0102 0003 | Stainless steel measuring chamber, G1/2″ sensor connection,<br>Inlet: Stainless steel fast connector for 6 mm tube<br>Outlet: Stainless steel fast connector for 6 mm tube |
|  | F0102 0004 | Stainless steel measuring chamber, G1/2″ sensor connection,<br>Inlet: Stainless steel bite type fittings for 1/4″ tube<br>Outlet: Flow control valves with silencer (Adjust with screwdriver) |
|  | F0102 0005 | Stainless steel measuring chamber, G1/2″ sensor connection,<br>Inlet: Stainless steel fast connector for 6 mm tube<br>Outlet: Flow control valves with 6 mm fast connector |
|  | F0102 0006 | Stainless steel measuring chamber, G1/2″ sensor connection,<br>Inlet: Stainless steel rapid fitting for 6mm tube<br>Outlet: Stainless steel rapid fitting for 6mm tube |

## Dewpoint Meter Accessories

| Appearance | Model | Description |
|---|---|---|
|  | F0102 0007 | Stainless steel measuring chamber, G1/2″ sensor connection,<br>Inlet: Self-locking quick connector (Compatible with NIT to 20SM SS SG)<br>Outlet: Flow control valves with silencer (Adjust with screwdriver) |
|  | F0102 0008 | Stainless steel measuring chamber, G1/2" sensor connection<br>Inlet: stainless steel bite type fittings for 1/4" tube<br>Outlet: manual flow control valve with silencer |
|  | F0102 0009 | Stainless steel measuring chamber, G1/2" sensor connection<br>Inlet: stainless steel quick connector for 6 mm tube<br>Outlet: manul flow control valve with silencer |
|  | F0102 0010 | Stainless steel measuring chamber, G1/2" sensor connection<br>Inlet: self-locking quick connector (compatible to (compatible with Nitto 20SM SS SG)<br>Outlet: manual flow control valve with silencer |
|  | F0102 0011 | Stainless steel measuring chamber, G1/2" sensor port<br>Inlet: stainless steel bite type fittings for 8 mm tube<br>Outlet: stainless steel bite type fittings for 8 mm tube |
|  | F0102 0012 | Stainless steel measuring chamber, G1/2" sensor connection<br>Inlet: stainless steel bite type fittings for 6 mm tube<br>Outlet: manual flow control valve with silencer |
|  | F0102 0013 | Stainless steel measuring chamber, G1/2" sensor connection<br>Inlet: stainless steel bite type fitting for 6 mm tube<br>Outlet: stainless steel bite type fittings for 6 mm tube |
|  | F0102 0014 | Stainless steel measuring chamber, G1/2" sensor connection<br>Inlet: stainless steel quick connector for 12 mm tube<br>Outlet: stainless steel bite type fittings for 8 mm tube |
|  | F0102 0015 | Stainless steel measuring chamber, G1/2" sensor connection<br>Inlet: stainless steel bite type fittings for 1/8" tube<br>Outlet: stainless steel bite type fittings for 1/8" tube |

## Dewpoint Meter Accessories

| Appearance | Model | Description |
|---|---|---|
|  | F0102 0016 | Stainless steel measuring chamber, G1/2″ sensor connection,<br>Inlet: Self-locking quick connector (Compatible with Nitto 20SM SS SG)<br>Outlet: Stainless steel quick connector for 6 mm tube |
|  | F0102 0017 | Stainless steel measuring chamber, G1/2″ sensor connection,<br>Inlet: Stainless steel bite type fittings for 1/4″ tube<br>Outlet: Stainless steel quick-twist connector for 6mm tube |
|  | F0102 0018 | Stainless steel measuring chamber, G1/2″ sensor connection,<br>Inlet: Stainless steel quick connector for 12 mm tube<br>Outlet: Stainless steel quick connector for 12 mm tube |
|  | F0102 0019 | Stainless steel measuring chamber, G1/2″ sensor connection,<br>Inlet: Stainless steel bite type fittings for 8mm tube<br>Outlet: Flow control valve with silencer |
|  | F0102 0020 | Stainless steel measuring chamber, G1/2″ sensor connection<br>High pressure installation: G1/2" male thread, Operating pressure: 6.3MPa<br>Outlet: Stainless steel bite type fittings for 6mm tube |
|  | F0102 0021 | Stainless steel measuring chamber, G1/2" sensor connection<br>High pressure installation: G1/2" male thread, Operating pressure: 6.4 MPa(a)<br>Outlet: adjustable high pressure needle valve, 1/4" thread |
|  | F0102 0022 | Stainless steel measuring chamber, G1/2″ sensor connection,<br>Inlet: Stainless steel quick connector for 8 mm tube<br>Outlet: Stainless steel quick connector for 8 mm tube |
|  | F0102 0023 | Stainless steel measuring chamber, G1/2″ sensor connection<br>Inlet: Stainless steel quick connector for 8 mm tube<br>Outlet: Flow control valves with silencer (adjustable with screwdriver) |
|  | F0102 0024 | Stainless steel measuring chamber, CuZn free, G1/2″ sensor connection<br>Inlet: Self-locking quick connector (Compatible with Nitto 20SM SS SG)<br>Outlet: Flow control valves |

## Dewpoint Meter Accessories

| Appearance | Model | Description |
|---|---|---|
|  | F0102 0025 | Stainless steel measuring chamber, CuZn free, G1/2″ sensor connection<br>Inlet: stainless steel tube fittings for 6 mm tube<br>Outlet: manual flow control valve |
|  | F0102 0026 | Stainless steel measuring chamber, CuZn free, G1/2″ sensor connection<br>Inlet: stainless steel quick connector for 6 mm tube<br>Outlet: manual flow control valve |
|  | F0102 0027 | Stainless steel measuring chamber, CuZn free, G1/2″ sensor connection<br>Inlet: stainless steel quick connector for 8 mm tube<br>Outlet: Flow control valve with silencer |
|  | F0102 0028 | Stainless steel measuring chamber, CuZn free, G1/2″ sensor connection<br>High pressure installation: G1/2" male thread, Operating pressure: 6.4 MPa(a)<br>Outlet: Flow control valve with silencer, 1.7 MPa(a) |
|  | F0102A 0001 | Measuring chamber with storage and drying function, sensor connection G1/2"<br>Inlet: ø6 mm stainless steel quick connector<br>Outlet: flow control valve with sinter copper silencer |
|  | F0102A 0002 | Measuring chamber with storage and drying function, sensor connection G1/2"<br>Inlet: ø6 mm stainless steel quick connector<br>Outlet: ø6 mm stainless steel quick connector |
|  | F0102A 0003 | Measuring chamber with storage and drying function, sensor connection G1/2"<br>Inlet: ø6 mm stainless steel quick connector<br>Outlet: flow control valve with silencer |
|  | F0102A 0004 | Measuring chamber with storage and drying function, sensor connection G1/2"<br>Inlet: stainless steel tube fittings<br>Outlet: flow control valve with silencer |
|  | M2402 0001<br><br>M2402 0002 | Acoustic and visual alarm, installed on F306x/F350x,<br>three-color (red, yellow, green), with buzzer, black, 24V power supply<br><br>Acoustic and visual alarm, three-color (red, yellow, green),<br>with buzzer, black, 24V power supply, with mounting base |

## Dewpoint Meter Accessories

| Appearance | Model | Description |
|---|---|---|
|  | E1601 0001 | Panel mount digital display (Horizontal), with 24VDC 100mA power output |
| | E1601 0001A | Panel mount digital display (Horizontal), with 24VDC 100mA power output, with 4 ~ 20 mA outputs |
|  | E1601 0002 | Wall-mounted digital display, with 24VDC 100mA power output, two alarm relay outputs |
| | E1601 0002A | Wall-mounted digital display, with 24VDC 100mA power output, two alarm relay outputs, with 4 ~ 20 mA output |
|  | E1601 0003 | Panel mount digital display (Vertical) with 24VDC 100mA power output |
|  | F350x | New-generation Economical Multi-function Display, 4.3" touch screen, Modbus RTU input,multi-parameter display and sensor setting function |
|  | F351x-P | Portable multi-function display & data logger, 7" touch screen |

## Flow Meter Accessories

| Appearance | Model | Description |
|---|---|---|
|  | F0109 0001 | High-pressure installation equipment for pipe diameters below DN125 |
| | F0109 0002 | High-pressure installation equipment for DN125-DN200 pipe diameters |
|  | F0108 0001 | Waterproof box for outdoor flow meter installation, Transparent PC casing, IP66 |
|  | M1601 0163 | Hex plug, suitable for F21x & F22x |

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