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2024-2025

PRODUCT CATALOG

Experts in compressed air &
fluid measurement

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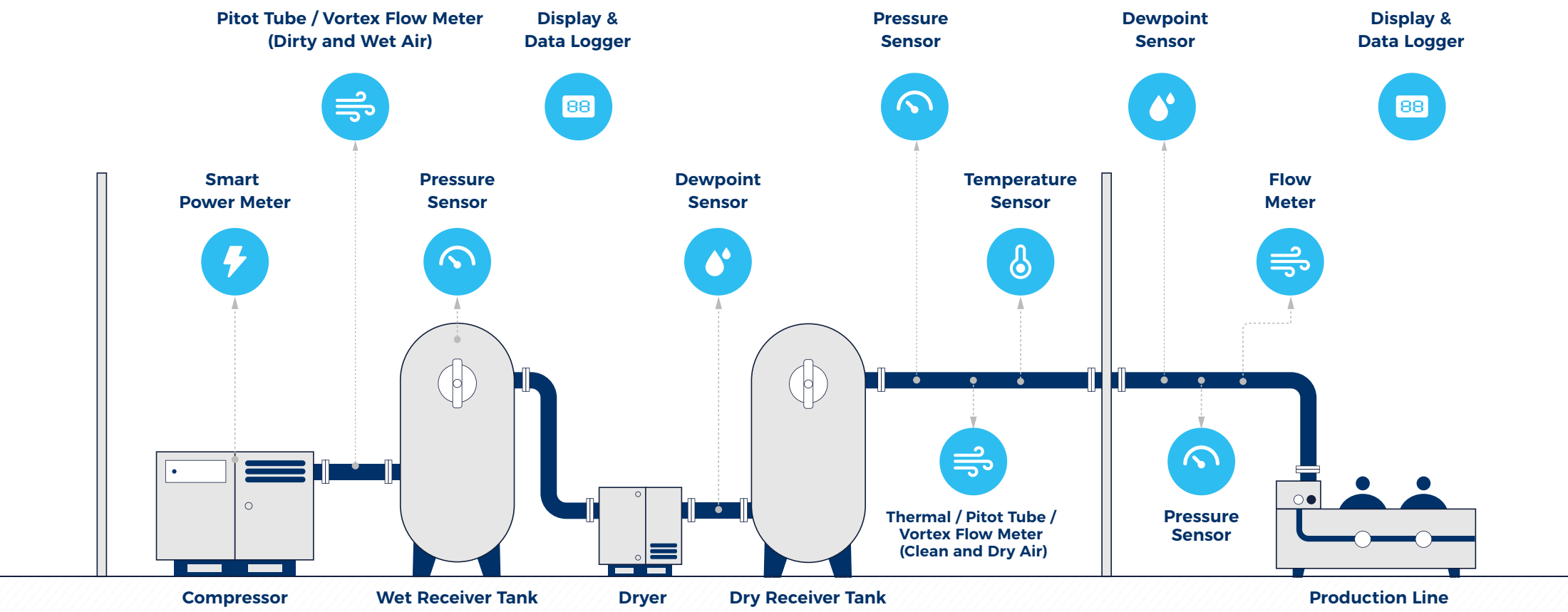
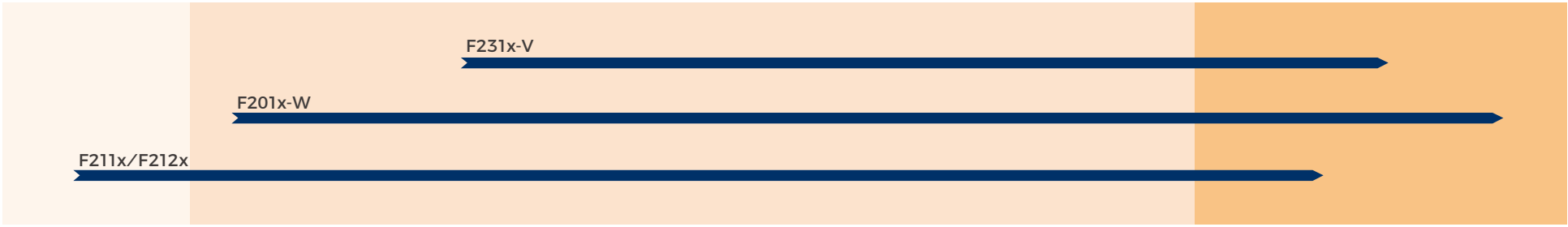
COMPRESSED AIR SYSTEM MONITORING



Order Information

Optimal Use Range



Low Flow Measurement (Leak Monitoring)

High Flow Measurement

Selection Recommendation

Modle	F201x-W Pitot Tube Flow Meter	F211x Thermal Mass Flow Meter	F212x Thermal Mass Flow Meter	F231x-V 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 ... 6.3 MPa(a) (>1.7 MPa.a, High pressure jig required)	0 ...1.7 MPa(a) (6.3 MPa.a Option)	0 ...1.7 MPa(a) (6.3 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) [1% RD Option]	±(1.5% RD + 0.3% FS) [1% RD Option]	±(1.5% RD + 0.3% FS) [1% RD Option]	Class 1

Selection Recommendation

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

Mobile APP via Bluetooth to view data and do configuration remotely

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
- Bluetooth function for wireless flowmeter configuration and data transmission
- Standard Modbus RTU (RS485) interface, 4 to 20 mA current and pulse output
- 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)

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 Communication (Choose one of three)	Bluetooth (Default) Wi-SUN (Option) IOT-4G (Option)
Connector	2 × 5pin M12, Female

Power		
Measuring Stage	18 ... 30VDC	6.5W @ 24VDC
Pre-warming Stage	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) SUS316 (Option)

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	Analog Output	Flow Range	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						4 ... 20 mA + Pulse Output
				1					Flow range (5 ... 300 Nm/s)
					V0013 0001				None (Defalt)
					S1701 0010				IOT-4G Module
					S1701 0023				Built-in Wi-SUN Sub-module, 470 frequency band, mainly applicable to China
					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	The 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 (P108) for details

*There are difference in regulations and standards between contuntries 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

Mobile APP via Bluetooth to view data and do configuration remotely

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
- Bluetooth function for wireless flowmeter configuration and data transmission
- Standard Modbus RTU (RS485) interface, 4 to 20 mA current and pulse output
- **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)

Output	
4~20 mA Output (Standard)	Flow rate / Temperature (Configurable)
Pulse Output (Standard)	Consumption / Alarm
Digital Output (Standard)	Modbus RTU (RS485)
Wireless Communication (Choose one of three)	Bluetooth (Default) Wi-SUN (Option) IOT-4G (Option)
Connector	2 × 5pin M12, Female

Power	
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) (>1.7 MPa.a High pressure jig required) F212x: 0 ... 1.7 MPa(a) (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) SUS316 (Option)

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)
			1						4 ... 20 mA + Pulse Output
				V0013 0001					None (Defalt)
				S1701 0010					IOT-4G Module
				S1701 0023					Built-in Wi-SUN Sub-module, 470 frequency band, mainly applicable to China
				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	The 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 (P108) for details

*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.	Process Connection	Gas type	Accuracy	Monitor	Description
F212A								Thermal Mass Flow Meter, Pipe type, Maximum pressure: 1.7 MPa(a)
F212B								Thermal Mass Flow Meter, Pipe type, Maximum pressure: 40 MPa(a)
F212C								Thermal Mass Flow Meter, Pipe type, Maximum pressure: 6.3 MPa(a)
	1							Modbus RTU (RS485)
		1						4 ... 20 mA + Pulse Output
			V0013 0001					None (Defalt)
			S1701 0010					IOT-4G Module
			S1701 0023					Built-in Wi-SUN Sub-module, 470 frequency band, mainly applicable to China
			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 (GB/T-9119-2110), DN15, 1/2"
				FLG-20				Flange (GB/T-9119-2110), DN20, 3/4"
				FLG-25				Flange (GB/T-9119-2110), DN25, 1"
				FLG-32				Flange (GB/T-9119-2110), DN32, 1.25"
				FLG-40				Flange (GB/T-9119-2110), DN40, 1.5"
				FLG-50				Flange (GB/T-9119-2110), DN50, 2"
				FLG-65				Flange (GB/T-9119-2110), DN65, 2.5"
				FLG-80				Flange (GB/T-9119-2110), 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 contuntries 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

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

Protection Code IP67

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
- Utralsensitive dual vortex sensor, provides a wider range ratio
- 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
- Bluetooth function for wireless flowmeter 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) 0.15 m/s ... 8 m/s (Liquid)
Accuracy	Class 1.0
Repeatability	±0.2% RD
Reference Condition	20 ℃, 1 bar(a) - ISO 1217 (Configurable)

Pressure	
Measuring Range	0 ...1.7 MPa(a) (6.3 MPa.a Option)
Accuracy	±0.5% FS

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

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

Power	
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) HART (Option)
Wireless Communication	Bluetooth Wi-SUN / IOT-4G (Option, choose one of two)
Connector	Wiring terminal

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

Other	
Process Connection	Wafer-type / Flange-type
Product Material	Main Body: 304 / 316L Vortex Sensor: 316L 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 C, 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 C, Class 1.0 Accuracy, Flange-type
	DN15 ~ DN350							Nominal Diameter
		PN16						1.7 MPa(a)
		PN63						6.3 MPa(a)
			V0013 0001					None (Defalt)
			S1701 0010					IOT-4G Module
			S1701 0023					Built-in Wi-SUN Sub-module, 470 frequency band, mainly applicable to China
			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
				F0111 0001				FAD free air delivery measuring module (Temperature/ Atmospheric 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 contuntries 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

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

Protection Code IP67

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
- Utralsensitive dual vortex sensor, provides a wider range ratio
- 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
- Bluetooth function for wireless flowmeter 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) 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)

Pressure	
Measuring Range	0 ...1.7 MPa(a) (6.3 MPa.a Option)
Accuracy	±0.5% FS

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

Power	
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) HART (Option)
Wireless Communication	Bluetooth Wi-SUN / IOT-4G (Option, choose one of two)
Connector	Wiring terminal

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

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

Other	
Process Connection	Wafer-type / Flange-type
Product Material	Main Body: 304 / 316L Vortex Sensor: 316L 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							6.3 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 0010					IOT-4G Module
				S1701 0023					Built-in Wi-SUN Sub-module, 470 frequency band,mainly applicable to China
				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
					F0111 0001				FAD free air delivery measuring module (Temperature/ Atmospheric 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 contuntries 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

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
- Bluetooth function for wireless flowmeter 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 ˚C, 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 Communication	Bluetooth (Standard) Wi-SUN / IOT-4G (Option, choose one of two)
Connector	Wiring Terminal

Power	
Power	18 ... 30VDC 5W @ 24VDC

Display	
Display	2.0" IPS LCD with capacitive touch

Operating Environment	
Environment Temperature	-30 ... +60 ˚C
Medium Temperature	-40 ... +80 ˚C
Operating Pressure	F211x-Ex: 0 ... 1.7 MPa(a)
	F212x-Ex: 0 ... 1.7 MPa(a) (4.0 / 6.3 MPa.a Option)

Explosion-proof Class & Protection Code	
Explosion-proof Class	Ex db IIC T6 Gb/Ex tb IIIC T80˚C 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) SUS316 (Option)

Measuring Range

F211x-Ex 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-Ex 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-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 (Defalt)
				S1701 0010					IOT-4G Module
				S1701 0023					Built-in Wi-SUN Sub-module, 470 frequency band, mainly suitable for China
				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 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 (P108) 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.	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: 4.0 MPa(a)
F212C-Ex								Explosion-proof Thermal Mass Flow Meter, Inline type, Max pressure: 6.3 MPa(a)
	1							Modbus RTU (RS485)
		1						4 ... 20 mA + Pulse output
			V0013 0001					None (Defalt)
			S1701 0010					IOT-4G Module
			S1701 0023					Built-in Wi-SUN Sub-module, 470 frequency band, mainly applicable to China
			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 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 ˚C, 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)
Connector	2 × 5pin M12, Female

Power

Power	18 ... 30VDC 5W @ 24VDC

Display

Display	1.5" IPS LCD with capacitive touch

Operating Environment

Environment Temperature	-30 ... +70 ˚C
Medium Temperature	-40 ... 150 ˚C
Operating Pressure	F221x: 0 ... 1.7 MPa(a) F222x: 0 ... 1.7MPa(a) (4.0 / 6.3 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) SUS316 (Option)

Measuring Range

F221x 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

F222x 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 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)

* 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	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: 4.0 MPa(a)
F222C						Thermal Mass Flow Meter, Pipe type, Maximum pressure: 6.3 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)

* Wi-SUN communication module is available as an option. Please refer to the accessories list (P108) for details

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

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

Flow (m^3/h) / Velocity (m/s) / Diameter DN/Inch		Lower Limit	1	2	3	4	Upper Limit
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) Others (Conductivity > 30 μS/cm)

Flow

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

Output

4~20mA(Standard)	Flow
Digital Output	Modbus RTU (RS485) HART (Optional)

Temperature

Measuring Range	-10 ... +70 ℃
Accuracy	±0.1 ℃

Power

DC	22 ... 26 VDC, 15W @ 24VDC
AC	100 ... 240 VAC, 50/60 Hz, 15W @ 220VAC

Protection Code

Integrated type	IP65
Separated type	Housing IP65 Body IP65 / IP68

Display

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

Operating Environment

Operating Temperature	Integrated type: -10 ℃ ... 55 ℃ Separated type sensor part: -10 ℃ ... 60 ℃ Separated type gateway part: -10 ℃ ... 55 ℃
Storage Temperature	-40 ℃ ... 65 ℃
Rated Pressure Class (High Pressure Customizable)	DN10 ... DN250, PN <1.6 MPa DN300 ... DN1000, PN <1.0 MPa DN1200 ... DN2200, PN <0.6 MPa
Burying Capability	< 5m (Only for separated type with IP68 casing)
Water Immersion Depth	< 3m (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), Polytetra fluoroethylene PTFE (F4), 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
				PN25		2.5 MPa
				PN40		4.0 MPa
					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 1.7 MPa

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 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

Measuring Stage	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, 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							1.7 MPa(a)
		1						Modbus RTU (RS485)
			1					4 ... 20 mA output
				M0101 0001				SUS 304 stainless steel
				M0101 0002				SUS 316L stainless steel
				M0101 0003				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, G$1^{1/4}$",DN32
					G-40			Female thread, G$1^{1/2}$",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

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.

It is widely applicable in industries such as food, pharmaceuticals, petrochemicals, metallurgy, and papermaking, making it an ideal instrument for flow measurement.

The flowmeter is suitable for liquids that do not corrode stainless steel 304 SS, 2Cr13 SS, alumina (Al2O3), hard alloys, and that contain no fibers or particulate impurities

Product Advantages

0.5级

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	< 5×10^{-6} m^2/s (for liquids ≥ 5×10^{-6} m^2/s, the flow meter must be calibrated with actual liquid before use)

Output

Analog	Output type: 4 ... 20 mA Output accuracy: 0.02% Output load: 0 ... 750 Ω
Pulse	Pulse width: auto or 10 ms Pulse frequency: 1 ... 2000 Hz Pulse coefficient: 1 ... 20000 P/L
Digital	Modbus RTU (RS485)
Connector	M20 × 1.5

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 (Standard temperature version) -20 ... +120 ˚C (Medium temperature version)
Operating Pressure	Please refer to "Measuring Range"

Power

Measuring Stage	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, 24VDC, with display, Flange type HG/T20592 (PN16,DN10-DN250)
F233B-PN63								Turbine liquid flow meter, 24VDC, with display, Thread connection, G thread (PN63, DN4-DN100)
F233C-PN16								Turbine liquid flow meter, 24VDC, without display, Card hoop connection 50.5, ISO 2852-1993 (PN16, DN10-DN100)
	DN4 - DN250							Norminal Diameter
		V0208 0001						2 wire 4 ... 20 mA output (can be selected with a display version)
		V0208 0002						Modbus RTU (RS485) output (can be selected with a display version)
		V0208 0003						Hart output (can be selected with a display version)
			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	
Power	10 ... 36 VDC / 90 ... 245 VAC

Display	
Screen	240 × 128 LCD

Operating Environment	
Operating Temperature	Transmitter: -20 ... +60 ˚C Sensor: -40 ... +80 ˚C (Standard temperature) Sensor: -40 ... +130 ˚C (High temperature) Sensor: -40 ... +180 ˚C (Special high temperature)
Ambient Humidity	0 … 99% RH, non–condensing

Other	
Protection Code	Transmitter: IP65 Sensor: IP68
Material	Transmitter: ABS + PC
Cable	Standard / Max: 9 / 300 m

Order Information

Model	Digital Output	Analog Output	Sensor	Data Logging	Description
F203B					Ultrasonic flow meter, wall-mounted transmitter, with 5m cable, with metal tensioner and coupling agent (suitable for pipe diameter DN25 ... DN1200)
F203B-T					Ultrasonic flow meter, wall-mounted transmitter, with 5m cable, with metal tensioner and coupling agent, with temperature sensor and cold/heat energy measuring function (suitable for pipe diameter DN25 ... DN1200)
	1				Modbus RTU (RS485)
		1			4 ... 20 mA + OCT pulse output
			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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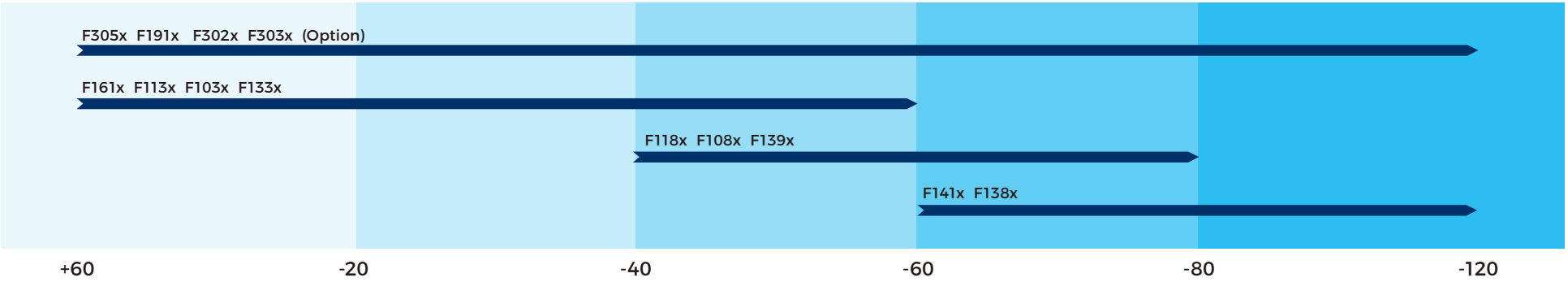
Order Information

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 measurement 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, Female

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) 3/4" - 16 UNF thread (Customized) 5/8" - 18 UNF thread (Customized)
Protection Code	IP66
Housing Material	Aluminum alloy
Sensor Filter	Stainless steel sinter filter (Filtration class 40~50 um)
EMC	Compliant with IEC 61326-1

Power

Measuring State	16 … 30 VDC	Max 4.5W @ 24VDC

UI Design

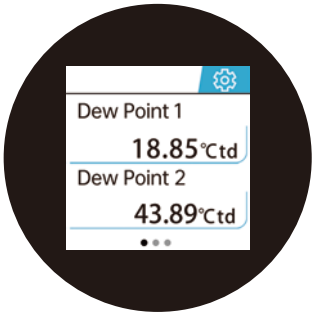
User friendly and powerful UI

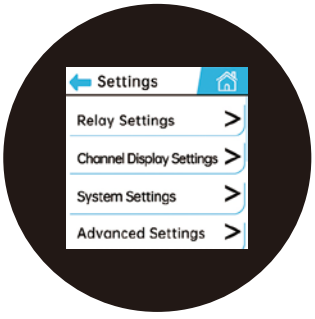
◎ Capactivie touch operation

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, 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, 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, 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, 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, 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, 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, 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, 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, 5/8" – 16 UNF thread

* Portable protective case is available as an option. Please refer to the accessories list (P108) for details
* Wi-SUN wireless is available as an option. Please refer to the accessories list (P108) for details
* For other accessories please refer to the accessories list (P110) 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 measurement 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 measurement 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)

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)

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

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

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

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
	Measuring chamber: 6 mm hose with fast connector

Order Information

Model	Charger	Mobile USB Flash	Fast 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
	E1701 0044								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 fast connector to Φ6 mm fast 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 Outlet: Flow control valve with silencer (Adjustable with screwdriver)
						F0102A 0002			Stainless steel measuring chamber with storage and drying function, G1/2" sensor connection Outlet: Stainless steel fast connector for 6 mm tube
						F0102A 0003			Stainless steel measuring chamber with storage and drying function, G1/2" sensor connection 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.

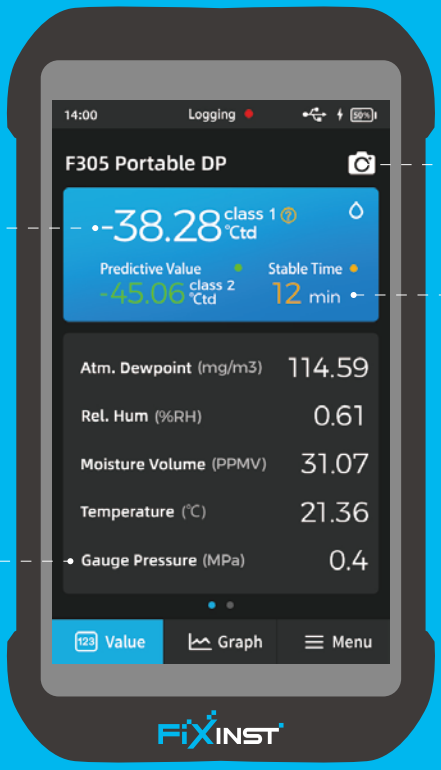
Dewpoint Value

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

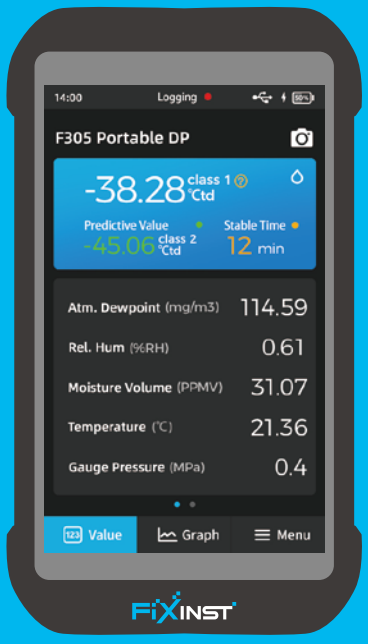
04.

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

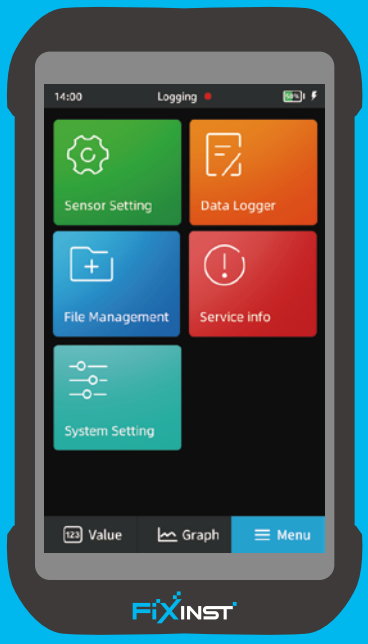
UI design

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

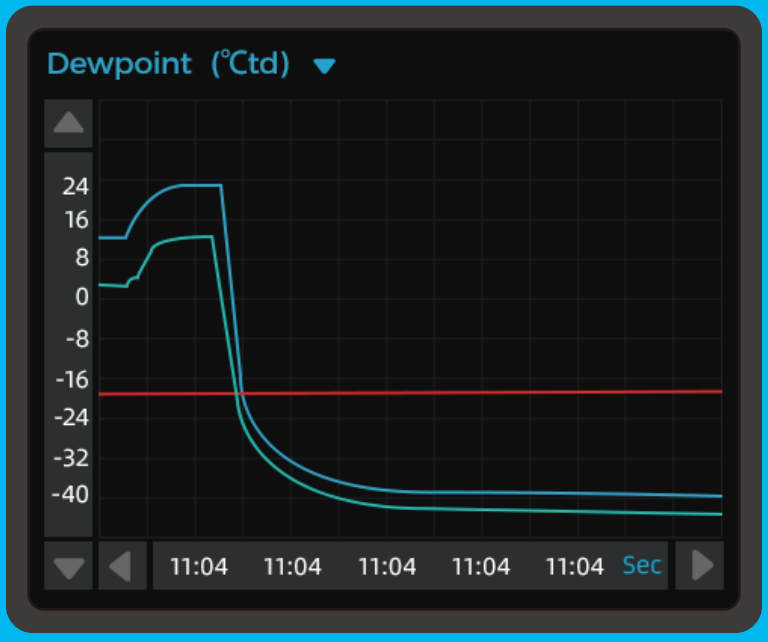


◎ Value

◎ 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

Measuring State	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, Female

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) 3/4" - 16 UNF thread (Customized) 5/8" - 18 UNF thread (Customized)
Protection Code	IP65
Housing Material	SUS304 + AL6061
Sensor Filter	Stainless steel sinter filter (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)
				M2701 0008			M8 female straight connectors, IP67, With 2m cable (Default)
					V0101 0001		Default output unit
					V0101 0002		Output unit (Customized)
						V0103 0001	Defualt 0 bar(g)
						V0103 0002	Customized

* Wi-SUN wireless is available as an option. Please refer to the accessories list (P108) for details

* For other accessories please refer to the accessories list (P110) 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

Measurement 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) ±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

Measuring State	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, Female

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) 3/4" - 16 UNF thread (Customized) 5/8" - 18 UNF thread (Customized)
Protection Code	IP65
Housing Material	SUS304
Sensor Filter	Stainless steel sinter filter (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)
				M2701 0008			M8 female straight connectors, IP67, With 2m cable (Default)
					V0101 0001		Default output unit
					V0101 0002		Output unit (Customized)
						V0103 0001	Defualt 0 bar(g)
						V0103 0002	Customized

* Wi-SUN wireless is available as an option. Please refer to the accessories list (P108) for details
* For other accessories please refer to the accessories list (P110) 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

Measurement 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

Measuring State	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, Female

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)
	0 ... 35 MPa(a) (Option)

Other

Process Connection	ISO G1/2" thread (Standard) 3/4" - 16 UNF thread (Customized) 5/8" - 18 UNF thread (Customized)
Protection Code	IP65
Casing Material	SUS304
Sensor Filter	Stainless steel sinter filter (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 (P108) for details
* For other accessories please refer to the accessories list (P110) 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

Measurement 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, Female

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 ... 1.7MPa(a)

Other

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

Power

Measuring State	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 (Filtration class 70 um, Default)
				M2701 0004			M12 female straight connectors, IP67, With 2m cable (Default)
					V0101 0001		Default output unit
					V0101 0002		Output unit (Customized)
						V0103 0001	Defualt 0 bar(g)
						V0103 0002	Customized

* Wi-SUN wireless is available as an option. Please refer to the accessories list (P108) for details
* For other accessories please refer to the accessories list (P110) 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 stable 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:
  Refrigerant dryers, desiccant dryers, 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

Measuring State	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, Female

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) 3/4" - 16 UNF thread (Customized) 5/8" - 18 UNF thread (Customized)
Protection Code	IP65
Housing Material	SUS304
Sensor Filter	Stainless steel mesh filter (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 (Filtration class 70 µm, Default)
				M2701 0008			M8 female straight connectors, IP67, With 2m cable (Default)
					V0101 0001		Default output unit
					V0101 0002		Output unit (Customized)
						V0103 0001	Defualt 0 bar(g)
						V0103 0002	Customized

* Wi-SUN wireless is available as an option. Please refer to the accessories list (P108) for details
* For other accessories please refer to the accessories list (P110) 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 stable in comparison with other types of sensors. Meanwhile, it has excellent anti-pollution ability

Revolutionary auto-calibration circuit design automatically compen sates 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

Measurement 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

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

Output

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

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) 0 … 35 MPa(a) (Option)

Other

Process Connection	ISO G1/2" thread (Standard) 3/4" - 16 UNF thread (Customized) 5/8" - 18 UNF thread (Customized)
Protection Code	IP65
Housing Material	SUS304
Sensor Filter	Stainless steel mesh filter (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 (Filtration class 70 um, Default)
				M2701 0004				M12 female straight connectors, IP67, With 2m cable (Default)
					V0101 0001			Default output unit
					V0101 0002			Output unit (Customized)
						V0103 0001		Defualt 0 bar(g)
						V0103 0002		Customized
							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 (P108) for details
* For other accessories please refer to the accessories list (P110) 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 stable 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:
  Refrigerant Dryer, desiccant Dryer, 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

Measurement 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

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

Output

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

Operating Environment

Operating Temperature	-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) 3/4" - 16 UNF thread (Customized) 5/8" - 18 UNF thread (Customized)
Protection Code	IP65
Housing Material	SUS304
Sensor Filter	Stainless steel mesh filter (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	Defualt 0 bar(g)
						V0103 0002	Customized

* Wi-SUN wireless is available as an option. Please refer to the accessories list (P108) for details
* For other accessories please refer to the accessories list (P110) 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

Measuring State	10 ... 30VDC	Max 1.5W @ 24VDC

Output

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

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) 3/4" - 16 UNF thread (Customized) 5/8" - 18 UNF thread (Customized)
Protection Code	IP65
Housing Material	SUS304
Sensor Filter	Stainless steel mesh filter (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, Standard stainless steel housing, G1/2" thread
F141B-U1							-110 ... 0 ˚Ctd, Dual QCM sensor, Standard stainless steel housing, 3/4" -16 UNF thread
F141B-U2							-110 ... 0 ˚Ctd, Dual QCM sensor, Standard stainless steel housing, 5/8" -18 UNF thread
F141C							-120 ... 0 ˚Ctd, Dual QCM sensor, Standard stainless steel housing, G1/2" thread
F141C-U1							-120 ... 0 ˚Ctd, Dual QCM sensor, Standard stainless steel housing, 3/4" -16 UNF thread
F141C-U2							-120 ... 0 ˚Ctd, Dual QCM sensor, Standard stainless steel housing, 5/8" -18 UNF thread
	1						Modbus RTU (RS485)
		1					4 ... 20 mA
			S0301 0005				Stainless steel mesh filter (Filtration class 70 um, Default)
				M2701 0004			M12 female straight connectors, IP67, With 2m cable (Default)
					V0101 0001		Default output unit
					V0101 0002		Output unit (Customized)
						V0103 0001	Defualt 0 bar(g)
						V0103 0002	Customized

* Wi-SUN wireless is available as an option. Please refer to the accessories list (P108) for details
* For other accessories please refer to the accessories list (P110) 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

Measurement Range

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

Accuracy

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

Response Time

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

Power

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

Output

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

Operating Environment

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

Other

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

Order Information

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

* Wi-SUN wireless is available as an option. Please refer to the accessories list (P108) for details
* For other accessories please refer to the accessories list (P110) or consult sales

F302x Series

-110 ... +60 ˚Ctd Optional

Dewpoint & Pressure Multi-parameter Wall-mounted Monitor

Product Overview

The F302x 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 measurement 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 coupling

Technical Data

Measurement Range

Dewpoint	
F302Ax	-60 … +60 ˚Ctd
F302Bx	-80 … +20 ˚Ctd
F302Cx	-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

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	Description
F302A	Dewpoint monitor -60 … +60 ˚Ctd, 4.3" Touch LCD screen, Wall-mounted
F302A-P	Dewpoint monitor -60 … +60 ˚Ctd, 4.3" Touch LCD screen, Wall-mounted, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint
F302A-A	Dewpoint monitor -60 … +60 ˚Ctd, 4.3" Touch LCD screen, Wall-mounted, With dual-color alarm light and buzzer alarm
F302A-P-A	Dewpoint monitor -60 … +60 ˚Ctd, 4.3" Touch LCD screen, Wall-mounted, With dual-color alarm light and buzzer alarm, Simultaneous output of pressure dewpoint and atm. dewpoint
F302B	Dewpoint monitor -80 … +20 ˚Ctd, 4.3" Touch LCD screen, Wall-mounted
F302B-P	Dewpoint monitor -80 … +20 ˚Ctd, 4.3" Touch LCD screen, Wall-mounted, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint
F302B-A	Dewpoint monitor -80 … +20 ˚Ctd, 4.3" Touch LCD screen, Wall-mounted, With dual-color alarm light and buzzer alarm
F302B-P-A	Dewpoint monitor -80 … +20 ˚Ctd, 4.3" Touch LCD screen, Wall-mounted, With dual-color alarm light and buzzer alarm, Simultaneous output of pressure dewpoint and atm. dewpoint
F302C	Dewpoint monitor -110 … +20 ˚Ctd, 4.3" Touch LCD screen, Wall-mounted
F302C-P	Dewpoint monitor -110 … +20 ˚Ctd, 4.3" Touch LCD screen, Wall-mounted, Integrated pressure sensor, Simultaneous output of pressure dewpoint and atm. dewpoint
F302C-A	Dewpoint monitor -110 … +20 ˚Ctd, 4.3" Touch LCD screen, Wall-mounted, With dual-color alarm light and buzzer alarm
F302C-P-A	Dewpoint monitor -110 … +20 ˚Ctd, 4.3" Touch LCD screen, Wall-mounted, With dual-color alarm light and buzzer alarm, Simultaneous output of pressure dewpoint and atm. dewpoint
M3501 0003	Protection case for F302 series, PP material

* Optional Modbus RTU (RS485) hub, DIN rail type

F303x Series

-110 ... +60 ˚Ctd Optional

Dewpoint & Pressure Multi-parameter Portable Monitor

Product Overview

The F303x 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 F303x 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 measurement 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 96 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 coupling

Technical Data

Measuring Range

Dewpoint	
F303Ax	-60 … +60 ˚Ctd
F303Bx	-80 … +20 ˚Ctd
F303Cx	-110 … 0 ˚Ctd
Temperature	-40 … +100 ˚C
Pressure	0 … 1.7 MPa(a) (Option)

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

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

Display / Data Log

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

Power

Power	220 VAC 10 W
Battery Capacity	96 Wh
Charging Batteries	100 ~ 240 VAC, 50 ~ 60 Hz

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)

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	Description
F303A	Dewpoint monitor -60 … +60 ˚Ctd, 7.0" Touch LCD screen, Portable case type
F303A-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
F303B	Dewpoint monitor -80 … +20 ˚Ctd, 7.0" Touch LCD screen, Portable case type
F303B-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
F303C	Dewpoint monitor -110 … 0 ˚Ctd, 7.0" Touch LCD screen, Portable case type
F303C-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

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 sensitivy 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 measurement 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)

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

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

Measuring State	16 … 30VDC	Max 4.5W @ 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)
Relay Output	Normal open 32 VDC/500 mA
Connector	Wiring terminal

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 presssure sensor)	0 … 5 MPa(a)
	0 … 35 MPa(a) (Option)

Other

Process Connection	ISO G1/2" thread (Standard) 3/4" - 16 UNF thread (Customized) 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 (Filtration class 30~45 μm)
EMC	Compliant with IEC 61326-1

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

F171x-Ex Series

-110 ... +60 ˚Ctd Optional

FixInst Intrinsically Safe Explosioin-proof Dewpoint & Pressure Multi-parameter Transmitter

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

Technical Data

Measuring Range

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

Output

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

Accuracy

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

Operating Environment

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

Response Time

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

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

Other

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

Power

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

Order Information

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

* To have customized thread type, please consult sales

Safety Barrier Selection:

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

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

Measuring State	10 ... 30VDC Max 1.5W @ 24VDC

Output

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

Operating Environment

Operating Temperature	-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

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

Ultra-wide Viewing Angle LCD

7" IPS ultra-wide viewing angle screen, high-resolution data display, easy and smooth operation

Data Upload to the Cloud

Ethernet interface, supports LAN (Local Area Network) and 4G wireless connection, data upload to the cloud

Up to 255 Sensor Inputs

Supports wireless sensor connection, avoiding high cost field wiring

- Centralized collection of field sensors and data curve trends, effective analysis of process data
- (Option) with data logger, 2,000,000,000 values
- With 7"IPS ultra-wide viewing angle LCD, high resolution data display, easy and smooth operation
- Fully isolated electrical structure can completely filter out field disturbance
- Two isolated Modbus RTU (RS485) interface, supports up to 255 sensor inputs
- (Option) Sensor wireless gateway, supports connecting field sensors and devices via wireless connection
- Standard Ethernet interface, supports LAN connection
- (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	4 x [0 ... 20 mA / 4 ... 20 mA / 0 ... 1 VDC / 0 ... 10 VDC] channel (Option)
Wireless Signal	Sensor wireless gateway (Option)

Output

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

Data Logging

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

Operating Environment

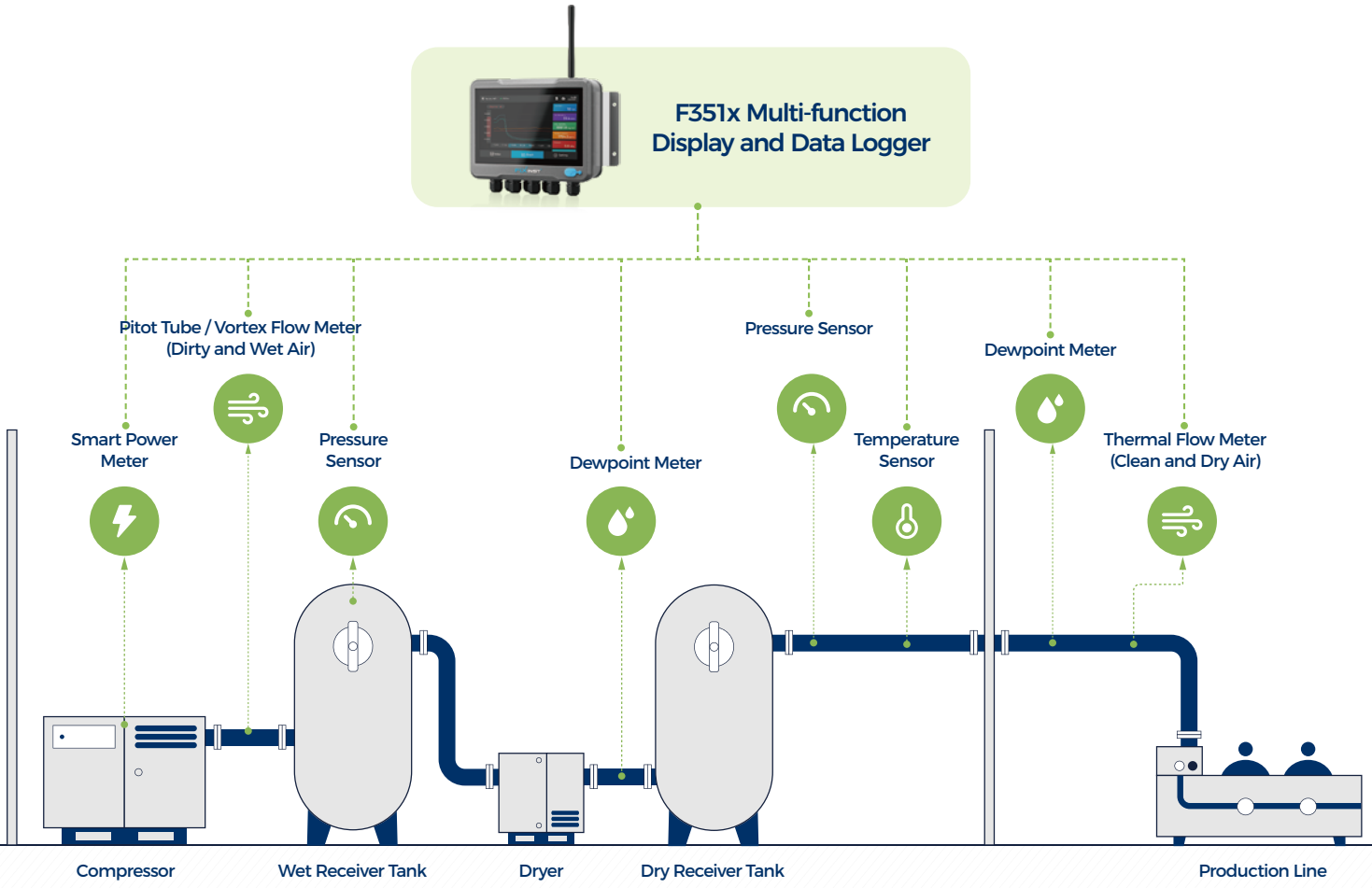
Operating Temperature	0 ... +50 ˚C
Storage Temperature	-20 ... +70 ˚C
Relative Humidity	0 ... 95 %RH

Other

Connector	Wiring terminal
Protection	IP65
Housing Material	PC + ABS
Housing Dimension	Refer to "Product Dimension"
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 (S1701 0011)
DC Power	24 ... 30 VDC, total power and power supply for sensors are dependent on customer power supply (S1701 0012)



Order Information

Model	Power Supply	Modbus RTU Node	Analog Output	Installation	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, total power and sensor power supply based on input power, 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)
				S0305 0001			Panel installation (Default)
				S0305 0002			Wall-mounted installation, casing with 4 cable glands
				S0305 0003			Wall-mounted installation, casing with 8 cable glands + Ethernet port
				S0305 0004			DIN-Rail installation, casing with 4 cable glands
				S0305 0005			DIN-Rail installation, casing with 8 cable glands + Ethernet port
					V0013 0001		None (Default)
					S1701 0010		Built-in 4G cloud platform upload gateway
						V0013 0001	None (Default)
						S1701 0016	Built-in Wi-SUN Gateway, 470 frequency band (mainly applicable in China)
						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 0001	External Wi-SUN Sub-module, 470 frequency band (mainly applicable in China)
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

F304x Series

Large Multi-parameter Display

Wall-mounted Multi-function Display Meter

Product Overview

Modbus RTU input, can be connected to flow meter or dew point meter, etc. Supports multi-parameter display and sensor setting function. Integrated sensor power supply, just plug in 85 ~ 264 VAC power supply to use, the installation is simple and fast. Optional Modbus RTU output function (only applicable to FixInst flow meter and dewpoint meter connection)

- **4.3" Touch Screen Multi-parameter Display**
- **IP65 Protection**
- **Built-in Power Supply Isolation Protection**

Technical Data

Display	
Screen	4.3" TFT LCD
Resolution	480 × 272

Touch Panel	
Type	Four-wire resistive
Touch Precision	Motion zone, Length (X) ±2%, Width (Y) ±2%

Processor & Memory	
Flash	128 MB
RAM	128 MB
Processor	32 Bits RISC Cortex - A8 300 MHz

Certification	
Certification	Conforms to CE marking standard

Power	
Power	85 ~ 264 VAC
Power Isolation	Built-in

Operating Environment	
Protection Code	NEMA4 / IP65 Compliant Front Panel
Storage Temperature	-20 ... 60 ˚C (-4 ... 140 ˚F)
Operating Environment	0 ... 50 ˚C (32 ... 122 ˚F)
Relative Humidity	10 ~ 90 %RH (Non-condensing)

Specification	
Casing Material	Engineering Plastics
Size	160 × 265 × 97.5 mm (L×W×H)
Installation	Wall-mount

Order Information

Model	Description
F304A	Wall-mounted multi-function display meter, 4.3" touch LCD screen, Modbus RTU input, Multi-parameter display and sensor configuration
F304A-M	Wall-mounted multi-function display meter, 4.3" touch LCD screen, Modbus RTU input, Multi-parameter display and sensor configuration, with Modbus RTU output

* For alarm selection please refer to the dewpoint meter accessories list (P113)

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

Diagram of Comprehensive Monitoring with Compressed Air Energy Efficiency Kit

- **IAS-FS01**
  Compressed Air Analysis Kit - Flow

- **IAS-DPx Series**
  Compressed Air Analysis - Dewpoint

- **IAS-PM01**
  Compressed Air Analysis - Power

Easy Installation	Easy Operation
Wireless deployment, distributed installation, plug and play, set-and-forget operation	View data remotely without manual inspection; Build-in large-capacity battery allows remote monitoring of battery power
Support unlimited expansion of node	Complete the measurement in 3 steps, use AI intelligent analysis to directly give reforming opinions, and generate intelligent reports with one click

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

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	312 Wh
Charging Battery	100 ~ 240 VAC 50 ~60 Hz

Output	
4 ... 20 mA Output (Standard)	Flow rate / Temperature / Pressure (Configurable)
Pulse (Standard)	Consumption / Alarm
Digital Output (Standard)	Modbus RTU (RS485)
Wireless Communication	Bluetooth Wi-SUN (Option) IOT-4G (Option)
Connector	2 × 5pin M12, Female

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)

* 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 312 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)

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

Battery Capacity	124 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

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-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 10 A accuracy not guaranteed for currrent 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	7.8 kg
Size	431 × 285 × 123 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	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. 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

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		
Charging Battery	100 ~ 240 VAC	50 ~60 Hz

Output	
4 ... 20 mA Output (Standard)	Flow rate / Temperature / Pressure (Configurable)
Pulse (Standard)	Consumption / Alarm
Digital Output (Standard)	Modbus RTU (RS485)
Wireless Communication (Choose one of three)	Bluetooth (Default) Wi-SUN (Option) IOT-4G (Option)
Connector	2 × 5pin M12, Female

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)

* 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-Lite	Lite Compressed Air Audit Suit - Flow, pole length 250mm, flow rate 5...300 Nm/s, built-in 4G-IOT module
IAS-FS02-Lite	Lite Compressed Air Audit Suit - Flow, pole length 400mm, flow rate 5...300 Nm/s, built-in 4G-IOT module

* For more order information plase consult sales

IAS-DP-Lite Series

Portable Measurement Intelligent Analysis

Lite Compressed Air Analysis - Dewpoint

Product Overview

IAS-DP-Lite is a portable dewpoint measurement kit for compressed air systems. 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

4G module for remote monitoring

High accuracy Ultra-fast response

Easy Installation Plug and play

Technical Data

Measuring Range

Dewpoint	
IAS-DP01-Lite	-60 … +60 ˚Ctd
IAS-DP02-Lite	-80 … +20 ˚Ctd
IAS-DP03-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

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	410×335×145 mm(L×W×H)
Weight	4.4 Kg

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-DP01-Lite	-60 … +60 ˚Ctd, Lite Compressed Air Audit Suit-Dewpoint, Pressure range 0 … 16 bar(g), built-in 4G-IOT module
IAS-DP02-Lite	-80 … +20 ˚Ctd, Lite Compressed Air Audit Suit-Dewpoint, Pressure range 0 … 16 bar(g), built-in 4G-IOT module
IAS-DP03-Lite	-110 … +20 ˚Ctd, Lite Compressed Air Audit Suit-Dewpoint, Pressure range 0 … 16 bar(g), built-in 4G-IOT 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. 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

- 4G module for remote monitoring
- Rogowski coil Easy installation
- Set-and-forget operation and configuration

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 10 A accuracy not guaranteed for currrent 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-Lite	Lite Compressed Air Audit Suit – Power Meter, built-in 4G-IOT module

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	
Power	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, 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, 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 Rogoski coils are compact and versatile, by using insultaed gloves live installation of equipment without power interruption is realizable
- Fully isolated electrical structure, completely filtering out field disturbances
- Optional SD card for local storage and export of measuring data, convenient for data analysis
- Multi data output options available: standard with Modbus RTU, and optioinally 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) 30 ~ 3000 A (F601x-H)
Frequency Range	45 ~ 65 Hz

Output	
Digital Output (Standard)	Modbus RTU (RS485)
Wireless Output (Option)	4G 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) 24 VDC, 3.5 W (F601B)
Installation	DIN-Rail
Optional Features	1GB SD card storage

Dimension	
Mass	212 g (F601A) 125 g (F601B) 1540 g (F601A-P) 1453 g (F601B-P)
Size	76 × 95 × 71 mm (L×W×H) (F601A) 145 × 91 × 41 mm (L×W×H) (F601B) 247.5 × 168.5 × 90 mm (L×W×H) (F601x-IOT)

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
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	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
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 (P108) for details

F601C(D) Series

Economical Multi-parameter Measurement

DIN-Rail Smart Power Meter

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 0.5
- 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 (Customized)	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

F0104 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			

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
F0104 0001	Driller, With Φ14.5 mm bit, For G1/2" ball valve	F0104 0008	Bit Φ8 mm
F0104 0002	Driller, With Φ19.5 mm bit, For G3/4" ball valve	F0104 0009	Bit Φ14.5 mm
F0104 0003	Driller, With Φ24.5 mm bit, For G1" ball valve	F0104 00010	Bit Φ19.5 mm
F0104 0004	Driller, With Φ14.5 mm & Φ19.5 mm bit	F0104 00011	Bit Φ24.5 mm
F0104 0005	Driller, With Φ14.5 mm & Φ24.5 mm bit		
F0104 0006	Driller, With Φ19.5 mm & Φ24.5 mm bit		
F0104 0007	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 6.3 MPa) for increased safety and convenience

- **Full Stainless Steel Material**
- **Operating Pressure Up to 6.3 MPa**
- **Easy Installation Simple Disassembly**
- **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 24VDC 1 A / 24 W output, 100 ~ 240 VAC input
	M2801 0017	Thread adapter, NPT1/2" male thread to G1/2" female thread, SUS304
	M2801 0025	3-way adapter, Single G1/2" female thread to dual G1/2" male thread, SUS304
	M2901 0001	Sensor cable, 5 pin, AWG22, black (per meter)
	M2701 0001 M2701 0002	M12 plastic female straight connector, assembled type, IP67 M12 metal female straight connector, assembled type, IP67, with shielding
	M2701 0003	Y-type M12 connector, for daisy-chain connection of RS485 signals of multiple sensors
	M2701 0004 M2701 0005	M12 female straight connector, IP67, with 2m cable M12 female straight connector, IP67, with 5m cable
	M2701 0008 M2701 0009 M2701 0010	M8 female straight connector, IP67, with 2m cable M8 female straight connector, IP67, with 5m cable M8 female elbow connector, IP67, with 2m cable
	M2701 0014	Connector, M12 male to M8 female, 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, PP material
	M3501 0008	Suitcase, suitable for F305x handheld dewpoint meter, PP material
	M3501 0009	Suitcase, suitable for F0104x spot drilling device, PP material
	M3202 0010	Full-pass two-piece ball valve, 1.7 MPa(a), DN15 (1/2"), G1/2" female thread, SUS304
	M3202 0013	Full-pass three-piece ball valve, 4.0 MPa(a), DN15 (1/2"), G1/2" female thread, SUS304
	F0110 0001 F0110 0002 F0110 0003	External Wi-SUN sub-module, 470 frequency band (mainly applicable in China) External Wi-SUN sub-module, 915 frequency band (mainly applicable in Asia, America and Australia) External Wi-SUN sub-module, 868 frequency band (mainly applicable in Europe and the Middle East)

General Accessories

Appearance	Model	Description
	F0104 0001	Driller with ø14.5 mm bit, for G1/2" ball valve
	F0104 0002	Driller with ø19.5 mm bit, for G3/4" ball valve
	F0104 0003	Driller with ø24.5 mm bit, for G1" ball valve
	F0104 0004	Driller with ø14.5 mm & ø19.5 mm bit
	F0104 0005	Driller with ø14.5 mm & ø24.5 mm bit
	F0104 0006	Driller with ø19.5 mm & ø24.5 mm bit
	F0104 0007	Driller with ø8 mm & ø14.5 mm & ø19.5 mm & ø24.5 mm drill
	F0104 0008	Bit ø8 mm
	F0104 0009	Bit ø14.5 mm
	F0104 0010	Bit ø19.5 mm
	F0104 0011	Bit ø24.5 mm
	F0106 0024	Tube clamp with three-way, DN40, Rc1/2 thread, Applicable pipe diameter OD 45 ~ 50
	F0106 0025	Tube clamp with three-way, DN40, Rc1/2 thread, Applicable pipe diameter OD 40 ~ 45
	F0106 0026	Tube clamp with three-way, DN50, Rc1/2 thread, Applicable pipe diameter OD 57 ~ 63
	F0106 0027	Tube clamp with three-way, DN50, Rc1/2 thread, Applicable pipe diameter OD 52 ~ 57
	F0106 0028	Tube clamp with three-way, DN65, Rc1/2 thread, Applicable pipe diameter OD 73 ~ 78
	F0106 0029	Tube clamp with three-way, DN65, Rc1/2 thread, Applicable pipe diameter OD 63 ~ 68
	F0106 0030	Tube clamp with three-way, DN80, Rc1/2 thread, Applicable pipe diameter OD 81 ~ 89
	F0106 0031	Tube clamp with three-way, DN100, Rc1/2 thread, Applicable pipe diameter OD 108 ~ 114
	F0106 0032	Tube clamp with three-way, DN100, Rc1/2 thread, Applicable pipe diameter OD 100 ~ 106
	F0106 0033	Tube clamp with three-way, DN125, Rc1/2 thread, Applicable pipe diameter OD 133 ~ 140
	F0106 0034	Tube clamp with three-way, DN150, Rc1/2 thread, Applicable pipe diameter OD 159 ~ 168
	F0106 0035	Tube clamp with three-way, D150, Rc1/2 thread, Applicable pipe diameter OD 146 ~ 154
	F0106 0036	Tube clamp with three-way, DN200, Rc1/2 thread, Applicable pipe diameter OD 211 ~ 220
	F0106 0037	Tube clamp with three-way, DN200, Rc1/2 thread, Applicable pipe diameter OD 200 ~ 208
	F0106 0038	Tube clamp with three-way, DN250, Rc1/2 thread, Applicable pipe diameter OD 265 ~ 275
	F0106 0039	Tube clamp with three-way, DN300, Rc1/2 thread, Applicable pipe diameter OD 315 ~ 326
	F0106 0019	Tube clamp with three-way, DN350, Rc1/2 thread, Applicable pipe diameter OD 367 ~ 380
	F0106 0020	Tube clamp with three-way, DN400, Rc1/2 thread, Applicable pipe diameter OD 416 ~ 430
	F0106 0021	Tube clamp with three-way, DN450, Rc1/2 thread, Applicable pipe diameter OD 447 ~ 460
	F0106 0023	Tube clamp with three-way, DN450, Rc1/2 thread, Applicable pipe diameter OD 473 ~ 486
	F0106 0022	Tube clamp with three-way, DN500, Rc1/2 thread, Applicable pipe diameter OD 520 ~ 535

Dewpoint Meter Accessories

Appearance	Model	Description
	M1801 0001	Stainless steel sinter cap, 30~45um, standard case dewpoint meter series
	M1801 0002	Stainless steel sinter cap, 50~60um, standard case dewpoint meter series
	M1801 0003	Stainless steel sinter cap, 60~70um, standard case dewpoint meter series
	M1801 0004	Stainless steel sinter cap, 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, Inlet: Stainless steel bite type fittings for 1/4" tube Outlet: Stainless steel bite type fittings for 1/4" tube
	F0102 0002	Stainless steel measuring chamber, G1/2" sensor connection, Inlet: Stainless steel bite type fittings for 1/4" tube Outlet: Flow control valves with silencer (Adjust with screwdriver)
	F0102 0003	Stainless steel measuring chamber, G1/2" sensor connection, Inlet: Stainless steel fast connector for 6 mm tube Outlet: Stainless steel fast connector for 6 mm tube
	F0102 0004	Stainless steel measuring chamber, G1/2" sensor connection, Inlet: Stainless steel bite type fittings for 1/4" tube Outlet: Flow control valves with silencer (Adjust with screwdriver)
	F0102 0005	Stainless steel measuring chamber, G1/2" sensor connection, Inlet: Stainless steel fast connector for 6 mm tube Outlet: Flow control valves with 6 mm fast connector
	F0102 0006	Stainless steel measuring chamber, G1/2" sensor connection, Inlet: Stainless steel rapid fitting for 6mm tube Outlet: Stainless steel rapid fitting for 6mm tube

Dewpoint Meter Accessories

Appearance	Model	Description
	F0102 0007	Stainless steel measuring chamber, G1/2" sensor connection, Inlet: Self-locking quick connector (Compatible with NIT to 20SM SS SG) Outlet: Flow control valves with silencer (Adjust with screwdriver)
	F0102 0008	Stainless steel measuring chamber, G1/2" sensor connection Inlet: stainless steel bite type fittings for 1/4" tube Outlet: manual flow control valve with silencer
	F0102 0009	Stainless steel measuring chamber, G1/2" sensor connection Inlet: stainless steel quick connector for 6 mm tube Outlet: manul flow control valve with silencer
	F0102 0010	Stainless steel measuring chamber, G1/2" sensor connection Inlet: self-locking quick connector (compatible to (compatible with Nitto 20SM SS SG) Outlet: manual flow control valve with silencer
	F0102 0011	Stainless steel measuring chamber, G1/2" sensor port Inlet: stainless steel bite type fittings for 8 mm tube Outlet: stainless steel bite type fittings for 8 mm tube
	F0102 0012	Stainless steel measuring chamber, G1/2" sensor connection Inlet: stainless steel bite type fittings for 6 mm tube Outlet: manual flow control valve with silencer
	F0102 0013	Stainless steel measuring chamber, G1/2" sensor connection Inlet: stainless steel bite type fitting for 6 mm tube Outlet: stainless steel bite type fittings for 6 mm tube
	F0102 0014	Stainless steel measuring chamber, G1/2" sensor connection Inlet: stainless steel quick connector for 12 mm tube Outlet: stainless steel bite type fittings for 8 mm tube
	F0102 0015	Stainless steel measuring chamber, G1/2" sensor connection Inlet: stainless steel bite type fittings for 1/8" tube 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, Inlet: Self-locking quick connector (Compatible with Nitto 20SM SS SG) Outlet: Stainless steel quick connector for 6 mm tube
	F0102 0017	Stainless steel measuring chamber, G1/2" sensor connection, Inlet: Stainless steel bite type fittings for 1/4" tube Outlet: Stainless steel quick-twist connector for 6mm tube
	F0102 0018	Stainless steel measuring chamber, G1/2" sensor connection, Inlet: Stainless steel quick connector for 12 mm tube Outlet: Stainless steel quick connector for 12 mm tube
	F0102 0019	Stainless steel measuring chamber, G1/2" sensor connection, Inlet: Stainless steel bite type fittings for 8mm tube Outlet: Flow control valve with silencer
	F0102 0020	Stainless steel measuring chamber, G1/2" sensor connection High pressure installation: G1/2" male thread, Operating pressure: 6.3MPa Outlet: Stainless steel bite type fittings for 6mm tube
	F0102 0021	Stainless steel measuring chamber, G1/2" sensor connection High pressure installation: G1/2" male thread, Operating pressure: 6.3 MPa(a) Outlet: adjustable high pressure needle valve, 1/4" thread
	F0102 0022	Stainless steel measuring chamber, G1/2" sensor connection, Inlet: Stainless steel quick connector for 8 mm tube Outlet: Stainless steel quick connector for 8 mm tube
	F0102 0023	Stainless steel measuring chamber, G1/2" sensor connection Inlet: Stainless steel quick connector for 8 mm tube Outlet: Flow control valves with silencer (adjustable with screwdriver)
	F0102 0024	Stainless steel measuring chamber, CuZn free, G1/2" sensor connection Inlet: Self-locking quick connector (Compatible with Nitto 20SM SS SG) Outlet: Flow control valves

Dewpoint Meter Accessories

Appearance	Model	Description
	M2801 0025	Stainless steel measuring chamber, CuZn free, G1/2" sensor connection Inlet: stainless steel tube fittings for 6 mm tube Outlet: manual flow control valve
	F0102 0026	Stainless steel measuring chamber, CuZn free, G1/2" sensor connection Inlet: stainless steel quick connector for 6 mm tube Outlet: manual flow control valve
	F0102A 0001	Measuring chamber with storage and drying function, sensor connection G1/2" Inlet: ø6 mm stainless steel quick connector Outlet: flow control valve with sinter copper silencer
	F0102A 0002	Measuring chamber with storage and drying function, sensor connection G1/2" Inlet: ø6 mm stainless steel quick connector Outlet: ø6 mm stainless steel quick connector
	F0102A 0003	Measuring chamber with storage and drying function, sensor connection G1/2" Inlet: ø6 mm stainless steel quick connector Outlet: flow control valve with silencer
	E1601 0001 E1601 0001A	Panel mount digital display (Horizontal), with 24VDC 100mA power output Panel mount digital display (Horizontal), with 24VDC 100mA power output, with 4 ~ 20 mA outputs
	E1601 0002 E1601 0002A	Wall-mounted digital display, with 24VDC 100mA power output, two alarm relay outputs 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
	M2402 0001 M2402 0002	Acoustic and visual alarm, installed on F304A/F302x, three-color (red, yellow, green), with buzzer, black, 24V power supply Acoustic and visual alarm, three-color (red, yellow, green), with buzzer, black, 24V power supply, with mounting base

Dewpoint Meter Accessories

Appearance	Model	Description
	F304A	Wall-mounted multi-function display, 4.3" touch LCD, Modbus RTU input, Multi-parameter display and sensor configuration
	F304A-M	Wall-mounted multi-function display, 4.3" touch LCD, Modbus RTU input, Multi-parameter display and sensor configuration, With Modbus RTU output
	F304B	Portable multi-function display, 7" touch LCD, 96 Wh Battery, Modbus Input

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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