



# SENSOR DE CAUDAL SERIE AF2

# El sensor de caudal inteligente para optimizar la eficiencia energética



## Sensor de caudal de la serie AF2 apto para la industria 4.0

- El gran margen de medición y el sensor de medición de presión integrado permiten un amplio espectro de funcionamiento
- Salidas de conmutación y analógicas configurables de forma variable e individual
- Amplias posibilidades de comunicación mediante IO-Link o interfaz Ethernet
- Gran pantalla OLED para la mejor legibilidad
- Elevada flexibilidad en la integración en instalaciones
- Montaje y manipulación sencillos
- Para el montaje en unidades de mantenimiento (configurable) o como combinación de sensor/filtros

## Sensor de caudal de la serie AF2 apto para la industria 4.0

# Así siempre tendrá el caudal del aire bajo control

**El nuevo sensor de caudal de la serie AF2 controla el consumo de aire en sistemas neumáticos y permite una intervención rápida al detectar fugas. Le ayuda a optimizar el consumo energético, a evitar averías en la máquina y a reducir los costes.**

## Más eficiencia energética, menores costes

Para ello, el AF2 no solo determina el caudal, sino también la presión actual en la alimentación y así permite un diagnóstico ampliado de los parámetros de funcionamiento de la instalación. Los datos se transfieren al control o bien mediante salidas analógicas o de conmutación tradicionales o mediante IO-Link. Para ello existe la posibilidad de comunicar datos directamente mediante la interfaz Ethernet. Se puede enviar información sobre el consumo energético actual o acumulado directamente a los correspondientes sistemas de rango superior sin tener que incluir al control de la máquina. Por tanto, el AF2 es un verdadero componente de la industria 4.0.

Los intervalos de caudal de las variantes AF2 están adaptados de forma óptima a nuestras unidades de mantenimiento de la familia AS y se pueden configurar correspondientemente. Naturalmente también se pueden usar la combinación de sensor/filtros de forma individual. La gran pantalla OLED configurable proporciona todos los datos operativos de forma clara e inequívoca. También son posibles distintas recomendaciones de los valores de medición como curvas de desarrollo y valores acumulativos.



- 1 | Montaje directo  
Unidad de mantenimiento  
2 | Con juego de montaje de soporte (Filtro 5 µm)

Serie	AF2
Gama de presión	0 ... 16 bar
Rangos de caudal	5 l/min...1.060 l/min* / ...1.590 l/min ** 8 l/min...1.630 l/min* / ...2.445 l/min ** 22 l/min...4.326 l/min* / ...6.490 l/min**
Comunicación	Industrial: IO-Link, 2 salidas analógicas, 2 de conmutación, 1 de frecuencia-, 1 de impulsos (configurable) Ethernet: Webserver/OPC UA/MQTT
Precisión de medición	+/- 3 % del valor de F20medición + 0,3 % del margen de medición del valor final* +/- 8 % del valor de medición + 1 % del margen de medición del valor final **
Precisión de repetición	± 1,5% del valor de medición
Rango de temperatura	-20 °C ... +60 °C
Tensión de servicio	17 a 30 V DC
Tipo de protección	IP65 e IP67 (EN 60529) con cable de conexión permitido

\* rango de medición estándar

\*\* rango de medición ampliado

**AVENTICS™**

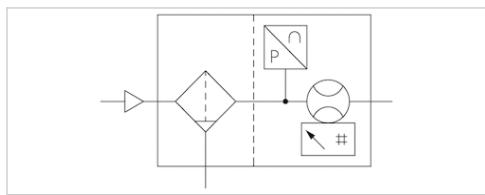
AVENTICS Spain, S.L. Sant Cugat del Vallès [www.aventics.com/es](http://www.aventics.com/es) info.es@aventics.com  
R500000659/2019-05/ES Reservado el derecho a realizar modificaciones. Impreso en Alemania.  
© AVENTICS GmbH, también para el caso de solicitudes de derechos protegidos.  
Nos reservamos todas las capacidades dispositivas, tales como derechos de copia y de cesión.

  
**EMERSON™**

**CONSIDER IT SOLVED™**

# Flow sensor, IO-Link, Series AF2

- 2 analog outputs, 2 switch outputs, 1 frequency output, 1 pulse output, IO-Link, With mounting
- Flow measuring principle: calorimetric
- Qn min. 5 l/min
- Qn max. 1590 l/min
- Electrical connection Plug, M12x1, 5-pin



## Certificates

CE declaration of conformity, RoHS

0 ... 16 bar

-20 ... 60 °C

-20 ... 60 °C

Compressed air, Argon, Nitrogen, Helium, Carbon dioxide

5 µm

OLED

l/sec, l/min, m³/min, m³/h, ft³/s, m³/min

bar, psi

°C, °F

17 V DC

30 V DC

175 mA

10 ms

IP65, IP67 according to IEC 60529

short circuit resistant

30 g, 11 ms

1 g (10 - 2000 Hz) IEC 60068 - 2-6

± 1.5% of the measured value

1,23 kg

Current consumption without load The delivered product may vary from that in the illustration.

## Technical data

Part No.	for series	Compressed air connection	Nominal flow Qn	Nominal flow Qn	Nominal flow Qn
			Min., standard	Max., standard	Min., extended
R412026834	AS2	G 3/8	5 l/min	1060 l/min	1060 l/min

Part No.	Nominal flow Qn
	Max., extended
R412026834	1590 l/min

Standard measurement range for flow measurement: compressed air 0.5 ... 100 m/s, extended measurement range: compressed air >100 ... 150 m/s, in accordance with ISO 8778, Flow display range: 0 ... 3180 l/min

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .  
The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions.  
The device is designed to be installed in AS series air preparation units or to be fitted as a stand-alone device using a W05 block assembly kit.

Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result.

Precision- Standard measurement range: ±3% of measured value, + 0.3% of final value- Extended measurement range: ±8% of measured value, + 1% of final value

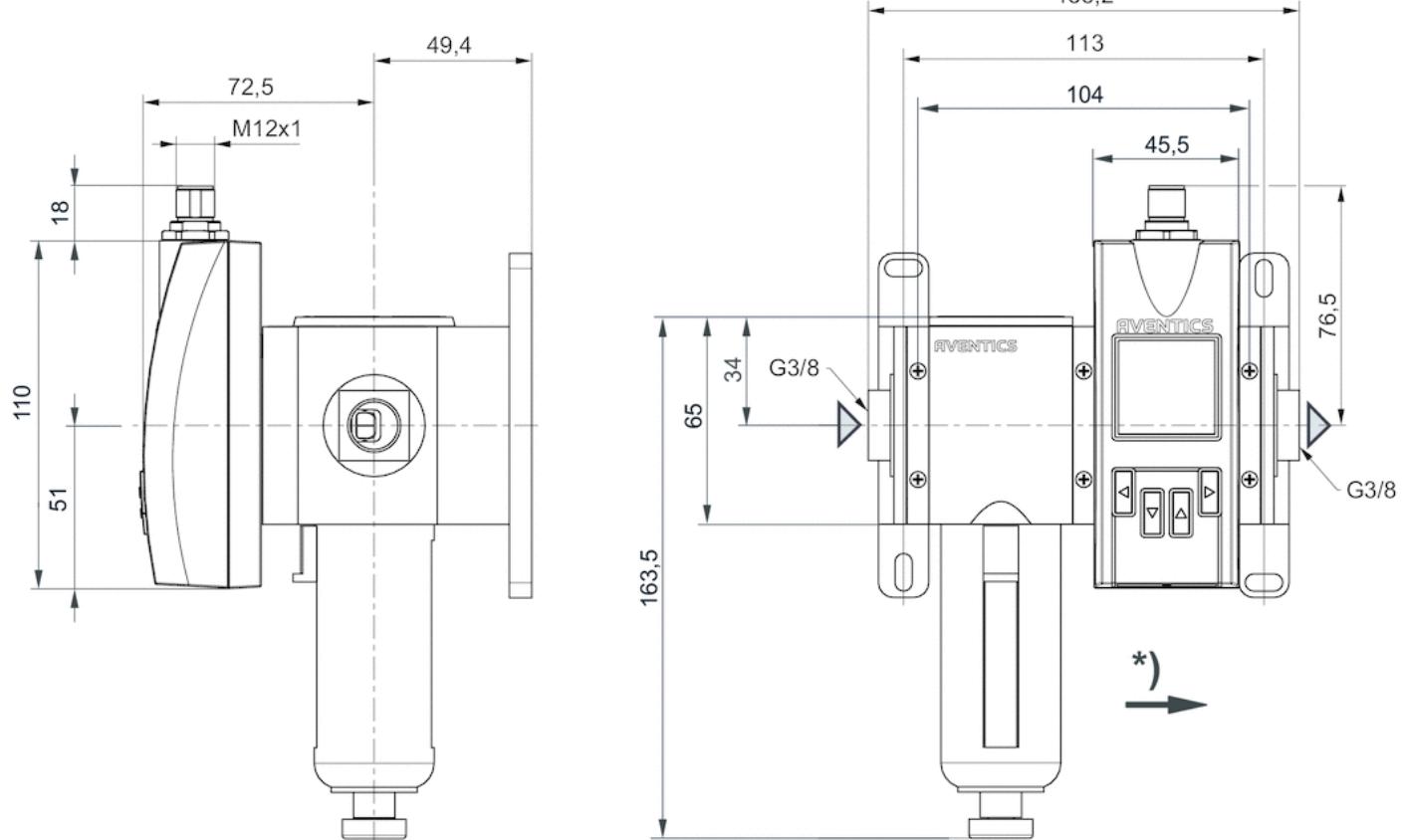
The IO-Link device description (IODD) for the AF2 flow rate sensor is available for download in the Media Center.

## Technical information

Material	
Housing	Polyamide, Polycarbonate
Seals	Fluorocaoutchouc

## Dimensions

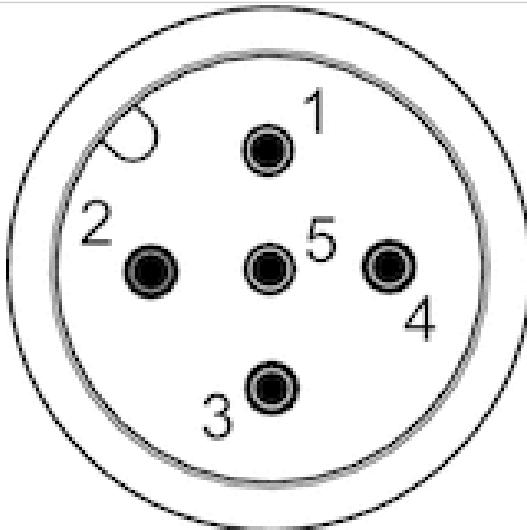
Dimensions in mm



\* Flow direction

## Pin assignments

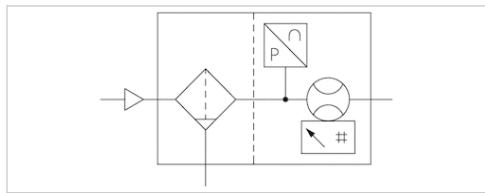
## Pin assignments, M12x1, 5-pin



Pin	1	2	3
Allocation	L+	QA (output 4 ... 20 mA)	m = mass
	4	5	
C/Q1 (IO-Link/switch output)		Analog output 4 ... 20 mA	

# Flow sensor, IO-Link, Series AF2

- 2 analog outputs, 2 switch outputs, 1 frequency output, 1 pulse output, IO-Link, With mounting
- Flow measuring principle: calorimetric
- Qn min. 8 l/min
- Qn max. 2445 l/min
- Electrical connection Plug, M12x1, 5-pin



## Certificates

CE declaration of conformity, RoHS

0 ... 16 bar

-20 ... 60 °C

-20 ... 60 °C

Compressed air, Argon, Nitrogen, Helium, Carbon dioxide

5 µm

OLED

l/sec, l/min, m³/min, m³/h, ft³/s, m³/min

bar, psi

°C, °F

17 V DC

30 V DC

175 mA

10 ms

IP65, IP67 according to IEC 60529

short circuit resistant

30 g, 11 ms

1 g (10 - 2000 Hz) IEC 60068 - 2-6

± 1.5% of the measured value

1,97 kg

Current consumption without load

Working pressure min./max.

Ambient temperature min./max.

Medium temperature min./max.

Medium

filter porosity

Display

Flow display unit

Pressure display unit

Temperature display unit

DC operating voltage min.

DC operating voltage max.

Max. power consumption \*)

Response time

Protection class

Short circuit resistance

Shock resistance max.

Vibration resistance

Reproducibility

Weight

\*)

## Technical data

Part No.	for series	Compressed air connection	Nominal flow Qn	Nominal flow Qn	Nominal flow Qn
			Min., standard	Max., standard	Min., extended
R412026835	AS3	G 1/2	8 l/min	1630 l/min	1630 l/min

Part No.	Nominal flow Qn
	Max., extended
R412026835	2445 l/min

Standard measurement range for flow measurement: compressed air 0.5 ... 100 m/s, extended measurement range: compressed air >100 ... 150 m/s, in accordance with ISO 8778, Flow display range: 0 ... 4890 l/min

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .  
The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions.  
The device is designed to be installed in AS series air preparation units or to be fitted as a stand-alone device using a W05 block assembly kit.

Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result.

Precision- Standard measurement range: ±3% of measured value, + 0.3% of final value- Extended measurement range: ±8% of measured value, + 1% of final value

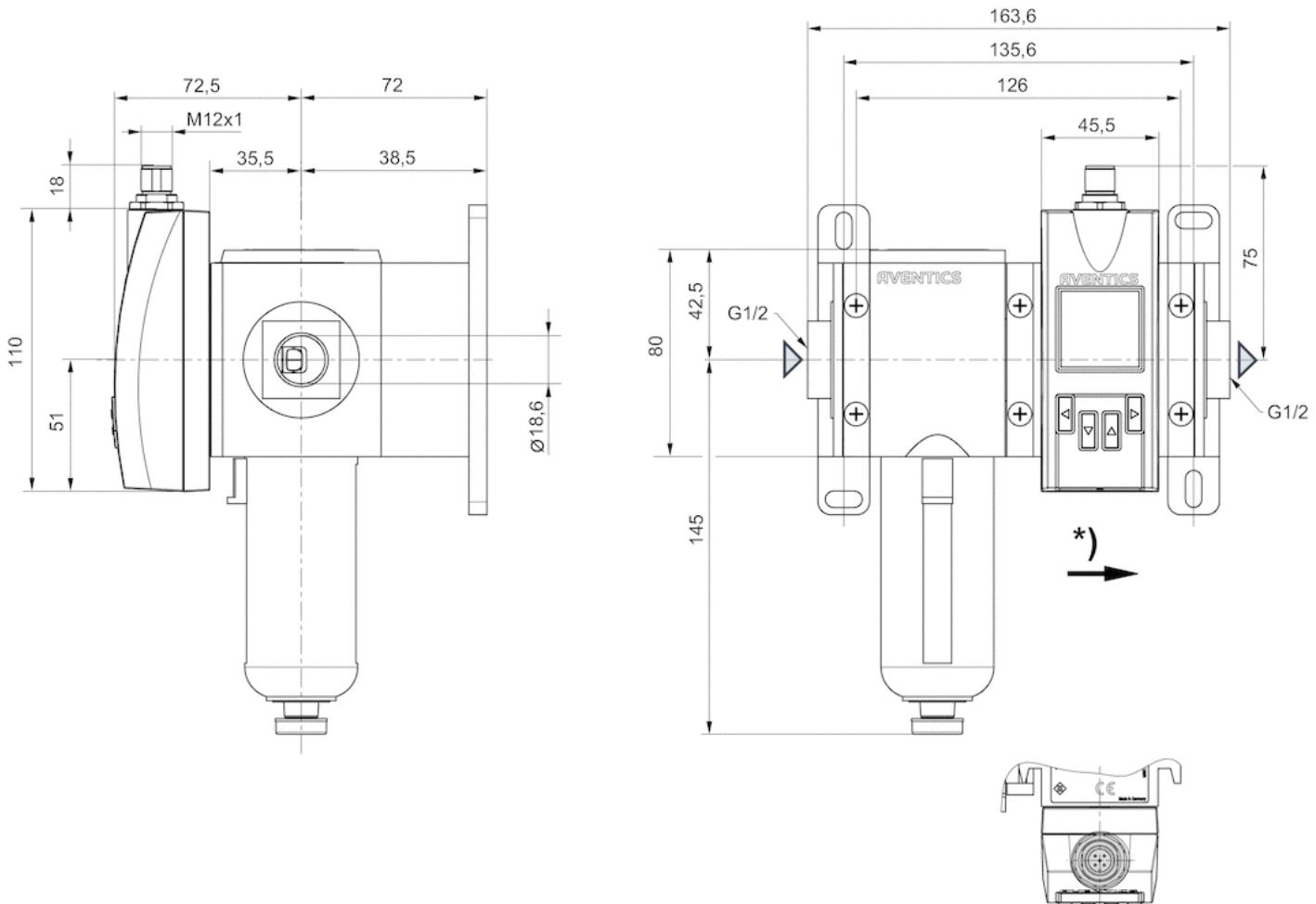
The IO-Link device description (IODD) for the AF2 flow rate sensor is available for download in the Media Center.

## Technical information

Material	
Housing	Polyamide, Polycarbonate
Seals	Fluorocaoutchouc

## Dimensions

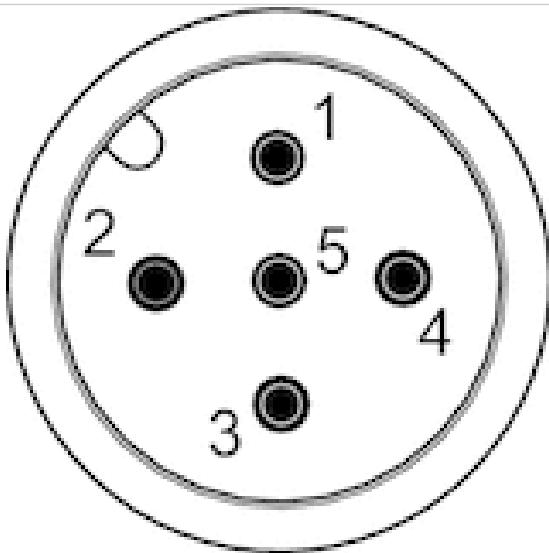
## Dimensions in mm



\* Flow direction

## Pin assignments

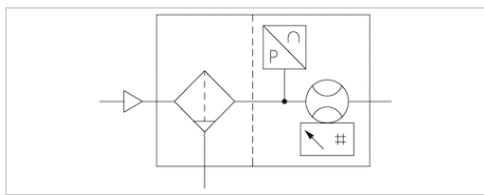
### Pin assignments, M12x1, 5-pin



Pin	1	2	3
Allocation	L+	QA (output 4 ... 20 mA)	m = mass
4		5	
C/Q1 (IO-Link/switch output)		Analog output 4 ... 20 mA	

# Flow sensor, IO-Link, Series AF2

- 2 analog outputs, 2 switch outputs, 1 frequency output, 1 pulse output, IO-Link, With mounting
- Flow measuring principle: calorimetric
- Qn min. 22 l/min
- Qn max. 6490 l/min
- Electrical connection Plug, M12x1, 5-pin



## Certificates

CE declaration of conformity, RoHS

0 ... 16 bar

-20 ... 60 °C

-20 ... 60 °C

Compressed air, Argon, Nitrogen, Helium, Carbon dioxide

5 µm

OLED

l/sec, l/min, m³/min, m³/h, ft³/s, m³/min

bar, psi

°C, °F

17 V DC

30 V DC

175 mA

10 ms

IP65, IP67 according to IEC 60529

short circuit resistant

30 g, 11 ms

1 g (10 - 2000 Hz) IEC 60068 - 2-6

± 1.5% of the measured value

2,82 kg

Current consumption without load The delivered product may vary from that in the illustration.

## Technical data

Part No.	for series	Compressed air connection	Nominal flow Qn	Nominal flow Qn	Nominal flow Qn
			Min., standard	Max., standard	Min., extended
R412026836	AS5	G 1	22 l/min	4326 l/min	4326 l/min

Part No.	Nominal flow Qn
	Max., extended
R412026836	6490 l/min

Standard measurement range for flow measurement: compressed air 0.5 ... 100 m/s, extended measurement range: compressed air >100 ... 150 m/s, in accordance with ISO 8778, Flow display range: 0 ... 12980 l/min

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .  
The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions.  
The device is designed to be installed in AS series air preparation units or to be fitted as a stand-alone device using a W05 block assembly kit.

Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result.

Precision- Standard measurement range: ±3% of measured value, + 0.3% of final value- Extended measurement range: ±8% of measured value, + 1% of final value

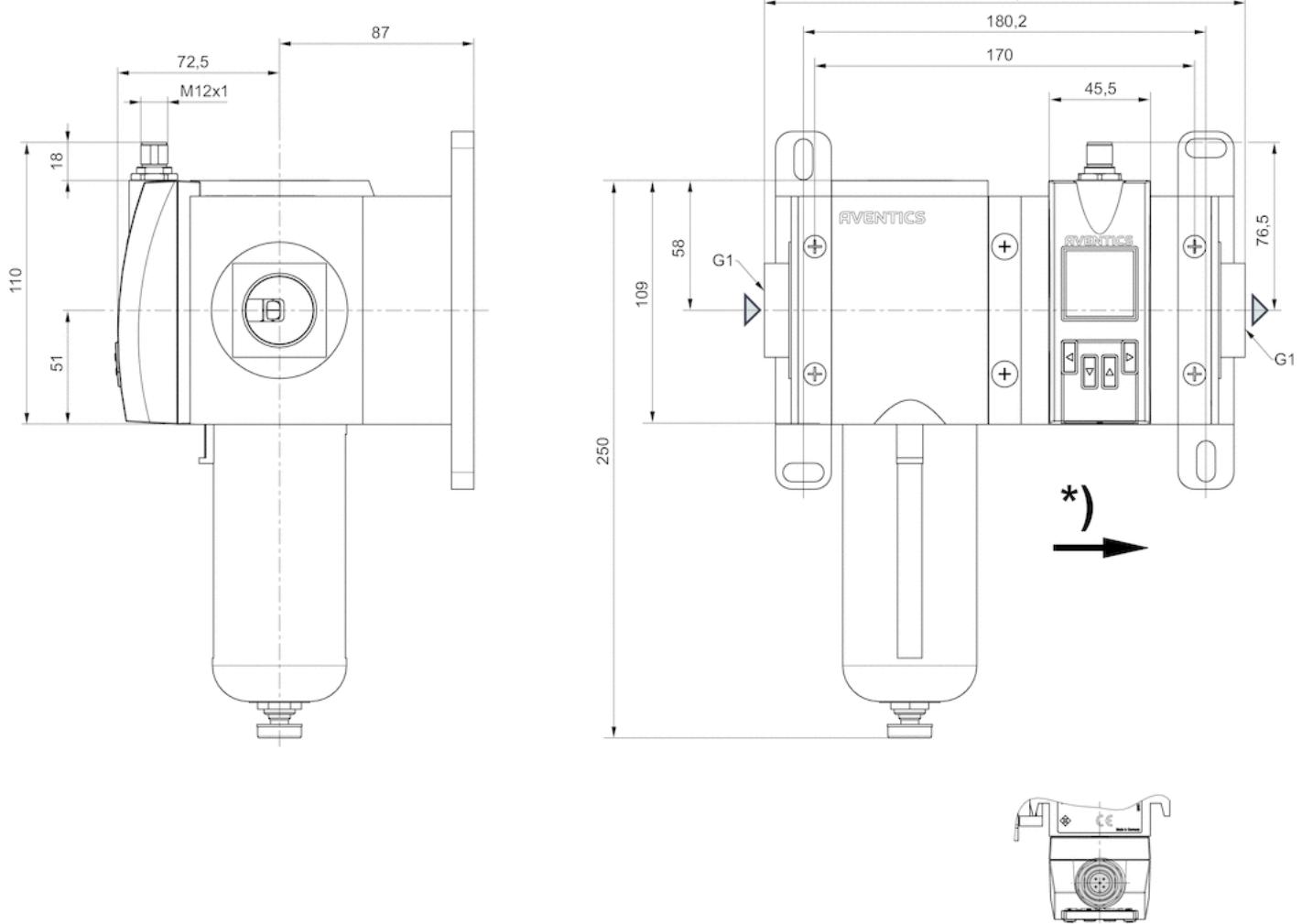
The IO-Link device description (IODD) for the AF2 flow rate sensor is available for download in the Media Center.

## Technical information

Material	
Housing	Polyamide, Polycarbonate
Seals	Fluorocaoutchouc

## Dimensions

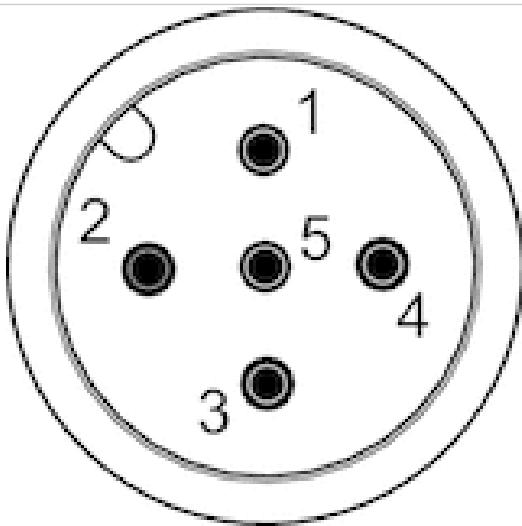
## Dimensions in mm



\* Flow direction

## Pin assignments

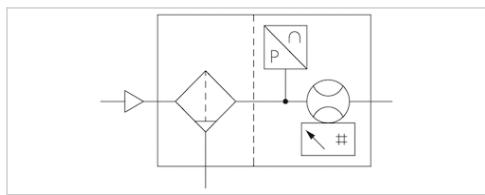
### Pin assignments, M12x1, 5-pin



Pin	1	2	3
Allocation	L+	QA (output 4 ... 20 mA)	m = mass
4		5	
C/Q1 (IO-Link/switch output)		Analog output 4 ... 20 mA	

# Flow sensor, Ethernet, Series AF2

- Ethernet, With mounting
- Flow measuring principle: calorimetric
- Qn min. 5 l/min
- Qn max. 1590 l/min
- Electrical connection Plug, M12x1, 8-pin



## Certificates

Working pressure min./max.	0 ... 16 bar
Ambient temperature min./max.	-20 ... 60 °C
Medium temperature min./max.	-20 ... 60 °C
Medium	Compressed air, Argon, Nitrogen, Helium, Carbon dioxide
filter porosity	5 µm
Display	OLED
Flow display unit	l/sec, l/min, m³/min, m³/h, ft³/s, m³/min
Pressure display unit	bar, psi
Temperature display unit	°C, °F
DC operating voltage min.	36 V DC
DC operating voltage max.	57 V DC
Power consumption max.	5 W
Response time	10 ms
Protection class	IP65, IP67 according to IEC 60529
Shock resistance max.	30 g, 11 ms
Vibration resistance	1 g (10 - 2000 Hz) IEC 60068 - 2-6
Reproducibility	± 1.5% of the measured value
Weight	1,23 kg
*)	The delivered product may vary from that in the illustration.

## Technical data

Part No.	for series	Compressed air connection	Nominal flow Qn	Nominal flow Qn	Nominal flow Qn
			Min., standard	Max., standard	Min., extended
R412026837	AS2	G 3/8	5 l/min	1060 l/min	1060 l/min

Part No.	Nominal flow Qn
	Max., extended
R412026837	1590 l/min

Standard measurement range for flow measurement: compressed air 0.5 ... 100 m/s, extended measurement range: compressed air >100 ... 150 m/s, in accordance with ISO 8778, Flow display range: 0 ... 3180 l/min

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .  
The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions.  
The device is designed to be installed in AS series air preparation units or to be fitted as a stand-alone device using a W05 block assembly kit.

Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result.

Precision- Standard measurement range: ±3% of measured value, + 0.3% of final value- Extended measurement range: ±8% of measured value, + 1% of final value

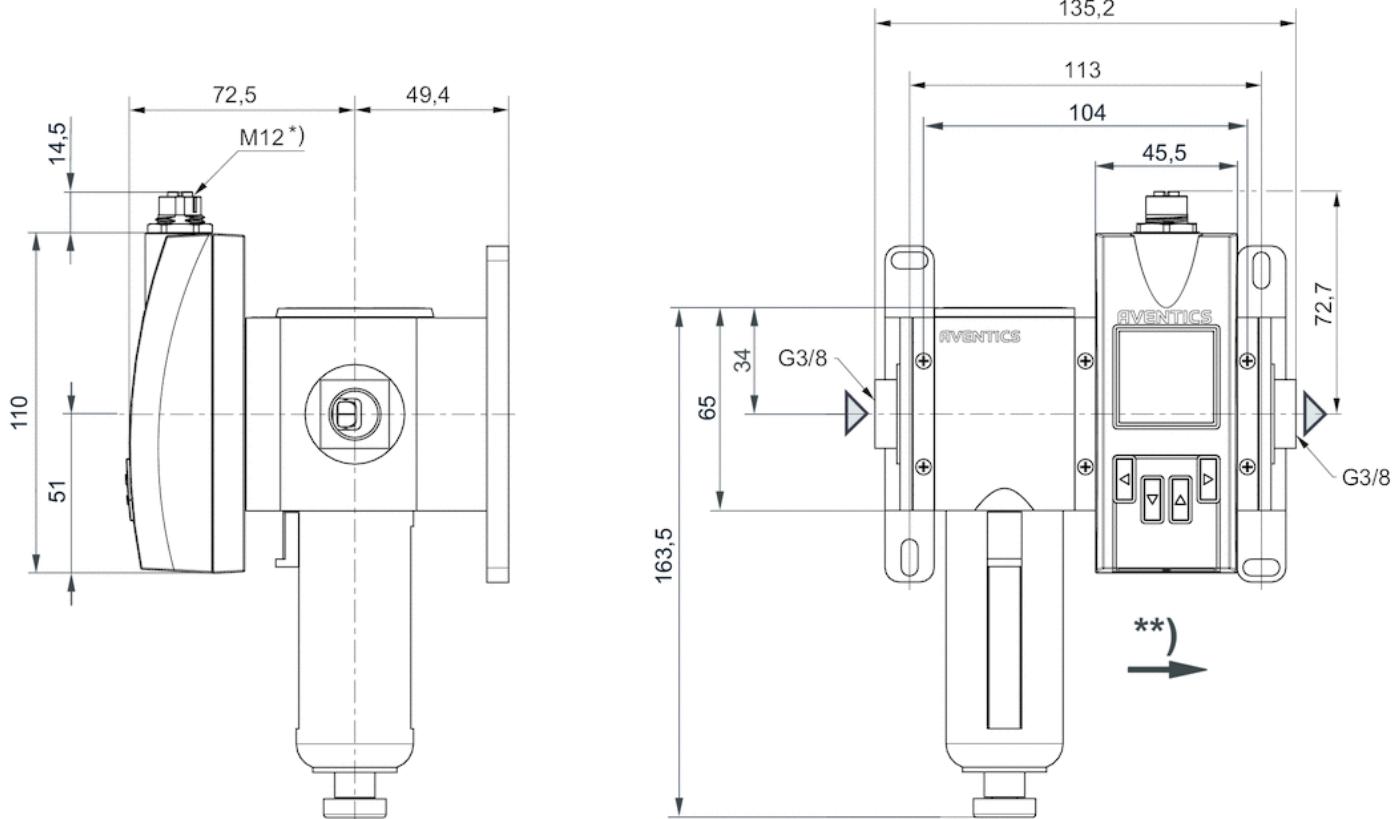
## Technical information

### Material

Housing	Polyamide, Polycarbonate
Seals	Fluorocaoutchouc

## Dimensions

Dimensions in mm

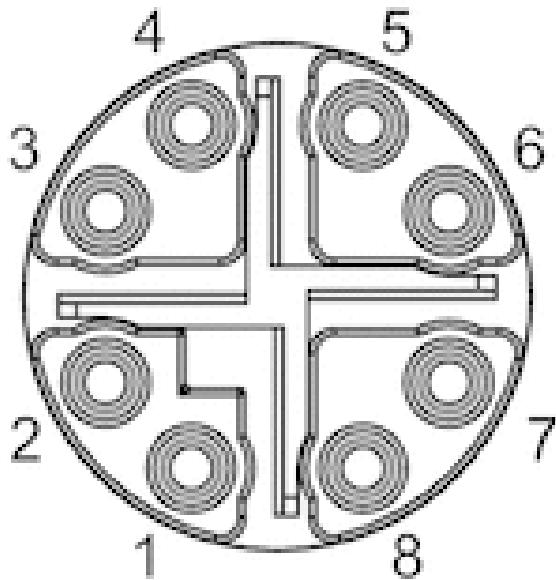


\* Internal thread

\*\* Flow direction

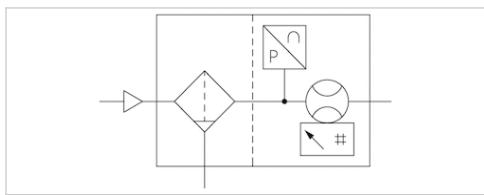
## Pin assignments

## Pin assignments, M12, X-coded



# Flow sensor, Ethernet, Series AF2

- Ethernet, With mounting
- Flow measuring principle: calorimetric
- Qn min. 8 l/min
- Qn max. 2445 l/min
- Electrical connection Plug, M12x1, 8-pin



## Certificates

Working pressure min./max.	0 ... 16 bar
Ambient temperature min./max.	-20 ... 60 °C
Medium temperature min./max.	-20 ... 60 °C
Medium	Compressed air, Argon, Nitrogen, Helium, Carbon dioxide
filter porosity	5 µm
Display	OLED
Flow display unit	l/sec, l/min, m³/min, m³/h, ft³/s, m³/min
Pressure display unit	bar, psi
Temperature display unit	°C, °F
DC operating voltage min.	36 V DC
DC operating voltage max.	57 V DC
Power consumption max.	5 W
Response time	10 ms
Protection class	IP65, IP67 according to IEC 60529
Shock resistance max.	30 g, 11 ms
Vibration resistance	1 g (10 - 2000 Hz) IEC 60068 - 2-6
Reproducibility	± 1.5% of the measured value
Weight	1,97 kg

## Technical data

Part No.	for series	Compressed air connection	Nominal flow Qn	Nominal flow Qn	Nominal flow Qn
			Min., standard	Max., standard	Min., extended
R412026838	AS3	G 1/2	8 l/min	1630 l/min	1630 l/min

Part No.	Nominal flow Qn
	Max., extended
R412026838	2445 l/min

Standard measurement range for flow measurement: compressed air 0.5 ... 100 m/s, extended measurement range: compressed air >100 ... 150 m/s, in accordance with ISO 8778, Flow display range: 0 ... 4890 l/min

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions.

The device is designed to be installed in AS series air preparation units or to be fitted as a stand-alone device using a W05 block assembly kit.

Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result.

Precision- Standard measurement range: ±3% of measured value, + 0.3% of final value- Extended measurement range: ±8% of measured value, + 1% of final value

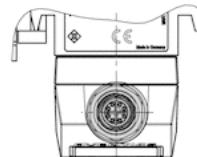
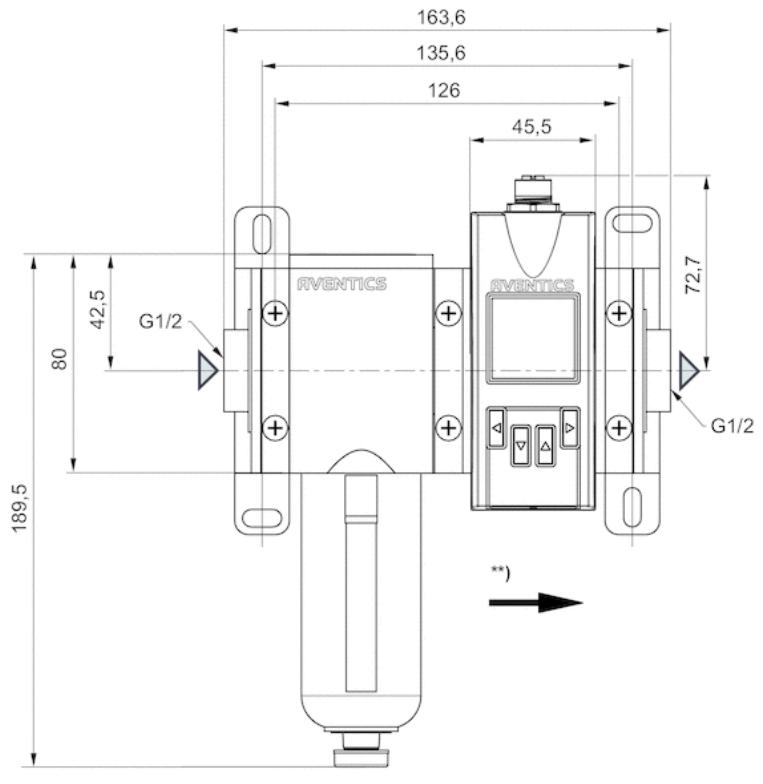
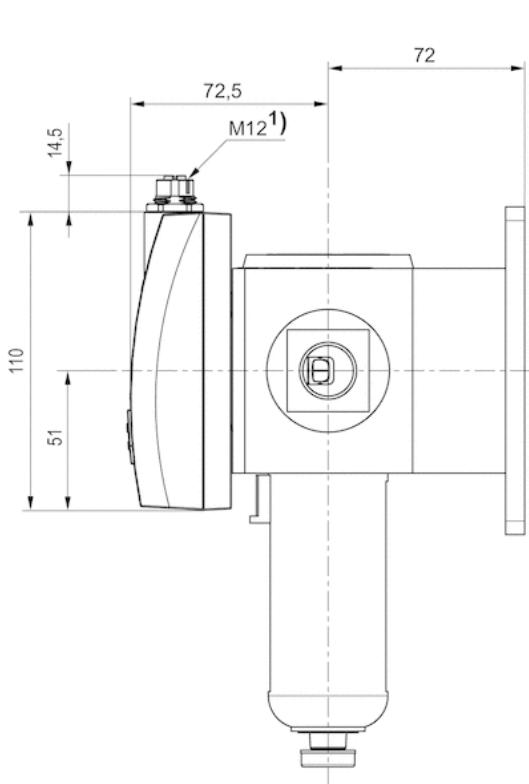
## Technical information

### Material

Housing	Polyamide, Polycarbonate
Seals	Fluorocaoutchouc

## Dimensions

### Dimensions in mm

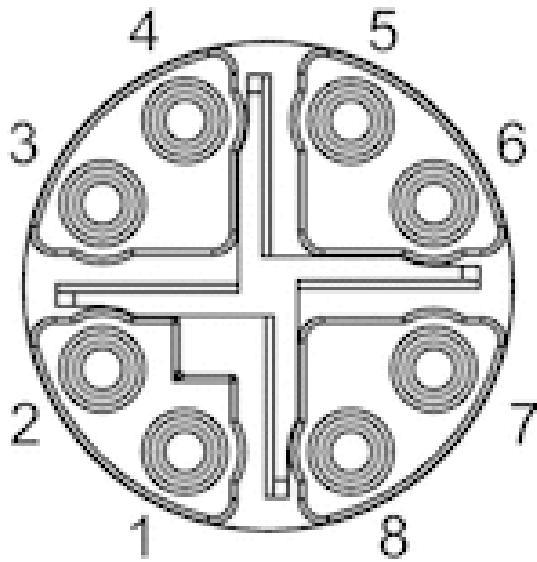


\* Internal thread

\*\* Flow direction

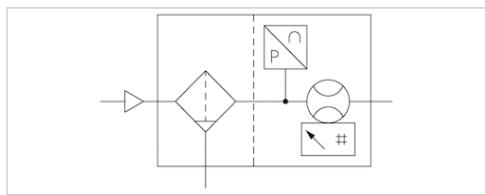
## Pin assignments

## Pin assignments, M12, X-coded



# Flow sensor, Ethernet, Series AF2

- Ethernet, With mounting
- Flow measuring principle: calorimetric
- Qn min. 22 l/min
- Qn max. 6490 l/min
- Electrical connection Plug, M12x1, 8-pin



## Certificates

Working pressure min./max.	0 ... 16 bar
Ambient temperature min./max.	-20 ... 60 °C
Medium temperature min./max.	-20 ... 60 °C
Medium	Compressed air, Argon, Nitrogen, Helium, Carbon dioxide
filter porosity	5 µm
Display	OLED
Flow display unit	l/sec, l/min, m³/min, m³/h, ft³/s, m³/min
Pressure display unit	bar, psi
Temperature display unit	°C, °F
DC operating voltage min.	36 V DC
DC operating voltage max.	57 V DC
Power consumption max.	5 W
Response time	10 ms
Protection class	IP65, IP67 according to IEC 60529
Shock resistance max.	30 g, 11 ms
Vibration resistance	1 g (10 - 2000 Hz) IEC 60068 - 2-6
Reproducibility	± 1.5% of the measured value
Weight	2,82 kg
*)	The delivered product may vary from that in the illustration.

## Technical data

Part No.	for series	Compressed air connection	Nominal flow Qn	Nominal flow Qn	Nominal flow Qn
			Min., standard	Max., standard	Min., extended
R412026839	AS5	G 1	22 l/min	4326 l/min	4326 l/min

Part No.	Nominal flow Qn
	Max., extended
R412026839	6490 l/min

Standard measurement range for flow measurement: compressed air 0.5 ... 100 m/s, extended measurement range: compressed air >100 ... 150 m/s, in accordance with ISO 8778, Flow display range: 0 ... 12980 l/min

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .  
The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions.  
The device is designed to be installed in AS series air preparation units or to be fitted as a stand-alone device using a W05 block assembly kit.

Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result.

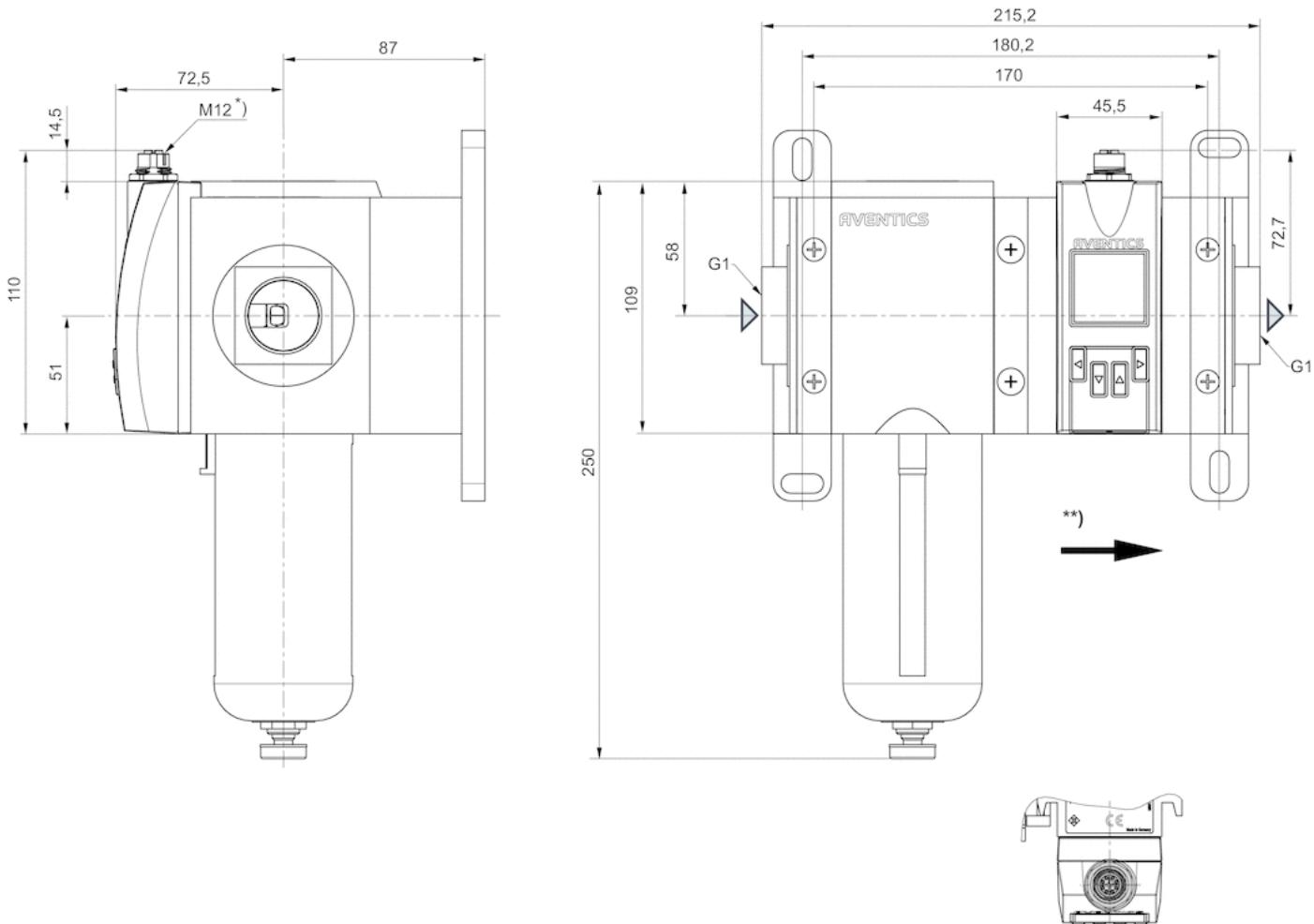
Precision- Standard measurement range: ±3% of measured value, + 0.3% of final value- Extended measurement range: ±8% of measured value, + 1% of final value

## Technical information

Material	
Housing	Polyamide, Polycarbonate
Seals	Fluorocaoutchouc

## Dimensions

### Dimensions in mm

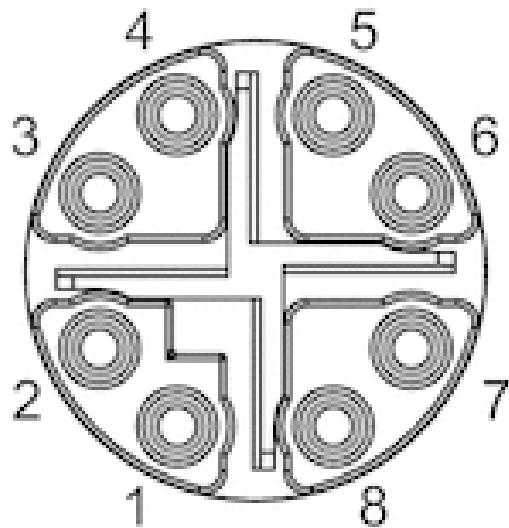


\* Internal thread

\*\* Flow direction

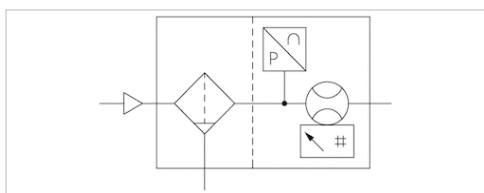
## Pin assignments

## Pin assignments, M12, X-coded



# Flow sensor, IO-Link, Series AF2

- 2 analog outputs, 2 switch outputs, 1 frequency output, 1 pulse output, IO-Link, Without mounting
- Flow measuring principle: calorimetric
- Qn min. 5 l/min
- Qn max. 1590 l/min
- Electrical connection Plug, M12x1, 5-pin



## Certificates

Working pressure min./max.

CE declaration of conformity, RoHS

0 ... 16 bar

Ambient temperature min./max.

-20 ... 60 °C

Medium temperature min./max.

-20 ... 60 °C

Medium

Compressed air, Argon, Nitrogen, Helium, Carbon dioxide

filter porosity

5 µm

Display

OLED

Flow display unit

l/sec, l/min, m³/min, m³/h, ft³/s, m³/min

Pressure display unit

bar, psi

Temperature display unit

°C, °F

DC operating voltage min.

17 V DC

DC operating voltage max.

30 V DC

Max. power consumption \*)

175 mA

Response time

10 ms

Protection class

IP65, IP67 according to IEC 60529

Short circuit resistance

short circuit resistant

Shock resistance max.

30 g, 11 ms

Vibration resistance

1 g (10 - 2000 Hz) IEC 60068 - 2-6

Reproducibility

± 1.5% of the measured value

Weight

0,85 kg

\*) Current consumption without load The delivered product may vary from that in the illustration.

## Technical data

Part No.	for series	Compressed air connection	Nominal flow Qn	Nominal flow Qn	Nominal flow Qn
			Min., standard	Max., standard	Min., extended
R412027176	AS2	G 3/8	5 l/min	1060 l/min	1060 l/min

Part No.	Nominal flow Qn
	Max., extended
R412027176	1590 l/min

Standard measurement range for flow measurement: compressed air 0.5 ... 100 m/s, extended measurement range: compressed air >100 ... 150 m/s, in accordance with ISO 8778, Flow display range: 0 ... 3180 l/min

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions.

The device is designed to be installed in AS series air preparation units or to be fitted as a stand-alone device using a W05 block assembly kit.

Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result.

Precision- Standard measurement range: ±3% of measured value, + 0.3% of final value- Extended measurement range: ±8% of measured value, + 1% of final value

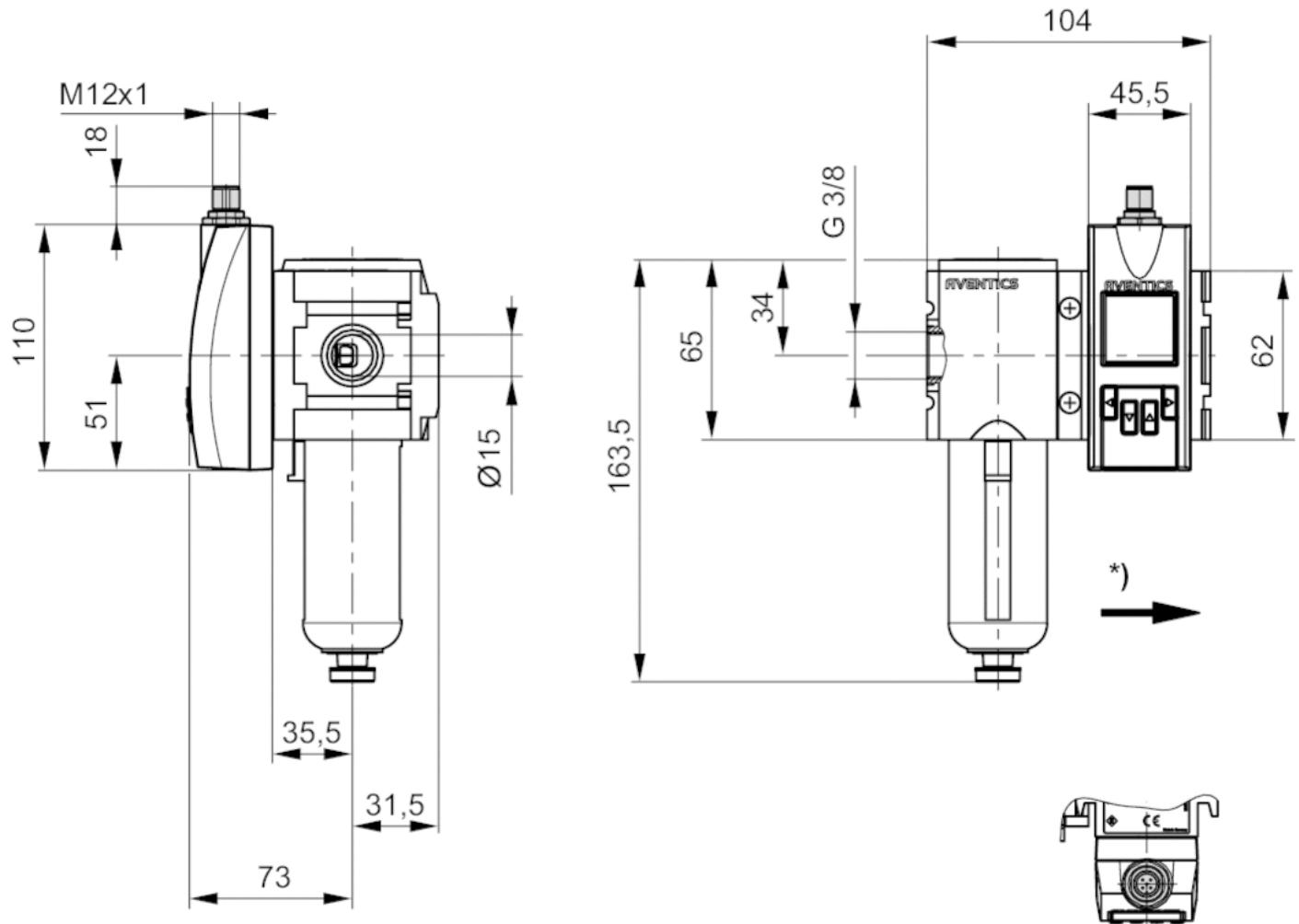
The IO-Link device description (IODD) for the AF2 flow rate sensor is available for download in the Media Center.

## Technical information

Material	
Housing	Polyamide, Polycarbonate
Seals	Fluorocaoutchouc

## Dimensions

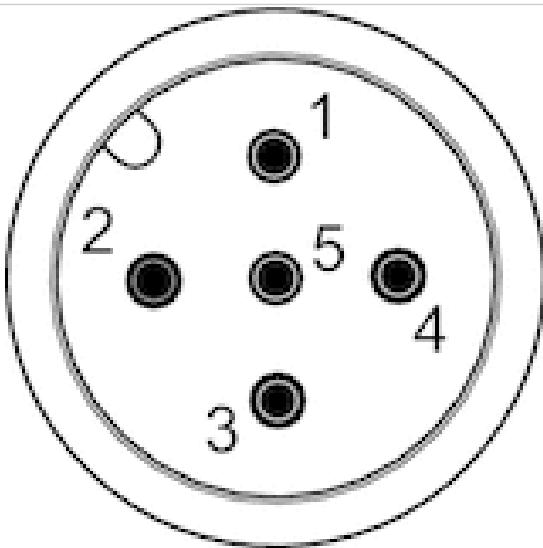
Dimensions in mm



\* Flow direction

## Pin assignments

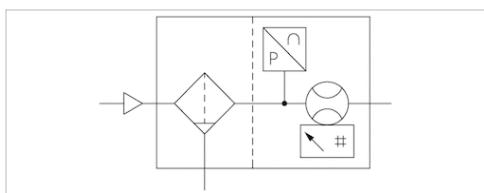
## Pin assignments, M12x1, 5-pin



Pin	1	2	3
Allocation	L+	QA (output 4 ... 20 mA)	m = mass
4		5	
C/Q1 (IO-Link/switch output)		Analog output 4 ... 20 mA	

# Flow sensor, IO-Link, Series AF2

- 2 analog outputs, 2 switch outputs, 1 frequency output, 1 pulse output, IO-Link, Without mounting
- Flow measuring principle: calorimetric
- Qn min. 8 l/min
- Qn max. 2445 l/min
- Electrical connection Plug, M12x1, 5-pin



## Certificates

Working pressure min./max.  
Ambient temperature min./max.  
Medium temperature min./max.  
Medium

filter porosity

Display

Flow display unit

Pressure display unit

Temperature display unit

DC operating voltage min.

DC operating voltage max.

Max. power consumption \*)

Response time

Protection class

Short circuit resistance

Shock resistance max.

Vibration resistance

Reproducibility

Weight

\*)

CE declaration of conformity, RoHS

0 ... 16 bar

-20 ... 60 °C

-20 ... 60 °C

Compressed air, Argon, Nitrogen, Helium, Carbon dioxide

5 µm

OLED

l/sec, l/min, m³/min, m³/h, ft³/s, m³/min

bar, psi

°C, °F

17 V DC

30 V DC

175 mA

10 ms

IP65, IP67 according to IEC 60529

short circuit resistant

30 g, 11 ms

1 g (10 - 2000 Hz) IEC 60068 - 2-6

± 1.5% of the measured value

1,25 kg

Current consumption without load

## Technical data

Part No.	for series	Compressed air connection	Nominal flow Qn	Nominal flow Qn	Nominal flow Qn
			Min., standard	Max., standard	Min., extended
R412027177	AS3	G 1/2	8 l/min	1630 l/min	1630 l/min

Part No.	Nominal flow Qn
	Max., extended
R412027177	2445 l/min

Standard measurement range for flow measurement: compressed air 0.5 ... 100 m/s, extended measurement range: compressed air >100 ... 150 m/s, in accordance with ISO 8778, Flow display range: 0 ... 4890 l/min

## Technical information

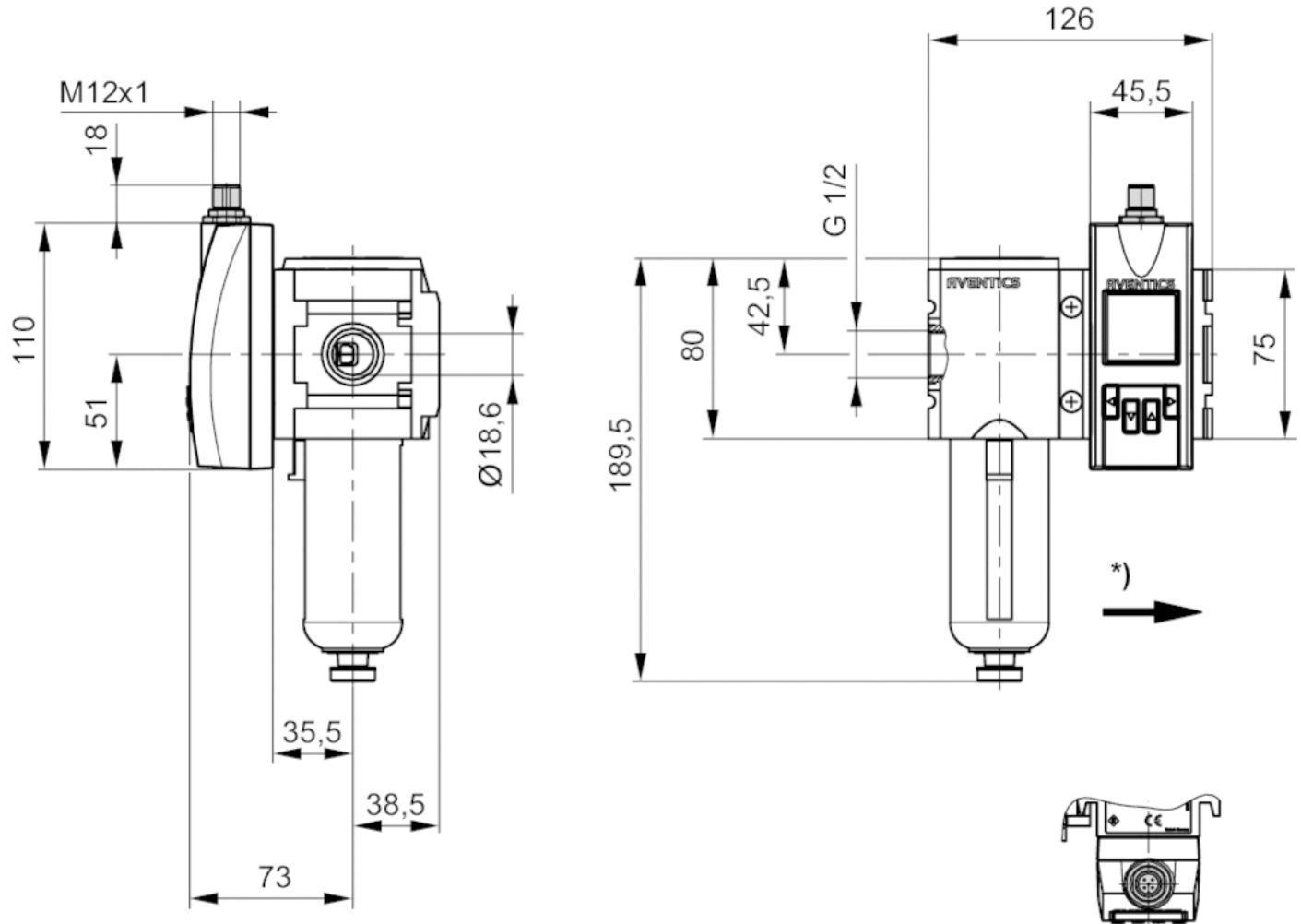
The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .  
The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions.  
The device is designed to be installed in AS series air preparation units or to be fitted as a stand-alone device using a W05 block assembly kit.  
Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result.  
Precision- Standard measurement range: ±3% of measured value, + 0.3% of final value- Extended measurement range: ±8% of measured value, + 1% of final value  
The IO-Link device description (IODD) for the AF2 flow rate sensor is available for download in the Media Center.

## Technical information

Material	
Housing	Polyamide, Polycarbonate
Seals	Fluorocaoutchouc

## Dimensions

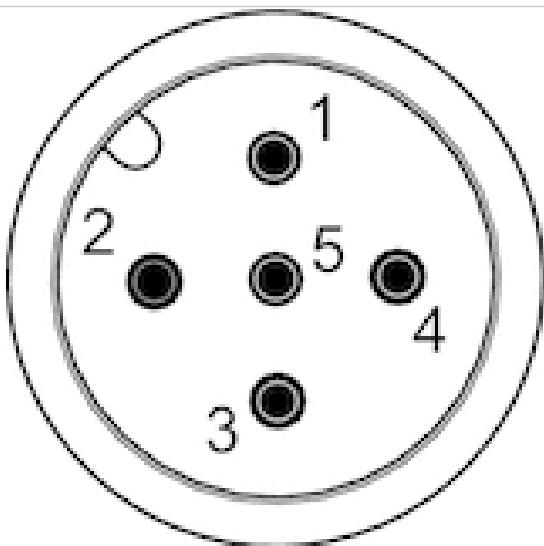
Dimensions in mm



\* Flow direction

## Pin assignments

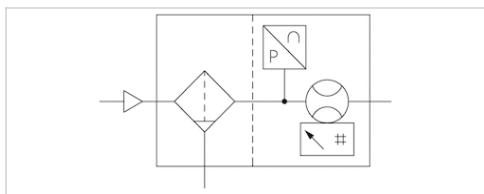
### Pin assignments, M12x1, 5-pin



Pin	1	2	3
Allocation	L+	QA (output 4 ... 20 mA)	m = mass
4		5	
C/Q1 (IO-Link/switch output)		Analog output 4 ... 20 mA	

# Flow sensor, IO-Link, Series AF2

- 2 analog outputs, 2 switch outputs, 1 frequency output, 1 pulse output, IO-Link, Without mounting
- Flow measuring principle: calorimetric
- Qn min. 22 l/min
- Qn max. 6490 l/min
- Electrical connection Plug, M12x1, 5-pin



## Certificates

Working pressure min./max.  
Ambient temperature min./max.  
Medium temperature min./max.  
Medium

filter porosity

Display

Flow display unit

Pressure display unit

Temperature display unit

DC operating voltage min.

DC operating voltage max.

Max. power consumption \*)

Response time

Protection class

Short circuit resistance

Shock resistance max.

Vibration resistance

Reproducibility

Weight

\*)

CE declaration of conformity, RoHS

0 ... 16 bar

-20 ... 60 °C

-20 ... 60 °C

Compressed air, Argon, Nitrogen, Helium, Carbon dioxide

5 µm

OLED

l/sec, l/min, m³/min, m³/h, ft³/s, m³/min

bar, psi

°C, °F

17 V DC

30 V DC

175 mA

10 ms

IP65, IP67 according to IEC 60529

short circuit resistant

30 g, 11 ms

1 g (10 - 2000 Hz) IEC 60068 - 2-6

± 1.5% of the measured value

2,3 kg

Current consumption without load The delivered product may vary from that in the illustration.

## Technical data

Part No.	for series	Compressed air connection	Nominal flow Qn	Nominal flow Qn	Nominal flow Qn
			Min., standard	Max., standard	Min., extended
R412027178	AS5	G 1	22 l/min	4326 l/min	4326 l/min

Part No.	Nominal flow Qn
	Max., extended
R412027178	6490 l/min

Standard measurement range for flow measurement: compressed air 0.5 ... 100 m/s, extended measurement range: compressed air >100 ... 150 m/s, in accordance with ISO 8778, Flow display range: 0 ... 12980 l/min

## Technical information

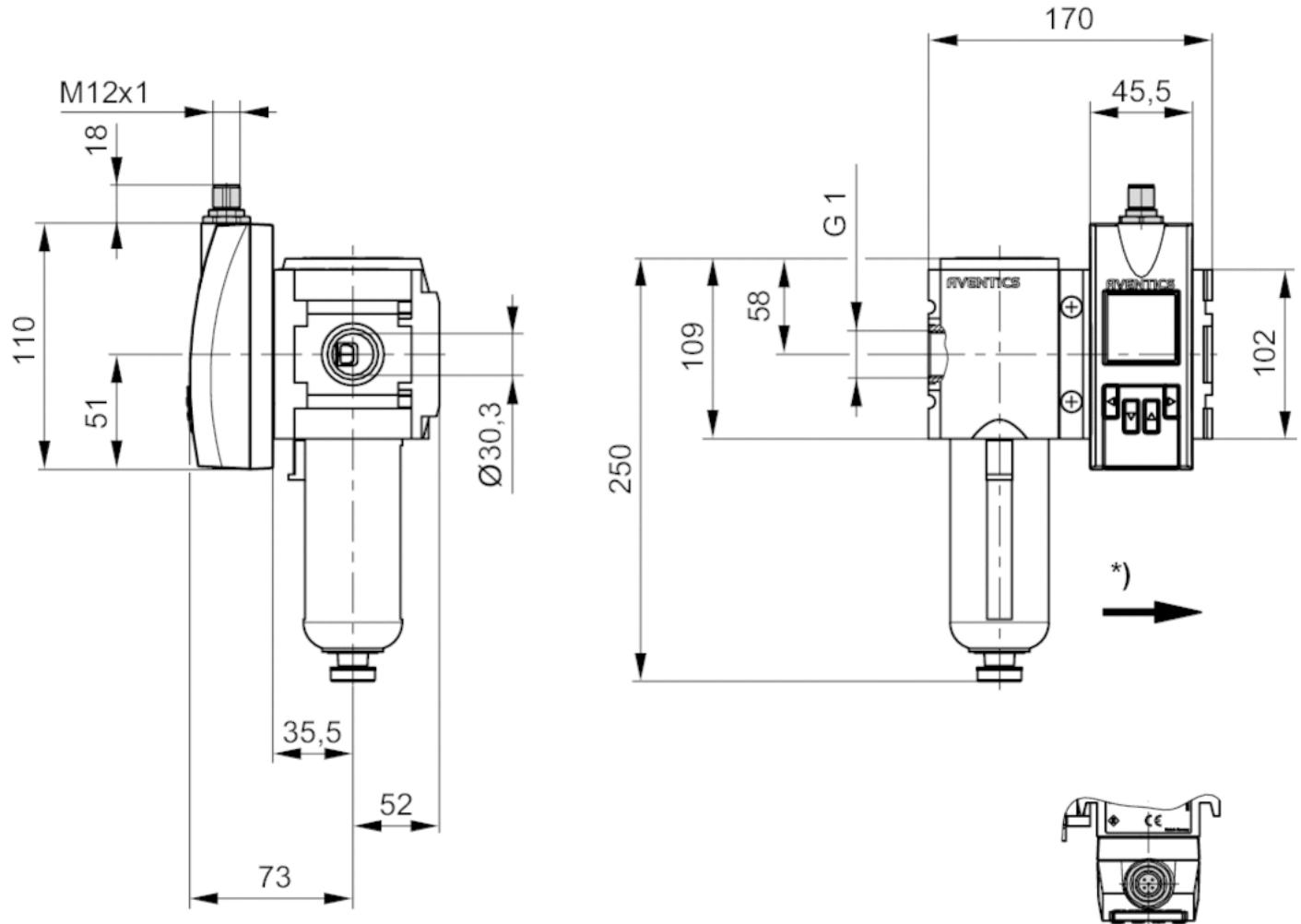
The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .  
The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions.  
The device is designed to be installed in AS series air preparation units or to be fitted as a stand-alone device using a W05 block assembly kit.  
Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result.  
Precision- Standard measurement range: ±3% of measured value, + 0.3% of final value- Extended measurement range: ±8% of measured value, + 1% of final value  
The IO-Link device description (IODD) for the AF2 flow rate sensor is available for download in the Media Center.

## Technical information

Material	
Housing	Polyamide, Polycarbonate
Seals	Fluorocaoutchouc

## Dimensions

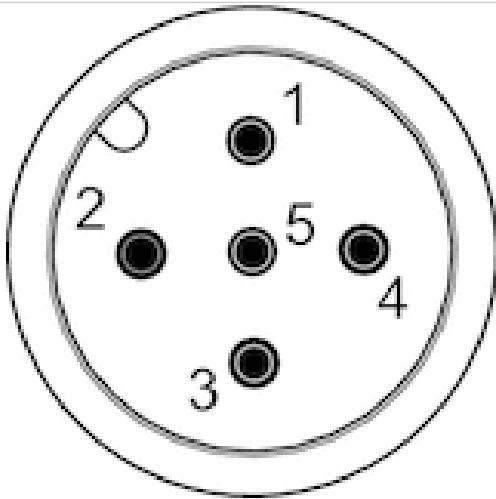
Dimensions in mm



\*) Flow direction

## Pin assignments

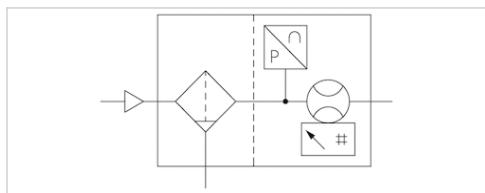
### Pin assignments, M12x1, 5-pin



Pin	1	2	3
Allocation	L+	QA (output 4 ... 20 mA)	m = mass
4		5	
C/Q1 (IO-Link/switch output)		Analog output 4 ... 20 mA	

# Flow sensor, Ethernet, Series AF2

- Ethernet, Without mounting
- Flow measuring principle: calorimetric
- Qn min. 5 l/min
- Qn max. 1590 l/min
- Electrical connection Plug, M12x1, 8-pin



## Certificates

Working pressure min./max.

CE declaration of conformity, RoHS

0 ... 16 bar

Ambient temperature min./max.

-20 ... 60 °C

Medium temperature min./max.

-20 ... 60 °C

Medium

Compressed air, Argon, Nitrogen, Helium, Carbon dioxide

5 µm

filter porosity

OLED

Display

l/sec, l/min, m³/min, m³/h, ft³/s, m³/min

Flow display unit

bar, psi

Pressure display unit

°C, °F

Temperature display unit

36 V DC

DC operating voltage min.

57 V DC

DC operating voltage max.

5 W

Power consumption max.

10 ms

Response time

IP65, IP67 according to IEC 60529

Protection class

30 g, 11 ms

Shock resistance max.

1 g (10 - 2000 Hz) IEC 60068 - 2-6

Vibration resistance

± 1.5% of the measured value

Reproducibility

0,85 kg

Weight

The delivered product may vary from that in the illustration.

\*)

## Technical data

Part No.	for series	Compressed air connection	Nominal flow Qn	Nominal flow Qn	Nominal flow Qn
			Min., standard	Max., standard	Min., extended
R412027179	AS2	G 3/8	5 l/min	1060 l/min	1060 l/min

Part No.	Nominal flow Qn
	Max., extended
R412027179	1590 l/min

Standard measurement range for flow measurement: compressed air 0.5 ... 100 m/s, extended measurement range: compressed air >100 ... 150 m/s, in accordance with ISO 8778, Flow display range: 0 ... 3180 l/min

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions.

The device is designed to be installed in AS series air preparation units or to be fitted as a stand-alone device using a W05 block assembly kit.

Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result.

Precision- Standard measurement range: ±3% of measured value, + 0.3% of final value- Extended measurement range: ±8% of measured value, + 1% of final value

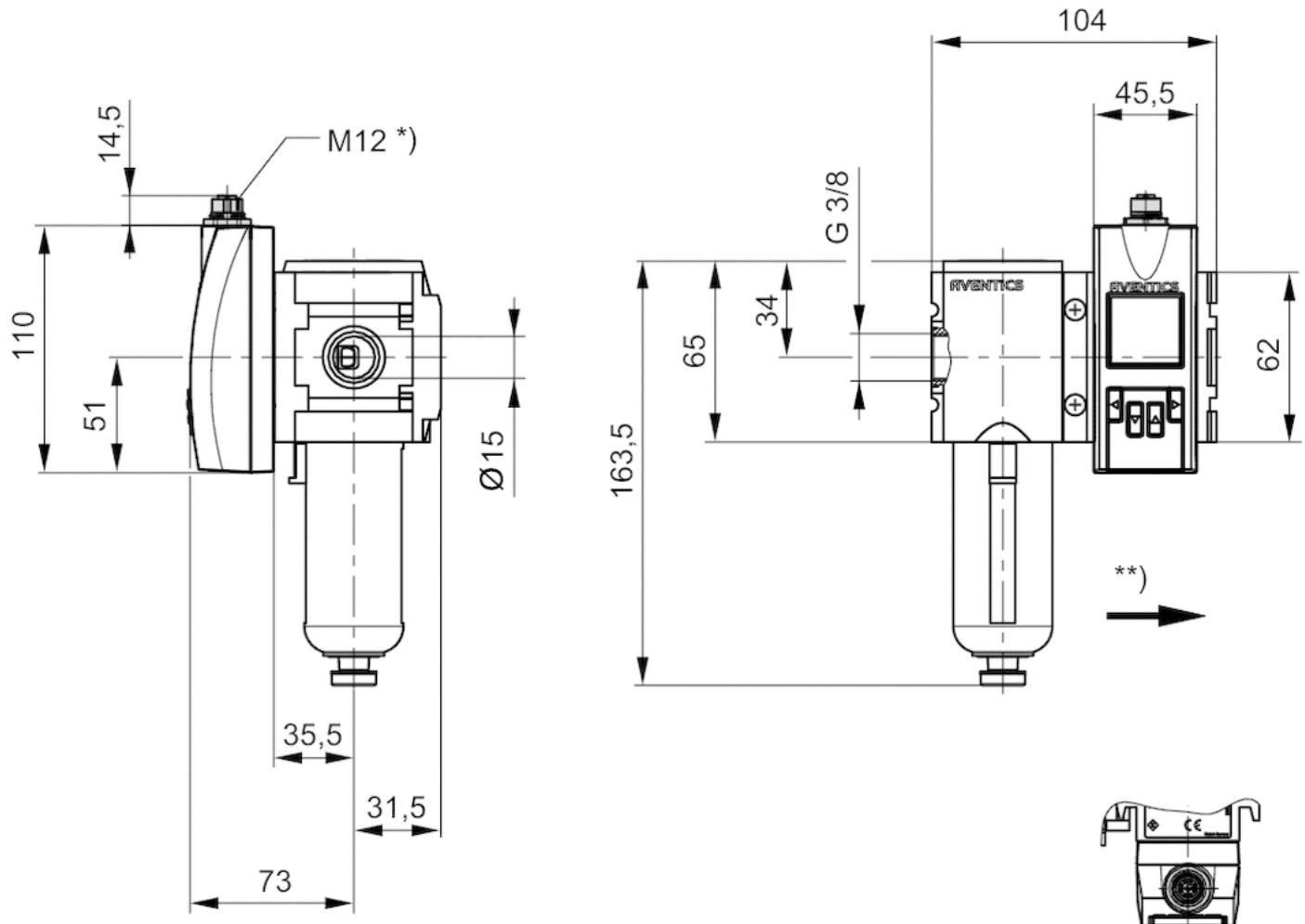
## Technical information

### Material

Housing	Polyamide, Polycarbonate
Seals	Fluorocaoutchouc

## Dimensions

Dimensions in mm

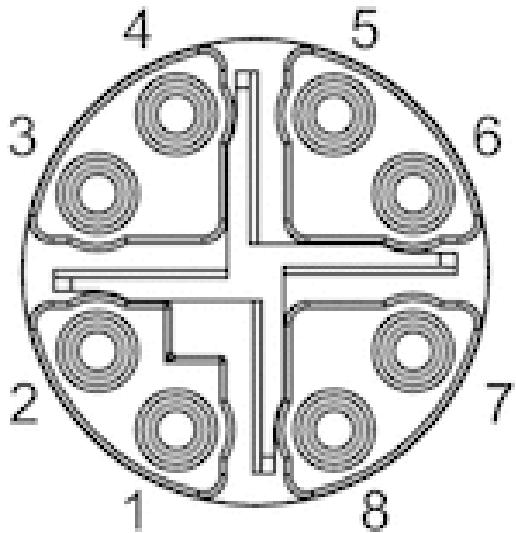


\* Internal thread

\*\* Flow direction

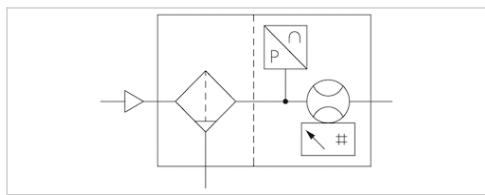
## Pin assignments

## Pin assignments, M12, X-coded



# Flow sensor, Ethernet, Series AF2

- Ethernet, Without mounting
- Flow measuring principle: calorimetric
- Qn min. 8 l/min
- Qn max. 2445 l/min
- Electrical connection Plug, M12x1, 8-pin



## Certificates

Working pressure min./max.	0 ... 16 bar
Ambient temperature min./max.	-20 ... 60 °C
Medium temperature min./max.	-20 ... 60 °C
Medium	Compressed air, Argon, Nitrogen, Helium, Carbon dioxide
filter porosity	5 µm
Display	OLED
Flow display unit	l/sec, l/min, m³/min, m³/h, ft³/s, m³/min
Pressure display unit	bar, psi
Temperature display unit	°C, °F
DC operating voltage min.	36 V DC
DC operating voltage max.	57 V DC
Power consumption max.	5 W
Response time	10 ms
Protection class	IP65, IP67 according to IEC 60529
Shock resistance max.	30 g, 11 ms
Vibration resistance	1 g (10 - 2000 Hz) IEC 60068 - 2-6
Reproducibility	± 1.5% of the measured value
Weight	1,25 kg

## Technical data

Part No.	for series	Compressed air connection	Nominal flow Qn	Nominal flow Qn	Nominal flow Qn
			Min., standard	Max., standard	Min., extended
R412027180	AS3	G 1/2	8 l/min	1630 l/min	1630 l/min

Part No.	Nominal flow Qn
	Max., extended
R412027180	2445 l/min

Standard measurement range for flow measurement: compressed air 0.5 ... 100 m/s, extended measurement range: compressed air >100 ... 150 m/s, in accordance with ISO 8778, Flow display range: 0 ... 4890 l/min

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions.

The device is designed to be installed in AS series air preparation units or to be fitted as a stand-alone device using a W05 block assembly kit.

Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result.

Precision- Standard measurement range: ±3% of measured value, + 0.3% of final value- Extended measurement range: ±8% of measured value, + 1% of final value

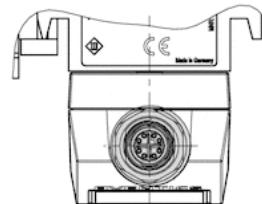
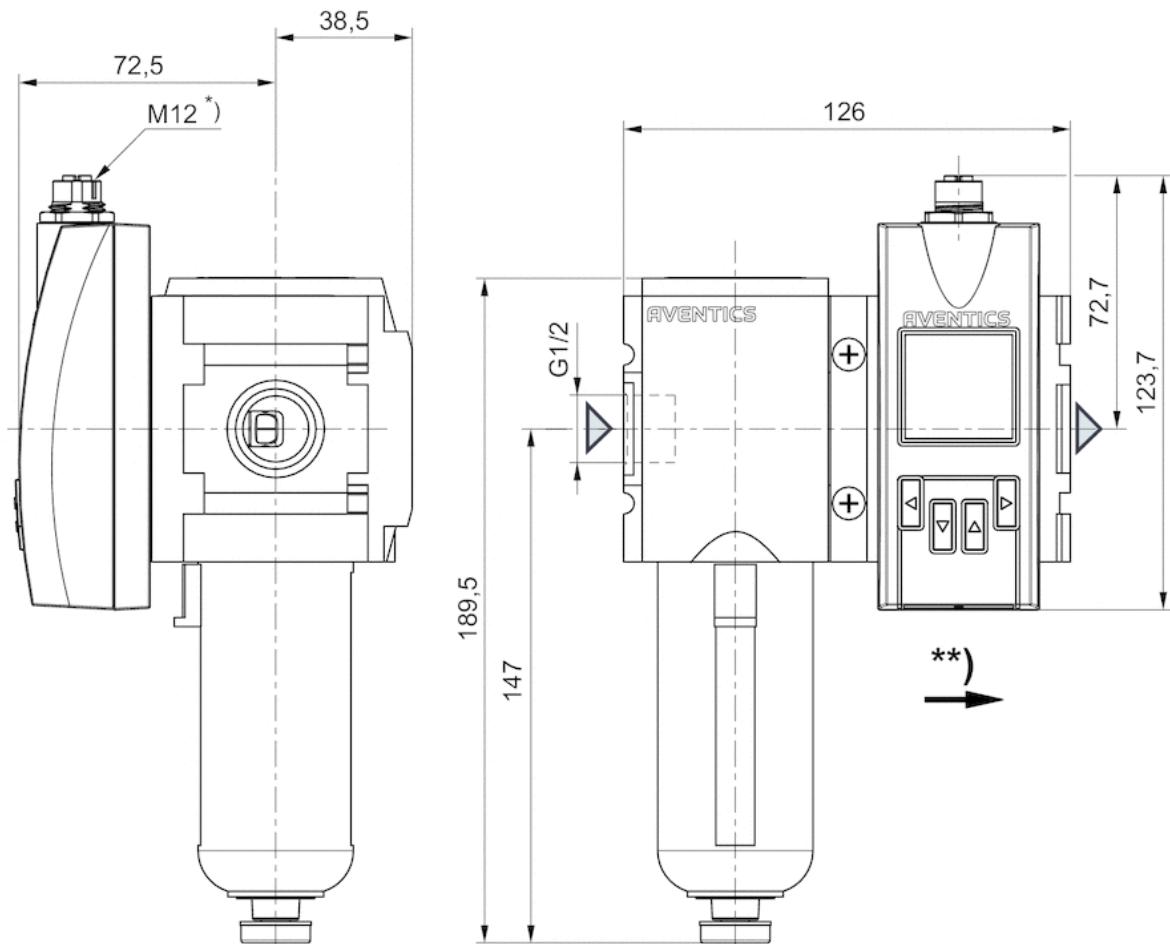
## Technical information

### Material

Housing	Polyamide, Polycarbonate
Seals	Fluorocaoutchouc

## Dimensions

### Dimensions in mm

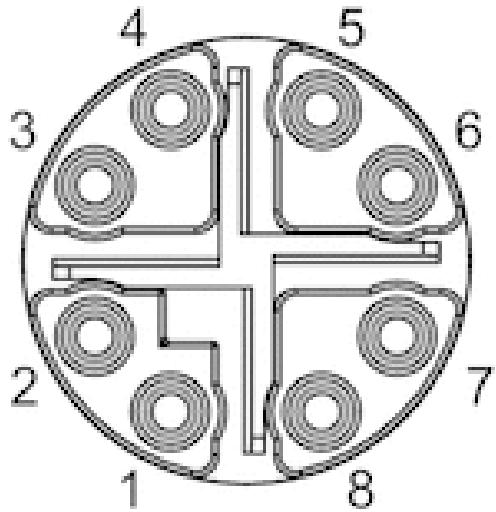


\* Internal thread

\*\* Flow direction

## Pin assignments

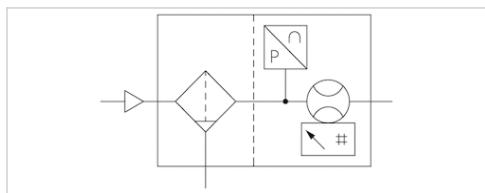
## Pin assignments, M12, X-coded



Pin	1	2	3	4	7	8	5
Color	WH / OG	OG	WH / GN	GN	WH / BU	BU	WH / BN
Function	TX(+) + POE	TX(-) + POE	RX(+) - POE	RX(-) - POE	POE+	POE+	POE-
6							
BN							
POE-							

# Flow sensor, Ethernet, Series AF2

- Ethernet, Without mounting
- Flow measuring principle: calorimetric
- Qn min. 22 l/min
- Qn max. 6490 l/min
- Electrical connection Plug, M12x1, 8-pin



## Certificates

Working pressure min./max.

CE declaration of conformity, RoHS

0 ... 16 bar

Ambient temperature min./max.

-20 ... 60 °C

Medium temperature min./max.

-20 ... 60 °C

Medium

Compressed air, Argon, Nitrogen, Helium, Carbon dioxide

5 µm

filter porosity

OLED

Display

l/sec, l/min, m<sup>3</sup>/min, m<sup>3</sup>/h, ft<sup>3</sup>/s, m<sup>3</sup>/min

Flow display unit

bar, psi

Pressure display unit

°C, °F

Temperature display unit

36 V DC

DC operating voltage min.

57 V DC

DC operating voltage max.

5 W

Power consumption max.

10 ms

Response time

IP65, IP67 according to IEC 60529

Protection class

30 g, 11 ms

Shock resistance max.

1 g (10 - 2000 Hz) IEC 60068 - 2-6

Vibration resistance

± 1.5% of the measured value

Reproducibility

Weight

Weight

2,3 kg

\*) The delivered product may vary from that in the illustration.

## Technical data

Part No.	for series	Compressed air connection	Nominal flow Qn	Nominal flow Qn	Nominal flow Qn
			Min., standard	Max., standard	Min., extended
R412027181	AS5	G 1	22 l/min	4326 l/min	4326 l/min

Part No.	Nominal flow Qn
	Max., extended
R412027181	6490 l/min

Standard measurement range for flow measurement: compressed air 0.5 ... 100 m/s, extended measurement range: compressed air >100 ... 150 m/s, in accordance with ISO 8778, Flow display range: 0 ... 12980 l/min

## Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions.

The device is designed to be installed in AS series air preparation units or to be fitted as a stand-alone device using a W05 block assembly kit.

Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result.

Precision- Standard measurement range: ±3% of measured value, + 0.3% of final value- Extended measurement range: ±8% of measured value, + 1% of final value

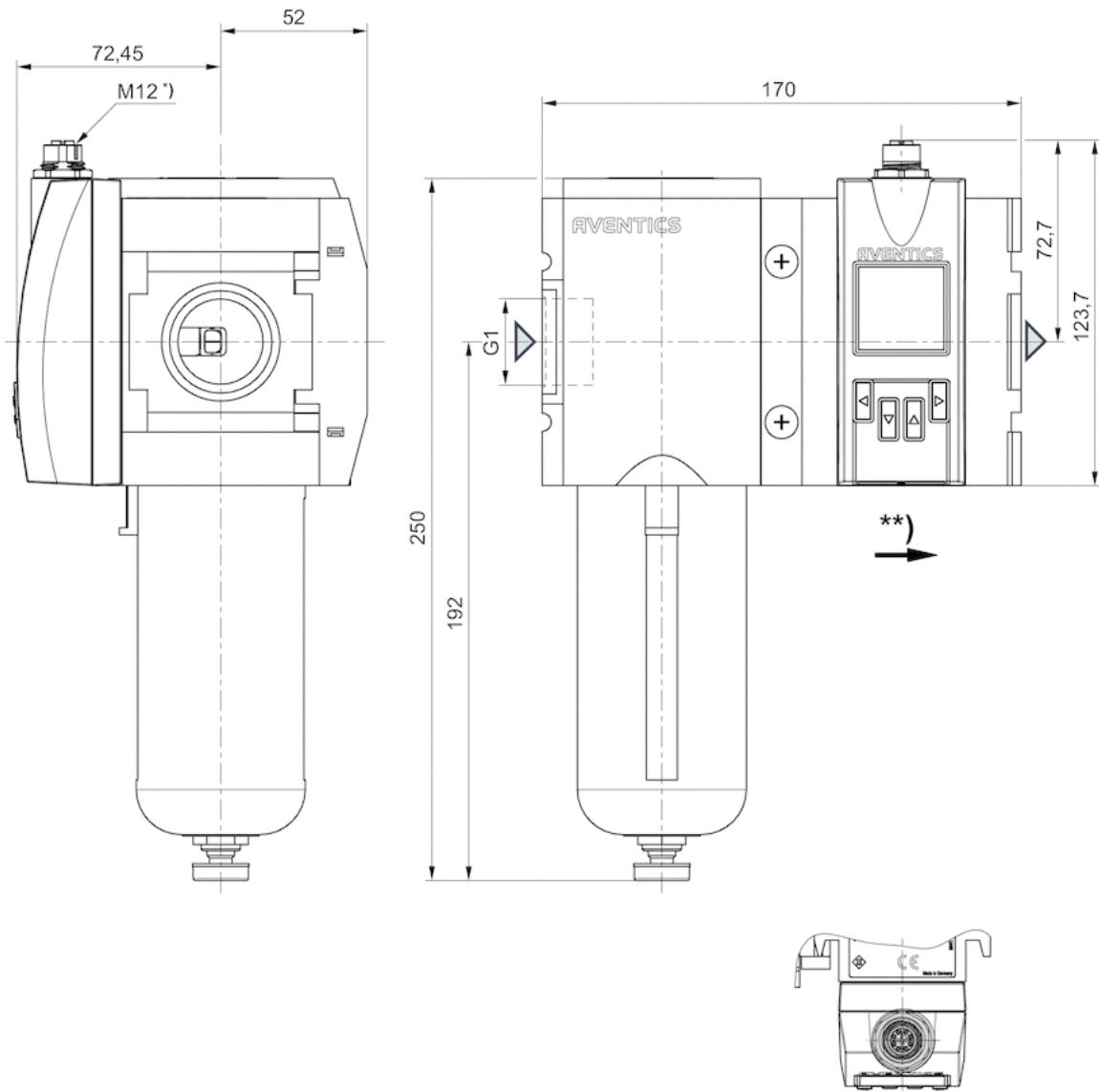
## Technical information

### Material

Housing	Polyamide, Polycarbonate
Seals	Fluorocaoutchouc

## Dimensions

## Dimensions in mm

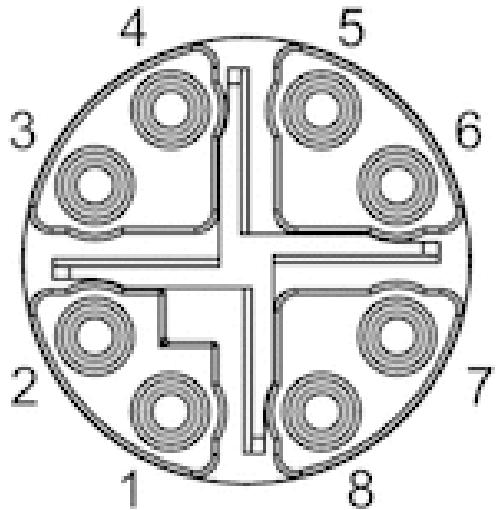


\* Internal thread

\*\* Flow direction

## Pin assignments

## Pin assignments, M12, X-coded



# Series AF2 flow sensor, 652 filter version, Ethernet

G652AVBP4JA001N

## Series 652

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C. The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions. Precision:  
Standard measurement range:  $\pm 4\%$  of measured value, + 0.5% of final value.  
Extended measurement range:  $\pm 8\%$  of measured value, + 1% of final value.



## Technical data

Industry  
Industrial

Note

Integrated web server, 48 VDC connection via Power over Ethernet

Switching principle

Flow measuring principle: calorimetric

Protocol  
TCP/IP  
OPC UA  
MQTT

Nominal flow Qn min., standard  
8 l/min

Nominal flow Qn max., standard  
1630 l/min

Nominal flow Qn min., extended  
1630 l/min

Nominal flow Qn max., extended  
2445 l/min

Compressed air connection  
G 1/2

Certificates  
CE declaration of conformity  
RoHS

Working pressure min.  
0 bar

Working pressure max  
16 bar

Min. ambient temperature  
-20 °C

Max. ambient temperature  
50 °C

Min. medium temperature  
-20 °C

Max. medium temperature  
50 °C

Medium  
Compressed air  
Argon  
Nitrogen  
Helium  
Carbon dioxide

filter porosity  
5 µm

Display  
OLED

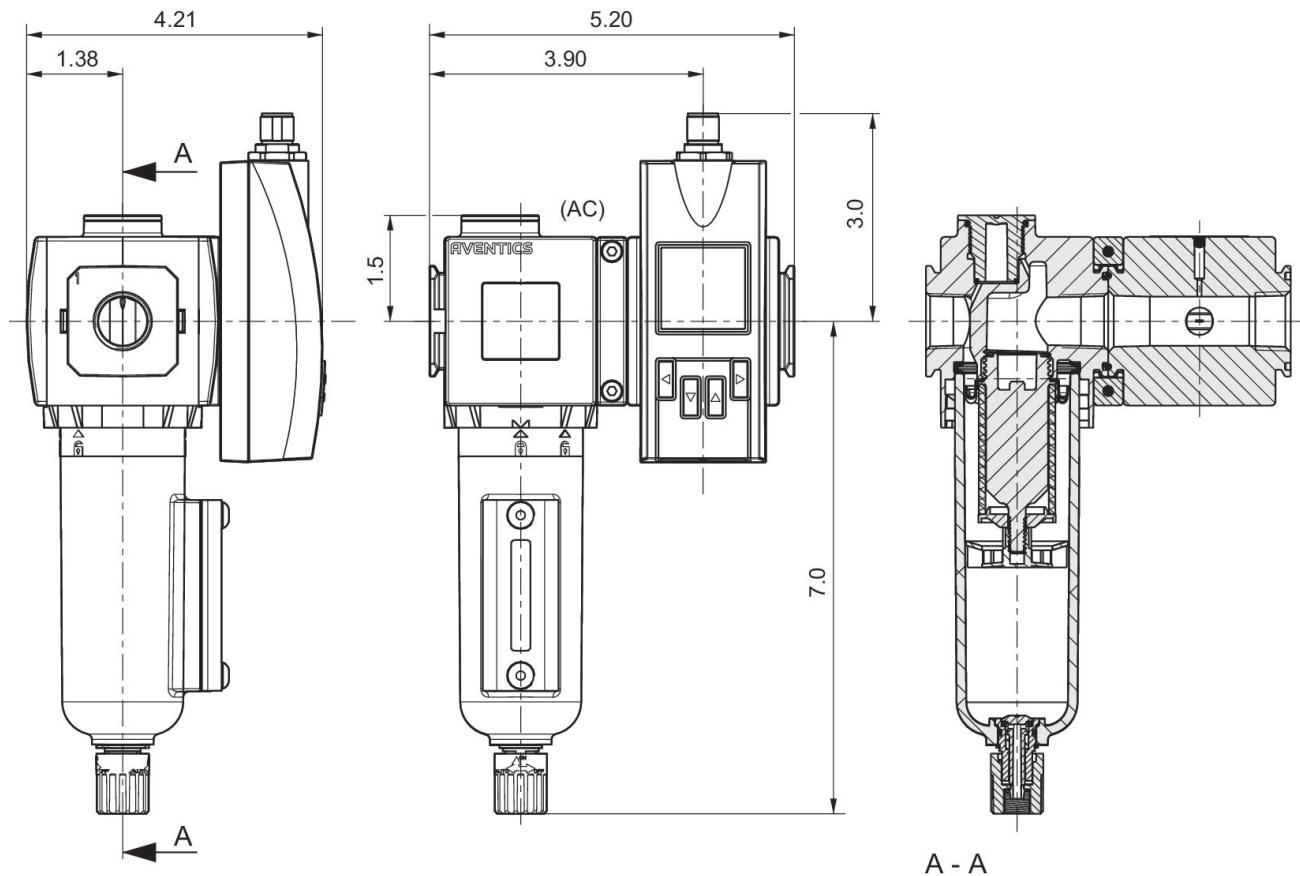
Flow display unit  
l/sec  
l/min  
m³/min

m³/h	Operating voltage DC, min.
ft³/s	36 V DC
m³/min	
Pressure display unit	Operating voltage DC, max.
bar	57 V DC
psi	
Temperature display unit	Response time
°C	< 0.3 s
°F	
Electrical connection	Shock resistance max.
Plug	30 g, 11 ms
Electrical connection	Vibration resistance
M12x1	1 g (10 - 2000 Hz) IEC 60068 - 2-6
Electrical connection	Reproducibility
8-pin	± 1.5% of the measured value
Power consumption max.	Protection class
5 W	IP65
	IP67 according to IEC 60529
	Weight
	0.73 kg

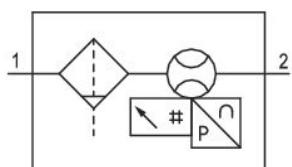
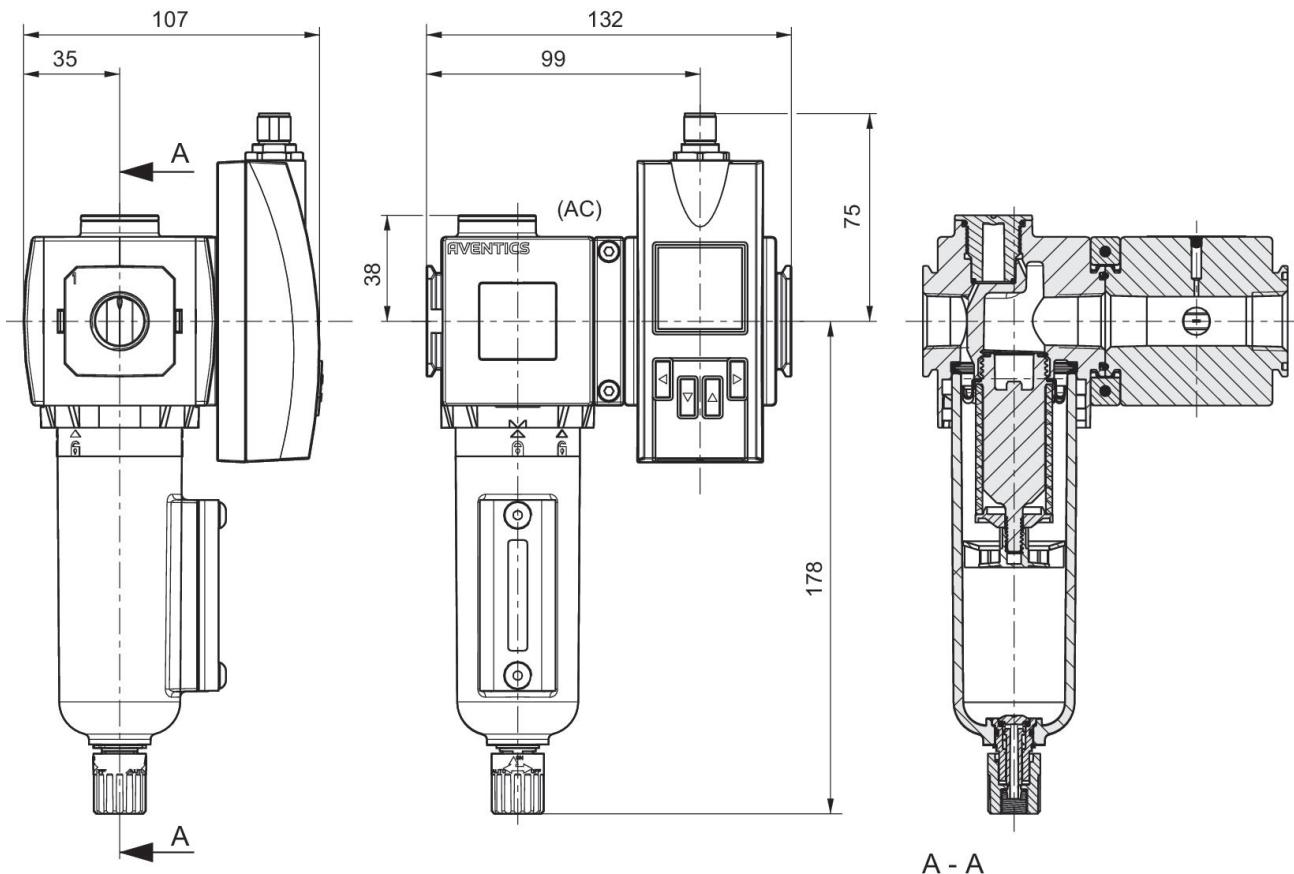
## Material

Housing material	Seal material sensor
Polyamide	Fluorocarbon caoutchouc
Polycarbonate	
Aluminum	
Seal material filter	Part No.
Nitrile butadiene rubber	G652AVBP4JA001N

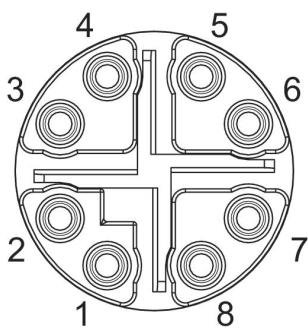
## Dimensions in inches



## Dimensions in mm



## Pin assignments



Pin	RJ45	Wire color	Identification	10/100 Mbit
1	1	WH / OG	TX(+) + POE	TxDATA+
2	2	OG	TX(-) + POE	TxDATA+

Pin	RJ45	Wire color	Identification	10/100 Mbit
3	3	WH / GN	RX(+) - POE	TxDATA-
4	6	GN	RX(-) - POE	TxDATA-
7	5	WH / BU	POE+	
8	4	BU	POE+	
5	7	WH / BN	POE-	
6	8	BN	POE-	

# Series AF2 flow sensor, 652 filter version, Ethernet

8652AVBP4JA001N

## Series 652

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C. The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions. Precision:  
Standard measurement range: ±4% of measured value, + 0.5% of final value.  
Extended measurement range: ±8% of measured value, + 1% of final value.



## Technical data

Industry  
Industrial

### Note

Integrated web server, 48 VDC connection via Power over Ethernet

### Switching principle

Flow measuring principle: calorimetric

Protocol  
TCP/IP  
OPC UA  
MQTT

Nominal flow Qn min., standard  
8 l/min

Nominal flow Qn max., standard  
1630 l/min

Nominal flow Qn min., extended  
1630 l/min

Nominal flow Qn max., extended  
2445 l/min

Compressed air connection  
1/2 NPT

Certificates  
CE declaration of conformity  
RoHS

Working pressure min.  
0 bar

Working pressure max  
16 bar

Min. ambient temperature  
-20 °C

Max. ambient temperature  
50 °C

Min. medium temperature  
-20 °C

Max. medium temperature  
50 °C

Medium  
Compressed air  
Argon  
Nitrogen  
Helium  
Carbon dioxide

filter porosity  
5 µm

Display  
OLED

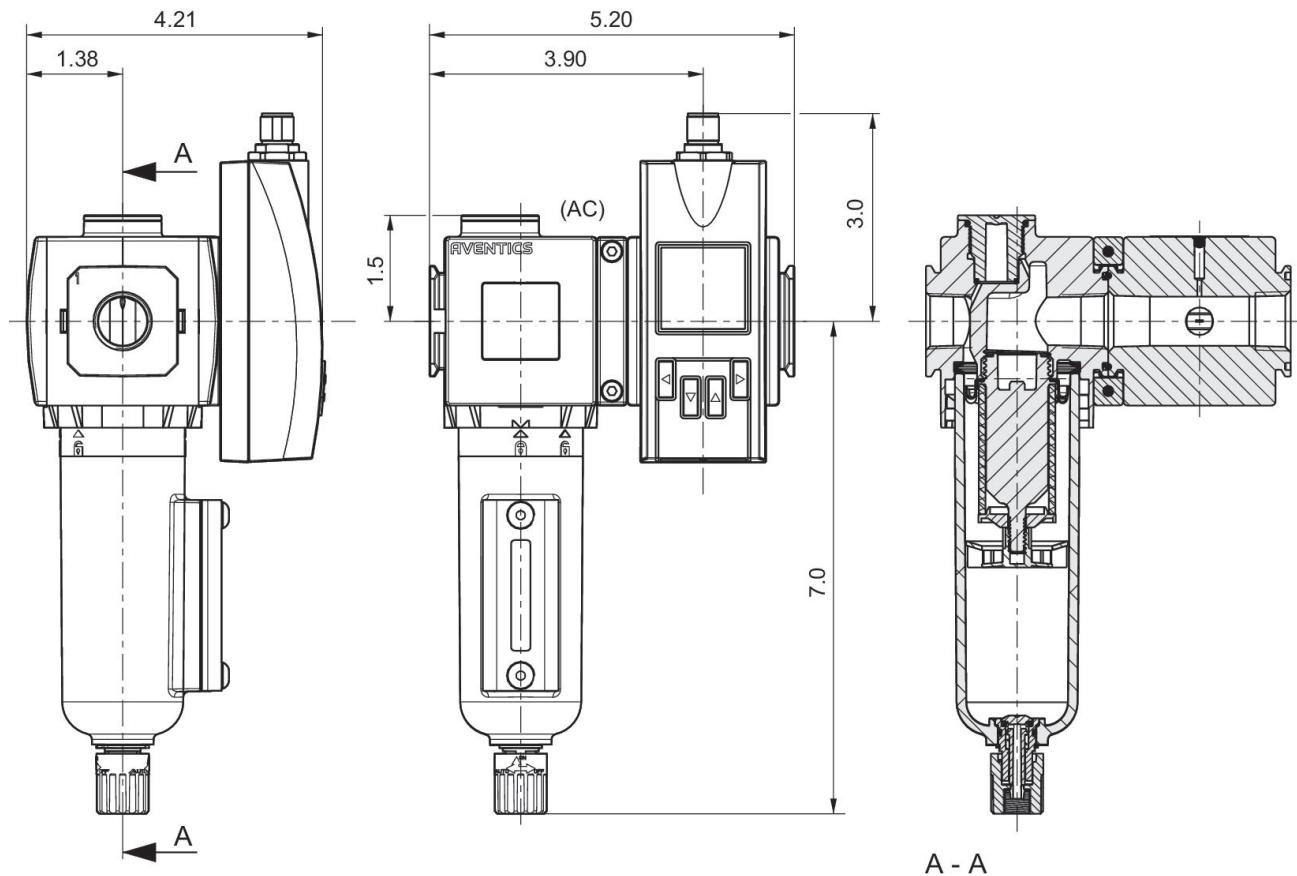
Flow display unit  
l/sec  
l/min  
m³/min

m³/h	Operating voltage DC, min.
ft³/s	36 V DC
m³/min	
Pressure display unit	Operating voltage DC, max.
bar	57 V DC
psi	
Temperature display unit	Response time
°C	< 0.3 s
°F	
Electrical connection	Shock resistance max.
Plug	30 g, 11 ms
Electrical connection	Vibration resistance
M12x1	1 g (10 - 2000 Hz) IEC 60068 - 2-6
Electrical connection	Reproducibility
8-pin	± 1.5% of the measured value
Power consumption max.	Protection class
5 W	IP65
	IP67 according to IEC 60529
	Weight
	0.73 kg

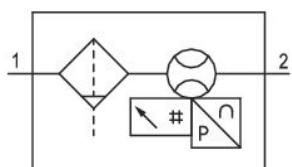
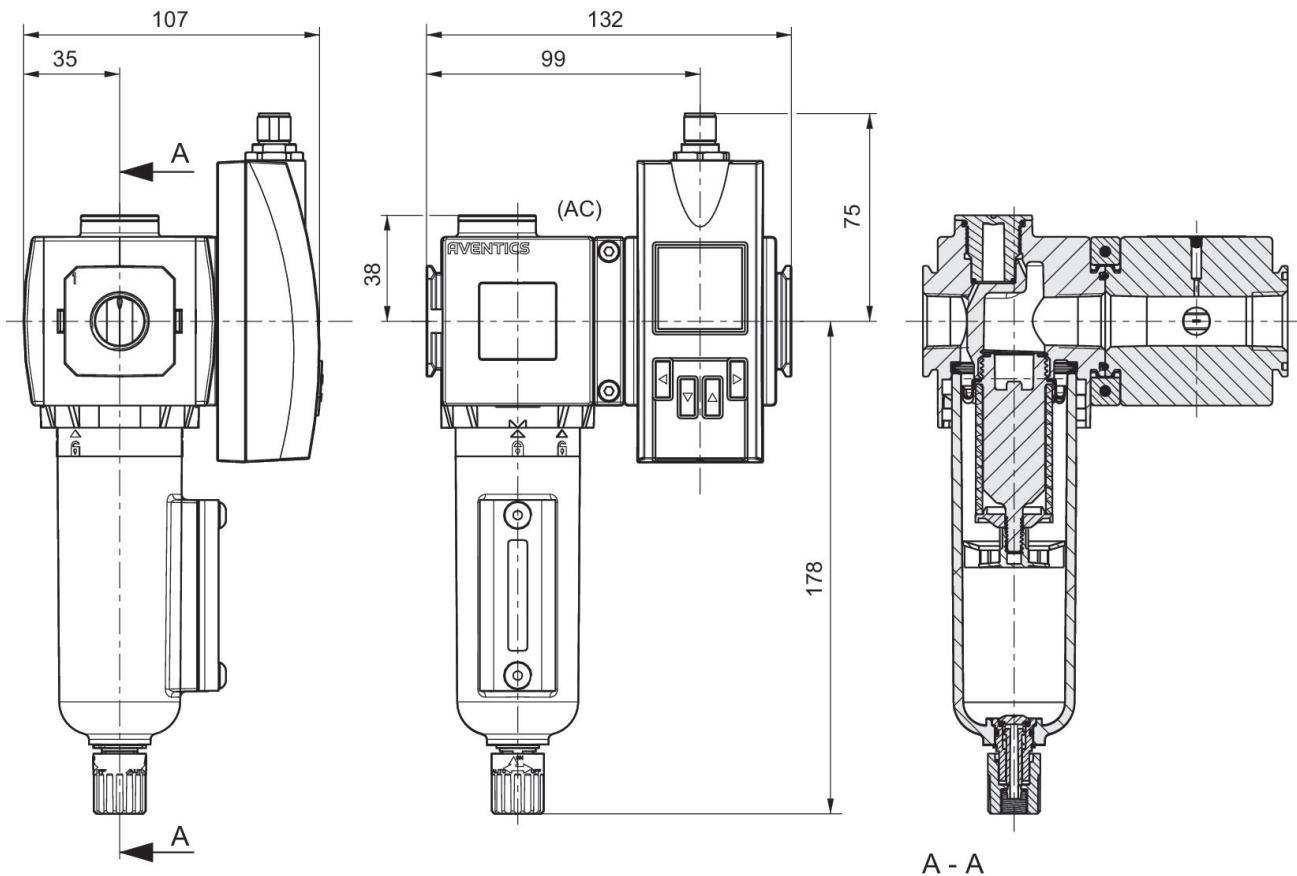
## Material

Housing material	Seal material sensor
Polyamide	Fluorocarbon caoutchouc
Polycarbonate	
Aluminum	
Seal material filter	Part No.
Nitrile butadiene rubber	8652AVBP4JA001N

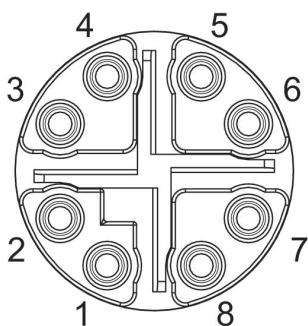
## Dimensions in inches



## Dimensions in mm



## Pin assignments



Pin	RJ45	Wire color	Identification	10/100 Mbit
1	1	WH / OG	TX(+) + POE	TxDATA+
2	2	OG	TX(-) + POE	TxDATA+

Pin	RJ45	Wire color	Identification	10/100 Mbit
3	3	WH / GN	RX(+) - POE	TxDATA-
4	6	GN	RX(-) - POE	TxDATA-
7	5	WH / BU	POE+	
8	4	BU	POE+	
5	7	WH / BN	POE-	
6	8	BN	POE-	

# Series AF2 flow sensor, 652 filter version, IO-Link

G652AVBP4JA000N

## Series 652

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C. The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions. Precision:  
Standard measurement range: ±4% of measured value, + 0.5% of final value.  
Extended measurement range: ±8% of measured value, + 1% of final value.



## Technical data

Industry  
Industrial

### Note

Output signal: 1 analog output 4 mA ... 20 mA + 1 digital/analog output (PNP, NPN, push-pull, 4 mA ... 20 mA / switchable)+1 digital output (PNP, NPN, push-pull, switchable), IO-Link V1.1 (COM3 / 230K4 baud)

Frame size  
652

Switching principle  
Flow measuring principle: calorimetric

Protocol  
IO-Link

Nominal flow Qn min., standard  
8 l/min

Nominal flow Qn max., standard  
1630 l/min

Nominal flow Qn min., extended  
1630 l/min

Nominal flow Qn max., extended  
2445 l/min

Compressed air connection  
G 1/2

Certificates  
CE declaration of conformity

RoHS

Working pressure min.  
0 bar

Working pressure max  
16 bar

Min. ambient temperature  
-20 °C

Max. ambient temperature  
50 °C

Min. medium temperature  
-20 °C

Max. medium temperature  
50 °C

Medium  
Compressed air  
Argon  
Nitrogen  
Helium  
Carbon dioxide

filter porosity  
5 µm

Display  
OLED

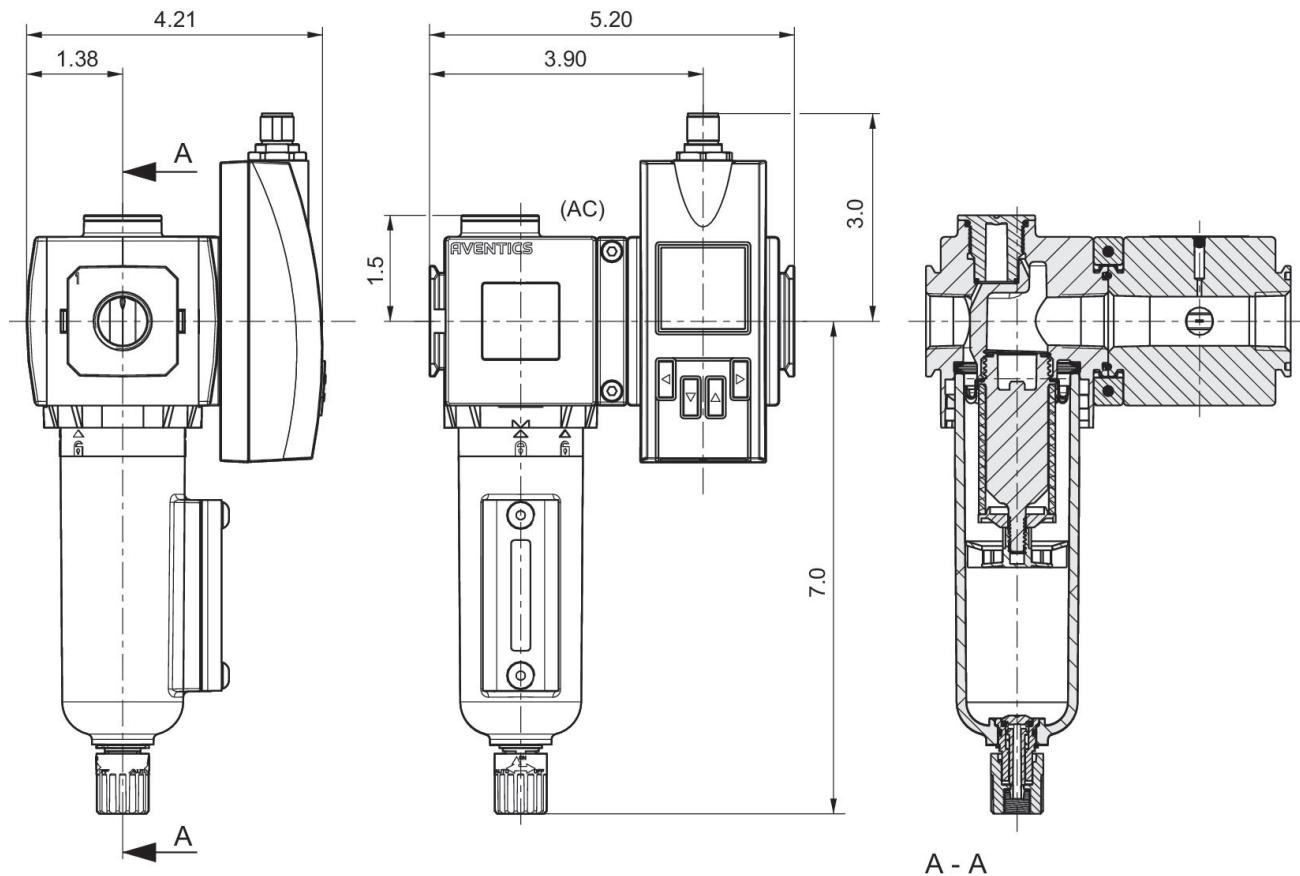
Flow display unit  
l/sec  
l/min

m³/min	Power consumption max.
m³/h	12 W
ft³/s	
m³/min	
Pressure display unit	Operating voltage DC, min.
bar	17 V DC
psi	
Temperature display unit	Operating voltage DC, max.
°C	30 V DC
°F	
Electrical connection	Response time
Plug	< 0.3 s
Electrical connection	Short circuit resistance
M12x1	short circuit resistant
Electrical connection	Shock resistance max.
5-pin	30 g, 11 ms
Electrical connection	Vibration resistance
A-coded	1 g (10 - 2000 Hz) IEC 60068 - 2-6
Output signal digital	Reproducibility
PNP/NPN/push-pull, switchable	± 1.5% of the measured value
Output signal analog	Protection class
4 ... 20 mA	IP65
	IP67 according to IEC 60529
	Weight
	0.73 kg

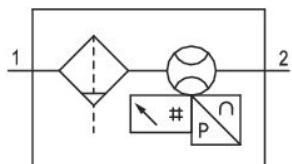
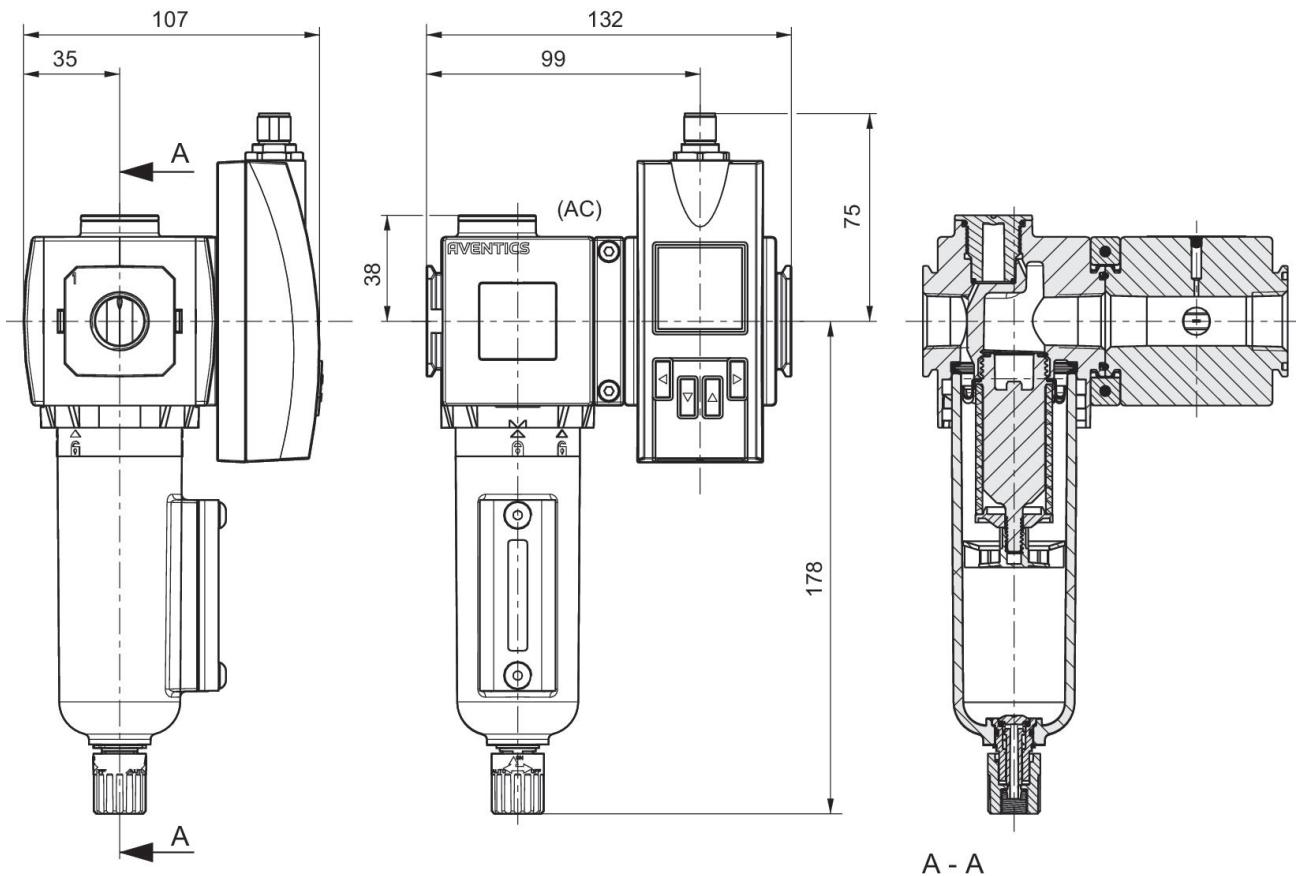
## Material

Housing material	Seal material sensor
Polyamide	Fluorocarbon caoutchouc
Polycarbonate	
Aluminum	
Seal material filter	Part No.
Nitrile butadiene rubber	G652AVBP4JA000N

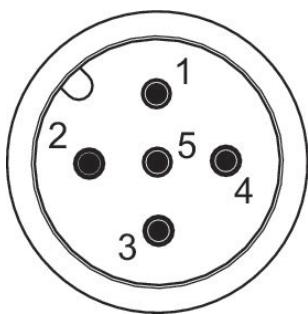
## Dimensions in inches



## Dimensions in mm



Pin assignments



Pin	Allocation	Wire color	
1	L+	brown	Supply Voltage
2	QA (output 4 ... 20 mA)	white	
3	m = mass	blue	

Pin	Allocation	Wire color
4	C/Q1 (IO-Link/switch output)	black
5	Analog output 4 ... 20 mA	yellow

# Series AF2 flow sensor, 652 filter version, IO-Link

8652AVBP4JA000N

## Series 652

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C. The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions. Precision:  
Standard measurement range: ±4% of measured value, + 0.5% of final value.  
Extended measurement range: ±8% of measured value, + 1% of final value.



## Technical data

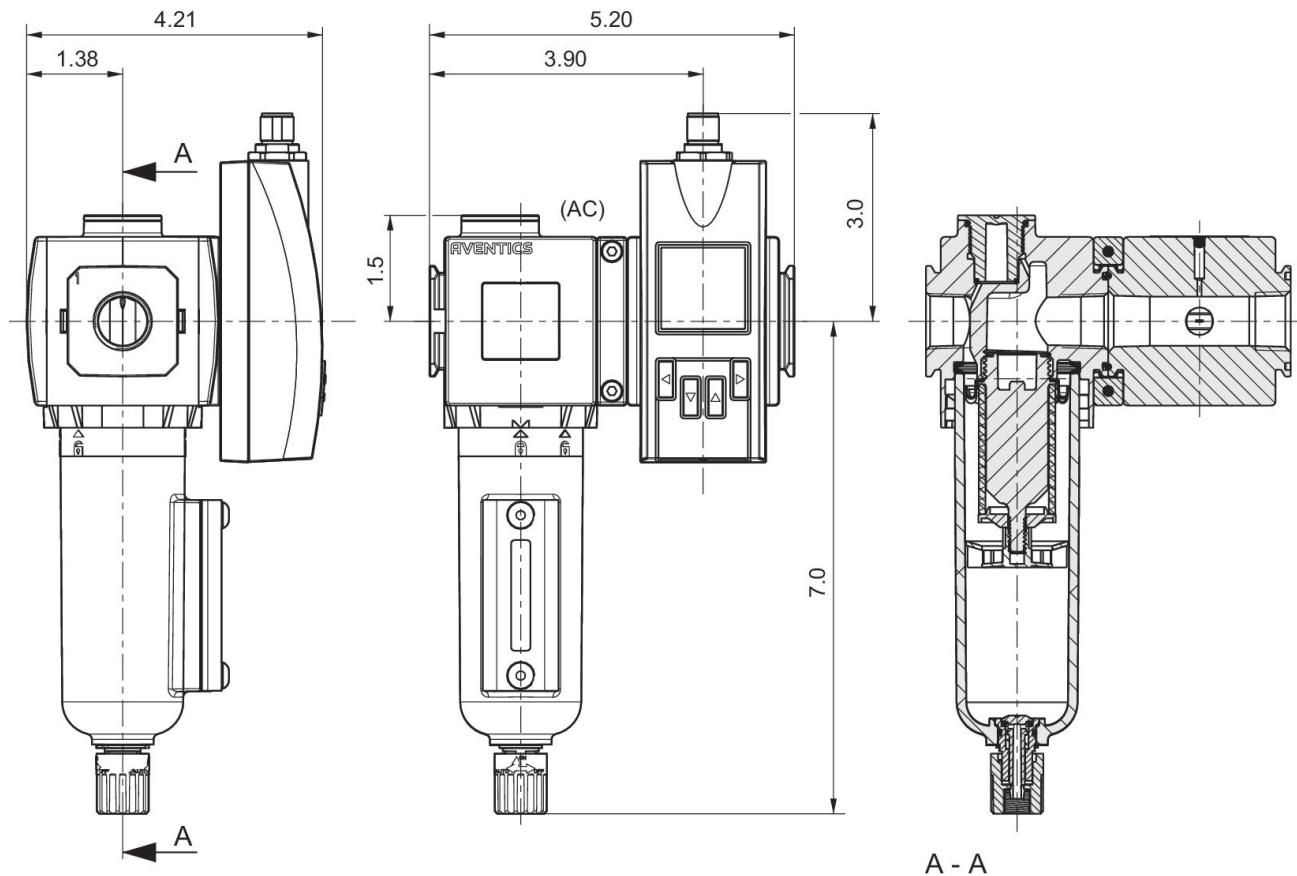
Industry	Working pressure max
Industrial	16 bar
Frame size	Min. ambient temperature
652	-20 °C
Switching principle	Max. ambient temperature
Flow measuring principle: calorimetric	50 °C
Protocol	Min. medium temperature
IO-Link	-20 °C
Nominal flow Qn min., standard	Max. medium temperature
8 l/min	50 °C
Nominal flow Qn max., standard	Medium
1630 l/min	Compressed air
Nominal flow Qn min., extended	Argon
1630 l/min	Nitrogen
Nominal flow Qn max., extended	Helium
2445 l/min	Carbon dioxide
Compressed air connection	filter porosity
1/2 NPT	5 µm
Certificates	Display
CE declaration of conformity	OLED
RoHS	Flow display unit
Working pressure min.	l/sec
0 bar	l/min
	m³/min
	m³/h
	ft³/s

m³/min	Operating voltage DC, min.
Pressure display unit	17 V DC
bar	Operating voltage DC, max.
psi	30 V DC
Temperature display unit	Response time
°C	< 0.3 s
°F	
Electrical connection	Short circuit resistance
Plug	short circuit resistant
Electrical connection	Shock resistance max.
M12x1	30 g, 11 ms
Electrical connection	Vibration resistance
5-pin	1 g (10 - 2000 Hz) IEC 60068 - 2-6
Electrical connection	Reproducibility
A-coded	± 1.5% of the measured value
Output signal analog	Protection class
4 ... 20 mA	IP65
Power consumption max.	IP67 according to IEC 60529
12 W	Weight
	0.73 kg

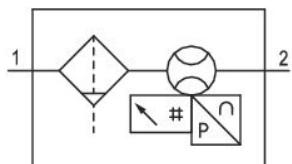
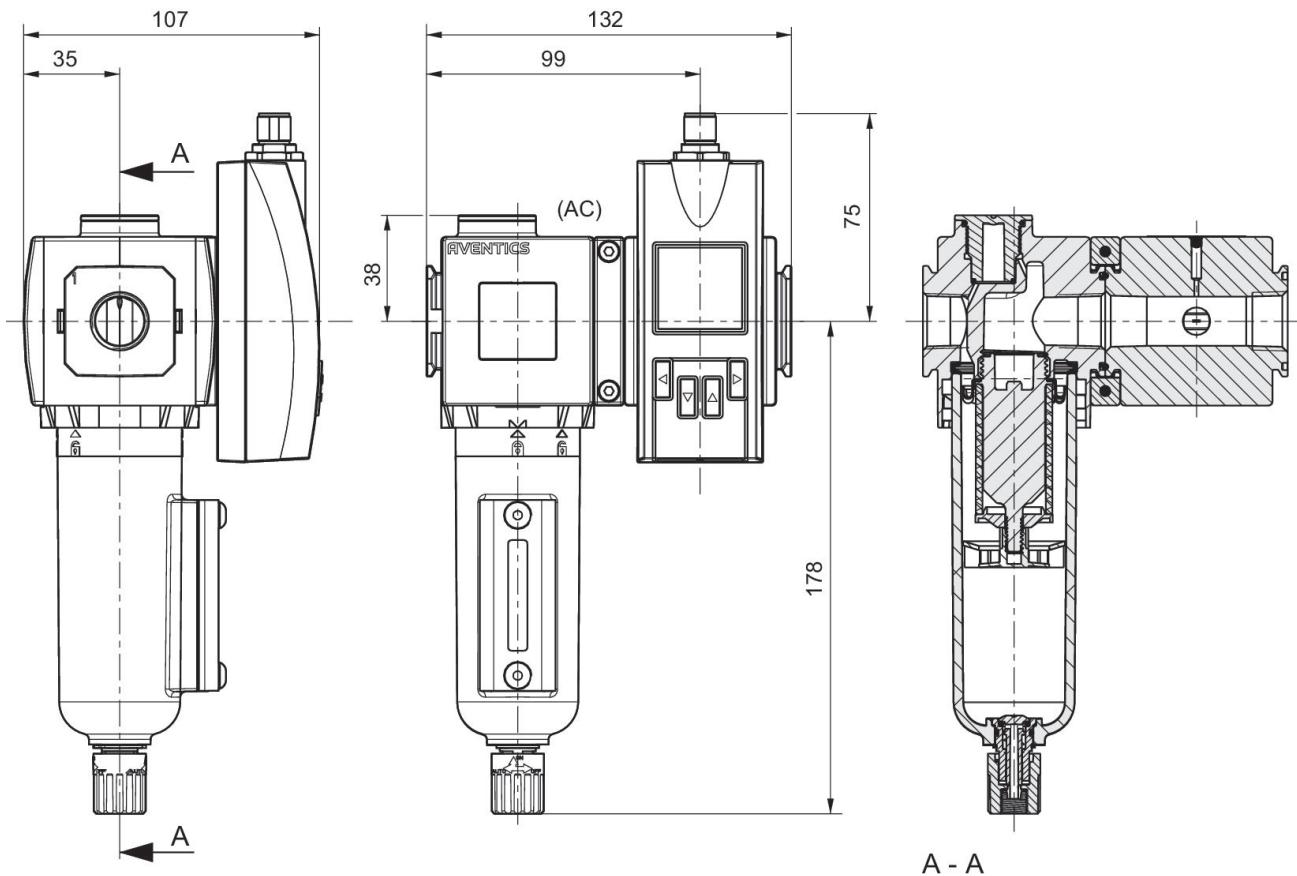
## Material

Housing material	Seal material sensor
Polyamide	Fluorocarbon caoutchouc
Polycarbonate	
Aluminum	
Seal material filter	Part No.
Nitrile butadiene rubber	8652AVBP4JA000N

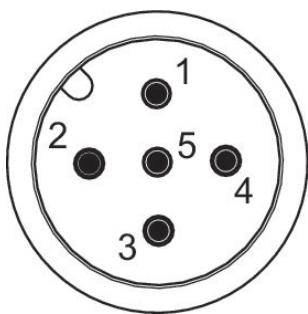
## Dimensions in inches



## Dimensions in mm



## Pin assignments



Pin	Allocation	Wire color	
1	L+	brown	Supply Voltage
2	QA (output 4 ... 20 mA)	white	
3	m = mass	blue	

Pin	Allocation	Wire color
4	C/Q1 (IO-Link/switch output)	black
5	Analog output 4 ... 20 mA	yellow

# Series AF2 flow sensor, 652 pipe version with pipe, Ethernet

G652AV004JA0010

## Series 652

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C. The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions. Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result. Precision: Standard measurement range: ±3% of measured value, + 0.3% of final value. Extended measurement range: ±8% of measured value, + 1% of final value.



## Technical data

Industry  
Industrial

Note

Integrated web server, 48 VDC connection via Power over Ethernet

Switching principle

Flow measuring principle: calorimetric

Protocol  
TCP/IP  
OPC UA  
MQTT

Nominal flow Qn min., standard  
5.3 l/min

Nominal flow Qn max., standard  
1060 l/min

Nominal flow Qn min., extended  
1060 l/min

Nominal flow Qn max., extended  
1590 l/min

Compressed air connection  
G 1/2

Certificates

CE declaration of conformity  
RoHS

Working pressure min.  
0 bar

Working pressure max  
16 bar

Min. ambient temperature  
-20 °C

Max. ambient temperature  
60 °C

Min. medium temperature  
-20 °C

Max. medium temperature  
60 °C

Medium  
Compressed air  
Argon

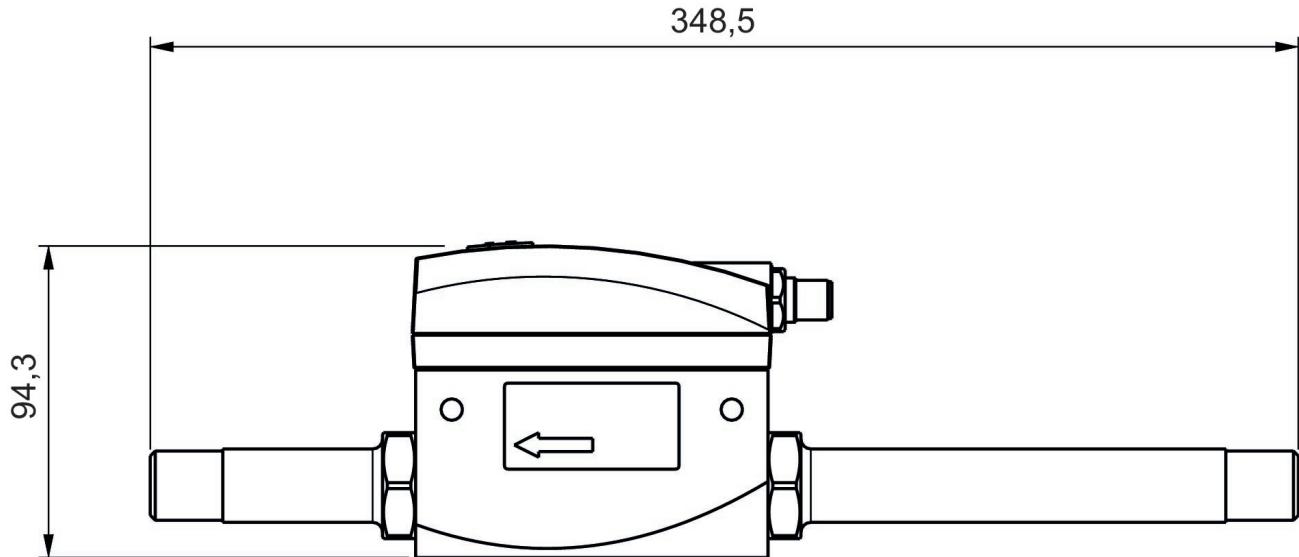
Nitrogen	Electrical connection
Helium	8-pin
Carbon dioxide	
Display	Power consumption max.
OLED	5 W
Flow display unit	Operating voltage DC, min.
l/sec	36 V DC
l/min	
m³/min	Operating voltage DC, max.
m³/h	57 V DC
ft³/s	
m³/min	Response time
	< 0.3 s
Pressure display unit	Shock resistance max.
bar	30 g, 11 ms
psi	
Temperature display unit	Vibration resistance
°C	1 g (10 - 2000 Hz) IEC 60068 - 2-6
°F	
Electrical connection	Reproducibility
Plug	± 1.5% of the measured value
Electrical connection	Protection class
M12x1	IP65
	IP67 according to IEC 60529
	Weight
	0.805 kg

## Material

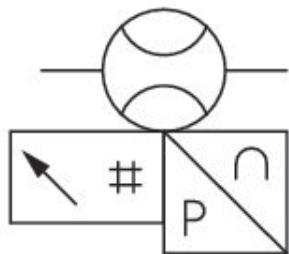
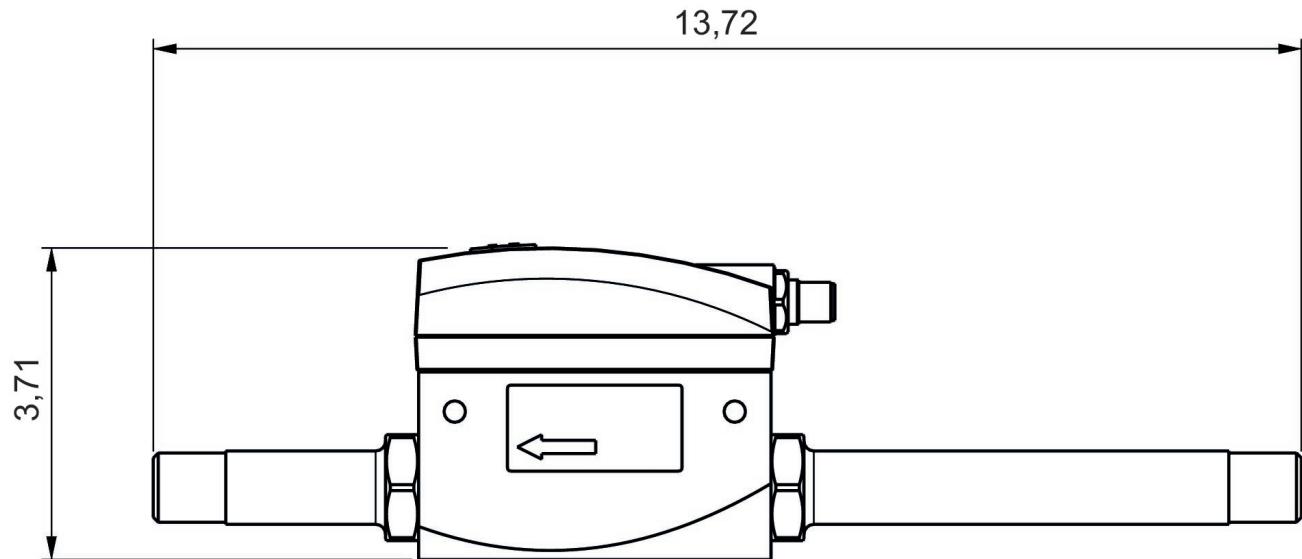
Housing material	Seal material sensor
Polyamide	Fluorocarbon caoutchouc
Polycarbonate	
Aluminum	

Pipe material	Part No.
Stainless Steel	G652AV004JA0010

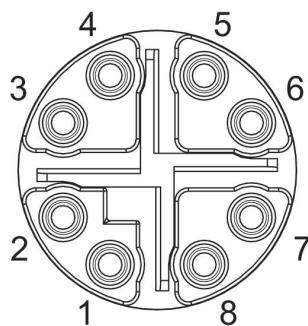
## Dimensions in mm



## Dimensions in inches



## Pin assignments



Pin	RJ45	Wire color	Identification	10/100 Mbit
1	1	WH / OG	TX(+) + POE	TxDATA+
2	2	OG	TX(-) + POE	TxDATA+
3	3	WH / GN	RX(+) - POE	TxDATA-
4	6	GN	RX(-) - POE	TxDATA-
7	5	WH / BU	POE+	
8	4	BU	POE+	
5	7	WH / BN	POE-	
6	8	BN	POE-	

# Series AF2 flow sensor, 652 pipe version with pipe, Ethernet

## 8652AV004JA0010

### Series 652

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C. The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions. Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result. Precision: Standard measurement range: ±3% of measured value, + 0.3% of final value. Extended measurement range: ±8% of measured value, + 1% of final value.



### Technical data

Industry  
Industrial

Note

Integrated web server, 48 VDC connection via Power over Ethernet

Switching principle

Flow measuring principle: calorimetric

Protocol  
TCP/IP  
OPC UA  
MQTT

Nominal flow Qn min., standard  
5.3 l/min

Nominal flow Qn max., standard  
1060 l/min

Nominal flow Qn min., extended  
1060 l/min

Nominal flow Qn max., extended  
1590 l/min

Compressed air connection  
1/2 NPT

Certificates  
CE declaration of conformity  
RoHS

Working pressure min.  
0 bar

Working pressure max  
16 bar

Min. ambient temperature  
-20 °C

Max. ambient temperature  
60 °C

Min. medium temperature  
-20 °C

Max. medium temperature  
60 °C

Medium  
Compressed air  
Argon

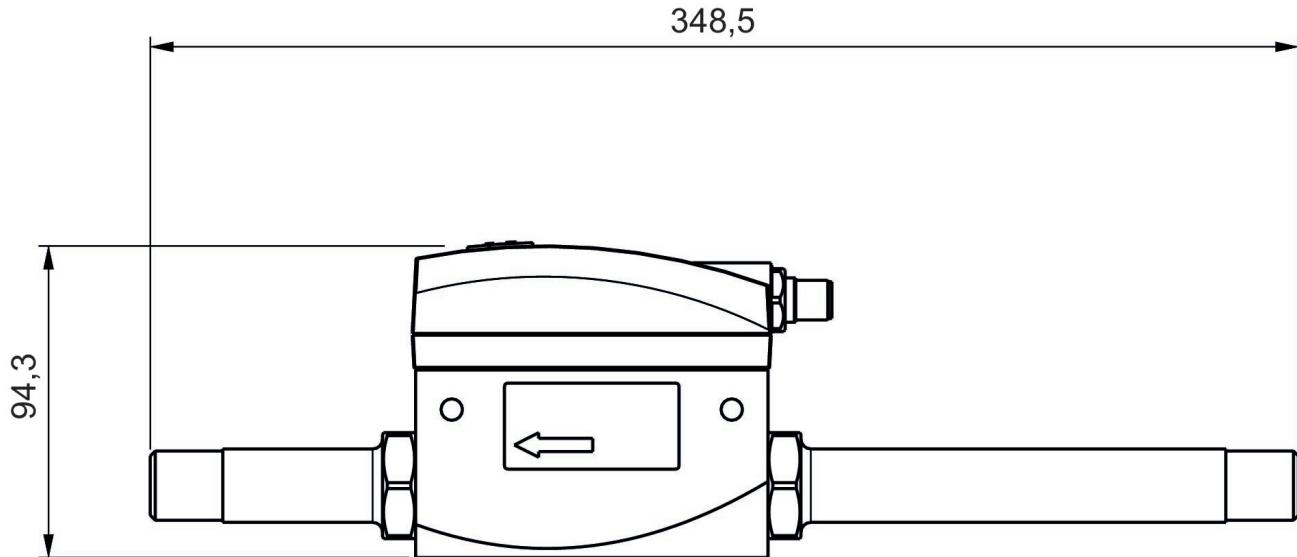
Nitrogen	Electrical connection
Helium	8-pin
Carbon dioxide	
Display	Power consumption max.
OLED	5 W
Flow display unit	Operating voltage DC, min.
l/sec	36 V DC
l/min	
m³/min	Operating voltage DC, max.
m³/h	57 V DC
ft³/s	
m³/min	Response time
	< 0.3 s
Pressure display unit	Shock resistance max.
bar	30 g, 11 ms
psi	
Temperature display unit	Vibration resistance
°C	1 g (10 - 2000 Hz) IEC 60068 - 2-6
°F	
Electrical connection	Reproducibility
Plug	± 1.5% of the measured value
Electrical connection	Protection class
M12x1	IP65
	IP67 according to IEC 60529
	Weight
	0.805 kg

## Material

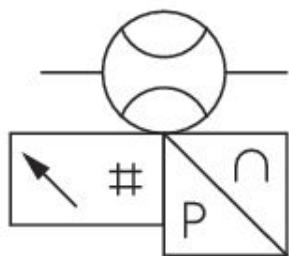
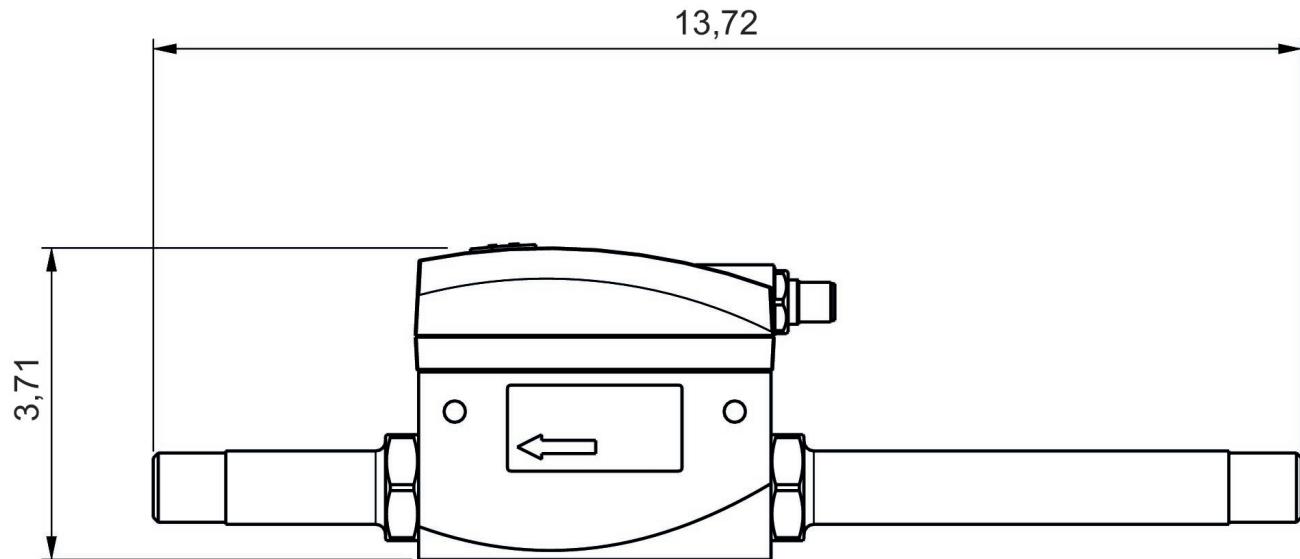
Housing material	Seal material sensor
Polyamide	Fluorocarbon caoutchouc
Polycarbonate	
Aluminum	

Pipe material Part No.  
Stainless Steel 8652AV004JA0010

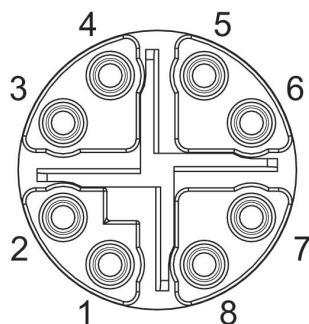
## Dimensions in mm



## Dimensions in inches



## Pin assignments



Pin	RJ45	Wire color	Identification	10/100 Mbit
1	1	WH / OG	TX(+) + POE	TxDATA+
2	2	OG	TX(-) + POE	TxDATA+
3	3	WH / GN	RX(+) - POE	TxDATA-
4	6	GN	RX(-) - POE	TxDATA-
7	5	WH / BU	POE+	
8	4	BU	POE+	
5	7	WH / BN	POE-	
6	8	BN	POE-	

# Series AF2 flow sensor, 652 pipe version with pipe, IO-Link

8652AV004JA0000

## Series 652

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C. The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions. Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result. Precision: Standard measurement range: ±3% of measured value, + 0.3% of final value. Extended measurement range: ±8% of measured value, + 1% of final value.



## Technical data

Industry  
Industrial

### Note

Output signal: 1 analog output 4 mA ... 20 mA + 1 digital/analog output (PNP, NPN, push-pull, 4 mA ... 20 mA / switchable)+1 digital output (PNP, NPN, push-pull, switchable), IO-Link V1.1 (COM3 / 230K4 baud)

### Switching principle

Flow measuring principle: calorimetric

Protocol  
IO-Link

Nominal flow Qn min., standard  
5.3 l/min

Nominal flow Qn max., standard  
1060 l/min

Nominal flow Qn min., extended  
1060 l/min

Nominal flow Qn max., extended  
1590 l/min

Compressed air connection  
1/2 NPT

### Certificates

CE declaration of conformity  
RoHS

Working pressure min.  
0 bar

Working pressure max  
16 bar

Min. ambient temperature  
-20 °C

Max. ambient temperature  
60 °C

Min. medium temperature  
-20 °C

Max. medium temperature  
60 °C

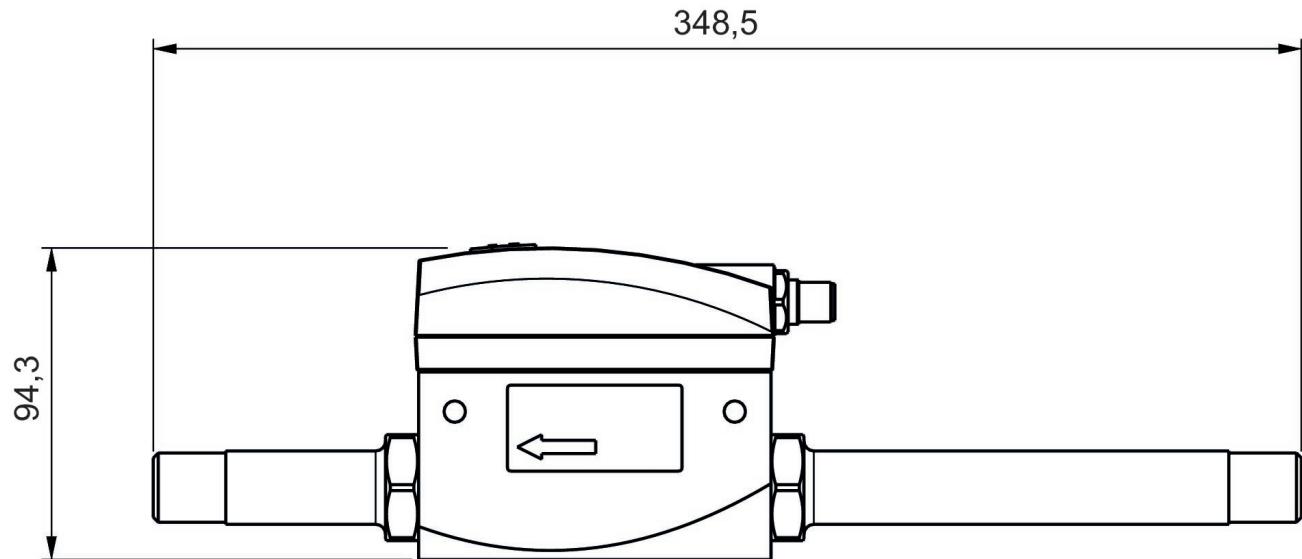
Medium  
Compressed air  
Argon

Nitrogen	Output signal digital
Helium	PNP/NPN/push-pull, switchable
Carbon dioxide	
Display	Output signal analog
OLED	4 ... 20 mA
Flow display unit	Power consumption max.
l/sec	12 W
l/min	
m³/min	Operating voltage DC, min.
m³/h	17 V DC
ft³/s	Operating voltage DC, max.
m³/min	30 V DC
Pressure display unit	Response time
bar	< 0.3 s
psi	
Temperature display unit	Short circuit resistance
°C	short circuit resistant
°F	
Electrical connection	Shock resistance max.
Plug	30 g, 11 ms
Electrical connection	Vibration resistance
M12x1	1 g (10 - 2000 Hz) IEC 60068 - 2-6
Electrical connection	Reproducibility
5-pin	± 1.5% of the measured value
Electrical connection	Protection class
A-coded	IP65
	IP67 according to IEC 60529
	Weight
	0.805 kg

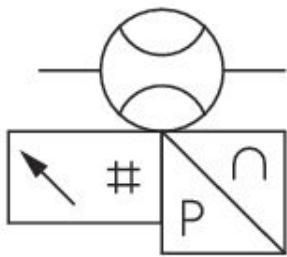
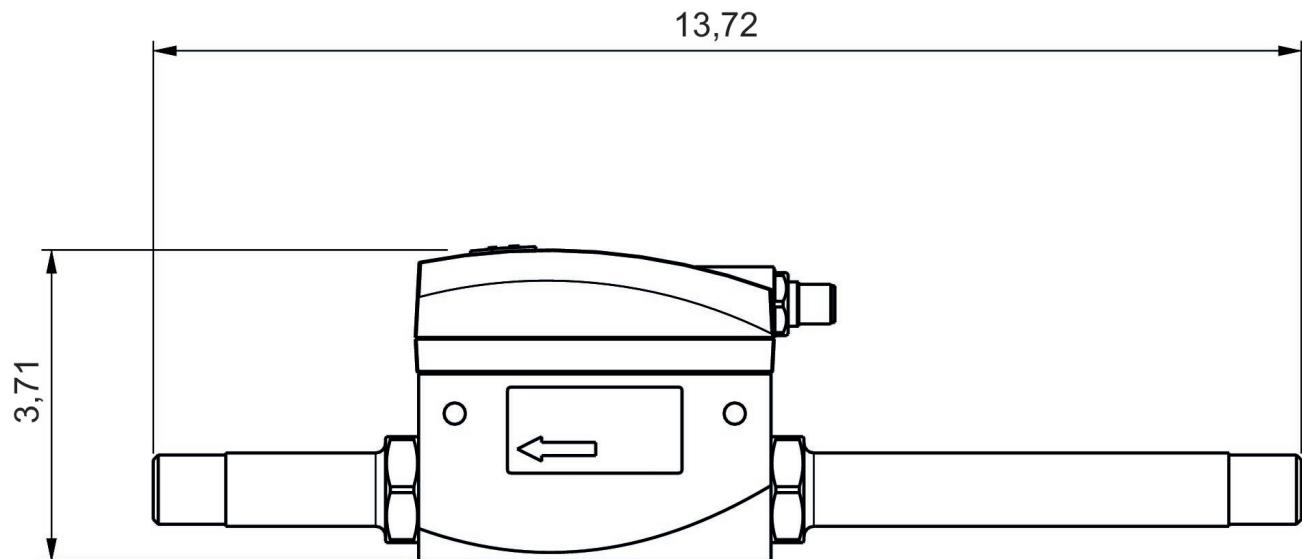
## Material

Housing material	Seal material sensor
Polyamide	Fluorocarbon caoutchouc
Polycarbonate	
Aluminum	
Pipe material	Part No.
Stainless Steel	8652AV004JA0000

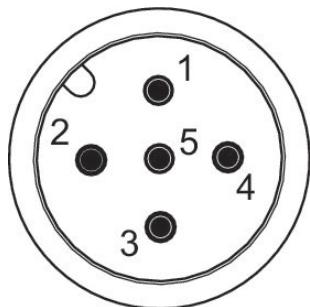
### Dimensions in mm



### Dimensions in inches



### Pin assignments



Pin	Allocation	Wire color	
1	L+	brown	Supply Voltage
2	QA (output 4 ... 20 mA)	white	
3	m = mass	blue	
4	C/Q1 (IO-Link/switch output)	black	
5	Analog output 4 ... 20 mA	yellow	

# Series AF2 flow sensor, 652 pipe version with pipe, IO-Link

G652AV004JA0000

## Series 652

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C. The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions. Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result. Precision: Standard measurement range: ±3% of measured value, + 0.3% of final value. Extended measurement range: ±8% of measured value, + 1% of final value.



## Technical data

Industry  
Industrial

### Note

Output signal: 1 analog output 4 mA ... 20 mA + 1 digital/analog output (PNP, NPN, push-pull, 4 mA ... 20 mA / switchable)+1 digital output (PNP, NPN, push-pull, switchable), IO-Link V1.1 (COM3 / 230K4 baud)

### Switching principle

Flow measuring principle: calorimetric

Protocol  
IO-Link

Nominal flow Qn min., standard  
5.3 l/min

Nominal flow Qn max., standard  
1060 l/min

Nominal flow Qn min., extended  
1060 l/min

Nominal flow Qn max., extended  
1590 l/min

Compressed air connection  
G 1/2

### Certificates

CE declaration of conformity  
RoHS

Working pressure min.  
0 bar

Working pressure max  
16 bar

Min. ambient temperature  
-20 °C

Max. ambient temperature  
60 °C

Min. medium temperature  
-20 °C

Max. medium temperature  
60 °C

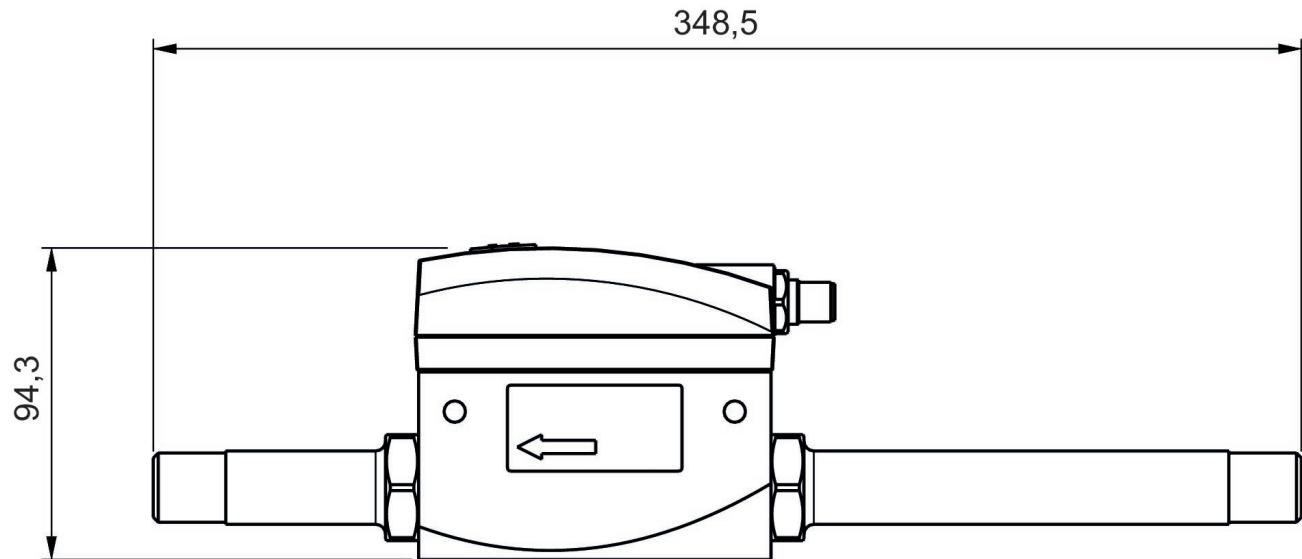
Medium  
Compressed air  
Argon

Nitrogen	Output signal digital
Helium	PNP, NPN, push-pull, 1x IO-Link
Carbon dioxide	
Display	Output signal analog
OLED	4 ... 20 mA
Flow display unit	Power consumption max.
l/sec	12 W
l/min	
m³/min	Operating voltage DC, min.
m³/h	17 V DC
ft³/s	Operating voltage DC, max.
m³/min	30 V DC
Pressure display unit	Response time
bar	< 0.3 s
psi	
Temperature display unit	Short circuit resistance
°C	short circuit resistant
°F	
Electrical connection	Shock resistance max.
Plug	30 g, 11 ms
Electrical connection	Vibration resistance
M12x1	1 g (10 - 2000 Hz) IEC 60068 - 2-6
Electrical connection	Reproducibility
5-pin	± 1.5% of the measured value
Electrical connection	Protection class
A-coded	IP65
	IP67 according to IEC 60529
	Weight
	0.805 kg

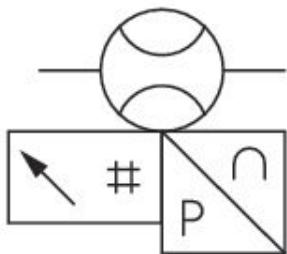
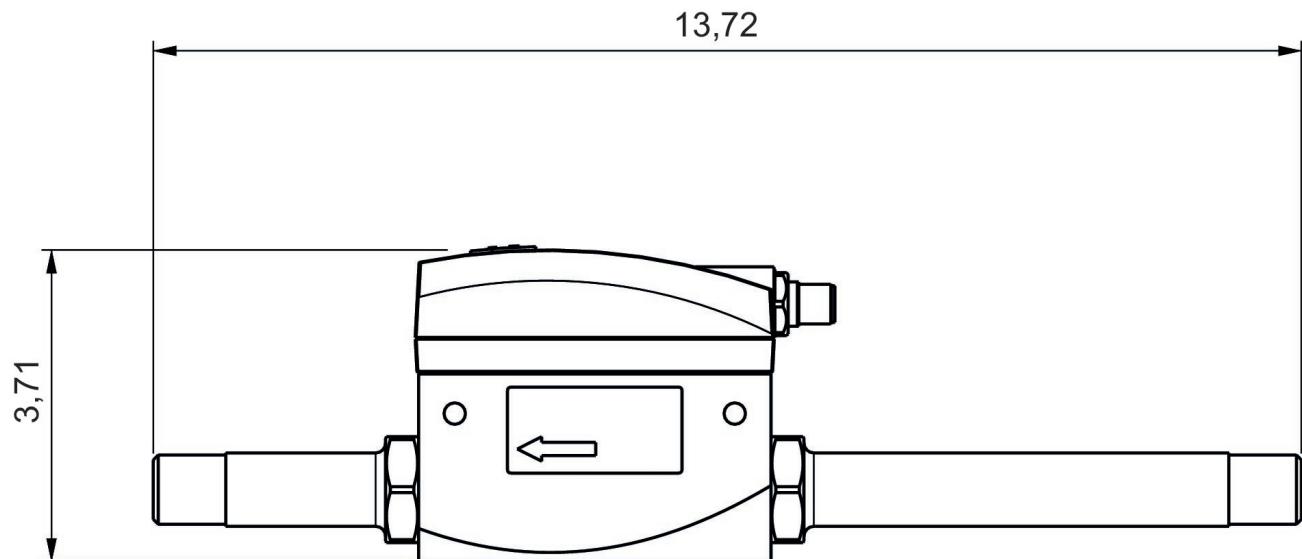
## Material

Housing material	Seal material sensor
Polyamide	Fluorocarbon caoutchouc
Polycarbonate	
Aluminum	
Pipe material	Part No.
Stainless Steel	G652AV004JA0000

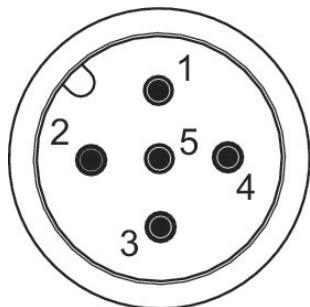
### Dimensions in mm



### Dimensions in inches



Pin assignments



Pin	Allocation	Wire color	
1	L+	brown	Supply Voltage
2	QA (output 4 ... 20 mA)	white	
3	m = mass	blue	
4	C/Q1 (IO-Link/switch output)	black	
5	Analog output 4 ... 20 mA	yellow	

# Series AF2 flow sensor, 653 pipe version with pipe, IO-Link

G653AV006JA0000

## Series 653

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C. The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions. Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result. Precision: Standard measurement range: ±3% of measured value, + 0.3% of final value. Extended measurement range: ±8% of measured value, + 1% of final value.



## Technical data

Industry  
Industrial

### Note

Output signal: 1 analog output 4 mA ... 20 mA + 1 digital/analog output (PNP, NPN, push-pull, 4 mA ... 20 mA / switchable)+1 digital output (PNP, NPN, push-pull, switchable), IO-Link V1.1 (COM3 / 230K4 baud)

### Switching principle

Flow measuring principle: calorimetric

Protocol  
IO-Link

Nominal flow Qn min., standard  
14.7 l/min

Nominal flow Qn max., standard  
2945 l/min

Nominal flow Qn min., extended  
2945 l/min

Nominal flow Qn max., extended  
4417 l/min

Compressed air connection  
G 1"

### Certificates

CE declaration of conformity  
RoHS

Working pressure min.  
0 bar

Working pressure max  
16 bar

Min. ambient temperature  
-20 °C

Max. ambient temperature  
60 °C

Min. medium temperature  
-20 °C

Max. medium temperature  
60 °C

Medium  
Compressed air  
Argon

Nitrogen	Output signal digital
Helium	PNP, NPN, push-pull, 1x IO-Link
Carbon dioxide	
Display	Output signal analog
OLED	4 ... 20 mA
Flow display unit	Power consumption max.
l/sec	5 W
l/min	
m³/min	Operating voltage DC, min.
m³/h	17 V DC
ft³/s	Operating voltage DC, max.
m³/min	30 V DC
Pressure display unit	Response time
bar	< 0.3 s
psi	
Temperature display unit	Short circuit resistance
°C	short circuit resistant
°F	
Electrical connection	Shock resistance max.
Plug	30 g, 11 ms
Electrical connection	Vibration resistance
M12x1	1 g (10 - 2000 Hz) IEC 60068 - 2-6
Electrical connection	Reproducibility
5-pin	± 1.5% of the measured value
Electrical connection	Protection class
A-coded	IP65
	IP67 according to IEC 60529
	Weight
	0.685 kg

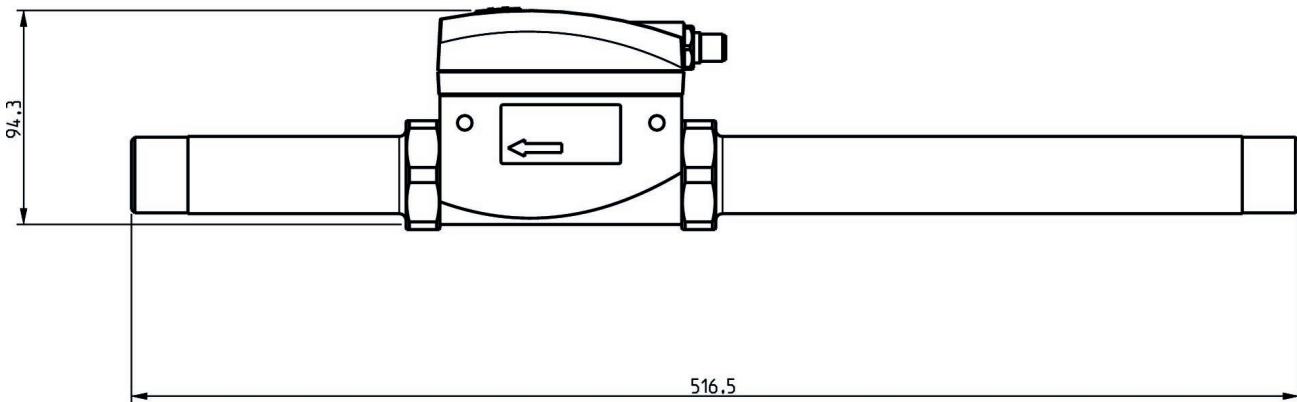
## Material

Housing material	Seal material sensor
Polyamide	Fluorocarbon caoutchouc
Polycarbonate	
Aluminum	

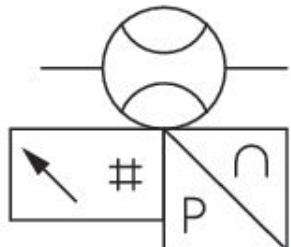
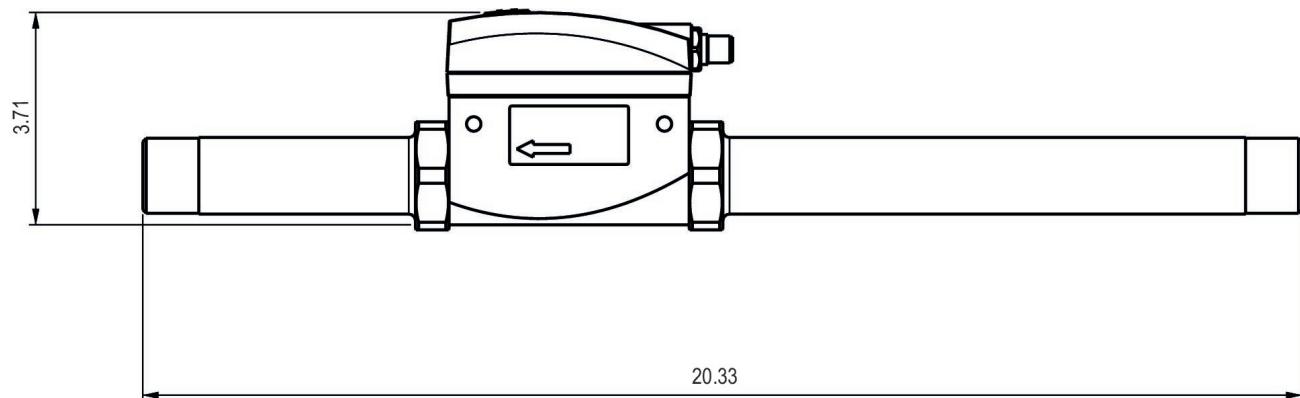
Pipe material

Stainless Steel

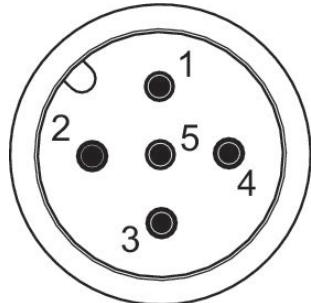
## Dimensions in mm



## Dimensions in inches



## Pin assignments



Pin	Allocation	Wire color	
1	L+	brown	Supply Voltage
2	QA (output 4 ... 20 mA)	white	
3	m = mass	blue	
4	C/Q1 (IO-Link/switch output)	black	
5	Analog output 4 ... 20 mA	yellow	

# Series AF2 flow sensor, 653 pipe version with pipe, IO-Link

8653AV006JA0000

## Series 653

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C. The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions. Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result. Precision: Standard measurement range: ±3% of measured value, + 0.3% of final value. Extended measurement range: ±8% of measured value, + 1% of final value.



## Technical data

Industry  
Industrial

### Note

Output signal: 1 analog output 4 mA ... 20 mA + 1 digital/analog output (PNP, NPN, push-pull, 4 mA ... 20 mA / switchable)+1 digital output (PNP, NPN, push-pull, switchable), IO-Link V1.1 (COM3 / 230K4 baud)

### Switching principle

Flow measuring principle: calorimetric

Protocol  
IO-Link

Nominal flow Qn min., standard  
14.7 l/min

Nominal flow Qn max., standard  
2945 l/min

Nominal flow Qn min., extended  
2945 l/min

Nominal flow Qn max., extended  
4417 l/min

Compressed air connection  
1" NPT

### Certificates

CE declaration of conformity  
RoHS

Working pressure min.  
0 bar

Working pressure max  
16 bar

Min. ambient temperature  
-20 °C

Max. ambient temperature  
60 °C

Min. medium temperature  
-20 °C

Max. medium temperature  
60 °C

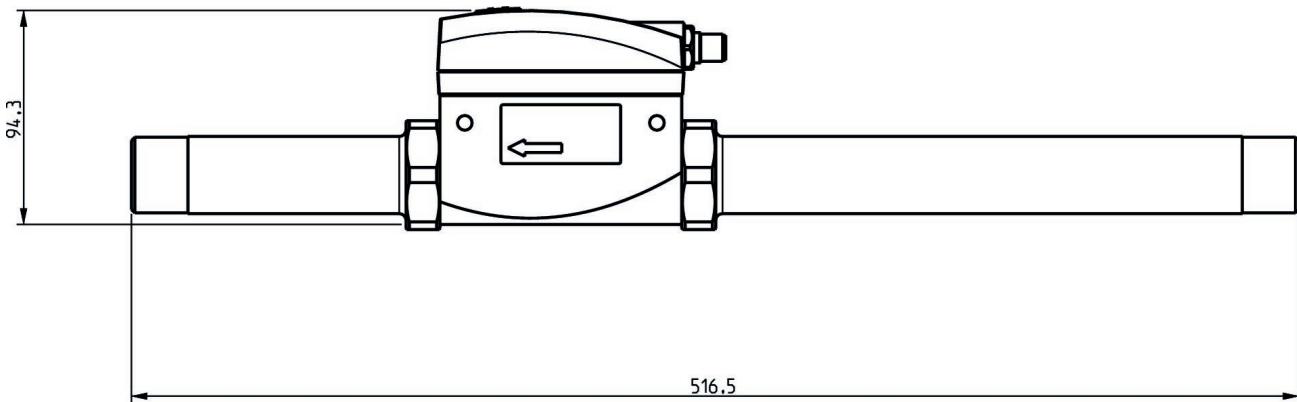
Medium  
Compressed air  
Argon

Nitrogen	Output signal digital
Helium	PNP, NPN, push-pull, 1x IO-Link
Carbon dioxide	
Display	Output signal analog
OLED	4 ... 20 mA
Flow display unit	Power consumption max.
l/sec	5 W
l/min	
m³/min	Operating voltage DC, min.
m³/h	17 V DC
ft³/s	Operating voltage DC, max.
m³/min	30 V DC
Pressure display unit	Response time
bar	< 0.3 s
psi	
Temperature display unit	Short circuit resistance
°C	short circuit resistant
°F	
Electrical connection	Shock resistance max.
Plug	30 g, 11 ms
Electrical connection	Vibration resistance
M12x1	1 g (10 - 2000 Hz) IEC 60068 - 2-6
Electrical connection	Reproducibility
5-pin	± 1.5% of the measured value
Electrical connection	Protection class
A-coded	IP65
	IP67 according to IEC 60529
	Weight
	0.685 kg

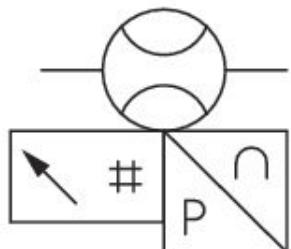
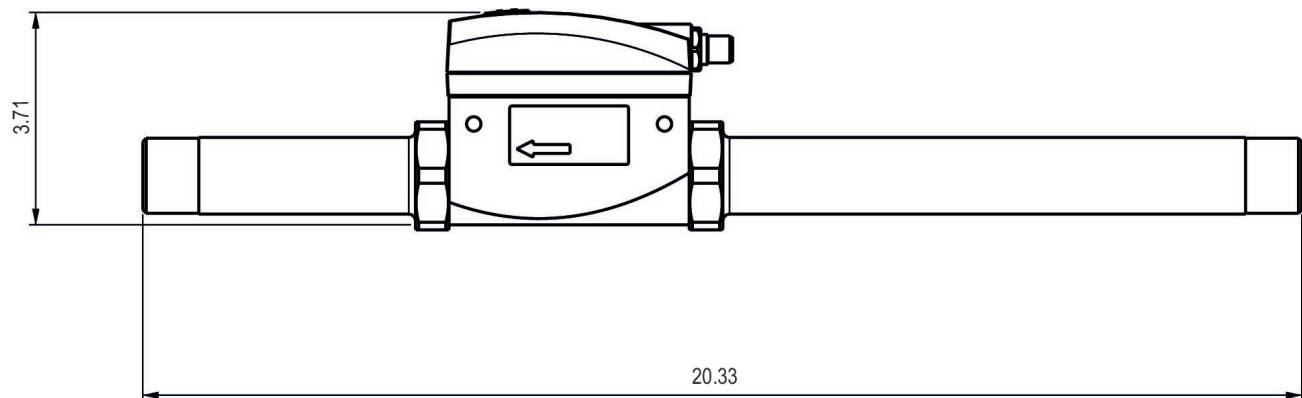
## Material

Housing material	Seal material sensor
Polyamide	Fluorocarbon caoutchouc
Polycarbonate	
Aluminum	
Pipe material	Part No.
Stainless Steel	8653AV006JA0000

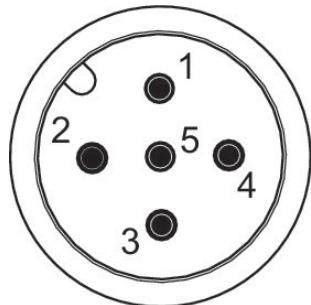
## Dimensions in mm



## Dimensions in inches



## Pin assignments



Pin	Allocation	Wire color	
1	L+	brown	Supply Voltage
2	QA (output 4 ... 20 mA)	white	
3	m = mass	blue	
4	C/Q1 (IO-Link/switch output)	black	
5	Analog output 4 ... 20 mA	yellow	

# Series AF2 flow sensor, 653 pipe version with pipe, Ethernet

G653AV006JA0010

## Series 653

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C. The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions. Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result. Precision: Standard measurement range: ±3% of measured value, + 0.3% of final value. Extended measurement range: ±8% of measured value, + 1% of final value.



## Technical data

Industry	Working pressure min. 0 bar
Industrial	Working pressure max 16 bar
Note	Min. ambient temperature -20 °C
Integrated web server, 48 VDC connection via Power over Ethernet	Max. ambient temperature 60 °C
Switching principle	Min. medium temperature -20 °C
Flow measuring principle: calorimetric	Max. medium temperature 60 °C
Protocol	Medium
TCP/IP	Compressed air
OPC UA	Argon
MQTT	Nitrogen
Nominal flow Qn min., extended 2945 l/min	Helium
Nominal flow Qn max., extended 4417 l/min	Carbon dioxide
Compressed air connection G 1"	Display
Certificates	OLED
CE declaration of conformity	
RoHS	

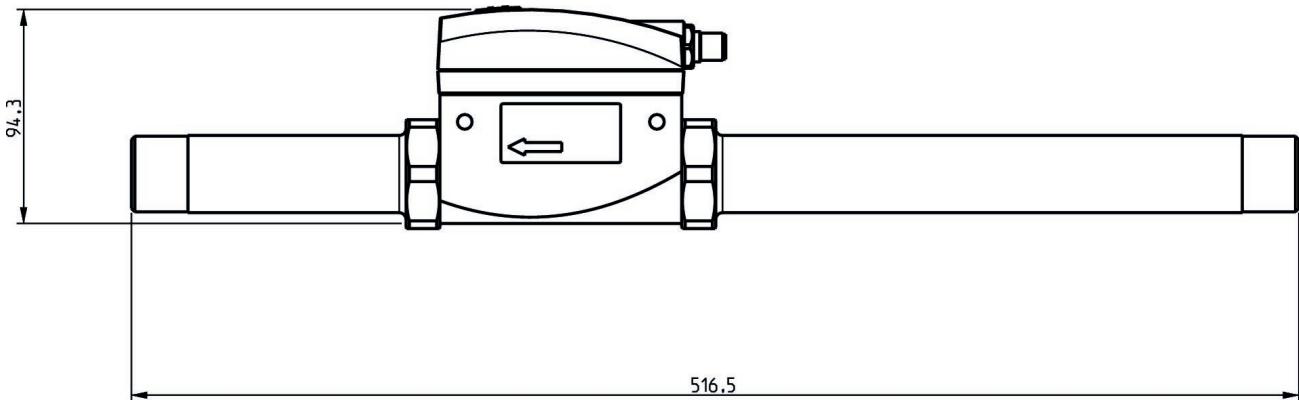
Flow display unit	Power consumption max.
l/sec	5 W
l/min	
m³/min	Operating voltage DC, min.
m³/h	36 V DC
ft³/s	Operating voltage DC, max.
m³/min	57 V DC
Pressure display unit	
bar	Response time
psi	< 0.3 s
Temperature display unit	Short circuit resistance
°C	short circuit resistant
°F	Shock resistance max.
Electrical connection	30 g, 11 ms
Plug	Vibration resistance
Electrical connection	1 g (10 - 2000 Hz) IEC 60068 - 2-6
M12x1	Reproducibility
Electrical connection	± 1.5% of the measured value
8-pin	Protection class
Electrical connection	IP65
X-coded	IP67 according to IEC 60529
	Weight
	0.685 kg

## Material

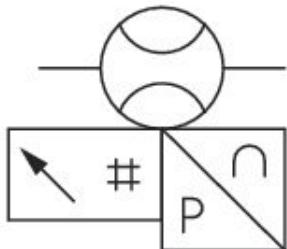
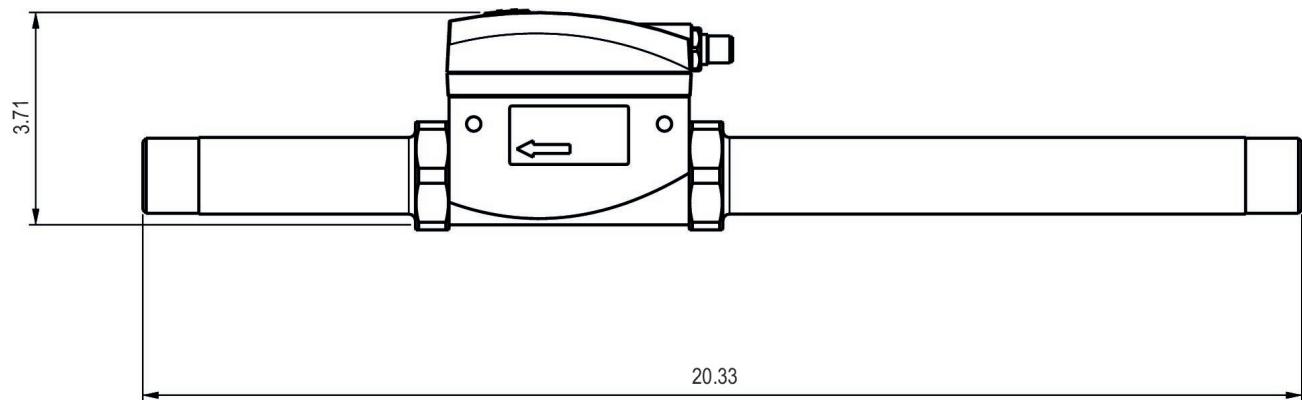
Housing material	Seal material sensor
Polyamide	Fluorocarbon caoutchouc
Polycarbonate	
Aluminum	

Pipe material	Part No.
Stainless Steel	G653AV006JA0010

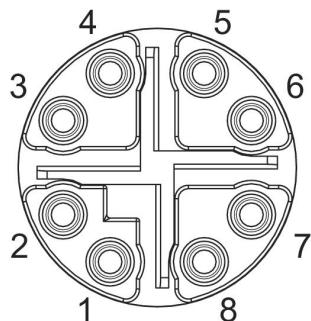
## Dimensions in mm



## Dimensions in inches



## Pin assignments



Pin	RJ45	Wire color	Identification	10/100 Mbit
1	1	WH / OG	TX(+) + POE	TxDATA+
2	2	OG	TX(-) + POE	TxDATA+
3	3	WH / GN	RX(+) - POE	TxDATA-
4	6	GN	RX(-) - POE	TxDATA-
7	5	WH / BU	POE+	
8	4	BU	POE+	
5	7	WH / BN	POE-	
6	8	BN	POE-	

# Series AF2 flow sensor, 653 pipe version with pipe, Ethernet

## 8653AV006JA0010

### Series 653

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C. The protection class is only ensured when the plug is mounted properly. For detailed information, see operating instructions. Liquid oil or water must be separated via prefiltering. If it is not separated sufficiently, drifting may result. Precision: Standard measurement range: ±3% of measured value, + 0.3% of final value. Extended measurement range: ±8% of measured value, + 1% of final value.



### Technical data

Industry	Working pressure min. 0 bar
Industrial	Working pressure max 16 bar
Note	Min. ambient temperature -20 °C
Integrated web server, 48 VDC connection via Power over Ethernet	Max. ambient temperature 60 °C
Switching principle	Min. medium temperature -20 °C
Flow measuring principle: calorimetric	Max. medium temperature 60 °C
Protocol	Medium
TCP/IP	Compressed air
OPC UA	Argon
MQTT	Nitrogen
Nominal flow Qn min., extended 2945 l/min	Helium
Nominal flow Qn max., extended 4417 l/min	Carbon dioxide
Compressed air connection 1" NPT	Display
Certificates	OLED
CE declaration of conformity	
RoHS	

Flow display unit	Power consumption max.
l/sec	5 W
l/min	
m³/min	Operating voltage DC, min.
m³/h	36 V DC
ft³/s	Operating voltage DC, max.
m³/min	57 V DC
Pressure display unit	
bar	Response time
psi	< 0.3 s
Temperature display unit	Short circuit resistance
°C	short circuit resistant
°F	Shock resistance max.
Electrical connection	30 g, 11 ms
Plug	Vibration resistance
Electrical connection	1 g (10 - 2000 Hz) IEC 60068 - 2-6
M12x1	Reproducibility
Electrical connection	± 1.5% of the measured value
8-pin	Protection class
Electrical connection	IP65
X-coded	IP67 according to IEC 60529
	Weight
	0.685 kg

## Material

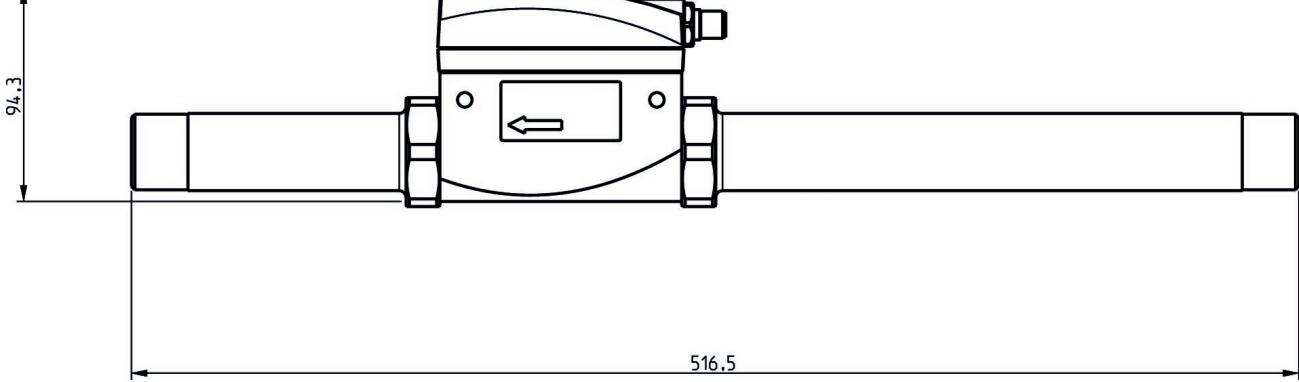
Housing material	Seal material sensor
Polyamide	Fluorocarbon caoutchouc
Polycarbonate	
Aluminum	Part No.

Pipe material 8653AV006JA0010

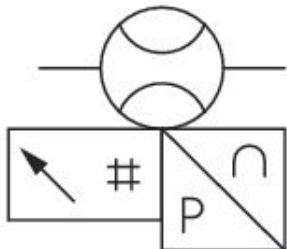
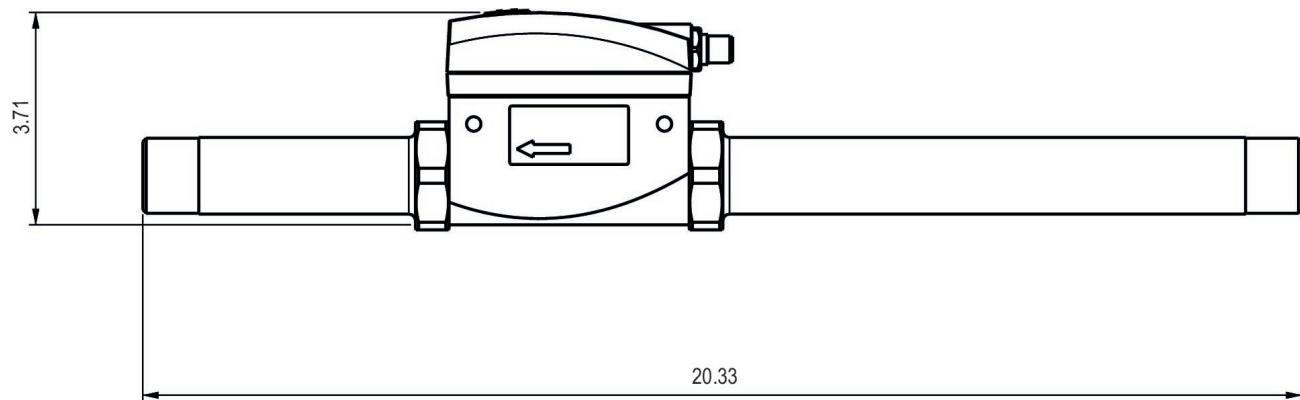
Pipe material

Stainless Steel

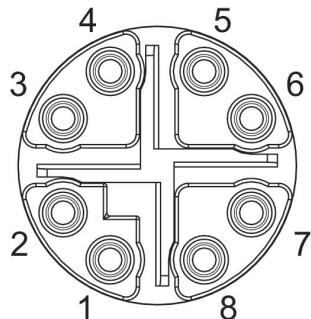
## Dimensions in mm



## Dimensions in inches



## Pin assignments



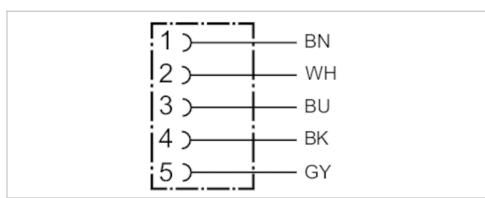
Pin	RJ45	Wire color	Identification	10/100 Mbit
1	1	WH / OG	TX(+) + POE	TxDATA+
2	2	OG	TX(-) + POE	TxDATA+
3	3	WH / GN	RX(+) - POE	TxDATA-
4	6	GN	RX(-) - POE	TxDATA-
7	5	WH / BU	POE+	
8	4	BU	POE+	
5	7	WH / BN	POE-	
6	8	BN	POE-	

# Round plug connector, Series CON-RD

- Socket M12x1 5-pin A-coded angled 90°
- open cable ends
- with cable
- shielded



Ambient temperature min./max.	-25 ... 80 °C
Operational voltage	48 V AC/DC
Protection class	IP67
Wire cross-section	0.34 mm <sup>2</sup>
Weight	See table below



## Technical data

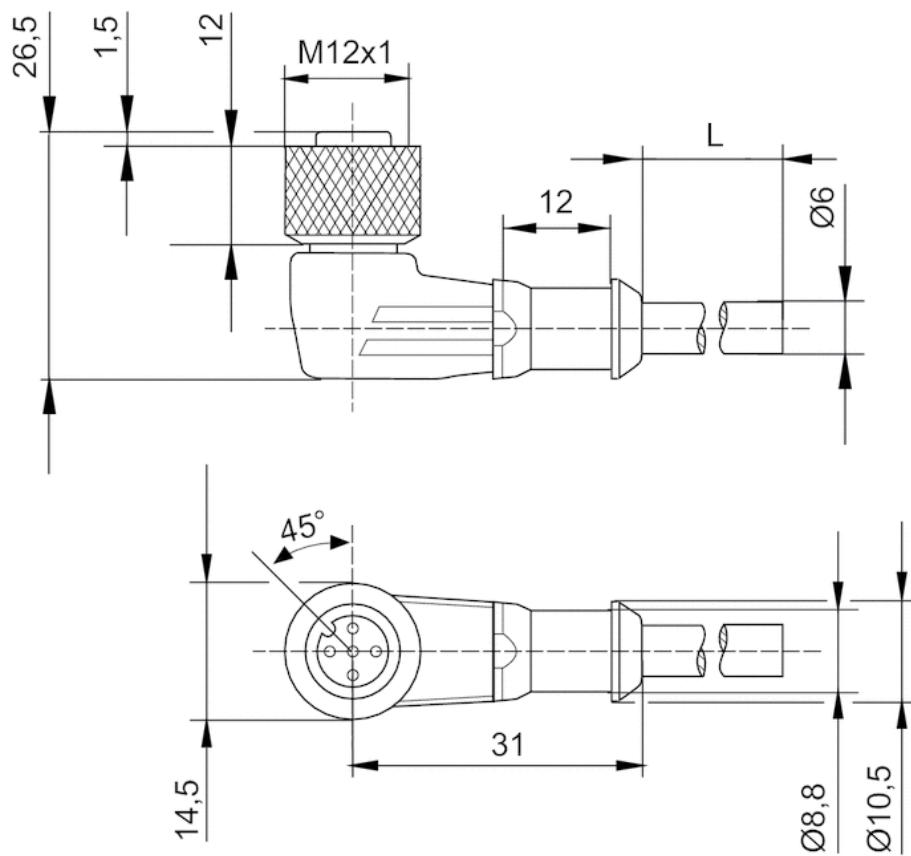
Part No.	Max. current	Number of wires	Cable-Ø	Cable length	Weight
R419800109	4 A	5	6 mm	2.5 m	0.145 kg
R419800110	4 A	5	6 mm	5 m	0.27 kg
R419800546	4 A	5	6 mm	10 m	0.514 kg

## Technical information

Material	
Housing	Thermoplastic elastomer
Cable sheath	Polyurethane

## Dimensions

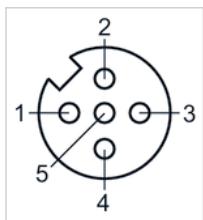
### Dimensions



L = length

## Pin assignments

### Pin assignment, socket



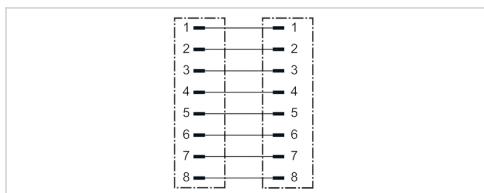
- (1) BN=brown
- (2) WH=white
- (3) BU=blue
- (4) BK=black
- (5) GY=grey

# Round plug connectors with cable, Series CON-RD

- Plug M12x1 8-pin X-coded angled 90°
- Plug RJ45 8-pin X-coded straight
- shielded



Ambient temperature min./max.	-25 ... 85 °C
Protection class	IP66K
Wire cross-section	0.14 mm <sup>2</sup>



## Technical data

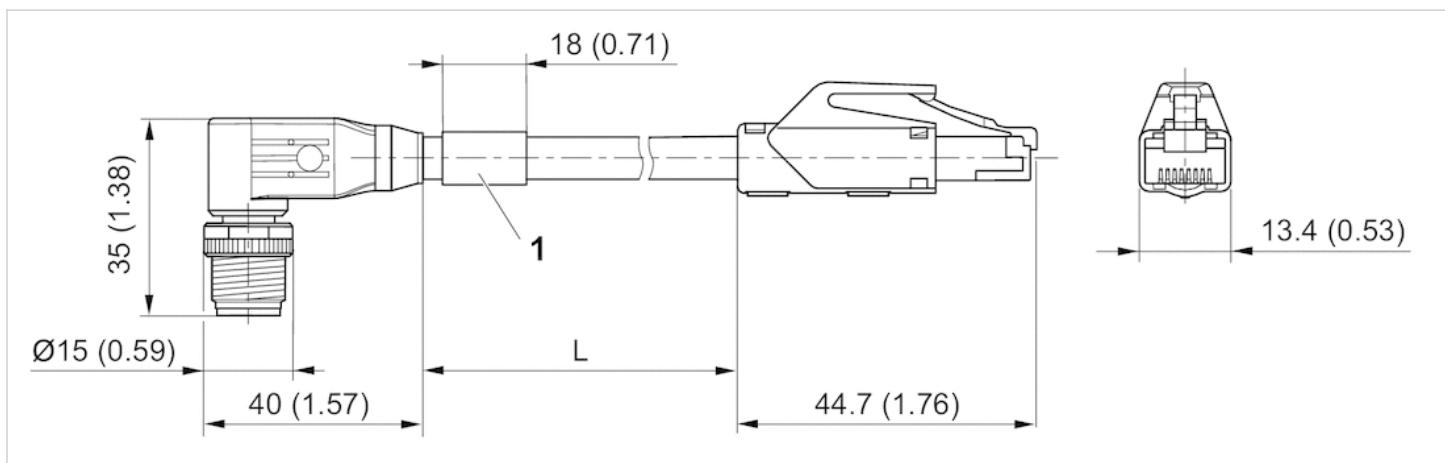
Part No.	Max. current	Cable length
R412027647	0.5 A	5 m

## Technical information

Material	
Cable sheath	Polyurethane

## Dimensions

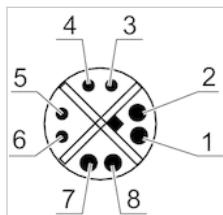
### Dimensions



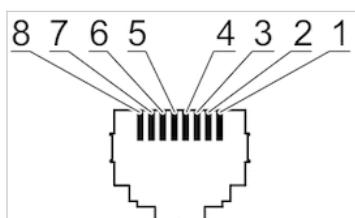
1) Name plate

## Pin assignments

### Plug pin assignment



### Plug pin assignment





+34 943 377 740



info@diprax.es



www.diprax.es