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Product data sheet



FTMG-ISR40SXX

FTMg

THERMAL FLOW SWITCH

SICK
Sensor Intelligence.

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FTMG-ISR40SXX | FTMg

THERMAL FLOW SWITCH



Illustration may differ

Ordering information

Type	Part no.
FTMG-ISR40SXX	1120053

Other models and accessories → www.sick.com/FTMg

Detailed technical data

Features

Measurement principle	Calorimetric (flow, temperature), piezoresistive (pressure)
Medium	Compressed air (air quality ISO 8573-1:2010 [3:4:4]), Argon, nitrogen, carbon dioxide
Measured values	Mass, Mass flow rate, volume, Volumetric flow rate, Energy, Flow velocity, pressure, temperature
Nominal width measuring tube	DN 40
Measuring range	
Standard	37.7 l/min ... 7,539.8 l/min [1] 0.5 m/s ... 100 m/s [1]
Enhanced	7,539.8 l/min ... 11,309.7 l/min [1] 100 m/s ... 150 m/s [1]
Process temperature	–20 °C ... +60 °C
Process pressure	0 bar ... 16 bar
Communication interface	IO-Link, IO-Link V1.1
Temperature measurement	✓
Pressure measurement	✓
Indication	✓ 128 x 128 pixels, adjustable rotary OLED display (90° steps) and 4 pushbuttons

[1] Reference conditions according to DIN 1343 (atmospheric pressure 1,013 mbar, compressed air temperature 0 °C).

Performance

Measurement accuracy	
Standard	± 6 % of the measured value + 0.6% of the measuring range limit value (extended measuring range) [1]

[1] Reference conditions during measurement: media conditions: air according to ISO 8573-1:2010 [3:4:4] or better; static pressure = 7 ± 0.2 bar (abs.); medium temperature 22 ± 3 °C; straight inlet zone > 250xDN; average filter can be parameterized by customer: 10 seconds / ambient conditions: ambient temperature 15 °C ... 25 °C; ambient pressure: 1013 mbar / measured value via digital interface.

[2] When flow rate ≥ 10% of the measuring range limit value (standard measuring range).

[3] Evaluation according to DIN EN 61298-2 best fit straight line.

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Enhanced	± 8 % of the measured value + 0.8% of the measuring range limit value (extended measuring range) [1]
Repeatability	± 1.5 % From measured value [1]
Response time	< 0.3 s
Temperature measurement	
Measurement accuracy (temperature)	± 2 °C [2]
Repeatability (temperature)	± 0.5 °C [2]
Pressure measurement	
Measurement accuracy (pressure)	± 1.5 % of measuring range end value [3]
Non-linearity (pressure)	± 0.5 % from measuring range [3]
Repeatability (pressure)	± 0.2 % from measuring range [3]

[1] Reference conditions during measurement: media conditions: air according to ISO 8573-1:2010 [3:4:4] or better; static pressure = 7 ± 0.2 bar (abs.); medium temperature 22 ± 3 °C; straight inlet zone > 250xDN; average filter can be parameterized by customer: 10 seconds / ambient conditions: ambient temperature 15 °C ... 25 °C; ambient pressure: 1013 mbar / measured value via digital interface.

[2] When flow rate ≥ 10% of the measuring range limit value (standard measuring range).

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Electronics

Supply voltage	17 V DC ... 30 V DC [1]
Power consumption	< 4.5 W at 24 V DC without output load
Initialization time	≤ 10 s
Protection class	III
Connection type	M12 x 1 round connector, 5-pin, A-coded
Output signal	1x analog output 4 mA ... 20 mA + 1x digital/analog output (PNP, NPN, push-pull, 4 mA ... 20 mA / switchable), frequency pulse output + 1x digital output (PNP, NPN, push-pull, switchable), IO-Link V1.1 (COM3 / 230K4 baud)
Output load	4 mA ... 20 mA, max. 500 ohm
Lower signal level	3.5 mA ... 3.8 mA
Upper signal level	20.5 mA ... 21.5 mA
Inaccuracy	QA Pin2: < 0.5% full-range (20 mA) Q2 Pin5: < 0.5% full-range (20 mA)
Digital output	≤ 100 mA
Inductive load	≤ 1 H
Capacitive load	≤ 100 nF (2.5 nF, IO-Link mode)
MTTF	> 100 years

[1] All connections are reverse polarity and overload protected. Q1 and Q2 are short-circuit protected. Use an energy-limited circuit for the voltage supply as per UL61010-1 3. Outp.

Mechanics

Process connection	R 1 ½ male thread
Wetted parts	Probe: stainless steel 1.4305, PA6; seal: FKM (Viton®); measurement channel: stainless steel 1.4301
Housing material	PC+ABS, PA66+PA6I GF50, PC, TPE, stainless steel 1.4301
Enclosure rating	IP65/IP67 (according to IEC 60529) [1]

[1] Not UL-tested.

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Weight	Approx. 2.3 kg

[1)] Not UL-tested.

Ambient data

Ambient operating temperature	–20 °C ... +60 °C [1)]
Ambient temperature, storage	–40 °C ... +85 °C

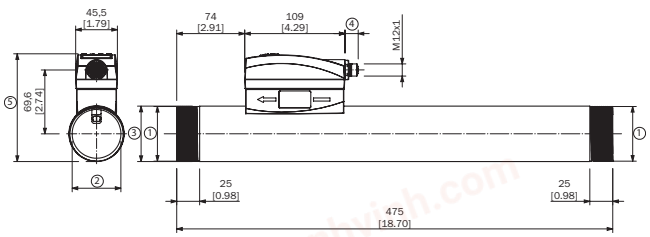
[1)] According to the UL approval: degree of contamination 3 (UL61010-1: 2012-05); air humidity: 80% at temperatures up to 31 °C; installation altitude: max. 3,000 m above sea level.

Classifications

ECLASS 5.0	27200403
ECLASS 5.1.4	27200403
ECLASS 6.0	27200403
ECLASS 6.2	27200403
ECLASS 7.0	27200403
ECLASS 8.0	27200403
ECLASS 8.1	27200403
ECLASS 9.0	27200403
ECLASS 10.0	27200403
ECLASS 11.0	27200403
ECLASS 12.0	27200403
ETIM 5.0	EC002580
ETIM 6.0	EC002580
ETIM 7.0	EC002580
ETIM 8.0	EC002580
UNSPSC 16.0901	41112501

Dimensional drawing (Dimensions in mm (inch))

DN40, DN50, unit: mm (inch), decimal separator: period

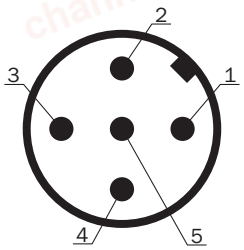


Type	DN	1	2	3	4	5
FTMG-ISR40SXX	40	R 1 1/2	Ø 41.1	Ø 48.3	18.5	105.1
FTMG-ESR40SXX	40	R 1 1/2	Ø 41.1	Ø 48.3	13.4	105.1
FTMG-ISN40SXX	40	1 1/2" NPT	Ø 41.1	Ø 48.3	18.5	105.1
FTMG-ESN40SXX	40	1 1/2" NPT	Ø 41.1	Ø 48.3	13.4	105.1
FTMG-ISR50SXX	50	R 2	Ø 54.1	Ø 60.3	18.5	117.1
FTMG-ESR50SXX	50	R 2	Ø 54.1	Ø 60.3	13.5	117.1

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Type	DN	1	2	3	4	5
FTMG-ISN50SXX	50	2" NPT	Ø 54.1	Ø 60.3	18.5	117.1
FTMG-ESN50SXX	50	2" NPT	Ø 54.1	Ø 60.3	13.5	117.1

Connection type



① L^+: Supply voltage, brown
② QA: analog current output 4 mA ... 20 mA (scalable), white
③ M: ground, reference potential for current output, blue
④ C/Q1: IO-Link communication or digital switching output 1 (NO/NC programmable), black
⑤ Q2: Digital switching output 2 (NO/NC programmable or current output B 4 mA ... 20 mA, frequency or pulse output) gray

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SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is "Sensor Intelligence."

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