ONLINE DATA SHEET
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Gas flow measuring devices
Gas massflow measuring device, FLOWSIC100
Flare

FLOWSIC100 EX

SICK
Sensor Intelligence.

Model Name **> FLOWSIC100 EX**

The FLOWSIC100 Flare product family is characterized by an unique flow-optimized sensor design. This innovative design reduces flow noise and signal drift at very high gas velocities to a minimum. Modern signal processing and highly efficient transducers allow a high time resolution of the signal and therefore an accurate measurement, also at very low gas flow. The type EX/EX-RE has a high acoustic power and is suited for measurements in large duct diameters up to 72" or for difficult gas compositions.

The standard configuration of the system consists of 2 sender/receiver units and the MCUP control unit. The MCUP is used for input and output of signals, for calculation of reference values (standardization), molecular weight, mass flow, for acquisition of gas volume as well as user-friendly LCD interface. The FLOWSIC100 EX-RE version is retractable under process conditions.

At a glance

- Highest measurement resolution and short response time
- Innovative sensor design for very high gas velocities
- Optimal signal transmission also at atmospheric pressure
- Field repeatable check procedure of factory zero flow test
- High power transducers for cross-duct measurement at pipe sizes up to 72 inches
- Hermetically sealed transducers made of titanium or stainless steel
- Explosion protection ATEX zone 1, 2, IECEx and CSA

Your benefits

- Reliable process control by accurate measurement near to zero flow readings
- High measurement availability also under emergency plant operation conditions with high gas velocities up to 120 m/s
- Securing optimal meter performance by continuous monitoring of meter function and extended field diagnostic capabilities
- Representative measuring results also at large pipe sizes
- Highest availability of measurement also in difficult gas compositions with sound absorbing components (e.g. CO2)
- Suitable for gases with high contamination rate (liquids, particles etc.)
- Cost saving by remote installation of control unit in safe area
- System solution to serve three different flare measurements with a single control unit

Fields of application

- Emission control as accounting for CO2 taxes
- Detection of flare gas leakages
- Controlling of steam injection in flare gas combustion
- Control of gas wastage
- Accurate mass balance calculation

Note

The exact device specifications and performance data of the product may deviate from the information provided here, and depend on the application in which the product is being used and the relevant customer specifications.

Technical data

Measurement principle:	Ultrasonic transit time difference measurement
Measured values:	Gas velocity Gas temperature Gas volume and mass Mass flow Molecular weight Volumetric flow, a. c. Volumetric flow s. c.
Measuring ranges:	Gas velocity: 0.03 ... 120 m/s
Comment:	Measuring ranges depend on nominal pipe size and gas composition
Process temperature:	High-temperature Zone 1: -70 ... +280 °C High-temperature Zone 2: -70 ... +260 °C Low-temperature: -196 ... +100 °C on request Standard: -70 ... +180 °C
Process pressure:	-0.5 ... 16 bar (g)
Nominal pipe size:	0.1 ... 1.8 m
Ambient temperature:	FLSE100 sender/receiver units: -40 ... +70 °C FLSE100 sender/receiver units: -50 ... +70 °C option MCUP control unit: -40 ... +60 °C reduced range for MCUP ATEX Zone 1, ATEX Zone 2 115/230 V AC and 19-inch version
Ex-approvals IECEx:	FLSE100 sender/receiver units: Ex d IIC T4 optional: temperature class T6; ex zone 0 for ultrasonic transducers
Ex-approvals ATEX:	FLSE100 sender/receiver units: II 2 G Ex d IIC T4; II 2 G Ex de IIC T4 optional: temperature class T6; ex zone 0 for ultrasonic transducers FLSE100 sender/receiver units: II 3 G Ex nA II T4 MCUP control unit: II 2 G Ex de IIC T6; II 3 G Ex nA II T4
Ex-approvals USA/Canada:	FLSE100 sender/receiver units: CSA Class I, Division 1 Group B,C,D; Class I, Division 2 Group A,B,C,D; Class I, Zone 1/Zone 2 IIC T4 MCUP control unit: Class I Division 2; Class I Zone 2
Electrical safety:	CE
Enclosure rating:	FLSE100 sender/receiver units (ATEX Zone 1): IP 65, IP 67 FLSE100 sender/receiver units (ATEX Zone 2): IP 65 FLSE100 sender/receiver units (CSA Class I): enclosure type 6, IP 65/67, single seal MCUP control unit (19-inch version): IP 20 MCUP control unit (Ex zone 1): IP 66 MCUP control unit (Ex zone 2/Division 2): enclosure type 4, IP 66 MCUP control unit: IP 65
Analog outputs:	1 output active: 0/2/4 ... 22 mA, 500 Ω according to NAMUR NE43; additional outputs if using I/O modules
Analog inputs:	2 inputs: 0 ... 20 mA additional inputs if using I/O modules
Digital outputs:	5 floating outputs (change-over contacts) additional outputs if using I/O modules

Digital inputs:	4 floating contacts additional inputs if using I/O modules
Interfaces:	Ethernet (option) RS-232 RS-485 (option) USB 1.1
Bus protocol:	Ethernet TCP/IP (option) Foundation Fieldbus (on request) HART (option) Modbus (option) PROFIBUS DP (option)
Operation:	Via LC-display or software SOPAS ET
Device version:	Cross-duct version
System components:	Flange(s) with tube FLSE100 sender/receiver units MCUP control unit
Diagnostics functions:	Automatic control cycle for zero and span point Extended device diagnosis via SOPAS ET software

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Australia
Phone +61 3 9457 0600
1800 33 48 02 – tollfree
E-Mail sales@sick.com.au

Belgium/Luxembourg
Phone +32 (0)2 466 55 66
E-Mail info@sick.be

Brasil
Phone +55 11 3215-4900
E-Mail marketing@sick.com.br

Canada
Phone +1 905 771 14 44
E-Mail information@sick.com

Česká republika
Phone +420 2 57 91 18 50
E-Mail sick@sick.cz

China
Phone +86 4000 121 000
E-Mail info.china@sick.net.cn
Phone +852-2153 6300
E-Mail ghk@sick.com.hk

Danmark
Phone +45 45 82 64 00
E-Mail sick@sick.dk

Deutschland
Phone +49 211 5301-301
E-Mail info@sick.de

España
Phone +34 93 480 31 00
E-Mail info@sick.es

France
Phone +33 1 64 62 35 00
E-Mail info@sick.fr

Great Britain
Phone +44 (0)1727 831121
E-Mail info@sick.co.uk

India
Phone +91–22–4033 8333
E-Mail info@sick-india.com

Israel
Phone +972-4-6881000
E-Mail info@sick-sensors.com

Italia
Phone +39 02 27 43 41
E-Mail info@sick.it

Japan
Phone +81 (0)3 5309 2112
E-Mail support@sick.jp

Magyarország
Phone +36 1 371 2680
E-Mail office@sick.hu

Nederland
Phone +31 (0)30 229 25 44
E-Mail info@sick.nl

Norge
Phone +47 67 81 50 00
E-Mail sick@sick.no

Österreich
Phone +43 (0)22 36 62 28 8-0
E-Mail office@sick.at

Polska
Phone +48 22 837 40 50
E-Mail info@sick.pl

România
Phone +40 356 171 120
E-Mail office@sick.ro

Russia
Phone +7-495-775-05-30
E-Mail info@sick.ru

Schweiz
Phone +41 41 619 29 39
E-Mail contact@sick.ch

Singapore
Phone +65 6744 3732
E-Mail sales.gsg@sick.com

Slovenija
Phone +386 (0)1-47 69 990
E-Mail office@sick.si

South Africa
Phone +27 11 472 3733
E-Mail info@sickautomation.co.za

South Korea
Phone +82 2 786 6321/4
E-Mail info@sickkorea.net

Suomi
Phone +358-9-25 15 800
E-Mail sick@sick.fi

Sverige
Phone +46 10 110 10 00
E-Mail info@sick.se

Taiwan
Phone +886 2 2375-6288
E-Mail sales@sick.com.tw

Türkiye
Phone +90 (216) 528 50 00
E-Mail info@sick.com.tr

United Arab Emirates
Phone +971 (0) 4 88 65 878
E-Mail info@sick.ae

USA/México
Phone +1(952) 941-6780
1 (800) 325-7425 – tollfree
E-Mail info@sickusa.com

More representatives and agencies
at **www.sick.com**

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