



FLOWSIC100 Process Volume Flow Measuring Device

Volume Flow Measurement
for Process Applications



SICK
Sensor Intelligence.

FLWSIC100 PROCESS

Easy installation, wide measuring range,
reliable and precise measurement

AREAS OF APPLICATION

- Natural gas industry
- Chemical and plastics manufacturing industries
- Petrochemical industry and refineries
- Processing industries (cement manufacturing, steel and iron production)
- Pharmaceutical industry
- Glass industry
- Food industry

FLWSIC100 CL150/PN16

- Ambient pressure up to 16 barg
- Material: hermetically sealed stainless steel or titanium

FLWSIC100 EX-Z2/EX-Z2-RE

- Ambient pressure up to 16 barg
- Ex-protected version for use in hazardous area zone 2 according to ATEX guidel. 94/9/EC¹⁾
- Material: hermetically sealed stainless steel or titanium
- Optional: flange with retraction mechanism for sender/receiver units

¹⁾ Version for zone 1 on request

FLWSIC100 PR-EX-Z2

- Ambient pressure up to 0.1 barg
- Ex-protected probe version for use in hazardous area zone 2 according to ATEX guidel. 94/9/EC
- Material: hermetically sealed stainless steel or titanium
- Installation from one side only

KEY FEATURES

- Rugged transducers in stainless steel or titanium for higher durability
- Corrosion resistant probe materials available for use with aggressive gases
- Integral measurement over the entire duct diameter²⁾ for representative measuring results
- Contact-free measurement
- No moving parts results in low maintenance
- Independent of pressure, temperature and gas composition
- High measuring accuracy even at gas velocity near zero
- Fully automatic zero and span check

²⁾ Except for probe version





SYSTEM COMPONENTS

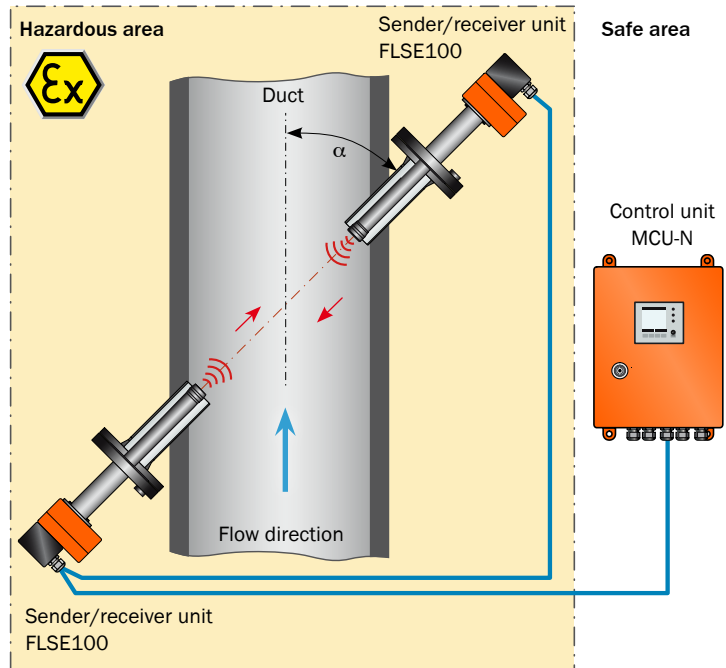
The FLOWSIC100 standard version contains two FLSE100 sender/receiver units, an MCU control unit. The MCU is used for input and output of signals, for calculation of volume flow to reference conditions (standardization) as well as user friendly LCD interface.

Installation of the sender/receiver units

- Cross-duct installation:
2 sender/receiver units are mounted on both sides of a duct at a specific angle α to the gas flow direction.
- One-side installation:
Only a single sender/receiver unit (probe version) is mounted at a specific angle α to the gas flow. Both ultrasonic transducers are installed on the probe with a fixed measuring path.

Optional components

- MCU control unit for use in Ex-zone 2, ex-certification according to ATEX guideline 94/9/EC
- Spool-piece version



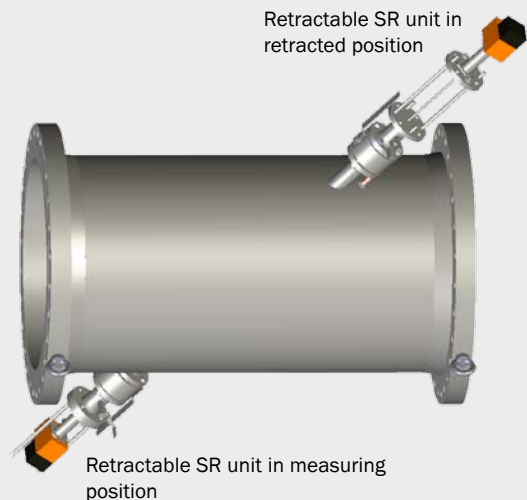
Example: Installation of FLOWSIC100 EX-Z2

COMPREHENSIVE SOLUTION WITH SPOOL-PIECE

The FLOWSIC100 can be mounted on a measuring tube and delivered as a system solution. Optimized factory setting of the sender/receiver unit reduces geometrical tolerances to a minimum, thereby achieving maximum measuring accuracy.

Retraction mechanism

With the EX-Z2-RE device it is possible to remove the probe for maintenance purposes during plant operation and pressure of up to 16 barg.



Technical Data		FLWSIC100 PROCESS		
Version	CL150/PN16	EX-Z2/EX-Z2-RE	PR-EX-Z2	
Measuring parameter				
Measuring principle	Ultrasonic transit time measurement method			
Measuring values	Gas velocity, volume flow (actual condition), volume flow (standard condition), gas temperature, speed of sound, mass flow (on request)			
Measuring range	0 ... ±40 m/s, higher velocity on request			
Accuracy	± 2 % of measured value			
Inner duct diameter	0.15 ... 1.7 m	≥ 0.35 m		
Measurement conditions				
Gas temperature	-40 ... +260 °C	-40 ... +260 °C	-40 ... +260 °C	
Pressure range	-0.5 ... 16 barg		±0.1 barg	
Ambient conditions				
Temperature range	-40 ... +60 °C			
Approval				
Ex-certification	-	II 3 G EEx nA II T4 according to ATEX guideline 94/9/EC (manufacturer licence); zone 1 on request		II 3 G EEx nA II T4 according to ATEX guideline 94/9/EC (manufacturer licence)
	MCU: optional as Ex-protected version for application in Ex zone 2 Ex classification II 3 G EEx nA nC IIC T4 acc. to ATEX guideline 94/9/EC (manufacturer licence)			
Protection class	<ul style="list-style-type: none"> • EX-Z2/EX-Z2-RE: IP65 • PR-EX-Z2: IP65 • MCU: IP65 			
Inputs, outputs, controls via MCU control unit				
Analog output	1 output: 0/2/4 ... 22 mA, max. load 750 Ω Optional: additional analog outputs when using I/O modules			
Analog inputs	2 inputs: 0 ... 5/10 V or 0 ... 20 mA, Optional: additional analog inputs when using I/O modules			
Digital outputs	5 outputs: 30 V DC/2 A, 120 V AC/1 A; floating; Status signals: operation/malfunction, maintenance, check cycle, limit value, maintenance request. Optional: additional digital outputs when using I/O modules			
Digital inputs	4 inputs for connection of floating contacts Optional: additional digital inputs when using I/O modules (option)			
Interfaces	<ul style="list-style-type: none"> • USB • RS232 (service) • RS485 via optional interface module • Ethernet via optional interface module 			
Bus protocol	<ul style="list-style-type: none"> • TCP/IP via ethernet (optional interface module) • PROFIBUS DP via RS485 (optional interface module) • MODBUS via RS485 or via ethernet on request 			
General				
System components	<ul style="list-style-type: none"> • Sender/receiver unit(s) FLSE100 • MCU control unit, optional 24 V DC version • Connecton box (for FL100 CL150/PN16 only) • Connection cables • Flange(s) with tube 			
Operation	Via MCU control unit or SOPAS ET software			
Check function	Internal check cycle for zero-point and span check			
Mounting (typ. angle)	60°	45° (type PR-EX-Z2)		