



FLAWSIC100 PROCESS Volume Flow Measuring Device

Volume Flow Measurement
for Process Applications



FLWSIC100 PROCESS

Easy installation, wide measuring range,
reliable and precise measurement

AREAS OF APPLICATION

- Natural gas industry
- Chemical and plastics manufacturing industry
- 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: stainless steel or titanium
- Installation from one side only

KEY FEATURES

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

²⁾ Außer Ausführung als Messlanze





SYSTEM COMPONENTS

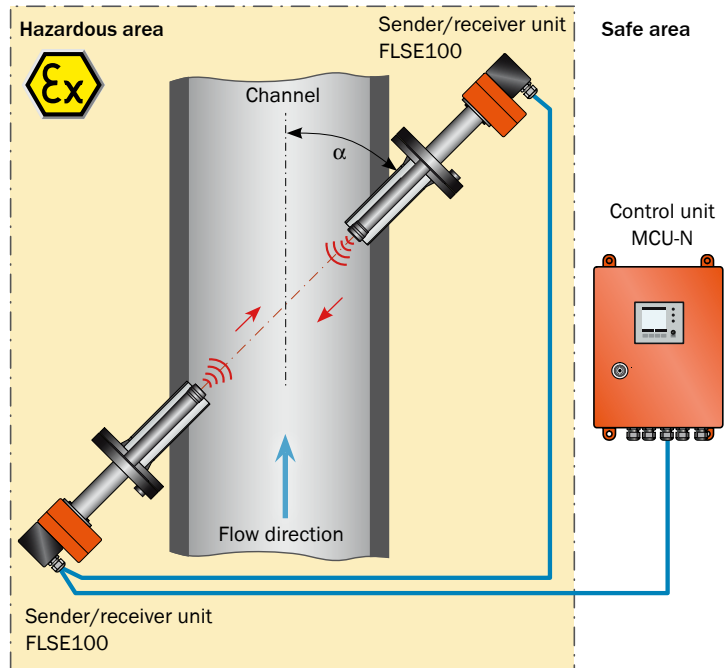
The FLOWSIC100 standard version contains two FLSE100 sender/receiver units and a MCU control unit. The MCU is used for input and output of signals, for calculation of volume flow to reference conditions (standardization) as well as comfortable handling via LC-display.

Installation of the sender/receiver units

- Cross-stack installation:
2 sender/receiver units are mounted on both sides of a stack at a specific angle α to the gas flow direction.
- One-side installation:
Only a single sender/receiver unit (probe type) 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



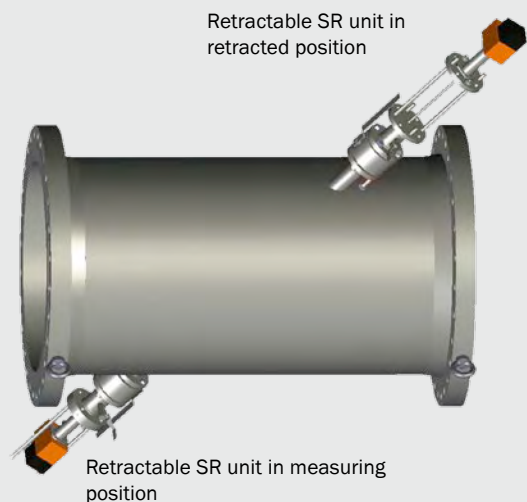
Example: Installation of FLOWSIC100 EX-Z2

COMPREHENSIVE SOLUTION WITH SPOOL-PIECE

The FLOWSIC100 can be – mounted on a measuring tube – delivered as a system solution. Optimized factory setting of the sender/receiver unit reduce 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 bar.



Technical Data		FLOWSIC100 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 (operation 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 e IIC T4 according to ATEX guideline 94/9/EC (manufacturer licence); zone 1 on request	II 3 G EEx nA e IIC 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: further 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 • HART interface via optional interface module on request 		
Bus protocol	<ul style="list-style-type: none"> • TCP/IP via ethernet (optional interface module) • PROFIBUS via RS485 (optional interface module) 		
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 and span check		
Mounting (typ. angle)	60°	45° (type PR-EX-Z2)	