

## D-FL 100

# Volume flow measuring system

System for continuous volume flow measurement in dry gases

- QAL1 certified in accordance with EN 15267
- Reliable, even under extreme operating conditions



## FEATURES

- Continuous measurement of velocity and volume flow
- Double-sided installation for measurement over the entire duct diameter or single-sided installation
- Robust and resistant probe material for use in aggressive gases or at high temperatures (optional)
- Probe individually adapted to the application

## TECHNICAL DATA

<b>Measuring principle</b>	Differential pressure measuring principle, in-situ measurement, continuous measurement, single-sided or double-sided installation
<b>Measuring variables</b>	<ul style="list-style-type: none"> <li>• Volume flow (operation)</li> <li>• Volume flow (standardized)</li> <li>• Velocity</li> <li>• Differential pressure</li> <li>• Absolute pressure</li> <li>• Temperature</li> </ul>
<b>Measuring range</b>	Velocity: 3 ... 50 m/s Volume flow: 0 ... 3,000,000 m <sup>3</sup> /h
<b>Certified measuring range</b>	0 ... 30 m/s
<b>Certificates</b>	QAL1, MCERTS
<b>Conformities</b>	IED 2010/75/EU, EN 15267-1, EN 15267-2, EN 15267-3, EN 14181, EN 16911-2, 13th/ 17th/ 27th/ 30th BImSchV, TA Luft
<b>Interface*</b>	<ul style="list-style-type: none"> <li>• Analog output: 1x 4 ... 20 mA, maximum 400 Ω, potential-free</li> <li>• Digital output: 2x NC/NO, maximum 60 V<sub>DC</sub>, 30 VAC, 0.5 A</li> <li>• Modbus RS 485 RTU</li> <li>• USB</li> </ul>
<b>Operating voltage</b>	24 V <sub>DC</sub>
<b>Ambient conditions</b>	<ul style="list-style-type: none"> <li>• Installation location: Indoor or outdoor installation**</li> <li>• Temperature: -20 ... +50 °C (certified) -40 ... + 60 °C (optional)</li> <li>• Humidity: 30 ... 60% relative humidity, non-condensing</li> </ul>
<b>Operating conditions</b>	In duct: <ul style="list-style-type: none"> <li>• Temperature: 850 °C, higher available on request</li> <li>• Relative humidity: 0 ... 95%, non-condensing</li> <li>• Relative pressure: -50 ... +50 hPa</li> <li>• Dust concentration: Maximum 30/100/150 mg/m<sup>3</sup>, depending on probe version</li> </ul>

## BENEFITS

- Certified for official emission monitoring
- Precise measurement of velocity and volume flow even under demanding operating conditions
- Simple and space-saving single-sided installation (optional)
- Suitable for use in potentially explosive atmospheres (optional)
- Suitable for use in hot gases

<b>Dimensions</b>	<ul style="list-style-type: none"> <li>• Inner duct diameter: 0.4 ... 9 m</li> <li>• Wall thickness: Maximum 0.3/0.8/1.3 m, depending on probe version</li> </ul>
<b>Control functions</b>	Manual zero point and reference point measurement
<b>Degree of protection</b>	<ul style="list-style-type: none"> <li>• Evaluation unit: IP65 (version in housing) IP20 (version as top-hat rail module) in accordance with EN 60 529</li> <li>• Differential pressure sensor: IP67 in accordance with EN 60 529</li> </ul>
<b>Connections</b>	<ul style="list-style-type: none"> <li>• Process: Flange</li> <li>• Probe profile: DN40 PN6 /ASME 2 1/2"-150RF</li> <li>• Probe profile: DN65 PN6 /ASME 3"-150RF</li> <li>• Probe profile: DN100 PN6/ASME 4"-150RF, others available on request</li> </ul>
<b>Explosion protection</b>	ATEX (optional): II 2 GD Ex d IIC T5 Gb Ex tb T100°C Db
<b>Operation and display</b>	<ul style="list-style-type: none"> <li>• Status LED</li> <li>• D-ESI 100 software***</li> <li>• Or D-ISC 100 operating unit</li> </ul>
<b>Material</b>	Housing: Polycarbonate Fire class: B1 (UL 94 V0)
<b>System components</b>	<ul style="list-style-type: none"> <li>• D-FL 100 dynamic pressure probe</li> <li>• D-FL 100 differential pressure sensor</li> <li>• Absolute pressure sensor</li> <li>• Temperature sensor</li> <li>• D-FL 100-20 evaluation unit</li> <li>• D-ISC 100 operating unit (optional)</li> <li>• D-ESI 100 software***</li> <li>• Accessories</li> </ul>

Materials	Application area
Stainless steel	Standard material for temperatures up to 450 °C
Hastelloy	For corrosive flue gases (high SO <sub>2</sub> content) up to 600 °C
Inconel 600	For flue gas temperatures between 450 °C and 850 °C
Inconel 602A	For high-temperature applications, on request

\* Additional interfaces with D-ISC 100 operating unit

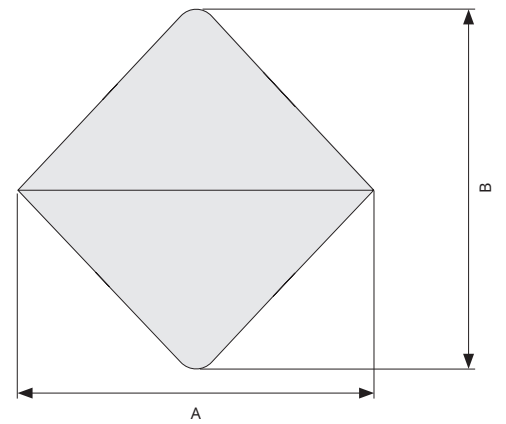
\*\* A weather protection cover is required for outdoor installation

\*\*\* Enables remote access via web interface, requires PC with Windows operating system

D-FL 100 | PROBE PROFILES, FEATURES AND DIMENSIONS

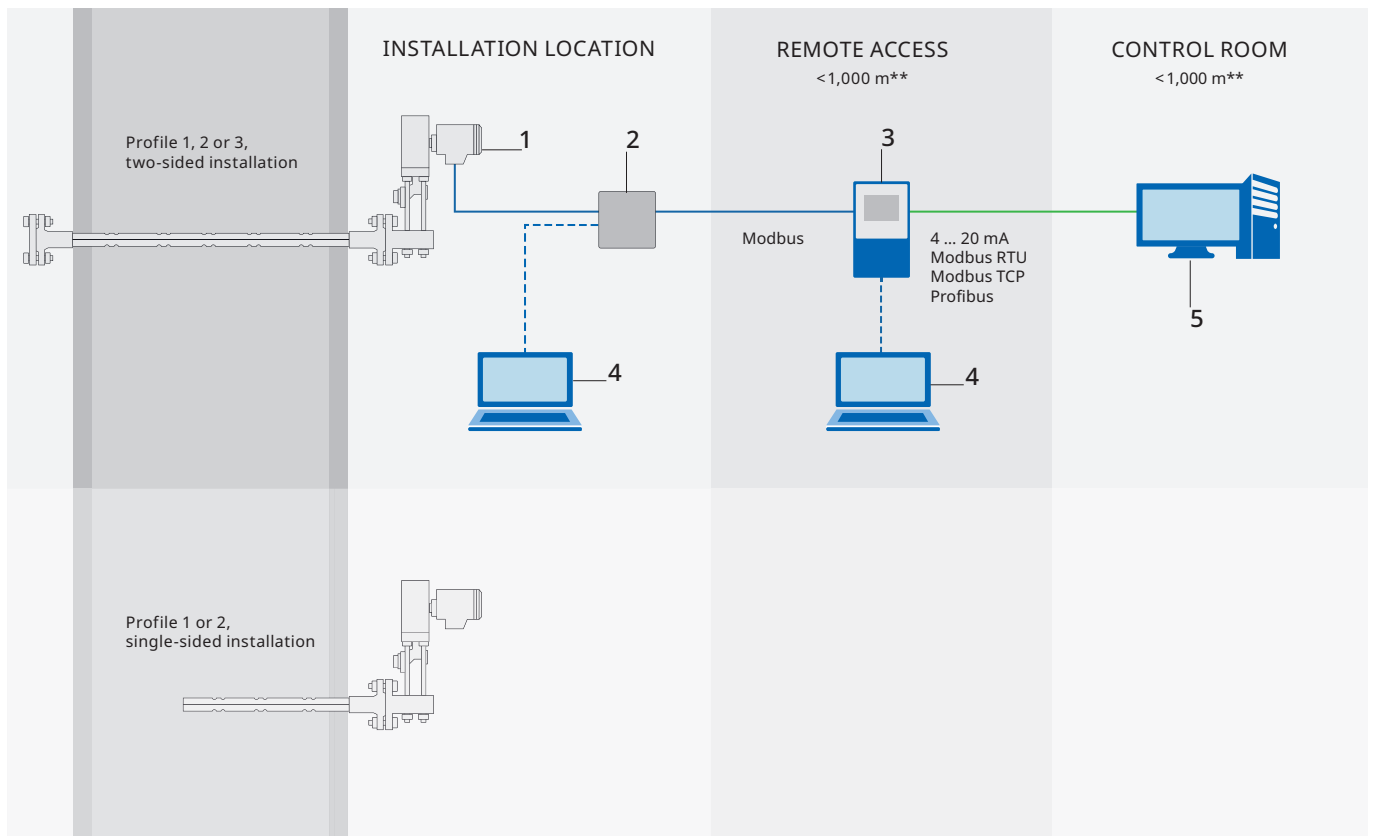
Features	Profile 1	Profile 2	Profile 3
Single-sided installation, maximum probe length	1.5 m	2 m	-
Two-sided installation, maximum probe length	0.4 ... 2 m	2 ... 4 m	4 ... 8 m
Measuring points Ø	5 mm	10 mm	12 mm
Dust concentration	<30 mg/m <sup>3</sup>	<100 mg/m <sup>3</sup>	<150 mg/m <sup>3</sup>

Dimensions	Profile 1	Profile 2	Profile 3
A	22 mm	50 mm	90 mm
B	23.9 mm	53.4 mm	100 mm



Probe profile dimensions

EXAMPLES OF SYSTEM CONFIGURATIONS\* | STANDARD + OPTIONAL WITH REMOTE ACCESS



- |                                |   |
|--------------------------------|---|
| 1 Volume flow measuring system | 4 PC with Windows operating system and software |
| 2 D-FL 100-20                  | 5 Emission evaluation system                    |
| 3 Operating unit               |   |

\* All system components shown are available on request  
 \*\* Maximum permitted cable length

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