



ACP FLOWSIC



Ultrasonic flow measurement for tunnel systems

Product description

The FLOWSIC200 is used for the non-contact and accurate measurement of flow velocity and flow direction inside tunnels or exhaust ventilation ducts. Ultrasonic measurement process provides the mean average value of the flow velocity across the tunnel width. The measuring device is vital for ensuring efficient and economical tunnel ventilation control when air flow is dictated by climatic conditions or by traffic. Even in the event of a fire in the tunnel, reliable, exact, and representative measurement of the flow velocity and direction over the entire tunnel width is now a requirement. Only in this way can the smoke dispersion be measured and the required information for optimal ventilation regulation be received.

At a glance

- Internal non-contact measurement
- High switching capacity for measuring across large tunnel widths
- Rugged components made of titanium, stainless steel, or die cast
- Versions for corrosive tunnel atmospheres
- No mechanical moving parts
- Advanced diagnostics for early detection of faults

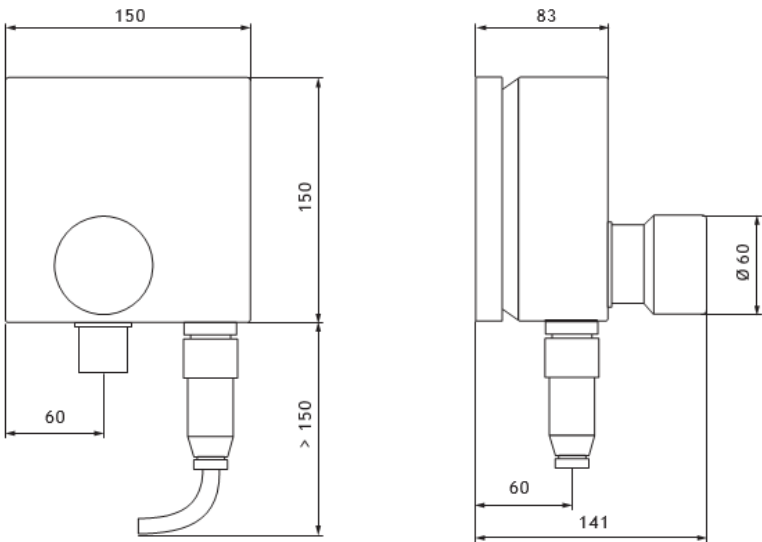
Your benefits

- Representative measurement across the entire width of the tunnel
 - Very reliable measuring, compared to spot-measuring process
 - Exact measurement of even very low flow velocities
 - Long maintenance interval of up to 5 years
 - Low operating costs thanks to reliable operation and low maintenance
- High device availability and therefore also the measurement data

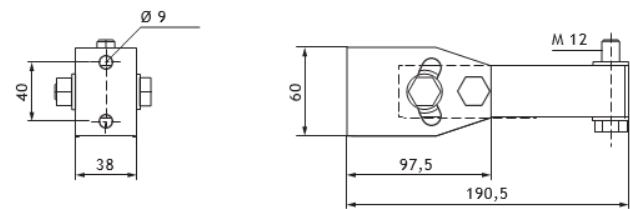


Dimensional drawings (dimensions in mm)

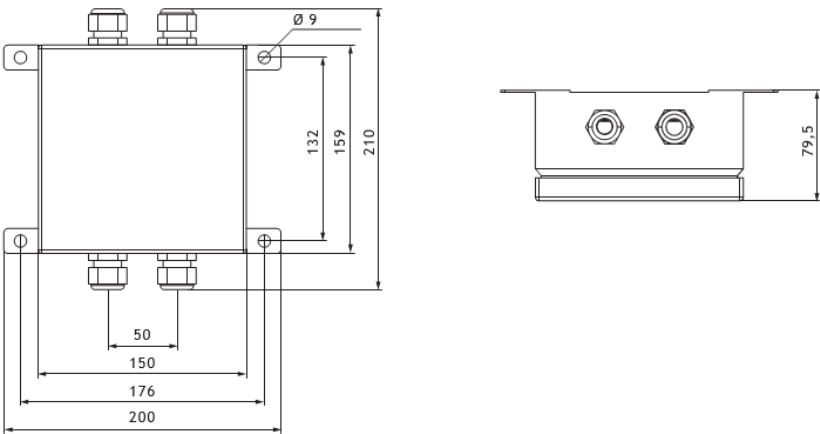
Sender/receiver unit



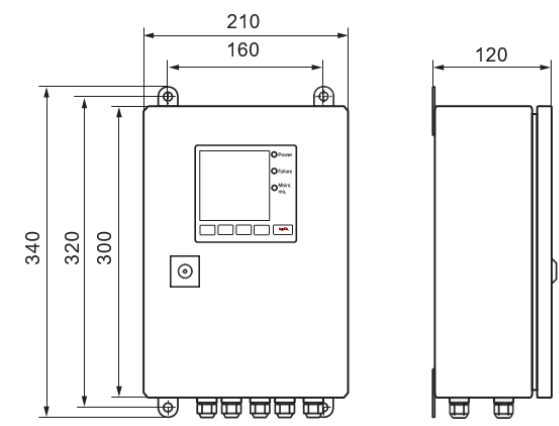
Wallbracket



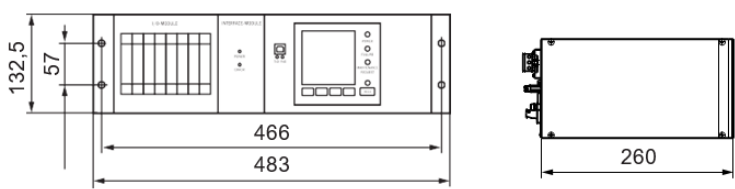
Connection box



MCU Control unit, stainless steel



MCUP Control unit; 19"-Rack housing



Detailed technical data

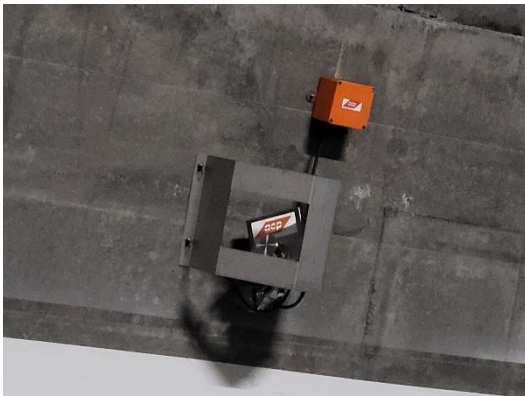
ACP Flowsic

Measurands	Flow velocity, flow direction, temperature
Measurement principle	Ultrasonic transit time difference measurement
Measuring range	Flow velocity 0 ... ± 20 m/s
Accuracy	± 0.1 m/s
	Depends on application
Diagnostic functions	Internal zero and reference point check Extended device diagnosis with SOPAS ET software
Tunnel width	
FLOWSIC200 M, FLOWSIC200 H-M	3.5 m ... 22 m
FLOWSIC200 H	3.5 m ... 35 m
Ambient temperature	-40 ° C... +60 ° C
Storage temperature	-40 ° C... +70 ° C
Ambient humidity	$\leq 100\%$ Relative humidity
Conformities	RABT D 2006 ASTRA CH A "Guideline – Ventilation of Road Tunnels" (2008) CE
Electrical safety	IP66
Enclosure rating	
Operation	Via LC display (option) or SOPAS ET software
Responsible	FLSE200-H-M/-H: Stainless-steel housing, titanium sensor
Dimensions (W x H x D)	Details, see dimensional drawings
Mounting	Typical height above the road surface: 4.2 m; 45° ... 60° to tunnel axis
System components	2 x FLSE200 sender/receiver unit 1 x MCU control unit 2 x connection box 2 x connection cable 2 x wall bracket

MCU control unit

Description	Obligatory control and evaluation unit for up to eight FLOWSIC200 measuring points
Enclosure rating	IP65
Analog outputs	1 output: 0/2/4 ... 20 mA, 750 Ω Electrically isolated; further outputs when I/O modules are used (optional)
Analog inputs	2 inputs: 0 ... 20 mA Not electrically isolated; additional inputs with use of I/O modules (option)

Digital outputs	5 relay outputs (changeover contacts), volt-free: 48 V AC, 1 A
Safety extra-low voltage	for status signals "Operation/Fault", "Limit value", "Warning", "Maintenance" and "Control cycle"
Digital inputs	4 volt-free contacts: Additional inputs with use of I/O modules Interfaces USB 1.1 (virtual COM port; service interface) RS-232 (via terminal connection; service interface) RS-485 (for connection of sender/receiver unit(s))
Bus protocol	Ethernet TCP/IP (via optional interface module) Modbus (via optional interface module) Modbus TCP (via optional interface module) PROFIBUS DP (via optional interface module)
Display	LC display
Status LEDs	"Power", "Maintenance", and "Fault"
Operation Via	LC display or SOPAS ET software
Dimensions (W x H x D) Details	see dimensional drawings
Weight	≤ 5 kg
Electrical connection	Voltage 90 to 250 V AC Frequency 50 Hz / 60 Hz Power consumption ≤ 50 W
Options Interface module(s)	I/O module(s)



Flowhead with protection



MCU Control unit Flow