# Combiprobe CP100
Combined measurement of dust concentrations, volume flow, pressure and temperature
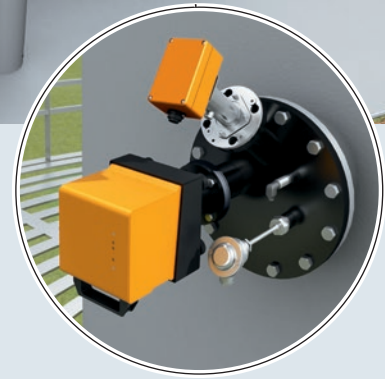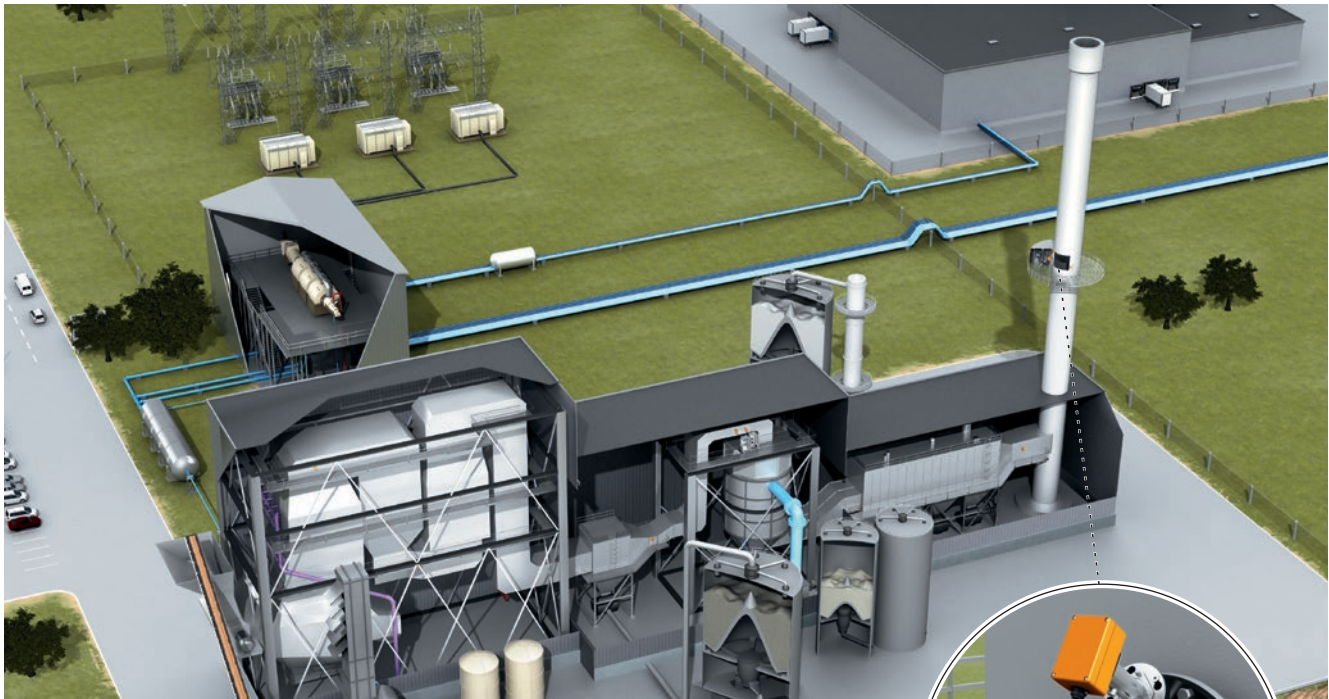
Space-saving measurement

- Easy to install complete solution for detecting dust emission, volume flow, pressure and temperature
- Low operating costs due to the measuring devices' long maintenance intervals
- Durable and reliable components
- Scattered light dust and volume flow measuring device that have been performance-tested according to EN 15267

Endress+Hauser

People for Process Automation
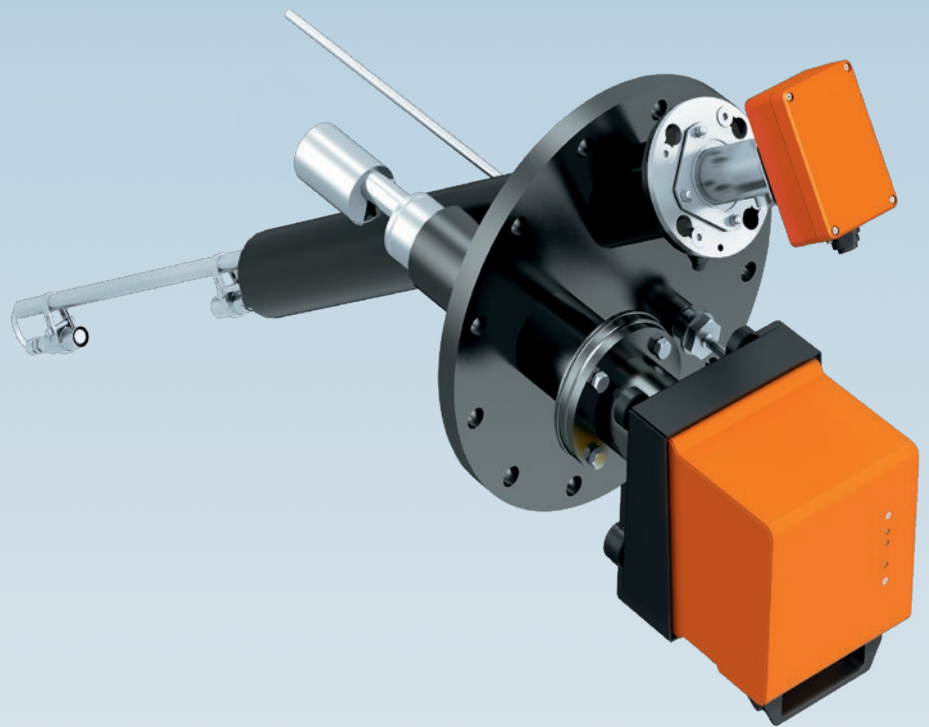
Space-saving measurement of dust, volume flow, pressure, and temperature

In industrial facilities such as power plants or waste treatment plants, pollutants HCl, HF, CO, NO_x, SO_2, NH_3, dust, and the reference values gas velocity, pressure and temperature are measured continuously.

Combiprobe CP100 is a space-saving solution for simultaneous measurement of dust, volume flow, pressure and temperature on the stack.

Space-saving emission measurement on the stack
The compact Combiprobe CP100n neatly combines the tried-and-tested DUSTHUNTER SP100 dust measuring device, the FLOWSIC100 PR volume flow measuring device and the PT100 pressure and temperature sensor – all on one combination flange. Additional couplings or flanges are unnecessary. This space-saving solution really proves its worth when redundant design of the measuring devices is required.

FLOWSIC100 PR volume flow measuring device

The FLOWSIC100's easy-to-handle lance design allows gas velocity and volume flow to be measured based on the principle of ultrasonic time-difference-measurement. Rugged titanium converters ensure a long service life, while reliable functional monitoring keeps operating and maintenance costs to a minimum.
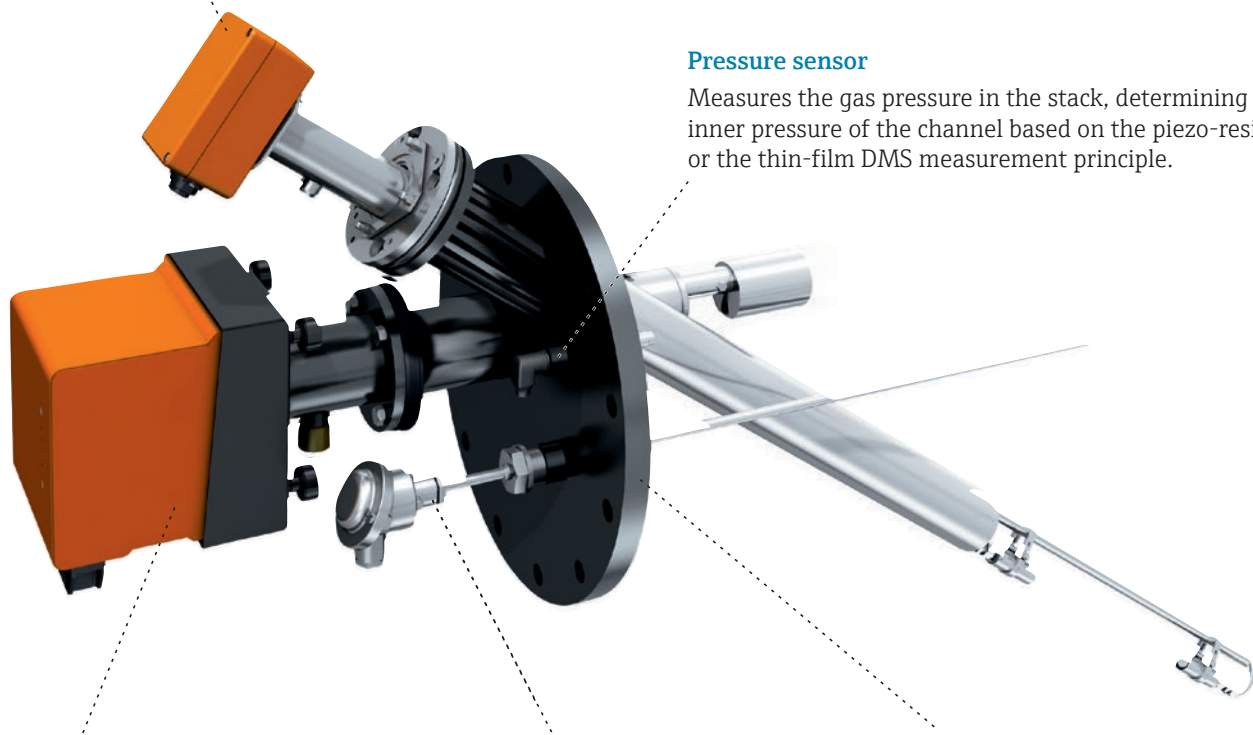
MCU control unit

For control, signal processing and data transmission. Includes a built-in purge air unit to supply purge air to the dust measuring device.

Pressure sensor

Measures the gas pressure in the stack, determining the inner pressure of the channel based on the piezo-resistive or the thin-film DMS measurement principle.

DUSTHUNTER SP100 dust measuring device

The tried-and-tested DUSTHUNTER SP100 measures very low to moderate concentrations of dust. It uses the principle of scattered light measurement to provide very accurate results. Automatic testing of zero point and reference point is built in, as is a soiling check.

PT100 temperature sensor

Measures the gas temperature using a temperature sensor, which sends the measured values to the control unit as analogue signals of between 4 and 20 mA.

Combination flange

Ensures extremely straightforward mounting of the measurement devices and sensors at the measuring point, using flange DN250 PN6. No other connections or flanges are necessary.

Combiprobe CP100
Combined measurement of dust, volume flow, pressure, and temperature
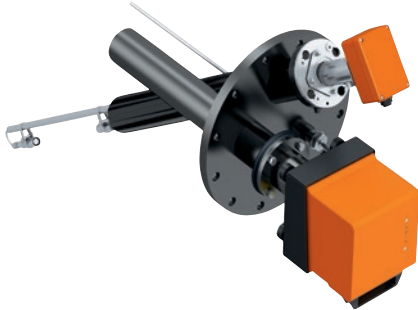
Product description

The Combiprobe CP100 is the combination of a DUSTHUNTER SP100 scattered light dust measuring device and a FLOWSIC100 PR volume flow measuring device on a flange plate. The combined probe also features a pressure transmitter and a resistance thermometer.

The Combiprobe CP100 only requires a single mounting opening in the funnel in order to measure the dust concentration, volume flow, pressure and temperature. This means that there is considerably less outlay on installation than if the individual components were to be installed separately.

At a glance

- No need for mechanical adjustment
- Self-testing with the automatic control cycle
- Simple configuration and operation with easy-to-use software

- For gas temperatures up to 200 ℃ (392 ℉)
- For funnels with an internal diameter of 0.7 m (2.30') and above

Your benefits

- Easy to install complete solution for detecting dust emission and the emission-related benchmarks of volume flow, pressure and temperature
- Low operating costs due to the measuring devices' long maintenance intervals

- Durable and reliable components
- Scattered light dust measuring device and volume flow measuring device that have been performance-tested according to EN 15267

Fields of application

- Emission monitoring in power stations
- Emission measurement during waste incineration
- Emission measurement within the cement and steel industry

- Process measurement in processing plants within the pharmaceutical, food and animal feed industries
- Monitoring of heat treatment and extraction systems
- Process monitoring within the chemical industry

CE   EN 15267 certified   EN 14181 certified

More Information online

For more information, enter the link or scan the QR code to get direct access to technical data, operating instructions, software, application examples, and much more.
www.endress.com/cp100

Technical data

The exact device specifications and product performance data may vary and are dependent on the respective application and customer specifications.

Combiprobe CP100

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Measured values	Dust concentration (after gravimetric comparison measurement), gas velocity, gas pressure, gas temperature
Maximum number of measurands	4
Measuring ranges	
Dust concentration	0 ... 5 mg/m³ / 0 ... 200 mg/m³ (0 ... 176 mg/ft³ / 0 ... 7063 mg/ft³)
Gas velocity	0 ... ± 40 m/s (0 ... ±131 ft/s)
Absolute gas pressure	800 ... 1,200 hPa (12 ... 17 psi)
Gas temperature	−50 ... +400 °C (−58 °F... +750 °F)
Response time	DUSTHUNTER SP100: 1 s ... 600 s; freely adjustable FLOWSIC100 PR: 1 s ... 300 s; freely adjustable
Uncertainty of measurement	Dust concentration: ± 2 % of measuring range full scale Gas velocity: ± 0.1 m/s Gas pressure: ± 1 % Gas temperature: ≤ ± 0.5 %
Process temperature	−20 °C ... +200 °C (−4 °F... +390 °F)
Process pressure	−70 hPa ... 10 hPa (−1.0 psi ... 0.145 psi)
Process gas humidity	Non-condensing
Duct diameter	≥ 750 mm (29.5")
Ambient temperature	−20 °C ... +60 °C (−4 °F ... +140 °F)
Intake temperatures for purge air	−20 °C ... +45 °C (−4 °F ... +113 °F)
Electrical safety	CE
Enclosure rating	
DUSTHUNTER SP100	IP 66
FLOWSIC100 PR	IP 65
Pressure sensor, temperature sensor	IP 54
Dimensions (W x H x D)	See dimensional drawings
Weight	
DUSTHUNTER SP100	8 kg (17.5 lbs)
FLOWSIC100 PR	7.2 kg (16 lbs)
Pressure sensor	0.2 kg (0.44 lbs)
Temperature sensor	1.3 kg (3 lbs)
Power supply	
Voltage	DUSTHUNTER SP100, FLOWSIC100 PR supply via control unit: 24 V DC Pressure sensor, temperature sensor: 10 ... 30 V DC
Power consumption	DUSTHUNTER SP100, FLOWSIC100 PR: ≤ 70 W Pressure sensor, temperature sensor: ≤ 1 W

MCU-P control unit

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Description	Unit to control the system components and to evaluate and output the data provided by them. With integrated purge air unit.
Gas flow rate	≤ 20 m³/h (705 ft³/h)
Ambient temperature	−40 °C ... +45 °C (−40 °F ... +113 °F); intake temperatures for purge air
Enclosure rating	IP 66
Analog outputs	3 outputs: 0/2/4 ... 20 mA, 750 Ω Electrically isolated; two additional outputs if using I/O modules (option)
Analog inputs	2 inputs: 0 ... 20 mA Not electrically isolated; two additional inputs if using I/O modules (option)
Digital outputs	5 relay contacts: 48 V, 1 A; potential-free; for status signals
Digital inputs	4 potential-free contacts
Interfaces	USB (service interface) RS-232 (service interface) RS-485 (via optional interface module) Interface module (option)
Bus protocol	Ethernet TCP/IP (via optional interface module) Modbus (via optional interface module) PROFIBUS DP (via optional interface module)
Indication	LC display Status LEDs: "Power", "Maintenance" and "Failure"
Operation	Via LC-display or software SOPAS ET
Dimensions (W x H x D)	300 mm x 455 mm x 220 mm (11.8" × 17.9" × 8.7")
Weight	13.5 kg (30 lbs)
Power supply	
Voltage	90 ... 250 V AC Vrsion with 24 V DC available as an option
Frequency	47 ... 63 Hz
Power consumption	≤ 70 W
Auxiliary gas connections	Purge air
Options	Interface module(s) I/O module(s)

Ordering information

Our regional sales organization will help you to select the optimum device configuration.
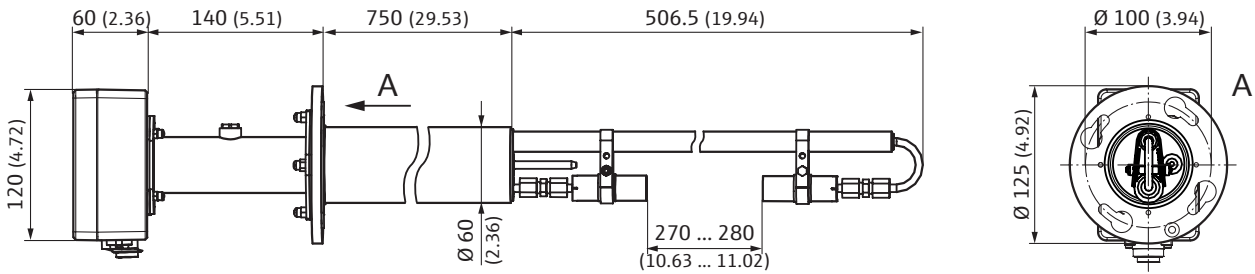
Dimensional drawings

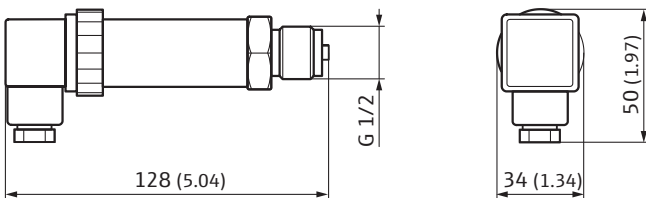Combiprobe CP100 system(dimensions in mm (inch))
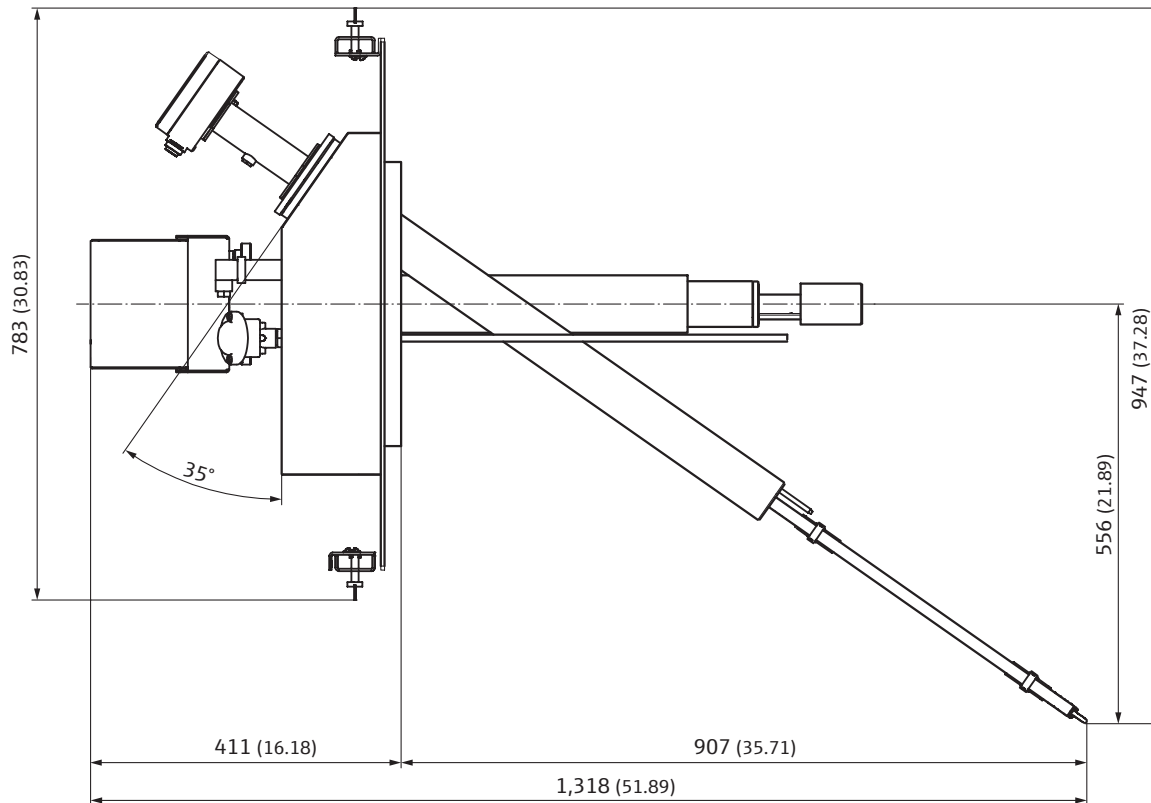
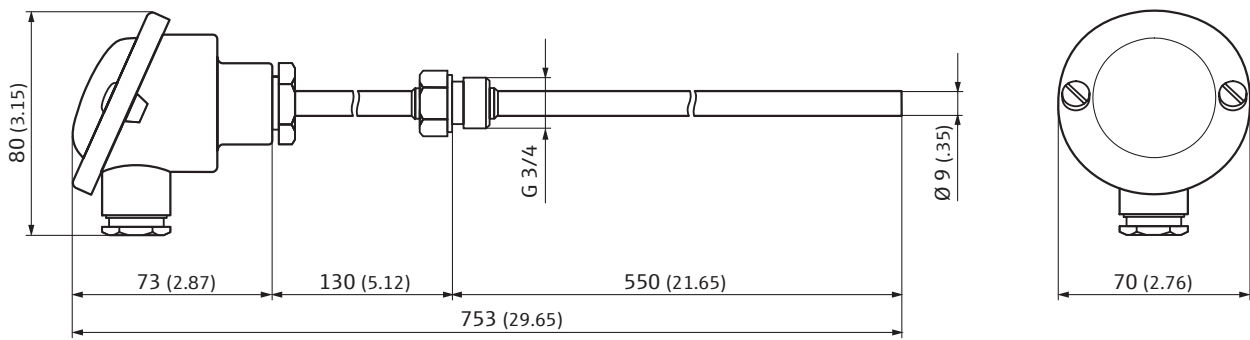## DHSP-T2V2 sender/receiver unit (dimensions in mm (inch))
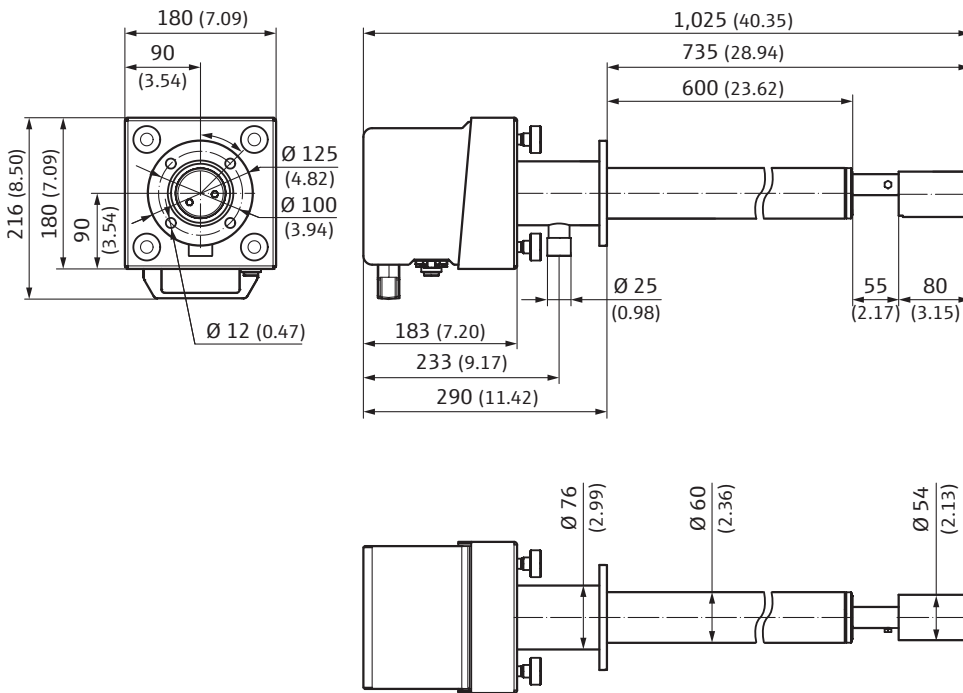
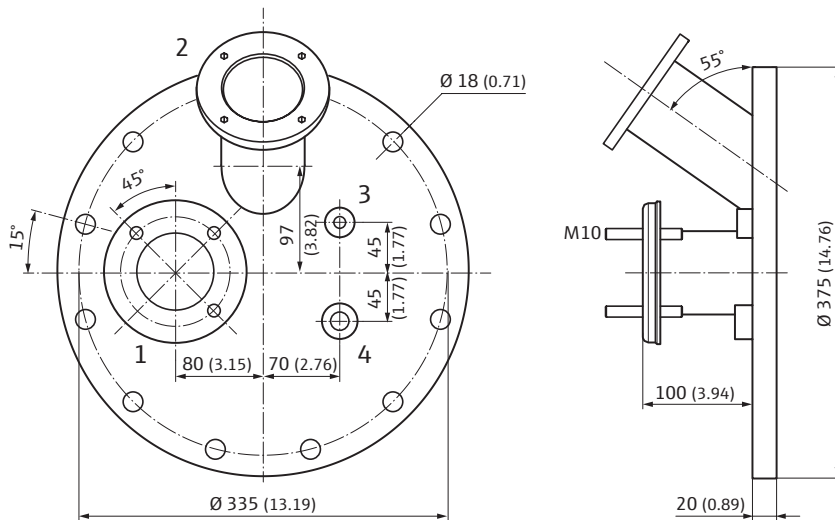## FLSE100-PR sender/receiver unit (dimensions in mm (inch))

Pressure sensor (dimensions in mm (inch))

Resistance thermometer (dimensions in mm (inch))

Combined flange system (dimensions in mm (inch))

1	Flange for DHSP-T2V2 sender/receiver unit
2	Flange for FLSE100-PR sender/receiver unit
3	G 1/2 for pressure sensor
4	G 3/4 for resistance thermometer

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