DUSTHUNTER SP30
Measure intelligently.
Reduce costs.

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Reduce costs.**

- Accurate dust measurement – independently of gas velocity or particle charge
- Convenient data transmission via Modbus® and analog output directly from the sensor
- Versatile thanks to several configurable measuring ranges
- Two calibration curves for switching with different dust sources
- No external purge air unit required as it is integrated into the device (option)
- High degree of flexibility due to different mounting options
- Low level of expenditure and maintenance work thanks to self-monitoring

Endress+Hauser [EH]

People for Process Automation

DUSTHUNTER SP30:
Measure intelligently. Reduce costs.

Product Description

The DUSTHUNTER SP30 is a measuring device which reliably detects very low to high dust content. The measurement is based on the forward scattering of light and is independent of the gas velocity and particle charge. The automated monitoring of the zero and reference point ensures a high level of accuracy.

Thanks to its compact design, the DUSTHUNTER SP30 is available as an independent measuring device but also with an integrated purge air unit and MCU control unit for additional functions as an option. The installation is carried out on one side of a duct, whereby several mounting options and probe lengths are available. The measuring device is highly versatile, e.g., for process optimization or intelligent filter diagnostics and monitoring.

At a glance

- Independent measuring device – with or without MCU control unit
- Automated monitoring of zero and reference point

- Integrated purge air unit as an option
- Installation on one side of a duct
- Rugged and compact structure
- No moving parts in the duct

Your benefits

- Accurate dust measurement – independently of gas velocity or particle charge
- Convenient data transmission via Modbus® and analog output directly from the sensor
- Versatile thanks to several configurable measuring ranges
- Two calibration curves for switching with different dust sources

- No external purge air unit required as it is integrated into the device (option)
- High degree of flexibility due to different mounting options
- Low level of expenditure and maintenance work thanks to self-monitoring
- Easy replacement of the FW102 (compatible flange)

Fields of application

- Emission monitoring which does not require permission in industrial systems
- Dust concentration measurements in exhaust gas ducts
- Monitoring of cloth filters for defective filter bags

- Ideal for monitoring electrostatic precipitators
- Dust monitoring in grinding and dosing systems
- Monitoring and regulation of fresh air and exhaust air systems

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/dusthunter-sp30

Technical data

The exact device specifications and performance data of the product may deviate from the information provided here, and depend on the application in which the product is being used and the relevant customer specifications.

DUSTHUNTER SP30

Measured values	Scattered light intensity, dust concentration (after gravimetric comparison measurement)
Measurement principles	Scattered light forward
Spectral range	640 mm ... 660 mm (25.2" ... 25.98") Laser, protection class 2, power < 1 mW
Measuring ranges	
Scattered light intensity	0 ... 7.5 SI / 0 ... 3,000 SI Two measuring ranges freely selectable; nine measuring ranges pre-configured (0 ... 7.5/15/45/75/150/225/375/1,000/3,000 SI)
Response time (t_{90})	0.1 s ... 600 s; Freely adjustable via SOPAS ET software
Accuracy	± 2 % of measuring range full scale
Process temperature	−40 ℃ ... +220 ℃ (-40℉ ... +428℉)
Process pressure	
With intergrated purge air unit:	−50 hPa ... 10 hPa
With external purge air unit:	−50 hPa ... 30 hPa
With instrument air (customer):	−50 hPa ... 100 hPa
Process gas humidity	Non-condensing
Duct diameter	
TriClamp version, 1" thread version:	≥ 150 mm (5.9")
Flange version:	≥ 250 mm (9.84")
Electrical safety	CE
Test functions	Automatic self-test (linearity, drift, aging) Manual linearity test with reference filter
Options	MCU control unit Integrated purge air unit External purge air unit

DHSP30 sender/receiver unit

Ambient temperature	−40 ℃ ... +60 ℃ (-40℉ ... +140℉)
Enclosure rating	IP65
Analog outputs	1 output: 0/4 ... 20 mA, 750 Ω; electrically isolated
Digital outputs	3 relay contacts: 48 V, 1 A; For status signals
Digital inputs	4 inputs: For external maintenance switch, automated operational check, linearity measurement, calibration curve switching, or filter monitoring
Serial	✔
Type of fieldbus integration	RS-485
Function	For connection of a MCU control unit or as service interface

Modbus	✔
Type of fieldbus integration	RTU RS-485
Dimensions (W x H x D)	For details see dimensional drawings
Weight	
Nominal length 180 mm:	3.5 kg (7.72 lbs)
Nominal length 280 mm:	3.5 kg (7.72 lbs)
Nominal length 435 mm:	6 kg (13.23 lbs)
Nominal length 735 mm:	7.5 kg (16.54 lbs) All weights without integrated purge air unit
Power supply	
Voltage	24 V DC Supply via MCU control unit or an external power supply
Power consumption	Without integrated purge air unit: ≤ 4 W With intergrated purge air unit: ≤ 30 W

MCU-N control unit (option)

Description	Unit to control the system components and to evaluate and output the data provided by them
Ambient temperature	−40 ℃ ... +60 ℃ (-40℉ ... +140℉)
Enclosure rating	IP65
Analog outputs	1 output: 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
Modbus	✔
Type of fieldbus integration	TCP (Via optional interface module; only one module possible per MCU) RTU RS-485 (Via optional interface module; only one module possible per MCU)
PROFIBUS DP	✔
Type of fieldbus integration	Via optional interface module; only one module possible per MCU
Ethernet	✔
Type of fieldbus integration	Via optional interface module; only one module possible per MCU
Function	Connection to SOPAS ET software
Indication	LC display (option)
	Status LEDs: "Power", "Maintenance" and "Failure"
Operation	Via LC-display (option) or software SOPAS ET
Dimensions (W x H x D)	210 mm x 340 mm x 120 mm (8.27" x 13.38"x 4.72")
Weight	3.7 kg (8.16 lbs)

Power supply	
Voltage	90 ... 250 V
Option	Version with 24 V DC available
Frequency	47 ... 63 Hz
Power consumption	≤ 15 W
Options	Interface module(s) I/O module(s)

SLV4-2 purge air unit, 2BH1300, 3-ph

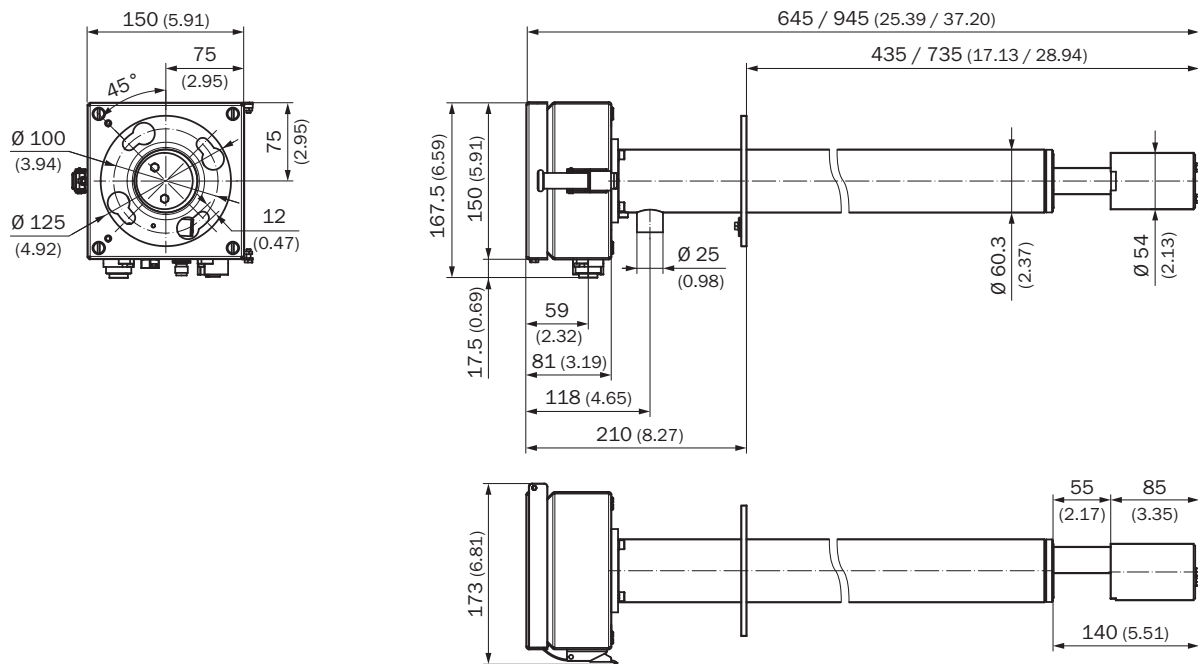| Description	Unit to provide dust-free air for flushing of optical surfaces
Gas flow rate	38 m³/h ... 63 m³/h At 30 hPa counter pressure, depending on low pressure inside the filter
Ambient temperature	−40 ℃ ... +55 ℃ (-40°F ... +131°F)
Enclosure rating	IP54
Dimensions (W x H x D)	550 mm x 550 mm x 258 mm. (21.65" x 21.65"x 10.16") For details see dimensional drawings
Weight	18 kg (39.68 lbs)
Power supply	
Three-phase current	Δ: 200 ... 240 V, 50 Hz, 2,6 A, 400 W Y: 345 ... 415 V, 50 Hz, 1,5 A, 400 W Δ: 200 ... 275 V, 60 Hz, 2,6 A, 500 W Y: 380 ... 480 V, 60 Hz, 1,5 A, 500 W Δ: 270 ... 330 V, 50 Hz, 2,0 A, 400 W Y: 465 ... 570 V, 50 Hz, 1,16 A, 400 W Δ: 290 ... 360 V, 60 Hz, 2,1 A, 500 W Y: 500 ... 600 V, 60 Hz, 1,26 A, 500 W Δ: 230 V, 50 Hz, 2,7 A, 370 W Δ: 115 V, 60 Hz, 3,0 A, 450 W Δ: 220 ... 270 V, 50 Hz, 2,5 A, 400 W Y: 380 ... 465 V, 50 Hz, 1,45 A, 400 W Δ: 240 ... 290 V, 60 Hz, 2,6 A, 500 W Y: 415 ... 500 V, 60 Hz, 1,55 A, 500 W
Auxiliary gas connections	
Purge air	40 mm (1.57")
Test functions	Pressure switch (switching point −35 hPa)
Integrated components	2-step air filter, type Europiclon, dust capacity 200 g (0.44 lbs)

Order information

Our regional sales organization will be glad to advise you on which device configuration is best for you.
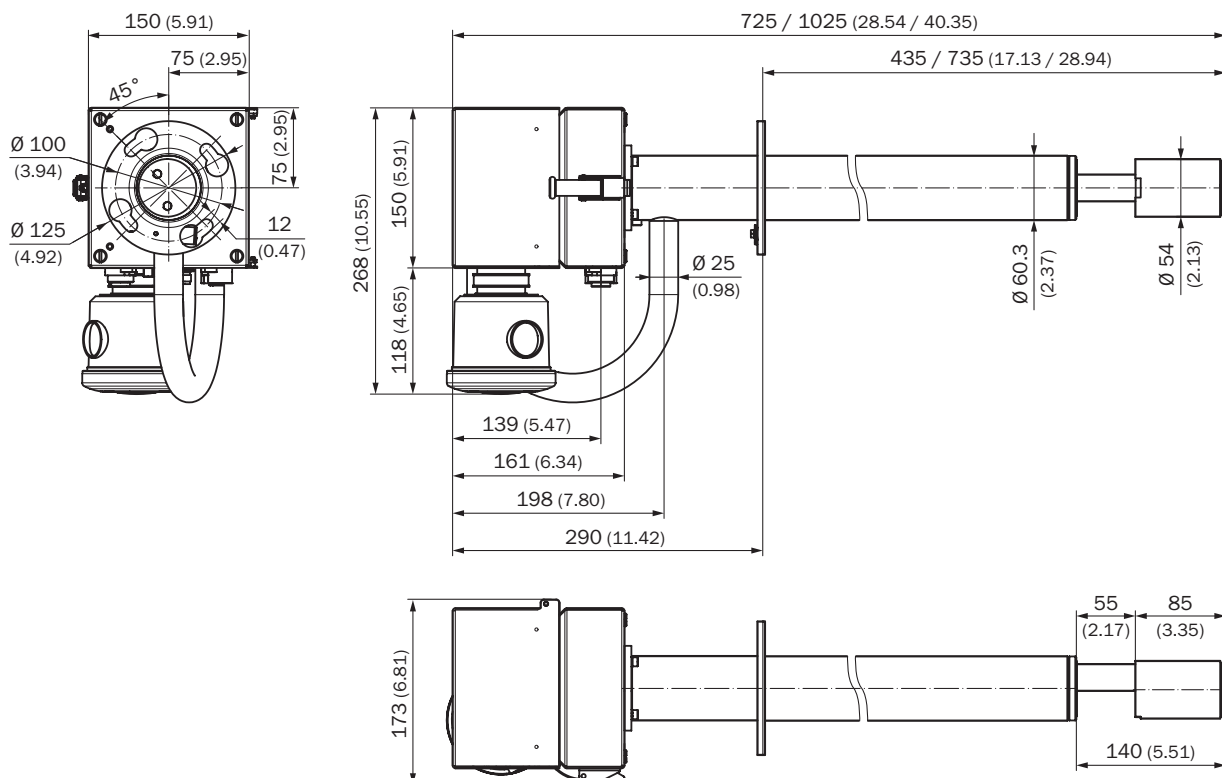
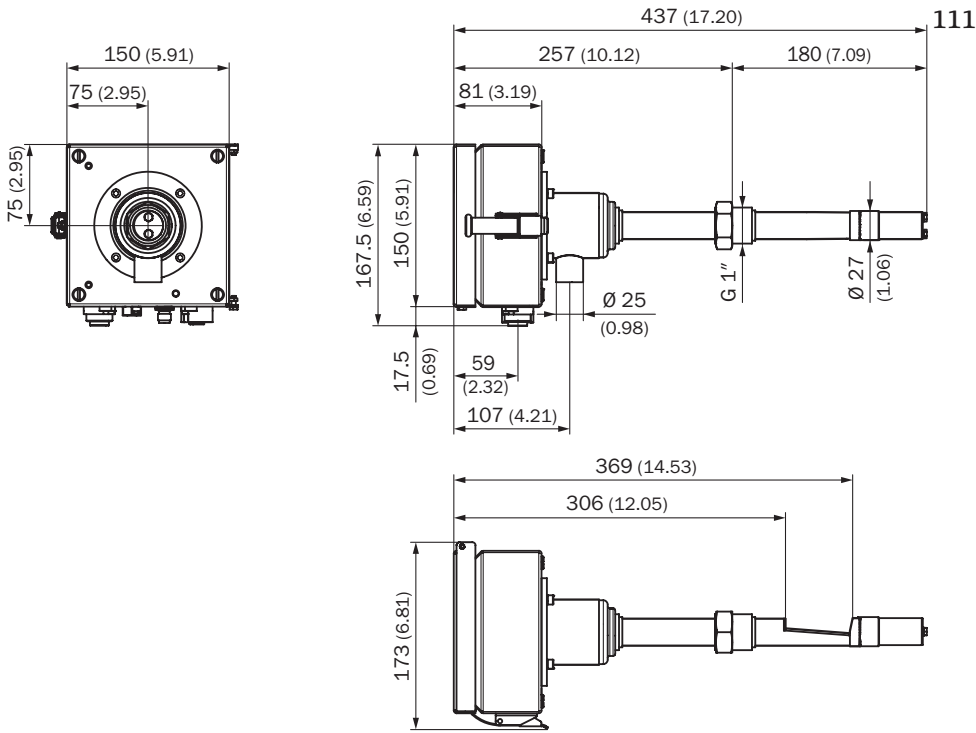| Mounting	Nominal length	Model	Part no.
1"-thread	180 mm (7.09")	Without integrated purge air unit	1077738
1"-thread	180 mm (7.09")	With integrated purge air unit	1089200
1"-thread	280 mm (11.02")	Without integrated purge air unit	1077739
1"-thread	280 mm (11.02")	With integrated purge air unit	1089201
Mounting flange, TriClamp	180 mm (7.09")	Without integrated purge air unit	1077736
Mounting flange, TriClamp	180 mm (7.09")	With integrated purge air unit	1089198
Mounting flange, TriClamp	280 mm (11.02")	Without integrated purge air unit	1077737
Mounting flange, TriClamp	280 mm (11.02")	With integrated purge air unit	1089199
Flange with tube	435 mm (17.13")	Without integrated purge air unit	1074327
Flange with tube	435 mm (17.13")	With integrated purge air unit	1089197
Flange with tube	735 mm (28.94")	Without integrated purge air unit	1077751
Flange with tube	735 mm (28.94")	With integrated purge air unit	1089203

Dimensional drawings

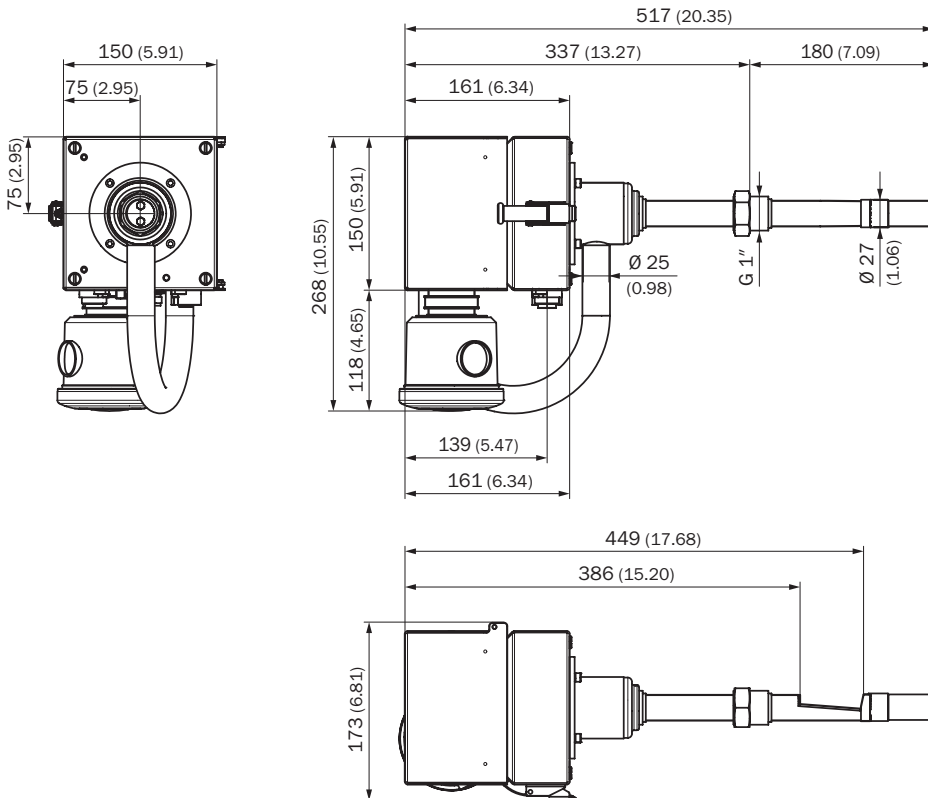## Sender/receiver unit DHSP30, flange version (dimensions in mm (inch))

Sender/receiver unit DHSP30, flange version, with integrated purge air unit (dimensions in mm (inch))
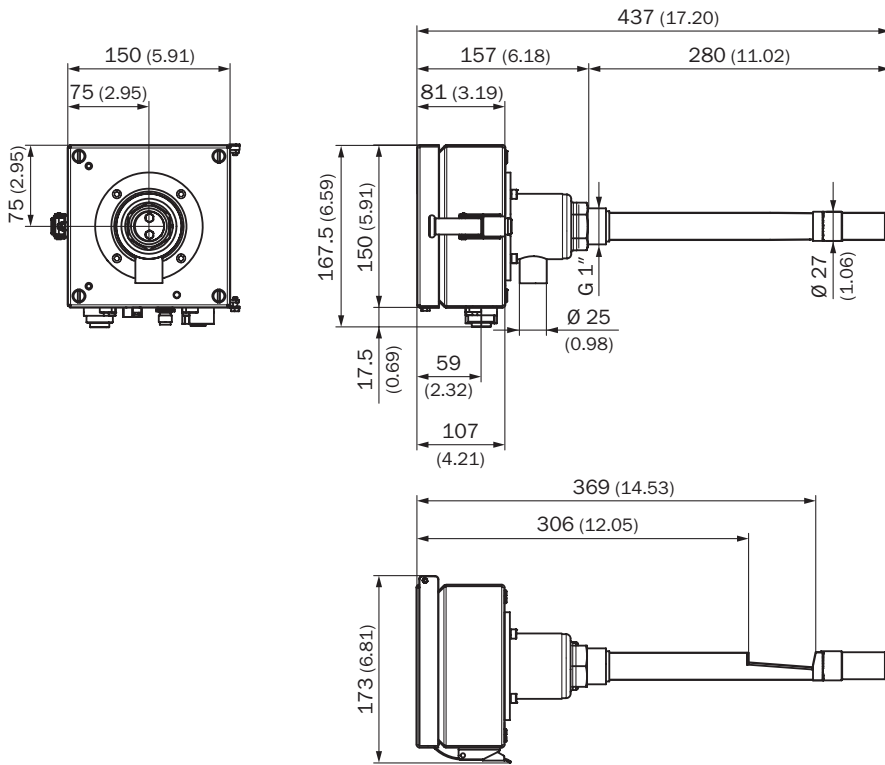
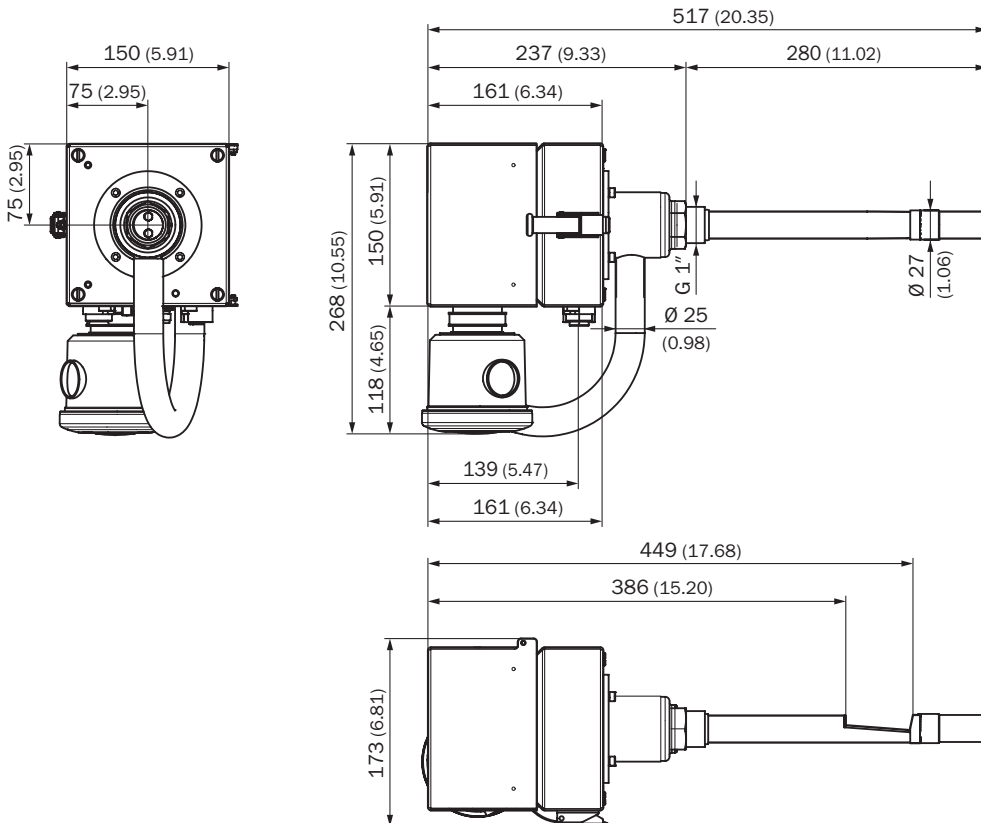## Sender/receiver unit DHSP30, 1" thread, nominal length = 180 mm (dimensions in mm (inch)

Sender/receiver unit DHSP30, 1" thread, nominal length = 180 mm, with integrated purge air unit (dimensions in mm (inch))
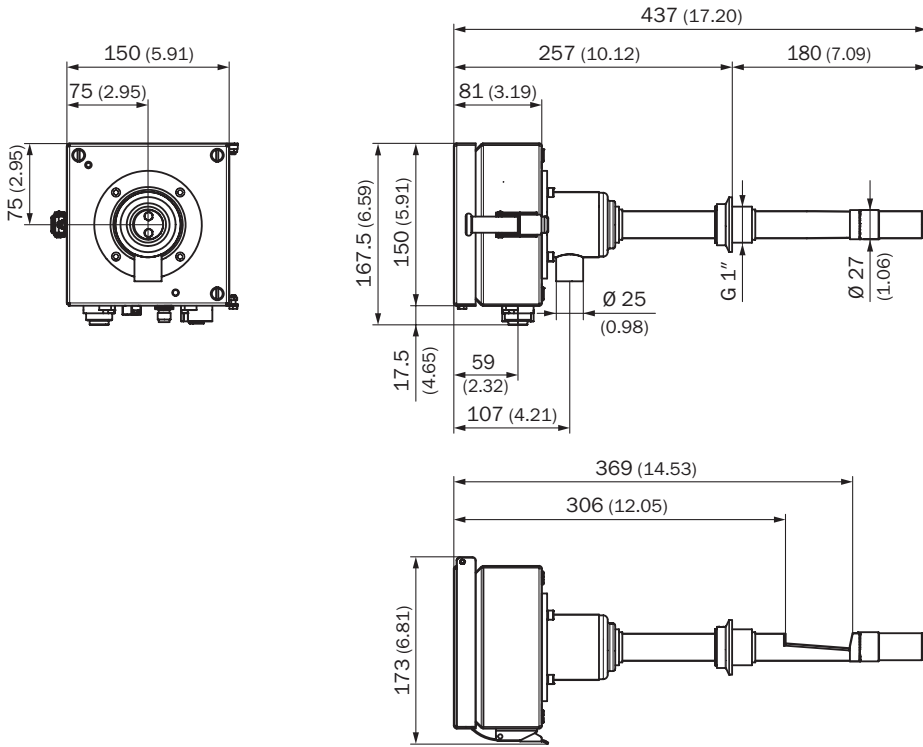
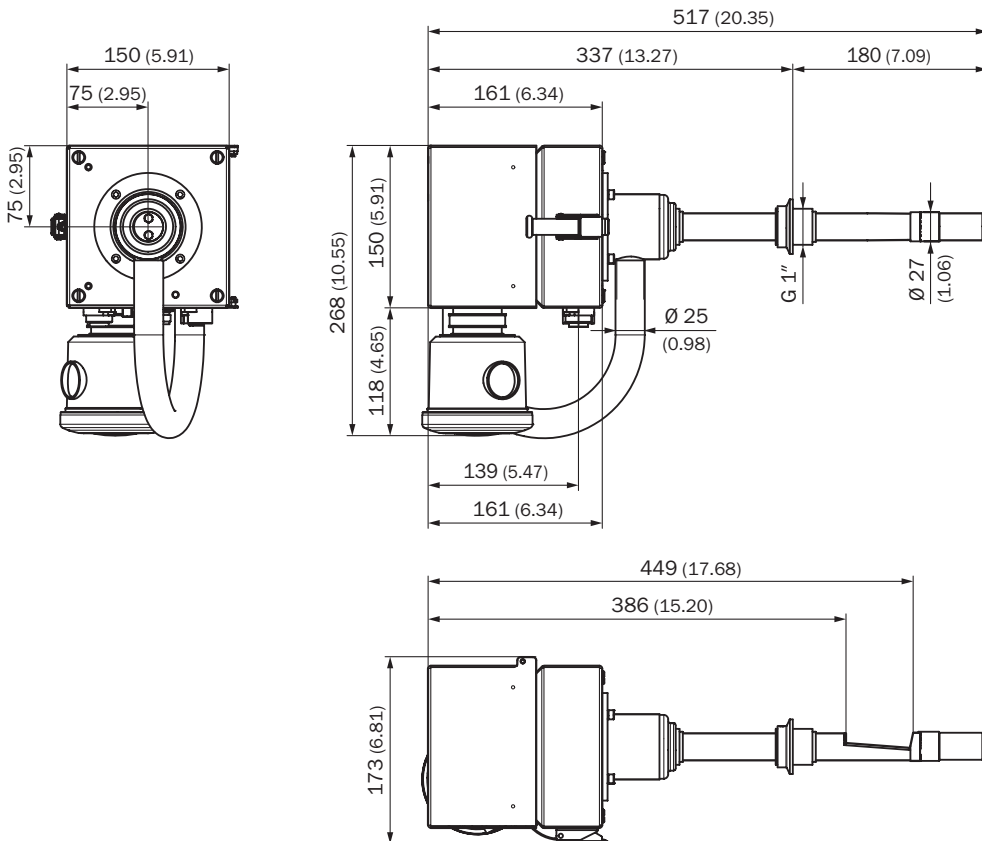## Sender/receiver unit DHSP30, 1" thread, nominal length = 280 mm (dimensions in mm (inch))

Sender/receiver unit DHSP30, 1" thread, nominal length = 280 mm, with integrated purge air unit(dimensions in mm (inch))
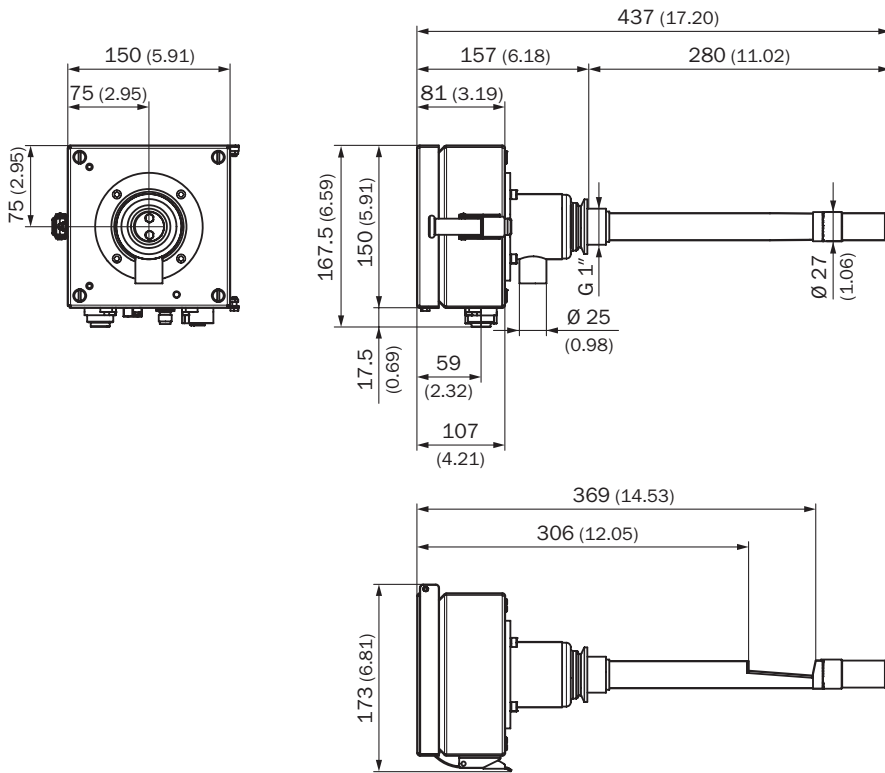
Sender/receiver unit DHSP30, TriClamp, nominal length = 180 mm (dimensions in mm (inch))
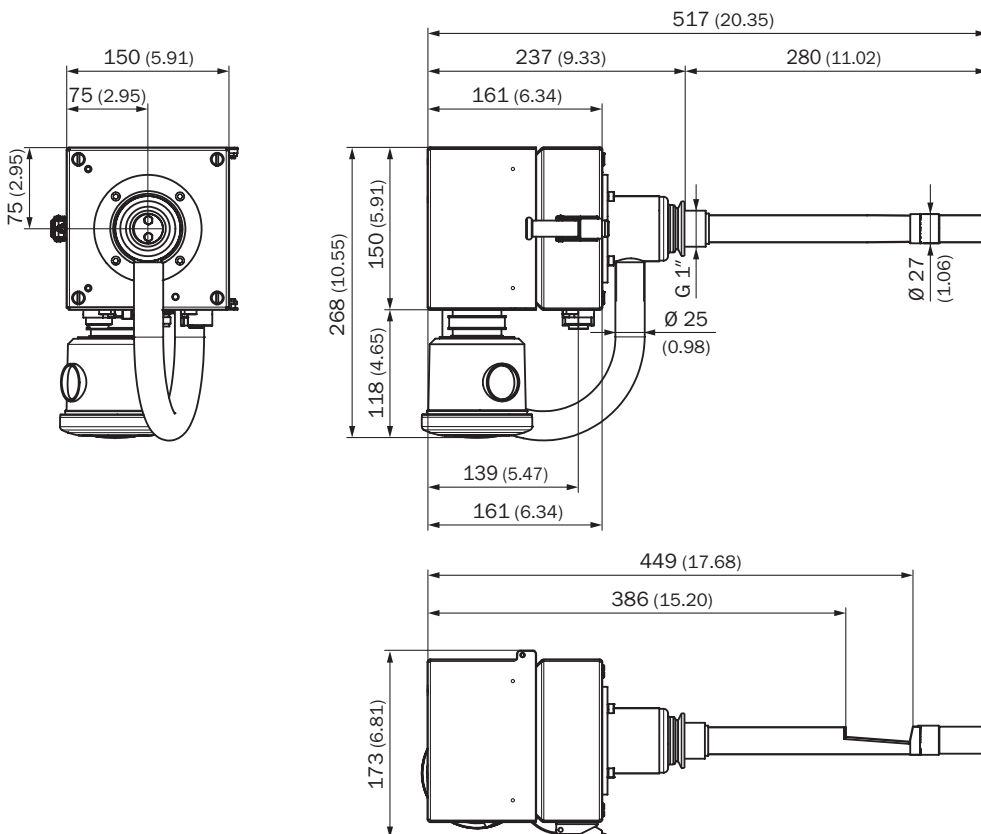

Sender/receiver unit DHSP30, TriClamp, nominal length = 180 mm, with integrated purge air unit (dimensions in mm (inch))
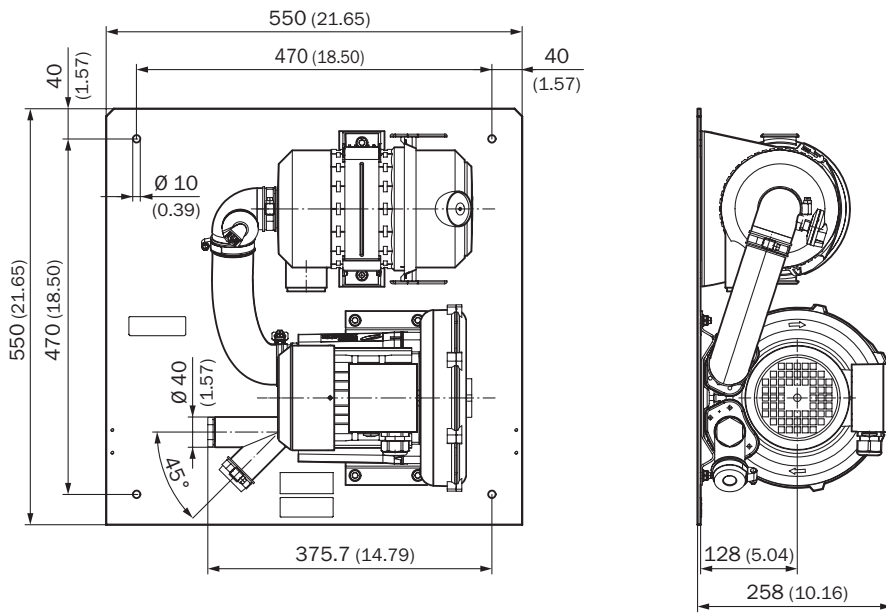
Sender/receiver unit DHSP30, TriClamp, nominal length = 280 mm (dimensions in mm (inch))
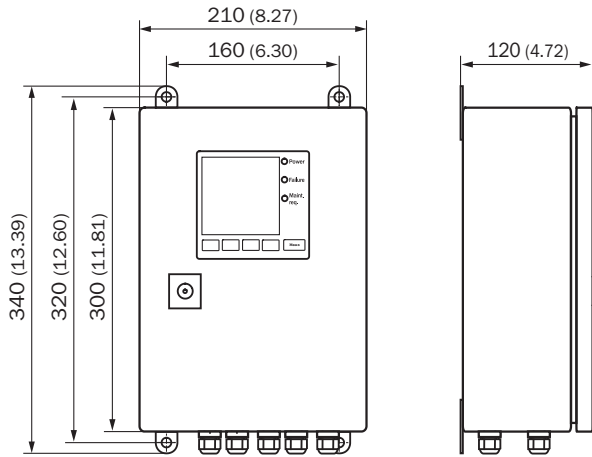

Sender/receiver unit DHSP30, TriClamp, nominal length = 280 mm, with integrated purge air unit (dimensions in mm (inch))

SLV4-2 purge air unit, 2BH1300 (dimensions in mm (inch))

MCU-N control unit; wall-mounting enclosure, compact version (for non-hazardous areas only) (dimensions in mm (inch))

Accessories

Sets and kits

Brief description	Part no.
Mounting kit consisting of: nuts, spring discs,	2018184

Test and monitoring tools

Brief description	Part no.
Control filter set comprises: filter with approx. 0%, 18%, 40%, 60%, 80% transmission, filter holder, lens cloth, case with insert	2049045

Device protection (mechanical)

Protective caps

Brief description	Part no.
Flange cover for 1" thread, material 1.4571	5320851
Flange cover for flange with tube, material aluminum	2052377
Flange cover Tri-Clamp, material 1.4435	5321370

Protective housings and protective pipes

Brief description	Part no.
Weather hood for analyzer, Aluminum	2095539

Flanges

Weld-in flange

Brief description	Pitch circle diameter	Thread size	Part no.
Flange 1.5" Tri-Clamp, snap buckle, connection Piece length 44.5 mm (1.75") , fitting 1,5", gasket	–	–	7047520
Threaded flange 1", material 1.4571	–	–	7047526
Flange with tube, inner diameter 70.2 mm (2.76"), nominal length 130 mm (5.12"), Stainless steel 1.4571	100 mm (3.94")	M10	2017846
Flange with tube, inner diameter 70.2 mm (2.76"), nominal length 240 mm (9.45"), 1.0254	100 mm (3.94")	M10	2017847
Flange with tube, inner diameter 70.2 mm (2.76"), nominal length 240 mm (9.45"), Stainless steel 1.4571	100 mm (3.94")	M10	2017848
Flange with tube, inner diameter 70.2 mm (2.76"), nominal length 130 mm (5.12"), 1.0254	100 mm (3.94")	M10	2017845
Flange with tube, inner diameter 70.2 mm (2.76"), nominal length 500 mm (19.69"), 1.0254	100 mm (3.94")	M10	2017849
Flange with tube, inner diameter 70.2 mm (2.76"), nominal length 500 mm (19.69"), Stainless steel 1.4571	100 mm (3.94")	M10	2017850

Plug connectors and cables

Connecting cables with female connector

Brief description	Part no.
Connection cable, marked, 6-wire, 5 m (16.4')	2043678
Connection cable, marked, 6-wire, 10 m (32.81')	2043679
Connection cable, marked, 6-wire, 50 m (164')	2047179
Connection cable, 6-wire, 25 m (82')	2096287
Connection cable, 6-wire, 50 m (164')	2096288
Connection cable, 4-wire, 100 m (328.1')	2087602
Connection cable, marked, 6-wire, 25 m (82')	2096251
Connection cable, 6-wire, 5 m (16.4')	2096285
Connection cable, 6-wire, 10 m (32.81')	2096286
Connection cable, slave, for connection of S/E units, 5-wire, 5 m (16.4')	7042017
Connection cable, slave, for connection of S/E units, 5-wire, 10 m (32.81')	7042018

Female connectors (ready to assemble)

Brief description	Part no.
Female connector, M12, 5-pin, straight, unshielded, for cable diameter 4 mm … 6 mm (0.16" … 0.24")	6009719
Female connector, M12, 5-pin, straight, for cable diameter 6 mm … 8 mm (0.24" … 0.31")	6049886

Male connectors (ready to assemble)

Brief description	Part no.
Male connector, M12, 5-pin, straight, for cable diameter 6 mm … 8 mm (0.24" … 0.31")	6049036

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