Level | Pressure | Flow | Temperature | Liquid Analysis | Registration | Systems Components | Services | Solutions

Technical Information

Stamosens CSM750 / CSS70

Spectral Absorption Coefficient
Analysis system for online evaluation of dissolved organic substances in wastewater

Application

Determination of the spectral absorption coefficient as a significant parameter. It correlates to common load parameters like COD and BOD.

Applications are:
- Wastewater monitoring for organic substances
- Special applications in the UV range measurement

Your benefits

- Economy-priced and ecological measuring process:
  - No sampling or conditioning system required
  - No chemicals required
  - Service-friendly design
- Measured value preparation in the sensor:
  - Low interference susceptibility on signal transfer
  - Very short response time
  - In-situ calibration
- Recognition of load peaks:
  - In time
  - Instantaneous
  - Without gap
- Measured values stored by data logger

TI305C/07/en/06.09
71097668

Endress+Hauser
People for Process Automation

Function and system design

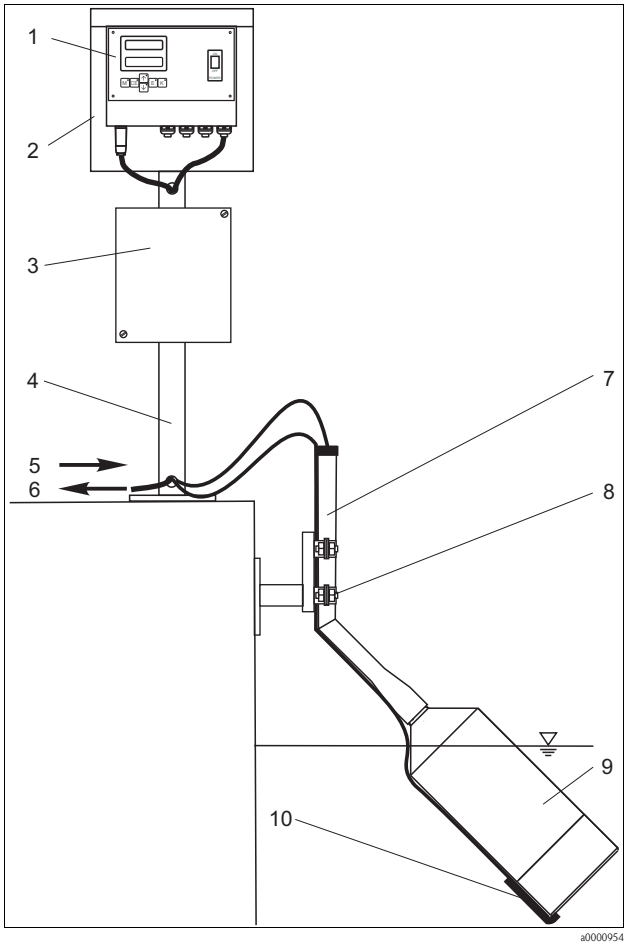
Measuring principle

The sensor light source transmits an ultraviolet light beam through the medium. The transmission light is diverted by means of an optical system consisting of mirrors and lenses. The received light is measured by a photodiode. The part of light absorbed by the medium is proportional to the concentration of the measured value (see input).
Additionally, a reference beam is measured to compensate interference due to suspended solids and organic substances.

Measuring system

A complete measuring system comprises:
- a CSM750 transmitter
- a CSS70 sensor
- an immersion assembly with pendulum frame

Optionally:
- Cleaning unit with compressor
- Mounting post and weather protection cover



Complete measuring system

1 Transmitter CSM750
2 Weather protection cover
3 Compressor housing (optionally, only with cleaning unit)
4 Mounting post
5 Power supply
6 Signal output
7 Immersion assembly
8 Pendulum frame
9 Sensor CSS70
10 Cleaning unit (optionally)

Input

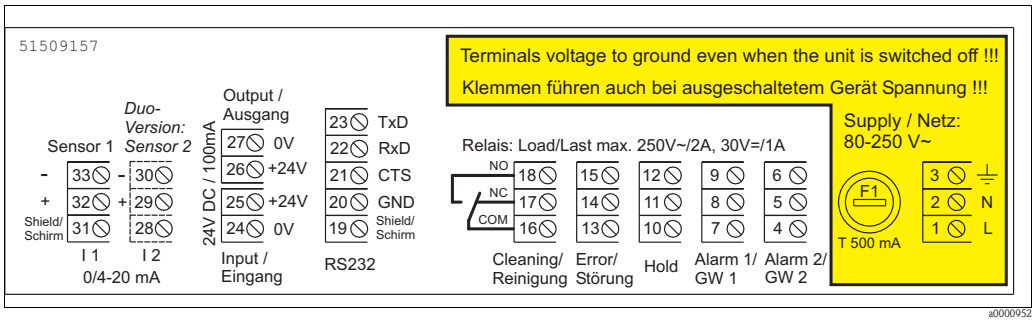
Measured variable	Spectral absorption coefficient [m^{-1}]
Measuring range	SAC 0-50: 0 to 50 m^{-1} resp. 0 to 80 mg/l COD/BOD SAC 0-250: 0 to 250 m^{-1} resp. 0 to 400 mg/l COD/BOD SAC 0-700: 0 to 700 m^{-1} resp. 0 to 900 mg/l COD/BOD
Wavelength	254 nm

Output

Output signal	0/4 to 20 mA, galvanically separated
Signal on alarm	2 limit contacts, 1 alarm contact
Contact switching power	230 V AC / 2 A, 30 V DC / 1 A
Load	max. 500 Ω
Data interface	RS 232 C, slot for bus extension (for internal purposes only)

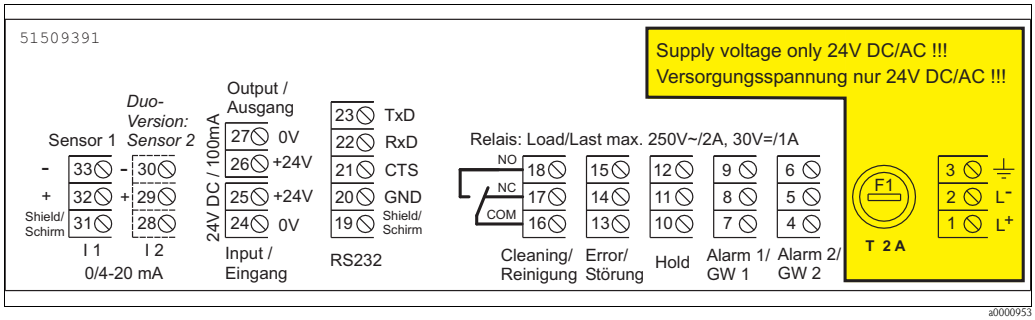
Power supply

Electrical connection



a0000952

Electrical connection transmitter with power supply 80 to 250 V AC



a0000953

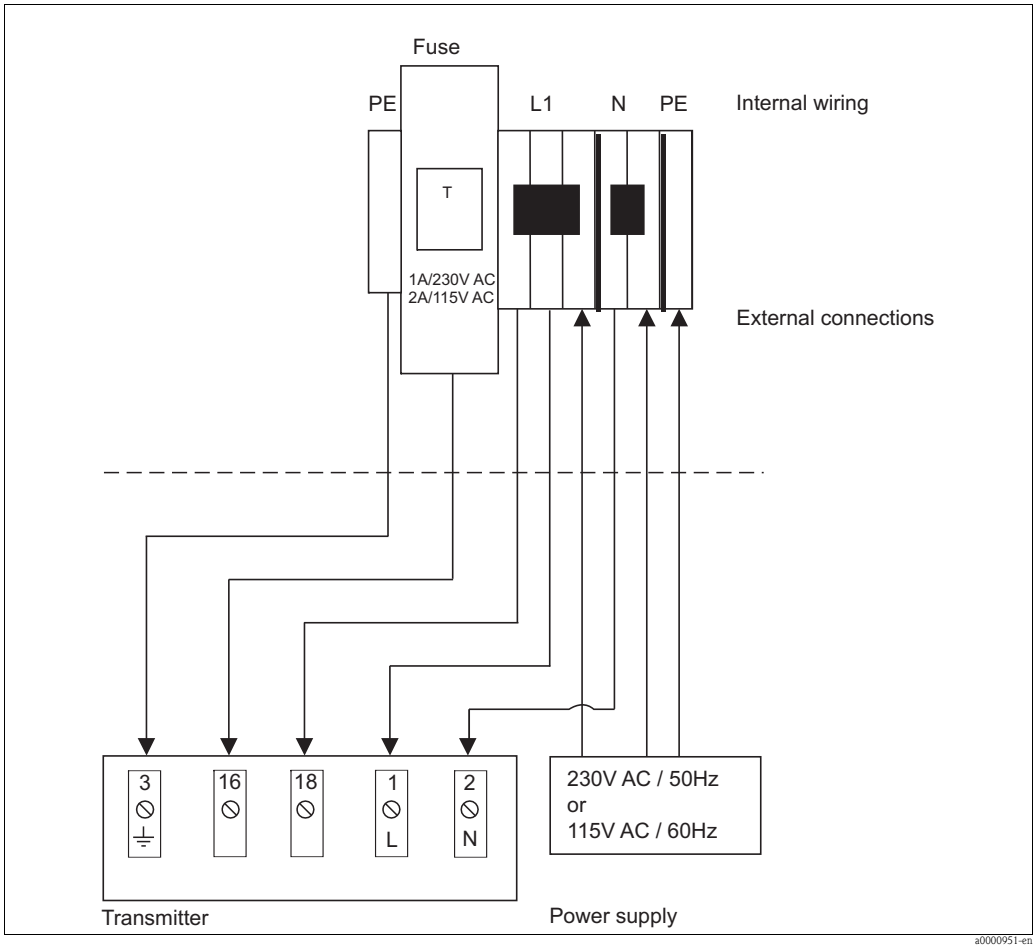
Electrical connection transmitter with power supply 24 V AC/DC

Note!
The duo version with a second sensor is not available for the CNM750 and CSM750 transmitters.

Supply voltage	80 to 250 V AC ±10%, 50/60 Hz 24 V AC/DC

Power consumption	max. 15 VA

Connection of the cleaning unit



Connection of the cleaning unit

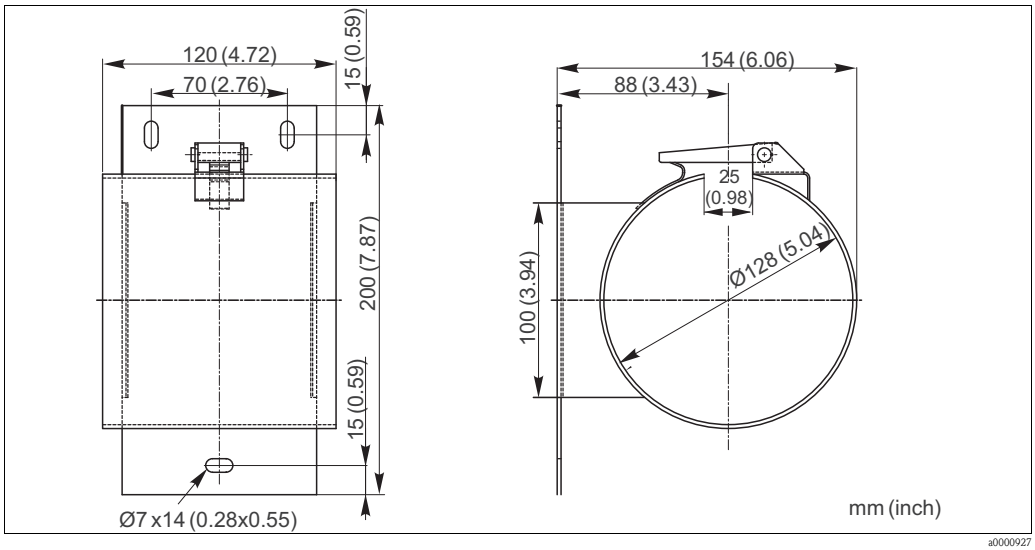
Performance characteristics

Response time t_{90}	≥ 60 s, selectable
Maximum measured error	2 % of upper range value, measurement with potassium hydrogen phthalate (PHP) as standard
Repeatability	0.5 % (with homogeneous media)
Measuring interval	≥ 40 s, selectable

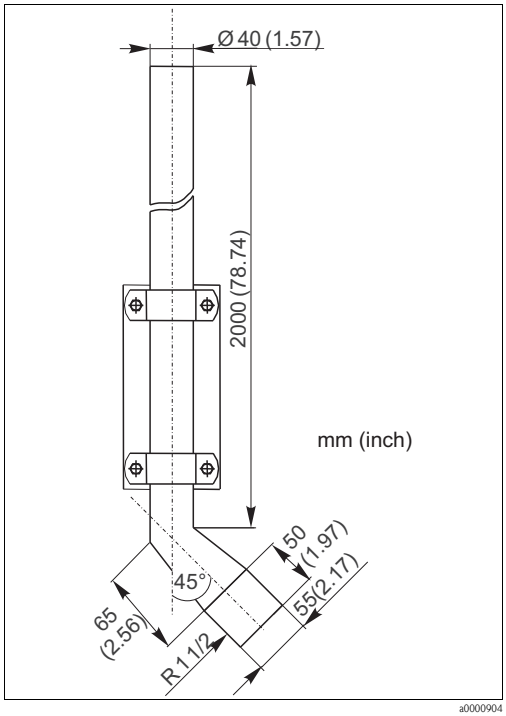
Installation

Installation instructions

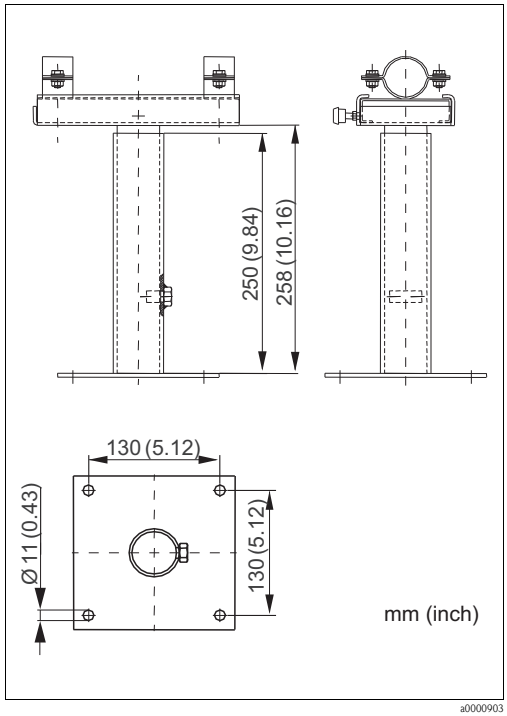
Caution!
Do not install the sensor suspended from the cable. Use a wall bracket or an immersion assembly with pendulum frame for sensor mounting.



Wall bracket for sensor

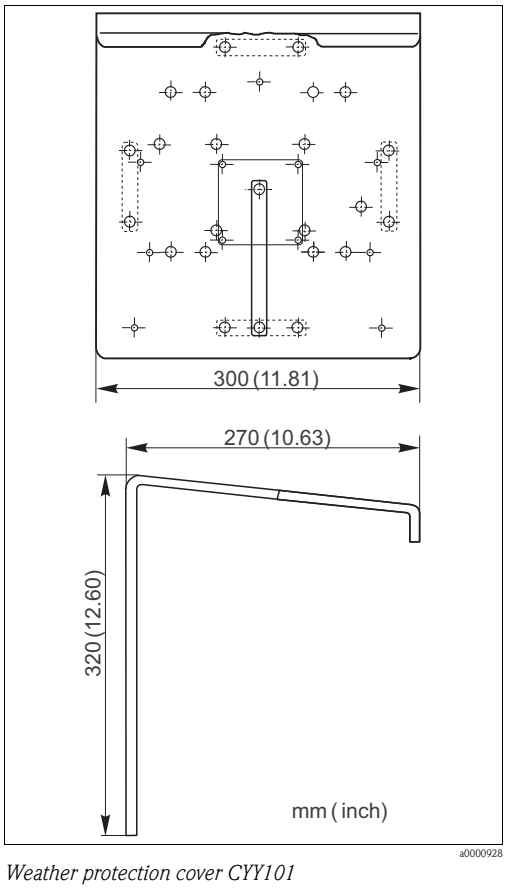


Immersion assembly for sensor

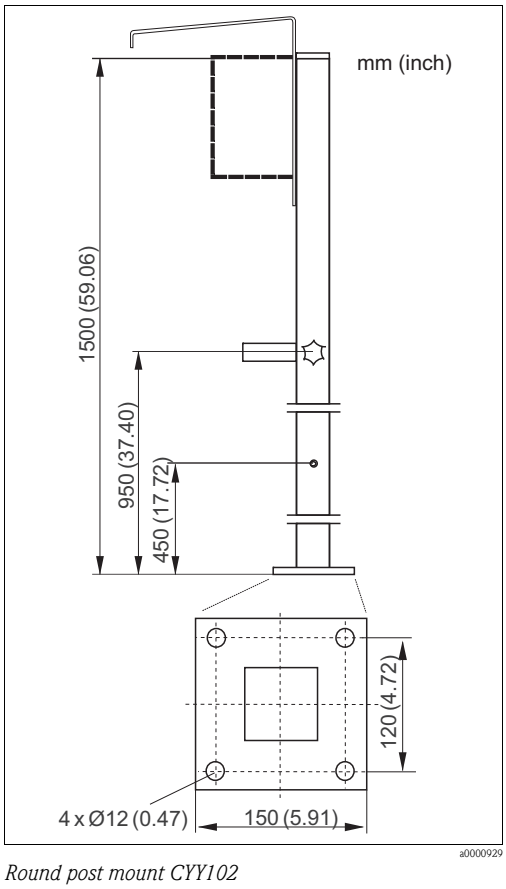


Pendulum frame for immersion assembly

Weather protection cover and round post mount (accessories, optional)



Weather protection cover CYY101



Round post mount CYY102

Cleaning unit

Maximum length of air line tubing: 15 m (49.2 ft)

Note!
Make sure to observe the maximum length of the air line tubing because the cleaning unit has not sufficient power for longer distances.

Environment

Ambient temperature

–10 to 50 °C (14 to 122 °F)

Ingress protection

Sensor, up to 1 bar (14.5 psi): IP 68
Transmitter: IP 65
Cleaning unit (compressor): IP 54

Process

Medium temperature

2 to 40 °C

Medium pressure

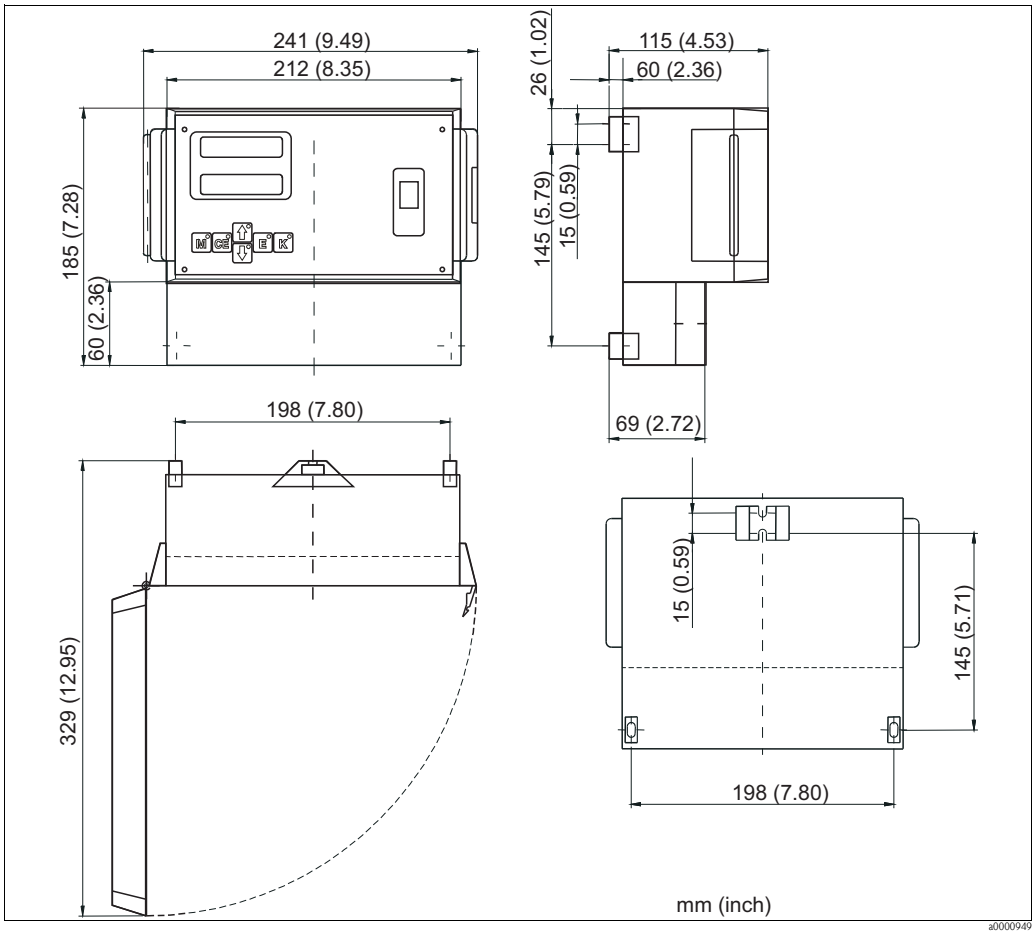
max. 1 bar

Solid content

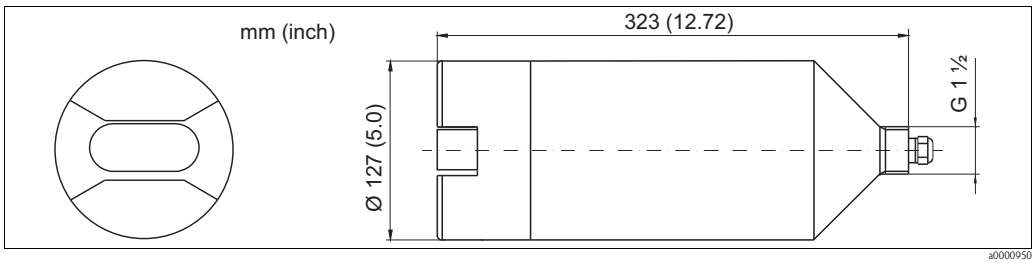
< 2 g/l

Mechanical construction

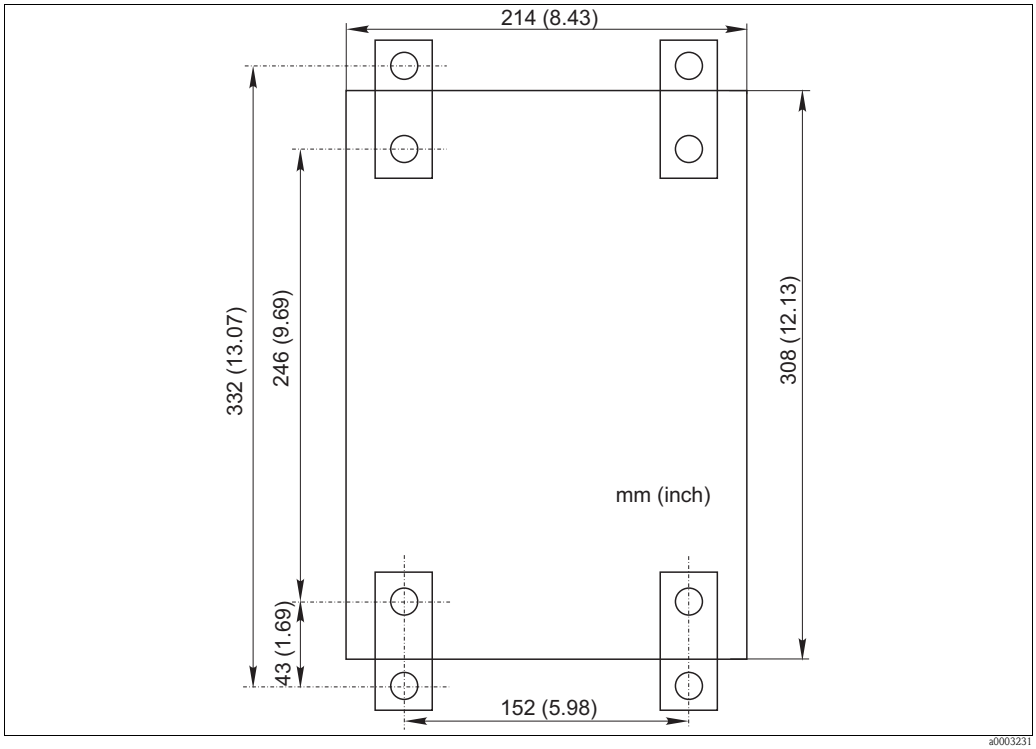
Design, dimensions



Transmitter dimensions



Sensor dimensions



Compressor of the cleaning unit

Weight	Transmitter Sensor	approx. 1.6 kg (3.5 lb) approx. 5 kg (11 lb)
Materials	Sensor head Optical sensor windows Sensor housing	Stainless steel 1.4571 (AISI 316 Ti) Quartz glass POM
Process connection	Sensor head G1½	
Cable specification	Cable length: Cable extension:	2 m (6.6 ft), 5 m (16.4 ft), 7 m (23 ft) or 15 m (49.2 ft) (cable with plug) up to 200 m[1] (656 ft) (with sensor connection box, s. accessories) up to 50 m[2] (164 ft) (with sensor connection box, s. accessories)

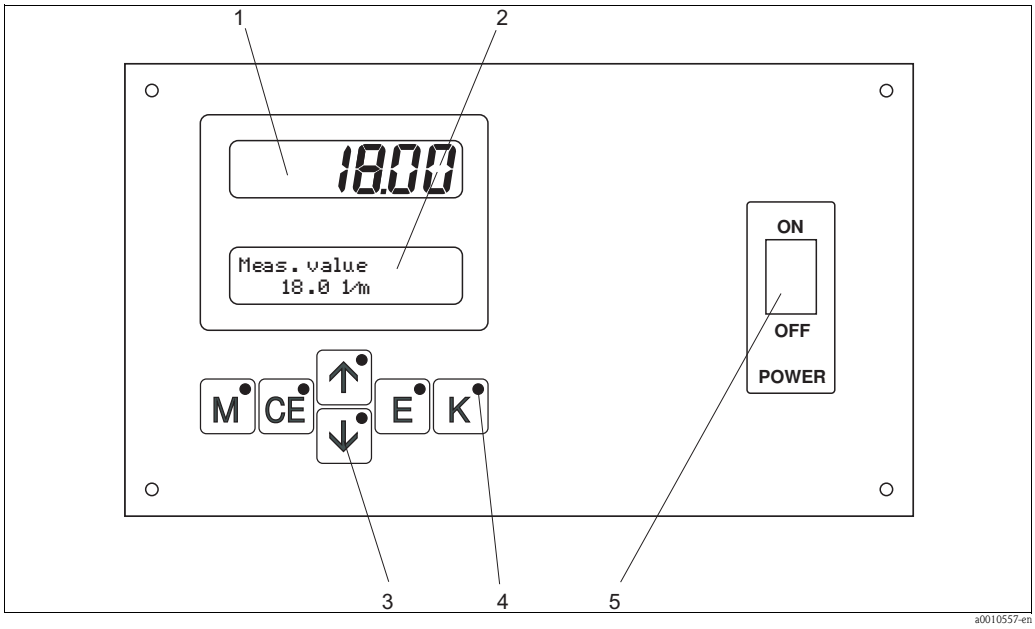
1) with CNM750/CNS70

2) with CSM750/CSS70

Note!
If you are using the cleaning unit, make sure to observe the maximum permissible air line tubing length.

Human Interface

Display and operating elements



Display and operating elements

1 LED display
2 LC display
3 Operating keys
4 Indicator LEDs
5 Mains switch

Certificates and approvals

CE approval

Declaration of conformity
The product meets the requirements of the harmonized European standards. It thus complies with the legal requirements of the EC directives.
The manufacturer confirms successful testing of the product by affixing the CE symbol.

Test reports

Quality certificate
Depending on the order code, you receive a quality certificate.
With the certificate the manufacturer confirms compliance with all technical regulations and the successful individual testing of your product.

Ordering information

Product structure

	Power supply
	7 Power supply 80 to 250 V AC
	8 Power supply 24 V AC/DC
	9 Special version acc. to customer specification

		Communication / Output
	A	RS 232 + 0/4 to 20 mA
	Y	Special version acc. to customer specification

			Version
		1	One channel version
		9	Special version acc. to customer specification

				Additional equipment
			A	Quality certificate
			Y	Special version acc. to customer specification

CSM750 -						**complete order code**

	Cleaning unit
	A not selected
	B 230 V
	C 115 V
	Y Special version acc. to customer specification

		Measuring range
	1	0.3 to 50 m^{-1} resp. 0.4 to 60 mg/l COD, calculated as PHP
	2	15 to 700 m^{-1} resp. 20 to 900 mg/l COD, calculated as PHP
	3	2 to 250 m^{-1} resp. 8 to 400 mg/l COD, calculated as PHP
	9	Special version acc. to customer specification

			Cable length
		A	2 m (6.56 ft)
		B	7 m (22.97 ft)
		C	5 m (16.41 ft)
		D	15 m (49.22 ft)
		Y	Special version acc. to customer specification

				Assembly
			1	not selected
			3	Sea water version (titanium sensor housing)
			4	Immersion assembly 2 m, 90° offset + pendulum frame with 250 mm wall spacing
			9	Special version acc. to customer specification

					Additional equipment
				A	Quality certificate
				Y	Special version acc. to customer specification

CSS70 -						**complete order code**

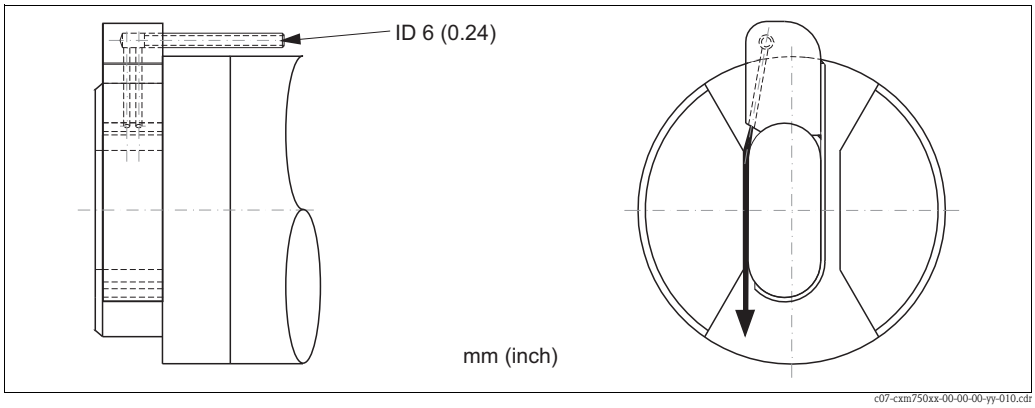
Scope of delivery

The scope of delivery comprises:
- a transmitter (device type and version acc. to the nameplate)
- a sensor (sensor type and version acc. to the nameplate)
- a quality certificate
- Operating Instructions (English).

Accessories

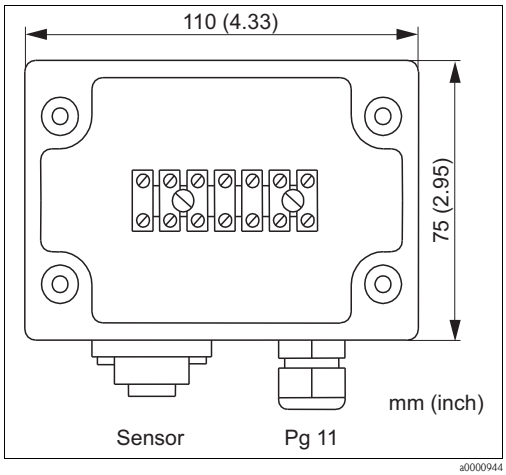
Note!
In the following sections, you find the accessories available at the time of issue of this documentation. For information on accessories that are not listed here, please contact your local service.

- Weather protection cover CYY101,
  for field mounting of the transmitter;
  order no. CYY101-A
- Round post mount CYY102,
  for weather protection cover mounting to vertical or horizontal pipes;
  order no. CYY102-A
- Immersion assembly, offset 45°
  length 2 m (6.56 ft); order no. 51511771
- Immersion assembly, straight
  length 2 m (6.56 ft); order no. 51502959
  length 3 m (9.84 ft); order no. 51502960
  special length; order no. 50066036
- Wall bracket for sensor;
  order no. 51508576
- Pendulum frame for sensor;
  wall spacing 250 mm (9.84"); order no. 51502962
  special version; order no. 50066036
- Compressor attachment;
  order no. 51505419
- Cleaning unit,
  230 V; order no. 51504764
  115 V; order no. 51504765

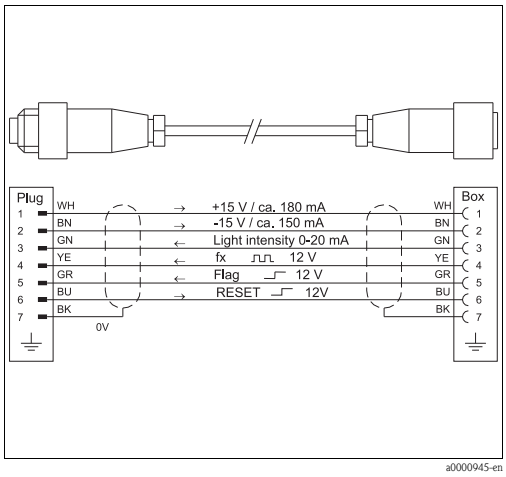


Cleaning unit for sensor

- Extension cable,
  cable length 10 m (32.8 ft), with plug and coupling;
  order no. 51502953
- Plug,
  7-pin plug, IP 67;
  order no. 51504027
- Coupling;
  order no. 51504025
- Control line,
  50 m (164 ft), 6 x 0,34;
  order no. 51504384
- Sensor terminal housing,
  for cable extension from transmitter to sensor;
  order no. 51502956

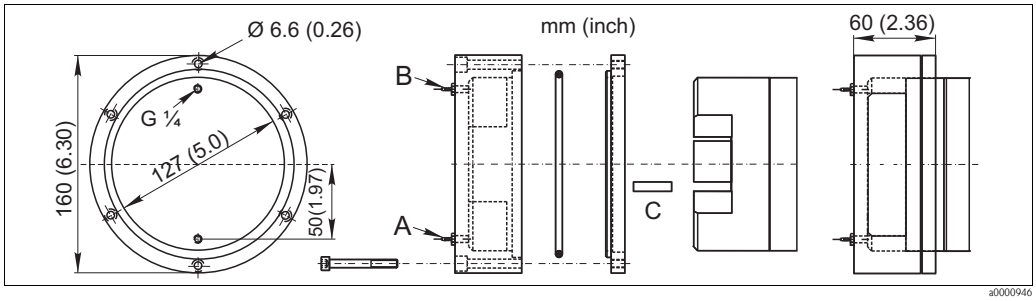


Sensor terminal housing



Sensor connection to sensor terminal housing

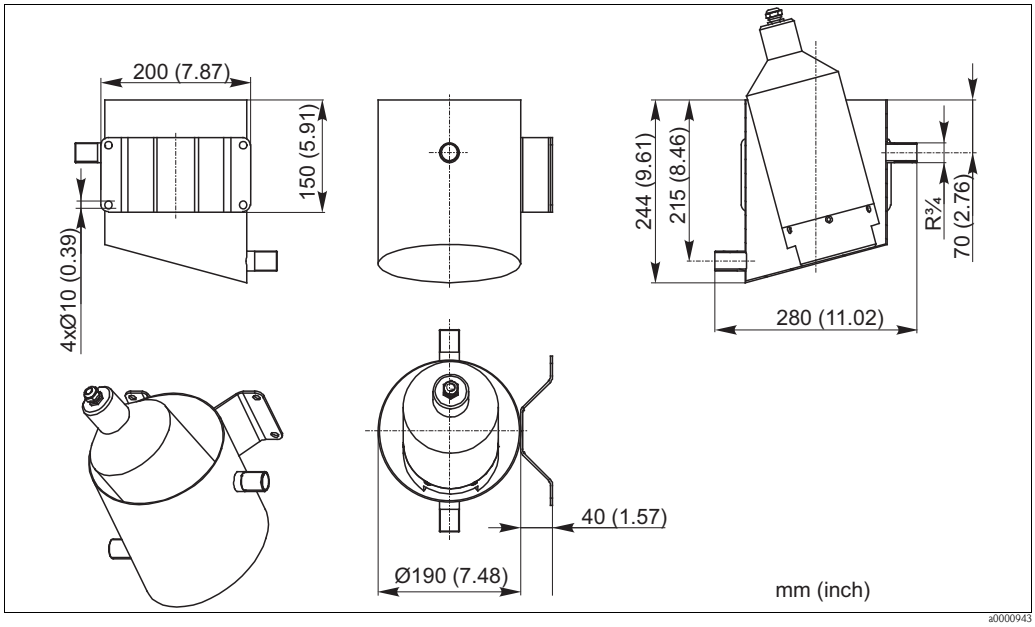
- Flow assembly for drinking water application,
  with reduction of the dead volume, stainless steel 1.4571 (AISI 316 Ti) / PVDF;
  order no. 51509332
  without reduction of the dead volume, stainless steel 1.4571 (AISI 316 Ti) / PVDF;
  order no. 51509333



Flow assembly

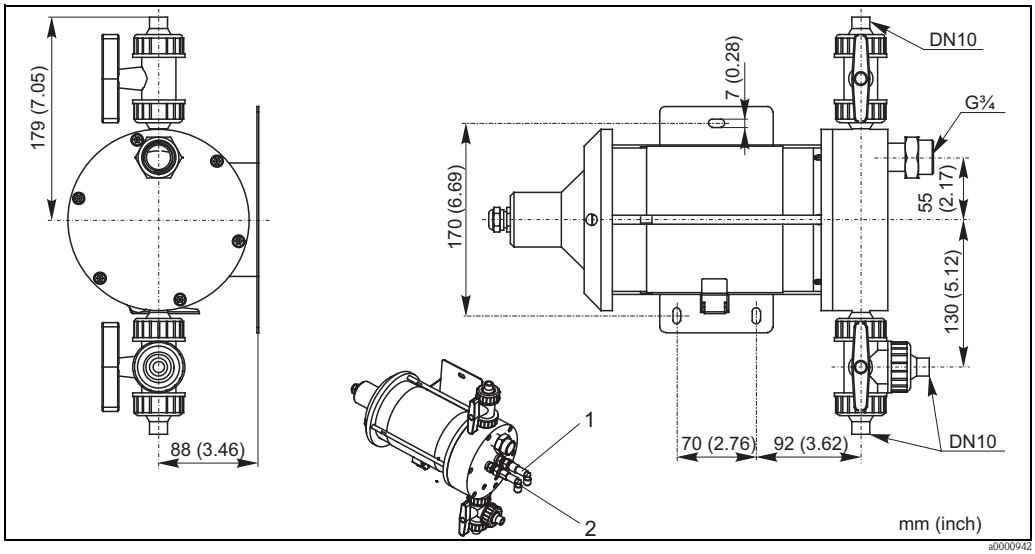
A Hose connection inlet
ID 1.6 mm (with dead volume reduction)
ID 6.4 mm (without dead volume reduction)
B Hose connection inlet
ID 1.6 mm (with dead volume reduction)
ID 6.4 mm (without dead volume reduction)
C Split pin for dead volume reduction

- Flow vessel,
  open version; with inlet and outlet
  order no. 51515762



Flow vessel

- Flow assembly, without external rinsing
  - with dead volume reduction and overpressure protection, order no. 51515803
  - without dead volume reduction, with overpressure protection; order no. 51515804
  - PVDF, without dead volume reduction, with stop valves and overpressure protection; order no. 51515765
  - PVC, without dead volume reduction, with stop valves and overpressure protection; order no. 51515769
- Flow assembly, with external rinsing
  external switched valve needed, inlet DN10, outlet ¾", PVDF
  - for 2 mm (0.08") slit, order no. C-A050128-10
  - for 8 mm (0.31") slit, order no. C-A041217-11
  - for 40 mm (1.57") slit, order no. C-A041122-11
  - external switched valve, order no. C-A050110-10



Flow assembly (all versions)

1 with external rinsing only, 2 mm (0.08"), 8 mm (0.31") and 40 mm (1.57") slit
2 with external rinsing only, 40 mm (1.57") slit only

Instruments International

Endress+Hauser
Instruments International AG
Kaegenstrasse 2
4153 Reinach
Switzerland

Tel.+41 61 715 81 00
Fax+41 61 715 25 00
www.endress.com
info@ii.endress.com

Endress+Hauser

People for Process Automation

TI305C/07/en/06.09
71097668
FM+SGML 6.0