



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, BOD, TOC and DOC.

- 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

## 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.

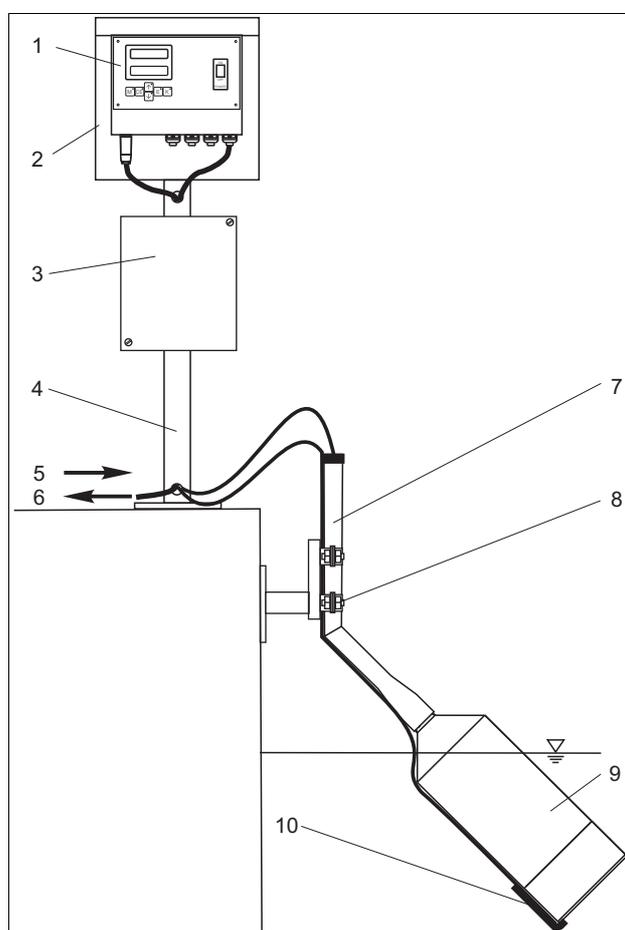
### Measuring system

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

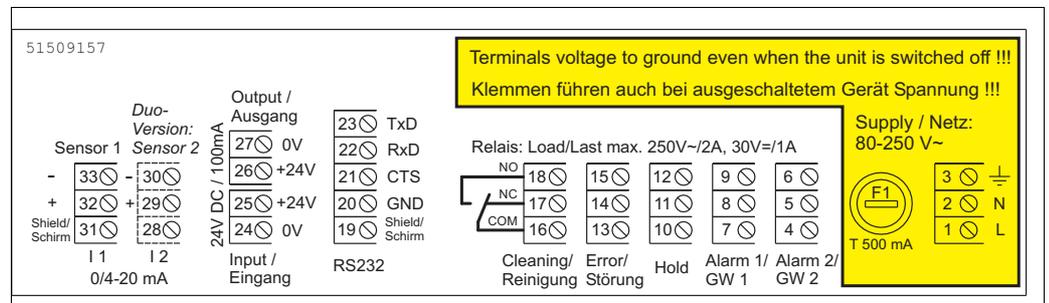
<b>Measured variable</b>	Spectral absorption coefficient [m <sup>-1</sup> ]	
<b>Measuring range</b>	SAC 0-50:	0 to 50 m <sup>-1</sup> resp. 0 to 35 mg/l DOC/TOC resp. 0 to 80 mg/l COD/BOD
	SAC 0-250:	0 to 250 m <sup>-1</sup> resp. 0 to 150 mg/l DOC/TOC resp. 0 to 400 mg/l COD/BOD
	SAC 0-700:	0 to 700 m <sup>-1</sup> resp. 0 to 400 mg/l DOC/TOC resp. 0 to 900 mg/l COD/BOD
<b>Wavelength</b>	254 nm	

## Output

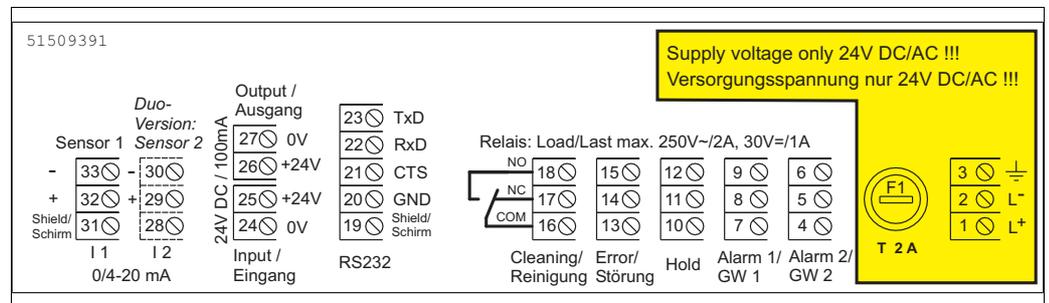
<b>Output signal</b>	0/4 to 20 mA, galvanically separated	
<b>Signal on alarm</b>	2 limit contacts, 1 alarm contact	
<b>Contact switching power</b>	230 V AC / 2 A, 30 V DC / 1 A	
<b>Load</b>	max. 500 Ω	
<b>Data interface</b>	RS 232 C, slot for bus extension (for internal purposes only)	

## Power supply

### Electrical connection



Electrical connection transmitter with power supply 80 to 250 V AC



Electrical connection transmitter with power supply 24 V AC/DC

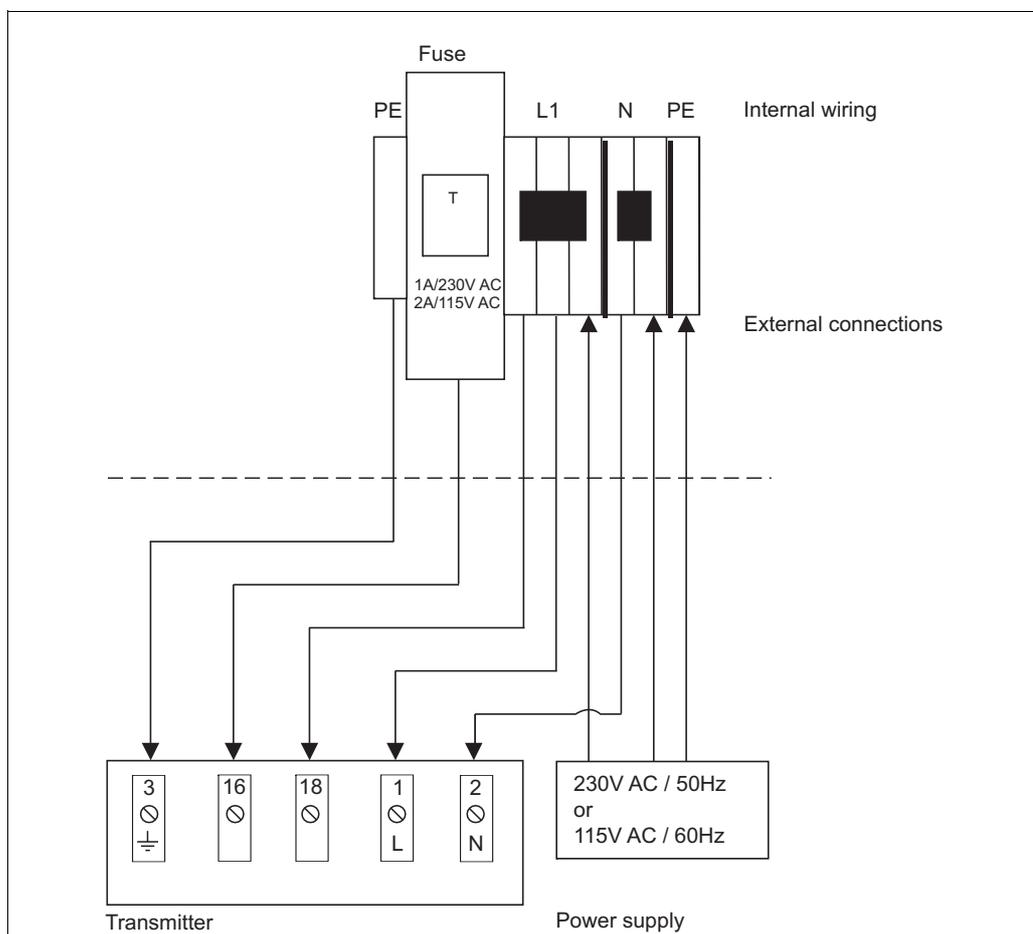
### Note!

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

**Supply voltage** 80 to 250 V AC  $\pm 10\%$ , 50/60 Hz  
24 V AC/DC

**Power consumption** max. 15 VA

**Connection of the cleaning unit**



Connection of the cleaning unit

## Performance characteristics

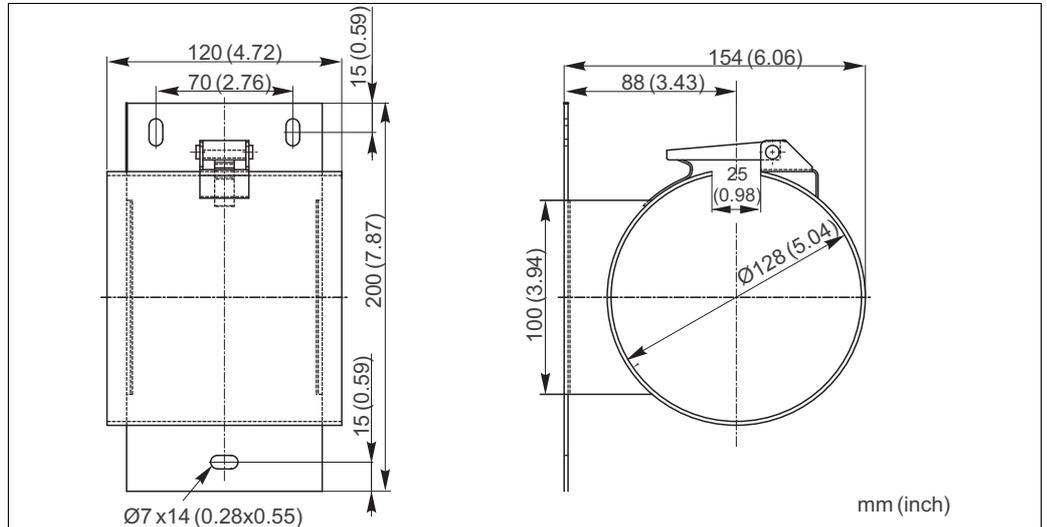
<b>Response time <math>t_{90}</math></b>	$\geq 60$ s, selectable
<b>Maximum measured error</b>	2 % of upper range value, measurement with potassium hydrogen phthalate (PHP) as standard
<b>Repeatability</b>	0.5 % (with homogeneous media)
<b>Measuring interval</b>	$\geq 40$ s, selectable

# Installation

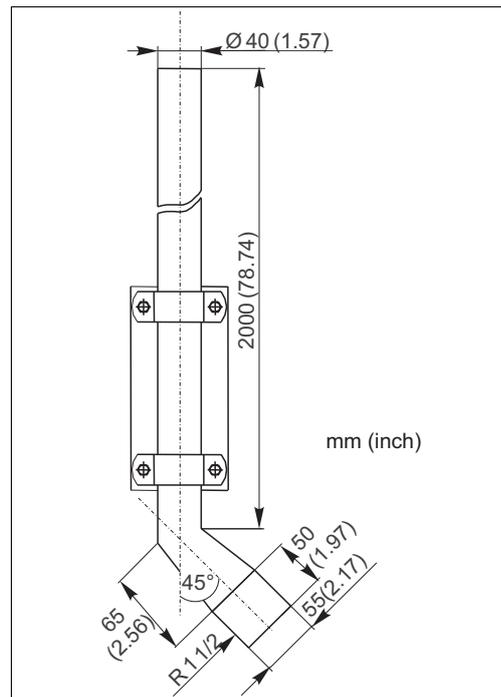
## Installation instructions

### Caution!

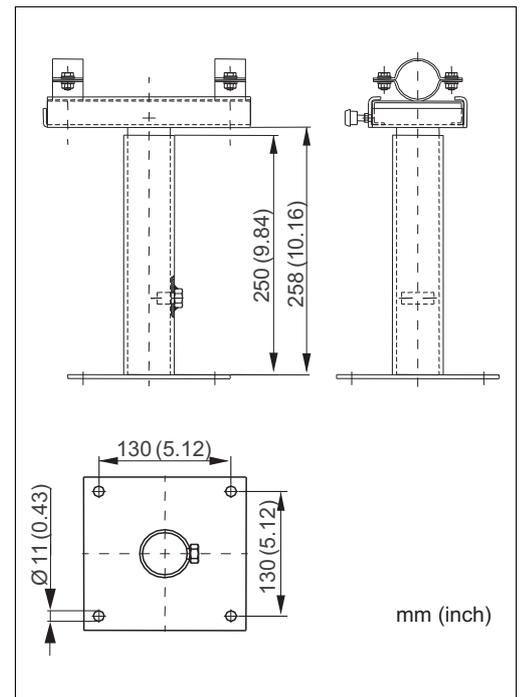
Do not install the sensor suspended from the cable. Use a wall bracket or an immersion assembly with pendulum frame for sensor mounting.



Wall bracket for sensor

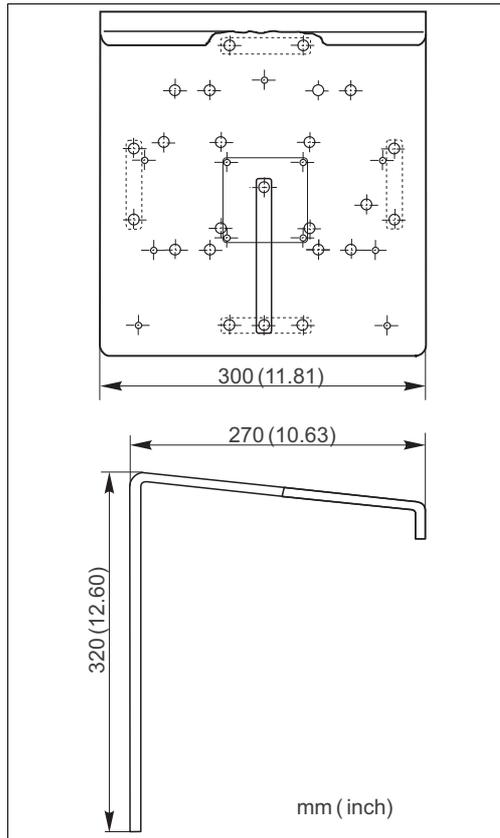


Immersion assembly for sensor

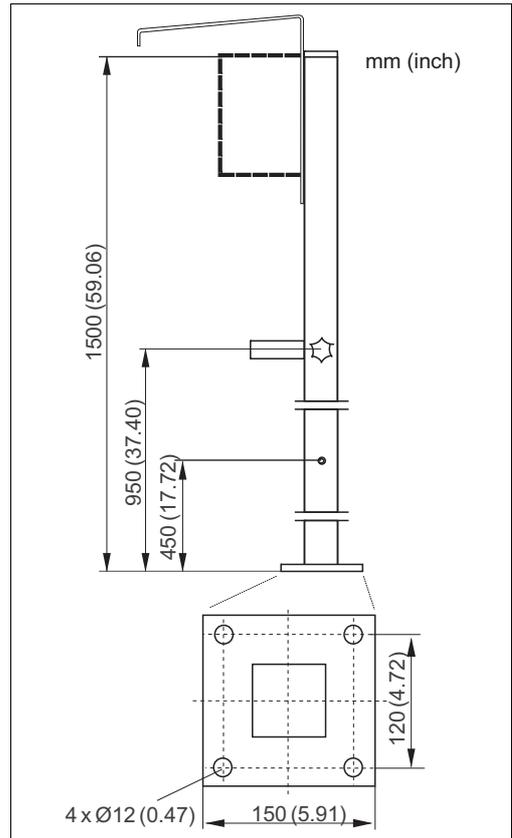


Pendulum frame for immersion assembly

**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**

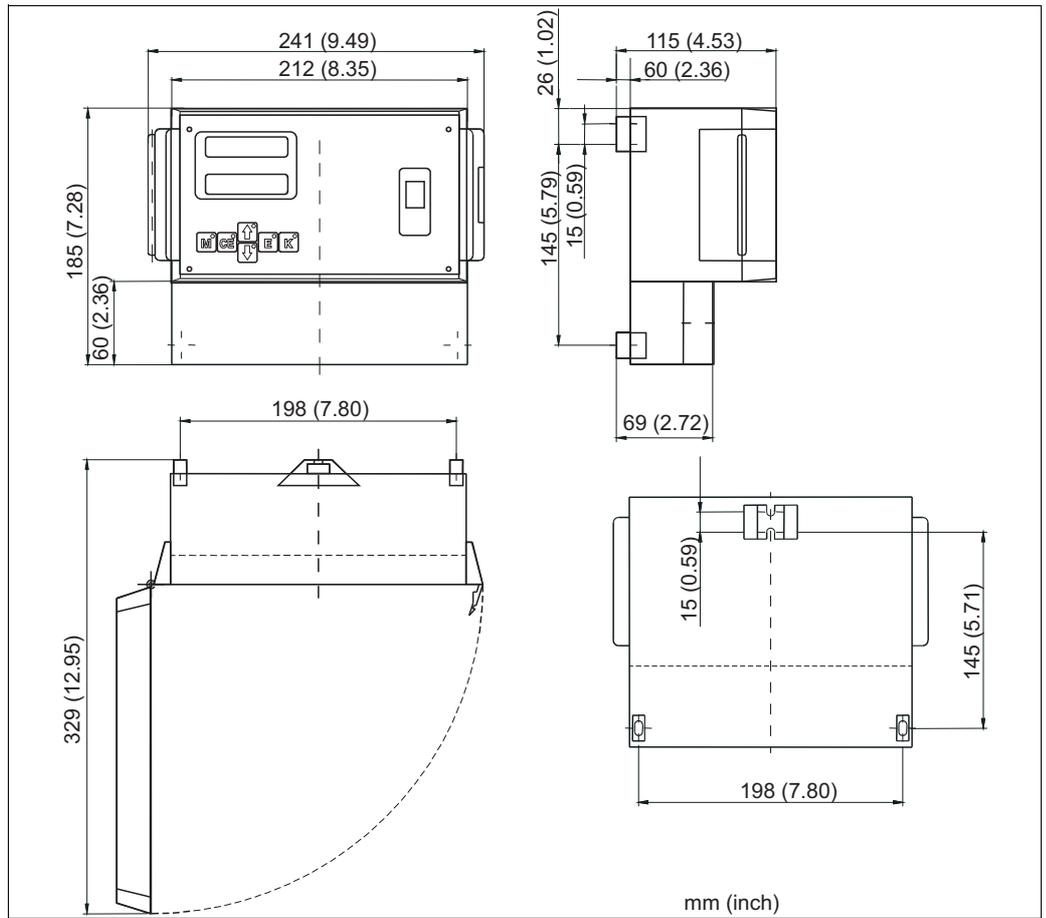
max. 1 bar

**Solid content**

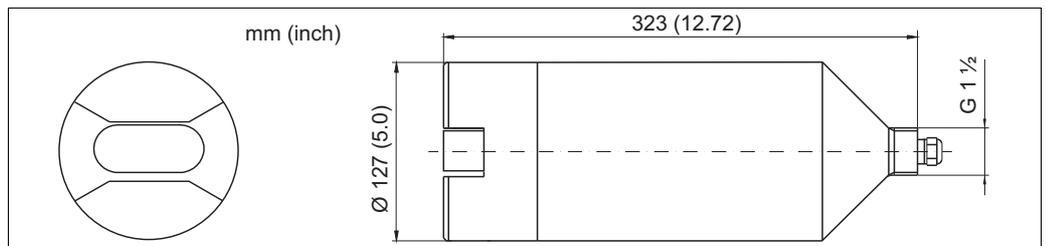
< 2 g/l

## Mechanical construction

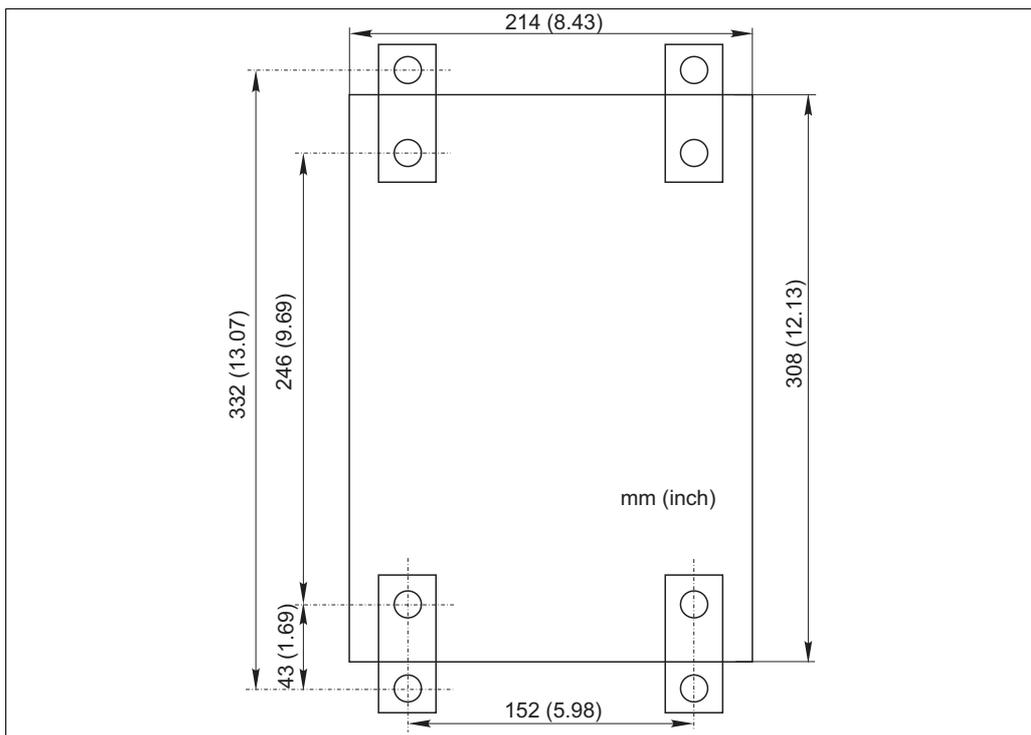
### Design, dimensions



Transmitter dimensions



Sensor dimensions



Compressor of the cleaning unit

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

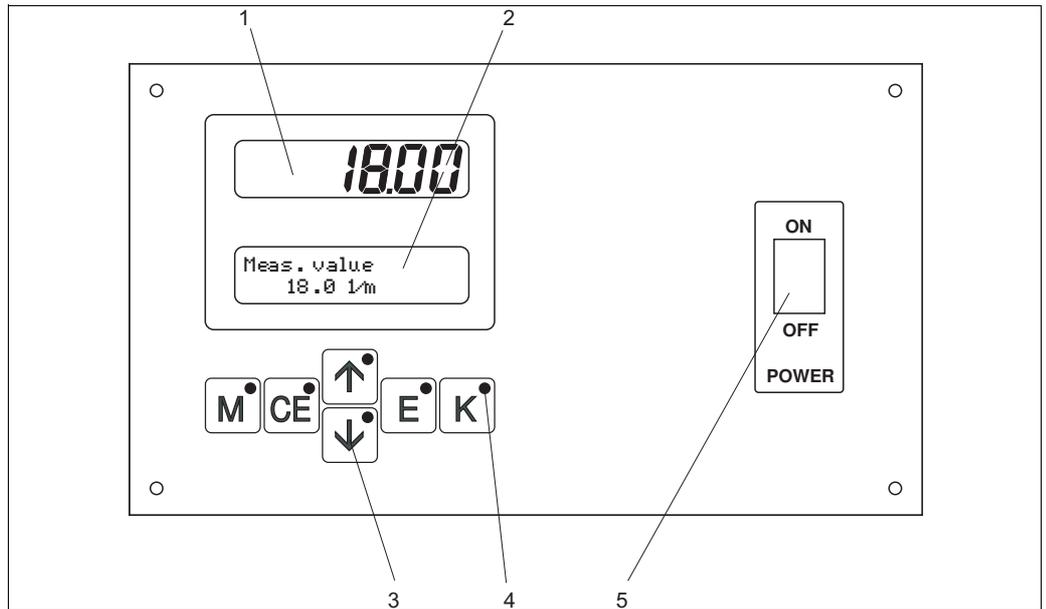
- 1) with CNM750/CNS70
- 2) with CSM750/CSS70

**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

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## 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 -	<b>complete order code</b>

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 <sup>-1</sup> resp. 0.4 to 60 mg/l COD, calculated as PHP
2	15 to 700 m <sup>-1</sup> resp. 20 to 900 mg/l COD, calculated as PHP
3	2 to 250 m <sup>-1</sup> 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 -	<b>complete order code</b>

### Scope of delivery

The scope of delivery comprises:

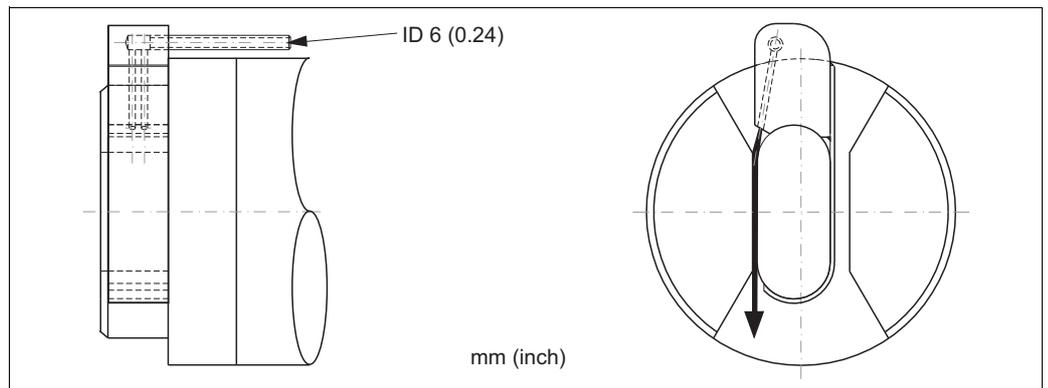
- a transmitter (device type and version acc. to the nameplate)
- a sensor (sensor type and version acc. to the nameplate)
- a quality certificate
- Operating Instructions (English).

## 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.

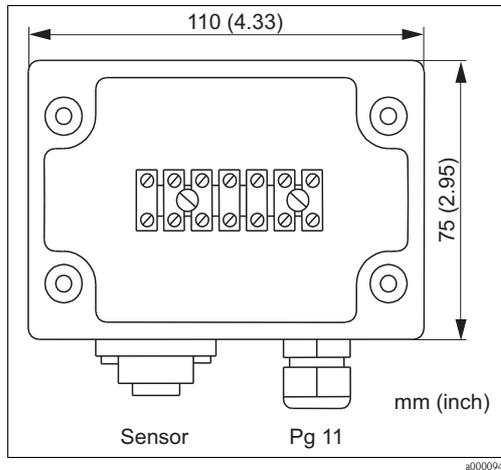
- Weather protection cover CYY101,  
for field mounting of the transmitter;  
order no. CYY101-A
- Round post mount CYY102,  
for weather protection cover mounting to vertical or horizontal pipes;  
order no. CYY102-A
- Immersion assembly, offset 45°  
length 2 m (6.56 ft); order no. 51511771
- Immersion 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



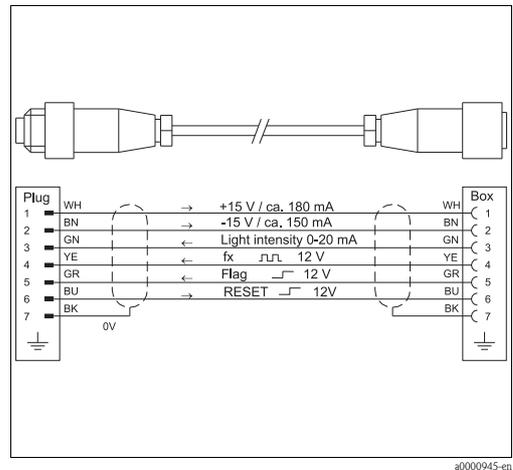
*Cleaning unit for sensor*

- Extension cable,  
cable length 10 m (32.8 ft), with plug and coupling;  
order no. 51502953
- Plug,  
7-pin plug, IP 67;  
order no. 51502954
- Coupling;  
order no. 51502955
- Control line,  
50 m (164 ft), 6 x 0,34;  
order no. 51503015

- Sensor terminal housing,  
for cable extension from transmitter to sensor;  
order no. 51502956

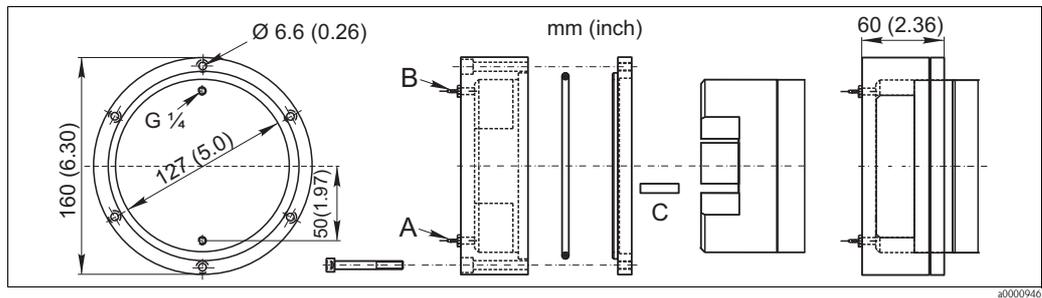


Sensor terminal housing



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







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