



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.

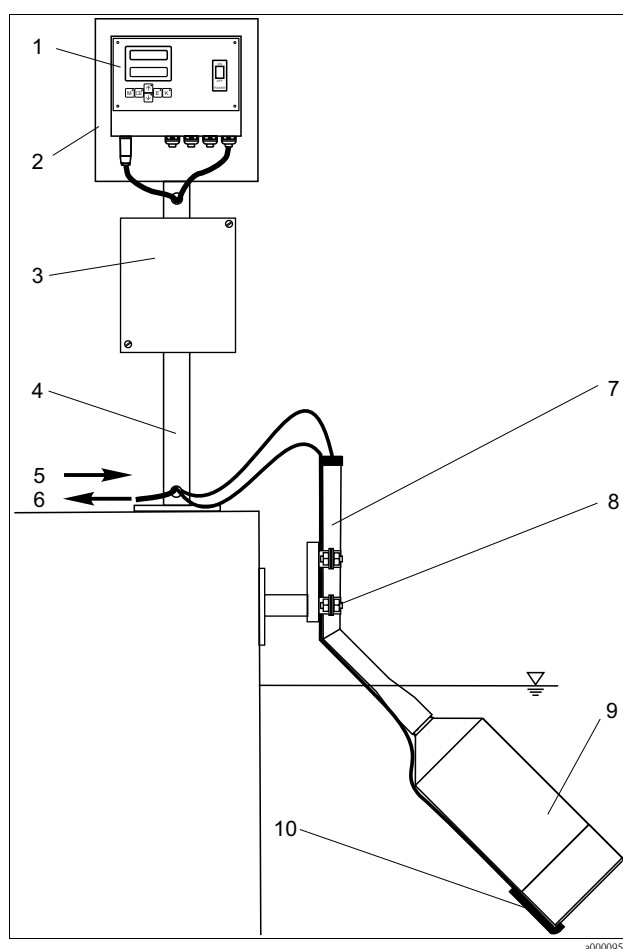
### Measuring system

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

Measured variable	Spectral absorption coefficient [m <sup>-1</sup> ]
Measuring range	0.3 ... 50 m <sup>-1</sup> resp. 0.4 ... 60 mg/l COD 15 ... 700 m <sup>-1</sup> resp. 20 ... 900 mg/l COD
Wavelength	254 nm

Output

Output signal	0/4 ... 20 mA, galvanically separated
Signal on alarm	2 limit contact, 1 alarm contact
Contact switching power	230 V AC / 3 A, 30 V DC / 1 A
Load	max. 500 Ω
Data interface	RS 232 C, slot for bus extension

Power supply

Electrical connection

51509157

**Duo-Version:**  
Sensor 1    Sensor 2

-    33   -    30  
+    32   +    29  
Shield/    31   Shield/  
Schirm    Schirm

I 1    I 2  
0/4-20 mA

Output /  
Ausgang

27   0V  
26   +24V  
25   +24V  
24   0V

24V DC / 100mA

Input /  
Eingang

23   TxD  
22   RxD  
21   CTS  
20   GND  
19   Shield/  
      Schirm

RS232

Relais: Load/Last max. 250V~/2A, 30V=/1A

NO 18   15   12   9   6  
NC 17   14   11   8   5  
COM 16   13   10   7   4

Cleaning/    Error/    Hold    Alarm 1/    Alarm 2/  
Reinigung    Störung       GW 1    GW 2

Supply / Netz:  
80-250 V~

F1  
T 500 mA

3    $\perp$   
2   N  
1   L

Electrical connection transmitter with power supply 80 ... 250 V AC

a0000952

51509391

**Duo-Version:**  
Sensor 1    Sensor 2

-    33   -    30  
+    32   +    29  
Shield/    31   Shield/  
Schirm    Schirm

I 1    I 2  
0/4-20 mA

Output /  
Ausgang

27   0V  
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24V DC / 100mA

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23   TxD  
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RS232

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NC 17   14   11   8   5  
COM 16   13   10   7   4

Cleaning/    Error/    Hold    Alarm 1/    Alarm 2/  
Reinigung    Störung       GW 1    GW 2

Supply voltage only 24V DC/AC !!!  
Versorgungsspannung nur 24V DC/AC !!!

F1  
T 2 A

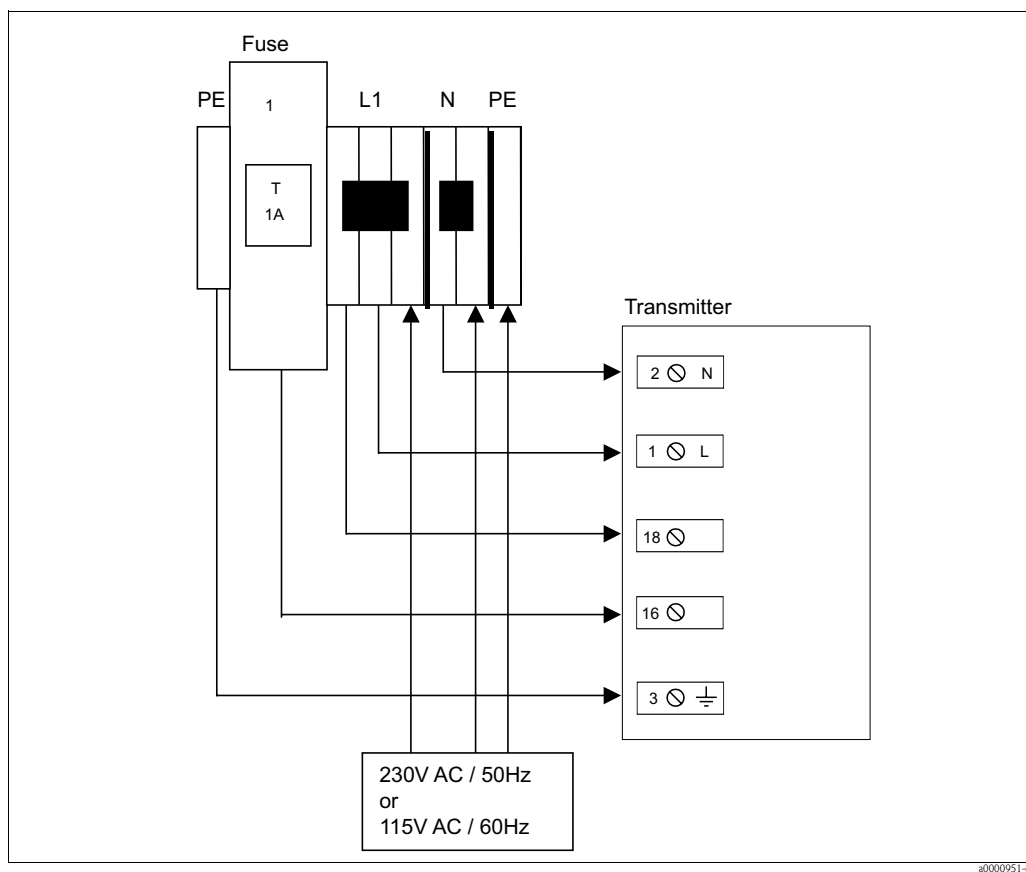
3    $\perp$   
2   L<sup>+</sup>  
1   L<sup>+</sup>

Electrical connection transmitter with power supply 24 V AC/DC

a0000953

Supply voltage	80 ... 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

a0000951-en

## Performance characteristics

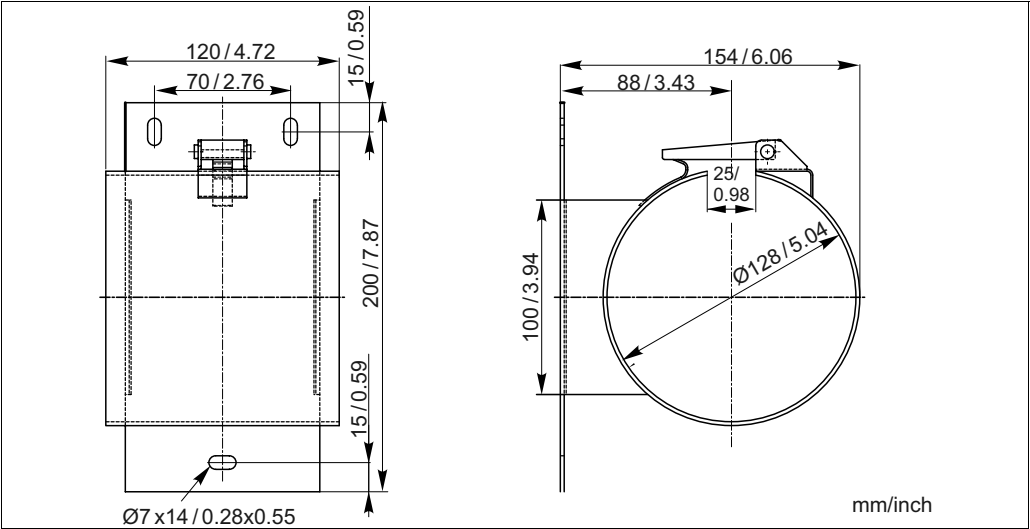
<b>Response time <math>t_{90}</math></b>	$\geq 60$ s, selectable
<b>Maximum measured error</b>	2 % of upper range value, measurement with potassium hydrogen phthalate (PHP) as standard
<b>Repeatability</b>	0,5 % (with homogeneous media)
<b>Measuring interval</b>	$\geq 40$ s, selectable

# Installation

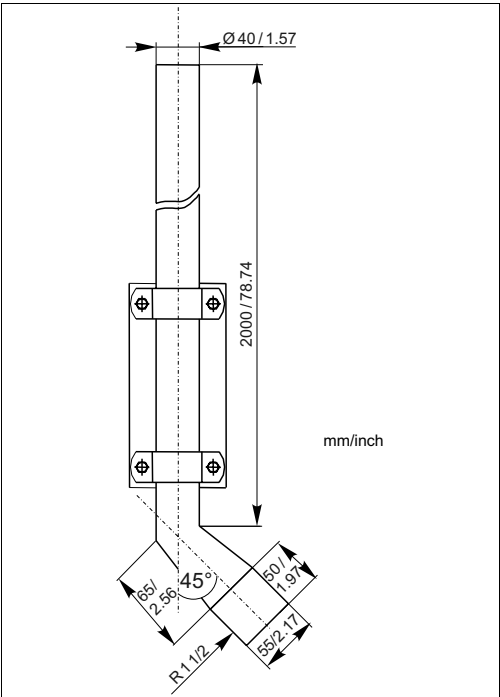
## Installation instructions



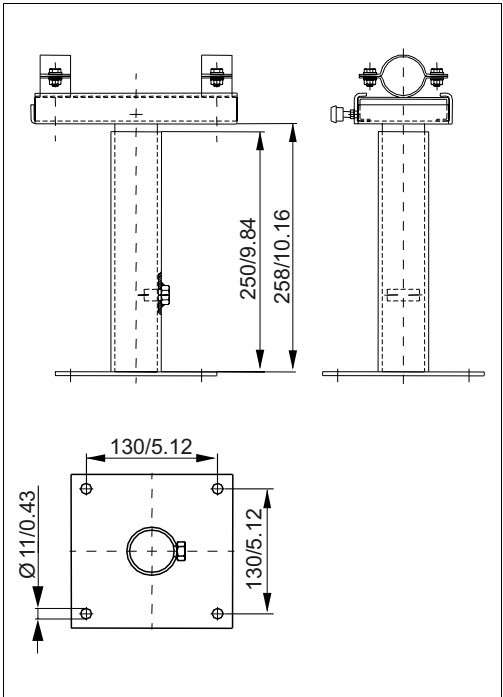
Caution!  
Do not install the sensor suspended from the cable. Use a wall bracket or an immersion assembly with pendulum frame for sensor mounting.



Wall bracket for sensor

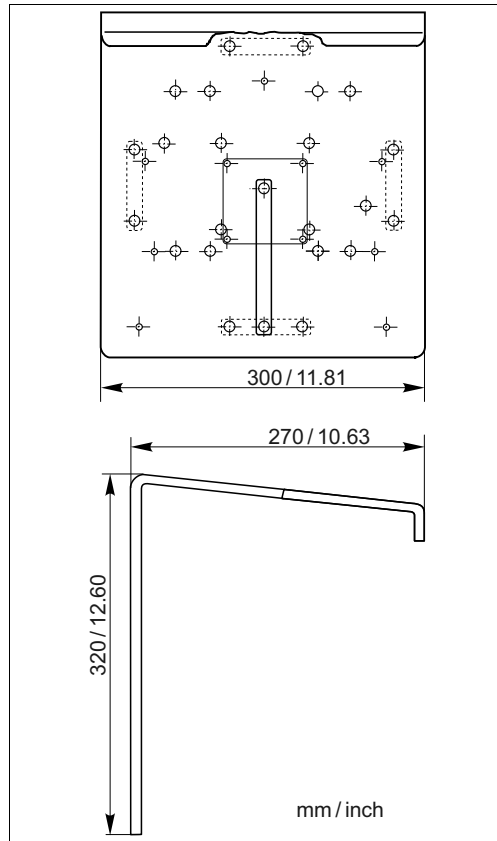


Immersion assembly for sensor

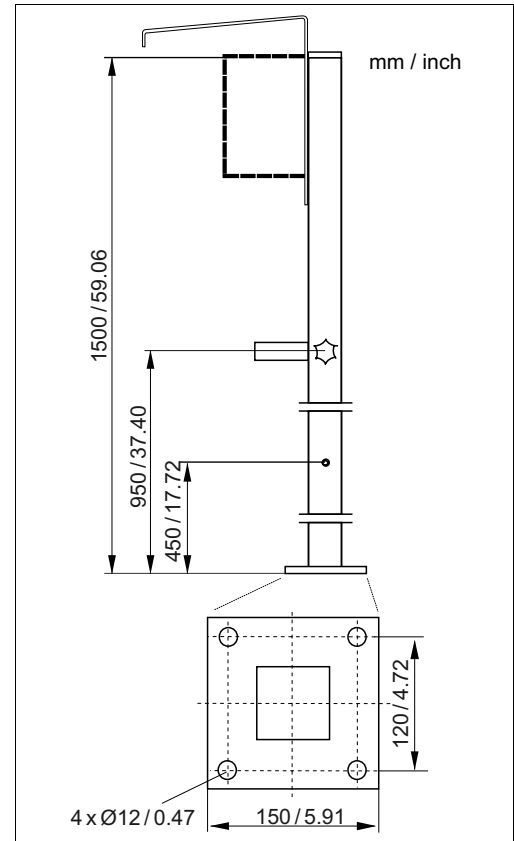


Pendulum frame for immersion assembly

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



Weather protection cover CY 101



Round post mount CY 102

## Environment

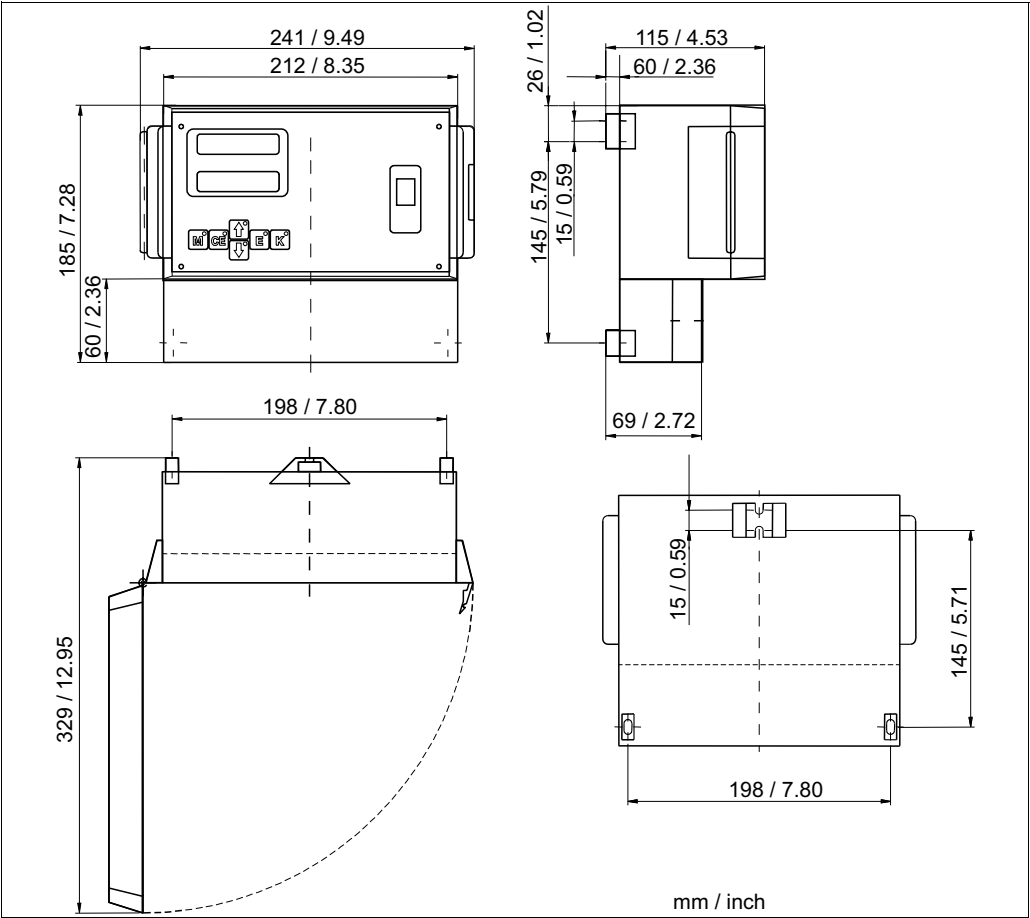
<b>Ambient temperature</b>	-10 ... 50 °C (14 ... 122 °F)
<b>Ingress protection</b>	Sensor, up to 1 bar (14.5 psi): IP 68 Transmitter: IP 68 Cleaning unit (compressor): IP 68

## Process

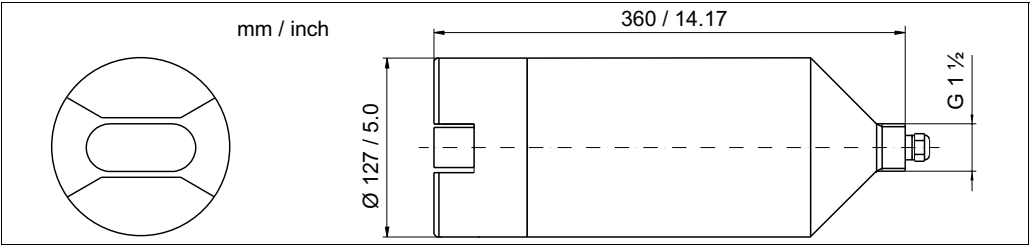
<b>Medium temperature</b>	2 ... 40 °C
<b>Medium pressure</b>	max. 1 bar
<b>Solid content</b>	< 2 g/l

# Mechanical construction

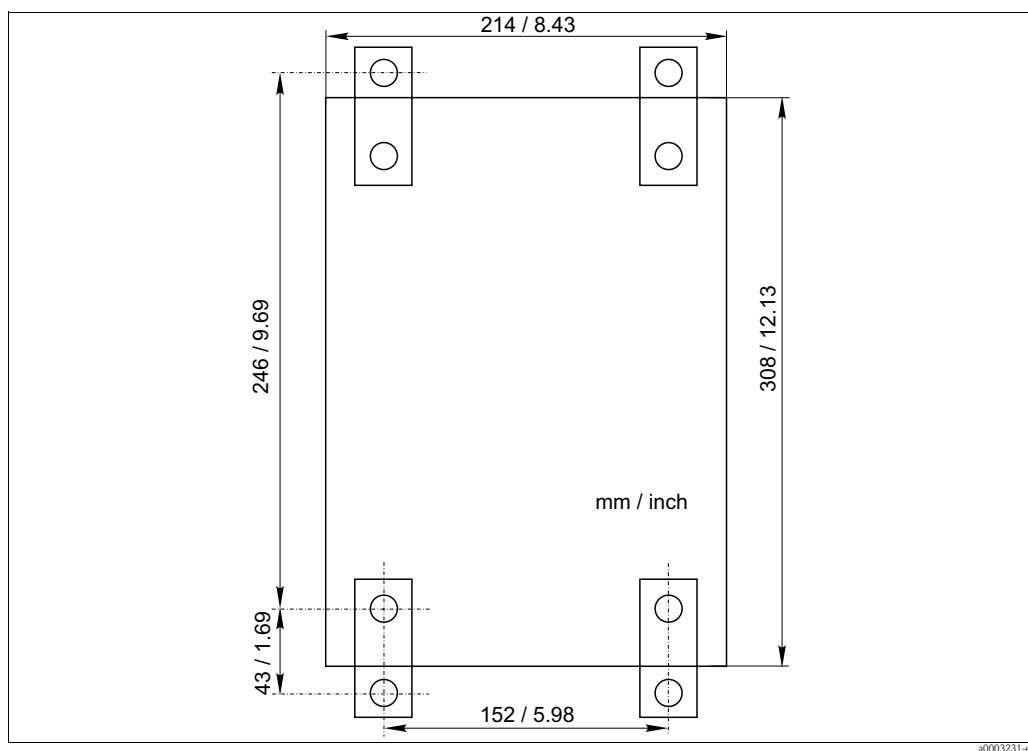
## Design, dimensions



Transmitter dimensions



Sensor dimensions



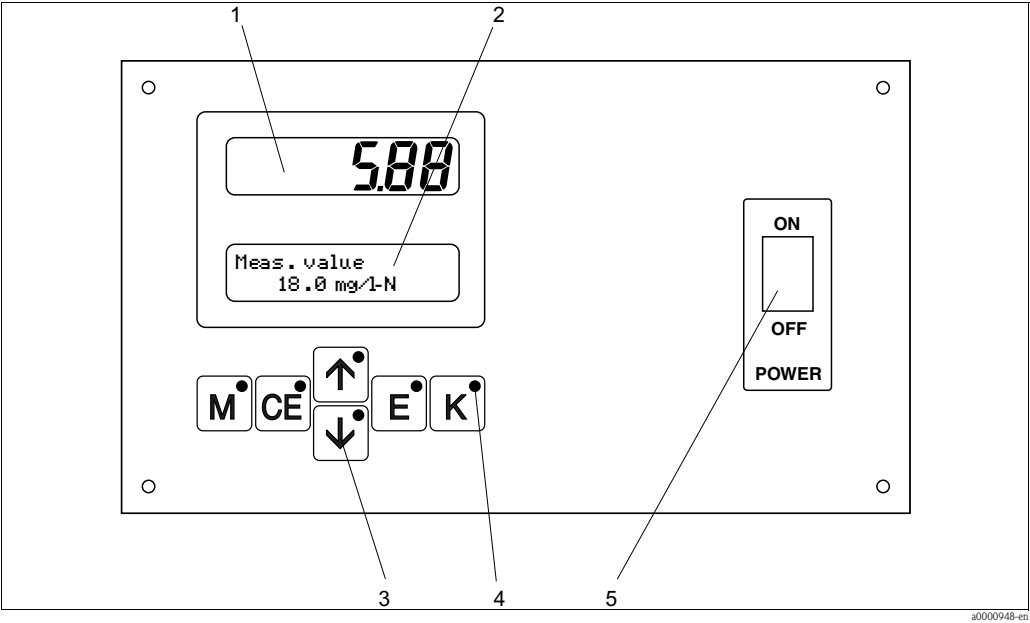
Compressor of the cleaning unit

<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 L)
	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



# Human Interface

## Display and operating elements



Display and operating elements

- 1 LED (measured value)
- 2 LC display (status)
- 3 Operating keys
- 4 Indicator LEDs
- 5 Mains switch

# Certificates and approvals

## CE approval

### Declaration of conformity

The product meets the legal requirements of the harmonised European standards.  
The manufacturer confirms compliance with the standards 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

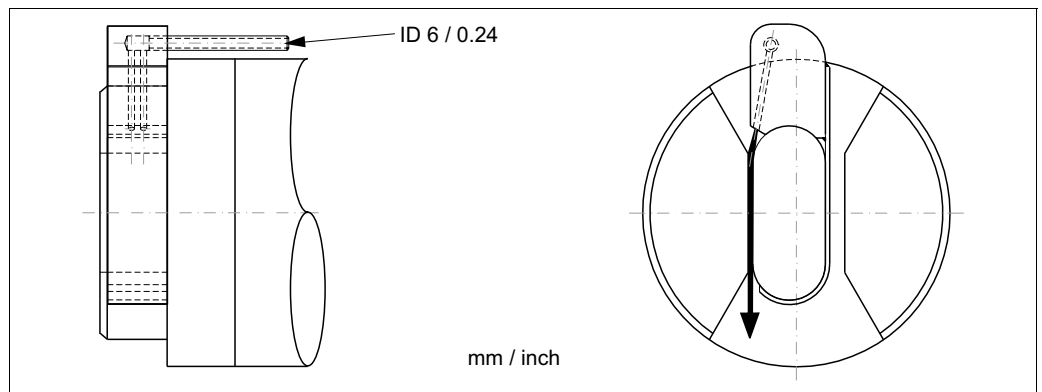
### Product structure

		<b>Power supply</b>		
	7			Power supply 80 ... 250 V AC
	8			Power supply 24 V AC/DC
	9			Special version acc. to customers specification
			<b>Communication / Output</b>	
	A			RS 232 + 0/4 ... 20 mA
	Y			Special version acc. to customers specification
			<b>Version</b>	
	1			One channel version
	9			Special version acc. to customers specification
			<b>Additional equipment</b>	
	A			Quality certificate
	Y			Special version acc. to customers specification
CSM 750 -				<b>complete order code</b>

Cleaning unit				
	A	not selected		
	B	230 V		
	C	115 V		
	Y	Special version acc. to customers specification		
Measuring range				
	1	0.3 ... 50 m <sup>-1</sup> resp. 0.4 ... 60 mg/l COD, calculated as PHP		
	2	15 ... 700 m <sup>-1</sup> resp. 20 ... 900 mg/l COD, calculated as PHP		
	3	2 ... 250 m <sup>-1</sup> resp. 8 ... 400 mg/l COD, calculated as PHP		
	9	Special version acc. to customers 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 customers specification		
Assembly				
	1	not selected		
	3	Sea water version		
	4	Immersion assembly 2 m, 90° offset + pendulum frame w. 250 mm wall spacing		
	9	Special version acc. to customers specification		
Additional equipment				
	A	Quality certificate		
	Y	Special version acc. to customers specification		
CSS70 -				<b>complete order code</b>

## Accessories

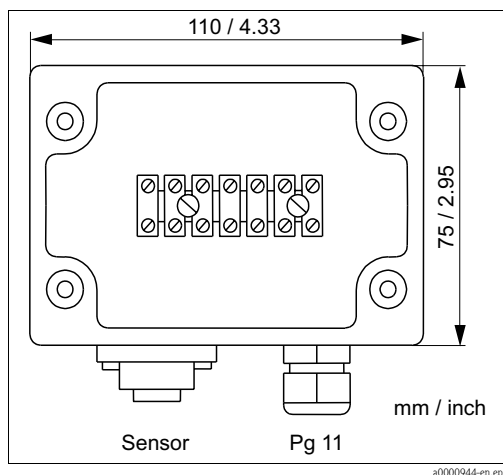
- Weather protection cover CYY101,  
for field mounting of the transmitter;  
order no. 50061258
- Round post mount CYY102,  
for weather protection cover mounting to vertical or horizontal pipes;  
order no. 50064291
- Immersion assembly, offset 45°  
length 2 m; order no. 51511771
- Immersion assembly, straight  
length 2 m; order no. 51502959  
length 3 m; order no. 51502960  
special length; order no. 50066036
- Wall bracket for sensor;  
order no. 51508576
- Pendulum frame for sensor;  
wall spacing 250 mm; 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



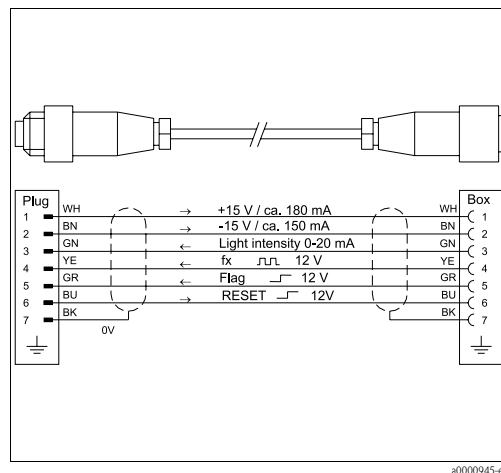
*Cleaning unit for sensor*

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

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

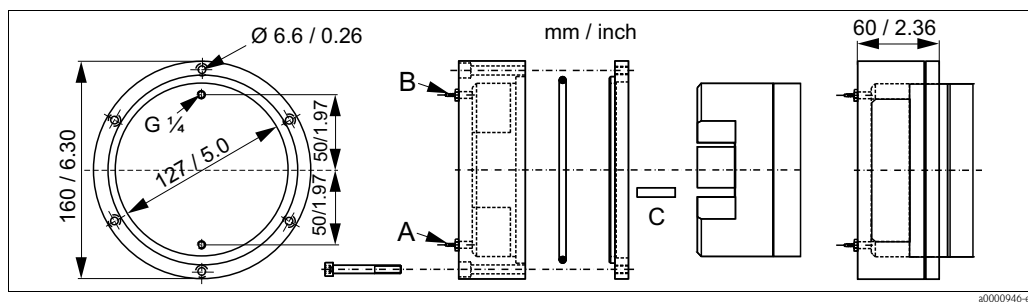


Sensor terminal housing



Sensor connection to sensor terminal housing

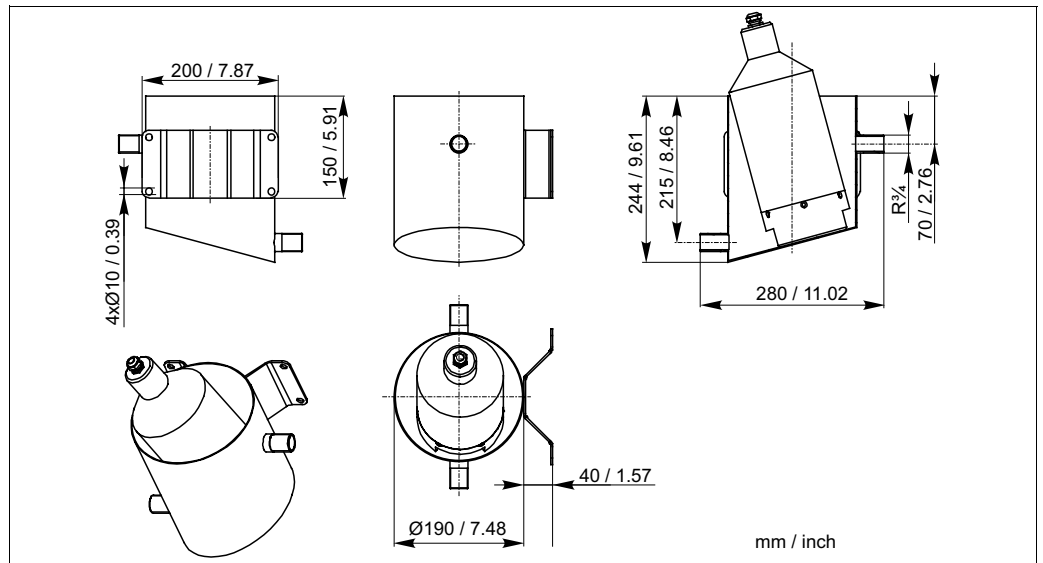
- Flow assembly for drinking water application,  
with reduction of the dead volume, stainless steel 1.4571 (AISI 316 Ti) / PVDF;  
order no. 51509332  
without reduction of the dead volume, stainless steel 1.4571 (AISI 316 Ti) / PVDF;  
order no. 51509333



Flow assembly

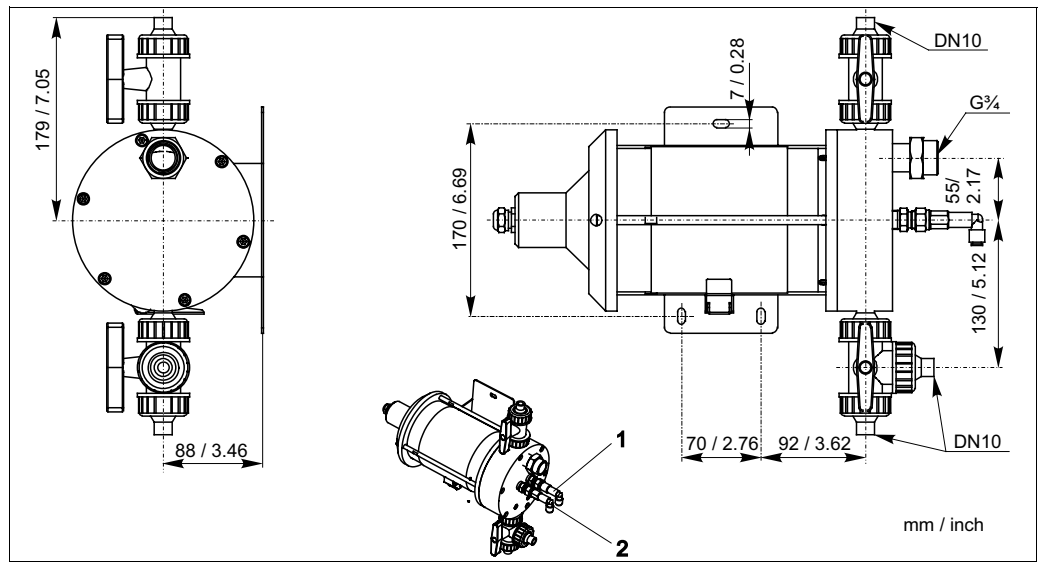
- A Hose connection inlet  
ID 1.6 mm (with dead volume reduction)  
ID 6.4 mm (without dead volume reduction)
- B Hose connection inlet  
ID 1.6 mm (with dead volume reduction)  
ID 6.4 mm (without dead volume reduction)
- C Split pin for dead volume reduction

- 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 (all versions)

- 1 with external rinsing only, 2, 8 and 40 mm slit
- 1 with external rinsing only, 40 mm slit only

- Flow assembly, with external rinsing  
external switched valve needed, inlet DN10, outlet ¾", PVDF
  - for 2 mm slit, order no. C-A050128-10
  - for 8 mm slit, order no. C-A041217-11
  - for 40 mm slit, order no. C-A041122-11
  - external switched valve, order no. C-A050110-10





#### **International Head Quarters**

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