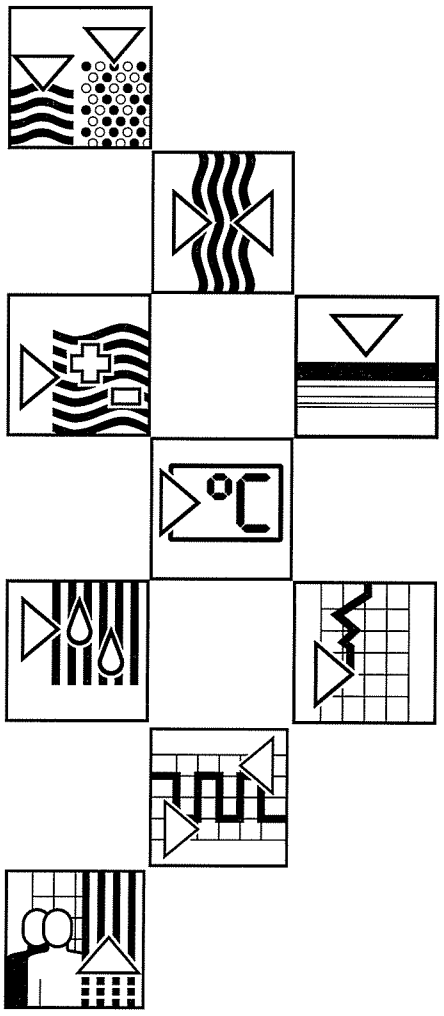
BA 117C/07/en/11.96
Nr. 50071152

CUS 1 / CUS 4
Sensor for Turbidity and Temperature

Operating Instructions



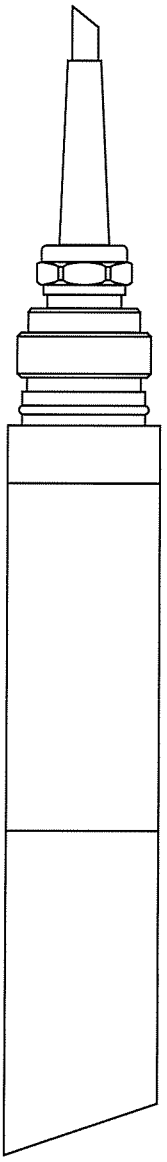


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Table of contents

1. General

1.1 Application

The CUS 1 / CUS 4 is suitable for continuous measurement of turbidity in liquid media. Turbidity measurement is a method to determine the concentration of undissolved constituents in water or suspended solids or substances (emulsions).
The turbidity measuring method has been internationally standardized (DIN 27027 and ISO 7027).

Typical areas of application are, for example:
- Monitoring of waste water treatment plant effluent according to the regulations for plant operator self-control
- Monitoring of surface waters
- Monitoring of waste disposal site or seep water
- Flocculation monitoring in water treatment
- Filter effluent and filter leakage monitoring
- Sludge concentration measurement (only with CUS 4 sensor)
- Monitoring of phase separation processes

1.2 Unpacking

- Inspect for any damaged packaging! The post office or forwarding agent must be informed of any damage.
- Verify that the contents are undamaged! Inform the post office or forwarding agent as well as the supplier of any damage.
- Check that the delivery is complete (see chapter 1.3) and agrees with the shipping documents and your order:
  - Quantity delivered
  - Unit type and version according to nameplate
  - Operating instruction(s)

If you have any questions, consult your supplier or the Endress+Hauser sales center in your area (see back page of these operating instructions for addresses).

1.3 Scope of supply

The delivery comprises:

- Turbidity sensor CUS 1 / CUS 1-W / CUS 4 / CUS 4-W; version according to order code
- Operating instructions for CUS 1 / CUS 4

1.4 Order code

Turbidity sensor CUS 1 / CUS 4

Cleaning
A Standard version
W Integrated wiper for cleaning

Cable length
0 1.5 m connecting cable
2 7 m connecting cable
4 15 m connecting cable
9 up to 50 m acc. to customer's request and extra charge

CUS 1- ☐☐ ⇐ **complete order code**

CUS 4- ☐☐ ⇐ **complete order code**

2. Measuring system

The functional measuring system consists of:

- Turbidity sensor CUS 1 / CUS 1-W or CUS 4 / CUS 4-W
- Measuring transmitter, e.g. Mycom CUM 151-I for connection of CUS 1 or e.g. Mycom CUM 151-R for connection of CUS 4
- Assembly in the corresponding version
- Corresponding mounting accessories

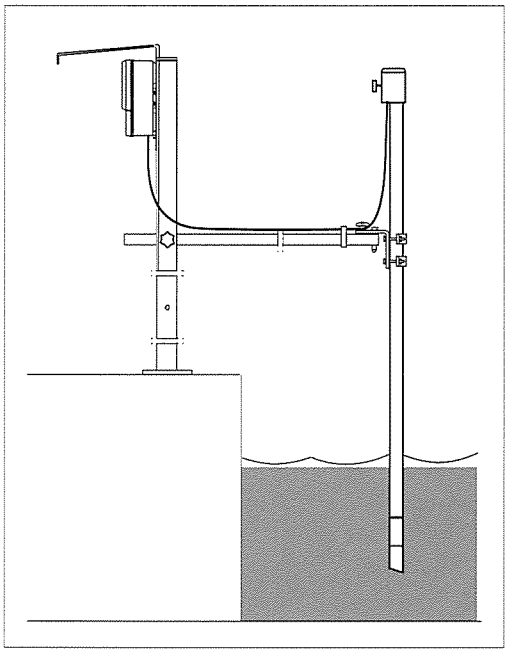

Fig. 2.1 Example of a complete measuring system

3. Function, construction

3.1 Function

The excitation beam emitted by an infrared transmitter hits the medium to be measured at a defined aperture angle. The differences in light refraction between the entrace window and the medium water are taken into account. Particles in the medium to be measured produce a scattered radiation which reaches a scattered light receiver at a specific aperture angle.
The schematic drawing (fig. 3.1) shows that the measurement in the medium is continuously adjusted to the values of a reference receiver.

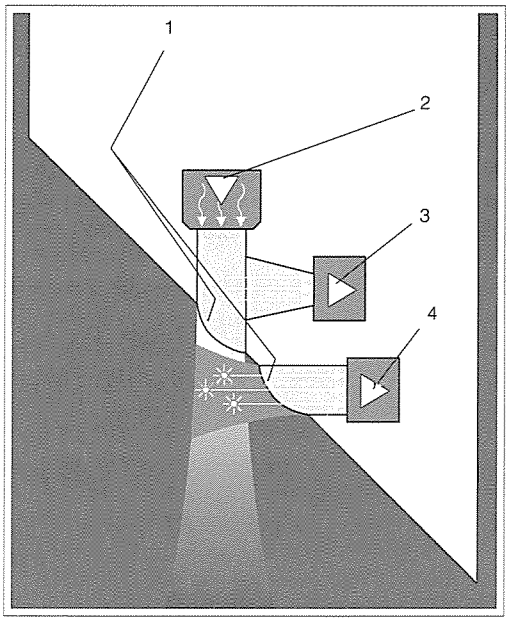

Fig. 3.1 Principle of turbidity sensor CUS 1

1 Sensor optics
2 Infrared transmitter LED (880 nm)
3 Reference receiver
4 Scattered light receiver

3.2 Measuring method

3.2.1 Turbidity sensor CUS 1

The 90-degree scattered light method according to ISO 7027 / DIN 27027, working with a measuring wavelength in the near-infrared range (880nm), guarantees turbidity value acquisition under standardized, reproducible conditions.

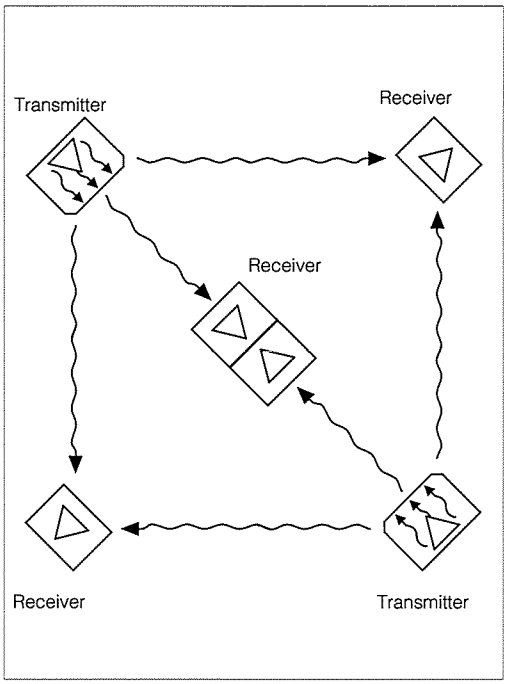

Fig. 3.2 Principle of turbidity sensor CUS 4

3.2.2 Turbidity sensor CUS 4

The excitation radiation is alternately emitted into the medium to be measured at a defined angle by 2 infrared transmitters.
The particles in the medium generate scattered light which is received by 3 scattered light receivers at different but defined angles. Different path lengths and measuring angles result in different scattered light signals.
The optimized arrangement of transmitters and receivers produces a family of curves representing measuring signals which permits to produce an output signal proportional to the solids concentration.
This principle allows window soiling and changes in the intensity of the transmitting diodes to be effectively detected and taken into account when computing the result. The optimized transmitter/receiver arrangement results in very different measuring signals, permitting an extremely exact determination of the solids concentration.

3.3 Turbidity units NTU and ppm

The unit of measurement NTU (nephelometric turbidity untis) corresponds to one formazine turbidity unit (i.e., 1 TE / F = 1 FTU = 1 NTU) in standardized 90-degree turbidity measurement.
1 ppm (parts per million) is identical to a concentration of 1 mg per litre.
Typical relations of constituents with ppm concentrations and the resulting NTU turbidity units are shown in figure 3.3.

Particle size and distribution, for example, determine the different diffusion behaviour of different sludge fractions (primary sludge / normal sludge / sludge solids).
The linear relationship for SiO_2 is applicable for uniform particle size distributions.

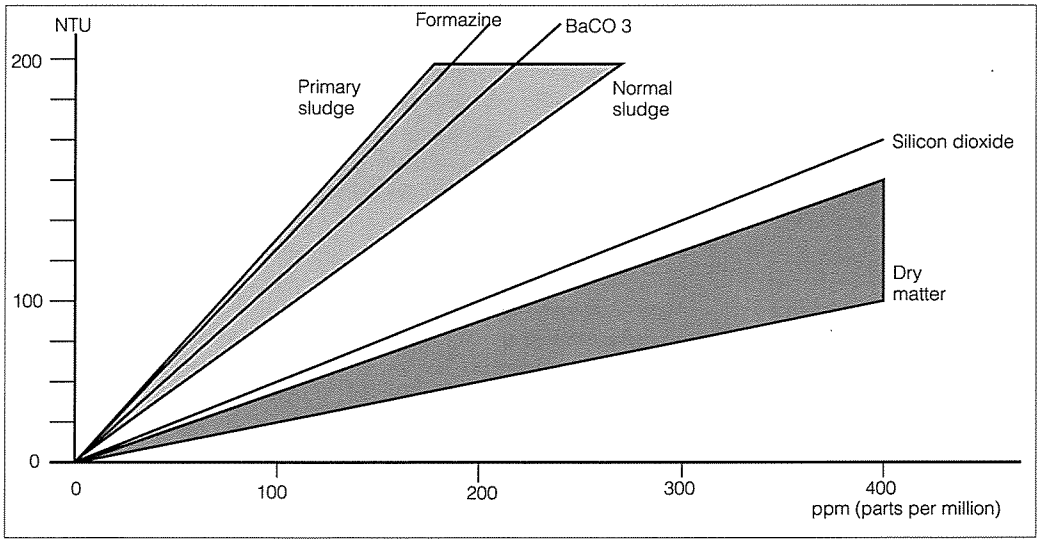

Fig. 3.3: Comparison of different substances in NTU and ppm units,
NTU versus ppm; 1 ppm correspondens to 1mg/l

3.4 Design

The sensor CUS1 / CUS 4 consists of the following function units (see fig. 3.4):

- Connecting section
- Sensor body with inegrated electronics
- Prism optics, optionally with wiper module (fig. 3.5)

The electronics, designed as a multi-channel serial transmission circuit, are encapsulated in the sensor body. A scattering angle of 90 degrees is obtained in aqueous media taking into account the optical refraction index and simultaneously performing an optical reference compensation.
The flat sensor face is inclined to promote the self-cleaning effect.
For mechanical cleaning of the prism optics, the CUS 1-W / CUS 4-W sensor version is equipped with an additional wiper.

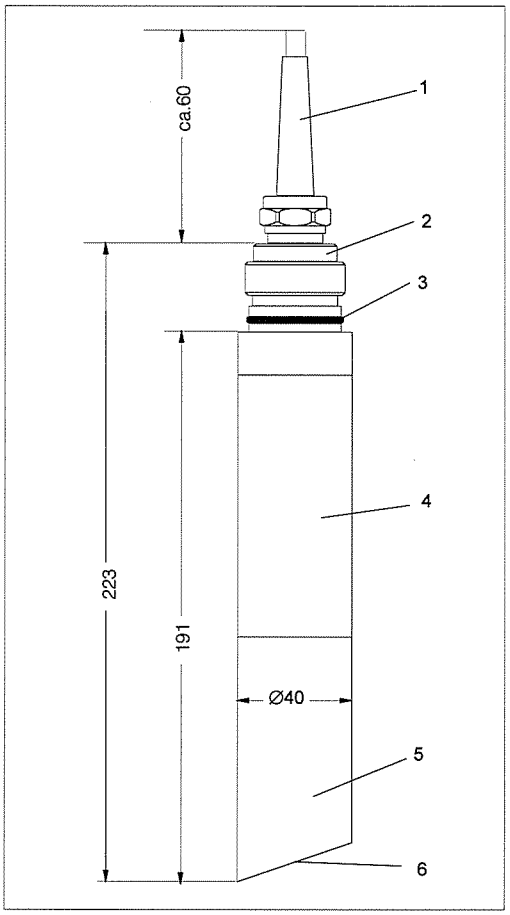

Fig. 3.4 Dimensioned drawing of CUS 1 / CUS 4

1 Sensor connecting cable
2 Internal G1" thread
3 O-ring seal
4 Stainless steel body with built-in pre-amplifier
5 Plastic shaft with built-in transmitter/ receiver
6 Optics

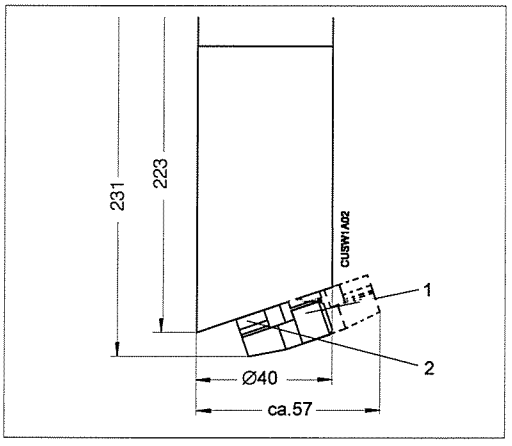

Fig. 3.5 Dimensioned drawing of CUS 1-W / CUS 4-W

1 Wiper
2 Wiper rubber

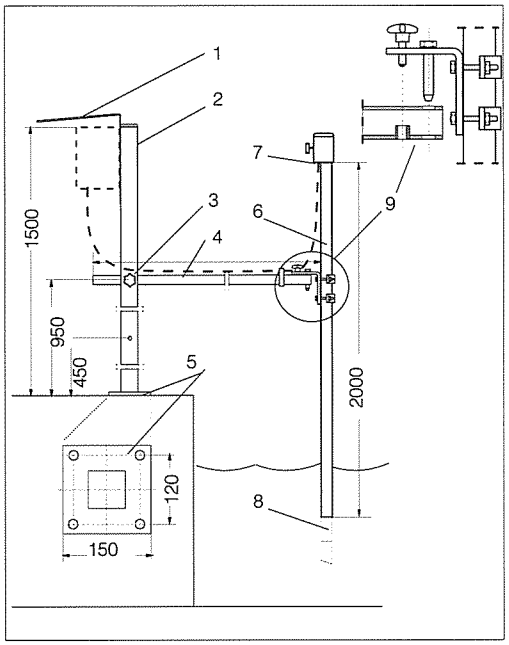

Fig. 4.1 Assembly holder CYH 101 with weather protection cover CYY 101 for field transmitter

1 Weather protection cover CYY 101
2 Upright post, square tube 1.4301
3 Tube guide and attachment
4 Transverse pipe projection adjustable from 250 to 1.250 mm
5 Base plate
6 Sensor support pipe
7 Sensor connecting cable and support pipe cover
8 Turbidity sensor CUS 1 / CUS 4
9 Sensor support pipe attachment

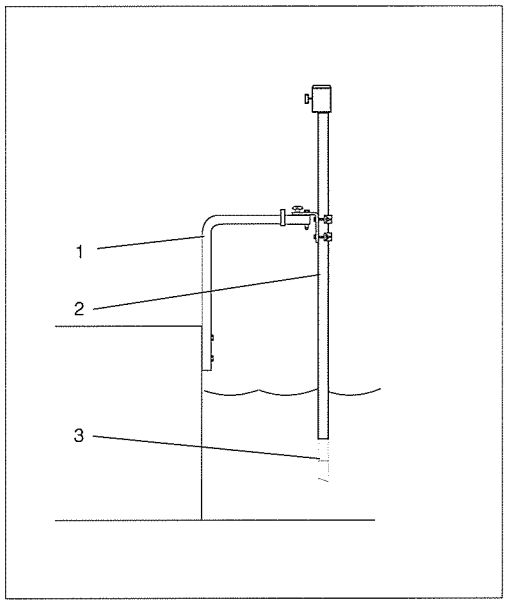

Fig. 4.2 Wall mounting CYY 106 for support of sensor CUS 1 / CUS 4

1 Wall mounting support
2 Immersion tube
3 Sensor CUS 1 / CUS 4

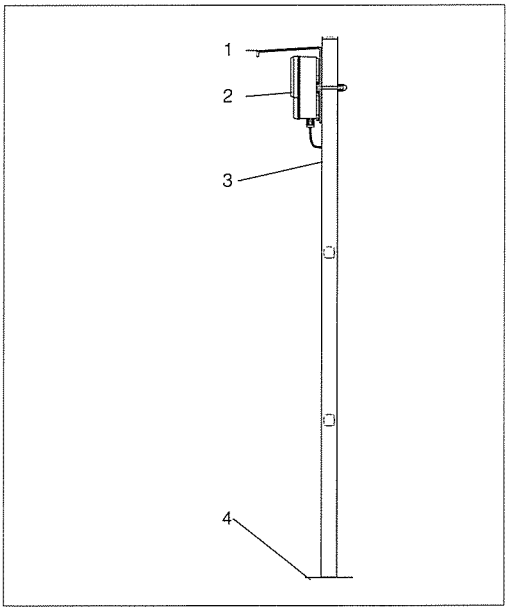

Fig. 4.3 Upright post CYA 137 or CYY 102

1 Weather protection cover (V2A)
2 Field transmitter
3 Upright post (1.4571)
4 Base plate

4. Installation

The sensor is equipped with an internal G 1" thread and used in conjunction with the following assemblies (see fig. 3.4, pos. 2):

- Immersion assemblies (see fig. 4.1 and 4.2)
- Flow assemblies CUA 250-A, CUA 250-B with optional spray head CUR 3-1 (see figures 4.4 to 4.8)
  Here the wiper cleaning version can only be used in exceptional cases.
- Adapter CUA 120-A for flange mounting by means of a weld-on flange, loose flange, seal and fastening screws (to be provided by customer); a wiper can be used (see figures 4.9 and 4.10).
- Separate upright post for measuring transmitter (see fig. 4.3)

4.1 Types of installation

Turbidity sensor CUS 1 / CUS 4 in immersion assembly CYH 101-D / -E

- Remove cover 7 on support pipe 6
- Pull the connecting cable through the support pipe without twisting; screw in sensor and turn to stop position.

Note:
Neutralize cable twisting by reverse turning first.

- Put on cover
- Attach the sensor cable to the transverse pipe. Plug the connector into the instrument or junction box VS if used.

Attention:
For installations in turbulent currents the immersion tube has to be fixed with two basin rim attachments.

Turbidity sensor CUS 1 / CUS 4 in flow assemblies CUA 250-A, CUA 250-B
(see figures 4.4 and 4.5)

- Introduce the connecting cable with the connector through union nut, sensor sleeve and hexagon gland without twisting.

Insert the sensor body in the sensor sleeve such that the O-ring comes to rest under the internal G 1" thread in the sleeve.
Pay attention to the locking pin and marking hole on the sensor sleeve (see fig. 4.6).

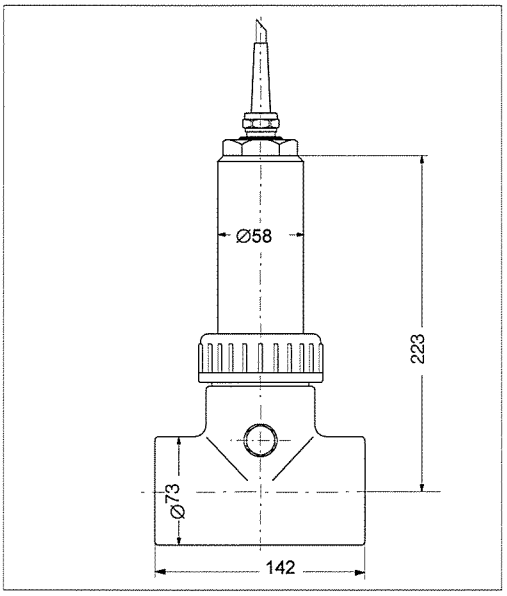

Fig. 4.4 Dimensioned drawing CUA 250-B Prepared for adhesive fitting DN 63

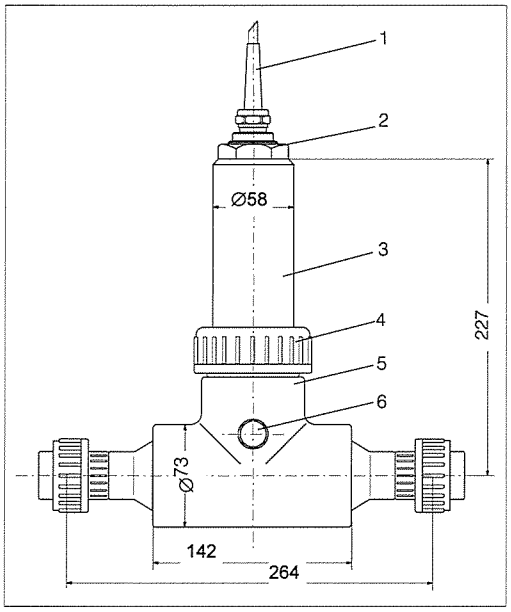

Fig. 4.5 Dimensioned drawing CUA 250-A with screwed adhesive fitting DN 25

1 Connecting cable
2 Hexagon gland
3 Sleeve
4 Union nut
5 Tee
6 Dummy plug

Turbidity sensor CUS 1 / CUS 4 in flow assemblies CUA 250-A, CUA 250-B with spray head CUR 3-1 (see fig. 4.6)

- Screw spray head CUR 3-1 into the CUA 250 assembly in place of the lateral dummy plug.
- Install CUS 1 / CUS 4 as described above, aligning the sensor parallel to the medium flow (see 1. on next page) to obtain an optimal cleaning effect.

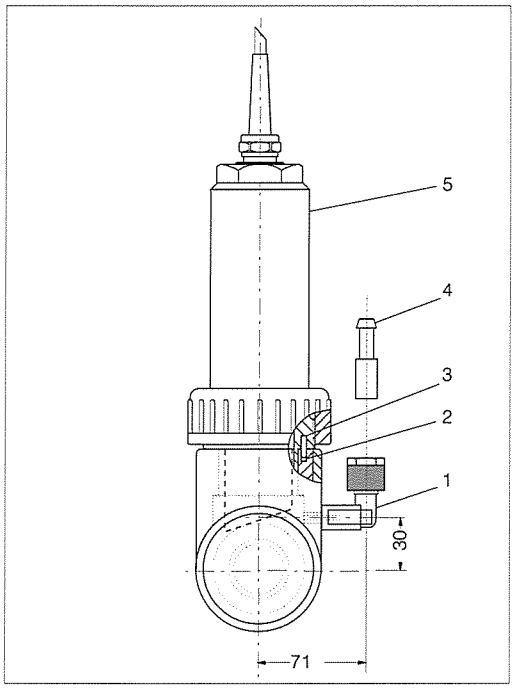

Fig. 4.6 Dimensioned drawing of CUA 250-A/-B with spray head CUR 3-1

1 Spray head CUR 3
2 Slot
3 Pin
4 AD10 fitting
5 Marking hole

Notes on installation of CUS 1 / CUS 4 in flow assemblies CUA 250-A / -B

- The flow assemblies should be installed in a vertical pipe section with upward medium flow (see figures 4.7 and 4.8).

  If the flow assembly can only be installed in a horizontal pipe section, the sensor should be oriented in the 3 o'clock or 9 o'clock direction. This helps prevent settling of air bubbles.

- Sensor orientation parallel to medium flow is required in the following cases:
  - Medium turbidity below 5 NTU
  - Use of spray head CUR- 3

- Sensor orientation opposed to medium flow is required in the following cases for reinforcing the self-cleaning effect:
  - Strongly soiled media with turbidity values exceeding 15 NTU where wall reflection is negligible due to high absorption.

1. Sensor alignment parallel to medium flow (see fig. 4.7)

Insert the CUS 1 / CUS 4 sensor in the union nut. Screw in the hexagon gland on the G 1" thread such that the CUS 1 / CUS 4 remains loose. When the CUS 1 / CUS 4 is placed in the flow assembly with the sleeve in place, the locking pin is seated in the hole in the upper edge of the flow assembly. Turn the CUS 1 / CUS 4 such that the acute angle formed by the inclined sensor face and the sensor cylinder points away from the marking pin. The spray head connector in the tee of the CUA 250 is now positioned above the sensor face.

This parallel sensor alignment is recommended to minimize wall reflection effects (e.g. for installations in stainless steel pipes).

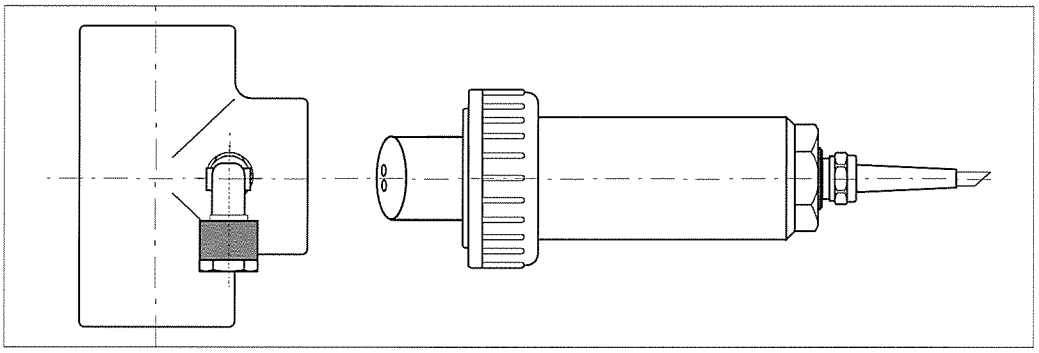

Fig. 4.7 Sensor alignment parallel to medium flow with CUA 250-B

2. Sensor alignment opposed to medium flow

Turn the CUS 1 / CUS 4 to position it such that the acute angle formed by the inclined sensor face and sensor cylinder is offset 90 degrees with regard to the marking pin and points in the direction in which the medium flows in the assembly.

The sensor alignment opposed to the medium flow is chosen to enhance the self-cleaning effect, particularly for strongly soiled, extremely turbid media where wall reflection effects are negligible due to high absorption. Hand-tighten the hexagon nut.

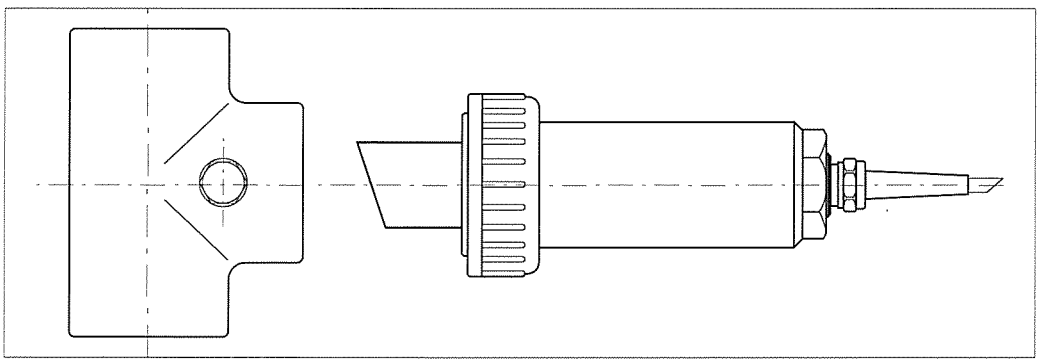

Fig. 4.8 Sensor alignment opposed to medium flow with CUA 250-B

Turbidity sensor CUS 1 / CUS 4 in adapter CUA 120-A for flange mounting (see figs. 4.9 and 4.10)

- The weld-on flange, loose flange, seal and fastening screws are to be provided by the customer.
- Insert the connecting cable with the connector through the union nut, sensor sleeve and hexagon gland without twisting.
- Insert the sensor body in the sensor sleeve such that the O-ring is located below the internal G 1" thread in the sleeve.
- Pay attention to the sensor sleeve with the marking pin and marking hole.
- Insert the CUS 1 / CUS 4 in the adapter such that the acute-angled edge of the sensor points away from the marking hole. The marking hole clearly identifies the orientation of the built-in sensor.

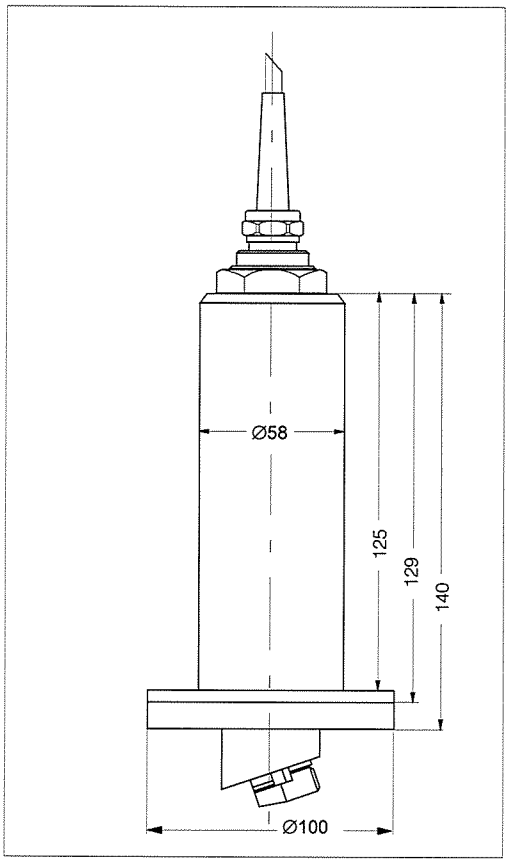

Fig. 4.9 Dimensioned drawing CUA 120-A DN 50 welded adapter

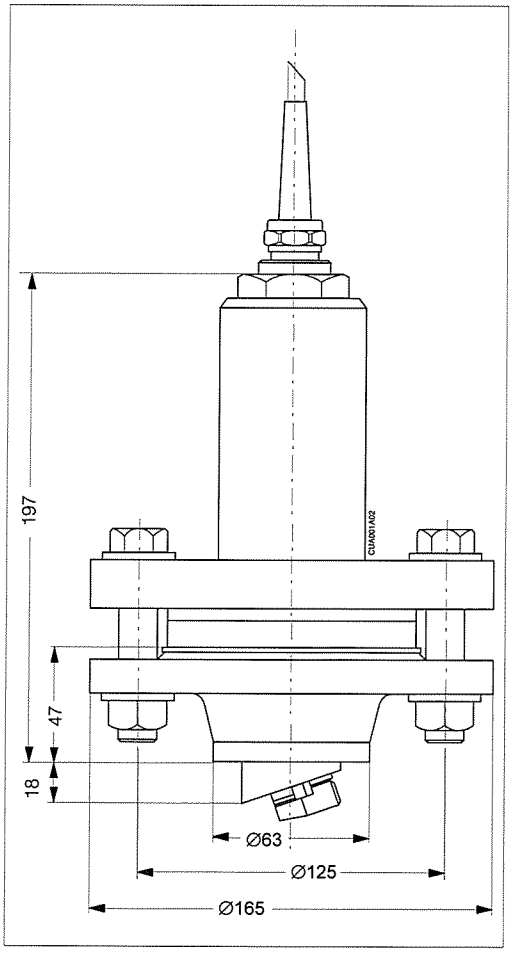

Fig. 4.10 Dimensioned drawing: assembly flange installation round flange DN 50, PN 16

4.2 Notes on installation and application

Direct installation of CUS 1 / CUS 1-W or CUS 4 / CUS 4-W

If the CUS 1 / CUS 4 sensor is installed without an assembly in exceptional cases, observe the following:

- A strain relief mechanism must be provided, e.g. using ropes. The sensor must not be suspended directly by the measuring cable!

Immersion tube installation in open channels and basins

- Position the sensor such that a wall and floor clearance of at least 15 cm is assured. The effective wall and floor clearances can be optimized by alignment of the flat sensor side. The influence of wall and floor clearances and their different colours is shown in figure 4.11. The minimum installation depth for the CUS 1 / CUS 1-W and CUS 4 / CUS 4-W sensor should normally be chosen such that the stainless steel body is just wetted.
- The level of the medium to be measured should never drop below the inclined sensor plate.
- Sensor installation preferably at places with a constant medium flow.
- An optimal self-cleaning effect and suffucient wall clearance is achieved, e.g. in narrow channels, by turning the inclined sensor face in the flow direction (see fig. 4.12). Following the start-up the sensor should be checked for soiling after an appropriate period of time. For cleaning wipe the sensor with a soft cellulose cloth.

  The sensor orientation resulting in the best self-cleaning effect should be maintained. If self-cleaning proves to be insufficient, particularly in the case of media with a tendency to deposit sludge films or form crusts, the wiper sensor CUS 1-W / CUS 4-W or the spray cleaning unit CUR 4 should be used.

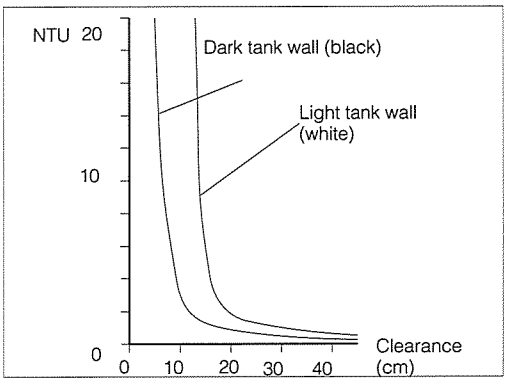

Fig. 4.11 Wall clearance from CUS 1 / CUS 4 sensor

Installation of CUS 1 / CUS 1-W or CUS 4 / CUS 4-W
- in immersion pendulum assembly COA 110 - 40
- in float assembly COA 110 - 50

When using immersion pendulum assembly COA 110 - 40 or float assembly COA 110 - 50, sufficient wall clearance during operation must be guranteed, i.e. the place of installation must be chosen such that changes in fill level or flow conditions do not result in wall clearances below 15 cm.

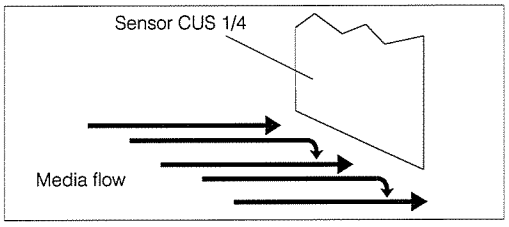

Fig. 4.12 Self-cleaning by means of media flow against the inclined sensor face

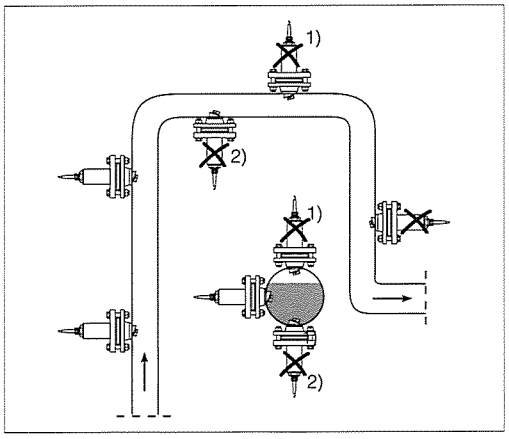

Fig. 4.13 Mounting positions for CUS 1 / CUS 4 with CUA 120 A adapter

Installation of CUS 1 / CUS 1-W or CUS 4 / CUS 4-W CUA 120-A adapter
(see fig. 4.13)

- Flange installation using weld-on flange, loose flange, seal and fastening screws (to be provided by customer).
- The pipe diameter must be at least DN 100.
- Install in places with uniform flow. Avoid places where air may collect or foam may form [1] or where constituents may sediment [2].
- Orient the sensor face against the medium current.

5. Start-up

5.1 General

The CUS 1 / CUS 4 sensor has been function tested at the factory and is delivered ready for operation.

Note:
Observe notes for start-up in operating instructions for corresponding measuring transmitter.

5.2 Start-up with calibration data (calibrated at the factory)

	CUS 1 and CUS 4	additional for CUS 1 - W und CUS 4 - W
1	**Prepare sensor** Remove the cap from the connected but not in the assembly inserted sensor. Adjust the sensor in air at a minimum distance of 1 m from all objects.	
2		Place the sensor such that the wiper is unobstructed.
3	**Power-up** – Before applying the voltage make sure that the mains voltage matches the voltage indicated on the nameplate. – After power-up all LCD segments of the display are briefly activated (approx. 2 s) and LEDs turn red. Then the unit starts measuring. **All operating and start-up levels are locked.**	
4	**CODE - entry** to unlock level 2 (see operating instructions for transmitter, chapter operation)	
5	**Initiate set default routine** Initiate taking over default values with key E – for CUS 1 / CUS 1-W in matrix position V9 / H6 – for CUS 4 / CUS 4-W in matrix position V9 / H6	
6		Following „END" - set matrix position V4 H0 to 2: cleaning wiper, confirm with key E
7		Wait 1 minute for wiper operation to complete. Make sure the wiper has come to a stop in the home position (see fig. 6.1).
8	**Select measuring range (MR)** Select MR in matrix position V1 / H1 (see operating instructions transmitter) a) Turbidity measurement with reference to standard formazine solution Measured value in NTU units MR 0/1 with sensor CUS 1 (instrument variant I) MR 0 with sensor CUS 4 (instrument variant R) b) Concentration determination of samples (e.g. sludge) with reference to user-specific samples (laboratory comparative value) Measured value display in ppm (CUS 1) or g/l (CUS 4) MR 2 with sensor CUS 1 (instrument variant I) MR 1 with sensor CUS 4 (instrument variant R) c) Turbidity limit value monitoring of samples with unknown concentration Measured value display in % MR 2 with sensor CUS 4 (instrument variant R)	

Start-up with calibration data (continuation)

9	**Calibration** (see operating instruction Mycom CUM 121 / 151) Note: Calibration is only valid for the selected measuring range! **Zero-point calibration** Select type of calibration 1 (wet calibration in V1 / H9 Initiate with key [→] in V1 / H0
	Select type of calibration **a) Enter factory calibration data = calibration type 0** NTU unit (CUS 1: MR 0/1; CUS 4: only MR 0): Select calibration type 0 in V1 / H9 (editing function) Enter calibration data (edit) - for measuring range 0: only V1 / H4 - for measuring range 1: V1 / H4 , V1 / H6 , V1 / H8. See operating instructions Mycom CUM 121 / 151 **b) Wet calibration = calibration type 1** ppm unit, g/l or % (CUS 1: MR 2, CUS 4: MR 1/2): Select calibration type 1 in V1 / H9 (wet calibration) Calibration with standard formazine solution or user-specific samples See operating instructions transmitter
10	**Install sensor** in existing assembly
11	**Enter values for limit value function and alarm** **In matrix field:** **Value entry:** V2 / H0 for limit value 1 V3 / H0 for limit value 2 V7 / H1 Alarm delay
12	**Measuring V0 / H0**

Supplementary documentation

For calibration and further information
see operating instructions:

☐ Turbidity / temperature transmitter
Mycom CUM 121 / 151
BA 108C/07/en

BE2US1-4.CHP

6. Maintenance

Deposits on the sensor optics may result in inaccurate measurement. Therefore the sensor must be cleaned at regular intervals. These intervals are specific to each installation and must be determined during operation. Clean the optics with the following agents depending on the type of soiling:

- Clean the sensor mechanically using a soft brush. Then rinse thoroughly with water.

Type of soiling	Cleaning agent
Limestone deposits	Short treatment with commercial deliming agent
Other types of soiling	Remove with water and brush
Oily and greasy soiling	Cleaning agents based on water-soluble surfactants (e.g., household dish detergents)

Warning:

- Do not touch the optics with sharp-edged objects.
- Do not scratch the obtics.

Additional for sensor CUS 1-W / CUS 4-W:

- Check the wiper rubber for wearing and replace if necessary (see chapter 8.2).
- Initiate wiper cycle before re-installing the sensor and control wiper movement at the sensor.

Warning:

Forceful manual movements of wiper arm destroy the actuator!

Note:

Disturbances of wiper movement (e.g. home position of wiper in front of the measuring windows) can result in faulty measurements. Home position of wiper see fig. 6.1.

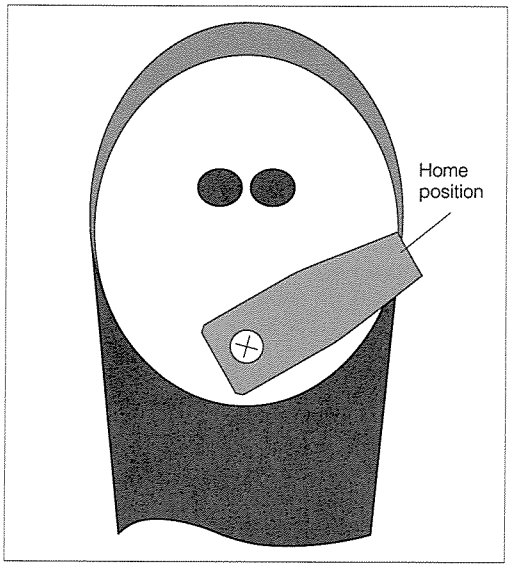

Fig. 6.1: Sensor CUS 1-W / CUS 4-W

7. Technical data

7.1 Turbidity sensor CUS 1

Measuring principle	nephelometric 90 degree NIR scattered light acc. to ISO 7027.
Measuring ranges	0 ..99.99 NTU, 0 ... 4000 NTU, 0 ... 999.9 ppm
Wavelength	880 nm
Optical reference compensation	by means of reference photodiodes
Zero point compensation	can be optionally calibrated or edited
Indication error of measurement	1.0% of upper range value
Temperature / pressure	25 °C / 6 bar , 50 °C / 3 bar
– Specification	60 °C / 1 bar
Connecting line	measuring cable with 7-pin SXP plug
Cable length	1,5 ; 7 ; 15 m up to 50 m on request
Auxiliary voltage supply	±8,5V, +5V
Temperature sensor	NTC
Temperature measuring range	–10 °C ... +70 °C
Nominal operating range	–10 °C ... +55 °C
Limit operating range	–10 °C ... +60 °C
Storage temperature range	–20 °C ... +65 °C
Materials	
Shaft	PVC / stainless steel 1.4571
Carrier board, cable	PVC

7.2 Turbidity sensor CUS 4

Measuring principle	multi-channel alternating technology
Measuring ranges	0 ... 4000 NTU, 0 ... 100 g/l (SiO_2), 0 ... 200 %
Wavelength	880 nm
Optical reference compensation	by means of reference photodiodes
Zero point compensation	can be optionally calibrated or edited
Indication error of measurement	0.5% of upper range value
Temperature / pressure	25 °C / 6 bar , 50 °C / 3 bar
– Specifcation	60 °C / 1 bar
Connecting line	measuring cable with 7-pin SXP plug
Cable length	1,5 ; 7 ; 15 m up to 50 m on request
Auxiliary voltage supply	±8,5V, +5V
Temperature sensor	NTC
Temperature measuring range	–10 °C ... +70 °C
Nominal operating range	–10 °C ... +55 °C
Limit operating range	–10 °C ... +60 °C
Storage temperature range	–20 °C ... +65 °C
Materials	
Shaft	PVC / stainless steel 1.4571
Carrier board, cable	PVC

8. Appendix

8.1 Conversion table for turbidity units

Conversion table turbidity units	EBC	FTU NTU	JTU	TE/F	ASBC	Kiesel-gur ppm SiO2	APHA mod ppm SiO2	Mastic ppm
1 EBC corresponds to formazine turbidity units to European Brewery Convention	1	4	4	4	75	10	4	25
1 FTU corresponds to formazine turbidity units to American regulations	0.25	1	1	1	19	2.5	1	6.3
1 JTU or JCU corresponds to Jackson turbidity units to Jackson candle turbidimeter	0.25	1	1	1	19	2.5	1	6.3
1 TE / F or FE corresponds to formazine turbidity units to standard German procedure	0.25	1	1	1	19	2.5	1	6.3
1 ASBC corresponds to formazine turbidity units	0.013	0.053	0.053	0.053	1	0.13	0.053	0.33
1 kieselguhr unit corresponds to ppm SiO_2 to standard German procedure	0.1	0.4	0.4	0.4	7.5	1	0.4	2.5
1 APHA mod corresponds to ppm SiO_2	0.25	1	1	1	19	2.5	1	6.3
1 Mastic unit corresponds to ppm	0.04	0.16	0.16	0.16	3	0.4	0.16	1

8.2 Accessories

The following accessories can be ordered separately for CUS 1 / CUS 4 turbidity sensor:

- Junction box VS
  Junction box with receptacle, including SXP connector for plug connection beween turbidity sensor and connecting line to measuring instrument.
  Suitable for CUS 1 and CUS 4.
  Dimensions: 160 x 105 x 46 mm (L x W x D)
  Material: plastic
  Ingress protection: IP 65
  (Order no. 50001054)

- Calibration vessel for CUS 1 / CUS 4
  (Order no. 500057944)

- CUY 01 spare wiper blades for CUS 1-W / CUS 4-W
  (Order no. 50061056)

- Special cable OMK for extension of line length between CUS 1 / CUS 4 and transmitter
  (Order no. 50004124)

- Moisture-proof 7-pin measuring cable connector plug SXP, suitable for connection to Mycom CUM 121/151,
  required for cable extensions
  (Order no. 50000668)

- Moisture-proof 7-pin measuring cable connector socket SXK, suitable for connection to SXP plug.
  Required for cable extensions
  (Order no.: 50001338)

Assemblies

- Upright post CYH 101 with transverse pipe, and immersion tube to hold the sensor.
  Material: stainless steel
  Immersion tube length: 1 to 2 m

- Wall mounting support CYY 106
  for immersion tubes
  Material: stainless steel

- Wall mounting support CYA 136 with immersion assembly to hold the sensor.
  Material: stainless steel
  Immersion tube length: 1 bis 2 m

- Upright post TSP CYA 137 for transmitter with weather protection cover and post mounting.
  Material: stainless steel

- Upright post CYY 102
  Material: stainless steel

- Immersion pipe CYY 105
  Material: stainless steel

- Weather protection cover CYY 101

Supplementary documentation

☐ Installation and operating instructions
Turbidity, temperature transmitter
Mycom CUM 121/151
BA 108C/07/en

☐ Installation and operating instructions
Mycom - interfaces
BA 078C/07/en

☐ Technical Information
Turbidity sensor CUS 1 / CUS 4
TI 117C/07/en

☐ System Information
Turbidity
SI 006C/07/en

8.3 Index

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