

Model COSMOS-25

Züllig Suspended Solids Sensor



ESSENTIAL INSTRUCTIONS READ THIS PAGE BEFORE PROCEEDING!

Rosemount Analytical designs, manufactures, and tests its products to meet many national and international standards. Because these instruments are sophisticated technical products, you must properly install, use, and maintain them to ensure they continue to operate within their normal specifications. The following instructions must be adhered to and integrated into your safety program when installing, using, and maintaining Rosemount Analytical products. Failure to follow the proper instructions may cause any one of the following situations to occur: Loss of life; personal injury; property damage; damage to this instrument; and warranty invalidation.

- Read all instructions prior to installing, operating, and servicing the product. If this Instruction Manual is not the correct manual, telephone 1-800-654-7768 and the requested manual will be provided. Save this Instruction Manual for future reference.
- If you do not understand any of the instructions, contact your Rosemount representative for clarification.
- Follow all warnings, cautions, and instructions marked on and supplied with the product.
- Inform and educate your personnel in the proper installation, operation, and maintenance of the product.
- Install your equipment as specified in the Installation Instructions of the appropriate Instruction Manual and per applicable local and national codes. Connect all products to the proper electrical and pressure sources.
- To ensure proper performance, use qualified personnel to install, operate, update, program, and maintain the product.
- When replacement parts are required, ensure that qualified people use replacement parts specified by Rosemount. Unauthorized parts and procedures can affect the product's performance and place the safe operation of your process at risk. Look alike substitutions may result in fire, electrical hazards, or improper operation.
- Ensure that all equipment doors are closed and protective covers are in place, except while maintenance is being performed by qualified persons, to prevent electrical shock and personal injury.

DANGER HAZARDOUS AREA INSTALLATION

Installations near flammable liquids or in hazardous area locations must be carefully evaluated by qualified on site safety personnel. This sensor is not Intrinsically Safe or Explosion Proof.

To secure and maintain an intrinsically safe installation, the certified safety barrier, transmitter, and sensor combination must be used. The installation system must comply with the governing approval agency (FM, CSA or BASEEFA/CENELEC) hazardous area classification requirements. Consult your analyzer/transmitter instruction manual for details.

Proper installation, operation and servicing of this sensor in a Hazardous Area Installation is entirely the responsibility of the user.

CAUTION SENSOR/PROCESS APPLICATION COMPATIBILITY

The wetted sensor materials may not be compatible with process composition and operating conditions. Application compatibility is entirely the responsibility of the user.

Emerson Process Management

Liquid Division

2400 Barranca Parkway
Irvine, CA 92606 USA
Tel: (949) 757-8500
Fax: (949) 474-7250

<http://www.raihome.com>

COSMOS[®]-25

Instruction Manual

Turbidity and solid matter probes

- COSMOS[®]-25 CE ⓈII 3G EEx nA IIC T6
- COSMOS[®]-25 (with wiper)

Mounting, Connecting, Start-up, Calibration

1257e07 08/03/2005

Subject to Change

In the interest of our customers, we reserve the right to make changes due to advancements in the state of technology.

Illustrations, descriptions and contents of delivery are therefore not binding!

Contents

For your safety	4
Please take notice of the following notes for the user!	4
Before start up	5
Notes regarding probe mounting and operation conditions	5
Instruction manual	6
Installation	6
Start up	6
Assembling by clamping device Z-KV	7
Installation measures	7
Mounting guidelines	7
Wiring diagram	8
Electric connections COSMOS®-25	8
Technical Data	9
Declaration of Conformity	11
Notes	12

For your safety

Please take notice of the following notes for the user!

Safety measures

The location where the persons installing the device will work must be secured in advance. Dangerous situations must be avoided in good time by appropriated arrangements.

Obligation to Check

Züllig probes are subject to strict testing before delivery and are certain to leave the factory in perfect state. Check the unit thoroughly at receipt. Damages caused by shipment have to be reported to the distributor. Never use a damaged unit.

Application

The unit may exclusively be used according to its intended purpose. It is equipped according to the customers indications and has been tested before delivery. The person installing has to test the configuration and report differences to the distributor. Installation and connection has to be carried out by qualified personnel.

Regulations

Specific rules and laws in the country of the user must be obeyed by the user.

Limits of liability

This warranty shall be null, void and inoperative in case of other than the intended use, in case of reparation or alteration, as well as in case of inexpert use or incorrect handling.

Qualified personnel

Qualified personnel within the meaning of this instruction manual are persons familiar with installing, starting-up, and operating this product, and who possess the qualification adequate to their work. Qualified persons are:

- a) Educated and authorised to ground, label, and switch on and off circuits, devices and systems according to the current standards of safety technology.
- b) Educated in maintenance and use of adequate safety equipment according to the current standards of safety technology.
- c) Trained in first aid.
- d) For sites with explosion proofness: Educated, trained and authorised to work at electrical switching circuits of potentially explosive sites .

Before start up

Notes regarding probe mounting and operation conditions

Important

COSMOS® measurement systems are very precise instruments with an extraordinary resolution. In order to achieve best measuring results it is important to consider the following information.

The version without wiper is certified for Ex Zone 2.

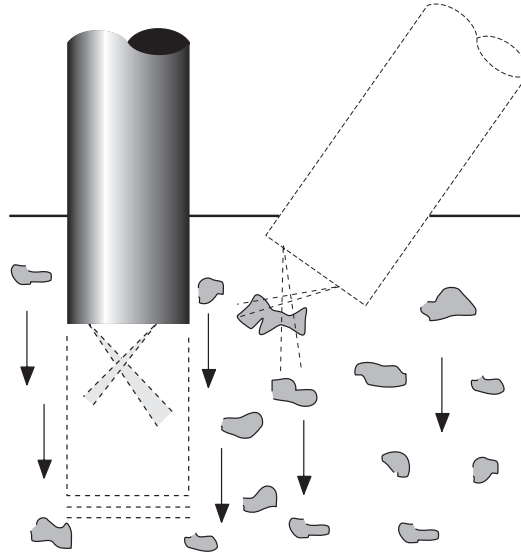
Classification Ex Zone: Group II, category 3, to use only up to Ex Zone 2.

Attention!

Install the transmitter outside the Ex-Zone-

Liquid movement

The liquid has to remain mixed. It is possible to achieve this by constantly circulating the liquid, or by installing the probe at a place where there is a constant flow.



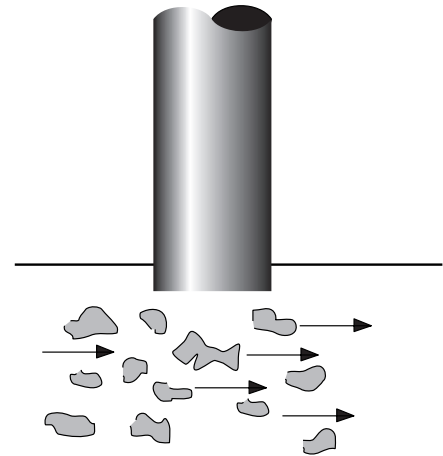
Faulty measurement because of stagnant liquid

As soon as the liquid becomes stagnant, and the suspended solids starts for sedimentati-

on, the probe does not recognize the suspended solids anymore. For calibration in a bucket it is necessary to stir gently the liquid, or to move constantly the probe in order to achieve suitable measuring results. Pay attention to keep the minimum distances from the bucket walls.

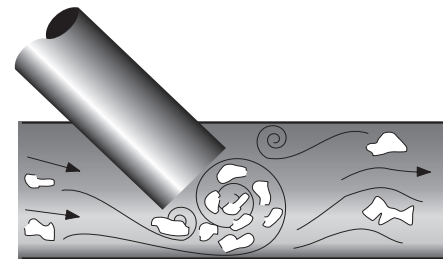
Mounting/Positioning

The flow direction should be parallel to the probe surface. This prevents turbulences at the measuring head.



Correction Installation

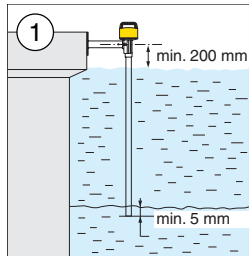
In case of low suspended solids concentration whirls and turbulences can falsify the measuring result.



Attention! Wrong installation!

Instruction manual

Installation



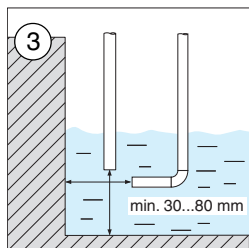
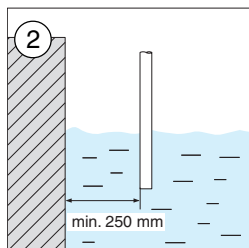
Preparation

Choose an easy accessible measuring point where representative measuring values are granted.

Mounting

Please take note of the following mounting notes:

1. The probe has to be submerged at least 5 mm into the liquid. For the version with hood the distance between the highest water level and the axis of the mounting device should be at least 200 mm.
2. The wall distance should be at least 250 mm.
3. The distance of the probe surface to the opposing surface should be 30..80 mm (depending of medium concentration).



Connecting

- Connection cables are to be wired according to their colours. The colour code and wiring details are listed in the wiring diagram.
- Attention!** Wrong connection can lead to the destruction of components at the probe and the transmitter.
- Note: The plugs are coded for a determined plug position.

Start up

Procedure

1. Check if the probe is properly mounted and connected.
2. The protecting cap at the sensor head has to be removed.
3. Immerse the probe and turn on the transmitter.
4. On the display the standard operation screen is displayed. Communication between probe and transmitter is perfect if no error message is displayed.
5. Let the probe work during approx. ½h in order to reach the normal operation temperature.
6. Calibrate as per calibration instructions of the corresponding transmitter type.

Calibration

- a) For turbidity measurement no calibration is necessary (calibrated by manufacturer).
- b) The concentration of suspended solids can be very different depending on the liquid. For this calibration follow the calibration instructions of the transmitter.

Important notes!

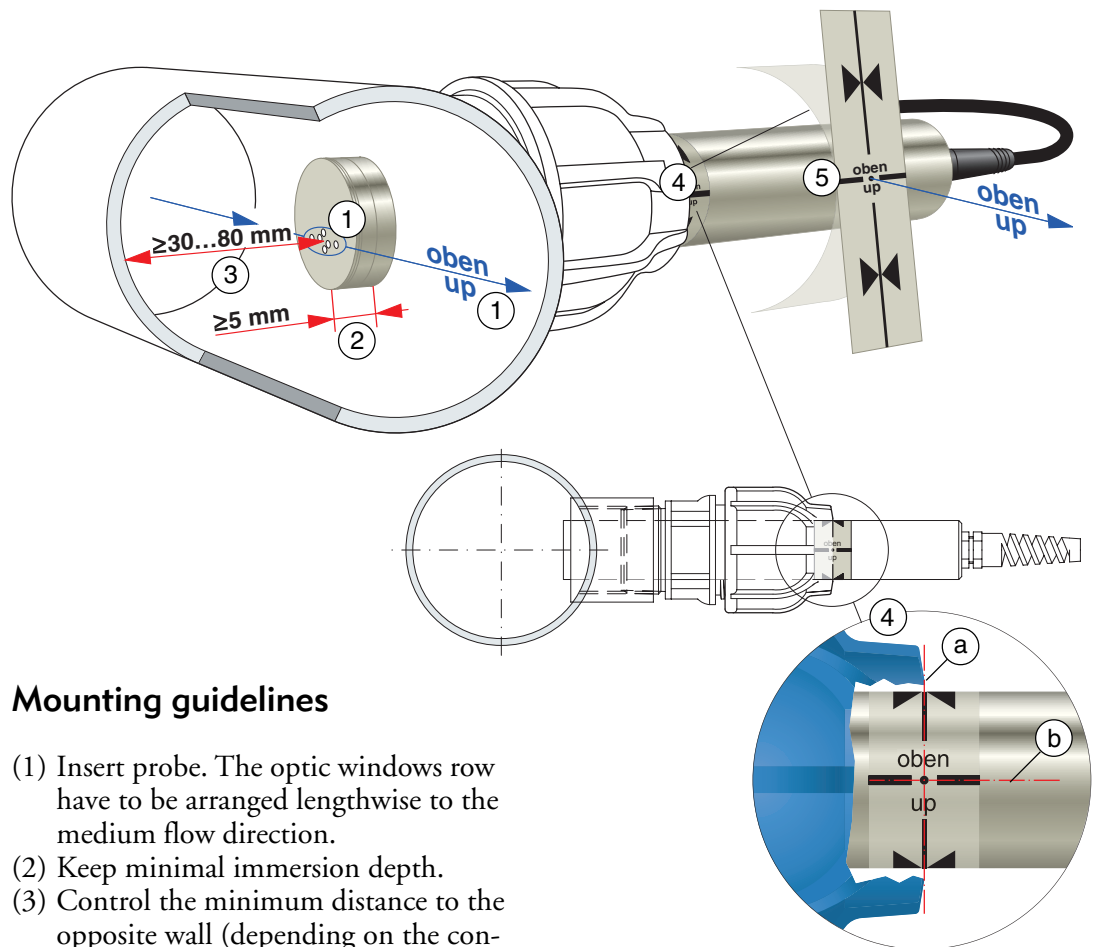
- Avoid impact loads to the probe which can cause mechanical damage!
- Never put down the probe on its measuring surface.
- Stop the wiper for maintenance on the probe. Disconnect it from the analyzer.
- Do not operate the probe in the environment of strong magnetic fields (EN50021 6.4)

Assembling by clamping device Z-KV

Installation measures

With the installation COSMOS®-25 probe by clamping device in pipes the location of the optics and depth are to be kept exactly. Please take the following mounting instruction into consideration. After disassemb-

ling, the probe can be properly installed by provided adhesive label. Please affix the label with the first-time installation to the probe according to the guidelines.

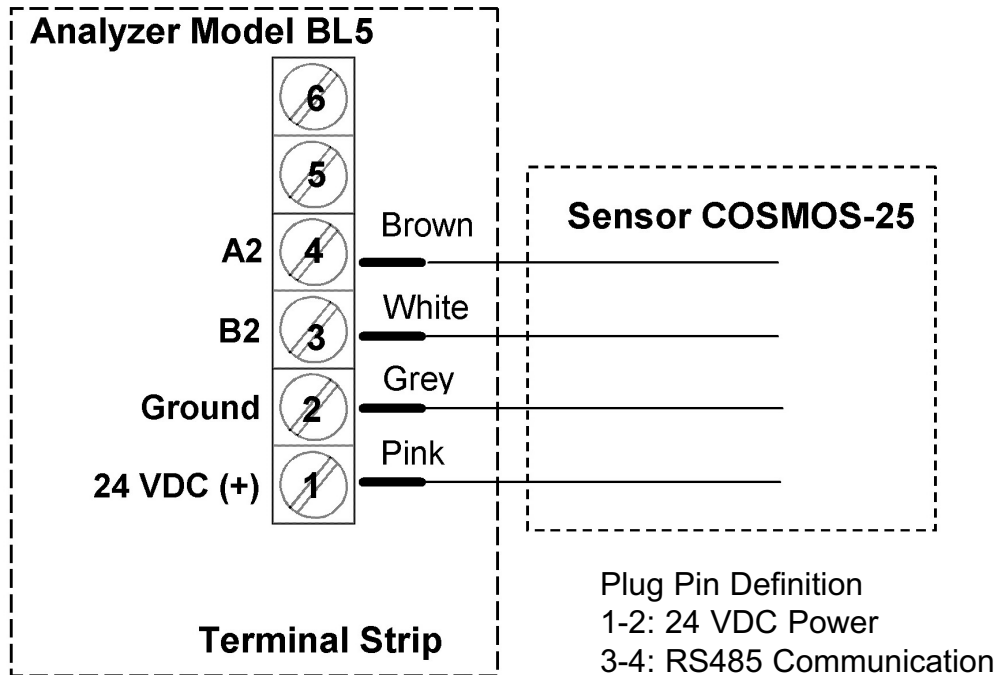


Mounting guidelines

- (1) Insert probe. The optic windows row have to be arranged lengthwise to the medium flow direction.
- (2) Keep minimal immersion depth.
- (3) Control the minimum distance to the opposite wall (depending on the concentration).
- (4) Mark the installation position of the probe with a suitable pen.
 - (a) Marking on the border of Z-KV²⁾
 - (b) Marking of the position «up¹⁾»
- (5) Pull out the probe some centimetres and affix the adhesive label to the according marking.
 - ¹⁾ «up» indicates the horizontal position of the sapphires (to be in line with the flow direction.)
 - ²⁾ Z-KV = Züllig clamping device for -25 installation probes

Wiring diagram

Sensor COSMOS-25 to Analyzer b-line V



Analyzer	Sensor Cable Wire Color
4	Brown
3	White
2	Grey
1	Pink

Technical Data

Technical Specification COSMOS®-25

General

Measuring principle	combined multiple-beam concept with infrared-diode system and beam focusing
Turbidity	2-channel-90° scattered light measuring according to DIN/EN 27027/ISO7027, wavelength = 860 nm additional measuring value verification by eight-channel multi-angle measuring
Dried solid matter	modified absorption measurement: eight-channel multi-angle measuring, wavelength = 860 nm
Sensor cleaning	self-positioning mechanical wiper (Do not use option wiper for Ex Zone)
Air bubble compensation	by software
Quality of the measuring value	by software

Measuring Range (Auto-Ranging)

Turbidity 0.001...10000 FNU ¹⁾	
- Resolution	better than DIN/EN 27027/ISO7027: ...0.999 FNU: 0.001 FNU 1...9.99 FNU: 0.01 FNU 10...99.9 FNU: 0.1 FNU as from 100 FNU: 1 FNU
Dried solid matter 0.001 g/L upwards (upper limit depending on medium) e.g.:	Biological sludge > 200 g/L Digested sludge ...100 g/L SiO ₂ > 400 g/L
- Resolution :	better than DIN 38414 part 2 ...0.999 g/L: 0.001 g/L 1...9.99 g/L: 0.01 g/L 10...99.9 g/L: 0.1 g/L as from 100 g/L: 1 g/L

Characteristic Process Values (according to DIN38402 part 51)

Turbidity (operating range 1-1000 FNU):

Accuracy (as standard deviation)	typical < 3% of measuring value
Reproducibility (as repeating standard deviation)	typical < 4% of measuring value

Dried solid matter (operating range 0.5-20 g/L):

Accuracy	depending on the quality of the calibration and the medium
(as standard deviation)	typical < 5 % of measuring value
Reproducibility	depending on homogeneity of the probe
(as repeating standard deviation)	typical < 4 % of measuring value
Response Time	minimum 1 s

¹⁾ 4000 upwards FNU internal manufacturer norm

Instrumentation for water
and waste water control

ZÜLLIG



COSMOS[®]-25 VARI COSMOS[®]-25 XL Instruction manual

Turbidity and Suspended solids COSMOS[®]-25 VARI
Turbidity and Suspended solids COSMOS[®]-25 XL

CE  II 3G EEx nA IIC T6

Mounting, Connecting, Start-up, Calibration

1347e02 29/10/2004

Subject to Change

In the interest of our customers, we reserve the right to make changes due to advancements in the state of technology.

Illustrations, descriptions and contents of delivery are therefore not binding!

Content

For your safety	4
Please take notice of the following notes for the user!	4
General	5
Maintenance	5
Cleaning	5
Version VARIVENT	6
Requirements	6
Installation	6
Start up	7
Version XL	8
Requirements	8
Installation	8
Start up	9
Dimensions	10
Version VARIVENT (COSMOS®-25 VARI)	10
Version Tri-Clamp® (COSMOS®-25 XL)	11
Wiring diagram	12
Electric connections COSMOS®-25	12
Technical Data	13
Declaration of Conformity	15

For your safety

Please take notice of the following notes for the user!

Safety measures

The location where the persons installing the device will work must be secured in advance. Dangerous situations must be avoided in good time by appropriated arrangements.

Obligation to Check

Züllig probes are subject to strict testing before delivery and are certain to leave the factory in perfect state. Check the unit thoroughly at receipt. Damages caused by shipment have to be reported to the distributor. Never use a damaged unit.

Application

The unit may exclusively be used according to its intended purpose. It is equipped according to the customers indications and has been tested before delivery. The person installing has to test the configuration and report differences to the distributor. Installation and connection has to be carried out by qualified personnel.

Regulations

Specific rules and laws in the country of the user must be obeyed by the user.

Limits of liability

This warranty shall be null, void and inoperative in case of other than the intended use, in case of reparation or alteration, as well as in case of inexpert use or incorrect handling.

Qualified personnel

Qualified personnel within the meaning of this instruction manual are persons familiar with installing, starting-up, and operating this product, and who possess the qualification adequate to their work. Qualified persons are:

- a) Educated and authorised to ground, label, and switch on and off circuits, devices and systems according to the current standards of safety technology.
- b) Educated in maintenance and use of adequate safety equipment according to the current standards of safety technology.
- c) Trained in first aid.
- d) For sites with explosion proofness: Educated, trained and authorised to work at electrical switching circuits of potentially explosive sites .

General

Maintenance

The probes COSMOS®-25 VARI and COSMOS®-25 XL are maintenance-free.

Cleaning

The polished surfaces and flanges may never be treated with abrasives or tough, scratching objects.

Use customary, non abrasive cleaners and a soft cloth for cleaning.

Put in new o-rings after cleaning!

Important notes!

- Avoid impact loads to the probe which can cause mechanical damage!
- Never stand the probe on the sensor head or the flange.
- Do not use inside of strong magnetic fields!

Version VARIVENT

Requirements

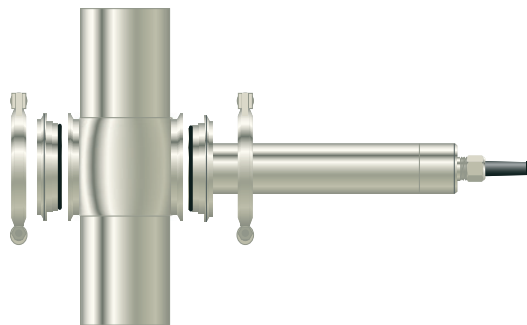
Purpose

COSMOS®-25 VARI has been specially designed for measurement of turbidity or suspended solids content under the high hygienic requirements of the food stuff and pharmaceutical industry. The aseptic process connection is achieved with the installation in the Varivent® In-line-housing. Acid and alkali-proof materials as well as a high temperature stability facilitate the use of the probe under CIP conditions. Scratch resistant and sealing free designed sapphire windows protect the optic from mechanical influences.

Positioning of the In-line-housing

The In-line-housing installed by customers must be correctly mounted according to instructions from the housing manufacturer and should meet the following requirements:

- If possible vertical
- If need be horizontal with collateral seal aperture! The probe may never be insert vertically!
- During measurement no air may be accumulated inside the housing.
- The arrangement of the pipes must be optimized so that there are no air bubbles in front of the measurement place.
- The housing should not be mounted too close to armatures and curves, in order to avoid turbulences in front of the probe.



Varivent In-line housing (middle), lock with lock clamp (left) and probe with lock clamp (right). Shown open, in mounting position.

Installation

Removing the locks

1. Switch the pipe section of the in-line housing to depressurized.
2. Lock, rinse and secure the pipe section of the in-line housing.

Attention danger!

Residue of cleaning material in the pipes can be corrosive. Therefore satisfactory rinsing of the pipe section of the in-line housing is always necessary before removing the locks.

3. Remove the lock clamps from the instrument.

Attention!

The lower lock can drop out after removing the lock clamp. It is necessary to catch it, in order to avoid damage of the sealing.

→ Locks, which can not be removed by hand, can carefully be removed with the aid of the crosswise lever action of a little flat tip screwdriver.

4. Remove locks and move off the o-rings.

Prepare (maintenance)

1. Do carefully clean the in-line-housing and the dismantled locks.
2. Do slightly rub with lubricant new o-rings and mount them on the probe respectively the locks.

Attention!

Do not use any conventional greases and oils for seals which come in contact with the product. Do pay attention to the safety data sheets of the lubricants manufacturers.

Version VARIVENT

Start up

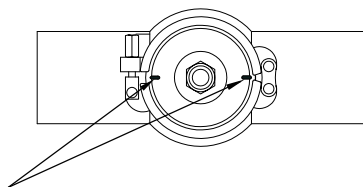
Mounting

Before mounting the probe respectively the locks make sure that there are no objects (tools, cloths, scouring material) in the pipe.

1. Insert probe with new o-ring into the housing. The markings on the probe must be in parallel with the flow direction (see picture).

Attention!

Pay attention to correct position when mounting. Canted parts damage the system of fits and sealing surfaces, and lead to leakage.



Probe mounting with markings in parallel with the flow direction.

2. Mount and tighten lock clamp.
3. If necessary mount the lock clamp opposite the same way.

Connecting the probe

- Connection cables are to be wired according to their colours. The colour code and wiring details are listed in the wiring diagram.

Attention! Wrong connection can lead to destruction of components at the probe and the transmitter.

- Note: The plugs are coded for a determined plug position.

Important measurement conditions

The measuring medium must continuously flow. For calibration mounting must be completely finished. Changes in installation (e.g. installation/removal or exchange of components in the lock opposite, sediments, oxydation, etc.) make new calibration or re-calibration necessary.

Procedure

1. Make sure that the probe has been mounted and connected in correct position. Check if the lock clamps are tightened before flooding the pipe.
2. Flood the pipe section and make sure that the Varivent® In-line-housing is completely filled (no air inclusions)!
3. Turn on transmitter.
4. On the display the standard operation screen in shown. The communication between probe and transmitter is perfect if no error message is displayed.
5. Let the probe work for about ½h in order to reach the operation temperature.
6. Carry out calibration according to calibration instructions of the transmitter.

Notes to calibration

- a) For turbidity measurement no calibration is necessary (factory calibration), but we recommend to suit to the pipe diameter with the help of Dim-K.

Experimental values for Dim-K:

The Dim-Coefficient (Dim-K) value can be evaluated by comparative measurements with the same calibration solution in the housing and in a black bucket.

Pipe ø [mm]	Dim-K [FNU]
65	0.4
80	0.25
100	0.1

- b) For suspended solids measurement it

is always necessary to calibrate (see calibration instructions of the transmitter).

Requirements

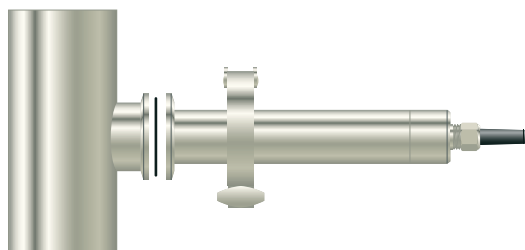
Purpose

COSMOS®-25 XL has been specially designed for measurement of turbidity or suspended solids under the hygienic requirements of the beverage industry. The process connection is achieved with the installation in the Tri-Clamp® System. Acid and alkali-proof materials as well as a high temperature stability facilitate the use of the probe under CIP conditions. Scratch resistant and sealing free designed sapphire windows protect the optic from mechanical influences.

Positioning of the Tri-Clamp® connection piece

The Tri-Clamp® connection piece installed by customers must be correctly mounted according to instructions (see dimensional drawing) and should meet the following requirements:

- The connection piece must be mounted horizontal! The probe may never be mounted in vertical position!
- In the connection piece and the pipe no air may be accumulated.
- The arrangement of the pipes must be optimized so that there are no air bubbles in front of the measurement place.
- The housing should not be mounted too close to armatures and curves, in order to avoid turbulences in front of the probe.



XL Mounting consisting of: Tri-Clamp® connection piece installed by customer, O-Ring sealing, COSMOS®-XL probe and Tri-Clamp® lock clamps with T-screw.

Installation

Removing the lock

1. Switch the pipe section to depressurized.
2. Lock, rinse and secure the pipe section.
Attention danger!
Residue of cleaning material in the pipes can be corrosive. Therefore satisfactory rinsing of the pipe section is always necessary before removing the lock.
3. Hold on to the probe, open the clamp and remove it from the housing.
4. Carefully remove the probe and catch the o-ring.

Prepare (maintenance)

1. Do carefully clean the Tri-Clamp® connection flange and the probe flange .
2. Do slightly rub with lubricant the new o-ring and insert it into the bearing of the probe flange.

Attention!

Do not use any conventional greases and oils for seals which come in contact with the product. Do pay attention to the safety data sheets of the lubricants manufacturers.

Version XL

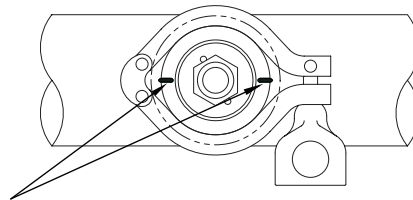
Mounting

Before mounting the probe make sure that there are no objects (tools, cloths, scouring material) in the pipe.

1. Put on the probe with new o-ring to the connection flange. The markings on the probe must be in parallel with the flow direction (see picture).

Attention!

Make sure that the o-ring sealing is correctly mounted when mounting.



Probe mounting with markings in parallel with the flow direction.

2. Mount and tighten lock clamp.

Connecting the probe

- Connection cables are to be wired according to their colours. The colour code and wiring details are listed in the wiring diagram.

Attention! Wrong connection can lead to destruction of components at the probe and the transmitter.

- Note: The plugs are coded for a determined plug position.

Start up**Important measurement conditions**

The measuring medium must continuously flow. For calibration mounting must be completely finished. Changes in installation (e.g. sediments, oxydation, etc.) make new calibration or re-calibration necessary.

Procedure

1. Make sure that the probe has been mounted and connected in correct position. Check in the lock clamp is tightened before flooding the pipe.
2. Flood the pipe section and make sure that the pipe system is completely filled (no air inclusions)!
3. Turn on transmitter.
4. On the display the standard operation screen is shown. The communication between probe and transmitter is perfect if no error message is displayed.
5. Let the probe work for about ½h in order to reach the operation temperature.
6. Carry out calibration according to calibration instructions of the transmitter.

Notes to calibration

- a) For turbidity measurement no calibration is necessary (factory calibration), but we recommend to suit to the pipe diameter with the help of Dim-K.

Experimental values for Dim-K:

The Dim-Coefficient (Dim-K) can be evaluated by comparative measurements with the same calibration solution in the housing and in a black bucket.

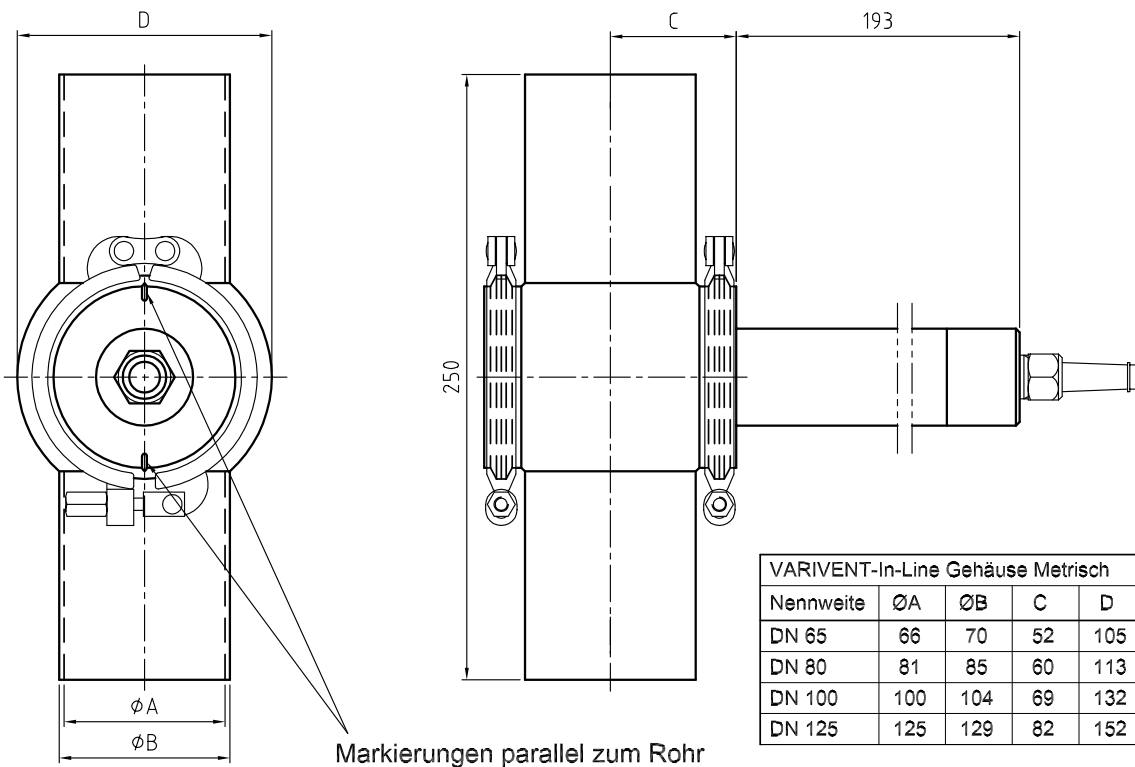
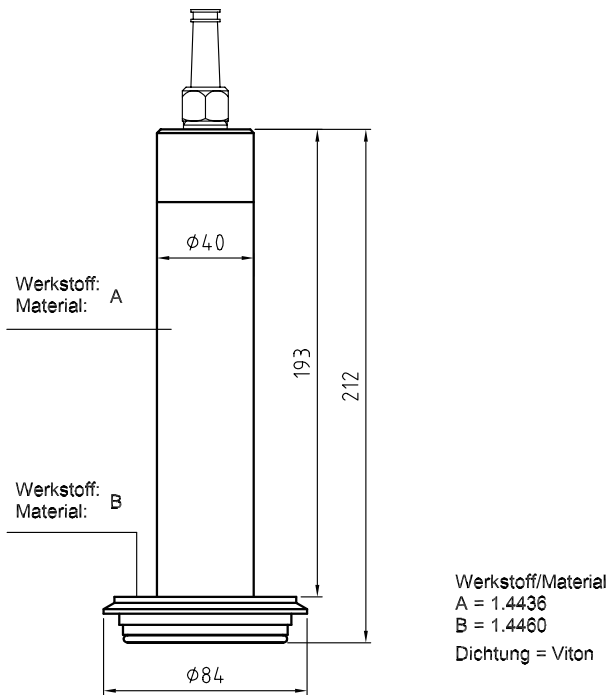
Pipe ø [mm]	Dim-K [FNU]
65	1.5
80	0.7
100	0.0

- b) For suspended solids

measurement it is always necessary to calibrate (see calibration instructions of the transmitter).

Dimensions

Version VARIVENT (COSMOS®-25 VARI)



VARIVENT-In-Line Gehäuse Metrisch				
Nennweite	ϕA	ϕB	C	D
DN 65	66	70	52	105
DN 80	81	85	60	113
DN 100	100	104	69	132
DN 125	125	129	82	152

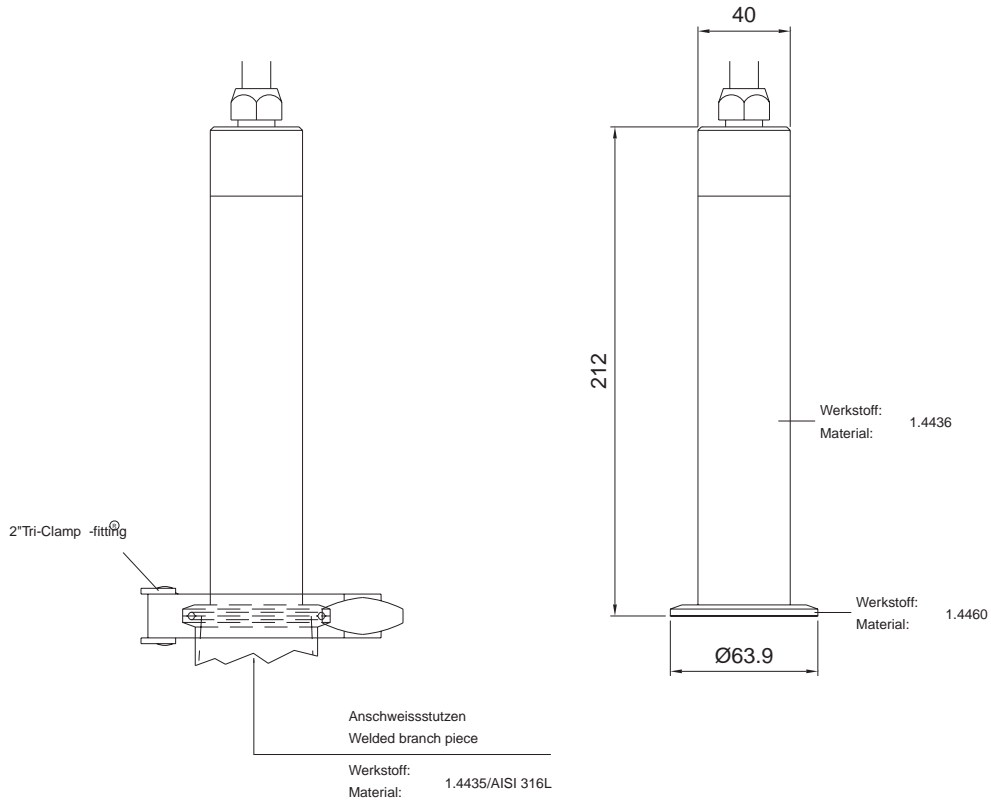
Alle Masse in mm / All dimensions in mm

Technische Aenderungen vorbehalten
Subject to change without notice

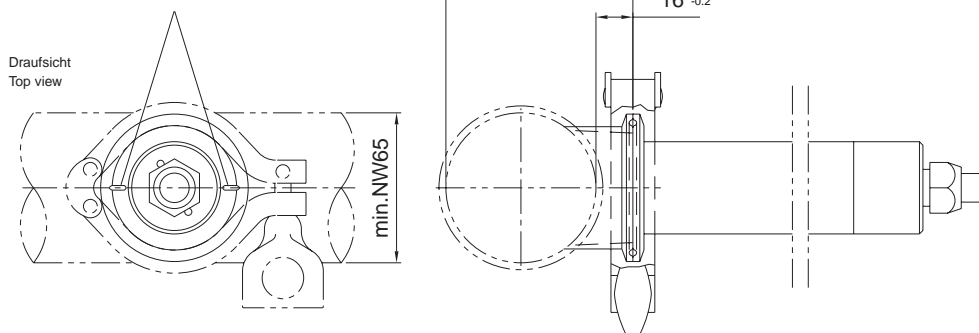
Dimensions

Version Tri-Clamp® (COSMOS®-25 XL)

COSMOS®-25 XL



Markierungen parallel zum Rohr
Marks must be parallel to pipe

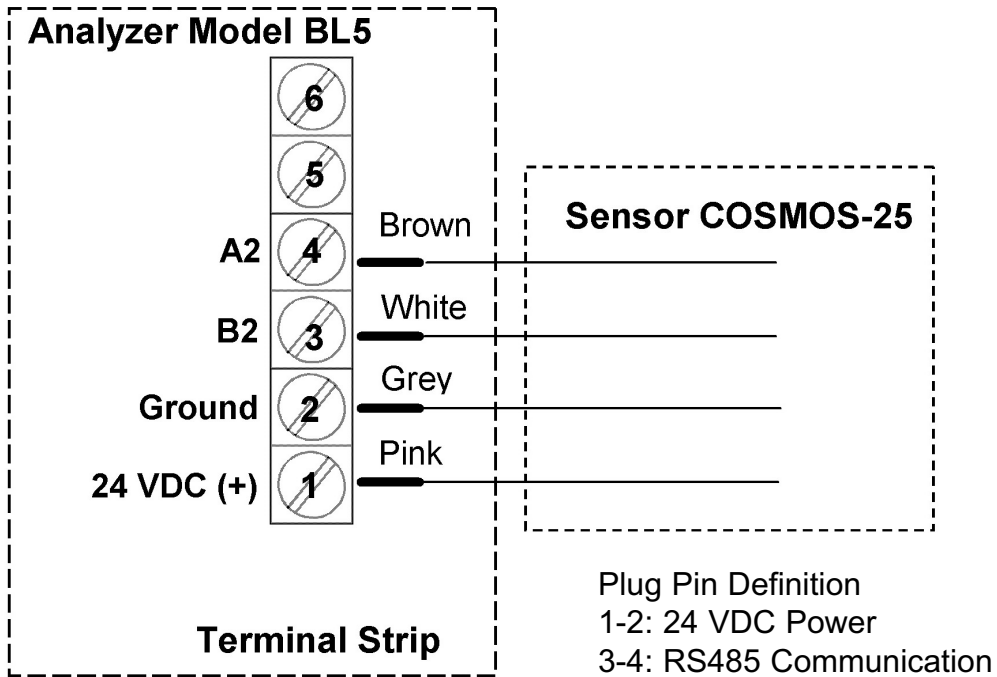


Alle Masse in mm / All dimensions in mm

Technische Änderungen vorbehalten
Subject to change without notice

Wiring diagram

Sensor COSMOS-25 to Analyzer b-line V



Analyzer	Sensor Cable Wire Color
4	Brown
3	White
2	Grey
1	Pink

Technical Data

Technical Specification COSMOS®-25 VARI/XL

General

Measuring principle	combined multiple-beam concept with infrared-diode system and beam focusing
Turbidity	2-channel-90° scattered light measuring according to DIN/EN 27027/ISO7027, wavelength = 860 nm additional measuring value verification by six-channel multi-angle measuring
Dried solid matter	modified absorption measurement: six-channel multi-angle measuring, wavelength = 860 nm
Air bubble compensation	by software
Quality of the measuring value	by software

Measuring Range (Auto-Ranging)

Turbidity 0.001...10000 FNU ¹⁾	
- Resolution	better than DIN/EN 27027/ISO7027: ...0.999 FNU: 0.001 FNU 1...9.99 FNU: 0.01 FNU 10...99.9 FNU: 0.1 FNU as from 100 FNU: 1 FNU
Dried solid matter 0.001 g/L upwards (upper limit depending on medium) e.g.:	SiO ₂ > 400 g/L
- Resolution :	better than DIN 38414 part 2 ...0.999 g/L: 0.001 g/L 1...9.99 g/L: 0.01 g/L 10...99.9 g/L: 0.1 g/L as from 100 g/L: 1 g/L

Characteristic Process Values (according to DIN38402 part 51)

Turbidity (operating range 1-1000 FNU):

Accuracy (as standard deviation)	typical < 3% of measuring value
Reproducibility (as repeating standard deviation)	typical < 4% of measuring value

Dried solid matter (operating range 0.5-20 g/L):

Accuracy	depending on the quality of the calibration and the medium
(as standard deviation)	typical < 5 % of measuring value
Reproducibility	depending on homogeneity of the probe
(as repeating standard deviation)	typical < 4 % of measuring value
Response Time	minimum 1 s

¹⁾ 4000 upwards FNU internal manufacturer norm

Technical Data

Application Data

Constant use temperature	☞ 0...40 °C, (outside of Ex-Zone 2 0...80 °C, short term ...95 °C)
Pressure range	max. 16 bar
Classification Ex Zone	Group II, category 3, to use only up to Ex Zone 2
Application	in watery media

Electrical Data

Supply voltage	24 VDC
Current input	approx. 60 mA
Signal type	digital, RS 485
Cable	5 m, PUR ø 8.3 mm, 3x2x0.34 mm ² (Sys- stem 2000), customised lengths optional
Cable length external supply line	max. 300 m for SPACE, max. 240 m for b-line II
Plug(optional)	Lemo Gr.2, 6 pol., IP 65

Other Information

Turbidity units	FNU, NTU, EBC
Dried solid matter units	g/L, %, mg/L, ppm
Number of calibration curves	1 for turbidity (calibrated by manufacturer) 2 for dried solid matter

Mechanical Data

VARI version

Diameter	84 mm max.
Probe length	212 mm
Armature	e.g. VARIVENT Form N, DN 65...125

XL version

Diameter	63.9 mm max.
Probe length	212 mm

Materials

Wetted parts	stainless steel DIN 1.4460 (head), sapphire
Sealings	FKM (Viton®)
Transmitter	b-line multi/b-line II/b-line (DS and TM measurement), SPACE A (CO measure- ment)
Portable Measuring	m-line (Interface CO measurement)
Datalogger	m-line II (CO measurement)

Technical Data

Application Data

Constant use temperature	☞ 0...40 °C, (Outside of Ex-Zone 2 up to 60 °C, short term 80 °C), with wiper 0...50 °C, short term 70 °C
Pressure range	max. 10 bar, with wiper max. 6 bar
Classification Ex Zone	Group II, category 3, to use only up to Ex Zone 2
Application	in watery media

Electrical Data

Supply voltage	24 VDC
Current input	approx. 60 mA
Signal type	digital, RS 485
Cable	5 m, PUR ø 8.3 mm, 3x2x0.34 mm ² (System 2000), customised lengths optional
Cable length external supply line	max. 300 m for SPACE, max. 240 m for b-line II
Plug(optional)	Lemo Gr.2, 6 pol., IP 65

Other Information

Turbidity units	FNU, NTU, EBC
Dried solid matter units	g/L, %, mg/L, ppm
Number of calibration curves	1 for turbidity (calibrated by manufacturer) 2 for dried solid matter

Mechanical Data

-E/-H version

Diameter	40 mm
Connection thread	G 1"
Probe length standard	with end piece 270 mm with hood 1500 mm
Customised lengths (optional)	with end piece 400...4000 mm with hood 600...4000 mm
Fast mounting (optional)	Tri-Clamp®

Materials

Wetted parts	stainless steel DIN 1.4460 (head), DIN 1.4404 (body), DIN 1.4571 (shaft), sapphire
Sealings	FKM (Viton®), optional FFKM (Kalrez®)
Wiper (optional)	PA (GF), TPV
Transmitter	b-line multi/b-line II/b-line (DS and TM measurement), SPACE A (CO measurement)
Portable Measuring	m-line (Interface CO measurement)
Datalogger	m-line II (CO measurement)

WARRANTY

Goods and part(s) (excluding consumables) manufactured by Seller are warranted to be free from defects in workmanship and material under normal use and service for a period of twelve (12) months from the date of shipment by Seller. Consumables, pH electrodes, membranes, liquid junctions, electrolyte, O-rings, etc. are warranted to be free from defects in workmanship and material under normal use and service for a period of ninety (90) days from date of shipment by Seller. Goods, part(s) and consumables proven by Seller to be defective in workmanship and / or material shall be replaced or repaired, free of charge, F.O.B. Seller's factory provided that the goods, parts(s), or consumables are returned to Seller's designated factory, transportation charges prepaid, within the twelve (12) month period of warranty in the case of goods and part(s), and in the case of consumables, within the ninety (90) day period of warranty. This warranty shall be in effect for replacement or repaired goods, part(s) and consumables for the remaining portion of the period of the twelve (12) month warranty in the case of goods and part(s) and the remaining portion of the ninety (90) day warranty in the case of consumables. A defect in goods, part(s) and consumables of the commercial unit shall not operate to condemn such commercial unit when such goods, parts(s) or consumables are capable of being renewed, repaired or replaced.

The Seller shall not be liable to the Buyer, or to any other person, for the loss or damage, directly or indirectly, arising from the use of the equipment or goods, from breach of any warranty or from any other cause. All other warranties, expressed or implied are hereby excluded.

IN CONSIDERATION OF THE STATED PURCHASE PRICE OF THE GOODS, SELLER GRANTS ONLY THE ABOVE STATED EXPRESS WARRANTY. NO OTHER WARRANTIES ARE GRANTED INCLUDING, BUT NOT LIMITED TO, EXPRESS AND IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

RETURN OF MATERIAL

Material returned for repair, whether in or out of warranty, should be shipped prepaid to:

**Rosemount Analytical Inc.
Uniloc Division
2400 Barranca Parkway
Irvine, CA 92606**

The shipping container should be marked:

Return for Repair
Model _____

The returned material should be accompanied by a letter of transmittal which should include the following information (make a copy of the "Return of Materials Request" found on the last page of the Manual and provide the following thereon):

1. Location type of service, and length of time of service of the device.
2. Description of the faulty operation of the device and the circumstances of the failure.
3. Name and telephone number of the person to contact if there are questions about the returned material.
4. Statement as to whether warranty or non-warranty service is requested.
5. Complete shipping instructions for return of the material.

Adherence to these procedures will expedite handling of the returned material and will prevent unnecessary additional charges for inspection and testing to determine the problem with the device.

If the material is returned for out-of-warranty repairs, a purchase order for repairs should be enclosed.



*The right people,
the right answers,
right now.*

ROSEMOUNT ANALYTICAL
CUSTOMER SUPPORT CENTER
1-800-854-8257



Emerson Process Management

Liquid Division

2400 Barranca Parkway
Irvine, CA 92606 USA
Tel: (949) 757-8500
Fax: (949) 474-7250

<http://www.raihome.com>



ON-LINE ORDERING NOW AVAILABLE ON OUR WEB SITE
<http://www.raihome.com>

Specifications subject to change without notice.

Credit Cards for U.S. Purchases Only.

