Zertifiziertes QM-System
DIN EN ISO 9001
Zertifikat-Nr. 01017

Turbidity Measurement System

Absorption principle (infrared)

measuring • monitoring • analysing

ATA-K

- Measuring range: 0-0.5...4 CU (concentration unit)
- Measurement accuracy: ±2% of full scale
- p_{max}: 16 bar; t_{max}: 100 °C (short-time 120 °C)
- Different connections and nominal sizes
- Material: stainless steel 1.4571
- Analogue output: 4 - 20 mA
- 3 alarm contacts
- Good product quality

A3

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Description of Turbidity Sensor

The high precision single-beam turbidity sensor ATA-K measures the degradation of light (in the near infrared range, NIR) passing through the process medium. The sensor has been manufactured from stainless steel and designed for fitting in the process piping. The process medium is penetrated by a suitably focussed, constant beam of light. The intensity of the incoming light is measured by a silicon photodiode and routed to the transmitter as a photoelectric current. The changes of intensity in this light, caused by absorption and/or scattering by substances (dissolved and undissolved) in the medium, is measured and outputed by the transmitter. Concentration can thus be measured in the ppm range as well as in the % range.

Applications

- Oil in water
- Separator control
- Solids concentration
- Filter aids
- Product identification
- Quality control
- Lime milk
- Polymerisation
- Gas bubbles
- Yeast cell count / dosing
- Phase separation

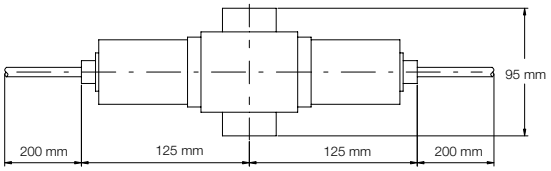
  Milk / water
  Water / milk
  Water / suspension
  Water / emulsion
  Water / milk products
  Beer / yeast
  Filter backdating
  Water / rinsing water

Technical Details

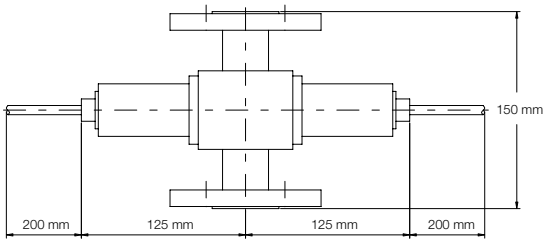
Measuring principle:	absorption principle
Measuring range:	0-0.5 ... 4 CU (concentration unit)
Measurement accuracy:	±2% of set upper range value
Process temperature:	0 ... 100 °C (short-time 120 °C)
Ambient temperature:	0 ... 40 °C
Process pressure:	10 mbar ... 16 bar
Material:	1.4571/316 Ti, optional TFMC (PTFE / coal compound)
Seals:	silicone / FPM / EPDM / Kalrez®
Window:	borosilicate glass, sapphire optional
OPL (optical path length):	5 ... 40 mm
Process connections:	DIN- / ANSI flange / NPT / thread/dairy thread (other connections upon request)
Nominal sizes:	DN 25, DN 50, 1", 2"
Light source:	approx. 3-5 years service life
Wavelength:	NIR, 730-970 nm
Protection type:	IP 65 (optics case V4A)
Certification:	CE, GS
Weight:	
pipe thread, NPT screw thread, dairy thread DN 25:	approx. 2.8 kg
dairy thread DN 50:	approx. 3.7 kg
1" ANSI flange, DIN flange DN 25:	approx. 4.8 kg
2" ANSI flange, DIN flange DN 50:	approx. 8.1 kg

Dimensions [mm]

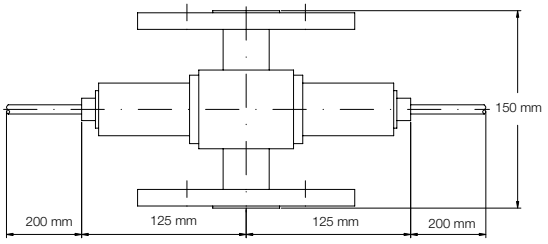
ATA-K 1" Pipe thread



ATA-K Flange DN 25



ATA-K Flange DN 50



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Operation and Function of Transmitter

The change in light intensity is determined in the transmitter ATT-K from the photoelectric current and a measuring signal proportional to the concentration in the process medium is obtained after. Two independently adjustable switch points as well as an analogue output are available for alarm signalling, or control and regulating. An additional relay output (FAIL-SAFE) signals lamp / system failures.

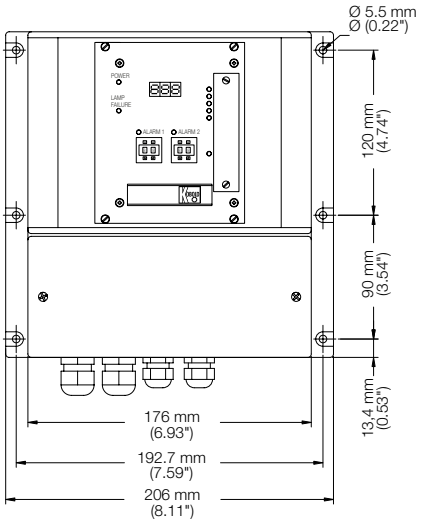
Basic system calibration is carried out in concentration units (CU). The unit CU is defined as the negative decadic logarithm of the change in light intensity. This means: an increase in measured value of 1 CU corresponds to a 90% degradation of the light beam.

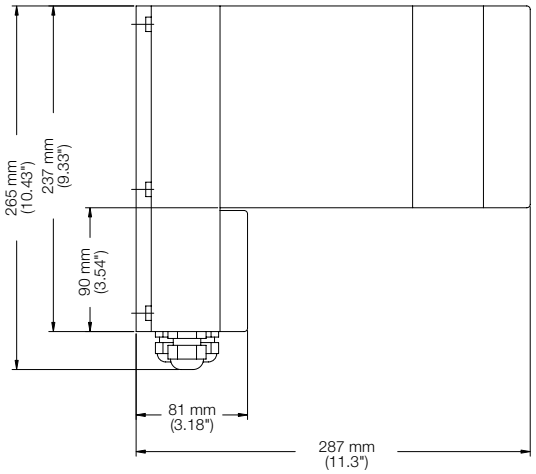
Technical Details

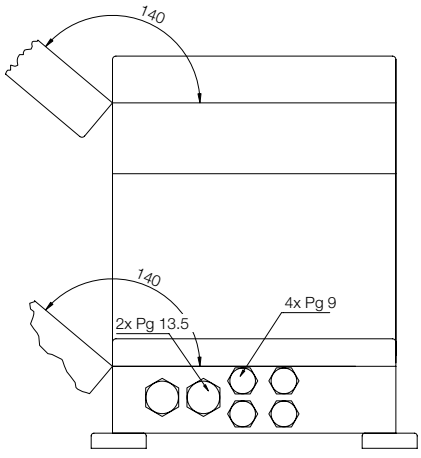
Measuring ranges:	0-0.5...4 CU (= approx. 30% TS) 0-100 ... 5000 EBC
Accuracy:	<1% of full scale
Response time (T 90):	1 s
Ambient temperature:	0 ... 50 °C
Panel housing:	H x W x D: 128.4 x 106.3 x 190 mm 19" 3HE, 21 TE (panel mounting)) cut-out: 106 x 116 mm
Read-out display:	digital, 3 digits
Alarms:	2 (floating changeover contacts)
Alarm setting:	in 1% steps of the measuring range
FAIL-SAFE:	floating changeover contact
Cable length:	max. 100 m
Output:	4-20 mA (isolated)
Load:	max. 500 Ω
Power supply:	115 / 230 V_{AC}, 24 V_{AC}/V_{DC}, 47...64 Hz
Power consumption:	30 VA
Protection type:	panel housing IP 40 field housing IP 66
Certification:	CE, GS
Weight:	approximately 2 kg with field housing 4.1 kg

Dimensions [mm]

ATT-K field housing







Order Details Turbidity Sensor ATA-K (Example **ATA-K B S K25 A**)

Model	Window	Seal	Connection	Optical path length (OPL)
ATA-K..	**B** = borosilicate glass **S** = sapphire	**S** = silicone **M** = FPM **E** = EPDM **K** = Kalrez®	**K25** = 1" pipe thread **N25** = 1" NPT **F25** = flange DN 25 (DIN 2633) **F50** = flange DN 50 (DIN 2633) **A25** = 1" ANSI flange 150 lbs RF **A50** = 2" ANSI flange 150 lbs RF **L25** = dairy thread DN 25 (DIN 11850) **L50** = dairy thread DN 50 (DIN 11850) **C25** = TFMC flange DN 25 (DIN 2576) **C50** = TFMC flange DN 50 (DIN 2576)	**A** = 5 (for DN 25) **B** = 10 (for DN 25) **C** = 20 (for DN 25) **D** = 25 (for DN 50) **E** = 30 (for DN 50) **F** = 40 (for DN 50)

A complete turbidity measurement system comprises of turbidity sensor, transmitter and cable.

Order Details Transmitter ATT-K (Example **ATT-K S E C 1**)

Model	Process	Housing	Unit	Power supply
ATT-K..	**S** = 2-beam scattered light technique **A** = absorption technique	**E** = panel-mounted housing **F** = field housing	**C** = CU (for absorption technique) **P** = ppm (for scattered light technique) **F** = FTU (for scattered light technique) **E** = EBC (for both techniques)	**1** = 115/230 V_{AC} **2** = 24 V_{AC}/ V_{DC}

Order Details Cable ATK-K (Example **ATK-K S E**)

Model	Process	Length
ATK-K..	**S** = 2-beam scattered light technique **A** = absorption technique	**E** = length in writing (5 m steps)

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