

Turbidity Sensor - TURBIMESS NG -



APPLICATIONS

- PHASE SEPARATION OF PRODUCTS, E.G. IN DAIRIES (MILK / CREAM / WHEY)
- MONITORING THE DEGREE OF CONTAMINATION DURING CIP CLEANING, E.G. IN THE CIP RETURN FOR MONITORING THE PRE-RINSE WATER FOR PRODUCT RESIDUES
- RECOGNITION OF BREWER'S YEAST, E.G. IN BREWERIES DURING THE „YEAST HARVEST“
- MONITORING FOR FILTER BREAKTHROUGH

FEATURES

- FLUSH MOUNTED TURBIDITY SENSOR FOR MEDIA WITH TURBIDITIES OF > 50 TO 4000 NTU*
- ADJUSTMENT OF LOOP CURRENT FOR UP TO 9 DIFFERENT TURBIDITY VALUES POSSIBLE
- MEASURING OF FAT CONTENT (E.G. CREAM UP TO 30%)
- HYGIENIC STAINLESS STEEL CONSTRUCTION
- CIP- / SIP-COMPATIBLE SHORT TIME UP TO 150°C (30 MINUTES)
- MEDIA TEMPERATURES UP TO 125°C PERMANENT
- ANALOG OUTPUT 4...20 MA, 2-WIRE AND 2 SWITCHING OUTPUT PNP
- HIGH ACCURACY AND REPRODUCIBILITY
- FOOD INDUSTRY-SAFE PROCESS CONNECTIONS FOR INSTALLATION IN PIPES AS OF DN25 (WITH VARIVENT®)

DESCRIPTION

TURBIMESS NG is suitable for measuring the turbidity of media with a turbidity of > 50 to 4000 NTU*. It is an optical, hygienic sensor for direct installation in process lines. The sensor emits a light beam and measures reflected radiation arising from solids or particles, but also from fat droplets. It is detected and the degree of backscattering is put out as loop current (4...20 mA).

With the principle mentioned above TURBIMESS NG can exactly determine the transition of water to product or also product change among themselves, if different high turbidity exists. At milk based products it is possible to observe the fat content. TURBIMESS NG is set on > 50 to 4000 NTU* by factory adjustment. In support point modus the required loop current can be set for up to 9 turbidity values by a user friendly on-site parameterization.

* The adjustment is made via NTU standard (formazin solution). The measurement method of TURBIMESS NG is approached to the NTU measurement method.

INFORMATION

100% mechanical compatible to previous model TURBIMESS

Adapter for the electrical compatibility to previous model TURBIMESS (4...20 mA, 3-wire) is available

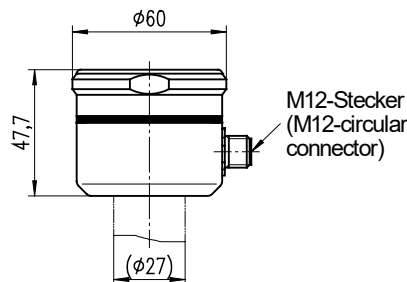
Turbidity Sensor - TURBIMESS NG -



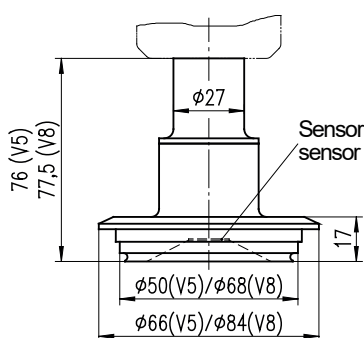
TECHNICAL DATA

General details	
Device type	TURBIMESS NG
Measuring principle	Backscatter from transmitted emitted infra-red light beam
Input	
Measuring ranges	Factory setting: Linearised turbidity > 100 to 4000 NTU* 9 freely configurable reference points *Configuration using NTU Standard, measurement procedure approximated
Maximum process pressure	PN16
Output	
Output signal	4...20 mA, 2-wire
Signal range	3.8...20.5 mA as per Namur NE043
Fault signal	22 mA
Switched output	2x PNP, each of max. 50 mA Factory setting: Not activated
Measuring accuracy	
Accuracy	$\pm \leq 0.2\%$ from measuring range end value
Reproducibility	$\pm \leq 0.1\%$ from measuring range end value
Thermal influence	$\pm \leq 0.2\%$ / K from measuring range end value
Setting time after input leap	≤ 3 s
Activation time	< 2 s (The device will carry out a self-test.)
Conditions of use	
Installation position / calibration position	Optimal installation position is in risers (ascending pipes) or, if not possible, to the side of other pipes (to avoid product residues and incorrect measurements due to gas bubbles); device must not be installed in downpipes (descending pipes).
Medium temperature	0...125°C / up to 150°C for brief periods (max. 30 mins)
Ambient/storage temperature	-10...85°C
Protection class acc. to EN60529	IP 67
Electromagnetic compatibility	acc. to DIN EN 61000 and DIN EN 61326-1
Construction	
Electrical connection	Round plug-in connector M12x1, 5-pin, nickel-plated brass (stainless steel available on request)
Process connection	- Clamp connection acc. to DIN 32676, DN50/2" - Varivent flange Type F (d50) and Type N (d68)
Materials	- Field housing / lid: Stainless steel 1.4301 (AISI 304) - Inspection gauge in lid: Polycarbonate (PC) - Housing seal: FPM (Viton®) - Process connection / connection adapter: Stainless steel 1.4404 (AISI 316L) - Medium-contacting density gauge: Sapphire glass - Seal on gauge: Silicone rubber, approved by FDA
Weight	approx. 1.5 kg
Display and operation	
Display	4-figure, 7-segment display, incl. decimal point, 2x status LED for switching points
Operation	3 input keys
Auxiliary energy resources	
Power supply / burden	24...30 V DC, max. burden: 600 Ω
Accessories	
Certificates	EG Declaration of Conformity Conformity acc. to Regulation (EC) 1935/2004 Acceptance test certificate 2.2 in acc. with EN 10204 for parts which come into contact products
Recommendation	
We recommend calibrating the device regularly. The device must be returned to use for this purpose.	

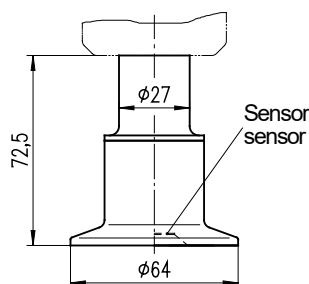
TECHNICAL DRAWINGS TURBIMESS NG (dimensions in mm)



Prozessanschlussadapter: (weitere Ausführungen auf Anfrage)
adapters for process connection: (other constructions on request)



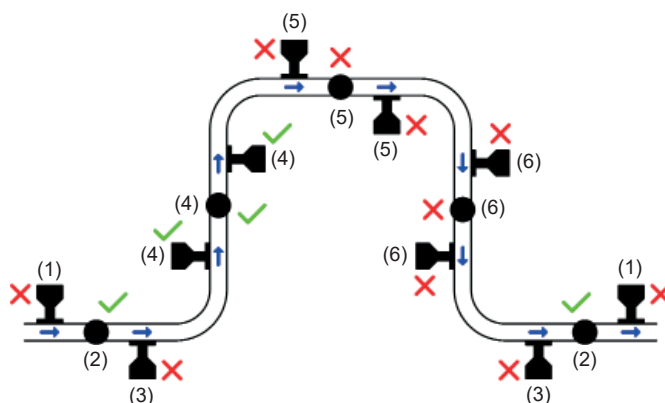
VARIVENT® - Flansch
VARIVENT® - flange



Clamp DIN 32676-DN50 / 2" (C5)

INSTALLATION POSITION OF THE TURBIDITY METER

The following overview shows both favourable transmitter installation positions and those that should be avoided:



Installation on the side of the pipe (2) should be favoured. The device can be installed in any position in risers (4).

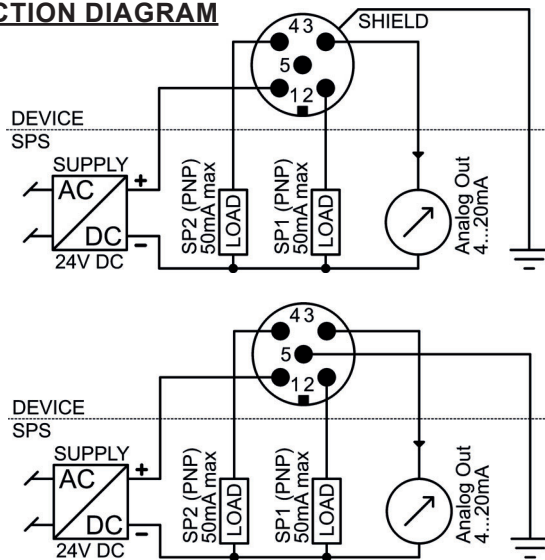
If possible, the transmitter should not be installed vertically on the pipe (1) as gas bubbles could collect in the curved section of the density gauge, which would affect the backscatter of light. Installing the device below the pipe (3) is also not recommended because, depending on the medium, deposits can form on the density gauge over time.

If possible, avoid installing the device in elevated pipe sections (5) where it cannot be ensured that the pipe is always completely full. In such cases, however, installation on the side of the pipe should again be favoured.

Installation in downpipes (6) should also be avoided as it cannot be ensured that the pipe volume flow is at full capacity at all times. The device can, however, be installed at any point around sections of pipe.

Turbidity Sensor - TURBIMESS NG -

CONNECTION DIAGRAM



- Connection when earthing is ensured at installation location (e.g. earthed stainless steel tank)
- When connection cable features earthed shielding. The shield must be connected to the housing of the M12 connector by an electrical connection.

Alternatively: Earth pin 5 at the supply point.

ELECTRICAL CONNECTION



Pin 1: Positive supply (24...30 V DC)

Pin 2: PNP switched output SP1, 50 mA max.

Pin 3: Negative supply and current measurement output (4...20 mA)

Pin 4: PNP switched output SP2, 50 mA max.

Pin 5: Earth (use only if no earth connection at installation location or via cable shielding)

Note:

If neither switching point is used, the loop current can also be measured in the forward conductor (pin 1); otherwise, the current must be measured in the return conductor (pin 3).

ORDERING INFORMATION FOR TURBIMESS NG

Process connection

C5	Clamp connection acc. to DIN32676, DN50/2"
V8	Varivent flange Type N, d68

Measuring range

HF	High turbidity levels
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TURBIMESS NG_

Please observe the permissible nominal pressure of the process connection selected.
All specifications and certifications specified are only guaranteed when Hengesbach original components are used.
Our devices are subject to constant development; subject to technical modification.

A-TURBIMESS NG-E-25-1/4