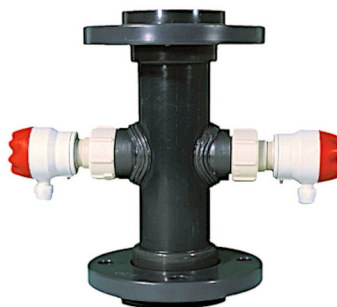


# TURBIDITY MEASURING ARMATURES TURBISWITCH GA



## SAFETY INSTRUCTIONS

- Installation, commissioning and maintenance may only be performed by qualified personnel!
- Only connect the unit to the voltage specified in the technical data or on the type plate!
- Disconnect the unit from the power supply during installation/maintenance work!
- Only operate the unit under the conditions defined in the operating instructions!

## APPLICATIONS

### Monitoring of:

- Filtration / ultrafiltration
- Reverse osmosis
- Cooling circuits
- Centrifuges / Separators
- Return condensate against product collapse
- Process water / waste water

## DESCRIPTION



Evaluation unit  
TURBISWITCH GS5 (410-03),  
available separately

Turbidity is caused by particles in a medium.

TURBISWITCH GA measures the turbidity of the flowing medium optically. For this purpose, a transmitted light measurement is used in which the transmitter and receiver are opposite each other. The absorption of the transmitted light is detected by the TURBISWITCH GS5 evaluation unit and the preset limit value is precisely monitored.

The measurable turbidity values are strongly dependent on the process medium and the nominal width of the transducer.

The detectable turbidity is in the range of approx. 50 to max. 10,000 FAU.

The borosilicate windows are treated with anti-soil coating.

A turbidity control unit consists of:

- Evaluation unit TURBISWITCH GS5
- Turbidity measuring armature TURBISWITCH GA... with mounted transmitter (TT-HDR) and receiver (TR-HDR)

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TURBIDITY MEASURING  
ARMATURES  
**TURBISWITCH GA**

21-11-2024

M-422.01-EN-AC

**TUR**

**422-01 /1**

## TECHNICAL DATA

### TURBISWITCH GA1

Material	Stainless steel 316L (1.4404)
Process connection	Flange DIN 2633 PN10
Operating temperature	-10...+100 °C
Maximum pressure	10bar
Sealing rings	EPDM (others on request)

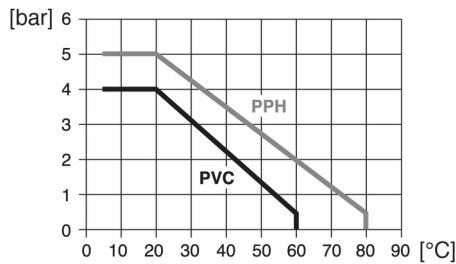
**NOTE:** The fittings are not designed according to aseptic standards!

Other versions available on request!

### TURBISWITCH GA5

Material	PVC or PP
Process connection	Threaded unions for solvent welding (PVC) or fusion welding (PPH)
	Flange socket on both sides according to DIN 2642
Sealing rings	EPDM (others on request)

Pressure-temperature diagram



The GA1 and GA5 fittings are supplied with the transmitter (TT-HDR) and receiver (TR-HDR) already fitted.

**CE mark:** The units fulfil the legal requirements of the applicable EU directives.

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TURBIDITY MEASURING  
ARMATURES  
**TURBISWITCH GA**

21-11-2024

M-422.01-EN-AC

**TUR**

**422-01 /2**

## ORDERING INFORMATION

Article number	Designation	Description
<b>TURBISWITCH GA1-... Stainless steel 316L (1.4404), flange connection DIN 2633</b>		
422 116	TURBISWITCH GA1-F3	TURBISWITCH GA1, DN25 PN10
422 118	TURBISWITCH GA1-F4	TURBISWITCH GA1, DN32 PN10
422 120	TURBISWITCH GA1-F5	TURBISWITCH GA1, DN40 PN10
422 122	TURBISWITCH GA1-F6	TURBISWITCH GA1, DN50 PN10
422 124	TURBISWITCH GA1-F7	TURBISWITCH GA1, DN63 PN10
422 126	TURBISWITCH GA1-F8	TURBISWITCH GA1, DN80 PN10
422 128	TURBISWITCH GA1-F9	TURBISWITCH GA1, DN100 PN10
<b>TURBISWITCH GA5-VV... threaded unions for solvent welding, PVC</b>		
422 500	TURBISWITCH GA5-W11	TURBISWITCH GA5, DN15
422 502	TURBISWITCH GA5-W12	TURBISWITCH GA5, DN20
422 504	TURBISWITCH GA5-W13	TURBISWITCH GA5, DN25
422 506	TURBISWITCH GA5-W14	TURBISWITCH GA5, DN32
422 508	TURBISWITCH GA5-W15	TURBISWITCH GA5, DN40
422 510	TURBISWITCH GA5-W16	TURBISWITCH GA5, DN50
422 560	TURBISWITCH GA5-W17	TURBISWITCH GA5, DN65
422 565	TURBISWITCH GA5-W18	TURBISWITCH GA5, DN80
<b>TURBISWITCH GA5-VV... threaded unions for fusion welding, PP</b>		
422 501	TURBISWITCH GA5-W21	TURBISWITCH GA5, DN15
422 503	TURBISWITCH GA5-W22	TURBISWITCH GA5, DN20
422 505	TURBISWITCH GA5-W23	TURBISWITCH GA5, DN25
422 507	TURBISWITCH GA5-W24	TURBISWITCH GA5, DN32
422 509	TURBISWITCH GA5-W25	TURBISWITCH GA5, DN40
422 511	TURBISWITCH GA5-W26	TURBISWITCH GA5, DN50
<b>TURBISWITCH GA5-FF... loose flange on both sides DIN 2642, PVC</b>		
422 541	TURBISWITCH GA5-FF11	TURBISWITCH GA5, DN15 PN10
422 543	TURBISWITCH GA5-FF12	TURBISWITCH GA5, DN20 PN10
422 545	TURBISWITCH GA5-FF13	TURBISWITCH GA5, DN25 PN10
422 547	TURBISWITCH GA5-FF14	TURBISWITCH GA5, DN32 PN10
422 549	TURBISWITCH GA5-FF15	TURBISWITCH GA5, DN40 PN10
422 561	TURBISWITCH GA5-FF16	TURBISWITCH GA5, DN50 PN10
422 540	TURBISWITCH GA5-FF17	TURBISWITCH GA5, DN65 PN10
422 542	TURBISWITCH GA5-FF18	TURBISWITCH GA5, DN80 PN10
422 544	TURBISWITCH GA5-FF19	TURBISWITCH GA5, DN100 PN10
<b>TURBISWITCH GA5-FF... loose flange on both sides DIN 2642, PP</b>		
422 551	TURBISWITCH GA5-FF21	TURBISWITCH GA5, DN15 PN10
422 553	TURBISWITCH GA5-FF22	TURBISWITCH GA5, DN15 PN20
422 555	TURBISWITCH GA5-FF23	TURBISWITCH GA5, DN25 PN10
422 556	TURBISWITCH GA5-FF24	TURBISWITCH GA5, DN32 PN10
422 557	TURBISWITCH GA5-FF25	TURBISWITCH GA5, DN40 PN10
422 558	TURBISWITCH GA5-FF26	TURBISWITCH GA5, DN50 PN10
422 559	TURBISWITCH GA5-FF27	TURBISWITCH GA5, DN65 PN10
422 552	TURBISWITCH GA5-FF28	TURBISWITCH GA5, DN80 PN10
422 554	TURBISWITCH GA5-FF29	TURBISWITCH GA5, DN100 PN10

Other versions on request.

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 ARMATURES  
 TURBISWITCH GA**

21-11-2024

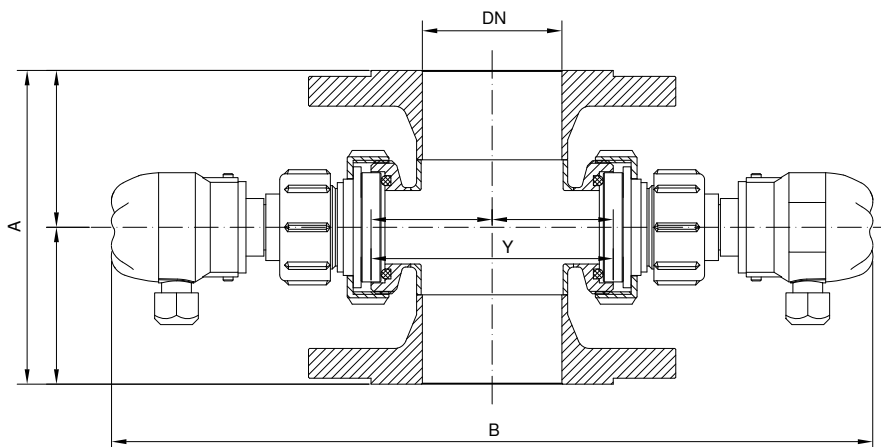
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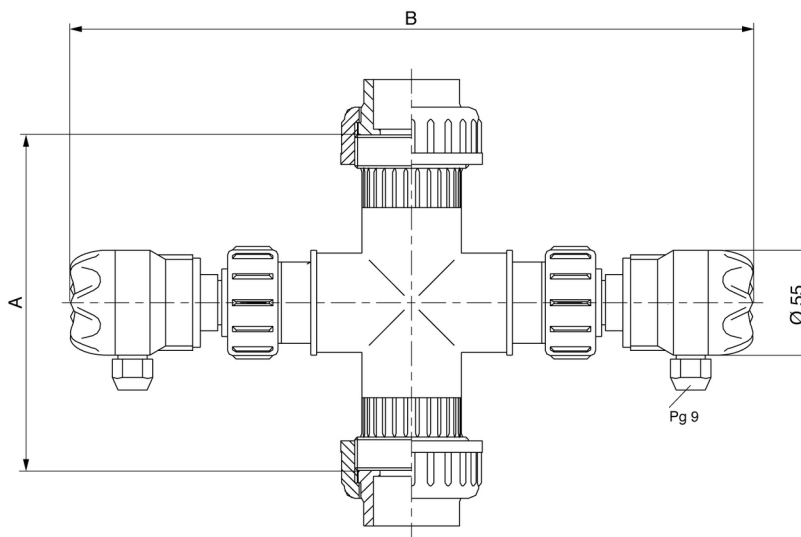
**422-01 /3**

### TURBISWITCH GA1-F...

DIN 2633



### TURBISWITCH GA5-VV...



TURBISWITCH GA1-F...			
DN	A (±2mm) =	B (±2mm) =	Y (±2mm) =
25	188	353	92
32	140	353	92
40	140	353	92
50	140	363	102
65	158	383	122
80	160	399	138
100	194	419	158

TURBISWITCH GA5-VV 1... PVC			TURBISWITCH GA5-VV 2... PP	
DN	A (±2mm) =	B (±2mm) =	A (±2mm) =	B (±2mm) =
15	152	358	214	359
20	158	358	218	359
25	164	358	222	359
32	176	358	230	359
40	210	378	248	367
50	258	404	281	348
65	202	360	273	360
80	208	375	261	375
100	228	371	247	371

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TURBIDITY MEASURING  
ARMATURES  
**TURBISWITCH GA**

21-11-2024

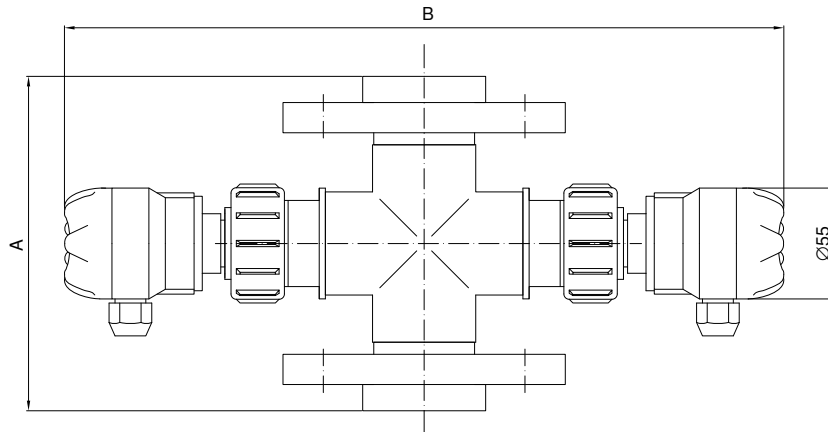
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**422-01 /4**

## DIMENSIONS (continuation)

### TURBISWITCH GA5-FF...

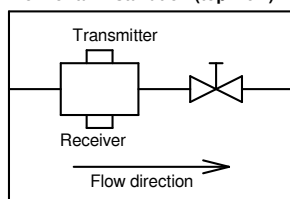


TURBISWITCH GA5-FF 1... (PVC version)			TURBISWITCH GA5-FF 2... (PP version)	
DN	A (±2mm) =	B (±2mm) =	A (±2mm) =	B (±2mm) =
15	143	358	214	359
20	149	358	218	359
25	155	358	222	359
32	167	358	230	359
40	197	378	254	367
50	237	404	290	348
65	290	360	290	360
80	310	375	310	375
100	350	371	350	371
125	350	401	350	401
150	350	421	350	421
200	350	461	350	461

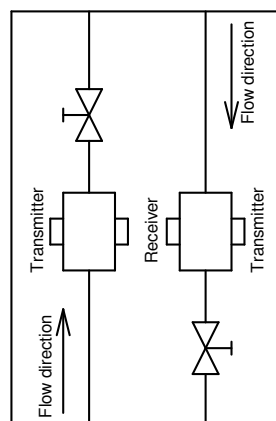
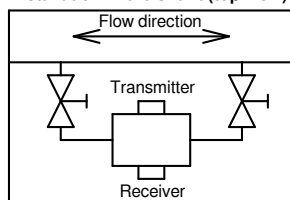
## INSTALLATION

The transducers (TURBISWITCH GA1 and GA5) can be installed both in the main line and in the bypass.

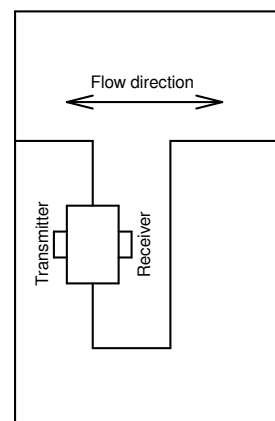
**Horizontal installation (top view)**



**Installation in the shunt (top view)**



**vertical installation**



**Installation with syphon**

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**TURBIDITY MEASURING  
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TURBISWITCH GA**

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**422-01 /5**

## INSTALLATION (continuation)

### The turbidity fittings have the following measuring ranges:

The measurable turbidity values depend on the process medium and the nominal diameter of the pipeline.

The minimum detectable turbidity in the LOW range starts at approx. 50...100FAU.

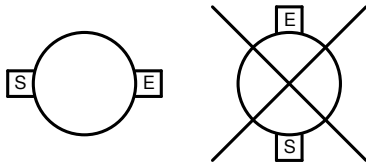
Maximum detectable turbidity in the HIGH range: Approx. 3000...10000FAU (corresponds to approx. 10...30g/ltr SiO<sub>2</sub>).

Maximum detectable turbidity in the MEDIUM range: 10% of the HIGH range.

Maximum detectable turbidity in the LOW range: 1% of the HIGH range.

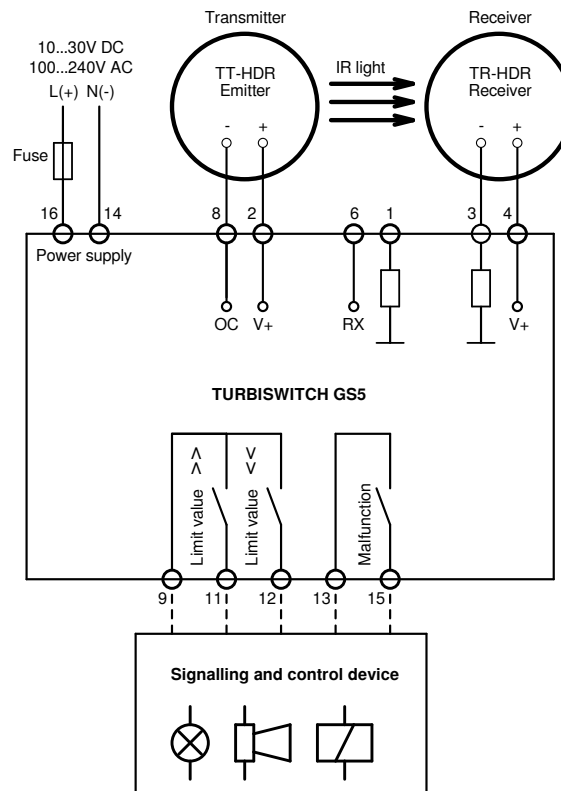
### For a reliable measurement, please note the following:

- The windows of the armature must be clean!
- The formation of gas bubbles in the medium should be prevented, otherwise the measurement result will be falsified!
- The position of the transmitter and receiver must always be horizontal to the direction of flow when installed horizontally in order to avoid faulty measurements due to deposits on the windows (see following figure)!



- Only a completely filled pipeline guarantees a correct measurement!
- If necessary, ensure backflow by throttling the outlet pipe or install a siphon.
- Dried-on residues on the windows, e.g. due to standstill of the system, falsify the measurement.
- It is recommended to provide a stilling distance of at least 3 to 5 times the pipe diameter before and after the fitting.
- When mounting in a siphon, a drain cock should be installed so that no liquid escapes when the sensor system is removed.
- To dismantle and mount the windows, use the mounting set supplied (spanner tool for pressure piece and suction cup for glass). Observe torque! (Torque spanner Turbiclick 5.7 optionally available, contact us).

## ELECTRICAL CONNECTION



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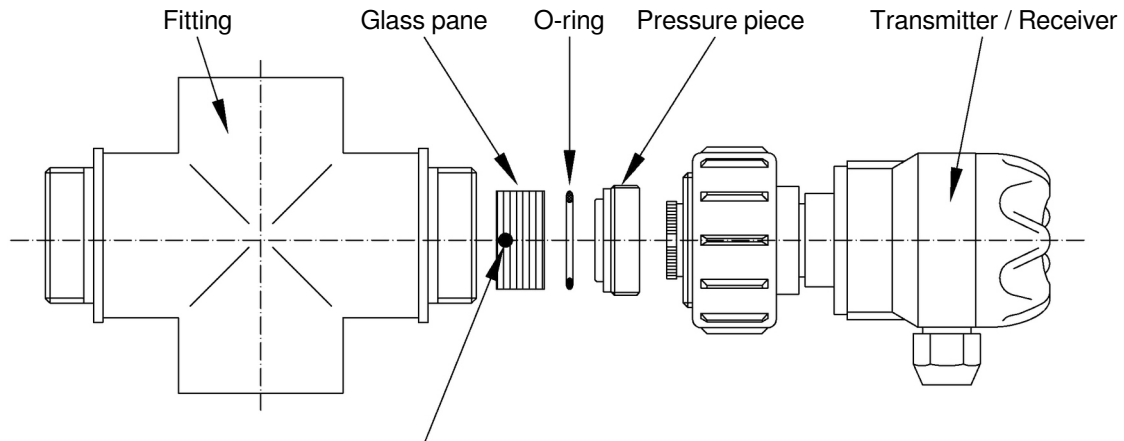
**TUR**

**422-01 /6**

## MAINTENANCE

Transducer for pipelines:

- Dirty windows must be cleaned, otherwise the measurement results may be falsified.
- The TURBISWITCH GA... transducer is supplied with a mounting tool for loosening the pressure piece.
- The window can be removed from the fitting with the suction cup, which is also included in the scope of delivery.
- Empty the transducer completely before maintenance or cleaning work!
- Do not use any objects/cleaners for cleaning that could damage the window!
- Limescale deposits can be removed with commercially available descaling agents.
- **The side of the window marked with a dot must be installed again in the direction of the medium!**
- Check the sealing rings (O-rings) for damage and replace if necessary before commissioning!
- The maintenance intervals result from the operating conditions.



The side with the dot is anti-soil coated. Install this side in the direction of the medium!



Information on evaluation can be found in the commissioning of the GS5

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