

TF56

Dual Channel Scattered Light Sensor



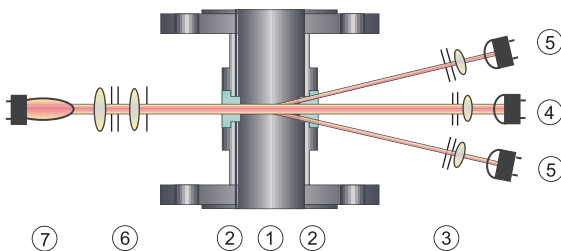
- Inline real-time process monitoring
- Dual channel color compensation
- Extremely low maintenance
- CIP/SIP-compatible
- Broad variety of line sizes, process connections and wetted materials
- Designed for high temperatures and pressures

The TF56 is a precise dual channel, scattered light turbidimeter. This sensor is designed to provide inline control solutions for a variety of industrial processes, from sanitary CIP/SIP applications to high pressure, high temperature industrial applications.

The TF56 uses light in the visible (VIS) and Near Infrared range (NIR) from 400 to 1100 nm. A precisely defined, constant light beam penetrates the process medium. Light scattered from particles (trace suspended solids, undissolved liquids or gas bubbles) in the medium is detected by four hermetically sealed silicon photodiodes at an angle of 11°.

The unscattered light is detected simultaneously as direct beam by a reference photodiode. This unique dual channel design compensates for disturbances such as background color or color changes of the carrier medium. The TF56 can be calibrated in ppm, EBC or FTU.

The special optical window is made from a single crystal sapphire. This provides superior resistance to all abrasive and corrosive media. The TF56 is available with a broad variety of line sizes, process connections and wetted materials and can be adapted easily to the process. High temperature and silicone free models are also available.



- Type TF56**
- | | |
|-----------------|-----------------------------|
| 1 Sensor body | 4 Detetor (direct light) |
| 2 Windows | 5 Detetor (scattered light) |
| 3 Optics module | 6 Optics module |
| | 7 Lamp |

Technical Data

Sensor TF56



Material:

sensor body made of stainless steel
SS 316 Ti, 1.4571 (standard)

Special materials:

SS 316 L (1.4435), 1.4539, 1.4462, TFM 4215, Hastelloy® C4, Hastelloy® C22, Titanium, Tantalum, Monel® 400, Inconel® 625, PP, and others on request.

Line size:

¼" to 8", (DN 6 to DN 200)

Process connections:

ASME Flange, DIN Flange, Varivent, JIS Flange, Tri-Clamp, BBS-Clamp, Female Thread NPT, Female Thread DIN ISO 228/1 G, Sanitary Thread (DIN 11851), and others on request.

Gaskets:

Viton®, EPDM (FDA), EPDM (USP Class VI), Kalrez®, Chemraz®, Fluoraz®, Buna (NBR), Silicone, Viton® /FEP (FDA), and others on request.

Windows:

Pyrex®, Sapphire

Optical path length:

40 mm standard

Process pressure:

10 mbar to 325 bar, (0.15 psi to 4713 psi),
depending on process connection, material and design

Process temperature:

values are only valid with appropriate material of sensor body and gaskets. No icing on sensor!

- permanent: 0 °C to +100 °C, (+32 °F to +212 °F)
- peak (15 min/day): 0 °C to +120 °C, (+32 °F to +248 °F)

Ambient temperature:

- operation: 0 °C to +40 °C, (+32 °F to +104 °F)
(elevated or reduced ambient temperatures may require restrictions to the operating temperatures stated above!)
- transport: -20 °C to +70 °C, (-4 °F to +158 °F)

Air purge:

connectors available as standard

Light source:

incandescent tungsten lamp: 5.0 V DC, 775 mA,
typical life span 3 to 5 years

Wavelengths:

400 nm - 1100 nm

Detector:

silicon photodiodes, hermetically sealed

Calibration:

basic calibration in ppm (DE), FTU, EBC

Measuring range:

any measuring range between
0 - 25 to 500 ppm (DE)
0 - 10 to 200 FTU
0 - 2.5 to 50 EBC

Resolution:

< ± 0.5 % of respective measuring range

Repeatability:

< ± 1 % of respective measuring range

Linearity:

specific to application, < ± 2 % with standard solution

Protection:

all optical parts protected according to IP65

Cable lengths:

standard: 5, 10, 20, 35, 50 m, (16, 33, 66, 115, 164 ft.)
maximum: 250 m, (820 ft.)

VA-plug-protection:

special ultra-shielded cable sets,
optional rigid stainless steel connector

Certificates:

ISO 9001:2000, PED, CE, HPO

Use with 556 converter!

Options



Measuring cells for any application

TF56-HT

high temperature model

permanent:

-20 °C to +190 °C, (-4 °F to +374 °F)

peak (15 min/day):

-20 °C to +210 °C, (-4 °F to +410 °F)

TF56-SF

silicone free model

with restricted temperature ratings

permanent:

0 °C to +60 °C, (+32 °F to +140 °F)

peak (15 min/day):

0 °C to +80 °C, (+32 °F to +176 °F)