

AF46

Dual Channel UV Absorption Sensor



- Inline real-time process monitoring
- Dual channel background compensation
- Extremely low maintenance
- Lamp reference channel compensates for intensity variation
- Designed for CIP/SIP and ultra-sanitary applications
- Broad variety of line sizes, process connections and wetted materials
- NIST-traceable validation accessories

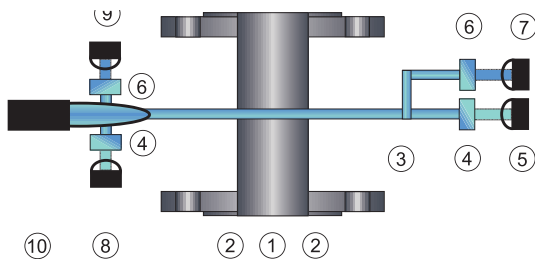
The model AF46 is an advanced, dual channel UV absorption sensor with two additional lamp reference channels. This sensor is designed for inline operation and provides accurate concentration measurements with great repeatability, linearity and resolution.

The AF46 is used for HPLC control, detection of aromatic compounds, organic load, protein concentration and other demanding applications.

The AF46 uses light in the UV range at selected wavelengths combinations. A precisely defined, constant light beam penetrates the process medium. The attenuation of the light intensity, caused by absorption and/or scattering by dissolved and undissolved substances, is detected by hermetically sealed silicon photodiodes.

The light beam is divided by a beam splitter into two beams and passes through the specific interference filters. This dual channel measurement compensates for background influences at the specified wavelengths. Additional reference measurements on lamp side compensate for any variations in lamp intensity for the highest level of precision and long-term performance.

The special optical window is made from a single crystal sapphire, providing superior resistance to all abrasive and corrosive media. The AF46 is available with a broad variety of line sizes, process connections and wetted materials. NIST-traceable validation accessories assure absolute measurement confidence.



Type AF46

- | | |
|-----------------|------------------------------|
| 1 Sensor body | 6 Filter 2 |
| 2 Windows | 7 Detector 2 |
| 3 Beam splitter | 8 Reference detector 1 |
| 4 Filter 1 | 9 Reference detector 2 |
| 5 Detector 1 | 10 Low pressure mercury lamp |

Technical Data

Sensor AF46



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), Viton® /FEP (FDA), and others on request (Silicone is not permitted).

Windows:

Sapphire, (Pyrex® is not permitted)

Optical path length:

1 mm – 500 mm

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 +70 °C, (+32 °F to +158 °F)
- peak (15 min/day): 0 °C to +135 °C, (+32 °F to +275 °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:

low pressure mercury lamp
typical life span 1 to 2 years

Wavelengths:

254 nm, 280 nm, 290 nm, 300 nm, 313 nm (340 nm only as reference wave length), others on request.

Detector:

four silicon photodiodes, hermetically sealed

Calibration:

basic calibration in CU (concentration units)

Measuring range:

sensor specific
0 to 2 CU

Resolution:

< ± 0.05 % of respective measuring range

Repeatability:

< ± 0.5 % of respective measuring range

Linearity:

specific to application, < ± 1 % of respective measuring range

Protection:

all optical parts protected according to IP65

Cable lengths:

standard: 5, 10, 20, 35, 50 m, (16, 33, 66, 115, 164 ft.)
maximum: 100 m, (328 ft.)

VA-plug-protection:

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

Certificates:

ISO 9001:2000, ATEX, FM, PED, CE, HPO

Use with C4000 converter!

Options



Measuring cells for any application

AF46-HT

high temperature model
permanent: -20 °C to +120 °C
(-4 °F to +248 °F)
peak (30 min/day): +140 °C, (+284 °F)
peak (15 min/day): +150 °C, (+302 °F)

Validation adapter

modular adapter with application specific
validation filter for sensor verification

AF46-EX and AF46-EX-HT

ATEX and FM flameproof versions for safety
and confidence in all hazardous area
classification. Approval report: DMT ATEX
E1.76, FMG J.I. 3013884
(please contact us for separate data sheet)