

AF45-EX

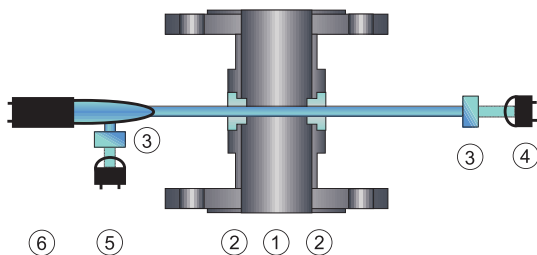
Single Channel UV Absorption Sensor



- Inline real-time process monitoring
- Designed for hazardous locations
- 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 AF45-EX is a single channel UV absorption sensor with an additional lamp reference channel. The sensor is designed for inline operation and provides accurate concentration measurements with great repeatability, linearity and resolution. The AF45-EX can be used in hazardous environments. The modular sensor consists of an intrinsically safe detector housing and a flameproof stainless steel housing comprising a lamp module as well as the reference detector module. The appropriate converter can be located either in a safe area or in a flameproof or pressurized enclosure directly in the hazardous location.

The AF45-EX uses light in the UV range at selected wavelengths. 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 a photodiode. The light intensity of the lamp itself is measured by a reference photodiode and compensates for any lamp intensity variations. The special optical sapphire window provides superior resistance to all abrasive and corrosive media. The AF45-EX is available with a broad variety of line sizes, process connections and wetted materials. NIST-traceable validation accessories assure absolute measurement confidence.



Type AF45-EX

- | | |
|---------------|-----------------------------|
| 1 Sensor body | 4 Detector |
| 2 Windows | 5 Reference detector |
| 3 UV filter | 6 Low pressure mercury lamp |

Technical Data

Sensor AF45-EX



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, 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

Temperature specification:

elevated or reduced ambient temperatures may require restrictions to the operating temperatures.

ambient temperature: -30 °C to +40 °C, (-22 °F to +104 °F)

process temperature: -30 °C to +70 °C, (-22 °F to +158 °F)

periodic 15 min/day (no hazardous environment):

-30 °C to +135 °C, (-22 °F to +275 °F)

periodic 30 min/day (no hazardous environment):

-30 °C to +120 °C, (-22 °F to +248 °F)

during 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, others on request.

Detector:

two silicon photodiodes, hermetically sealed

Calibration:

basic calibration in CU (concentration units)

Measuring range:

sensor specific
0 to 3 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 specification:

fixed cable connection 2 m, both side

0 - 400 m, (0 - 1312 ft.) appr. IIC T6/T5 (Groups A, B, C, D)

401 - 1000 m, (1313 - 3280 ft.) appr. IIB T6/T5 (Groups C, D)

Hazardous locations:

II 2G EEx ia IIC/IIB T6/T5

Class I, Div. 1, Groups A, B, C, D

Approval report:

DMT ATEX E176

FMG J.I. 3013884

Certificates:

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

Use with C4000 converter!

Options



Measuring cells for any application

AF45-EX-HT

high temperature flameproof model
perman.:

-30 °C to +120 °C, (-22 °F to +248 °F)

periodic 15 min/day (no hazardous environment):

-30 °C to +150 °C, (-22 °F to +302 °F)

periodic 30 min/day (no hazardous environment):

-30 °C to +140 °C, (-22 °F to +284 °F)

Validation adapter

modular adapter with application specific
validation filter for sensor verification