AF16-EX-N

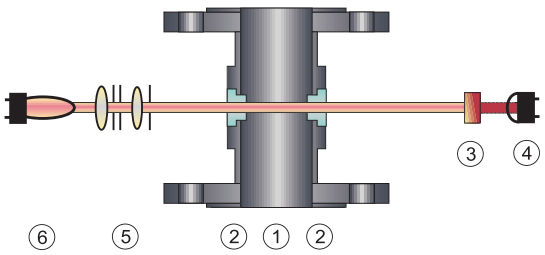
Single Channel NIR Absorption Sensor

optek® inline control

- **Inline real-time process monitoring**
- **Designed for high temperatures, high pressures and hazardous locations**
- **Color independent concentration measurement**
- **Extremely low maintenance**
- **CIP/SIP-compatible**
- **Broad variety of line sizes, process connections and wetted materials**
- **NIST-traceable validation accessories**

The model AF16-EX-N is a precise, single channel NIR absorption sensor designed especially for hazardous environments. The AF16-EX-N is used for inline applications in a variety of industrial processes.
The modular sensor consists of a flameproof stainless steel lamp housing and an intrinsically safe 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 AF16-EX-N uses the light in the Near Infrared range (NIR) from 730 to 970 nm and measures concentration or turbidity with great accuracy and repeatability.
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 in the medium, is detected by a hermetically sealed photodiode.
Optical path lengths (OPL) are available from 1 to 1000 mm for process versatility. The special optical sapphire window provides superior resistance to all abrasive and corrosive media.
The AF16-EX-N is available with a broad variety of line sizes, process connections and wetted materials.
NIST-traceable validation accessories assures absolute measurement confidence.



Type AF16-EX-N

1 Sensor body
2 Windows
3 NIR filter
4 Detector
5 Optics module
6 Lamp

Technical Data

Sensor AF16-EX-N

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), Silicone, Viton® /FEP (FDA), and others on request

Windows:
Pyrex®, Sapphire

Optical path length:
1 mm – 1000 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 +120 °C, (-22 °F to +248 °F)
periodic 15 min/day (no hazardous environment):
-30 °C to +150 °C, (-22 °F to +392 °F)
periodic 30 min/day (no hazardous environment):
-30 °C to +140 °C, (-22 °F to +284 °F)
during 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

Wave length range:
730 nm - 970 nm

Detector:
silicon photodiode, hermetically sealed

Calibration:
basic calibration in CU (concentration units)

Measuring range:
any measuring range between 0 - 0.05 to 5 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 2m, 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

AF16-EX-HT-N
high temperature ex-proof model
perman.:
-30 °C to +240 °C, (-22 °F to +464 °F)
periodic 15 min/day:
-30 °C to +260 °C, (-22 °F to +500 °F)
periodic 30 min/day:
-30 °C to +250 °C, (-22 °F to +482 °F)

Validation adapter
modular adapter with application specific validation filter for sensor verification

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1005-2004-0001-02