AF16-N

Single Channel NIR Absorption Sensor

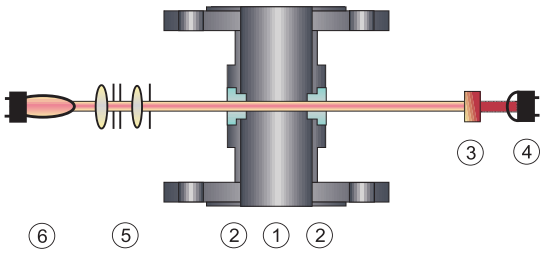
- **Inline real-time process monitoring**
- **Color independent concentration measurement**
- **High dynamic measuring range**
- **Extremely low maintenance**
- **CIP/SIP-compatible**
- **Broad variety of line sizes, process connections and wetted materials**
- **NIST-traceable validation accessories**

The model AF16-N is a precise, single channel NIR absorption sensor. The inline sensor is designed for a variety of industrial processes. The AF16-N measures concentration or turbidity with great accuracy and repeatability and can be used in demanding applications such as filter control, phase separation and yeast cell concentration.

The AF16-N uses light in the Near Infrared range (NIR) from 730 to 970 nm. 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 silicon photodiode.

Optical path lengths (OPL) are available from 1 to 1000 mm for process versatility. The AF16-N is equipped with a special optical filter and performs concentration measurement independent of any color influences.

The special optical window is made from a single crystal sapphire. This provides superior resistance to all abrasive and corrosive media.
The AF16-N is available with a broad variety of line sizes, process connections and wetted materials and can be adapted easily to the process. NIST-traceable validation accessories assures absolute measurement confidence. Options for hazardous area classification are also available.



Type AF16-N

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

Technical Data

Sensor AF16-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, 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:
1 mm – 1000 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 +120 °C, (+32 °F to +248 °F)
- peak (15 min/day): 0 °C to +150 °C, (+32 °F to +302 °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

Wavelength 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 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, ATEX, FM, PED, CE, HPO

Use with C4000 converter!

Options

Measuring cells for any application

AF16-HT-N
high temperature model
permanent:
-20 °C to +240 °C, (-4 °F to +464 °F)
peak (15 min/day):
-20 °C to +260 °C, (-4 °F to +500 °F)

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

AF16-EX-N and AF16-EX-HT-N
ATEX and FM flameproof versions for safety and confidence in all hazardous area classification, Approval report:
DMT ATEX E176, FMG J.I. 3013884
(please contact us for separate data sheet)

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