AF16-N

1-Channel Absorption

inline control



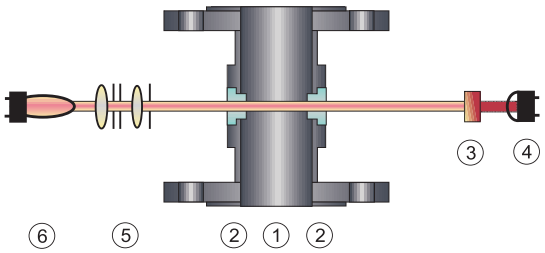
- **Inline real-time process monitoring**
- **Color independent concentration measurement**
- **High dynamic measuring range**
- **Extremely low maintenance**
- **CIP/SIP-compatible**
- **Broad variety of line sizes, process connections and wetted materials**
- **NIST-traceable validation accessories**

The model AF16-N is a precise, 1-Channel 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

Materials:
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, others on request.

Line size:
¼“ to 8“ (DN 6 to DN 200)

Process connections:
Flange ASME, Flange DIN, Varivent, Flange JIS, Clamp L14 AM7 (Tri-Clamp), BBS-Clamp, Clamp DIN 11864, Female Thread NPT, Female Thread DIN ISO 228/1 G, Sanitary Thread (DIN 11851), others on request.

Window gaskets:
Silicone (FDA), Viton® (FDA), EPDM (FDA, USP Klasse VI), Kalrez® 4079, Viton® /FEP (FDA), Fluoraz® 797, Kalrez® 1050 LF, Kalrez® 6375, Chemraz® 505, Chemraz® 513, Buna® (FDA), Kalrez® 6230 (FDA, USP Class VI), others on request.

Windows:
Pyrex® (Borosilikatglas), Sapphire, Sapphire Biotech

Optical path length:
1 - 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 - 120 °C (32 - 248 °F)
- peak 15 min/day: 0 - 150 °C (32 °F - 302 °F)

Ambient temperature:
- operation: 0 - 40 °C (32 - 104 °F)

(elevated or reduced ambient temperatures may require restrictions to the operating temperatures stated above!)
- transport: -20 - 70 °C (-4 - 158 °F)

Airpurge:
connection M5: standard through window ring

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 6 CU

Resolution:
< ± 0.05% of respective measuring range

Repeatability:
< ± 0.5% of respective measuring range

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

Type of protection:
all optical parts protected according to IP65

Cable connection:
with plastic connector or SS plug protector
length cable set:
2, 3, 5, 10, 15, 20, .., 100 m (7, 10, 16, 33, 49, 66, .., 328 ft.)
cable sets length > 100 m (328 ft.) on request

Certificates:
ISO 9001:2000, ATEX, FM, PED, CE, HP0

Use with C4000 converter!

Options:

EX (EN-D)
Ex-proof version for safety and confidence in all hazardous area classification accor. ATEX (EN-D)
Approval: DMT ATEX E 176

EX (FM-D)
Ex-proof version for safety and confidence in all hazardous area classification accor. FM (FM-D)
Approval: FMG J. I. 3013884

HT
high temperature version
permanent:
-30 - 240 °C (-22 - 464 °F)
peak 15 min/day
-30 - 260 °C (-22 - 500 °F)

VA
with Filter-Adapter FH01 (lamp side)
modular adapter for application specific validation filter for sensor verification

VB
with Filter-Adapter FH03 (detector side)
modular adapter for application specific validation filter for sensor verification

PV
Airpurge-connection M5:
backside (for Varivent) or through window ring

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