

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

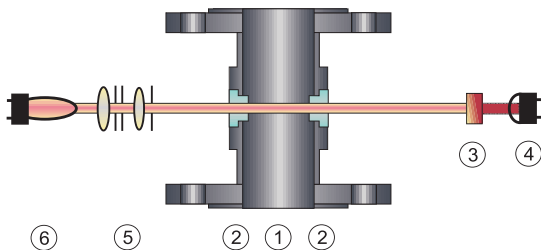
The model AF16-N is a precise, single channel NIR absorption sensor. The inline sensor is designed for a variety of industrial processes. The AF16-N measures concentration or turbidity with great accuracy and repeatability and can be used in demanding applications such as filter control, phase separation 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 | 4 Detector |
| 2 Windows | 5 Optics module |
| 3 NIR filter | 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, 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), others on request.

Gaskets:

Silicone (FDA), Viton® (FDA), EPDM (FDA, USP Class VI), Kalrez® 4079, Viton®/FEP (FDA), Fluoraz® 797, Kalrez® 1050LF, Kalrez® 6375, Chemraz® 513, Buna® (FDA), Kalrez® 6020 (FDA, USP Class VI), 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 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

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:
-30 °C to +240 °C (-22 °F to +464 °F)
peak (15 min/day):
-30 °C to +260 °C (-22 °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 classi-
fication, Approval report:
DMT ATEX E176, FMG J.I. 3013884
(please contact us for separate data sheet)

