ASD19-N

Single Channel NIR Absorption Probe

inline control

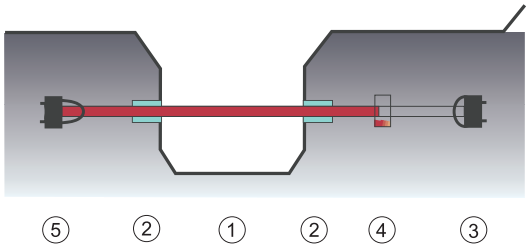
- **Inline real-time process monitoring**
- **Concentration measurement insensitive to color changes**
- **Superior sapphire window with no seals, gaps or crevices**
- **Extremely low maintenance**
- **CIP/SIP-compatible**
- **All wetted material and surface finishes are certifiable and traceable**

The model ASD19-N is a high-precision, single channel absorption probe. The stainless steel probe is specially engineered for use in laboratory or pilot-scale fermenters or bioreactors. It precisely measures the cell growth of microbial or cell cultures as a function of NIR absorption. The extremely durable and ultra-sanitary ASD19-N probe is designed for autoclaving.

The ASD19-N probe uses the light in the Near Infrared range (NIR) from 840 to 910 nm. A precisely defined and constant LED 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 hermetically sealed photodiode.

The ASD19-N probe is available with two different insertion depths and an optical path length (OPL) of 1 mm, 5 mm, 10 mm or 20 mm. Shorter optical path lengths are typically used for dense cell cultures such as bacterial and yeast cultures. Longer OPLs are used for lower absorbing mammalian cell cultures.

The seal-less, sapphire optical window design eliminates crevices and gaps to assure the highest level of sterility, cleanability and sensor integrity. The surface of the wetted parts is electro-polished and may optionally comply with BN2. The ASD19-N probe mounts conveniently through an industry-standard, 19 mm port (M26x1) in the fermenter or bioreactor head plate.



Type ASD19-N

1 Optical path length (OPL)
2 Sapphire windows
3 Detector
4 Day-light filter
5 LED-Light source

Technical Data

ASD19-N Probe

Material:
Wetted parts: stainless steel 1.4435 (SS 316 L)
Surface: electro-polished Ra < 0.8 µm (standard)
Windows: sapphire (without gasket)
Housing: stainless steel 1.4571 (SS 316 Ti)

Port gasket:
O-ring Ø 15.60 x 1.78 mm

Gasket material:
application specific, selection by end user

Permitted:
EPDM (FDA), others on request

Port connection:
Fermenter cover plates
Diameter: Ø 19 mm (H7)
Shoulder: Ø 22 mm
Thread: M26x1

Insertion depth maximal:
- ASD19-N-EA: OPL + 210 mm from shoulder
- ASD19-N-EB: OPL + 310 mm from shoulder

Optical path length (OPL):
1, 5, 10 or 20 mm

Pressure rating:
PN10 (Test pressure PT 15 bar)

Permitted pressure PS:
10 mbar - 10 bar with TS 0 °C / +100 °C

Permitted pressure at elevated temperature:

TS [°C]	< 100	125	150
PS [bar]	10	8	6

Permitted process temperature TS:
- permanent: +5 °C to +65 °C, (+41 °F to +149 °F)
- peak (60 min/day): +5 °C to +135 °C, (+41 °F to +275 °F)
- peak (30 min/day): +5 °C to +145 °C, (+41 °F to +293 °F)

autoclaving possible without cable, short term values are only valid if the LED is switched off

Ambient temperature:
- operation: 0 °C to +40 °C, (+32 °F to +104 °F)
- transportation: -20 °C to +70 °C, (-4 °F to +158 °F)

Air purge:
connections M5 available as standard

Light source:
Hybrid LED, hermetically sealed

Wavelength range:
840 - 910 nm

Detector:
silicon photodiode, hermetically sealed

Measuring range:
any measuring range between
0 - 4 CU

Cable connection:
probe cable ASD-CC, pluggable both sides
2, 3, 5 or 10 m, (7, 10, 16 or 33 ft.)

Weight:
- Probe: approx. 2.0 kg, depending on version

Type of protection:
IP65

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

Use with Fermenter Control converter!

Options

ASD19-N-EA–SR / ASD19-N-EB–SR
wetted parts with surface electro-polished
Ra < 0.4 µm, dF < 1% (BN2)

www.optek.com

optek-Danulat GmbH
Emscherbruchallee 2
45356 Essen,
Germany
Phone: +49-(0)201-63409-0
Fax: +49-(0)201-63409-999
E-Mail: info@optek.de

optek-Danulat, Inc.
N 118 W 18748 Bunsen Drive
Germantown, WI 53022, USA
Phone: +1-262-437-3600
Fax: +1-262-437-3699
Toll free: +1-800-371-4288
E-Mail: info@optek.com

optek-Danulat bv
Tiel, The Netherlands
E-Mail: info@optek.nl

optek-Danulat Pte. Ltd.
Singapore
E-Mail: info@optek.com.sg

1005-2025-0001-02