FiberFlex

GEN 2000® Electronics

Continuous Radiation-based Level Detector

Application Area

The FiberFlex is well-suited for a wide variety of continuous level measurements in liquids and bulk solids. Typical applications are the measurement of liquids in process vessels including curved vessels and tower sumps. Other industries include:

- Chemical
- Petrochemical
- Offshore
- Refining
- Power
- Steel Industry
- Food and Beverage
- Pulp and Paper

Advantages

Recognizable benefits of the FiberFlex include:

- Flexible sensor to wrap around vessel structures and obstacles
- Long length reduces the need for multiple detectors
- Light weight construction
- Electronics permit a wide variety of setup and compensation options

Function

The detector uses a special fiber-optic scintillator bundle inside a flexible, galvanized steel "conduit" covered with thermoplastic rubber. This bundle produces photons when exposed to gamma radiation. The number of photons produced represents the intensity of radiation striking the detector. A photomultiplier tube converts the scintillator's photon signal to an electrical signal. A gamma source is installed on the vessel opposite the detector. Level changes expose varying lengths of the scintillator to radiation. The detector's microprocessor-based transmitter produces a 4 … 20 mA HART output proportional to vessel level when properly adjusted.

Technical Data

System Accuracy	Typically +/- 1% of span
Active Length	305 ... 7,010 mm (12 ... 276")
Power Requirements	
- AC Non-heated	90 ... 250 VAC, 50 ... 60Hz, 15 VA
- AC Heated	115 or 230 VAC, 50 ... 60 Hz, 25 VA
- DC Non-heated	20 ... 60 VDC (< 100 mV, 1 ... 1000Hz ripple), 15 VA
- DC Heated	24 VDC +/- 10%, 25 VA
- Wire Size	14 ... 22 AWG (1.63 ... 0.64 mm) per local electrical code
Ambient Conditions	
- Temperature	-20 ... +50 °C (-4 ... 122 °F) Extended temperature options available
- Humidity	0-95%, non-condensing
- Vibration	Tested to IEC 68-2-6, IEC 68-2-27, and IEC 68-2-36
Relay Output	
- User Configurable	Diagnostic, Process high/low alarm, X-Ray Interference
- Rating	6A at 240VAC, or 6A at 24VDC (SPDT Form C), or ¼ HP at 120VAC
Auxiliary Inputs	
- Standard	Frequency input (0 ... 100kHz)
- Optional	RTD Input, 4 ... 20 mA DC Input, RS-485
Weight	6.8 kg + 0.0015 kg x length in mm (15 lbs. + 0.084 lb. x length in inches)

Materials

Electronics Housing	Cast Aluminum ASTM A357
Housing Coating	Polyester powder coating (Standard) or PVC coating
Sensor	Styrene
Sensor Conduit	Santoprene rubber coated steel

Housing Versions

The housing carries a NEMA 4X (IP 66) rating and features two ¾" NPT conduit entries. Options for ½" NPT or M20 conduit entry adapters are available.

Electronic Versions

The standard electronic version available for the FiberFlex is 4 ... 20 mA HART. Optional electronic versions include frequency output and RS485 for inter-gauge communication.

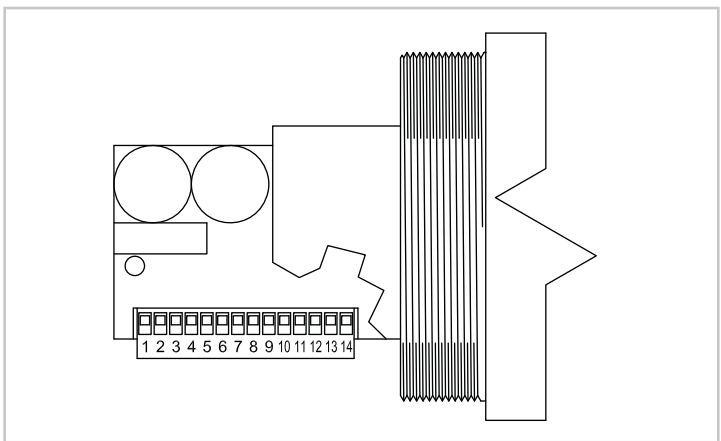
Approvals

CSA, GOST-R	Class I, Div I, GR. A, B, C, D; Class II, Div I, GR. E, F, G T6 Ta= -20°C to +60°C or Class I, Zone I, GR. IIC T6 Ta= -20°C to +60°C
FM	Class I, Div I, GR. A, B, C, D; Class II, Div I, GR. E, F, G T6 Ta= -20°C to +60°C or Class I, Zone I, GR. IIC T6 Ta= -20°C to +60°C
ATEX	II 2 G/D EExd IIC T6 Ta= -20°C to +60°C
Other Certifications	NEPSI (China), KTL (Korea), JIS (Japan) Consult Ohmart/VEGA for details
Note	Approvals for heated versions may vary. Consult factory.

Operation

The detector is adjusted using a PC with Ohmview configuration and calibration software via HART modem. Alternatively, a Rosemount 275 or 375 HART handheld communicator with pre-installed Ohmart device description may be used.

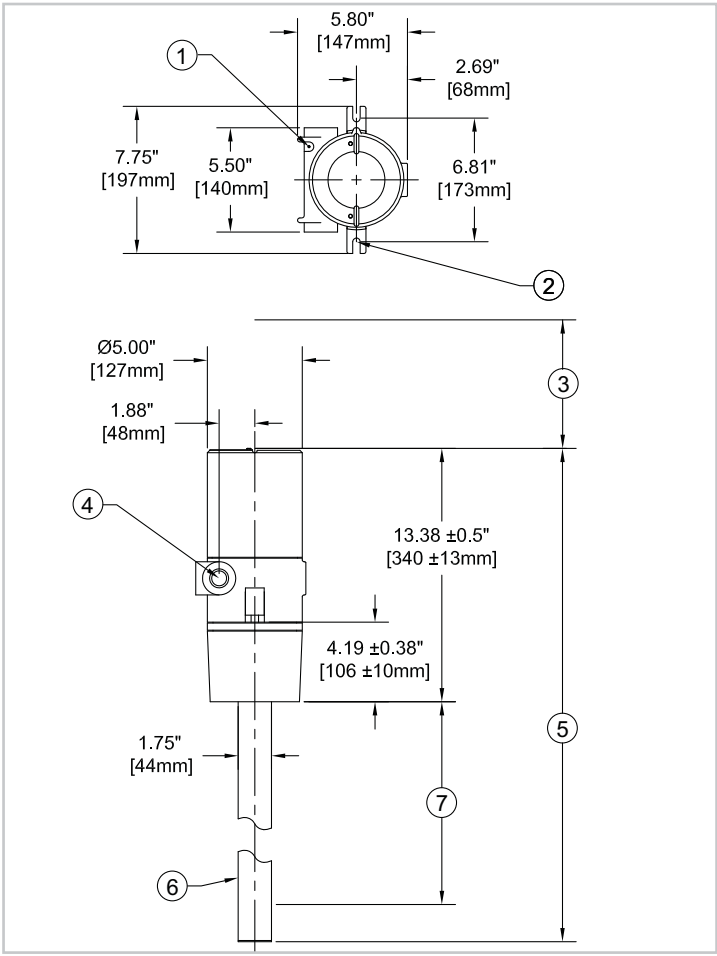
Electrical Connection



Terminals

1 *Power in (L)*
2 *Power in (N)*
3 *Relay NO*
4 *Relay C*
5 *Relay NC*
6 *+ Frequency*
7 *- Frequency*
8 *+ 6V*
9 *COM*
10 *- 6V*
11 *+ Auxiliary*
12 *- Auxiliary*
13 *+ mA*
14 *- mA*

Dimensions



FiberFlex Dimensions

1 *External Ground*
2 *Use 8 mm (5/16") Mounting Hardware (2) Places*
3 *Clearance for Servicing, 254 mm (10.0") preferred, 152 mm (6.0") minimum*
4 19 mm *(3/4") (2) Places*
5 *391 mm +/- 25 mm + Length (15.38" +/- 1" + Length)*
6 *Flexible Detector may be Bent up to 305 mm (12") Minimum Radius*
7 *Length 305 mm to 7010 mm (12" to 276")*

Thank you for reading this data sheet.

For pricing or for further information, please contact us at our UK Office, using the details below.

UK Office
Keison Products,
P.O. Box 2124, Chelmsford, Essex, CM1 3UP, England.
Tel: +44 (0)330 088 0560
Fax: +44 (0)1245 808399
Email: sales@keison.co.uk