



FA-1/2/3, bi

# Optical Bi-Stable Flow Alarm Sensors Series FA®

Version FA-1/2/3, bi-forked light barrier

## Special Features

- **Easy mounting without dismantling the measuring glass**
- **Also for very low flow quantities**
- **Even for non-metallic or very small floating balls**
- **Easy adjustment of any alarm setpoint**

## Application

The patented forked light barrier FA-1/2/3, bi is used in analytical technology for flow-monitoring in float-type flow meters with measuring tubes made of transparent material, e.g. Duran® glass. Thanks to optical scanning, very low flow quantities can be detected even in flow meters with non-metallic or very small (1 mm) floating balls.

A special sensor head FA2-H is supplied for temperatures up to +180 °C [356 °F]. The sensor head contains a light guide on the right and left side via which the incident and emergent light is conducted by the transmitter/receiver located externally in a separate adapter in the "cold area".

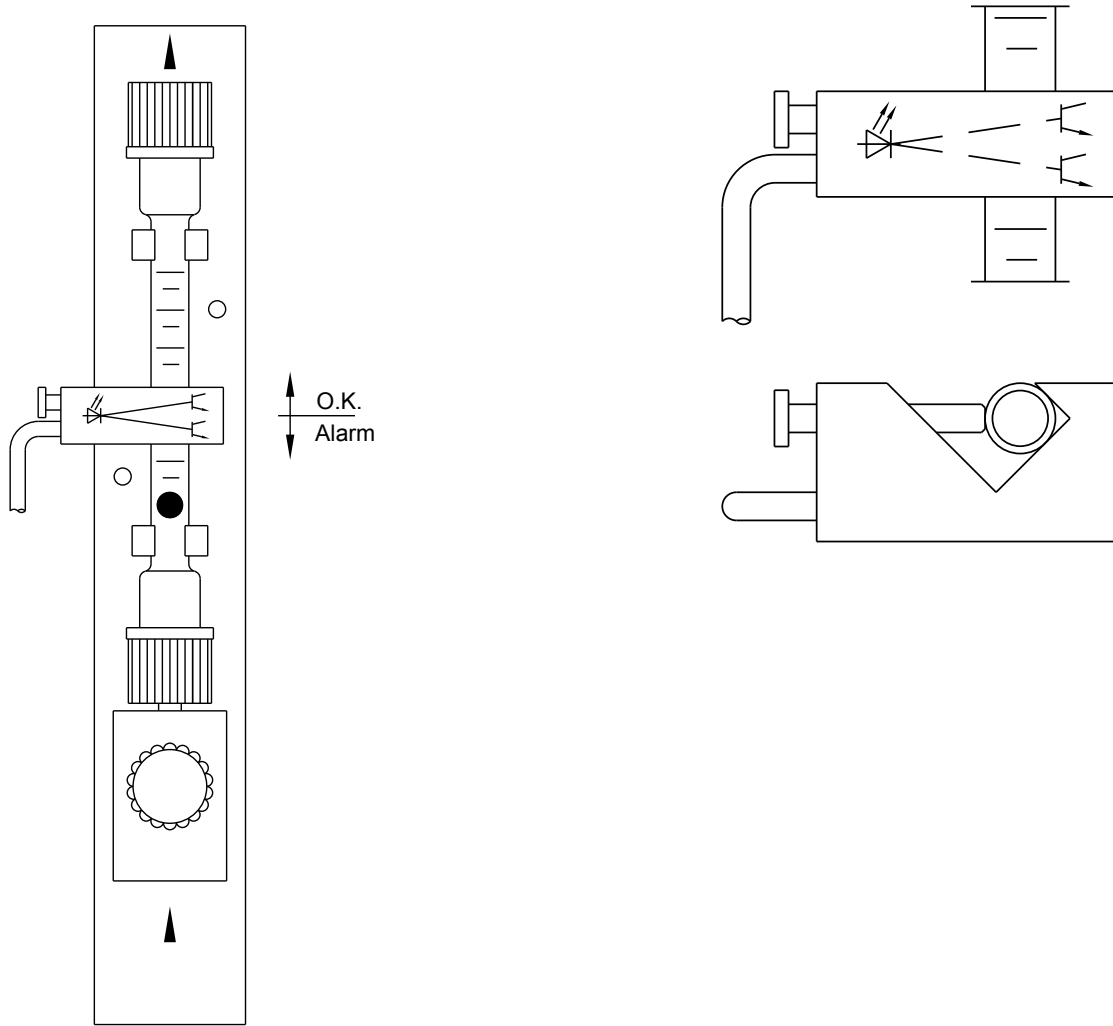
## Description

The patented M&C forked light barrier FA-1/2/3, bi consists of a compact aluminium body with a fixed, open prism and a pressure screw. This makes positioning of the sensor FA-1/2/3, bi on the flow meter's measuring glass very easy; it is not necessary to disassemble the measuring glass. Three basic versions cover a measuring glass diameter range from 5 to 55 mm [≈ 0.2" to 2.2"].

Within the sensor's body, a mechanically protected, high-intensity LED is mounted on the left side as a light source and two photo-transistors are mounted on the opposite side as receivers.

The standard 3 meter long connection cable exits on the left side adjacent to the pressure screw. The LED emitters' light beam is incident on the photo-transistors through the flow measuring glass. As soon as a floating ball breaks the light beam, one or both of the photo-transistors are blanked out.

The necessary FA-1... electronic controllers analyze this status change accordingly. The bi-stable operation of the FA-1... electronic controllers ensures detection of the set flow rate in the event of measured values falling below or exceeding this setpoint with the sensor in any position. The mono-stable operation of the FA-1... electronic controller indicates only whether the floating body is located in the light beam of the light barrier, above or below it.



## Technical Data

Flow Alarm Sensors Type	FA-1,bi	FA-2,bi	FA-3,bi
Part No.	02E1000	02E2000	02E3000
Measuring tube	5 to 14 mm [≈ 0.2" to 0.6"]	13 to 27 mm [≈ 0.5" x 1.1"]	26 to 55 mm [1" x 2.2"]
Dimensions (W x D x H)	35 x 23 x 15 mm [≈ 1.4" x 0.9" x 0.6"]	63 x 40 x 22 mm [2.5" x 1.6" x 0.9"]	103 x 75 x 25 mm [≈ 4.1" x 3" x 1"]
Weight	50 g [≈ 0.1 lb]	100 g [≈ 0.2 lb]	200 g [≈ 0.4 lb]
Operating temperature	-25 to +60 °C [-13 to 140 °F]		
Storage temperature	-25 to +70 °C [-13 to 158 °F]		
Electrical connection	3 m [≈ 9.8 ft] connection cable standard; 4.5 mm ø, 4 core (each additional meter of sensor connection cable => Part No: 02E9000, max. 10 meters [≈ 32.8 ft]) (>10 meters = with pre-amplifier K-FA.. max. 200 meters [≈ 656.2 ft])		
Mounting	With clamping screw		
Function	Bi-stable and mono-stable		
Power supply voltage	From FA... electronic controller		
Protection type	IP65 EN 60529		
Material	Aluminium-anodized, epoxy, PVC cable, semi-conductors		

Duran® is a registered brand name for borosilicate glass produced by the German company DWK Life Sciences GmbH.