



# FS-10

## Float Switch for Bulk Solids

### Description:

The FS-10 plastic float switch is a level switch in which, depending on the angle of inclination of the floating cylinder, a ball activates a microswitch. The switch works as soon as the vertical axis of the FS-10 is tilted by more than 10° towards right or left. Due to this action, the FS-10 is ideally suited for shutting down a filling operation for grain, flour, granulate material or powders in silos or other containers. There are three basic models of FS-10 available which are different with regard to their applicability in explosion-prone areas. The simplest design does not have the EX approval and is made of a polypropylene hollow body and a Neopren cable. This easily affordable device is capable of covering 80% of all applications. Both the ATEX approved models are allowed either only for dust materials or for gases and dust materials highly prone to explosions. In these devices the basic body is surrounded additionally by a shell made of HR HY (Hypalon), an excellent resistant material, where also the cable is made of this material. In the case of the purely EX variant for dust material, up to 240 V AC / 1A can be connected directly through FS-10 regardless of the EX-approval; the supply system for the gas and dust EX model of FS-10 is handled by an intrinsically safe isolated switching amplifier.

## Features

/ ATEX approval for dust and gases in zones 0 and 20

/ Double-shell housing with HR HY (Hypalon) coating

/ High switching capacity due to microswitches

/ Neopren or HR HY (Hypalon) cables

/ Optionally available with counter weights

### Application:

The FS-10 series of flow switches offers the ideal solution wherever a bulk material filling operation needs to be shut down in a container. These devices are cost-effective, extremely robust and water-proofed and can be installed easily. The three models of FS-10 cover nearly every type of applications as they comply with the highest requirements for protection against explosion and media resistance. The FS-10 is fixed directly to the cable and suspended into the silo, where optionally a counter weight on the cable acts as the pivot; alternatively FS-10 can be inserted by means of a cable gland. At the output point of FS-10 a potential-free changeover-contact is available which is capable of connecting up to 20A at 250 V AC depending on the design of the device.



## Electrical Specifications:

<b>Switching element /</b>	microswitch as changeover contact
<b>Electrical conn. /</b>	cable 3 x 1 mm <sup>2</sup>
<b>Protection class /</b>	IP68
<b>Switching power /</b>	<p><b>non-Ex version FS-10.xx.0:</b> 20 (8) A ohmic (inductive) at max. 250 V AC, 50/60 Hz</p> <p><b>dust EX version FS-10.xx.1:</b> 1 A at max. 240 V AC, 50/60 Hz, must be operated with 1A/240 V fuse</p> <p><b>gas- &amp; dust EX version FS-10.xx.2:</b> max. 24 V AC/DC with max. 10 mA or 12 V AC/DC with max. 100 mA, must be operated with intrinsically safe isolated switching amplifier, U<sub>o</sub> ≤ 30 V, I<sub>o</sub> ≤ 100 mA, P<sub>o</sub> ≤ 0.75 W, L<sub>i</sub> ≤ 2 μHenry, C<sub>i</sub> ≤ 203 pF at 2 m cable (additionally 0.36 mH per kilometer cable)</p>
<b>Contacts /</b>	<p><b>non-Ex version FS-10.xx.0:</b> Ag/ Cd oxide</p> <p><b>dust EX version FS-10.xx.1:</b> Ag</p> <p><b>Gas- &amp; dust EX version FS-10.xx.2:</b> gold-plated</p>
<b>Ignition protection class /</b>	<p><b>dust EX version FS-10.xx.1:</b> ATEXEx ta IIIC T70°C Da IP68</p> <p><b>gas- &amp; dust EX version FS-10.xx.2:</b> ATEX II 1 GD Ex ia IIC T6 Ga Ex ta IIIC T70°C Da IP68</p>

## Technical Specifications:

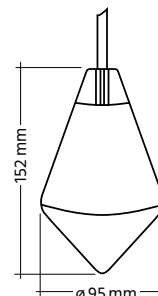
<b>Function /</b>	omni-directional float switch
<b>Measuring medium /</b>	bulk materials such as powders, granulates or grains
<b>Media temperature /</b>	<p>non-EX version FS-10.xx.0: max. 85°C</p> <p>EX versions FS-10.xx.(1 or 2): T<sub>a</sub> at ambient temperature from -20. . . +70°C</p>
<b>Float material /</b>	Copolymer Polypropylene, in EX versions with HR HY coating
<b>Cable material /</b>	<p>non-Ex version FS-10.xx.0: PVC</p> <p>EX versions FS-10.xx.(1 or 2): HR HY (Hypalon)</p>
<b>Weight without cable /</b>	<p>non-Ex version FS-10.xx.0: 462 g</p> <p>EX versions FS-10.xx.(1 or 2): 495 g</p>
<b>Cable weight /</b>	<p>non-Ex version FS-10.xx.0: 115 g per meter</p> <p>EX- versions FS-10.xx.(1 or 2): 110 g per meter</p>
<b>Load weight /</b>	250 g
<b>Standard cable lengths /</b>	5 m and 10 m (other lengths on request)
<b>Switching angle /</b>	± 10° from the vertical line

## Ordering Codes:

<b>Order number</b>	<b>FS-10.</b>	<b>10.</b>	<b>1.</b>	<b>1</b>
<b>FS-10 Floating Switch</b>				
<b>Cable length /</b>				
05 = 5 m cable				
10 = 10 m cable				
□□ = other lengths				
<b>Ignition protection class /</b>				
0 = none				
1 = dust EX Zone 20, 21 oder 22				
2 = dust EX and gas EX Zone 20, 21, 22 and Zone 0, 1, 2				
<b>Load weight /</b>				
0 = none				
1 = with load weight				

## Dimensions in mm:

FS-10.xx.0



FS-10.xx.(1 &amp; 2)

