

Photoelectric Proximity Switch FAN/FAD with background suppression

FAD-100P-GD
FAN-100P-GD

 II 2G Ex d IIC T6 Gb
 II 2D Ex tb IIIB T90°C Db IP67

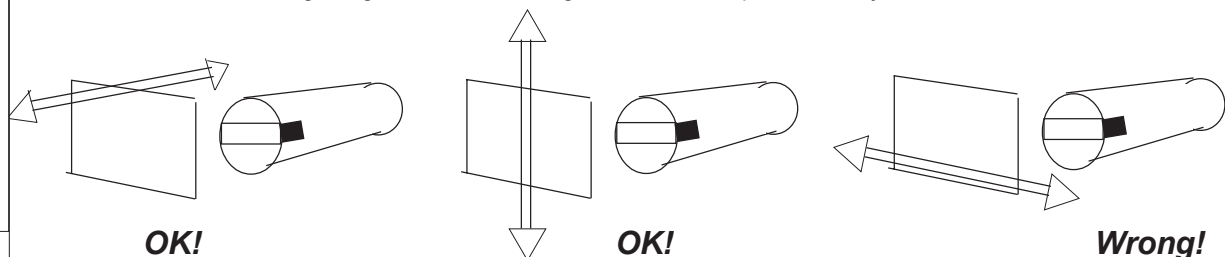
- Detects any color object at a certain distance
- Types FAD: For use in Ex Zones 1,2,21,22
- Types FAN: For use in Ex Zones 2,22


 II 3G Ex nA IIB T4 Gc
 II 3D Ex tc IIIA T135°C Dc IP67

Type	FAS-100P	FAN-100P-GD	FAD-100P-GD
Technical data			
Type of Ex protection, Gas, according to 2014/34/EU	NONE	II 3G Ex nA IIB T4 Gc	II 2G Ex d IIC T6 Gb
Type of Ex protection, Dust, according to 2014/34/EU	NONE	II 3D Ex tc IIIA T135°C Dc IP67	II 2D Ex tb IIIB T90°C Db IP67
For use in Ex Zones	None	Zones 2, 22	Zones 1, 2, 21, 22
Sensing range		10mm to 100mm	
Cutoff point		100mm	
Light source		visible red, 670nm	
Optical beam angle		appr. 8°	
Response time		1ms	
Supply voltage		24 VDC +/-10%	
Maximum current consumption		20mA	
Maximum power dissipation		0.56W	
Output		PNP type, maximum 100mA, short circuit protected	
Housing		M30, brass, Ms 58, nickel plated	
Enclosure rating, according to EN 60529	IP 54	IP 67	IP67
Working temperature range T _{amb}		-20°C < T _{amb} < +50°C	
Vibration resistance	10 to 500Hz frequency, 3mm amplitude in X, Y and Z directions for two hours each		
Shock resistance	500m/s ² acceleration (50G approx.) in X, Y and Z directions for three times each		
Ambient humidity	35 to 85% RH, Storage: 35 to 85% RH		
Voltage withstandability	1500V AC for one min. between all supply terminals connected together and enclosure		
Ambient illuminance	Sunlight: 10,000lx at the light-receiving face, Incandescent light: 3,000lx at the light-receiving face		
Pollution degree	4		
Cable	3+PE x 0.5mm ² , TPU jacket, oil resistant, shielded, leads numbering marked, L=3m		
Socket, type FAS/FAN-100P/N(-GD) S99	Socket M12, Lumberg RSF 5		--
Accessories included, all types	- 2 nuts M30 (or 1 clamp, on request)		
Accessories, only FAN-100P/N-GD S99	- 1x Safety lock device, mount at the cable connection, for locking the connection. (black synthetic device) - 1x Warning plate "WARNING - Explosion Hazard - Do Not Disconnect While Circuit Is Live Unless Area Is Known To Be Non-Hazardous", self-sealing, for gluing on the cable connector		
Accessories, not included, only FAN-100P/N-GD S99	- Cord Set Lumberg RKTS 5-298/xx (straight type), or RKWTH 5-298/xx (right angle)		
Options	- FAS/FAN/FAD-100N-GD: With NPN output - FAS/FAN-100.-GD S99: With socket M12, Lumberg RSF 5 - Cable length: Up to 100m, on request		
Function and LED indication	<p>Object detected, LED=ON</p>	<p>No object detected, LED=OFF</p>	
FAS-100P / FAN-100P / FAD-100P Output PNP / Load at 0V Cable-No: Socket-No: Function 1 1 = +24VDC 2 3 = 0V 3 4 = Output yellow-green 5 = PE white/blank -- = Cable shield	<p>PNP=ON R 15Ω Out=ON</p>	<p>PNP=OFF R 15Ω Out=OFF</p>	
FAS-100N / FAN-100N / FAD-100N Output NPN / Load at +24VDC Cable-No: Socket-No: Function 1 1 = +24VDC 2 3 = 0V 3 4 = Output yellow-green 5 = PE white/blank -- = Cable shield	<p>NPN=ON R 15Ω Out=ON</p>	<p>NPN=OFF R 15Ω Out=OFF</p>	

Allocation of the sensor

Care must be taken regarding the sensor mounting direction with respect to the object's direction of movement.



Dimensions Wiring FAS/FAN/FAD-100P/N(-GD):		FAS/FAN/FAD-100P/N Function: Wire-No: +24VDC 1 0V 2 Output 3 PE yellow-green
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Dimensions Wiring FAS/FAN-100P/N(-GD) S99:		FAS/FAN-100P/N S99 Function: Pin-No: +24VDC 1/brown NC 2/white 0V 3/blue Output 4/black PE 5/grey
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ATEX related designations:
 CE 1258
 Type FAD-100P/N-GD: II 2G Ex d IIC T6 Gb
 Type FAN-100P/N-GD: II 3G Ex nA IIB T4 Gc
 T_{amb}: -20°C < T_{amb} < +50°C
 X sign of the certificate number: Fibre optics must only be operated with sensors with limited optical output power.

Electrical data according to the chart
 EC certification number: BVS 10 ATEX E 130 X DEKRA
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 Declaration by manufacturer according to the directive 2014/34/EU
 Declaration by manufacturer according to the directive 2014/34/EU
 Numerals 5 to 8 of the serial number (Year/Calendar week)

Equipotential Bonding prescription for Ex Devices:

The end of the cable must be connected outside the hazardous location. Check the reliable, noncorrosive holding of the protection earth connection.
 The cable shield is to connect to PE in a wide area.

Operating Manual / EU-Declaration of Conformity:

Mounting prescriptions
Ex Protection:
 It is necessary to take into consideration the valid international and national rules and regulations (EN 60079-14). The maximum input voltage U_m=30VDC must not be exceeded. The local equipotential bonding have to be done. The protective earth (PE) is solid connected with the housing. The cable have to be installed and protected against damages. The cable with termination fittings, or in cable tray systems and installed in a manner to avoid tensile stress at the termination fittings. To connect cables inside hazardous locations only use certificated Ex e housings. All cable terminals must be connected outside hazardous locations. Additional optical lenses are not allowed in hazardous locations.
 Type FAD-100P/N-GD: Only for use in Ex zones 1, 2, 21, 22.
 Type FAN-100P/N-GD: Only for use in Ex zones 2, 22.
 Type FAN-100P/N-GD S99: Only for use in Ex zones 2, 22. Do not separate the connector when the supply voltage is connected to the cable. When installing the sensor, the safety lock device must be fitted at the cable connector. The additional adhesive warning label must be fixed to the connector housing at the connection cable. Lumberg cordsets RKTS 5-298/xx (Straight type) or RKWTH 5-298/xx (Right angle type), are allowed ONLY. It is necessary to take into consideration the mounting prescription of the connector manufacturer. In dusty locations, the protection cap for the sensor socket must be fitted, when no connection cable is connected.

General mounting prescriptions
 Do not exceed the maximum ratings. The electrical connections must be exactly as shown in the connection diagram. The cable shield must be connected short. The cable shield should be connected to the protection earth, large-surfaced. Connection cables must not be installed parallel to high voltage cables.

Function
 The function of the photoelectric proximity switch is not affected by object color or background (>=120mm). The sensor can detect objects at a consistent distance regardless of their color. Moreover, it does not detect the background beyond the setting distance. However, when the background is specular (mirrors), it may be necessary to change the angle of the sensor.
 Care must be taken regarding the sensor mounting direction with respect to the object's direction of movement. (See page 1 of this manual). When detecting a specular object (aluminum or copper foil) or an object having a glossy surface or coating, please take care that there are cases when the object may not be detected due to a small change in angle, wrinkles on the object surface, etc. When a specular body is present below the sensor, use the sensor by tilting it slightly upwards to avoid wrong operation. If a specular body is present in the background, wrong operation may be caused due to a small change in the angle of the background body. In that case, install the sensor at an inclination and confirm the operation with the actual sensing object. If an object is detected, in the range of 10mm to 100mm, the LED shows red and the output switches to +24VDC, PNP type or at 0V, NPN type. Of no object is detected the output switches OFF and the

LED is going out. For the type FAS-100P(-GD) the load must be connected at 0V. For the type FAS-100N(-GD) the load must be connected at +24VDC.

Mounting
 Care must be taken regarding the sensor mounting direction with respect to the object's direction of movement. (See page 1 of this manual).
 The position of the internal photosensor is marked by black markings at the housing.

Maintenance
 For a high reliability hold the lens free from sediment. No special maintenance is required. If the lens becomes dirty, they should be cleaned with a non-aggressive cleaning liquid. Equipment must only be repaired by the manufacturer.

General safety instructions
 This product is not a safety sensor. Its use is not intended or designed to protect life and prevent body injury or property damage from dangerous parts of machinery. It is a normal object detection sensor. Model FAN-100P/N S99: "WARNING - EXPLOSION HAZARD - WHEN IN HAZARDOUS LOCATIONS, TURN OFF POWER BEFORE REPLACING OR WIRING MODULES. DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NONHAZARDOUS". The mounting of the sensor in dusty locations without fixed cordset or protection cap results in a high ignition risk. When installing and operating with the sensor, it is necessary to take into consideration the relevant international and other national regulations:
 EN 60079-14, single directive 1999/92/EC.
 The sensors are conform to the following standards:
 EN 60079-0:2012 + A11:2013, EN 60079-1:2007, EN 60079-15:2010, EN 60079-31:2010, EN 60825-1:2006, EN 60529-2014; EN 61000-4-2 to EN 61000-4-6, EN 61000-6-1/-2, EN 61000-6-4.
 ATEX directive: 2014/34/EU, Machine directive: 2006/42/EC, EMC directive: 2014/30/EU, RoHS directive: 2011/65/EU.

General Notes, disposal
 We reserve the right to modify our equipment. Our equipment is designed such way, that it has the least possible adverse effect on the environment. It neither emit or contain any damaging or siliconized substances and use a minimum of energy and resources. No longer usable or irreparable units must be disposed of in accordance with local waste disposal regulations.

EU-Declaration of conformity
 Model FAD: EC-Type Examination Certificate. No. BVS 10 ATEX E 130 X. DEKRA.
 Model FAN: ATEX declaration by manufacturer according to the ATEX directive 2014/34/EU. ATEX certification of quality type production of Ex devices according to the ATEX directive 2014/34/EU, CE 1258, Eurofins. Certification No: SEV 21 ATEX 4580. The conformity of the devices with the EC standards and directives and the EC-type examination certificate and the observation of the Quality Safety System ISO 9001:2015 with the ATEX module "Production", declares:
 Pablo Ledergerber, Matrix Elektronik AG

FASND-GD_e10/2022-01-25/MP

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