



Insert switch



Limit switch

Description

Insert switch with connection cores

This switching element can be universally used for switching, controlling and regulating operations within Ex-areas. The insert switch is audited by the PTB according to the latest EC guideline 94/9/EC. Devices equipped with these insert switches have to be approved by a testing authority, the switch itself needs not be retested.

The cores are cast-in at the back of the switch. Their standard length is 500 mm; other lengths are available on request. To connect the cores we recommend the miniterminals from BARTEC.

Limit switch with connection cable

The limit switches have been developed for Ex-areas where safe and reliable signalling is required, for example on pumps, petrol pumps, as well as in mechanical and high-tec engineering. The switches must be mounted into the respective devices or systems in such a way as to guarantee mechanical protection. No further tests are required. The connection cable is cast in on the back of the switch. For the connection in Ex-areas BARTEC provides a large variety of terminals and terminal boxes.

Explosion protection

Ex protection type

- Insert switch II 2G Ex d IIC
- I M2 Ex d I
- Limit switch II 2G Ex d IIC T6
- II 2D Ex DA21 IP 66 T 80 °C

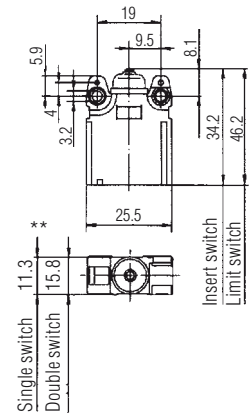
Certifications

- Insert switch PTB 98 ATEX 1032 U
IECEx PTB 07.0040 U
- Limit switch PTB 00 ATEX 1093 X
IBExU01ATEX1007 X
IECEx PTB 07.0045 X

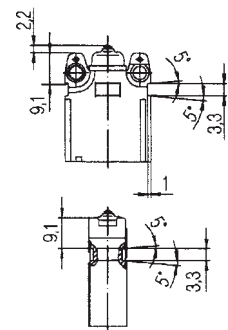
Ambient temperature

- 20 °C to +40 °C (-55 °C to +75 °C)
- 20 °C to +75 °C for DustEx
- 55 °C on request

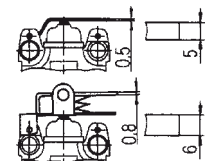
Dimensions in mm



Clip-on pockets



Lever widths





Technical data

Ex d insert switch/limit switch

EN 60947-5-1
EN 60947-1

Protection class

IEC/EN 60529:IP 66

Electrical data for control switch in accordance with DIN EN 60947-5-1

Rated operating voltage AC 400 V
Utilization category
AC-15 2 A 400 V
DC-13 0.15 A 250 V
Isolation voltage 400 V
(further electrical data on request)

Electrical data for switch

Rated current
AC 2 A 400 V
AC 7 A 250 V
DC 0.5 A 250 V
(further electrical data on request)

Ambient temperature +40 °C		
AC switching capacity		
	ohmic load	inductive load cos φ = 0,6
400 V	3 A	2 A
250 V	5 A	3 A
30 V	7 A	5 A
DC switching capacity		
	ohmic load	inductive load L/R = 3 μs
250 V	0.4 A	0.03 A
30 V	7 A	5 A

Tightening torque of fixing screws

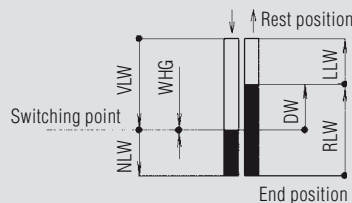
0.6 Nm

Rating of gold-coated contacts

Voltage: min. 5 V/max. 30 V
Current: min. 4 mA/max. 400 mA

- the product of voltage and current should not exceed 0.12 VA
- for alternating current these values have to be interpreted as peak values

Contact Travels



Contact break distance 2 x ≥ 0.3 mm		
Contact travels (in mm)		
Pretravel	VLW	max. 0.9
Overtravel	NLW	min. 0.5
Differential value	DW	max. 0.45
Release travel	RLW	0.9
Release travel	LLW	0.1 to 0.45
Repeat accuracy WHG (for repetitive actuation)		± 0.02

Service life	
mechanical	> 2 x 10 ⁶
electrical	dependent on load
max. switching rate	1000 operations/h

Switching actuation force	
Single-break switch	max. 2.0 N
Double-break switch	max. 3.6 N

Reset force	
Single-break switch	min. 0.4 N
Double-break switch	min. 0.8 N
Operating rate	≥ 10 μm/sec.

Electrical connection

- Insert switch: cores 4 GAF 0.75
- Limit switch:
cable H05VV-F 0.75/A05VV-F 0.75
(other cables on request)

Conductor diameter

2-wire 6.1 ± 0.3 mm
3-wire 6.6 ± 0.3 mm
4-wire 6.7 ± 0.3 mm
6-wire 8.9 ± 0.3 mm

Contact element

snap-action contact element (double-break) as, normally-open, normally-closed, changeover contact as well as N/O + N/C contacts for circuits with equal potentials.

Contact material

Silver or gold-coated contacts
(all contact elements have a standard protective gold-coating as standard)

Double-break switch (switch options)

- *simultaneous switch sequence:*
chamber I and II almost simultaneous
- *defined switch sequence:*
chamber I switches mechanically safe 0.03 up to 0.3 mm before chamber II

Weight

- Insert switch with 500 mm cores:
single-break switch 35 g,
double-break switch 70 g
- Limit switch with 3 m cable:
single-break switch 210 g,
double-break switch 415 g

Housing material

plastic (thermoplastics)

Plunger/additional actuator

stainless steel

Technical data subject to change without notice.



Selection chart Single-break switch

Type of contact		Additional actuator*			
Switch chamber 1	Code no.	Options	Code no.	Options	Code no.
	10	without additional actuator	00		44
			01		45
			03		46
			21		48
	20		23		49
			25		50
			27		51
	30		31		52
			33		53
			35		54
	40		41		55
			43		56
			45		57

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Please enter code number.

Length of connection cores in 100 mm
e.g. 5 = 500 mm

Length of connection cable in meters
e.g. 3 = 3 m

Please specify greater lengths in plain text, code no. = 0

Contact material	
1	Silver
3	Gold-coated contacts

Insert switch with connection cores	1
Limit switch with connection cable	2

() Code for connection cable

* Dimensions for additional actuator are reference values

** When packing several switches, these dimensions are reduced to 11 mm resp. 15.5 mm



Selection chart Double-break switch

Type of contact			Additional actuator*				
simultaneous switch sequence	Switch chamber 1	Switch chamber 2	Code no.	Varianten	Code no.	Varianten	Code no.
	simultaneous switch sequence	12 (GY) 11 (BK)	22 (BN) 21 (BU)	11	without additional actuator	00	
					01		45
14 (GY) 13 (BK)		22 (BN) 21 (BU)	21		02		46
					03		
14 (GY) 13 (BK)		24 (BN) 23 (BU)	22		04		47
					21		
12 14 (2) (3) 11 (1)	22 24 (5) (6) 21 (4)	33		22		48	
				23			
12 14 11 13	22 24 21 23	44		24		49	
				41			
defined switch sequence	12 (GY) 11 (BK)	22 (BN) 21 (BU)	1A		42		50
					43		
	14 (GY) 13 (BK)	22 (BN) 21 (BU)	2A		61	plastic roller	61
					62	metal roller	62
	14 (GY) 13 (BK)	24 (BN) 23 (BU)	2B		62	plastic roller	63
					63	metal roller	64
12 14 (2) (3) 11 (1)	22 24 (5) (6) 21 (4)	3C		64	plastic roller	66	
				66	plastic roller	66	
12 14 11 13	22 24 21 23	4D		66	adjusting screw	73	
				73	adjusting screw	73	

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Please enter code number.

Length of connection cores
5 = 500 mm
Length of connection cable
3 = 3 m
Please specify other lengths in plain text, code no. = 0

Contact material	
1	Silver
3	Gold-coated contacts

Insert switch with connection cores	1
Limit switch with connection cable	2

() Code for connection cable

* Dimensions for additional actuator are reference values
** When packing several switches, these dimensions are reduced to 11 mm resp. 15.5 mm