

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 witch 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	Ⓔx II 2G Ex d IIC
	Ⓔx I M2 Ex d I
Limit switch	Ⓔx II 2G Ex d IIC T6
	Ⓔx II 2D Ex DA21 IP 66 T 80 °C

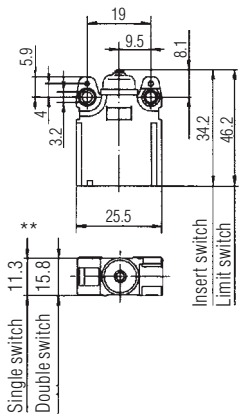
Certifications

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

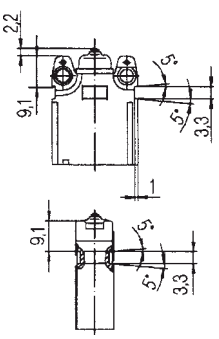
Ambient temperature

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

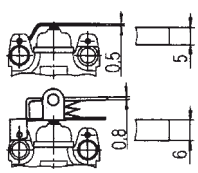
Dimensions in mm



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)

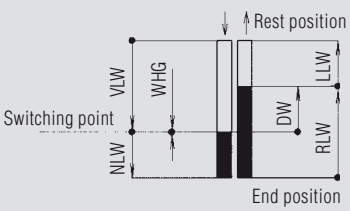
Ambient temperature +40 °C		
AC switching capacity		
	ohmic load	inductive load cos φ = 0,6
400 V	3 A	2 A
250 V	5 A	3 A
30 V	7 A	5 A
DC switching capacity		
	ohmic load	inductive load L/R = 3 µs
250 V	0.4 A	0.03 A
30 V	7 A	5 A

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 repetetive 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/0 + 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

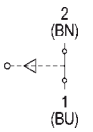
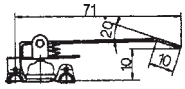
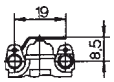
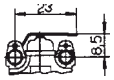
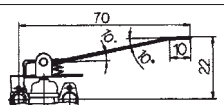
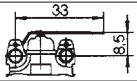
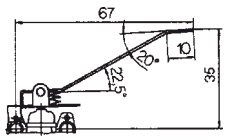
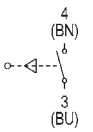
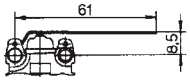
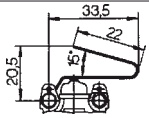
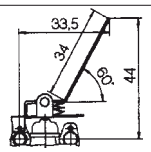
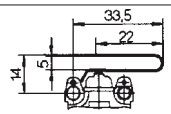
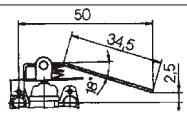
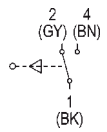
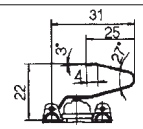
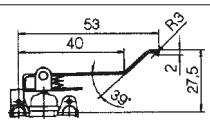
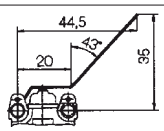
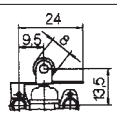
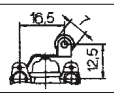
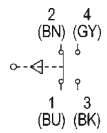
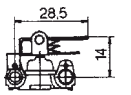
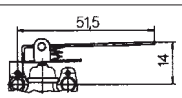
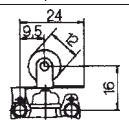
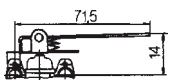
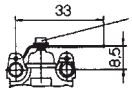
Housing material
plastic (thermoplastics)

Plunger/additional actuator
stainless steel

Technical data subject to change without notice.

03-0330-0154/A-07/10-BCS-129306/2

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**		
			**02**		**45**
			**03**		**46**
	**20**		**04**		
			**21**		**47**
			**22**		**48**
	**30**		**23**		**49**
			**24**		plastic roller **61** metal roller **62**
					plastic roller **63** metal roller **64**
	**40**		**41**		
			**42**		plastic roller **66**
			**43**		adjusting screw **73**

Complete order no. 07- □ 511- □ □ □□ / □□

Please enter code number.

( ) 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

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

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**

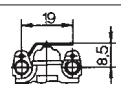
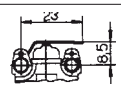
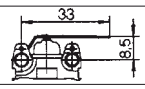
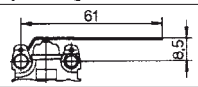
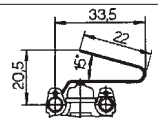
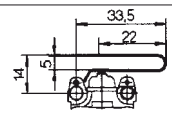
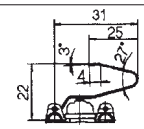
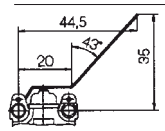
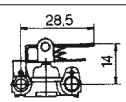
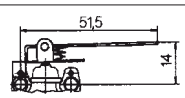
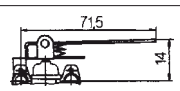
Contact material	
1	Silver
3	Gold-coated contacts

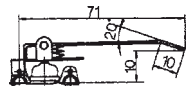
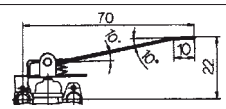
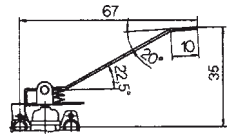
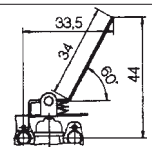
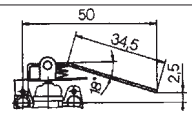
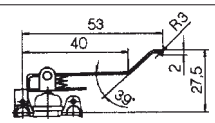
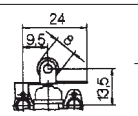
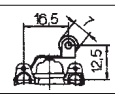
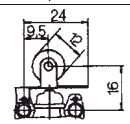
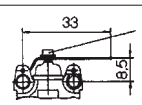
03-0330-0154-08/08-BCS-129306/3

Selection chart Double-break switch

Type of contact	Switch chamber 1	Switch chamber 2	Code no.
simultaneous switch sequence	12 (GY) 11 (BK)	22 (BN) 21 (BU)	11
	14 (GY) 13 (BK)	22 (BN) 21 (BU)	21
	14 (GY) 13 (BK)	24 (BN) 23 (BU)	22
	12 (2) 14 (3) 11 (1)	22 (5) 24 (6) 21 (4)	33
	12 14 11 13	22 24 21 23	44
defined switch sequence	12 (GY) 11 (BK)	22 (BN) 21 (BU)	1A
	14 (GY) 13 (BK)	22 (BN) 21 (BU)	2A
	14 (GY) 13 (BK)	24 (BN) 23 (BU)	2B
	12 (2) 14 (3) 11 (1)	22 (5) 24 (6) 21 (4)	3C
	12 14 11 13	22 24 21 23	4D

Additional actuator*

Varianten	Code no.
without additional actuator	00
	01
	02
	03
	04
	21
	22
	23
	24
	41
	42
	43

Varianten	Code no.
	44
	45
	46
	47
	48
	49
 plastic roller	61
metal roller	62
 plastic roller	63
metal roller	64
 plastic roller	66
 adjusting screw	73

Complete order no. 07- □ 511- □ □ □□ / □□

Please enter code number.

( ) 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

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

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

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