Insert switch/limit switch

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 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 cable 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-tech 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

Limit switch

ATEX	Ⓔx II 2G Ex d IIC T6, T5 Gb Ⓔx II 2D Ex tb IIIC T80°C, T95°C Db
Certification	EPS 14 ATEX 1 766 X
IECEx	Ex d IIC T6, T5 Gb Ex tb IIIC T80°C, T95°C Db
Certification	IECEx EPS 14.0092 X
Other approvals and certificates, see www.bartec.de	

Insert switch

ATEX	Ⓔx II 2G Ex d IIC Gb Ⓔx I M2 Ex d I Mb
Certification	EPS 14 ATEX 1 765 U
IECEx	Ex db IIC Gb Ex db I Mb
Certification	IECEx EPS 14.0091 U
Other approvals and certificates, see www.bartec.de	

Ambient temperature	-60 °C to +100 °C depending on the type and materials used
Ambient temperature limit switches	T6 to max. +75 °C depending on the rated current
Protection class	IP 66 (IEC/EN 60529)

Technical data

Ex d **insert switch/limit switch** DIN EN 60947-5-1/DIN EN 60947-1

Electrical data for control switch in accordance with DIN EN 60947-5-1	Rated operating voltage Utilization category		AC 400 V
	AC-15	4 A	250 V
	AC-15	2 A	400 V
	DC-13	0.15 A	250 V
	Isolation voltage		400 V

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

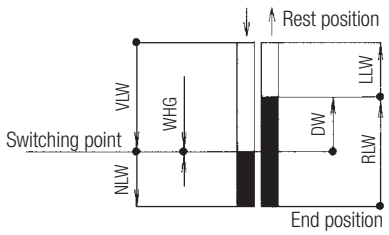
DC switching capacity

	ohmic load	inductive load L/R = 3 µs
250 V	0.4 A	0.03 A
30 V	7 A	5 A

(further electrical data on request)

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 travels (in mm)		
Pretravel	VLW	max. 0.9
Overtravel	NLW	min. 0.5
Differential valu	DW	max. 0.45
Reset travel	RLW	0.9
No-load travel	LLW	0.1 bis 0.45
Repeat accuracy WHG (for repetetive actuation)		± 0.02

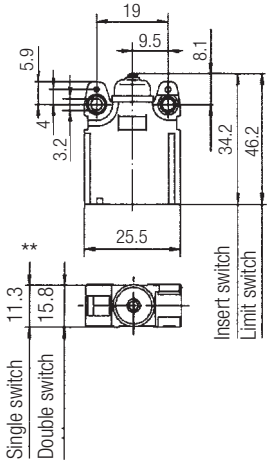
Service life	
mechanical	>2 x 10^6
electrical	dependent on load
max. switching rate	1000 operations/h

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

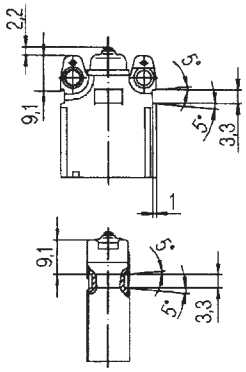
Reset force	
Single-break switch	min. 0.4 N
Double-break switch	min. 0.8 N
Operating rate	≥ 10 µm/sec.

Contact break distance	2 x ≥ 0.3 mm
Electrical connection	Insert switch cores 0.75 mm^2 LO7G-K/Radox Limit switch cable 0.75 mm^2 H05VV-F/A05VV-F/ BETAflam other cores and cables on request
Conductor diameter	2-wire 6.1 $^{\pm 0.3}$ mm 3-wire 6.6 $^{\pm 0.3}$ mm 4-wire 6.7 $^{\pm 0.3}$ mm 6-wire 8.9 $^{\pm 0.3}$ 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

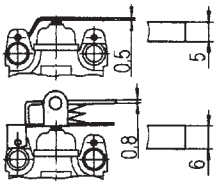
Dimensions in mm



Clip-on pockets



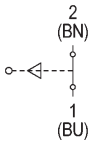
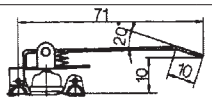
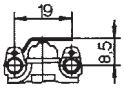
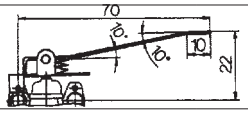
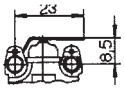
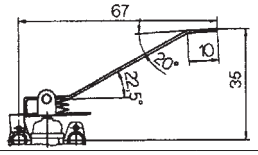
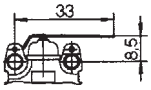
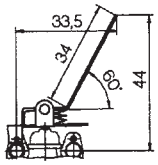
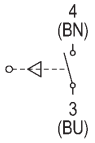
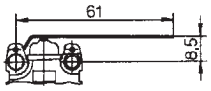
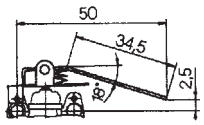
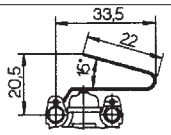
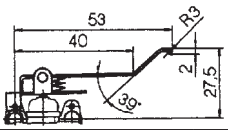
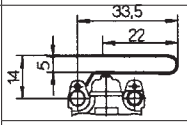
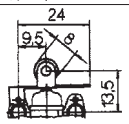
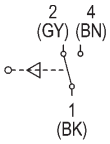
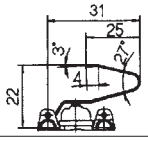
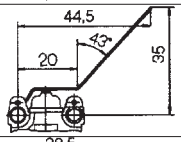
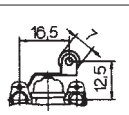
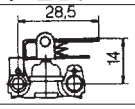
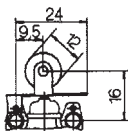
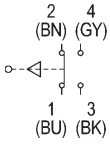
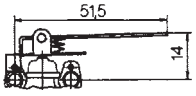
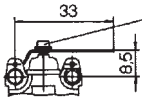
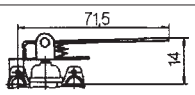
Lever widths



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

Technical data subject to change without notice.

Selection chart Single-break switch

Type of contact	Code no.	Additional actuator*			
		Options	Code no.	Options	Code no.
	10	without additional actuator	00		44
			01		45
			02		46
	20		03		47
			04		48
			21		49
	30		22		plastic roller 61
			23		metal roller 62
			24		plastic roller 63
					metal roller 64
	40		41		plastic roller 66
			42		adjusting screw 73
			43		

Complete order no.**
Please enter code number.

Technical data subject to change without notice.

07- ☐ 511- ☐☐☐☐ / ☐☐

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

( ) Code for connection cable

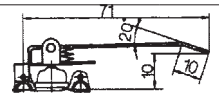
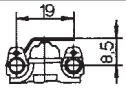
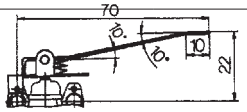
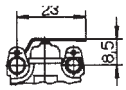
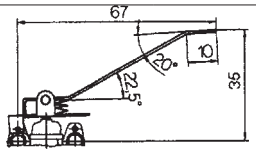
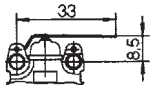
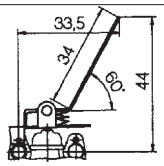
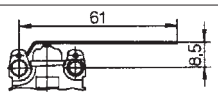
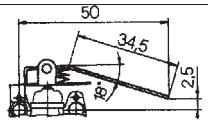
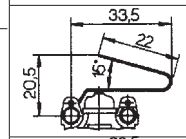
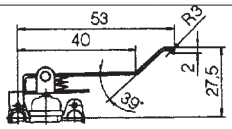
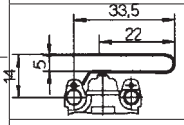
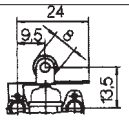
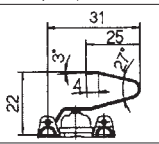
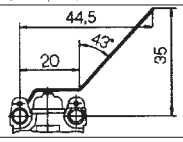
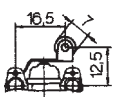
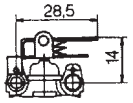
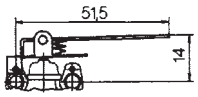
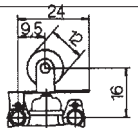
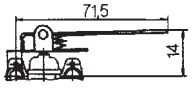
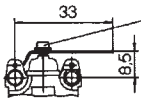
* Dimensions for additional actuator are reference values

** Standard product printing: ATEX and IECEx marking. Other international imprints obtainable on request. Please specify in plain text.

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

	Contact material	Ambient temperature (T_a)
1	Silver	-20 °C to +60 °C
3	Gold	-20 °C to +60 °C
5	Silver	-55 °C to +60 °C
6	Gold	-55 °C to +60 °C
7	Silver	-60 °C to +75 °C
8	Gold	-60 °C to +75 °C

Selection chart Double-break switch

Type of contact				Additional actuator*			
	Switch chamber 1	Switch chamber 2	Code no.	Options	Code no.	Options	Code no.
not defined switch sequence	12 (GY) 22 (BN) / 11 (BK) 21 (BU)		11	without additional actuator	00		44
	14 (GY) 22 (BN) / 13 (BK) 21 (BU)		21		01		45
	14 (GY) 24 (BN) / 13 (BK) 23 (BU)		22		02		46
	12 (2) 14 (3) 22 (5) 24 (6) / 11 (1) 21 (4)		33		03		47
					04		48
					21		49
					22		plastic roller 61
defined switch sequence	12 (GY) 22 (BN) / 11 (BK) 21 (BU)		1A		23		metal roller 62
	14 (GY) 22 (BN) / 13 (BK) 21 (BU)		2A		24		plastic roller 63
	14 (GY) 24 (BN) / 13 (BK) 23 (BU)		2B		41		metal roller 64
	12 (2) 14 (3) 22 (5) 24 (6) / 11 (1) 21 (4)		3C		42		plastic roller 66
					43		adjusting screw 73

Complete order no.**
Please enter code number.

Technical data subject to change without notice.

07- ☐ 511- ☐☐☐☐ / ☐☐

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

( ) Code for connection cable

* Dimensions for additional actuator are reference values

** Standard product printing: ATEX and IECEx marking. Other international imprints obtainable on request. Please specify in plain text.

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

	Contact material	Ambient temperature (T_a)
1	Silver	-20 °C to +60 °C
3	Gold	-20 °C to +60 °C
5	Silver	-55 °C to +60 °C
6	Gold	-55 °C to +60 °C
7	Silver	-60 °C to +75 °C
8	Gold	-60 °C to +75 °C