



*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 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 limit switch**

- ATEX** Ex II 2G Ex d IIC T6 Gb
- Ex II 2D Ex tD A21 IP 66 T80 °C

**Certification**

- Gas: PTB 00 ATEX 1093 X
- Dust: IBEExU 01 ATEX 1007 X

**IECEx** Ex d IIC T6 Gb

**Certification**

- IECEx PTB 07.0045 X

**Further approvals**

- INMETRO, GOST, NEPSI, KTL

Other approvals and certificates, see [www.bartec-group.com](http://www.bartec-group.com)

**Ex protection type insert switch**

- ATEX** Ex II 2G Ex d IIC Gb
- Ex I M2 Ex d I Mb

**Certification**

- PTB 98 ATEX 1032 U

**IECEx** Ex d IIC Gb

Ex d I Mb

**Certification**

- IECEx PTB 07.0040 U

**Further approvals**

- INMETRO, GOST, NEPSI

Other approvals and certificates, see [www.bartec-group.com](http://www.bartec-group.com)

**Ambient temperature**

- 60 °C to +100 °C
- depending on the type and materials used

**Ambient temperature limit switches**

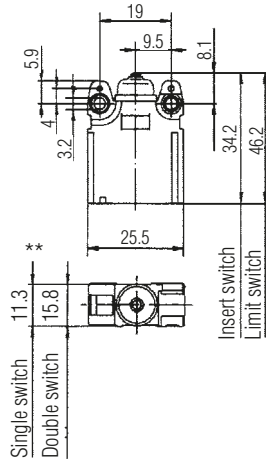
- T6 to max. +75 °C
- depending on the rated current

**Protection class** (according to IEC/EN 60529)

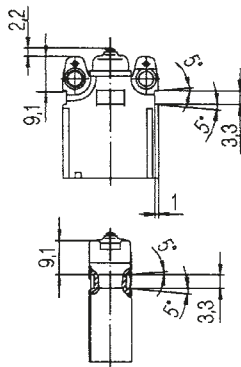
- IP 66



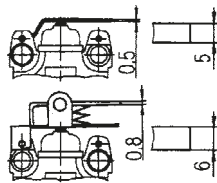
Dimensions in mm



Clip-on pockets



Lever widths



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

Technical data

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 cosφ = 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

(other electrical data on request)

Tightening torque of fixing screws

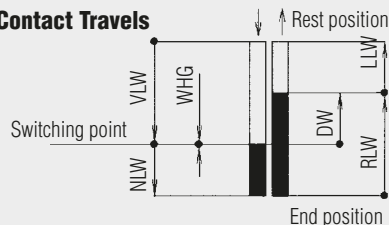
0.6 Nm

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



Pretravel	VLW	max. 0.9
Overtravel	NLW	min. 0.5
Differential val	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 <sup>6</sup>
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 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



**Selection chart Single-break switch**

Type of contact		Additional actuator*			
Switch chamber 1	Code no.	Options	Code no.	Options	Code no.
	<b>10</b>	without additional actuator	<b>00</b>		<b>44</b>
			<b>01</b>		<b>45</b>
			<b>02</b>		<b>46</b>
			<b>03</b>		<b>47</b>
	<b>20</b>		<b>04</b>		<b>48</b>
			<b>21</b>		<b>49</b>
			<b>22</b>		<b>61</b>
			<b>23</b>		<b>62</b>
	<b>30</b>		<b>24</b>	plastic roller <b>61</b>	
			<b>41</b>	metal roller <b>62</b>	
			<b>42</b>	plastic roller <b>63</b>	
			<b>43</b>	metal roller <b>64</b>	
	<b>40</b>		<b>66</b>	plastic roller <b>66</b>	
			<b>73</b>	adjusting screw <b>73</b>	
			<b>73</b>	adjusting screw <b>73</b>	

➔ **Complete order no.\*\*** 07-□ 511-□□□□□ / □□□□□  
 Please enter code number.  
 Technical data subject to change without notice.

**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.

<b>Insert switch</b> with connection cores	<b>1</b>
<b>Limit switch</b> with connection cable	<b>2</b>

	Contact material	Ambient temperature (T <sub>a</sub> )
<b>1</b>	Silver	-20 °C to +60 °C
<b>3</b>	Gold	-20 °C to +60 °C
<b>5</b>	Silver	-55 °C to +60 °C
<b>7</b>	Silver	-55 °C to +75 °C
<b>8</b>	Gold	-55 °C to +75 °C



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.		
		12 (GY) 11 (BK)	22 (BN) 21 (BU)	<b>11</b>	without additional actuator	<b>00</b>		<b>44</b>	
					<b>01</b>				
					<b>02</b>		<b>45</b>		
		14 (GY) 13 (BK)	22 (BN) 21 (BU)	<b>21</b>		<b>03</b>			<b>46</b>
						<b>04</b>			
		12 (2) 14 (3) 11 (1)	22 (5) 24 (6) 21 (4)	<b>33</b>		<b>21</b>		<b>47</b>	
	12 (2) 14 (3) 11 (1)	22 (5) 24 (6) 21 (4)	<b>44</b>		<b>22</b>		<b>48</b>		
					<b>23</b>		<b>49</b>		
defined switch sequence	14 (GY) 13 (BK)	22 (BN) 21 (BU)	<b>2A</b>		<b>24</b>		plastic roller <b>61</b>		
			<b>2B</b>		<b>41</b>		metal roller <b>62</b>		
					<b>42</b>		plastic roller <b>63</b>		
		12 (2) 14 (3) 11 (1)	22 (5) 24 (6) 21 (4)	<b>3C</b>		<b>43</b>		metal roller <b>64</b>	
						<b>44</b>		plastic roller <b>66</b>	
		12 (2) 14 (3) 11 (1)	22 (5) 24 (6) 21 (4)	<b>4D</b>		<b>45</b>		adjusting screw <b>73</b>	

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Please enter code number.  
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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

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

	Contact material	Ambient temperature (T <sub>a</sub> )
1	Silver	-20 °C to +60 °C
3	Gold	-20 °C to +60 °C
5	Silver	-55 °C to +60 °C
7	Silver	-55 °C to +75 °C
8	Gold	-55 °C to +75 °C