



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

ATEX II 2G Ex d IIC T6 Gb
 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

Ex protection type limit switch

ATEX II 2G Ex d IIC Gb
 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

Ambient temperature

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

Ambient temperature limit switches

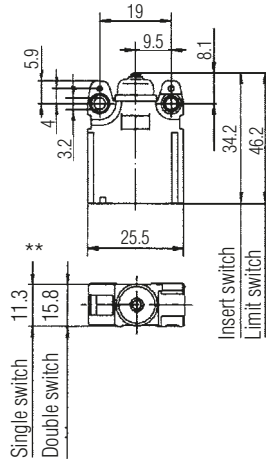
T6 to max. +75 °C
 depending on the rated current

Protection class (according to IEC/EN 60529)

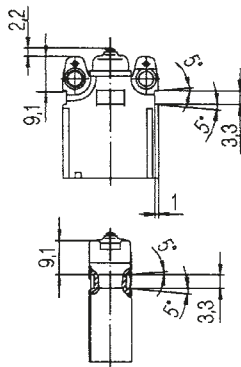
IP 66



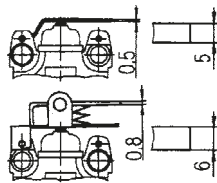
Dimensions in mm



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

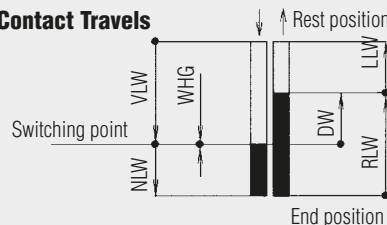
0.6 Nm

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 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 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. |
| | 10 | without additional actuator | 00 | | 44 |
| | | | 01 | | 45 |
| | | | 02 | | 46 |
| | | | 03 | | 47 |
| | 20 | | 04 | | 48 |
| | | | 21 | | 49 |
| | | | 22 | | 61 |
| | | | 23 | | 62 |
| | 30 | | 24 | plastic roller | 61 |
| | | | 25 | metal roller | 62 |
| | | | 26 | plastic roller | 63 |
| | | | 27 | metal roller | 64 |
| | 40 | | 41 | plastic roller | 66 |
| | | | 42 | plastic roller | 66 |
| | | | 43 | adjusting screw | 73 |

➔ **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.

| | |
|---|----------|
| 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 |
| 7 | Silver | -55 °C to +75 °C |
| 8 | 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. | | |
| | simultaneous switch sequence | 12 (GY) 11 (BK) | 22 (BN) 21 (BU) | 11 | without additional actuator | 00 | | 44 | |
| 14 (GY) 13 (BK) | | 22 (BN) 21 (BU) | | | 01 | | | | 45 |
| 14 (GY) 13 (BK) | | 24 (BN) 23 (BU) | | | 02 | | | | 46 |
| defined switch sequence | | 12 (2) 11 (1) | 22 (5) 21 (4) | 33 | | 03 | | 47 | |
| | | 14 (2) 11 (1) | 24 (5) 21 (4) | | | | 04 | | |
| | | 12 (2) 11 (1) | 22 (5) 21 (4) | 44 | | 21 | | 49 | |
| | 14 (2) 11 (1) | 24 (5) 21 (4) | | | 22 | | | | 61 |
| | 12 (2) 11 (1) | 22 (5) 21 (4) | 1A | | 23 | | 62 | | |
| | 14 (2) 11 (1) | 24 (5) 21 (4) | | | | 24 | | | 63 |
| 14 (2) 13 (BK) | 22 (5) 21 (BU) | 2A | | 41 | | 64 | | | |
| 14 (2) 13 (BK) | 24 (5) 23 (BU) | | | | 42 | | | 66 | |
| 12 (2) 11 (1) | 22 (5) 21 (4) | 3C | | 43 | | 73 | | | |
| 14 (2) 11 (1) | 24 (5) 21 (4) | | | | 44 | | | 73 | |

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| 5 | Silver | -55 °C to +60 °C |
| 7 | Silver | -55 °C to +75 °C |
| 8 | Gold | -55 °C to +75 °C |