

Control and Automation

For industrial applications ED.03

Limit switches



GE imagination at work

Series IS and IM - Metal and thermoplastic EN 50041

- G.3 Order codes
- G.10 Technical data
- G.11 Dimensions

Series IUG - Thermoplastic EN 50047

- G.5 Order codes
- G.10 Technical data
- G.13 Dimensions

Series IZ - Thermoplastic, miniature design

- G.6 Order codes
- G.10 Technical data
- G.15 Dimensions

Series 114FCT - Three pole limit switches

- G.9 Order codes
- G.15 Dimensions

Series 115 - Pressure switches

- G.18 Order codes
- G.20 Technical data
- G.21 Dimensions

Plug-in relays and Auxiliary contactors

Motor protection devices

Contactors and Thermal overload relays

Motorstarters

Control and signalling units

Electronic relays

Limit switches

Speed drive units

Main switches

Numerical index

A

B

C

D

E

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G

H

I

X





Metal and thermoplastic limit switches. Positive opening. Conforming to EN 50041

- Fixing center lines and operation points in accordance with EN 50041
- NC contacts with positive opening to IEC/EN 60947-5-1
- IP65 protection
- Terminal numbering according to IEC/EN 50013
- Cable entry M20 x 1.5
- Safety switches according to cat. 1 of IEC/EN 60947-5-1 (depends on actuating system)
- CSA and UL certified

Standards

IEC/EN 60947-5-1
IEC/EN 60204-1

Specifications

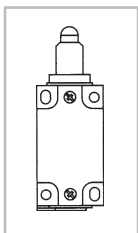
| | |
|-------------------------------------|---------------------------|
| Degree of protection | IP 65 |
| Ambient conditions | |
| Storage temperature | °C -40 to +80 |
| Operating temperature | °C -25 to +80 |
| Resistance to shocks (10 ms) | G 30 |
| Resistance to vibrations (10-55 Hz) | G 25 |
| Mechanical endurance | ops. 10 x 10 ⁶ |
| Cable entry | M20 x 1.5 |
| Fixing screws | 4 x M5 |

Approvals



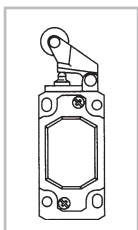
Mounted versions

Series IS...



- Double-insulated bodies, in **thermoplastic material, according to UL-94 VO**
- Clip-fixing and opening of terminal access cover, no screws.





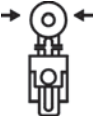




Series IM...




- Metal bodies constructed from injected **aluminium**.
- Cover fastening by screws.

Order codes ● pg. G.3
Technical data ● pg. G.10
Dimensions ● pg. G.11

Limit switches according to EN 50041

| | Mounting position of the head ⁽³⁾ | | | Slow break | | Snap action | | Pack |
|---|--|------------------|---------------------|------------|----------|--------------|-----------|--------|
| | Heads Standard position | Head position | Form to EN 50041 | Cat.no | Ref. no. | Cat.no | Ref. no. | |
|  | Standard position | II | B | ISGA-B211 | 130000 | ISGA-B411 | 130018 | 5 |
| | | III | B | | | | IMGA-B411 | 130019 |
|  | Roller plunger | III | C | | | ISGR-B411 | 130020 | 5 |
| | | III | C | | | IMGR-B411 | 130021 | 5 |
|  | Roller level | III | (1) | | | ISGH-B411 | 130022 | 5 |
| | | III | (1) | | | IMGH-B411 | 130023 | 5 |
|  | Roller crank | III | A | | | ISGL-B411 | 130028 | 5 |
| | | III | A | | | IMGL-B411(4) | 130029 | 5 |
|  | Adjustable roller crank ⁽²⁾ | II | (1) | | | ISGT-B311 | 130030 | 5 |
| | | II | (1) | | | IMGT-B311 | 130031 | 5 |
|  | Rod lever ⁽²⁾ | II | D | | | IMGP-B311 | 130035 | 5 |
|  | Cross rod | II | (1) | | | IMGC-B411 | 130037 | 5 |
|  | Spring rod lever ⁽²⁾ | III | (1) | | | IMGQ-B311 | 130039 | 5 |
|  | Omnidirectional spring rod ⁽²⁾ | III | (1) | | | ISGM-B311 | 130040 | 5 |
| | | III | (1) | | | IMGM-B311 | 130041 | 5 |

 Positive break

- (1) Fixing center lines and operation points in accordance with EN 50041.
- (2) Heads for these limit switches have no positive opening, as they are adjustable or flexible.
- (3) Supplied in standard mounting position. Positions II and III must be set by user.
- (4) Available with metal roller lever: IMGL-B411M (130107).

Order codes

A

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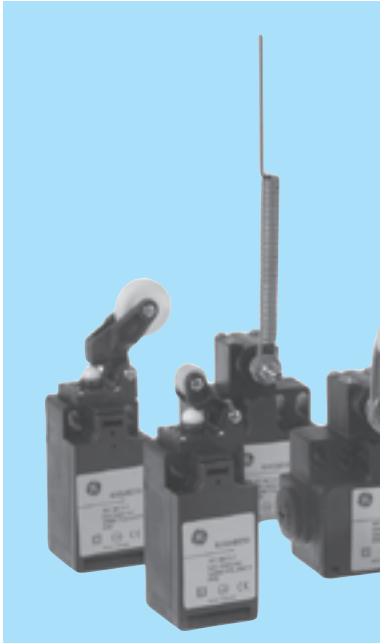
G

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**Thermoplastic limit switches.
Positive opening conforming to EN 50047**

- Fixing center and operation points (IUG...) in accordance with EN 50047
- NC contacts with positive opening according to IEC/EN 60947-5-1
- IP65 protection
- Terminal numbering according to EN 50013
- Thermoplastic material according to UL-94 V0
- One bottom cable entry M20x1.5 on Series IUG...
Two side cable entries for M16x1.5 on Series IUC.
- Two fixing possibilities for series IUGA...
- Clip fixing and opening of terminals access cover, no screws.
- CSA and UL certified

Standards

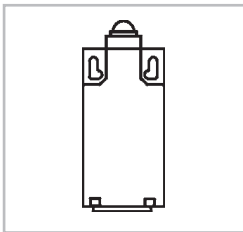
IEC/EN 60947-5-1
IEC/EN 60204-1

Approvals



Mounted versions

Series IUG...



Specifications

| | |
|-------------------------------------|---------------------------|
| Degree of protection | IP 65 |
| Ambient conditions | |
| Storage temperature | °C -40 to +80 |
| Operating temperature | °C -25 to +80 |
| Resistance to shocks (10 ms) | G 30 |
| Resistance to vibrations (10-55 Hz) | G 25 |
| Mechanical endurance | ops. 10 x 10 ⁶ |
| Cable entry | IUG... 1 x (M20x1.5) |
| Fixing screws | 2 of M5 |












Switch function

| Contact type | Switch function | Switch contacts | Voltage | Current |
|-----------------------|-----------------|-----------------|---------|---------|
| IUG Slow make & break | Changeover | 1NC/1NO | 250V | 10A |
| Snap action | Changeover | 1NC/1NO | 250V | 10A |

Order codes ● pg. G.5
 Technical data ● pg. G.10
 Dimensions ● pg. G.13



Limit switches according to EN 50047

| | Mounting position of the head | | | Slow break | | Snap action | | Pack |
|---|--|------------------|---------------------|--------------------------|------------------|-------------|----------|------|
| | Heads Standard position | Head position | Form to EN 50047 | Cat. no. | Ref. no. | Cat. no. | Ref. no. | |
|  | Plunger | III | B | IUGA-B211 IUGA-B211 S | 130060 209140 | IUGA-B411 | 130082 | 5 |
| | | III | B | | | | | 5 |
|  | Low roller plunger | III | ⁽²⁾ | IUGU-B211 S | 130057 | IUGU-B411 | 130084 | 5 |
| | | III | ⁽²⁾ | | | | | 5 |
|  | Low roller plunger ⁽¹⁾ | III | ⁽²⁾ | | | IUGR-B411 | 130086 | 5 |
|  | Roller lever | III | E | IUGH-B211 | 130066 | IUGH-B411 | 130088 | 5 |
|  | Adjustable roller lever | III | ⁽²⁾ | | | IUGI-B411 | 130090 | 5 |
|  | Retractable returning roller lever | III | ⁽²⁾ | IUGE-B211 | 130072 | IUGE-B411 | 130094 | 5 |
|  | Roller crank (28mm between centres) | III | A | IUGL-B211 | 130074 | IUGL-B411 | 130096 | 5 |
|  | Adjustable roller crank ⁽¹⁾ | II | ⁽²⁾ | IUGT-B111 | 130076 | IUGT-B311 | 130098 | 5 |
|  | Rod lever ⁽¹⁾ | II | ⁽²⁾ | | | IUGP-B311 | 130100 | 5 |
|  | Spring rod lever ⁽¹⁾ | III | ⁽²⁾ | IUGQ-B111 | 130080 | IUGQ-B311 | 130102 | 5 |
|  | Omnidirectional spring rod ⁽¹⁾ | III | ⁽²⁾ | | | IUGM-B311 | 130104 | 5 |

(1) Heads for these limit switches have no positive opening.
 (2) Fixing centre lines and operating points according to EN 50047.
 ⊕ Positive break

Order codes

A

B

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F

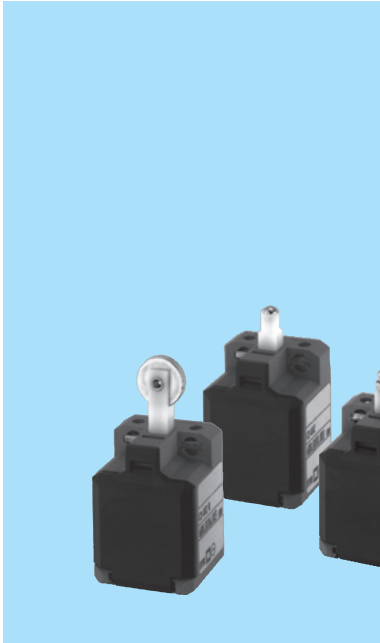
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Miniature thermoplastic limit switches

- The small sizes makes these ideal for use in reduced spaces
- With slow break, NC contacts with positive opening according to IEC/EN 60947-5-1
- 2 mm contact opening of slow-action system according to EN 81-1 for lift application
- IP30 protection
- Terminal numbering according to EN 50013
- Thermoplastic material in accordance with UL-94 V0
- Clip fixing and opening of the contact access cover, no screws
- Two fixing possibilities: 2 x M3 from the top
2 x M4 for mounting from the front

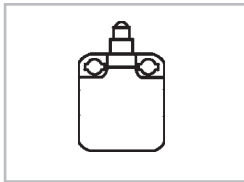
Approvals



Switch function

| Contact type | Switch function | Switch contacts | Voltage | Current |
|-------------------|-----------------|-----------------|---------|---------|
| Slow make & break | Changeover | 1NC/1NO | 250V | 10A |
| Snap action | Changeover | 1NC/1NO | 250V | 10A |

Mounted versions



Order codes ● pg. G.6
 Technical data ● pg. G.10
 Dimensions ● pg. G.15

Miniature limit switches

| | Heads | Slow break | | Snap - action | | Pack |
|--|--------------------------|------------------|----------|------------------|----------|------|
| | | Cat. no. | Ref. no. | Cat. no. | Ref. no. | |
| | Plunger | | | IZMA-B311 | 130144 | 10 |
| | Push-button (adjustable) | IZMS-B211 | 130141 | IZMS-B311 | 130145 | 10 |
| | Roller plunger | | | IZMR-B311 | 130146 | 10 |





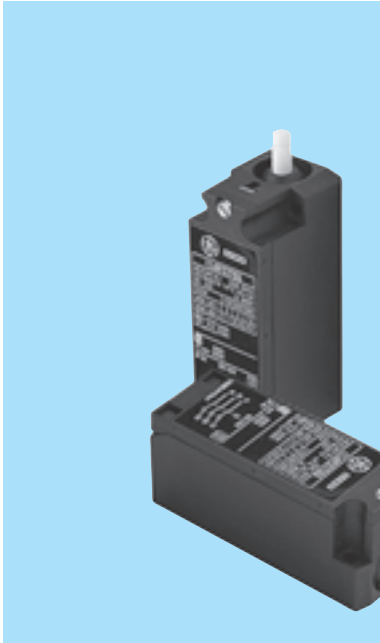
Notes

Grid area for notes.

Order codes

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|---|
| A |
| B |
| C |
| D |
| E |
| F |
| G |
| H |
| I |
| X |





Three pole limit switches

- Switch-box, cover and operation plunger by thermoplastic resin.
- Silver contacts.
- Lockable cover with one screw only.
- Two basic versions:
 - Without seal Protection IP40 according to IEC 529
 - With seal Protection IP65 according to IEC 529 (Types NEMA 1, 12 and 13 according to UL, ENCL. 3 according to CSA)
- Four electrical functions for both versions.
- Slow operation contacts, double-break and positive break of NC contacts.
- With screws, retractable and captive clamp type. Protection against accidental contact with live parts, degree of protection IP2x according to IEC 529.

Standards

IEC/EN 60947-5-1
VDE 0660
BSI 4794
NFC 63140

Approvals



Actuating force


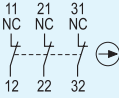
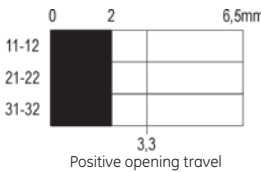

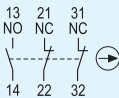
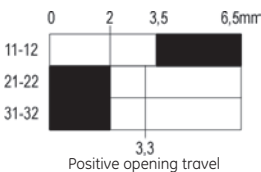

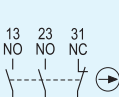
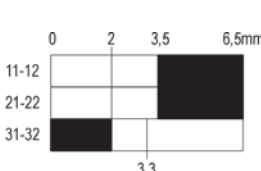

| Minimum actuating force | | |
|-------------------------|--|-------|
| 114FCT03, ...03T | | 7.5N |
| 114FCT12, ...12T | | 10N |
| 114FCT21, ...21T | | 12N |
| 114FCT30, ...30T | | 13N |
| Positive opening force | | |
| 114FCT03, ...03T | | 8.5N |
| 114FCT12, ...12T | | 8.5N |
| 114FCT21, ...21T | | 8.5N |
| 114FCT30, ...30T | | - |
| Maximum force | | |
| 114FCT03, ...03T | | 12N |
| 114FCT12, ...12T | | 13.5N |
| 114FCT21, ...21T | | 15.5N |
| 114FCT30, ...30T | | 17N |

Specifications

| Mechanical performances | | | | | | | | | | | | | | | | | | | |
|---|---|----------------|----|------|------|-----|-----|-----|-----|-----|----------------|-----|-----|----|------|------|-----|-----|-----|
| Climatic protections | | | | | | | | | | | | | | | | | | | |
| Temperate climate (DIN 50014) | 23 / 50 | | | | | | | | | | | | | | | | | | |
| Wet climate (DIN 50015) | 23 / 83 | | | | | | | | | | | | | | | | | | |
| Hot wet climate (DIN 50015) | 40 / 92 | | | | | | | | | | | | | | | | | | |
| Variable wet climate (DIN 50016) | FW 24 | | | | | | | | | | | | | | | | | | |
| Temperature ranges | | | | | | | | | | | | | | | | | | | |
| Operation | -25°C to +70°C | | | | | | | | | | | | | | | | | | |
| Storage | -40°C to +70°C | | | | | | | | | | | | | | | | | | |
| Vibrations resistance | 10G | | | | | | | | | | | | | | | | | | |
| (according to IEC 68-2-6) | with frequency range from 1 to 100Hz | | | | | | | | | | | | | | | | | | |
| Mechanical endurance | 10 x 10 ⁶ operations | | | | | | | | | | | | | | | | | | |
| Operation speed | | | | | | | | | | | | | | | | | | | |
| Min. | 0.25 m/sec. | | | | | | | | | | | | | | | | | | |
| Max. | 1 m/sec. | | | | | | | | | | | | | | | | | | |
| Electrical performances | | | | | | | | | | | | | | | | | | | |
| Rated insulation voltage (Ui) EN 60947.1 | 690V | | | | | | | | | | | | | | | | | | |
| Impulse withstand voltage (Uimp) EN 60947.1 | 4kV | | | | | | | | | | | | | | | | | | |
| Insulation class according to VDE 0660 | Group C | | | | | | | | | | | | | | | | | | |
| Electrical shocks protection IEC 536 | Class II (double insulation) | | | | | | | | | | | | | | | | | | |
| Short-circuit protection according to IEC 269.1 and 269.3 | 10A | | | | | | | | | | | | | | | | | | |
| Rated thermal current: Ith | 10A | | | | | | | | | | | | | | | | | | |
| Performances according to IEC 947.5.1 | | | | | | | | | | | | | | | | | | | |
| Cat. AC15 | <table border="1"> <tr> <td>Voltage Ue (V)</td> <td>24</td> <td>48</td> <td>60</td> <td>110</td> <td>220</td> <td>380</td> <td>500</td> <td>600</td> </tr> <tr> <td>Current Ie (A)</td> <td>10</td> <td>10</td> <td>10</td> <td>6</td> <td>3</td> <td>2</td> <td>1.5</td> <td>1.2</td> </tr> </table> | Voltage Ue (V) | 24 | 48 | 60 | 110 | 220 | 380 | 500 | 600 | Current Ie (A) | 10 | 10 | 10 | 6 | 3 | 2 | 1.5 | 1.2 |
| Voltage Ue (V) | 24 | 48 | 60 | 110 | 220 | 380 | 500 | 600 | | | | | | | | | | | |
| Current Ie (A) | 10 | 10 | 10 | 6 | 3 | 2 | 1.5 | 1.2 | | | | | | | | | | | |
| Cat. DC13 | <table border="1"> <tr> <td>Voltage Ue (V)</td> <td>24</td> <td>48</td> <td>60</td> <td>110</td> <td>220</td> <td>300</td> <td></td> <td></td> </tr> <tr> <td>Current Ie (A)</td> <td>2.5</td> <td>1.4</td> <td>1</td> <td>0.55</td> <td>0.27</td> <td>0.2</td> <td></td> <td></td> </tr> </table> | Voltage Ue (V) | 24 | 48 | 60 | 110 | 220 | 300 | | | Current Ie (A) | 2.5 | 1.4 | 1 | 0.55 | 0.27 | 0.2 | | |
| Voltage Ue (V) | 24 | 48 | 60 | 110 | 220 | 300 | | | | | | | | | | | | | |
| Current Ie (A) | 2.5 | 1.4 | 1 | 0.55 | 0.27 | 0.2 | | | | | | | | | | | | | |
| Performances according to UL and CSA | | | | | | | | | | | | | | | | | | | |
| | AC / Heavy duty (A600) | | | | | | | | | | | | | | | | | | |
| | DC / Standard duty (Q300) | | | | | | | | | | | | | | | | | | |
| Terminals | | | | | | | | | | | | | | | | | | | |
| Capacity | min. 22 AWG (0.32mm ²) | | | | | | | | | | | | | | | | | | |
| Rigid and/or flexible conductors | max. 12 AWG (3.3mm ²) | | | | | | | | | | | | | | | | | | |
| Cable entry | 1 x PG11 | | | | | | | | | | | | | | | | | | |

Order codes ● pg. G.9
Dimensions ● pg. G.15

Three pole limit switches

| | Contacts | Diagrams | Protection | Cat. no. | Ref. no. | Pack. |
|--|---|--|------------|------------------|----------|-------|
|  |  |  <p>Positive opening travel</p> | IP40 | 114FCT03 | 130320 | 1 |
| | | | IP65 | 114FCT03T | 130321 | 1 |
|  |  |  <p>Positive opening travel</p> | IP40 | 114FCT12 | 200909 | 1 |
| | | | | | | |
|  |  |  <p>Positive opening travel</p> | IP40 | 114FCT21 | 200910 | 1 |
| | | | | | | |
| <p>Three pole insulated jumper</p>  | | | | 105PT | 132234 | 1 |

Order codes

A

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X



Technical data

Limit switches

| | | ISG..-B211 IMG..-B211 | ISG..-B311 IMG..-B311 ISG..-B411 IMG..-411 | IUG..-B111 IUG..-B211 | IUG..-B311 IUG..-B411 | IZM..-B211 | IZM..-B311 |
|--|--------------------|---------------------------------|---|--------------------------|--------------------------|------------|-------------|
| Type of break | | Slow break | Snap action | Slow break | Snap action | Slow break | Snap action |
| Number of contacts | | 2 | 2 | 2 | 2 | 2 | 2 |
| Function | | 1NO-1NC | 1NO-1NC | 1NO-1NC | 1NO-1NC | 1NO-1NC | 1NO-1NC |
| Polarity | | Same | Same | Same | Same | Same | Same |
| Rated thermal current (I _{the}) | (A) | 10 | 10 | 10 | 10 | 10 | 10 |
| Auxiliary contacts | | | | | | | |
| Rated insulation voltage (U _i /V) | | 400 | 400 | 250 | 250 | 380 | 250 |
| Protection against electrical shocks | | Class II (ISG) CLASS I (IMG) | Class II (ISG) CLASS I (IMG) | Class II | Class II | - | - |
| Protection against electrical shocks (fuse) | (A) | 10 | 2 | 10 | 2 | 6 | 6 |
| Rated current (DIN EN60947-5-1) | | | | | | | |
| A | A300 AC-15 | 12/24V (A) | - | - | - | - | - |
| | | 48/60V (A) | - | - | - | - | - |
| | | (110V) 120V (A) | 6 | 6 | 6 | 6 | 6 |
| | | 127V (A) | - | - | - | - | - |
| | | (220V) 240V (A) | 3 | 3 | 3 | 3 | 3 |
| | Q300 DC-13 | 380V (A) | - | - | - | - | - |
| | | 24V (A) | - | - | - | - | - |
| | | 48V (A) | - | - | - | - | - |
| | | (110V) 125V (A) | 0.55 | 0.55 | - | - | 0.55 |
| | | (220V) 250V (A) | 0.27 | 0.27 | - | - | 0.27 |
| | 300V (A) | - | - | - | - | - | |
| Operating rate | ops./h | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 |
| Switching time | (ms) | - | 10 | - | 10 | - | 10 |
| Repetition assurance | (mm) | ± 0.1 | ± 0.1 | ± 0.1 | ± 0.1 | ± 0.1 | ± 0.1 |
| Clamping capacity | (mm ²) | 0.5 - 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| Terminal screw | | M3.5 | M3.5 | M3.5 | M3.5 | M3.5 | M3.5 |
| Protection | | IP65 | IP65 | IP65 | IP65 | IP30 | IP30 |

Limit switches

A

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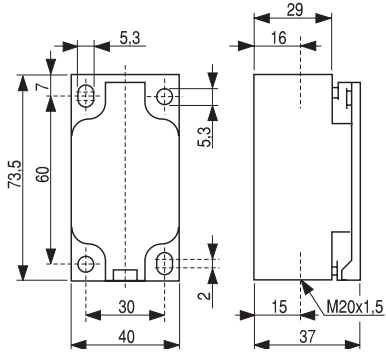
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Dimensional drawings

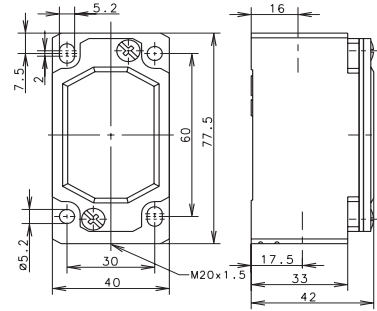
Contact block Series IS

Common for all limit switches Series IS



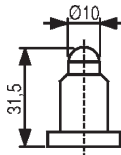
Contact block Series IM

Common for all limit switches Series IM

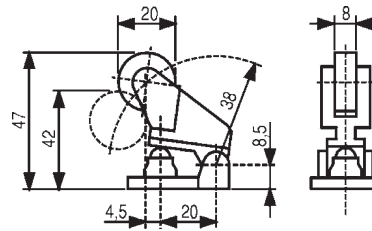


Operating heads

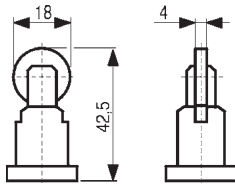
ISGA B..., IMGA B...



ISGH B..., IMGH B...

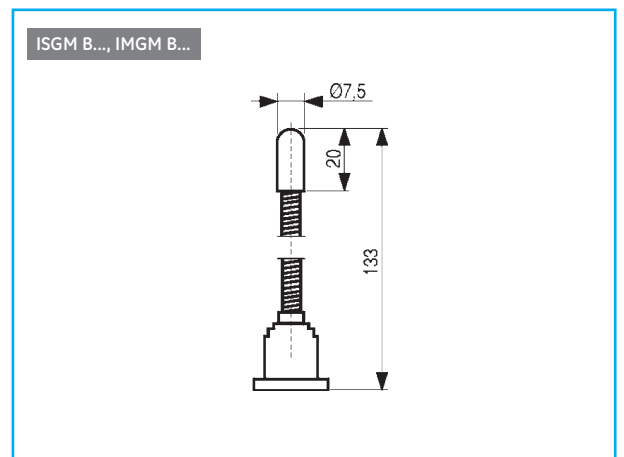
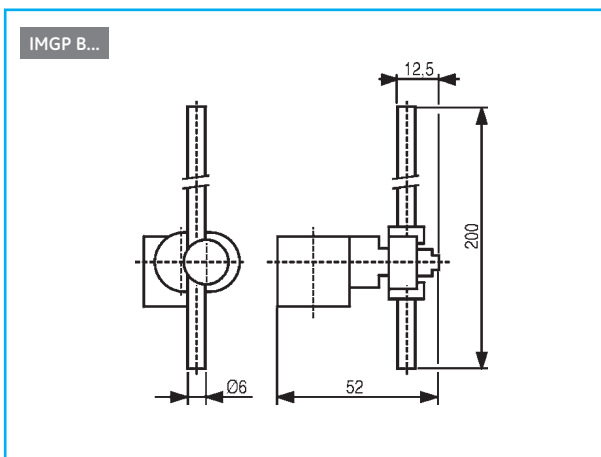
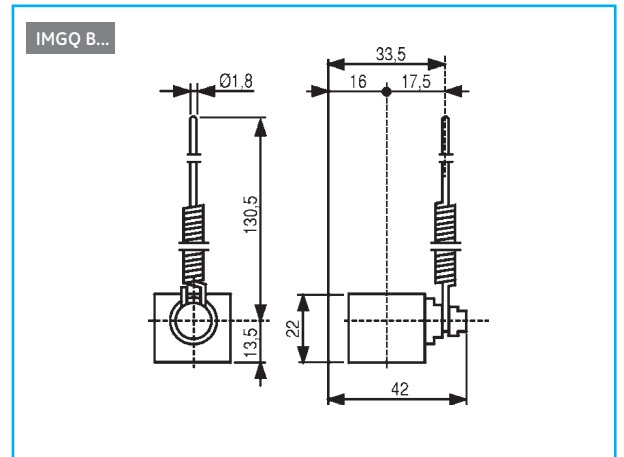
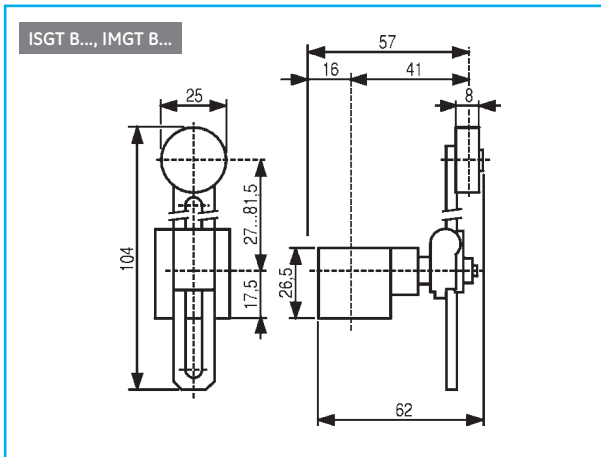
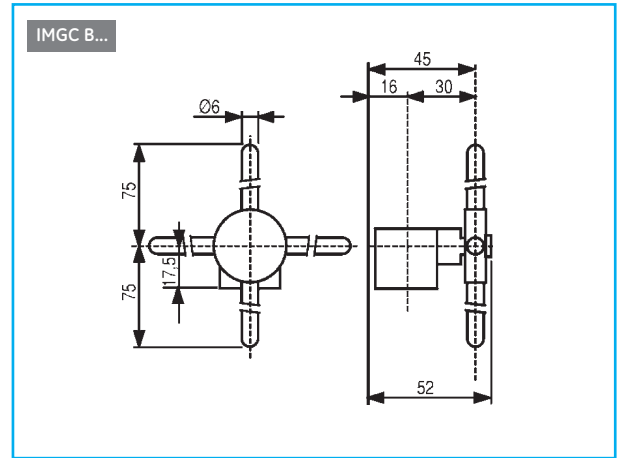
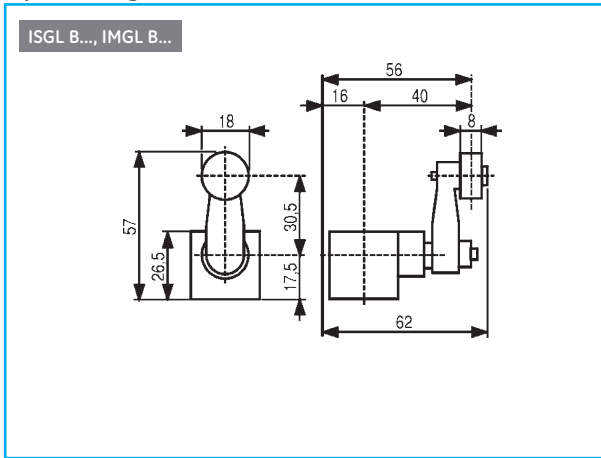


ISGR B..., IMGR B...



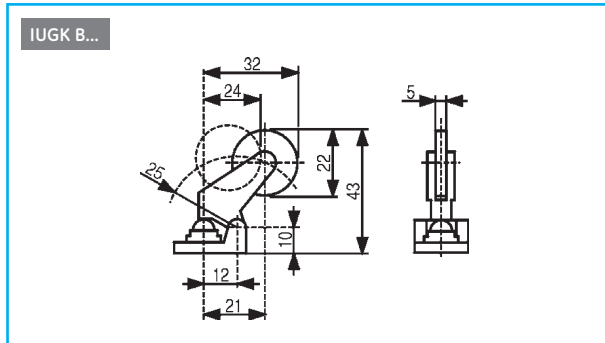
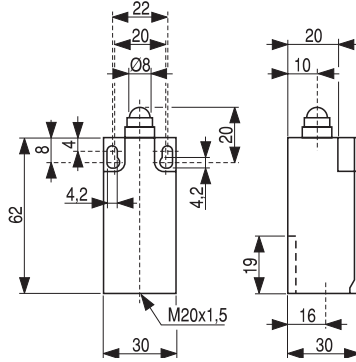
Dimensional drawings

Operating heads (continued)

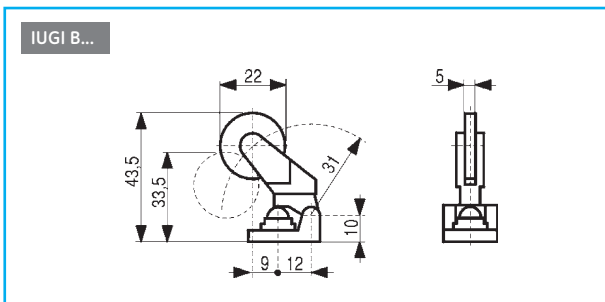
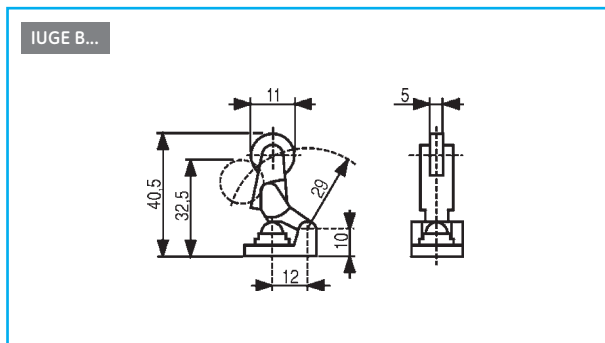
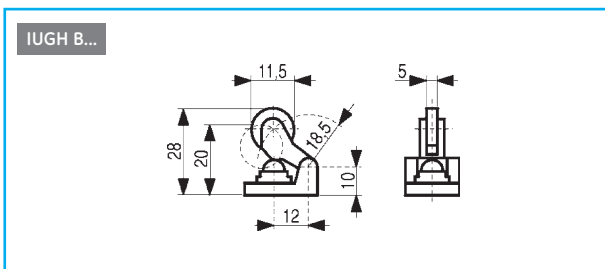
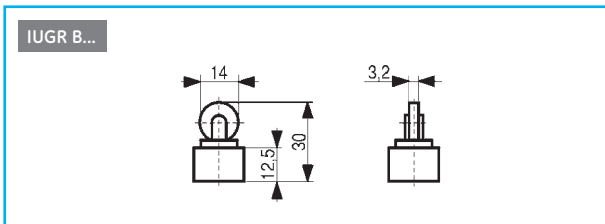
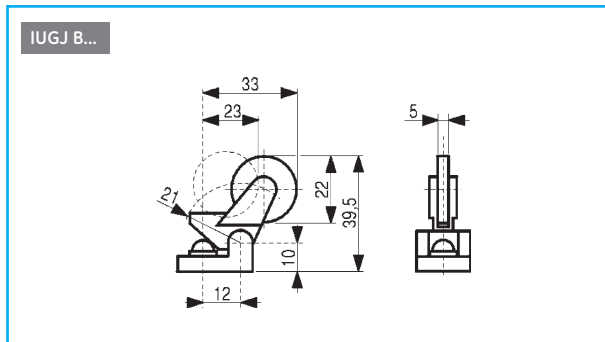
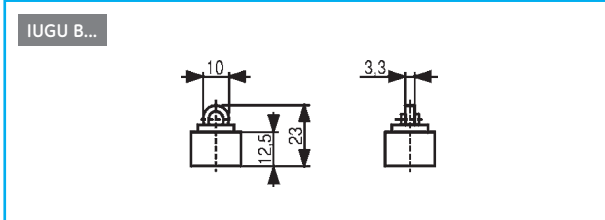


Contact block Series IUG

Common for all limit switches Series IUGA B...



Operating heads



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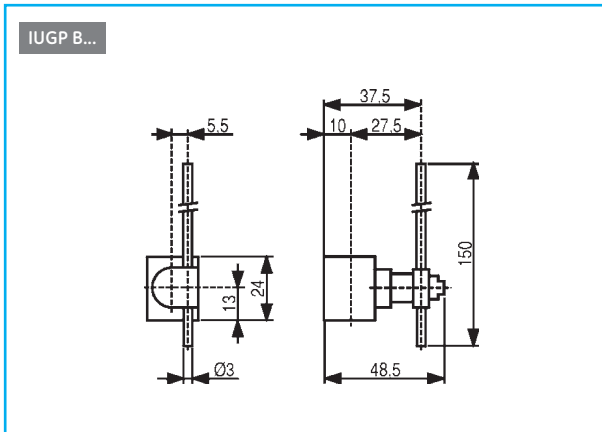
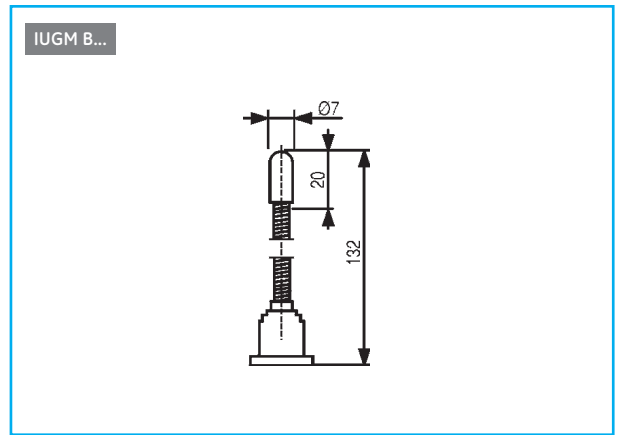
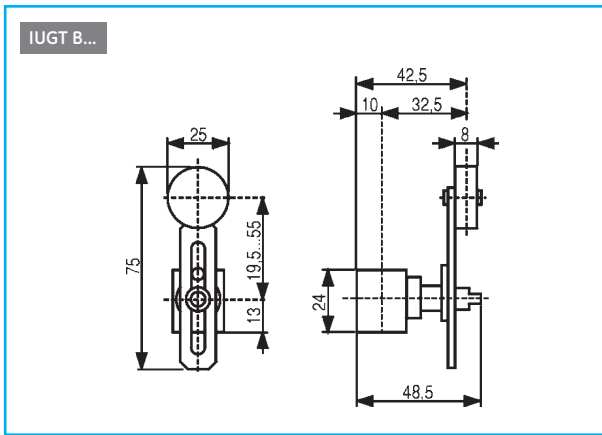
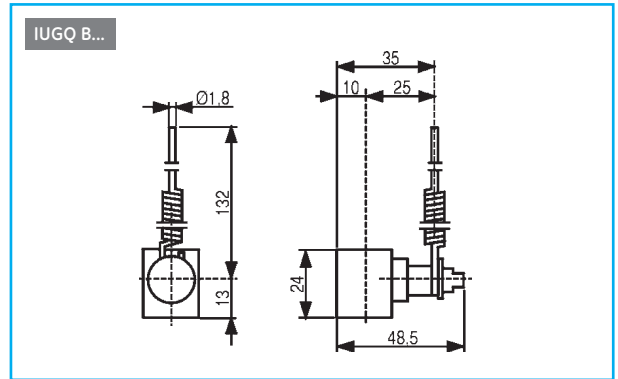
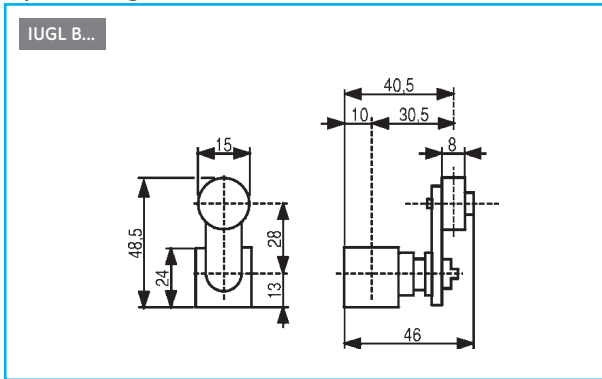
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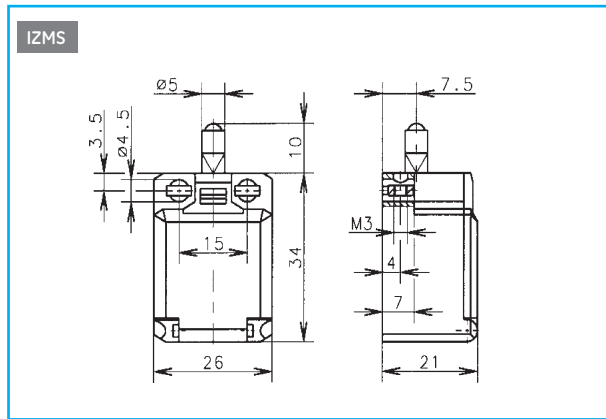
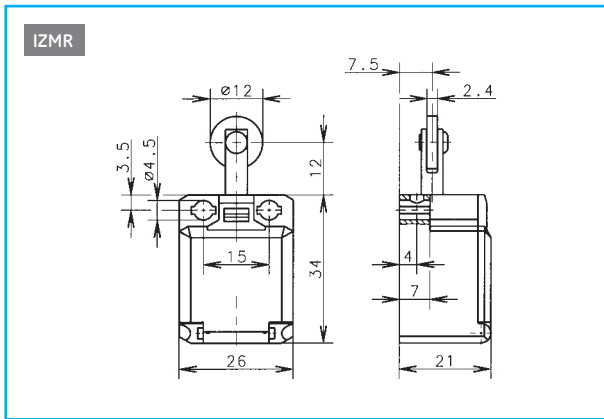
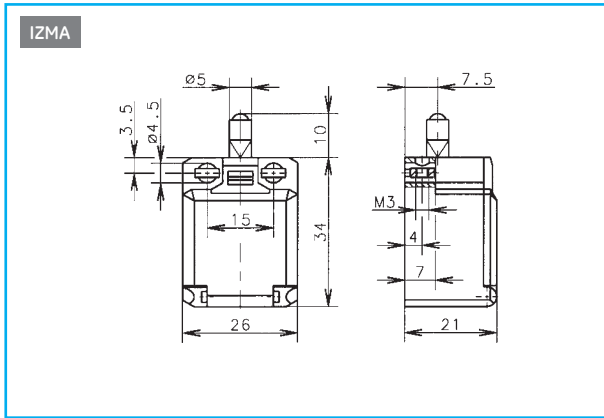


Dimensional drawings

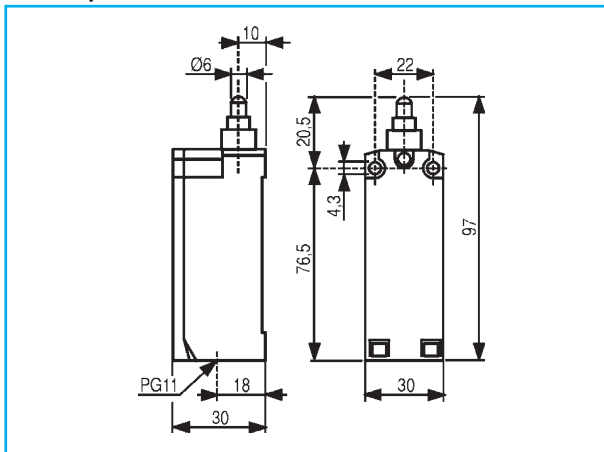
Operating heads (continued)

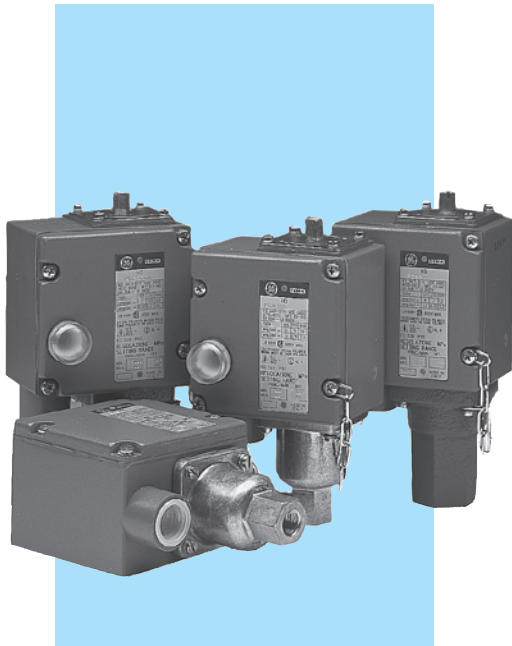


Series IZ



Three pole limit-switches Series 114FCT





Standards

IEC/EN 60947-5-1 BSI
 CEI UTE
 VDE 0660

Approvals



ASE/SEV (Switzerland)

Pressure switches

- Controlled fluid temperature: 120°C
- Fluids that can be controlled by bellows pressure switches: air and rare gases, freon, water (sea-water not included), fuel oils, mineral oils, hydraulic oils and other kinds of fluids that do not corrode steel, tin and other kinds of fluids that do not corrode steel, tin and copper alloys. To avoid absolutely and solvents and acids.
- Fluids that can be controlled by piston pressure switches: mineral oils and hydraulic oils that do not corrode steel and cast iron.
- Synthetic oils with base of phosphates, gas and all the other fluids have to be excluded.

Setting range choice

On the following pages are shown the values within which it is possible to make setting of our pressures switches.

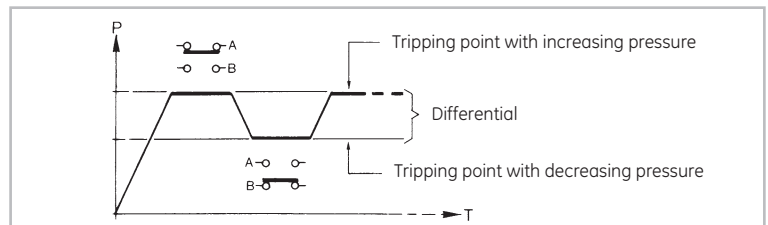
For a correct interpretation, consider that:

- The main setting range defines the values within which it is possible to set the tripping of the pressure switch, when the pressure is decreasing.
- The differential setting range defines the values that, added to those ones of the main range, determine the tripping when pressure is increasing.
- The maximum admissible pressure defines the limit that the devices can stand without consequences. Indicated values have never to exceed also in the case of occasional overpressure of temporary type.

When choosing the most suitable type, consider that the device reaches its excellent efficiency when the tripping point, with decreasing pressure, is set between 25% and 75% of the main setting range.

Setting

- To completely loose the external screw of the main range and the internal pawl of the differential range.
- By a manometer, to set pressure at the value on which the tripping is wanted, when pressure is decreasing. To screw the external screw of the main range until the tripping of the microswitch (A contact shall result open and B closed).
- To completely screw the pawl of the differential range, until its maximum value.
- To set pressure at the value on which the tripping is wanted, when pressure is increasing.
- To loosen the pawl of the differential range until the tripping of the microswitch (A contact shall result closed and B open).



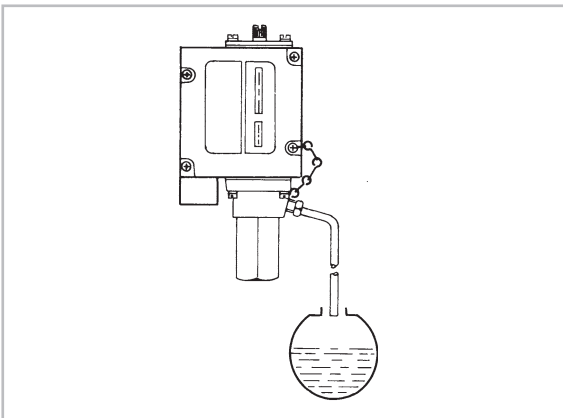
Order codes ● pg. G.18
 Dimensional drawings ● pg.G.15



Location

Generally the location of our pressure switches can be effected as wanted. Nevertheless, as to the piston types whitout seal ring, location have to be made in such a way as to allow the discharge, through the drainage hole, of the blow-by oil between cylinder and piston (a few drops per hour). The going-out oil can be collected by a proper drainage pipe that conveys it, free falling, into the tank of the hydraulic central, as shown in the below figure.

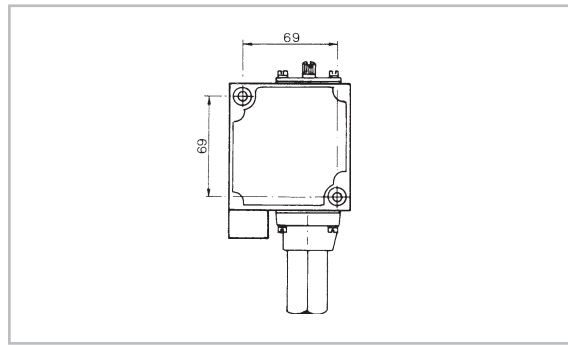
Caution



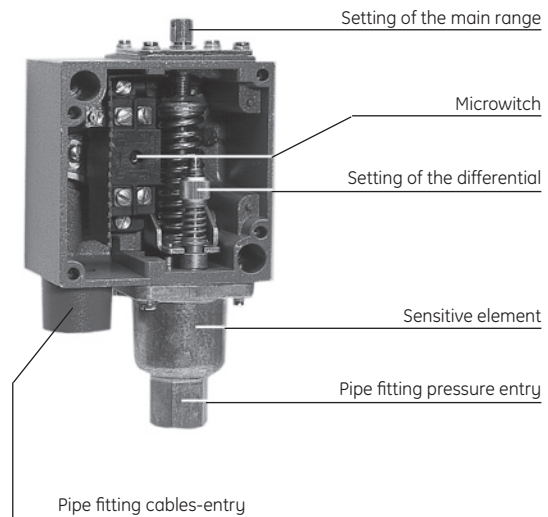
- Do not connect the drainage hole to a return pipe of the line...
- The drainage pipe must not cover a way different from that one indicated (e.g. towards the top).
- Do not plug the drainage holes.

If the above cautions are not met, inside the sensitive group there will be a counter pressure that could damage the sealing washer between actuator and frame of the pressure switch.

Fixing



To fix the pressure switch on a proper support, use the two pierceable holes Ø 6.8 mm. located under the cover. To absolutely avoid to fix it directly on the pipe containing the fluid to be controlled, use the threaded pipe fitting for pressure entry.



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Pressure switches - Bellows type⁽¹⁾

|  | Setting range | | Maximum admissible pressure Mpa Bar | Weight (kg) | 1NO - 1NC | | 2NO - 2NC | | Pack. |
|---|---------------|--------------|---|-------------|------------------|---------|-------------------|---------|-------|
| | Main | Differential | | | Cat. no | Ref. no | Cat. no | Ref. no | |
| | Mpa Bar | Mpa Bar | | | | | | | |
| Without lighting signalisation | | | | | | | | | |
| | 0.002 - 0.15 | 0.02 - 0.1 | 0.4 | 0.950 | 115PC002 | 132500 | 115PC2002 | 132504 | 1 |
| | 0.02 - 1.5 | 0.2 - 1 | 4 | | | | | | |
| | 0.01 - 0.5 | 0.04 - 0.1 | 0.6 | 0.950 | 115PC015 | 132501 | 115PC2015 | 132505 | 1 |
| | 0.1 - 5 | 0.4 - 1 | 6 | | | | | | |
| | 0.01 - 0.8 | 0.07 - 0.2 | 1.55 | 0.950 | 115PC018 | 132502 | 115PC2018 | 132515 | 1 |
| | 0.1 - 8 | 0.7 - 2 | 15.5 | | | | | | |
| | 0.1 - 1.9 | 0.12 - 0.2 | 2.45 | 0.950 | 115PC119 | 132503 | 115PC2119 | 132506 | 1 |
| | 1 - 19 | 1.2 - 2 | 24.5 | | | | | | |
| With lighting signalisation (red lens)⁽²⁾ | | | | | | | | | |
|  | 0.002 - 0.15 | 0.02 - 0.1 | 0.4 | 0.950 | 115PC002L | 132507 | 115PC2002L | 132511 | 1 |
| | 0.02 - 1.5 | 0.2 - 1 | 4 | | | | | | |
| | 0.01 - 0.5 | 0.04 - 0.1 | 0.6 | 0.950 | 115PC015L | 132508 | 115PC2015L | 132512 | 1 |
| | 0.1 - 5 | 0.4 - 1 | 6 | | | | | | |
| | 0.01 - 0.8 | 0.07 - 0.2 | 1.55 | 0.950 | 115PC018 | 132509 | 115PC2018 | 132513 | 1 |
| | 0.1 - 8 | 0.7 - 2 | 15.5 | | | | | | |
| | 0.1 - 1.9 | 0.12 - 0.2 | 2.45 | 0.950 | 115PC119 | 132510 | 115PC2119 | 132514 | 1 |
| | 1 - 19 | 1.2 - 2 | 24.5 | | | | | | |

(1) Bellows types in stainless steel on request.

(2) Lamp is not delivered. For types see Accessories on G.19.

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Accessories

| Microswitch | Contacts | | Weight | | Cat. no. | | Ref. no. | | Pack. | | |
|--------------------------------------|-----------------------|--------|-------------|-----------|-----------------|----------|-------------------|----------|----------------|----------|-------|
| | 1NO - 1NF | | 0.060 | | 090MI1 | | 130310 | | 25 | | |
| | 2NO - 2NF | | 0.100 | | 090MI2 | | 130311 | | 25 | | |
| Sensitive group | Basic pressure switch | Weight | Bellow type | | | | Piston type | | | | Pack. |
| | | | Standard | | Stainless steel | | Without seal ring | | With seal ring | | |
| | | | Cat. no. | Ref. no. | Cat. no. | Ref. no. | Cat. no. | Ref. no. | Cat. no. | Ref. no. | |
| | 115PC002 | 0.045 | 115807SP | 132562 | 1158065SPA | 215320 | - | - | - | - | 1 |
| | 115PC015 | 0.045 | 115803SP | 132563 | 1158067SPA | 215321 | - | - | - | - | 1 |
| | 115PC018 | 0.045 | 115805SP | 132564 | 1158067SPA | 215321 | - | - | - | - | 1 |
| | 115PC119 | 0.045 | 115804SP | 132565 | 1158067SPA | 215321 | - | - | - | - | 1 |
| | 115PD970 | 0.505 | - | - | - | - | 1158029-01GI | 132566 | 1158029-03GIT | 132568 | 1 |
| | 115PD15210 | 0.505 | - | - | - | - | 1158029-02GI | 132567 | 1158029-04GIT | 132569 | 1 |
| | 115PD38350 | | | | | | | | | | |
| Knob for setting main range pressure | | | | | | | | | | | |
| | | | | | | | Weight | Cat. no. | Ref. no. | Pack. | |
| | | | | | | | 0.014 | 115MA | 132570 | 1 | |
| Protective cap of main range screws | | | | | | | | | | | |
| | | | | | | | 0.078 | 115CA | 132571 | 100 | |
| Bulb with BA96 base - filament type | | | | | Vn AC/DC | Wn | Weight | Cat. no. | Ref. no. | Pack | |
| | | | | | 6 | 1.5 | 0.002 | BA9S615 | 187851 | 5 | |
| | | | | | 12 | 2 | 0.002 | BA9S122 | 187852 | 5 | |
| | | | | | 24 | 2 | 0.002 | BA9S242 | 187853 | 5 | |
| | | | | | 30 | 2.1 | 0.002 | BA9S30 | 187854 | 5 | |
| | | | | | 48 | 2 | 0.002 | BA9S48 | 187855 | 5 | |
| | | | | | 60 | 1.2 | 0.002 | BA9S6012 | 187856 | 5 | |
| | | | | 130 (110) | 2 | 0.002 | BA9S130 | 187857 | 5 | | |
| Bulb with BA9s base - neon type | | | | | | | | | | | |
| | | | | | 10 | 0.11 | 0.002 | BA9SN110 | 187860 | 5 | |

Pressure switches

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Technical data

General

The pressure switches Series 115 are designed for transforming a pressure variation into an electrical signal when a pre-arranged pressure value is reached.

Pressure switches are utilized in the field of the industry machines, installations and transports.

Climatic protections

| | |
|----------------------|------------------------|
| Temperature climate | cat. 23/50 (DIN 50014) |
| Wet climate | cat. 23/83 (DIN 50015) |
| Hot wet climate | cat. 40/92 (DIN 50015) |
| Variable wet climate | cat. FW24 (DIN 50016) |

Temperature ranges

| | |
|-----------|-----------------|
| Operation | -25°C to +70° C |
| Storage | -40°C to +70°C |

Insulation class

| | |
|------------|--------------|
| IP65 | IEC/EN 60529 |
| ENCL. 4, 5 | CSA |

Vibration resistance

| | |
|---|------------|
| 5g at a sinusoidal frequency ranging from to 100 Hz according to IEC 68-2-6 | IEC 68-2-6 |
|---|------------|

Mechanical endurance

Bellows type

1 million operations. It can be considerably reduced when the pressure jump reaches the maximum value foreseen for every type of device and the operations number is high. The bellows endurance can be also negatively influenced by the temperature and the kind of controlled fluid.

Rated insulation voltage

600V AC/DC

Insulation class

Group C according to VDE 0110

Short-circuit protection

10 A gL fuses according to IEC 947-5-1

Electrical performances

090MI1 (1NO + 1NC)

090MI2 (2NO + 2NC)

Rated thermal current: I_{th} = 10 A

Performances according IEC 947.5.1

| Category AC15 (A600) | | | | | | | | | |
|------------------------|---|-----|-----|----|------|------|-----|-----|-----|
| Voltage U _e | V | 24 | 48 | 60 | 110 | 220 | 380 | 500 | 600 |
| Current I _e | A | 10 | 10 | 10 | 6 | 3 | 2 | 1.5 | 1.2 |
| Category DC 13 (P600) | | | | | | | | | |
| Voltage U _e | V | 24 | 48 | 60 | 110 | 220 | 300 | | |
| Current I _e | A | 2.5 | 1.4 | 1 | 0.55 | 0.27 | 0.2 | | |

Performances according to CSA

AC/Heavy Duty (A/600)

DC/Standard Duty (Q300)

Connections at same polarity

Connection terminals

Screw type without clamping screw.

Suitable for eye, fork and hook terminals.

Cable entry

One PG 13.5 threaded cable entry.

Range

The pressure switches series 115 are available in two basic versions:

- With bellows sensitive element for pressures ranging between 0.002 Mpa (0.02 bar) minimum and 2.1 Mpa (21 bar) maximum.
- With piston sensitive element for pressures ranging between 0.95 Mpa (9.5 bar) minimum and 37.25 Mpa (372.5 bar) maximum.

Both versions can be supplied:

- Without lighting signaling
- With lighting signaling

Construction

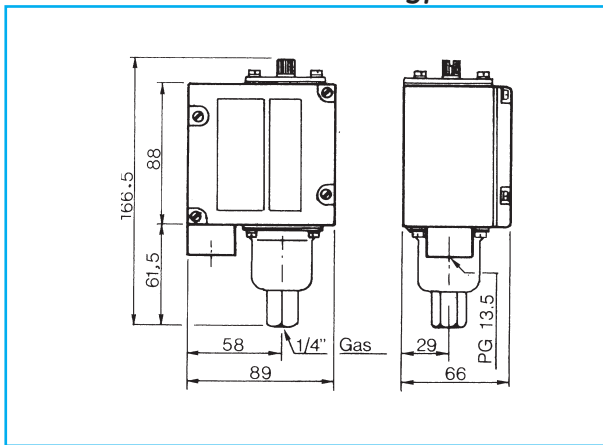
Snap-action 1NO-1NC or 2NO+2NC microswitches with double-break contacts without positive-break of the NC contact.

Bellows sensitive element, hermetic sealing, made by Tombacco (or stainless steel) material enclosed into a die-cast zamac case complete with a 1 mm. damper. Piston sensitive element, with or without seal ring, with steel piston enclosed into a cast-iron cylinder complete with 1 mm. damper.

Enclosure and cover are made of die-cast aluminium and painted with anaphoresis process grey RAL 7012..

Dimensions

Pressure switches - Bellows type



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GE Consumer & Industrial Power Protection

Power Protection (formerly GE Power Controls), a division of GE Consumer & Industrial, is a first class European supplier of low-voltage products including wiring devices, residential and industrial electrical distribution components, automation products, enclosures and switchboards. Demand for the company's products comes from, wholesalers, installers, panel-board builders, contractors, OEMs and utilities worldwide.


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GE imagination at work