Application field
Pizzato Elettrica widens its own range of products making a new series of safety switches hinge-shaped, where safety and style are melted in one single product. The switch is completely integrated in the mechanical hinge, to result practically invisible to an inexpert eye. This guarantees a higher safety because a switch hard to identify is consequently also more difficult to defeat. The assembly without visible screws and the pleasant line, make the switch perfectly integrated also with guards of modern design machinery. In order to complete the offer complementary hinges with purely mechanics functions are available.

Operating point regulation
The switches operating point can be regulated through a simple Phillips screwdriver. The operating point regulation allows the setting possibility (up to 4°) for large guards. After the setting, it’s always necessary to close the hole through the suitable supplied safety seal plug.

Variations of the activation base angle
New versions with the switch activation angle equal to a multiple of 15° (e.g. 45° or 90°) are available on request. The different activation angle does not invalidate the possibility to adjust the operating point through the switch adjusting screws. The variation of the operating angle does not alter the switch maximum mechanical travel.

M12 integrated connector version
Versions with connection from the top or the bottom are available with M12 integrated connector. The application of versions with connector allows a faster wiring when it’s necessary to move guards from test line to final user.

Opening angle up to 180°
The mechanical design of the switch allows the application also onto protections up to 180° opening angle.

INNOVATION & DESIGN AWARD 2007
This product has been presented at the “Innovation & Design award 2007” which selects, among all industrial products, those that stand out for technological innovation and their particular design. The switch has been selected by the jury in category “Innovation “ during the fair “Enermotive 2007.”

Versions for glass or polycarbonate doors
It’s available a variation of the switch shape specifically designed for glass and polycarbonate doors without frame. The wider supporting arm and the spaced fixing points facilitate the installation and prevent the cracking caused by holes too near the guard edge. However, it is necessary to verify that the door mechanical stop is not performed by the switch.

Cable with connector from back
This version with cable and M12 connector from back is the best combination between aesthetics and connection ease. When machineries have to be assembled by the final customer, this solution allows to hide the wiring and at the same time to easily connect or disconnect it from inside the machinery.

Additional hinges
To complete the installation, different additional hinge are available to be used in different combinations based on the guard weight. These hinges keep the same aesthetics and mechanical structure and without the electrical part their price is lower.
### Application examples

- **Switch without supports**
  - Rear fixing
  - Cable output from back

- **Switch with angular supports for profiles with slots**
  - Fixing through internal screws
  - Connector output from bottom

- **Switch with plane supports for profiles with slots**
  - Fixing through front screws
  - Cable output from bottom

- **Direct fixing to the polycarbonate plate**
  - Switch without supports
  - Fixing with internal screws
  - Output with connector from back
Selection diagram

**CONTACT BLOCKS**
- **50C** 1NO+1NC snap action
- **50F** 1NO+2NC snap action
- **50M** 2NO+2NC snap action
- **52C** 1NO+1NC slow action
- **52F** 1NO+2NC slow action
- **52M** 2NO+2NC slow action

**CABLE AND CONNECTORS**
- **53C** 1NO+1NC slow action overlapped
- **53F** 1NO+2NC slow action overlapped
- **53M** 2NO+2NC slow action overlapped

**CABLE OUTPUT**
- **S** Cable output from bottom (standard)
- **A** Cable output from top
- **P** Cable output from back

**SHAPES**
- **A** Metal movable part 100x50 mm
- **B** Metal movable part 100x75 mm

**COMPLEMENTARY HINGES**
- **HC LL**
- **HC AA**
- **HC AB**
### Type of connection

<table>
<thead>
<tr>
<th>Length</th>
<th>Specification</th>
</tr>
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<tbody>
<tr>
<td>0.2 m</td>
<td>cable length 0.2 m</td>
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<tr>
<td>2 m</td>
<td>cable length 2 m (standard)</td>
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<td>10 m</td>
<td>cable length 10 m</td>
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<tr>
<td>K</td>
<td>with integrated connector</td>
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### Movable part rotation

<table>
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<th>Specification</th>
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<td>movable part rotated (standard)</td>
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<tr>
<td>15°</td>
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<tr>
<td>30°</td>
<td>movable part rotated</td>
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<tr>
<td>45°</td>
<td>movable part rotated</td>
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<tr>
<td>75°</td>
<td>movable part rotated</td>
</tr>
<tr>
<td>90°</td>
<td>movable part rotated</td>
</tr>
</tbody>
</table>

### Contacts Type

- silver contacts (standard)
- silver contacts gold plated 1 µm

### Type of cable or connector

- N: cable EN 50265-1 black (standard)
- G: cable CEI 20-22 II grey (contact block with 2 contacts only)
- H: cable PUR halogen free grey (contact block with 2 contacts only)
- M: M12 connector

### Connection output direction

<table>
<thead>
<tr>
<th>Direction</th>
<th>Specification</th>
</tr>
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<tbody>
<tr>
<td>S</td>
<td>from bottom</td>
</tr>
<tr>
<td>P</td>
<td>from back</td>
</tr>
<tr>
<td>A</td>
<td>from top</td>
</tr>
</tbody>
</table>

### Movable part

- A: 100x50 metal movable part
- B: 100x75 metal movable part

### Contact block

- 50C: 1NO+1NC, snap action
- 50F: 1NO+2NC, snap action
- 50M: 2NO+2NC, snap action
- 52C: 1NO+1NC, slow action
- 52F: 1NO+2NC, slow action
- 52M: 2NO+2NC, slow action
- 53C: 1NO+1NC, slow action overlapped
- 53F: 1NO+2NC, slow action overlapped
- 53M: 2NO+2NC, slow action overlapped

### Contact block (cont)

### Complementary hinges (H x L)

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<tr>
<th>Code</th>
<th>Dimensions</th>
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<tr>
<td>HCAA</td>
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</tr>
<tr>
<td>HCAB</td>
<td>100.6 x 79 mm</td>
</tr>
<tr>
<td>HCLL</td>
<td>65 x 44.5 mm</td>
</tr>
</tbody>
</table>

Attention! The feasibility of a code number does not mean the effective availability of a product. Please contact our sales office.
Technical data

Housing
Metal housing, coated with baked epoxy powder
Version with cable integrated with 5 x 0.75 mm², 7 x 0.5 mm² o 9 x 0.34 mm² wires
length 2 m, other lengths on request.
Versions with M12 5 or 8 poles integrated connector
Protection degree:
IP67 according to EN 60529
IP69K according to DIN 40050

General data
Safety parameters: see page 6/32
Ambient temperature: See table on page 4/32
Max operating frequency: 1200 operations cycles/hour
Mechanical endurance: 1 million operations cycles¹
Max actuating speed:
90°/s
Min. actuating speed:
2°/s
Assembling position:
any
Max axial charge:
1500 N (preliminary data)
Max radial charge:
1000 N (preliminary data)
M5 screws max driving torque:
3 ... 5 Nm
¹ One operation cycle means two movements, one to close and one to open contacts, as foreseen by IEC 60947-5-1 standard.

In conformity with standards:
IEC 60947-5-1, EN 60947-5-1, IEC 60204-1, EN 1088, EN ISO 12100-1, EN ISO 12100-2, IEC 529, EN 60529.

Approvals:
IEC 60947-5-1, UL 508

Markings and quality marks:
Approval IMQ: CA02.03746
Approval UL: E131787

Data type approved by IMQ
Rated insulation voltage (Ue): 400 Vac / 250 Vac (with connector)
Thermal current (Ith):
10 A (1-2 contacts) / 6 A (3 contacts) / 4 A (4 contacts e with connector)
Protection against short circuits (fuse):
10 A (1-2 contacts) / 6 A (3 contacts) / 4 A (4 contacts e with connector)
Protection degree:
MA terminals (seamed clamps):
Pollution degree:
Protection against short circuits (fuse):
3
Utilization category:
AC15 / DC13 (with connector)
Operation voltage (Ue):
400 Vac (60 Hz) / 24 Vdc (with connector)
Operation current (Ie):
3 A / 2 A (with connector)
Forms of the contact element: X, Y, X+Y, Y+X, Y+Y, Y+X+Y, X+Y+X, X+Y+Y+Y

In conformity with standards: EN 60947-1, EN 60947-5-1 and subsequent modifications and completions, fundamental requirements of the Low Voltage Directive 2006/95/EC and subsequent modifications and completions.

Data type approved by UL
Utilization categories: R300 pilot duty (28 VA, 125-250 Vdc)
B300 pilot duty (360 VA, 120-240 Vac)
Data of the housing type 1, 4X “indoor use only,” 12
In conformity with standard: UL 508

Please contact our technical service for the list of approved products.
## Utilization temperatures and electrical data

<table>
<thead>
<tr>
<th>Utilization type</th>
<th>Standard temperature range</th>
<th>Without halogen</th>
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<th>Gas emission reduced</th>
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<th>IEC 60332-2-2</th>
<th>IEC 60332-3</th>
<th>IEC 60332-1-3</th>
<th>IEC 60332-1-2</th>
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<td>Approvals of switches with integrated cable</td>
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<td>CE</td>
<td>CE, cULus</td>
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## Internal connections

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<td>3 - black</td>
<td>1 - black</td>
<td>1 - black</td>
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<tr>
<td>2 - black-white</td>
<td>4 - black-white</td>
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<td>3 - red</td>
<td>6 - red-white</td>
<td>3 - brown</td>
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<td>4 - red-white</td>
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<td>7 - violet</td>
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<td>8 - violet-white</td>
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<tr>
<td>yellow-white</td>
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**Available options:**
- CE
- CE, cULus
- CE, cULus
- CE, cULus
- CE, cULus
- CE, cULus
- CE, cULus
### Dimensional drawings

#### Contact blocks

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Contact Type</th>
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<th>HP AA050C-2AN</th>
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<tbody>
<tr>
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<td>2NO+2NC</td>
</tr>
</tbody>
</table>

- **HP AA050C-KSM**
  - 1NO+1NC
- **HP AA050F-KSM**
  - 1NO+2NC
- **HP AA050M-KSM**
  - 2NO+2NC

#### Contact blocks

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Contact Type</th>
<th>HP AA050C-2SN</th>
<th>HP AA050C-2AN</th>
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- **HP AA050C-KSM**
  - 1NO+1NC
- **HP AA050F-KSM**
  - 1NO+2NC
- **HP AA050M-KSM**
  - 2NO+2NC

#### Contact blocks

<table>
<thead>
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<th>Dimensions</th>
<th>Contact Type</th>
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- **HP AA050C-KSM**
  - 1NO+1NC
- **HP AA050F-KSM**
  - 1NO+2NC
- **HP AA050M-KSM**
  - 2NO+2NC

#### Contact blocks

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- **HP AA050C-KSM**
  - 1NO+1NC
- **HP AA050F-KSM**
  - 1NO+2NC
- **HP AA050M-KSM**
  - 2NO+2NC

### Attention!
The safety hinge switch can be combined together exclusively with one or more Pizzato Elettrica hinges (series HP or HC). The use of whichever other hinge does not guarantee the right working of the safety device.

### Accessories
See page 5/1

All measures in the drawings are in mm.
In order to buy a HP AB series product:
substitute codes HP AA with HP AB.

Example:
HP AA050C-2SN  →  HP AB050C-2SN

Complementary hinges

How to read travel diagrams

The diagrams here illustrated refer to pre-adjusted hinges. Hinges are not supplied pre-adjusted (max. pre-adjustment: 4°).
Fixing plates
Fixing screw for profile not supplied on issue

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<th>Article</th>
<th>Description</th>
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<tr>
<td>VF SFH1-C</td>
<td>Couple of angular supports for HP AA and HC AA supplied with fixing screws for switch</td>
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<tr>
<td>VF SFH2-C</td>
<td>Couple of angular supports for HC LL supplied with fixing screws for switch</td>
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<tr>
<td>VF SFH3-C</td>
<td>Couple of plane supports for HP AA and HC AA supplied with fixing screws for switch</td>
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<td>VF SFH4-C</td>
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Accessories
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Items with code on the green background are available in stock.