

## Safety Solutions

According to the South African Occupational Health and Safety Act No. 85, 1993,
"Every employer shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees ...the safety and absence of risks to health in connection with the production, processing, use, handling, storage or transport of articles or substances."

Our safety product portfolio is designed for both human and machine safety.

We have carefully sourced a wide range of products and solutions from leading manufacturers across the globe to provide our customers with reliable technology to increase safety and productivity.




## Guardian line series - Safety rope switches

All IDEM safety rope emergency stop switches conform to ISO13850 (EN418) and EN60947-5-5 standards. They provide positive mechanical linkage between switch contacts and the wire rope as per EN60947-5-1. Pre-tensioning the rope using a tensioner/gripper device, clamps the rope and hooks onto the switch eyebolt.
Correct tension is observed through the indicator window on the switch, once tensioned, switch contacts can be set to operational condition (safety contacts closed, auxiliary contacts open) by pressing the blue reset button on the switch cover.
All Safety rope switches incorporate wire-breakage monitoring, pulling or breakage of the rope, positively opens safety contacts closing auxiliary contacts, mechanically latching the switch which can only be returned to the operational condition by pressing blue reset button as required by ISO13850. ATEX versions available on request.

- Rugged die-cast metal body (painted yellow) or stainless steel 316
- Enclosure protection: IP67, IP69K (stainless steel versions)
- Ambient temperature: $-25 \ldots+80^{\circ} \mathrm{C}$
- Typical operating force: $<125 \mathrm{~N}$ (<300 mm deflection)
- Mechanical life:
- Thermal current (Ith):
- Rated insulation voltage:
- Spare replacement lid: 1.000000 10A
- Standards: 500 V
With or without LED (available on request)
EN60947-5-1/-5-5, EN62061 (up to SIL3), UL508, ISO13850, ISO13849-1 (up to PLe)

| type | contacts |  | mounting position | max. protection length |  | LED <br> indication | price |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | NC | NO |  | 1 switch | 2 switches |  |  |

## GLH series - Heavy duty safety rope switches

Heavy duty safety rope pull switch protect long conveyor lengths. Robust housings survive indoor or outdoor use including washdown (IP67 rating). Lengths over 2 km can be achieved with less than 20 switches, shorter rope spans up to 200 m can be achieved using just one switch providing a cost effective solution.
Robust housings survive indoor and outdoor use, including washdown to IP67 and (IP69K on stainless steel versions only).

- Rope span (per switch): 100m (single head) - 200m (dual head)
- Mounting / position: $4 \times$ M5 / any position
- Cable/conduit entry: $4 \times \mathrm{M} 20$ cable entries

Note: Optional bi-colour LED indicates switch status from a distance Indication of rope status: Steady - Green = machine running

Flashing - Red = machine stopped
GLH - Die-cast housing IP67


| 141041 | 4 | 2 | centre | 200m | 250m | - | 5480.70 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 141029* | 4 | 2 | centre | 200m | 250m | - | 5891.12 |
| 141037 | 4 | 2 | left | 100m | 125 m | - | 3084.17 |
| 141053* | 4 | 2 | left | 100m | 125 m | - | 3493.39 |
| 141038 | 4 | 2 | right | 100 m | 125 m | - | 3084.17 |
| 141054* | 4 | 2 | right | 100 m | 125 m | - | 3493.39 |
| GLH-SS - Stainless Steel 316 housing |  |  |  | IP69K |  |  |  |
| 145025 | 4 | 2 | centre | 200m | 250m | - | 7799.22 |
| 145029* | 4 | 2 | centre | 200m | 250m | - | 8414.85 |
| 145037 | 4 | 2 | left | 100 m | 125 m | - | 6105.93 |
| 145053* | 4 | 2 | left | 100 m | 125 m | - | 6722.76 |
| 145038 | 4 | 2 | right | 100 m | 125 m | - | 6105.93 |
| 145054* | 4 | 2 | right | 100m | 125 m | - | 6722.76 |

* LED indication - provide voltage requirement by adding following to end of part number:
$\mathbf{A}=24 \mathrm{VDC} / \mathrm{B}=110 \mathrm{VAC} / \mathrm{C}=230 \mathrm{VAC}$


## Accessories - For rope operated switches

Accessories - Rope tensioner/gripper (quick fixing) - for rope operated switches

| type | description | length $(\mathrm{mm})$ | material | price |
| :--- | :--- | :--- | :--- | :--- |

Tensioning of the rope is achieved using IDEM's patented tensioner/gripper accessory. Traditional turnbuckle/clamp systems are difficult to tension and adjust, requiring frequent re-tensioning or maintenance, making viewing of the switch tension window difficult.
IDEMs tensioner/gripper accessory offers greater reliability, significantly reducing installation time by offering an eyehook, tensioner thimble and high strength gripper in one assembly, enabling rapid connection to the switch eyebolts with fast accurate tensioning


140044
of the rope while in close proximity to the viewing window of the switch.

| 140020 | rope tensioner/gripper for rope switches | $190 \ldots 248$ | galvanised | 946.86 |
| :--- | :--- | ---: | ---: | ---: | ---: |
| 140019 | rope tensioner/gripper for rope switches | $190 \ldots 248$ | stainless steel | 1478.49 |
| 140044 | red | emergency-stop mushroom pushbutton | twist release | 402.03 |
| 140140 | red | SS emergency-stop mushroom pushbutton | twist release | 1005.67 |

## GLS series - Standard duty safety rope switches

Guardian Line - General / standard duty safety rope switch is suitable to protect conveyor lengths up to 80 m using two switches or 60 m using a single switch. An emergency stop button can be fitted on either side, offering a traditional emergency stop function on the switch.
An optional bi-colour LED is also available to indicate the switch status from a distance. Rugged internal sealing and a robust LED lens permits the use of high pressure hosing, suitable for indoor and outdoor use.

- Rope span (per switch): 60 m (single switch) -80 m (dual switch)
- Cable/conduit entry: $3 \times$ M20 cable entries

| type | contacts |  | mounting position | max. protection length |  | description | LED indication | price |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | NC | NO |  | 1 switch | 2 switches |  |  |  |
| GLS Die-cast housing |  |  |  | (IP67) |  |  |  |  |
| 142052 | 2 | 2 | left/right | 60m | 80 m | rope switch | - | 2646.14 |
| 142058* | 2 | 2 | left/right | 60m | 80m | rope switch | - | 3052.97 |
| GLS-SS Stainless steel 316 housing |  |  |  | (IP69K) |  |  |  |  |
| 144003 | 2 | 2 | left/right | 60 m | 80 m | rope switch | - | 5016.28 |
| 144009* | 2 | 2 | left/right | 60m | 80 m | rope switch | - | 5625.90 |

* LED indication - provide voltage requirement by adding following to end of part number: $A=24 V D C / B=110 V A C / C=230 V A C$


## GLM series - Mini duty safety rope switches

Compact, robust die-cast safety rope pull switch to protect short conveyor lengths up to 50 m using two switches or 30 m using a single switch, providing a reliable, cost-effective safety solution for conveyor systems. An emergency stop button can be fitted to the side of the switch to offering a traditional emergency stop function close to the switch.
$143001 \quad 2 \quad 1 \quad$ left/right $30 \mathrm{~m} \quad 50 \mathrm{~m}$ rope switch $\quad$ - 142.72
Mounting accessories for rope operated switches

| type | description | length (mm) | material | price |
| :---: | :---: | :---: | :---: | :---: |
| 140020 | rope tensioner/gripper for rope operated switches | 190... 248 | galvanised | 946.86 |
| 140019 | rope tensioner/gripper for rope operated switches | 190... 248 | stainless steel | 1478.49 |
| 140021 | universal pulley for rope operated switches | 77 mm | stainless steel | 633.64 |
| 140064 | universal pulley for rope operated switches | 77 mm | galvanised | 422.43 |
| 140045 | standard eyebolt for rope operated switches (8 pack) | 84 mm | stainless steel | 651.64 |
| 140046 | standard eyebolt for rope operated switches (8 pack) | 84 mm | galvanised | 345.63 |
| 140099 | roller eyebolt with nuts (non adjusting) | 71 mm | die cast metal | 628.84 |
| 140048 | roller eyebolt with nuts (adjustable) | $107-140 \mathrm{~mm}$ | die cast metal | 806.45 |
| 140047-S | pigtail eyebolt (short) M10 46mm thread (1/pack) | 114 mm | stainless steel | 94.82 |
| 140043 | safety spring for rope operated switches | 220 mm | stainless steel | 434.43 |
| 140165*** | mounting brackets for rope op. switches (1/pack) | 127 mm | stainless steel | 308.42 |
| 140059 | anti-tamper screwdriver for rope operated switches | T20 | - | 50.42 |
| * Note: GLM and GLS series can be mounted using one bracket. GLHD needs two. |  |  |  |  |
| Steel cable (polypropylene covered) for rope operated switches |  |  |  |  |
| 4.0 mm outside diameter. steel inner - polypropylene cover |  |  |  |  |
| 140037 | insulated steel cable for rope operated switches | 30 m | steel/PVC | 969.66 |
| 140038 | insulated steel cable for rope operated switches | 50m | steel/PVC | 1338.09 |
| 140040 | insulated steel cable for rope operated switches | 100m | steel/PVC | 2322.13 |
| 140068 | insulated steel cable for rope operated switches | 500m | steel/PVC | 7859.22 |

Rope kits for rope operated switches
Rope kits Rope kits comprise: tensioner/gripper assembly + allen key, quick link (up to 50m), length rope terminated one end and No. eyebolts required for length of rope

| type | length | description | No. of eyebolts | tension/ gripper | price |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 140004 | 20 m | rope kit for rope operated switches | 9 | $1+$ QL | 2227.32 |
| 140005 | 30 m | rope kit for rope operated switches | 12 | $1+$ QL | 2517.74 |
| 140006 | 50m | rope kit for rope operated switches | 20 | 1 + QL | 3002.57 |
| 140007 | 80 m | rope kit for rope operated switches | 30 | 2 | 3350.59 |
| 140008 | 100m | rope kit for rope operated switches | 37 | 2 | 3637.40 |
| 140009 | 126m | rope kit for rope operated switches | 45 | 2 | 4026.22 |

E-stop and contact blocks (spare) for rope operated switches



Conveyor belt alignment switches
Conveyor belt alignment switches are mounted on sections of plant conveyors to protect against excessive belt drift due to unintentional movement. Should the belt position drift, the roller arm of the switch will move to a pre-determined position causing activation of a control circuit providing positively opening NC safety contacts (to EN60947-5-1) at the point of tripping.
2 internal contact blocks, one to provide a "WARNING" signal the other to provide a "STOP" signal.
Rugged die-cast metal body (painted yellow) or Stainless Steel 316

| Switching range: | "Warning" signal | $10 \ldots 18^{\circ} \mathrm{C}$ | (factory setting $14^{\circ} \mathrm{C}$ ) |
| :--- | :--- | :--- | :--- |
|  | "Stop" signal | $15 \ldots .35^{\circ} \mathrm{C}$ | (factory setting $25^{\circ} \mathrm{C}$ ) |
| Operating torque: | Medium duty | $1.8 \mathrm{Nm} \ldots 2.8 \mathrm{Nm}$ | (factory setting 1.8 Nm ) |
|  | Heavy duty | $3.0 \mathrm{Nm} \ldots . .0 \mathrm{Nm}$ | (factory setting 3.0 Nm ) |

- Enclosure protection: IP67-IP69K (in stainless steel)
- Ambient temperature: $-25 . . .+80^{\circ} \mathrm{C}$
- Vibration resistance:
$10-500 \mathrm{~Hz} 0.35 \mathrm{~mm}$
- Shock resistance:

11 ms 15 g

- Mechanical life: 150.000 operations
- Thermal current (lth):

10A

- LED indication: Available on request
- Standards:

EN60947-5-1, EN620

- Spare replacement lid:

With or without LED (available on request)

| type | contacts |  | roller dimensions |  | factory settings |  |  | duty | price |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | NC | NO | $\varnothing$ | length | torque | warning | stop |  |  |

Python line series - Conveyor belt alignment switches

- Cable/conduit entry: $4 \times \mathrm{M} 20$ cable entries

Die-cast (painted yellow) housing

| $\mathbf{5 0 0 0 0 1}$ | 2 | 2 | 35 mm | 120 mm | 1.8 Nm | $14^{\circ} \mathrm{C}$ | $25^{\circ} \mathrm{C}$ | medium | $\mathbf{7 6 9 6 . 1 1}$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $\mathbf{5 0 0 0 0 5}$ | 2 | 2 | 35 mm | 230 mm | 3.0 Nm | $14^{\circ} \mathrm{C}$ | $25^{\circ} \mathrm{C}$ | heavy | $\mathbf{7 8 7 4 . 8 2}$ |
| Stainless steel $\mathbf{3 1 6}$ | housing |  |  |  |  |  |  |  |  |
| $\mathbf{5 0 1 0 0 1}$ | 2 | 2 | 35 mm | 120 mm | 1.8 Nm | $14^{\circ} \mathrm{C}$ | $25^{\circ} \mathrm{C}$ | medium | $\mathbf{9} 938.93$ |
| $\mathbf{5 0 1 0 0 5}$ | 2 | 2 | 35 mm | 230 mm | 3.0 Nm | $14^{\circ} \mathrm{C}$ | $25^{\circ} \mathrm{C}$ | heavy | $\mathbf{1 0 9 1 0 . 9 8}$ |

## HLM-CBA series - Mini belt alignment switches

- Heavy duty die cast bodies (painted red)
- High mechanical life over 500.000 cycles
- Standards:

ISO14119, EN60947-5-1, EN60204-1, ISO13849-1, EN62061, UL508

| 174401 | 2 | 2 | 22 mm | 70 mm | 1.10 Nm | plastic roller | 3129.77 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 174451 | 2 | 2 | 22 mm | 70 mm | 1.40 Nm | stainless steel roller | 3837.81 |

## Emergency stop stations

IDEM's emergency stop switches provide robust emergency stop protection for machines and exposed conveyors. They are suitable for use within all industry sectors.

- Yellow Polyester (IP67) or stainless steel 316 body (IP69K)
- Safety trip mechanism opens safety contacts if lid removed - extra degree of anti-tamper
- Button protection shroud version with padlock holes to enable "Lock Off"
- 3 and 4 pole contact blocks provide positively operated switch contacts

174451 - ATEX versions available on request


Ambient temperature:
Mechanical life:
Thermal current (lth):
Cable/conduit entry:
Standards:
Polyester housing

| 230001 | 2 | 1 |
| :--- | :--- | :--- |
| 230003 | 2 | 1 |

Stainless steel housing

| 231001 | 2 | 1 |
| :--- | :--- | :--- |
| 231005 | 2 | 1 |
| 232019* | 3 | 1 |
| 232023* | 2 | 2 |
| 232025* | 3 | 1 |
| 232023-AS | 2 | 2 |

$-25 \ldots+80^{\circ} \mathrm{C}$
1.500.000 operations

10A
2 x M20 (3-pole) / $3 \times$ M20 (4-pole)
EN60947-5-1, EN60947-5-5, EN62061 UL508, ISO13850, ISO13849-1 (IP67)
plastic (polyester) emergency stop station plastic (polyester) emergency stop station with button shroud (IP69K)

2750.56

* Please provide voltage requirement by adding following to end of part number:
$\mathbf{A}=24 \mathrm{VDC} / \mathrm{B}=110 \mathrm{VAC} / \mathrm{C}=230 \mathrm{VAC}$
Tongue operated switches (connects to most safety relays)
IDEM tongue operated safety interlock switches fit to the leading edge of sliding, hinged or lift off machine guards to provide positively operated switching contacts and a tamper resistant (not easily defeatable) key mechanism. Used independently to provide positively operated contacts to EN60947-5-1 or in combination with any dual channel safety monitoring relays to provide up to category 4 PLe ISO13849-1.
The switch is mounted to the frame of the guard or machine, and the actuator profile is fitted to the moving part (frame) of the guard and aligned to match a cam mechanism within the switch entry aperture, providing a positively operated (not easily defeatable) interlock switch. Inserting the actuator into the switch closes the safety contacts enabling the machine start circuit. Withdrawing the actuator positively opens the safety contacts.
Positive break contacts to EN60947-5-1 High functional safety to ISO13849-1
- Actuators for switches ordered separately (see accessories section below)
- Cable/conduit entry: $3 \times \mathrm{M} 20$ cable entries

| type | No. entry | contacts |  | description | dimensions (mm) |  |  | price |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | positions | NC | NO |  | (H) | (W) | (D) |  |

## Type KP - Kobra tongue operated switches (non-locking)

KP and K-SS switches provide industry standard fixing points and a rotating head for up to 4 actuator entry positions. The double seal gasket and stainless steel internal screws reduce the likelihood of rust build up inside the switch. IDEMs patented CAM system ensures long term reliability, even under harsh environmental conditions.

- Enclosure protection: IP67 - rugged polyester body with stainless steel head
- Ambient temperature: $-25 \ldots+80^{\circ} \mathrm{C}$
- Thermal current (Ith):
- Rated Ins/withstand voltage:
- Standards:
A


## Type K-SS stainless steel tongue operated switches

- Enclosure protection: IP69K - rugged stainless steel 316 body

| 208007 | 4 | 3 | 1 | SS tongue operated switches | 98 | 58 | 37.5 | $\mathbf{2} 649.74$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

## KLM series - Guard locking switch (Metal)

Solenoid locking interlock safety switch featuring Guard Holding up to 3000N (300Kg) (F1Max)
KLM guard locking safety switches have rugged die cast housings with a high holding force of 3000 N to keep medium/large guard doors closed until hazards are removed. The slim profile is designed to fit on 50 mm frame sections or where space is restricted. The head rotates providing up to 8 actuator entry positions. 2 independent contact blocks individually monitor lock and door status. Internal switch selectable for power feed to LED or as a voltage free auxiliary circuit to indicate lock status.

- Enclosure protection: IP67-Rugged polyester body with stainless steel head
- Soleniod supply voltage: 24 VAC/DC or 230 VAC (available in 110 VAC on request)
- Ambient temperature: $-25 \ldots+50^{\circ} \mathrm{C}$
- Thermal current (Ith): 10A
- Rated Ins/withstand voltage: 500 VAC/2500 VAC
- Manual release: 1 manual release

| 202001-SS | 8 | 3 | 1 | locking interlock safety switches | 24 VDC | 176 | 46 | 47 | $\mathbf{4} 491.84$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 202007-SS | 8 | 3 | 1 | locking interlock safety switches | 230 VAC | 176 | 46 | 47 | $\mathbf{4 5 7 3 . 4 5}$ |

## KL3-SS series - Stainless steel tongue operated switches

In accordance with EHEDG (European Hygienic Engineering \& Design Group) guidelines for hygienic design, mirror-polished surface to Ra10 designed to cope with direct food splash and cleaning in tough applications of food processing industries.
IP69K enclosure protection permits high pressure hosing with detergent at high temperature.

- Enclosure protection: IP69K - Mirror polished 316 stainless steel

| $\mathbf{2 0 5 0 0 1}$ | 8 | 3 | 1 | locking interlock safety switches | 24 VDC | 177 | 48 | 47 | $\mathbf{8 5 6 6 . 0 5}$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $\mathbf{2 0 5 0 0 7}$ | 8 | 3 | 1 | locking interlock safety switches | 230 VAC | 177 | 48 | 47 | $\mathbf{8 6 6 6 . 8 6}$ |

Accessories for above tongue operated switches

140123 - manual release key (front and side) for
140107 standard
140108 flat
flexible
flexible
standard actuator only flat actuator only
die-cast heavy duty flexible actuator only stainless steel heavy duty flexible actuator only

KLM and KL3-SS all tongue switches all tongue switches all tongue switches all tongue switches
288.02
133.22
133.22
477.64
954.06


RFID coded non-contact safety switches
24 VDC
SIL 3 - SILCL 3 - PLe - Cat. 4
RFID non-contact safety sensors provide highly-reliable, tamper-proof personnel protection for monitoring protective doors, gates and guards, they uniquely identify passive RFID transponders ensuring high coding levels and effective protection.

| Master coded: | The actuator is free and not specifically assigned to the sensor |
| :--- | :--- |
| Unique coding: | Factory programmed and permanently assigned to sensor during set-up |
| - Output: | 2 NC safety outputs and 1 NO auxiliary output |
| - Connection type: | M12 connector - (Pigtail M12/8-pin -250 mm), see page K-23/24 |
| - High EMC immunity and IP67/IP69K protection ensure excellent reliability in harsh environments. |  |
| - Resistant to aggressive media, e.g. cleaning agents used in the food and packaging industry |  |


| type | model | sensing <br> distance | circuits | description | dimensions (mm) |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  | (H) | (W) | (D) |  |  |

## RFID safety switches supplied as sensor/actuator combination

SPF - universal ( 22 mm fixing centres)


Coded non contact safety switches
24 VDC
IDEM coded non contact safety switches, enable conformance to EN60947-5-3 to be used as directed by ISO12100, ISO14121 and EN60204-1.
They have coded magnetic sensing providing a wide sensing distance and high tolerance to misalignment after sensing. Used in combination with most dual channel safety monitoring relays they can be used to provide up to PLe to ISO13849-1.

- Compact and robust high specification polyester housing
- Visual LED switch status indication (on coded version only)
- Coded magnetic operation - Tamper resistant.
- Supplied as sensor/actuator combination

MPC - Miniature industry standard (22 mm fixing centres)
$114104 \quad$ MPC $\quad 14 \mathrm{~mm} \quad 2 \mathrm{NC} \quad$ compact coded safety switches $\begin{array}{lllllll}36 & 26 & 13 & \mathbf{2} 805.76\end{array}$
LPC - European industry standard fitting ( 78 mm fixing centres)
$110004 \quad$ LPC $\quad 14 \mathrm{~mm} \quad 2 \mathrm{NC}$ rectangular coded safety switches $\begin{array}{lllllll}88 & 25 & 13 & 1944.11\end{array}$
Magnetic non-contact switches (non coded) Up to: PLe ISO13849-1
IDEM's magnetic non-contact safety interlocks are designed to conform to IEC 60947-5-3 and be used as directed by ISO12100, ISO14121 and ISO14119. They feature magnet and reed technology, providing a high tolerance to misalignment and extreme temperatures.

MPR - Miniature industry standard (22 mm fixing centres)

| 114004 | MPR | 12 mm | 2 NC | compact magnetic switches | 36 | 26 | 13 | 1706.50 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| LPR - European industry standard fitting (78 mm fixing centres) |  |  |  |  |  |  |  |  |
| 110012 |  |  |  |  | 88 | 25 |  | 27 |


| 110012 | LPR | 12 mm | 2 NC | rectangular magnetic switches | 88 | 25 | 13 | $\mathbf{2} 272.93$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Normally closed (NC) circuits are closed with the actuator is present. |  |  |  |  |  |  |  |  |

Safety limit switches (die-cast metal body)

| type | model | sensing <br> distance | circuits | description | dimensions (mm) |  |  | price |
| :--- | :---: | :---: | :--- | :---: | :---: | :---: | :---: | :---: |
| $\mathbf{1 7 2 0 0 7}$ | LSMM | 12 mm | $2 \mathrm{2NC} / 1 \mathrm{NO}$ | roller plunger limit switch | 73 | 35 | 14 | $\mathbf{8 3 6 . 4 5}$ |

## EM - Panel door limit switch 6A 240 VAC

## IP20

Used for the detection of panel doors and gates opening or closing as a safety measure to disconnect system if door is opened or to activate an internal panel light for illumination of the innards of the panel when the door is opened.

- Contact configuration: 1NO 1 NC contact (NC contact with positive opening)
- Dimensions: $\quad$ (H) $59 \times$ (W) $28 \times$ (D) 24.4 mm (including plunger)
- Material:

Fire retardant material used for mechanical \& electrical safety

| type | current <br> lth | actuator | description | price |
| :--- | :---: | :---: | ---: | ---: |
| MLASS3A5 | $6 A$ | rounded metal plunger | panel door limit switch | $\mathbf{1 3 3 . 2 2}$ |
| HC122505 | cover | terminal protection cover for above panel door limit switch | $\mathbf{1 1 . 4 2}$ |  |




Mosaic - A unique safety controller: Modular, Expandable, Configurable
Mosaic is a modular configurable safety controller capable of managing all safety functions of machinery or plants. Made up of a Master unit which can operate as a stand-alone device or control up to 14 expansion units in a system.
Capable of monitoring several safety sensors and signals such as: light curtains - photocells - laser scanners - emergency stops - electromechanical switches - safety door switches - magnetic switches - safety mats and edges - two-hand controls - hand grip switches - encoders and proximities for safety speed control - load cells - pressure switches - temperature, flow and level measurements.

- Power supply:

24 V DC $\pm 20 \%$

- Safety level:

SIL 3, PL e, SILCL 3, Cat. 4

- Connections:

Removable (screw terminal) blocks

- Mounting:
- Dimensions:


## Advantages

- Tamper-proof system configuration
- Reduced control panel dimension, design and construction time
- Logic configured via graphic interface, eliminating laborious wiring as with traditional solutions
- Simulation function allows to validate system functionality without connecting to a machine

| type | model | digital <br> inputs | Start <br> Restart <br> inputs | OSSD <br> safety <br> outputs | status <br> outputs | description |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |

## Mosaic master units <br> Master units can operate as stand-alone device or expanded with additional I/O modules. <br> M1 - Standard master unit

- 2 pairs SIL 3 OSSD safety outputs (PNP 400 mA )
- 2 inputs for Start/Restart interlock and external device monitoring (EDM)
- 2 programmable digital status outputs (PNP 100 mA )
- 4 test outputs (for sensor monitoring)
$\begin{array}{llllllll}1100000 & \text { M1 } & 8 & 2 & 2 & \text { pairs } & 2 & \text { standard master controller }\end{array} \mathbf{6 9 0 9 . 9 7}$


## M1S - Enhanced master unit

- 4 single SIL 3 OSSD or (2 pairs) safety outputs (PNP 400 mA )
- 4 inputs for Start/Restart interlock and external device monitoring (EDM)
- 4 programmable digital status outputs (PNP 100 mA )
- 4 test outputs (for sensor monitoring)

| 1100003 | M1S | 8 | 4 | 4 or (2 pairs) | 4 | enhanced master controller | 8638.06 |
| :--- | :---: | :---: | :---: | ---: | :--- | ---: | ---: |
| 1100005 | MZERO | 16 | 4 | 4 or (2 pairs) | 4 | standalone safety controller | 11938.23 |
| 1100006* | M1SCOM | 8 | 4 | 4 or (2 pairs) | 4 | master controller builtin comms | 13896.73 |

* Build in Ethernet IP, Modbus TCP, EtherCAT, and Profinet


## Accessories for M1/M1S/COM master units

| $\mathbf{1 1 0 0 0 6 0}$ | MCM | memory card to store or duplicate master unit configuration as a backup | $\mathbf{6 9 1 . 2 5}$ |
| :--- | :--- | ---: | :--- |
| $\mathbf{1 1 0 0 0 6 1}$ | MSC | rear bus connector required to connect to any expansion module | $\mathbf{2 8 8 . 0 2}$ |
| 1100062 | USB | USB configuration cable (A-mini B, length 1.8 m ) | $\mathbf{3 3 9 . 6 3}$ |

## Mosaic - Expansion modules

Input/output expansion modules provides additional digital inputs and outputs to the master unit

| 1100010 | MI8O2 | 2x pairs SIL 3 OSSD safety outputs, $8 x$ digital inputs, $2 x$ status outputs | 5701.51 |
| :--- | :---: | ---: | ---: | ---: |
| 1100011* | MI8O4 | 4x single SIL 3 OSSD safety outputs, $8 x$ digital inputs, $4 x$ status outputs | 6564.35 |
| 1100021 | MI16 | 16x digital inputs and $4 x$ test outputs (for sensor monitoring) | 5471.10 |
| 1100025* | MA4 | $4 \times 4-20 \mathrm{~mA}$ (or 0-10V) analogue inputs (for analogue sensors) | 14976.79 |
| * Only compatible with M1S and M1SCOM enhanced Master unit. |  |  |  |

* Only compatible with M1S and M1SCOM enhanced Master unit.
1100031 MO4 4x pairs SIL 3 OSSD safety outputs, $4 x$ status output
6218.73
6909.97
4837.46
3930.21
6909.97
for connection to the most common industrial Field-bus systems

| 1100050 | MBP | Profibus DP |
| :--- | :---: | :---: |
| $\mathbf{1 1 0 0 0 5 1}$ | MBD | DeviceNET |
| $\mathbf{1 1 0 0 0 5 2}$ | MBC | CANopen |
| 1100054 | MBEI | EtherNET IP |
| 1100082 | MBMR | Modbus RTU |

module for diagnostics and data communication module for diagnostics and data communication module for diagnostics and data communication module for diagnostics and data communication module for diagnostics and data communication
7994.82
7994.82
7994.82
6333.95
7994.82

Safety interfaces and relays


- Power supply: 24 VDC $\pm 20 \%$
- Electrical connection: On terminal block
- Mounting:
- Dimensions:

DIN rail mounting according to EN 50022-35 standard
Relays - (H) $101 \times(W) 35 \times(D) 120 \mathrm{~mm}$
Interfaces - (H) $99 \times($ W) 22.5 (35 mm -ADSRM) $\times$ (D) 114 mm

| type | model | no. <br> of <br> inputs | safety <br> inputs | safety <br> outputs | status <br> outputs | description |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |

## Safety interfaces and relays

Safety interface for emergency stop buttons and safety switches
PLe - Cat. 4
1330913 ADSRE4 1 of 1 3NO+1NC $\quad-\quad$ auto / manual start restart 3272.58
1330914 ADSRE4C 1 2 or 1 3NO+1NC $\quad$ manual start restart 3272.58

## Safety interface for safety light curtains

Type 4 - SIL 3 - SILCL 3 - PL e - Cat. 4

| 1330904 | ADSRM | 6 | 4 | $2 N O$ | 2 | muting safety light curtain | $\mathbf{5} 279.08$ |
| :--- | :--- | :--- | :--- | :---: | :--- | ---: | :--- |
| 1330902 | ADSRO | - | 2 | $2 N O+1 N C$ | 1 | relay module for EOSX | 2047.32 |
| 1330903 | ADSROA | - | 2 | $2 N O$ | 1 | relay module for EOSX | 1544.49 |



Safety speed monitoring interface (H) $108 \times$ (W) $22.5 \times$ (D) 114.5 mm

| 1100078 | SVMRO | 2 | 2 | $2 N O$ | 2 | over/zerospeed detection | 8334.45 |
| :--- | :--- | :--- | :--- | :--- | :--- | ---: | :--- |
| 1100088 | SVMROU | 2 | 2 | 2NO | 2 | underspeed detection | 8334.45 |

Safety interface for two-hand control
1330915 ADSRT 1 2NO+1NC 2 two hand contol 3704.61
RFID safety switches 24 VDC SIL 3-SILCL 3-PLe - Cat. 4
Magnus RFID non-contact safety sensors provide highly-reliable, tamper-proof personnel protection for monitoring protective doors, gates and guards. It uniquely identifies passive RFID transponders ensuring high coding levels and effective protection against manipulation with easy installation and safety system integration to PL e/SIL 3. Sensors can be individually coded in two different ways for appropriate tampering protection in all applications.
Actuator coded: The actuator is free and not specifically assigned to the sensor (one actuator can work with multiple sensors)
Individual coding: Programmed via teach-in and permanently assigned to sensor during set-up (the process can be repeated up to 8 times if necessary)

- Indication: LED status indicators for fast diagnostics
- Output: 2 safety inputs and outputs and 1 diagnostic output
- Connection type: M12 connector - (Pigtail M12/8-pin - 150 mm )
- Mounting:

Screw mounting S - inter-axis 22 mm

- Tampering protection in accordance with DIN EN 14119, the highest in its class
- Can be installed individually or in series with up to 30 units (accessories required)
- High EMC immunity and IP67 protection ensure excellent reliability in harsh environments
- Resistant to aggressive media, e.g. cleaning agents used in the food and packaging industry

| type | sensing | description | dimensions (mm) |  | price |
| :--- | :---: | :--- | :--- | :--- | :--- |
|  | distance $(\mathrm{mm})$ |  | (H) | (W) | (D) |$]$

RFID safety switches supplied as sensor/actuator combination

1292000 CSCAM $\quad 8 \ldots 18 \quad$ S actuator coding RFID safety switch $\quad 26$

## Accessories

1292401 SPS spacers for S series (recommended for mounting on metal surfaces)

## Magnetic safety switches 24 VDC

- Compact and robust thermoplastic enclosure (PBT)
- Coded magnetic operation - Tamper resistant
- Sensor with M8/4pin connector: 2 NO contacts
- Connected to Mosaic safety controller provides a certified PL e safety system

| $\mathbf{1 2 9 1 0 0 0}$ | MGS20 | $3 \ldots 10$ | MGS compact magnetic safety switches | 36 | 13 | 26 | $\mathbf{7 5 8 . 4 5}$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $\mathbf{1 2 9 1 0 0 1}$ | MGSM | $3 \ldots 10$ | MGS magnet unit for above switches | 36 | 13 | 26 | $\mathbf{2 5 3 . 2 2}$ |
| $\mathbf{1 2 9 1 0 1 0}$ | MGB20 | $4 \ldots 16$ | MGB rectangular mag. safety switches | 88 | 25 | 14 | $\mathbf{7 0 8 . 0 5}$ |
| $\mathbf{1 2 9 1 0 1 1}$ | MGBM | $4 \ldots 16$ | MGB magnet unit for above switches | 88 | 25 | 14 | $\mathbf{2 0 2 . 8 2}$ |



## Safety lockout hasps

Safety lockout hasps permit multiple padlocks to be used when isolating one energy source. The lockout hasp is placed through the isolating point and closed.
Each person carrying out maintenance or service attaches their unique individually keyed padlock through the lockout hasp, thereby ensuring complete safety during maintenance operations. The hasp can only be removed once all padlocks have been removed.

## General features:

- Scissor action hasp with $\varnothing 25 \mathrm{~mm}$ or 38 mm jaw size
- Accepts padlocks with a shackle diameter up to 9 mm (up to 6 padlocks can be attached)
- Manufactured from high tensile steel, electroplated to prevent rust

| type | jaw size | colournumber of <br> padlocks <br> accepted | description | price |
| :--- | :--- | :--- | :--- | :--- |

## Vinyl coated hasp

- Padlock section vinyl coated (red) for improved grip and visibility

ES-VCH-P

| ES-VCH-S | 25 mm | red | 6 | safety lockout hasp | 134.00 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| ES-VCH-P | 38 mm | red | 6 | safety lockout hasp | 157.00 |
| Lockout padlocks |  |  |  |  |  |

## Lockout padlocks

Maximum security laminated padlocks made for tough lockout situations.

- Increased durability against cutting, prying and twisting
- Supplied with two keys per lock

ES-PLS-KD padlock long shackle - different keys 200.00

## Electric slider hasp

- Made from hard nylon /ABS - highly visible
- Recommended for electrical panels MCCB's, motor protection circuit breakers

| ES-DESH-43 | 3 mm (shackle) yellow | 4 | slider hasp |
| :--- | :--- | :--- | :--- |
| 140.00 |  |  |  |

## Heavy Duty hasp (316 Stainless steel)

- Marine grade 316 stainless steel
- Fits most switchgear
- For use in corrosive environments and mines

| ES-HDH-7H | 3 mm (shackle) red $\quad 7$ | heavy duty hasp | 350.00 |
| :--- | :--- | :--- | :--- |

## Example: Electric slider / Heavy Duty hasp



## Modular plug-in surge protection devices (SANS/IEC 61643-11)

For the protection of low voltage equipment against transient voltages and current surges from atmospheric origins (lightning) as well as transients produced by switching characteristics such as in switching of distribution networks, transformers, motors, etc.

- Provides protection for even most sensitive equipment (IEC 60634-4-443 category-1)
- Clear lifetime indication (on front face) and optional remote (IR) end of life signalling contact
- Meets all current international standards (IEC 61643 / IEC 62305, etc.)
- Plug-in cartridges for quick and easy replacement of damaged cartridges
- Suitable for all types of applications: residential, commercial and industrial

|  | $(8 / 20 \mu \mathrm{~s})$ | max. | voltage | with |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| type | $\mathrm{L}-\mathrm{N}$ | volts L-N | protection | poles | config. | signal | width in | price |
|  | $(I m a x)$ | $(U c)$ | $(U p)$ |  |  | contact | 18 mm |  |

## Type 2 / Class II surge protection devices

Ability to discharge induced voltage surges ( $8 / 20 \mu \mathrm{~s}$ ). Suitable for second level protection in supply distribution panels in which Type 1 protectors are installed, or first level of protection for applications not exposed to direct strikes and with no external lightning protection system. IEC 61643-11.

- High discharge capacity tested with an $8 / 20 \mu$ s waveform: 20kA or 40 kA per phase
- Provides protection for most sensitive equipment (IEC 60634-4-443 category 1)

| Imax 20kA (8/20رs) |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PSM1-20/230 | 20 kA | 320 V | $\leq 1.4 \mathrm{kV}$ | 1 | 1ph | - | 1 | 534.04 |
| PSM1-20N | 20 kA | 265 V | $\leq 1.5 \mathrm{kV}$ | 1 | N | - | 1 | 603.64 |
| PSM2-20/230 TT | 20 kA | 320 V | $\leq 1.4 \mathrm{kV}$ | 2 | $1 \mathrm{ph}+\mathrm{N}$ | - | 2 | 958.86 |
| PSM2-20/230 TTIR | 20 kA | 320 V | $\leq 1.4 \mathrm{kV}$ | 2 | $1 \mathrm{ph}+\mathrm{N}$ | signal | 2 | 1383.69 |
| PSM4-20/400 TT | 20 kA | 320 V | $\leq 1.4 \mathrm{kV}$ | 4 | $3 \mathrm{ph}+\mathrm{N}$ | - | 4 | 1797.71 |
| PSM4-20/400 TTIR | 20 kA | 320 V | $\leq 1.4 \mathrm{kV}$ | 4 | $3 \mathrm{ph}+\mathrm{N}$ | signal | 4 | 2641.34 |
| Imax 40kA (8/20 $\mathrm{s}_{\text {s }}$ |  |  |  |  |  |  |  |  |
| PSM1-40/230 | 40 kA | 275 V | $\leq 1.3 \mathrm{kV}$ | 1 | 1 ph | - | 1 | 622.84 |
| PSM1-40N | 40 kA | 265 V | $\leq 1.5 \mathrm{kV}$ | 1 | N | - | 1 | 811.25 |
| PSM2-40/230 TT | 40 kA | 275 V | $\leq 1.3 \mathrm{kV}$ | 2 | $1 \mathrm{ph}+\mathrm{N}$ | - | 2 | 1376.49 |
| PSM2-40/230 TTIR | 40 kA | 275 V | $\leq 1.3 \mathrm{kV}$ | 2 | $1 \mathrm{ph}+\mathrm{N}$ | signal | 2 | 1744.90 |
| PSM4-40/400 TT | 40 kA | 275 V | $\leq 1.3 \mathrm{kV}$ | 4 | $3 \mathrm{ph}+\mathrm{N}$ | - | 4 | 2184.12 |
| PSM4-40/400 TTIR | 40 kA | 275 V | $\leq 1.3 \mathrm{kV}$ | 4 | $3 \mathrm{ph}+\mathrm{N}$ | signal | 4 | 3208.98 |

Class 2 surge protection devices for higher voltage applications (500-690V)

- Rated varistor voltage Uc = 750 VAC / Imax 30kA ( $8 / 20 \mu \mathrm{~s}$ ) Un 690 VAC


| PSM1-30/750 | 30 kA | 750 V | $\leq 3.0 \mathrm{kV}$ | 1 | 1 ph | - | 1 | 919.26 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | ---: |
| PSM1-30/750 IR | 30 kA | 750 V | $\leq 3.0 \mathrm{kV}$ | 1 | 1 ph | signal | 1 | $\mathbf{1 0 4 1 . 6 7}$ |
| PSM3-30/750 TNC | 30 kA | 750 V | $\leq 3.0 \mathrm{kV}$ | 3 | 3 ph | - | 1 | $\mathbf{2} 348.54$ |
| PSM3-30/750 TNCIR | 30 kA | 750 V | $\leq 3.0 \mathrm{kV}$ | 3 | 3 ph | signal | 1 | $\mathbf{3 0 6 1 . 3 7}$ |

Spare replacement plug-in cartridges for Type 2 surge arrestors

| PSM-20/230 | 20 kA | 320 V | $<1.4 \mathrm{kV}$ | - | PSM $1 / 2 / 4-20$ phase | $\mathbf{4 4 4 . 0 4}$ |
| :--- | :--- | :--- | :--- | :--- | ---: | :--- |
| PSM-40/230 | 40 kA | 275 V | $<1.3 \mathrm{kV}$ | - | PSM $1 / 2 / 4-40$ phase | $\mathbf{4 5 4 . 8 4}$ |
| PSM-30/750 | 30 kA | 750 V | $<3.0 \mathrm{kV}$ | - | PSM1/3-30 phase | $\mathbf{6 8 0 . 4 5}$ |
| PSM-20N | 20 kA | 255 V | $<1.5 \mathrm{kV}$ | - | PSM1/2/4-20 neutral | $\mathbf{5 0 0 . 4 4}$ |
| PSM-40N | 40 kA | 255 V | $<1.5 \mathrm{kV}$ | - | PSM1/2/4-40 neutral | $\mathbf{6 7 3 . 2 5}$ |
| PSM SAFEGROUND |  |  |  |  |  |  |

DIN - rail device for monitoring the earthing system from within the actual surge protection device. SAFEGROUND technology is based on the loop impedance monitoring sending current pulses to check the status of the grounding system and provide information regarding the proper wiring of the device and the existence of an adequate path to ground for the SPD itself to protect effectively.

- Confirms the device is properly installed and how effective the surge protection is
- Indication of the status of the earth loop via multi-state LEDs
- High discharge capacity with an $8 / 20 \mu \mathrm{~s}$ waveform. Imax: 40 kA

Indication:

- Green: Correct earth connection
- Yellow: Poor earth connection
- Red: No earth connection

| PSM2-40/230 SG | 40 kA | 275 V | $\leq 1.3 \mathrm{kV}$ | 2 | $1 \mathrm{ph}+\mathrm{N}$ | - | 2 | 3486.19 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| PSM4-40/400 SG | 40 kA | 275 V | $\leq 1.3 \mathrm{kV}$ | 4 | $3 \mathrm{ph}+\mathrm{N}$ | - | 4 | 4490.64 |

Modular plug-in surge protection devices (SANS/IEC 61643-11)
Type 1+2 / Class I+II lightning current and surge arrestor (combined in a single device)
Suitable for first level protection of incoming power supply panels in areas with greater exposure to lightning. For installations usually provided with external lightning protection systems. Able to discharge lightning currents $(10 / 350 \mu s)$ and induced voltage surges ( $8 / 20 \mu \mathrm{~s}$ ) IEC 61643-11

- Capable of protecting equipment from direct lightning strikes
- Discharges impulse currents with a $10 / 350$ s waveform. limp: 12.5 kA or 25 kA per phase
- Clear lifetime indication (on front face) and optional remote (IR) end of life signalling contact
- Provides protection for most sensitive equipment (IEC 60634-4-443 category 1)

|  | $10 / 350 \mu \mathrm{~s}$ | $(8 / 20 \mu \mathrm{~s})$ | max. | voltage |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| type | $\mathrm{L}-\mathrm{N}$ | $\mathrm{L}-\mathrm{N}$ | volts L-N | protection | poles | config. | width in | price |
|  | $(\operatorname{limp})$ | $(\operatorname{lmax})$ | $(\mathrm{Uc})$ | $($ Up) |  |  | 18 mm |  |

Type 1+2 / Class I+II lightning current and surge arrestor (combined in a single device)
$\operatorname{limp}(10 / 350)$ 12.5kA per phase, I total 25kA (2 pole) and 50kA (4 pole)

| PSC2-12.5/230 TT | 12.5 kA | 65 kA | 275 V | $\leq 1.3 \mathrm{kV}$ | 2 | $1 \mathrm{ph}+\mathrm{N}$ | 2 | 3436.99 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PSC2-12.5/230 TTIR | 12.5 kA | 65 kA | 275 V | $\leq 1.3 \mathrm{kV}$ | 2 | $1 \mathrm{ph}+\mathrm{N}$ | 2 | 3780.21 |
| PSC4-12.5/400 TT | 12.5 kA | 65 kA | 275 V | $\leq 1.3 \mathrm{kV}$ | 4 | $3 \mathrm{ph}+\mathrm{N}$ | 4 | 6875.17 |
| PSC4-12.5/400 TTIR | 12.5 kA | 65 kA | 275 V | $\leq 1.3 \mathrm{kV}$ | 4 | $3 \mathrm{ph}+\mathrm{N}$ | 4 | 8886.47 |
| limp (10/350) 25kA per phase, I total 50kA (2 pole) and 100kA (4 pole) |  |  |  |  |  |  |  |  |
| PSC2-25/230 TT | 25 kA | 100 kA | 275 V | $\leq 1.5 \mathrm{kV}$ | 2 | $1 \mathrm{ph}+\mathrm{N}$ | 4 | 5922.32 |
| PSC2-25/230 TTIR | 25 kA | 100 kA | 275 V | $\leq 1.5 \mathrm{kV}$ | 2 | $1 \mathrm{ph}+\mathrm{N}$ | 4 | 6455.15 |
| PSC4-25/400 TT | 25 kA | 100 kA | 275 V | $\leq 1.5 \mathrm{kV}$ | 4 | $3 \mathrm{ph}+\mathrm{N}$ | 8 | 10975.78 |
| PSC4-25/400 TTIR | 25 kA | 100 kA | 275 V | $\leq 1.5 \mathrm{kV}$ | 4 | $3 \mathrm{ph}+\mathrm{N}$ | 8 | 11964.63 |

(IR) last two digits - with signalling contacts for remote indication/monitoring of devices

## Surge protection devices for photovoltaic (PV) installations 1000/1500 VDC

PSM PV is the range of devices for discharging induced transient overvoltages (Type 2 / Class II) for Photovoltaic installations, in accordance with EN 50539-11, UL 1449 certified.
Due to their location, solar panels and in many cases, the inverters they are connected to are exposed to and particularly prone to direct or indirect lightning strikes.
As PV systems are directly connected to electrical networks of buildings, surge protection is essential.
Type 2 / Class II - photovoltaic surge protection devices
Suitable for protection where no external protection is installed. Protection should be installed on the DC and AC side of an installation.

- Clear lifetime indication (on front face) and optional remote (IR) end of life signalling contact
- Plug-in cartridges for quick and easy replacement of damaged ones
- Suitable for PV applications: large-scale, rooftop and self-consumption (off-grid) DC installations.

- No back-up fuse required due to dynamic thermal disconnect system - capacity of 10kA (Iscpv)

1000/1500 VDC photovoltaic surge protection device

| PSM3-40/1000 PV | - | 40 kA | 1060 V | $\leq 4.0 \mathrm{kV}$ | 3 | $\mathrm{~L}+/ \mathrm{PE} / \mathrm{L}-$ | 3 | $\mathbf{1 9 5 7 . 3 1}$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| PSM3-40/1000 PVIR | - | 40 kA | 1060 V | $\leq 4.0 \mathrm{kV}$ | 3 | $\mathrm{~L}+/ \mathrm{PE} / \mathrm{L}-$ | 3 | $\mathbf{2 5 6 9 . 3 4}$ |
| PSM3-40/1500 PV | - | 40 kA | 1500 V | $\leq 5.0 \mathrm{kV}$ | 3 | $\mathrm{~L}+/ \mathrm{PE} / \mathrm{L}-$ | 3 | $\mathbf{2 9 3 5 . 3 6}$ |
| PSM3-40/1500 PVIR | - | 40 kA | 1500 V | $\leq 5.0 \mathrm{kV}$ | 3 | $\mathrm{~L}+/ \mathrm{PE} / \mathrm{L}-$ | 3 | $\mathbf{3 8 5 3 . 4 1}$ |

## Type 1+2 / Class I+ll photovoltaic surge protection devices (combined in a single device)

PSC PV is a combined device for discharging lightning currents (Type 1 / Class I) and protecting against induced transient overvoltages (Type 2 / Class II) for Photovoltaic installations, in accordance with EN 50539-11. DIN rail plug-in format.

- Protection for combiner boxes in areas with greater exposure to the atmosphere
- Exclusive device for photovoltaic systems according to EN 50539-11
- No back-up fuse required due to dynamic thermal disconnect system - capacity of 10 kA (Iscpv)


## 1000 VDC photovoltaic surge protection device

| PSC3-5/1000 PV | 5 kA | 40 kA | 1060 V | $\leq 4.0 \mathrm{kV}$ | 3 | L+/PE/L- | 3 | $\mathbf{6 0 3 6 . 3 3}$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| PSC3-5/1000 PVIR | 5 kA | 40 kA | 1060 V | $\leq 4.0 \mathrm{kV}$ | 3 | L+/PE/L- | 3 | $\mathbf{6 7 5 9 . 9 6}$ |
| (IR) last two digits - with signalling contacts for remote indication/monitoring of devices |  |  |  |  |  |  |  |  |

(IR) last two digits - with signalling contacts for remote indication/monitoring of devices
Spare replacement plug-in cartridges for surge arrestors type


| PSC 12.5/230 | 12.5 kA | 65 kA | 275 V | $<1.3 \mathrm{kV}$ | $1+2$ | PSC2/4-12.5 ph | $\mathbf{1 5 3 4 . 8 9}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | ---: | ---: |
| PSC 25/230 | 25 kA | 100 kA | 275 V | $<1.5 \mathrm{kV}$ | $1+2$ | PSC2/4-25 ph | $\mathbf{2} \mathbf{6 3 7 . 7 4}$ |
| PSC 50N2 | 50 kA | 65 kA | 255 V | $<1.5 \mathrm{kV}$ | $1+2$ | PSC2-25 neutral | $\mathbf{2 4 0 6 . 1 4}$ |
| PSC 100N | 100 kA | 100 kA | 255 V | $<1.5 \mathrm{kV}$ | $1+2$ | PSC4-25 neutral | $\mathbf{3 6 7 1 . 0 1}$ |
| PSM-40/1000 PV | - | 40 kA | 1170 V | $<2.0 \mathrm{kV}$ | 2 | PSC3-40 PV | $\mathbf{5 0 2 . 8 4}$ |
| PSC-5/1000 PV | 5 kA | 40 kA | 1060 V | $\leq 4.0 \mathrm{kV}$ | $1+2$ | PSC3-12.5 PV | $\mathbf{1 7 0 8 . 9 0}$ |



For the protection of low voltage equipment against transient voltage and current surges mainly from atmospheric origin (lightning) and transient produced by switching characteristics such as in switching of distribution networks, transformers, motors, etc.

|  |  | (10/350 $\mu \mathrm{s}$ ) | (8/20 $\mu \mathrm{s}$ ) | max. | voltage |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| type | DEHN <br> type | $\begin{gathered} \text { L-N } \\ \text { (limp) } \end{gathered}$ | L-N <br> (In) | volts L-N (Uc) | protection <br> (Up) | config | width in 18 mm | price |

## DEHN Type 1+2 combined lightning current and surge protection (in a single unit)

- Clamps voltage to less than 1500 V as per SANS 10142-1:2008 table L1
- Prewired spark-gap-based type 1 and 2 combined lightning current and surge arrester

| $\mathbf{9 4 1 1 1 0}$ | shield | 12.5 kA | 12.5 kA | 255 V | $\leq 1.5 \mathrm{kV}$ | $1 \mathrm{ph}+\mathrm{N}$ | 2 | $\mathbf{4 6 4 0 . 6 5}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | ---: |
| $\mathbf{9 5 4 1 1 5 *}$ | ventil M2 | 25 kA | 25 kA | 264 V | $\leq 1.5 \mathrm{kV}$ | $1 \mathrm{ph}+\mathrm{N}$ | 4 | $\mathbf{1 5 3 4 8 . 8 2}$ |
| $\mathbf{9 4 1 3 1 0}$ | shield | 12.5 kA | 12.5 kA | 255 V | $\leq 1.5 \mathrm{kV}$ | $3 \mathrm{ph}+\mathrm{N}$ | 4 | $\mathbf{8 4 3 7 . 6 5}$ |
| $\mathbf{9 5 4 3 1 5 *}$ | ventil M2 | 25 kA | 25 kA | 264 V | $\leq 1.5 \mathrm{kV}$ | $3 \mathrm{ph}+\mathrm{N}$ | 4 | $\mathbf{2 6 1 8 5 . 3 7}$ |

DEHN Type 1+2 combined lightning current and surge protection with integrated back up fuse


952315


| 961200 | ven Cl | 25 kA | - | 255 V | $\leq 1.5 \mathrm{kV}$ | ph | 2 | 7077.98 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 961205* | ven Cl | 25 kA | 25 kA | 255 V | $\leq 1.5 \mathrm{kV}$ | ph | 2 | 7660.00 |
| Type 1 lightning current protection with integrated backup fuse |  |  |  |  |  |  |  |  |
| 961146* | bloc maxi | 35 kA | - | 440 V | $\leq 2.5 \mathrm{kV}$ | ph | 3 | 10892.98 |
| 961176* | bloc maxi | 35 kA | - | 760 V | $\leq 4 \mathrm{kV}$ | ph | 3 | 11767.83 |
| Type 1 lightning current protection without integrated backup fuse |  |  |  |  |  |  |  |  |
| 961145* | bloc | 35 kA | - | 440 V | $\leq 2.5 \mathrm{kV}$ | ph | 3 | 7669.62 |
| DEHN N-PE |  |  |  |  |  |  |  |  |
| 961180 | gap maxi | 100 kA | - | 255 V | $\leq 1.5 \mathrm{kV}$ | N | 2 | 6401.15 |
| 961185* | gap maxi | 100 kA | - | 255 V | $\leq 1.5 \mathrm{kV}$ | N | 2 | 6927.97 |
| 952030 | gap | - | 20 kA | 255 V | $\leq 1.5 \mathrm{kV}$ | N | 1 | 1321.27 |
| 952035* | gap | - | 20 kA | 255 V | $\leq 1.5 \mathrm{kV}$ | N | 1 | 2347.34 |
| * With signalling contacts for remote indication/monitoring of devices |  |  |  |  |  |  |  |  |

Minimum requirement as per SANS 10142-1:2008 anex L for use in all electrical distribution boards and sub boards. For installation in conformity with the lightning protection zone.

- Replaceable plug-in modules
- Visual fault indication
- Clamps voltage to less than 1500V as per SANS 10142-1:2008 table L1

DEHN guard Type 2 surge protection device without integrated back up fuse

| 952070 | guard | - | 20 kA | 275 V | $\leq 1.5 \mathrm{kV}$ | ph | 1 | 920.46 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 952090* | guard | - | 20 kA | 275 V | $\leq 1.5 \mathrm{kV}$ | ph | 1 | 1606.08 |
| 952110 | guard | 12 kA | 20 kA | 275 V | $\leq 1.5 \mathrm{kV}$ | $1 \mathrm{ph}+\mathrm{N}$ | 2 | 2187.72 |
| 952115* | guard | 12 kA | 20 kA | 275 V | $\leq 1.5 \mathrm{kV}$ | $1 \mathrm{ph}+\mathrm{N}$ | 2 | 2592.14 |
| 952310 | guard | 12 kA | 20 kA | 275 V | $\leq 1.5 \mathrm{kV}$ | $3 \mathrm{ph}+\mathrm{N}$ | 4 | 3853.41 |
| 952315* | guard | 12 kA | 20 kA | 275 V | $\leq 1.5 \mathrm{kV}$ | $3 \mathrm{ph}+\mathrm{N}$ | 4 | 4423.44 |

* With signalling contacts for remote indication/monitoring of devices

DEHN S/M ACI 275 Type 2 arrester protection device ACI (Advanced Circuit Interruption)
With its new integrated switch/spark gap combination, ACI (Advanced Circuit Interruption) technology reduces complexity, improves system availability and saves time, space and material costs. Function reliably and systems are always available.

| 952341 | guard ACl | - | 20 kA | 275 V | $<1.5 \mathrm{kV}$ | $3 \mathrm{ph}+\mathrm{N}$ | 4 | 6768.37 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 952121 | guard ACI | - | 20 kA | 275 V | $<1.5 \mathrm{kV}$ | $1 \mathrm{ph}+\mathrm{N}$ | 2 | 3969.81 |
| 952100 | guard ACl | - | 20 kA | 275 V | $<1.5 \mathrm{kV}$ | ph | 1 | 1780.90 |
| DEHN Type 2 surge protection device |  |  |  | (non plug-in modules) |  |  |  |  |
| 900453 | basic | - | 5 kA | 340 V | $\leq 1.2 \mathrm{kV}$ | $1 \mathrm{ph}+\mathrm{N}$ | 2 | 999.66 |
| 900454 | basic | - | 10 kA | 340 V | $\leq 1.3 \mathrm{kV}$ | $1 \mathrm{ph}+\mathrm{N}$ | 2 | 1072.87 |
| 900463 | basic | - | 10 kA | 340 V | $\leq 1.3 \mathrm{kV}$ | $3 \mathrm{ph}+\mathrm{N}$ | 4 | 1676.50 |
| DEHN Type 2 with build in fault indicator |  |  |  |  |  |  |  |  |
| 900430 | cord | - | 5 kA | 275 V | $\leq 1.5 \mathrm{kV}$ | $1 \mathrm{ph}+\mathrm{N}$ | - | 1245.67 |

## DEHNrail modular Type 3 surge protection devices

- Replaceable plug-in protection modules
- High discharge capacity due to heavy-duty oxide varistor / spark gap combination
- Energy coordination with other arrestors
$\begin{array}{llllllll}953200 & \text { rail } & 3 \mathrm{kA} & 255 \mathrm{~V} & 1.25 \mathrm{kV} & \mathrm{ph} & 1 & \mathbf{1 7 6 8 . 9 0}\end{array}$


BLITZDUCTOR surge arresters are pluggable multipole DIN rail mounting arresters.
Universally used for protecting Data networks, control/measuring circuits, bus or telecom systems.

- Permits easy replacement of modules (no signal interruption when protection module removed)
- Universal surge arrester for two-pole, three-pole or four-pole interfaces

920300 DIN rail mount socket to receive various protection modules for data networks
809.77

## BLITZDUCTOR XT - Protection modules

Type 2 P1 surge protection device high degree of protection for one pair

- For installation in conformity with lightning protection zone concept from 0B-2 and higher
$926244 \leq 55 \mathrm{~V} \quad 10 \mathrm{kA} \quad-\quad 4 \quad$ line-PG $12 \mathrm{~mm} \quad 1098.07$

Type 1 P1 surge protection device optimal protection of one pair and the cable shield

- For installation in conformity with lightning protection zone concept from 0A -2 and higher

| $\mathbf{9 2 7 2 2 4}$ | 24 V | $\leq 90 \mathrm{~V}$ | 5 kA | 1.5 kA | 2 | line-PG | 6 mm | $\mathbf{1 9 2 9 . 0 8}$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $\mathbf{9 2 7 2 4 4}$ | 24 V | $\leq 55 \mathrm{~V}$ | 5 kA | 1.5 kA | 2 | line-PG | 6 mm | $\mathbf{1 9 2 9 . 0 8}$ |
| $\mathbf{9 2 0 2 4 4}$ | 24 V | $\leq 52 \mathrm{~V}$ | 10 kA | 2.5 kA | 4 | line-PG | 12 mm | $\mathbf{1 6 7 6 . 5 0}$ |

## DEHNpatch for Ethernet applications

Universal arrester for Industrial Ethernet, Power over Ethernet (PoE+ acc. to IEEE 802.3at to 57V) and similar applications in structured cabling systems according to class E up to 250 MHz .

| 929121 | 48 V | $\leq 180 \mathrm{~V}$ | 0.5 kA | 0.5 kA | 4 | line-PG | 19 mm |
| :--- | :---: | :---: | ---: | ---: | ---: | ---: | ---: |
| DEHNpatch outdoor type 2 | UL, CSA |  | IP65 |  |  |  |  |

Complete surge protection unit to protect surveillance camera's, PoE ++ 4PPoE
and other GBit Ethernet applications from damage due to surges. The IP65 rated enclosure permits safe to use outdoor. Lighting current discharge capacity (10/350 $\mu \mathrm{s}$ )

- Easy mounting: even at great heights (universal brackets for poles and wall mounting)
$929221 \quad 24 \mathrm{~V} \quad 10 \mathrm{kA} \quad 2.5 \mathrm{kA} \quad 4 \quad$ line-PG $12 \mathrm{~mm} \quad 3960.21$


## DEHNcare series - Safety protective gloves

- Size (international):
- Standard: IEC 61482-1-2 /1-1, DIN EN 388 / 407
- Direct incident energy (after box test: class 2) (Eio): $427 \mathrm{~kJ} / \mathrm{m}^{2}$
- Good touch sensitivity due to soft leather glove palm (breathable materials maximise wearing comfort)

785796
medium
Arc-fault tested protective gloves
3100.97


## Notes

