

The modular switchgear platform  
for heavy industry

# HEAVY DUTY SWITCH HDS

NEW



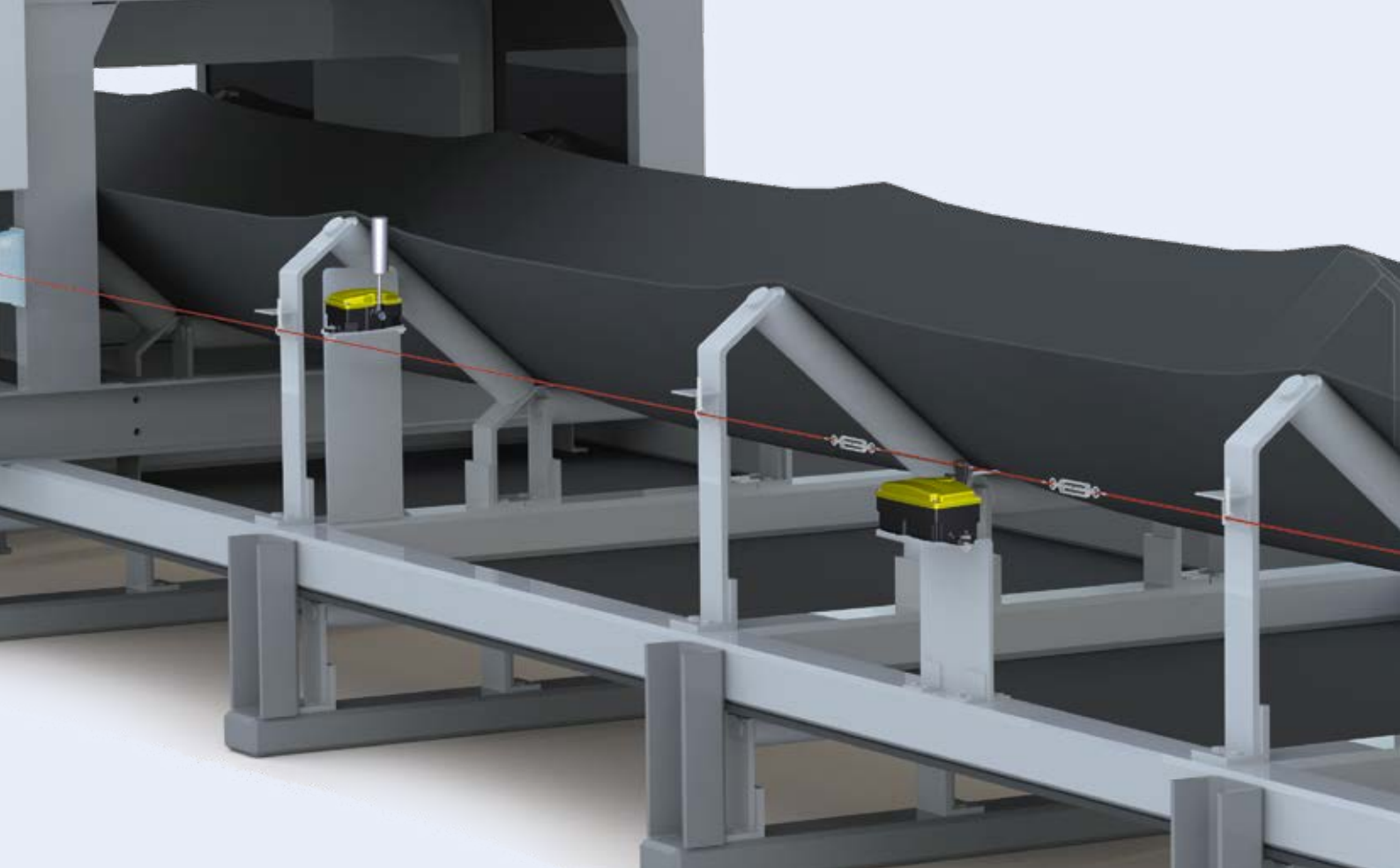


## **FLEXIBLE AND MODULAR SWITCHGEAR PLATFORM**

The new switchgear generation has a modular design and is based on a standardised enclosure concept, either in plastic (thermosetting resin) or grey cast iron.

The plastic type is resistant to aggressive media, making it suitable for port logistics and agricultural chemistry for the manufacture of fertilisers and phosphates. The extremely robust grey cast iron version is used in the dismantling of metallic ores in opencast mining and in the bulk goods and handling industries.

At functional level, both emergency stop and general position monitoring applications can be mapped. A kit of various actuating elements is available, according to the specific application, for position monitoring. To enable better diagnostics, all variants can be optionally equipped with a two-wire field bus solution or an indicator lamp. The requirements of a global product family are satisfied by a range of international approvals.



## **HDS APPLICATION USAGE**

The flexible and modular fourth generation switchgear platform for the widest range of applications in heavy industry.

Switchgear can be used in emergency-stop applications or for position monitoring of moving machines and plant parts for reliable shut-off up to Performance Level PL e.

The robust enclosure with protection classes IP66 and IP67 ensure the preconditions for use of the switchgear family under extreme ambient conditions.

Typical applications include:

- Emergency stop shutdown on conveyor belts and industrial systems
- Alignment monitoring on conveyor belts (belt misalignment)
- Position monitoring of moving parts on machines and systems

# HEAVY DUTY SWITCH – HDS

## USER BENEFITS

### BASIC SWITCH BS655/BS656

- Product platform, can be combined with different function units (actuators)
- All versions can be used as safety switches
- Reduced installation costs thanks to central connection terminal (2 NO contacts/2 NC contacts)
- Thermosetting resin or grey cast iron enclosure for various application environments
- Including Dupline® interface: diagnostic functions with minimal wiring effort



### PULL-WIRE EMERGENCY STOP SWITCHES RS655/RS656

- The emergency stop function can be triggered at any point on the wire rope
- The maximum length of wire of 2x 100 m reduces the number of pull-wire emergency stop switches, and therefore minimises costs
- Reduced installation costs thanks to central connection terminal
- Thermosetting resin or grey cast iron enclosure for various application environments
- Including DuplineSafe® interface: fail-safe in series wiring including diagnostic with minimal wiring effort



# CONNECTION

The complete series comprises a closed cover over the switching shaft, cams and switch contacts to prevent contamination from dust and dirt when installed in challenging conditions.

On the standard versions, both the NC and NO contacts are attached to a central CAGE CLAMP® connection terminal. As such, pull-wire emergency stop switches or belt alignment switches, amongst others, can be easily and efficiently connected, including with an indicator lamp, if required.

Safe or standard two-wire bus systems can also be used for signal evaluation as an option. In that case, only the input and output signal wires need to be connected, reducing assembly and connection times considerably.

The integrated cable guide also helps to ensure easy and rapid installation.



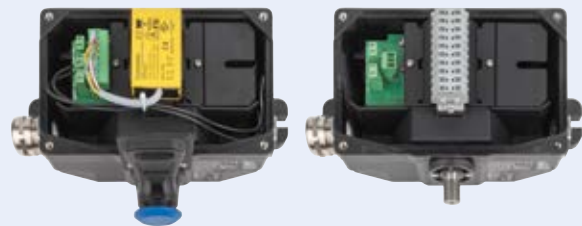
## TIME AND COSTS SAVED THANKS TO

- Central connection terminal
- Pre-assembled switching elements
- Free terminals for signal feedback

## INTEGRATED DUPLINE® NETWORK SOLUTIONS

- Rapid and precise diagnostic
- Pre-wired normally-closed contact(s)
- Dupline® connection terminals in/out up to 4 mm<sup>2</sup>

**Dupline**<sup>®</sup>  
Fieldbus Installationbus



# HDS - THE MODULAR SWITCHGEAR PLATFORM

## 1. Select the switchgear and switch system

Switching system xxx:  
Z22, T22, Z33, T33



**Cast iron**

BS655-xxx



**Thermosetting resin**

BS656-xxx

### BELT CONTROL



BS-B30-150-RVA



BS-B50-150-RVA



BS-B90-150-RVA

### POSITION CONTROL



BS-H50-110-RKS



BS-H50-110-RVA

### SIGNAL CONTROL



BS65x-x22



BS65x-Z22-DN



BS65x-x22-Gxxx



## 2. Select the function unit (must be ordered separately)

## 3. Switchgear options

# PULL-WIRE EMERGENCY STOP SWITCHES



**Cast iron**  
RS655-Z22



**Thermosetting resin**  
RS656-Z22

**STOP CONTROL**



RS65x-Z22

**SIGNAL CONTROL**



RS65x-Z22



RS65x-Z22-DS

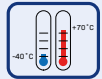


RS65x-Z22-Gxxx



up to PL d/e  
ISO 13849-1

Ambient  
temperature



IP66



IP67



Visual  
Alarm



under preparation:



# FLEXIBLE AND CUSTOMISED SOLUTIONS

## BS655/BS656

### BASIC SWITCH – POSITION CONTROL

The basic switch version is modular in structure and is supplied without actuating elements. A range of functions can be mapped in combination with a specific function unit. The consistency of components reduces the number of different versions, lowers the effort required for storage and increases availability.

**Belt alignment switches** monitor belt alignment in material handling plants and are arranged in pairs on either side of the transported material, close to the drive rollers and pulleys.

In the event of position deviations on the conveyor belt, a staggered signal is generated as a pre-warning or to shut off the conveyor belt. This helps to prevent unwanted downtime as a result of damage.

**Position switches** are used to detect the position and to monitor moving parts on rail-bound cranes, machinery and plants.





## SAFETY SWITCH

Two basic requirements must essentially be satisfied for use in safety applications.

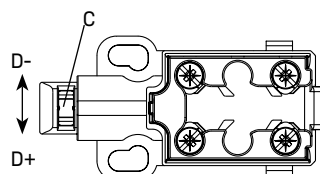
### Positive break contacts:

All switches have switching elements with at least two positive break contacts in accordance with IEC 60947-5-1, Appendix K.

### Positive-locking connection:

Force transmission from the guard system via the respective function unit to the opening of the switch contacts is via a positive-locking fit. Consequently, the switch contacts can still be opened by external force in the event of a malfunction.

## ADJUSTABLE SWITCHING POINTS



C: Adjustment wheel  
D: Switching angle

# FLEXIBLE AND CUSTOMISED SOLUTIONS

## BS655/BS656

### MODULAR SELECTION (CONSTRUCTION KIT)

#### BASIC SWITCH

The basic switch version is modular in structure and is supplied without actuating element. A range of functions can be mapped thanks to combination with a specific function unit.

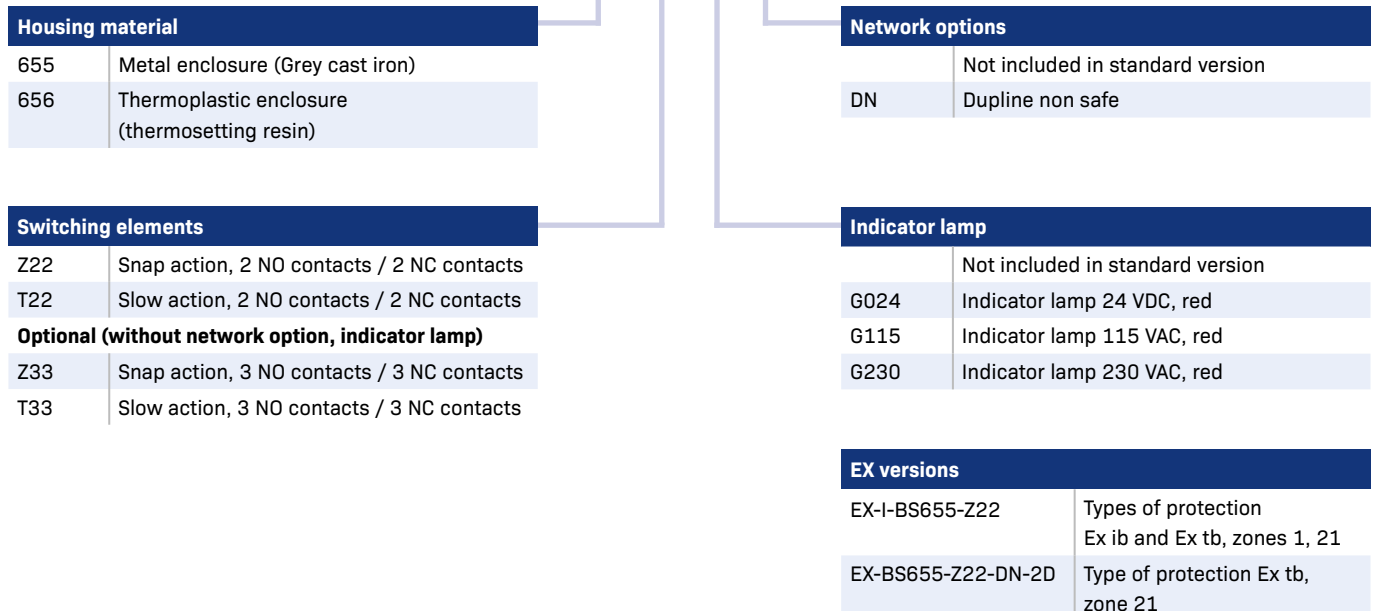


**Basic switch:**  
BS65x

### ORDERING CODE

#### BASIC SWITCH

BS655-Z22-G-DN



## MODULAR SELECTION AND ORDERING CODE (CONSTRUCTION KIT) ACTUATOR HEADS

### Position switch lever (Roller diameter 50 mm)

	BS-H50-110-RVA	Stainless steel lever with stainless steel roller
	BS-H50-110-RKS	Stainless steel lever with plastic roller

### Belt alignment lever (running surface 150 mm), ball-bearing mounted

	BS-B30-150-RVA	Stainless steel lever with Ø 30 mm stainless steel roller for belt speeds to 3 m/s
	BS-B50-150-RVA	Stainless steel lever with Ø 50 mm stainless steel roller for belt speeds to 6 m/s
	BS-B90-150-RVA	Stainless steel lever with Ø 90 mm stainless steel roller for belt speeds to 12 m/s

# PULL-WIRE EMERGENCY STOP SWITCHES

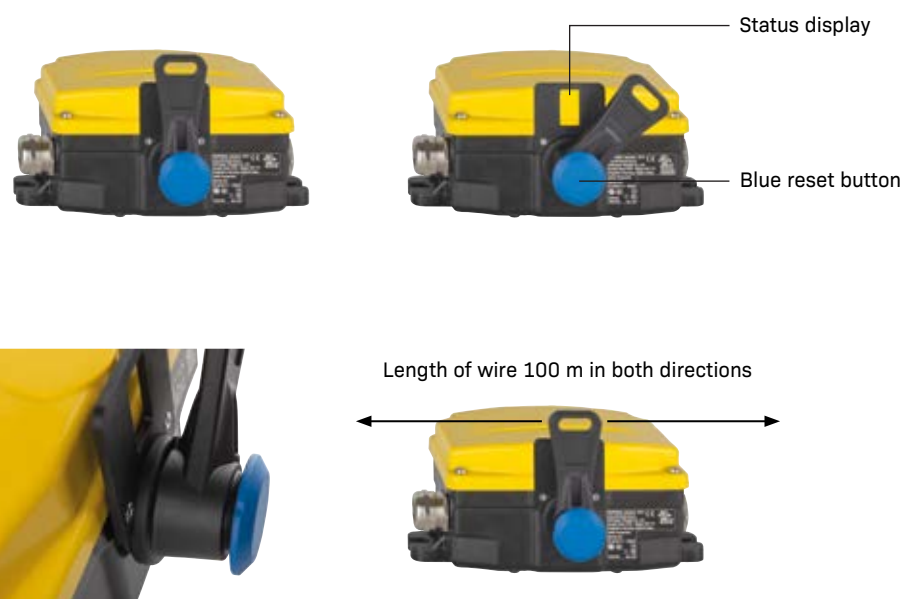
## RS655/RS656

### PULL-WIRE EMERGENCY STOP SWITCHES – STOP CONTROL

The two-sided pull-wire emergency stop switches are designed for lengths of wire up to 100 m on each side, under optimal conditions. Pull-wire emergency stop switches with wire pull and wire breakage detection ensure a reliable emergency-stop function on material handling plants. If actuated, two-sided pull-wire emergency stop switches latch in the emergency-stop position and can only be unlocked when the reset button is pulled out. All devices satisfy the requirements of international standards IEC 60947-5-5, ISO 13850 and EN 620.

In conjunction with an appropriate safe signal processing unit or safe network, the pull-wire emergency stop switch can be used up to Performance Level PL e in safety applications.

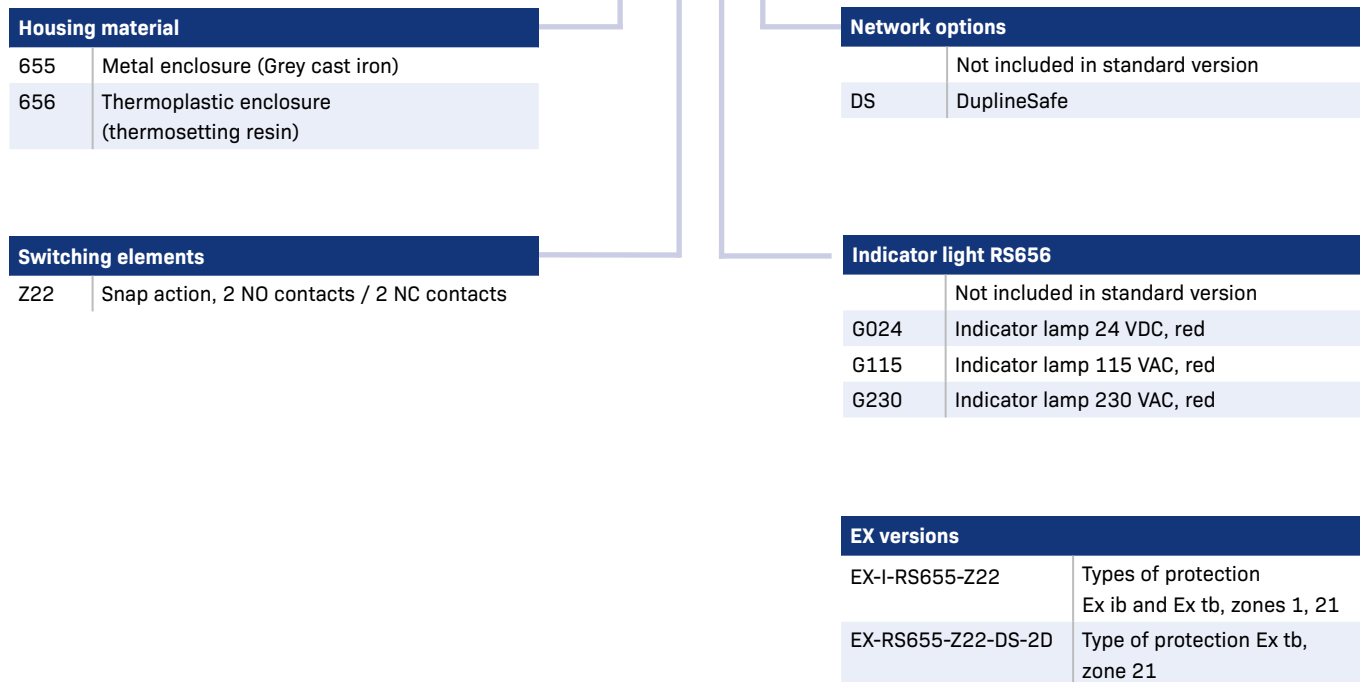
As a status display, the pull-wire emergency stop switch is equipped with a mechanical status indicator that is visible when triggered. The switch can be reset with the blue RESET button integrated into the lever.



## ORDERING CODE

### PULL-WIRE EMERGENCY STOP SWITCHES

RS655-Z22-G-DS



# TECHNICAL DATA



■ Pull-wire emergency stop switch RS



■ Basic switch BS

## Key Features

- Symmetry thanks to centrally located shaft
- Central connection terminal
- Mechanical switching position indication
- Maximum length of wire 2 x 100 m
- Wire pull and wire breakage detection

- Platform concept with different function units
- Symmetry thanks to toothed, centrally located shaft
- Central connection terminal
- Different actuating elements
- Actuating elements adjustable in 10 steps
- Switching point setting

## Technical features

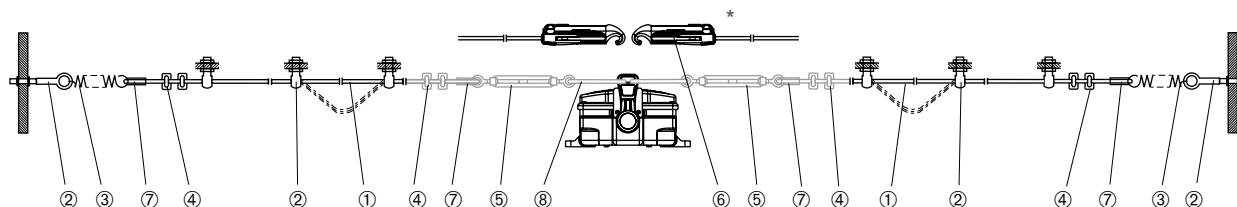
### Electrical characteristics

<b>Number of contacts</b>	2 NO / 2 NC	Up to 3 NO contacts / 3 NC contacts
<b>Utilisation category</b>	AC-15: 240 V / 3 A; DC-13: 24 V / 3 A	AC-15: 240 V / 3 A; DC-13: 24 V / 3 A
<b>Thermal test current I<sub>the</sub></b>	6 A	6 A
<b>Switching principle</b>	Snap action	Snap- or slow action
<b>Mechanical data</b>		
<b>Cable entry</b>	2 x M25 x 1.5	2 x M25 x 1.5
<b>Cable section</b>	0.5 ... 2.5 mm <sup>2</sup> (central connection terminal)	0.5 ... 2.5 mm <sup>2</sup> (central connection terminal)
<b>Mechanical life</b>	100,000	1,000,000 (with max. 45 lever deflection)
<b>Dimensions (H x W x D)</b>	234 x 108 x 163 mm	234 x 108 x 143 mm
<b>Housing material</b>	Grey cast iron or thermosetting resin	Grey cast iron or thermosetting resin
<b>Ambient conditions</b>		
<b>Ambient temperature</b>	-40 °C ... +70 °C	-40 °C ... +70 °C
<b>Protection class</b>	IP66, IP67	IP66, IP67
<b>Network connection (optional)</b>	DuplineSafe®	Dupline®

## Safety classification

<b>B<sub>10D</sub> NC contact</b>	100,000	2,000,000
<b>Approvals (Standard)</b>		
<b>Approvals (EX)</b>		
<b>EX zones (Metal enclosure only)</b>	1 (Ex ib), 21 (Ex tb)	1 (Ex ib), 21 (Ex tb)
<b>Approvals (under preparation)</b>		

# PULL-WIRE EMERGENCY STOP SWITCHES ACCESSORIES



\* The greyed out components are not required if using the rope tensioner S 900.

## ① Wire rope



- With red PVC sheath
- Ø total 5 mm
- Ø of the steel core 3 mm

on request

## ② Eyebolt or anchoring hook



- Eyebolt  
**BM 8 x 70 stainless steel**
- Anchoring hook  
**ACC-EBLT-M8-RVA-5PCS**

101193046

103031496

## ③ Tension spring



- **ACC-RS65X-TS**
- Stainless steel tension spring with elongation limiter

103032772

## ④ Wire clamp



- 3 mm stainless steel

101203477

## ⑤ Tensioner



- **Tensioner M6 (Galvanised steel)**  
Setting range 145 ... 225 mm
- **ACC-TBLE-RVA (Stainless steel)**  
Setting range 180 ... 250 mm

101087930

103031494

## ⑥ Rope tensioner S 900



- **Wire tensioner S 900**
- Smooth and time-saving adjustment

101186704

## ⑦ Wire thimble



- 3 mm stainless steel

101203472







## ⑧ Shackle



- Bracket with threaded bolt, stainless steel

101186490

# PULL-WIRE EMERGENCY STOP SWITCHES ACCESSORIES

Eyebolt	Anchoring hook	Anchoring hook
 <p><b>Galvanised steel</b> ■ BM 10 x 40 <b>101084928</b></p> <p><b>Stainless steel</b> ■ BM 8 x 70 stainless steel <b>101193046</b></p> <p>Included in delivery: Eyebolt with nut</p>	 <p><b>Galvanised steel</b> ■ ACC-EBLT-M8-5PCS <b>103031495</b> ■ ACC-EBLT-M10-5PCS <b>103031498</b></p> <p>Included in delivery: Anchoring hooks incl. 2 nuts and washers, packaging unit: 5x</p>	 <p><b>Stainless steel</b> ■ ACC-EBLT-M8-RVA-5PCS <b>103031496</b> ■ ACC-EBLT-M10-RVA-5PCS <b>103031499</b></p> <p>Included in delivery: Anchoring hooks incl. 2 nuts and washers, packaging unit: 5x</p>
Wire clamp	Duplex wire clamp	Egg-shaped wire clamp
 <p><b>Stainless steel</b> ■ 3 mm <b>101203477</b></p>	 <p><b>Stainless steel</b> ■ 3 mm <b>101190917</b></p>	 <p><b>Stainless steel</b> ■ 3 mm <b>101196043</b></p>



For detailed information on selection, visit [products.schmersal.com](https://products.schmersal.com).



# PULL-WIRE EMERGENCY STOP SWITCHES ACCESSORIES

Wire thimbles	Pulley	Pulley
 <p><b>Stainless steel</b> ■ 3 mm</p> <p><b>101203472</b></p>	 <p><b>Galvanised steel</b> ■ Pulley</p> <p><b>101192433</b></p>	 <p><b>Stainless steel</b> ■ ACC-PWR-PLY</p> <p><b>103037516</b></p>
S 900 rope tensioner	Tensioning Jack	Tension spring with elongation limiter
 <p><b>Plastic / stainless steel</b> ■ Rope tensioner S 900 ■ Smooth and time-saving adjustment</p> <p><b>101186704</b></p>	 <p><b>Galvanised steel -M6</b> ■ Tensioner M6 ■ Setting range 145 ... 225 mm</p> <p><b>101087930</b></p> <p><b>Stainless steel -M8</b> ■ ACC-TBLE-RVA ■ Setting range 180 ... 250 mm</p> <p><b>103031494</b></p>	 <p><b>Stainless steel</b> ■ ACC-RS65X-TS</p> <p><b>103032772</b></p>

# PULL-WIRE EMERGENCY STOP SWITCHES ACCESSORIES

Wire rope	Wire unit complete	Wire rope mounting set
 <p><b>Steel rope, 3 mm</b></p> <ul style="list-style-type: none"> <li>■ Pull wire PWR-xxM</li> <li>■ With red PVC sheath</li> <li>■ Ø total 5 mm</li> <li>■ Ø of the steel core 3 mm</li> </ul> <p style="text-align: right;"><b>on request</b></p>	 <p><b>Steel rope, 3 mm</b></p> <ul style="list-style-type: none"> <li>■ Wire unit</li> <li>■ Ready-to-fit</li> </ul> <p style="text-align: right;"><b>on request</b></p> <p>Included in delivery: 1x wire rope, assembled on one side with eyebolt including nut, plus 1x wire thimble; 2x wire clamps</p>	 <ul style="list-style-type: none"> <li>■ ACC-RK-RS65X</li> </ul> <p style="text-align: right;"><b>103036965</b></p> <p>Included in delivery: 2x eyebolt with 2x nut, 2x tension spring, 4x wire thimble, 8x rope clamp, 4x shackle, 2x turnbuckle M8</p>
Wire rope mounting set	Marking label	Locking screw M25 x 1.5
 <ul style="list-style-type: none"> <li>■ ACC-RK-RS65X-QR</li> <li>■ Quick-clamping system</li> </ul> <p style="text-align: right;"><b>103036963</b></p> <p>Included in delivery: 2x eyebolt with 2x nut, 2x tension spring, 2x wire thimble, 4x rope clamp, 2x rope tensioner</p>	 <ul style="list-style-type: none"> <li>■ ACC-PWR-ESLB-50PCS</li> <li>■ Sticker for emergency-stop release rope</li> <li>■ According to ISO 13850</li> <li>■ Packaging unit: 50x on a roll</li> </ul> <p style="text-align: right;"><b>103032469</b></p>	 <ul style="list-style-type: none"> <li>■ <b>Plastic</b></li> <li>■ ACC-BPL-M25-2PCS</li> <li>■ Tightening torque 10 Nm</li> <li>■ Packaging unit: 2x</li> </ul> <p style="text-align: right;"><b>103032753</b></p> <ul style="list-style-type: none"> <li>■ <b>Nickel plated brass</b></li> <li>■ ACC-BPL-M25-MS</li> <li>■ Tightening torque 8 Nm</li> <li>■ Packaging unit: 1x</li> </ul> <p style="text-align: right;"><b>103006010</b></p>

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# PULL-WIRE EMERGENCY STOP SWITCHES ACCESSORIES

Cable gland M25 x 1.5	Cable gland M25 x 1.5	Cable gland M25 x 1.5
 <p><b>Nickel plated brass</b></p> <ul style="list-style-type: none"> <li>■ ACC-CGLD-M25-MS <b>103006012</b></li> <li>■ Authorised cable diameter 9 ... 16 mm</li> <li>■ Tightening torque 8 Nm</li> <li>■ Packaging unit: 1x</li> </ul>	 <p><b>Thermoplastic</b></p> <ul style="list-style-type: none"> <li>■ ACC-CGLD-M25-2PCS <b>103032752</b></li> <li>■ Authorised cable diameter: 9 ... 17 mm</li> <li>■ Tightening torque 10 Nm</li> <li>■ Packaging unit: 2x</li> </ul>	 <p><b>Thermoplastic with pressure compensation element</b></p> <ul style="list-style-type: none"> <li>■ ACC-CGLD-P-M25-2PCS <b>103031491</b></li> </ul> <p><b>Brass, nickel-plated with pressure compensation element</b></p> <ul style="list-style-type: none"> <li>■ ACC-CGLD-P-M25-MS-2PCS <b>103031489</b></li> <li>■ Authorised cable diameter: 9 ... 17 mm</li> <li>■ Tightening torque 8 Nm</li> <li>■ Packaging unit: 2x</li> </ul>

# THE SCHMERSAL GROUP

## PROTECTION FOR MAN AND MACHINE

In the demanding field of machine safety, the owner-managed Schmersal Group is one of the international market leaders. The company, which was founded in 1945, has a workforce of about 2000 people and seven manufacturing sites on three continents along with its own companies and sales partners in more than 60 countries.

Customers of the Schmersal Group include global players from the area of mechanical engineering and plant manufacturing as well as operators of machinery. They profit from the company's extensive expertise as a provider of systems and solutions for machine safety. Furthermore, Schmersal specialises in various areas including food & beverage, packaging, machine tools, lift switchgear, heavy industry and automotive.

A major contribution to the systems and solutions offered by the Schmersal Group is made by tec.nicum with its comprehensive range of services: certified Functional Safety Engineers advise machinery manufacturers and machinery operators in all aspects relating to machinery and occupational safety – and do so with product and manufacturer neutrality. Furthermore, they design and realise complex solutions for safety around the world in close collaboration with the clients.



### SAFETY PRODUCTS

- Safety switches and sensors, solenoid interlocks
- Safety controllers and safety relay modules, safety bus systems
- Optoelectronic and tactile safety devices
- Automation technology: position switches, proximity switches

### SAFETY SYSTEMS

- Complete solutions for safeguarding hazard areas
- Individual parametrisation and programming of safety controllers
- Tailor-made safety technology – be it for individual machines or a complex production line
- Industry-specific safety solutions

### SAFETY SERVICES

- tec.nicum academy – Seminars and training
- tec.nicum consulting – Consultancy services
- tec.nicum engineering – Design and technical planning
- tec.nicum integration – Execution and installation



x.000 / L+W / 03.2020 / Teile-Nr. 103032424 / EN / Ausgabe 02