Grab Wire Safety Rope Switches: **Guardian Line Series**

APPLICATION:

Safety Rope Emergency Stop Switches are mounted on machines and sections of plant conveyors which cannot be protected by guards.

In contrast to traditional mushroom head type Emergency Stop buttons, Safety Rope Switches can initiate the emergency command from any point along the installed rope length.

In combination with any dual channel safety monitoring controllers IDEM Safety Rope Systems can be used as emergency stop devices and monitored for up to PLe to ISO13849-1.

OPERATION:

All IDEM Safety Rope Emergency Stop Switches conform to European Standard ISO13850 (EN418) and EN60947-5-5.

They have a positive mechanical linkage between the switch contacts and the wire rope as per EN60947-5-1. The emergency stop switches are brought into the operational condition by pre-tensioning the rope by use of a tensioner/gripper device which clamps the rope and then hooks to the switch eyebolts.

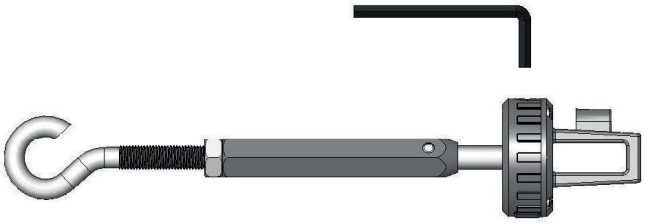
Correct tension can be observed by viewing the tension indicator on the switch housing. Once tensioned the switch contact blocks can be set to the operational condition (safety contacts closed, auxiliary contacts open) by pressing the blue reset button on the switch cover.

All of the Safety Rope Switches have wire-breakage monitoring. On pulling or breakage (tension loss) of the rope, the safety contacts are positively opened and the auxiliary contacts are closed. The switches are mechanically latched and can then only be returned to the operational condition by pressing the reset button as required by ISO13850 (EN418).

PATENTED TENSIONER/GRIPPER:

IDEM have designed and patented a Tensioner/Gripper accessory available in Stainless Steel or Galvanised metal that provides rapid installation for connection to the switch eyebolts and prevents frequent re-tensioning or maintenance that can be caused by cable tension loss.

The use of this accessory greatly reduces installation time and can be carried out by one man. The benefit of reducing the time required for re-tensioning greatly reduces machine down time.



FEATURES:

- LED visual indication of rope status:
  - Steady Green = Machine Running
  - Steady or Flashing Red = Machine Stopped
- Choice of body housings:
  - Rugged die-cast metal body (painted yellow)
  - Stainless Steel 316 - ideal for Food Industry
- All internal and external screws are stainless steel.
- Enclosure protection to IP67 (Die-cast versions).
- Enclosure protection to IP69K (Stainless Steel 316 versions).
- Easy to wire - up to 4 conduit entries.

E STOP BUTTON:

Screw fitting mushroom type E Stop button.

Using Safety Rope Switches: **Guardian Line Series**

APPLICATION:

IDEM Guardian Line Safety Rope Switches are designed to be mounted on machines and sections of conveyors which cannot be protected by guards. In contrast to traditional mushroom head type Emergency Stop buttons, Safety Rope Switches can initiate the emergency command from any point along the installed rope length and provide robust Emergency Stop Rope Pull protection for exposed conveyors or machines.

In combination with a dual channel safety monitoring relay IDEM Safety Rope Systems can be used as emergency stop devices monitored for up to PLe to ISO13849-1. All IDEM Safety Rope Emergency stop switches conform to ISO13850 and EN60947-5-5. They have a positive mechanical linkage between the switch contacts and the wire rope. The switches have wire-breakage monitoring.

On pulling the rope the safety contacts are positively opened and the auxiliary contacts are closed. The switches are mechanically latched and can then only be returned to the operational condition by pressing the blue reset button as required by ISO13850.

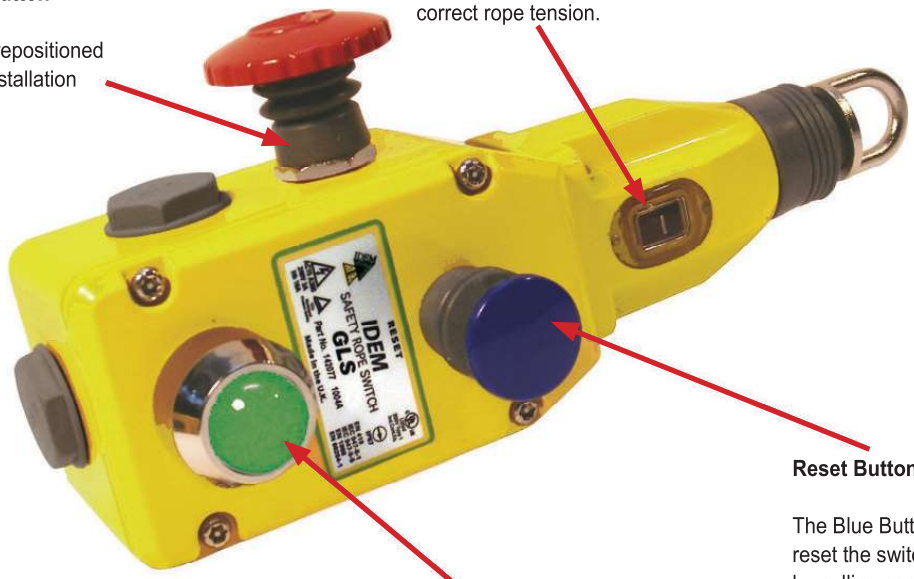
An optional 2 colour LED indicator is available to enable switch status to be viewed from a distance.

Tension Indicator

Ensures the system is easy to set up and maintain the correct rope tension.

Mushroom Type Emergency Stop Button

Can be installed or repositioned Left or Right after installation



Reset Button

The Blue Button must be pushed to reset the switch following activation by pulling or slackening of the Rope

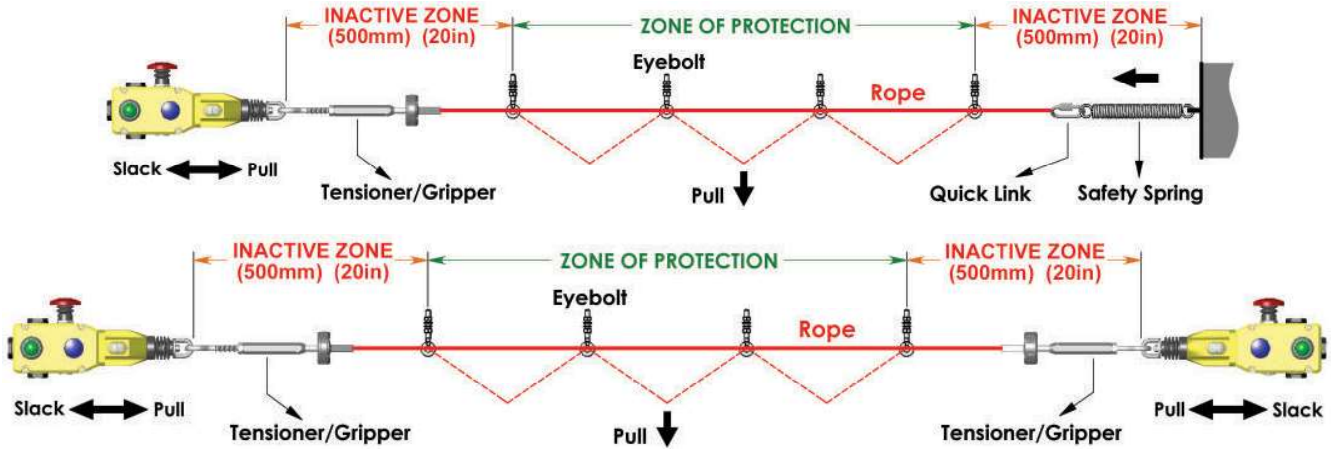
Indicator LED

Can be wired to flash RED in the event of the Rope being pulled - switch activated, or illuminate steady GREEN to indicate a reset switch in machine "Run" state. Visible from long distances.

SET UP OF THE SYSTEM:

Rope support eyebolts must be fitted at 2.5m min. to 3m max. intervals along all rope lengths between switches. The rope must be supported **no more than 500mm from the Rope Switch's eyebolt or Safety Spring** (if used). It is important that this first 500mm is not used as part of the active protection coverage. If protection is required in this first 500mm then it is recommended to use switches fitted with a mushroom type E-Stop button.

When using one switch the rope must be anchored at the other end using a Safety Spring. When using a Safety Spring a maximum of one corner pulley only may be used to ensure complete lengths of rope are visible to either the switch or the spring anchorage.



Using Safety Rope Switches: **Guardian Line Series**

RELIABLE CONNECTIVITY:

Tensioning of the rope is achieved by the use of IDEM's new patented Tensioner/Gripper accessory.

Traditional turnbuckle and clamp systems are difficult to tension and adjust and frequent re-tensioning or maintenance is normally required of either the turnbuckle or the clamps. Traditional tensioning systems make viewing of the switch tension window difficult.

For greater reliability and ease of installation the Tensioner/Gripper accessory significantly reduces the installation time by offering an eyehook and tensioner thimble and high strength gripper in one assembly to enable rapid connection to the switch eyebolts and fast and accurate tensioning of the Rope. By being in close proximity to the viewing window of the switch systems can be easily tensioned accurately and quickly. The double clamp mechanism prevents rope slippage and significantly reduces machine downtime which can occur with traditional turnbuckle systems.

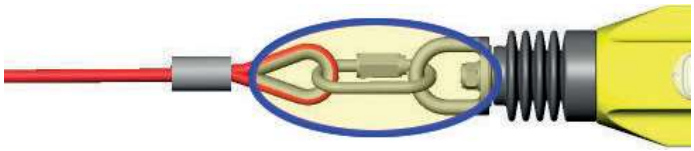
TENSIONER/GRIPPER SYSTEM:

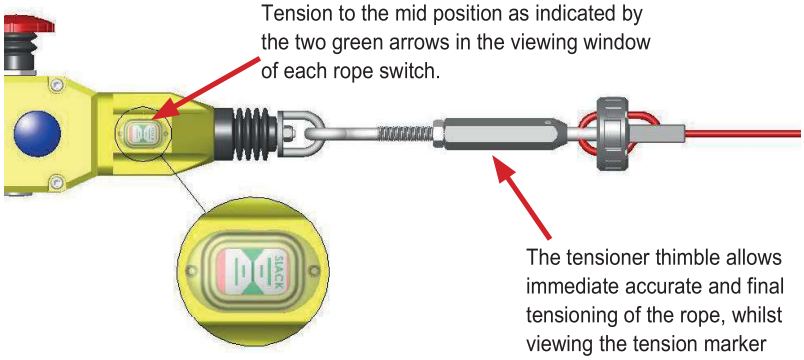
The end of the safety rope is fed through a central hole in a cone shaped guide which protrudes from the main housing.

After being fed through the guide hole the rope enters the main housing by going through a feed hole and then is looped back through 180 degrees and is fed through a second feed hole on the opposite side of the mechanism.

The rope is then pulled for maximum tension and is locked in position by a locking bar inside the main housing which is moved by turning an Allen type locking bolt.

For systems up to 50m a Quick Link termination is provided for easy connection to either a Safety Spring or Switch eyebolt.
(Note: For systems above 50m a Tensioner/Gripper is required for each side).

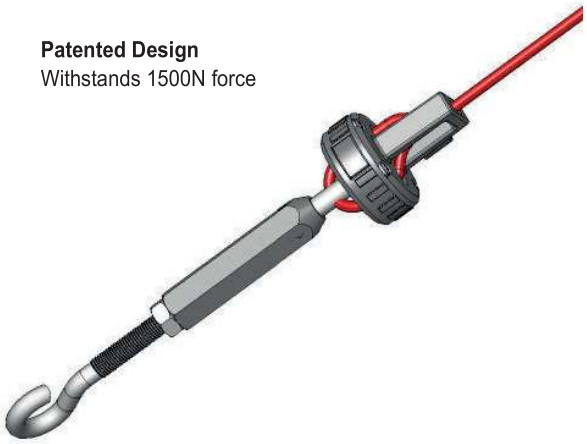




Tension to the mid position as indicated by the two green arrows in the viewing window of each rope switch.

The tensioner thimble allows immediate accurate and final tensioning of the rope, whilst viewing the tension marker through the viewing window on the rope switch.

Patented Design
Withstands 1500N force



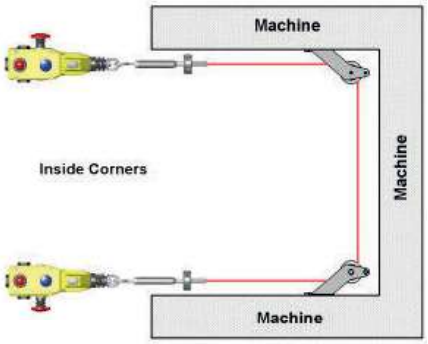
UNIVERSAL PULLEY:

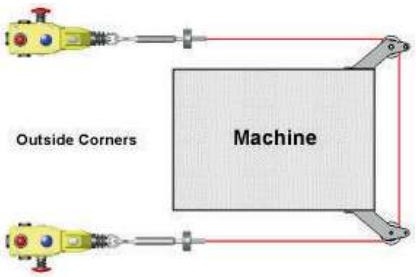
Universal Pulley
Can be used on inside and outside corners.
Stainless Steel.

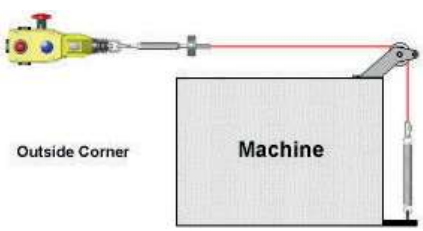
NAVIGATING CORNERS:

Because of the added friction on the eyebolts and rope when navigating corners, IDEM's unique "universal" pulley can be used to navigate inside or outside corners without causing damage to the rope. They are manufactured in Stainless Steel and can be rigidly mounted.

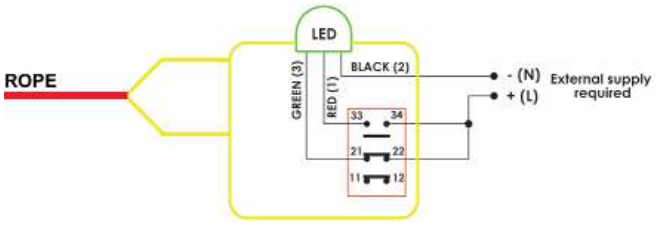
Examples of using the Universal Pulley:







WIRING DIAGRAM FOR LED:



Using Safety Rope Switches: **Guardian Line Series**

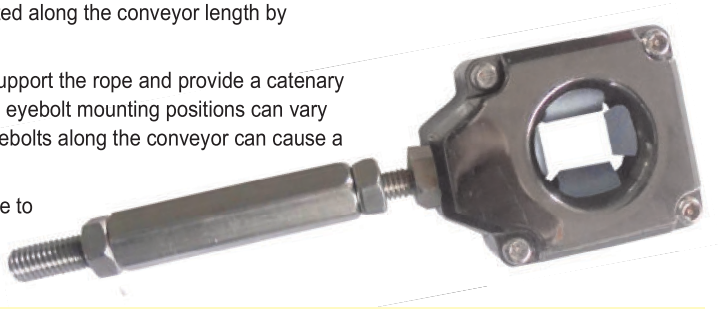
FLEXIBLE ROLLER EYEBOLT WITH ADJUSTMENT APPLICATION:

When using rope pull switch systems on conveyors the rope is supported along the conveyor length by equally spaced eyebolts.

Traditional eyebolts are made from solid metal and offer an eyelet to support the rope and provide a catenary between eyebolts to deflect the rope during pulling. On long conveyors eyebolt mounting positions can vary along the length of the conveyor and therefore mis-alignment of the eyebolts along the conveyor can cause a friction problem making the systems difficult to operate.

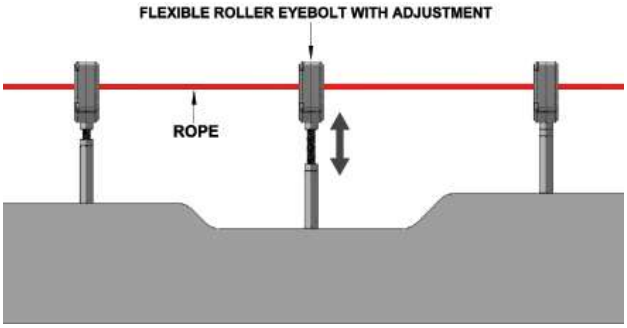
After operation the rope system, the rope may not be able to move (due to the friction) and allow the switch mechanism to be reset.

Ultimately the rope can be damaged or wear to breaking point.



PROPERTIES & FEATURES:

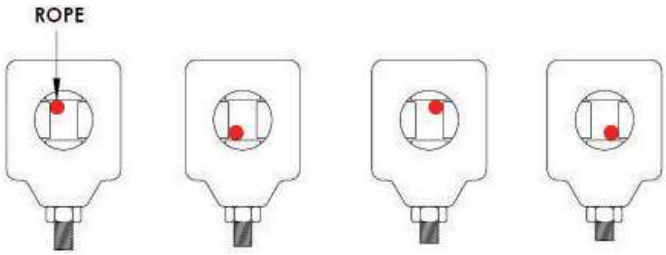
Adjustable mounting positions provides mounting flexibility in adjustment in two planes. This better copes with uneven positioning of eyebolts over the length of the conveyor or conveyors with radius profiles.



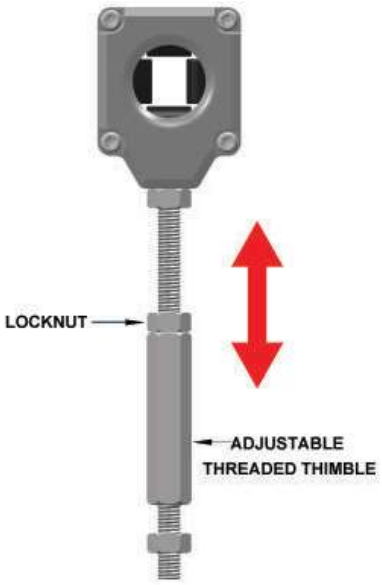
Moveable rollers within the eyebolt structure to ensure no loss of movement due to friction when pulled in any direction.

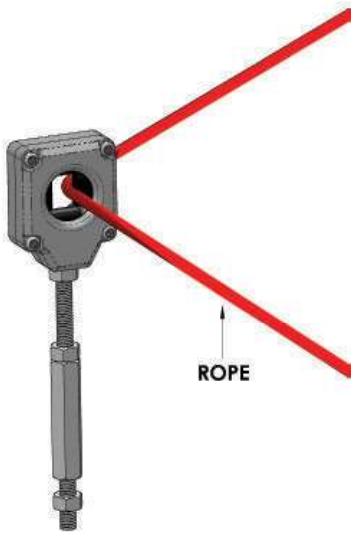
The position of the rollers allow contact with the rope through 360 degrees within the eyelet of the eyebolt.

Friction is eliminated due to the fact that at any point of contact between the rope and a roller there is rotational movement.



The eyebolt position relative to the mounting frame of the conveyor can be adjusted in length away from the conveyor mounting frame by turning an integral adjustable threaded thimble. The eyebolt head can be rotated to provide further adjustment depending upon the direction of the rope along the conveyor length. The final position of the head can be fixed by the locknut or left free to rotate during use.





FLEXIBLE ROLLER EYEBOLT WITH ADJUSTMENT

ORDERING:

Thimble, nuts and bolt are manufactured in stainless steel.
Housing is manufactured in mirror polished die cast metal.
Rollers are manufactured from plastic

SALES NUMBER	ITEM
140048	Flexible Roller Eyebolt with Adjustment
140099	Flexible Roller Eyebolt with Nuts - No Adjustment