



Typical Applications

ZS441 emergency cable-pull switches are ideal for replacing multiple, discrete E-stop pushbuttons or achieving a continuous, immediately accessible emergency stop. Typical applications include conveyor lines, textile machinery, packaging machinery, turret lathes, power plants, gravel processing and transfer lines.

Features & Benefits

- **Rugged, corrosion-resistant, die-cast aluminum housing ...** tolerates the most hostile environments.
- **“Positive-break” NC contacts ...** assure circuit interruption upon pulling of trip wire.
- **Watertight design ...** meets IP65 requirements.
- **Continuous E-stop protection ...** for trip-wire spans up to 82 feet (25m).
- **Meets rigid safety agency standards ...** EN 418
- **Available in three reset styles ...** pushbutton, key and non-reset.
- **Available in three operating force models ...** for application compatibility.
- **Mounting accessories ...** ease and extend installation.
- **Built-in vibration tolerance ...** eliminates nuisance tripping.
- **Push/pull operation ...** actuates if trip-wire is pulled or goes slack.

Description

The ZS441 Series is designed to provide a continuous emergency stop along exposed areas of machinery and conveyors which present hazards to operators/maintenance personnel. Unlike E-stop pushbuttons, emergency stop cable-pull systems can be actuated at any point along the “trip-wire.”

The units feature positive-opening NC contacts which are forced open when the trip-wire is pulled. This design also assures machine stoppage if an operator falls into, leans on, or is pulled against the trip wire.

In addition the switch is designed to operate if the trip wire is cut or goes slack. To comply with OSHA and other safety regulations, the ZS441 features a manual mechanical reset which must be actuated before the controlled equipment can be restarted.

Their rugged metal housing and watertight design (IP65) make them ideal for achieving a higher degree of E-stop safety in industrial and hostile environments.

Operation

The ZS441 features an axial actuating shaft and a double-pole contact block with 1 NO/1 NC or 2 NC contacts (with trip-wire attached). When installed, the trip-wire is pre-tensioned until the actuating shaft is pulled out 6 mm, closing the open contact.

When the trip-wire is pulled, the positive-break NC contact is forced open via a direct mechanical linkage with the actuating shaft. If the trip-wire goes slack (e.g. breaks or is cut) the NO contact, closed during pre-tensioning, opens – resulting in equipment stoppage.

Manual (key or pushbutton) reset mechanisms assure the equipment cannot be restarted until the reset is actuated.

AVAILABLE ACCESSORIES

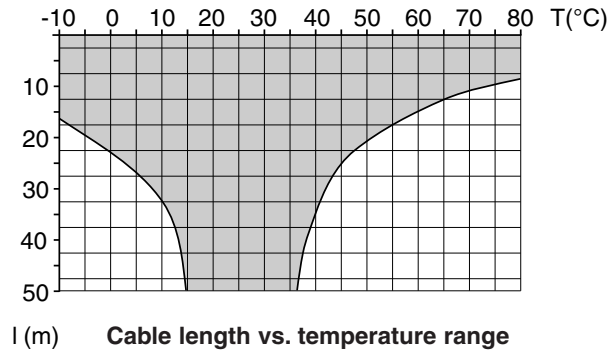
Part Number	Description
PL-M20-24V	24V Pilot light kit
PL-M20-120V	120V Pilot light kit
STQ441-SC	5mm diameter steel cable, PVC coated
STQ441-EB	M10 eye bolt & hex nut
STQ441-CC	Cable clamp
STQ441-TB	Turnbuckle
STQ441-TH	Thimble
STQ441-PU	Pulley assembly (for cable "cornering")
New! S900	Cable-Pull Switch Wire Tensioner (see page 126)

For recommended installation instructions, please see page 117.

ZS441 AVAILABLE MODELS AND ACCESSORIES

AVAILABLE STANDARD MODELS

Part Number	Contact Configuration	Type Reset	Pre-Tensioned Force	Typical Actuating Force (F)	Recommended Cable Length (Minimum & Maximum)
ZS441-10/1S-60N	1 NO & 1 NC	Non-Reset	13.5 lbs (60N)	1.3 lbs (6N)	0-16.5 ft (0-5m)
ZS441-10/1S-150N	1 NO & 1 NC	Non-Reset	34 lbs (150N)	3.1 lbs (14N)	16.5-50 ft (5-15m)
ZS441-10/1S	1 NO & 1 NC	Non-Reset	50 lbs (220N)	5.2 lbs (23N)	50-80 ft (15-25m)
ZS441-10/1SVD-60N	1 NO & 1 NC	Pushbutton	13.5 lbs (60N)	1.3 lbs (6N)	0-16.5 ft (0-5m)
ZS441-10/1SVD-150N	1 NO & 1 NC	Pushbutton	34 lbs (150N)	3.1 lbs (14N)	16.5-50 ft (5-15m)
ZS441-10/1SVD	1 NO & 1 NC	Pushbutton	50 lbs (220N)	5.2 lbs (23N)	50-80 ft (15-25m)
ZS441-10/1SVS-60N	1 NO & 1 NC	Key	13.5 lbs (60N)	1.3 lbs (6N)	0-16.5 ft (0-5m)
ZS441-10/1SVS-150N	1 NO & 1 NC	Key	34 lbs (150N)	3.1 lbs (14N)	16.5-50 ft (5-15m)
ZS441-10/1SVS	1 NO & 1 NC	Key	50 lbs (220N)	5.2 lbs (23N)	50-80 ft (15-25m)
ZS441-20-60N	2 NC	Non-Reset	13.5 lbs (60N)	1.3 lbs (6N)	0-16.5 ft (0-5m)
ZS441-20-150N	2 NC	Non-Reset	34 lbs (150N)	3.1 lbs (14N)	16.5-50 ft (5-15m)
ZS441-20	2 NC	Non-Reset	50 lbs (220N)	5.2 lbs (23N)	50-80 ft (15-25m)
ZS441-20VD-60N	2 NC	Pushbutton	13.5 lbs (60N)	1.3 lbs (6N)	0-16.5 ft (0-5m)
ZS441-20VD-150N	2 NC	Pushbutton	34 lbs (150N)	3.1 lbs (14N)	16.5-50 ft (5-15m)
ZS441-20VD	2 NC	Pushbutton	50 lbs (220N)	5.2 lbs (23N)	50-80 ft (15-25m)
ZS441-20VS-60N	2 NC	Key	13.5 lbs (60N)	1.3 lbs (6N)	0-16.5 ft (0-5m)
ZS441-20VS-150N	2 NC	Key	34 lbs (150N)	3.1 lbs (14N)	16.5-50 ft (5-15m)
ZS441-20VS	2 NC	Key	50 lbs (220N)	5.2 lbs (23N)	50-80 ft (15-25m)



ZS441 TECHNICAL DATA

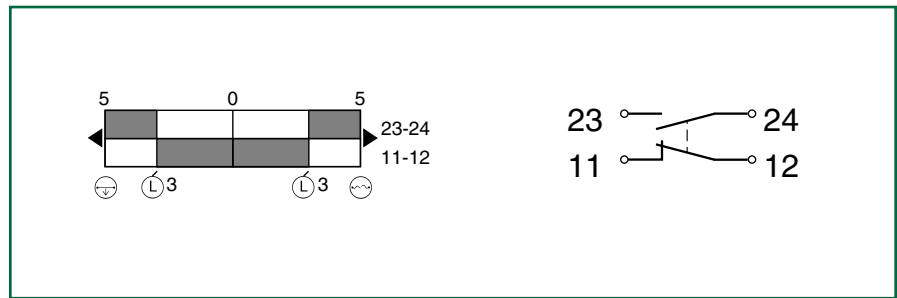
MECHANICAL SPECIFICATIONS

Housing (Standard)	Die-cast aluminum with baked enamel finish	
Housing (Optional)	Cast iron	
Degree of Protection	IP65 (pushbutton reset) IP54 (key reset)	
Maximum Supported Span	80 feet (25m)	
Typical Deflection (S) Required for Operation	4" (10cm)	
Operating Temperature	-22°F to +195°F	
Mechanical Life	3 × 10 ⁴ operations	
Conformity to Standards	IEC 947-5-1	UL
	EN60947-5-1	CSA
	EN418	
	DIN VDE 0660-200	

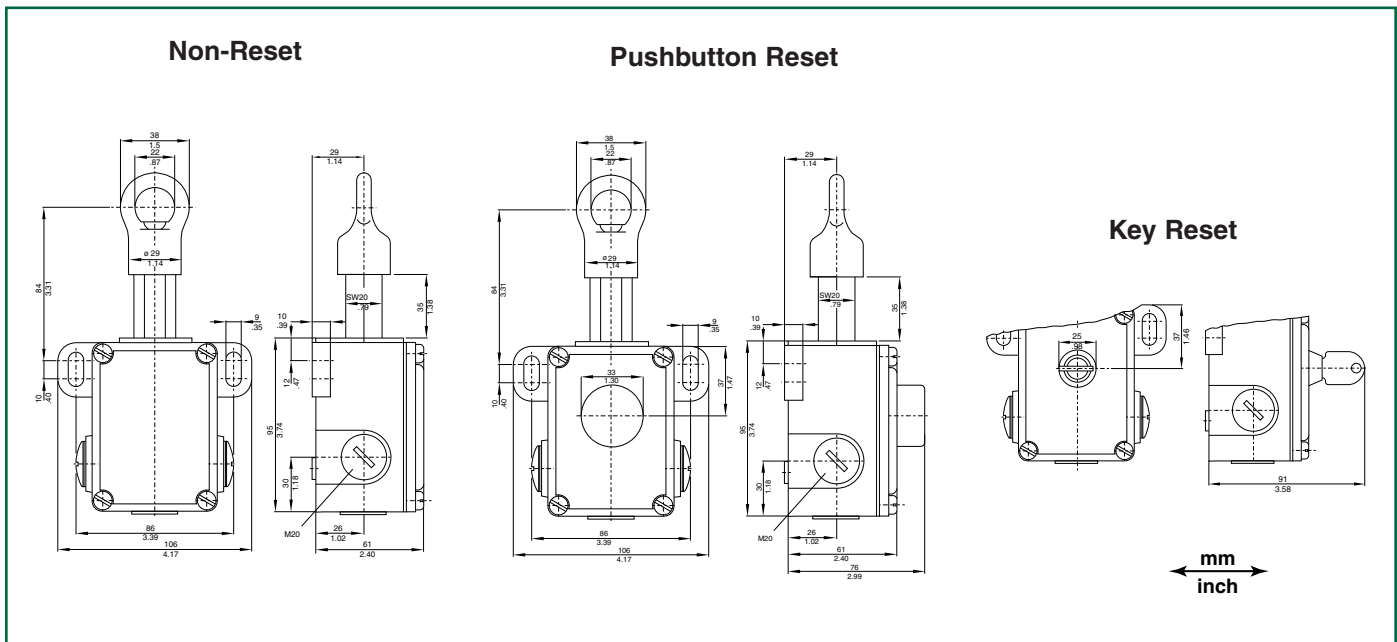
ELECTRICAL SPECIFICATIONS

Contacts	Fine silver
Contact Configuration	Double-pole, double-break with electrically-separated contact bridges
Contact Rating	6A (Slow-blow)
Switching Action	Snap-action, positive-break NC contacts (with wire pulling)
Short Circuit Protection	Fuse 25A (time-delay)
Rated Insulation Voltage	400VAC
Type Terminals	Screw terminals with self-lifting clamps for up to 13 AWG flexible stranded wire (2.5 mm ²)

SWITCHING DIAGRAMS & CONTACT SCHEMATICS



DIMENSIONS



ZS441 TECHNICAL DATA

Recommended Emergency Cable-Pull Switch Installation Instructions (For ZS71, ZS73, ZS75 and ZS441 models)

Distance between Eye Bolt
5 m (16.5 ft)

Remove the red PVT sleeve in the clamping area prior to fitting the pull wire

Attention :
Add 1 extra % of cable for each loop
Every switch requires at least 4 loops
1 - switch 2 - Turnbuckle 1 - wall
Hence every switch requires at least :
4 STQ 441 TH + 8 STQ 441 CC + 1 STQ 441 TB

See page 126 for new S900 Cable-Pull Switch Wire Tensioner (not shown above)

	Part # STQ 441 PU - Cable Pulley Usage : To pass cable at an angle (ex. 45 degree , 90 degree)
	Part # STQ 441 TB - Turnbuckle Usage : To adjust middle position for NC contact
	Part # STQ 441 CC - Cable Clamp Usage : To clamp cable in position
	Part # STQ 441 EB - Eye Bolt & Hex Nut Usage : To support cable weight
	Part # STQ 441 TH - Thimble Usage : To protect cable in every loop
	Part # S900 - Tensioner Replaces turnbuckle & cable clamps New!