

Installation Instructions

Original Instructions



Allen-Bradley

by ROCKWELL AUTOMATION



Lifeline 4 Cable-pull Safety Switch

Catalog Numbers 440E-H13070, 440E-Lx



ATTENTION: Read this document and the documents that are listed in the Additional Resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wire instructions and requirements of all applicable codes, laws, and standards.

Suitably trained personnel are required to install, adjust, put into service, use, assemble, disassemble, and maintain this equipment in accordance with the applicable code of practice. If this equipment is used in a manner that is not specified by the manufacturer, the protection that is provided by the equipment can be impaired.



WARNING: Do not defeat, tamper, remove, or bypass this unit. Severe injury to personnel could result.

Introduction



ATTENTION: Installation must be in accordance with the following steps and stated specifications and must be carried out by suitably competent personnel. Adherence to the recommended maintenance instructions forms part of the warranty.

It is required that installation is in accordance with these instructions and implemented by qualified personnel.

This device is intended to be part of the safety-related control system of a machine. Before installation, a risk assessment must be performed to determine whether the specifications of this device are suitable for all foreseeable operational and environmental characteristics of the application. See the Specifications for certification information and ratings.

Use appropriate screws, bolts, or nuts that are fitted by tools to mount the switch to avoid the risk of tampering. Do not over torque the mounting hardware.

Specifications

Attribute	Standard	Stainless Steel
Safety Ratings		
Standards	IEC 60947-5-5, ISO 13850, IEC 60947-5-1 Emergency stop device in accordance with ISO 13850	
Functional safety data	See publication SAFETY-SR001 in Additional Resources on page 4 .	
Certifications	CE Marked for all applicable directives, UKCA marked for all applicable regulations, cULus Listed, CCC Marked, and TÜV Certified rok.auto/certifications	

Attribute	Standard	Stainless Steel
Outputs		
Safety contacts ⁽¹⁾	• Standard: 2 N.C. direct-opening action • Extended length: 3 N.C. direct-opening action	2 N.C. direct-opening action
Auxiliary contacts	• Standard: 2 N.O. direct-opening action • Extended length: 1 N.O. direct-opening action	2 N.O.
Thermal current (<i>I</i> _{th})	10 A	
Rated insulation voltage (U _i)	600V	
Switching current @ voltage, min	3 mA @ 18V DC	
Cable section	2.5 mm ² (including conductor ferrules), max	
Input terminal wire size	14...22 AWG Use solid or stranded copper conductors only.	
Torque, max	1.0 N•m (9 lb•in)	
Operating Characteristics		
Cable span between switches, max	• Standard: 75 m (246 ft) • Extended length: 75...125 m (146...410 ft)	75 m (246 ft)
Tensioning force	• To run position: 103 N (23.17 lbf) typical • To lockout: 188 N (42.3 lbf) typical	
Operating force, min	<125 N (28.1 lbf) at 300 mm (11.8 in.) deflection	
Actuation frequency, max	1 cycle/s	
Fuse rating, max	6 A gG D-Fuse (EN 60269-1)	
Rated impulse withstand voltage U _{imp}	6 kV	
Overcurrent, max	• 6 A for models using 18 AWG cords with 2 N.C. contacts • 5 A for models using 18 AWG cords with 3 N.C. or 4 N.C. contacts • 3 A for models using 22 AWG cords with 2 N.C. contacts	
Required short-circuit current	1000 A	
Mechanical life	2,000,000 operations	
Environmental		
Enclosure type rating	IP66	IP66, IP67, IP69K
Operating temperature	-25...+80 °C (-13...+176 °F)	
Physical Characteristics		
Pollution degree	3	
Housing material	Heavy-duty painted zinc-based die-cast alloy (LM24)	316 stainless steel
Indicator material	Glass-filled nylon	Acetal
Eye nut material	Stainless steel	Stainless steel
Weight	630 g (1.38 lb)	1442 g (3.17 lb)
Color	Yellow body, blue Reset button	Unpainted metal

(1) The safety contacts are described as normally closed (N.C.) that is, with the guard closed, actuator in place (where relevant) and the machine able to be started.

Utilization Category

Attribute	Standard and Stainless Steel			
A600/AC-15 (Ue)	600V	480V	240V	120V
A600/AC-15 (Ie)	1.2 A	1.5 A	3.0 A	6.0 A
DC-13 (Ue)	24V			
DC-13 (Ie)	2 A			

Mounting

IMPORTANT The use of one or two switches in your application is a matter of a risk assessment while considering the probability of a trapped rope along the span.

Use M5 or #10-32 bolts to mount the sensor to the frame of the machine.

Figure 1 - Typical Mounting – Single Switch

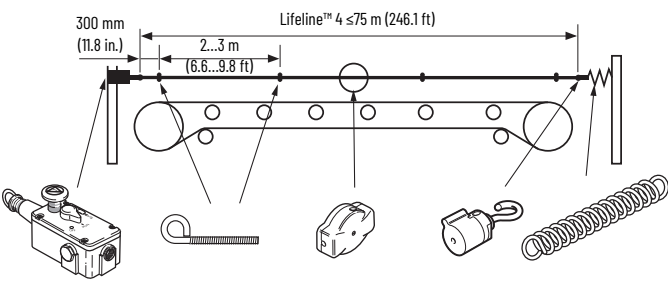
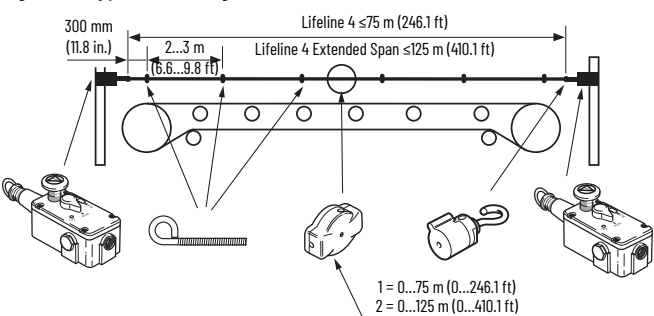


Figure 2 - Typical Mounting – Two Switches

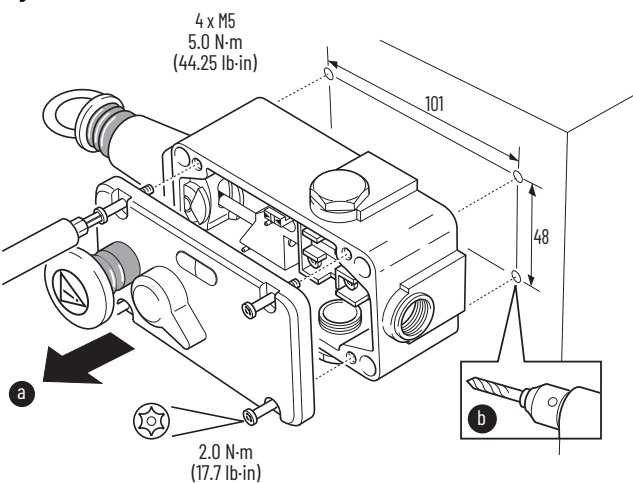


Installation

IMPORTANT The temporary end plugs installed in the switch as shipped must be removed when the unit is installed. Fill any unused openings with an accessory blanking plug or listed/recognized hole seal or plug.

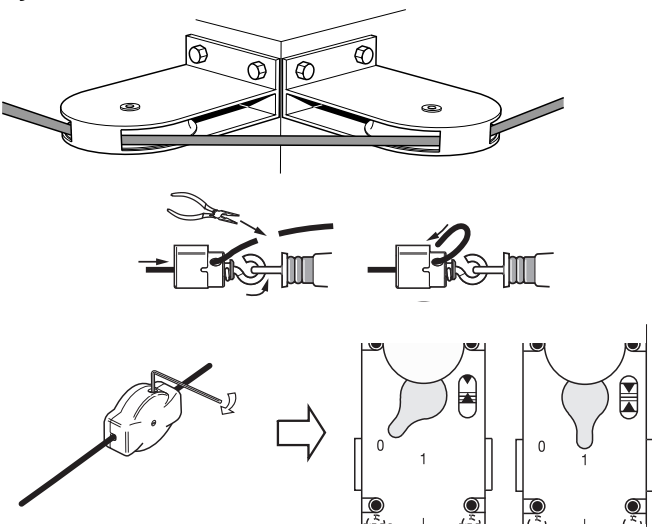
If the application is in an area with large daily or seasonal temperature variations, you should set up the installation kit, and reset it as required, under median temperature conditions.

Figure 3 - Switch Installation



In accordance with IEC 60947-5-5, the maximum perpendicular traction force to be used on the wire to activate the emergency pull-wire switch is 200 N (44.96 lbf), the maximum deflection is 400 mm (15.7 in.). Sufficient space must be provided so that the required actuating deflection can be reached.

Figure 4 - Cable Installation



Maintenance

Frequency	Description
Every week	- Check the correct operation of the switching circuit. - Check for signs of abuse or tampering. - Inspect the switch casing for damage. Of particular importance is damage, which causes loss of sealing at the lid or conduit entry.
At least every 6 months	- Isolate all power. - Remove the lid. - Inspect all terminals for tightness. - Clean out any accumulation of fine dirt and so on. - Check for any sign of wear or damage, for example, cam assembly wear, contact oxidization and replace if apparent. - Replace covers and tighten screws to specified settings. - Reinstate the power and check for correct operation. - Reapply tamper evident varnish or similar compound to fixings.

Repair

If there is any malfunction or damage, no attempts at repair should be made. The unit should be replaced before machine operation is allowed.

IMPORTANT Do not dismantle the unit.

UL 508 Information

When used in elevated ambient temperature, the temperature rating of field wiring must not be less than ambient.

Attribute	Value	
Rating code	A600	A300
Current, max	120V AC	Make 60 A, break 6 A
	240V AC	Make 30 A, break 3 A
	480V AC	Make 15 A, break 1.5 A
	600V AC	Make 12 A, break 1.2 A
VA, max	Make 7200, break 720	

IMPORTANT Use copper conductors only.

Declaration of Conformity

CE Conformity

Rockwell Automation declares that the products that are shown in this document are in compliance with the Essential Health and Safety Requirements (EHSRs) of the European Machinery Directive (2006/42/EC). These products also conform to EN 60947-5-1, EN 60947-5-5 (E-stop units only), EN ISO 13850, EN ISO 13849-1, and have third-party approval.

CCC certified products conform to GB 14048.5.

For a comprehensive CE certificate visit: rok.auto/certifications.

UKCA Conformity

Rockwell Automation declares that the products that are shown in this document are in compliance with Supply of Machinery (Safety) Regulations (2008 No. 1597). These products also conform to EN 60947-5-1, EN 60947-5-5 (E-stop units only), EN ISO 13850, EN ISO 13849-1, and have third-party approval.

For a comprehensive UKCA certificate visit: rok.auto/certifications.

Approximate Dimensions

Figure 5 - Lifeline 4 Cable Pull Switch [mm (in.)]

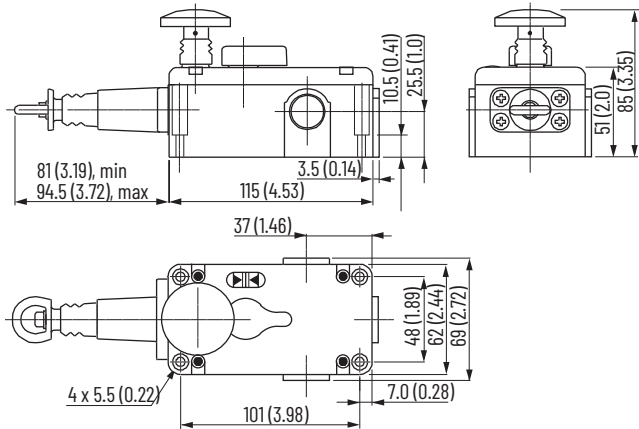
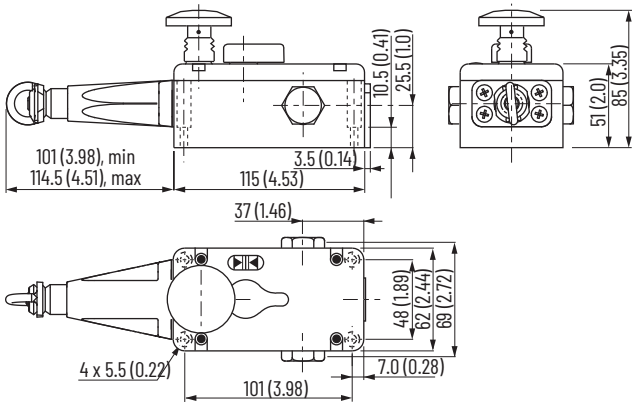
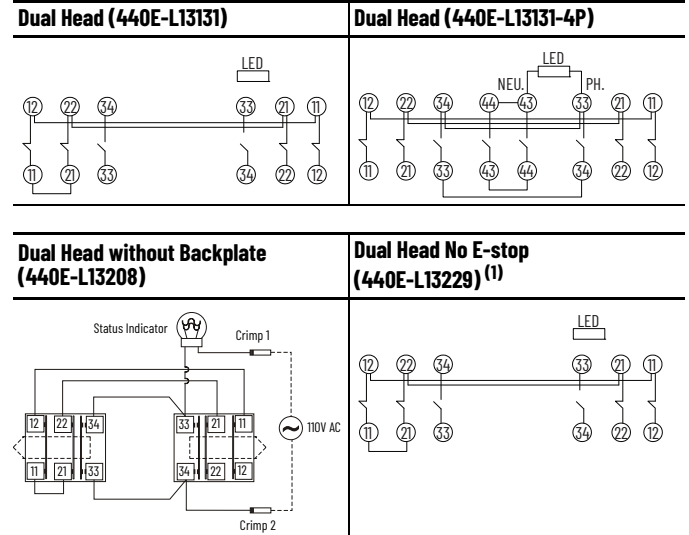
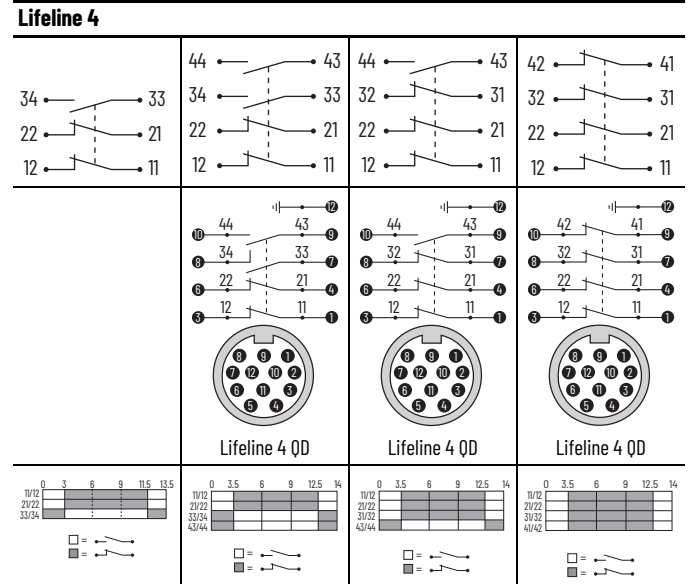


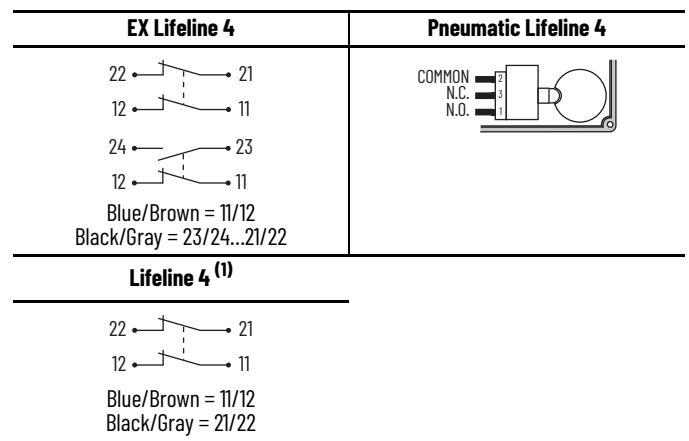
Figure 6 - Lifeline 4 Extended Span Cable Pull Switch [mm (in.)]



Wiring



(1) Do not wire lamp. Only to be installed/screwed in.



(1) Cable 2 m (6.6 ft).

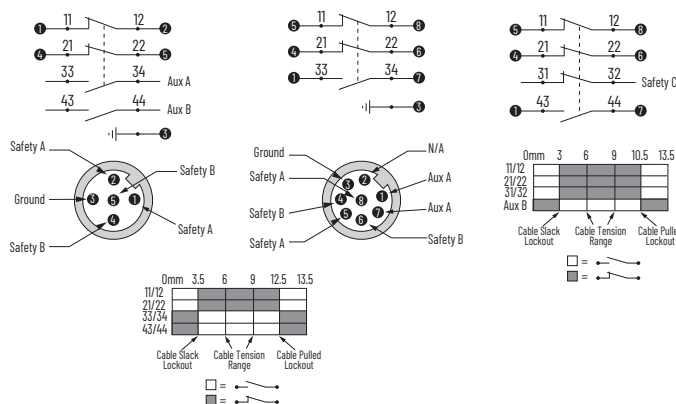


Table 1 - Connector Ratings

	Max Ratings		Applicable Standards
	AC	DC	
5-pin Micro (M12)	60V, 4 A	60V, 4 A	IEC 61076-2-101:2003
8-pin Micro (M12)	30V, 2 A	30V, 2 A	IEC 61076-2-101:2003
12-pin M23	63V, 6 A	63V, 6 A	IEC 61984:2001

Table 2 - Circuit Identification

	Pin Number/ Lead ID	2 N.C. & 2 N.O.	3 N.C. & 1 N.O.	4 N.C.
 12-pin M23	1...3	Safety A	Safety A	Safety A (11-12)
	4...6	Safety B	Safety B	Safety B (21-22)
	7...8	Aux A	Safety C	Safety C (31-32)
	9...10	Aux B	Aux A	Safety D (41-42)
Pins 2, 5, 11 not connected	12	Ground	Ground	Ground
12-pin Cordset 889M-F12X9AW-x ⁽¹⁾	Brown/Blue	Safety A	Safety A	Safety A
	White/Green	Safety B	Safety B	Safety B
	Yellow/Gray	Aux A	Safety C	Safety C
	Pink/Red	Aux B	Aux A	Safety D
	Green/Yellow	Ground	Ground	Ground

(1) Replace the x with a 2 (2 m [6.6 ft]), 5 (5 m 16.4 ft), or 10 (10 m [32.8 ft]) for standard cable lengths.

Additional Resources

To download publications, visit rok.auto/literature and search for the following publication numbers.

Resource	Description
Functional Safety Data Sheet, publication SAFETY-SR001	Provides functional safety data for Rockwell Automation products.
Product Certifications website, rok.auto/certifications	Provides declarations of conformity, certificates, and other certification details.

Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental compliance information on its website at rok.auto/pec.

Your comments help us serve your documentation needs better. If you have any suggestions on how to improve our content, complete the form at rok.auto/docfeedback.

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