

Guardmaster[®] 440G-LZ Guard Locking Switch User Manual



Important User Information

Solid-state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication [SGI-IN001 -EN-P](#) available from your local Rockwell Automation sales office or online at <http://www.rockwellautomation.com/literature/>) describes some important differences between solid-state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid-state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.



WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.



ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.



SHOCK HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.



BURN HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.

IMPORTANT

Identifies information that is critical for successful application and understanding of the product.

It is recommended that you save this user manual for future use.

Read this preface to become familiar with the rest of the manual. It provides information concerning:

- who should use this manual
- the purpose of this manual
- related documentation
- conventions used in this manual

Who Should Use This Manual

Use this manual if you are responsible for designing, installing, programming, or troubleshooting systems that use the Guardmaster 440G-LZ guard locking switch.

You should have a basic understanding of electrical circuitry and familiarity with safety-related systems. If you do not, obtain the proper training before using this product.

Purpose of This Manual

This manual is a reference guide for the Guardmaster 440G-LZ guard locking switch. It describes the procedures you use to install, wire, and troubleshoot your switch. This manual:

- Explains how to install and wire your 440G-LZ
- Provides an overview of the Guardmaster 440G-LZ guard locking switch

Conventions Used in This Manual

The following conventions are used throughout this manual:

- Bulleted lists such as this one provide information, not procedural steps.
- Numbered lists provide sequential steps or hierarchical information.

Additional Resources

The following document offers additional information about related Rockwell Automation products:

Resource	Description
Allen-Bradley Industrial Automation Glossary, publication AG-7.1	Glossary of industrial automation terms and abbreviations

You can view and download publications at <http://www.rockwellautomation.com/literature/>. To order paper copies of technical documents, contact your local Rockwell Automation distributor or sales representative.

Terminology

OSSD	Output Signal Switching Device. Typically designates a pair of solid state signals pulled up to the DC source supply. The signals are usually tested for short circuits to the DC power supply, short circuits to the DC common, and short circuits between the two signals.
Standard coding	Same as Low coding as defined in EN/ISO 14119:2013
Unique coding	Same as High coding as defined in EN/ISO 14119:2013

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General Description

Guardmaster 440G-LZ Overview

This Guardmaster 440G-LZ guard locking switch functions by extending a locking bolt from the switch through a hole in the actuator, thus preventing the opening of a guard.

The locking bolt drive mechanism and logic ensure that the locking bolt is allowed to extend only when the corresponding actuator is detected within range.

The appropriate actuator is detected by RFID coding.

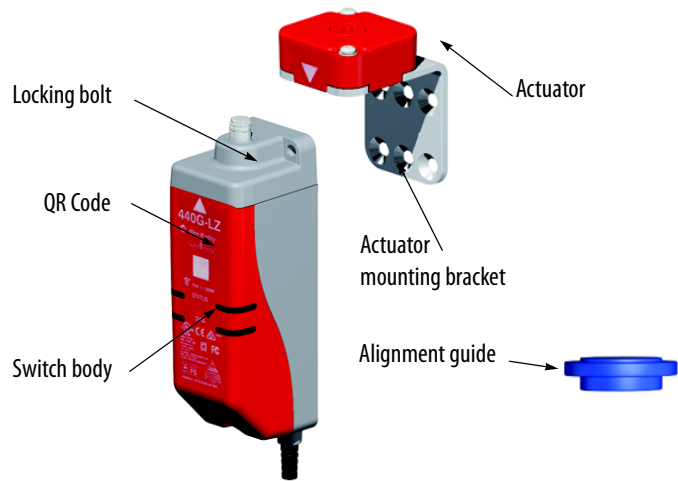
This version of the Guardmaster 440G-LC guard locking switch features OSSD outputs that are enabled only when the locking bolt is sensed in its extended position in the actuator, which happens only when the guard is both closed and locked.

The locking bolt drive mechanism uses a bi-stable solenoid; as a result, the switch consumes very little electrical power, with peak currents occurring only briefly, upon start-up and after each movement of the locking bolt.

Because of its bi-stable drive, not only does the device consume minimal power, but it does not produce heat whether in its locked or unlocked condition.

Despite the bi-stable design of the locking bolt drive, the device logic and functionality are configured to replicate the functionality of a power-to-release or power-to-lock solenoid-operated switch (depending on type).

Guardmaster 440G-LZ Assembly Overview



Packaging Contents

The box includes the following components:

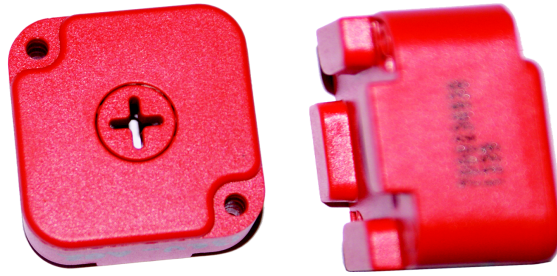
Switch body including connection lead: 3 m or 10 m flying lead or pigtail equipped with M12 QD connector



Actuator mounting bracket



Actuator



Actuator-to-actuator mounting bracket mounting screws: 2 x T10 Torx



Alignment guide



Notes:

Safety Concept

Safety Standards Applied to the Guardmaster 440G-LZ Guard Locking Switch

The Guardmaster 440G-LZ satisfies applicable requirements in the following standards related to functional and machinery assembly:

- IEC 60947-5-1: 2003+A1: 2009
- IEC 60947-5-3: 1999/A: 2005
- IEC 61508:2010 SIL 3
- IEC 62061:2005 SIL 3
- EN/ISO 13849-1:2008/AC: 2009 Performance Level e (PLe), Category 4
- EN/ISO 14119:2013
- UL 508 17th Edition dated 3/19/2013

Introduction

This section describes the safety performance level concept and explains how the Guardmaster 440G-LZ meets the requirements for SIL 3, Cat. 4 or Performance Level “e” (PLe) applications.

Safety Certification

The Guardmaster 440G-LZ is certified for use in safety applications up to and including SIL 3 according to IEC 61508 and IEC 62061 with a proof test interval of 20 years, Performance Level PLe and Category 4 in compliance with ISO 13849-1.

Safety requirements are based on the standards applicable at the time of certification.

The TÜV Rheinland group has approved the Guardmaster 440G-LZ for use in safety-related applications where Performance Level “e” is required for the door position and lock monitoring functions.

The 440G-LZ must be installed in accordance with the applicable regulation and standards.

While the 440G-LZ can be used for SIL 3, PLe and Category 4 applications, the installer must comply with guard requirements (e.g. EN/ISO13854 and EN/ISO 13857) and in some cases also minimum (safe) distance requirements (e.g. EN/ISO 13855).

The installed system, including the safety control system and the means by which the machine stops, must achieve the needed safety performance. The 440G-LZ is one element in the safety system.

Additional guidance on guards, guard locking and guard interlocking may be found in:

- EN/ISO 12100
- EN/ISO 13854
- EN/ISO 13855
- EN/ISO 13857
- EN/ISO 14119
- EN/ISO TR 24119
- EN/ISO 14120
- Application specific C-Level standards

Installation and Wiring

General Considerations

The 440G-LZ guard locking switch is designed for use on guards that are engineered to be rigid without sag. A separately mounted latch (e.g. magnetic or mechanical) and mechanical stop are required.

It can be used on Full Body Access guards that do not require escape release, emergency release or remote release guards, and in any situation where the alignment tolerance falls within the stated specification.

Installation must be in accordance with the present manual and must be carried out by qualified personnel exclusively. The 440G-LZ guard locking switch is intended to be part of the safety-related control system of a machine. Before installation, a thorough 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.

Refer to the Specifications section of this manual. Use appropriate screws, bolts, or nuts fitted by tools to mount the switch and actuators to avoid tampering.

Do not over-torque the mounting hardware.

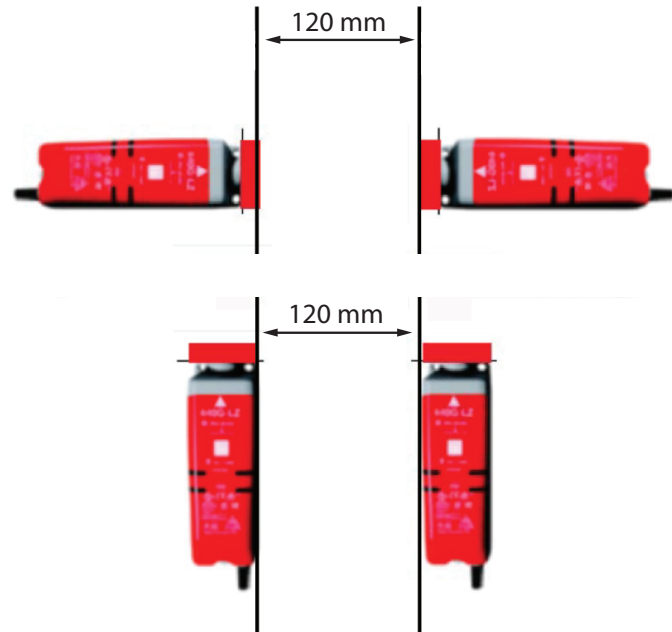


ATTENTION: For the switch, actuator and actuator mounting bracket:

- Only use the designated mounting holes.
- Never drill or use to support other structures such as a conduit, cable ways, or other hardware.

Pair Proximity

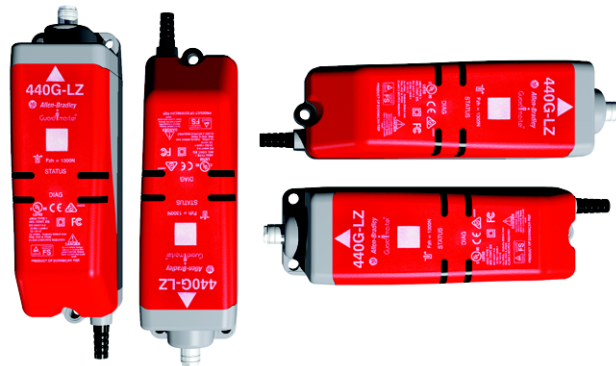
During installation, make sure you observe the following restriction: you must maintain a minimum distance between each pair of switches you mount. Make sure to maintain a minimum distance of 120 mm (4.72 in.) between any two switches and actuators, as indicated in the following illustrations.



If the recommended minimum proximity dimension is not observed, the units will fault.

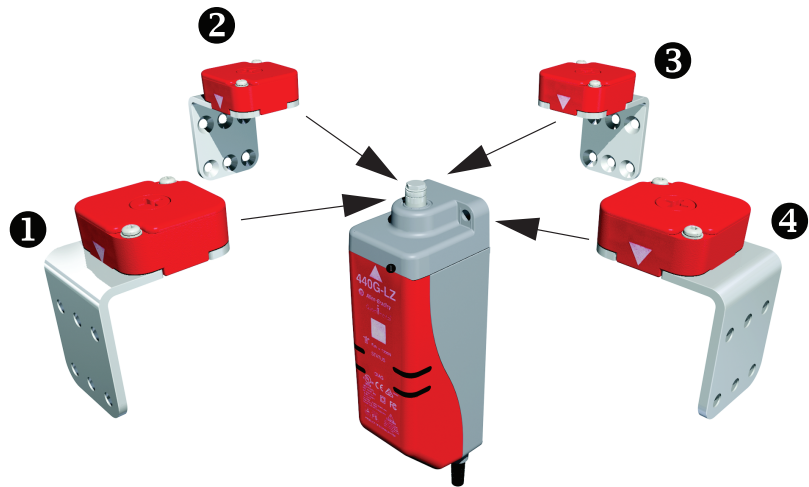
Orientation of Switches

Can be used in all mounting orientations.



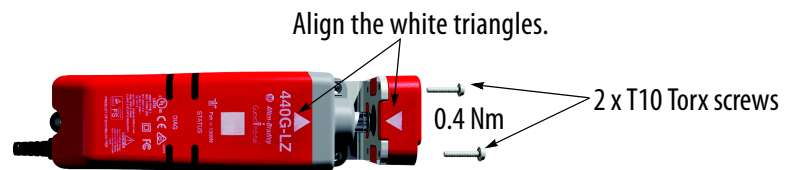
Setting the Actuator Direction of Approach

The actuator can approach the switch from all four directions.

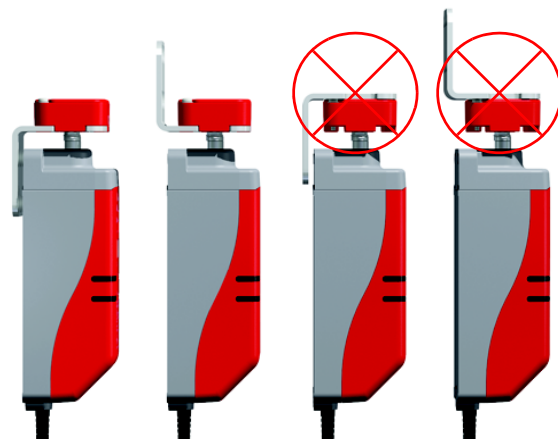


Ensure the white arrow on the actuator aligns with the white arrow on the switch body.

The actuator must be fitted to the actuator mounting bracket in such a manner that the white alignment triangles marked on both the actuator and switch body are in the installed position.



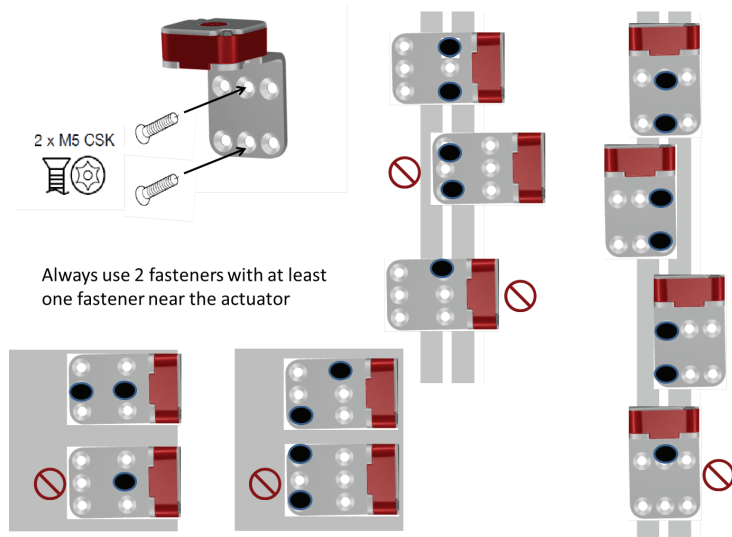
Ensure the locking bolt enters the actuator mounting bracket first.



Mounting the Assembled Actuator

Ensure two fasteners are used with at least one fastener fitted close to the actuator bracket bend.

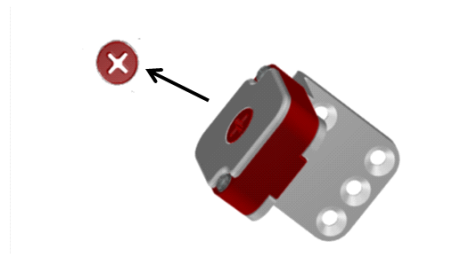
The following drawings show mounting possibilities when attaching to extruded aluminum profile and flat surface guard doors.



Removal of the Actuator Plug

This plug may be broken out from the actuator if a through hole is required to prevent a food trap when mounted on the hazard side of a guard door.

The plug can be broken out by using a screwdriver and twisting until it comes apart.



Mounting the Switch Body

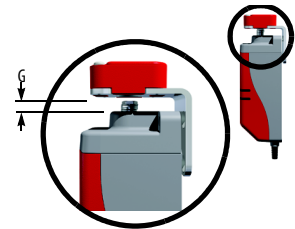
Three M5 fasteners (not provided) are required for proper mounting to a rigid guard door frame.



Setting Actuator to Switch Alignment

There are three ways to achieve proper alignment.

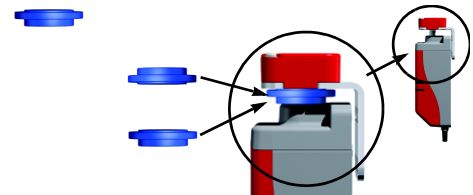
1. By setting gap "G"
2.5 mm (0.09 in.) [0...5 mm (0...0.19 in.)]



2. By mounting hole alignment "H"
6.5 mm (0.25 in.) [4...9 mm (0.15...0.35 in.)]



3. Using the alignment guide provided

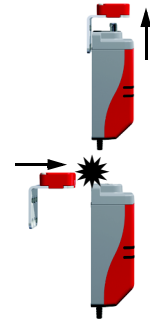




ATTENTION: After installation, ensure that there is no possibility of lifting the actuator over the extended locking bolt.



ATTENTION: After installation, ensure there is no possibility of collision when the actuator approaches the switch body.



Actuator RFID Setting

Switches with standard coded actuators

These switches are ready for use and need no special RFID setting.

Switches with unique coded actuators

Before use, the switches must first “learn” a new RFID guard actuator. This task is not performed at the factory, as there are two possible methods:

- **“Multi-time” learning:** the switch can learn up to eight actuators consecutively.
- **“One-time” learning:** The switch learns one actuator only, for life, irreversibly.

The “one-time” learning method may be invoked at any time, not just during RFID setting. For example, the switch could “multi-time” learn four different actuators consecutively, then complete a “one-time” learning process that would prevent it from learning any additional actuators.

Learning the First “Multi-Time” Actuator

Connect the switch to 24V DC (see the wiring diagrams on [page 21](#)), and ensure that the lock command is off.

The Status/Diagnostic LED will blink a number of times corresponding to the number of times a new actuator may be acquired (a total of eight times when the switch is new), then repeat, indicating that the switch has yet to learn a new actuator.

The switch automatically starts the learning process as soon as an actuator is placed in the guard-closed position of the switch.

Learning Sequence as Indicated by the Status/Diagnostic LEDs

Actuator present	Blinking green, 1 Hz rate
Verifying actuator	Blinking green/red, 1 Hz rate (15 sec)
Programming switch (15 sec)	Blinking green/red, 4 Hz rate (15 sec)
Program finalization	Blinking green (remaining number of times a new actuator may be acquired, 15 sec)
Ready state (learning process is complete)	Solid green (Power-to-release) Solid red (Power-to-lock)

Learning Additional “Multi-Time” Actuators

Mount the new actuator on the guard and repeat the above process, introducing the actuator to the switch as previously described. During program finalization, the LED will blink green a number of times corresponding to the number of remaining learnable actuators.

Note: Once a new actuator is learned by a unique coded switch, any previous actuator is no longer usable by that switch.

“One-time” Learning Process

Proceed just as in the “multi-time” teaching process described above, with the following exception: at the programming finalizing (last) stage, withdraw the actuator from the switch, until the LED turns solid red, then immediately reposition the actuator near the switch. This process must be executed within 15 seconds.

The LED blinks, then turns solid to indicate that the learning process is complete.

Power-to-release	Solid green
Power-to-lock	Solid red

Note: For power-to-release switches, you will need to execute a manual release in order to withdraw the actuator away from the switch as described above.

Status/Diagnostic LED Error Codes During the Learning Process

The following code sequences persist until a Power On/Off cycle is completed.

Status/Diagnostic LED Flashes (4 Hz)	Error Code
Green	OSSD inputs not valid
Red-red-red-green	Cannot learn a standard actuator
Red-red-red-green-green	Actuator already learned
Red-red-red-green-green-green	Bad RFID; actuator moved out of range
Red-red-red-green-green-green-green	Exceeded learning eight actuators
Red-red-red-green-green-green-green-green	Unit locked: cannot learn another actuator

Proving Basic Lock Function

To prove basic lock function and to verify correct actuator alignment, it may be necessary to extend the locking bolt. The locking bolt cannot be extended by mechanical means; you must proceed electrically. The following basic connections are required:

- Pin 2 (brown wire) must be connected to 24V DC
- Pin 7 (blue wire) must be connected to 0V (GND)

In the case of a power-to-release switch, the locking bolt will extend when the guard is shut and the actuator is aligned. Connect Pin 3 (green wire) to 24V DC to unlock the switch and withdraw the locking bolt.

If power is removed from a power-to-release switch in the locked position, the locking bolt will remain in its extended position (switch locked). Use the manual auxiliary release to unlock the switch.

In the case of a power-to-lock switch, connect Pin 3 (green wire) to 24V DC to lock the switch (i.e. extend the locking bolt). Disconnecting Pin 3 will unlock the switch.

If power is removed from a power-to-lock switch in the locked position, the switch unlocks.

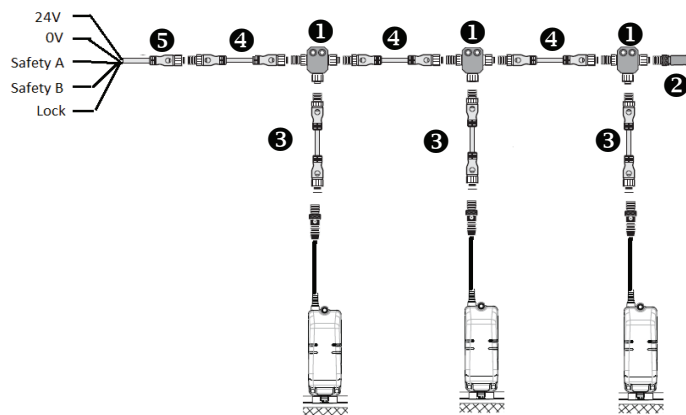
In either type of lock, the locking bolt never extends in the absence of the actuator.

Wiring

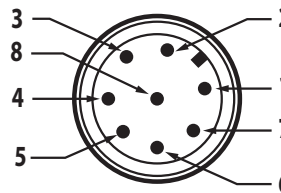
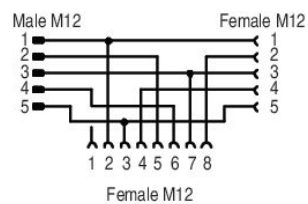
8-Pin Micro (M12)			
8-Pin Cordset 889D-F8AB-* or cable version	Color	Function	Pin
	White	Aux	1
	Brown	24V DC+	2
	Green	Lock	3
	Yellow	Safety B+	4
	Grey	Safety A	5
	Pink	Safety B	6
	Blue	Gnd/0V	7
	Red	Safety A+	8

Connections Systems

The following connection system components facilitate connection:

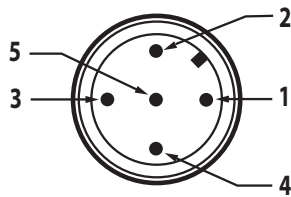


① Safety-wired Splitter/T-Port	Cat. No 898D-438Y-D8
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② Safety-wired Shorting Plug

Cat. No 898D-418U-DM



Pin 1 PWR
 Pin 2 OSSD 1+
 Pin 3 NA
 Pin 4 OSSD 2+
 Pin 5 NA



③ 8-pin Device Patchcords

Cat. No.

1 meter, 8-pin	889D-F8ABDM-1
2 meters, 8-pin	889D-F8ABDM-2
5 meters, 8-pin	889D-F8ABDM-5
10 meters, 8-pin	889D-F8ABDM-10



Note: Add the letter “S” to above cat. nos. for stainless steel connectors; e.g. 889DS-F8ABDM-1

④ 5-pin Patchcords

Cat. No.

1 meter, 5-pin	889D-F5ACDM-1
2 meters, 5-pin	889D-F5ACDM-2
5 meters, 5-pin	889D-F5ACDM-5
10 meters, 5-pin	889D-F5ACDM-10



Note: Add the letter “S” to above cat. nos. for stainless steel connectors; e.g. 889DS-F5ACDM-1

⑤ 5-pin Cordsets

Cat. No.

2 meters, 5-pin	889D-F5AC-2
5 meters, 5-pin	889D-F5AC-5
10 meters, 5-pin	889D-F5AC-10



Note: Add the letter “S” to above cat. nos. for stainless steel connectors; e.g. 889DS-F5AC-1

More detailed information may be found online at ab.com/product catalogues/ (search for “Connection Systems”).

Description of Operation

Status/Diagnostic LEDs During Operation

During operation, the LEDs indicate the status of the Guardmaster 440G-LZ guard locking switch as follows:

Power-to-Lock Versions	Guard Status	Lock CMD	OSSD Input	Lock Status	LED Status	OSSD Status
Power on and lock CMD off	Open or closed	Off	Off or on	Unlocked	Blinks 6x green then solid red	Off
Lock CMD on, door open	Open	On	Off or on	Unlocked	Fast flash green	Off
Lock CMD on, door closed	Closed	On	Off	Locked	Slow flash green	Off
Lock CMD on, door closed	Closed	On	On	Locked	Solid green	On

Power-to-Release Versions	Guard Status	Lock CMD	OSSD Input	Lock Status	LED Status	OSSD Status
Power on with door open	Open	Off	Off or on	Unlocked	Blinks 6x green, then blinks 1x red, followed by fast flash green	Off
Power on with door closed	Closed	Off	Off	Locked	Blinks 6x green, then blinks 1x red, followed by slow flash green	Off
Power on with door open, and OSSD input active	Closed	Off	On	Locked	Blinks 6x green, then blinks 1x red, followed by solid green	On
Unlock CMD on, and door closed or open	Open or closed	On	Off or on	Unlocked	Solid red	Off

Status/Diagnostic LEDs During Troubleshooting

This section explains the meaning of the various LEDs during troubleshooting.

LED Status	Switch Status
Off	Not powered
Solid green	Door shut, locked, and OSSDs are ON.
Fast flash, green (4 Hz)	Waiting to lock, actuator is not within range
Slow flash, green (1 Hz)	Door shut, locked. OSSDs are OFF because there's no safety input signal.
Solid red (PTL versions)	Door open or shut, not locked. No lock signal.
Solid red (PTR versions)	Door open or shut, not locked. Unlock signal is ON.
Flashing 3x green, then red - repeats	Attempting to lock/unlock, actuator not aligned.
Flashing 3x green, then red - repeating, then finally fast flash red	Failure to lock/unlock. Align actuator, then cycle power.
Slow flash, red (1 Hz)	OSSD fault, check outputs are not shorted to GND, 24V DC, or each other. Cycle power to reset.
Fast flash, red (4 Hz)	General fault. Cycle power to reset.

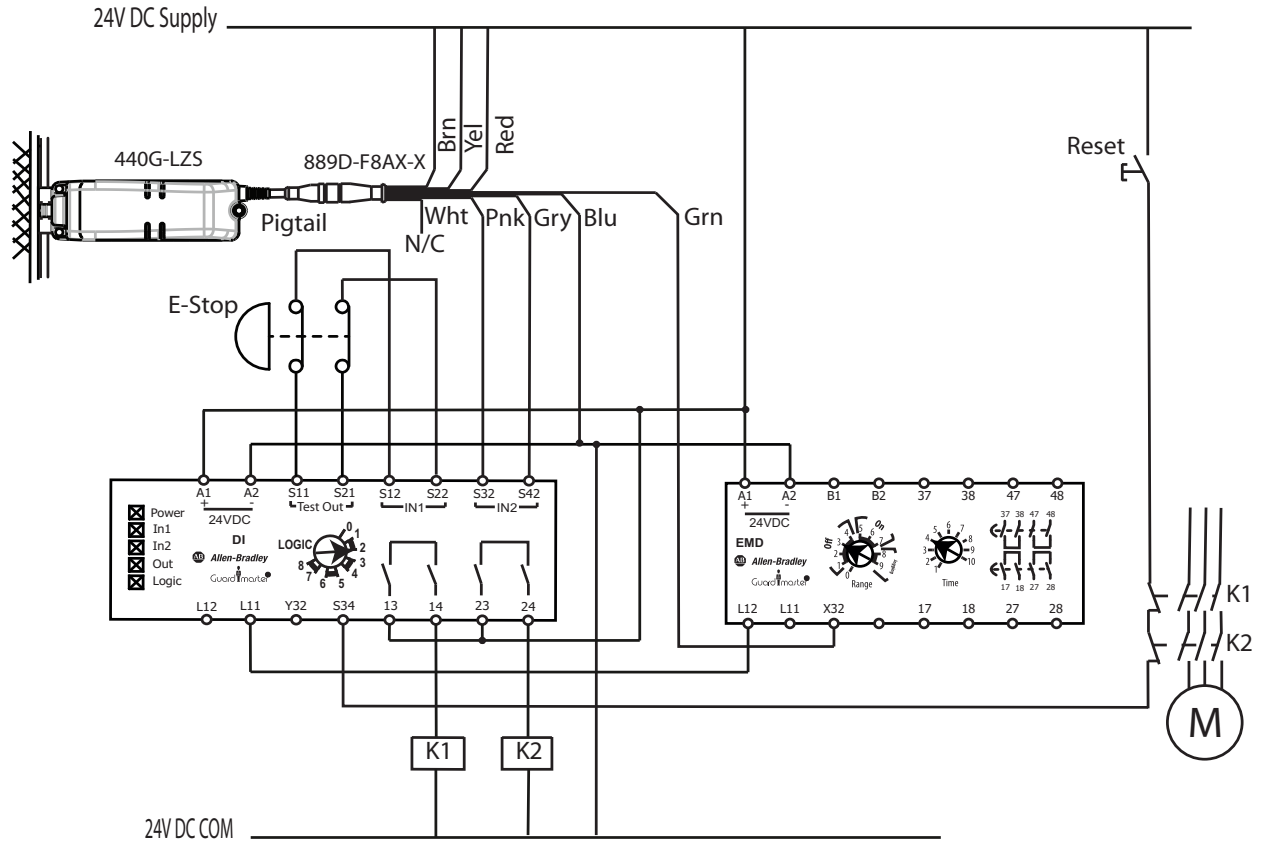
Auxiliary Out Function

The Auxiliary Out only changes state when the door is shut and locked, regardless of OSSD status.

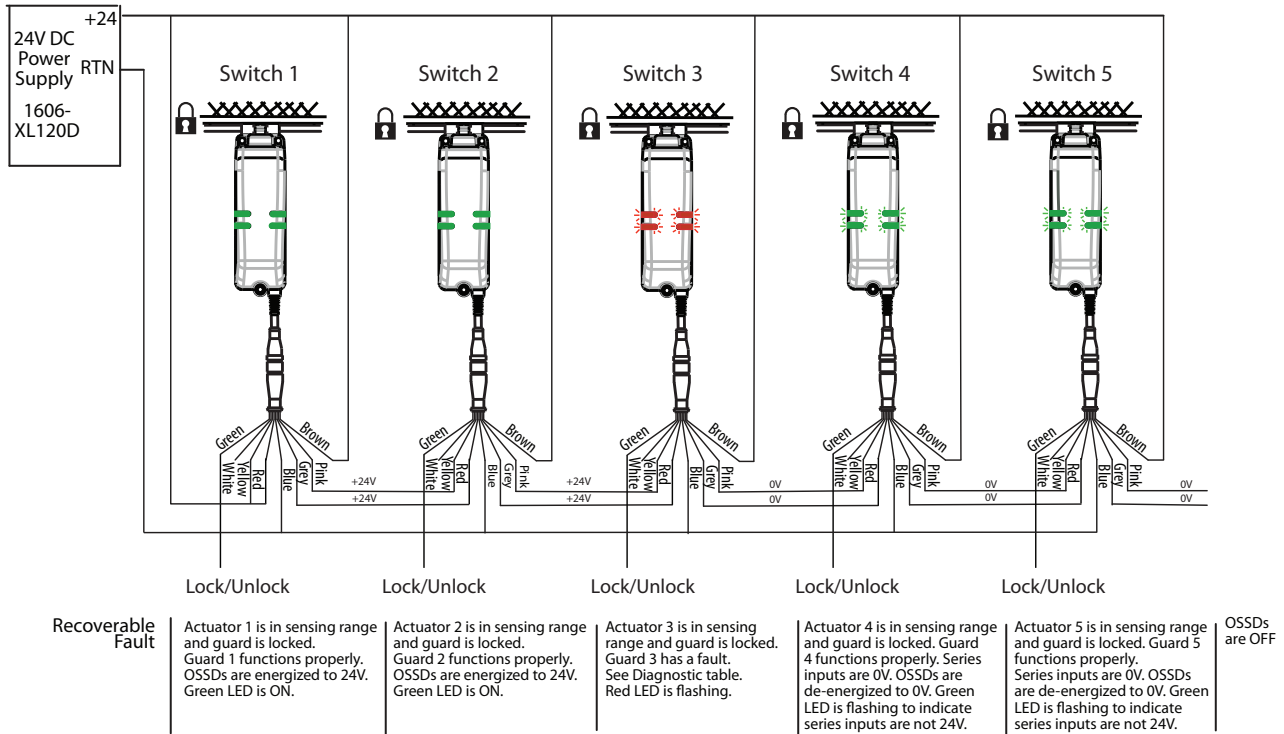
Power-to-Lock Versions	Lock CMD	Lock Status	Auxiliary Out
Door open	On or off	Unlocked	On
Lock CMD on, door closed	On	Locked	Off

Power-to-Release Versions	Lock CMD	Lock Status	Auxiliary Out
Door open	On or off	Unlocked	On
Lock CMD off, door closed	On	Locked	Off

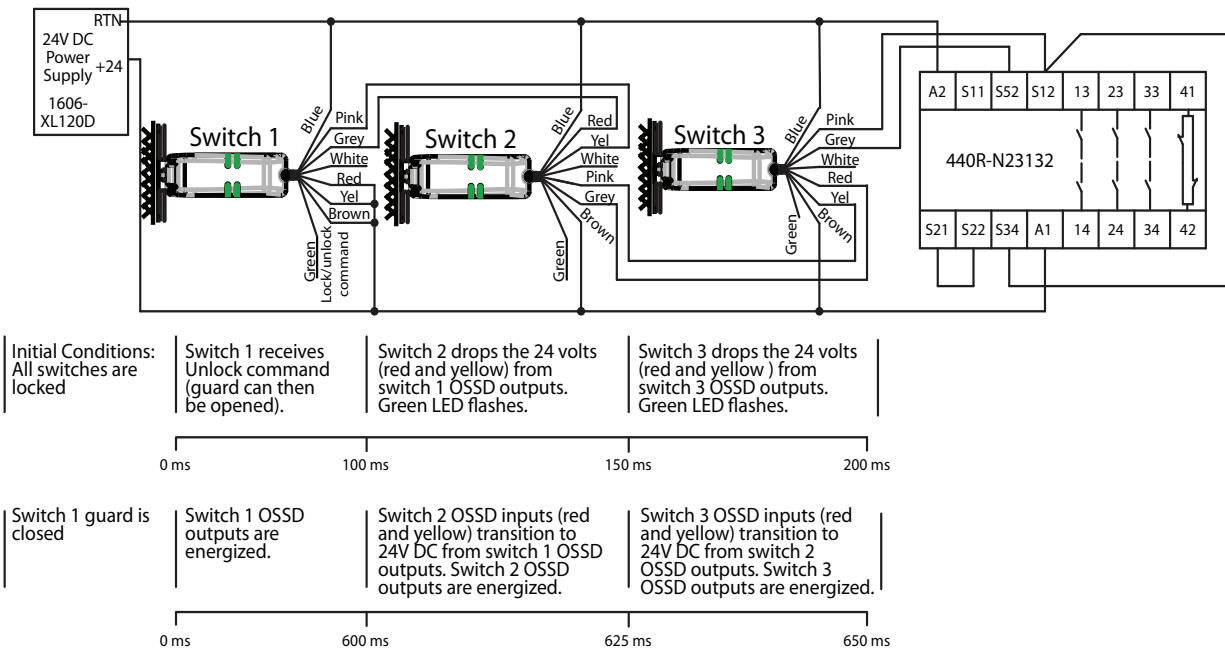
Guardmaster 440G-LZ Wiring with GSR Relay



Troubleshooting Series Circuit

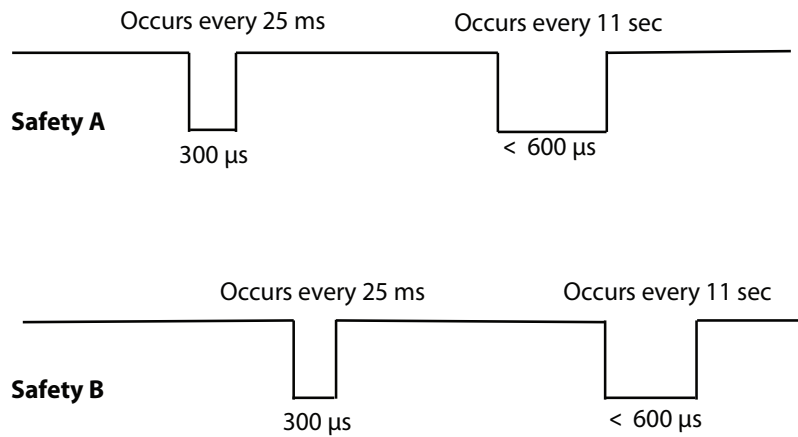


Unit Response Times When Connected in Series



OSSD Output Test Pulses

The Guardmaster 440G-LZ guard locking switch uses test pulses to check for OSSD output faults. This process is illustrated graphically as follows:



Auxiliary/Manual Release



The manual release is provided to allow you to unlock the guard door in the event of unforeseen and uncommon circumstances.

If power is supplied to the switch and the latter is in its locked state, invoking the auxiliary release will cause the switch to enter a fault condition (blinking red LED).

To reset the switch, simply cycle the power.

Specifications

Introduction

This appendix provides the specifications for the Guardmaster 440G-LZ guard locking switch.

Note: The holding force Fzh is in accordance to EN/ISO 14119:2013, clause 5.7.4. Additional validation was performed in accordance with IEC 60947-5-1:2009, clause C.1.2.2.

Safety Ratings

Standards	IEC 60947-5-3, IEC 60947-5-1, IEC 61508, EN/ISO 13849-1, IEC 62061, EN/ISO14119, UL 508
Safety Classification: Guard door sensing and lock monitoring	PLe Category 4 per ISO 13849-1, SIL 3 per IEC 61508 and IEC 62061
Functional Safety Data: Guard door sensing and lock monitoring	PFHD: 9.1×10^{-10} Dual channel interlock may be suitable for use in applications up to PLe (in accordance with ISO 13849-1) and for use up to SIL 3 systems (in accordance with IEC 62061), depending on application characteristics. Mission time/PTI: 20 years

Operating Characteristics

440G-LZS21*PR*	Power-to-release
440G-LZS21*PL*	Power-to-lock
Switch function	OSSDs enable when guard closed and locked
Torque for M5 mounting of switch and actuator mounting bracket	2 Nm max.
Locking bolt insertion for assured locking and holding force	Minimum of 5 mm (0.19 in.), maximum of 10 mm (0.39 in.)
Approach speed	Minimum of 2 mm/s
Locking bolt alignment tolerance X, Y, Z	Maximum of +/- 2.5 mm
Holding force Fmax (EN/ISO 14119)	1,690 N
Holding force Fzh (EN/ISO 14119)	1,300 N
Maximum output current (each output)	200 mA
Quiescent power consumption, Locked or Unlocked	2.5 W

Peak current, during turn-on or after Lock/Unlock operation	400 mA
Duration of peak current, at turn-on or after Lock/Unlock operation	100 ms
Maximum number of switches connectable in series	Unlimited, See Chapter 4, Unit Response Times
Operating voltage Ue	24V DC + 10% / -15% Class 2 SELV
Maximum frequency of operating cycles	0.2 Hz
Dwell time between subsequent locking/unlocking	2.5 s
Response time (Off)	100 ms first switch, +50 ms for each additional switch
Risk time (according to IEC 60947-5-3)	100 ms
Start-up time (availability)	5 s
Usage category (IEC 60947-5-2)	DC-13 24V 200 mA
Insulation voltage Ui (IEC 60947-5-1)	75 V
Impulse withstand voltage Uimp (IEC 60947-5-1)	1 kV
Pollution degree (IEC 60947-5-1)	3
Manual (auxiliary) release	Built-in
Emergency release	No
Escape release	No
Protection class (IEC 61140)	Class II

* See nomenclature section below, and cat. nos. section on [page 34](#).

Nomenclature for Complete Switches

440G-LZS21 **P**

a	b	c
a	b	c
S Standard Coding	R Power-to-Release	A 3 m Cable
U Unique Coding	L Power-to-Lock	B 10 Cable
		H M12 8-pin

Outputs (Guard Closed and Locked)

Outputs	Description/Status
Safety	2 x PNP, 0.2 A max. / ON (+24V DC)
Auxiliary	2 x PNP, 0.2 A max. / OFF (+0V DC)

Environmental

Operating temperature [C (F)]	0...55° (+14...131°)
Storage temperature [(C (F))]	-25...75° (+13...167°)
Operating humidity	5...95%, relative
Enclosure ingress rating	NEMA 3, 4x, 12, 13, IP66, IP67, IP69K
Shock and vibration	IEC 68-2-27 30 g, 11 ms/IEC 68-2-6 10...55 Hz
Hygienic	ISO 14159:2004 and EN 1672-2005 (for part of the machine defined as "food splash area")
Washdown	Suitable for sodium hydroxide-based washdown fluids
Radio frequency / EMC	IEC-60947-5-3, FCC-1 (Parts 18 & 15), R&TTE

General

Materials	ABS, locking bolt and mounting bracket 304 stainless steel
Weight switch/actuator	Switch 400 g, actuator 22 g, actuator mounting bracket 60 g
Connection	Flying lead or pigtail with M12 8-pin QD connector (stainless steel)

Protection

Short-circuit protection	Incorporated
Current limitation	Incorporated
Overload protection	Incorporated
Reverse polarity protection	Incorporated
Overvoltage protection	Incorporated (up to 60V max.)
Thermal shutdown/restart	Incorporated

Certifications

See the Product Certification link at <http://www.rockwellautomation.com/rockwellautomation/certification/> for Declaration of Conformity, Certificates, and other certification details.

- UL Listed Industrial Control Equipment, Certified for US and Canada
- CE Marked for all applicable directives
- C-Tick Marked
- TÜV Certified for Functional Safety up to SIL 3 Category 4 for use in safety applications up to and including SIL 3, in accordance with IEC 61508 and EN 62061, Performance Level "e" and Category 4 in accordance with ISO 13849-1, both for guard positioning and for lock monitoring according to EN/ISO 14119:2013.

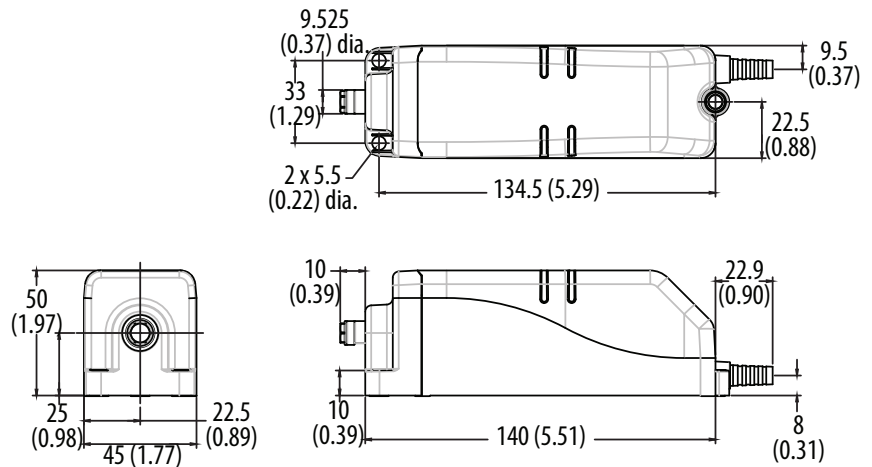
Compliance to European Union Directives

This product bears the CE Mark and is approved for installations within the European Union and EEA regions. It has been designed and tested to meet the following directives (Machine Safety and EMC).

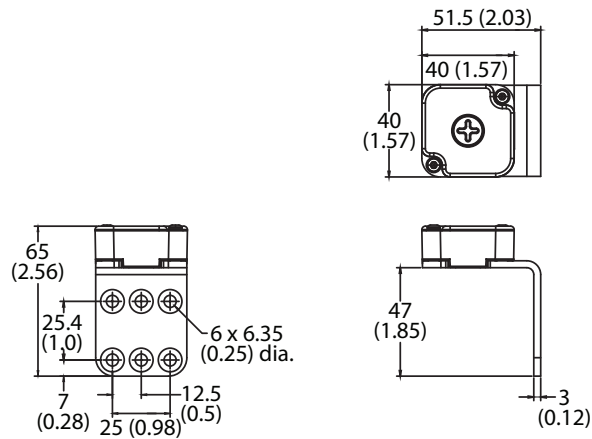
For a complete list of standards used (including Machine Safety Directive and EMC Directive), see EU Declaration of Conformity on [page 37](#) of this manual.

Overall Dimensions

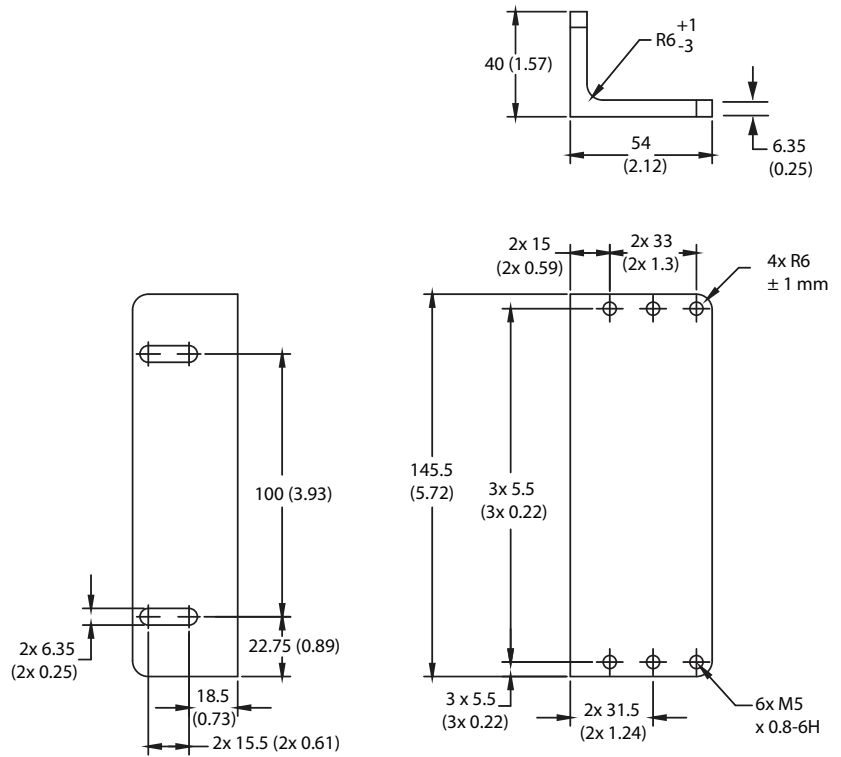
Switch Body



Actuator and Actuator Mounting Bracket



Switch Mounting Bracket 440G-LZAM2



Cat. Nos.

Complete switches, including switch body, actuator and actuator mounting bracket

Type	Actuator Coding	Cat. No.		
		Connection		
		3 m lead	10 m lead	6 in. pigtail with M12 8-pin Quick Disconnect
Power-to-Release	Standard (Low level to EN/ISO 14119:2013)	440G-LZS21SPRA	440G-LZS21SPRB	440G-LZS21SPRH
	Unique (High level to EN/ISO 14119:2013)	440G-LZS21UPRA	440G-LZS21UPRB	440G-LZS21UPRH
Power-to-Lock	Standard (Low level to EN/ISO 14119-2013)	440G-LZS21SPLA	440G-LZS21SPLB	440G-LZS21SPLH
	Unique (High level to EN/ISO 14119:2013)	440G-LZS21UPLA	440G-LZS21UPLB	440G-LZS21UPLH

Spare actuators and actuator mounting bracket

Type	Coding	Cat. No.
Power-to-Release	Standard (Low level EN/ISO 14119:2013)	440G-LZASPR
	Unique (High level EN/ISO 14119:2013)	440G-LZAUPR
Power-to-Lock	Standard (Low level EN/ISO 14119:2013)	440G-LZASPL
	Unique (High level EN/ISO 14119:2013)	440G-LZAUPL
Actuator mounting bracket		440G-LZAM1

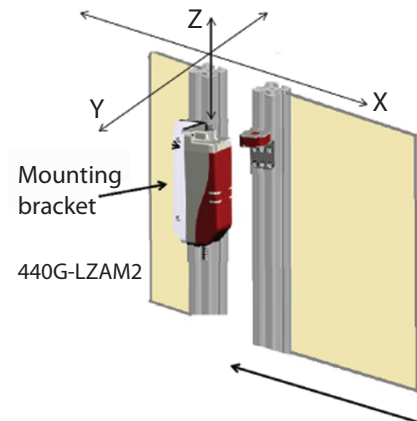
Accessories

Description	Cat. No.
Switch body mounting bracket	440G-LZAM2

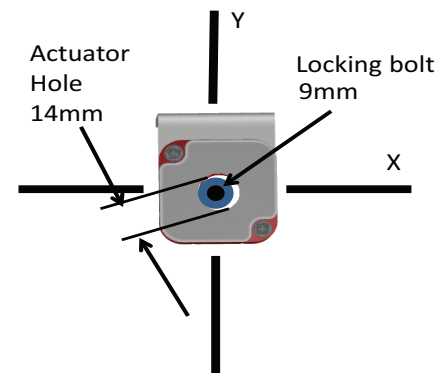
Typical Installations

Switch Mounted Parallel to Hinge Axis

The X and Y positions can be adjusted using the slotted holes of the mounting bracket and appropriate selection of the three pairs of actuator bracket holes, once the bracket is centered. The tolerance to misalignment is ± 2.5 mm.



The Z (height) position is adjusted by sliding the actuator bracket up/down on the profile. If the setting gap is centered between the minimum of 0 mm and the maximum of 5 mm, a tolerance to misalignment of ± 2.5 mm is achieved.

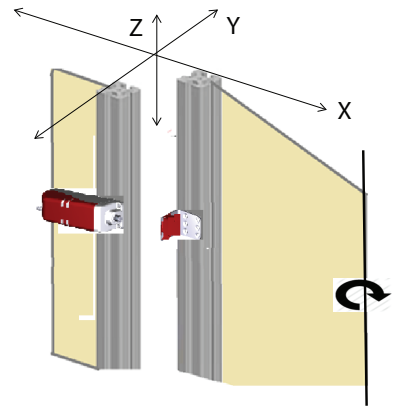


The Z position should be carefully selected to offset the anticipated door sag or door drop. At the same time, ensure that the alignment is such that it is not possible to lift the door up and off the locking bolt. Also make sure that there is no possibility that the actuator would collide with the switch when the guard door is being closed. It is essential to check the alignment periodically throughout the use of the guard locking switch.

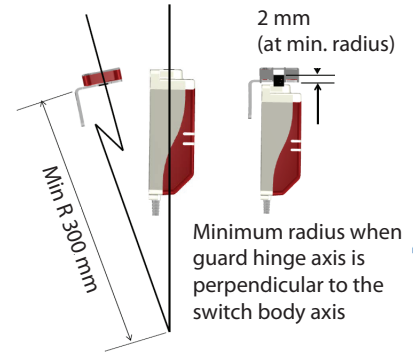
Switch Mounted Perpendicularly to Hinge Axis

The Z (height) position is adjusted by sliding the actuator bracket up/down on the profile. If the setting gap is centered between the minimum of 0 mm and the maximum of 5 mm, a tolerance to misalignment of ± 2.5 mm is achieved.

The X and Y positions can be adjusted using spacers underneath the switch and appropriate selection of the three pairs of actuator bracket holes, once the bracket is centered. The tolerance to misalignment is ± 2.5 mm.



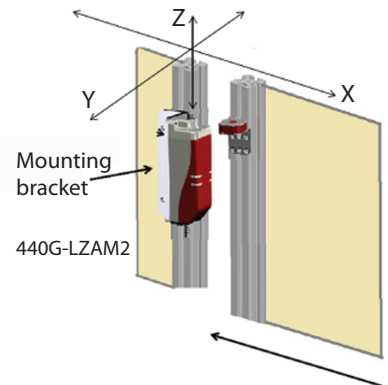
The Z position should be carefully selected to offset the anticipated door sag or door drop. At the same time, ensure that the alignment is such that it prevents lifting the door up and off the locking bolt. Also check to ensure there is no possibility that the actuator would collide with the switch when closing the guard door. It is essential to check the alignment periodically throughout the use of the guard locking switch.



Switch Mounted to a Sliding Guard Door

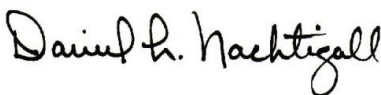
The Z (height) position is adjusted by sliding the actuator bracket up/down on the profile. If the setting gap is centered between the minimum of 0 mm and the maximum of 5 mm, a tolerance to misalignment of ± 2.5 mm is achieved.

The X and Y positions can be adjusted using the slotted holes of the mounting bracket and appropriate selection of the three pairs of actuator bracket holes, once the bracket is centered. The tolerance to misalignment is ± 2.5 mm.





EU Declaration of Conformity

<i>Identification of the product:</i>		Guard Locking Safety Switch
<i>Name and address of the manufacturer:</i>		<i>Name and address of the authorised representative:</i>
Rockwell Automation, Inc. 2 Executive Drive Chelmsford, MA 01824 USA		Rockwell Automation B.V. Rivium Promenade 160 2909 LM Capelle aan den IJssel The Netherlands
<i>This declaration of conformity is issued under the sole responsibility of the manufacturer.</i>		
<i>Object of the declaration:</i>		Allen Bradley / Guardmaster 440G-LZ21 Series (reference the attached list of catalogue numbers)
<i>The object of the declaration described above is in conformity with the relevant EU harmonisation legislation:</i>		
2004/108/EC	EMC Directive	(EMC)
2006/42/EC	Machinery Directive	(MD)
<i>References to the relevant harmonised standards used or references to the specifications in relation to which conformity is declared:</i>		
EN 60947-1:2007	Low-voltage switchgear and controlgear – Part 1: General rules	
EN 60947-5-3:1999 + A1:2005	Low-voltage switchgear and controlgear – Part 5-3: Control circuit devices and switching elements – Requirements for proximity devices with defined behaviour under fault conditions (PDF)	
EN 60204-1:2006 + A1:2009	Safety of Machinery – Electrical equipment of machines – General requirements	
IEC 61508: Part 1-7:2010	Functional Safety of electrical /programmable electronic safety related systems	
EN ISO 13849-1:2008	Safety related parts of control systems – Part 1: General principles of design	
EN 62061:2005	Safety of Machinery – Functional safety of safety related electrical, electronic and programmable electronic control systems	
EN ISO 14119:2013	Safety of Machinery – Interlocking devices associated with guards – Principles for design and selection	
<i>Notified Body:</i>	TUV Rheinland IndustrieService GmbH 51105 Koln Germany	
<i>performed:</i>	EU Type Examination	
<i>and issued the certificate:</i>	968/EZ 616.00/13	
<i>Additional information:</i>		
<i>Person authorised to compile the technical file (MD):</i>	Authorised representative (see details above).	
<i>Product Safety Function (MD):</i>	Interlocking devices suitable for use in safety related applications up to PLe (EN ISO 13849-1) and SIL/SIL CL (EN 61508/EN 62061)	
<i>Signed for and on behalf of the above named manufacturer:</i>		
<i>Place and date of issue:</i>	Milwaukee, WI USA	11-Nov-2013
<i>Name, function:</i>	Daniel L. Nachtigall, Technical Leader – Product Certification Engineering	
<i>Signature:</i>		



Catalogue number	Series ¹	Description	Directive ²	
			EMC	MD
440G-LZ21****		Guard locking RFID non-contact safety switches	Yes	Yes
Accessories				
889D-F8AB-*		Cordset for use with sensors with Micro (M12) connector	N/R	N/R
889D-F8ABDM-*		Patchcord for use with sensors with Micro (M12) connector	N/R	N/R

1) If no series number is given, then all series are covered

2) Yes = Product is certified to this directive.

N/R = This directive is not required for this product

NOMENCLATURE:

440G-LZS21	U	P	R	H
1	2	3	4	5

1	Designates Product Type 440G-LZS21 – Guard locking RFID non-contact safety switch w/2 safety outputs and 1 auxiliary output
2	Designates Actuator Coding Type U – Unique S – Standard code
3	Designates Sensor Type P – Plastic Switch
4	Designates Lock Mode R – Power to release L – Power to lock
5	Designates Connection Type H – 8 pin micro (M12) connector pigtail A – 3 meter cable B – 10 meter cable

Rockwell Automation Support

Rockwell Automation provides technical information on the web to assist you in using its products. At <http://www.rockwellautomation.com/support>, you can find technical manuals, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools. You can also visit our Knowledgebase at <http://www.rockwellautomation.com/knowledgebase> for FAQs, technical information, support chat and forums, software updates, and to sign up for product notification updates.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnectSM support programs. For more information, contact your local Allen-Bradley distributor or Rockwell Automation representative, or visit <http://www.rockwellautomation.com/support/>.

Installation Assistance

If you experience a problem within the first 24 hours of installation, review the information that is contained in this manual. You can contact Customer Support for initial help in getting your product up and running.

United States or Canada	1.440.646.3434
Outside United States or Canada	Use the Worldwide Locator at http://www.rockwellautomation.com/support/americas/phone_en.html , or contact your local Rockwell Automation representative.

New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

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