

# Guardmaster 440G-LZ Guard Locking Switch



Original Instructions in English



**ATTENTION:** Read this document and the documents 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 wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice. If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

**ZH 注意:** 在安装、配置、操作和维护本产品前，请阅读本文档以及“其他资源”部分列出的有关设备安装、配置和操作的相应文档。除了所有适用规范、法律和标准的相关要求之外，用户还必须熟悉安装和接线说明。

安装、调整、投运、使用、组装、拆卸和维护等各项操作必须由经过适当训练的专业人员按照适用的操作规范实施。

如果未按照制造商指定的方式使用该设备，则可能会损害设备提供的保护。

**ES ATENCIÓN:** Antes de instalar, configurar, poner en funcionamiento o realizar el mantenimiento de este producto, lea este documento y los documentos listados en la sección Recursos adicionales acerca de la instalación, configuración y operación de este equipo. Los usuarios deben familiarizarse con las instrucciones de instalación y cableado y con los requisitos de todos los códigos, leyes y estándares vigentes.

El personal debidamente capacitado debe realizar las actividades relacionadas a la instalación, ajustes, puesta en servicio, uso, ensamblaje, desensamblaje y mantenimiento de conformidad con el código de práctica aplicable.

Si este equipo se usa de una manera no especificada por el fabricante, la protección provista por el equipo puede resultar afectada.

**PT ATENÇÃO:** Leia este e os demais documentos sobre instalação, configuração e operação do equipamento que estão na seção Recursos adicionais antes de instalar, configurar, operar ou manter este produto. Os usuários devem se familiarizar com as instruções de instalação e fiação além das especificações para todos os códigos, leis e normas aplicáveis.

É necessário que as atividades, incluindo instalação, ajustes, colocação em serviço, utilização, montagem, desmontagem e manutenção sejam realizadas por pessoal qualificado e especializado, de acordo com o código de prática aplicável.

Caso este equipamento seja utilizado de maneira não estabelecida pelo fabricante, a proteção fornecida pelo equipamento pode ficar prejudicada.

**RU ВНИМАНИЕ:** Перед тем как устанавливать, настраивать, эксплуатировать или обслуживать данное оборудование, прочитайте этот документ и документы, перечисленные в разделе «Дополнительные ресурсы». В этих документах изложены сведения об установке, настройке и эксплуатации данного оборудования. Пользователи обязаны ознакомиться с инструкциями по установке и прокладке соединений, а также с требованиями всех применимых норм, законов и стандартов.

Все действия, включая установку, наладку, ввод в эксплуатацию, использование, сборку, разборку и техническое обслуживание, должны выполняться обученным персоналом в соответствии с применимыми нормами и правилами.

Если оборудование используется не предусмотренным производителем образом, защита оборудования может быть нарушена.

**JA 注意:** 本製品を設置、構成、稼動または保守する前に、本書および本機器の設置、設定、操作についての参考資料の該当箇所に記載されている文書を目を通してください。ユーザは、すべての該当する条例、法律、規格の要件に加えて、設置および配線の手順に習熟している必要があります。

設置調整、運転の開始、使用、組立て、解体、保守を含む諸作業は、該当する実施規則に従って訓練を受けた適切な作業員が実行する必要があります。

本機器が製造メーカーにより指定されていない方法で使用されている場合、機器により提供されている保護が損なわれる恐れがあります。

**DE ACHTUNG:** Lesen Sie dieses Dokument und die im Abschnitt „Literaturverweise“ genannten Dokumente zur Installation, Konfiguration und Bedienung dieser Ausrüstung sorgfältig durch, bevor Sie dieses Produkt installieren, konfigurieren, bedienen oder instandsetzen. Benutzer müssen sich mit den Anweisungen zur Installation und Verdrahtung vertraut machen und müssen die Anforderungen aller geltenden Vorschriften, Gesetze und Normen kennen.

Aktivitäten wie Installation, Einstellung, Inbetriebnahme, Verwendung, Montage, Demontage und Instandsetzung müssen durch ausreichend geschultes Personal in Übereinstimmung mit den geltenden Durchführungsvorschriften ausgeführt werden.

Wenn diese Ausrüstung in einer Weise verwendet wird, die nicht vom Hersteller angegeben wurde, kann der von der Ausrüstung bereitgestellte Schutz beeinträchtigt sein.

**FR ATTENTION :** Lisez ce document et les documents listés dans la section Ressources complémentaires relatifs à l'installation, la configuration et le fonctionnement de cet équipement avant d'installer, configurer, utiliser ou entretenir ce produit. Les utilisateurs doivent se familiariser avec les instructions d'installation et de câblage en plus des exigences relatives aux codes, lois et normes en vigueur.

Les activités relatives à l'installation, le réglage, la mise en service, l'utilisation, l'assemblage, le démontage et l'entretien doivent être réalisées par des personnes formées selon le code de pratique en vigueur.

Si cet équipement est utilisé d'une façon qui n'a pas été définie par le fabricant, la protection fournie par l'équipement peut être compromise.

**KO 주의:** 본 제품 설치, 설정, 작동 또는 유지 보수하기 전에 본 문서를 포함하여 설치, 설정 및 작동에 관한 참고 자료 섹션의 문서들을 반드시 읽고 숙지하십시오. 사용자는 모든 관련 규정, 법규 및 표준에서 요구하는 사항에 대해 반드시 설치 및 배선 지침을 숙지해야 합니다.

설치, 조정, 가동, 사용, 조립, 분해, 유지보수 등 모든 작업은 관련 규정에 따라 적절한 교육을 받은 사용자를 통해서만 수행해야 합니다.

본 장비를 제조사가 명시하지 않은 방법으로 사용하면 장비의 보호 기능이 손상될 수 있습니다.

**IT ATTENZIONE** Prima di installare, configurare ed utilizzare il prodotto, o effettuare interventi di manutenzione su di esso, leggere il presente documento ed i documenti elencati nella sezione "Altre risorse", riguardanti l'installazione, la configurazione ed il funzionamento dell'apparecchiatura. Gli utenti devono leggere e comprendere le istruzioni di installazione e cablaggio, oltre ai requisiti previsti dalle leggi, codici e standard applicabili.

Le attività come installazione, regolazioni, utilizzo, assemblaggio, disassemblaggio e manutenzione devono essere svolte da personale adeguatamente addestrato, nel rispetto delle procedure previste.

Qualora l'apparecchio venga utilizzato con modalità diverse da quanto previsto dal produttore, la sua funzione di protezione potrebbe venire compromessa.

**TR DİKKAT:** Bu ürünün kurulumu, yapılandırılması, işletilmesi veya bakımı öncesinde bu dokümanı ve bu ekipmanın kurulumu, yapılandırılması ve işletimi ile ilgili ilave kaynaklar bölümünde yer listelenmiş dokümanları okuyun. Kullanıcılar yürürlükteki tüm yönetmelikler, yasal ve standartların gereksinimlerine ek olarak kurulum ve kablolama talimatlarını da öğrenmek zorundadır.

Kurulum, ayarlar, hizmete alma, kullanma, parçaları birleştirme, parçaları sökme ve bakım gibi aktiviteler sadece uygun eğitimleri almış kişiler tarafından yürürlükteki uygulama yönetmeliklerine uygun şekilde yapılabilir.

Bu ekipman üretici tarafından belirlenmiş amacın dışında kullanılırsa, ekipman tarafından sağlanan koruma bozulabilir.

**ZC 注意事項:** 在安装、設定、操作或維護本產品前，請先閱讀此文件以及列於「其他資源」章節中有關安裝、設定與操作此設備的文件。使用者必須熟悉安裝和配線指示，並符合所有法規、法律和標準要求。

包括安裝、調整、交付使用、使用、組裝、拆卸和維護等動作都必須交由已經過適當訓練的人員進行，以符合適用的實作法規。

如果將設備用於非製造商指定的用途時，可能會造成設備所提供的保護功能受損。

**CS POZOR:** Než začnete instalovat, konfigurovat či provozovat tento výrobek nebo provádět jeho údržbu, přečtěte si tento dokument a dokumenty uvedené v části Dodatečné zdroje ohledně instalace, konfigurace a provozu tohoto zařízení. Uživatelé se musejí vedle požadavků všech relevantních vyhlášek, zákonů a norem nutně seznámit také s pokyny pro instalaci a elektrické zapojení.

Činnosti zahrnující instalaci, nastavení, uvedení do provozu, užívání, montáž, demontáž a údržbu musí vykonávat vhodné proškolený personál v souladu s příslušnými prováděcími předpisy.

Pokud se toto zařízení používá způsobem neodpovídajícím specifikaci výrobce, může být narušena ochrana, kterou toto zařízení poskytuje.

**PL UWAGA:** Przed instalacją, konfiguracją, użytkowaniem lub konserwacją tego produktu należy przeczytać niniejszy dokument oraz wszystkie dokumenty wymienione w sekcji Dodatkowe źródła omawiające instalację, konfigurację i procedury użytkowania tego urządzenia. Użytkownicy mają obowiązek zapoznać się z instrukcjami dotyczącymi instalacji oraz przewożenia, jak również z obowiązującymi kodeksami, prawem i normami.

Działania obejmujące instalację, regulację, przekazanie do użytkowania, użytkowanie, montaż, demontaż oraz konserwację muszą być wykonywane przez odpowiednio przeszkolony personel zgodnie z obowiązującym kodeksem postępowania.

Jeśli urządzenie jest użytkowane w sposób inny niż określony przez producenta, zabezpieczenie zapewniane przez urządzenie może zostać ograniczone.

**SV OBS!** Läs detta dokument samt dokumentet, som står listat i avsnittet Övriga resurser, om installation, konfigurering och drift av denna utrustning innan du installerar, konfigurerar eller börjar använda eller utföra underhållsarbete på produkten. Användare måste bekanta sig med instruktioner för installation och kabeldragning, förutom krav enligt gällande koder, lagar och standarder.

Åtgärder som installation, justering, service, användning, montering, demontering och underhållsarbete måste utföras av personal med lämplig utbildning enligt lämpligt bruk.

Om denna utrustning används på ett sätt som inte anges av tillverkaren kan det hända att utrustningens skyddsanordningar försätts ur funktion.

**NL LET OP:** Lees dit document en de documenten die genoemd worden in de paragraaf Aanvullende informatie over de installatie, configuratie en bediening van deze apparatuur voordat u dit product installeert, configureert, bedient of onderhoudt. Gebruikers moeten zich vertrouwd maken met de installatie en de bedradingsinstructies, naast de vereisten van alle toepasselijke regels, wetten en normen.

Activiteiten zoals het installeren, afstellen, in gebruik stellen, gebruiken, monteren, demonteren en het uitvoeren van onderhoud mogen uitsluitend worden uitgevoerd door hiervoor opgeleid personeel en in overeenstemming met de geldende praktijkregels.

Indien de apparatuur wordt gebruikt op een wijze die niet is gespecificeerd door de fabrikant, dan bestaat het gevaar dat de beveiliging van de apparatuur niet goed werkt.

**Resources**

The QR Code on the switch provides a link to the 440G-LZ Guard Locking Switch User Manual (440G-UM001A-EN-P).

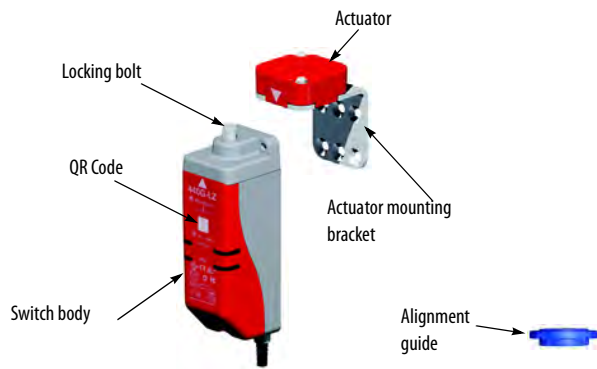
Resource	Description	Resource	Description	Resource	Description	Resource	Description
440G-LZ Guard Locking Switch Installation Instructions	440G-IN011A-EN-P	Защитные запирающие выключатели Инструкция по установке	440G-IN011A-RU-P	440G-LZ 가드 로킹 스위치 설치 지침서	440G-IN011A-KO-P	440G-LZ Zamek bezpečnostního krytu Pokyny k instalaci	440G-IN011A-CS-P
440G-LZ 保护锁开关 安装指南	440G-IN011A-ZH-P	440G-LZ ガード・ロック・スイッチインストールレーションインストラクション	440G-IN011A-JA-P	Interruttori interbloccati di sicurezza 440G-LZ Istruzioni di installazione	440G-IN011A-IT-P	440G-LZ Wyłącznik bezpieczeństwa z rygłowaniem Instrukcja Instalacyjna	440G-IN011A-PL-P
Interruptor de seguridad de bloqueo 440G-LZ Instrucciones de instalación	440G-IN011A-ES-P	440G-LZ Sicherheitszuhaltung, Installationsanleitung	440G-IN011A-DE-P	440G-LZ Koruma Kilit Mekanizması Montaj Yönergesi	440G-IN011A-TR-P	440G-LZ Läsbytare Installationsmanual	440G-IN011A-SV-P
Chave de travamento de proteção 440G-LZ Instruções de instalação	440G-IN011A-PT-P	Gâche de sécurité 440G-LZ Notice d'installation	440G-IN011A-FR-P	440G-LZ 安全互鎖開關 安裝指南	440G-IN011A-ZC-P	440G-LZ Schakelaar met vergrendeling Installatie instructies	440G-IN011A-NL-P

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

**Introduction**



**ATTENTION:** Do not attempt to install this device unless the installation instructions have been studied and understood. This document acts as a guide for a typical installation and is available in some languages at [www.rockwellautomation.com/literature](http://www.rockwellautomation.com/literature). Select the publication language and type "440G-LZ" in the search field. A full user manual is also available.



This 440G-LZ Guard Locking switch is for use on guards that are engineered so as to be rigid without sag. A separately mounted latch (e.g. magnetic, mechanical) and mechanical stop is required.

Installation must be in accordance with these instructions and must be carried out by qualified personnel.



**ATTENTION:** After installation, ensure that there is no possibility of lifting the actuator over the extended locking bolt. Adherence to the recommended maintenance instructions forms part of the warranty.

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. Refer to the Specifications for certification information and ratings.

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

**Mounting**

Switch body

Actuator



For proper installation, a minimum of two fasteners must be used, at least one of which must be fitted to the top row of holes, closest to the bend in the actuator mounting bracket.



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

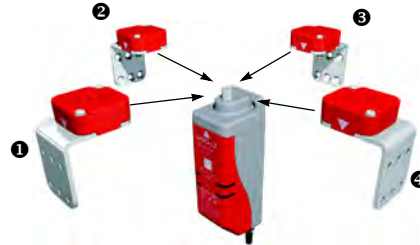
- Only use the designated mounting holes.
- Never drill or use to support other structures such as conduit, cable ways, or other hardware.

**Installation Considerations**

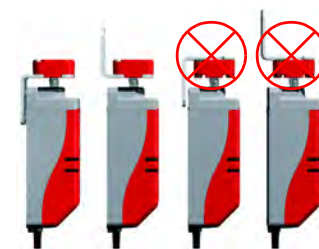
**Orientation of assembled switch**



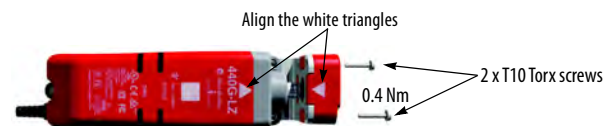
**Actuator setting**



Four directions of approach.

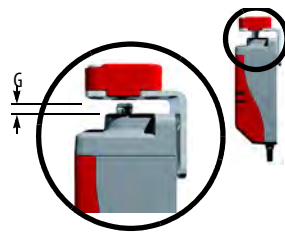


The locking bolt must always enter the actuator mounting bracket first.

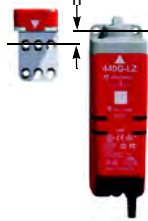


**Actuator mounting  
(Three methods)**

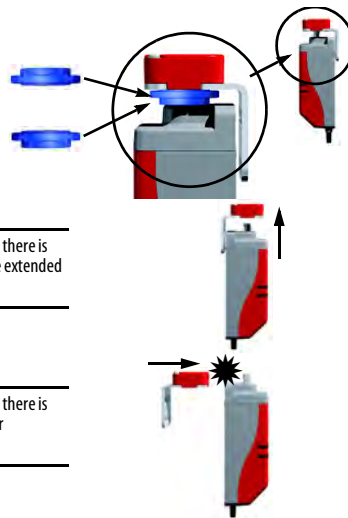
1. By setting gap "G"  
2.5 mm (0.09 in.) [0...5 mm (0...0.19 in.)]



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



3. By use of the Alignment Guide



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



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

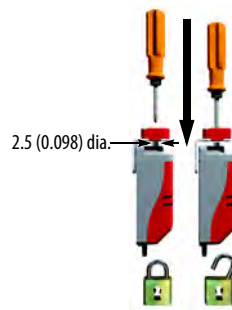
**IMPORTANT** It might be easier to achieve actuator alignment by mounting only the actuator mounting bracket first to the guard/door and then finally fit the actuator to its mounting bracket.

**IMPORTANT** It is not possible to mechanically extend the locking bolt during installation, this can only be done electrically (see Commissioning in the user manual).

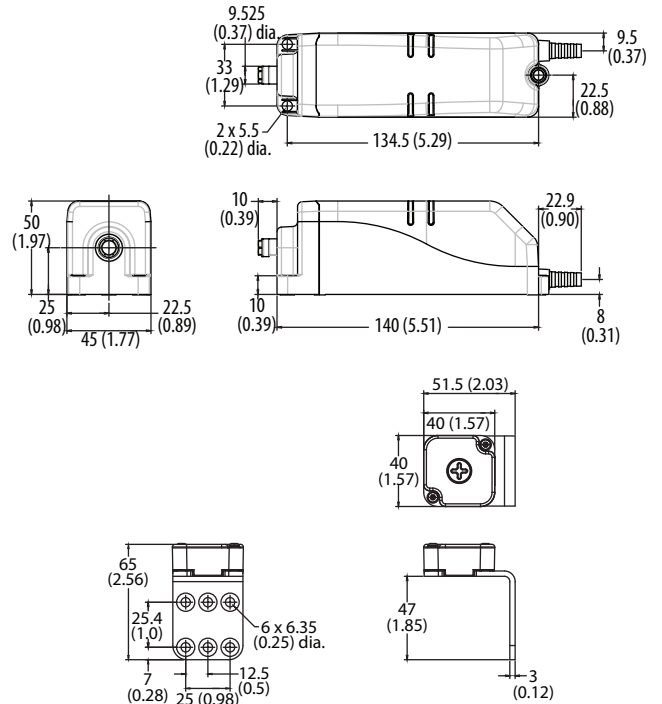
**Auxiliary/Manual Release [mm (in.)]**

Operation of the auxiliary release will cause a fault condition.

To reset the switch, cycle the power.



**Dimensions [mm (in.)]**



Refer to the user manual for configuring Unique Actuators

**Connections**

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

**Specifications**

Standards	IEC 60947-5-3, IEC 60947-5-1, IEC 61508, EN ISO 13849-1, IEC 62061, ISO 14119, 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: $9.1 \times 10^{-10}$ ; Dual channel interlock can be suitable for use in application up to PLe (according to ISO 13849-1) and for use up to SIL3 systems (according to IEC 62061 and IEC 61508) depending on application characteristics. Mission time/PTI: 20 years
Certifications	CE Marked for all applicable EU directives, cULus (UL 508), TÜV, C-tick
<b>Operating Characteristics</b>	
Torque for M5 mounting of switch and actuator mounting bracket	2 Nm max.
Locking bolt insertion for assured locking & holding force	Min. of 5 mm (0.19 in.), max. of 10 mm (0.39 in.)
Locking bolt alignment tolerance X, Y, Z	Max. of $\pm 2.5$ mm (0.09 in.)
Holding Force Fmax (EN/ISO 14119)	1,690 N
Holding Force Fzh (EN/ISO 14119)	1,300 N
Maximum output current (each outputs)	200 mA
Quiescent power consumption, locked or unlocked	2.5 W
Peak current and duration, at turn on or after lock/unlock operation	400 mA / 100 ms
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 additional for each switch
Risk Time (according to IEC 60947-5-3)	100 ms
Start up time (availability)	5 s
Maximum length of a chain of switches	10 km (Dependent on cable/connection/required response time)
Utilization category (IEC 60947-5-2)	DC-13 24V 200 mA
Insulation voltage Ui (IEC 60947-1)	75V
Impulse withstand voltage Uimp (IEC 60947-1)	1 kV

**Operating Characteristics (continued)**

Pollution degree (IEC 60947-1)	3
Manual (auxiliary) release	Built in
Protection class (IEC 61140)	Class II
Mechanical life	500,000 cycles

**Outputs (Guard door closed and locked)**

Outputs	Description /Status
Safety	2 x PNP, 0.2 A max / ON (+24V DC)
Auxiliary	1 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 60068-2-27 30 g, 11 ms/IEC 60068-2-6 10...55 Hz
Hygienic	ISO 14159:2004 and EN 1672-2005, (for that part of the machine defined as "food splash area")
Washdown	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 150 g, actuator mounting bracket 60 g
Protection Type	Short-circuit, current limitation, overload, reverse polarity, overvoltage (up to 60V max.), thermal shutdown/restart

**Status/Diagnostic Operating LED Indicators**

The switch has two pairs of LEDs, status LEDs are green and diagnostic LEDs are red.

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

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

**Catalog Numbers for Complete Switches**

**440G-LZS21**

a		b		c		d	
a	b	c	d	a	b	c	d
<b>S</b>	<b>Standard Coding</b>	<b>P</b>	<b>Auxiliary—Lock Status</b>	<b>R</b>	<b>Power to Release</b>	<b>A</b>	<b>3 m Cable</b>
<b>U</b>	<b>Unique Coding</b>	<b>T</b>	<b>Auxiliary—Door Proximity</b>	<b>L</b>	<b>Power to Lock</b>	<b>B</b>	<b>10 Cable</b>
						<b>H</b>	<b>M12 8-pin</b>

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