Machine Safeguarding Products
XCS Safety Interlocks

Class 9007

Merlin Gerin
Modicon
Square D
Telemecanique
Schneider Electric Brands

CONTENTS

SQUARE D
Schneider Electric

XCS Safety Interlock Selection

Applications		Protection of machine operators by opening the safety circuit when the actuating key is removed from the switch.	Protection of machine operators by opening the safety circuit when door with the encoded magnet is opened more than 0.394 in (10 mm).		
		All light industrial machines with quick rundown time ✞	All light industrial machines with quick rundown time ✞ and where no contact is desired between switch and key		
Device		Key operated safety interlocks	Encoded magnetic non-contact safety interlocks		
					
Conformity to Standards	**Products**	IEC/EN 60947-5-1, UL 508, CSA C22-2 n°14, JIS C4520			
	Machine Assemblies	EN 1088, EN 292, IEC/EN 60204-1			
Approvals		UL-CSA, BG			
Body material		Plastic			
Degree of Protection		IP67			
Dimensions (w x h x d) inches (mm)	**Switch**	1.18 x 3.4 x 0.6 (30 x 87 x 15)	0.63 x 2 x 0.27 (16 x 51 x 7)	0.98 x 3.46 x 0.51 (25 x 88 x 13)	Ø 30, Length 1.51 (Length 38,5)
	Mounting	0.79 x 0.87 (20 x 22)	0.63 (16)	3.07 (78)	Ø 30
Features		Without locking of actuating key. Fixed head	6 approach directions		2 approach directions
Rotatable turret head		No	No	No	No
Contacts		Safety contacts actuated by actuating key. Slow break with direct (positive) operation on N.C. contacts.	Independent Reed type contacts operated by an encoded magnet. Contacts change state from a distance of 0.39 in (10 mm) for XCSDMP and XCSDMR. 0.28" (7 mm) for XCSDMC. Must be used with a Preventa XPS Safety Relay.		
		N.C. + N.O. (N.O. staggered) N.C. + N.C. N.C. + N.C. + N.O. (N.O. staggered) N.C. + N.C. + N.C.	N.C. + N.O. (N.O. staggered) N.C. + N.C.	N.C. + N.C. + N.O. (N.O. staggered) N.C. + N.C. + N.O. (N.O. staggered)	N.C. + N.O. (N.O. staggered) N.C. + N.C.
Conduit Entry		Prewired with cable: 4 #20 AWG (4 x 0.5 mm^2), or 6 #20 AWG (6 x 0.5 mm^2)	Prewired with cable: 4 #23 AWG (0.25 mm^2)	Prewired with cable: 6 #23 AWG (0.25 mm^2)	Prewired with cable: 4 #23 AWG (0.25 mm^2)
Product Type		XCSMP	XCSDMC	XCSDMP	XCSDMR
Page Number		4	9	9	9

✞ Stopping time of the machine is less than the time taken for the operator to access the dangerous zone.

General Characteristics (Metal, Turret Head, Types XCSA, XCSB, XCSC, XCSE, XCSL; Plastic, Double Insulated, Turret Head, Types XCSMP, XCSPA, XCSTA, XCSPL, XCSPR, XCSTL, XCSTR, and XCSTE) Complies with international and domestic safety standards. OSHA 1910, IEC/EN 60204-1, VDE 0660, ANSI B11.19, INRS (France), EN1088, EN292

Environment			
Safety Interlock Type		XCSA, XCSB, XCSC, XCSE, XCSL (metal)	XCSMP, XCSPA, XCSTA, XCSPL, XCSPR, XCSTL, XCSTR, XCSTE (plastic)
Conforming to standards	Products	IEC 60947-5-1, IEC/EN 60947-5-1, UL 508, CSA C22-2 N° 14	
	Machine assemblies	IEC/EN 60204-1, EN 1088, EN 292	
Product certifications		UL, CSA, BG, TUV	
Ambient air temperatures ▲		Operation: -13° F to 158° F (-25° C to 70° C), XCSE: -13 to 104 °F (-25 to 40 °C), XCSTE: -13 to 140 °F (-25 to 60 °C); Storage -40 to 158 °F (-40 to 70 °C), XCSMP: -13 to 176 °F (-25 to 80 °C)	
Vibration resistance		5 gn (10 to 500 Hz) conforming to IEC 60068-2-6, XCSMP: 6 gn (10 to 55 Hz)	
Shock resistance		10 gn (duration 11 ms) conforming to IEC 60068-2-27, XCSL: 20 gn conforming to IEC 68-2-27, XCSMP: 50 gn (duration 11 ms)	
Electric shock protection		Class 1 conforming to IEC/EN 60536	Class 2 conforming to IEC/EN 60536
Degree of protection ■		IP 67 conforming to IEC/EN 60529 and IEC/EN 60947-5-1; Metal: Type 4, 4X, 12; Plastic: Type 4 and 4X Indoor, 12 XCSL: NEMA 1, 2, 3, 4, 12	
Conduit entry		1 entry with 1/2 in. NPT on XCSA, XCSB, XCSC, XCSL 2 entries with 1/2" NPT on XCSE	1 entry with 1/2 in. NPT on XCSPA, XCSPL, XCSPR 1 entry for 1/2 in. conduit adapter on XCSTE 2 entries for 1/2 in. conduit adapter on XCSTA, XCSTL, XCSTR Pre-wired with cable : XCSMP

■ The enclosure rating for these switches is for the protection of the live electrical components. During installation and operation, precautions must be taken to prevent any ingress of contaminants, particles, and corrosives, including liquids containing solids, from entering into the actuating key area. If precautions are not taken, switches may not perform to published specifications. Use in a salt atmosphere is not recommended.

▲ Minimum temperature: The minimum temperatures listed are based on the absence of freezing moisture or water. Care should be taken to avoid sub-freezing temperatures where dripping or splashing water is present and to avoid bringing a cold device into a humid atmosphere and then back into sub-freezing temperatures. The water or moisture may freeze around internal or external components and prevent it from performing as intended.

Electrical Characteristics — Complete Switches

Electrical contact rating	XCSA, XCSB, XCSC, XCSL, XCSPA, XCSTA, XCSPL, XCSPR, XCSTL, XCSTR: ~ AC-15, A300: Ue=240 V, Ie=3 A or Ue = 120 V, Ie = 6 A; XCSE, XCSTE: ~ AC-15, B300: Ue = 240 V, Ie = 1.5 A or Ue = 120 V, Ie = 3 A, XCSMP: ~ AC-15, C300: Ue = 240V, Ie = 0.75 A or Ue = 120 V, Ie = 1.5 A All models: = DC-13, Q300: Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A conforming to IEC/EN 60947-5-1
Rated thermal current in enclosure	XCSA, XCSB, XCSC, XCSL, XCSPA, XCSPL, XCSPR, XCSTA, XCSTL, XCSTR: Ithe = 10 A. XCSE, XCSTE: Ithe: 6 A, XCSMP: Ithe = 2.5 A
Rated insulation voltage	Ui = 500 V conforming to IEC/EN 60947-5-1 Ui = 300 V conforming to UL 508, CSA C22-2 no. 14
Rated impulse withstand voltage	XCSA, XCSB, XCSC, XCSL, XCSPA, XCSTA, XCSPL, XCSPR, XCSTL, XCSTR: U imp = 6 kV conforming to IEC 60947-5-1; XCSE, XCSMP, XCSTE: U imp = 4 kV conforming to IEC 60947-5-1
Direct opening contacts	Direct opening N.C. contacts meets the IEC and EN requirements for positive opening contacts per IEC/EN 60947-5-1; and NEMA ICS-5, part 6 (direct opening action).
Resistance across terminals	≤30 mΩ conforming to IEC/EN 60947-5-4
Short-circuit protection	10 A Class CC fuse. Outside U.S. use cartridge fuse type gG (gl)
Wiring	Screw clamp terminals. Terminal capacity, min.: 1 #20 AWG (1 x 1.05 mm²), max.: 2 #16 AWG (2 x 1.5 mm²), XCSMP: prewired with 4 #20 AWG (4 x 0.5 mm²), or 6 #20 AWG (6 x 0.5 mm²)

AC Voltage and Current Ratings 50-60 Hz

Contact Rating Designation	**Thermal Continuous Test Current, Amperes**	**Maximum Current, Amperes**								**Voltamperes**	
		120 Volts		**240 Volts**		**480 Volts**		**600 Volts**			
		Make	**Break**	**Make**	**Break**	**Make**	**Break**	**Make**	**Break**	**Make**	**Break**
A300	10	60	6.00	30	3.00	. . .	. . .	. . .	. . .	7200	720
B300	5	30	3.00	15	1.50	. . .	. . .	. . .	. . .	3600	360
C300	2.5	15	1.5	7.5	0.75					1800	180

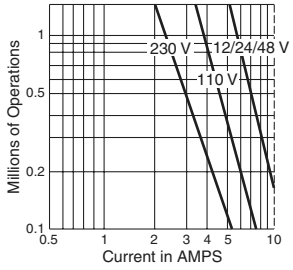
DC Voltage and Current Ratings

Contact Rating Designation	**Thermal Continuous Test Current, Amperes**	**Maximum Make or Break Current, Amperes**			**Make or Break at 300 Volts or Less, Voltamperes**
		125 Volts	**250 Volts**	**301 to 600 Volts**	
Q300	2.5	0.55	0.27	. . .	69

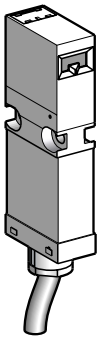
Electrical Life

Conforming to IEC 60947-5-1 Appendix C. Utilization categories AC-15 and DC-13.
Maximum operating rate: 3600 operating cycles per hour. Load factor: 0.5.

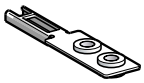
AC Supply	**DC Supply**			
50/60 Hz inductive circuit	Power broken in W for 1 million operating cycles			
	Voltage V	24	48	120
	Power W	13	9	7



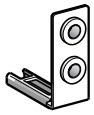
The product life expressed is based on average usage and normal operating conditions. Actual operating life will vary with conditions. The above statements are not intended to nor shall they create any express or implied warranties as to product operation or life. For information on the limited warranty offered on this product please refer to the Square D terms and conditions of sale found in the Square D *Digest*.



XCSMP●●●●



XCSZ81



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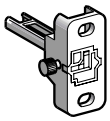
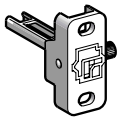


XCSZ83



XCSZ85

Plastic, Type XCSMP prewired

References of switches without actuating key

Order the actuating key at bottom the of the page.

Devices listed below are provided with 6.6 ft. (2 m) of cable. Other lengths of cable are available—see footnotes on how to order.

⊖ Direct opening N.C. contacts meet the IEC and EN requirements for positive opening contacts per IEC/EN 60947-5-1; and NEMA ICS-5, part 6 (direct opening action).

Type of switch ■		Without locking of actuating key
LED indication on opening of N.C. contacts		
N.C. + N.O. break before make, slow break † ★	BU BU/WH OG OG/WH	XCSMP59L2 ⊖
N.C. + N.C. slow break †	BU BU/WH OG OG/WH	XCSMP79L2 ⊖
N.C. + N.C. + N.O. break before make, slow break † ★	BU BU/WH BN BN/WH OG OG/WH	XCSMP70L2 ⊖
N.C. + N.C. + N.C. slow break †	BU BU/WH BN BN/WH OG OG/WH	XCSMP80L2 ⊖
Weight (oz.)		3.9 (0.110 kg)

■ Blanking plug for operating head slot included with switch. Blanking plugs (sold in lots of 10) part number: **XCSZ29**.

† Schematic diagrams shown represent the contact state while the actuating key is fully inserted and engaged in the head of the switch.

★ The N.O. contacts will close after the N.C. contacts open. They do not change state simultaneously.

Only the N.C. contacts should be used in the safety control circuit. The N.O. contacts are provided solely for signalling – NOT for safety functions.

No replacement parts are available. These devices are not to be repaired or adjusted. The complete switch should be replaced.

Complementary characteristics (not shown under general characteristics)

Actuation speed	Maximum: 59 in/s (1.5 m/s), Minimum: 2 in/s (0.05 m/s)
Resistance to forcible withdrawal of actuating key	1.8 lbs (8 N)
Connection	4 #20 AWG (4 x 0.5 mm^2), or 6 #20 AWG (6 x 0.5 mm^2)
Maximum operating rate	For maximum life: 1200 operating cycles per hour
Minimum force for positive opening	1.8 lbs (8 N)

References for actuating keys

Description	Straight key	Right-angled key	Pivoting key	
			For right-hand door	For left-hand door
For switches XCSMP	**XCSZ81**	**XCSZ84**	**XCSZ83**	**XCSZ85**
Weight (oz.)	0.5 (0.015 kg)	0.9 (0.025 kg)	3.0 (0.085 kg)	3.0 (0.085 kg)

The XCSMP devices listed above are available in additional cable lengths.
- To order devices with a 16.4 ft. (5 m) cable, change the last character in the part number to 5
  For example: XCSMP59L2 is changed to XCSMP59L5
- To order devices with a 32.8 ft. (10 m) cable, change the last character in the part number to 5
  For example: XCSMP59L2 is changed to XCSMP59L10

File E164353
CCN NKCR

File LR44087
Class 3211 03

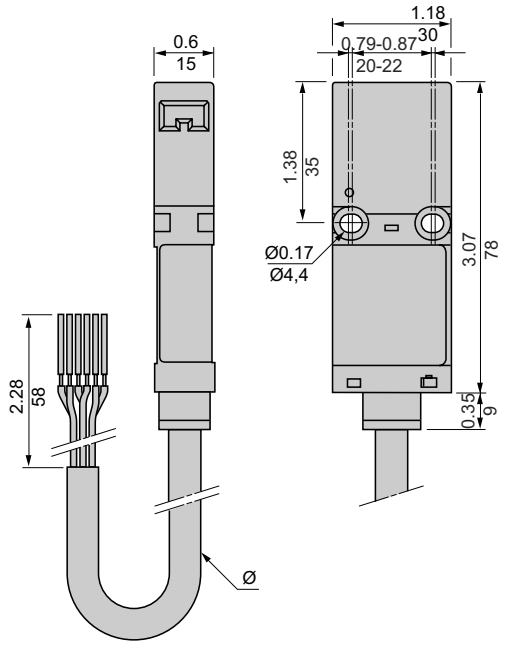
When designing a door or gate guarding system, these guidelines must be followed:

- The actuating key alone must not be used as the sole means to hold the gate or guard closed. A separate locking or latching mechanism must be used to hold the door closed.
- The safety interlock switch must not be used as a mechanical stop for the moving guard. A separate mechanical stop must be provided.
- The actuating key must not be used as a gate guiding device. Install a guide for the guard to ensure proper alignment.
- Actuating keys must be securely attached to gates, guards, and doors only. They should not be attached to cables, cords, or chains.

Plastic, Type XCSMP prewired

Dimensions

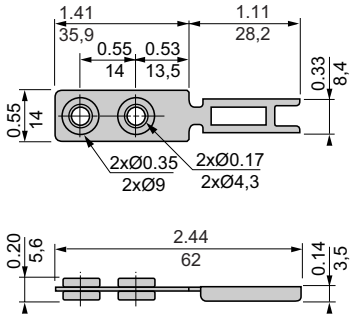
XCSMP



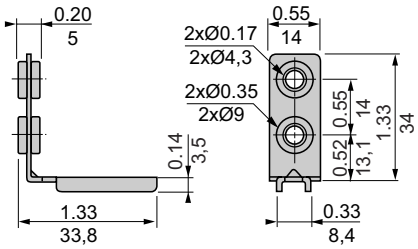
∅: 0.29 in (7.6 mm); Length 6.6 ft (2 m) , 16.4 ft (5 m), or 32.8 ft (10 m)

Dual Dimensions: INCHES Millimeters

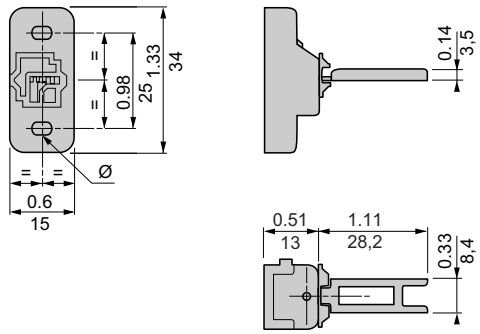
XCSZ81



XCSZ84



XCSZ83

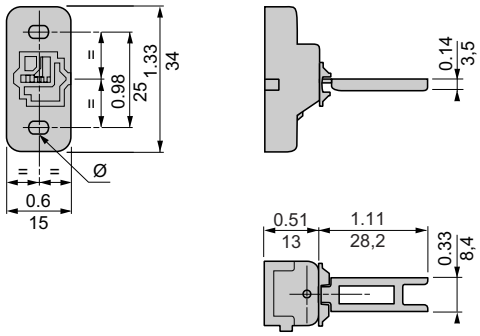


Ø: 2 elongated holes 0.17" (4.2 mm) x 0.24" (6 mm)

When designing a door or gate guarding system, these guidelines must be followed:

- The actuating key alone must not be used as the sole means to hold the gate or guard closed. A separate locking or latching mechanism must be used to hold the door closed.
- The safety interlock switch must not be used as a mechanical stop for the moving guard. A separate mechanical stop must be provided.
- The actuating key must not be used as a gate guiding device. Install a guide for the guard to ensure proper alignment.
- Actuating keys must be securely attached to gates, guards, and doors only. They should not be attached to cables, cords, or chains.

XCSZ85

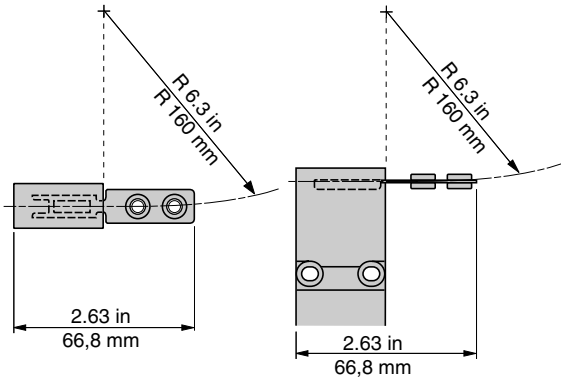


Ø: 2 elongated holes 0.17" (4.2 mm) x 0.24" (6 mm)

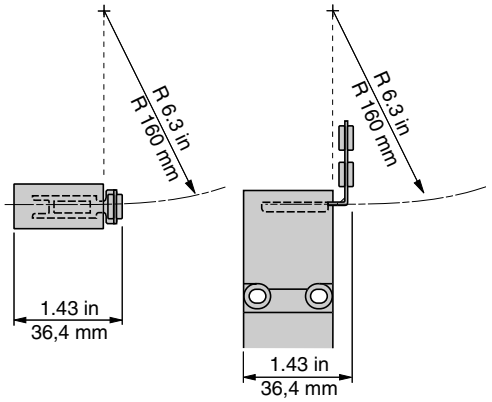
Plastic, Type XCSMP prewired

Operating Radius Required for Actuating Key

XCSZ81



XCSZ84



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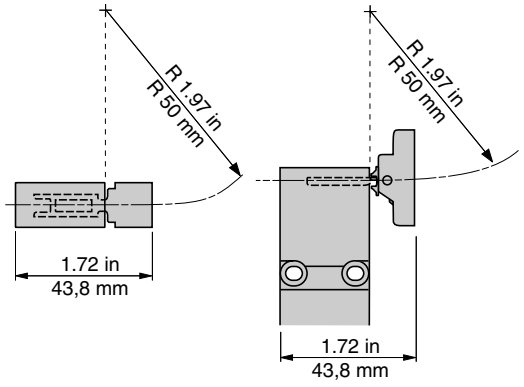
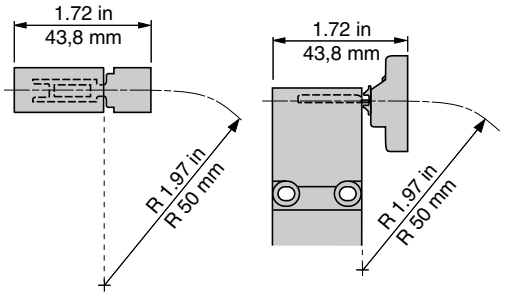


XCSZ85

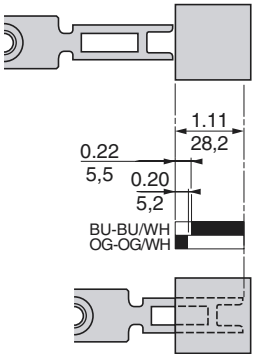
Dual Dimensions: INCHES Millimeters



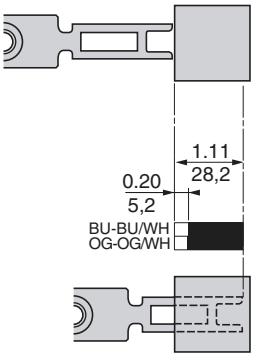
Contact Status Relative to Actuating Key Position

Function diagrams

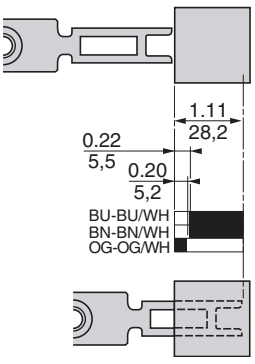
XCSMP59●



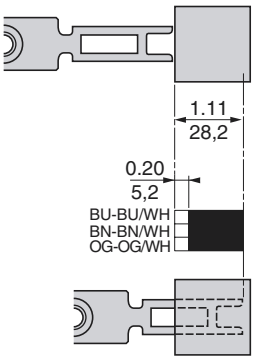
XCSMP79●



XCSMP70●



XCSMP80●

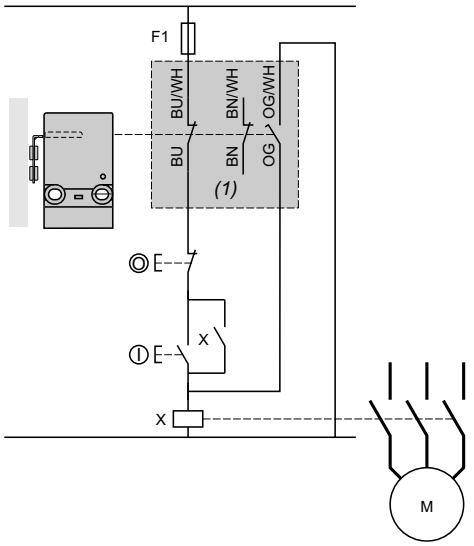


Contact operation ■ *Contact closed* □ *Contact open*

Plastic, Type XCSMP prewired

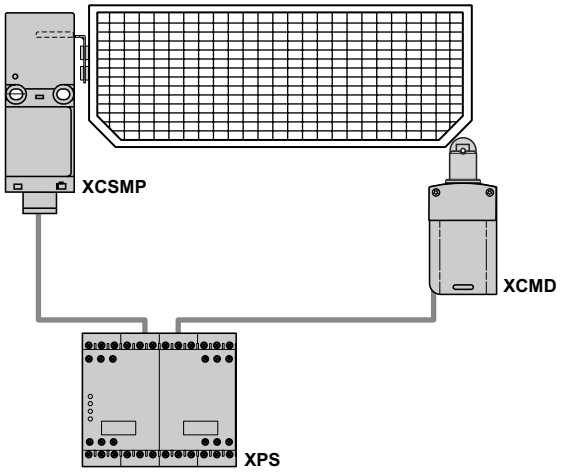
Wiring Diagrams

Wiring to category 1 conforming to EN 954-1
Example shown with N.C. + N.C. + N.O. contact and protection fuse to prevent jumpering of the N.C. contact, either by cable damage or by tampering.



(1) Singalling contact, i.e. to PLC

Wiring to category 4 conforming to EN 954-1. Wiring method used in conjunction with Preventa safety relay (the key operated safety interlock is generally used in conjunction with a standard limit switch with direct (positive) opening contacts).
Method for machines with quick rundown time (low inertia)
Locking or interlocking mechanism uses the principles of redundancy and autocheck.
The safety relays provide these functions



Locking by operating key and actuation in positive mode with a safety relay

The categories for control systems relating to safety (per EN 60954-1) referred to above (i.e.: category 1, 3, or 4), indicate the maximum category possible based on the inputs only to the safety control circuit. The actual maximum category possible for the safety control circuit may be lower when the rest of the safety control circuit is considered. Only with proper wiring of the complete safety system can the referenced category be achieved. Actual category of the system depends on the other components used and method of wiring. For more information on wiring Preventa safety relays, see the Machine Safeguarding Products catalog, 9007CT9702.

Specifications

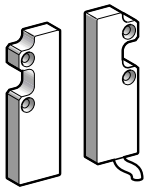
General Characteristics for XCSDM Non-Contact Magnetic Safety Interlocks

Environment		
Conforming to standards	Products	IEC/EN 60947-5-1, UL 508, CSA C22 2 nº 14
	Machine assemblies	IEC/EN 60204-1, EN 1088, EN 60292
Product certifications		UL-CSA, BG
Ambient air temperature ▲	Operation	-13 °F to 185 °F (- 25 °C to +85 °C)
	Storage	-40 °F to 185 °F (- 40 °C to +85 °C)
Vibration resistance		10 gn (10…150 Hz) conforming to IEC 60068-2-6
Shock resistance		30 gn (11 ms) conforming to IEC 60068-2-7
Sensitivity to magnetic fields		≥ 0.3 mT
Electric shock protection		Class II conforming to IEC 60536
Degree of protection		IP 66 + IP 67 conforming to IEC 60529
Body Material		Thermoplastic case (PBT)

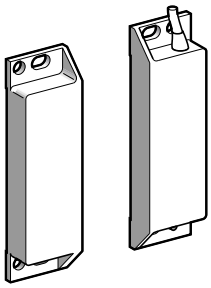
▲ Minimum temperature: The minimum temperatures listed are based on the absence of freezing moisture or water. Care should be taken to avoid sub-freezing temperatures where dripping or splashing water is present and to avoid bringing a cold device into a humid atmosphere and then back into sub-freezing temperatures. The water or moisture may freeze around internal or external components and prevent it from performing as intended.

Electrical characteristics		**Complete Switches**
Rated operational characteristics		Ue: ⎓ 24 V, Ie: 100 mA max.
Rated insulation voltage (Ui)		Ui: ⎓ 100 V
Rated impulse withstand voltage (Uimp)		2.5 kV conforming to IEC/EN 60947-5-1
Resistance across terminals	Contact with LED	57 Ω
	Contact without LED	10 Ω
Protection (not using safety relay)		External cartridge fuse: 500 mA gG (gl)
Wiring	XCSDMC, DMR	Prewired with cable: 4 #23 AWG (0.25 mm^2), with lengths of 6.6 ft (2 m), 16.4 ft (5 m), or 32.8 ft (10 m), depending on model.
	XCSDMP	Prewired with cable: 6 #23 AWG (0.25 mm^2), with lengths of 6.6 ft (2 m), 16.4 ft (5 m), or 32.8 ft (10 m), depending on model.
Contact materials		Rhodium
Electrical durability		1.2 million operating cycles
Maximum switching voltage		⎓ 100 V
Switching capacity	Contact with LED	5…100 mA
	Contact without LED	0.1…100 mA
Insulation resistance		1000 MΩ
Maximum breaking capacity	Contact with LED	3 VA
	Contact without LED	10 VA
Maximum switching frequency		150 Hz

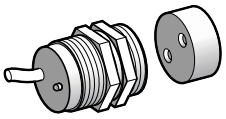
The product life expressed is based on average usage and normal operating conditions. Actual operating life will vary with conditions. The above statements are not intended to nor shall they create any express or implied warranties as to product operation or life. For information on the limited warranty offered on this product please refer to the Square D terms and conditions of sale found in the Square D *Digest*.



XCSDMC●●●●



XCSDMP●●●●



XCSDMR●●●●

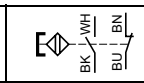
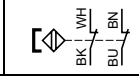
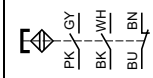
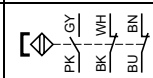
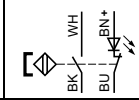
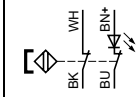
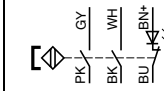
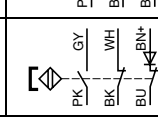
XCSDM NON-CONTACT MAGNETIC SAFETY INTERLOCKS

References of switches

Coded magnet is included with each switch part number listed below.

■ Devices listed below are provided with 6.6 ft. (2 m) of cable. Other lengths of cable are available—see footnotes on how to order.

⚠ XCSDM safety interlocks must be used in conjunction with XPS safety relays, see pages 11 and 13.

Type		Rectangular		Cylindrical
		Small size 2 x 0.63 x 0.27 in (51 x 16 x 7 mm)	Large size 3.46 x 0.98 x 0.51 in (88 x 25 x 13 mm)	Diameter 30 mm Length 1.51 in (38.5 mm)
N.C. + N.O. ▼ (N/C staggered)		XCSDMC5902	—	XCSDMR5902
N.C. + N.C. ▼† (1 N/O staggered)		XCSDMC7902	—	XCSDMR7902
N.C. + N.O. + N.O. ▼● (1 N.C. staggered)		—	XCSDMP5002	—
N.C. + N.C. + N.O. ▼†● (1 N/O staggered)		—	XCSDMP7002	—
N.C. + N.O. ▼★ (N.C. staggered) with LED		XCSDMC5912	—	XCSDMR5912
N.C. + N.C. ▼†★ (1 N/O staggered) with LED		XCSDMC7912	—	XCSDMR7912
N.C. + N.O. + N.O. ▼●★ (1 N.C. staggered) with LED		—	XCSDMP5012	—
N.C. + N.C. + N.O. ▼†●★ (1 N/O staggered) with LED		—	XCSDMP7012	—
Weight (oz.)		3.6 (0.101 kg)	6.3 (0.180 kg)	5.1 (0.146 kg)

■ The XCSDM devices listed above are available in additional cable lengths.
To order devices with a 16.4 ft. (5 m) cable, change the last character in the part number to 5.
For example: XCSDMC5912 is changed to XCSDMC5915
To order devices with a 32.8 ft. (10 m) cable, change the last character in the part number to 10
For example: XCSDMC5912 is changed to XCSDMC59110

▼ Contact states shown are with the magnet positioned in front of the switch.

† These switches are to be wired to emergency stop safety relays (XPSA••) and the XPSMP multi-function module only. Example of wiring to an XPSAF is shown in the wiring diagram on page 11. These devices are not to be used with the XPSDM modules.

★ The green LED is lit when the coded magnet is positioned in front of the switch (guard closed).

● N.O. contact PK-GY is to be used as an indicator of the device state, typically to a PLC. It is not to be used for the safety function.

Complementary characteristics (not shown under general characteristics)

Operating zone ♦	Sao: 0.20 in. (5 mm) Sar: 0.59 in. (15 mm)	Sao: 0.31 in. (8 mm) Sar: 0.79 in. (20 mm)	Sao: 0.31 in. (8 mm) Sar: 0.79 in. (20 mm)
Approach directions	6 directions	6 directions	2 directions

References of accessories

Mounting Bracket	—		XSZ-B130
Weight (oz.)	—		2.8 (0.080 kg)
Additional coded magnet	XCSZC1	XCSZP1	XCSZR1
Weight (oz.)	0.3 (0.009 kg)	1.8 (0.050 kg)	0.6 (0.018 kg)

Sao is the distance from the sensing face within which the presence of the specified target is correctly detected.
Sar is the distance from the sensing face beyond which the absence of the specified target is correctly detected.
(Per IEC 60947-5-3)

♦ These sensing distances are for when non-ferrous and non-ferromagnetic materials are used for the mounting surface and mounting hardware. Using ferrous and ferromagnetic materials may reduce the published sensing distances.

File E164353
CCN NKCR

File LR44087
Class 3211 03

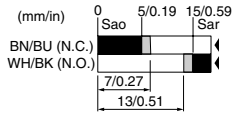
When designing a door or gate guarding system, these guidelines should be followed:

- The safety interlock switch must not be used as a mechanical stop for the moving guard. A separate mechanical stop must be provided.
- Encoded magnets must be securely attached to gates, guards and doors only. They should not be attached to cables, cords or chains.

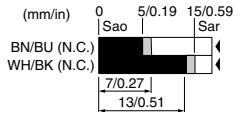
XCSDM NON-CONTACT MAGNETIC SAFETY INTERLOCKS

Contact Status Relative to Coded Magnet Position ■

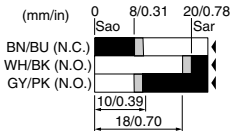
XCSDMC59●●



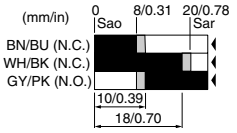
XCSDMC79●●



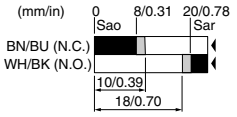
XCSDMP50●●



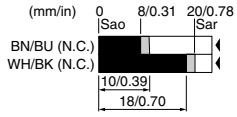
XCSDMP70●●



XCSDMR59●●



XCSDMR79●●



Sao is the distance from the sensing face within which the presence of the specified target is correctly detected.
Sar is the distance from the sensing face beyond which the absence of the specified target is correctly detected.
(Per IEC 60947-5-3)

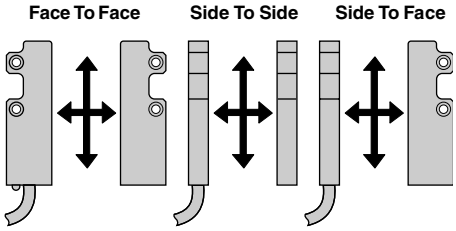
■ The contact status and magnet positions above are for when non-ferrous and non-ferromagnetic materials are used for the mounting surface and mounting hardware. Using ferrous and ferromagnetic materials may reduce the published sensing distances.

Approach Directions of the Coded Magnet

All of the XCSDM devices are designed for the coded magnet to approach the switch in a perpendicular direction and a parallel direction.

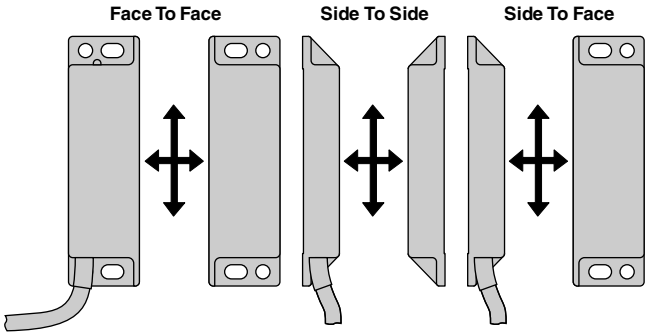
XCSDMC

6 approach directions/configurations



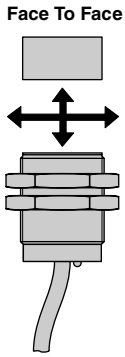
XCSDMP

6 approach directions/configurations

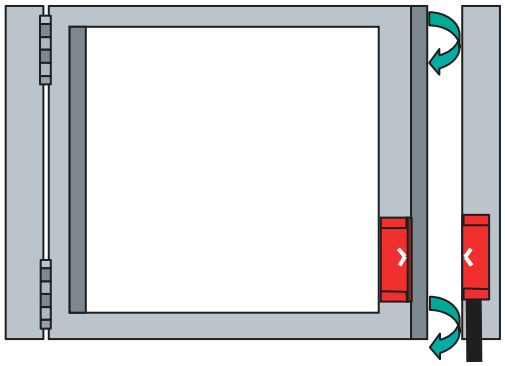


XCSDMR

2 approach directions/configurations



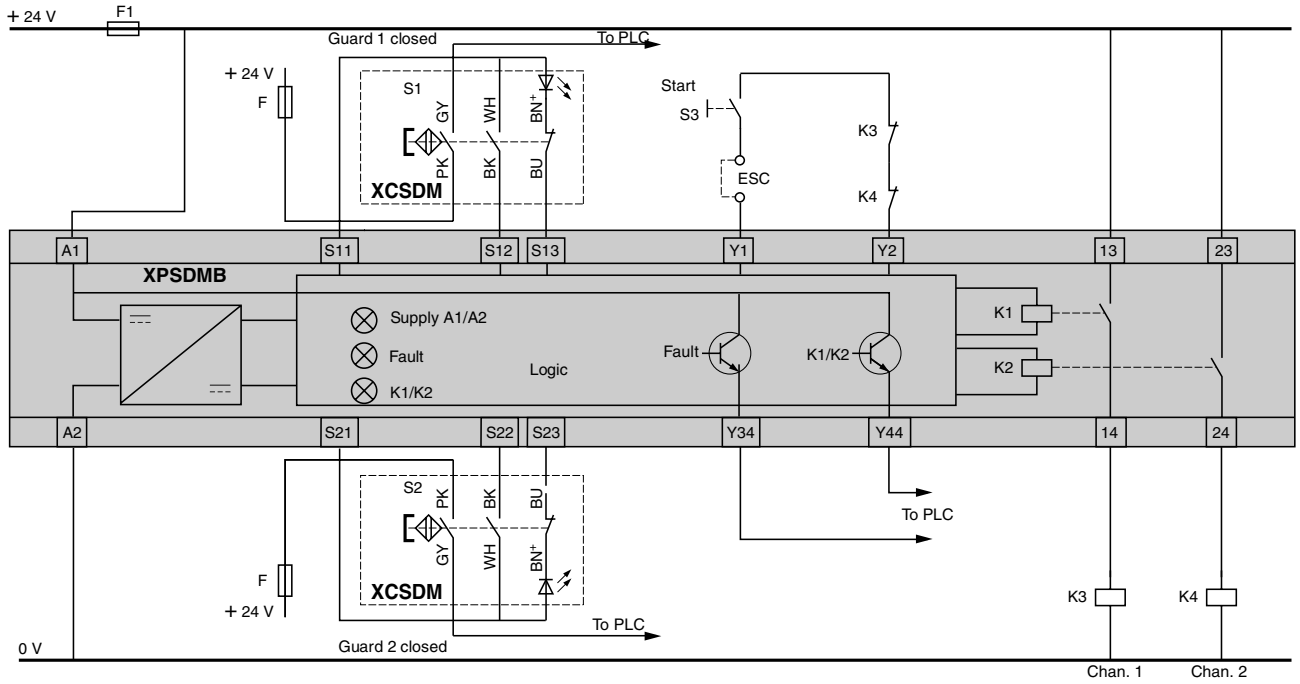
All of the XCSDM devices can also be used on hinged gates or doors as shown in the diagram below.



XCSDM NON-CONTACT MAGNETIC SAFETY INTERLOCKS

XCSDMP5••• with XPSDMB (category 4) with 2 guard operation

Categories 3 and 4 connection conforming to EN 60954-1. Example with N.C. + N.O. + N.O. contact

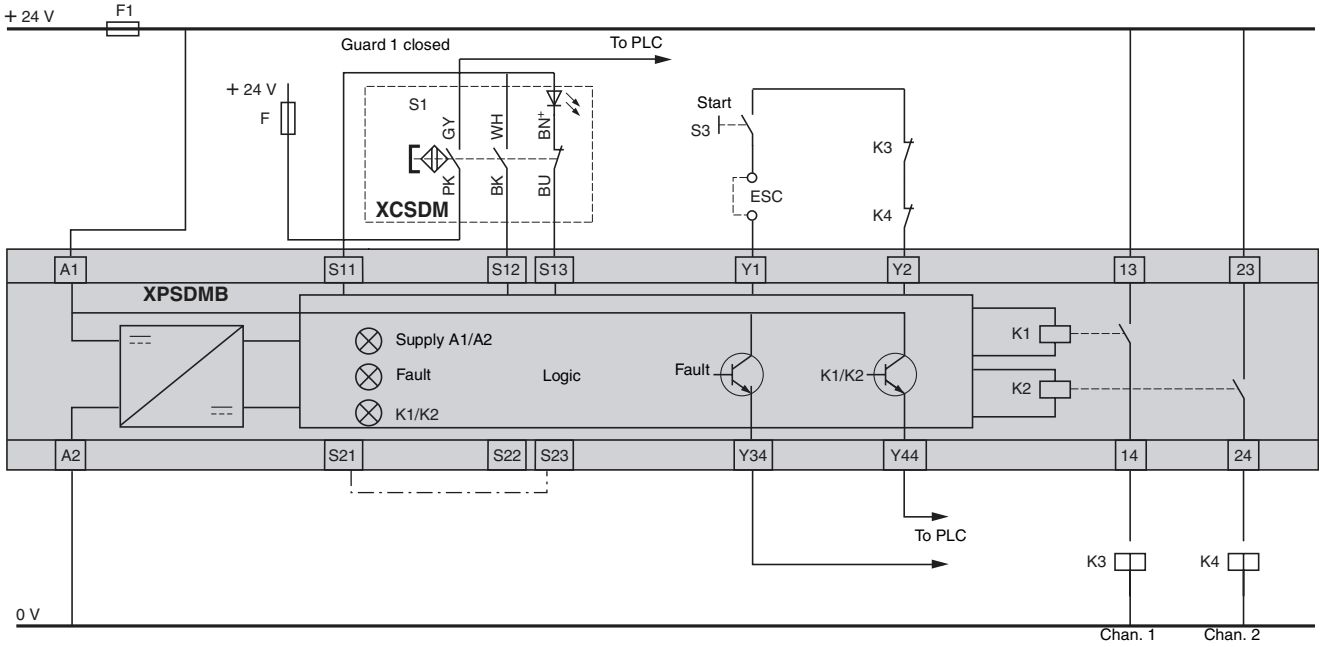


ESC: External start conditions.
2 solid-state outputs
Safety outputs

- Inputs: S11, S12, S13 or S21, S22, S23
- Unused inputs must be jumpered from S_1 to S_3. For example: S21 to S23.
- The order in which the inputs are wired or jumpered will not affect device operation.

XCSDMP5••• with XPSDMB (category 4) with single guard operation

Categories 3 and 4 connection conforming to EN 60954-1. Example with N.C. + N.O. + N.O. contact



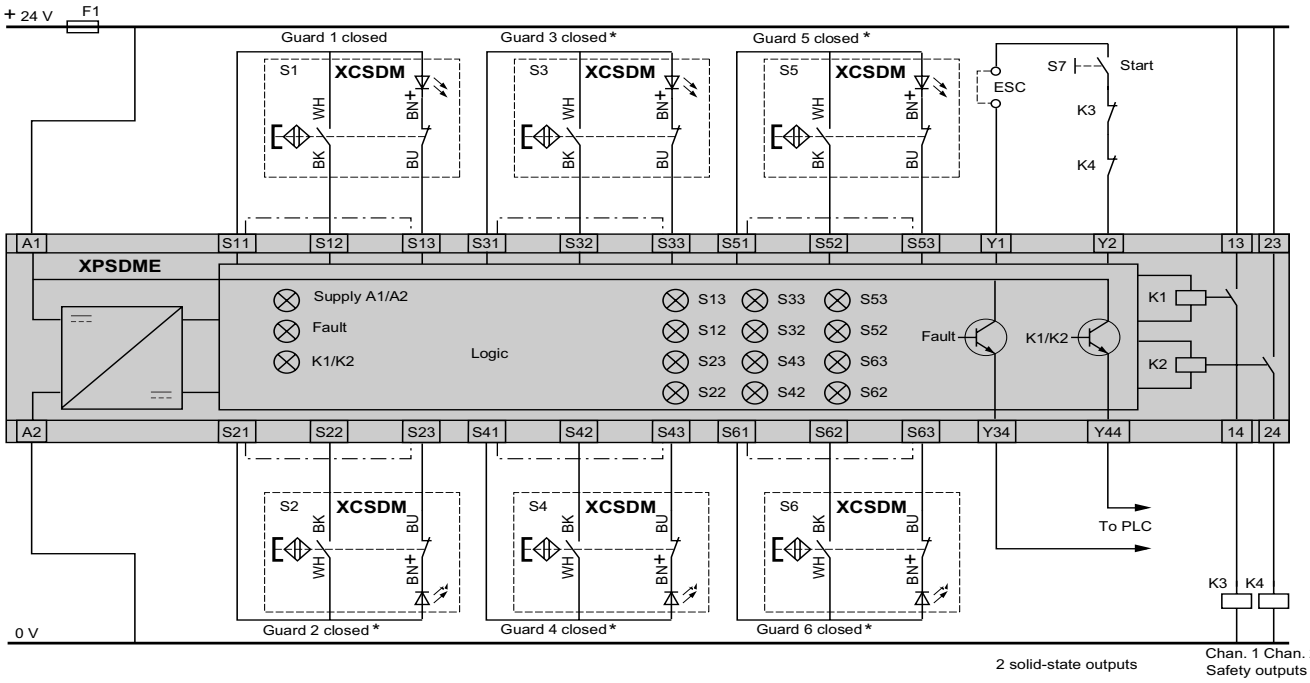
ESC: External start conditions.
2 solid-state outputs
Safety outputs

- Inputs: S11, S12, S13 or S21, S22, S23
- Unused inputs must be jumpered from S_1 to S_3 as shown by this dashed line — · — · — .
- The order in which the inputs are wired or jumpered will not affect device operation.

XCSDM NON-CONTACT MAGNETIC SAFETY INTERLOCKS

XCSDMC5•••, XCSDMR5••• with XPSDME (category 4)

Categories 3 and 4 connection conforming to EN 60954-1. Example with N.C. + N.O. contact



ESC: External start conditions.

• Inputs: S_1, S_2, S_3

• Unused inputs must be jumpered from S_1 to S_3 as shown by this dashed line — · — · — . for example if input S61, S62, S63 is not used, then terminals S61 and S63 must be jumpered. Terminals to be jumpered if the input is not used are: S11 to S13, S21 to S23, S31 to S33, S41 to S43, S51 to S53, and S61 to S63. See page 11 for a jumper example.

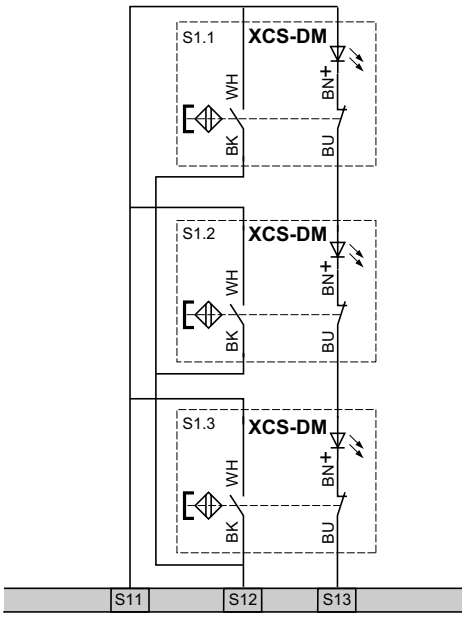
• The order in which the inputs are wired or jumpered will not affect device operation.

XCSDM NON-CONTACT MAGNETIC SAFETY INTERLOCKS

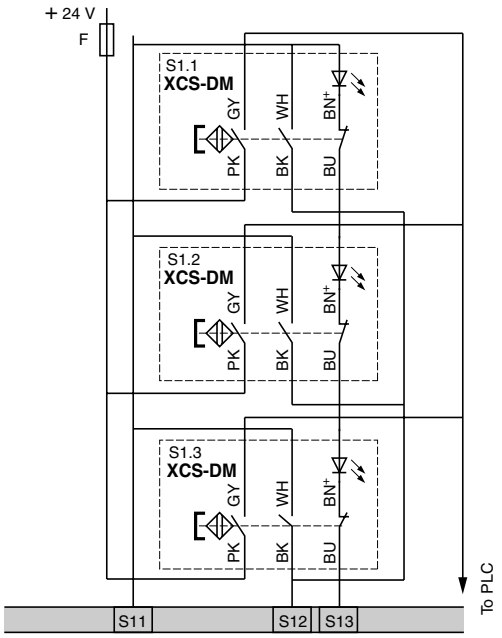
Wiring Diagrams

Connection of up to 3 magnetic switches with an LED on one input, with XPSDM• (category 3)

Example with N.C. + N.O. contact



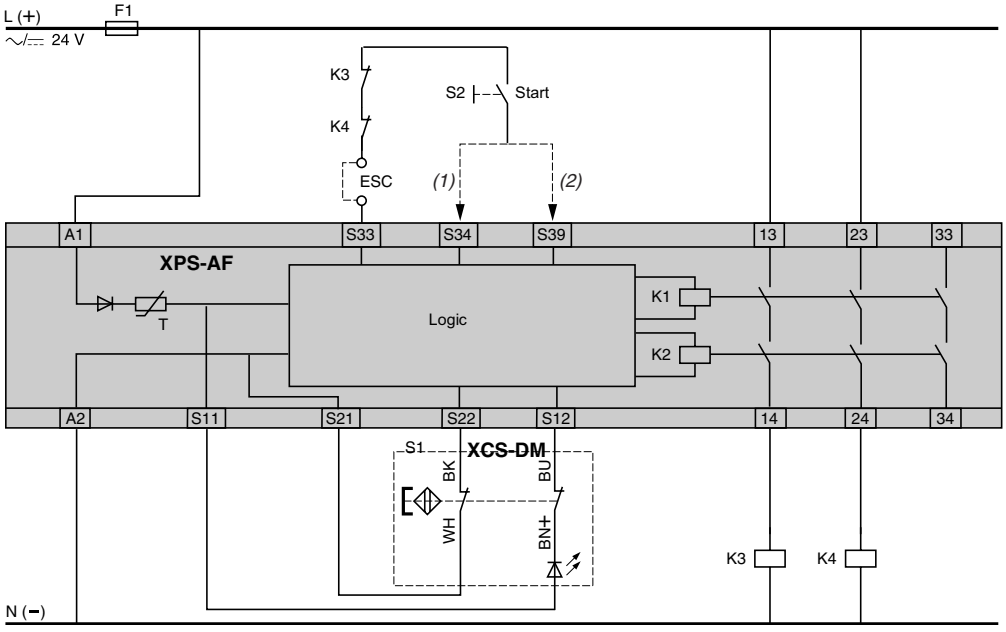
Example with N.C. + N.O. + N.O. contact



• Input: S11, S12, S13 or S21, S22, S23.
* Unused inputs must be jumpered from S_1 to S_3 as shown on page 11.
The maximum number of XCSDM devices wired in series per input of an XPSDM safety relay:
XCSDM with LED: Maximum of 3
XCSDM without LED: Maximum of 6

XCSDM•7••• with XPSAF (category 4)

Categories 3 and 4 connection conforming to EN 60954-1. Example with N.C. + N.C. contact

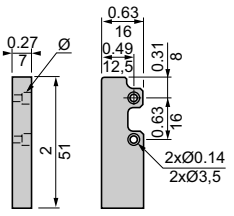


(1) With monitoring of start button. (2) Without monitoring of start button. ESC: External start conditions.

XCSDM NON-CONTACT MAGNETIC SAFETY INTERLOCKS

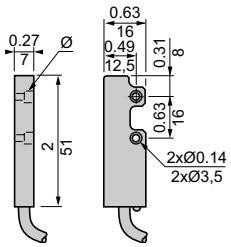
Dimensions

XCSDMC
Magnet
(XCSZC1)

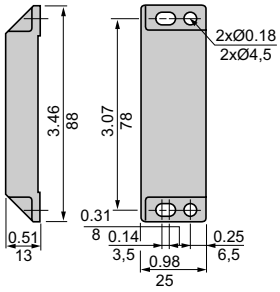


Counterbored: Ø 0.24" (6 mm) x 0.14" (3.5 mm)

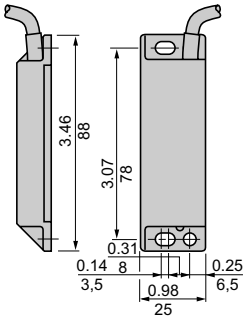
Sensor



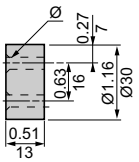
XCSDMP
Magnet
(XCSZP1)



Sensor

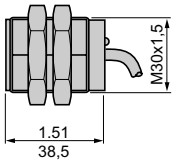


XCSDMR
Magnet
(XCSZR1)

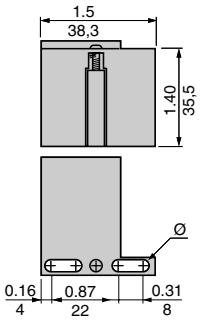


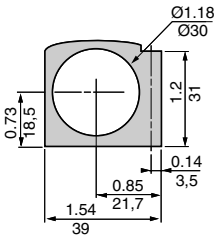
(2) Countersunk holes: Ø 0.27" (7 mm) at 90°.

Sensor



Accessories
XSZB130





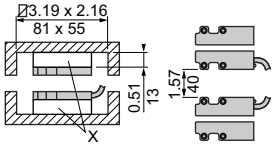
(3) 2 elongated holes 0.16" (4 mm) x 0.31" (8 mm)

Dual Dimensions: INCHES Millimeters

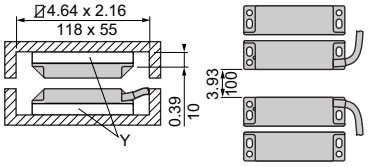
Mounting

- When mounting on steel or other ferromagnetic materials, a non-magnetic shim (X, Y, Z) must be used between the switch and mounting surface, and mounted per the diagram below.
- Non-ferrous, non-magnetic mounting hardware is recommended. Using ferrous mounting hardware may reduce the published sensing distances.

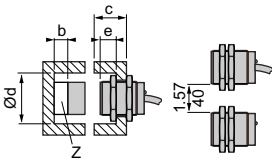
XCSDMC



XCSDMP



XCSDMR



When designing a door or gate guarding system, these guidelines should be followed:

- The safety interlock switch must not be used as a mechanical stop for the moving guard. A separate mechanical stop must be provided.
- Encoded magnets must be securely attached to gates, guards and doors only. They should not be attached to cables, cords or chains

	b min.	c	d	e
XCSDMR	0.47/12	> 0.39/10	Ø 1.77/45	0.78/20
	–	> 0.39/10	Ø 1.77/45	0.51/13
	0.47/12	< 0.39/10	–	0.78/20
	–	< 0.39/10	–	0.67/17

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www.schneider-electric.ca

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