Safety Isolation System
ElectroGuard™
Overview

The ElectroGuard Safety Isolation System is used in place of a disconnect switch for Lockout and Tagout (LOTO). It uses power contactors and Remote Lockout Stations to accomplish LOTO.

Isolating the electrical energy usually involves calling an electrician to turn "Off" the main disconnecting means. The electrician would then perform LOTO of the disconnecting means operating handle.

This same procedure is required to perform cleaning, maintenance, setup, lubrication or adjustment. Machines or processes with multiple access points may require operator/maintenance intervention several times a shift (perhaps as often as 60 times per shift).

To perform these activities, the operator/maintenance person may be required to place part of his or her body into an area not accessed during normal operation. This may cause serious or fatal injury if LOTO procedures are not followed.

The ElectroGuard Safety Isolation System allows the machine operator to safely and quickly accomplish LOTO with dramatically reduced downtime.

Provides Energy Isolation
- Power isolation accomplished by means of contactors rather than disconnect switches.
- Uses redundant, independent and self-monitoring circuits to detect a system fault.
- Prevents accumulation of faults in order to maintain the integrity of the safety system.
- Tamper-resistant design.

Convenient Remote Lockout Station
- Allows remote isolation of the electrical power to the machine or process—machine operator simply turns "Off" a Remote Lockout Station.
- A light on the Remote Lockout Station indicates that the three-phase power source to the machine or process has been isolated. *No Light Means No Entry.*
- If a fault occurs in the Safety Isolation System, the "System Isolated" light on the Remote Lockout Stations will not illuminate.
- Easy Lockout/Tagout.

Certified by TUV to meet requirements of Category 4
- Certified by TUV to meet Category 4, the most stringent safety category defined within International Standard EN 954-1/ISO 13849-1.
- Subjected by TUV to rigorous third party testing and verification of the Failure Mode & Effect Analysis (FMEA).

Status Communication Capability to a Remote PLC
- Optional Remote I/O via Flex modules. Communication can be via the DeviceNet communication platform or the Remote I/O communication platform.

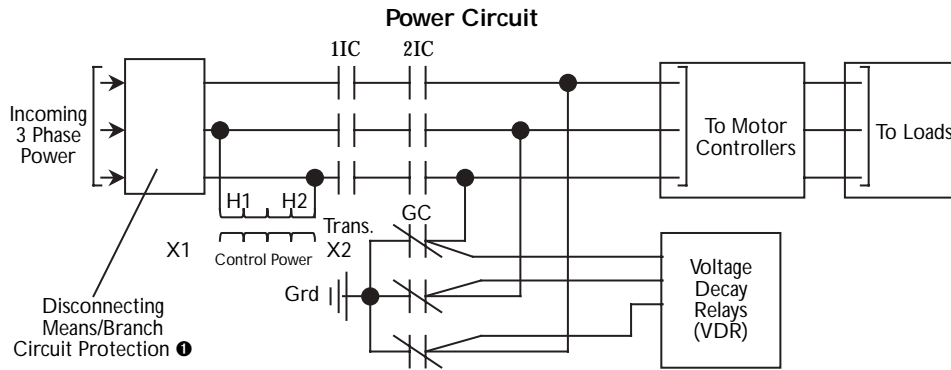### Available from 23-1200 Amperes.

Specifications

Approvals	$_cUL_{US}$ Listed Industrial Control Panel; TUV Rheinland certified; CE marked for all applicable directives
Standards	IEC/EN 60204-1; IEC/EN 60439-1; Category 4 to International Standard EN 954-1/ISO 13849-1; 98/37/EC Machinery Directive; 89/336/EC EMC Directive; 73/23/EC Low Voltage Directive; Fulfils the function of an energy isolating device in accordance with the conditions set forth in the FedOSHA letter of interpretation pertaining to Section 1910.147(b); Cal/OSHA 3314.
Estimated Component Life	
Remote Lockout Station	250,000 operations
Power Contactors	23A - 85A: 2,000,000 operations
(Isolation & Grounding)	110A-1200A: 1,000,000 operations
Environmental	
Storage Temperature	-10°C...+60°C (14°F...140°F)
Operating Temperature	0°C...+40°C (32°F...104°F) (Ambient)
Relative Humidity, Non condensing	90% Relative Humidity
Power Panel Construction	Tamper-resistant Control Module
	23A-85A systems support up to 4 Remote Lockout Stations without an Expansion Module
	110A-1200A systems support up to 6 Remote Lockout Stations without an Expansion Module
	Control Module with viewing window for visual check of status indicator lights
Remote Lockout Station Construction	Top and bottom 25.4mm (1.0in) conduit entry (removable plug in bottom conduit hole)
	Sealing provision for tamper-resistance
	Operating handle accepts up to 3 padlocks
Expansion Module Construction	4 port—supports up to 4 lockout stations • allows the systems to accommodate up to 24 Remote Lockout Stations 10 port—supports up to 10 lockout stations • allows the systems to accommodate up to 60 Remote Lockout Stations Window for viewing status indicator lights; Sealed for tamper-resistance
Safety Isolation Sys. Inputs	
Standard Inputs from	Remote Lockout Stations
Optional Inputs from Rockwell Automation Safety Products	Safety Mats, ❶ Light Curtains, ❶ E-Stop Stations, ❶ Proximity Switches, ❶ Photo Switches ❶
System Operational Limits	+10%, -15% of the line voltage

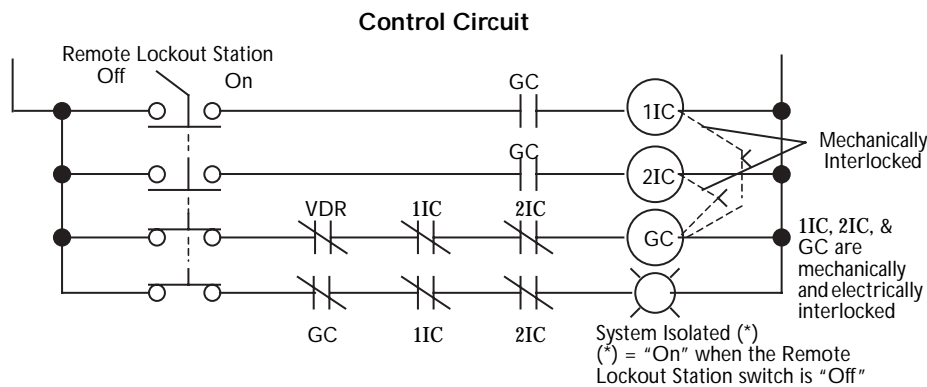❶ Use of any of these input devices will not meet Lockout/Tagout (LOTO) requirements.

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Principle of Operation

Power Circuit

Control Circuit

❶ Available factory installed within the ElectroGuard as an option.

After using the normal stopping method of the machine or process, the machine operator turns a Remote Lockout Station handle from the "On" to "Off" position. The station signals the isolation contactors (1IC and 2IC) to drop out and isolate the supply voltage from the loads (see Control Circuit).

When system residual voltage decays to pre-determined levels, the grounding contactor (GC) is energized, connecting the load to ground (see Power Circuit). The grounding contactor (GC) is electrically and mechanically interlocked with the isolation contactors (1IC and 2IC).

The "System Isolated" Light will now illuminate on the Remote Lockout Station to indicate the system is isolated. The machine operator then Locks-Out and Tags-Out the station in the "Off" position.

Optional Features

- Four (4) or ten (10) port Expansion Modules to permit additional Remote Lockout Stations to be used (see page 12-16 for details).
- Pneumatic Isolation Module to isolate pneumatic energy (see page 12-15 for details).
- Status communication to a remote PLC (see page 12-17 for details).
- Fusible disconnect switch (Bulletin 2032) or thermal-magnetic circuit breaker (Bulletin 2033) to provide branch circuit protection.

Optional Pneumatic Isolation Module

ElectroGuard™
Combination Systems with Fusible Disconnect Switch

Product Selection for Outside of North America (see page 12-19 for Ordering Instructions)

Amp. Rating (AC-3)	3-Phase Max. kW Rating (50Hz)				Fuse Clip Rating/ Type ❶	Catalogue Number ❷			
	230V	400V	500V	600V		IP 30 Enclosure	IP 54 Enclosure	IP 54 Motor Control Centre Type Enclosure (with bussing)	IP 65 Enclosure
23	5.5	11	11	11	20A BS 88	2032-C0023P⊗-23B	2032-C0023H⊗-23B	2032-◆0023H⊗-23B	2032-C0023W⊗-23B
					32A BS 88	2032-C0023P⊗-24B	2032-C0023H⊗-24B	2032-◆0023H⊗-24B	2032-C0023W⊗-24B
					63A BS 88	2032-C0023P⊗-25B	2032-C0023H⊗-25B	2032-◆0023H⊗-25B	2032-C0023W⊗-25B
					63A DIN	2032-C0023P⊗-25D	2032-C0023H⊗-25D	2032-◆0023H⊗-25D	2032-C0023W⊗-25D
43	11	22	22	22	63A BS 88	2032-C0043P⊗-25B	2032-C0043H⊗-25B	2032-◆0043H⊗-25B	2032-C0043W⊗-25B
					63A DIN	2032-C0043P⊗-25D	2032-C0043H⊗-25D	2032-◆0043H⊗-25D	2032-C0043W⊗-25D
					100A BS 88	2032-C0043P⊗-26B	2032-C0043H⊗-26B	2032-◆0043H⊗-26B	2032-C0043W⊗-26B
					100A DIN	2032-C0043P⊗-26D	2032-C0043H⊗-26D	2032-◆0043H⊗-26D	2032-C0043W⊗-26D
85	22	45	45	45	100A BS 88	2032-C0085P⊗-26B	2032-C0085H⊗-26B	2032-◆0085H⊗-26B	2032-C0085W⊗-26B
					100A DIN	2032-C0085P⊗-26D	2032-C0085H⊗-26D	2032-◆0085H⊗-26D	2032-C0085W⊗-26D
					200A BS 88	2032-C0085P⊗-27B	2032-C0085H⊗-27B	2032-◆0085H⊗-27B	2032-C0085W⊗-27B
					160A DIN	2032-C0085P⊗-27D	2032-C0085H⊗-27D	2032-◆0085H⊗-27D	2032-C0085W⊗-27D
110	32	55	63	100	100A BS88	2032-C0110P⊗-26B	2032-C0110H⊗-26B	2032-◆0110H⊗-26B	2032-C0110W⊗-26B
					100A DIN	2032-C0110P⊗-26D	2032-C0110H⊗-26D	2032-◆0110H⊗-26D	2032-C0110W⊗-26D
					200A BS 88	2032-C0110P⊗-27B	2032-C0110H⊗-27B	2032-◆0110H⊗-27B	2032-C0110W⊗-27B
					160A DIN	2032-C0110P⊗-27D	2032-C0110H⊗-27D	2032-◆0110H⊗-27D	2032-C0110W⊗-27D
					250A DIN	2032-C0110P⊗-28D	2032-C0110H⊗-28D	2032-◆0110H⊗-28D	2032-C0110W⊗-28D
180	45	90	110	110	200A BS 88	2032-C0180P⊗-27B	2032-C0180H⊗-27B	2032-◆0180H⊗-27B	2032-C0180W⊗-27B
					250A DIN	2032-C0180P⊗-28D	2032-C0180H⊗-28D	2032-◆0180H⊗-28D	2032-C0180W⊗-28D
					400A BS 88	2032-C0180P⊗-29B	2032-C0180H⊗-29B	2032-◆0180H⊗-29B	2032-C0180W⊗-29B
					400A DIN	2032-C0180P⊗-29D	2032-C0180H⊗-29D	2032-◆0180H⊗-29D	2032-C0180W⊗-29D
210	63	110	150	200	200A BS 88	2032-C0210P⊗-27B	2032-C0210H⊗-27B	2032-◆0210H⊗-27B	2032-C0210W⊗-27B
					250A DIN	2032-C0210P⊗-28D	2032-C0210H⊗-28D	2032-◆0210H⊗-28D	2032-C0210W⊗-28D
					400A BS 88	2032-C0210P⊗-29B	2032-C0210H⊗-29B	2032-◆0210H⊗-29B	2032-C0210W⊗-29B
					400A DIN	2032-C0210P⊗-29D	2032-C0210H⊗-29D	2032-◆0210H⊗-29D	2032-C0210W⊗-29D
300	90	160	200	257	400A BS 88	2032-C0300P⊗-29B	2032-C0300H⊗-29B	2032-◆0300H⊗-29B	2032-C0300W⊗-29B
					400A DIN	2032-C0300P⊗-29D	2032-C0300H⊗-29D	2032-◆0300H⊗-29D	2032-C0300W⊗-29D
					630A BS 88	2032-C0300P⊗-30B	2032-C0300H⊗-30B	2032-◆0300H⊗-30B	2032-C0300W⊗-30B
					630A DIN	2032-C0300P⊗-30D	2032-C0300H⊗-30D	2032-◆0300H⊗-30D	2032-C0300W⊗-30D
420	132	220	300	425	400A BS88	2032-C0420P⊗-29B	2032-C0420H⊗-29B	2032-◆0420H⊗-29B	2032-C0420W⊗-29B
					400A DIN	2032-C0420P⊗-29D	2032-C0420H⊗-29D	2032-◆0420H⊗-29D	2032-C0420W⊗-29D
					630A BS 88	2032-C0420P⊗-30B	2032-C0420H⊗-30B	2032-◆0420H⊗-30B	2032-C0420W⊗-30B
					630A DIN	2032-C0420P⊗-30D	2032-C0420H⊗-30D	2032-◆0420H⊗-30D	2032-C0420W⊗-30D
630	200	355	450	500	630A BS 88	2032*-C0630P⊗-30B	2032*-C0630H⊗-30B	2032-◆0630H⊗-30B	2032*-C0630W⊗-30B

❶ Power fuses are not included with the disconnect switch. Select power fuses in accordance with applicable local codes.

❷ Optional Time Delay Feature. The Safety Isolation System may be ordered with a factory set time delay feature (30 seconds) in order to allow time for the machine operator to shut-down drives or other equipment that requires a controlled stop, after the operating handle on a Remote Lockout Station has been moved to the "Off" position. See next page for instructions on how to order the optional time delay feature. Consult your local Rockwell Automation sales office for other time settings.

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Product Selection for Outside North America (see page 12-19 for Ordering Instructions)

Ampere Rating (AC-3)	3-Phase Max. kW Rating (50Hz)				Fuse Clip Rating/ Type ❶	Catalogue Number ❷			
	230V	400V	500V	600V		IP 30 Enclosure	IP 54 Enclosure	IP 54 Motor Control Centre Type Enclosure (with bussing)	IP 65 Enclosure
630	200	355	450	500	630A DIN	2032*-C0630P⊗-30D	2032*-C0630H⊗-30D	2032-◆0630H⊗30D	2032*-C0630W⊗-30D
					800A BS 88	2032*-C0630P⊗-31B	2032*-C0630H⊗-31B	2032-◆0630H⊗-31B	2032*-C0630W⊗-31B
					1600A DIN	2032*-C0630P⊗-31D	2032*-C0630H⊗-31D	2032-◆0630H⊗-31D	2032*-C0630W⊗-31D
860	250	500	560	600	800A BS 88	2032*-C0860P⊗-31B	2032*-C0860H⊗-31B	2032-◆0860H⊗-31B	2032*-C0860W⊗-31B
					1250A BS 88	2032*-C0860P⊗-32B	2032*-C0860H⊗-32B	2032-◆0860H⊗-32B	2032*-C0860W⊗-32B
					1600A DIN	2032*-C0860P⊗-31D	2032*-C0860H⊗-31D	2032-◆0860H⊗-31D	2032*-C0860W⊗-31D
1200	391	710	888	1043	1250A BS 88	2032*-C1200P⊗-32B	2032*-C1200H⊗-32B	2032-◆1200H⊗-32B	2032*-C1200W⊗-32B
					1600A DIN	2032*-C1200P⊗-31D	2032*-C1200H⊗-31D	2032-◆1200H⊗-31D	2032*-C1200W⊗-31D

To order the Time Delay feature, add the following Cat. String to the end of the Catalogue Number shown in the table:

Factory set 30 second time delay feature:	-1TD

Example: Catalogue Number **2032-C0180P⊗-29B** becomes Catalogue Number **2032-C0180P⊗-29B-1TD** to include the time delay feature.

* Input Power Feed Catalogue Number Code
The Catalogue Number as listed is incomplete. Select an Input Power Feed Code from the table below.
Example: Catalogue Number **2032*-C0630P⊗-31B** becomes Catalogue Number **2032T-C0630P⊗-31B** for a "Top Feed" input power requirement.

Input Power Feed	Catalogue Number Code
Top Feed	T
Bottom Feed	B

◆ Bussing Designation
The Catalogue Number as listed is incomplete. Select a Bussing Designation Code from the table below.
Example: Catalogue Number **2032-◆0085H⊗-27D** becomes Catalogue Number **2032-E0085H⊗-27D** for "600A Line Side Incoming Bus and Outgoing Power Cables" bussing designation.

Type of Bussing ❸	Catalogue Number Code
600A Line Side Incoming Bus and Outgoing Power Cables	E
1200A Line Side Incoming Bus and Outgoing Power Cables	D
Line Side Incoming Power Cables and 600A Load Side Outgoing Bus	H
Line Side Incoming Power Cables and 1200A Load Side Outgoing Bus	R

⊗ Input Line Voltage Code
The Catalogue Number as listed is incomplete. Select an Input Line Voltage Code from the table below.
Example: Catalogue Number **2032-C0085W⊗-26B** becomes Catalogue Number **2032-C0085WN-26B** for a 380V 50Hz Input Line Voltage application.

Input Line Voltage	220V 50Hz	380-400V 50Hz	400-415V 50Hz	440V 50Hz	500V 50Hz	550V 50Hz
Voltage Code for Catalogue Number	A	N	G	B	M	C

Product Selection: Remote Lockout Station ❹

"System Isolated" Light Colour	Catalogue Number		
	IP 30 Enclosure	IP 54 Enclosure	IP 65 Enclosure
Green	2030-RLSPG	2030-RLSHG	2030-RLSWG

❶ Power fuses are not included with the disconnect switch. Select power fuses in accordance with applicable local codes.
❷ Optional Time Delay Feature. The Safety Isolation System may be ordered with a factory set time delay feature (30 seconds) in order to allow time for the machine operator to shut-down drives or other equipment that requires a controlled stop, after the operating handle on a Remote Lockout Station has been moved to the "Off" position. Consult your local Rockwell Automation sales office for other time settings.
❸ Bus Type: Copper with tin plating. Consult factory for other types of bussing.
❹ Safety Isolation Systems rated up through 85A can support a maximum of four (4) Remote Lockout Stations (RLS).
  Systems rated from 110A - 1200A can support a maximum of six (6) RLS. If additional RLS are required, order the optional Expansion Module(s) (see page 12-16).

Product Selection for Outside of North America (see page 12-19 for Ordering Instructions)

◆ Bussing Designation

The Catalogue Number as listed is incomplete. Select a Bussing Designation Code from the table below.
*Example: Catalogue Number **2033-◆0085H⊗-44K** becomes Catalogue Number **2033-E0085H⊗-44K** for "600A Line Side Incoming Bus and Outgoing Power Cables" bussing designation.*

Type of Bussing ❶	Catalogue Number Code
600A Line Side Incoming Bus and Outgoing Power Cables	E
1200A Line Side Incoming Bus and Outgoing Power Cables	D
Line Side Incoming Power Cables and 600A Load Side Outgoing Bus	H
Line Side Incoming Power Cables and 1200A Load Side Outgoing Bus	R

⊗ Input Line Voltage Code

The Catalogue Number as listed is incomplete. Select an Input Line Voltage Code from the table below.
*Example: Catalogue Number **2033-C0085W⊗-48K** becomes Catalogue Number **2033-C0085WN-48K** for a 380V 50Hz Input Line Voltage application.*

Input Line Voltage	220V 50Hz	380-400V 50Hz	400-415V 50Hz	440V 50Hz	500V 50Hz	550V 50Hz
Voltage Code for Catalogue Number	A	N	G	B	M	C

Product Selection: Remote Lockout Station ❷

"System Isolated" Light Colour	Catalogue Number		
	IP 30 Enclosure	IP 54 Enclosure	IP 65 Enclosure
Green	2030-RLSPG	2030-RLSHG	2030-RLSWG

Optional Features

Pneumatic Isolation Module (Must be ordered with Safety Isolation System):

The Safety Isolation System is available with an optional means of isolating the pneumatic energy source for the machine or process. If the machine operator/maintenance personnel initiates isolation of the electrical energy by operating one of the Remote Lockout Stations, a safety valve is simultaneously actuated to bleed pressure from the air line between the valve and the machine. When the air pressure has fallen to a predetermined level, the unit will allow the light on the Remote Lockout Station to illuminate, if electrical isolation has also been achieved.

To order the Pneumatic Isolation option:

Step 1: Add the following Catalogue String to the Safety Isolation System Catalogue Number:

To indicate that the Safety Isolation System should be supplied as "Pneumatic Ready."	-1PN

*e.g. **2031-A0085JB-1PN** to indicate an 85A Safety Isolation System that is to be "Pneumatic Ready."*

Step 2: Order suitably enclosed Pneumatic Isolation Module as separate item:

For North America:

Pressure Range	Valve Port Size	Catalogue Number			
		Type 1 General Purpose Enclosure	Type 12 Dust tight Enclosure	Type 4 Watertight Painted Steel Enclosure	Type 4X Watertight Stainless Steel Enclosure
30-120 psi	1in	2030-PA1201	2030-PJ1201	2030-PF1201	2030-PC1201
	3/4in	2030-PA1203	2030-PJ1203	2030-PF1203	2030-PC1203

For Outside of North America:

Pressure Range	Valve Port Size	Catalogue Number		
		IP 30 Enclosure	IP 54 Enclosure	IP 65 Enclosure
2-7 bar	1in	2030-PP0071	2030-PH0071	2030-PW0071
	3/4in	2030-PP0073	2030-PH0073	2030-PW0073

❶ Bus Type: Copper with tin plating. Consult factory for other types of bussing.
❷ Safety Isolation Systems rated up through 85A can support a maximum of four (4) Remote Lockout Stations (RLS).
  Systems rated from 110A - 1200A can support a maximum of six (6) RLS. If additional RLS are required, order the optional Expansion Module(s) (see page 12-16).

Expansion Module (Can be ordered separately):

For applications requiring more than the maximum allowable Remote Lockout Stations, or total wire lengths longer than those permitted with the Remote Lockout Stations. Expansion Modules are available in 4 or 10 port configurations. Each Expansion Module is wired to a port on the Control Module, and takes the connection port that would normally accommodate a Remote Lockout Station (see page 12-18 to determine if an Expansion Module is required due to wire length considerations).

The 23A through 85A systems will accommodate connection of a maximum of 4 Expansion Modules, and the 110A through 1200A systems will accommodate connection of a maximum of 6 Expansion Modules.

Certain ampere size Safety Isolation System Power Panels can accommodate either 1 or 2 Expansion Modules installed internally. In all other instances the Expansion Module(s) must be located external to the Safety Isolation System in a suitably rated enclosure.

Ampere Size of Safety Isolation System	Internal Provisions to Accommodate Expansion Modules
23A - 85A	None
110A - 420A	Provisions to accept one (1) Expansion Module (Bulletins 2031, 2032 or 2033)
630A - 1200A	Provisions to accept up to two (2) Expansion Modules in Bulletin 2032 or 2033 combination systems, or one (1) Expansion Module in Bulletin 2031 non combination systems.

Expansion Modules may be ordered with an adjustable time delay feature (1-30 seconds) in order to allow time for the machine operator to shut-down drives or other equipment that requires a controlled stop after a Remote Lockout Station has been switched to the "Off" position. Consult your Rockwell Automation sales office for other time settings.

Enclosed Expansion Modules are available with optional "Flex" modules to provide status communication to a remote PLC. Communication can be via DeviceNet or Remote I/O.

Note: The status communication option allows a remote PLC to receive status signals from the Expansion Module. The Expansion Module does not accept input signals from DeviceNet or Remote I/O.

Note: The time delay feature affects all input devices wired to the Expansion Module.

For Expansion Module(s) Factory Installed:
Add One of the Following Catalogue Number Strings to the Safety Isolation System Catalogue Number:

Number of Expansion Modules	Number of Ports per Expansion Module	Catalogue Number String ❶
One (available on Bulletin 2031, 2032, or 2033, 110A–1200A Systems only)	4	-1EUF
	4 w/time delay	-1EUFTDA
	10	-1EUT
	10 w/time delay	-1EUTTDA
Two (available on 630A – 1200A Bulletin 2032 or 2033 Systems only)	4	-2EUF
	4 w/time delay	-2EUFTDA
	10	-2EUT
	10 w/time delay	-2EUTTDA

❶ e.g. Catalogue Number **2032T-A0630JB-30L** becomes Catalogue Number **2032T-A0630JB-30L-2EUT** to indicate a 630A Safety Isolation System that includes 2 internally installed 10 port Expansion Modules without the time delay feature.

Open Type Expansion Module for Field Addition

Description	Open Type ❷ Catalogue Number
4 port	2030-EUNF
4 port w/ time delay	2030-EUNF-1TDA
10 port	2030-EUNT
10 port w/time delay	2030-EUNT-1TDA

❷ Requires user supplied enclosure if not installed in the Safety Isolation System Power Panel.

❸ To order the Status Communication to a remote PLC option installed in an enclosed Expansion Module, add one of the following Catalogue Strings to the Expansion Module Catalogue Number:

Communication Platform	Number of I/O Points	Catalogue Number String ❹
Remote I/O	16 points	-1COM
DeviceNet	16 points	-1DNET

❹ e.g. Catalogue Number 2030-EUJF becomes Catalogue Number 2030-EUJF-1COM to indicate a Type 12 enclosed, 4-port expansion module, with 16 points of remote I/O.

To order the optional enclosed Expansion Module for field addition for North America:

Description	Catalogue Number ❸			
	Type 1 Enclosure	Type12 Enclosure	Type 4 Painted Enclosure	Type 4X Stainless Steel Enclosure
4 port	2030-EUAF	2030-EUJF	2030-EUFF	2030-EUCF
4 port w/ time delay	2030-EUAF-1TDA	2030-EUJF-1TDA	2030-EUFF-1TDA	2030-EUCF-1TDA
10 port	2030-EUAT	2030-EUJT	2030-EUFT	2030-EUCT
10 port w/time delay	2030-EUAT-1TDA	2030-EUJT-1TDA	2030-EUFT-1TDA	2030-EUCT-1TDA

To order the optional enclosed Expansion Module for field addition for outside of North America:

Description	Catalogue Number ❸		
	IP30 Enclosure	IP54 Enclosure	IP65 Enclosure
4 port	2030-EUPF	2030-EUHF	2030-EUWF
4 port w/ time delay	2030-EUPF-1TDA	2030-EUHF-1TDA	2030-EUWF-1TDA
10 port	2030-EUPT	2030-EUHT	2030-EUWT
10 port w/time delay	2030-EUPT-1TDA	2030-EUHT-1TDA	2030-EUWT-1TDA

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Status Communication to a remote PLC (Should be ordered with Safety Isolation System)

This option provides Remote I/O via "Flex" modules. Communication can be via:

* The DeviceNet communication platform, or
* The Remote I/O communication platform.

Note: The status communication option allows a remote PLC to receive status signals from the ElectroGuard Safety Isolation System. The ElectroGuard does not accept input signals through these communication platforms.

Status communication capabilities:

* Overall system status,
* Status of each Remote Lockout Station,
* Status of the Pneumatic Isolation Module (if used),
* Status of other optional Safety Input devices.

Note: Each communication module provides sixteen (16) data points. In determining which Catalogue Number String to specify from the table below, please keep the following in mind:

* Overall system status information requires one (1) data point.
* The Pneumatic Isolation Module (if used) requires one (1) data point.
* Each Remote Lockout Station used in the application requires one (1) data point.
* Each optional Rockwell Automation Safety Input device (i.e. Safety Mat, Light Curtain, E-Stop Station, Proximity Switch, Photo Switch) requires one (1) data point.

To order the Status Communication to a remote PLC option, add one of the following Catalogue Strings to the Safety Isolation System Catalogue Number:

Communication Platform	Number of I/O points	Catalogue Number String ❶
Remote I/O	16 points	**-1COM**
	32 points	**-2COM**
	48 points	**-3COM●**
	64 points	**-4COM♦**
DeviceNet	16 points	**-1DNET**
	32 points	**-2DNET**
	48 points	**-3DNET●**
	64 points	**-4DNET♦**

● Maximum available for units from 23A through 85A.

♦ Only available on units from 110A through 1200A.

❶ e.g. Catalogue Number **2031-A0085JB** becomes Catalogue Number **2031-A0085JB-1COM** to indicate an 85A Safety Isolation System that includes 16 points of Remote I/O for status communication to a remote PLC.

Cover Mounted Metering (Must be ordered with Safety Isolation System):

Cover mounted ammeters and/or voltmeters are available as factory installed options in order to provide visual indication of line side system current and/or voltage.

To order metering, add one or more of the following Catalogue Strings to the Safety Isolation System Catalogue Number:

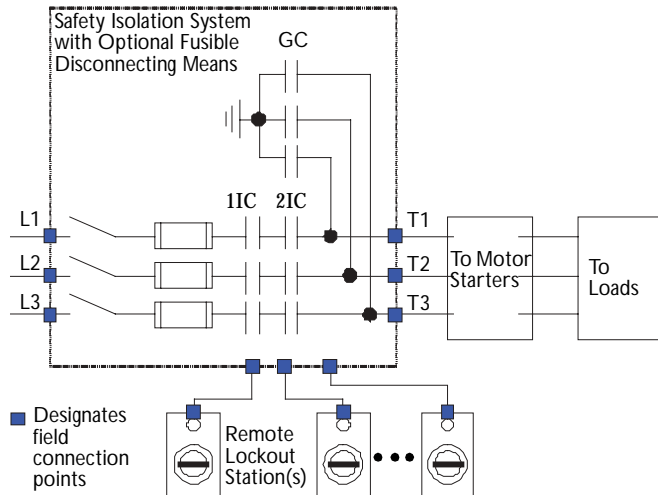| Type of Metering Required	Catalogue Number String ❷
Single-phase Ammeter	**-1AM**
Three-phase Ammeter	**-3AM**
Single-phase Voltmeter	**-1VM**
Three-phase Voltmeter	**-3VM**

❷ e.g. Catalogue Number **2031-A0085JB** becomes Catalogue Number **2031-A0085JB-1AM** to indicate an 85A Safety Isolation System that includes a cover mounted single-phase Ammeter.

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Safety Isolation System

ElectroGuard™

Typical Wiring Diagram/Wire Length Considerations

Typical Wiring Diagram

■ Designates field connection points

Remote Lockout Station(s)

Wire Length Considerations

ATTENTION: It is important not to exceed the maximum wire length values shown in this section. If the maximum values are exceeded, this may result in an unreliable signal to the Safety Isolation System. Consider using an Expansion Module if wire lengths greater than those shown for the Remote Lockout Stations are needed.

Each Remote Lockout Station is connected to the Control Module in the Power Panel of the Safety Isolation System. The total length of the wire used to connect the Remote Lockout Stations to the Control Module should not exceed the maximum values shown in the following tables.
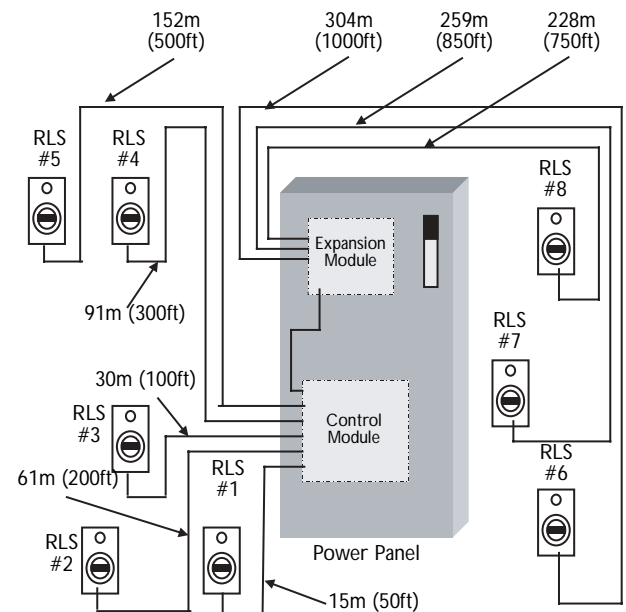
Calculate the total wire length as follows:

1. Determine the distance in feet or meters from each Remote Lockout Station to the Control Module (located inside the Safety Isolation System Power Panel).
2. Sum the distances for all of the Remote Lockout Stations.
3. Double this value.
4. Compare this doubled value with the maximum values for total wire length shown in the table below:

Total Wire Length for Remote Lockout Stations

For North America		For Outside of North America	
Wire Gauge	Max. Total Wire Length	Wire Gauge	Max. Total Wire Length
14AWG	4,600 feet	18 Gauge Metric	1,400 meters
16AWG	2,600 feet	14 Gauge Metric	800 meters
18AWG	1,300 feet		

If the application requires a total wire length greater than those shown in the table, one or more Expansion Modules should be used. The maximum wire length for the Expansion Modules is shown in the following table:

Total Wire Length for Expansion Modules

For North America		For Outside North America	
Wire Gauge	Max. Total Wire Length	Wire Gauge	Max. Total Wire Length
14AWG	40,000 feet	18 Gauge Metric	12,200 meters
16AWG	23,000 feet	14 Gauge Metric	7,000 meters
18AWG	11,700 feet		

Sample Calculation: An application for a 630A Safety Isolation System will require 8 Remote Lockout Stations (RLS):

The wire length from RLS # 1 to the Control Module (in the ElectroGuard Power Panel) will be 50ft.
The wire length from RLS # 2 to the Control Module will be 200ft.
The wire length from RLS # 3 to the Control Module will be 100ft.
The wire length from RLS # 4 to the Control Module will be 300ft.
The wire length from RLS # 5 to the Control Module will be 500ft.
The wire length from RLS # 6 to the Control Module will be 1000ft.
The wire length from RLS # 7 to the Control Module will be 850ft.
The wire length from RLS # 8 to the Control Module will be 750ft.

14AWG wire will be used to connect the RLS to the Control Module (see illustration below).

Analysis: The Control Module furnished with the 630A Safety Isolation System is capable of supporting a maximum of six (6) RLS. Since this installation will require eight (8) RLS, an optional 4 port Expansion Module will also be used. The Expansion Module will be wired to the Control Module and will take the place of one of the original six RLS. We will, therefore, plan to wire five (5) of the RLS directly to the Control Module and three (3) of the RLS to the Expansion Module. Since the Expansion Module allows greater wire lengths than the Control Module, we will plan to wire the RLS to be installed furthest away from the Power Panel to the Expansion Module.

For RLS # 1: wire length =   50ft x 2 = 100ft
For RLS # 2: wire length = 200ft x 2 = 400ft
For RLS # 3: wire length = 100ft x 2 = 200ft
For RLS # 4: wire length = 300ft x 2 = 600ft
For RLS # 5: wire length = 500ft x 2 = 1000ft

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The total wire length for the 5 RLS to be wired to the Control Module will be: 100ft + 400ft + 200ft + 600ft + 1,000ft = 2,300ft

Per the table entitled *Total Wire Length for Remote Lockout Stations* on page 12-18, the maximum allowable wire length for 14AWG wire is 4,600ft for the RLS to be wired to the Control Module. This portion of the installation will be within the maximum wire length permitted.

Next, we need to check the wire length calculation for the RLS to be wired to the Expansion Module.

For RLS # 6: wire length = 1000ft x 2 = 200ft
For RLS # 7: wire length = 850ft x 2 = 1700ft
For RLS # 8: wire length = 750ft x 2 = 1500ft

The total wire length for the 3 RLS to be wired to the Expansion Module will be: 2000ft + 1700ft + 1500ft = 5,200ft

Per the table entitled *Total Wire Length for Expansion Modules* on page 12-18, the maximum allowable wire length for 14AWG wire is 40,000ft for the RLS to be wired to the Expansion Module. This portion of the installation will also be within the maximum wire length permitted.

Ordering Instructions

1. Determine the Catalogue Number of the Safety Isolation System based on the rating of the load(s) to which it will be connected as follows:

   If the Safety Isolation System is connected to a single motor load, the horsepower or kilowatt rating of the system should be determined as follows:
   a. Select the Safety Isolation System that meets or exceeds the horsepower or kilowatt rating of the load at the required voltage and frequency.

   If the Safety Isolation System is connected to two or more motors or one or more motors in combination with other loads, the horsepower or kilowatt rating of the system should be determined as follows:
   a. Identify the types of loads (i.e. motor, resistive) and the values of the currents of each of the loads (i.e. steady-state current for resistive loads, full-load and locked-rotor currents for motor loads) to be connected to the Safety Isolation System.

b. Sum the full-load currents of all the motor loads to be connected to the Safety Isolation System. To this value add the current values of all resistive loads to be connected to the Safety Isolation System. This value is the "combined load full-load current."
c. Find the horsepower or kilowatt rating of a single motor with a full-load current value greater than or equal to the "combined load full-load current" value determined in Step "b".
d. Select the Safety Isolation System that meets or exceeds this horsepower or kilowatt rating at the required voltage and frequency.
e. Sum the locked-rotor currents of all the motor loads to be connected to the Safety Isolation System. To this value add the current values of all resistive loads to be connected to the Safety Isolation System. This value is the "combined load locked-rotor current".
f. Find the horsepower or kilowatt rating of a single motor with a locked-rotor current value greater than or equal to the "combined load locked-rotor current" value determined in Step "e".
g. Select the Safety Isolation System that meets or exceeds this horsepower or kilowatt rating at the required voltage and frequency.
h. Compare the ratings of the Safety Isolation Systems selected in Steps "d" and "g". Select the larger of the two systems for your application.
2. Determine how many Remote Lockout Stations are required for the application.
3. Determine how many Expansion Modules (if any) are required for the application.
4. Pick suitable enclosure type(s) for the Safety Isolation System Power Panel, Remote Lockout Stations and enclosed modules (e.g., Expansion Modules, Pneumatic Isolation Module).
5. Determine what, if any, factory installed options are required for the application (e.g. Pneumatic Isolation, Status Communication to remote PLC, metering).

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