

Safety Intelligent Enclosure



The EcoStruxure Triconex Safety Intelligent Enclosure (SIE) provides an integrated solution designed to be mounted close to field instrumentation to reduce cabling. The SIE includes Tricon™ CX Universal Input/Output (UIO) modules, power supplies, and External Termination Panels (ETPs) that are pre-installed and tested, and can be connected to a wide range of field devices. The factory-manufactured SIE supports Schneider Electric's Flexible Lean Execution strategy, which shortens project schedules and reduces the risk of startup delays.

Note: Images are for illustrative purposes. Your product may look slightly different.

OVERVIEW

The Safety Intelligent Enclosure (SIE) consists of a wall-mounted stainless steel cabinet, Tricon CX I/O Expansion Chassis, Universal Input/Output (UIO) modules, power supplies, fans, and termination panels.

Using TriStation™ 1131 Workbench software, you can configure each Triple Modular Redundant (TMR) UIO point as one of the following:

- ▶ Supervised Digital Input, 24 VDC, with 1 ms Sequence of Events (SOE) capability
- ▶ Supervised Digital Output, 24 VDC
- ▶ Analog Input, 0-20 mA, configurable: with or without HART pass-through
- ▶ Analog Output, 4-20 mA, configurable: with or without HART pass-through

The SIE provides:

- ▶ Simplified ordering
- ▶ Standard cabinet design
- ▶ Flexible and scalable I/O deployment without rewiring
- ▶ Indoor/outdoor and local/remote installation support
- ▶ Support for a maximum of 64 user-configurable points
- ▶ Early-stage I/O wiring and late-stage project changes

The SIE has ETPs for termination of field device signals. Each ETP point comes pre-configured with a pass-through pluggable conditioning module (PCM). A range of other PCMs is available.

FEATURES

- ▶ Protection against hazardous locations and harsh environments:
 - Class I, Division 2 (U.S. and Canada)
 - ATEX and IECEx Zone 2 and Zone 22
 - China Zone 2 and Zone 22
 - NEMA® 4X/IP66 rated
 - Corrosion resistance:
 - Electronics: ISA-71.04, G3 level
 - Enclosure: UL 50E and ASTM B117
- ▶ Support for up to four Triconex 3902AX/3902X UIO Modules
- ▶ Input/output types that are software configurable
- ▶ Support for up to 64 TMR I/O points
- ▶ Wall-mounted
- ▶ Available in 24 VDC, and 120/240 VAC incoming power options
- ▶ Redundant power supplies
- ▶ Redundant fans (available with no fans)
- ▶ Supports star and daisy chain network topologies for the I/O bus

POWER DISTRIBUTION ARCHITECTURE

The SIE uses two independent 24 VDC power sources to operate. One set of dual redundant power supplies provides logic power to the I/O chassis and another set of dual power supplies provides power to the field instruments. This redundant power architecture provides protection against a single power failure.

I/O BUS CONNECTION

The SIE supports a TMR I/O bus connection with special interface modules:

- ▶ Triconex 4701X IMSS – Serial RS-485
Distances up to 100 ft (30 m)
- ▶ Triconex 4703X IMFF – Fiber
Distances up to 43.5 mi (70 km)

When using 4703X IMFFs, customers select and procure small form-factor pluggables (SFPs) to meet their specific needs. For more information, see “Small Form-Factor Pluggable (SFP) Requirements” in the *Tricon CX Addendum to Tricon User Guides*.

PHYSICAL SPECIFICATIONS

Size

31.50 in (800 mm) width, 15.75 in (400 mm) depth, 47.24 in (1200 mm) height

Weight Range

300 to 350 lb. (136 to 159 kg) (depending on configuration)

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature

WITHOUT INTERNAL FANS

–4° F to 113° F (–20° C to 45° C)

WITH INTERNAL FANS

–4° F to 131° F (–20° C to 55° C)

Contaminant Severity Level

ELECTRONICS

ISA-71.04, G3 level

ENCLOSURE

UL 50E and ASTM B117

Relative Humidity

5% to 95% (non-condensing)


Certifications

FM (U.S. and Canada), ATEX, IECEx, CCCex, CE, UKCA, RoHS 2, NEMA 4X/IP66

Hazardous Area Classification

Class I, Division 2, Groups A, B, C, D; T4

ATEX and IECEx Zone 2 and Zone 22

 II 3 G Ex ec nC dc IIC T4 Gc

 II 3 D Ex tc IIIC T80°C Dc

China Zone 2 and Zone 22

Ex dc ec nC IIC T4 Gc

Ex tc IIIC T80°C Dc

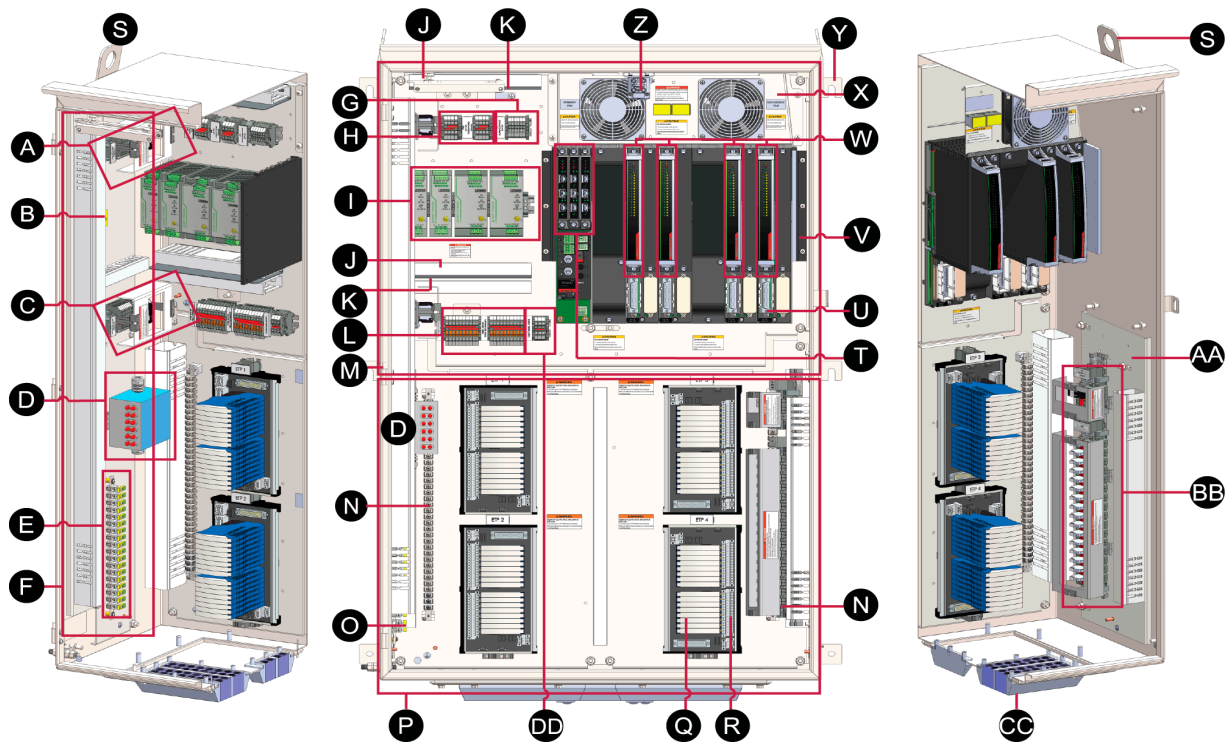


Figure 1. SIE Layout with Left-Side, Front, and Right-Side Views

Legend					
A	Primary External Power, PTB1	K	Divider Plate	U	Field External Termination Connectors (FETs)
B	ESD Bonding Point	L	Field Power Terminals, 24 VDC	V	Tricon CX I/O Expansion Chassis
C	Secondary External Power, PTB2	M	I/O Expansion Chassis Sub-Panel Assembly	W	Universal I/O (UIO) Modules
D	Fiber Optic Patch Panel (customer supplied)	N	Shield Earthing Bar	X	Fan Tray Assembly
E	Protective Earthing Bar (Safety Ground)	O	Field Wire Duct	Y	Wall-Mounting Bracket
F	Power Sub-Panel Assembly	P	ETP Sub-Panel Assembly	Z	Door Switch
G	Alarm Terminals	Q	Pluggable Conditioning Modules (PCMs) ^(a)	AA	Auxiliary Sub-Panel Assembly
H	System Power Terminals, 24 VDC	R	External Termination Panels (ETPs) ^(b)	BB	External Field Power Termination (optional)
I	Power Supply Units (System and Field)	S	Lifting Ring	CC	Multi-cable Transit Frames (optional)
J	Wire Duct	T	I/O Bus Interface Modules	DD	Functional Earthing Terminal

(a) Phoenix Contact PCMs shown

(b) Phoenix Contact ETPs shown

DELIVERY OPTIONS

The Schneider Electric BuyAutomation website provides a tool to configure an SIE to your requirements.

To access the tool, sign in to the BuyAutomation website, type "TCX" in the Configure model box, and then click the double-arrow button next to the box.

Table 1. Supported Modules

Triconex Model Number	Description
3902AX/3902X	Universal I/O Module (UIO Module)
4701X	I/O Bus Interface Module Serial-Serial (IMSS), RS-485 Serial Communication
4703X	I/O Bus Interface Module Fiber-Fiber (IMFF), Single Mode (SM) or Multi-Mode (MM) Fiber Optic Communication

Table 2. Supported Optional Third-Party Products

Part Description	Manufacturer	Manufacturer Part Number
<i>External Termination Panels (ETPs)</i>		
VIP/MSTB/D50M/BASE/16CH/CX/EX (ETP) ^(a)	Phoenix Contact	2908788
ETP, SIL 3, 16 I/O Points for Tricon CX 3902AX/3902X UIO Module ^(b)	GM International	TB-D5016-TRI-010
<i>Pluggable Conditioning Modules (PCMs)</i>		
Pass-Through Module, Any I/O Type, NIS, SIL 3, 2-Wire	GM International	D6001S
Pass-Through Module, Any I/O Type, NIS, SIL 3, 2- or 3-Wire	GM International	D6004S
IOA FEED-THRU/EX (ETP IOA Feed-Through Module)	Phoenix Contact	2906598
Safety Relay, 2xNC, Normally Energized or De-energized, LFD, SIL3	Phoenix Contact	2702971
AIH, IS, SIL 3, 4-20 mA, 2-Wire Active/Passive, HART	GM International	D5014S
AIH, NIS, SIL 3, 3/4-Wire Active, 4-20 mA, 200 mA Transmitter Power, HART	GM International	D6017SK
AOH, IS, SIL 2, 4-20 mA, HART, LFD	GM International	D5020S
DI, IS, SIL3, Switch/Proximity, Transistor Out, LFD,	GM International	D5031S
SDI, IS, SIL3, Switch/Proximity, Line Monitor Out, LFD, FM	GM International	D5038SB

Table 2. Supported Optional Third-Party Products (continued)

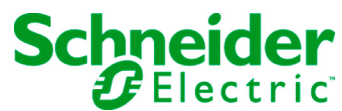
Part Description	Manufacturer	Manufacturer Part Number
DI, NIS, SIL3, 24 TO 220 VAC/VDC Switch, Transistor Out	GM International	D5093S
SDO, IS, SIL 3, Bus Powered, NE Load, LFD, FM	GM International	D5049S
DO, NIS, SIL 3, Relay Output, NE Load	GM International	D5090S ^(c)
DO, NIS, SIL 3, Relay Output, ND Load	GM International	D5091S ^(c)
SDO NIS, SIL 3, Relay Output, NOContact, NE or F&G/ND Load, LFD, FM	GM International	D5096S ^(c)
SDO, NIS, SIL 3, Relay Output, NC Contact, NE or F&G/ND Load, LFD, FM	GM International	D5097S ^(c)
AI, IS, SIL 2, TC/RDT, Temperature Converter 4-20 mA	GM International	D5072S-099

(a) For use with Phoenix Contact PCMs

(b) For use with GM International PCMs

(c) Operational voltage range of 22.3–31.9 V; Recommended field power of 26.2–26.6 V

Abbreviation	Description	Abbreviation	Description
AI	Analog Input	LFD	Line and Load Fault Detection
AIH	Analog Input with HART	NC	Normally Closed
AOH	Analog Output with HART	ND	Normally De-energized
DI	Digital Input	NE	Normally Energized
DO	Digital Output	NIS	Not Intrinsically Safe
F&G	Fire and Gas	NO	Normally Open
FM	Fault Mirroring	SDI	Supervised Digital Input
IS	Intrinsically Safe	SDO	Supervised Digital Output



Schneider Electric
70 Mechanic Street
Foxboro, Massachusetts 02035-2040
United States of America
<https://www.se.com>

Global Customer Support
Website: <https://pasupport.se.com>

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