CTO CSLS Field Enclosure

- Delivers Electronic Marshalling enabled by CHARacterization Module (CHARM) technology
- Reduce system footprint
- Eliminate I/O home run cables
- Significantly reduce cabinet design engineering
- Fully documented package

Introduction

The DeltaV™ Configure-To-Order (CTO) CHARM Smart Logic Solver (CSLS) Field Enclosures provide an off-the-shelf solution for faster project execution and reduced installation costs. CTO CSLS Field Enclosures are factory tested and ready for installation in the field. Electronic Marshalling eliminates traditional I/O design tasks and allows field wiring to start long before safety strategies are finalized.

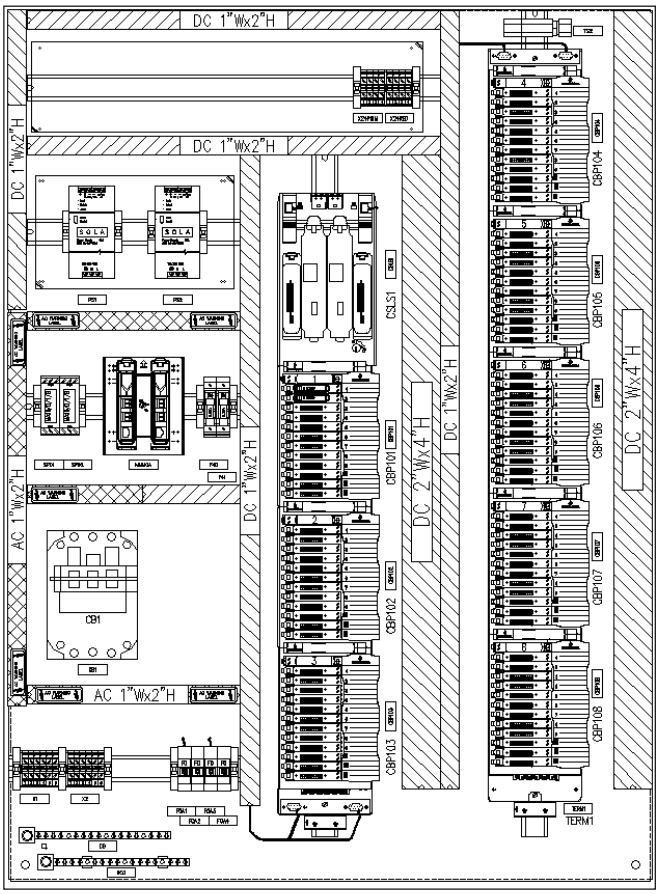
The field enclosures are designed for safe or hazardous areas and harsh environments, from extreme temperatures to corrosive gases.

Benefits

Delivers Electronic Marshalling enabled by CHARMs technology: The CSLS Field Enclosures offer the full benefits of Electronic Marshalling. The individual channels can be defined for any combination of field signal type, as required by the process equipment. This allows for 100% utilization of channels, regardless of the I/O signal mix. Late changes are easily accommodated with minimal re-engineering and no rewiring.

Reduce system footprint: Equipment room footprint is greatly reduced by replacing traditional marshalling cabinets with field mounted I/O cards.

Eliminate I/O home run cables: Field instrumentation wiring is reduced to the signal pair that connects the field device to the Field Enclosure. Save on home run multi-core cables, cable trays, associated engineering and documentations.



CTO CSLS Field Enclosure.

Significantly reduce cabinet design engineering: The CSLS Field Enclosures are pre-engineered and factory tested. The I/O flexibility allows the same design to serve a wide variety of I/O signals, conditioned individually by the CHARM. Field wiring design is complete at the terminal block.

Fully documented package: Each Field Enclosure is supplied with full documentation and engineering drawings showing internal lay-out, bill of materials and internal wiring. They are designed to meet local building code and industry best practices in order to deliver proven functionality with minimal costs.

Product Description

The CTO CSLS Field Enclosures offering comprises a range of pre-engineered solutions based on industry standard, wall mounting enclosures that are available in AC-powered versions with space for 96 Logic Solver (LS) CHARM I/O depending on the model chosen.

The designs have considered specific requirements related to outdoor installation in the field, including environmental protection, heat dissipation, power and grounding requirements, and installation in hazardous areas.

All components are prewired and tested at the factory. Simply select the required DeltaV SIS Electronic Marshalling equipment and the enclosure is ready to install, connect the field wiring, power and network cables. Install needed CHARMs to commission your loops and autosense the hardware into your DeltaV Process Safety system.

Before delivery, each field enclosure undergoes a full in-house inspection and test, to assure that it is fully operational before leaving the factory. Electronic Marshalling eliminates the need for custom designs. These enclosures can be ordered and delivered directly together with the DeltaV SIS Electronic Marshalling equipment and LS CHARM I/O to site to begin field wiring (Factory Acceptance Test [FAT] may be optional).

The CTO CSLS Field Enclosures are configured by selecting a base enclosure model and required options to meet specific project needs.

A range of base enclosure models are available:

- For different I/O quantities: at present up to 96 I/O's.
- For different electrical codes/regulations (world areas): Europe and US/Canada.

Each base model is further explained in the coming sections.

Configurable options include the type of LS CHARMS (I.S. or non I.S.), enclosure material, cable entry, nameplate engraving, injected power, heater, etc.

System Planning

Electronic Marshalling changes the game with respect to safety system I/O planning. Within the confines of a field enclosure, the field I/O wiring can be designed independently from the safety logic.

- Count the I/O requirements and determine the number of CSLS Field Enclosures you need.
- Determine whether the enclosure is for a safe area or hazardous area.
- Plan the power distribution and install the enclosures.
- Wire the field devices and commission them.

CSLS Field Enclosures

All CSLS Field Enclosures come with the following equipment installed:

- Power distribution and isolation components for primary and secondary 24 VDC Power to CSLS.
- Surge Protection Devices (SPD) to ensure high AC supply integrity (NOTE: for European Hazardous area enclosures the Surge Protection Devices are mounted in an additional external enclosure).
- AC power feeds with redundant AC/DC 24 VDC bulk power supplies.
- Halogen-Free wire ducts.
- Grounding bars for CG (Chassis Ground) and DC Reference Ground.
- Removable Gland Plate (5mm)

The CTO CSLS Field Enclosures support only LS low voltage CHARM I/O types.

CSLS, Logic Solver CHARM terminal blocks, Power Modules, other than standard LS CHARM terminal blocks and Logic Solver CHARMs are not included and are to be ordered separately

CTO Options

For a particular base enclosure model, a number of pre-engineered CTO options can be specified.

These options include:

- Type of LS CHARMS (IS or Non-IS) :
  96IO (Non-IS) / 96IO (IS) / 96I/O with 60IO (IS) + 36IO (Non-IS).

  Actual CHARMs to be ordered separately.
- Enclosure material: powder coated steel, stainless steel SS304 or SS316L . Stainless Steel provides protection for corrosive environments (category NEMA4X). SS316L provides superior corrosive protection and is typically applied in off-shore applications (salt resistant).
- Pre-drilled bottom entry with Nickel Plated Brass wire glands for I/O, power, communications, and grounding cables. With standard drill pattern (with stop plugs). Or cable transit system with flexible cable gland blocks that are installed in a cable entry frame.
- Name plate engraved with custom supplied cabinet identification information.
- 24 VDC power distribution for injected power or 4-wire transmitter power: 8 or 12 fused circuits, prewired to all base plates. (Selecting this option, upgrades the power supplies and includes a redundancy diode to bring primary and secondary power feeds to a common injected power distribution).
- Heaters, for extreme low temperature installations.
- Ethernet : Copper for Safety Network Port (SNP), Fiberoptic.
- Warning label languages other than standard English, French, Spanish, and German.

All CTO options are implemented, tested, and shipped to site as one package, significantly reducing the required upfront design and certification effort.

The following sections provides a more detailed specification for the CTO CSLS Field Enclosures and available options.

Overview of CTO CSLS (CHARMs Smart Logic Solver) Field Enclosures – Base Models:

Base Model #	Description	# LS CHARM IO	Power Requirements (Pri and Sec)	Permitted Location / World Area
EU-FE-96-AC-CSLS-SA	AC Powered Field Enclosure for 96 LS CHARM I/O; CE; Safe Area Locations.	96	120/230 VAC	Safe Area CE (Europe)
EU-FE-96-AC-CSLS-HA	AC Powered Field Enclosure for 96 LS CHARM I/O; CE; ATEX, IECEx , Zone 2 Locations.	96	120/230 VAC	Hazardous Area ATEX /IECEx Zone 2 (Europe)
EU-FE-AC-SPD-HA	Filter/Surge Protection Device Enclosure; CE; ATEX, IECEx, Zone 2 Locations.	n/a	120/230 VAC	Hazardous Area ATEX/ IECEx Zone 2 See NOTE 1
NA-FE-96-AC-CSLS-SA	AC Powered Field Enclosure for 96 LS CHARM I/O. NEC/CEC Ordinary Locations.	96	115 VAC	See NOTE 1 (US/Canada)
NA-FE-96-AC-CSLS-HA	AC Powered Field Enclosure for 96 LS CHARM I/O. NEC/CEC Hazardous Locations; Class I, Division 2; Class I, Zone 2.	96	115 VAC	See NOTE 1 (US/Canada)

Overview of CTO CSLS Field Enclosures.

The CTO base model reference for CHARM field enclosures uses the following naming convention: "XX-FE-XX-XX-XXXX-XX", where "XX" is a short description of the content and purpose of the field enclosure. This description contains:

NA: Indicates the enclosure can be installed and used based on NEC/CEC Standards (US and Canada).
EUR: Indicates the enclosure can be installed and used based on EC/CE Standards (European).
96: indicates number of charm slots in this field enclosure.
AC: Indicates incoming current.
SPD/CSLS: Indicates Surge Protection Device enclosure or CSLS (CHARMs Smart Logic Solver) field enclosure.
HA: when the enclosure can be installed in Hazardous Area locations.
SA: when the enclosure can be installed in Safe Area locations.

NOTE 1: Required to house the Surge Protection Devices for EU-FE-96-AC-CSLS-HA field enclosure for Hazardous Area installations.

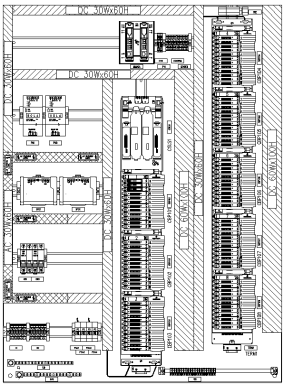
Overview of CTO CSLS Field Enclosures Options:

Base Model	EU-FE-96-AC-CSLS-SA	EU-FE-96-AC-CSLS-HA	NA-FE-96-AC-CSLS-SA	NA-FE-96-AC-CSLS-HA
#CHARM I/O	**96IO**	**96IO**	**96IO**	**96IO**
Power Input (110 VAC / 24 VDC)	AC	AC	AC	AC
Location (Safe Area -SA, Hazardous Area - HA)	SA	HA	SA	HA
Certification as per World Area	CE	ATEX	cCSAus	cCSAus

Enclosure Options				Enclosure Options	Options Selection			
Enclosure Material	**A**	**1**		Stainless Steel SS304 with single gland plate	●	●	●	●
		2		Stainless Steel SS316L with single gland plate	o	o	o	o
Cable Entry	**B**	**1**		Undrilled Gland Plate	●	●	●	●
		2		Gland Plate with Standard Drill Pattern	o	o	o	o
		3		Gland Plate with Roxtec Glands	o	o	o	o
Type of CHARMs	**C**	**1**		96IO - NONIS	●	●	●	●
		2		96IO - IS	o	o	o	o
		3		60IO (IS) + 36IO (NONIS)	o	o	o	o
24 VDC Injected power	**D**	**1**		No (10A Power Supply)	●	●	●	●
		2		Yes (12 Circuits - 20Amp Power Supply + Diode)	o	o	o	o
Ethernet - Safety Network	**E**	**1**		Multimode Fibre Optic w / Adapter	●	●	●	●
		2		Multimode Fibre Optic w / Splice Cassettes	o	o	o	o
		3		Single-mode Fibre Optic w / Adapter	o	o	o	o
		4		Single-mode Fibre Optic w / Splice Cassettes	o	o	o	o
		5		Copper	o	o	o	o
Heater	**F**	**1**		No	●	●	●	●
		2		Single Heater	o	o	o	o
		3		Three Heaters	o	o	o	o
Surge Protection Device	**G**	**1**		No	-	-	-	-
		2		Yes	●	●	●	●
Warning Label Languages	**H**	**1**		English + French + German + Spanish	●	●	●	●
		2		English + French + German + User Specific Language	o	o	o	o
		3		English + French + Spanish + User Specific Language	o	o	o	o
SZ Controller	**I**	**1**		No	●	●	●	●
		2		Yes (reduces qty of CHARM baseplatesby qty 2)	o	o	o	o

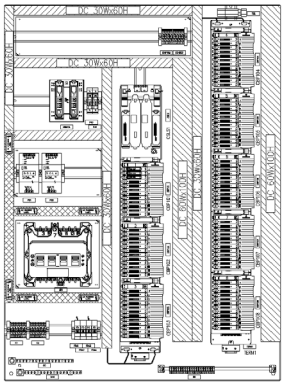
LEGENDS:

- ● Default Option Setting
- o Configure to option setting. (Different from Default)
- **NA** Option setting not possible for Base Enclosure Model
- Intentionally kept blank for user to fill as per configuration choice

EU-FE-96-AC-CSLS-SA	
Material (*)	Stainless Steel SS304, 1.5 mm
Dimensions	915 mm (W) x 1220mm (H) x 475 mm (D)
Access	Single door, left hand hinged
Protection Category (*)	IP 66 –Type 4X (Corrosive Environment)
Cable Entry (*)	Bottom, single gland plate
Name Plate (*)	Outside Door: laser engraved plastic
Weight	~175 kg
Certifications	CE, installation in Safe Area Locations. Refer to sheet 11 for designs considerations.
Power Requirements – Internal Power Distribution (*)	Primary and secondary 120/230 VAC power supply supplied from outside the Field Enclosure. Redundant 120/230 VAC distribution through power terminals, circuit breakers, and surge protection devices (SPDs). 24 VDC bulk power supplies: 2 x 10A and fully redundant (primary and secondary) 24 VDC distribution.
Control Network (*)	Redundant Ethernet connections through CSLS carrier Safety Network Ports (SNP). Copper twisted pair 10/100Base-TX with RJ45 connectors. Full duplex maximum operating distance – 100 m. **Fiber Optic control network Includes:** FO to Copper Converter (MM or SM), SC adaptors, SC-LC FO patch cables, Multimode 50/125-micron core/cladding diameters (OM2) or Single mode 9/125-micron cable.
Example Layout and Installed DeltaV SIS CHARM Equipment (*) 	This field enclosure has space for 96 LS CHARM I/O channels, including: ■ 1 x CSLS Carrier with Redundant Copper CSLS. ■ Safety Network Ports. ■ 8 x LS CHARM Baseplates and Address Plugs. ■ 96 x LS CHARM Standard Terminal Blocks - Screw Type. ■ Baseplate and Channel Identifier Labels. ***No DeltaV SIS equipment is included in the base model. All DeltaV SIS equipment is to be specified separately through the Emerson quoting tools.***
Other	Mounting plate, Halogen-Free wire ducts, external wall mounting brackets, door clamps, ground bars, external grounding bolt, drip edge, breather-drain.

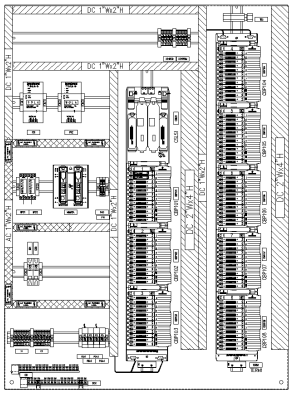
(*) Specifications given for the base model with default options. For other available configurations: see Overview of CTO CSLS Field Enclosure Options.

Specifications for EU-FE-96-AC-CSLS-SA.

EU-FE-96-AC-CSLS-HA	
Material (*)	Stainless Steel SS304, 1.5 mm
Dimensions	915 mm (W) x 1220mm (H) x 475 mm (D)
Access	Single door, left hand hinged.
Protection Category (*)	IP 66 –Type 4X (Corrosive Environment)
Cable Entry (*)	Bottom, single gland plate
Name Plate (*)	Outside Door: laser engraved plastic
Weight	~175 kg
Certifications	ATEX, IECEx; Ex d e ic nA nC [op is Ga] IIC T4 Gc for NON-IS CHARMS ATEX, IECEx; Ex d e [ia Ga] [ic] nA nC [op is Ga] IIC T4 Gc for IS CHARMS Refer to sheet 11 for designs considerations.
Power Requirements – Internal Power Distribution (*)	Primary and secondary 120/230 VAC power supply supplied from outside the Field Enclosure via an external Surge Protection Enclosure (EU-FE-AC-SPD-HA). Redundant 120/230 VAC distribution through power terminals, and circuit breakers. 24 VDC bulk power supplies: 2 x 10A and fully redundant (primary and secondary) 24 VDC distribution. In separate enclosure: surge protection devices (SPDs).
Control Network (*)	Redundant Ethernet connections via CSLS carrier Safety Network Ports (SNP). Copper twisted pair 10/100Base-TX with RJ45 connectors. Full duplex maximum operating distance – 100 m. **Fiber Optic control network Includes:** FO to Copper Converter (MM or SM), SC adaptors, SC-LC FO patch cables, Multimode 50/125-micron core/cladding diameters (OM2) or Single mode 9/125-micron cable.
Example Layout and Installed DeltaV SIS CHARM Equipment (*) 	This field enclosure has space for 96 LS CHARM I/O channels, including: ■ 1 x CSLS Carrier with Redundant Copper CSLS. ■ Safety Network Ports. ■ 8 x LS CHARM Baseplates and Address Plugs. ■ 96 x LS CHARM standard terminal blocks - Screw type. ■ Baseplate and Channel Identifier Labels. ***No DeltaV SIS equipment is included in the base model. All DeltaV SIS equipment is to be specified separately through the Emerson quoting tools.*** ***Separate SPD enclosure EU-FE-AC-SPD-HA required to be ordered with this model.***
Other	Mounting plate, Halogen-Free wire ducts, external wall mounting brackets, door clamps, ground bars, external grounding bolt, drip edge, breather-drain.

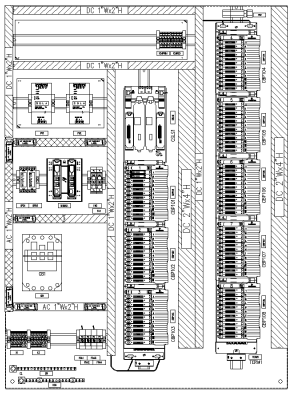
(*) Specifications given for the base model with default options. For other available configurations: see Overview of CTO CSLS Field Enclosure Options.

Specifications for EU-FE-96-AC-CSLS-HA.

NA-FE-96-AC-CSLS-SA	
Material (*)	Stainless Steel SS304, 1.5 mm
Dimensions	915 mm (W) x 1220mm (H) x 475 mm (D)
Access	Single door, left hand hinged
Protection Category (*)	IP 66 –Type 4X (Corrosive Environment)
Cable Entry (*)	Bottom, single gland plate
Name Plate (*)	Outside Door: laser engraved plastic
Weight	~175 kg
Certifications	cCSAus for Ordinary Locations. Refer to sheet 11 for designs considerations.
Power Requirements – Internal Power Distribution (*)	Primary and secondary 115 VAC power supply supplied from outside the Field Enclosure. Redundant 115 VAC distribution through power terminals, circuit breakers, and surge protection devices (SPDs). 24 VDC bulk power supplies: 2 x 10A and fully redundant (primary and secondary) 24 VDC distribution.
Control Network (*)	Redundant Ethernet connections via CSLS carrier Safety Network Ports (SNP). Copper twisted pair 10/100Base-TX with RJ45 connectors. Full duplex maximum operating distance – 100 m. **Fiber Optic control network Includes:** FO to Copper Converter (MM or SM), SC adaptors, SC-LC FO patch cables, Multimode 50/125-micron core/cladding diameters (OM2) or Single mode 9/125-micron cable.
Example Layout and Installed DeltaV SIS CHARM Equipment (*) 	This field enclosure has space for 96 LS CHARM I/O channels, including: ■ 1 x CSLS Carrier with Redundant Copper CSLS. ■ Safety Network Ports. ■ 8 x LS CHARM Baseplates and Address Plugs. ■ 96 x LS CHARM standard terminal blocks - Screw type. ■ Baseplate and Channel Identifier Labels. ***No DeltaV SIS equipment is included in the base model. All DeltaV SIS equipment is to be specified separately through the Emerson quoting tools.***
Other	Mounting plate, Halogen-Free wire ducts, external wall mounting brackets, door clamps, ground bars, drip edge, breather-drain.

(*) Specifications given for the base model with example options. For other available configurations: see Overview of CTO CSLS Field Enclosure Options.

Specifications for NA-FE-96-AC-CSLS-SA.

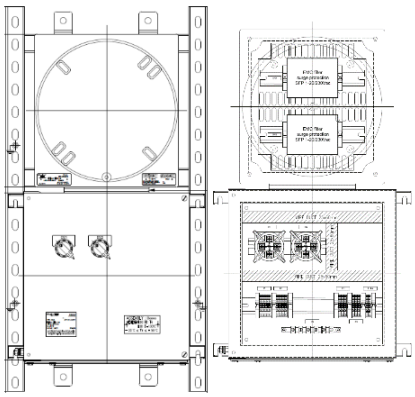
NA-FE-96-AC-CSLS-HA	
Material (*)	Stainless Steel SS304, 1.5 mm
Dimensions	915 mm (W) x 1220mm (H) x 475 mm (D)
Access	Single door, left hand hinged
Protection Category (*)	IP 66 –Type 4X (Corrosive Environment)
Cable Entry (*)	Bottom, single gland plate
Name Plate (*)	Outside Door: laser engraved plastic
Weight	~175 kg
Certifications	cCSAus for Hazardous Locations; Non-IS CHARMS: Class I, Division 2, Groups B, C and D; Class I, Zone 2, A/Ex e d ic nA nC IIB+H2 T4 Gc IS CHARMS: Class I, Division 2, Groups A, B, C and D; Class I, Zone 2, A/Ex e d ic nA nC [ia IIC Ga] [ic IIC Gc] IIB+H2 T4 Gc Refer to sheet 11 for designs considerations.
Power Requirements – Internal Power Distribution (*)	Primary and secondary 115 VAC power supply supplied from outside the Field Enclosure. Redundant 115 VAC distribution through power terminals, circuit breakers, and surge protection devices (SPDs). 24 VDC bulk power supplies: 2 x 10A and fully redundant (primary and secondary) 24 VDC distribution.
Control Network (*)	Redundant Ethernet connections via CSLS carrier Safety Network Ports (SNP). Copper twisted pair 10/100Base-TX with RJ45 connectors. Full duplex maximum operating distance – 100 m. **Fiber Optic control network Includes:** FO to Copper Converter (MM or SM), SC adaptors, SC-LC FO patch cables, Multimode 50/125-micron core/cladding diameters (OM2) or Single mode 9/125-micron cable.
Example Layout and Installed DeltaV SIS CHARM Equipment (*) 	This field enclosure has space for 96 LS CHARM I/O channels, including: ■ 1 x CSLS Carrier with Redundant Copper CSLS. ■ Safety Network Ports. ■ 8 x LS CHARM Baseplates and Address Plugs. ■ 96 x LS CHARM standard terminal blocks - Screw type. ■ Baseplate and Channel Identifier Labels. ***No DeltaV SIS equipment is included in the base model. All DeltaV SIS equipment is to be specified separately through the Emerson quoting tools.***
Other	Mounting plate, Halogen-Free wire ducts, external wall mounting brackets, door clamps, ground bars, external grounding bolt, drip edge, breather-drain.

(*) Specifications given for the base model with example options. For other available configurations: see Overview of CTO CSLS Field Enclosure Options.

Specifications for NA-FE-96-AC-CSLS-HA.

Filter/Surge Protection System Enclosure

CTO CSLS Field Enclosures implement the Highest Integrity Design in Power, Grounding, and Surge Suppression. This is achieved through redundant power supplies and the additional usage of a Filter/Surge Suppression System.

EU-FE-AC-SPD-HA	
Material	Ex d Enclosure: Aluminium Ex e Enclosure: Stainless Steel 316L
Dimensions	448 mm (W) x 853 mm (H) x 289 mm (D)
Access	Via screw fixed cover to termination enclosure
Protection Category	IP 66 to IEC 60 529
Operating Temperature Range °C	-20°C ... 50°C
Cable Entry	Bottom
Name Plate	Laser engraved plastic
Weight	~40 Kg.
Certifications	ATEX, Ex II2GD IIC T4 Refer to sheet 11 for designs considerations
Power Requirements – Internal Power Distribution	Primary and secondary 120/230 VAC power supply supplied from outside the enclosure
Layout and Installed Equipment 	Assembly including: ■ 2 x Phoenix Contact Surge Protection Devices.
Other	Mounting plate, Halogen-Free wire ducts, external wall mounting brackets, ground bar, disconnect switches, terminals.

Specifications for EU-FE-AC-SPD-HA.

Design Considerations

Environmental Specifications

With the three heater option this can be extended to -40 to +50 degrees C.

The humidity specification for the CTO field enclosures is 5-95% relative humidity, none condensing.

The CTO CSLS Field Enclosures are verified for typical heat load, to cover most use cases. The table below specifies the ambient temperature limits and the impact of CTO options: assuming wall-mount installation (back side not used for heat dissipation), installation in shaded area (no direct sunlight) and an internal heat dissipation not greater than the value specified in the column "Maximum allowed heat dissipation inside the enclosure".

CTO Enclosure Model	Maximum allowed heat dissipation inside the enclosure	User Configurable Heat contributing options			Total Dissipation (A + B + C)	CSLS Heat Dissipation (W)	Maximum allowable heat load for CHARM HW
		A	B	C			
		Ethernet	Inj. Power	Power Supply			
EU-FE-96-AC-CSLS-SA	160	FO	NO	10 Amp	40.4	18	101.6
		FO	YES	20 Amp	62.2		79.8
		COPPER	NO	10 Amp	24		118
		COPPER	YES	20 Amp	45.8		96.2
NA-FE-96-AC-CSLS-SA	160	FO	NO	10 Amp	40.4	18	101.6
		FO	YES	20 Amp	62.2		79.8
		COPPER	NO	10 Amp	24		118
		COPPER	YES	20 Amp	45.8		96.2
EU-FE-96-AC-CSLS-HA	160	FO	NO	10 Amp	40.4	18	101.6
		FO	YES	20 Amp	62.2		79.8
		COPPER	NO	10 Amp	24		118
		COPPER	YES	20 Amp	45.8		96.2
NA-FE-96-AC-CSLS-HA	160	FO	NO	10 Amp	40.4	18	101.6
		FO	YES	20 Amp	62.2		79.8
		COPPER	NO	10 Amp	24		118
		COPPER	YES	20 Amp	45.8		96.2

NOTES:

1. The maximum heat dissipation values in above table are worst case: assuming a maximum load of the power supplies. Power supply loading is maxed at 80% rating.

2. Minimum temperature rating will change to -25°C for injected power option.

3. Minimum temperature rating will change to -40°C and humidity specification changes to 90% R.H. N.C. with heater option selected.

CSLS Supply Fuse

For the ATEX/IECEx certified enclosures installed in Hazardous Areas with IS CHARMs installed, the CSLS supply fuse is limited to 10Amps due to ATEX certification restrictions on the fuse holder. It is advised to perform 24 VDC power requirement calculations for each individual enclosure with the actual quantity and mix of CHARM types. This is only required for the ATEX/IECEx certified CTO models.

For the other CTO field enclosure models the CSLS supply fuse is 20Amps.

Enclosure Location

The ambient temperature specification provided assumes the enclosure is not exposed to direct sunlight. It is recommended to mount the field enclosures in a permanently shaded area.

Project Customizations

"...What if a CTO Field Enclosures is 90% what I need, but I really need my Field Enclosure to have...

Minor customizations as a variation or addition to the standard CTO offering can often be developed in such a way that the additional effort is incremental.

In case your project would require a customer witnessed Factory Acceptance Test, this can also be accommodated.

Please work with your local Emerson Sales office or regional Emerson assembly center to evaluate any impacts of requested customizations to cost, delivery time and certifications.

System Compatibility

CTO Field Enclosures are compatible with DeltaV version 12.3.x or later software.

DeltaV SIS with Electronic Marshalling hardware requires:

- DeltaV SIS v12.3 or later software.
- SZ Controllers.
- CSLS LS-CHARMs.
- DeltaV SIS Smart Switches.
- AC power filter/suppressor.

Certifications

The CTO CSLS Field Enclosures are designed with components that meet or exceed the following certifications. Depending on the enclosure type (see specs):

- CE
  - EN 61326-1:2013 , EN 61010-1 :2010
- ATEX
  - EN 60079-0:2012/A11:2013, EN 60079-1:2007, EN 60079-7:2007,
  - EN 60079-11:2012, EN 60079-15:2010, EN 60079-28:2015
- IECEx
  - IEC 60079-0:2011 Ed. 6, IEC 60079-1: 2007 Ed 6
  - IEC 60079-7: 2007 Ed 4, IEC 60079-11:2011 Ed 6
  - IEC 60079-15:2010 Ed 4, IEC 60079-28:2015 Ed 2
- cCSAus Ordinary Locations
  - CAN/CSA C22.2 No. 61010-1-2012
  - UL 61010-1-12 (3rd Edition)
- cCSAus Hazardous Locations
  - CAN/CSA C22.2 No. 60079-0: 2015
  - CAN/CSA C22.2 No. 60079-1: 2011
  - CAN/CSA C22.2 No. 60079-7: 2012
  - CAN/CSA C22.2 No. 60079-15: 2012
  - CAN/CSA C22.2 No. 60079-11: 2014
  - C22.2 No. 213-M1987
  - UL 60079-0: 2013
  - UL 60079-1: 2015
  - UL 60079-7: 2008
  - UL 60079-11: 2013
  - UL 60079-15: 2013
  - ANSI/ISA 12.12.01: 2013

Refer to the **DeltaV SIS Electronic Marshalling** or to the **DeltaV SIS IS Electronic Marshalling** Product Data Sheet for certification information on the DeltaV Process Safety system components.

Related Products

- CSLS Carrier must be ordered separately.
- CSLS must be ordered separately.
- LS CHARM Baseplates must be ordered separately.
- LS CHARMs and non-standard terminal blocks must be ordered separately.

How to order a CTO CSLS Field Enclosure?

CTO CSLS Field Enclosures are pre-engineered solutions developed by Emerson's Project Management Office (PMO) and made available from Emerson Supply Chain.
To obtain a CSLS Field enclosure follow the below steps:

1. Specify the CSLS Field Enclosure by selecting the base model and the options required for the project. A Configuration tool is available to aid in the selection of the right combination of options for your CTO field enclosure.
2. Generate the specification sheet from the configuration tool and send this to your world area contact.
3. Based on the specification, you will then receive:
   - A quotation for the fully assembled Field Enclosure.
   - The detailed specification (drawing package) matching your configuration, including the Bill of Materials.
4. Approve the drawing package for construction.
5. Order the CSLS Field Enclosure as per provided quotation and approved drawings.
6. The Field Enclosure is assembled, tested and delivered according to your order. The delivery includes the as-built drawing package (AutoCAD).

For questions related to specific project quotations or order processing, please contact your local Emerson Sales office or your regional Emerson assembly center:

For US/Canada (NASAD):
iCenterSTL.Quotes@Emerson.com

For Europe iCenter Cluj:
Cabinets.Quotes@Emerson.com

For Asia Pacific Singapore iCenter:
iCenterSGPQuotes@Emerson.com

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