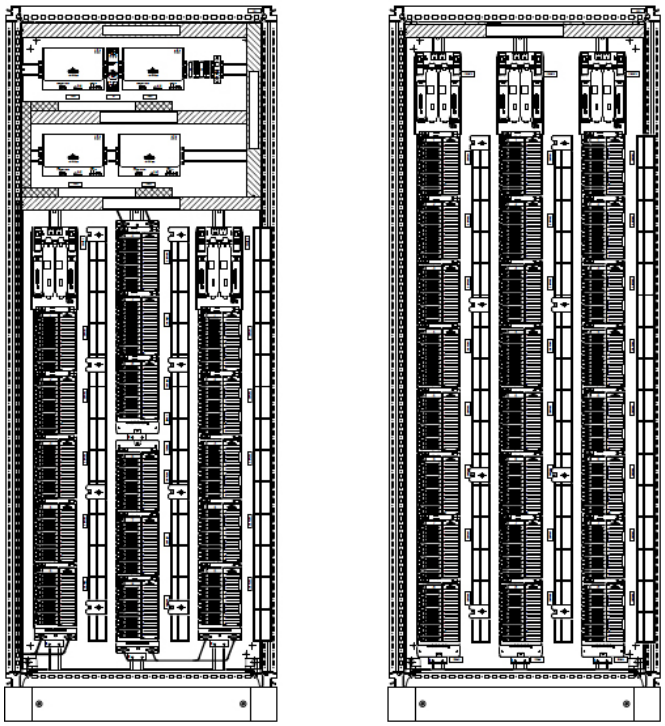
DeltaV SIS™ CTO CSLS CHARM Cabinets

(US/Canadian Standards)



CTO CSLS CHARM Cabinet.

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

Introduction

The DeltaV SIS™ Configure-To-Order (CTO) CHARMs Smart Logic Solver (CSLS) Cabinets provide an off-the-shelf solution for faster project execution and reduced installation costs.

CTO CSLS Cabinets are factory tested and ready for installation in technical rooms. Electronic Marshalling eliminates traditional I/O design tasks and allows field wiring to start long before safety strategies are finalized.

Benefits

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

Reduced system footprint: Equipment room footprint is reduced by eliminating the traditional marshalling cabinets with cross wiring to traditional I/O cards.

Significantly reduce cabinet design engineering: The CTO CSLS cabinets 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 cabinet 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 CHARM Cabinets offering comprises a range of pre-engineered solutions based on industry accepted standard cabinet / enclosures, preinstalled with CHARM I/O and related equipment, ready to be installed in an equipment room and connected to safety instrumentation or equipment.

The cabinets are typical, free standing enclosures intended for floor mounting in equipment room areas, where temperature and humidity are controlled within the requirements for computer/electronic equipment. They come ready to receive incoming available plant AC power. All internal wiring to power distribution components and grounding conductors has been tested at the factory.

Before delivery, each cabinet undergoes a full in-house inspection, to assure that it is fully operational before shipping directly to site. Electronic Marshalling eliminates the need for any internal cross wiring and I/O rationalization there is typically no need for FAT at a staging facility.

These cabinets 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 (FAT may be optional).

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

Base enclosure models are available:

- For different cabinet sizes / entry (Front Access or Front and Rear access).
- AC powered.
- NA (US/Canada) design standards and regulations.

Each base model is further explained in the coming sections.

Configurable options examples: the type of LS CHARMS (IS or non-IS), side panels, cabinet light, nameplate engraving and injected power.

- All CTO CSLS cabinets come with following equipment installed: Primary and secondary 24VDC power distribution for LS CHARM I/O CHARMs and field instrumentation.
- Wire ducts or wire basket.
- Grounding bars.
- Wiring plan pocket.
- Emerson Name Plate Holder and blank name plate insert.
- DeltaV LS CHARM I/O equipment based on your configuration (and priced separately): including CSLS carriers, CHARM base plates, standard terminal blocks, address plugs and terminals.
  - The CSLS cards and LS CHARMs are not included and are to be ordered separately.
  - The required number of (redundant) LS CHARM I/O cards and CSLS cards depends on the actual number and types of I/O that will be wired into the cabinet.

The following sections provide a more detailed specification for the CTO CSLS Cabinets and available options.

Overview of CTO CSLS Cabinets – Base Models (US/CANADIAN) Standards

Base Model Number	Description	# LS CHARM IO	Power Requirement (Pri and Sec)	Permitted Location/
NA-CAB-800F-192-AC-CSLS	AC Powered SIS Electronic Marshalling cabinet for 192 LS CHARM I/O; Front Access	192	120 VAC	Safe Area US/CANADA
NA-CAB-800F-252-AC-CSLS	AC Powered SIS Electronic Marshalling cabinet for 252 LS CHARM I/O; Front Access	252	120 VAC	Safe Area US/CANADA
NA-CAB-800FR-480-AC-CSLS	AC Powered SIS Electronic Marshalling cabinet for 480 LS CHARM I/O; Front and Rear Access	480	120 VAC	Safe Area US/CANADA
NA-CAB-800FR-504-AC-CSLS	AC Powered SIS Electronic Marshalling cabinet for 504 LS CHARM I/O; Front and Rear Access	504	120 VAC	Safe Area US/CANADA

Overview of CTO CSLS Cabinets.

The CTO base model reference for cabinets uses the following naming convention: **"NA-CAB-XXXYY-ZZZIO-IP-DDDD"**, where:

- **NA** = US/Canada Design Standards and Regulations.
- **XXX** = Cabinet width (mm), e.g. "800"
- **YY** = "**F**" for Front only access (600 mm deep), "**FR**" for Front and Rear access (800 mm deep).
- **ZZZ** = Maximum I/O's count in this CTO.
- **IP** = Incoming Power, AC=120VAC.
- **DDDD** = Short description of content and purpose.

Overview of CTO CSLS Cabinets Base Models and Available Configurable Options

LEGENDS: • Default option setting o Configure to option setting. (Different from Default) **NA** Option setting not possible for Base Enclosure Model			Base Model	NA-CAB-800F-192-AC-CSLS	NA-CAB-800F-252-AC-CSLS	NA-CAB-800FR-480-AC-CSLS	NA-CAB-800FR-504-AC-CSLS
Enclosure Options				**Option Setting**			
Enclosure Material	M	1.1	Painted Carbon Steel 800F	•	•	NA	NA
		2.1	Painted Carbon Steel 800FR	NA	NA	•	•
		13.8	SS316 800F	o	o	NA	NA
		14.3	SS316 800FR	NA	NA	o	o
Cable Entry	E	1.1	Bottom, Undrilled	•	•	•	•
		1.2	Bottom, Undrilled, Cable Clamp Rail 800F	o	o	NA	NA
		1.3	Bottom, Undrilled, Cable Clamp Rail 800FR	NA	NA	o	o
		1.4	Top, Undrilled	o	o	o	o
Utility Socket	R	1.1	No	•	•	•	•
		2.1	Yes	o	o	o	o
Enclosure Light	L	1.1	No	o	o	o	o
		2.1	Light with motion Sensor AC F	•	•	NA	NA
		3.1	Light with motion Sensor AC FR	NA	NA	•	•
Temperature Monitoring	T	1.1	No	o	o	o	o
		2.1	Thermostat	•	•	•	•
		2.3	Thermocouple wiring with CHARM	o	o	o	o
Door Fans**	F	1.1	No	o	o	o	o
		2.1	Thermostat Controlled AC F	•	•	NA	NA
		3.1	Thermostat Controlled AC FR	NA	NA	•	•

LEGENDS: • Default option setting o Configure to option setting. (Different from Default) **NA** Option setting not possible for Base Enclosure Model			**Base Model**	**NA-CAB-800F-192-AC-CSLS**	**NA-CAB-800F-252-AC-CSLS**	**NA-CAB-800FR-480-AC-CSLS**	**NA-CAB-800FR-504-AC-CSLS**
Enclosure Options				**Option Setting**			
AC Surge Protection device	S	2.1	Yes F	•	•	NA	NA
		2.2	Yes FR	NA	NA	•	•
24VDC Injected Power	IJ	1.1	No	o	o	o	o
		2.5	24VDC - 24 Circuit	•	•	•	•
CSLS Network	N	1.1	Copper	•	•	•	•
		7.2	NW Switch - 6xRJ45, 2xSC	o	o	o	o
		7.3	NW Switch - 8xRJ45	o	o	o	o
Certification	C	1.1	None	•	•	•	•
		3.1	Custom CSA; Ordinary Location	o	o	o	o

** Door fan option is possible only with Painted Carbon Steel cabinet. This option is not applicable for SS316 cabinet.

I/O Type Selection:

1. Selection for required qty of CSLS and LS CHARM Baseplates is possible for all SIS CHARM cabinets in CCT. Selection will be limited to max. installation possible in selected cabinet model.
2. Mixing of IS and non-IS CHARM baseplate is not possible in same column.

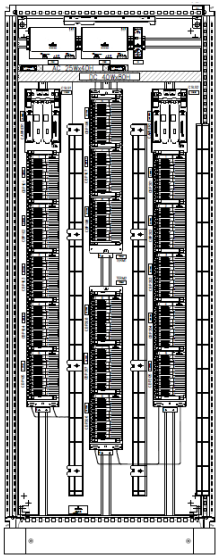
General Specifications for CTO SIS Cabinets

General Specifications for CTO SIS Cabinets	
Dimensions for Carbon Steel Cabinet	Front Only Access - 800mm (W) x 600mm (D) x 2000mm (H) + 100mm Plinth Front Rear Access - 800mm (W) x 800mm (D) x 2000mm (H) + 100mm Plinth
Dimensions for SS316 Cabinet	Front Only Access - 800mm (W) x 600mm (D) x 2000mm (H) + 300mm (H) Floor Stand Front Rear Access - 800mm (W) x 800mm (D) x 2000mm (H) + 300mm (H) Floor Stand
Access	Front Access – Single solid door on front side Front Rear Access – Single solid door on each side Right hand hinged, 3-Point Latch with keylock
Protection Category	NEMA 12 / IP54 - for Carbon Steel Cabinet NEMA 4X / IP66 - for SS316 Cabinet
Approximate Weight	Front Only Cabinet ~200 kg Front Rear Cabinet ~300 kg
Color	Cabinet RAL7035, Plinth RAL7022- for Carbon Steel Cabinet SS316 will be non-painted cabinet
Door Fans	Thermostat controlled - Set point 30°C
High Temperature Alarm	When using Thermostat for Cabinet High Temperature alarm (Recommended Set Point: 35°C)
Other	Galvanized mounting plate, grounding bars, wiring plan pocket, lifting eye bolts on top, removable gland plate
Environmental Specifications	Equipment/rack room installation (HVAC controlled), recommended ambient temperature 25°C
Certifications	Installation in Safe Area locations; Default Certification: None; Optional: CSA (US/Canada); Ordinary Location
Input Power	Primary and Secondary 120 VAC through disconnect switch
Power Supply Rating	Fixed 2 x 40A
Internal Power Distribution	AC Distribution subassembly (mounted in left side) Fully redundant 24VDC distribution for LS CHARM I/O cards and bussed field power through fused terminals (mounted in right side)
Local Safety Network	Redundant 100BASE-TX, RJ45 connectors, to be connected to each CSLS carrier. Primary and Secondary Local Safety Network to 3 CSLS carriers is included. Alternatively, Network switch can be selected as below – 1. Copper CAT5e, din rail mount; 6xRJ45, 2xSC, LSN Switch (1 for Primary NW & 1 for Secondary NW) 2. Copper CAT5e, din rail mount; 8xRJ45, LSN Switch (1 for Primary NW & 1 for Secondary NW)

CTO CSLS Cabinets Internal General Arrangement

NA-CAB-800F-192-AC-CSLS

Front Internal View



NA-CAB-800F-192-AC-CSLS

This CTO cabinet has space for:

- 2 x CSLS Carrier with redundant Copper Ethernet connectors
- Max. 16 nos. of Non-IS or IS LS CHARM Base plates as per user selection

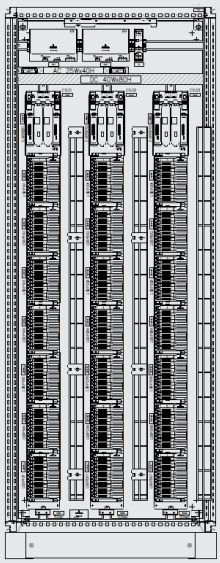
As per the selection of no. of CSLS Carriers and LS CBP, following DeltaV components will get added in BOM automatically:

- CHARM Address Plug
- CHARM Standard terminal block
- CBP Terminator
- Base Plate Identifier Labels
- Channel Identifier Labels

No active DeltaV components are included in the base model. All DeltaV active components need to be configured separately through the Emerson quoting tools.

NA-CAB-800F-252-AC-CSLS

Front Internal View



NA-CAB-800F-252-AC-CSLS

This CTO cabinet has space for:

- 3 x CSLS Carrier with redundant Copper Ethernet connectors
- Max. 21 nos. of Non-IS or IS LS CHARM Base plates as per user selection

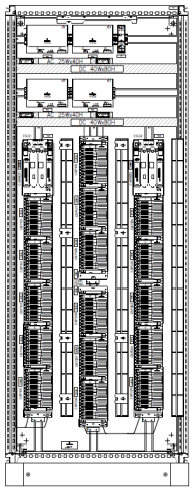
As per the selection of no. of CSLS Carriers and LS CBP, following DeltaV components will get added in BOM automatically:

- CHARM Address Plug
- CHARM Standard terminal block
- CBP Terminator
- Base Plate Identifier Labels
- Channel Identifier Labels

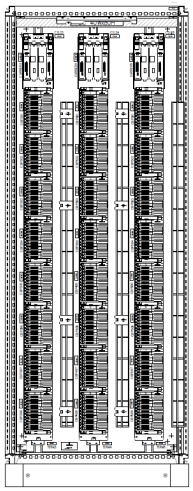
No active DeltaV components are included in the base model. All DeltaV active components need to be configured separately through the Emerson quoting tools.

NA-CAB-800FR-480-AC-CSLS

Front Internal View



Rear Internal View



NA-CAB-800FR-480-AC-CSLS

This CTO cabinet has space for:

- 5 x CSLS Carrier with redundant Copper Ethernet connectors
- Max. 40 nos. of Non-IS or IS LS CHARM Base plates as per user selection

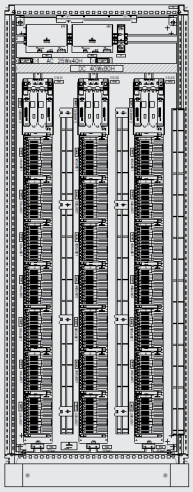
As per the selection of no. of CSLS Carriers and LS CBP, following DeltaV components will get added in BOM automatically:

- CHARM Address Plug
- CHARM Standard terminal block
- CBP Terminator
- Base Plate Identifier Labels
- Channel Identifier Labels

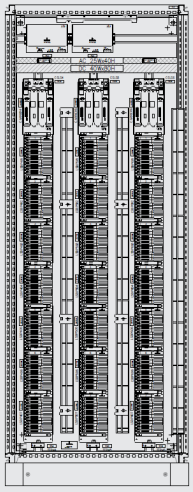
No active DeltaV components are included in the base model. All DeltaV active components need to be configured separately through the Emerson quoting tools.

NA-CAB-800FR-504-AC-CSLS

Front Internal View



Rear Internal View



NA-CAB-800FR-504-AC-CSLS

This CTO cabinet has space for:

- 6 x CSLS Carrier with redundant Copper Ethernet connectors
- Max. 42 nos. of Non-IS or IS LS CHARM Base plates as per user selection

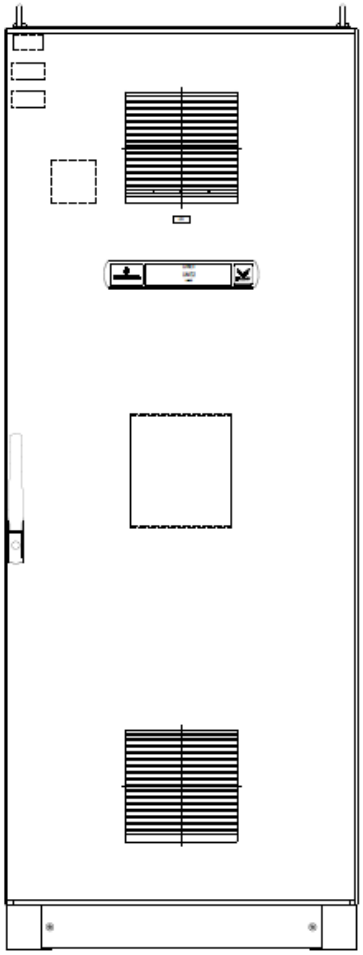
As per the selection of no. of CSLS Carriers and LS CBP, following DeltaV components will get added in BOM automatically:

- CHARM Address Plug
- CHARM terminal blocks - Screw type
- CBP Terminator
- Base Plate Identifier Labels
- Channel Identifier Labels

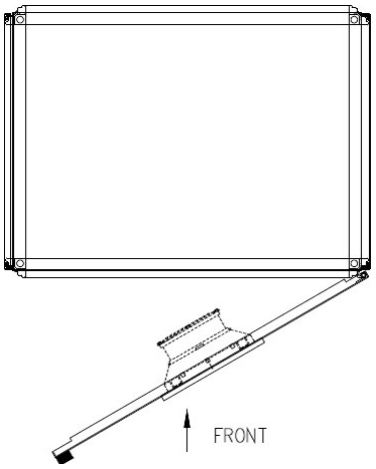
No active DeltaV components are included in the base model. All DeltaV active components need to be configured separately through the Emerson quoting tools.

External Views for Cabinets

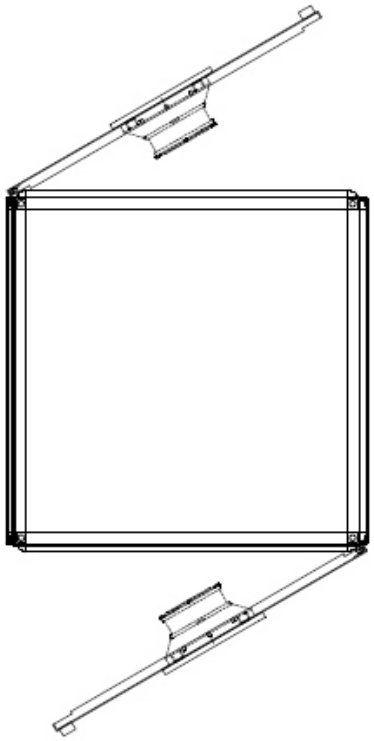
External View for Front only and Front / Rear Cabinet



External Top View for Front only Cabinet



External Top View for Front / Rear Cabinet



System Compatibility

CSLS Cabinets are compatible with DeltaV version 12.3 and above.

CSLS cards require SZ Controllers.

Certifications

The CTO CSLS CHARMs Cabinet designs are designed to meet CSA personal safety and EMC requirements. The designs have been submitted for the following certifications:

- CSA Mark for US and Canada

For US/Canada Design Standards and Regulations, the cabinet default does not come with certification. The CSA Certification is optional.

Refer to the **DeltaV SIS Electronic Marshalling** or to the **DeltaV SIS with IS Electronic Marshalling** Product Data Sheet for certification information on the DeltaV SIS system Components.

Ordering Process

CTO CSLS Cabinets are pre-engineered solutions developed by Emerson's Project Management Office (PMO) and made available from Emerson Supply Chain.

Please follow the steps below to configure and order a CTO CSLS CHARM Cabinet:

1. Specify the CTO Cabinet 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 optioned CTOs.

2. Based on the cabinet options selections done in Cabinet configuration tool (CCT), you will then receive:

- A quotation for the fully assembled Cabinet.
- The detailed specification sheet matching your configuration, including the Bill of Materials.

3. Share the generated specification sheet from the Cabinet configuration tool (CCT) with iCenter St. Louis. Based on the selected options, iCenter will provide the drawing package (PDF or AutoCAD).
4. Approve the drawing package for construction.
5. Order the CTO Cabinet as per provided quotation and approved drawings.
6. The CTO Cabinet is assembled, factory tested and delivered to site. 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 (iCenter St. Louis):
iCenterSTL.Quotes@Emerson.com

For Middle East, Asia Pacific and Africa (iCenter Nashik):
rfq_icenter.nsk@Emerson.com

Project Customizations

"...What if a CTO CHARM Cabinet is 90% what I need, but I really need my Cabinet to have..."

For any customization 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.

Related Products

- CSLS I/O Cards must be ordered separately.
- Individual LS IO CHARM modules (including cabinet Alarm CHARMs) must be ordered separately as per project requirement.
- LSN Switches must be ordered separately.

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