Foxboro™ DCS

G66 Triconex Tricon Termination Enclosure

PSS 41H-2G66

Product Specification

January 2020

https://www.se.com

Legal Information

Overview

The G66 EcoStruxure™ Triconex™ Tricon termination enclosure is specifically designed for housing Triconex termination devices and additional customer-supplied terminal blocks for marshalling in areas where front access only to the enclosure's equipment is desired, such as when an enclosure must be placed against a wall. This enclosure may accommodate the termination of Tricon modules which are housed in a G60 Tricon System Enclosure or G62/G72 Tricon System and Termination Enclosure.

The G66 enclosure is available as a vented or sealed enclosure. It can be configured with:

- Up to five vertical DIN rails for mounting of Triconex termination devices
- Redundant power supplies (480 W or 960 W 24 V DC power supplies) for field power

The G66 vented enclosure is a free-standing, floor mounted unit with an IP 43/55 rating for location in mild (ordinary) environmental areas.

The G66 sealed enclosure is a free-standing, floor mounted unit, with options for either an IP 55 or IP 66 rating for location in harsh environments. Sealed enclosures with an IP 66 rating provide a higher level of protection from airborne contamination.

> **NOTE:** In regions that require EMC compliance, you must order the EMC compliance option if the Triconex termination devices for Tricon modules SMM or SRXM will be installed in this enclosure. Without these termination devices, the enclosure already fulfills the requirements for EMC compliance.

An optional door intrusion monitoring switch is available for each door on this enclosure. Each switch is prewired to a set of alarm status terminal blocks.

The G66 enclosure can be installed bayed or adjoined to other Triconex enclosures to maximize the use of floor space and ease of cabling. The enclosures can be bayed together using third-party kits.

This enclosure and its configurations have been tested and qualified by Foxboro for use with the Tricon equipment.

Features

- Up to five 1,800 mm (72 in) vertical DIN rails for mounting of termination assemblies (TAs) and terminal blocks for marshalling, to provide a total of 9.0 m (29.5 ft) of linear rail space
- Vented or sealed enclosure selection for use in ordinary (IP 43/55) or harsh (IP 55/66) rated environments
- EMC compliant version available - vented (IP 43/55) with roof-mounted fans
- Option for redundant 480 W (P0923VD) or 960 W 24 V DC field power supplies
- Main power entry includes disconnect terminal blocks, or 10 A, Type D, double pole circuit breakers
- Optional EMC/RFI line filters for redundant main power (Triconex recommended)
- Alarm contact terminal block assembly for door intrusion monitoring switches, enclosure temperature switch and field power supply status
- Optional door intrusion monitoring
- Bottom cable entry for standard power wiring and cables for Triconex termination devices, such as External Termination Panels (ETPs), Field Terminations and External Termination Assemblies (ETAs)

  NOTE: Due to the placement of field power supplies, top entry is not recommended for this enclosure.
- Available PVC or non-PVC wireways for field I/O cabling, with optional signal segregation barrier plate
- Generous 76 mm x 102 mm (3 in x 4 in) wireways with adequate capacity for most wire management
- Compact design to minimize use of floor space with front-only access that allows the maximum packaging density of control environment
- Options for single or redundant power supplies for field power and power distribution terminal block assemblies for customer-supplied power
- Conveniently placed eyebolts for transporting and lifting the enclosures
- A 100 mm (4 in) plinth increases total enclosure height of 2,160 mm (85.0 in)
- Comfort handles with push button/keylocks
- Two ground points: two protective ground studs and one isolated protective ground rail

Ingress Protection

The metal enclosures provide the outer layer of protection for the control electronics. Other layers are provided by the module covers and built into the modules. This approach to protection means that a minimum of contaminants in the plant environment reaches the control components, thus greatly extending the life of the equipment.

For sealed, non-adjoined G66 enclosures, heat is transferred from the interior surfaces of the enclosure and then dissipated by the enclosure's exterior surfaces into the plant environment. Air is not exchanged between the enclosure's interior and the outside environment. Therefore, contaminants are minimized inside the enclosure.

The enclosures support convenient top or bottom cable entry for TA cabling and power wiring. Vented enclosures with roof-mounted fans are not recommended with top cable entry.

Dual Thermostat

An optional dual (high/low) thermostat is available to monitor enclosure temperature extremes.

Vented Enclosure Design Options

The G66 vented enclosure is available with either roof-mounted or door-mounted fans.

Roof-mounted fans provide the best performance for cooling, and provide a lower noise-level than the door-mounted fans. However, roof-mounted fans can restrict top-entry cable access to the enclosure and reduce the overall ingress protection rating.

For customers who plan to modify the swing direction of their enclosure doors, fans mounted on the roof allow the process to proceed more smoothly.

Door-mounted fans are desirable for top entry cable access configurations, and provide the highest level of ingress protection for vented enclosures.

Triconex Termination Device Mounting

The G66 termination enclosure has up to five vertical DIN rails for mounting Triconex termination devices and customer-supplied terminal blocks for marshalling, and one dedicated vertical DIN rail for power distribution. A pair of DIN rails are installed on the left, rear, and right walls.

Optional bus bars for field wiring shields and DIN rail isolation are available. Isolation allows rails to be isolated from the enclosure ground and are used when customer field shields are terminated on dedicated terminal blocks that ground to the DIN rail.

One or two pairs of optional redundant 24 V DC field power supplies are available for field power. They are mounted horizontally in the enclosure (see *Figure 2, page 8* through *Figure 5, page 11*).

Both vented and sealed enclosures have a limited thermal load (see *Environmental Specifications, page 14* for operating temperatures).

Triconex Termination Device/Input Power Cabling

The G66 enclosure can be ordered for bottom cable entry or modified by the customer for simultaneous top and bottom cable entry.

For the top cable entry version, the termination device cables and/or customer power feeds enter through customer-configured cable glands. Any customizations made must follow the manufacturer’s guidelines to preserve the enclosure's ingress protection rating. Vented enclosures with roof and door-mounted fans are not recommended for top cable entry.

For the vented bottom entry version, the termination device cables and power cable enter through removable gland plates, located at the bottom (inside) of the enclosure. The plates can be removed, drilled, or punched for cable routing.

For the sealed bottom entry version, the termination device cables and power cable enter through a solid bottom panel located at the bottom (inside) of the enclosure. The panel can be drilled or punched for cable routing. Users must provide their own cable glands (for top or bottom cable entry), in keeping with maintenance of the enclosure’s ingress protection. It is the user’s responsibility to verify that the enclosure’s environmental ratings are retained.

An optional signal segregation barrier plate provides isolation between any two interior adjacent wireways.

Wiring is restricted to preconfigured wireways, available in PVC or non-PVC versions.

Cable straps are provided in the enclosure to dress and support the Triconex termination cables.

Power and Grounding

The G66 enclosure supports an optional redundant power system for field power to help protect against power failures.

Field power wiring to the enclosure is routed through the bottom of the enclosure. Customer-supplied dual power input feeds terminate at dedicated redundant power distribution terminal block or circuit breaker assemblies, or directly to optional EMC/RFI filters.

All enclosure structural elements are integrally grounded by the enclosure design to meet the appropriate industry regulations and standards.

Grounding

Two M8 studs (one for each enclosure side) provide a central ground point and dedicated grounding points when baying enclosures together.

An isolated protective ground rail is available for additional ground points and may be used for cable shields.

Power Distribution

Each enclosure is available with a dedicated assembly for customer field power. Two types of power distribution are available with:

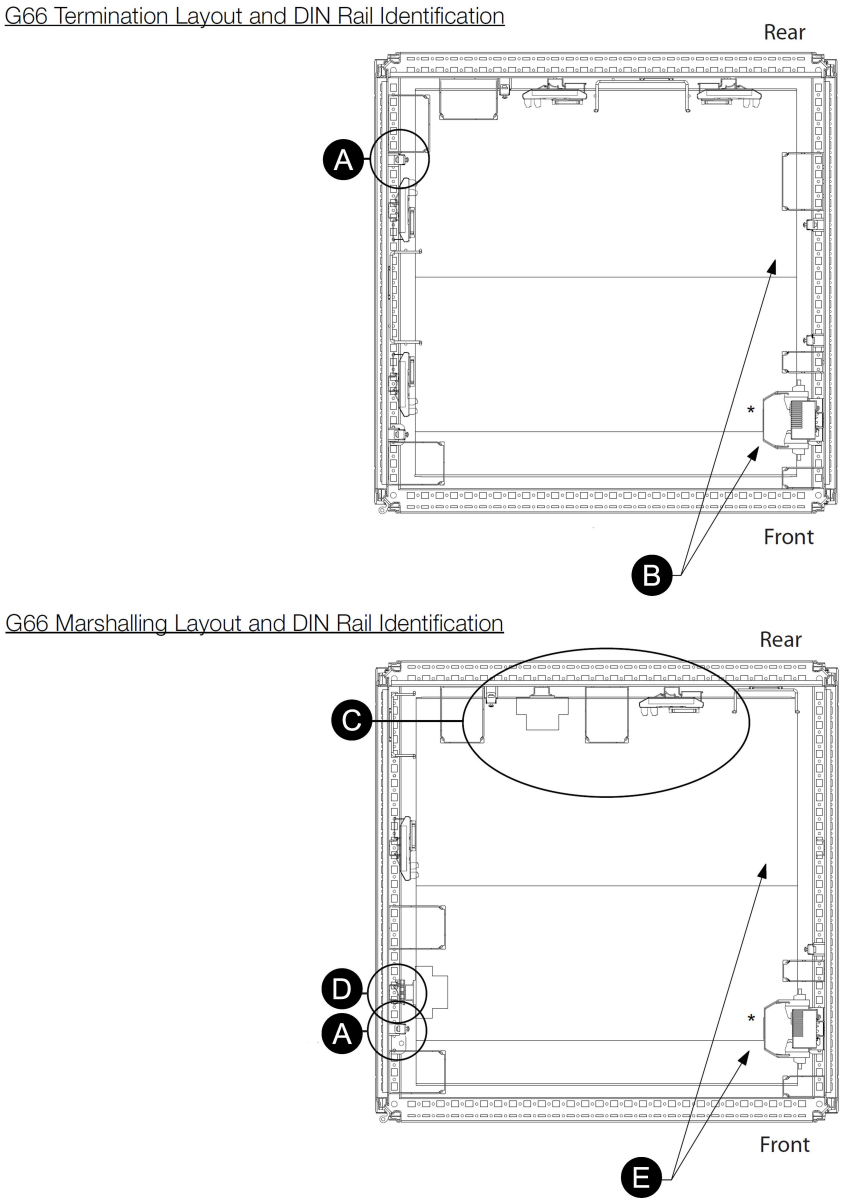
- Disconnect terminal blocks. This method of power entry also has fused, knife disconnect terminal blocks for isolating the field power, as well as independent knife disconnect terminal blocks for each device, for ease of service.
- 10 A, Type D, double pole circuit breakers.

The 24 V DC field power supply option also includes a distribution terminal block assembly for distribution of 24 V DC power to up to ten Triconex termination devices. Each point includes a serviceable knife disconnect.

Utility power is supported through a dedicated terminal block or circuit breaker assembly which provides independent disconnects for light and fan circuits as well as additional blocks for the customer to install utility outlets.

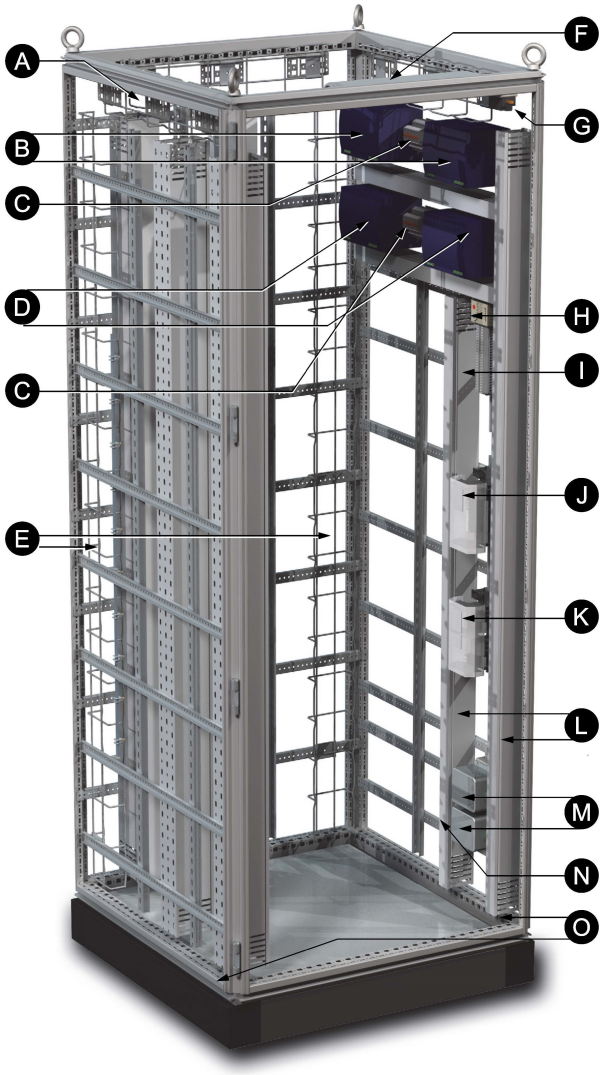
The enclosure may be ordered without these power distribution terminal blocks when the customer has requirements for power distribution specific to regional electrical codes.

Figure 1 - G66 Tricon Termination Enclosure Termination and Marshalling Layouts and DIN Rail Identification



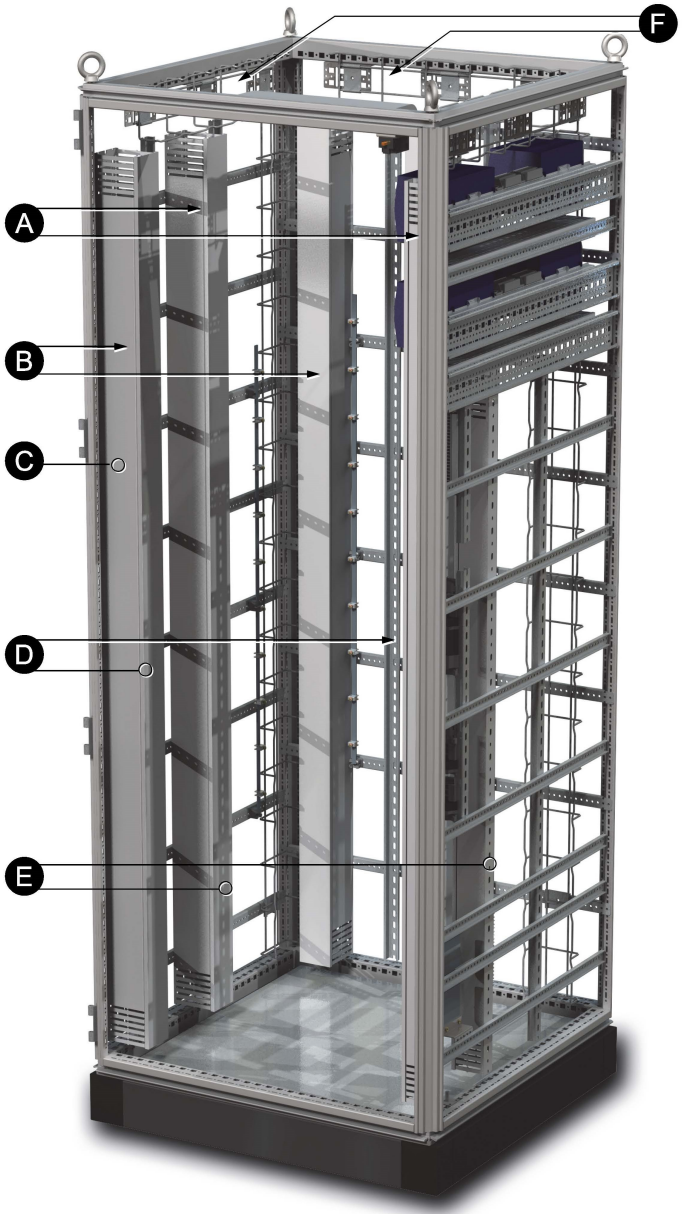
Legend			
A	Bus Bar for Field Wiring Shields (per configuration)	**D**	DIN Rail Isolation (per configuration)
B	These right side rails are reduced in height to accommodate 24 V DC field power supplies. The rear is removed for space restrictions.	**E**	These right side rails are reduced in height to accommodate 24 V DC field power supplies.
C	ETP and Associated Termination Blocks (per configuration)		
* For both setups, the front side rail is reserved for field and utility power entry terminal blocks/circuit breakers, alarm status terminal blocks and EMI line filters per configuration.			

Figure 2 - G66 Tricon Termination Enclosure with Marshalling Option, Front Right View, Bottom Entry



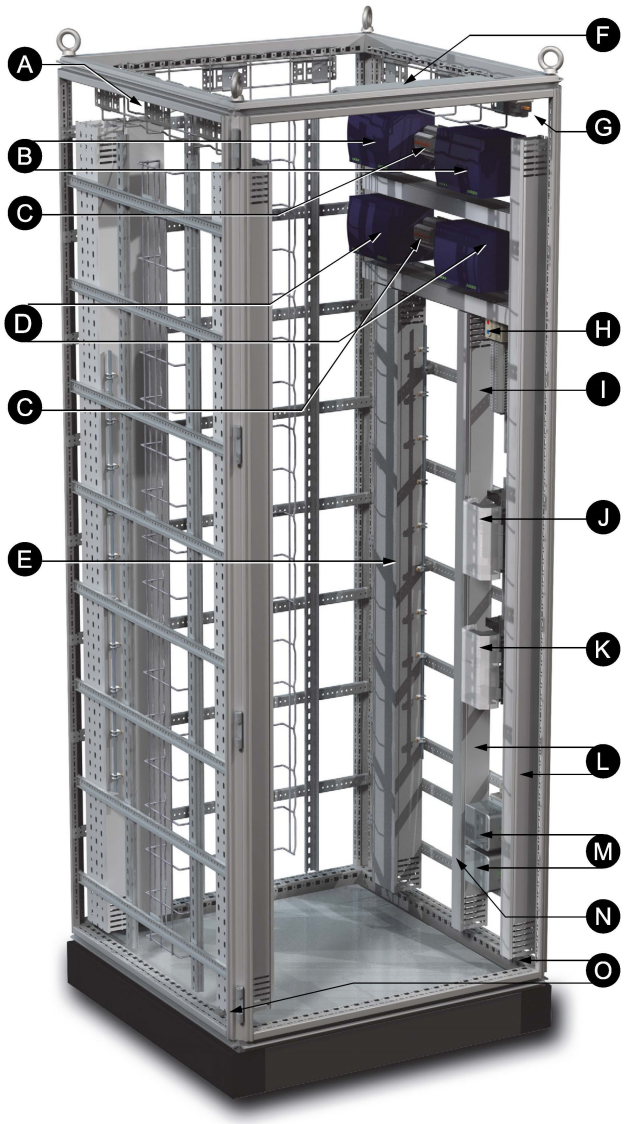
Legend			
A	51 mm x 102 mm (2 in x 4 in) Cable Tray Wire Management for Marshalling	**I**	Alarm Monitoring Terminal Block
B	Redundant 480 W, 24 V DC Power Supplies	**J**	ac Utility Power Terminal Blocks or Circuit Breakers
C	Associated 24 V DC Power Distribution	**K**	Primary and Secondary Power Distribution Disconnects or Circuit Breakers
D	Additional Redundant 480 W, 24 V DC Power Supplies	**L**	37 mm x 75 mm (1.5 in x 3 in) Wire Management Duct for Power and Alarms*
E	37 mm x 102 mm (1.5 in x 4 in) Cable Tray Wire Management for Tricon Interface Cables	**M**	EMC/RFI Filters (Optional)
F	LED Light	**N**	Protective Ground Rail
G	Door Intrusion Monitoring Switch	**O**	Protective Ground Studs
H	Dual (High/Low) Thermostat		
* Some cable trays and wire management ducts may not be supplied with the standard configuration.			

Figure 3 - G66 Tricon Termination Enclosure with Marshalling Option, Front Left View, Bottom Entry



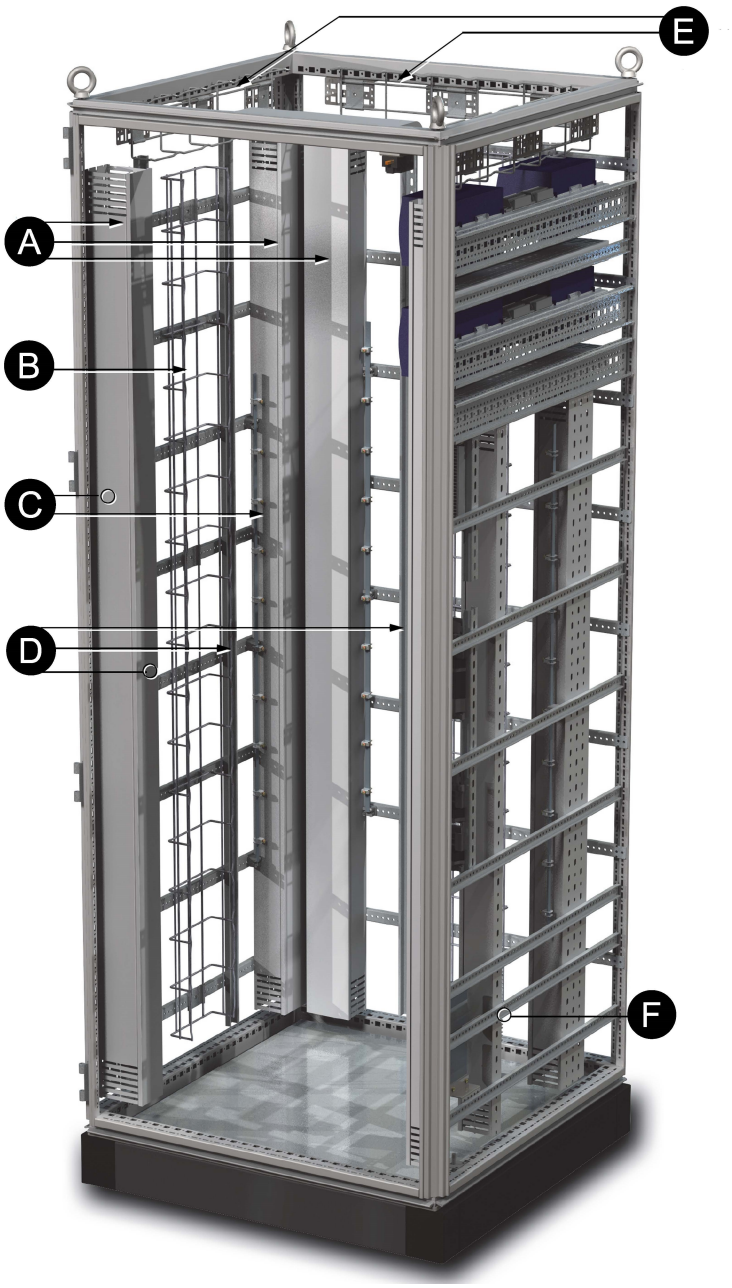
Legend			
A	76 mm x 102 mm (3 in x 4 in) Wire Management Duct for Marshalling	**D**	DIN Rails for Field Marshalling Terminal Blocks
B	76 mm x 102 mm (3 in x 4 in) Wire Management Duct for Field Wiring	**E**	DIN Rails for Tricon ETPs (Not Visible)
C	Bus Bar for Field Wiring Shields (Not Visible)	**F**	51 mm x 102 mm (2 in x 4 in) Cable Tray Wire Management for Marshalling
* Some cable trays and wire management ducts may not be supplied with the standard configuration.			

Figure 4 - G66 Tricon Termination Enclosure with Termination Option, Front Right View, Bottom Entry



Legend			
A	51 mm x 102 mm (2 in x 4 in) Cable Tray Wire Management	**I**	Alarm Monitoring Terminal Block
B	Redundant 480 W, 24 V DC Power Supplies	**J**	ac Utility Power Terminal Blocks or Circuit Breakers
C	Associated 24 V DC Power Distribution	**K**	Primary and Secondary Power Distribution Disconnects or Circuit Breakers
D	Additional Redundant 480 W, 24 V DC Power Supplies	**L**	37 mm x 75 mm (1.5 in x 3 in) Wire Management Duct for Power and Alarms*
E	76 mm x 102 mm (3 in x 4 in) Wire Management Duct for Field Wiring	**M**	EMC/RFI Filters (Optional)
F	LED Light	**N**	Protective Ground Rail
G	Door Intrusion Monitoring Switch	**O**	Protective Ground Studs
H	Dual (High/Low) Thermostat		
* Some cable trays and wire management ducts may not be supplied with the standard configuration.			

Figure 5 - G66 Tricon Termination Enclosure with Termination Option, Front Left View, Bottom Entry



Legend			
A	76 mm x 102 mm (3 in x 4 in) Wire Management Duct for Marshalling	**D**	DIN Rails for Tricon ETPs
B	25 mm x 152 mm (1 in x 6 in) Cable Tray Wire Management for Tricon Interface Cables*	**E**	25 mm x 102 mm (1 in x 4 in) Cable Tray Wire Management
C	Bus Bar for Field Wiring Shields	**F**	Protective Ground Rail
* Some cable trays and wire management ducts may not be supplied with the standard configuration.			

Enclosure Features and Options

Feature	Availability
Base Enclosure	• Vented IP 43 rated enclosure with front door-mounted fans (120 V AC or 240 V AC - dual fans) or roof-mounted fans (120 V AC or 240 V AC - dual fans), or • EMC compliant vented IP 43 rated enclosure with roof-mounted fans (120 V AC or 240 V AC - dual fans), or • Sealed IP 55/66 rated enclosure (no fans)
Enclosure Access	• Front and rear access • Front access only
Front Door	Front access only
Cable Entry	Bottom only (Due to the placement of field power supplies, top entry is not recommended for this enclosure.)
Sidewalls	Options configurable based on baying requirements
Door Handle	Comfort handle with push button/keylock
Door Mounting	Universal mounting for left- and right-hand door swing (left-hand is default)
Equipment Supported	Five DIN rails per enclosure available for mounting Triconex termination devices only, or with customer-supplied terminal blocks for marshalling. One DIN rail dedicated for power distribution equipment.
Enclosure Lighting	Universal enclosure lights (front and rear) with motion activation
Thermostat	Dual temperature thermostat
Security	Optional door intrusion monitoring switch - one per door
Fans	Door-mounted or roof-mounted fans - designed for secondary cooling only.
Grounding	• Two protective ground studs • One isolated protective ground rail
Field Power	• Optional redundant 24 V DC field power - 480 W or 960 W (two or four field I/O power supplies) with dedicated distribution terminal block or circuit breaker assemblies. • Redundant power distribution terminal block assemblies for customer configured power entry • Optional EMC compliant line filters available for above options • Customer-configured field power entry is supported (no terminal blocks supplied)
Alarm Contact	Alarm contact terminal block assembly for main chassis alarming, door intrusion monitoring switches, enclosure temperature switch, and field power supply status.
Utility Power	120 V AC or 240 V AC utility power with disconnect terminal blocks or 10 A, Type D, double pole circuit breakers

Functional Specifications

Enclosure	The enclosures are free-standing, floor mounted, steel industrial enclosures containing: • Vertically mounted DIN rail mounted termination equipment (Triconex Tricon and/or customer-supplied terminal blocks for marshalling) • 24 V DC field power supplies (single or redundant power)

Environmental Specifications

	Operating (Ambient)	Storage
Temperature	Thermal performance of the G60 enclosure meets the convection cooling requirements described in the *Planning and Installation Guide for Trident vX Systems*[a]. • Vented (Thermal Loading): -20 to +60°C (-4 to +140°F): Up to 750 Watts (Average) -20 to +55°C (-4 to +131°F): 750 to 1,000 Watts (Maximum) • Sealed (Thermal Loading)[b]: -20 to +50°C (-4 to +122°F): Up to 400 Watts (Average) -20 to +45°C (-4 to +113°F): 400 to 500 Watts (Maximum)	-40 to 70°C (40 to 158°F)
Relative Humidity	5 to 95% (noncondensing)	
Ingress Protection Ratings	• Vented (Thermal Loading): To accommodate three chassis: -20 to +40°C (-4 to +104°F) • Sealed: IP 55 to EN 60 529 / NEMA 12 IP 66 to EN 60 529 / NEMA 4	
Acoustic Noise Level[c]	• Roof-Mounted Fans: 61 dB (A) at 1 m / 58 dB (A) at 3 m • Door-Mounted Fans: 64 dB (A) at 1 m / 62 dB (A) at 3 m • Sealed Enclosure (No Fans): Ambient/Ambient	
Dual Thermostat	• High Alarm Setting: NC contact, Range - 0 to 60°C (32 to 140°F) • Low Alarm Setting: NO contact, Range - 0 to 60°C (32 to 140°F)	
Agency Certification	Empty enclosure is UL and UL-C approved. Enclosure meets all applicable European Union directives and is CE compliant. Final installed enclosures populated with your equipment should be inspected by your local UL/CSA committee, or other local safety governing organization if required. A complete listing of certifications is available from enclosure vendor.	
Area Designation	General purpose areas.	

[a] To obtain the latest version of the Planning and Installation Guide for Tricon Systems document, contact IPS Global Client Support.

[b] Some TAs have operating temperatures lower than the rated enclosure specification.

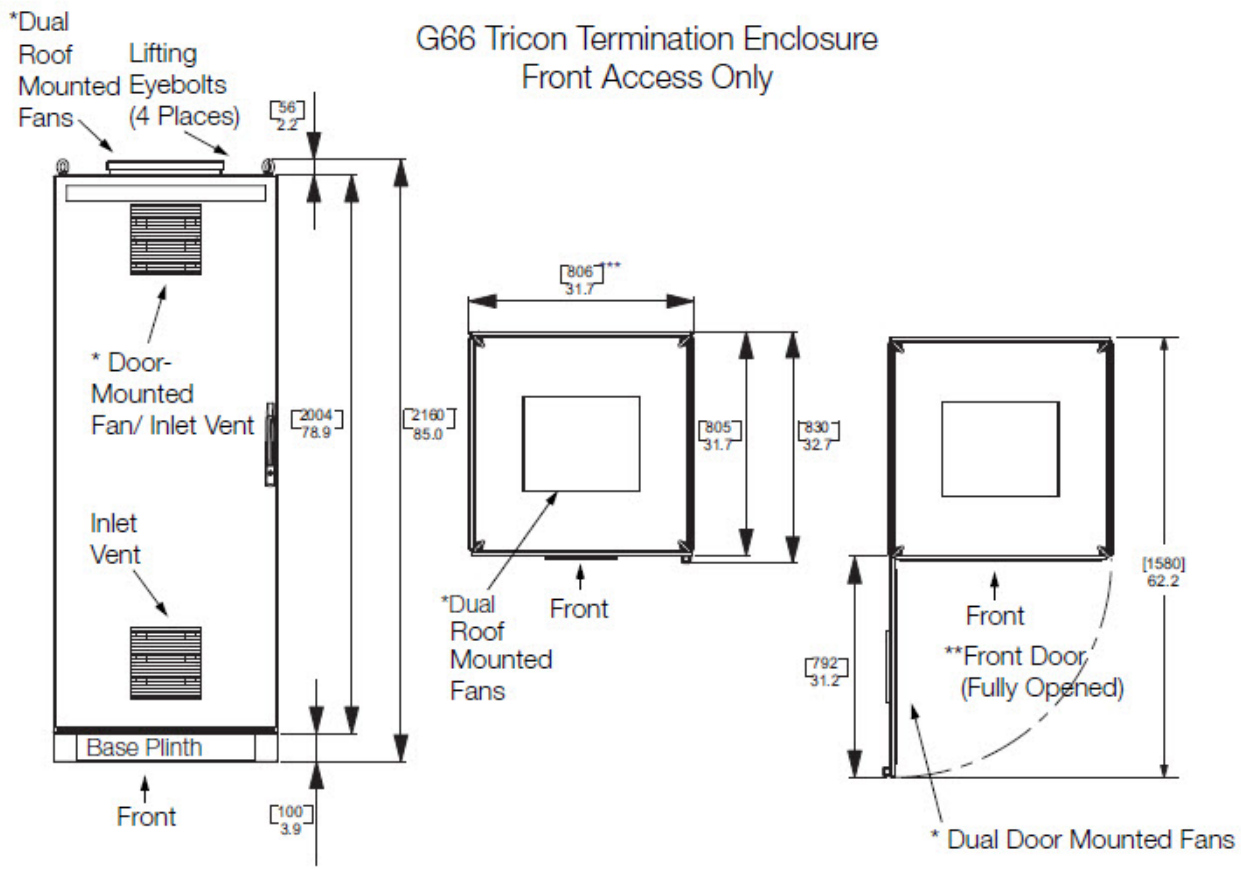
[c] Under normal operating conditions, with both fans running, at enclosure's mid-height at 46 dB (A) ambient noise level.

Physical Specifications

Weight	The weight of the enclosure is dependent upon the particular configuration. Consult with a Foxboro representative if precise weight figures are required. • Vented Enclosure (Max. Configuration): 800 mm (31.4 in) wide x 800 mm (31.4 in) - 261 kg (575 lb) • Side Panel: 2,000 mm (78.7 in) high x 800 mm (31.4 in) deep - 8 kg (18 lb)
Mounting	Floor **⚠ CAUTION** **RISK OF EQUIPMENT DAMAGE OR INJURY** To prevent injury, this enclosure must be bolted down. See *Enclosures and Mounting Structures - Site Planning and Installation User's Guide* (B0700AS). **Failure to follow these instructions can result in injury or equipment damage.**
Construction	Material: • Doors (Metal): Sheet steel, 2.0 mm (14 ga) • Frame, Roof, Side Panels, Gland Plates: Sheet steel, 1.5 mm (16 ga) • Base/Plinth: Sheet steel and plastic Finish: • Frame: ◦ Non-EMC Compliant Version: Dipcoat-primed, RAL 7044 smooth ◦ EMC Compliant Version: Aluminum zinc coating • Roof, Side Panels, Doors: ◦ Non-EMC Compliant Version: Dipcoat-primed, powder-coated, RAL 7035 (light gray) textured ◦ EMC Compliant Version: Exterior - Dipcoat-primed, powder-coated, RAL 7035 (light gray) textured Interior - Aluminum zinc coating • Base/Plinth: Dipcoat-primed, RAL 7022 (umbra gray) smooth, plastic cover caps RAL 9005 (jet black) • Gland Plates and Internal Hardware: Zinc-plated, passivated

Cable Entry	• Vented Enclosure (Max. Configuration): Bottom through gland plate(s) Top through customer cutouts in enclosure top (for enclosure with roof-mounted fans, suggested entry is bottom) • Sealed Enclosure: Bottom through steel panel and customer cutouts in panel Top through customer cutouts in enclosure top
Grounding	• Roof, Side Walls, Gland Plates: Automatic potential equalization built in • Front and Rear Doors: Dedicated 4 mm^2 (11 ga) ground strap to enclosure frame • Enclosure Two protective ground M8 studs (one for each enclosure side) An isolated protective ground rail and an isolated instrument ground rail are provided for additional ground points
Power Input Terminals	Disconnect Terminal Blocks: • Type: Ring Lug • Wire Size: Up to 6 mm2 (10 AWG) • Ring Lug Size: M4 Maximum (DIN 46 234/46 237), 9.6 mm maximum O.D. Circuit Breakers: • Type: Compression • Wire Size (Solid): Up to 6 mm^2 (3 AWG) • Wire Size (Stranded): Up to 4 mm^2 (8 AWG)
Termination Assembly Cabling	Universal mounting straps are supplied for attaching, routing, and strain relieving of Triconex termination cables. Each strap supports up to a 75 mm (3 in) diameter cable bundle.

Dimensions - Nominal



* Doors are factory-configured for left-hand swing, but can be reconfigured at site for right-hand swing.

** Factory inlet vents are not present when the enclosure has the safety glass front door option.

*** With side panels, without side panels 800/31.5.

Related Product Documents

Document Number	Description
PSS 41H-2G60	*G60 Tricon System Enclosure*
PSS 41H-2G62	*G62 and G72 Tricon System and Termination Enclosures*
B0700AS	*Enclosures and Mounting Structures - Site Planning and Installation User's Guide*
ISA-S71.04-1985 (not Foxboro-supplied)	*Environmental Conditions for Process Measurement and Control Systems: Airborne Contaminants*
9791007-XXX [a]	*Technical Product Guide for Tricon Systems*
9720052-XXX[a]	*Field Termination Guide for Tricon Systems*
[a] Request latest revision from Triconex. Documents describe the Tricon interface cables with a 0° exit option.	

⚠ **WARNING**: This product can expose you to chemicals including lead and lead compounds, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.p65warnings.ca.gov/.

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As standards, specifications, and design change from time to time, please ask for confirmation of the information given in this publication.

PSS 41H-2G66, Rev A