Foxboro™ DCS

G13 System Enclosure

PSS 41H-2G13

Product Specification

January 2020

VENTED ENCLOSURE
ROOF-MOUNTED FANS

https://www.se.com

Legal Information

Overview

The EcoStruxure™ Foxboro™ DCS G13 enclosure is specifically designed for housing Compact 200 Series I/O subsystem modules. The G13 vented enclosure is available with roof-mounted fans.

The G13 vented enclosure can be configured with:

- Up to twelve Compact 200 Series 16-slot horizontal baseplate, for mounting up to 192 Compact 200 Series Fieldbus Modules (FBMs)
- Up to two 2-position vertically-mounted Foxboro DCS FCP280 baseplates
- Up to three redundant FPS480-24 power supplies (six total) to support the 200 Series baseplates

The G13 vented enclosure is a free-standing, floor mounted unit with an IP 43 rating for location in mild (ordinary) environmental areas.

The G13 vented enclosure is available with two roof-mounted fans in a pagoda fan unit and four fan trays to provide the best cooling performance.

Multiple G13 enclosures can be installed connected to one another to minimize required floor space. The enclosures can be bayed together using third-party kits.

This enclosure and its configurations have been tested and qualified for use with specified 200 Series I/O products.

Features

- Accommodates up to two 2-position vertically mounted FCP280 baseplates
- Vented enclosure accommodates up to 192 Compact 200 Series FBMs in up to twelve Compact 200 Series 16-slot horizontal baseplates
- Vented enclosure for use in ordinary (IP 43) rated environments
- Compact design to minimize use of floor space with both front and rear access that allows for the maximum density of enclosures in a control room environment
- Option for single or redundant power supplies
- Bottom cable entry for termination assembly (TA) cables and power wiring
- Conveniently placed eyebolts for transporting and lifting the enclosures
- A 100 mm (4 in) plinth — total enclosure height of 2,160 mm (85.0 in)
- Comfort door handles with push button/keylocks
- Standard protective ground studs

Contamination Protection

The metal enclosures provide the outer layer of protection for the control electronics. Other layers are provided by the module covers and conformal coated electronics. 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.

The enclosures support bottom cable entry for TA cabling and power wiring.

Thermal Protection

This enclosure can be located in main equipment areas or in an environment with office air quality.

Two high-speed roof-mounted fans in a pagoda fan unit and four fan trays as well as vented doors increase air circulation for heat removal from the enclosure and can be used:

- At installations with only moderate levels of airborne contaminants, enclosure interiors can be exposed to allow plant air to circulate and remove module generated heat
- In areas where there are no requirements to filter the cooling air

Dual Thermostat

An optional dual (high/low) thermostat is available to monitor enclosure temperature extremes. This is not applicable to Zone II, Class I, Division 2 applications.

200 Series Baseplate Mounting

The enclosure can contain Compact 200 Series 16-slot horizontal baseplates and FCP280 baseplates to accommodate Compact 200 Series FBMs and FCP280s respectively.

Vertical cable runs minimize the need to dress and route cables at ninety-degree angles while providing a direct path for cable access to the bottom of the enclosure. While improving layout, horizontal orientation increases airflow and improves overall thermal performance.

For more information on the Compact 200 Series 16-slot horizontal baseplate, see *Compact 200 Series 16-Slot Horizontal Baseplate* (PSS 41H-2C200).

For more information on the vertically mounted FCP280 baseplate (RH924YF), see *Standard 200 Series Baseplates* (PSS 41H-2SBASPLT).

Fieldbus I/O Groups

The G13 system enclosure has four vertical punched rails and a one-inch support bar ladder structure for mounting up to twelve Compact 200 Series 16-slot horizontal baseplates. Six of these baseplates are accessible from the front of the enclosure and another set of six baseplates are accessible from the rear. Each baseplate is mounted on dedicated DIN rail fitted on bar ladders. The FCP280s and the FPS480-24 power supplies mount on designated locations shown in *Figure 1, page 7* and *Figure 2, page 8*.

In the G13 enclosure, the equipment in the eight Fieldbus I/O groups is organized, as described in *Table 1, page 5*.

Table 1 - Fieldbus I/O Groups in G13 Enclosure

Equipment in Enclosure Front		Equipment in Enclosure Rear		Power Supplies
Fieldbus I/O Group	**Managed by FCP280[a] 1**	**Fieldbus I/O Group**	**Managed by FCP280[a] 2**	
1	Compact 200 Series Baseplate 1	5 (1)	Compact 200 Series Baseplate 7	Redundant Power Supply #1 feeds these four Compact
	Compact 200 Series Baseplate 2		Compact 200 Series Baseplate 8	200 Series baseplates and the first FCP280 baseplate
2	Compact 200 Series Baseplate 3	6 (2)	Compact 200 Series Baseplate 9	Redundant Power Supply #2 feeds these four Compact
	Compact 200 Series Baseplate 4		Compact 200 Series Baseplate 10	200 Series baseplates and the second FCP280 baseplate
3	Compact 200 Series Baseplate 5	7 (3)	Compact 200 Series Baseplate 11	Redundant Power Supply #3 feeds these four Compact
4	Compact 200 Series Baseplate 6	8 (4)	Compact 200 Series Baseplate 12	200 Series baseplates
[a] FCP280 may be single or redundant				

The FCP280 baseplate supports four HDLC module fieldbuses, and each HDLC module fieldbus supports up to two Compact 200 Series baseplates. Table 1 explains how the Compact 200 Series baseplates are arranged from their FCP280's perspective. In this table, the baseplates in each Fieldbus I/O Group are part of the same baseplate chain.

Termination Assembly/Input Power Cabling and Wireways

The G13 enclosures support bottom cable entry only. The TA cables and power cable enter through removable gland plates located at the bottom (inside) of the enclosure.

Cable straps are provided in the enclosure to dress and support the TA cables. Field I/O signals must be connected to the TA mounted in an adjoining termination enclosure.

Power and Grounding

The G13 enclosure supports an optional redundant power system, in which dual power distribution (two power supplies fed by independent sources) provides redundancy protection against detected power failures.

Power wiring to the enclosure is routed through the bottom of the enclosure. Optional dual power input feeds terminate at dedicated primary and secondary power distribution terminal blocks.

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

The G13 enclosure uses standard 200 Series FPS480-24 power supplies that provide 24 V DC to 200 Series baseplates. These power supplies are agency certified for use in Zone II, Class I, Division 2 applications. For more information, see *Compact Power Supply - FPS480-24* (PSS 41H-2C480).

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

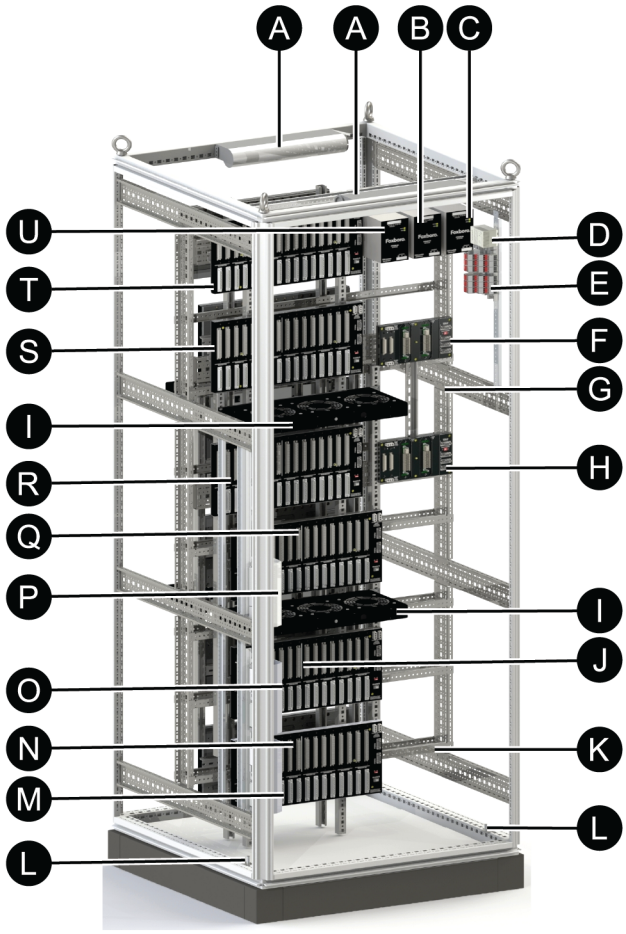
Power Distribution

Three power distribution terminal block assemblies (primary, secondary, and utility for powering fans and lights, see *Figure 1, page 7*) have dedicated ring lug terminal blocks for customer main power. Each also can have fused, knife disconnect terminal blocks for interrupting the main power, as well as independent knife disconnect terminal blocks for each device, for ease of service.

Additional blocks are provided for the customer to install utility outlets.

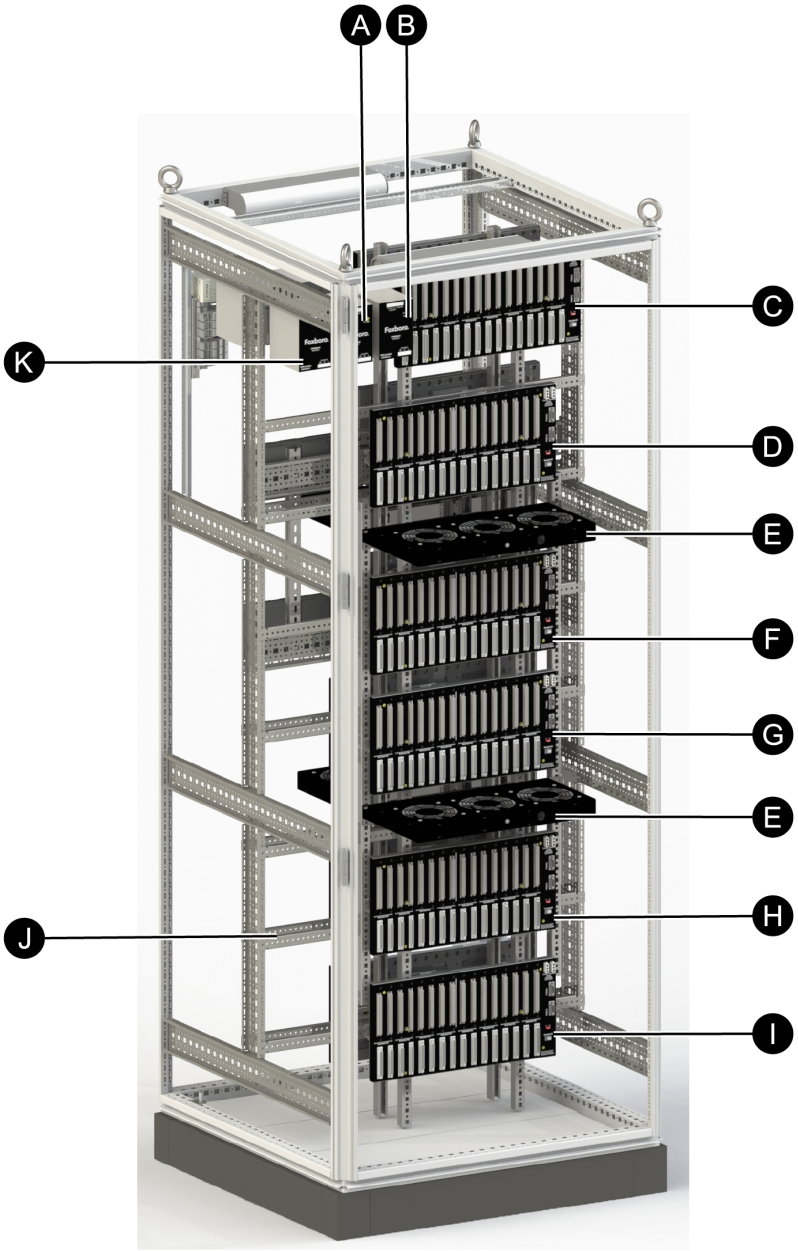
The enclosure is available without these power distribution terminal blocks if required by the customer.

Figure 1 - G13 System Enclosure, Front View



Legend					
A	LED Light (Front and Rear of Enclosure)	**H**	FCP280 Baseplate 2	**O**	Power Distribution and Disconnects, Primary
B	Fieldbus I/O Group 2 Power Supply (Primary)	**I**	Fan Tray	**P**	ac Utility Terminal Block
C	Fieldbus I/O Groups 3 and 4 Power Supply (Primary)	**J**	Fieldbus I/O Group 3 Compact Baseplate	**Q**	Fieldbus I/O Group 2 Compact Baseplate 2
D	High/Low Thermostat	**K**	Location to Run TA Cables for Fieldbus I/O Groups 2, 3, and 4	**R**	Fieldbus I/O Group 2 Compact Baseplate 1
E	dc Distribution Terminal Blocks	**L**	Protective Ground Stud	**S**	Fieldbus I/O Group 1 Compact Baseplate 2
F	FCP280 Baseplate 1	**M**	Power Distribution and Disconnects, Secondary	**T**	Fieldbus I/O Group 1 Compact Baseplate 1
G	Location to Run TA Cables for Fieldbus I/O Group 1	**N**	Fieldbus I/O Group 4 Compact Baseplate	**U**	Fieldbus I/O Group 1 Power Supply (Primary)

Figure 2 - G13 System Enclosure, Rear View



Legend			
A	Fieldbus I/O Group 2 Power Supply (Secondary)	**G**	Fieldbus I/O Group 6 Compact Baseplate 2
B	Fieldbus I/O Group 1 Power Supply (Secondary)	**H**	Fieldbus I/O Group 7 Compact Baseplate
C	Fieldbus I/O Group 5 Compact Baseplate 1	**I**	Fieldbus I/O Group 8 Compact Baseplate
D	Fieldbus I/O Group 5 Compact Baseplate 2	**J**	Location to Run TA Cables for Fieldbus I/O Group 1 and Fieldbus I/O Groups 5, 6, 7, and 8
E	Fan Tray	**K**	Fieldbus I/O Groups 3 and 4 Power Supply (Secondary)
F	Fieldbus I/O Group 6 Compact Baseplate 1		

Enclosure Features and Options

Feature	Availability
Base Enclosure	Vented IP 43 rated enclosure with roof-mounted fan (120 V AC or 240 V AC)
Enclosure Access	Front and rear access
Front Door	Solid front door with inlet vents
Cable Entry	Bottom cable entry
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	• Up to eight Fieldbus I/O Groups • Up to twelve Compact 200 Series 16-Slot Horizontal Baseplates, for mounting up to 192 Compact 200 Series FBMs • Up to two 2-position vertically mounted FCP280 baseplates • Up to three redundant FPS480-24 power supplies for Fieldbus I/O Groups to support the Compact 200 Series Baseplates (up to six power supplies total)
Enclosure Lighting[a]	Universal single and/or dual enclosure lights with motion activation
Thermostat[a]	Dual temperature thermostat
Fans[a]	Two physical fans in a pagoda fan unit (roof-mounted) and four fan trays (installed on punched rails)
Grounding[a]	Two protective ground studs
Main Power[a]	85 to 264 V AC or 120 to 240 V DC nominal, 108 to 119 V DC (output derates to 90%) primary only or primary and secondary power
Utility Power	120 V AC or 240 V AC utility power terminal block

[a] To determine if this G-series enclosure is acceptable to install in your application, see *Standard and Compact 200 Series I/O - Agency Certifications* (PSS 41H-2CERTS) for Standard 200 Series equipment location suitability.

Functional Specifications

Enclosure	The enclosures are free-standing, floor-mounted, steel industrial enclosures containing: • Twelve Compact 200 Series 16-slot horizontal baseplates for mounting up to 192 Compact 200 Series FBMs • Two 2-position vertically-mounted FCP280 baseplates • Up to three redundant FPS480-24 power supplies (six total)
Input Power (optionally redundant)	See *Compact Power Supply - FPS480-24* (PSS 41H-2C480)

Environmental Specifications

	Operating	Storage
Temperature	• Vented (Thermal Loading) with Fans: -20 to +55°C (-4 to +131°F) Up to 1,600 Watts (Maximum)	-40 to 70°C (40 to 158°F)
Relative Humidity	5 to 95% (noncondensing)	
Ingress Protection Ratings	• Roof-Mounted Fans: IP 43 to EN 60 529/10.9191 / NEMA 12	
Acoustic Noise Level[(a)]	• Roof-Mounted Fans with Fan Trays: 64 dB (A) at 1 m / 62 dB (A) at 3 m For fan tray specifications, see *Table 2, page 11*	
Dual Thermostat (User Settable)	• 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	Vented for general purpose environments.	

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

Table 2 - Fan Tray Specifications

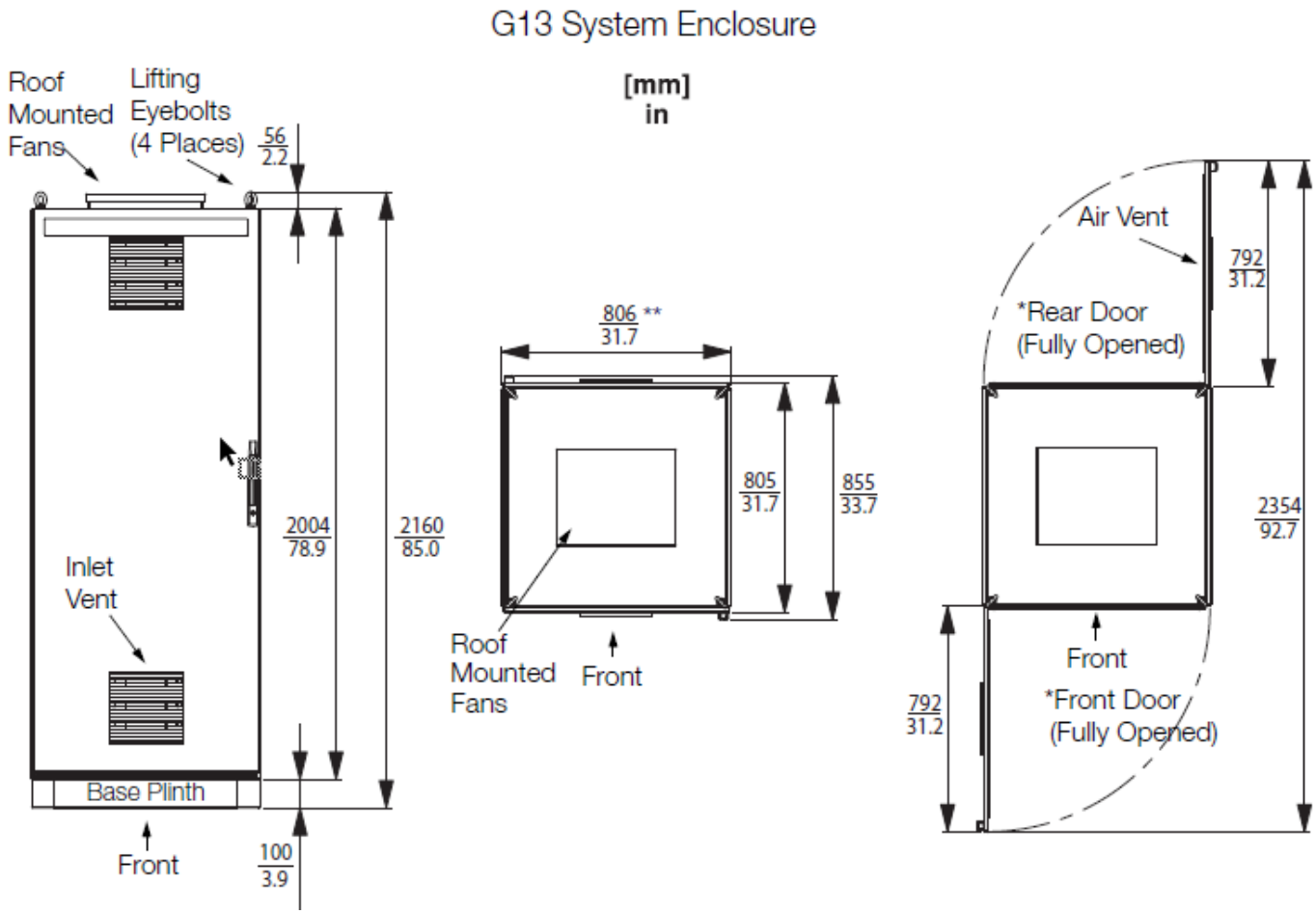
Specifications	115 V AC	230 V AC
Number of fans	3	3
Nominal Voltage (60 Hz)	115 V AC	230 V AC
Input Power	45 W	45 W
Rated Speed (RPM)	3,000	3,000
Airflow (CFM)	310	310

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 with Side Panels (allowable max. weight when loaded): 800 x 800 mm (31.5 x 31.5 in) — 277 kg (611 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	Sheet steel with textured, powder-coated finish
Color	• Side Panels, Roof, and Doors: RAL 7035 - light gray - textured • Plinth: RAL 7022 - umbra gray smooth
Panel Thickness	• Doors: 2 mm (14 ga) • Side Panels, Roof: 1.5 mm (16 ga)
Construction	Material: • Doors: 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: Dipcoat-primed, RAL 7044 smooth • Doors, Roof, Side Panels: Dipcoat-primed, powder-coated • Base/Plinth: Dipcoat-primed, plastic cover caps RAL 9005 (jet black) • Gland Plates and Internal Hardware: Zinc-plated, passivated
Cable Entry	Bottom through gland plate(s)

Grounding	• Roof, Side Walls, Gland Plates: Automatic potential equalization built in • Doors: Dedicated 4 mm^2 (11 ga) ground strap to enclosure frame • Enclosure: Two M8 size studs (one for each enclosure side)
Power Input Terminals	• Type: Ring Lug • Wire Size: Up to 6 mm^2 (10 AWG) • Ring Lug Size: M4 Maximum (DIN 46 234/46 237), 9.6 mm maximum O.D.
Termination Assembly Cabling	Universal mounting straps are supplied for attaching, routing, and strain relieving of TA 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.

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

Related Product Documents

Document Number	Description
PSS 41H-2C200	*Compact 200 Series 16-Slot Horizontal Baseplate*
PSS 41H-2SBASPLT	*Standard 200 Series Baseplates*
PSS 41H-2C480	*Compact Power Supply - FPS480-24*
PSS 41H-2CERTS	*Standard and Compact 200 Series I/O - Agency Certifications*
PSS 41H-2COV	*Compact 200 Series I/O Subsystem Overview*
PSS 41H-2GOV	*G-Series Enclosures Overview*
PSS 41H-2G14	*G14 System and Termination Enclosure*
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*

⚠ **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.

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