



Foxboro™ DCS

Field Control Processor 280 (FCP280)

PSS 41H-1FCP280

Product Specification

April 2025



The number of 200 Series and 100 Series FBMs that an FCP280 can support varies depending on the types of FBMs used:

- 200 Series FBMs exclusively used with FCP280 - Each Fieldbus port on the FCP280 baseplate can connect to a baseplate chain with up to 32 Compact or standard 200 Series FBMs per chain via the 2 Mbps HDLC fieldbus for up to 128 modules.
- 200 Series and 100 Series FBMs (dual baud configurations) used with FCP280. The FCP280 can support a total of 128 100 Series FBMs (Y-module) or competitive devices (such as Foxboro DCS system migration FBMs) in one or more baseplate chains, with the remainder of the FCP280's 128 module limit being 200 Series FBMs, depending on the Fieldbus loading of the FCP280. For example, an FCP280 could support 64 100 Series FBMs and 64 200 Series FBMs (as $64 + 64 = 128$). Main and expansion FBMs are considered as two FBMs for counting purposes. As well, no more than 64 100 Series FBMs are allowed on each PIO channel/baseplate port. See the next two figures.

NOTE: Certain competitive migration or supported third-party modules such as the EcoStruxure Foxboro DCS Process Automation System Migration Fieldbus Modules and Pepperl+Fuchs™ I/O modules may increase this 128 module maximum per FCP280. For the maximum numbers of each of these migration/third-party modules supported by the FCP280, see the supported migration products books in *Field Control Processor 280 (FCP280) User's Guide* (B0700FW).

NOTE: Although the FCP280 is capable of communicating with the maximum number of FBMs (128), some restrictions may constrain a useful control system's design, thereby limiting the number of FBMs that can be installed.

An optional dual cable baseplate is available that supports four PIO channels, but separate A versus B bus connectors are provided along with dedicated connectors for the optional Time Strobe inputs.

Fieldbus connections from the optional dual cable baseplate to standard or compact 200 Series FBMs require separate A versus B bus cables plus a dual "D" connection adapter on the FBM baseplate (RH926KW).

NOTE: The dual cable baseplate does not support connections to 100 Series FBMs or equivalent competitive migration and third-party modules.

When supporting 200 Series and 100 Series FBMs, each Fieldbus port (PIO channel) is dedicated to supporting either a 268 Kbps HDLC fieldbus (for 100 Series FBMs) or a 2 Mbps HDLC fieldbus (for 200 Series FBMs) — not both.

For connections to 100 Series FBMs, an FBI200 pair is required to extend communications up to 1,830 m (6,000 ft). See the next figure.

NOTE: When replacing a CP10, CP30, CP40, or CP60 with a FCP280 and keeping all its 100 Series FBMs, an FBI200 is required to be installed between the CP and FBMs to reduce potential system messages.

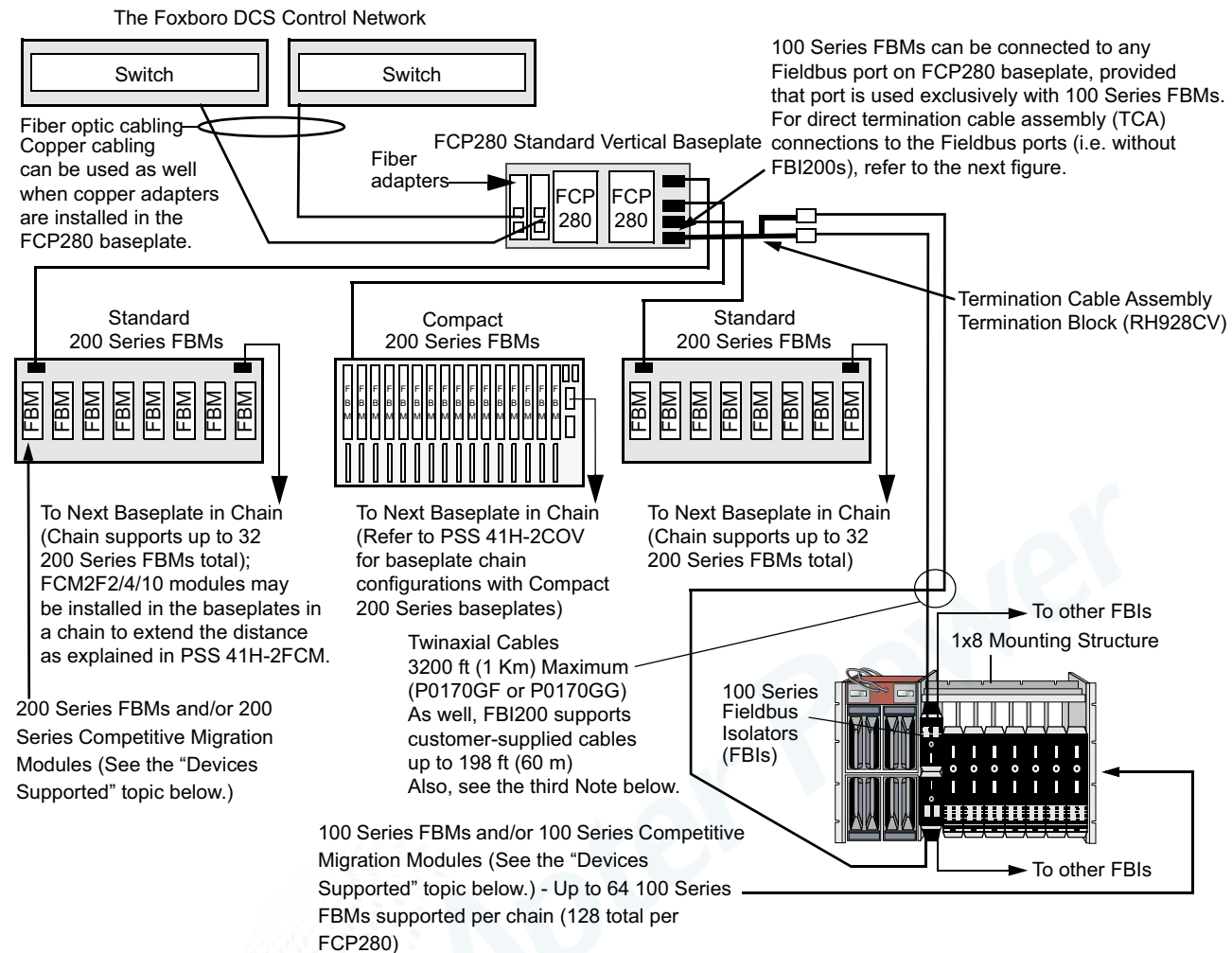
The Fieldbus splitter (RH928CV) is used to directly connect a Fieldbus port to a 268 Kbps HDLC fieldbus. This provides a connector for any Fieldbus port on the FCP280 baseplate, and two Termination Cable Assembly (TCA) termination blocks for the twinaxial cabling from the 100 Series FBMs.

The FCP280 can also communicate with serial and Ethernet devices, such as PLCs, via Field Device System Integrators (special FBMs). This allows you to connect to new device interfaces without any changes to the controller software.

To estimate the FCP280's processor load, see *Field Control Processor 280 (FCP280) Sizing Guidelines and Excel Workbook* (B0700FY).

For a description of the FCP280 baseplates, see *Standard 200 Series Baseplates* (PSS 41H-2SBASPLT).

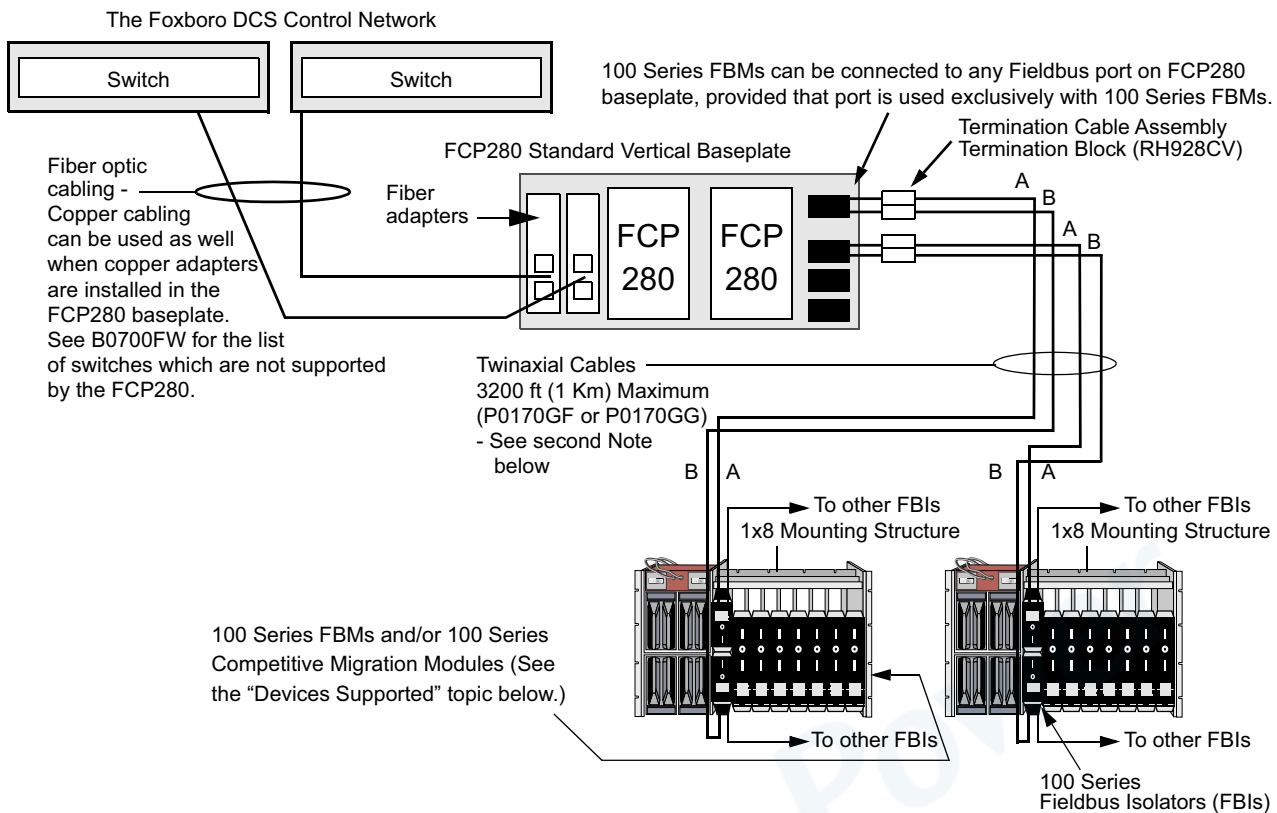
Figure 2 - Typical FCP280 Network Configuration with Mixed 100 Series and 200 Series FBM Functionality (Simplified)



The FCP280 supports up to 128 FBMs, which can consist of one of these options: 128 200 Series FBMs, 128 100 Series FBMs, or a mix of 128 200 Series and 100 Series FBMs. If you use a mix of 100 Series and 200 Series FBMs, the FBMs cannot be mixed concurrently on the same Fieldbus port (PIO channel). Each PIO channel must be configured to either a 268 Kbps or 2 Mbps HDLC fieldbus.

The 100 Series FBMs can be connected to any fieldbus port on the FCP280 baseplate, provided that the overall FBM limit of 128 100 Series FBMs is maintained for the FCP280. Up to 64 100 Series FBMs are supported on each PIO channel/ baseplate port.

An FBI200 may be included on this connection to extend the distance between the 100 Series FBIs and the FCP280 baseplate. In mixed configurations (100 and 200 Series FBMs) the FCP280 can communicate on the 268 Kbps HDLC fieldbus up to 60 m (198 ft). When communicating with a 268 Kbps HDLC fieldbus only, the FCP280 can communicate on this fieldbus up to 1 km (3,200 ft). The FBI100 pair may be used in place of FBI200s. For sizing constraints and devices supported by the FBI200, see *FBI200 Fieldbus Isolator/Filter* (PSS 41H-2FBI200). For sizing constraints and devices supported by the FBI100, see *FBI100 Fieldbus Isolator/Filter* (PSS 21H-2Y16 B4). The FBI200/FBI100 extends the distance of the HDLC fieldbus between the FCP280 and the FBMs up to 1,830 m (6,000 ft). The FBI200 can be used with 200 Series FBMs as well to extend the cabling distances to them. The FBI100 is used exclusively with 100 Series FBMs to extend the cabling distances to them.

Figure 3 - Typical FCP280 Network Configuration with Exclusive 100 Series FBM Functionality (Simplified)


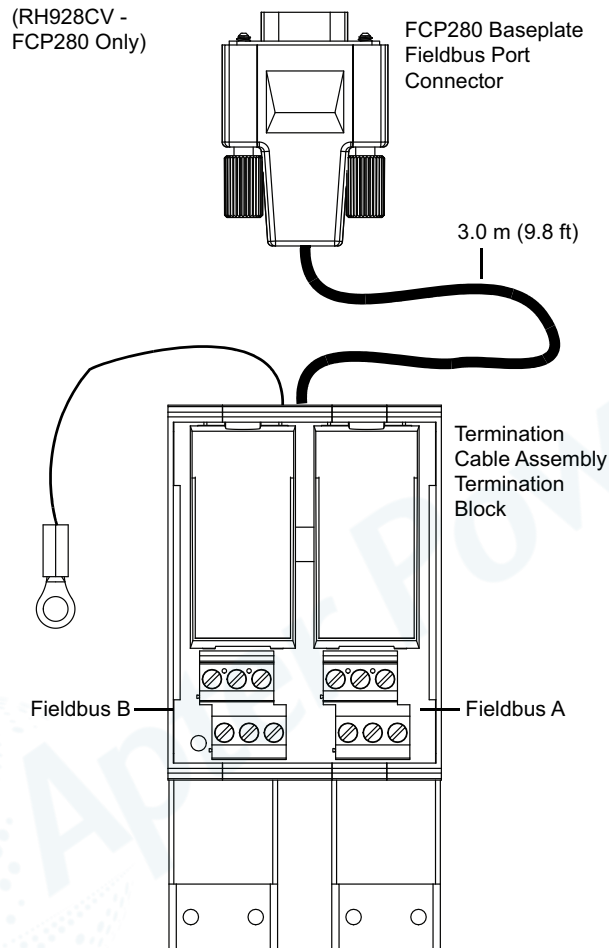
The FCP280 supports up to 128 100 Series FBMs total. Up to 64 100 Series FBMs are allowed on each PIO port/Fieldbus port.

The FBI200 is needed only to extend the distance between the 100 Series FBIs and the FCP280 baseplate. When communicating with a 268 Kbps HDLC fieldbus only, the FCP280 can communicate on this fieldbus up to 1 km (3,200 ft). FBI100 pair may be used in place of FBI200s. For sizing constraints and devices supported by the FBI200, see *FBI200 Fieldbus Isolator/Filter* (PSS 41H-2FBI200). For sizing constraints and devices supported by the FBI100, see *FBI100 Fieldbus Isolator/Filter* (PSS 21H-2Y16 B4). The FBI200/FBI100 extends the distance of the HDLC fieldbus between the FCP280 and the FBMs up to 1,830 m (6,000 ft). Twinaxial cables over 1 km (3,200 ft) are customer supplied.

The RH928CV splitter has a 3 m (9.8 ft) cable between the fieldbus port connector and TCA termination block.

- Fieldbus Splitter (RH928CV) allows any of the Fieldbus ports on the standard FCP280 baseplates to connect to the twinaxial 268 Kbps fieldbus cables. RH928CV includes both a connector to any of the Fieldbus ports on the FCP280 baseplate, and a termination cable assembly (TCA) termination block similar to two of the P0903VY termination blocks joined together.

Figure 9 - Extended Fieldbus Splitter for FCP280 Baseplate (Fieldbus Ports 1-4)



FCP280 Physical Specifications

Configuration	Single processor module. The fault-tolerant version consists of two processor modules, with an interconnecting fault-tolerant connector integral to the baseplate.
Mounting	May be placed in device specific 2-position baseplates designed for horizontal or vertical mounting — see FCP280 Baseplates, page 14. For the fault-tolerant FCP280, the two modules must be mounted in dedicated slots to allow for interconnecting fault-tolerant communication.
Dimensions: Module	- Height: 105 mm (4.13 in) or 116 mm (4.7 in) including mounting lugs - Width: 51.8 mm (2.04 in) - Depth: 147 mm (5.79 in)
Weight (Maximum)	0.8 kg (1.76 lb) for a single, non-fault-tolerant module.
Part Number	- FCP280: RH924YA - FCP280 Horizontal-Mounted Baseplate: RH924YL - FCP280 Vertical-Mounted Baseplate: RH924YF - FCP280 Dual Cable Baseplate: (Horizontal or Vertical mount) RH100JX - Fiber Adapter: RH924WA - Copper Adapter: RH924UQ - Splitter Adapters: - Twinaxial Fieldbus Splitter: RH928CV - Redundant Module Fieldbus Cable Adapter: RH924ZJ - For use when the FCP280 is in the middle of a 200 Series baseplate chain RH928CY - Enables the use of redundant module Fieldbus cables between baseplates to split and terminate the Modular Fieldbus and optional time strobe signals - Time Strobe Adapter: RH924ZQ
Ethernet Switch to FCP280 Cabling	Cabling Connectors: - Fiber Adapter: Two ceramic type LC connectors on one end (for network adapters) with an MT-RJ connector on the other end (for switch) - Copper Adapter: RJ-45 connectors on both ends Fiber Optic Cable: - Cable Material: Multimode fiber (MMF) 62.5/125 μm plenum - Cable Lengths: Up to 50 m (164 ft) – Schneider Electric supplied. See “Network Cabling for FCP280 Network Adapters” in <i>Field Control Processor 280 (FCP280) User’s Guide</i> (B0700FW) for the appropriate specifications of allowed fiber optic cabling. Greater than 50 m – user supplied.