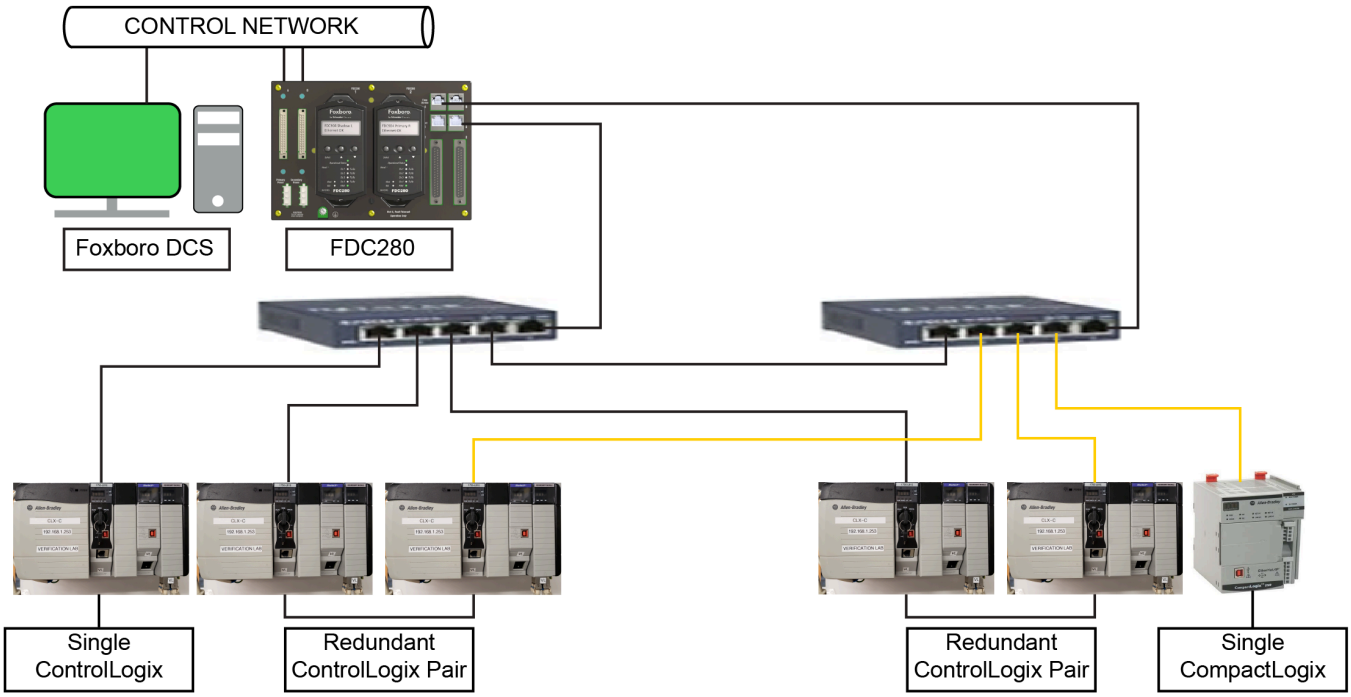
Foxboro™ DCS

EtherNet/IP Scanner Driver for Field Device Controller 280

PSS 41S-3FDCIPDR

Product Specification

March 2024



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Overview

The Ethernet/IP Scanner driver for Foxboro™ DCS Field Device Controller (FDC) 280 ("FDC280 Ethernet/IP Scanner driver") integrates data from Allen-Bradley ControlLogix® or CompactLogix™ PLCs with Foxboro DCS. The driver enables the Foxboro DCS to read data from and write data to the integrated PLCs via EtherNet/IP™ Protocol using tag-based communication. The driver supports an option to enable the Symbol ID mode for better performance subject to ControlLogix PLC supporting the Symbol ID mode.

The FDC280 EtherNet/IP Scanner driver supports connection with up to 10 PLCs and up to 8,000 input / output tags subject to FDC280 performance limitation.

The FDC280 EtherNet/IP Scanner driver supports fully redundant integration of ControlLogix PLCs with no single point failure.

The FDC280 EtherNet/IP Scanner driver can run concurrently with other drivers like Modbus, TSAA, or OPC UA subject to FDC280 overall performance and capacity limitations.

Features

- Real time data integration of Allen-Bradley ControlLogix and CompactLogix PLCs into Foxboro DCS using Ethernet connectivity.
- Supports up to10 Allen-Bradley PLCs per FDC280 controller.
- Supports up to 8,000 input / output tags per FDC280 controller.
- Supports a fully redundant integration with ControlLogix PLCs with no single point failure.
- Supports concurrency with other Model K protocol drivers (Modbus TCP, Modbus Serial, TSAA, OPC UA).
- Supports Symbol Instance mode for better communication performance.
- Availability of standard Foxboro DCS plant management functions and operator displays.
- System Manager detection, reporting and management of device connectivity.
- Enhanced diagnostics using disruption-less diagnostics tool.
- Supports bulk configuration of tags using Control Software Bulk Data Object.
- Supports configuration using Control Software or Integrated Control Configurator (ICC).

Ease of Integration

FDC280 with EtherNet/IP Scanner driver enables data exchange between Allen-Bradley ControlLogix and CompactLogix PLCs and Foxboro DCS, thus taking advantage of both the power of the Foxboro DCS and the features of EtherNet/IP communication.

Foxboro DCS software also provides standard plant management functions and operator displays for these devices, including startup, and communication fault detection and display using System Manager.

The FDC280 with EtherNet/IP Scanner driver can be configured as either simplex or fault-tolerant, as shown in *Field Device Controller 280 (FDC280)* (PSS 41H-2FDC280).

To maintain separation between the control processes and the external device communication processes, the EtherNet/IP Scanner driver is run on Core 2 of the FDC280's CPU and communicates to the control processes running on Core 1 via an internal bus.

Hardware and Software Compatibility

To add EtherNet/IP Scanner driver support to earlier releases of FDC280, a major image update is required. For more information see *Field Device Controller 280 (FDC280)* (PSS 41H-2FDC280).

The FDC280 EtherNet/IP Scanner driver is compatible with all releases of:

- Foxboro DCS Control Core Services v9.4 and later
- Control Software v7.1.1 and later

Communications

The FDC280 connects to Allen-Bradley PLCs over a user-supplied network connection.

Ordering

The FDC280 EtherNet/IP Scanner Driver can be ordered from BuyAutomation. The product includes the driver install media. Engineering assistance can be provided through the normal channels.

Installation and Operation

The FDC280 collects the required data from the device via the EtherNet/IP Scanner driver, performs the necessary conversions, and then stores the converted data in its database for incorporation into the Foxboro DCS plant management functions and operator displays. Data can also be written to the EtherNet/IP device from the Foxboro DCS.

Installation and Download

There are two types of driver installation (Minor and Major Image Update). For more information about the driver installation, see *Field Device Controller 280 (FDC280) User's Guide* (B0700GQ).

Depending on the type of installation required, installation of the driver may require either a download operation that does not disrupt the rest of Foxboro DCS (Minor) or an operation that involves full, double-sided reboot of the FDC280 (Major).

To add EtherNet/IP Scanner driver support to earlier releases of FDC280, a major image update is required.

Configuration Software

FDC280 EtherNet/IP Scanner driver and FDC280 Image supporting tools include:

- Control Core Services (CCS) v9.4 or later
- Control Software (CS) v7.1.1 or later

FDC280 EtherNet/IP Scanner driver configuration tools include:

- CCS FDC280 Configurator
- Integrated Control Configurator (ICC)

For more information, see *FDC280 EtherNet/IP Scanner Driver User's Guide* (B0700WZ).

Diagnostics

The FDC280 EtherNet/IP Scanner driver supports disruption-less diagnosis of device interfacing issues. This support is facilitated with the FDC280 diagnostic driver in the firmware logging the messages exchanged with the device and sending them and related diagnostic information to a workstation on the I/O network running the FDC280 Diagnostic application.

All diagnostic data for the EtherNet/IP Communication is made available through Distributed Control Interface (DCI) input blocks.

Specifications

Number of Devices	Up to10 Allen-Bradley PLCs per FDC280 controller.
Number of Points	The FDC280 can support up to 8,000 blocks subject to performance limitations.
Control Block Support	The FDC280, used with the EtherNet/IP Scanner Driver, supports the Foxboro DCS Equipment Control Block (ECBs) and DCI blocks.
Performance	The FDC280 EtherNet/IP Scanner Driver, using DCI blocks, supports communication for 8,000 input / output tags. The 8,000 tags can be configured with a single PLC or split across multiple PLCs up to 10 PLCs (maximum supported number). • Scan rate of 1 second can support up to 1,500 tags without symbol instance mode. • Scan rate of 4 seconds can support up to 8,000 tags without symbol instance mode. • Scan rate of 3 seconds can support up to 8,000 tags with symbol instance mode.
ECB Support	• ECBP: Primary ECB, representing the FDC280's Ethernet port. • ECB200: Parent ECB, representing the EtherNet/IP Scanner Driver. • ECB201: Child ECB, representing an EtherNet/IP Device.
Tag Name Configuration	• Using the ICC and CCS FDC280 Configurator, the driver supports ControlLogix/CompactLogix interfacing with tag names up to 29 characters long and in upper case only. • Using Control Software, the driver provides the option to support tag names up to 40 characters by configuring groups and I/O point aliases. The maximum size of a tag name allowed in ControlLogix/CompactLogix software is 40 characters.
Data Types	The driver supports these predefined data types in ControlLogix/ CompactLogix device: • BOOL • SINT (8-bit integer) • INT (16-bit integer) • DINT (32-bit integer) • REAL (32-bit float) • TIMER (32-bit integer – units of milliseconds) • COUNTER (32-bit integer) • CONTROL (32-bit integer)
Arrays	Access of single dimensional array data in ControlLogix/ CompactLogix software is supported by the driver. The supported data types of the elements within the array are: • SINT (8-bit integer) • INT (16-bit integer) • DINT (32-bit integer) • REAL (32-bit float) • Boolean Array (32 bit binary) • Timer Array • Counter Array

	• Control Array • User-defined structured arrays
DCI Blocks Support	• BIN: Binary Input DCI block • BOUT: Binary Output DCI block • BINR: Redundant Binary Input DCI block • IIN: Integer Input DCI block • IOUT: Integer Output DCI block • IINR: Redundant Integer Input DCI block • PAKIN: Packed Input DCI block • PAKOUT: Packed Output DCI block • PAKINR: Redundant Packed Input DCI block • PLSOUT: Pulse Output DCI Block • RINR: Redundant Real Input DCI block • ROUT: Real Output DCI block • RINR: Redundant Real Input DCI block
Time Synchronization	The driver support synchronizing the ControlLogix/CompactLogix time with Foxboro DCS Series Time and up to the second.
Redundancy	Supports full redundant interface with ControlLogix with no single point of failure.
Part Numbers	FDC280 EtherNet/IP Scanner Driver – Model K. K0177EP

Related Documents

Document Number	Description
PSS 41H-2FDC280	*Field Device Controller 280 (FDC280)* (PSS 41H-2FDC280)
B0700WZ	*FDC280 EtherNet/IP Scanner Driver User's Guide* (B0700WZ)
B0700GQ	*Field Device Controller 280 (FDC280) User's Guide* (B0700GQ)

⚠ **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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