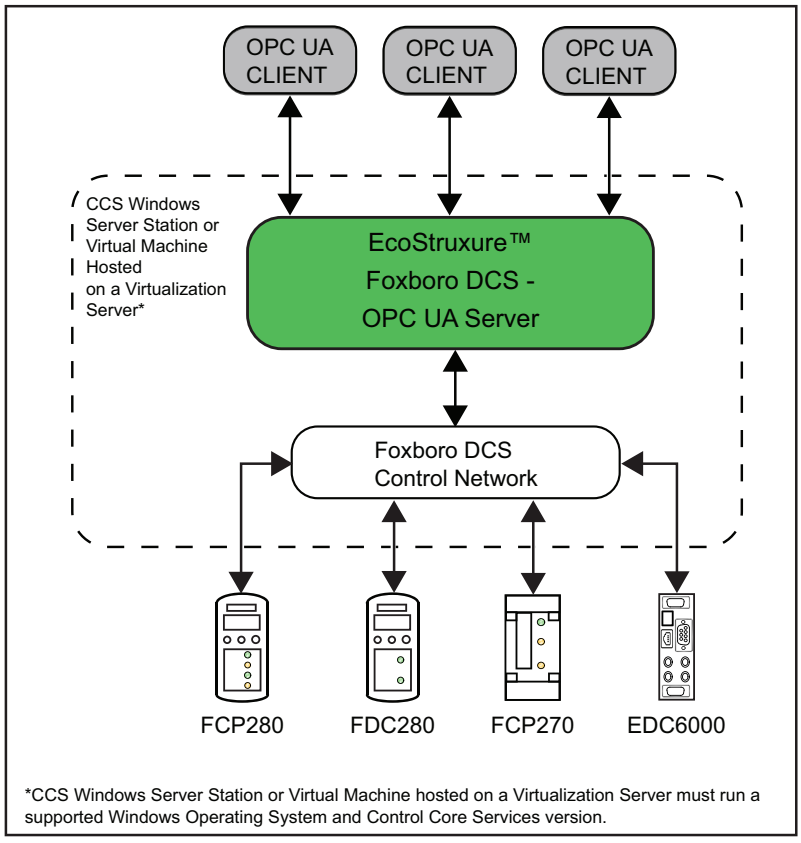
Foxboro™ DCS

OPC UA Server

PSS 41S-6OPCUA

Product Specification

January 2025



Legal Information

The information provided in this document contains general descriptions, technical characteristics and/or recommendations related to products/solutions.

This document is not intended as a substitute for a detailed study or operational and site-specific development or schematic plan. It is not to be used for determining suitability or reliability of the products/solutions for specific user applications. It is the duty of any such user to perform or have any professional expert of its choice (integrator, specifier or the like) perform the appropriate and comprehensive risk analysis, evaluation and testing of the products/solutions with respect to the relevant specific application or use thereof.

Overview of EcoStruxure™ Foxboro DCS™ - OPC UA Server

EcoStruxure™ Foxboro DCS™ - OPC UA Server facilitates OLE for Process Control (OPC) Unified Architecture (UA) client applications to access real-time data from Foxboro DCS for read and write access. The software fully supports standard OPC UA encryption and authentication with strong certificate handling capabilities. The Foxboro DCS OPC UA Server has been especially designed to help protect the critical run-time environment of the DCS from overloading through external OPC UA Client requests.

OPC UA facilitates interoperable and performant exchange of information via networks to and from OPC UA compliant client applications. OPC UA helps to ensure compatibility to future, open and vendor-agnostic automation landscapes while it facilitates updated replacements of previous OPC classic infrastructures. With the Foxboro DCS OPC UA Server, any OPC UA client application can access Real-time data from Foxboro DCS Control Processors such as FCP280, FCP270, FDC280, and EDC6000. The OPC UA Server uses the Compound Summary Access (CSA) server as the source for the browsable namespace.

The OPC UA Server supports OPC UA for real-time data access (Standard 2017 UA Server profile UACore1.04).

The configuration environment for the OPC UA Server supports extensive options to restrict and manage access to the Object Manager name space with rules and wizards using allow and block lists including sophisticated and transparent user interface for managing the trust certificates of the OPC UA communication partners.

The server communicates with OPC UA clients via additional secondary Ethernet networks and with the Foxboro DCS real-time namespace over the redundant Foxboro DCS Control Network using the Foxboro DCS Object Manager. The Foxboro DCS OPC UA Server must be installed on a supported Foxboro DCS server class computer connected to the Foxboro DCS Control Network.

Features of EcoStruxure™ Foxboro DCS™ - OPC UA Server

EcoStruxure™ Foxboro DCS™ - OPC UA Server for real-time data provides these capabilities:

- Support for multiple clients
- Browsable OPC UA Namespace
- Standard 2017 UA Server profile UACore1.04
- Support for exporting OPC UA Standard NodeSet XML
- Capacity support for up to 75,000 Nodes per server instance
- Provides all connected clients with dynamic data communication requests compliant to the OPC UA standard including value, quality, and timestamps
- Firewall-friendly, encrypted communication
- Easy integration with Active Directory domain controller for easy, secure, and centralized management of user credentials
- Built-in user-friendly interface for
  - License Management
  - Address space configurations
  - Security configurations
  - Certificate management
  - Namespaces configuration (URIs)
  - End Points configuration (URLs)
  - Write Access list configuration
  - Fast/slow Nodes configuration

Maintenance and Management

- Built-in Graphical User Interface (GUI) for communication diagnostics
- Built-in configuration and communication logging
- Built-in GUI to view, search, sort, filter, and Export log messages
- Supports integration with customer supplied SysLog servers for centralized logging
- Supports logging of all write actions by external OPC UA clients

Reliability

- Auto recovery at startup or following power becoming unavailable without any user intervention
- Online configuration changes to the address space without loss of communication
- Auto recovery after an unavailable network is restored without any user intervention
- Auto recovery after an OPC UA Client becomes unavailable without any user intervention

Runtime Control Processor (CP) Protection Management

- User configurable write access list to help avoid unintended writing actions to CPs
- User configurable fast and slow designations to help minimize the load on CPs
- Optimized design to share resources on CPs for multiple clients access the same set of data

Hosting Platform

The OPC UA Server is supported on an Enterprise Edition Control Core Services (CCS) physical server or Virtual Machine (VM) hosted on a virtualization server Domain Client connected to the Control Network and running either:

- Microsoft Windows Server 2016 with Foxboro DCS Control Core Services v9.7 or later
- Microsoft Windows Server 2022 with Foxboro DCS Control Core Services v9.8 or later

The server or the VM running the OPC UA Server must be dedicated to running only the OPC UA Server and Control Core Services packages. No other packages, such as Control Software, are allowed on that same server or VM.

Data Sources

The Foxboro DCS OPC UA Server supports these run-time data sources in the Foxboro DCS Control Processors:

- Field Control Processor 280 (FCP280)
- Field Device Controller 280 (FDC280)
- Electrodynamic Controller 6000 (EDC6000)
- Field Control Processor 270 (FCP270)

  Support for the FCP270 is limited due its lifecycle status. For further information, review the *Foxboro DCS Product Phase Listing and Lifecycle User Guide* on the Global Customer Support (GCS) website.

Communication

- Via Ethernet (recommended minimum 100 Mbits per second) to OPC UA clients

Specifications

<table>
<tr><td>OPC UA Profile</td><td colspan="4">Compliant with Standard 2017 UA Server Profile - see https://profiles.opcfoundation.org/profile/1663</td></tr>
<tr><td>Number of OPC UA Clients</td><td colspan="4">Supports connection with up to 10 concurrent OPC UA clients</td></tr>
<tr><td>Communication Capacity</td><td colspan="4">Supports up to 75,000 tags per OPC UA Server Instance</td></tr>
<tr><td rowspan="12">Communication Performance</td><td colspan="4">Supports 45,000 - 60,000 tag updates per seconds</td></tr>
<tr><td>Connected OPC UA Clients</td><td>Subscribed Nodes per Client</td><td>Maximum Unique Nodes Configured</td><td>Maximum Updates per Second</td></tr>
<tr><td>1</td><td>75,000</td><td>75,000</td><td>60,000</td></tr>
<tr><td>2</td><td>37,500</td><td>75,000</td><td>60,000</td></tr>
<tr><td>3</td><td>25,000</td><td>75,000</td><td>60,000</td></tr>
<tr><td>4</td><td>18,750</td><td>75,000</td><td>60,000</td></tr>
<tr><td>5</td><td>15,000</td><td>75,000</td><td>55,000</td></tr>
<tr><td>6</td><td>12,500</td><td>75,000</td><td>55,000</td></tr>
<tr><td>7</td><td>10,714</td><td>75,000</td><td>50,000</td></tr>
<tr><td>8</td><td>9,375</td><td>75,000</td><td>50,000</td></tr>
<tr><td>9</td><td>8,333</td><td>75,000</td><td>45,000</td></tr>
<tr><td>10</td><td>7,500</td><td>75,000</td><td>45,000</td></tr>
<tr><td>Update Time</td><td colspan="4">Supports update time as fast as 1 second</td></tr>
<tr><td>Protection Management Features</td><td colspan="4">• Built-in graphical user interface to configure user defined name spaces (URIs)
• Built-in graphical user interface to configure user defined End Points (URLs)
• Built-in graphical user interface for Write Access list
• Built-in graphical user interface for fast and slow Tags Management</td></tr>
<tr><td>Security Features</td><td colspan="4">• Firewall friendly
• Encryption
• User Authentication and Authorization
• Certificate-based Authentication
• Requires domain controllers to help secure communications</td></tr>
<tr><td>Security Policies</td><td colspan="4">• 6.5.123 SecurityPolicy – None
• 6.6.162 SecurityPolicy – Basic128Rsa15
• 6.6.163 SecurityPolicy – Basic256
• 6.6.164 SecurityPolicy – Aes128-Sha256-RsaOaep
• 6.6.165 SecurityPolicy – Basic256Sha256
• 6.6.166 SecurityPolicy – Aes256-Sha256-RsaPss</td></tr>
</table>

Message Security Modes	• None • Sign • SignAndEncrypt	
Security Management Features	• Supports integration with Active Directory for User credentials management • Built-in graphical user interface for Certificate Management • Built-in graphical user interface for user authentication management of user defined names spaces	
Diagnostics	• Built-in graphical user interface for communication diagnostics • Built-in configuration and communication logging • Built-in graphical user interface to view, search, sort, filter, and export log messages • Supports integration with customer supplied SysLog servers for centralized logging • Supports logging of all write actions by external OPC UA clients	
Hosting Platform	• Enterprise Edition CCS Server running Windows Server 2016 • Enterprise Edition CCS Server running Windows Server 2022 • Virtual Machines running Windows Server 2016 and hosted by Foxboro DCS Virtualization server • Virtual Machines running Windows Server 2022 and hosted by Foxboro DCS Virtualization server	
Usability	• Support discovery by other OPC UA Clients • Supports browsable Names Spaces	
Timestamp	• Supports Source Timestamp • Supports Server Timestamp	
Deadband Support	• Supports Absolute deadband • Supports no deadband	
Part Numbers	**Part Number**	**Description**
	FOXSRVOPCUADSV2	OPC UA DA Server Perpetual Small 500 Tags
	FOXSRVOPCUADMV2	OPC UA DA Server Perpetual Medium 5000 Tags
	FOXSRVOPCUADLV2	OPC UA DA Server Perpetual Large unlimited Tags
	FOXSRVOPCUADLV2U	Upgrade from AIM*OPC Server to-OPC UA DA Server Perpetual Large unlimited Tags

⚠ **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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