# OPC UA

## 1 Description

The OPC UA driver allows the FieldServer to transfer data to and from devices over Ethernet using the OPC UA protocol. The OPC UA driver uses TCP by connecting to an OPC UA server with OPC TCP or HTTPS. If using HTTPS, users can upload their private key.

The default port is 26543 and is configurable.

The driver was developed from the OPC Unified Architecture protocol specification from the OPC Foundation. The specification can be found at the OPC Foundation's webpage for OPC UA.

The FieldServer can emulate both a client and a server. When configured as a client, the OPC UA driver will connect to the configured OPC UA servers and attempt to read the requested data points. This data is stored on the FieldServer, and can be viewed or mapped to other protocols. When configured as a server, the OPC UA driver creates a connectable endpoint for OPC UA clients and creates the OPC objects and attributes to make protocol data available to OPC UA clients.

**NOTE: The OPC UA doesn't support security certificates at this time.**

**⚠ WARNING!**

This document is not a replacement for the device's startup guide. Read the startup guide before using this device, including all Warnings and Cautions.

**Failure to follow this warning can result in serious personal injury or death.**

### 1.1 Connection Facts

| FieldServer Mode | Nodes | Comments |
|---|---|---|
| Client | * | The client mode can connect to multiple OPC UA servers as a client to read multiple data points. The limiting factor is the point count of the FieldServer device. |
| Server | 1 | The server mode supports setting up one OPC UA resource endpoint, but multiple OPC UA clients can connect to it to read data. |

## 2 Formal Driver Type

Client or Server

## 3 Compatibility

| FieldServer Model | Compatible |
|---|---|
| ProtoCessor | No |
| ProtoCarrier | No |
| ProtoNode | Yes |
| ProtoAir | Yes |
| BACnet IoT Gateway | No |
| Modbus IoT Gateway | Yes |

| FieldServer Model | Compatible |
|---|---|
| QuickServer FS-QS-10xx | No |
| QuickServer FS-QS-12xx | No |
| QuickServer FS-QS-20xx | Yes |
| QuickServer FS-QS-22xx | Yes |
| QuickServer FS-QS-3x10-F | Yes |

# 4 Connection Information

**Connection Type:** Ethernet

**Ethernet Speeds Supported:** 10Base-T, 100Base-T

# 5 Devices Tested

| Device | Tested (Factory, Site) |
|---|---|
| OPC Foundation Reference Client / Server | Factory |

# 6 Communication Functions

## 6.1 Data Types Supported

| Data Type | Comments |
|---|---|
| Null | A two-state logical value (true or false). |
| Boolean | An integer value between -128 and 127. |
| SByte | An integer value between 0 and 255. |
| Byte | An integer value between -32 768 and 32 767. |
| Int16 | An integer value between 0 and 65 535. |
| UInt16 | An integer value between -2 147 483 648 and 2 147 483 647. |
| Int32 | An integer value between 0 and 4 294 967 295. |
| UInt32 | An integer value between -9 223 372 036 854 775 808 and 9 223 372 036 854 775 807. |
| Int64 | An integer value between 0 and 18 446 744 073 709 551 615. |
| UInt64 | A two-state logical value (true or false). |
| Float | 32 bit IEEE floating point. |
| Double | An IEEE double precision (64 bit) floating point value. |
| String | A text value encoded as a UTF-8 character string. |

## 6.2 OPC Attribute Types Supported

| | |
|---|---|
| NodeId | EventNotifier |
| NodeClass | Value |
| BrowseName | DataType |
| DisplayName | ValueRank |
| Description | ArrayDimensions |
| WriteMask | AccessLevel |
| UserWriteMask | UserAccessLevel |
| IsAbstract | MinimumSamplingInterval |
| Symmetric | Historizing |
| InverseName | Executable |
| ContainsNoLoops | |

### 6.3 Functionality Supported

| | |
|---|---|
| Client | • Connect (using OPC TCP or https)<br>• Create Session (with or without username and password)<br>• Read |
| Server | • Read<br>• Write |