



# FieldServer Driver - Serial FS-8700-19 Metasys N2

## Description

The Metasys N2 network supports communications with a diverse range of devices. Many N2 compatible devices use their own flavor of the protocol. The different flavors are designed to co-exist on the same N2 network. Care must be taken to ensure the device of interest is covered by the FieldServer implementation.

At present the FieldServer Metasys N2 driver will support communications with the following devices or classes of devices when acting as a client:

1. N2Open-compliant devices. N2Open is a published N2-compatible protocol enabling 3<sup>rd</sup> party device vendors to integrate with N2.
2. VMA 1400 series (with restrictions, see below)
3. DX9100 and XT9100

When acting as a server the FieldServer Metasys N2 driver can emulate an N2Open device only.

Fieldserver Mode	Nodes	Comments
Client	1	Only 1 client node allowed on Multidrop systems. Can communicate with: <ul style="list-style-type: none"> <li>• N2Open</li> <li>• VMA 1400 series (AI,BI,AO,BO and custom types)</li> <li>• DX9100 / XT9100</li> </ul>
Server	255	Number of nodes limited by N2 address space. Can only act as a N2Open server node.

## Formal Driver Type

Serial, Client or Server

## Connection Information

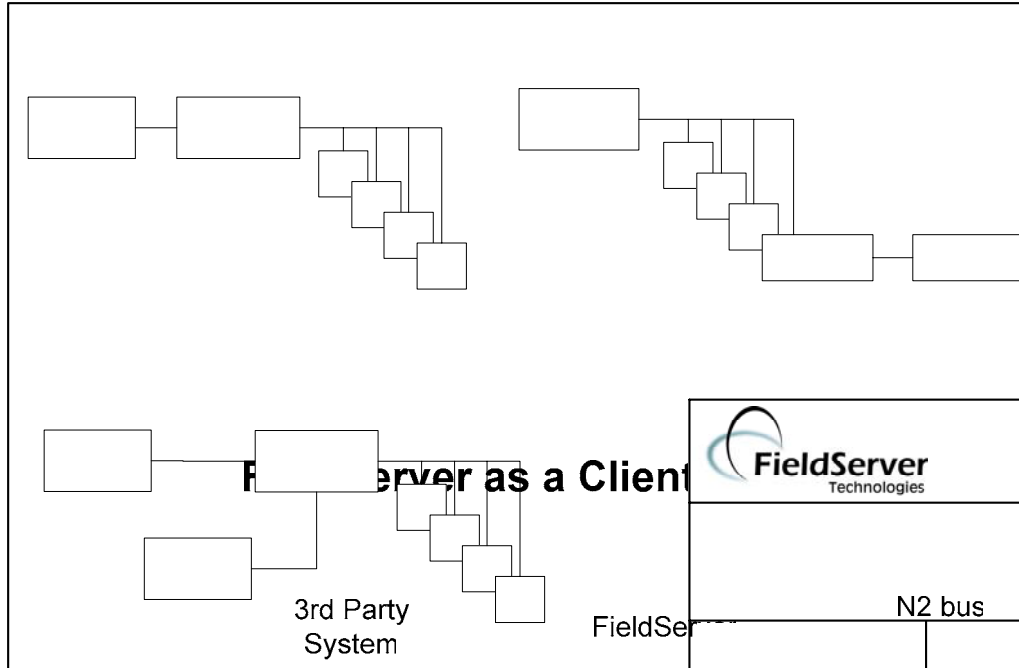
**Connection type:** RS-485 (Two wire, Half-Duplex)  
**Baud Rates:** 9600 (N2 standard)  
**Data Bits:** 8  
**Stop Bits:** 1  
**Parity:** None  
**Multidrop Capability:** Yes

**Devices Tested**

Device	Supported	Tested (FACTORY, SITE)	N2Open Device
UNT	✓	Site	✓
VMA1410, VMA1420	✓	Factory and Site	
DX9100 with XT9100 extension	✓	Factory and Site	
LCP/DX9100	✗	not tested	
NCM (FieldServer as N2Open server)	✓	Factory and Site	✓
VAV	✓	Site	✓
AHU	✓	not tested	✓
VND	✓	not tested	✓
PHX	Consult Factory	not tested	Consult Factory
MIG	Consult Factory	not tested	Consult Factory
ILC	Consult Factory	not tested	Consult Factory
IFC	Consult Factory	not tested	Consult Factory
TC-9100	Consult Factory	not tested	Consult Factory
TEC1000	Consult Factory	not tested	Consult Factory



### Connection Configurations



FieldServe

NCM, N30 or other N2 client

### Connection Notes

Only one N2 client may be connected to a N2 network. If the FieldServer is to act as a client, ensure no other clients are connected to the same N2 network. In the **Interceptor Mode** the FieldServer can be installed between an existing N2 host and the remainder of the N2 network. It will then intercept the data, and is also able to interleave its own polls for data items not configured in the host in the time between polls sent by the host N2 devices

### Interceptor Mode (reterofit option - x40 only)



3rd Party

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**Communications Functions - Supported Functions at a Glance:**

**Data Types Supported – N2Open**

FieldServer Data Type	Description (or Device Data Type)
Analog_Input	Analog Input ( <b>AI</b> )
Digital_Input	Binary Input ( <b>BI</b> )
Analog_Output	Analog Output ( <b>AO</b> )
Digital_Output	Binary Output ( <b>BO</b> )
Float_Reg	Internal Float value ( <b>ADF</b> )
Integer	Internal Integer value ( <b>ADI</b> )
Byte	Internal Byte value ( <b>BD</b> )

**Read Operations Supported – N2Open**

FieldServer as a Client	FieldServer as a Server
<b>Read Current Value (all data types)</b>	<b>Read Current Value (all data types)</b>
direct read, Change-of-State (COS) poll	direct read, Change-of-State (COS) poll
<b>Read Attribute (all data types):</b>	<b>Read Attribute (all data types):</b>
direct read, specifying a legal attribute number	direct read, specifying a legal attribute number
	<b>Identify Self command</b>

**Write (Control) Operations Supported – N2Open**

FieldServer as a Client	FieldServer as a Server
Override Current Value (all data types) implemented as Write on FieldServer	Override Current Value (all data types) implemented as Write on FieldServer
Override Release (all data types)	Override Release (all data types)
Write Attribute (all data types) direct write, specifying a legal attribute number	Write Attribute (all data types) direct write, specifying a legal attribute number

**Listing of Supported Attributes – N2Open**

Data Type	Attribute No.	Attribute
Analog Input	1	Object Configuration
	2	Object Status
	3	Analog Input Value
	4	Low Alarm Limit
	5	High Alarm Limit
	6	Low Warn Limit
	7	High Warn Limit
	8	Differential
Binary Input	1	Object Configuration
	2	Object Status
Analog Output	1	Object Configuration
	2	Object Status
	3	Current Value



Data Type	Attribute No.	Attribute
Binary Output	1	Object Configuration
	2	Object Status
	3	Minimum On-Time
	4	Minimum Off-Time
	5	Maximum Cycles/Hour
Internal Float	1	Object Status
	2	Current Value
Internal Integer	1	Object Status
	2	Current Value
Internal Byte	1	Object Status
	2	Current Value

**Unsupported Functions and Data Types – N2Open**

Function	Reason
Time Update	Not required
Read Memory Diagnostics	Not required
Warm Start Message	Not required
Status Update Message	Not required
Programming messages (upload, download)	FieldServer is a data transfer device, and as such, programming messages are not required

**Data Types Supported – VMA**

FieldServer Data Type	Description (or Device Data Type)
Analog_Input	Analog Input ( <b>AI</b> )
Digital_Input	Binary Input ( <b>BI</b> )
Analog_Output	Analog Output ( <b>AO</b> )
Digital_Output	Binary Output ( <b>BO</b> )
Float_Reg	Internal Float value ( <b>ADF</b> )
Integer	Internal Integer value ( <b>ADI</b> )
Byte	Internal Byte value ( <b>BD</b> )

**Read Operations Supported – VMA**

FieldServer as a Client	FieldServer as a Server
Read Current Value (all data types)	Not applicable
Direct Read, Change-of-State (COS) poll	

**Write (control) Operations Supported – VMA**

FieldServer as a Client	FieldServer as a Server
Write / Override Current Value (all data types) implemented as Write on FieldServer	Not applicable



FieldServer as a Client	FieldServer as a Server
Override Release (AI and BI only) use writes for outputs and internal values	

**Unsupported Functions and Data Types – VMA**

Function	Reason
Programming messages (upload, download)	FieldServer is a data transfer device, and as such, programming messages are not required. Note that the <b>Interceptor Mode</b> will not allow the field devices to be programmed through the FieldServer.

**Data Types Supported - DX9100**

FieldServer Data Type	Description (or Device Data Type)
Not specified for DX9100 device type	<b>Supported sections of Address Map:</b>
	general control module
	programmable modules 1-12
	analog input modules 1-8
	analog output modules 1-2
	digital output modules 3-8
	extension modules 1-8
	time schedules 1-8
	optimal start/stop modules 1-2
	analog output modules 9-10
auxiliary analog output modules 11-13	

**Read Operations Supported - DX9100**

FieldServer as a Client	FieldServer as a Server
Read of all points supported	Not applicable

**Write (control) Operations Supported - DX9100**

FieldServer as a Client	FieldServer as a Server
Write of all points supported	Not applicable
DX9100 may not allow writes to specific values	

**Unsupported Functions and Data Types - DX9100**

Function	Reason
Programming messages	FieldServer is a data transfer device, and as such, programming messages are not required



**Revision History**

Date	Resp	Format	Driver Ver.	Doc. Rev.	Comment
2/5/03			1.02	1	rewrite for N2Open, VMA, DX9100
2/17/03	EKH		1.02	2	revise as per EKH markups
2/19/03	EKH		1.02	3	Releasing
2/20/03	EKH		1.02	4	Minor formatting and text changes
7/16/03	MF		1.02	5	Updated connection configuration pictures – DUR142
12/19/03	JD		1.02	6	Releasing
3/10/04	MC	MC	1.02	7	Updated connection diagram. Updated formatting. Added new revision table. Added page numbering.
1/5/05	JD		1.02	8	Releasing