

1 DESCRIPTION

The LonWorks driver allows the FieldServer to transfer data to and from devices using LonWorks protocol. Data transfer occurs via TP/FT10 twisted pair interface with an exhaustive list of protocols including Modbus, BACnet etc. Data transfer is via 2 basic functional blocks, Input and Output allowing Float and Word SNVT data types.

The FS-B30 Series and SlotServer can handle up to 4096 Network Variables, the FS-B2011 up to 1000, and the QuickServer, ProtoNode and ProtoCessor up to 500 which can be of the Standard Network Variable Types (SNVT) and/or User-defined Network Variable Types (UNVT). The FieldServer LonWorks device can be used with explicit and/or implicit addressing and can be bound to a maximum of 15 other LonWorks nodes. The FS-B30 Series can handle a maximum of 4096 explicitly addressed nodes and the FS-B2011 up to 1000. The FieldServer currently supports a default of 63 network variable aliases to avoid network variable connection constraints.

The FieldServer can transfer data (Network Variables) in two ways.

- It can poll (request data from) other devices at a regular interval.
- It can send Network Variable Updates
 - At a regular interval
 - When the data has changed
 - In throttled mode using minimum and maximum send time and change on delta parameters.

The FieldServer is capable of being configured by Network Management Tools such as LonMaker. For binding (implicit mode), a Network Management Tool is necessary to create the bindings. It is possible to place a FieldServer into a Network for explicit communications without using a Network Management Tool, but this requires intimate knowledge of the network in question.

The external interface file (.XIF) for the FieldServer can be uploaded from the FieldServer for the particular application. The FieldServer differs from most other LonWorks devices in that its XIF file is not fixed due to varying applications. The list of points

available to the network will vary depending on the other networks connected to the FieldServer, and the requirements of the particular application. The recommended procedure for obtaining the XIF file for the FieldServer is to upload it.

The following FieldServer Platforms are LonMark Certified:



- FS-B20
- FS-B35
- FS-B40
- FS-SlotServer
- FS-QuickServer-Lon
- ProtoCessor-Lon

The FieldServer provides the capability of defining multiple functional blocks, but only a single LonMark object. The user can create multiple functional blocks or a LonMark object by filling out the Node Self-Documentation String and the respective Network Variable Self-documentation String fields in the FieldServer configuration file.

The following table summarizes the FieldServer LonWorks driver's capabilities:

	FS-B2011, QuickServer ProtoCessor ProtoNode	FS-B30, SlotServer
Number of Network Variables ¹	1000	4096
Address Table Entries	15	15
Network Variable Aliases	63	63
Number of Domain Tables ²	2	2
Support for SNVTs ³	Yes	Yes
Support for UNVTs	Yes	Yes
Explicit Addressing	Yes	Yes
Implicit Addressing	Yes	Yes
XIF file	Yes	Yes
Supports Polled Network Variables	Yes	Yes
Supports Network Variable Updates	Yes	Yes
Supports Configuration Properties ⁴	Yes	Yes
Supports Node and Network Variable Self-documentation Strings	Yes	Yes
Support for SCPTs ⁵	Yes	Yes
Network Management Tools such as LonMaker Supported	Yes	Yes
Commissioning without Network Management Tool Supported ⁶	Yes	Yes

¹ The length of Network Variable names, complexity of the configuration, and hardware license purchased may limit the actual number of usable Network Variables

² One of the two domains is the zero domain used by Network Management Tools

³ SNVT Master List Version 11 is supported

⁴ Implemented with Configuration Network Variables

⁵ Only selected SCPTs are supported, extra SCPTs can be added on a per configuration basis

⁶ Explicit Addressing Only

Service Pin Supported	Yes	Yes
LonMark Object and Functional Profiles definition ⁷	Yes	Yes

1.1 Connection Facts

FieldServer Mode	Nodes	Comments
Client	1	The FieldServer can only represent one LonWorks device on the LonWorks Network. A LonWorks device is unique in terms of its Neuron Chip Identification Number.
Server	1	

2 FORMAL DRIVER TYPE

Field Bus

Client or Server

3 COMPATIBILITY MATRIX

FieldServer Model	Compatible with this driver
FS-x30	Yes
SlotServer	Yes
ProtoNode	Yes
QuickServer	Yes
QuickServer FS-QS-10xx	Yes
QuickServer FS-QS-12xx	Yes
ProtoCessor FPC-ED2	Yes
ProtoCessor FPC-ED4	Yes

⁷ Only approved LonMark objects are supported, see www.lonmark.org

4 CONNECTION INFORMATION

Connection type: FTT-10 Free Topology Network Transceiver
Baud Rates: 78125 bps (bits per second)
Hardware interface: Built in LonWorks FTT-10 interface (FS-X2011, QuickServer, Processor, Protonode and FS-B30)

Additional information on cabling and junction boxes that may be used in twisted pair LonWorks networks are detailed in the following Echelon Publication: http://www.echelon.com/support/documentation/bulletin/005-0023-01O_Jbox_wiring.pdf

5 DEVICES TESTED

Device	Tested (Factory, Site)
LonMaker for Windows V3.1	Factory/Site
TAC Xenta	Factory/Site
TAC VISTA	Site
Electronic Systems USA	Factory
Echelon I/Lon 100	Site
Plexus Technologies	Site
Invensys I/A Series	Factory
Circon UHC 300 (and others)	Factory
Distech	Site
PureChoice Nose	Factory/Site
Honeywell	Factory/Site
...and many others	

6 COMMUNICATIONS FUNCTIONS - SUPPORTED FUNCTIONS AT A GLANCE:

6.1 Data Types Supported

FieldServer Data Type	Description (or Device Data Type)
Integers (Long, short, signed, unsigned)	SNVTs and UNVTs can be presented, stored and moved into any FieldServer data type
Float	
Byte	
Bit	

* See **Error! Reference source not found.** for the list of SNVT's supported

6.2 Lon Works Configuration Properties (SCPTs or UCPTs)

The Driver can read and write remote Configuration Properties implemented as Network Variables.

6.3 Read Operations Supported

FieldServer as a Client	FieldServer as a Server
Polled Network Variables:	Polled Network Variables:
-Send Network Variable Fetch	-Respond to Network Variable Fetch
-Send Network Variable Poll	-Respond to Network Variable Poll

6.4 Write (Control) Operations Supported

FieldServer as a Client	FieldServer as a Server
Network Variables Updates:	Network Variables Updates:
-Send Network Variable Updates	-Accept Network Variable Updates

6.5 Unsupported Functions and Data Types

Function	Reason
Programming messages	FieldServer is a data transfer device, and as such, programming messages are not required
Direct Memory Read / Writes under user control	The driver uses the Echelon MIP which handles direct memory read and writes
LonMark File Transfer Protocol	The Driver does not support reading and writing remote Configuration Properties implemented as files. The Driver, therefore does not support the LonMark File Transfer Protocol that is commonly used to access these remote files.