

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-B35 Series can handle up to 4096 Network Variables, the ProtoNode and ProtoCessor up to 1000, and the QuickServer 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-B35 Series can handle a maximum of 4096 explicitly addressed nodes. 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 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 application. The recommended procedure for obtaining the XIF file for the FieldServer is to upload it.

The following FieldServer Platforms are LonMark Certified:



- FS-B35
- 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:

QuickServer (QS), ProtoCessor (PC), ProtoNode (PN), & FS-B35 (B35) Capabilities	
Number of Network Variables ¹	QS=500 PC & PN=1000 B35 =4096
Address Table Entries	15
Network Variable Aliases	63
Number of Domain Tables ²	2
Support for SNVTs ³	Yes
Support for UNVTs	Yes
Explicit Addressing	Yes
Implicit Addressing	Yes
XIF File	Yes
Acknowledged service	Yes
Unacknowledged service	Yes
Supports Polled Network Variables	Yes
Supports Network Variable Updates	Yes
Supports Configuration Properties ⁴	Yes
Supports Node and Network Variable Self-Documentation Strings	Yes
Support for SCPTs ⁵	Yes
Network Management Tools such as LonMaker Supported	Yes
Commissioning without Network Management Tool Supported ⁶	Yes
Service Pin Supported	Yes
LonMark Object and Functional Profiles definition ⁷	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 12 is supported with some exceptions.

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.

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

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

FieldServer Model	Compatible
FS-B35 Series	Yes
ProtoNode/ProtoAir	Yes
QuickServer FS-QS-10xx	Yes
QuickServer FS-QS-12xx	Yes
QuickServer FS-QS-20xx	Yes
QuickServer FS-QS-22xx	Yes

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 (QuickServer, ProtoCessor, ProtoNode and FS-B35)

Additional information on cabling and junction boxes that may be used in twisted pair LonWorks networks are detailed in the following Echelon publication: http://downloads.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 SUPPORTED COMMUNICATION FUNCTIONS

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	

*For supported SNVTs, see the LonWorks manual.

6.2 LonWorks 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 variable updates	Network variable 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 therefore 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 doesn't support the LonMark File transfer protocol commonly used to access these remote files.