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.

FieldServer Technologies 1991 Tarob Court Milpitas, California 95035 USA **Web**: www.fieldserver.com
Tel: (408) 262-2299 **Fax**: (408) 262-2269 **Toll Free**: (888) 509-1970 **email**: support@fieldserver.com
Page 1 of 4

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

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

FieldBus

Client or Server

3   COMPATIBILITY MATRIX

FieldServer Model	Compatible with this driver
FS-x2010	No
FS-x2011	Yes
FSx25	No
FS-x30	Yes
SlotServer	Yes
ProtoCessor	Yes
ProtoNode	Yes
QuickServer	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 (FS-X2011, QuickServer, Protocessor, 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

---

[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

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

FieldServer Technologies 1991 Tarob Court Milpitas, California 95035 USA   **Web**: www.fieldserver.com
Tel: (408) 262-2299   **Fax**: (408) 262-2269   **Toll Free**: (888) 509-1970   **email**: support@fieldserver.com
Page 2 of 4

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 ILon 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 Appendix A for the list of SNVT's supported

6.2   LonWorks   Configuration   Properties (SCPTs or UCPTs)

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

7   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

8   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

9   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.

FieldServer Technologies 1991 Tarob Court Milpitas, California 95035 USA   **Web**: www.fieldserver.com
Tel: (408) 262-2299   **Fax**: (408) 262-2269   **Toll Free**: (888) 509-1970   **email**: support@fieldserver.com
Page 3 of 4

Appendix A. List of SNVT's supported

SNVT Type Nr	SNVT Type Name	SNVT Type Nr	SNVT Type Name
1	SNVT_amp	83	SNVT_state
2	SNVT_amp_mil	84	SNVT_time_stamp
3	SNVT_angle	85	SNVT_zerospan
4	SNVT_angle_vel	86	SNVT_magcard
5	SNVT_btu_kilo	87	SNVT_elapsed_tm
6	SNVT_btu_mega	88	SNVT_alarm
7	SNVT_char_ascii	89	SNVT_currency
8	SNVT_count	90	SNVT_file_pos
9	SNVT_count_inc	91	SNVT_muldiv
10	SNVT_date_cal	92	SNVT_obj_request
11	SNVT_date_day	93	SNVT_obj_status
12	SNVT_date_time	94	SNVT_preset
13	SNVT_elec_kwh	95	SNVT_switch
14	SNVT_elec_whr	96	SNVT_trans_table
15	SNVT_flow	97	SNVT_override
16	SNVT_flow_mil	98	SNVT_pwr_fact
17	SNVT_length	99	SNVT_pwr_fact_f
18	SNVT_length_kilo	100	SNVT_density
19	SNVT_length_micr	101	SNVT_density_f
20	SNVT_length_mil	102	SNVT_rpm
21	SNVT_lev_cont	103	SNVT_hvac_emerg
22	SNVT_lev_disc	104	SNVT_angle_deg
23	SNVT_mass	105	SNVT_temp_p
24	SNVT_mass_kilo	106	SNVT_temp_setpt
25	SNVT_mass_mega	107	SNVT_time_sec
26	SNVT_mass_mil	108	SNVT_hvac_mode
27	SNVT_power	109	SNVT_occupancy
28	SNVT_power_kilo	110	SNVT_area
29	SNVT_ppm	111	SNVT_hvac_overid
30	SNVT_press	112	SNVT_hvac_status
31	SNVT_res	113	SNVT_press_p
32	SNVT_res_kilo	114	SNVT_address
33	SNVT_sound_db	115	SNVT_scene
34	SNVT_speed	116	SNVT_scene_cfg
35	SNVT_speed_mil	117	SNVT_setting
36	SNVT_str_asc	118	SNVT_evap_state
37	SNVT_str_int	119	SNVT_therm_mode
38	SNVT_telcom	120	SNVT_defr_mode
39	SNVT_temp	121	SNVT_defr_term
40	SNVT_time_passed	122	SNVT_defr_state
41	SNVT_vol	123	SNVT_time_min

SNVT Type Nr	SNVT Type Name	SNVT Type Nr	SNVT Type Name
42	SNVT_vol_kilo	124	SNVT_time_hour
43	SNVT_vol_mil	125	SNVT_ph
44	SNVT_volt	126	SNVT_ph_f
45	SNVT_volt_dbmv	127	SNVT_chlr_status
46	SNVT_volt_kilo	128	SNVT_tod_event
47	SNVT_volt_mil	129	SNVT_smo_obscur
48	SNVT_amp_f	130	SNVT_fire_test
49	SNVT_angle_f	131	SNVT_temp_ror
50	SNVT_angle_vel_f	132	SNVT_fire_init
51	SNVT_count_f	133	SNVT_fire_indcte
52	SNVT_count_inc_f	134	SNVT_time_zone
53	SNVT_flow_f	135	SNVT_earth_pos
54	SNVT_length_f	136	SNVT_reg_val
55	SNVT_lev_cont_f	137	SNVT_reg_val_ts
56	SNVT_mass_f	138	SNVT_volt_ac
57	SNVT_power_f	139	SNVT_amp_ac
58	SNVT_ppm_f	143	SNVT_turbidity
59	SNVT_press_f	144	SNVT_turbidity_f
60	SNVT_res_f	145	SNVT_hvac_type
61	SNVT_sound_db_f	146	SNVT_elec_kwh_l
62	SNVT_speed_f	147	SNVT_temp_diff_p
63	SNVT_temp_f	148	SNVT_ctrl_req
64	SNVT_time_f	149	SNVT_ctrl_resp
65	SNVT_vol_f	150	SNVT_ptz
66	SNVT_volt_f	151	SNVT_privacyzone
67	SNVT_btu_f	152	SNVT_pos_ctrl
68	SNVT_elec_whr_f	153	SNVT_enthalpy
69	SNVT_config_src	154	SNVT_gfci_status
70	SNVT_color	155	SNVT_motor_state
71	SNVT_grammage	156	SNVT_pumpset_mn
72	SNVT_grammage_f	157	SNVT_ex_control
73	SNVT_file_req	158	SNVT_pumpset_sn
74	SNVT_file_status	159	SNVT_pump_sensor
75	SNVT_freq_f	160	SNVT_abs_humid
76	SNVT_freq_hz	161	SNVT_flow_p
77	SNVT_freq_kilohz	162	SNVT_dev_c_mode
78	SNVT_freq_milhz	163	SNVT_valve_mode
79	SNVT_lux	164	SNVT_alarm_2
80	SNVT_ISO_7811	165	SNVT_state_64
81	SNVT_lev_percent	166	SNVT_nv_type
82	SNVT_multiplier		

FieldServer Technologies 1991 Tarob Court Milpitas, California 95035 USA   **Web**: www.fieldserver.com
Tel: (408) 262-2299   **Fax**: (408) 262-2269   **Toll Free**: (888) 509-1970   **email**: support@fieldserver.com
Page 4 of 4