



A Sierra Monitor Company



SlotServer Start-Up Guide

APPLICABILITY & EFFECTIVITY

This manual provides instructions for the following FieldServer products:

Description
PS56-BAS-xxx
PS56-FIR-xxx
PS56-PRO-407

The instructions are effective for the above as of January 2011

Kernel Version:	5.21
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1 EQUIPMENT SET-UP

1.1 Supplied equipment

USB Flash Drive loaded with:

- SlotServer Start-up Guide
- SlotServer Configuration Manual
- FieldServer Utilities Manual
- All FieldServer Driver Supplements
- Support Utilities
- Any additional folders related to special files configured for a specific FieldServer
- Additional components as required - See Driver Manual Supplement for details



Accessories:

- 2-way combi-comb connector for LonWorks port
- 7-ft Cat5 cable with RJ45 connectors at both ends (Part # FS-8915-10)

1.2 Third Party Components (Not Supplied by FieldServer Technologies)

The following components will need to be procured as a minimum for achieving ControlLogix integration. Ensure that these are available before commencing with commissioning

Part #	Description
1756-Ax	ControlLogix Rack
1756-L55/L61	ControlLogix CPU
1756-PA7x	ControlLogix PSU
9324-RLD300ENE	RSLOGIX 5000

1.3 Mounting

The SlotServer plugs directly into the AB1756 ControlLogix rack. Take note of the slot number used for the SlotServer as this will be needed when configuring the I/O in the RSLogix software.

1.4 SlotServer Ports and Displays

Note that there are several hardware ports available on the SlotServer card, but that this SlotServer model only makes use of a select few. The ports and displays of interest are as shown in the diagram below:

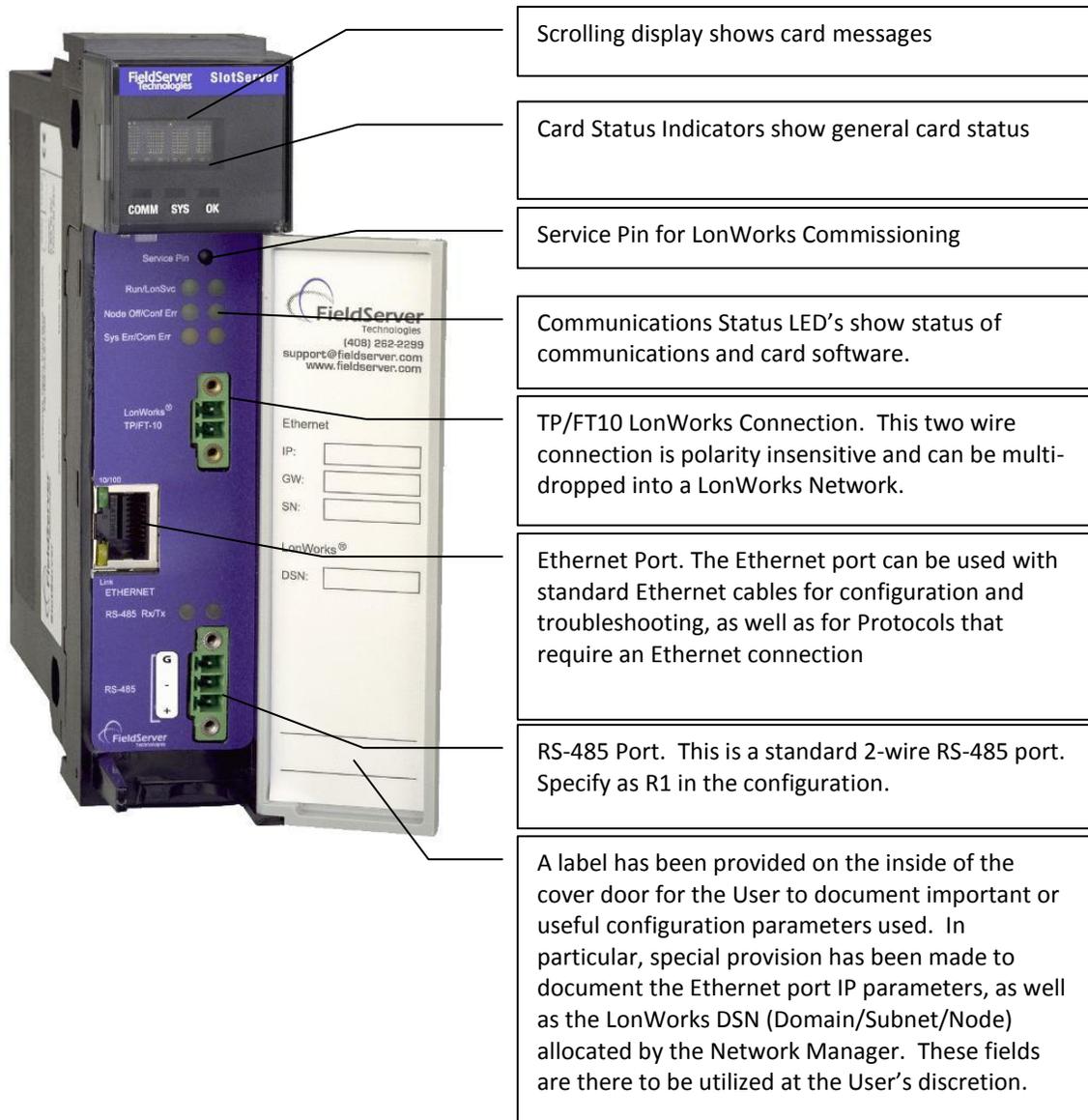


Figure 1: Diagram of SlotServer showing ports and displays

1.5 Technical Specifications

The following table presents the relevant technical specifications.

Slot width	1
Weight	0.6lb (272g)
BackPlane Current Load	0.6A
Operating Temperature	0-60°C (32-140°F)
Storage Temperature	-40 - 85°C (-40 - 185°F)
Humidity	5-95% (Non-Condensing)
Allen Bradley Platform:	ControlLogix 1756 Rack
LonWorks Connection type:	TP/FT-10
Ethernet port	10/100 MB/sec.
RS-485 port	2-wire, half duplex.
Approvals	UL 60950-1:2003 CAN/CSA-C22.2 No.60950-1-03

Table 1: Product Specifications

2 INSTALLATION

The SlotServer plugs directly into the AB1756 ControlLogix rack. Take note of the slot number used for the SlotServer as this will be needed when configuring the I/O in the RSLogix software.

2.1 Power up the device

Apply power to the device. Refer to the panel to ensure that the SlotServer has powered up successfully. The diagram in Section 1.4 indicates the location of each of these items on the SlotServer panel.

	<p>This will Display an OK status when the SlotServer has powered up successfully.</p>
	<p>The Comm and OK lights will indicate green when the SlotServer has powered up successfully. The Sys indicator will indicate green if the external nodes are all communicating properly; and red otherwise.</p>

2.2 Install and Run the Utility Software

- Plug the supplied USB flash drive into the USB port on a PC/laptop.
- Open Index.html to get the menu of options
- Run the Install option and follow the installation instructions.
- Once installed, the FieldServer Utilities can be located in the Windows Start menu and as a desktop icon.

2.3 Connect the PC to the SlotServer over the Ethernet port.

- If connecting through a hub/switch, use the supplied Cat5 UTP Ethernet cable to connect between the **Ethernet** port of the SlotServer and the hub. Refer to Section 0 for more information.
- If it is necessary to connect the PC directly to the SlotServer, a cross-over cable is required (not supplied).
- Disable any wireless Ethernet adapters on the PC/Laptop,
- It is important that the PC/Laptop is on the same subnet as the SlotServer. The default IP address on the SlotServer Ethernet port is 192.168.2.X. Refer to the FieldServer Utilities Manual for information on how to change the SlotServer's IP address.

2.4 Using the ping utility to Identify the SlotServer on the Network

- Select Start|Programs|FieldServer Utilities, browse to the Ping Utility and select it. The display should show
 - SlotServer Name
 - IP Address (192.168.2.X)
 - SlotServer Version
- If necessary, refer to Appendix A for troubleshooting tips.

2.5 Connect using "Remote User Interface" (RUINET)

All configuration file transfers and system diagnostics are executed via the RUI or "Remote User Interface" which is installed with the Utility software. Refer to the FieldServer Utilities manual for further information.

- Browse to the Remote User Interface icon in the Start menu directory and click on it.
- The RUI menu screen should appear.
- If necessary, refer to Appendix A for troubleshooting tips.

2.6 Upload the Default Configuration

The configuration of the SlotServer is provided to the FieldServer's operating system via a comma-delimited file called "CONFIG.CSV". If ordered with the SlotServer, the custom configuration is installed; (Reference documentation FS-8790-XX). If a custom configuration is not purchased, a template config.csv is shipped on the SlotServer. Refer to the SlotServer Configuration Manual and the Driver Manual(s) provided with the SlotServer for further information on configuration files.

- In the main menu of the Remote User Interface screen, type "U" to upload the configuration. Then type "U" again. The Remote User Interface Utility will fetch the default configuration and put it into the Configuration File folder (Start|Programs|FieldServerUtilities|Configuration File folder).

2.7 Change the Configuration File to Meet the Application

FieldServer Technologies offers training on this topic as well as a configuration service to complete this portion of the work. See www.fieldserver.com for specific details.

- Refer to the FieldServer Configuration Manual for instruction on writing a FieldServer configuration.
- Refer to the SlotServer Configuration Manual for assistance on managing the Logix driver Parameters
- Refer to the desired protocol Driver Supplement for assistance on managing the protocol parameters.

2.8 Download the Updated Configuration File

Before attempting to send files to the SlotServer, ensure that the files are in the configuration file folder. Refer to the FieldServer Utilities manual for further information.

- From the main menu, type "D" to access the "download" menu,
- Type "L" (for local filename) to specify the name and extension of the file to be sent to the SlotServer. Hit **<Enter>** when done.
- The Remote User Interface Utility will automatically select config.csv for download of csv files. On rare occasions where other files need to be downloaded to the SlotServer type "O" for other files, then type "R" to specify the remote filename needed on the SlotServer.
- When satisfied that the correct file names are specified, Type "D" to download the file to the SlotServer. The Remote User Interface Utility will display a menu showing download progress.

Note: the Remote User Interface Utility will indicate when download is complete. DO NOT reset the SlotServer before this message displays, as this could corrupt the SlotServer.

- Once download is complete, hit **<Esc>** to get back to the main menu and use the "!" option (or simply cycle power to the SlotServer) to put the new file into operation. Note that it is possible to do multiple downloads to the SlotServer before resetting it.
- Firmware created by FieldServer Technologies can be downloaded from the configuration file by simply typing "F" from the download menu. Note that FieldServer usually supplies firmware upgrades as an install.zip, for which a separate procedure is used, (See ENote 037 on the USB flash drive in a folder called Library.

2.9 Test and commission the SlotServer

Connect the SlotServer to the third party devices, and test the application.

Appendix A. Useful Features

Refer to the Configuration Manual for useful configuration features.

The unit may be removed under power for convenient swapping of modules.

Appendix A.1. LED Functions

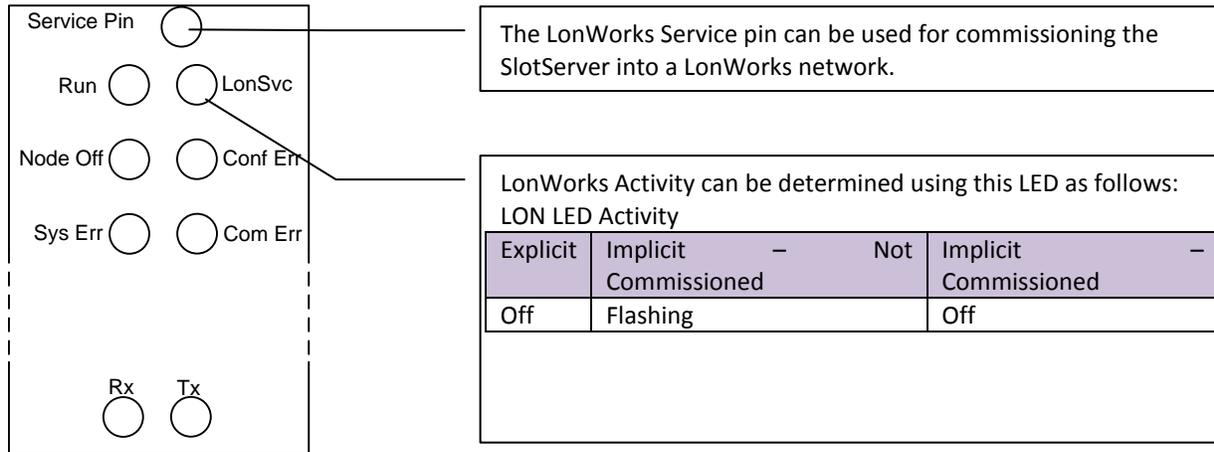


Figure 3: Diagram of SlotServer showing ports and displays

LED	Description
Run	When the SlotServer is powered up, this light will start flashing after approximately 2 minutes. If this light does not flash, it is an indication that the firmware is not running, and that the SlotServer will not be operating.
LonSvc	This LED indicates LonWorks activity. Refer to Figure 3.
NodeOff	This light indicates that a device bound to the SlotServer on the LonWorks network is not communicating. Use the LonWorks Network Manager to troubleshoot the problem.
Conf Err	This light indicates an error in the configuration of the card. Since this model is shipped pre-configured, this light should never come on unless the card configuration is tampered with
Sys Err	This light indicates that an unexpected operation state occurred. The light can be reset by cycling power to the card. If the error re-occurs persistently, then contact FieldServer Technical support for assistance with troubleshooting after setting up the trade port as shown in Appendix A.
Com Err	This light indicates that a communication error occurred. Use the LonWorks Network Manager to troubleshoot the problem, or refer to the SlotServer configuration Manual.
RS-485 (R1)	These lights are related to the RS-485 serial ports provided on the SlotServer. The Rx (Receive) light will flash red if the FieldServer is receiving data. The Tx (Transmit) light will flash red if the FieldServer is sending data. (Note that due to the nature of 2-wire RS-485 the Rx light will flash every time the Tx light flashes too). The frequency of the flashing is directly related to the frequency of data transfer.
Ethernet Lights	These lights are related to the Ethernet network ports provided on the SlotServer. The 10/100 light will be green if the physical connection to the network hub is running at 100 MBits/s. If the light is off, the connection is running at 10 MBits/s. The Act (Activity) light will indicate activity on the network. The frequency of flashing is directly related to the network activity. It does not necessarily mean data is being received by the FieldServer.

Appendix B. Troubleshooting

Appendix B.1. Things to check when communications fail.

- Check for loose cabling on the third party network
- Verify that the correct program is loaded to the CPU
- Verify that the correct data types for the tags have been used.

Appendix B.2. Timeout Errors on SlotServer

The following remedial action is suggested if timeout errors are experienced:

- The PLC is not set to RUN mode - it may still be in PRG mode. Resolve by putting the PLC into RUN mode.
- The IO image connection has not been established successfully. The F screen should show some error messages also. Refer to the Slotserver Configuration Manual, and insert the correct size and RPI values when adding the SlotServer in RSLogix5000.

Appendix B.3. Data Transfer

- It is important that the PLC is set to Run – data is only transferred on Run.
- The SlotServer's Logix connection will transfer data to the PLC regardless of the Node status of the Client Nodes. The Logix connection will not be broken if a Client Node goes offline. Node status can be confirmed by checking the Node Status bits.

Appendix B.4. Using the Output Buffer

The ControlLogix CPU writes the contents of the output buffer into an output buffer image in the SlotServer at a continuous rate specified by the RPI (Request Packet Interval). This image is in turn transferred into the SlotServer "Out_xx" Arrays at a continuous rate specified by the output buffer map descriptor. This has the following consequences:

- The Map descriptor has to transfer the output buffer image more often than it is updated (That is, more often than the RPI), so the scan interval in the output buffer map descriptor must be faster than the RPI.
- Out_XX Arrays are written to very frequently. Care must be therefore taken not to attach write on change map descriptors to the Out_XX Arrays (that is, arrays with functions using rdbc or wrbx), as the write queues for these writes could build up indefinitely and cause a memory overflow. Using wrbc in these instances is more sensible and matches the method of writing through the entire process.

Appendix B.5. ASIC Error on Soft Restart

If the SlotServer is restarted using Ruinet (!) while the PLC is running, the SlotServer will try to reset the ASIC chip. When it finds it is unable to do this it will produce the following Error message and continue to cycle power to the SlotServer creating an endless loop.



```
C:\Program Files\FieldServer\FST_Diag\RUINET.EXE
System Errors
0 T05> Startup at Thu Dec 6 13:08:57 2007
1 T05> API-> SLOT_API : Max data points set to 1500
2 T05> Processing config.csu
3 T05> Kernel Message : 10017
4 T02> Kernel Message : 10006
5 T02> DRU-> SLOTSERVER : Midrange ASIC Soft reset error 0x7ff
6 T02> System Error : ssvlive.c 142 ( 0 )
7 T02> DRU-> SLOTSERVER : Initialize Midrange ASIC failed!
8 T02> DRU-> SLOTSERVER : Midrange ASIC Soft reset error 0x0
9 T02> System Error : ssvlive.c 142 ( 0 )
10 T02> DRU-> SLOTSERVER : Initialize Midrange ASIC failed!
11 T02> DRU-> SLOTSERVER : Midrange ASIC Soft reset error 0x0
12 T02> System Error : ssvlive.c 142 ( 0 )
13 T02> DRU-> SLOTSERVER : Initialize Midrange ASIC failed!
14 T02> DRU-> SLOTSERVER : Midrange ASIC Soft reset error 0x0
15 T02> System Error : ssvlive.c 142 ( 0 )
16 T02> DRU-> SLOTSERVER : Initialize Midrange ASIC failed!
17 T02> DRU-> SLOTSERVER : Midrange ASIC Soft reset error 0x0
18 T02> System Error : ssvlive.c 142 ( 0 )
19 T02> DRU-> SLOTSERVER : Initialize Midrange ASIC failed!
Keys: <R>reset  <D>isplay  <U>ersion  <ESC>
      <Page Down> Next Page  <Page Up> Previous Page
```

Under these circumstances it is recommended that the PLC is stopped before the SlotServer is restarted.

Appendix B.6. Technical Support

Before contacting Technical support to report an issue, go to Start|Programs|FieldServer utilities|Tools and browse to Serial Capture. Take a log (See ENotes 26 and 58 in the folder called Library on the USB Flash Drive). Send this log together with the configuration file to support@fieldserver.com for evaluation.

Note that while all necessary documentation is shipped with the FieldServer on the USB flash drive, these documents are constantly being updated. Newer versions may be available on the web at www.fieldserver.com.

Appendix C. Vendor Information

Appendix C.1. Installing SlotServer on a Remote Rack using CNB Cards¹

Appendix C.1.1. Hardware and Software requirements

- Two 1756 racks, one containing the CPU and the other the SlotServer
- Two ControlNet CNB cards with connection cables to connect the racks to one other
- RSLinx
- RSLogix
- RSNetworkx
- SlotServer EDS file (Available on SlotServer CD, or call Technical Support)

Appendix C.1.2. Setup

- Install the CPU and the first CNB card in the local rack.
- Install the second CNB card and the SlotServer in the remote rack.
- Connect the ControlNet Network
- Power up the racks
- Install the SlotServer EDS File using the RSLinx Hardware EDS Installation Tool.
- Make sure the SlotServer has a valid configuration loaded. The default configuration shipped with the SlotServer should suffice.

Refer to the SlotServer Configuration Manual for further information.

¹ The principles for connecting other 1756 bridging cards to the SlotServer are similar.

Appendix D. Limited Warranty

FieldServer Technologies warrants its products to be free from defects in workmanship or material under normal use and service for two years after date of shipment. FieldServer Technologies will repair or replace without charge any equipment found to be defective during the warranty period. Final determination of the nature and responsibility for defective or damaged equipment will be made by FieldServer Technologies personnel.

All warranties hereunder are contingent upon proper use in the application for which the product was intended and do not cover products which have been modified or repaired without FieldServer Technologies approval or which have been subjected to accident, improper maintenance, installation or application, or on which original identification marks have been removed or altered. This Limited Warranty also will not apply to interconnecting cables or wires, consumables or to any damage resulting from battery leakage.

In all cases FieldServer Technology's responsibility and liability under this warranty shall be limited to the cost of the equipment. The purchaser must obtain shipping instructions for the prepaid return of any item under this warranty provision and compliance with such instruction shall be a condition of this warranty.

Except for the express warranty stated above, FieldServer Technologies disclaims all warranties with regard to the products sold hereunder including all implied warranties of merchantability and fitness and the express warranties stated herein are in lieu of all obligations or liabilities on the part of FieldServer Technologies for damages including, but not limited to, consequential damages arising out of/or in connection with the use or performance of the product.