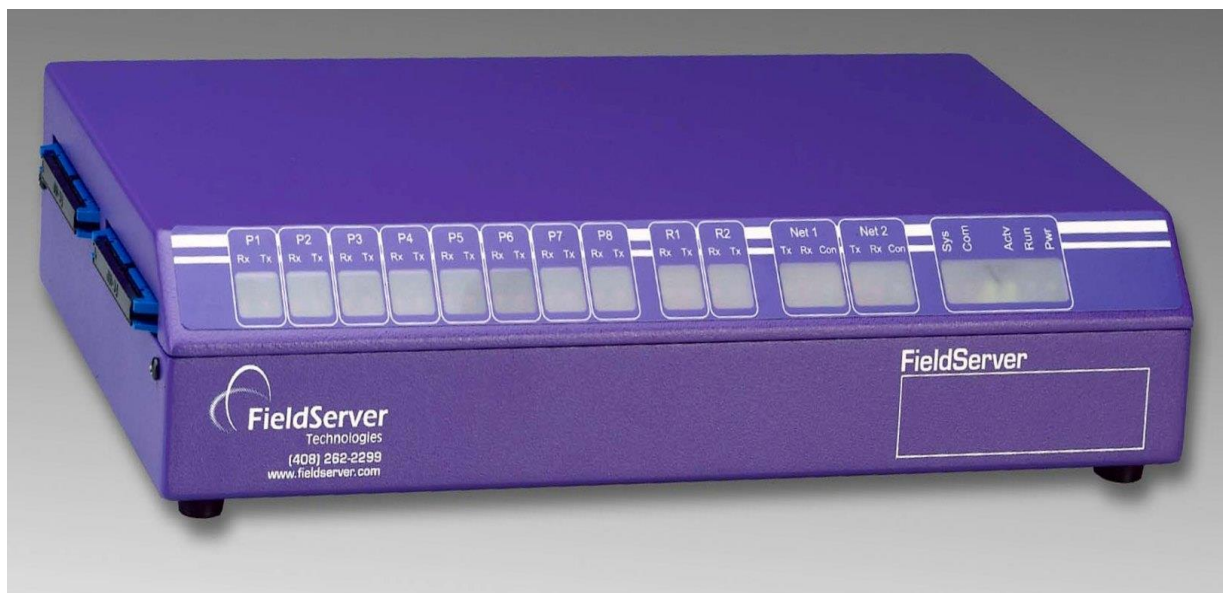




A Sierra Monitor Company

FieldServer X-40 Start-Up Guide



APPLICABILITY & EFFECTIVITY

This manual provides instructions for the FS-B40XX-00 Models.

Effective for all systems manufactured after July 2013

Part Number	T17002
Revision Number:	E2

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1 QUICK START

1.1 Supplied equipment

FS-X40 Series FieldServer,

loaded with Modbus RTU driver, SMT Ethernet driver and any other drivers ordered. A default configuration file has already been loaded onto the FieldServer. Check the Driver Manual and the FieldServer Configuration Manual for further information on this file.

USB Flash Drive loaded with:

FS-X40 Series Start-up Guide

FieldServer Configuration Manual

FieldServer Utilities Manual

All FieldServer Driver Manuals

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:

DB9F/RJ45 Connection Adapter. (Part # FS-8917-02)

7-ft Cat5 cable with RJ45 connectors at both ends (Part # FS-8915-10)

RS-485 connector (Part Number FS-SPA59137)

Set of four different connectors DB9M, DB9F, DB25M, DB25F (Part # FS-8915-11) See Figure 6

Power Supply

Detachable Power Cord

Hot Standby Cable Set FS-8915-16. (Only if Hot Standby is ordered)



1.2 Mounting

The standard FieldServer is designed to fit on a shelf or platform. The optional mounting bracket (part number FS-8915-09) enables the FieldServer to be wall mounted. The bracket is connected by removing the feet from the FieldServer and using the supplied screws to attach the mounting brackets through the holes left by the feet.

There is also a rack mount option available (part number FS-8915-20) which enables the user to mount the FS-B40 Series FieldServer in a 19" Relay Rack. The rack mount fastens to the rack and the user can then fasten the FieldServer with mounting screws (not supplied).

1.3 Dimensions

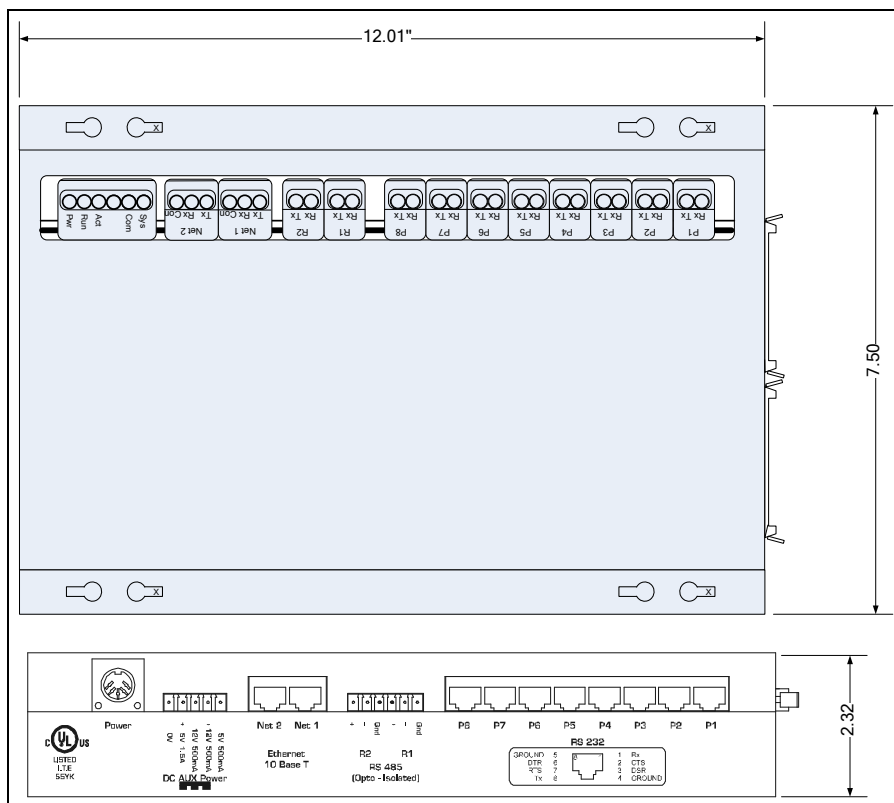


Figure 1-1: Diagram of FieldServer showing external dimensions and mounting holes for a wall mount bracket, FS-8915-09.

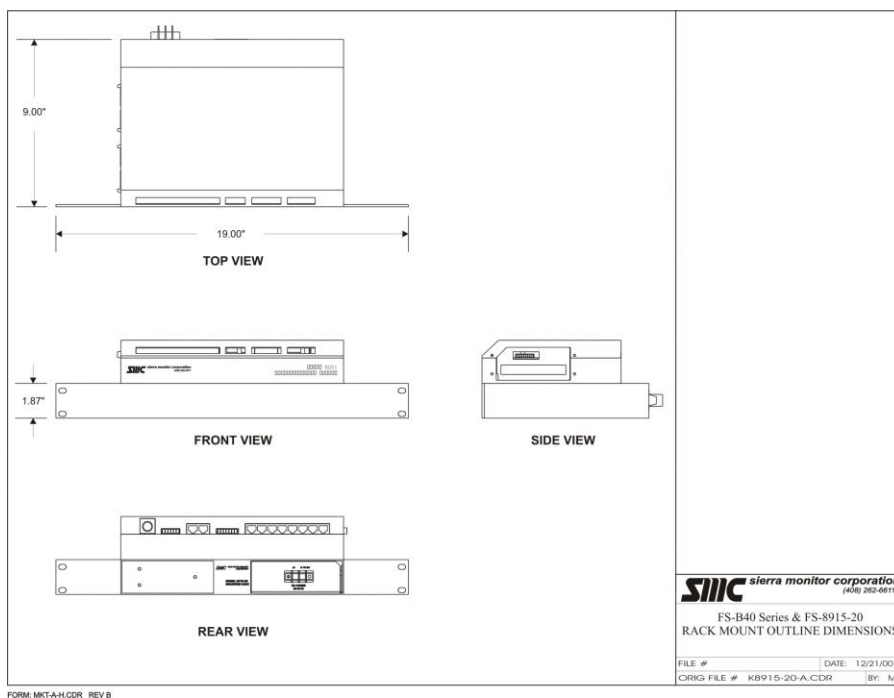


Figure 1-2: Diagram of FieldServer showing dimensions for rack mounting option, FS-8915-20.

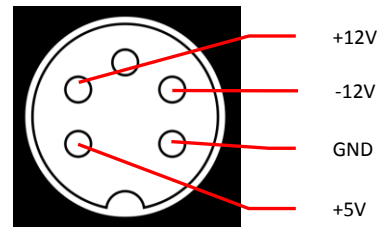
1.4 Wiring

The 110V/220V power supply received with the unit needs to be plugged into a power source.

Use of the power supply supplied with the unit is recommended. If the use of an alternative power supply is desired, select an external power supply certified for safety, for the correct destination country and an output rating, which is considered acceptable.

The output from the FS-40 FieldServer Power Supply is a 5-pin din plug similar to that depicted below.

The expected voltage levels on the various pins are presented as viewed looking into the connector.



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1.5 Product Specifications

Power requirements (power supply is external)	
Power Requirement : 5VDC @ 3.5W, +12V @ >1.8W, -12V @ 1.2W	
Auxiliary Output Power Connection	
Use only with UL listed power supply marked “Class 2” or “LPS”. The maximum current and voltage capabilities when using a suitably rated power supply are:	
-12VDC @ 2.4W	+12 VDC @ 12W + 5VDC @ 10W
Physical Dimensions(excluding the external power supply)	
(WxDxH):	12.0 x 7.5 x 2.32 inches (30.5 x 19.0 x 5.7 cm)
Weight:	2.5 lbs. (1.5 Kg)
Available Ports	
8 x RJ45 RS-232 serial connectors (P1 to P8)	
2 x Galvanically isolated RS-485 serial connectors (R1, R2)	
2 x 10-BaseT Ethernet connectors (N1, N2)- Ethernet ports are not networked together.	
2 x Ribbon connectors for redundant Hot Standby capability	
1 Internal ISA connector for auxiliary card.	
Baud Rates Supported	
BACnet/MSTP: All Baud Rates up to 38400	
All other protocols: The platform supports standard baud rates up to 115200 (with the exception of 76800). Note however that not all protocols and vendor devices support the full range of baud rates. See the specific driver manual for further details.	
Environment:	
Operating Temperature:	0 – 65°C (32 – 149°F)
Humidity:	10 - 90% RH (non-condensing)
Heat Dissipation	5W
Approvals:	UL 1950 , CE Marked
(Specifications subject to change without notice)	

2 CONNECTION TO DEVICE

The FS-X40 Series FieldServer provides connection ports for serial or Ethernet interface via ten serial ports and two Ethernet ports.



Figure 2-1: Back view of FS-X40 showing connection Ports

2.1 Serial Connection:

If using an RS-232 RJ45 Serial connection, use a RJ45 cable to connect the appropriate port on the back of the FieldServer to the connection adapter provided and plug the connection adapter to the node.



If using RS-485 from the node, the + and - wire connections can be used on the RS-485 port on the FieldServer using part number SPA59137.

2.2 Ethernet

Ethernet connections simply require connection of a standard Cat5 UTP Ethernet cable with an RJ45 connector between the FieldServer and the network. Note that when connecting the FieldServer directly to another Ethernet enabled device without using a hub, standard Ethernet principles apply, and a Crossover cable must be used.



If using a device level network or alternative bus requiring an auxiliary communications adapter card, select the necessary connection cable from the cables and adapters supplied.

Refer to the FieldServer Configuration manual for information on Hot Standby configuration.

3 OPERATION

3.1 Power up the device

- Apply power to the device. Ensure that the power supply used complies with the specifications provided in Section 1.4
- The power light should burn a steady green when the FieldServer is powered up. Refer to Appendix B for more information on the various LED functions.

3.2 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.

3.3 Connect the PC to the FieldServer 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 FieldServer and the hub. Refer to Section 2.2 for more information.
- Disable any wireless Ethernet adapters on the PC/Laptop,
- It is important that the PC/Laptop is on the same subnet as the FieldServer. The default IP address on the FieldServer Ethernet port is 192.168.2.X . Refer to the FieldServer Utilities Manual for information on how to change the FieldServer's IP address.
- It is also possible to connect through the FieldServer N2 port. The default IP address for this port is 192.168.3.x. If using both the N1 and N2 ports, the ports must be on different subnets.

3.4 Using the ping utility to Identify the FieldServer on the Network

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

3.5 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.
- Should it be necessary to change the IP address of the FieldServer, this can be done via the "I" screen on Ruinet. Refer to the FieldServer Utilities manual for details.
- If necessary, refer to Appendix A for troubleshooting tips.

3.6 Upload the Default Configuration

The configuration of the FieldServer is provided to the FieldServer's operating system via a comma-delimited file called "CONFIG.CSV". If ordered with the FieldServer, 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 FieldServer. Refer to the Configuration Manual and the Driver Manual(s) provided with the FieldServer 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).

3.7 Change the Configuration File to Meet the Application

Refer to the Configuration Manual in conjunction with the Driver supplements for information on configuring the FieldServer. 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.

3.8 Download the Updated Configuration File

Before attempting to send files to the FieldServer, 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 FieldServer. 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 FieldServer type "O" for other files, then type "R" to specify the remote filename needed on the FieldServer.

When satisfied that the correct file names are specified, Type "D" to download the file to the FieldServer. 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 FieldServer before this message displays, as this could corrupt the FieldServer.

Once download is complete, hit <Esc> to get back to the main menu and use the "!" option (or simply cycle power to the FieldServer) to put the new file into operation. Note that it is possible to do multiple downloads to the FieldServer 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).

3.9 Test and commission the FieldServer

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

Appendix A. Troubleshooting Tips

Appendix A.1. Communicating with the FieldServer over the Network

- Confirm that the network cabling is correct.
- Confirm that the computer network card is operational and correctly configured.
- Check the N1 or N2 (Ethernet Link OK) LED displayed on the FieldServer's front panel. This LED will be lit if the 10/100BaseT cable is good. (Refer to Appendix B)
- Check the "Activity" LED on the Ethernet connection, this should flash at least once every 2 seconds if RUI is still running, and perhaps more often, depending on network traffic. (Refer to Appendix B)
- Confirm that there is an Ethernet adapter installed in the software configuration, and that it is configured to run the TCP/IP protocol.
- If using Windows XP or later, ensure that the firewall is disabled.
- Ensure that all wireless adapters are disabled.
- Check that the netmask is correct.

Go to Start|Run

Type in "ipconfig"

The account settings should be displayed.

Ensure that the IP address is 192.168.2.X and the netmask 255.255.255.0

The IP address of the FieldServer can be changed using the Remote User Interface Utility. Refer to the FieldServer Utilities manual for information.

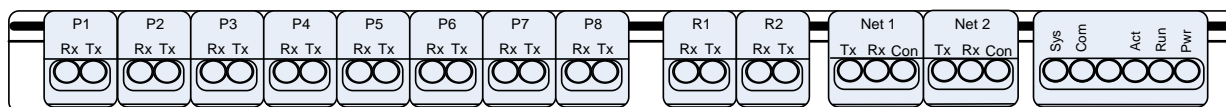
- Refer to the FieldServer Troubleshooting Guide
http://www.fieldserver.com/docs/pdf/FieldServer_TroubleShooting_Guide.pdf for further information.

Appendix A.2. Technical Support

Before contacting Technical support to report an issue, go to Start|Programs|FieldServer utilities|Tools and run the FST_Diag program. Take a log (See ENote0058 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 B. LED Functions



Light	Description
P1 to P8	These lights are related to the RS-232 serial ports provided on the FieldServer. The Rx (Receive) light flashes red when the FieldServer is receiving data and the Tx (Transmit) light flashes red when the FieldServer is sending data. The frequency of flashing is directly proportional to the frequency of data transfer.
R1 & R2	These lights are related to the RS-485 serial ports provided on the FieldServer. The Rx (Receive) light flashes red when the FieldServer is receiving data and the Tx (Transmit) light flashes red when 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). The frequency of flashing is directly proportional to the frequency of data transfer.
Net1 & Net2	These lights are related to the two Ethernet network ports provided on the FieldServer. The Con (Connection) light shows steady green when the physical connection to the network hub is healthy. The Rx (Receive) light flashes red when the FieldServer is receiving data from 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. The Tx (Transmit) light flashes red when the FieldServer is sending data. The frequency of flashing is directly proportional to the frequency of data transfer.
Sys	The system light will turn red if there is a system error on the FieldServer. If this occurs, immediately report the related "system error" shown in the error screen of the RUI interface to FieldServer Technologies for evaluation.
Com	The communications light will turn red if there is a configured node connected to the FieldServer that is offline. To establish the cause of the error, go to the error screen of the RUI interface.
Unmarked LED (Config)	The LED will flash amber when a BETA DCC is running and will be off when a release DCC is running. The Amber LED will be solid ON when there is a config error (whether there is BETA or release DCC running). See Error screen in the remote user interface (RUI) for description of configuration error.
Act	Used with Hot Standby configurations only. A steady amber light will indicate which FieldServer in the hot standby pair is currently active.
Run	The run light should flash green once per second once the FieldServer has booted up. Note that it may take a while from power up to boot up the FieldServer if the loaded configuration is large. The run light indicates that the FieldServer firmware is running.
Pwr	This is the power light and should show steady green at all times when the FieldServer is powered.

The following table provides a summary of expected LED activity.

Sys	Com	Config	Active	Run	PWR	Description
				FLASH	ON	Indicating Power
ON				FLASH	ON	System Error. Contact FieldServer Technologies
		FLASH		OFF	ON	BETA version of DCC running
		OFF		FLASH	ON	RELEASE DCC running
		ON		FLASH	ON	Configuration error.
	Incrementing FLASH				ON	Comm Error (retry)
		FLASH		FLASH	ON	Demo Mode
OFF	OFF	OFF	OFF	OFF	OFF	No power OR if the lights flash every few minutes intermittently between all LED's off, FieldServer is continuously rebooting.

Appendix C. Supplied Connector Kit (FS-8915-11)

In order to facilitate RS-232 communications on the RJ-45 RS-232 port, a connector kit is supplied containing one of each of the connectors shown in the diagram below. The tables in the diagram show the functions applied to each of the RJ-45 pins by the FieldServer to assist in determination of the required pinout configuration for connection to the third party device. Note that FS-X40 Series RS-232 numbering convention is reverse to the 10BaseT numbering

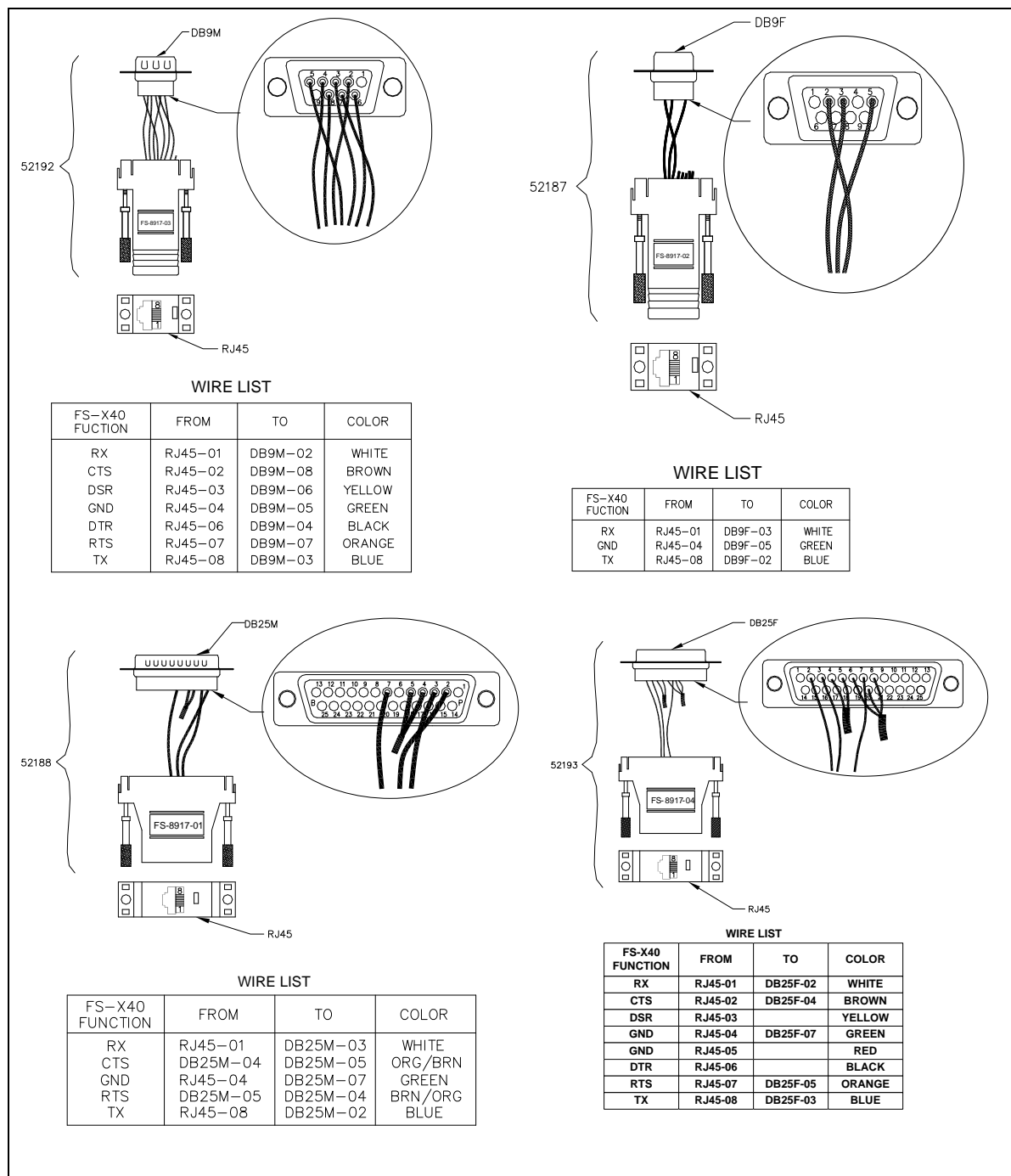


Figure 7: FieldServer Connector Reference

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.