A Sierra Monitor Company

Driver Manual
(Supplement to the FieldServer Instruction Manual)

FS-8700-62 J-Bus

APPLICABILITY & EFFECTIVITY

Effective for all systems manufactured after May 1, 2001

Driver Version:	**4.01**
Document Revision:	**4**

TABLE OF CONTENTS

1. J-Bus Description

The J-Bus driver allows the FieldServer to transfer data to and from devices over either RS-232 or RS-485 using J-Bus protocol. The FieldServer can emulate either a Server or Client.

The information that follows describes how to expand upon the factory defaults provided in the configuration files included with the FieldServer.

2. Driver Scope of Supply

2.1. Supplied by FieldServer Technologies for this driver

FIELDSERVER PART #	DESCRIPTION
FS-8915-10	UTP cable (7 foot) for RS-232 use
FS-8917-01	RJ45 to DB25M connection adapter
FS-8700-62	Driver Manual.

2.2. Provided by the Supplier of 3rd Party Equipment

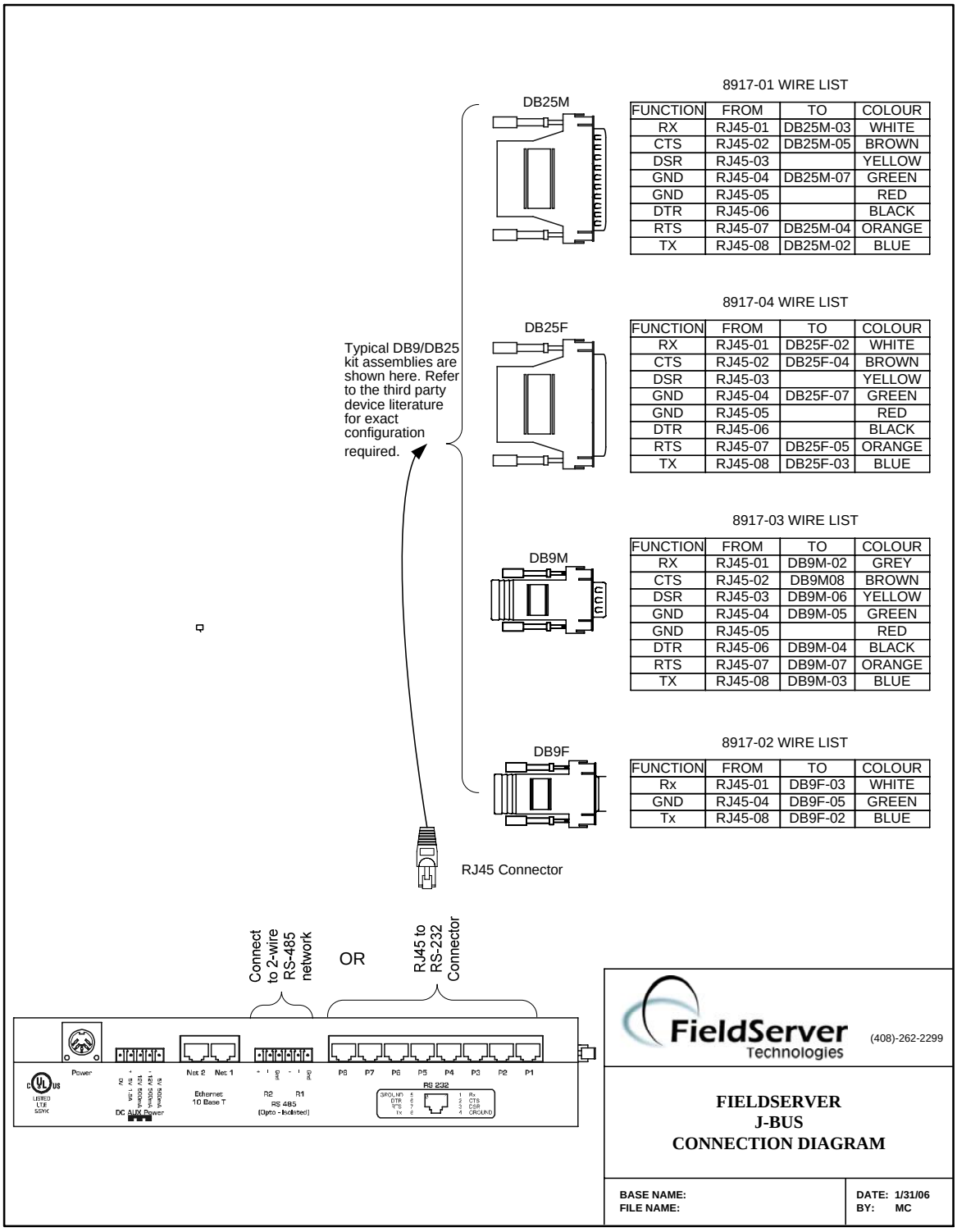
2.2.1. Required 3rd Party Hardware

PART #	DESCRIPTION
	J-Bus Device

3. Hardware Connections

The FieldServer is connected to the J-Bus Device as shown in connection drawing.

Configure the J-Bus Device according to manufacturer's instructions



8917-01 WIRE LIST

FUNCTION	FROM	TO	COLOUR
RX	RJ45-01	DB25M-03	WHITE
CTS	RJ45-02	DB25M-05	BROWN
DSR	RJ45-03		YELLOW
GND	RJ45-04	DB25M-07	GREEN
GND	RJ45-05		RED
DTR	RJ45-06		BLACK
RTS	RJ45-07	DB25M-04	ORANGE
TX	RJ45-08	DB25M-02	BLUE

8917-04 WIRE LIST

FUNCTION	FROM	TO	COLOUR
RX	RJ45-01	DB25F-02	WHITE
CTS	RJ45-02	DB25F-04	BROWN
DSR	RJ45-03		YELLOW
GND	RJ45-04	DB25F-07	GREEN
GND	RJ45-05		RED
DTR	RJ45-06		BLACK
RTS	RJ45-07	DB25F-05	ORANGE
TX	RJ45-08	DB25F-03	BLUE

8917-03 WIRE LIST

FUNCTION	FROM	TO	COLOUR
RX	RJ45-01	DB9M-02	GREY
CTS	RJ45-02	DB9M08	BROWN
DSR	RJ45-03	DB9M-06	YELLOW
GND	RJ45-04	DB9M-05	GREEN
GND	RJ45-05		RED
DTR	RJ45-06	DB9M-04	BLACK
RTS	RJ45-07	DB9M-07	ORANGE
TX	RJ45-08	DB9M-03	BLUE

8917-02 WIRE LIST

FUNCTION	FROM	TO	COLOUR
Rx	RJ45-01	DB9F-03	WHITE
GND	RJ45-04	DB9F-05	GREEN
Tx	RJ45-08	DB9F-02	BLUE

4. Configuring the FieldServer as a J-Bus Client

For a detailed discussion on FieldServer configuration, please refer to the FieldServer Configuration Manual. The information that follows describes how to expand upon the factory defaults provided in the configuration files included with the FieldServer (See ".csv" sample files provided with the FieldServer).

This section documents and describes the parameters necessary for configuring the FieldServer to communicate with a J-Bus Server.

4.1. Data Arrays/Descriptors

The configuration file tells the FieldServer about its interfaces, and the routing of data required. In order to enable the FieldServer for J-Bus communications, the driver independent FieldServer buffers need to be declared in the "Data Arrays" section, the destination device addresses need to be declared in the "Client Side Nodes" section, and the data required from the Servers needs to be mapped in the "Client Side Map Descriptors" section. Details on how to do this can be found below.

Note that in the tables, * indicates an optional parameter, with the bold legal value being the default.

Section Title
Data_Arrays

Column Title	**Function**	**Legal Values**
Data_Array_Name	Provide name for Data Array	Up to 15 alphanumeric characters
Data_Array_Format	Provide data format. Each Data Array can only take on one format.	Float, Bit, UInt16, SInt16, Packed_Bit, Byte, Packed_Byte, Swapped_Byte
Data_Array_Length	Number of Data Objects. Must be larger than the data storage area required by the Map Descriptors for the data being placed in this array.	1-10,000

Example

```
//  Data Arrays

Data_Arrays
Data_Array_Name,    Data_Array_Format,    Data_Array_Length
DA_AI_01,           UInt16,               200
DA_AO_01,           UInt16,               200
DA_DI_01,           Bit,                  200
DA_DO_01,           Bit,                  200
```

4.2. Client Side Connection Descriptors

Section Title
Connections

Column Title	Function	Legal Values
Port	Specify which port the device is connected to the FieldServer	P1-P8, R1-R2[1]
Baud*	Specify baud rate	110 – 115200, standard baud rates only
Parity*	Specify parity	Even, Odd, **None,** Mark, Space
Data_Bits*	Specify data bits	7, **8**
Stop_Bits*	Specify stop bits	**1**
Protocol	Specify protocol used	J-Bus
Handshaking*	Specify hardware handshaking	RTS, RTS/CTS, **None**
Poll Delay*	Time between internal polls	0-32000 seconds, **0.5 seconds**

Example

```
//      Client Side Connections

Connections
Port,   Protocol,   Baud,   Parity,   Data_Bits,   Stop_Bits,   Handshaking,   Poll_Delay
P8,     J-Bus,      9600,   None,     8,           1            None,          0.100s
```

4.3. Client Side Node Descriptors

Section Title
Nodes

Column Title	Function	Legal Values
Node_Name	Provide name for node	Up to 32 alphanumeric characters
Node_ID	Modbus station address of physical Server node	1-255
Protocol	Specify protocol used	J-Bus
Connection	Specify which port the device is connected to the FieldServer	P1-P8, R1-R2[1]

Example

```
//  Client Side Nodes

Nodes
Node_Name,      Node_ID,    Protocol,   Connection
PLC 1,          1,          J-Bus,      P8
```

[1] Not all ports shown are necessarily supported by the hardware. Consult the appropriate Instruction manual for details of the ports available on specific hardware.

4.4. Client Side Map Descriptors

4.4.1. FieldServer Related Map Descriptor Parameters

Column Title	Function	Legal Values
Map_Descriptor_Name	Name of this Map Descriptor	Up to 32 alphanumeric characters
Data_Array_Name	Name of Data Array where data is to be stored in the FieldServer	One of the Data Array names from "Data Array" section above
Data_Array_Offset	Starting location in Data Array	0 to maximum specified in "Data Array" section above
Function	Function of Client Map Descriptor	RDBC

4.4.2. Driver Related Map Descriptor Parameters

Column Title	Function	Legal Values
Node_Name	Name of Node to fetch data from	One of the node names specified in "Client Node Descriptor" above
Data _ Type	Data type of the related Jbus register	AR, AI, DI, DO
Address	Starting address of read block	0 - 65535
Length	Specifies how many register bits etc. to read	0 – 125 for Analog values 0 – 2000 for Binary values
Data_Array_Low_Scale*	Scaling zero in Data Array	-32767 to 32767, **0**
Data_Array_High_Scale*	Scaling max in Data Array	-32767 to 32767, **100**
Node_Low_Scale*	Scaling zero in Connected Node	-32767 to 32767, **0**
Node_High_Scale*	Scaling max in Connected Node	-32767 to 32767, **100**

4.4.3. Timing Parameters

Column Title	Function	Legal Values
Scan_Interval*	Seconds per Scan	0-32000, **1**

4.4.4. Client Side Map Descriptor Example.

```
//  Client Side Map Descriptors

Map_Descriptors
Map_Descriptor_Name,    Data_Array_Name,    Data_Array_Offset,    Function,    Node_name,    Data_Type,    Address,    Length,    Scan_Interval
CMD_AI_01,              DA_AI_01,           0,                    RDBC,        PLC 1         AR,           0,          20,        1.000s
CMD_AO_01,              DA_AO_01,           0,                    RDBC,        PLC 1         AR,           0,          20,        1.000s
```

5. Configuring the FieldServer as a J-Bus Server

For a detailed discussion on FieldServer configuration, please refer to the FieldServer Configuration Manual. The information that follows describes how to expand upon the factory defaults provided in the configuration files included with the FieldServer (See ".csv" sample files provided with the FieldServer).

This section documents and describes the parameters necessary for configuring the FieldServer to communicate with a J-Bus Client.

The configuration file tells the FieldServer about its interfaces, and the routing of data required. In order to enable the FieldServer for (Driver Name) communications, the driver independent FieldServer buffers need to be declared in the "Data Arrays" section, the FieldServer virtual node(s) needs to be declared in the "Server Side Nodes" section, and the data to be provided to the clients needs to be mapped in the "Server Side Map Descriptors" section. Details on how to do this can be found below.

Note that in the tables, * indicates an optional parameter, with the bold legal value being the default.

5.1. Server Side Connection Descriptors

Section Title
Connections

Column Title	**Function**	**Legal Values**
Port	Specify which port the device is connected to the FieldServer	P1-P8, R1-R2[2]
Baud*	Specify baud rate	110 – 115200 standard baud rates only
Parity*	Specify parity	Even, Odd, **None,** Mark, Space
Data_Bits*	Specify data bits	7, **8**
Stop_Bits*	Specify stop bits	**1**
Protocol	Specify protocol used	J-Bus
Handshaking*	Specify hardware handshaking	RTS, RTS/CTS, **None**

Example

```
//      Server Side Connections

Connections
Port,     Protocol,     Baud,     Parity,     Data_Bits,     Stop_Bits,     Handshaking
P1,       J-Bus,        9600,     None,       8,             1,             None
```

[2] Not all ports shown are necessarily supported by the hardware. Consult the appropriate Instruction manual for details of the ports available on specific hardware.

5.2. Server Side Node Descriptors

Section Title
Nodes

Column Title	Function	Legal Values
Node_Name	Provide name for node	Up to 32 alphanumeric characters
Node_ID	Node ID of physical Server node	1 – 255
Protocol	Specify protocol used	J-Bus

Example

```
//  Server Side Nodes

Nodes
Node_Name,          Node_ID,        Protocol
MBP_Srv_11,         11,             J-Bus
```

5.3. Server Side Map Descriptors

5.3.1. FieldServer Specific Map Descriptor Parameters

Section Title		
Map_Descriptors		
Column Title	**Function**	**Legal Values**
Map_Descriptor_Name	Name of this Map Descriptor	Up to 32 alphanumeric characters
Data_Array_Name	Name of Data Array where data is to be stored in the FieldServer	One of the Data Array names from "Data Array" section above
Data_Array_Offset	Starting location in Data Array	0 to maximum specified in "Data Array" section above
Function	Function of Client Map Descriptor	Server

5.3.2. Driver Specific Map Descriptor Parameters

Column Title	Function	Legal Values
Node_Name	Name of Node to fetch data from	One of the node names specified in "Client Node Descriptor" above
Data_Type	Data type of the related J-bus register	AR, AI, DI, DO
Address	Starting address of read block	0 - 65535
Length	Specifies how many register bits etc. to read	0 – 125 for Analog values 0 – 2000 for Binary values
Data_Array_Low_Scale*	Scaling zero in Data Array	-32767 to 32767, **0**
Data_Array_High_Scale*	Scaling max in Data Array	-32767 to 32767, **100**
Node_Low_Scale*	Scaling zero in Connected Node	-32767 to 32767, **0**
Node_High_Scale*	Scaling max in Connected Node	-32767 to 32767, **100**

5.3.3. Server Side Map Descriptor: Example1

```
//  Server Side Map Descriptors

Map_Descriptors
Map_Descriptor_Name,  Data_Array_Name,  Data_Array_Offset,  Function,  Node_Name,  Data_Type,  Address,  Length,  Data_Array_Low_Scale,  Data_Array_High_Scale,  Node_Low_Scale,  Node_High_Scale
SMD_AI_01,            DA_AI_01,         0,                  Server,    MBP_Srv_11,  30001,      200,      0,       100,                0,                    10000,
SMD_AO_01,            DA_AO_01,         0,                  Server,    MBP_Srv_11,  40001,      200,      0,       100,                0,                    10000,
```

5.3.4. Server Side Map Descriptor: Example 2

```
//  Server Side Map Descriptors

Map_Descriptors
Map_Descriptor_Name,  Data_Array_Name,  Data_Array_Offset,  Function,  Node_Name,  Data Type,  Address,  Length
SMD_DI_01,            DA_DI_01,         0,                  Server,    MBP_Srv_11,  10001,      200,
SMD_DO_01,            DA_DO_01,         0,                  Server,    MBP_Srv_11,  00001,      200,
```

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