MSA The Safety Company | fieldserver

Driver Manual

FS-8700-62 J-Bus

APPLICABILITY & EFFECTIVITY
Effective for all systems manufactured after June 2023.

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Contents

1 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

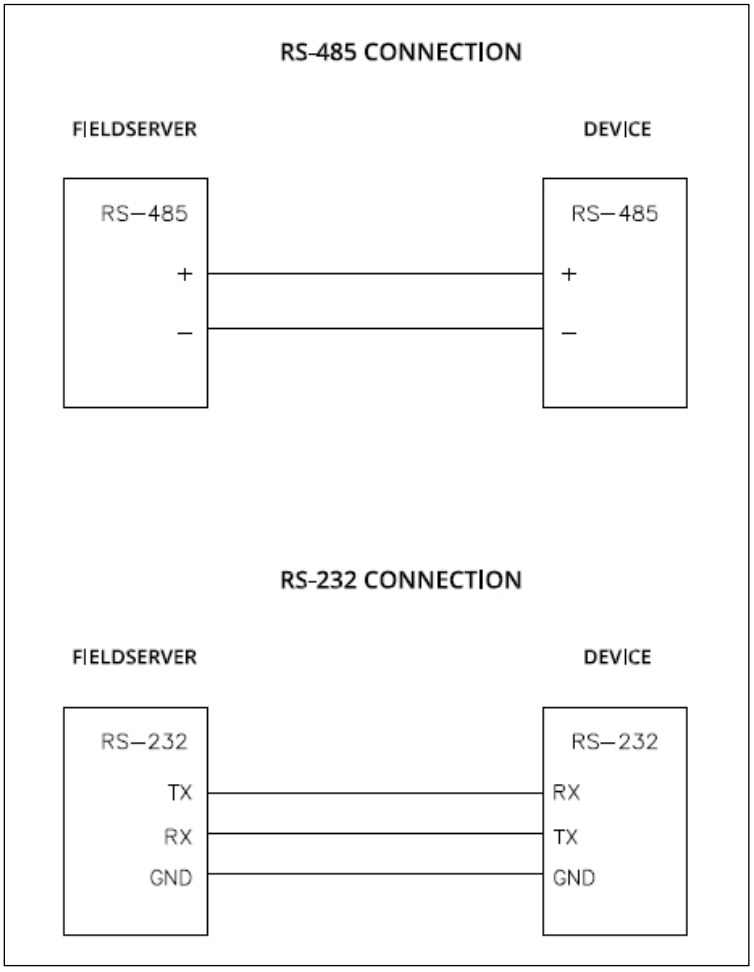
2.1 Provided by the Supplier of 3rd Party Equipment

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.



4 Data Array Parameters

Data Arrays are “protocol neutral” data buffers for storage of data to be passed between protocols. It is necessary to declare the data format of each of the Data Arrays to facilitate correct storage of the relevant data.

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, Byte, Uint16, Uint32, Sint16, Sint32
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.	1-10000

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
```

5 Client Side Configuration

For detailed information on FieldServer configuration, 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.

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: In the following tables, * indicates an optional parameter and bold legal values are default.

5.1 Client Side Connection Parameters

Section Title
Connections

Column Title	Function	Legal Values
Port	Specify which port the device is connected to the FieldServer.	P1-P2, R1-R2
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
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  , Poll_Delay
P2                  , J-Bus     , 9600   , None    , 8          , 1          , 0.100s
```

5.2 Client Side Node Parameters

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.	1-1255
Protocol	Specify Protocol used.	J-Bus
Port	Specify through which port the device is connected to the FieldServer.	P1-P2, R1-R2

Example

```
//  Client Side Nodes
Nodes
Node_Name    , Node_ID   , Protocol   , Port   , Cana_Node_Protocol_Type
Conditioner1 , 1         , Canatal    , R1     , Net2
```

5.3 Client Side Map Descriptor Parameters

5.3.1 FieldServer Specific 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 **Section 4**
Data_Array_Offset	Starting location in Data Array.	0 to (Data_Array_Length -1) as specified in **Section 4**
Function	Function of Client Map Descriptor.	RDBC

5.3.2 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 **Section 5.2**
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 Timing Parameters

Column Title	Function	Legal Values
Scan_Interval	Rate at which data is polled	>0.1s

5.4 Map Descriptor Example

```
//    Client Side Map Descriptors

Map_Descriptors
Map_Descriptor_Name   , Data_Array_Name   , Data_Array_Offset   , Function   , Node_name
CMD_AI_01             , DA_AI_01          , 0                   , RDBC       , PLC 1
CMD_AO_01             , DA_AO_01          , 0                   , RDBC       , PLC 1
```

```
, Data_Type   , Address   , Length   , Scan_Interval
, AR          , 0         , 20       , 1.000s
, AR          , 0         , 20       ,1.000s
```

6 Server Side Configuration

For detailed information on FieldServer configuration, 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 J-Bus 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: In the tables below, * indicates an optional parameter with the bold legal value as default.

6.1 Server Side Connection Parameters

Section Title
Connections

Column Title	Function	Legal Values
Port	Specify which port the device is connected to the FieldServer.	P1-P2, 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

Example

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

6.2 Server Side Node Parameters

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
```

[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.

6.3 Server Side Map Descriptor Parameters

6.3.1 FieldServer Specific Map Descriptor Parameters

Column Title	Function	Legal Values
Map_Descriptor_Name	Name of this Map Descriptor.	Up to 32 alphanumeric characters[2]
Data_Array_Name	Name of Data Array where data is to be stored in the FieldServer.	One of the Data Array names from **Section 4**
Data_Array_Offset	Starting location in Data Array.	0 to (Data_Array_Length-1) as specified in **Section 4**
Function	Function of Client Map Descriptor.	Server

6.3.2 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 **Section 6.2**
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**

6.4 Map Descriptor Examples

6.4.1 Map Descriptor Example 1

```
//    Server Side Map Descriptors

Map_Descriptors
Map_Descriptor_Name , Data_Array_Name , Data_Array_Offset , Function , Node_Name  , Data_Type , Address , Length
SMD_AI_01           , DA_AI_01        , 0                 , Server   , MBP_Srv_11 , 30001     , 200     , 0
SMD_AO_01           , DA_AO_01        , 0                 , Server   , MBP_Srv_11 , 40001     , 200     , 0
```

```
, Data_Array_Low_Scale , Data_Array_High_Scale , Node_Low_Scale , Node_High_Scale
, 100                  , 0                     , 10000
, 100                  , 0                     , 10000
```

6.4.2 Map Descriptor Example 2

```
//    Server Side Map Descriptors

Map_Descriptors
Map_Descriptor_Name   , Data_Array_Name   , Data_Array_Offset   , Function
SMD_DI_01             , DA_DI_01          , 0                   , Server
SMD_DO_01             , DA_DO_01          , 0                   , Server
```

```
, Node_Name   , Data Type   , Address   , Length
, MBP_Srv_11  , 1000        , 200
, MBP_Srv_11  , 00001       , 200
```

[2] Object_Name values of any length may be written via BACnet (subject only to memory and message length constraints).