



A Sierra Monitor Company

Driver Manual
(Supplement to the FieldServer Instruction Manual)

FS-8704-07 AB_CSP

APPLICABILITY & EFFECTIVITY

Effective for all systems manufactured after May 1, 2001

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1. Allen Bradley AB_CSP Description

The AB_CSP driver allows the FieldServer to transfer data to and from devices over AB_CSP Ethernet 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. Hardware/Software

2.1. Supplied by FieldServer Technologies for this Driver

FieldServer Technologies PART #	DESCRIPTION
FS-8915-10	Ethernet cable (7 foot)
FS-8704-07	Driver Manual

2.2. Provided by Supplier of 3rd Party Equipment

PART #	DESCRIPTION
	AB_CSP compatible PLC, e.g. SLC5/05 etc. ¹
	AB_CSP Client, e.g. Wonderware, Intellution FIX, GE Cimplicity, etc. ²

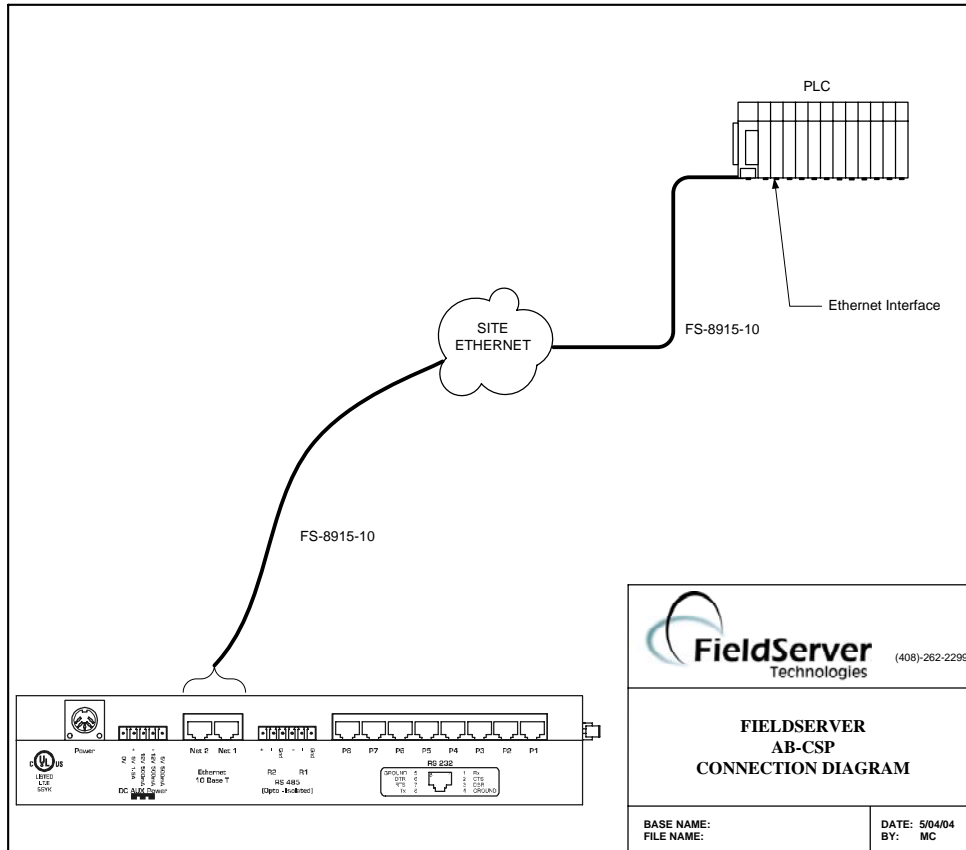
¹ If FieldServer used as Allen Bradley AB_CSP Client

² If FieldServer used as Allen Bradley AB_CSP Server.

3. Hardware Connections

Make sure the device IP_address is configured to be on the same IP network as the FieldServer. Use a crossover cable if the FieldServer is connected directly to the PLC device. Use a straight cable if the FieldServer is connected to a hub.

Configure the PLC according to manufacturer's instructions



4. Configuring the FieldServer as a AB-CSP 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 an AB-CSP 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 AB-CSP 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.	INT16, INT32, BIT, FLOAT
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_Format,      Data_Array_Length
DA_AI_01,             Float,            200
DA_AO_01,             Float,            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
Adapter	Specify which port the device is connected to the FieldServer	N1
Protocol	Specify protocol used	AB_CSP

Example

```
// Client Side Connections

Connections
Adapter,          Protocol
N1,              AB_CSP
```

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	Node ID of physical server node (PLC)	1-255
IP_Address	IP address of physical server node (PLC)	Must be on the same subnet as the server or gateway
Protocol	Specify protocol used	AB_CSP
Adapter	Specify on which port the device is connected to the FieldServer	N1
PLC_Type	Specify PLC Communications type.	PLC3, PLC5, SLC5

Example

```
// Client Side Nodes

Nodes
Node_Name,  Node_ID,  Protocol,  PLC_Type,  IP_Address,  Adapter
PLC_01,    1,          AB_CSP,   SLC5,     192.168.1.13, N1
```

4.4. Client Side Map Descriptors 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, WRBC, WRBX

4.4.2. Driver Related Map Descriptor Parameters

Column Title	Function	Legal Values
Node_Name	Name of Node to fetch data from	Client Side Nodes
File_Type	File type in PLC	N, B, F, S
File_Number	File Number in PLC	0-255
Address	Starting address of read block	0 – 255
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
AB_Command	Override the default command	Unprotected Command Typed

4.4.3. Map Descriptor Example

```
// Client Side Map Descriptors
```

Map_Descriptors									
Map_Descriptor_Name,	Data_Array_Name,	Data_Array_Offset,	Function,	Node_Name,	File_Type,	File_Number,	Address,	Length,	Scan_Interval
CMD_AI_01,	DA_AI_01,	0,	RDBC,	PLC_01,	N,	10,	0,	16,	1.0s
CMD_AO_01,	DA_AO_01,	0,	RDBC,	PLC_01,	N,	11	0,	16,	1.0s
Map_Descriptors									
Map_Descriptor_Name,	Data_Array_Name,	Data_Array_Offset,	Function,	Node_Name,	File_Type,	File_Number,	Address,	Length,	Scan_Interval
CMD_DI_01,	DA_DI_01,	0,	RDBC,	PLC_01,	B,	12,	0,	16,	1.0s
CMD_DO_01,	DA_DO_01,	0,	RDBC,	PLC_01,	B	13,	0,	16,	1.0s

5. Configuring the FieldServer as an AB_CSP Server

5.1. Server Side Connection Descriptors

Section Title		
Connections		
Column Title	Function	Legal Values
Adapter	Specify which port the device is connected to the FieldServer	N1
Protocol	Specify protocol used	AB_CSP
IP_Address optional	Virtual IP address of FieldServer	Must be on the same subnet as the client or gateway

Example

// Server Side Connections		
Connections		
Adapter, N1,	Protocol, AB_CSP,	IP_address 192.168.2.1

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	AB_CSP
PLC_Type	Specify PLC Communications type.	PLC3, PLC5, SLC5

Example

// Server Side Nodes			
Nodes			
Node_Name, ABE_Srv_11,	Node_ID, 11,	Protocol, AB_CSP,	PLC_Type SLC5

5.3. Server Side Map Descriptors

5.3.1. 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	Server

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 "Server Side Nodes" above
File_Type	File type in PLC	N, B, F, I, O, S
File_Number	File number in PLC	0-255
Address	Starting address of read block	0 - 255
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. Map Descriptor Example

```
// Client Side Map descriptors
```

Map Descriptors												
Map_Descriptor_Name,	Data_Array_Name,	Data_Array_Offset,	Function,	Node_Name,	File_Type,	File_Number,	Address,	Length,	Data_Array_Low_Scale,	Data_Array_High_Scale,	Node_Low_Scale,	Node_High_Scale
SMD_AI_01,	DA_AI_01,	0,	Server,	ABE_Srv_11,	N,	10,	0,	16,	0,	100,	0,	100
SMD_AO_01,	DA_AO_01,	0,	Server,	ABE_Srv_11,	N,	11,	0,	16,	0,	100,	0,	100
Map Descriptors												
Map_Descriptor_Name,	Data_Array_Name,	Data_Array_Offset,	Function,	Node_Name,	File_Type,	File_Number,	Address,	Length				
SMD_DI_01,	DA_DI_01,	0,	Server,	ABE_Srv_11,	B,	12,	0,	16				
SMD_DO_01,	DA_DO_01,	0,	Server,	ABE_Srv_11,	B,	13,	0,	16				

Appendix A. Troubleshooting

Appendix A.1. Continuous Map Descriptors

RS View has been known to crash if it tries to read a server mapping that is discontinuous.

e.g. Server map 1: N21: 0-31

Server map 2: N21: 32-100

This will crash RS view as the AB_CSP will attempt to map N21: 0-100

If set up as

Server Map 1: N21: 0-100, no problems are experienced

Appendix B. Command Support

The following commands are supported by the FieldServer for the various PLC types:

PLC_Type	File_type	FNC	Read	FNC	Write	Typical Command
PLC3	N	1	Range Read	0	Range Write	N7: 3, L5
	F	1	Range Read	0	Range Write	F12: 3, L5
	B	1	Range Read	2	Bit Write	B3/4: 5, I5
PLC5	N	1	Range Read	0	Range Write	N7: 3, L5
	F	1	Range Read	67	Typed Write	F12: 3, L5
	B	1	Range Read	26	Read Modify Write	B3/4: 5, L5
SLC5	N	A2	Protected Typed Logical Read	AA	Protected Typed Logical Write	N7: 3, L5
	F	A2	Protected Typed Logical Read	AA	Protected Typed Logical Write	B3/4: 5, L7
	B	A2	Protected Typed Logical Read	AB	Protected Typed Logical Write	B3/4: 5, L8
	I	A2	Protected Typed Logical Read	-	-	I: 13, L5
	O	A2	Protected Typed Logical Read	-	-	O: 13, L5
	S	A2	Protected Typed Logical Read			52: 3, L5

Appendix C. Revision History

Date	Resp	Format	Driver Ver.	Doc. Rev.	Comment
2/3/04	MF	MF	1.00	1	Formatting updated. Revision table added.
5/6/04	Meg	Meg	1.00	2	Added connection diagram. Converted final chapters to appendices. Removed nonsense text.
6/14/04	JD		1.00	3	Releasing
12/27/04	Meg	Meg	1.00	4	Changed Appendix numbering to letters and added borders and shading. Corrected example table formatting. Removed some commas in example. Created Troubleshooting section. DUR0522.

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