



A Sierra Monitor Company

Driver Manual
(Supplement to the FieldServer Instruction Manual)

FS-8700-10 SMC2450

APPLICABILITY & EFFECTIVITY

Effective for all systems manufactured after May 1, 2001

Instruction Manual Part Number FS-8700-10

9/23/2003

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1. SMC2450 Description

The SMC2450 driver allows the FieldServer to transfer data to and from devices over either RS-232 or RS-485 using SMC2450 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

Supplied by FieldServer Technologies.

FIELDSEVER PART #	DESCRIPTION
FS-8915-10	7' Patch Cable
FS-8917-02	Connector, 9-pin female, connects DTE no handshaking
FS-8917-01	Connector, 25 pin male, connects to DCE, RTSICTS loop
SPA59132	RS-485 connector adapter

Provided by user

PART #	DESCRIPTION
Model 2450	Model 2450 Environment Controller

3. FieldServer as a SMC2450 Client

3.1 Hardware Connections

It is possible to connect a SMC2450 device to a RS-232 port or RS-485 port (using a converter). These ports just need to be configured for SMC2450 in the configuration file.

3.2 Configuration File Structure

Refer to section 1 of the Configuration Manual for a description of the operation principle of the FieldServer. The following tables describe parameters that need to be filled out in the configuration file. For convenience, a few example parameters already exist in the supplied Configuration files.

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

3.2.1 Data Arrays

Section Title		
Data_Arrays		
Column Title	Function	Legal Values
Data_Array_Name	Provide name for Data Array	Up to 15 alphanumeric characters
Data_Format	Provides data format	FLOAT, BIT, UInt16, Sint16, Packed_Bit, Byte, Packed_Byte, Swapped_Byte
Data_Array_Length	Number of Data Objects	1-10,000

Example

```
//      Data Arrays

Data_Arrays,
Data_Array_Name, Data_Format, Data_Array_Length,
DA_40000,        UINT16,        10,
DA_41000,        UINT16,        4,
DA_42000,        UINT16,        22,
DA_42100,        UINT16,        24,
DA_42200,        UINT16,        20,
DA_42300,        UINT16,        12,
DA_43000,        UINT16,        23,
DA_44000,        UINT16,        3,
```

3.2.2 Client Side Connections

Section Title		
Connections		
Column Title	Function	Legal Values
Port	Specify which port the device is connected to the FieldServer	FS-X20: P1 or R1 FS-X40: P1 – P8, R1 – R2
Baud*	Specify baud rate	2400
Parity*	Specify parity	None
Data_Bits*	Specify data bits	8
Stop_Bits*	Specify stop bits	1
Protocol	Specify protocol used	SMC2450
Handshaking*	Specify hardware handshaking	None
Poll Delay*	Time between internal polls	0-32000 seconds default 1 second

Example

```
// Client Side Connections
Connections
Port, Baud, Parity, Data_Bits, Stop_Bits, Protocol, Handshaking, Poll_Delay
P8, 2400, None, 8, 1, SMC2450, None, 0.100s
```

3.2.3 Client Side Nodes

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	129
Protocol	Specify protocol used	SMC2450
Port	Specify which port the device is connected to the FieldServer	FS-X20: P1 or R1 FS-X40: P1 – P8, R1 – R2

Example

```
// Client Side Nodes
Nodes
Node_Name, Node_ID, Protocol, Port
MOD2450, 1, SMC2450, P8
```

3.2.4 Client Side Map Descriptors

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	RDBC
Node_Name	Name of Node to fetch data from	One of the node names specified in "Client Node Descriptor" above
Address	Starting address of read block	40001, 30001, etc
Length	Specifies how many register bits etc. to read	0 - 125
Data_Array_Low_Scale*	Scaling zero in Data Array	-32767 to 32767, default 0
Data_Array_High_Scale*	Scaling max in Data Array	-32767 to 32767, default 100
Node_Low_Scale*	Scaling zero in Connected Node	-32767 to 32767, default 0
Node_High_Scale*	Scaling max in Connected Node	-32767 to 32767, default 100
Scan_Interval*	Seconds per Scan	0-32000 default 1

Example

```
// Client Side Map Descriptors

Map_Descriptors
Map_block_Name, Data_Array_Name, Data_Array_Offset, Function, node_name,
Address, Length, Scan_Interval,

SMB_AO1, DA_40000, 0, rdbc, MOD2450, 40001, 10, 2,
SMB_AO2, DA_41000, 0, rdbc, MOD2450, 41001, 4, 2,
SMB_AO3, DA_42000, 0, rdbc, MOD2450, 42001, 22, 20,
SMB_AO4, DA_42100, 0, rdbc, MOD2450, 42101, 24, 20,
SMB_AO5, DA_42200, 0, rdbc, MOD2450, 42201, 20, 20,
SMB_AO6, DA_42300, 0, rdbc, MOD2450, 42301, 12, 20,
SMB_AO7, DA_43000, 0, rdbc, MOD2450, 43001, 23, 20,
SMB_AO8, DA_44000, 0, rdbc, MOD2450, 44001, 3, 20,
```

4. FieldServer as a SMC2450 Server

4.1 Hardware Connections

It is possible to connect a SMC2450 device to a RS-232 port or RS-485 port (using a converter). These ports just need to be configured for SMC2450 in the configuration file.

4.1.1 Configuration File Structure

Refer to section 1 of the Configuration Manual for a description of the operation principle of the FieldServer. The following tables describe parameters that need to be filled out in the configuration file. For convenience, a few example parameters already exist in the supplied configuration files.

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

4.1.2 Bridge Parameters

Section Title		
Bridge		
Column Title	Function	Legal Values
Title	Specifies server only configuration.	Must be set to "MOD2450"

Example

```
//      Bridge Parameters

Bridge,
Title,
MOD2450,
```

4.1.3 Data Arrays

Section Title		
Data_Arrays		
Column Title	Function	Legal Values
Data_Array_Name	Provide name for Data Array	Up to 15 alphanumeric characters
Data_Format	Provides data format	FLOAT, BIT, UInt16, Sint16, Packed_Bit, Byte, Packed_Byte, Swapped_Byte
Data_Array_Length	Number of Data Objects	1-10,000

Example

```
//      Data Arrays

Data_Arrays,
Data_Array_Name, Data_Format, Data_Array_Length,
DA_40000,          UINT16,          10,
DA_41000,          UINT16,          4,
DA_42000,          UINT16,          22,
DA_42100,          UINT16,          24,
DA_42200,          UINT16,          20,
DA_42300,          UINT16,          12,
DA_43000,          UINT16,          23,
DA_44000,          UINT16,          3,
```

4.1.4 Server Side Connections

Section Title		
Connections		
Column Title	Function	Legal Values
Port	Specify which port the device is connected to the FieldServer	FS-X20: P1 or R1 FS-X40: P1 – P8, R1 – R2
Baud*	Specify baud rate	2400
Parity*	Specify parity	None
Data_Bits*	Specify data bits	8
Stop_Bits*	Specify stop bits	1
Protocol	Specify protocol used	SMC2450
Handshaking*	Specify hardware handshaking	None

Example

```
//      Server Side Connections

Connections
Port, Baud, Parity, Data_Bits, Stop_Bits, Protocol, Handshaking
P1,   2400, None,   8,           1,           SMC2450, None
```

4.1.5 Server Side Nodes

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
Protocol	Specify protocol used	SMC2450

Example

```
//      Server Side Nodes

Nodes
Node_name,      Node_ID,      Protocol
DEV1,          1,          SMC2450
```

4.1.6 Server Side Map Descriptors

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
Node_Name	Name of Node to fetch data from	One of the node names specified in "Client Node Descriptor" above
Address	Starting address of read block	40001, 30001, etc
Length	Specifies register length available	0-125
Data_Array_Low_Scale*	Scaling zero in Data Array	-32767 to 32767, default 0
Data_Array_High_Scale*	Scaling max in Data Array	-32767 to 32767, default 100
Node_Low_Scale*	Scaling zero in Connected Node	-32767 to 32767, default 0
Node_High_Scale*	Scaling max in Connected Node	-32767 to 32767, default 100

Example

```
//      Server Side Map Descriptors

Map_Descriptors
Map_Descriptor_Name,Data_Array_Name,Data_Array_Offset,Function,Node_Name,
Address,Length
SMB_AO1,  DA_40000,    0,  Server,  DEV1,  40001,  10,
SMB_AO2,  DA_41000,    0,  Server,  DEV1,  41001,  4,
SMB_AO3,  DA_42000,    0,  Server,  DEV1,  42001,  22,
SMB_AO4,  DA_42100,    0,  Server,  DEV1,  42101,  24,
SMB_AO5,  DA_42200,    0,  Server,  DEV1,  42201,  20,
SMB_AO6,  DA_42300,    0,  Server,  DEV1,  42301,  12,
SMB_AO7,  DA_43000,    0,  Server,  DEV1,  43001,  23,
SMB_AO8,  DA_44000,    0,  Server,  DEV1,  44001,  3,
```

5. Revision History

Date	Driver Version	Document Revision	Resp	Comment
8/28/02	1.00a	0		Manual Created.
10/8/02	1.00a	0		Changed the Driver Part Number
12/10/02	1.00	2		Releasing
9/23/03	1.00	3	JDM	Releasing