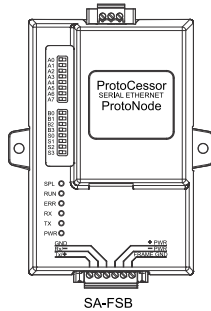




SA-FSB Field Server Bridge Installation Sheet



Description

The SA-FSB field server bridge (FSB) provides a communication bridge between iO, VS and FX life safety systems and building management systems (BMS) by converting the control panel External Communications Protocol into supported serial and Ethernet protocols. A list of the supported protocols can be found in "Specifications" on page 4.

Notes

- The SA-FSB is intended for ancillary use only. Use in non-ancillary applications is not permitted unless approved by the local authority having jurisdiction.
- The SA-FSB cannot be used for smoke control applications.

Application

This section describes possible SA-FSB communication applications between a control panel and a BMS. SA-FSB programming, installation, and wiring is the same for each application.

The iO, VS and FX control panels can support one SA-FSB per control panel. Each SA-FSB is programmed with the point events it is responsible for sending to the BMS.

Number of points

Each SA-FSB supports up to 3,600 programmed point events. The total number of programmed point events consists of the point events coming into the SA-FSB and the point events going out to the BMS.

Example: For a SA-FSB, you could program 1,800-point events to come into the SA-FSB and up to 1,800-point events to go out to your BMS.

When calculating the number of points in your application, consider that the total supported programmed point events are made up of panel devices (smoke detector, module, etc.) and event types (alarm, trouble, supervisory, etc.), and that one device point reporting into the SA-FSB from a panel may have many event type points going out to the BMS.

Required tasks

The following tasks are required to prepare the SA-FSB for communication between your control panel and a BMS.

1. Program the SA-FSB (see "Programming" below).
2. Install the SA-FSB (see "Installation" on page 3).
3. Connect the field wiring (see "Wiring" on page 3).

Getting started

Before getting started, make sure the following tools are available:

- A computer with a network interface card.
- A RJ-45 Ethernet patch cable, Cat 5e or better.
- A list of the life safety system's device addresses and possible device states. Refer to the "Exporting the device address list from the iO, VS, or FX Configuration Utility (CU)" below.
- A connection to the BMS.
- The SA-FSB configuration file (config.csv) for the protocol being used by your BMS. The default configuration file, Modbus TCP, is stored in the SA-FSB. Other protocols can be configured and updated using Steps 6 and 7.

You will also need the following documents that can be downloaded from the MSA website. Enter <https://us.msasafety.com/smc> in your browser, and then click the appropriate product under Featured Products (e.g. ProtoNode). When the product page opens, click the Literature tab at the bottom of the page to locate the document.

- [Start-Up Guide - ProtoNode](#)
- [Field Server Manual - FieldServer Toolbox and Graphic User Interface](#)
- [FieldServer Manual - FieldServer Configuration Guide](#)
- [Protocol Driver sheet – BACnet](#)
- [Protocol Driver sheet – M-BUS](#)
- [Protocol Driver sheet – DNP 3.0 Serial](#)

The Field Server FS-8705-47 iO, VS, and FX Fire Alarm Panel Manual is also required and can be downloaded on the following Websites.

iO and VS panels: My-Eddie website (<http://my-eddie.com/>)

FX panels: FX series website (<http://kiddefx.kidde.com/>)

Exporting the device address list from the iO, VS, or FX Configuration Utility (CU)

To program device addresses in the SA-FSB configuration file, you need a list of the life safety system's device addresses and possible device states (e.g., alarm, trouble, etc.). If you do not have the list, you can export it from the iO, VS, or FX Configuration Utility (CU).

To export the device address list:

1. Create a project or open an existing iO, VS, or FX CU project.
2. Right-click the Panel menu, and then click Export All System Events (FSB).
3. Select the appropriate File Path, and then click Export to export the CSV file data to the computer. By default the file is:
Project Name>Panel Name>All_System_Events.csv.

Programming

The field baud rate is fixed at 9600. Node ID and protocol can be set in the configuration file (refer to Step 6).

Step 1: Download and install the FieldServer Toolbox

1. Enter <https://us.msasafety.com/smc> in your browser, and then click ProtoNode under Featured Products. When the product page opens, under Additional Resources, click Software Downloads. Click FieldServer Toolbox.



- Unzip the file, and then double-click the FieldServer Toolbox Setup.exe file to install the toolbox. The toolbox will be used to create a diagnostic log to help debug programming.

Step 2: Power up the SA-FSB

- Ensure that the Frame GND (FG) terminal is used to ground the power connection. See "Wiring" on page 3.
- Connect power wiring from the SA-FSB power terminals on the HOST connector to a control panel constant 24VDC power terminals (COM and +) or other 24 VDC power source. See Figure 5.

Step 3: Confirm SA-FSB connectivity and connect to the ProtoNode GUI

- Connect one end of the Ethernet network cable to the Ethernet jack on the SA-FSB and the other end to the jack on the PC.
- Confirm connectivity as instructed in the Start-Up Guide - ProtoNode. (The default IP address of the ProtoNode is 192.168.1.24, the subnet mask is 255.255.255.0.)

Step 4: Change the SA-FSB IP Settings

- Open your internet browser (Chrome) and enter the IP address of your SA-FSB (Default is 192.168.1.24).
- Expand the setup folder under navigation tree and then click Network Settings.
- Enter the IP address, subnet mask, Gateway as per the existing network configuration.

Make sure that your computer IPv4 address is on the same network as the SA-FSB.

- Click System Restart to update the configuration file in the SA-FSB.

Step 5: Loading the All_System_Events.csv file on the SA-FSB

- Open your Internet browser (chrome) and enter IP address of SA-FSB.
- Expand the Setup folder under Navigation Tree, and then click File Transfer select General tab All_System_Events.csv file from the respective saved location.
- Choose the file and select the Submit button.

Step 6: Download the protocol configuration

Individual system point events can be relayed to the BMS by programming device addresses in the SA-FSB configuration file (config.csv).

- Enter the below URL on your browser (chrome) with the configured IP address Ex:192.168.1.24/iovsfx.html.
- The IOVSFX FACP configuration page opens as shown in Figure 1.

Figure 1: IOVSFX FACP configuration page

Offset	Parameter	Value
1	Language	0, English
2	Max Loops	4
3	Max Devices	250
4	BMS Protocol	5 - DNP3
5	BMS Node Id	1
6	BMS Mac Addr (MSTP Only)	0
7	Serve MultiState (Mi) objects to BMS	1
8	Serve Off Normal Binary (Bi) objects to BMS	1
9	Serve System Event data to BMS	1
10	Serve Zone data to BMS	1
11	Serve Annun data to BMS	1
12	Max Zone Number	100
13	Serve Alarms only*	0
14	Serve Supervisory only*	0
15	Serve Troubles only*	0
16	Serve Monitor only*	0

* Not available for DNP3

- Select the language as per the iO, VS, or FX CU configuration (e.g. English).
- Enter the Max loops connected as per your project configuration (e.g. 4 loops).
- Enter the Max devices per loop.
 - iO and VS panels: 250 devices
 - FX panel: 325 devices
- Select the desired BMS protocol (e.g., Bacnet IP).

There is no support for specific event state preference, only Multi state (MI) and Binary State(BI) are supported for DNP3.

- Enter the Max zone depending on the panel (16 for 64 point panels or 32 for 1,000 point panels).
- Select the appropriate option(s) for receiving the type and category of events that you want BMS to receive.
- If you have specific preferences, carefully select all the desired event types and categories. Multiple options can be selected.
 - Serve Off Normal Binary(Bi) objects to BMS (set this to 1 if you only want binary states and not the exact event type)
 - Serve System Event data to BMS (set this to 1 if you want system events sent to BMS)
 - Serve Annun data to BMS (set this to 1 if you want annunciator related events sent to BMS)
 - Serve Zone data to BMS (set this to 1 if you want zone related events sent to BMS)
 - Serve Alarms only (set this to 1 if you want alarm events sent to BMS)
 - Serve Supervisory only (set this to 1 if you want supervisory events sent to BMS)
 - Serve Troubles only (set this to 1 if you want trouble events sent to BMS)
 - Serve Monitor only (set this to 1 if you want monitor events sent to BMS)
- For all BMS protocols except BACnet IP/MSTP, click Generate and use new configuration using default labels.
- For BACnet IP/MSTP
 - If there are no label preferences, click on Generate and use new configuration using default labels.
 - If there are label preferences, go to Import Labels from FACP configuration.
 - Click Choose File and select the All_System_Events.csv file which you previously retrieved from the Configuration Utility.
 - Click submit, and then click Using the Imported labels, Generate and use new configuration.

Note: If All_System_Events.csv file name is exceeding 40 characters, please rename the file with less than 40 characters.

- The IOVSFX Gateway will restart soon message displays. Click OK and the FSB will restart.

Note: If you don't have any specific preference, select Serve MultiState (Mi) objects to BMS and set it to 1.

Step 7: Modify the configuration file

For this step, you need the device address list for the devices you want to program in the configuration file and the protocol manual for the protocol being used by the BMS. You should have knowledge of the protocol or access to someone who does. You may also find the FieldServer Manual - FieldServer Configuration Guide useful during this step.

In Step 6, there are several options provided for generating the configuration file. In addition, if you want to edit the configuration file, follow the steps below.

1. Open your internet browser (Chrome) and enter the IP address of your SA-FSB (Default is 192.168.1.24).
2. Go to Setup > FileTransfer > Configuration Tab.
 - a. Go to the Retrieve section, and then click config.csv.
 - b. Save this file in your computer.
 - c. Delete the events that are not required to be sent to BMS, and then save the file.
 - d. Load the configuration into the FSB by using Update Configuration. Choose the updated file, and then click submit.
 - e. Click System restart.

The FSB reboots, and the desired configuration is loaded.

Step 8: Disconnect the network cable

1. Disconnect the Ethernet network cable and power supply from the SA-FSB.
2. Install the SA-FSB, as described in Installation.

Installation

Install and wire this device in accordance with applicable national and local codes, ordinances, and regulations.

WARNING: Electrocutation hazard. To avoid personal injury, remove all sources of power and allow stored energy to discharge before installing or removing equipment.

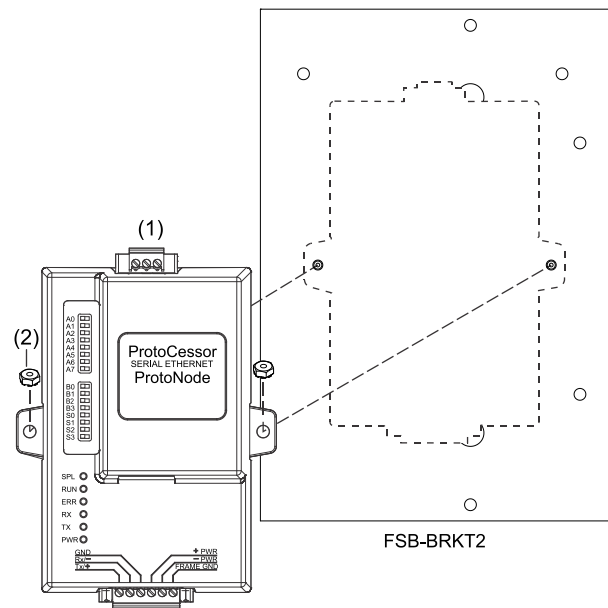
The FSB mounts in an MFC-A enclosure equipped with an FSB-BRKT2, both ordered separately.

To install the SA-FSB in an MFC-A enclosure:

1. Attach the SA-FSB to the FSB-BRKT2 mounting bracket using the K-nuts provided. See Figure 2.
2. Install the FSB-BRKT2 in the MFC-A using two #6 screws, as shown in Figure 3.

The FSB-BRKT2 can be installed in the left or right side of the MFC-A enclosure.

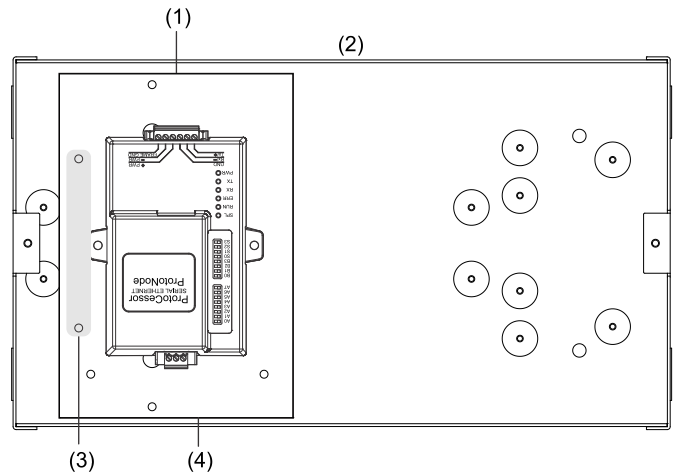
Figure 2: Attaching the SA-FSB to the FSB-BRKT2 mounting bracket



(1) SA-FSB

(2) #4 K-nut (2X)

Figure 3: Installing the SA-FSB in an MFC-A enclosure



(1) HOST connector at top

(2) MFC-A enclosure

(3) #6 screw (2X)

(4) FSB-BRKT2

Wiring

The SA-FSB is powered by the control panel electronics board AUX1 or AUX2 ports or from a compatible regulated 24 VDC power supply that is UL/ULC listed for fire protective signaling systems.

It communicates with the panel through an RS-232 connection using the optional SA-232 card. It communicates with the BMS through an RS-485 or Ethernet connection as shown in Figure 4 and Figure 5.

Notes

- Select FSB Unsupervised in the CU. The baud rate is fixed at 9600.
- For the power terminals, ensure that the Frame GND (FG) terminal is used to ground the power connection. Locate the MFC-A enclosure that houses the SA-FSB within 20 ft. (6.1 m) of the panel and enclose wiring in conduit.
- For RS-232 wiring, the maximum circuit length is 20 ft. (6.1 m).

To wire the SA-FSB:

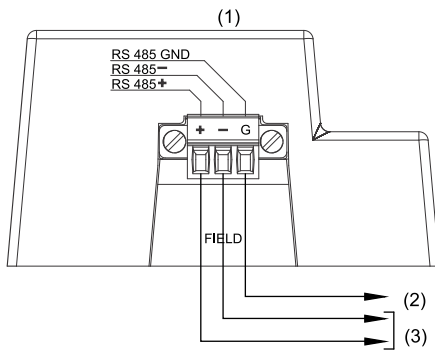
1. Connect power wiring to the SA-FSB power terminals on the HOST connector and the AUX power terminals on the panel. See Figure 5.
2. Connect RS-485 wiring to the SA-FSB FIELD connector and the BMS RS-485 connection, as shown in Figure 4.

— or —

Connect the Ethernet cable to the SA-FSB ETHERNET jack and the BMS network connection, as shown in Figure 5.

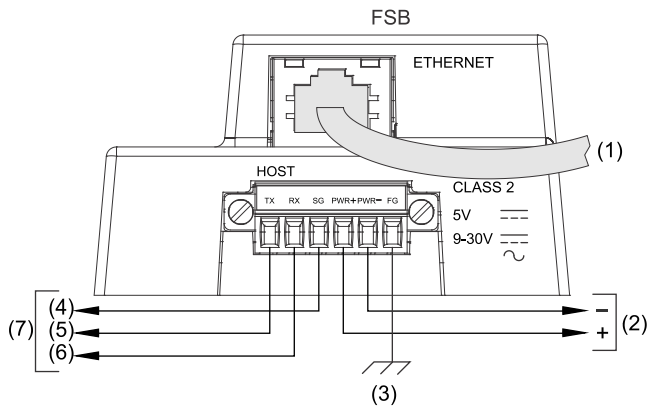
3. Connect RS-232 wiring to the SA-FSB RS-232 terminals on the HOST connector and the RS-232 terminals on the SA-232 card. Refer to *SA-232 RS-232 Interface Card Installation Sheet*, (P/N 3101095). See Figure 5.

Figure 4: Wiring the SA-FSB RS-485 connections



- (1) SA-FSB RS-485 connector (3) To BMS RS-485
 (2) Ground

Figure 5: Wiring the SA-FSB RS-232, power, and Ethernet connections



- (1) To BMS Ethernet (5) RX
 (2) To AUX power (6) TX
 (3) Frame ground (7) To the SA-232 card
 (4) COM RS-232 connections

Notes

- Power supply from the control panel is from the AUX1 or AUX2 24+/C terminals on the panel electronics board or from a compatible regulated 24 VDC power supply that is UL/ULC listed for fire protective signaling systems.
- Configure AUX2 power in the CU or using front panel programming as non-resettable. Refer to the CU Help or Technical Reference for details.

Testing

Test communication between the control panel and the BMS to make sure the desired event points are being transmitted.

Notes

- For a SA-FSB, you can find LED descriptions in the Start-Up Guide - ProtoNode.
- For an SA-FSB, you can quickly test BACnet/IP or BACnet MS/TP using BACnet Explorer (separately purchased at www.sierramonitor.com/connect/fieldserver-products/bacnet-explorer).

To test control panel and BMS communication:

1. From the control panel, initiate a point event that you programmed to be sent from the SA-FSB to the BMS.
2. From the ProtoNode GUI, enter O and verify that the event message was transmitted to the BMS correctly. (Refer to the *FieldServer Graphic User Interface (FS-GUI) Manual* for details on using the GUI.)
3. Restore the point event.
4. Test other points as required.

Specifications

Voltage	9 to 30 VDC (from control panel power supply or from a compatible regulated 24 VDC power supply that is UL/ULC listed for fire protective signaling systems)
Current	120 mA max. (at 24 VDC)
Communication interfaces	SA-FSB Serial
Compatible systems	RS-232 using the optional SA-232 card
Compatible enclosures	iO, VS, and FX with CU and panel firmware version 4.3 or later
Mounting	MFC-A
Supported protocols	FSB-BRKT2
SA-FSB to serial	Modbus RTU, BACnet MS/TP
SA-FSB to Ethernet	Modbus TCP (default), BACnet/IP, DNP Ethernet
Signal flow	One way from the panel, to the SA-FSB, to the BMS
Points [1]	SA-FSB
Number of SA-FSBs	3,600 max.
RS-232 circuit length	1 max.
Dimensions (W × H × D)	20 ft. (6.1 m) max.
FSB-BRKT2	4.85 × 7.13 × 0.05 in. (12.32 × 18.11 × 0.13 cm)
SA-FSB	3.63 × 5.00 × 1.63 in. (9.22 × 12.70 × 4.14 cm)
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Relative humidity	0 to 93% noncondensing

[1] See Number of points.

Regulatory information

For regulatory information, refer to the FieldServer Data Sheet – ProtoNode document. The data sheet can be downloaded from the MSA website.

Enter <https://us.msasafety.com/smc> in your browser, and then click ProtoNode under Featured Products. On the ProtoNode page, click the Literature tab at the bottom of the page, and then click FieldServer Data Sheet – ProtoNode.

Contact information

For contact information, see:

Edwards: www.edwardsfiresafety.com

Kidde: www.kidde-esfire.com