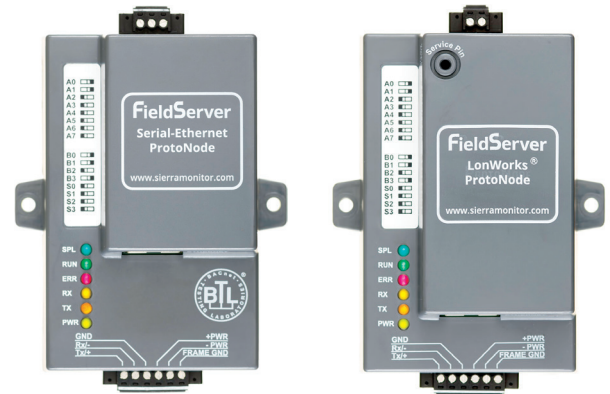# EDWARDS

LIFE SAFETY & INCIDENT MANAGEMENT

Communications Bridges

FSB-PC4, FSB-PC4LW

FSB-PC4
Serial/Ethernet Bridge

FSB-PC4LW
Serial/Ethernet Bridge

Overview

The FSB-PC4 and FSB-PC4LW communication bridges are devices that provide protocol translation between EST4 control panel data and the serial RS-485 or Ethernet input of an external device controller. Communication bridges may be configured for one-way ancillary purposes (monitor-only) or, where approved for the purpose, two-way between EST4 and other critical building systems such as building management systems (BMS).

Two communication bridge models are available, the FSB-PC4 and the FSB-PC4LW. Each comes complete with the driver necessary to communicate over a single supported protocol.

The FSB-PC4 is a bridge that converts EST4's .xml-based External Communications Protocol (ECPxml) to any one of several supported protocols, including Modbus RTU, BACnet IP, Modbus TCP/IP and BACnet MSTP. The FSB-PC4 operates over Ethernet (10/100 Base- T) or a combination of Ethernet and RS-485 serial communications, with BACnet MSTP.

The FSB-PC4LW is a single-protocol bridge used in ancillary applications that converts EST4's .xml-based External Communications Protocol (ECPxml) to LonWorks.

Standard Features

- **Links EST4 Life Safety with External Systems**
  Sends events to building management systems (BMS) and other building infrastructure via RS-485 or Ethernet connections.

- **Single Source BACnetIP, BACnet MSTP, Modbus Protocols**
  One module provides selection of any single protocol – no need to purchase separate software or hardware modules.

- **Serial and Ethernet Ports**
  Flexible connection type for external system support via Ethernet or RS-485.

- **Browser-based Configuration**
  Easy setup with no special software to install.

- **Selectable Connection from EST4 to other Systems**
  Xml protocol translation for interfacing EST4 to industrial automation or building automation equipment is accomplished through the RS-485 or Ethernet connector.

- **RoHS Compliant**
  Complies with Restriction of Certain Hazardous Substances (RoHS) directives now prevalent in many jurisdictions.

- **FSB-PC4 Communication Bridge**
  The FSB-PC4 communication bridge is a listed subcomponent of the EST4 system, and is a listed barrier gateway for Emergency Control Functions; supporting a variety of NFPA approved functions.

Application

EST4 control units can bridge the communications gap between BMS systems by using a standard protocol like BACnet, effectively eliminating the need for a multitude of physical input and output devices and associated wiring between discrete systems. The FSB-PC4 (LW) provides this bridge between systems by converting EST4's proprietary ECPxml protocol to a standard open protocol understood by other systems. Before specifying an FSB-PC4 (LW) bridge, determine the application layer protocol (BACnet, LonWorks, etc.) and the physical layer interface (Ethernet, MSTP) required by third-party equipment. Keep in mind that both FSB bridges support Ethernet interfaces to the control unit and the FSB-PC4 supports both Ethernet and serial interfaces to the BMS. The FSB-PC4LW supports only the LonWorks protocol to the BMS.
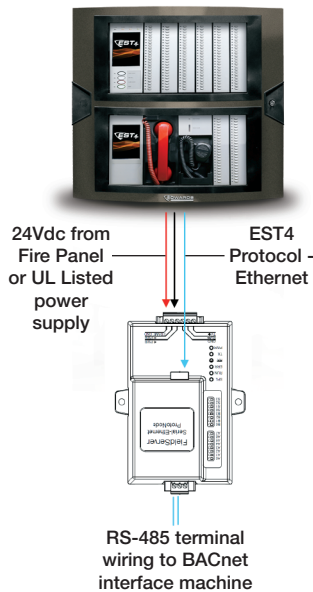
FSB-Series bridges are compatible with any EST4 system equipped with a 4-FWAL(n) firewall option card and 4-FWAL-CAT

SFP media adapter. A standard Category 5e (or greater) Ethernet patch cable equipped with RJ-45 male connectors on each end plugs-into each device's respective RJ-45 jack, establishing the communication pathway between these devices. Power to the FSB is provided directly from the EST4 using a dedicated 24vdc auxiliary power output. This connects between the control panel's Ethernet port and a RJ connection at the bridge. The browser-based configuration tool is used to select the desired communication protocol where applicable and to set network parameters.
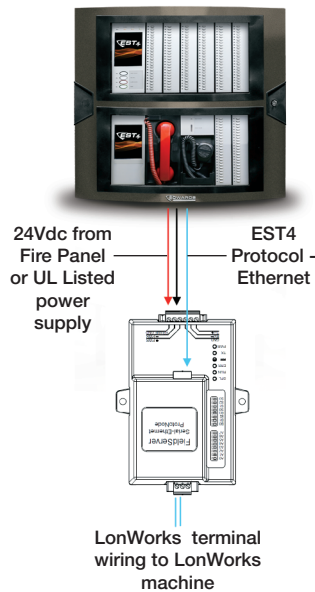
In order to complete the bridging process, individual points need to be specified within the FSB browser-based programming tool. This allows the bridge to relay only required data to the external device controller. To do this, use the FSB configuration browser to select all or to filter the EST4 devices that will be displayed on the 3rd party equipment.
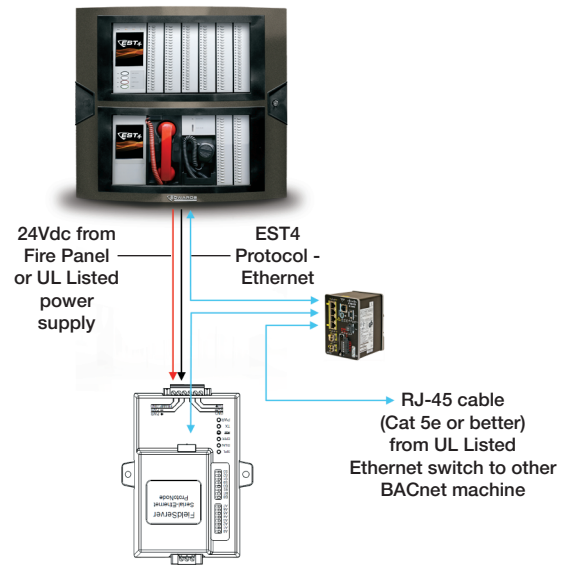
Typical Wiring

FSB-PC4 to RS-485 Bridge

24Vdc from Fire Panel or UL Listed power supply — EST4 Protocol - Ethernet

RS-485 terminal wiring to BACnet interface machine

FSB-PC4LW to LonWorks Bridge

24Vdc from Fire Panel or UL Listed power supply — EST4 Protocol - Ethernet

LonWorks terminal wiring to LonWorks machine

FSB-PC4 to Ethernet Bridge

24Vdc from Fire Panel or UL Listed power supply — EST4 Protocol - Ethernet

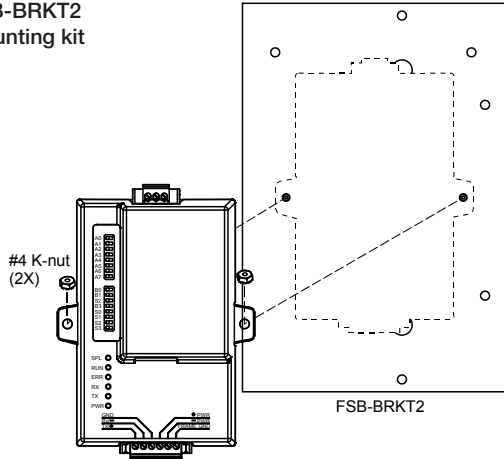RJ-45 cable (Cat 5e or better) from UL Listed Ethernet switch to other BACnet machine

Notes:

1. Each 4-FWAL supports up to two SFPs. Each SFP can be used to communicate to different services, such as EST4 protocol (ECPxml), email, FireWorks, and IP central station. The two separate SFP connections do not communicate with each other through the FWAL, they communicate to the EST4 system separately.

2. When using an external switch that is agency listed for the purpose for connection to the 4-FWAL, multiple connections (i.e.: Fireworks, Email, ECP, IP Dialer, etc.) are allowed through a single SFP on the 4-FWAL. Refer to appropriate technical documentation for installation details.

Installation

FSB bridges mount inside the EST4 control panel enclosures using the separately-ordered FSB-BRKT2 mounting kit. If an external cabinet is required, the FSBs may be mounted inside an MFC-A multifunction cabinet. FSB bridges are powered from the control panel 24VDC power supply. If mounted externally, the FSB-PC4(LW) Ethernet/4-FWAL communication pathway infrastructure may not exceed 328 feet (100 meters) total cable distance.
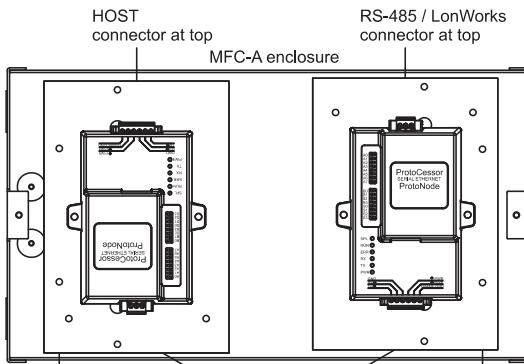
FSB-BRKT2 mounting kit

#4 K-nut (2X)

FSB-BRKT2

Mounting to an EST4 3-CHAS7 Chassis

3-CHAS7

Top rail screws

FSB

Bottom rail screws
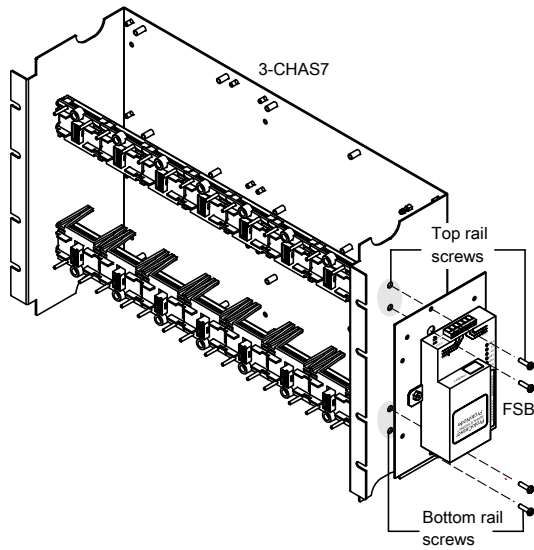
Mounting in an MFC-A Cabinet

HOST connector at top

RS-485 / LonWorks connector at top

MFC-A enclosure

Engineering Specification

The fire alarm system shall provide a listed barrier gateway between the fire/life safety system and other discrete building critical systems such as Building Management Systems, as required, to provide one-way or two-way serial communication. The interface shall be via Modbus RTU, BACnet MSTP, BACnet IP or Modbus TCP/IP protocol. The interface shall be software configurable as to which points from the fire systems shall be provided to the building system. The BACnet/Modbus interface shall be agency listed for its specific application as part of the life safety/fire system.

Technical Specifications

	FSB-PC4	FSB-PC4LW
Communication Interfaces	To fire panel: Ethernet ECPxml. To Building System: Serial (RS-485) or Ethernet 10/100Base T (auto sensing).	To Fire Panel: Ethernet ECPxml. To Building System: FTT-10 LonWorks.
Supported field protocols	To Fire Panel: Ethernet ECPxml. To Building System: Ethernet BACnet/IP (default), Modbus TCPSerial: Modbus RTU, BACnet MSTP	To Fire Panel: Ethernet ECPxml To BMS: LonWorks
Points per Bridge	5,000 max. [Note 1]	1,800 max.
Operating Current	110 mA nominal, 120 mA max. (at 24 VDC)	130 mA nominal, 140 mA max. (at 24 VDC)
Input voltage	9 to 30VDC (Typically nominal 24VDC from an EST4 power supply). The unit may be powered by a fire listed power supply.	
Storage & Operating Environment	32 to 120 °F (0 to 49 °C) 5-90% RH, non-condensing	
Regulatory Approvals	UL	For ancillary applications only
Construction, Finish	Light Grey metal enclosure with mounting ears	
Mounting	Within EST4 cabinet using mounting kit model FSB-BRKT2 or within an MFC-A cabinet.	
Configuration	Software programmable for protocol supported as well as specific points to be translated.	
Maximum Bridges	Eight per EST4 4-FWAL	
Dimensions, W×H×D	3.6 × 5.0 × 1.6 in. (8.2 × 11.5 × 4.0 cm)	

Note 1: A single FSB-PC4 can support up to 5,000 points. See installation sheet 3102260-EN for further details.

EDWARDS

LIFE SAFETY & INCIDENT MANAGEMENT

Contact us

Phone: 800-655-4497 (Option 4)
Email: edwards.fire@carrier.com
Website: edwardsfiresafety.com

8985 Town Center Pkwy
Bradenton, FL 34202

Ordering Information

Model # (SKU)	Description	Shipping Weight
FSB-PC4	ECPxml to BMS. Mounts on FSB-BRKT2, ordered separately.	0.35 lb (0.16 kg)
FSB-PC4LW	ECPxml to BMS. Mounts on FSB-BRKT2, ordered separately. (See note 2).	0.35 lb (0.16 kg)
Accessories and related equipment		
FSB-BRKT2	Mounting bracket for FSB-PC4 or FSB-PC4LW. Allows FSB bridges to mount in an MFC-A cabinet or on the side of an EST4 3-CHAS7.	0.5 lb (0.2 kg)
MFC-A	Multifunction Fire Alarm Cabinet, red.	6.9 lb (3.1 kg)
MN-FNS4C2F3	Four Fast Ethernet (RJ45), two GB SFP, Layer 3 Lite. 24 VDC. Where more than four ports are needed select the MN-FNS8C2F3 eight-port switch.	3.8 lb (1.7 kg)
MN-FNS4HDK1	Hold Down Kit for four-port switch	1.4 lb (0.63 kg)
MN-BRKT1F	Mounting Bracket	4.5 lb (2.1 kg)
4-MPLT	Mounting Plate	

Note 2: The FSB-PC4LW is not a UL listed device for command and control

DATA SHEET E85014-0011
Not to be used for installation purposes. **Issue 1.1**

04-07-20