

# SB800 EX

2-Port Serial to Ethernet Server with Optional Wifi/CAN



## DATASHEET

### Key Points

- Complete serial to Ethernet solution right out of the box
- Optional development kit to create custom applications
- Pre-programmed factory application supports RS-232, RS-422, RS-485 with jumperless configuration
- Optional 802.11 b/g/n Wifi
- Optional CAN bus configuration
- Rebrand with custom product label
- Data encryption to protect from unauthorized monitoring

### Features

- TCP, UDP, and Telnet with SSL/TLS, HTTPS, and SSH
- Certificate support
- 10/100Mbps Ethernet
- DHCP/Static IP modes
- RS-232, RS-422, and RS-485 with support for standard and custom baud rates up to 921,600 bps
- CAN baud rates up to 1Mbps (requires dev kit)
- Web server and serial AT Command configuration
- Create a serial tunnel with two devices
- Custom packetization of serial data

### Customizations

Use the optional development kit to:

- Customize any aspect of operation including web pages, data filtering, or custom network applications
- MicroSD Card interface with included flash file system



## Hardware Specifications

### RS-232, RS-422, and RS-485 Specifications

- Factory application supports up to 921,600 bps
- Jumperless software configuration

### CAN Specifications

- Replaces either of the RS-232, RS-422, RS-485 serial ports
- Supports up to 1Mbps
- Requires the development kit, secure serial factory application does not support CAN

### Processor & Memory

32-bit Freescale ColdFire 54415 running at 250MHz with 8MB of on-chip flash, 64MB DDR2 RAM.

### Storage

MicroSD/MMC Flash Card Interface

### Ethernet Interface

10/100 BaseT with RJ-45 connector

### Wifi Interface (optional)

IEEE 802.11 b/g/n

Security: WPA, WPA2

Modes: Infrastructure, Access Point with DHCP Server

### Miscellaneous

Real-time clock

LEDs for Ethernet link, speed/activity, and power

LEDs for status of each serial ports

### Physical Characteristics

Dimensions (inches): 4.20" x 3.25" x 1.00"

### Power

DC Input Voltage: 7V-24V DC; 12V @ 120mA

### Environmental Operating Temperature

-40° to 85° C

### RoHS Compliance

The Restriction of Hazardous Substances guidelines ensure that electronics are manufactured with fewer environment harming materials.

### Agency Approvals

UL, C/UL, CE, FCC



## Front and Back Panel



Front Panel  
(Shown with optional WIFI)



Back Panel

## Connector Interface Description and Pinouts

Table 1: DB9 Serial Port Connector Pinout and Signal Description<sup>1</sup>

| Pin | RS-232 Function | RS-485 Function | CAN Function <sup>2</sup> | Description  |
|-----|-----------------|-----------------|---------------------------|--|
| 1   | CD              | FD TX- / HD-    | -                         | Carrier Detect or Full Duplex Transmit- / Half Duplex-     |
| 2   | RX              | FD TX+ / HD+    | CANL                      | Receive or Full Duplex Transmit+ / Half Duplex+ or CAN Low |
| 3   | TX              | RX+             | GND                       | Transmit or Full Duplex Receive+ or Ground                 |
| 4   | DTR             | RX-             | -                         | Data Terminal Ready or Full Duplex Receive-                |
| 5   | GND             | GND             | GND                       | Ground   |
| 6   | DSR             | -               | GND                       | Data Set Ready or Ground                                   |
| 7   | RTS             | -               | CANH                      | Ready to Send or CAN High                                  |
| 8   | CTS             | -               | -                         | Clear to Send  |
| 9   | RI              | -               | PWR_V+ <sup>3</sup>       | Ring Indicator or Optional CAN Input Power (7-24V DC)      |

Table 2: Terminal Block Serial Port Pinout and Signal Description<sup>1</sup>

| Pin | RS-232 Function | RS-485 Function | CAN Function <sup>2</sup> | Description   |
|-----|-----------------|-----------------|---------------------------|---|
| 1   | GND             | GND             | GND                       | Ground  |
| 2   | CD              | FD TX- / HD-    | CANL                      | Carrier Detect or Full Duplex Transmit- / Half Duplex- or CAN Low       |
| 3   | RX              | FD TX+ / HD+    | GND                       | Receive or Full Duplex Transmit+ / Half Duplex+ or Ground               |
| 4   | DTR             | RX-             | CANH                      | Data Terminal Ready or Full Duplex Receive- or CAN High                 |
| 5   | TX              | RX+             | PWR_V+ <sup>3</sup>       | Transmit or Full Duplex Receive+ or Optional CAN Input Power (7-24V DC) |

### Notes:

1. For developers: Port 0 is connected to processor UART1. Port 1 is connected to processor UART2.
2. For CAN devices only.
3. Replaces power from input barrel jack or two-pin terminal strip.

## SB800EX Build Options

### Serial Ports:

- Connectors can be DB-9 or a 5-pin terminal strip
- All ports support RS-232, RS-485 and RS-422, jumperless configuration through software
- CAN bus can be supported as an option in place of RS-232, RS-485 and RS-422

### Input Power Connector:

- Can be a 2.1mm barrel jack or a 2-pin terminal strip

### Options:

- Wifi b/g/n with external antenna
- CAN Bus
- GPS option for Network Time Server (NTP) operation

## Part Numbers

The part number will specify the options in the format: **SB800EX-(P, S2, S1, W)-IR**, where:

| Connector Type             | Values   |
|----------------------------|--|
| P = Power Connector        | J = Barrel Jack<br>T = 2 Pin Terminal Plug   |
| S1, S2 = Serial Connectors | D = DB-9<br>T = 5 Pin terminal strip<br>N = No Connector   |
| W = Wifi                   | W = Wifi Installed   |
| CD, CT = CAN               | CAN bus transceiver installed. Replaces RS-232/422/485 transceiver.<br>CT = CAN on terminal strip, serial connector S1 (port 0)<br>CD = CAN on DB9, serial connector S2 (port 1) |

**Example:** SB800EX-JDDW-IR = Barrel jack, both serial ports are DB9, Wifi installed.

## Stock Configurations

Custom configurations available upon request.

| Part Number                   | Description   | Upgrade From   |
|-------------------------------|---|--|
| <b>Power = Jack</b>           |   |  |
| SB800EX-JDD-IR                | Power Jack<br>DB9 supports RS-232/422/485<br>DB9 supports RS-232/422/485                                      | SB72EX, SB700EX  |
| SB800EX-JDT-IR                | Power Jack<br>DB9 supports RS-232/422/485<br>5-Pin terminal supports RS-232/422/485                           | CB34EX without CAN bus   |
| <b>Power = Terminal Strip</b> |   |  |
| SB800EX-TDD-IR                | Power 2-pin terminal plug<br>DB9 supports RS-232/422/485<br>DB9 supports RS-232/422/485                       | SB72EX, SB700EX with 2 pin terminal input power instead of jack. |
| SB800EX-TDT-IR                | Power 2-pin terminal plug<br>DB9 supports RS-232/422/485<br>5-Pin terminal supports RS-232/422/485            | CB34EX with 2 pin terminal power input instead of jack.          |
| <b>WIFI</b>                   |   |  |
| SB800EX-JDDW-IR               | Power Jack<br>DB9 supports RS-232/422/485<br>DB9 supports RS-232/422/485<br>Wifi and Ethernet port            | SB72EX, SB700EX plus Wifi  |
| SB800EX-JDTW-IR               | Power Jack<br>DB9 supports RS-232/422/485<br>5-Pin terminal supports RS-232/422/485<br>Wifi and Ethernet port | CB34EX plus Wifi without CAN bus                                 |
| <b>CAN Bus</b>                |   |  |
| SB800EX-TDTCT-IR              | Power 2-pin terminal plug<br>DB9 supports RS-232/422/485<br>5-Pin terminal supports CAN bus                   | CB34EX   |
| SB800EX-TDTCD-IR              | Power 2-pin terminal plug<br>DB9 supports CAN<br>5-Pin terminal supports RS-232/422/485                       | CB34EX   |