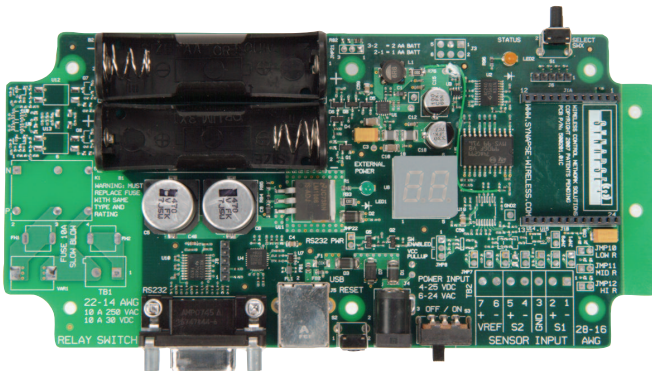


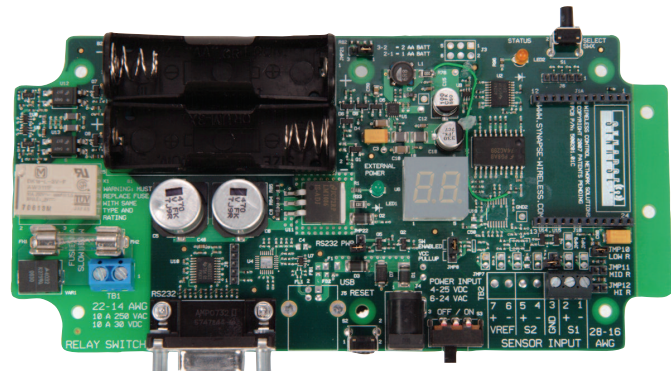


Wireless Technology to Control and Monitor Anything from Anywhere™

SNAP Node Bridge (SN163) and End Device (SN111) Demonstration Boards



SN163 - Bridge



SN111 - End Device

SNAP Node Bridge™ and **End Device™** boards have the onboard peripherals to demonstrate powerful monitoring and control capabilities right out of the box. You can control external electrical devices with the power-relay, display link-quality or other parameters on the 7-segment LEDs, wake up with a button-press, and more. Several of Portal's sample scripts make specific use of these boards. Modify one of the sample scripts to make your own application – demonstrate for yourself the power of SNAP!

SNAP Node Bridge™ (SN163)

The SN163 Bridge is equipped with a USB port, providing a fast and reliable connection to Synapse Portal® or SNAP® Gateway™ running on a PC. As its name implies, this board makes an ideal bridge device for connecting external systems to the SNAP network.

SNAP Node End Device™ (SN111)

The SN111 End Device provides a latching relay for controlling external devices, and a sensor input with jumper-selectable pullup resistors which allows the connection of a number of off-the-shelf resistive sensor types such as photocells and thermistors.

| SN163 - Bridge | SN111 - End Device | FEATURE |
|----------------|--------------------|--|
| • | • | Compatible with all Synapse RF Engines |
| • | • | RS-232 port with full hardware flow control (UART1) |
| • | • | 2-Digit 7-segment LED, software controllable |
| • | • | Status LED and select switch, also under user software control |
| • | • | Battery or external power option |
| • | • | USB port (UART0) which can also provide power |
| | • | 10A latching relay |
| | • | Analog input terminals (ADC-CH0) 10-bit A/D with selectable pullup |



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SNAP Node Bridge (SN163) and End Device (SN111)

Demonstration Boards

Product Features

| Feature | Description |
|--------------------|--|
| RS-232 Port | Full RS-232 support with HW flow control (RTS/CTS) |
| USB Port | (SN163 - Bridge only) USB Specification 2.0 compliant |
| Display | 2-digit seven-segment green LED Display |
| Input Power | 4 - 9 VDC wall transformer, USB 5V (SN163 - Bridge only), 2x AA battery |
| Select Button | User function definable |
| Status LED | User function definable (yellow) |
| External Power LED | On when external power from wall transformer or USB is supplied (green) |
| Power Switch | On/Off switch for all power modes |
| Reset | Reboot RF Engine |
| Relay | Contacts rated 10A at 250 VAC or 30 VDC. Replaceable fuse protection for relay circuit |
| Analog Input | 10-bit A/D input, 0-3.2V range. Jumper selectable pullup resistors: 10k, 100k, 1M |

Part Selection

| Part No. |
|----------------------------|
| SN163F0-NRBridge |
| SN111F5-NREnd Device |

RF Engine Socket Allocation on Demonstration Boards

| Pin No. | Name | Direction | Description | Demonstration Board Connection |
|---------|------------------|---------------|----------------------------------|--------------------------------|
| 1 | GND | - | Power Supply/Return | GND |
| 2 | GPIO0_TPM1CH2 | Bidirectional | GPI/O, or Timer1 Channel 2 | Status LED |
| 3 | GPIO1_KBI10 | Bidirectional | GPI/O, Keyboard In | Select Switch |
| 4 | GPIO2_KBI11 | Bidirectional | GPI/O, Keyboard In | ADC - 24-bit CS |
| 5 | GPIO3_RX_UART0 | Input | UART0 Data In | USB-CP2102 |
| 6 | GPIO4_TX_UART0 | Output | UART0 Data Out | USB-CP2102 |
| 7 | GPIO5_KBI4_CTS0 | Bidirectional | GPI/O, Keyboard In, or UART0 CTS | USB-CP2102 |
| 8 | GPIO6_KBI5_RTS0 | Bidirectional | GPI/O, Keyboard In, or UART0 RTS | USB-CP2102 |
| 9 | GPIO7_RX_UART1 | Input | UART1 Data In | MAX232 |
| 10 | GPIO8_TX_UART1 | Output | UART1 Data Out | MAX232 |
| 11 | GPIO9_KBI6_CTS1 | Bidirectional | GPI/O, Keyboard In, or UART1_CTS | MAX232 |
| 12 | GPIO10_KBI7_RTS1 | Bidirectional | GPI/O, Keyboard In, or UART1_RTS | MAX232 |
| 13 | GPIO11_AD7 | Bidirectional | GPI/O, or Analog In | ADC-24-bit DATA |
| 14 | GPIO12_AD6 | Bidirectional | GPI/O, or Analog In | ADC-24-bit CLK |
| 15 | GPIO13_AD5 | Bidirectional | GPI/O, or Analog In | LED - 7 seg CLK |
| 16 | GPIO14_AD4 | Bidirectional | GPI/O, or Analog In | LED - 7 seg DATA |
| 17 | GPIO15_AD3 | Bidirectional | GPI/O, or Analog In | Battery level (analog) |
| 18 | GPIO16_AD2 | Bidirectional | GPI/O, or Analog In | Relay RESET |
| 19 | GPIO17_AD1 | Bidirectional | GPI/O, or Analog In | Relay SET |
| 20 | GPIO18_AD0 | Bidirectional | GPI/O, or Analog In | Sensor Input |
| 21 | VCC | - | Power Supply | VCC |
| 22 | PTG0/BKDG | Bidirectional | Background Debug Communication | PTG0/BKDG |
| 23 | RESET_L | Bidirectional | Module Reset, Active Low | RESET |
| 24 | GND | - | Power Supply/Return | GND |

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