Spectre Network Gateway

Compatible with Wzzard Intelligent Edge Nodes

B+B SMARTWORX.

PRODUCT FEATURES

- 802.15.4e SmartMesh IP radio
- 10/100 Ethernet network interface
- EV-DO/CDMA and HSPA+/GPRS/GSM cellular network interface
- Communicates with Wzzard Intelligent Edge Nodes
- Industrial design - wide operating range (-30 to +60 C)
- 10-30 VDC power
- Class 1/Division 2 Certified

The Wzzard™ Sensing Platform

The Wzzard intelligent wireless sensor platform makes it quick and easy to connect edge devices and assets and communicate their data to your IoT application for visualization, analytics or integration into business applications. The Wzzard platform connects to a vast range of industry-standard sensors. It uses Wzzard Intelligent Edge Nodes and a wireless SmartMesh IP network to transmit sensor data to the Spectre Network Gateway. The Spectre Network Gateway can connect to the Internet via Ethernet connections or the 3G cellular data network.

The Spectre Network Gateway

The Spectre Network Gateway connects to the SmartMesh IP wireless mesh network and the Wzzard Intelligent Edge nodes through an integrated 802.15.4e radio. The Spectre Network Gateway receives the incoming data stream from edge nodes in MQTT-SN format and converts the information into MQTT protocol for transport to an MQTT broker on your network or on the Internet. The leading IoT applications providers include MQTT brokers in their solutions, and open source MQTT brokers are available for installation on private networks.

The Spectre Network Gateway is built for plug-and-play simplicity with extensive remote management, deployment and customization options. It connects Ethernet equipment and other devices to the Internet or intranet via either 3G cellular or 10/100 wired Ethernet. The standard configuration includes a 10/100 Ethernet port, USB host port, binary input/output (I/O) port and an 802.15.4e radio. It also has an auxiliary port that can be configured for other purposes, like Ethernet or RS-232/485/422.

Secure Connections

To ensure secure communications the Spectre Network Gateway supports the creation of VPN tunnels using IPsec, OpenVPN and L2TP. The web interface provides detailed statistics about gateway activities, signal strength, etc. The gateway supports DHCP, NAT, NAT-T, DynDNS, NTP, VRRP, control by SMS, and many other routing functions. The Spectre Network Gateway also provides diagnostic functions which include automatically monitoring the PPP connection, automatic restart in case of connection losses, and a hardware watchdog that monitors the Spectre Network Gateway status.

ORDERING INFORMATION

SPECTRE NETWORK GATEWAY MODEL NUMBERS	
ERT351	Ethernet Network Gateway with 2 Ethernet ports, wireless mesh 802.15.4e, AC power adapter
RT3G-350	Cellular/Ethernet Network Gateway with 1 Ethernet port, wireless mesh 802.15.4e, 3G cellular, AC power adapter
RT3G-351	Cellular/Ethernet Network Gateway with 2 Ethernet ports, wireless mesh 802.15.4e, 3G cellular, AC power adapter
RT3G-352	Cellular/Ethernet Network Gateway with 1 Ethernet port, 1 RS-232 port, wireless mesh 802.15.4e, 3G cellular, AC power adapter
RT3G-354	Cellular/Ethernet Network Gateway with 1 Ethernet port, 1 RS-485 port, wireless mesh 802.15.4e, 3G cellular, AC power adapter

USA, Canada. Check with your local distributor for availability and options.

ACCESSORIES

MDR-20-24	24VDC, 20W, 1A Power Supply
C5UMB3FBG	Category 5E Cable, UTP, 1 m (3 ft), Beige
C5UMB10FBL	Category 5E Cable, UTP, 3 m (10 ft), Blue
TRAB806/17103P	Cellular Antenna, Multi-Band, Low Profile
RT3G-ANT001	3G Cellular Antenna, Penta-Band, Right-Angle SMA
RT3G-ANT002	3G Cellular Antenna, Penta-Band, Magnetic Mount SMA

MECHANICAL DIAGRAM
SPECTRE (ETHERNET) ERT351

1.7 in (42 mm)
4.5 in (113 mm)
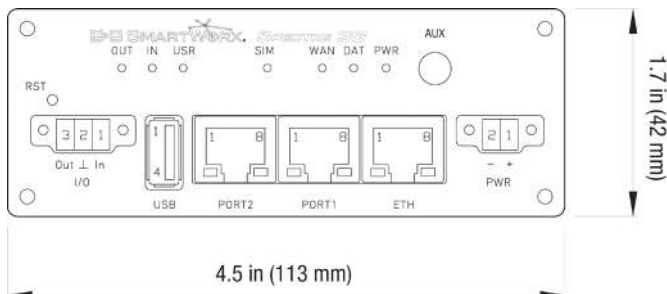
MECHANICAL DIAGRAM
SPECTRE (CELLULAR/ETHERNET) MODELS

1.7 in (42 mm)
4.5 in (113 mm)
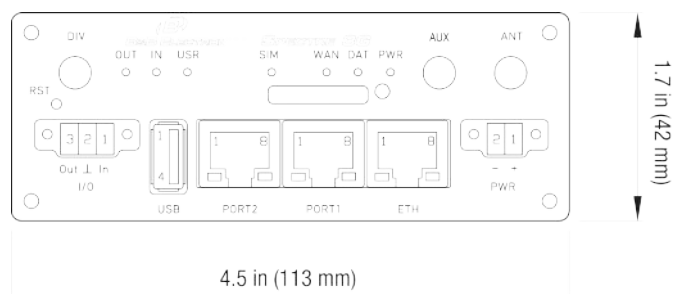
Spectre Network Gateway

SPECIFICATIONS

INTERFACES

Standard

Ethernet	10/100 Mbps
USB	USB Type A host
Binary I/O	1 input / 1 output
SIM Card	1 SIM card port
802.15.4E radio	

Expansion Port Options

	Ethernet 10/100 Mbps
	RS-232
	RS-422/485

ANTENNA:

SMA – 50 Ohms
3G: 2 dBi, penta band, right angle dipole (2 included)
802.15.4e, 2.4 GHz, 5 dBi (1 included)

3G CELLULAR FREQUENCY BANDS

| |
|---|
| Quad Band UMTS (WCDMA): 850, 900,1900 and 2100 MHz |
| Quad-Band GSM/GPRS/EDGE: 850, 900, 1800 and 1900 MHz |

POWER

Source	10 – 30 VDC
Consumption	2.3W receive mode Up to 3.5 W (GPRS transmission) Up to 5.5 W (UMTS/HSDPA transmission)

MECHANICAL

Dimensions	1.7 x 3.0 x 4.5 in (42 x 80 x 113 mm), 35mm DIN rail
Enclosure	Metal
Weight	150 g

ENVIRONMENTAL

Operating Temperature	-30 to +60°C
Storage Temperature	-40 to +85°C
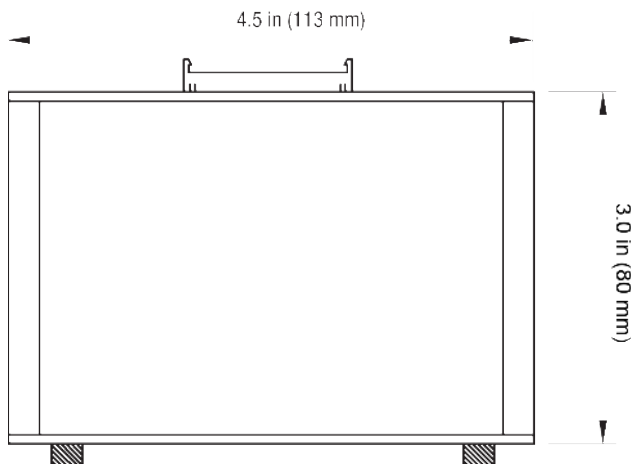
FEATURES -- SMARTMESH IP RADIO -- 802.15.4E -- 2.4 GHZ

Parameter	Conditions	Min	Typ	Max	Units
Frequency Band		2400		2.4835	GHz
Number of Channels			15		
Channel Separation			5		MHz
Channel Clear Frequency			2405 + 5*(k-11)		MHz
Modulation	IEEE 802.15.4 Direct Sequence Spread Spectrum (DSSS)				
Raw Data Rate			250		kbps
Range	25 °C, 50% RH, +2dBi Omni-Directional Antenna, Antenna 2 m	m			
	Indoor		100		m
	Outdoor		300		m
Free Space			1200		m
Receiver Sensitivity	Packet Data Error Rate (PER) = 1%			-93	dBm
Receiver Sensitivity	PER = 50%			-95	dBm
Output Power -- Delivered to a 50 Ω load					
High Calibration Setting				8	dBm
Low Calibration Setting				0	dBm

NETWORKING AND SECURITY

DHCP – automatic IP addressing in LAN network
NAT – IP address and ports translation between inside/outside network
Firewall – filtering of addresses, ports, protocols
VRRP – virtual backup router function
DynDNS client – access to the router with a dynamic IP address
QoS – quality of service
Dial-in – Communicate via CSD call
PPPoE Bridge – PPP frames encapsulation inside ETH frames
IPsec, OpenVPN, L2TP – secure encrypted tunnels
GRE tunnel – simple tunnel without security measures

CONFIGURATION AND DIAGNOSTICS

HTTP server – configuration via web server
Telnet – configuration and access to the file system
SNMP – router diagnostics, communication with I/O and M-Bus
Cellular state signalization by LED
On-line info on cellular signal status (level, cell, neighbors)
SMS info – power on, cellular connection or disconnection
SMS control – on/off cellular connection, switch SIM, I/O, etc.
Transferred data counting, one more APN as backup
Remote router group configuration change, switching among configuration profiles
SSH – encrypted configuration and access to the file system

APPROVALS / CERTIFICATIONS

	FCC Part 15, CE
	Class 1/Division 2
Certifications	AT&T, Verizon, PTCRB (Contact B&B Electronics for the latest approvals.)
CE	EN 301 511, v9.0.2 EN 301 908-1&2, v3.2.1 ETSI EN 301 489-1 V1.8.1 EN 60950-1:06 ed.2 + A11:09 + A1:10
Emission	EN 55022/B
Immunity	ETS 300 342 immunity
Safety	EN 60950
Isolation	EN 60747 isolation

4.5 in (113 mm)

3.0 in (80 mm)