

# Spectre Network Gateway



## 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

## ORDERING INFORMATION

### SPECTRE NETWORK GATEWAY MODEL NUMBERS

ERT351	Ethernet Network Gateway with 2 Ethernet ports, wireless mesh 802.15.4
RT3G-350	Cellular/Ethernet Network Gateway with 1 Ethernet port, wireless mesh 802.15.4, 3G cellular
RT3G-351	Cellular/Ethernet Network Gateway with 2 Ethernet ports, wireless mesh 802.15.4, 3G cellular
RT3G-352	Cellular/Ethernet Network Gateway with 1 Ethernet port, 1 RS-232 port, wireless mesh 802.15.4, 3G cellular
RT3G-354	Cellular/Ethernet Network Gateway with 1 Ethernet port, 1 RS-485 port, wireless mesh 802.15.4, 3G cellular

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

## Certified for use with these networks:

AT&T, Verizon

Contact B&B Electronics for the latest approvals.

## 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

## 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

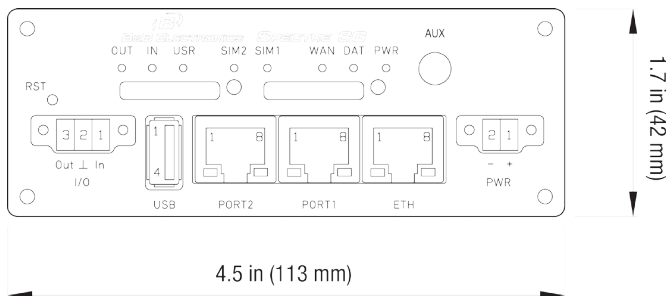
The Spectre Network Gateway connects to the SmartMesh IP wireless mesh network and the Wzzard Intelligent Edge nodes through an integrated 802.15.4e radio. The Spectre Network Gateway receives the incoming data stream from edge nodes in MQTT-SN format and converts the information into MQTT protocol for 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.

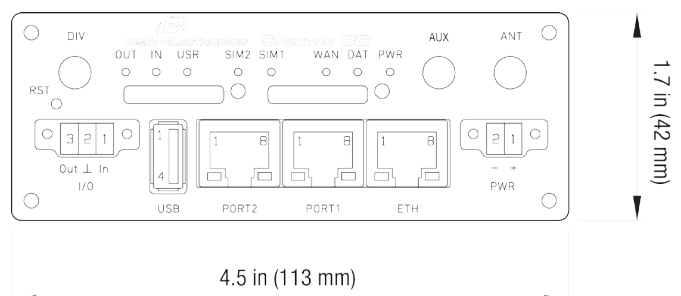
## Secure Connections

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.

## MECHANICAL DIAGRAM SPECTRE (ETHERNET) ERT351



## MECHANICAL DIAGRAM SPECTRE (CELLULAR/ETHERNET) MODELS



# Spectre Network Gateway



## SPECIFICATIONS

### INTERFACES

#### Standard

Ethernet	10/100 Mbps
USB	USB Type A host
Binary I/O	1 input / 1 output
SIM Card	2 SIM card ports

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)

802.15.4e, 2.4 GHz, 5 dBi

### 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

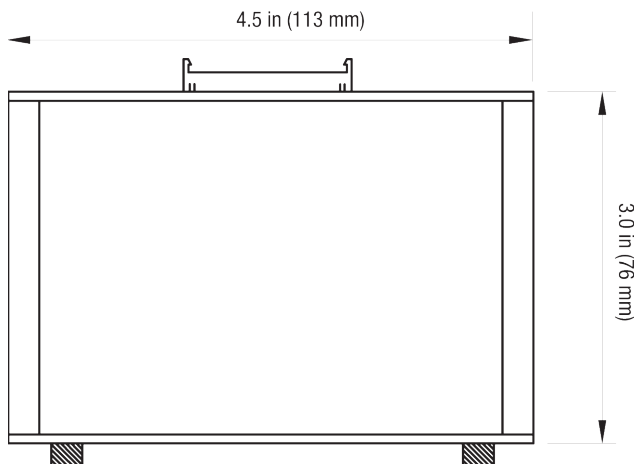
Source	10 – 30 VDC
Consumption	300 mW receive mode Up to 3.5 W (GPRS transmission) Up to 5.5 W (UMTS/HSDPA transmission)

### MECHANICAL

Dimensions	1.7 x 3.0 x 4.5 in (42 x 76 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
- RRRP – 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 (Contact B&B Electronics for the latest approvals.)
	EN 301 511, v9.0.2
	EN 301 908-1&2, v3.2.1
CE	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