



***YOUR BEST CONNECTION
FOR CELLULAR SOLUTIONS***



**HSPA+/UMTS/CDMA/EDGE/GPRS
Cellular Router Technology**

Designed for M2M Applications

B&B ELECTRONICS
Make The Right Connections



Whatever Your Challenge, We Have a Cellular Solution

We help companies and organizations around the world integrate, connect and upgrade their networks and devices. No matter what you do, build or sell, our experience in your industry and broad portfolio of device connectivity solutions makes it easy to create a powerful, rugged and efficient network.



Transportation and Security

- Transfer video and images from security IP cameras to central control and monitoring stations
- Remote monitoring and control of traffic management systems, such as traffic signs, traffic light signals, tunnels, parking, etc.
- Connectivity to vehicles and mobile assets (buses, trains, ships, trucks, containers) for AVL and telematics applications
- Remote management of digital signage (devices) for messaging and advertising



IT and Communication

- Monitor key elements of telecommunication networks
- Back-up connections of traditional landline telecommunication lines
- Easy remote office deployment to ensure quick connectivity to corporate wide area networks



Self-Service Terminals

- Secure networks for point-of-sale systems, ATMs, lottery terminals and vending machines
- Remote monitoring of information kiosks, vending machines, self-service gas stations and other point-of-sale systems

The Challenge

Reducing traffic density and preventing traffic jams in cities is not an easy problem to solve.

Connected wirelessly via cellular technology, traffic cameras are a vital part of a complete traffic system. The need to dynamically manage traffic flow requires the ability to send pictures or streaming video, direct from roads and streets, to control rooms. By monitoring the traffic information, actions can be taken to avoid a bad traffic situation or prevent a bad situation from getting worse.

Traffic monitors have the ability to control traffic by changing the display of online road LED boards or other automatic signs, at any given moment, to slow down or speed up traffic in defined locations or navigate drivers to clearer roadways. The ability to transfer data, via GSM/CDMA infrastructures, from traffic cameras and to road LED boards (automatic signs) is a very effective solution for problematic city traffic situations.



The Solution

The cellular network routers from B&B Electronics are connected directly to a camera placed above the road or street. Digital images, videos and traffic data are transferred instantaneously to the traffic control center. Using their software application, control room dispatchers can change traffic speeds by changing the status on LED boards along roadways. From the control room, command data is delivered wirelessly to the cellular router connected directly to the road LED boards. Reaction time to traffic situations can be measured in the tenths of a second.

Secure, Reliable, Advanced Networking

- **Modular & Flexible:**
 - Modular hardware and software concept
- **Secure & Reliable:**
 - VPN support, industrial design
 - Stateful Firewall
- **LINUX Platform & Advanced Networking Functions**
 - Easy to use, open source platform
- **Designed for M2M Applications:**
 - Industrial Systems
 - Remote Monitoring & Service
 - Telemetry & SCADA
 - ATM, Lottery, Kiosks
 - TELCO & IT



Industrial Automation

- Remote management of industrial control systems and computers
- Remote control and servicing of machinery and equipment
- Remote programming of control machines and SCADA systems



Energy & Natural Resources

- Remote monitor production and distribution SCADA systems
- Remote monitor power plants, water treatment facilities, wind and solar installations
- Utility metering for power, water and gas
- Oil and gas pipeline monitoring



Meteorology, Alarm & Warning Systems

- Transfer data provided by meteorological stations and sensors
- Air quality measurement and monitoring
- Flood control systems, early warning information systems
- Gas and radiation detection systems
- Prediction of seismic events and other natural disasters
- Monitoring of volcanic activity

The Challenge

Point-of-sale (POS) machines are everywhere in our daily life. The convenience, speed and ease of these transactions for the consumer will depend on highly secure data communications technology, performing reliably in locations at the very edge of the network. Consider the complex interactions required to:

- Withdraw money from an ATM
- Purchase a ticket from a ticketing machine to ride a city bus
- Deposit money into a vending machine to purchase a bottled soda or packaged food
- Pay a parking meter in order to park an automobile at a designated location



The Solution

A cellular wireless mobile operator network, for data transfer from devices offering POS services, is frequently used. The cellular router is connected to a POS device and transfers information and transactional data from the device over a secure GSM/CDMA network to a control room server, where the data is then stored and processed. The cellular routers use VPN tunnels and other advanced networking features for secure data transfer and device communications. The cellular router is fast, secure and cost effective, backed by our vast industry experience, and the router's field-proven ability to perform in many countries worldwide.

An important advantage of the cellular router is mobility. Whether you transfer data from a busy city street or from a bus ticketing device placed far away from a town, when you have the mobile operator GSM/CDMA signal available, you can use the cellular routers to connect devices and collect data to a central PC or server. Welcome to digital freedom.



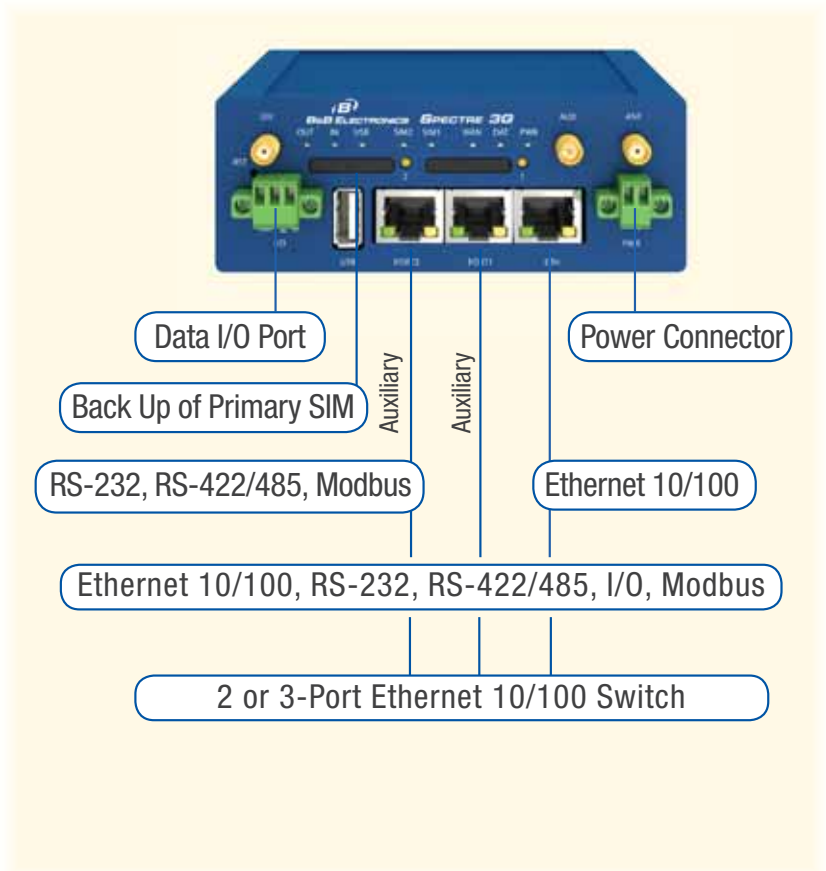
Fully Modular Concept – Buy Exactly What You Need

Fixed communication interfaces:

- ETHERNET 10/100
- USB HOST
- I/O port with 1x input and 1x output
- 2 SIM card holders

Optional interfaces to optimize according to your application, with the ability to add additional interfaces in the future:

- 1-2x ETHERNET 10/100 with possible modes:
 - 2-port Ethernet switch
 - 3-port Ethernet switch
 - 2x independent LAN
 - 1x independent LAN and 2-port Ethernet switch
- RS-232 serial port
- RS-485 galvanic separation possible
- RS-422 galvanic separation possible
- Modbus master for up to 30 slave meters
- I/O CNT interface including 4x binary inputs (2 inputs may be configured as counter) 2x analogue inputs and 1x binary output)



HSPA+/UMTS/CDMA/EDGE/GPRS Router



ROUTER	CELLULAR WIRELESS NETWORK TECHNOLOGY	MAX DOWNLOAD	MAX UPLOAD
Spectre 3G CDMA/GSM router	UMTS/HSPA+ & GPRS/EDGE & CDMA	14.4 Mbps	5.5 Mbps

Functions & Software Features

B&B Electronics routers offer enhanced functionality, incorporating self-diagnostics and a hardware watchdog, ensuring secure and consistent operability and ultra-reliable wireless connections.

For critical applications, these routers offer SMS and email messaging and control capability for remote alerts and resets. They support the most commonly used LAN/WAN network protocols and B&B Electronics's custom software allows for easy, flexible and effective networking and management.

Networking

- **DHCP:** automatic IP addressing in LAN network
- **NAT/PAT:** IP address and port translation
- **Firewall:** filtering of addresses, ports, protocols
- **VRRP:** virtual backup router function
- **DynDNS client:** access to the dynamic IP address
- **VLAN 802.1Q:** virtual LAN
- **QoS:** quality of service
- **PPPoE Bridge:** PPP over Ethernet Bridge mode
- **Dial-in:** communicate over dial CSD call
- **NTP client, NTP server:** time synchronization

VPN Tunneling

- IPSec, OpenVPN, PPTP, L2TP, EasyVPN, GRE
- Authentication by certificates, shared keys, name/password

Remote Router Supervision & Mass Network Management

- HTTP/HTTPS, Telnet/SSH for local and remote configuration and firmware updates
- Automatic configuration and firmware updates from FTP/HTTP server by schedule
- Up to 4 independent configuration profiles can be stored and remotely switched using scripts, SMS messages, I/O, etc.
- Additional software for easy networking and monitoring SmartCLUSTER and R-SeeNet

Diagnostics

- Detailed logs of operational information, including signal status and data traffic
- Signal level data, cell identifiers and data traffic are saved in router's memory for up to 2 months
- SNMP: router diagnostics, communication with I/O and MBUS
- LED indication: signal strength, connection status, ports

SMS & Email Info

- Information about status, connection or disconnection and many others
- SMS control: on/off connection, switching SIM, router profile, I/O, etc.
- SMS communication: AT commands (RS232 and TCP/IP), I/O or HTTP

Modular LINUX Software Environment

Open LINUX based system allows use of common LINUX commands, scripts and other features. B&B Electronics routers offer an extension of standard firmware with optional software plug-ins. You can create your own plug-in and simply apply it to the router. The router has 128kb non-volatile RAM memory, ready for data collection and processing applications that can be expanded with USB port if desired.

Software Plug-ins

- Easy VPN client: secure, encrypted VPN
- Dynamic routing protocols: BGP, OSPF, RIP
- QoS: quality of service
- IGMP: multicast protocols
- Modbus RTU/TCP gateway and mapping: convert data from RTU to TCP/IP format



Spectre 3G Specifications at a Glance

Sometimes the answer isn't just great products – it's a great solution that's more than the sum of the products. Our engineering support teams can handle special network challenges and provide unique solutions for specific applications. Whether it's combining cellular routers with wireless radios to support dual cellular networks, or producing a custom product design, B&B Electronics is your best connection for innovative cellular solutions.



SPECTRE 3G	
Data Transfer Technology	
LTE	✓
UMTS/HSPA+	✓
UMTS/HSUPA	✓
UMTS/HSDPA	✓
GPRS/EDGE	✓
CDMA	✓
Ports & Interfaces - See product details for more information	
Ethernet 10/100	✓
USB Host	✓
RS-232	optional
RS-485	optional
Modbus	optional
I/O	optional
3-Port 10/100 Ethernet Switch	optional
Ethernet 10/100 WAN Port	optional
Wi-Fi 802.11	optional
Operating Temperature	
-30°C to +60°C	✓
Power Supply	
10-30 VDC	✓
Design/Number of SIMs	
Plastic box	×
Metal box	✓
SIM card slots (2)	✓
Option Allowing Attachment to DIN Rail	
TS35/TS32	✓
Operating System	
Linux	✓
Basic Functions - See product details for more information	
VPN-Ipsec	✓
VPN-OpenVPN	✓
VPN-L2TP	✓
VPN-GRE	✓
DHCP	✓
HTTP server	✓
FTP	✓
NAT/PAT	✓
SNMP	✓
VRRP	✓
DynDNS	✓
NTP	✓
Telnet	✓
SSH	✓
PPoE bridge	✓
SMS + e-mail functions	✓
Auto config/FW update	✓
Option to Monitor Routers in the Network - additional software	
R-SeeNet	✓
smartCLUSTER	✓

Select Your Spectre Solution

Model No.	Port 1	Port 2	Wi-Fi
RT3G-300	–	–	
RT3G-302	–	RS-232	
RT3G-322	RS-232	RS-232	
RT3G-324	RS-232	RS-422/485	
RT3G-330	12-bit I/O (AI, DI, DO)	–	
RT3G-311	Ethernet	Ethernet	
RT3G-310	Ethernet	–	
RT3G-300-W	–	–	✓
RT3G-310-W	Ethernet	–	✓

Smart Decisions Begin with Intelligent Management Software

R-SEENET

R-SeeNet - Monitoring & Management Software

R-SeeNet is the software system used for monitoring B&B Electronics routers. It continuously collects information from individual routers in the network and records the data into a SQL database. This data is then presented in a clear and concise dashboard for the Network Administrator to effectively manage their devices.

R-SeeNet consists of two parts:

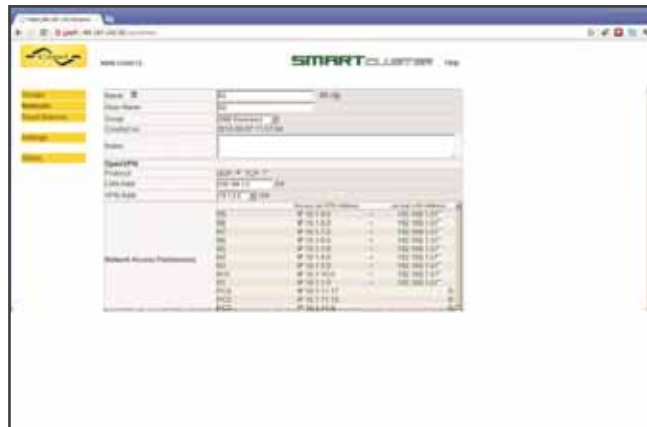
- R-SeeNet Server**
 A server application that can be programmed to automatically send SNMP queries (Simple Network Management Protocol) to each router defined in the network. The application retrieves status information from the routers and records it in the SQL database.
- R-SeeNet PHP**
 A web-based application that accesses the SQL database and provides the Network Administrator detailed information on the individual routers and health of the network.

Available Data

Everything you need to know about your network's current status as well as a historical view of the information transferred today, yesterday, this week, this month and last month.

- Signal strength
- Data traffic
- Response time
- Router availability
- Number of PPP connections
- Number of various channels connected
- Visual reports, tables and graphs
- Up to 2 months of past data for each router

Router ID	IP	Status	Signal Strength	Data Traffic	Response Time	Router Availability	Number of PPP Connections	Number of Various Channels Connected
1001	192.168.1.1	Online	95%	100KB	10ms	24/7	5	3
1002	192.168.1.2	Offline	0%	0KB	0ms	0/24	0	0
1003	192.168.1.3	Online	80%	50KB	20ms	24/7	2	1



SMARTCLUSTER

SmartCLUSTER - Internet VPN Portal

SmartCLUSTER is software designed to create safe communications systems while using a public network - the Internet. SmartCLUSTER is an OpenVPN server that offers three functions for the creation of safe private networks in a public environment.

- As an OpenVPN server it connects clients (B&B Electronics routers and end-user computers) via an OpenVPN tunnel. It creates communication links between individual tunnels and thereby enables individual devices to communicate with each other.
- Based on the user-defined network configuration and connection parameters of VPN tunnels, SmartCLUSTER creates a configuration file for B&B Electronics routers and also creates secure certificates for both sides of the secured OpenVPN tunnel. This allows the user to install individual B&B Electronics routers easily into a virtual private network, confident the system is secure against attacks or unauthorized access.
- SmartCLUSTER can be used as an instrument for basic network management through information on the connection status of individual routers.

The SmartCLUSTER solution

- SmartCLUSTER provides solutions for applications where you need to connect devices on local area networks (LANs), and a router. The router provides the communication with the LAN and does not have a public internet IP address. SmartCLUSTER solves problems relevant to network security and the secure connection of individual local networks.
- SmartCLUSTER solves the problem of how to connect devices which are behind routers with cellular service sourced from various network operators.

**For Cellular M2M, We're the Experts
so You Don't Have to Be**



**You build your business and we'll build
your communication solution. Whether you
choose standard products or require special
designs for specific applications — consider
B&B Electronics your best cellular connection.**



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