

B & B electronics

MANUFACTURING COMPANY

Capabilities Brochure



Our People

- Full Technical Support
- In-house Design Engineering
- On-site Application Consultation
- Legendary Customer Service

Our Products

- Rugged & Reliable
- Wide Selection
- Quantity Discounting
- Same Day Shipment
- Custom Options



B&B Electronics Manufacturing Company designs, manufactures, and supports data communication products for industrial and commercial applications around the world. Established in 1981, B&B Electronics has the expertise to solve most any communications problem and to be a first-choice, one-stop source for all your data connection needs. We are committed to providing our customers with unparalleled service, rugged and reliable products, and innovative, cost-effective solutions.

“ My company has used your products from the east to west coast of the U.S., Central America, South America, Australia, and we have very little, if any, problems with your hardware/software. ”
- Rodney Swofford, Electronic Controls Director
Brown Citrus Systems, Inc. - Winter Haven FL

Facilities

We provide service, support and products around the globe. Main headquarters in Ottawa, Illinois USA houses engineering, manufacturing, service and warehousing. European offices in County Galway Ireland provide service, support and warehousing. Along with coordinated global sales representatives, channel partners and distributorships, B&B Electronics offers unrivaled service to our customers worldwide - including USA, Mexico, Canada, South America, Ireland, Europe, China, and beyond.

Offices

International Headquarters

Ottawa, Illinois USA

Europe, Africa, Middle East

Oranmore, County Galway, Ireland

Sales Representatives - North America & South America

www.bb-elec.com/partners/rep_network.asp

Channel Partners – Across Europe

www.bb-europe.com/partners/channel_partners.asp

Distributors

Altecon Data Communications Mississauga, Ontario, Canada

Suzhou Henrich Automation Engineering Co., Ltd.

Suzhou New District, Jiangsu Province, China



Our Customers

Fortune 100 companies recognize the value of B&B Electronics' products for their data communication needs. You'll also find system integrators and VARs who have added value to their own solutions with our diverse blend of products and services.

- Industrial Manufacturers
- Electric & Hydro-Electric Utilities
- Casinos
- Theme Parks
- Hotel & Motel Chains
- Natural Gas Suppliers
- Sports Complexes
- Vehicle Manufacturers
- Hospitals
- Water Treatment Plants
- Solar & Wind Farms
- Petroleum Refineries
- Railroads
- Space Programs
- Shopping Malls
- Fleet Management
- Television/Radio Medias
- Research Laboratories
- HVAC
- Printing Industries
- Military
- Retailers
- Universities
- Airlines
- Municipalities, State, Federal Governments



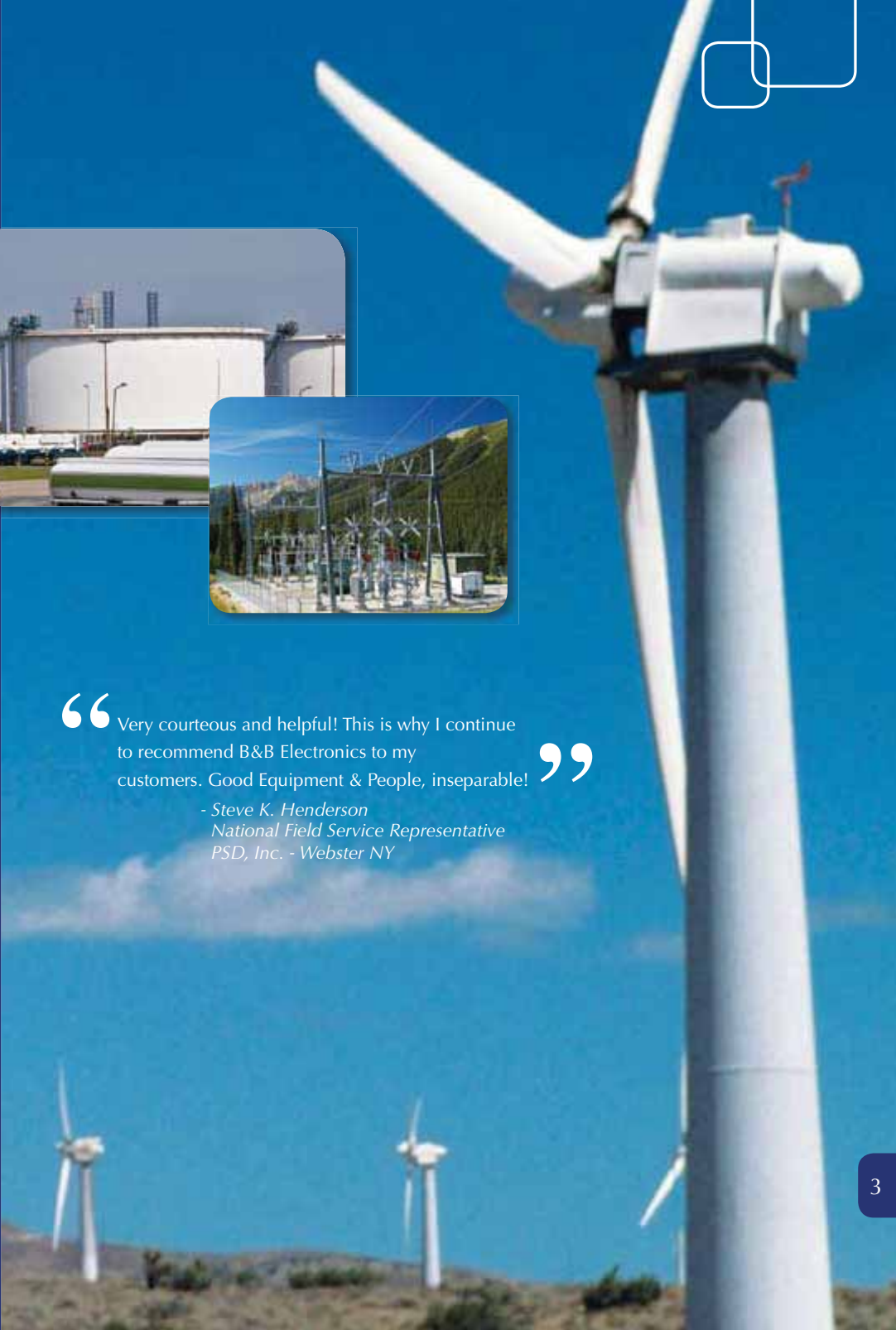
Product Applications

B&B Electronics' products are used in an endless variety of application venues. Our products help customers access and control their information and equipment – anytime and anywhere – improving their productivity, quality, safety, and more.

- industrial automation
- power generation
- manufacturing processes
- water treatment
- medical equipment
- laboratory testing
- measurement & analyzing instrumentation
- video surveillance
- warehouse management & distribution systems
- kiosks
- avionics
- hospitality
- security access systems
- paper milling
- machine automation
- traffic control
- telecommunications
- robotics
- marine biology
- chemical processing
- banking
- petroleum
- aerospace
- audio/video
- mining
- media communications
- natural gas
- construction
- government

“Very courteous and helpful! This is why I continue to recommend B&B Electronics to my customers. Good Equipment & People, inseparable!”

- Steve K. Henderson
National Field Service Representative
PSD, Inc. - Webster NY



“Of course I can help you with that – I designed it!”

New Product Development Engineering Team

We started with an RS-232 tester, the first product designed and built by B&B Electronics, and we've never stopped. Since then, the B&B Electronics Engineering Team has evolved into experts in communications and intelligent connectivity for high-reliability-need applications.

With a commitment to new product roll-outs, B&B Electronics continually invests in the research and development of new products. An in-house design team is located our Ottawa, IL USA headquarters. From initial board design to the manufacturing floor, we understand our products from the inside out.

Technologies – We utilize technologies like Serial, Ethernet, USB and Wireless as well as a suite of application-specific protocols commonly found in industrial applications.

Expert Team - Our staff of 25 includes project managers, hardware engineers, embedded and application software engineers, PCB designers and quality assurance engineers to take a product fully from concept through design, implementation, test, compliance and production.

Product Development Process - Robust development processes, from concept through to launch, with quality checks along the way, ensure products will meet the intended application's specific requirements.

Testing - Experienced test engineers and extensive on-site EMC facilities qualify products for not only FCC regulatory compliance, but also to meet the requirements of harsh and demanding conditions found in many critical applications.



Custom & OEM Products

Product customization has always been a core service of B&B Electronics. With expertise in communication technologies and protocol conversion, we have developed custom solutions for air traffic control systems, automotive control panels, yachting navigation systems, Wi-Fi video security, and more.

Custom product design - Teaming in-house design engineering with on-site manufacturing, B&B Electronics can build a product for your unique needs. Services include hardware/software engineering, quick prototypes and production, documentation, and 100% product testing. High volume quantities not required. We offer many design options - wide range power inputs, rugged connectors, isolation, wide-temperature specifications, mounting options, and more. No need to compromise on a connector type or power range.

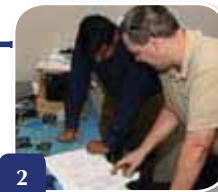
Custom variations of standard products – as low as 50 pieces. Need a pin-out change or an extra LED? These types of changes to our standard products can be engineered quickly. Because we manufacture in-house, minor product changes can be done quickly and economically.

OEM private labeling - Expand your product offering instantly - from a simple label change to a complete make-over with a custom label, case color, documentation and packaging. We do this all the time for companies whose names you'd instantly recognize.



1

Technical support helps customers identify and install the best product solution.



2

Engineers develop, design and verify specifications for standard and custom products.



3

CAD (Computer Aided Drafting) schematic design and prototype verification.



4

Computer Aided Drafting (CAD) PC board engineering.

Manufacturing | In-house

Since 1981, we have built many of the products that we offer our customers. With in-house manufacturing, we are able to continually monitor component selection, production lines, quality control processes, and testing standards. Our products are built with leading-edge, up-to-date manufacturing techniques and equipment – by detail-minded people. We strive to ensure that our products will meet the most demanding aspects of our customers' applications.

- High Variety, Low to High volume production quantities
- Quick Leadtimes
- Efficient Build Processes
 - Inventory Stocking
 - Surface Mount Technology
 - Hand Soldering and Assembly
 - Milling
 - Testing
 - Covering and Packing
- Service Level (Customer oriented metric) and Productivity (Internal performance metric) tracking
- Product Repair Service

Equipment

- MIMOT Advantage and QUAD (QSV-1PLUS) Pick and Place Machine
- EKRA Screen Printer (5XII HSP)
- CONCEPTRONIC (HVA-HT 102) Reflow ovens
- MIRTEC (MV-2HTL) Automated Optical Inspection (AOI) Equipment
- DYMAX Adhesive and Light Curing Oven
- AIRVAC (DRS-24) Rework Equipment
- AFTA-SCORE PCB Cutter
- POWER STRIPMASTER Cable Stripper
- V-TEK (PC250 SMD parts counter)

Special Process Capabilities

- UV Curing
- Conformal Coating
- Flexible Acrylic Water Base Coating
- Insulcast
- BGA Handling

Testing

- 100% Functionality Test
- InProcess Inspection (Visual, AOI)
- Calibrated Test and rework tools - traceable to International Standards

Certifications | Standards

B&B Electronics Manufacturing Department aims towards stringent processes and quality assurance in all our products - every step of the way – from component and parts selection, to manufacturing, to testing and final packaging.

- ✓ IPC Standards Certified
 - ANSI/J-STD-001D – Requirements for Soldered Electrical and Electronic Assemblies
 - IPC-A-610 C – Acceptability of Electronic Assemblies – Class 3
 - IPC-7721 – Repair and Modifications of Printed Boards and Electronic Assemblies
- ✓ SMTA (Surface-Mount Technology Association) member
- ✓ RoHS Compliant (Directive 2002/95/EC)
- ✓ WEEE Compliant (Directive 2002/96/EC)
- ✓ REACH EU (Directive 1907/2006) (in progress)
- ✓ ISO9001:2008 (end of year 2009)



5

Product planning engineering design, material ordering, and manufacturing preparations.



6

Checking manufacturing processes during production runs.



7

State-of-the-art surface mount component placement.



8

Components are soldered by trained personnel.



9

Covering and labeling of finished products.



10

Final packaging and review before shipping to customer.

Designed and Manufactured
Exclusively by B&B Electronics

Industrial Serial Converters & Repeaters

ILinx™ series RS-232/422/485 and fiber optic converters and repeaters boast 2000V triple isolation for rugged applications. Input, output and power are isolated from each other, cutting off all available pathways for transient surges and ground loops.

Features

- 3-way optical isolation
- Wide power input
- Wide temperature
- Modbus compatible
- CE, cUL Class1 Div2

Benefits

- Premium isolation for data lines and power
- 10-48 VDC versatile operation range
- 40 to 85°C for extreme environments
- Supports Modbus ASCII/RTU
- Simple integration into UL panels



RS-232 to RS-422/485 Converters



RS-422/485 Isolators & Repeaters



RS-232/422/485 Fiber Converters



RS-232 Isolators & Repeaters

Serial | Other Products



Current Loop Converters



Allen-Bradley
PLC Converters



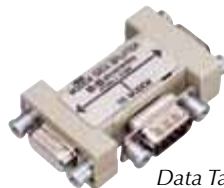
Port Powered Converters



CAN Converters



Serial Switches



Data Taps & Splitters



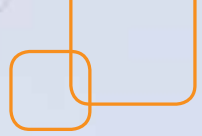
Fiber Optic Modems



Fiber Optic Hubs



Serial Cards



B&B Electronics Solves RS-485 Problem for Electricity Company

Salt River Project (“SRP”) supplies power to the rapidly growing suburbs of Phoenix, AZ and outlying areas. As one of the fastest growing counties in the USA, the area’s electrical grid is constantly and rapidly expanding.

• Challenge

Different substations in SRP’s grid use differing SCADA systems from multiple vendors. Each vendor implements different circuits and recommendations on how to wire, ground, bias and terminate RS-485 ports. Ongoing communication glitches were a source of stress and concern for SRP for years as erroneous data errors and trouble reports threatened to mask real substation problems.

• Application

A B&B Electronics engineer made an on-site visit to SRP and reviewed RS-485 concepts with the customer. Lab testing validated the concepts could be used to measure RS-485 data signals at the substation where minor adjustments were made to termination and biasing. This was easy since SRP uses B&B Electronics’ model 485DRCi converter with switchable biasing.

Looking at the scope’s data also indicated errant relay slave nodes on the multi-drop RS-485 system weren’t consistently replying to their polls. Random delays were causing bus contention. A follow-up call to the relay manufacturer led to a software update - problem solved!

• Product

Model 485DRCi

- RS-232 to RS-422/485 optically isolated converter
- 2000V isolation on input/output and power
- 10-48 VDC operation
- Modbus ASCII/RTU compatible
- Approvals: CE, CUL Class1 Div2



Model 485DRCi



“ I have always been pleased with B&B Electronics in all areas: products, documentation, order entry, customer service, etc. ”

- Michael D. Price, Research & Development
CenterPoint Energy Field Services, ServiceStar





Designed and Manufactured
Exclusively by B&B Electronics



Non-isolated USB Converters



Isolated USB Converters



Mini USB Converters

Industrial USB Converters

Ulinx™ series converters take USB out of the office and onto the factory floor. Features like isolation, surge protection, locked serial numbers, and high retention ports allow implementation into the most demanding industrial applications.

Features

Mini versions

High retention USB connectors

Up to 3000 VDC optical isolation

Add 1 to 4 COM ports to your PC or laptop

LEDs on transmit and receive lines

Powered by USB port

USB 1.0, 1.1, and 2.0 compatible (12 Mbps)

Benefits

Small "travel size" easy to keep with your laptop

Eliminates accidental disconnects

Protects from laptop-killing surges and ground loops

Communicate to legacy serial devices

Monitor data; handy for troubleshooting

No power supply required

Industry standard USB protocol

USB | Other Products



USB Hubs



USB Extenders



B&B Electronics In the Field with HVAC Service Technicians

• Challenge

Field-servicing today's HVAC systems typically requires a laptop to connect to the system's RS-485 network. But today's laptops utilize only USB connectivity as their serial port. Additionally, when servicing HVAC equipment, the environment is often hostile to modern electronic devices and ports such as laptops with USB. This puts expensive computers at risk. Add to that, the associated loss of the service technician's time and productivity.

• Solution

Ulinx series isolated USB to 232/485 converters, from B&B Electronics, provide easy and safe communication conversions between the technician's laptop and the HVAC system's serial network.

Optical isolation provides a reliable connection, protecting the computer equipment from stray electrical noise and spikes, thereby eliminating burned out USB ports and defective laptops. Ulinx converters - with a small, compact, easy-to-use form factor - aids the service technician's productivity by protecting the reliability of all equipment involved.

• Product

Model USOPTL4

- Small compact design makes it easy to carry
- 2000 VDC optical isolation
- Powered by the USB Port
- High retention USB connector improving field use
- USB 1.0, 1.1, and 2.0 compatible (12 Mbps)



Model USOPTL4



“B&B Electronics has consistently exceeded my expectations. Quality and Service perfectly defines this company. Thank you for a job well done.”

- Henry F. Webb, Purchasing Agent
Electronica Ideal - Guatemala



Designed and Manufactured
Exclusively by B&B Electronics

Industrial Ethernet Switches, Media Converters & Extenders

Elinx™ series Ethernet switches comply with Ethernet LAN/WAN standards and are compatible with many automation industry protocols, including: TCP/IP, Modbus/TCP, Ethernet/IP, PROFINet, BACnet, HSE, and iDA. Ethernet extenders use existing copper wire infrastructure.

Features	Benefits
Online port configurator	Select any combination of fiber ports to exactly meet your needs
Slim, industrial, IP30 cases	Easy integration (or fit) into tight cabinets
Fiber port options	Up to 80km range with total noise immunity
Managed or unmanaged options	Choose the level of control you need



Managed and Unmanaged Switches



Gigabit and Power-over-Ethernet Switches



Media Converters



Ethernet Extenders

Ethernet or Wireless Serial Servers & Modbus Gateways

Vlinx™ Ethernet Serial Servers connect any legacy serial-equipped machines to your LAN or WAN for networking at greater distances. Modbus Gateways translate Modbus/TCP to Modbus ASCII/RTU.

Features	Benefits
Low latency/high throughput	Seamless networking of serial devices
Slim, industrial enclosure	Easy integration (or fit) into tight cabinets
Heartbeat connection	Detects communication halts, automatic reconnect to keep systems online
Vlinx™ manager software	Remote access and management from any web browser



Ethernet Serial Servers



Modbus Gateways

Ethernet | Other Products



Device Servers



PoE Serial Servers



RS-232 Ethernet Converters



Advantech Ethernet



B&B Electronics Improves Efficiency at Baked Goods Plant

A large contract manufacturer for baked goods had recently installed a new packaging line. This upgrade introduced an industrial Ethernet network to the plant and was very successful.

• Challenge

The process engineer wanted to take advantage of this new technology on the baking line and optimize the efficiency of baking ovens. However, the thermometers, level sensors, scales, and conveyer system utilize RS-485 to communicate. This equipment was nowhere near its end-of-life and represented a huge capital investment. Replacement was out of the question. The company needed a fast and easy way to link the packaging line to the Ethernet.

• Solution

Luckily, the company's system integrator had just received B&B Electronics' catalog featuring the Vlinx line of industrial Ethernet serial servers. Connecting the serial devices to the Ethernet network was seamless and easy. Now the entire line could be monitored and controlled from the factory control room. The company preserved its legacy equipment investment and increased plant floor productivity at the same time.

• Product

Model VESR922T

- Expansive serial, fiber combinations
- Wide temperature and power ratings
- Slim, industrial DIN rail mount enclosure
- Web-based management
- Optional second Ethernet pass-through port



Model VESR922T

“I've been a B&B Electronics fan since the early '90's and have been able to save the day several times with products right out of the catalog. This is an old plant with lots of RS-232 stuff and an abundance of hero opportunities.”

- Kurt Alderson, Electrical Engineer
Dynege South Bay LLC - Chula Vista CA



Designed and Manufactured
Exclusively by B&B Electronics

Serial Radio Modems | Modular Wireless I/O | Modular Wired RS-485

Zlinx™ series products bring simplicity, functionality and reliability to wireless communications and networking. Whether it's across hallway or across a highway, B&B Electronics has the product solutions to get your data flying through the air.

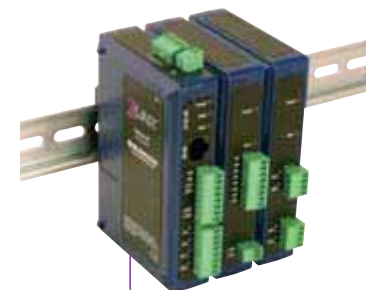
Features	Benefits
Serial to wireless conversion	Replace wired RS/232/422/485 device connections
Modbus compatible	Works seamlessly with most PLC, HMI and SCADA systems
Modular, expandable, flexible	Simply snap on additional modules to expand I/O count
I/O analog and digital modules	Read sensor inputs, temperatures; control actuators in remote locations
Wide temperature	Rugged circuitry for most indoor or outdoor applications
Wireless kits available	Everything to wirelessly monitor and control common applications



Wireless I/O



Serial Radio Modems



RS-485 Wired I/O

Wireless | Other Products



Access Points



Cellular
Routers/Gateways



Ethernet Wireless Bridges



Serial Servers



Lightening
Arrestors



Antennas
& Accessories



Backhoe Manufacturer Implements Wireless Technology

A renowned, world-wide manufacturer of “green” agricultural, commercial & consumer, construction & forestry equipment recently implemented Zlinx wireless products from B&B Electronics.

• Challenge

The company’s backhoe assembly line consists of Automated Guide Vehicles (AGVs) which tug backhoe units from station to station. Using a wired, serial-based communications process, internal intelligence guides the mobile AGVs along a magnetic path in the floor.

But, there was no communication from the AGVs back to the PLC that controlled the many manufacturing processes. Consequently, an approaching AGV could run into another AGV still at a station.

Quality control was limited to station-to-station control. Elevated manufacturing times allowed employees to walk around, inspecting work in a “big picture” context. Quality control processes and build times were suffering.

• Solution

With the installation of B&B Electronics Zlinx I/O products, the AGVs are now managed by the plant PLC and the overall process is maintained by a single remote group. For the first stage, 4 pushbuttons (wirelessly connected to the control PLC) allow the AGV to communicate with the master PLC. These pushbuttons represent the status of manufacturing progress. In the second stage, an internal alarm status and AGV control is integrated into the wireless communication topology.

By adding wireless monitoring and control with Zlinx Modbus I/O products, quality control was improved and manufacturing lead times were reduced. More backhoes, less backlog!

• Product

- Point to point/multi-point
- Connects directly to analog, digital I/O
- Expandable, modular design
- Modbus compatible
- Communications interrupt alarm
- Failsafe programmable output states
- Field calibration
- High speed/low latency update rates
- Exception-based reporting mode



Zlinx Modular I/O

“ If all our suppliers acted as promptly as B&B Electronics, we wouldn’t have any problems shipping on time to our customers. ”

- John Matthews
Vertex Electronic Products, Inc. - State College PA



Products to Complete Your Communications Solution

Complete Industrial Automation Solutions

Build your entire communication system with products from B&B Electronics. Combine our own designed and manufactured products with selected suppliers and you have the only communication manufacturer with complete solutions.

Cellular Routers, Gateways & Accessories



Distributed Controls & Remote I/O



Cabling



Operator Interface Terminals



Industrial Power Supplies



Components & Accessories





Online Store & Technical Resources

www.bb-elec.com | 24/7/365

- Secure, around the clock, online ordering; instantaneous quantity discounting
- Our extensive and popular library of technical notes, white papers, and application notes will make you an expert
- Detailed specifications, data sheets, manuals and quick start guides for most products
- Information about custom-built products, RoHS compliance, software/firmware downloads, even discontinued products

B&B Electronics Technical Support Team

We're experts, so you don't have to be.

Since 1981, the B&B Electronics Technical Support Team has helped thousands of customers with their data communication problems.

Phone | Toll Free 1-800-346-3119

Hours: 8:00 am to 5:00 pm | CT

- Don't waste hours testing and retesting a broken link. Give us a call - we're here to help. Chances are we can save you both time and stress
- Sometimes it just helps to talk your system through with someone. We'll talk the system through and figure it out together

B&B Electronics

Sales Force

Bringing you top quality products at competitive prices.

- Our entire sales team is dedicated to bringing you leading edge technologies at extremely competitive prices
- We're experts at 'smart bundling' products - from one product to a system of numerous products with various protocols
- Contact us today for product availability, shipping, quotations and order placements



On-site Application Support

Outside Sales | *from our manufacturing factory to your door*

No matter where our customers are located in the USA, in-the-field consultation representatives are available to talk through application needs, make on-site visits, training or demonstrations. We also offer factory authorized product training at our Ottawa, IL USA location. To find an outside sales representative in your area, go to: www.bb-elec.com/Sales

Inside Sales | *inside attention to your data communication needs*

Hours: 8:00 am to 5:00 pm | CT

Email: sales@bb-elec.com

Phone: 815-433-5100 - ext. 6

Fax: 815-434-8825

Live Chat e-Technical Support

www.bb-elec.com/support.asp

- Just another way for you to contact B&B Electronics Technical Support for that last bit of information
- Real-time, live help. If you come up with a question while browsing our website, an experienced technician will answer your question online



“ We have been very impressed by your professional website and fast delivery!...”

- Michael Rosene
Direktor Marketing & Vertrieb
Westphal GmbH - Haan Germany

“ Your company does an excellent job of fulfilling our orders in a quick and timely fashion with very friendly sales staff.”

- Michael Anderson
Engineering Technician
Rice Lake Weighing Systems
Rice Lake WI

“ Excellent tech support is the strength of your company and the reason I buy from you rather than [major competitor] or another vendor.”

- Bob Fassola, Project Manager
Protech Automation - Lockport IL

Connecting Your Industrial World – *Simply and Reliably*



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