

CAPABILITIES BROCHURE



B+B SMARTWORX
ENABLING CONNECTED INTELLIGENCE

DATA COMMUNICATION TECHNOLOGIES

THAT LINK LEGACY...



For more than three decades, B+B SmartWorx has built a reputation as a global source for best-in-class rugged, reliable, wired and wireless connectivity and communications solutions. Backed by strong technical support online, on the phone and in the field, B+B SmartWorx products are known for being simple to order, simple to use and simple to install.

We design, manufacture and deliver connectivity and communication solutions optimized for an ever-expanding range of applications. And we'll meet your specific needs with simple, custom-tailored answers. We'll help you connect and network-enable legacy equipment. We'll help you extend wireless connections to the edge of your network. We'll help you embed connectivity in your OEM products. Whatever you need to do, B+B SmartWorx has the knowledge, the experience and the technology platform to ensure you're making the right connections.

B+B SmartWorx offers a large portfolio of products across multiple communication technologies for machine-to-machine (M2M) connectivity and data communications:

- Wireless and cellular, sensors, routers, bridges, modems, radios, Wi-Fi modules & Bluetooth converters
- Ethernet serial servers and gateways
- Ethernet switches, media converters and extenders
- USB hubs, extenders, isolators and converters
- Serial converters, repeaters, isolators, surge protectors, modems
- Turnkey, custom engineered connectivity products

B+B SmartWorx has earned an extensive list of industry certifications and compliance ratings, extending beyond core ISO and RoHS compliance, including certifications from UL, CE, NEMA, IEEE, IEC and the European Union's WEEE Directive. B+B SmartWorx products are built for the long run. All B+B manufactured products are backed by a limited life-time warranty.



+ The simplest solutions — and the companies that embrace simplicity — always seem to work best. +

...TO THE LEADING EDGE



WIRED OR WIRELESS NETWORKS— B+B SmartWorx extends your reach

The best answer to any networking question is the one that solves the problem in the least complicated manner. We keep solutions simple — simple to understand, simple to install — and back them up with expert technical support.

With a growing range of robust connectivity platforms for serial, Ethernet, wireless and USB applications, we'll help you achieve your goals. Our technical support department is staffed with experts dedicated to helping you re-envision, re-scope, and re-structure your data communication — whether you want to embed cutting-edge connectivity into a new product design or extend your ability to monitor and control devices at your network's edge.

With such a broad offering and deep field experience, it's not surprising that B+B SmartWorx products are found in three-quarters of all "Fortune 100" companies. With a large portfolio of products across multiple communication technologies and a manufacturing/support footprint throughout North America and Europe, B+B SmartWorx delivers the platforms, products and professional insight you need to complete your project efficiently, so you can focus on new challenges ahead.

PROVEN FIELD EXPERIENCE — in Your Application

Life is busy. Even noisy. With the crush of projects and priorities, it's never been more critical to connect the right technology, the right solutions — and the right partners. Selecting and integrating data connection solutions can be time-consuming and frustrating. But, whatever you're trying to do, the technical support engineers at B+B SmartWorx have seen it before. We'll provide you with application experience, practical knowledge and a deep understanding of device connectivity technologies. We'll show you proven solutions that will take you from concept to reality.

Our factory Tech Support team has field-proven experience in M2M communication applications, connectivity solutions, network design and product installation. B+B SmartWorx engineers don't just troubleshoot problems after the fact — they can actually prevent and anticipate system design and integration problems before you ever make a purchase.

Whether you have a simple application question, a complex project installation, or an outside-the-box problem, our technical support team is standing by to provide assistance at no charge — whether you purchase directly from us or through one of our distribution channel partners.

B+B SMARTWORX – SERVING YOUR INDUSTRY SINCE 1981

We've been helping companies and organizations very much like yours 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.



INDUSTRIAL AUTOMATION

B+B SmartWorx solutions are already at work in a global array of industrial automation applications both demanding and routine, including manufacturing automation, robotics, operator interfaces, PLCs/drives, instrumentation and specialized monitor and control applications.



ENERGY & NATURAL RESOURCES

From alternative energy producers like solar and wind farms to traditional energy generators like mining, nuclear, oil and gas industries, B+B SmartWorx is there. We serve the entire spectrum of energy industry applications from petroleum, oil & gas exploration and production to refining and delivery. Coal-fired, nuclear, hydro-electric, remote power and natural gas power generation. Our solutions also help safeguard natural resources like water and wastewater treatment facilities.



TRANSPORTATION

B+B SmartWorx helps keep the world's surface, air and water traffic moving smoothly with solutions that allow traffic lights and cameras to communicate with centralized control facilities. Our technology is used in toll booths, weigh stations, tunnels, subway systems and railways, avionics and air traffic control systems. You'll also find B+B SmartWorx in fleet management, parking control and shipboard communications systems.



+ *Where the world moves,
B+B moves with it.* +



ENTERPRISE/IP

Networks may contain any combination of copper cable, fiber optics, wireless or cellular connections, and they may need to connect anything from legacy serial devices to tablets and smart phones. B+B SmartWorx networking experts can insure that everything works smoothly and that you're getting the best possible value from your IT investments.



TRANSACTION MANAGEMENT

ATMs, ticketing and lottery machines, POS devices and kiosks are normally placed in locations that are convenient for their human users. But, they are rarely convenient for the network designers who need to send data to a central controller. B+B SmartWorx provides solutions to these problems and can help you make network connections anywhere you need them.



SECURITY

Rugged, Reliable and Reach — networking applications in the security sector all are defined by some combination of these three “Rs” of connectivity. Extend the network’s reach via a wireless connection to a remote access point. Use Ethernet extenders to connect camera monitors throughout a facility. Integrate keypads or biometric scanning devices via a USB to Ethernet connector. Whatever the device, security data infrastructure requires high performance connectors that must go beyond the specifications of ordinary consumer-grade electronics.

B+B SMARTWORX WIRELESS SOLUTIONS – EXPANDING THE SCOPE OF YOUR INDUSTRIAL NETWORKS

Wireless connectivity has evolved to the point where even the most remote assets can be networked – indoors and out. B+B SmartWorx wireless network experts can help you select best solution for your application, whether it operates via Wi-Fi, 900MHz, 2.4GHz, cellular or another wireless protocol.



WZZARD INTELLIGENT SENSING PLATFORM

Connect industry standard sensors to Wizzard Intelligent Edge Nodes and wirelessly transport your sensor data to your application, on your network or in the cloud.



CELLULAR ROUTERS & MODEMS

ROUTERS

Ensure secure, high-speed, wireless connections to remote sites and end-user devices like utility meters, process gauges, IP security cameras and ATMs. B+B/Conel 3G/4G routers with flexible configurations and smart user apps provide wireless network connectivity to Ethernet and/or serial equipment at remote locations, as well as backup to existing landline communications.

MODEMS

Choose from a wide range of secure wireless modems to connect cellular networks to Ethernet, serial and other data networks. Designed with an emphasis on “plug-and-play” user convenience and simplicity.



SMARTWORX HUB

SmartWorx Hub lets you manage all of your routers from a single location, wherever you may be. It places configuration, diagnostic and management functions and a complete view of your installed device population right on your desktop. SmartWorx Hub takes device management to new levels of flexibility and efficiency.



+ Award winning wireless solutions from B+B SmartWorx. +



RADIO MODEMS & WIRELESS I/O

RADIO MODEMS

B+B radio modems are compact, rugged solutions for sending digital signals across the street or across your warehouse. Plug-and-play set-up simplifies installation and maintenance. Compatibility with Modbus and Profibus means no additional converters are needed.

WIRELESS I/O

Connect multiple serial devices in one-to-one or one-to-many configurations, indoors or out (IP67 outdoor rated). Monitor remote I/O devices in a peer-to-peer configuration or connect multiple devices to a Modbus RTU master. Replicate analog or digital signals from a remote location wirelessly.



WI-FI ETHERNET BRIDGES, ROUTERS, SERIAL SERVERS, & EMBEDDED MODULES

B+B SmartWorx AirborneM2M industrial wireless Ethernet client bridges and serial device servers/routers simplify networking equipment in M2M applications. Embed Wi-Fi connectivity in your OEM product designs with compact, single-board B+B AirborneM2M modules.

HIGH-SPEED WIRELESS ETHERNET BRIDGE

Fast, easy and secure high-speed wireless Ethernet right out of the box. Zero set-up — just aim it, mount it and plug it in.



THE CHALLENGE

One of EMCOM's Norwegian clients creates value for its customers by optimising energy efficiency and reducing electricity and insurance costs. The client's metering and energy management department was still using fixed lines and older GPRS modems to connect to the company's meters and energy intelligence devices. They wanted to upgrade to a modern mobile networking solution, so they asked EMCOM to provide the necessary expertise. EMCOM planned the IP structure, selected the communications equipment and antennas, configured the cellular routers, and inserted the activated SIM cards. The physical space inside

many of the controller boxes was tight, so the routers needed to be relatively compact, with low profile antennas. LTE 4G was a requirement, as there is talk of eliminating Norway's 3G network, and some of the locations needed the extra reach of 800 MHz.



THE SOLUTION

EMCOM chose the B+B SmartWorx/Conel LR77 v2 Libratum cellular router. The LR77 v2 Libratum had all of the required specifications and its competitive price point made the business case feasible, even when choosing 4G over 3G.



LR77 v2 Libratum cellular router

B+B SMARTWORX ETHERNET SOLUTIONS

EXTEND YOUR INDUSTRIAL NETWORK TO THE EDGE

Ethernet's speed, cost, reliability and versatility has long made it the world's most widely deployed data network platform. That's why it's also become equally popular in demanding industrial applications. B+B's Ethernet serial device servers, switches, media converters, extenders and accessories make it easy to communicate with a broad range of industrial equipment via your facility's Ethernet backbone.



SERIAL DEVICE SERVERS

Connect legacy serial-equipped machines to your Ethernet LAN or WAN easily with B+B's Ethernet serial device servers. Data from serial devices located in the furthest corners of your facility will be displayed on your office PC quickly and accurately.



WIRED ROUTERS

Industrial wired Ethernet routers connect Ethernet equipment in tough environments where office-grade equipment cannot go. With Ethernet, USB, I/O and auxiliary ports, these flexible devices handle multiple data communication protocols and fit into any network topology securing connections between two LAN networks using VPN tunneling protocols, IPSec, OpenVPN, or L2TP.



UNMANAGED MEDIA CONVERTERS

Ethernet media converters allow two Ethernet devices with different physical media to communicate with each other, such as converting a copper Ethernet connection to fiber optic media.



MANAGED MEDIA CONVERTERS

Managed Ethernet media converters allow SNMP management to configure, monitor, set Traps, levels of permission & other options, to obtain the status of a device or module in mission-critical networks.



+ *Secure, reliable data networking.* +



INDUSTRIAL MANAGED & UNMANAGED SWITCHES

B+B SmartWorx' broad line of Ethernet switches let you subdivide and separate your network efficiently, improving communications quality and speed by reducing errors and limiting traffic. B+B SmartWorx' Ethernet switches make it simple and economical to expand the size and reach of your network while minimizing latency.



POWER-OVER-ETHERNET SWITCHES

Industrial-grade, managed and unmanaged PoE+ switches provide reliable connectivity and powering to remote devices at the network edge where conditions may be too harsh for ordinary switches. Power-over-Ethernet ("PoE") eliminates additional power outlets, reduces cable runs and cable management and simplifies installation of powered devices ("PD") such as IP CCTV, wireless access points, IP phones and sensors.



EXTENDERS

Extend your Ethernet network communications far beyond the 100 meter distance limitation of 10BASE-T and 100BASE-T Ethernet.



REMOTE NETWORK MANAGEMENT

Manage remote systems more efficiently by allowing operation, system, installation, recovery, BIOS updating, and target device backup all from an offsite location.

USB CONNECTIVITY SOLUTIONS

PLUG-AND-PLAY CONVENIENCE, INDUSTRIAL RUGGEDNESS

The Universal Serial Bus (USB) began as a standardized approach for controlling computer peripherals. Now it has moved off the desktop into the real-world where it is used in challenging environments ranging from point of sale to medicine and industry. B+B SmartWorx offers a wide range of robust USB connection solutions including USB-to-serial converters, hubs, surge protectors and extenders – all built to withstand real-world uses.



USB-TO-SERIAL CONVERTERS

Plug one of B+B's USB-to-Serial converters into a USB port on your computer, laptop, or hub to configure it automatically as an additional COM port. Note the industrial-strength orange connector which lets you stop worrying about unstable connections, even in high vibration applications.



ISOLATORS

Protect and isolate your USB-enabled devices with our rugged isolators, even in the unfriendly electrical environments found near variable frequency drives, motor control centers, welders and other devices with large electrical loads.



INDUSTRIAL HUBS

B+B industrial USB hubs are designed with rugged metal cases, versatile mounting options, high ESD protection, wide operating temperature ranges and high retention USB connectors and instant plug-and-play connectivity.



ETHERNET ENABLED HUB

Our USB over Ethernet solutions make it easy to communicate with your USB enabled devices over your LAN.



+ *USB - a universal solution for device connectivity.* +



SURGE PROTECTORS

Single-stage surge protectors provide a transient voltage suppressor (TVS) for each protected line.



USB EXTENDERS

Standard USB has a 5-meter limitation. Our USB Extenders expand that to 100 meters using standard CAT5 network cabling or up to 500 meters using a fiber connection.



USB CABLES

Choose from standard USB cables or industrial USB cables designed for higher protection against moisture, dust, vibration and temperature extremes on the plant floor.

THE CHALLENGE

A high-end automotive paint vendor provides mixing systems that hold paint formulas and aids the distributor with mixing their paints. This system is provided to each distributor free of charge. Due to the environment and constantly adding and upgrading new distributors, they produce about 100 systems per month.



THE SOLUTION

Model US09ML4, a USB to 1-port RS-422/485 converter, supports 2-wire RS-485 or 4-wire RS-422/485. Automatic Send Data control. Pluggable terminal blocks on serial side. Transmit or Receive LEDs. 2000V isolation and 15KV ESD surge protection against ground loops and voltage spikes. USB port powered – no power supply needed. Install drivers on CD ROM and plug the converter into a computer USB port or hub. The device automatically configures as additional PC COM port compatible with Windows 98, ME, 2000, XP, Vista, 7 & 8 (32/64 bit. USB 1.0, 1.1 and 2.0 (12 Mbps).



Model US09ML2 is ideal for applications requiring long range or multi-drop capability.

KEEP YOUR LEGACY SERIAL ASSETS

TALKING TO YOUR LATEST NETWORK INVESTMENTS

You don't have to replace your serial devices in order to communicate with them effectively. With the industry's broadest selection of RS-232, RS-422, and RS-485 connectivity devices on the market, B+B SmartWorx offers the tools and guidance you need to make your connections, regardless of the EIA standard you're using.



HARDENED CONVERTERS & REPEATERS

These converters and repeaters are hardened with a rugged IP30-rated metal panel mount enclosure to make them tough enough for demanding industrial and utility applications.



SURGE PROTECTORS & ISOLATORS

Safeguard your sensitive devices from damaging voltage peaks due to lightning or other power problems with our line of surge protectors and isolators.



REPEATERS & EXTENDERS

B+B SmartWorx' serial repeaters and extenders protect your devices from power spikes and increase the range of your data lines.



STANDARD & SPECIALITY CONVERTERS

We've made a specialty of converting serial data from one protocol to another offering the industry's widest selection of converters: RS-232, RS-422, RS-485, fiber optic, port-powered, CAN, TTL, current loop and more.



*+ Exceptional Service.
Every Day. +*



SERIAL CARDS

Add ports easily to any system with our wide selection of PCI, PCMCIA, CF and ISA cards.



PORT COMBINERS & SPLITTERS

Monitor and control multiple serial devices with a single PC or allow multiple PCs to share the same peripheral with our serial port combiners and splitters.



DATA SWITCHES

Simplify network administration networking of a variety of serial devices with our serial data switches.



CABLES AND COMPONENTS

Find all the cables, testers, and components you'll need to complete your serial project at B+B SmartWorx .



THE CHALLENGE

Salt River Project ("SRP") supplies power to the suburbs of Phoenix, Arizona, and outlying areas. As one of the fastest-growing counties in the United States, the area's electrical grid is constantly and rapidly expanding. 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.



Triple isolation of communication ports and power and wide temperature rating of Model 485DRCi made it ideal for power utility applications, where stray currents can occur anywhere.

THE SOLUTION

A B+B engineer made an on-site visit and reviewed RS-485 setup and configuration concepts with SRP engineers and field technicians. Additional testing was required to isolate the cause of the errors. Lab testing confirmed the concepts discussed could be used to measure RS-485 data signals at the substation. Because the B+B #485DRCi converter provides switchable biasing and termination resistors, it was easy to vary this in a field test. A scope's data indicated errant relay slave nodes on the multi-drop RS-485 system weren't replying to their polls consistently. Random delays were causing bus contention. A follow-up call to the relay manufacturer led to a software update and the problem was solved.

FROM TRADITIONAL M2M TO INDUSTRIAL IOT:

MONITOR AND CONTROL OUT AT THE NETWORK EDGE

As traditional M2M networking gradually migrates towards a future in which virtually every industrial device will be networked on the Internet of Things, and in which swarms of new sensors will collect and transmit unprecedented quantities of data, it's important to remember that much of our existing industrial equipment will remain in place. The same is true of our basic network infrastructure. IoT technology not only creates exciting new opportunities, it eliminates the old "rip out replace" paradigm. Rather than rendering our existing equipment and infrastructure obsolete, IoT technology works in tandem with traditional M2M to provide industrial networks with advanced capabilities.

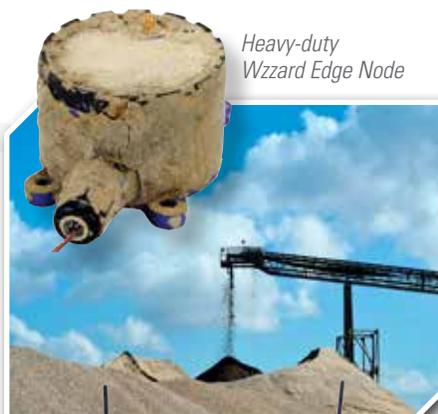
B+B SmartWorx designs and builds connectivity tools that unite the future, the past and the present on seamless industrial networks. B+B serial servers turn your serial devices into nodes on modern networks. B+B fiber media converters move your data from copper wire to fiber optic cable and back again. B+B wireless radio modems and cellular routers transmit data when wires and cables can't do the job. B+B isolators and surge suppressors protect your networks and keep the data moving.

+ We create bridges between devices at your network's edge and your controlling applications. +

When traditional M2M technology reaches its limitations, B+B IoT technology provides the new capabilities that traditional M2M cannot. B+B's wireless Wzzard Intelligent Sensing Platform collects sensor data from locations that were formerly inaccessible. B+B intelligent cellular routers speak IoT protocols and can host your customized applications right in the router. B+B IoT dashboards and software read remote device and sensor data in real time, analyze it, and help you put it to work to increase efficiencies and cut costs. No matter where your industrial equipment may be, and no matter which generation of data networking technology it may represent, we'll help you network, monitor and control it.

THE CHALLENGE

An aggregate plant operates high horsepower crusher drive motors producing 600 tons of product per hour. If one of the motors goes down, the company will fail to meet contracted time schedules, may have to pay penalties, and loses revenue until the problem is resolved. A single day of downtime can cost \$50,000, plus repair costs. Replacing a motor can cost as much as \$25,000 more than repairing it before it is too late. The company needed a way to monitor the motors so preventative, scheduled maintenance could lower their risks and mitigate their costs. The facility covers 400 acres, so trenching cable would be expensive.



Heavy-duty
Wzzard Edge Node



Wzzard Wireless
Sensing Platform

THE SOLUTION

B+B SmartWorx provided a complete wireless solution – the Wzzard™ Sensing Platform. Industry standard sensors were placed on the motors. The sensors were attached to Wzzard Edge Nodes. The nodes send sensor data to a B+B SmartWorx Spectre™ Network Gateway, which reports the data to B+B's Condition Based Monitoring (CBM) dashboard in the control office. The dashboard monitors the motors in real time and detects changes in behavior before it develops into a major problem. If preventative maintenance is needed, the system alerts maintenance staff via email or text.

WE'LL FOCUS ON DRIVING WORLD-CLASS CONNECTIVITY PERFORMANCE.

YOU FOCUS ON BUILDING YOUR WORLD-CLASS COMPANY.



B+B SmartWorx has been connecting industrial equipment for more than 30 years. Our data networking products can be found in more than 60 countries, connecting some 3 million different devices in multiple industries and a wide array of applications.

We have manufacturing, distribution, and customer support operations in the USA, Ireland and the Czech Republic, ensuring fast, comprehensive service and support. Additional product availability and localized customer support are provided by our ever-expanding global network of distributors, channel partners, value-added resellers and system integrators.

+ See how B+B SmartWorx can create a data and device connectivity solution for you. +

In addition to our standard technology platforms, B+B SmartWorx offers specialized design and manufacturing services. We have provided custom products for customers ranging from Fortune 100 companies to system integrators and startups. We deliver the custom, OEM, and private-label solutions that you need to provide solutions for your own customers.

We back up all of our data communications solutions with a comprehensive Quality Assurance program that allows us to provide one of the best guarantees in the industry. All B+B SmartWorx products carry a limited life-time warranty and a 30-day, 100% satisfaction return policy.

Learn more online or contact us directly to see how B+B SmartWorx can create a solution to connect your devices — whether they're all in one rack or spread out across the globe.



Worldwide Headquarters
707 Dayton Road
Ottawa, IL 61350 USA
Phone: 1-815-433-5100
Fax: 1-815-433-5109
orders@bb-smartworx.com

EMEA International Sales
Oranmore, Co. Galway, Ireland
Phone: +353 91 792444
Fax: +353 91 792445
eSales@bb-smartworx.com

CZ - Conel s.r.o.
Sokolská 71
562 04 Ústí nad Orlicí III.
Czech Republic
Phone: +420 465 521 020
Fax: +420 464 647 299
GSM: +420 603 872 287
sales@conel.cz

California USA - IMC Office
25531 Commercentre Dr. #210
Lake Forest, CA 92630
Phone: 949-465-3000
Fax: 949-465-3020
sales@bb-smartworx.com

Custom & OEM Product Design
Phone: 815-433-5222
Fax: 815-433-5104
Attn: Custom Dept.
custom@bb-smartworx.com
Custom Quote Request Form:
bb-smartworx.com/custom.asp



GLOBAL REACH FOR GLOBAL SUPPORT

*You build your business and we will build your communication solution.
Whether you choose standard products or require special designs for
specific applications – consider B+B SmartWorx as your connection.*



Worldwide Headquarters
707 Dayton Road
Ottawa, IL 61350 USA
Phone: 1-815-433-5100
Fax: 1-815-433-5109
orders@bb-smartworx.com

Distributor: