■ ACCESS, MONITOR & CONTROL FROM ANYWHERE

Use an internet browser on any computer, handheld or phone to view a wide array of controls, sensors, fixtures and other data.

The Blackbird Control System includes:

1. **BB-nodes**: Programmable, Addressable, Smart nodes may be placed at any point on an electrical circuit depending on the scope and detail of control and monitoring that you wish to access. BB-nodes communicate over the Blackbird network *(via cable, WiFi, cellular, and/or radio)* in a "daisy-chain," allowing more flexibility and coverage. The *BB.30* is the latest, most versatile and capable BB-node designed yet!
2. **BB-server**: The Blackbird network is backed by a secure server located either on site or remotely. Our virtual server may be installed on an existing facility server, or on a dedicated server provided by us.
3. **BB-site**: We provide a project-specific site hosted on the BB-server, which you can access from any computer, cell phone or handheld device that has an internet browser installed. There is no software to install on whichever control device you choose. And you can access your server from a few feet away via WiFi, or thousands of miles away with the help of an internet connection.

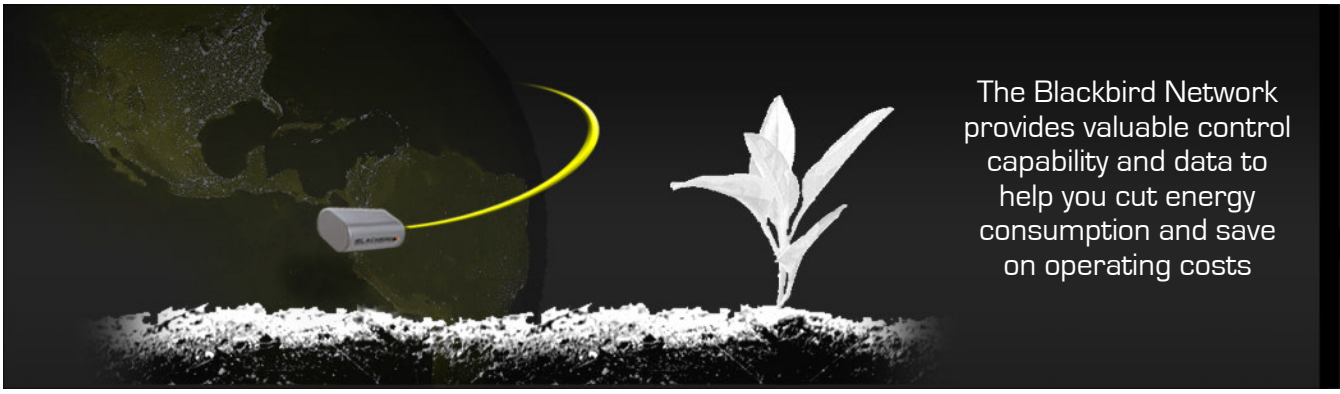
■ APPLICATIONS

Our Blackbird Network can open doors into new markets for IT management, sensor & fixture installations, sustainable practices, and facility maintenance.

Applications for the Blackbird Network include:

1. **Information Collection**: The Blackbird network allows you to gather information from various sensors, fixtures and environmental conditions that can be gathered into discernable trends and patterns. This information can then be used to inform changes in energy usage to save money, or become commoditized information in the market.

2. **Security**: As an added security measure, the Blackbird network can allow the operation of light fixtures and other devices to deter vandalism and burglary. The network can also employ motion sensors, infra-red sensors and photocells for advanced control, monitoring and safety. (A particular scenario would target persons living alone, and offer a control to quickly test for motion in their home remotely and operate various fixtures all from a cell phone.)
3. **Facility Monitoring**: Save time and wasted trips for property maintenance by viewing all you properties (or buildings) in one control board online. The Blackbird network allows you to see if lighting fixtures are operating, if areas are secure and much more.
4. **Lighting Scenes**: The Blackbird network allows the user to set light levels from the web, save and edit lighting scenes. The technology is already in use in sporting arenas, making it possible to create a "black-out" inside an arena with the touch of a button on a handheld from mid-court. (see www.PayneSparkman.com)
5. **Green Products**: We can integrate "dumb" sensors and fixtures into the Blackbird network making them "smart," allowing control and monitoring that ultimately enables energy and cost savings. The Blackbird network allows you to turn off all unnecessary devices from the web. And you can use the data collected on the Blackbird network to see where your energy consumption can be reduced, then easily change your energy consumption behavior through the same web interface.
6. **Landscape**: Integrate the control of landscape lighting with sprinkler controls, moisture content sensors, photocells and clocks to provide a campus maintenance control board accessed by the web.
7. **Fire-prevention & Border Guard**: With low-voltage power requirements and the ability to communicate over long distances, The Blackbird network is an ideal solution for the control and monitoring of remote devices and sensors. Partnered with Infra-red cameras, the Blackbird network could detect forest fires with unmanned stations faster than fly-over and satellite imaging techniques. And unmanned sensors operated by the Blackbird network could detect persons and vehicles passing across the border.
8. **More Possibilities**: Since smart communication is still a growing industry, there are bound to be uses for the Blackbird network in many industries. We are always looking for emerging markets, so contact us, if you think there is a way we can help you.



HISTORY OF THE BLACKBIRD NETWORK

Sports venue, educational and industrial lighting systems needed control systems for large facilities that could handle a wide array of commands and monitoring.

Blackbird, founded over fifteen years ago, provides premium network control and monitoring solutions for installation in Sports Arenas, Convention Centers, American Embassies, Schools & Universities, Shopping Centers, Race Tracks, and Industrial Complexes.

- The **BB-nodes** were developed as smart, addressable and programmable nodes with the ability to turn lights on and off, dim fixtures, monitor fixture performance, operate fixtures in timed sequence, operate fixtures based on occupancy and photocell sensor readings, and much more. There have been several versions of our BB-nodes as they had to become more compact, more versatile and more capable. We are now producing the BB.30 line of BB-nodes, which uses an alphabet of commands to allow for the control, monitoring, and data-collection from nearly any sensor or fixture in and out of the lighting industry.
- The **BB-server** developed as a "headless" computer provided to access the BB-nodes on the Blackbird network. Originally, this computer was an isolated computer stored in the electrical panel box with other components of the Blackbird network and/or lighing system. Now the BB-server refers more to the dynamic control system that talks to the BB-nodes over the Blackbird network. Each application and installation of the Blackbird network requires a unique and secure BB-server that can be easily programmed and maintained via a web-browser (like Explorer, Firefox or Safari). If the BB-server has an internet connection (not required for the network to function) then the Blackbird network may be accessed from any computer with a web-browser. All BB-servers are secure and password protected.

- The **BB-site** is the most recent development on the Blackbird network. The Blackbird network originally operated through traditional wall-switches and control stations. We then developed touch-screen interfaces as the trend determined. We have now developed the web-browser control interface to respond to the future of environmental control and connectivity. Web-browser technology and standards are some of the most stable in the

world of technology, so our software has been developed within the web-browser framework, to minimize the need for massive redesign in the future (as is required with more standard software that must be installed anew with each operating system overhaul). Our controls may be accessed from any web-browser on any type of device, regardless of the operating system. That is the beauty of web-browser applications. As technology progresses, our Blackbird network may be integrated into other web-browser applications to provide complete connectivity.

- The **BB-future!** is limitless. The future of environmental control and management will be in the development of software and mobile devices to adapt to the needs of tomorrow's generation. More and more information with be more readily available through these new media. We believe that the data pulled from the Blackbird network through device and sensor monitoring can be processed by an IT partner or other data processing system. This parsed data can then be used to determine areas for improvement in energy consumption, maintenance scheduling and much more. The data collected will also be valuable as predictive information sets to be commoditized in the appropriate markets.

■ BLACKBIRD NETWORK BENEFIT = VERSATILITY

The versatility of the Blackbird network has driven the design from the start, and will serve well in expanding and connecting the network in the future.

- The Blackbird network is not limited by a particular communication device, like a wireless mesh network, or an entirely hard-wired system.
- The Blackbird network is not limited by a particular communication protocol.
- The Blackbird network is not limited to communication with a single device set.
- The Blackbird network is not limited by control from device-specific, installed software.
- The Blackbird network is not limited to new construction and installation.

Because the Blackbird network was originally designed to be completely adaptable to specific clients' needs, the network is versatile and adaptable.

1. **Low-Voltage**: BB-nodes operate on low-voltage power, which can be powered by battery or photocell if required. Low-voltage power allows BB-nodes to be installed into existing facilities and in remote locations.
2. **IP-specific**: Each BB-node has a unique IP address allowing specific programming of each node from a central server. IP addresses are a well-known standard in networking, making the Blackbird network easy to understand and connect to in the future.
3. **Peer-to-Peer**: Each BB-node can talk to any other node on the Blackbird network in any arrangement. The Blackbird-server sends out packets of information to the BB-nodes,

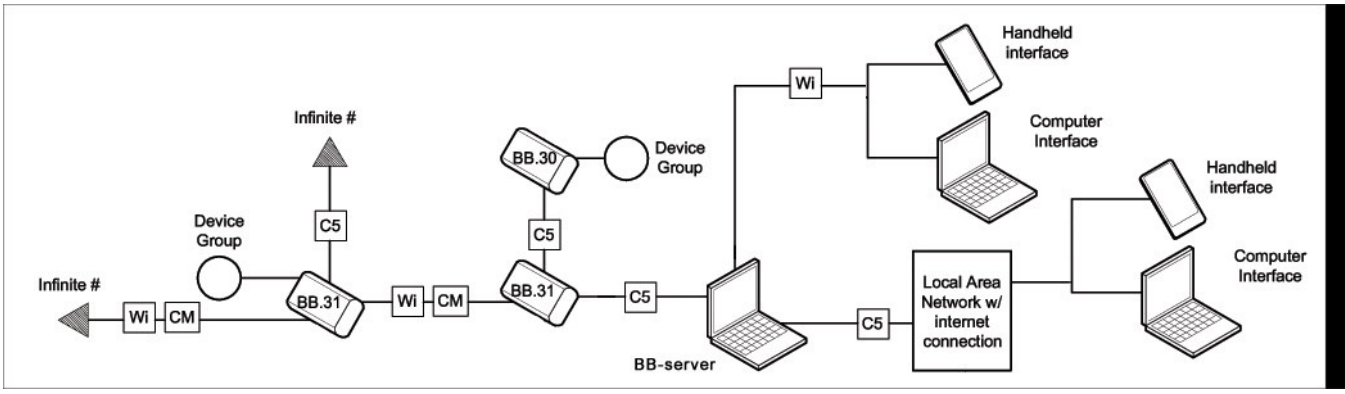
passing information through a single "daisy-chained" (peer-to-peer) communication path. BB-nodes pass that info along to other BB-nodes based on the IP addresses associated with each packet.

4. **Modes of Communication**: BB-nodes can communicate on the Blackbird network by:
    a. Twisted pair (typically a CAT-5 cable, doubling as low-voltage power source)
    b. WiFi (with BB-node spacing determined by WiFi radio strength)
    c. Radio (allowing one Blackbird network to cover facilities and building that are miles apart)
    d. Cellular/Modem (allows completely remote BB-nodes to be accessed on one network, from one BB-site)
5. **Control on the Web**: The BB-site may be accessed from any computer at any point without installing software, as long as the device has a web-browser.
6. **Multiple Control Types**: The Blackbird network may have multiple control interfaces on one system, allowing standard wall-switches, touch-screen interfaces and our BB-site interface to all seamlessly control one system.
7. **Connect to other networks**: The BB-server does communicate to BB-nodes through a proprietary language, but the network is designed to interface and adapt to other communication protocols, allowing the Blackbird network to talk to other networks.
8. **The Power of Language**: The BB.30 BB-node is designed with a particular alphabet of commands which can be used in conjunction to create alternative commands for different purposes and measures. Words can be created from the letters, and phrases from the words, to create complex communications on the Blackbird network. As in the modes of communication and the diversity in control interface, the actual programming of the BB-nodes allows for a diverse array of options.
9. **Design Control**: The Blackbird web-browser controls can be designed to meet your specific needs, incorporating logos, imagery, plans and maps into a user-friendly interface as complex or as simple as desired. The flexibility of using a web-browser for your controls is unparalleled.

■ DIAGRAM & TECHNICAL SPECIFICATIONS

The Blackbird Network is versatile and can be implemented in various ways. But here are some diagrams and specifications to help understand.

The diagram below is just a simple explanation of how the Blackbird network sets up. The main hardware components are the BB-server and the BB.30s (BB-nodes). This diagram can be expanded to include any size project. And the BB-site control system can be accessed by any number of browser-enabled devices.



- Device Group = a group of devices or fixtures that a single BB-node controls. A device group can be as large an entire building's electrical circuit, or as small as a single light fixture. The fewer devices a BB-node controls, the more you can control individual devices. BB-nodes on one network can control different levels of device groups.
- Wi = WiFi or radio communication
- CM = cellular or modem communication
- C5 – CAT-5 or twisted pair cable communication

BB-node Technical Specifications:

The *BB.30* is a ready-to-deploy 4/5 credit card form factor electronic board with microprocessor and voltage regulator. It is designed to be a low-voltage, programmable controller, accepting switch and sensor signals, performing logic and, through optical couplers, operate relays, contactors and indicators, and more...

- Dimensions: 2-5/8" x 1-3/4" x 3/4"
- Temperature: -30ºC to 70ºC
- Power: Voltage 9-15 V DC/AC, 0.06-0.25 AMPS