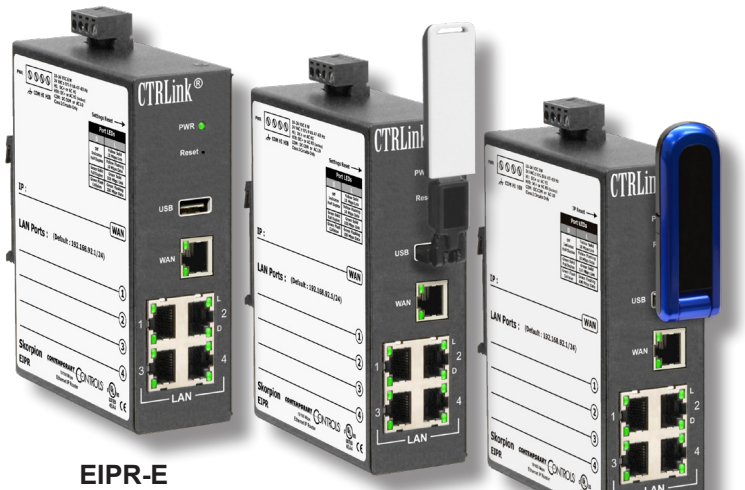
EIPR — Skorpion Wired and Wireless VPN Routers

The EIPR links two 10/100 Mbps Internet Protocol (IPv4) networks — passing appropriate traffic while blocking all other traffic. One network is the local-area-network (LAN); the other is the wide-area-network (WAN). The built-in stateful firewall passes communication initiated on the LAN-side while blocking WAN-side initiated communication. With Port Address Translation (PAT), LAN-side clients can access the Internet. Network Address Translation (NAT) allows a one-to-one translation between LAN-side and WAN-side devices. With Port Forwarding, LAN-side devices can be accessed from the Internet. The EIPR incorporates a four-port Ethernet switch for multiple LAN-side connections. An external Ethernet-based modem — cable or DSL — can be used to connect to the Internet. DSL modems connect via the PPPoE protocol. A USB port allows expansion to wireless networks.

The EIPR-E supports Wi-Fi communication; the EIPR-V adds cellular access. With its real-time clock and OpenVPN firmware, the EIPR-V also supports a VPN (virtual-private-network) — so you can obtain secure remote communication — compatible with cloud-VPN service from Contemporary Controls.

EIPR Skorpion IP Router Features …

- Web page configuration
- 10/100 Mbps WAN port
- 4-port 10/100 Mbps Ethernet LAN switch
- PAT, NAT and Port Forwarding
- NAT Loopback
- Remote Router Access
- Whitelist
- Stateful firewall (can be disabled)
- DHCP client (WAN) and DHCP server (LAN)
- Wireless connectivity via USB port
- DIN-rail mounting
- Diagnostic LEDs
- CE Mark, RoHS, UL 508, C22.2 No. 142-M1987
- 24 VAC/VDC powered



EIPR-E

EIPR-E with user-provided Wi-Fi adapter installed

EIPR-V with user-provided cellular adapter installed

EIPR — Skorpion IP Router

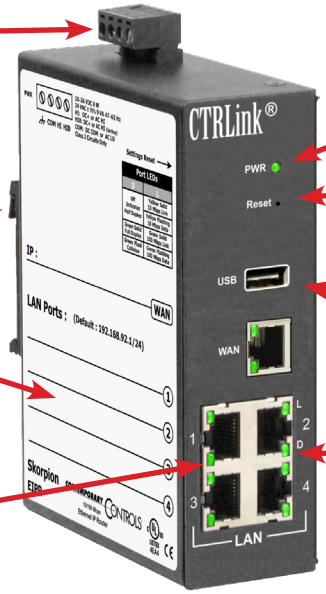
Although the EIPR has many of the same features found in high-end routers, it is simpler to install and commission. A resident DHCP server on the LAN-side will provide IP addresses to LAN-side clients while a DHCP client on the WAN-side will accept IP address assignments from the attached modem. Static addressing is accommodated as well. Configuration is via a web browser using authentication. With a DIN-rail mounting clip, rugged metal enclosure and the ability to be powered from a low-voltage AC/DC power source, the EIPR is ideal IP router for automation systems.

Quick Disconnect 4-pin Power Connector
provides connections to a DC or AC source and a connection for a backup DC source.

35 mm Din-rail Clip
for convenient control panel installation

Writable Label
for a helpful record of connected IP devices

Built-in Ethernet Switch
connect up to four 10/100 Mbps Ethernet devices with auto-negotiation and Auto-MDIX



Power LED
Power OK indicator

Reset Switch
returns the EIPR to its default IP address settings

USB Port
for wireless connectivity

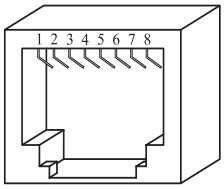
Diagnostic LEDs
indicate the status of Link, Duplex and Activity

Connector Pin Assignments

Ethernet

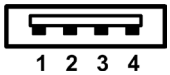
Pin	Function
1	+TD
2	–TD
3	+RD
4	N/C
5	N/C
6	–RD
7	N/C
8	N/C

All ports are MDIX.

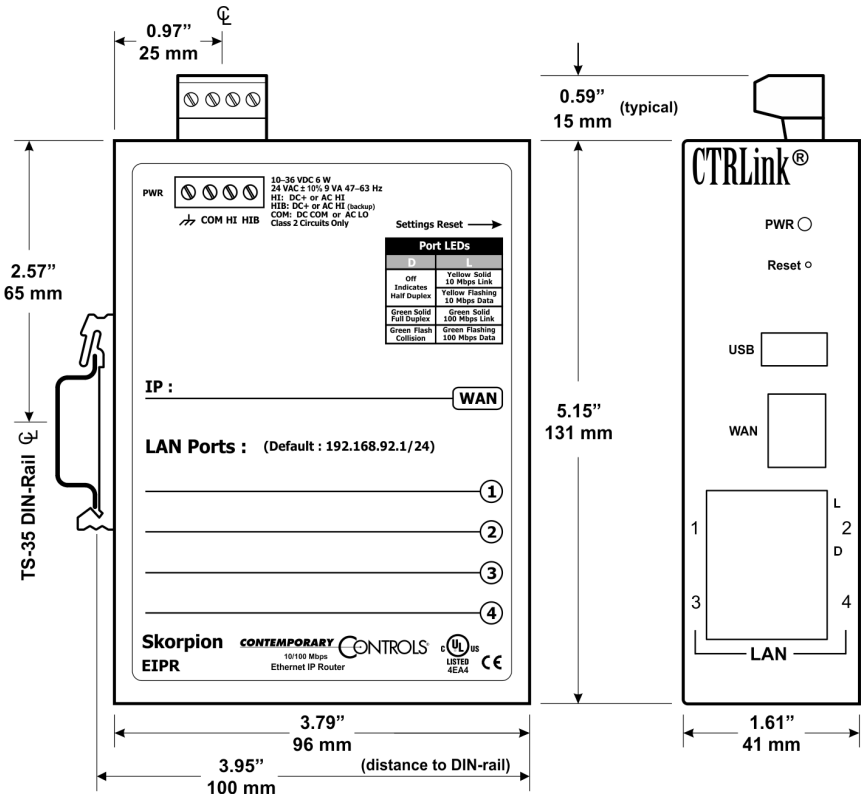


USB

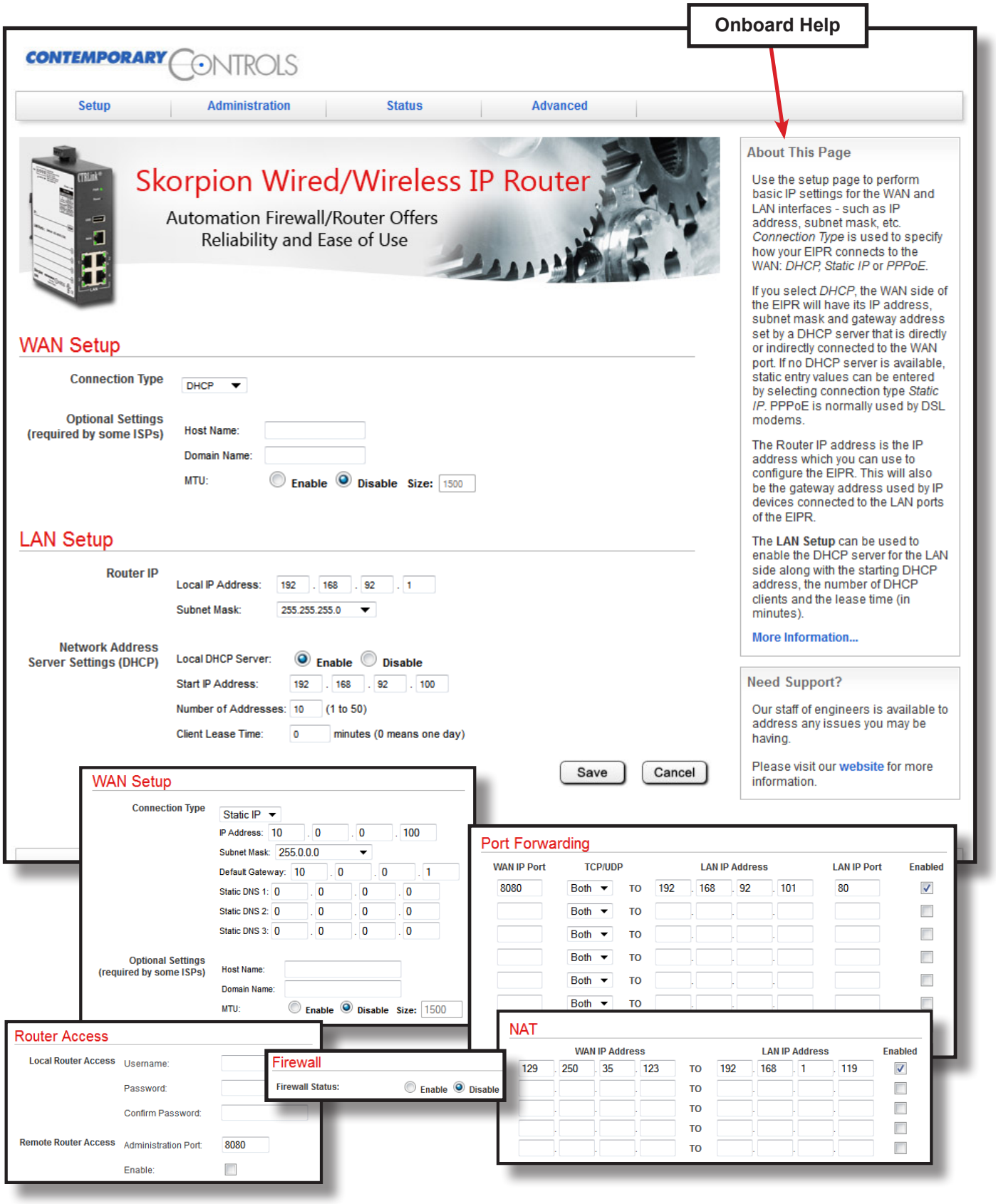
Pin	Function
1	+5 V
2	–Data
3	+Data
4	Ground



Mechanical Drawing



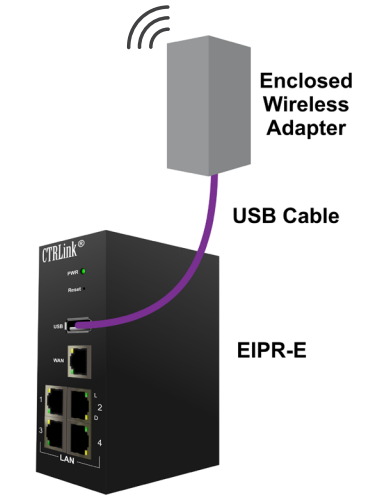
Web Page Configuration



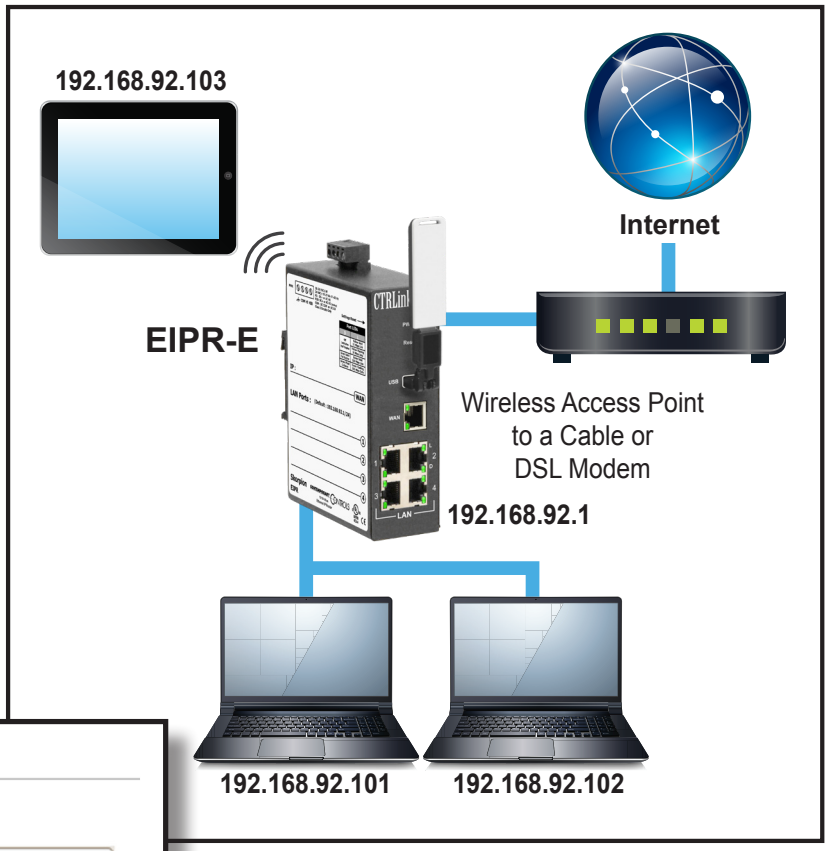
Wi-Fi Connectivity (EIPR-E and EIPR-V)

With the resident USB port you can expand to wireless networks if an appropriate Wi-Fi adapter is inserted in the port — establishing the EIPR as a Wi-Fi access point and increasing the number of LAN-side clients.

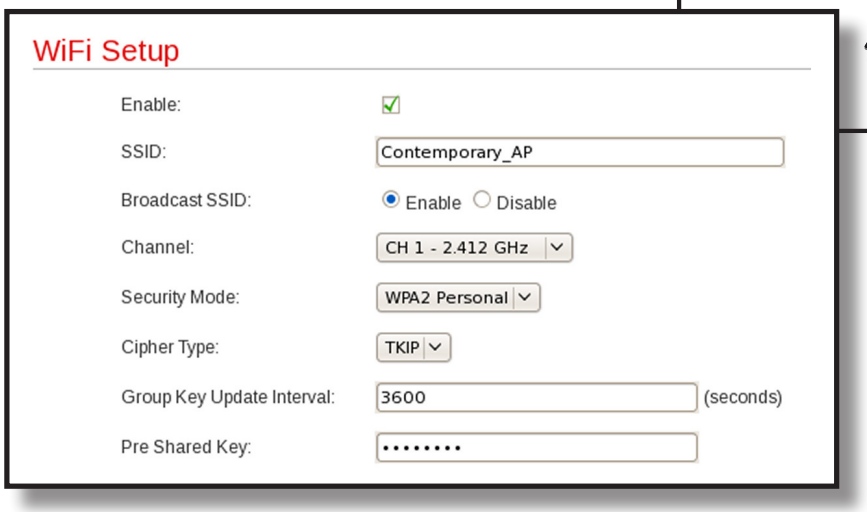
After installing a USB Wi-Fi adapter (IEEE 802.11b, 802.11g, etc.), the EIPR becomes a Wi-Fi access point. This allows Wi-Fi devices to wirelessly communicate with the EIPR and with each other. Each wirelessly connected Wi-Fi device can receive a DHCP-assigned address from the EIPR. When wirelessly connected, each Wi-Fi device can also communicate directly with any EIPR LAN-connected devices and can also route through the EIPR WAN port for access to other subnets and to the Internet. The EIPR supports Wired Equivalent Privacy (WEP) and Wi-Fi Protected Access (WPA, WPA2) secure communications. Other EIPR features — such as port forwarding — can also be applied to the wirelessly connected Wi-Fi devices. A list of supported Wi-Fi adapters can be found on the Contemporary Controls website under the EIPR product page.



Remote Wireless Adapter



Wired and Wireless Access to the Internet



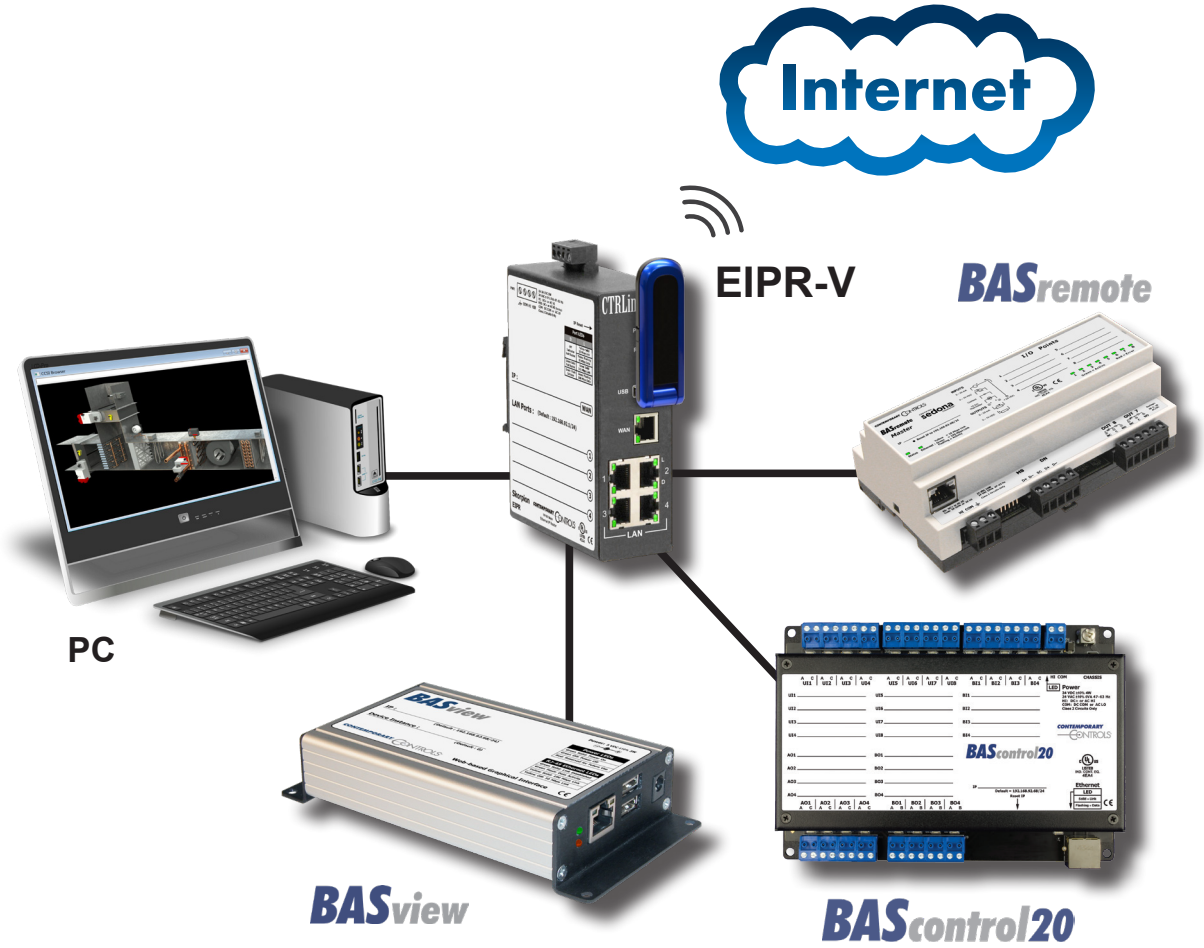
Cellular Connectivity (EIPR-V)

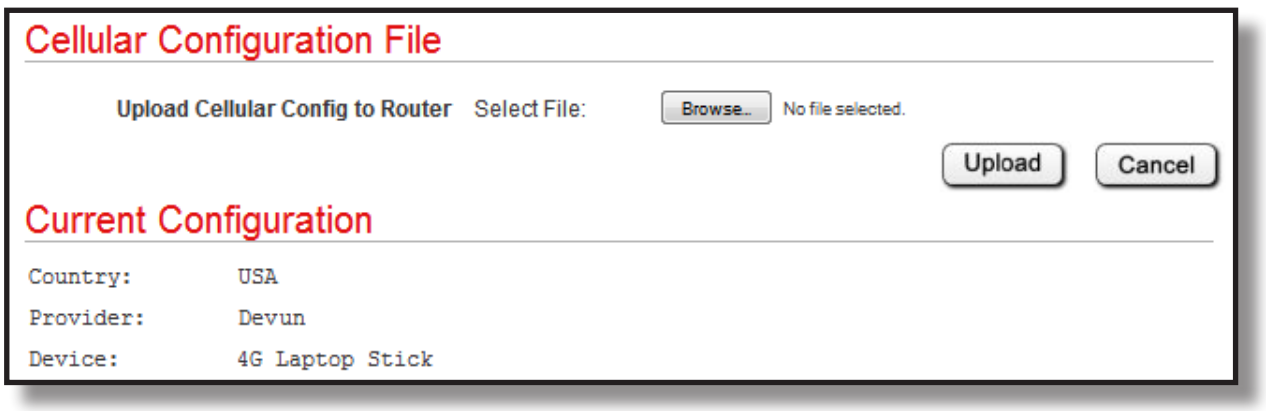
The EIPR-V can access popular cellular networks if an appropriate cellular adapter is installed in the USB port. In this case, WAN-port operations are transferred to the USB port (the wired WAN port is disabled) — allowing LAN-side clients access to cellular devices.

Data plans intended for M2M communication usually include the cellular adapter as part of the package.

Contemporary Controls maintains a list of approved cellular adapters.

Note that the EIPR-V supports either Wi-Fi or cellular communication but not both at the same time — even if a USB hub is attached.





Virtual Private Network (VPN) (EIPR-V)

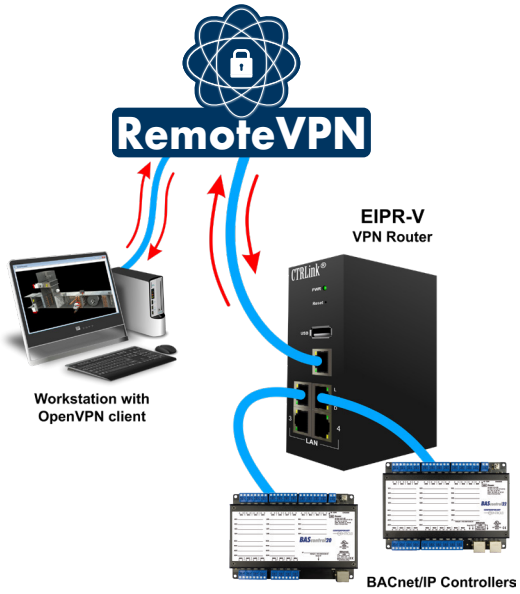
The EIPR-V is equipped with OpenVPN client firmware and the real-time clock required for communicating with a partner OpenVPN server over the Internet, such as our RemoteVPN server. The connection to the Internet can be wired or wireless. Workstations on the LAN side need not have OpenVPN client software installed because the OpenVPN client exists in the EIPR-V.

Resident Virtual Private Network not in the Cloud

A virtual private network (VPN) encrypts TCP/IP for communication over a public network — such as the Internet — and limits access by restricting communication to authorized users. A simple VPN can exist between two end points. This is also called a *VPN tunnel*. Think of VPN communication over the public Internet while existing in its own (virtual) secure tunnel. Once the VPN connection is made, messages can originate from either side — eliminating the need for port-forwarding and allowing easy communication to devices behind firewalls.

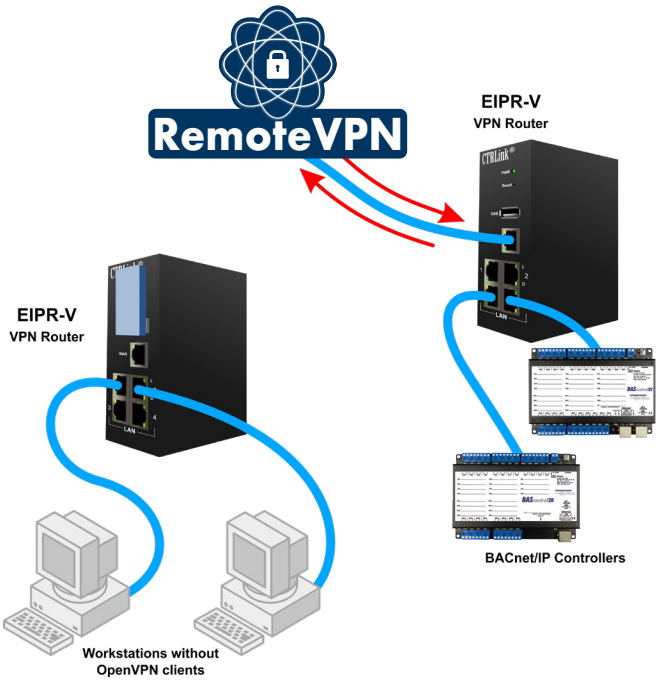
Wired Connection to the RemoteVPN

There is still an opportunity to enjoy the benefits of a VPN without maintaining a resident VPN. With the RemoteVPN, the VPN server is on the Internet and is hosted by Contemporary Controls through a third-party. You load a VPN client application onto your PC and connect to the RemoteVPN. This provides an encrypted connection to the VPN server. At the remote site you have another VPN client but this time it is permanently installed in the EIPR-V VPN Router and is always connected to the RemoteVPN via an encrypted connection. The LAN-side of the EIPR-V connects to the building automation equipment. The RemoteVPN will route between the two VPN tunnels thus created. Although the RemoteVPN will work with either a wired or cellular connection to the Internet, there is an advantage of using the cellular network in that the IT personnel at the remote site need not get involved.



Cellular Connection to the RemoteVPN

Utilizing cellular networks for data communications can sometimes be easier to setup than other forms of Internet communications — especially if these connections are temporary. The EIPR-V will connect to cellular networks using a USB cellular modem provided by a cellular provider as part of a data plan. By using the cellular network, the main Internet connection to the remote site is not affected.

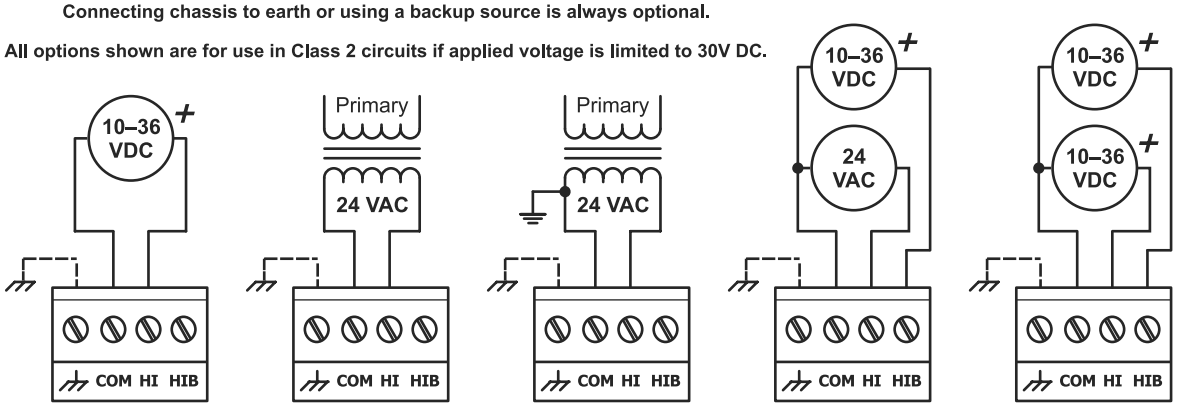


Power Considerations

Applied voltage must be in the specified range and deliver a current commensurate with power consumption. The recommended size for solid power conductors is 16–20 AWG; and for stranded conductors use 16–18 AWG. Zero volts (COM) is isolated from chassis (earth). Input connections are reverse-polarity protected.

Input power: 10–36 VDC or 24 VAC ± 10%, 47–60 Hz.
Connecting chassis to earth or using a backup source is always optional.

All options shown are for use in Class 2 circuits if applied voltage is limited to 30V DC.



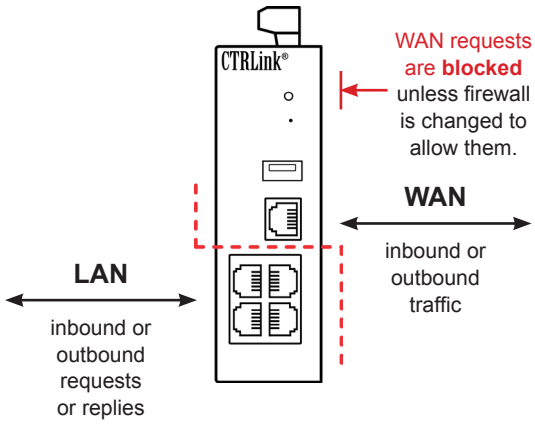
DC Powered | AC Powered | AC Powered with Grounded Secondary | AC Powered with DC Backup | Redundant DC Powered

Stateful Firewall — Promotes Secure Communication

The lower part of the router connects the LAN side (the local-area-network). The upper part connects the WAN side (wide-area-network). A firewall (which can be disabled by the user) separates the two parts.

A firewall controls the passing of messages from one side of a router to the other. A *stateful firewall* acts on the structure of the message and who is initiating and who is responding.

Originating requests from the LAN side and corresponding responses from the WAN side ***pass through*** the firewall. But traffic originating from the WAN side is ***blocked*** from the LAN side ***unless*** the firewall is adjusted to allow it. This protects the LAN side from unauthorised WAN access. **NOTE:** Wi-Fi is part of the LAN.



Specifications

Power Requirements	10–36 VDC ±10% 6 W	or	24 VAC ±10% 9 VA 47–63 Hz
Operating Temperature	0°C to 60°C		
Storage Temperature	–40°C to 85°C		
Relative Humidity	10–95%, non-condensing		
Protection	IP30		
Mounting	TS-35 DIN-rail		
Ethernet Communications	IEEE 802.3 10/100 Mbps data rate 10BASE-T, 100BASE-TX physical layer 100 m (max) CAT5 cable length		
USB Port	USB 2.0, Type A 5 m (max) cable length delivered power (max) 500 mA		
LEDs	Power	Green = power OK	
	L	Green = 100 Mbps communication established Yellow = 10 Mbps communication established Flash = activity	
	D	Green = Full-duplex operation Off = Half-duplex operation Flash = Half-duplex collision	
Regulatory Compliance	CE Mark; CFR 47, Part 15 Class A; RoHS; UL 508; C22.2 No. 142-M1987		

Ordering Information

Model	*RoHS*	*Description*
EIPR-E	✔	Skorpion 10/100Mbps IP Router
EIPR-V	✔	Skorpion 10/100Mbps IP Router with VPN
ACC-WIFISTK-1	✔	USB 802.11 b/g/n Wireless USB adapter
ACC-USBADPT-1	✔	USB Right Angle Swivel Adapter
ACC-MTGKIT-1	✔	Wall Mount USB Adapter Enclosure with 15’ (4.5 m) cable
ACC-USBCBL-15	✔	15’ USB Extension Cable

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