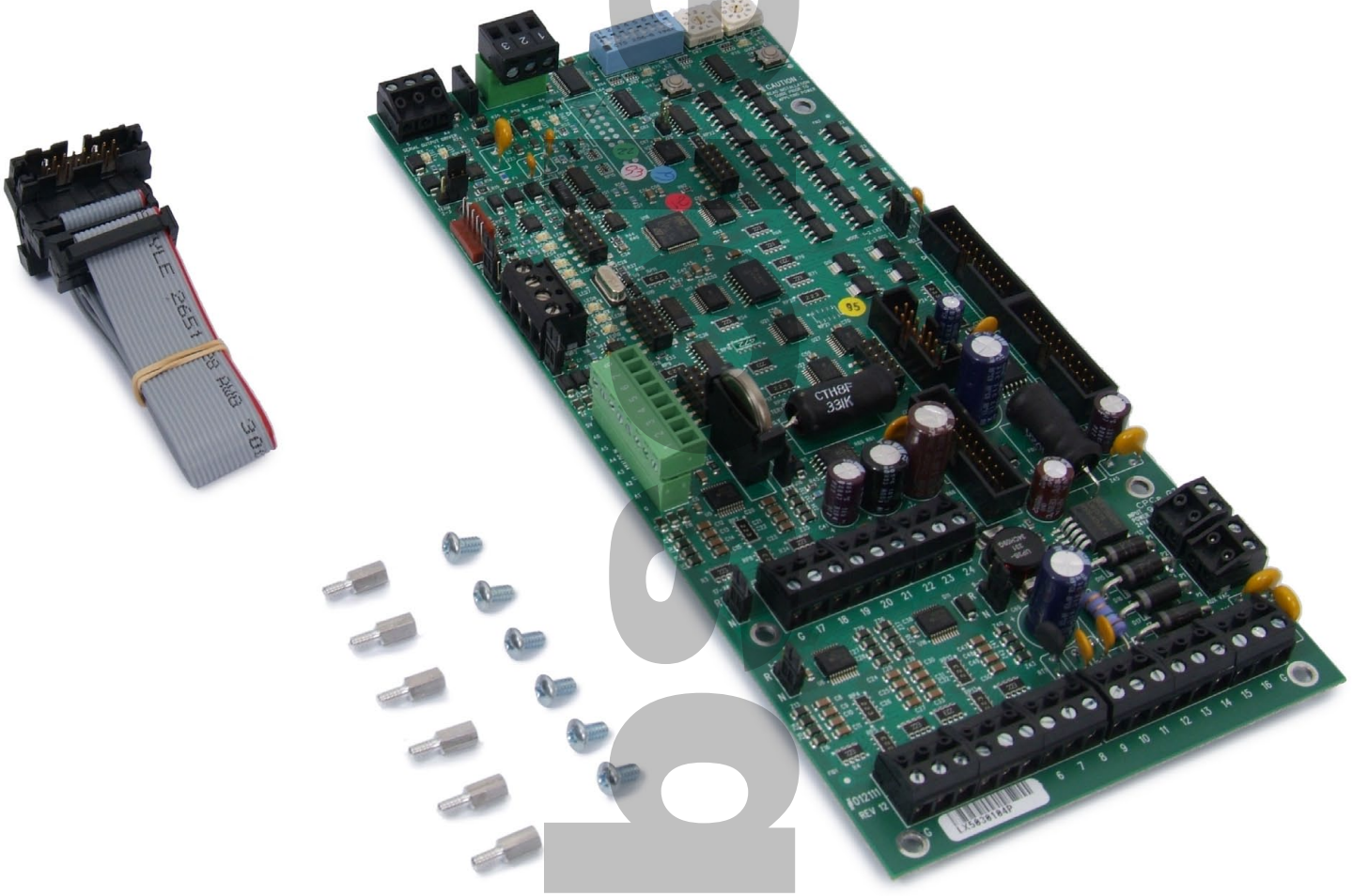
Retrofit Kit 1

Hardware Installation and Setup Instructions



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Attention

This section serves as a notice of the immediate or potential dangers involved when working with the equipment described throughout this manual. Any person involved in installation, maintenance, or service of the equipment should first carefully examine the equipment and read the instructions contained in this manual to ensure that personal and/or equipment injury is avoided.

The following safety messages appear throughout this manual to alert of immediate or potential danger to life as well as property.

Note : Indicates an important note.

Tip : Indicates a helpful tip or trick.

Safety Reminder : Applicable safety instructions will be included with this symbol.

DANGER : Indicates an immediately hazardous situation which ,if not avoided, will result in serious injury or death.

WARNING : Indicates a potentially hazardous situation which ,if not avoided, may result in serious injury or death.

CAUTION : Indicates a potentially hazardous situation which ,if not avoided, may result in minor or moderate injury.

Disclaimer

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designated to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Instructions contained in this user's guide should be performed only by qualified persons in accordance with local and national codes. Blue Ridge Technologies International, LLC and its affiliates assume no responsibility for any consequences related to the improper use of this manual.

Overview : Document

This document provides mounting and connection instructions for the following Blue Ridge Technologies Retrofit Kit (RK) products :

Retrofit Kit 1 (RK1)

RK1 is compatible with Lumisys L3500 Panels and Triatek LP3500 Panels equipped with Lighting Tough Relays (LTR).

Sections of this Install Guide apply to optional equipment and may not be applicable. Siemens' P1 and Automated Logic Corporation's BACnet ARCnet protocols are only available to authorized integrators.

For RK integration with a Building Automation System (BAS) as well as software configuration refer to the Application Guide.

Overview : Component

The RK1 includes the following items :

1 - Controller
2 - 16-20pin Ribbon Cables
6 - Threaded Stand-offs
6 - #6/32 Screws
1 - BT485 BAS Network Terminator (BT485 Terminator)

Disconnect line voltage power before performing RK installation.

All circuits must be tested for wiring errors and shorts prior to RK installation.

Before handling any RK components, the technician should be grounded to prevent circuit board damage.

Preparation

Remove the existing controller.

1. Disconnect power from the panel.
2. Label all wiring and ribbon cables.
3. Disconnect wiring and ribbon cables from the existing controller. It is beneficial to remove the Power In and Digital Input terminal blocks whole rather than disconnecting each wire as the terminal blocks may be reused in the RK installation. Proceed with care, the terminal block pins are fragile.
4. Unfasten and remove the existing controller.
5. Remove any dust or debris from low voltage bay of the panel.

Mounting

The RK Controller may now be mounted in place of the existing controller.

1. Confirm power is disconnected from the panel.
2. Connect the 16-20pin Ribbon Cables to the existing 16-Pin ribbon cables. The socket and plug are keyed to ensure correct orientation. (Figure 1)
3. Neatly route all ribbon cables so that they will run behind the Controller.
4. Fold the ribbon cables so that the plugs will meet the appropriate sockets on the Controller. Excess cable length may be folded for concealment under the Controller.
5. Install one Threaded Stand-off in each of the existing stand-offs.[1]
6. Fasten the Controller to the Threaded Stand-offs utilizing the #6/32 Screws.[1]

Connection

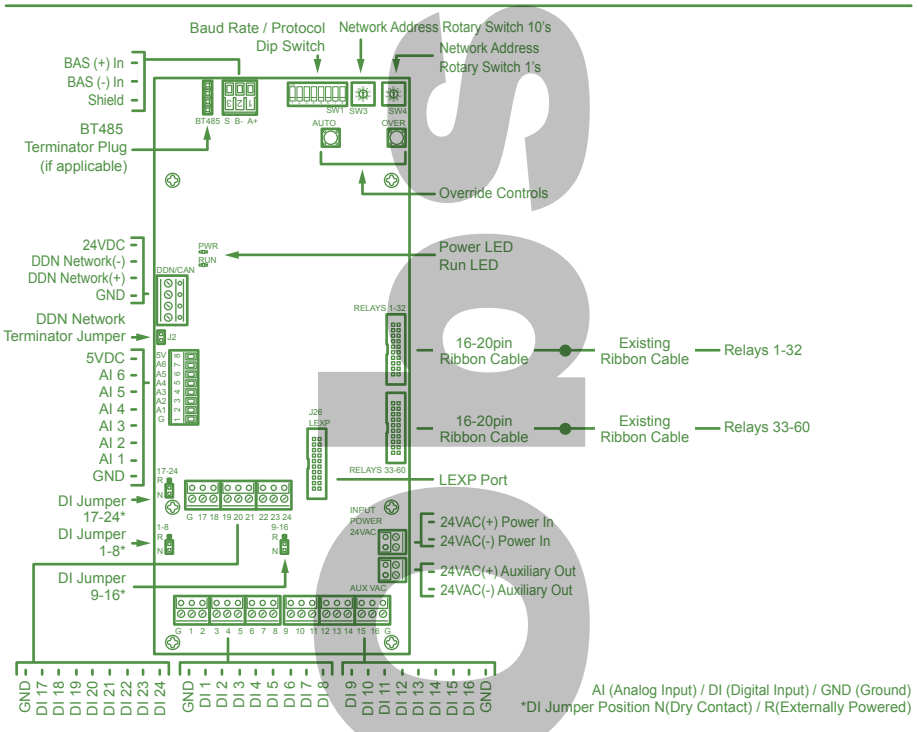
All low voltage leads are terminated on the Controller. Controller screw terminals accept a 0.4 x 2.5mm slot head screw driver. (Figure 1)

1. Confirm power is disconnected from the panel.
2. Complete ribbon cable connections.[2]
3. Connect existing Power In and Digital Input terminal blocks if reused. Proceed with care, the terminal block pins are fragile.
4. Route remaining leads.
5. Cut to length and strip as appropriate.
6. Insert stripped lead into screw terminal and tighten screw.
7. Repeat for each lead.

Power Specifications

Power In: 24VAC +/-10%, 30VA, 50-60 Hz
Auxiliary Out: 24VAC Full Wave Rectified

Controller Terminations



(Figure 1)

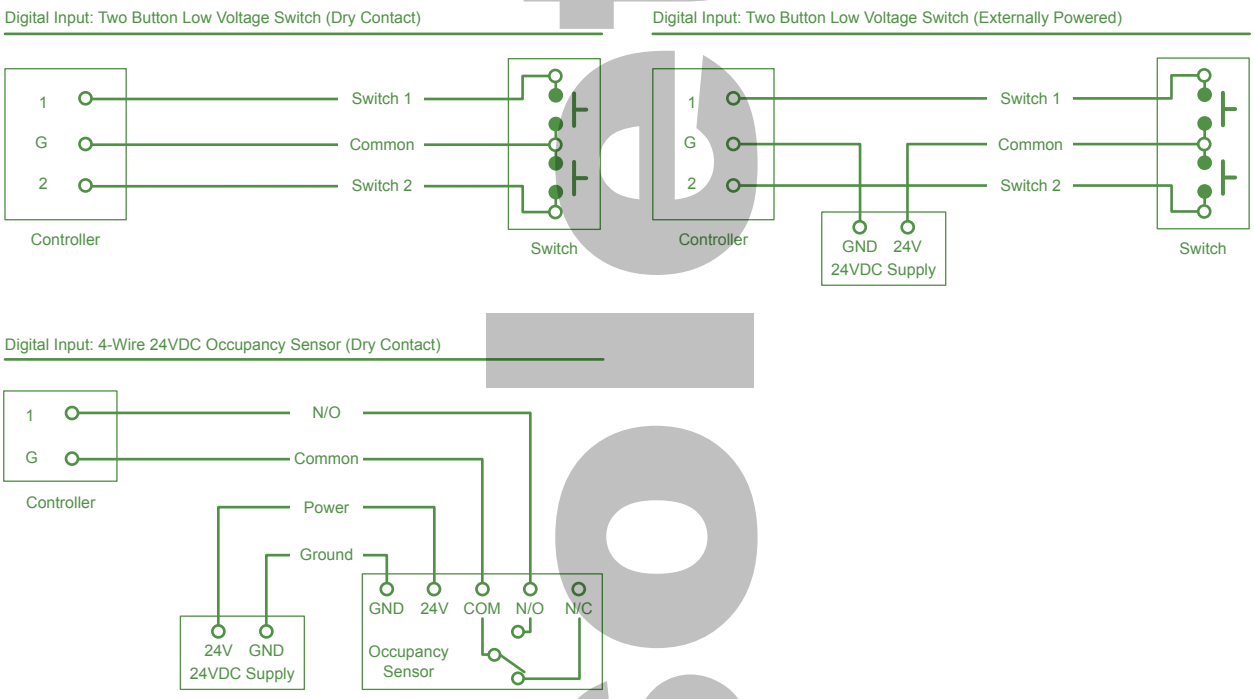
1 DO NOT exceed 10 in-lbs when tightening #6/32 size fasteners.

2 Disconnect power to the Controller before installing or removing ribbon cables. Failure to do so could result in damage to the electronics.

Connection

Digital Input Specifications

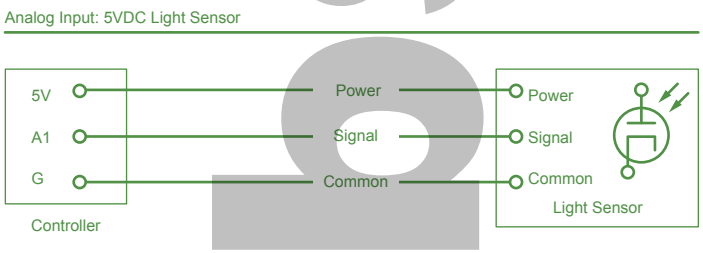
Digital Input: 24 two-wire inputs
Software Configuration: Maintained, state change, momentary on/off, momentary on, or momentary off
Jumper Configuration: 8 input segments, dry contact (N) or 24VDC externally powered (R)
Wire Requirement / Maximum Length: 18AWG (Solid or Stranded) / Dry Contact 500'(152m) or externally powered 1,000'(304m)



(Figure 2)

Analog Input Specifications

Analog Input: 6 three-wire 0-5VDC inputs
Wire Requirement / Maximum Length: 18AWG (Solid or Stranded) / 250'(76m)



(Figure 3)

Terminations : Low Voltage

BAS Network Specifications
- Topology: RS-485, 3 conductor (+, -, and shield), daisy chain wiring (no stars or t-taps)
- Wire Requirement / Maximum Length: Belden 8760 / 4000'(1216m)

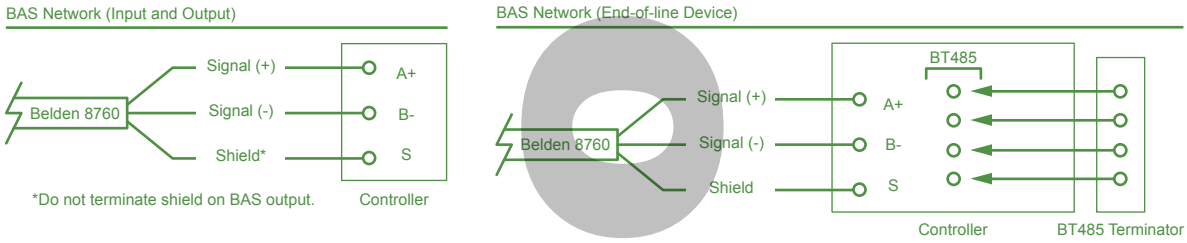
BACnet MS/TP
- Baud Rate: DIP switch selectable 9.6K, 19.2K, 38.4K, or 76.8K
- Device Profile: BACnet Advance Application Controller (AAC)
- Address Range: 1 – 99 selectable with rotary dials
- Unit Load: Full unit load, 32 devices per MS/TP segment
- Points: See Application Guide and PIC Statement

N2
- Baud Rate: DIP switch selectable 9.6K
- Address Range: 1 – 255 selectable with rotary dials and DIP switch

P1
- Baud Rate: DIP switch selectable 4.8K, 9.6K, 19.2K, or 38.4K
- Address Range: 1 – 99 selectable with rotary dials

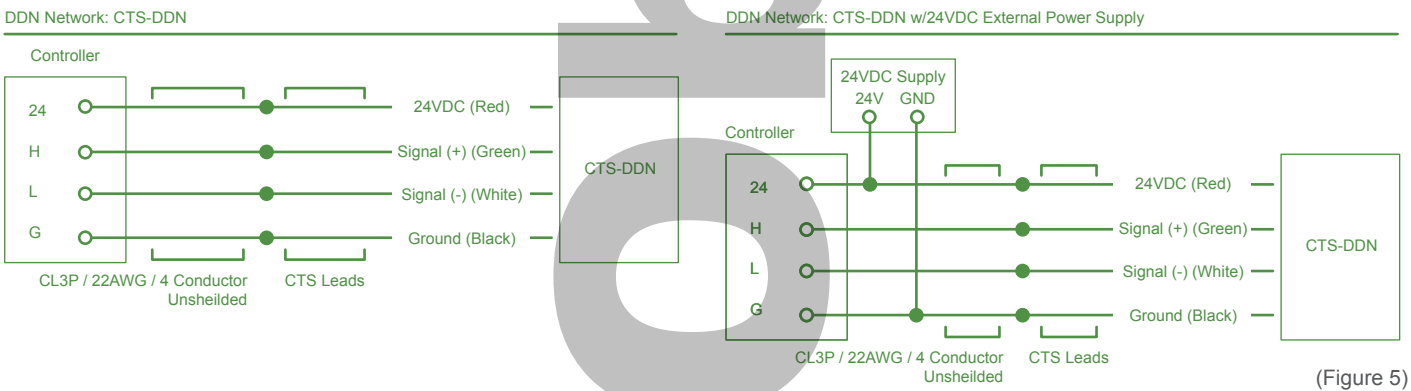
See Automated Logic Corporation's *ARC156 Wiring Technical Instructions* for the latest BACnet ARCnet specifications.

Install BT485 Terminator if RP is operated as end of line device(first or last device on network). BT485 Terminator requires no specific orientation in relation to the terminal.
See Controller Setup for Address and Protocol settings.



(Figure 4)

DDN Network Specifications
- Protocol: Digital Device Network (DDN)
- Address Range: 1-60, DIP switch selectable
- Topology: Daisy Chain Wiring (no stars or t-taps)
- Wire Requirement: CL3P, 22AWG, 4 conductor, Unsheilded
- Maximum Stations (w/o external power): 10 CTS-DDN
- Maximum Length (w/o external power): 500'(152m)
- Maximum Stations (w/ external power): 60 one-button, 30 two-button, or a combination for 60 buttons total
- Maximum Length (w/ external power): 2,000'(610m)
- Power / Draw: 24VDC / 15mA per CTS-DDN



(Figure 5)

Controller Setup

Controller configuration and testing are the final steps of installation. (Figure 6)

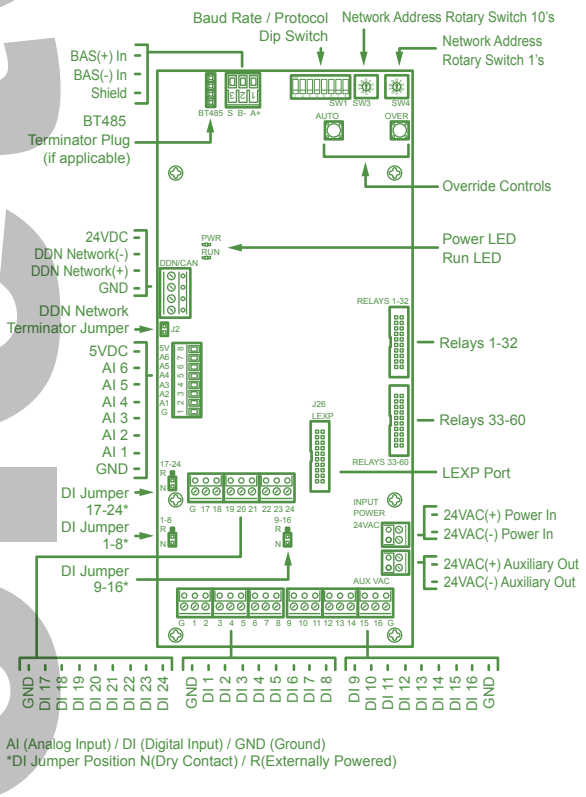
Setup

1. Confirm power is disconnected from the Controller and the Power / Run LED's are not illuminated.
2. Set the DDN Network Terminator Jumper if utilizing DDN Network. Two devices on the DDN Network should be set for network termination. If the Controller is the end-of-line, terminate the Controller and the device at the opposite end of the network. If the Controller is positioned at a mid-point on the network, terminate devices at the opposite ends of the network either side of the Controller.
3. Set the Digital Input (DI) Jumpers.
4. Set the Baud Rate / Protocol Dip Switch for protocol and baud rate.
5. Set the Network Address.

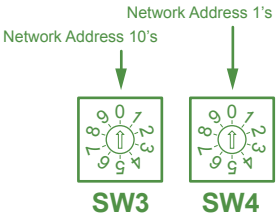
Testing

1. Connect power to the Controller. Wait 10 seconds for power up.
2. Confirm normal LED operation.
   Power LED: Solid illumination
   Run LED: Continuous blinking
3. Press and release the Over Button. Confirm the Relays change state On/Off.
4. Press and release the Over Button again. Confirm the Relays change state On/Off.
5. Press and release the Auto Button to exit override mode.
6. Test procedure complete.

Controller Terminations

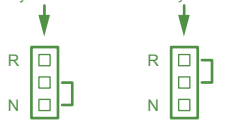


Network Address

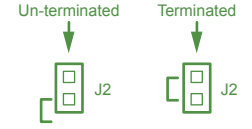


See right for N2 addresses 100-255

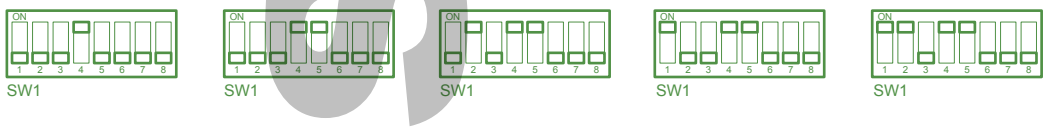
Digital Input (DI) Jumper



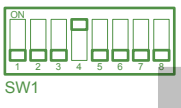
DDN Network Terminator Jumper



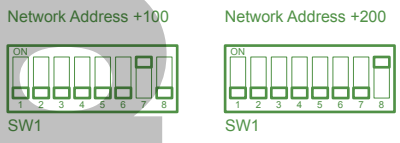
Baud Rate / Protocol Dip Switch: BACnet MS/TP



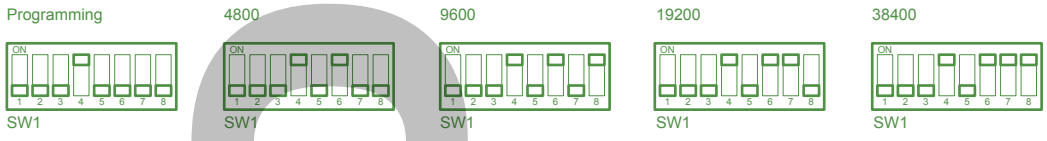
Baud Rate / Protocol Dip Switch: N2



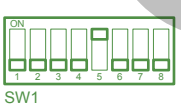
N2 Network Addresses 100-255



Baud Rate / Protocol Dip Switch: P1



Baud Rate / Protocol Dip Switch: BACnet ARCnet



(Figure 6)