netLINK CONTROLS

INSTALLATION INSTRUCTIONS

This Instruction Manual is a guide for the installation of a netLINK Controls System. Photographs not to scale.

Before attempting to Install the netLiNK™ Controls System, read these instructions carefully. Failure to do so may result in damage or malfunction to the system and will immediately void the warranty. Do Not Wire Hot!

NOTE: If the light fixtures are not brand new, completely installed, and fully functional you must ensure all lamps and ballasts/drivers are in good working condition, and no electrical problems are present. If any lamps/fixtures are out, note them on the site map and report them to netLiNK Controls before proceeding. It is recommended that a complete audit of the existing site lighting electrical system is done before installing netLiNK. The netLiNK Controls System must only be installed on a completely operational system and by a qualified installer.

WARNING: The Base Station and Wireless Nodes must be installed and wired in accordance with the National Electrical Code (NEC), all applicable Federal, State, and Local electrical codes as well as the specific U.L. safety standards for the intended location/application. A proper NEC ground must be attached to all terminal blocks, if conduit ground is not sufficient or the warranty may be void.

CAUTION: These instructions are only to be used as a guideline. Installation may vary for different fixtures/devices and applications. Please direct any questions to netLiNK Controls Support.

INSTRUCTION TO THE USER: This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To satisfy **RF exposure requirements**, this device and its antennas must operate with a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

NETLINK CONTROLS WARRANTY

netLiNK Controls, a Texas limited partnership (hereinafter the “Manufacturer”) sole and exclusive warranty regarding the netLiNK Control Device (brands manufactured by netLiNK Controls hereinafter the “Control Device”) is that such Control Device shall be free of defects in materials and workmanship at the date of invoice and shipment from the Manufacturer’s dock, and for a period of two (2) years.

The Manufacturer’s sole obligation under this warranty is to repair or replace the Control Device if such Control Device does not function properly due to any component which proves to be defective as a result of defective materials or workmanship of the Manufacturer; provided, however, that said malfunction was not caused by: (i) lightning or other natural forces; (ii) units not installed, operated, or maintained in accordance with instructions provided, applicable local codes, ordinances, or accepted trade practices; (iii) failures resulting from abuse, misuse, accident, or negligence; (iv) units repaired, opened and/or modified without prior authorization from the Manufacturer; or (v) any connected electrical malfunction through other acts or omissions of any end-user, distributer, contractor, or ESCO Customer (hereinafter the “Customer”).

To obtain warranty service, the Customer shall assume all responsibility and expense for removal, reinstallation, and round trip freight. Any item to be repaired or replaced under this warranty must be returned to the Manufacturer, or such place as designated by the Manufacturer. Customer must contact the Manufacturer’s Customer Service prior to returning any Control Device of the Manufacturer. Call 214.netLiNK (638-5465) or email support@netlinkcontrols.com for a Return Material Authorization (RMA) number for any warranty claim.

INSTALLATION STEPS & PROCEDURES

Base Station

Install the Base Station

Install the BFA antenna

Connect the proper voltage and record the breaker

Ground the lighting arrestor

Verify that cellular connection is established

Set the lock combination and record the number

Fill out the door decal sheet

Pole Mount Nodes

Install the Pole Mount Node on predetermined poles

[See site map for reference]

Apply the appropriate stickers to the fixtures and poles

Wall Mount Nodes

Install the Wall Mount Node

Install the remote “CT”s to loads

Install the remote antenna (if necessary)

Install the remote photocell (if necessary)

Photos & Commissioning

Take photographs of all installed components and send all back to your netLiNK contact person. After you have submitted your photos, tell your contact you are ready to commission the system.

The installation is not considered complete until the photographs taken have been received, the site has been commissioned and any issues revealed during the commissioning have been resolved. Failure to do so may void your warranty and delay payment.

1 BASE STATION INSTALLATION

WARNING:

Only use the factory supplied openings of enclosure.
DO NOT PENETRATE THE ENCLOSURE. WARRANTY WILL BE VOIDED.

The coax cable can't be cut or shortened. Please coil up the excess and zip tie it together so that it's secure and clean looking. You may need to reposition the Base Station (BS) due to the cable length. If the standard 25' cable is too short, please contact your sales representative for a longer cable ASAP. The maximum distance is 50'.

The Base Station must be powered by a non-switched circuit (verify the voltage is correct) with the BS you have. The 900MHz antenna needs to be mounted outside and above the highest roof obstruction. The BFA antenna can be mounted inside or outside, and is typically mounted next to the main breaker panel that is feeding the site lighting. You must first find a location that meets these requirements. All antennas must be clear of all obstructions by at least 4 feet.

1 BASE STATION INSTALLATION

1. **Mount the Base Station (BS) on a wall** so that it is at or just below eye level, or approximately 5 feet above grade for easy access. Mounting on an outside wall is recommended.

2. **Run the power circuit** (verify specific voltage is correct) to the terminal block located inside the enclosure and ensure that the BS has an uninterrupted power supply.

3. **Mount the 900MHz BFA antenna to the supplied mounting hardware bracket** and a piece of 1.5" conduit supplied by installer. Cut the conduit length so that the antenna is above obstructions, and has at least 4 feet of clearance. Now route and secure the coax cable up/down the wall to the Base Station location without creating any sharp 90° angles or sharp bends.

If there is only one Base Station and one Wall Mount Node in a system, a smaller 900MHz antenna will be installed on the Base Station and the 25' cable and roof mounted antenna won't be supplied or required to be installed as noted above.

The cellular (LTE) antenna is already secured on the top right side of the Base Station and does not need to be altered.

4. **Install the lightning arrestor** to the top left side of the Base Station, and properly ground it per NEC code. Not doing so will result in permanent damage to the Base Station and will void the warranty.

5. **Attach the coax cable** from the lightning arrestor up the wall to the BFA antenna which is mounted above the roofline.

6. **Verify** that proper (LTE) cellular connection is established. A 3-second repetative blink is required.

7. **Change the lock combination** to the customers desired number and report that combination to netLiNK Tech Support.

8. **Install the ID decal** to the appropriate breaker feeding the Base Station.

9. **Take photographs** of the installation and send back to netLiNK Tech Support.

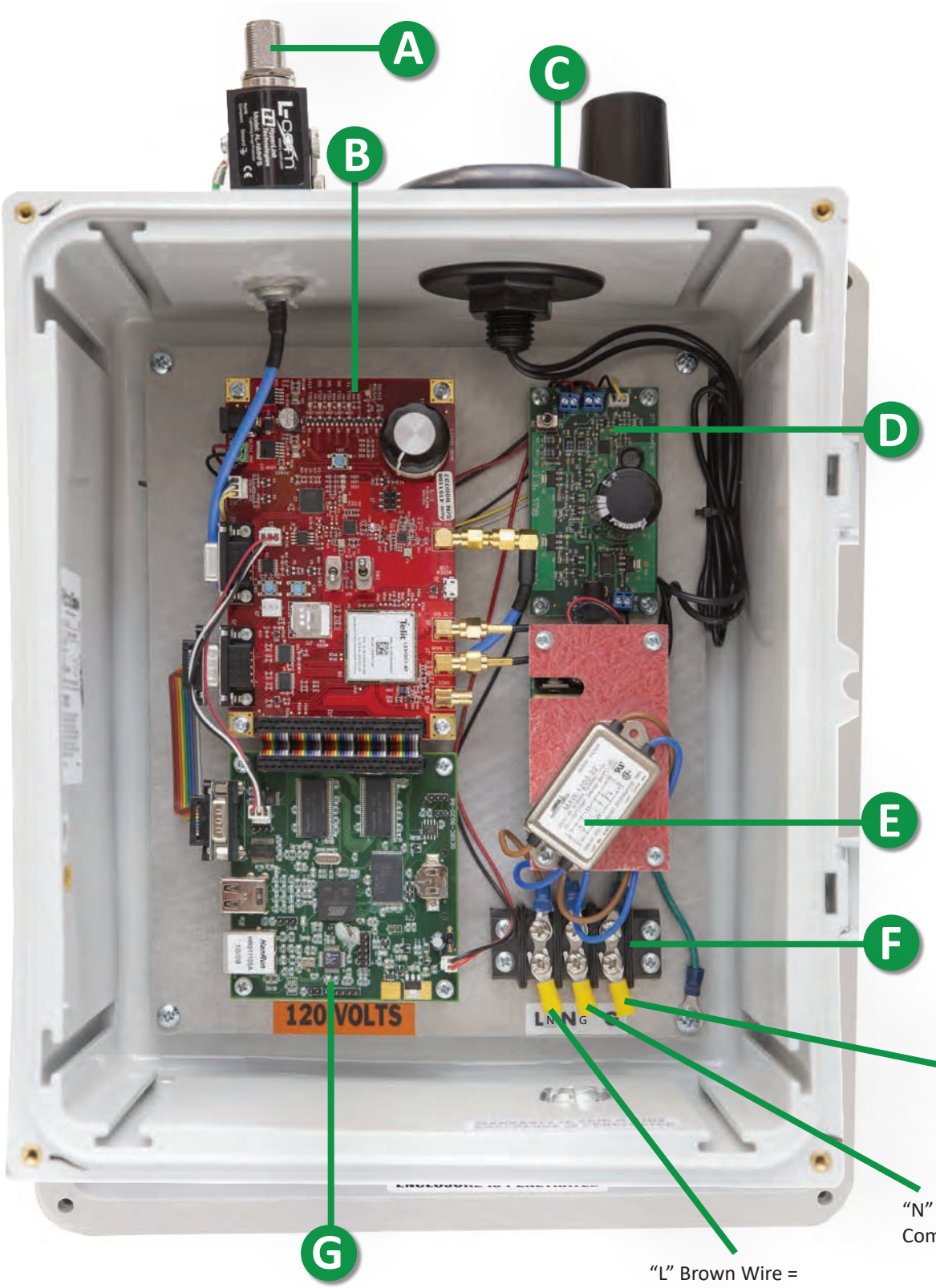
Now is the time to call 214.net.LiNK or email support@netLiNKControls.com to ensure that proper connectivity to the Base Station has been established. Tell the operator that you need to **"activate the Base Station"** and **"commission"** the system - please reference the project name and address.

INSTALLATION STEPS & PROCEDURES

Photo Examples

Take photographs of all installed components and send all back to your netLiNK contact person. After you have submitted your photos, tell your contact you are ready to commission the system.

1 BASE STATION SYSTEM DIAGRAM



A. 900MHz local antenna bulkhead connection for the BFA Antenna.

B. “Winthorp” Board with “Override Rotary Knob” for On-Site Control and System Status LEDs.

C. LTE Cellular Antenna

D. “Coleman” Board with Main On/Off Power Switch and Power LED.

E. AC to DC Power Supply/Filter.

F. 120 VAC Line In Terminal Block.

G. “Glomation” Board and Power LED.

“G” Green Wire =
Local Code Compliance
Grounding

“N” Blue Wire =
Common/Neutral

“L” Brown Wire =
120 VAC Input Voltage
(non-switched/shared circuit)

1 BFA ANTENNA MOUNTING OPTIONS

If there is more than one (1) Wireless Node in the system, you will need to install the high gain 900MHz BFA antenna and mounting bracket. The "L" bracket is designed to clear gutters. Mounting hardware and conduit is not supplied by the manufacturer.

Antenna mounted on 12" wall mount "L" bracket with a 1.5" pipe extension so the antenna clears all obstructions above the roof line.

1.5" CONDUIT SUPPLIED BY INSTALLER, U-BOLTS ARE IN THE FURNISHED HARDWARE KIT.

2 POLE MOUNT NODE INSTRUCTIONS

Before installing, be sure that the node number written on the top of the node matches the pole number indicated on the site map. It is critical the correct node is installed on the correct pole.

NOTE: Pole nodes will operate on the onboard photocell until the Base Station is fully operational. DO NOT hold the node by the wiring harness. DO NOT leave it upside down, water can get inside and will void the warranty.

- **"LINE IN"** is **BLACK** wire and the associated **BLACK** with a **WHITE STRIPE** wire connects to the appropriate phasing as shown in the wiring diagram.
- **"LINE OUT"** is **RED** wire and the associated **RED** with a **WHITE STRIPE** wire connects to the appropriate phasing as shown in the wiring diagram.
- **"DIMMING"** is **VIOLET** wire and the associated **GREY** wire connects to the appropriate dimming control wires as shown in the wiring diagram.

SPECIAL NOTE: Once all the nodes are installed, you must remove all pole circuits from the existing control devices and wire them to be constantly hot 24/7.

CAUTION:

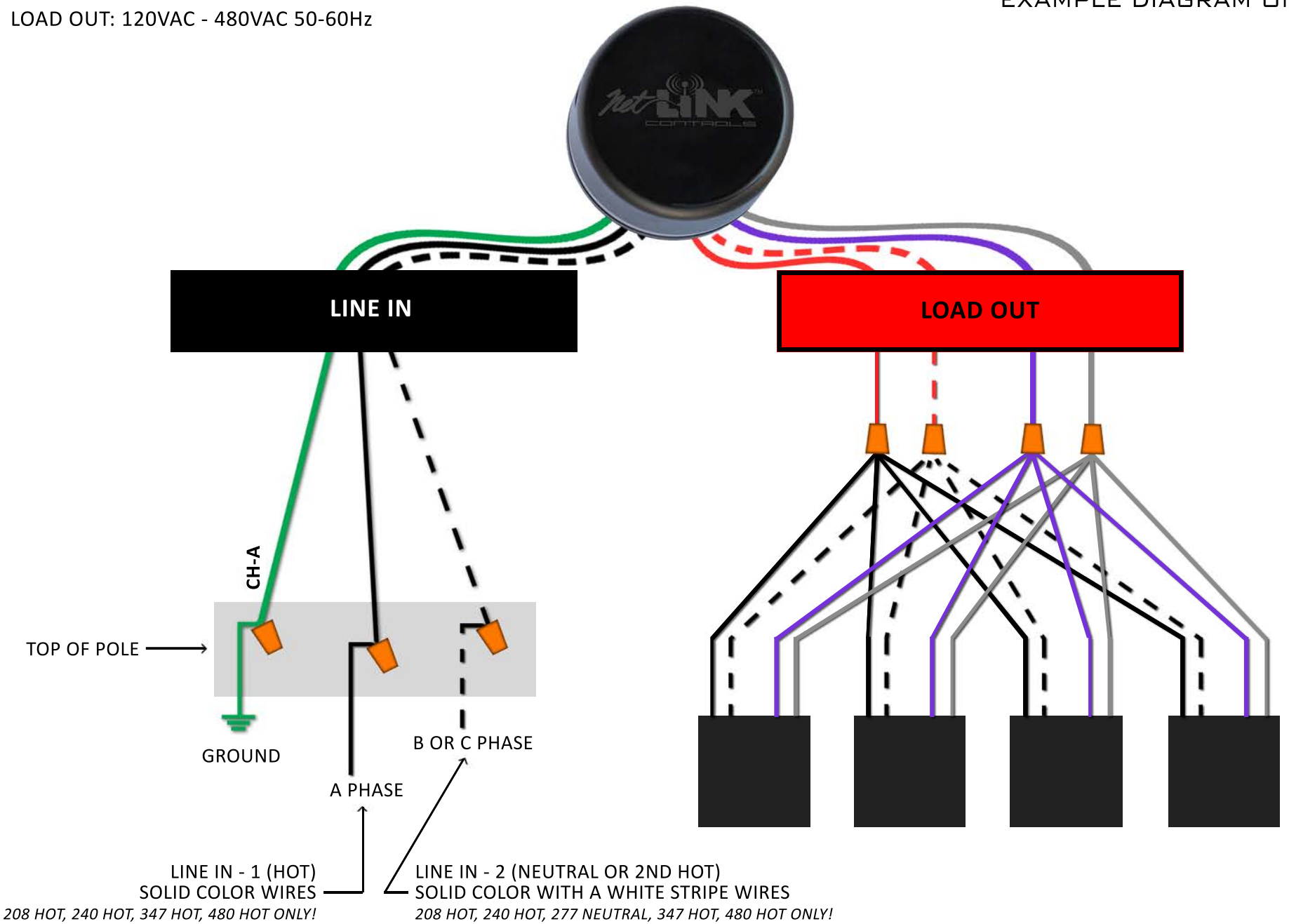
DO NOT CONNECT OR REPAIR ANY SYSTEM COMPONENT WITH ENERGIZED CIRCUITS. THE POLE WILL BE ENERGIZED EVEN IF THE LIGHTS ARE NOT ON. CIRCUITS IN THE POLE WILL BE ENERGIZED UP TO THE NODE, AND THE NODE CONTROL SYSTEM TURNS THE FIXTURE ON AND OFF.

1-CH Dimming Pole Mount Node "D10" Series

2 WIRES + GROUND IN A POLE

EXAMPLE DIAGRAM ONLY

LINE IN: 120VAC - 480VAC 50-60Hz
LOAD OUT: 120VAC - 480VAC 50-60Hz



3 WALL MOUNT NODE INSTRUCTIONS

WARNING: DO NOT PENETRATE THE TOP OR SIDES OF THE ENCLOSURE.

Doing so will result in permanent damage to the node and will void the warranty.
There are pre-punched knockouts at the bottom of the enclosure for your use.

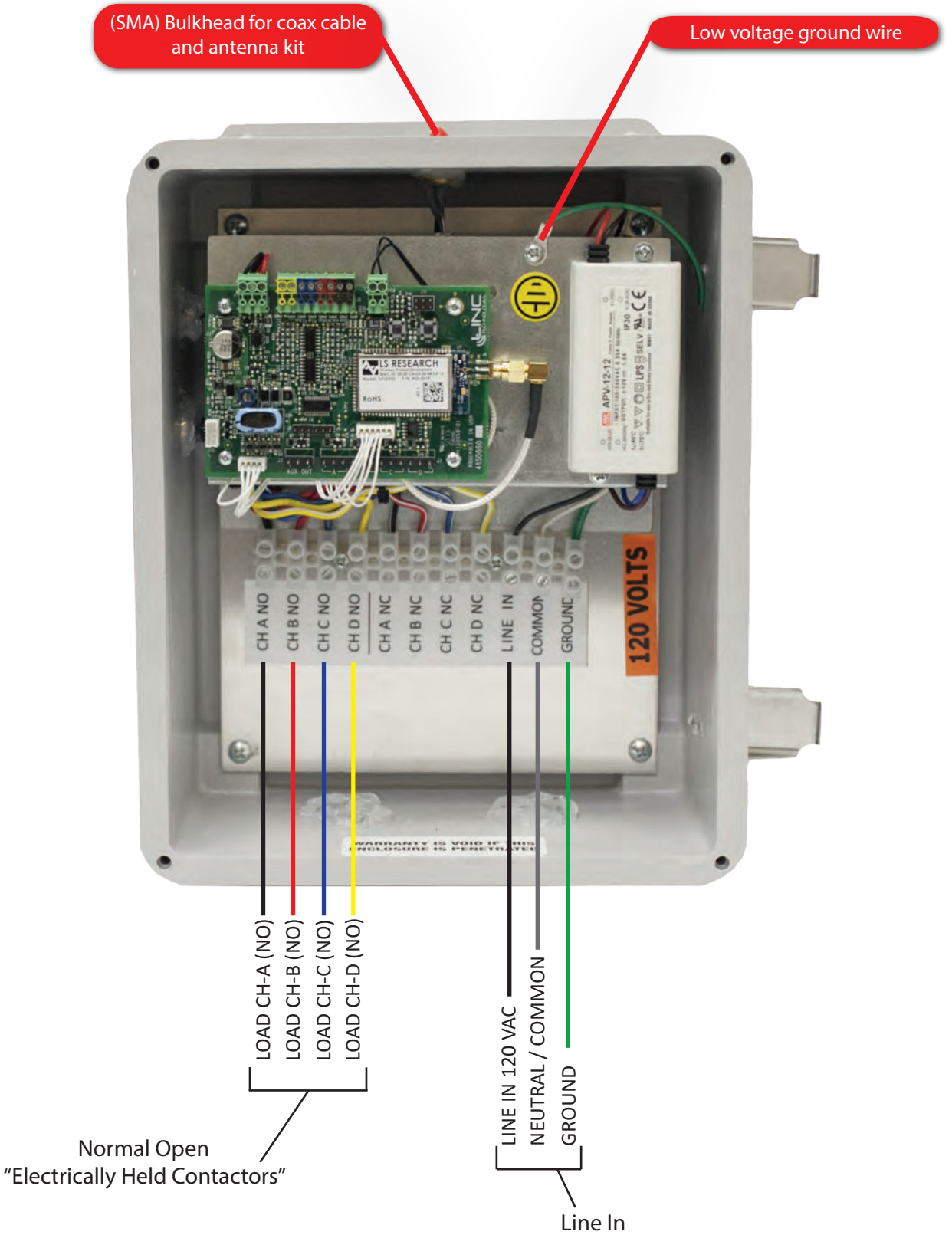
NOTE: Remote antenna can only be within 20' of the node, and about the roof line mounting location of the antenna.

Each wall mount node is typically mounted on the wall next to the electrical breaker panel and lighting contactors it will be controlling. Remove the "line in" circuit feeding power to the existing control device and attach that un-switched line circuit (Hot/Common/Ground) to the terminal block located inside the node. (The node is factory wired for 120VAC. Line In and Load Out, 10 amp max. Consult your sales rep if you need a different voltage.)

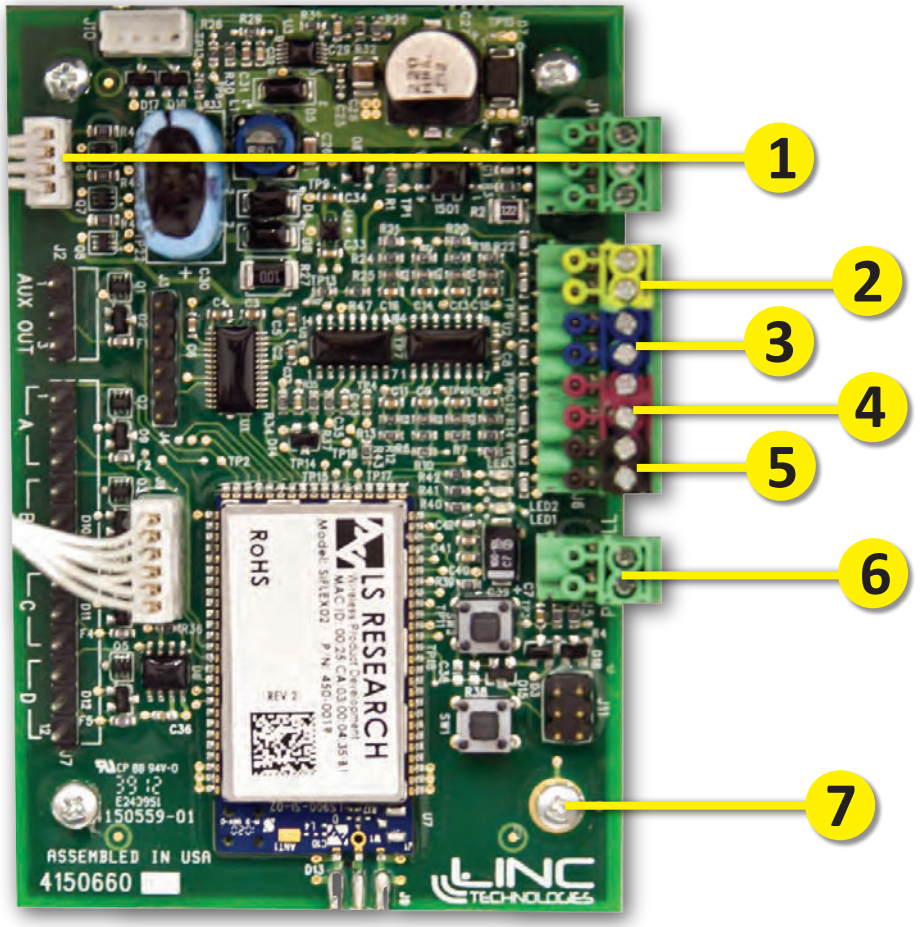
The "Load" side channel A, B, C, and D of the node is connected to the contactor coil. Basically speaking, all we are doing is splitting the HOT/Line circuit feeding the device now. The (4) different ON/OFF outputs are color coded (channel A = black lead, channel B = red lead, channel C = blue lead, and channel D = yellow lead) which connect to the coil on the lighting contactor, or input supply side of the fixture/device we are controlling if it does not exceed our output rating. Each channel max is 10 amps @ 120 VAC.

The local 900MHz antenna screws onto the bulkhead of the wall mount node, or an extention cable up to 20' can be used to clear obstructions.

3 WALL MOUNT NODE INSTRUCTIONS



3 REMOTE “CT” DIAGRAM



1. LED Connector
2. Channel D “CT”
3. Channel C “CT”
4. Channel B “CT”
5. Channel A “CT”
6. Photocell
7. Low Voltage Only Ground Screw

CUT THE CABLE TO THE PROPER LENGTH.

Color coded split CTS clamp around load circuit from lighting contactors going to the lighting loads.

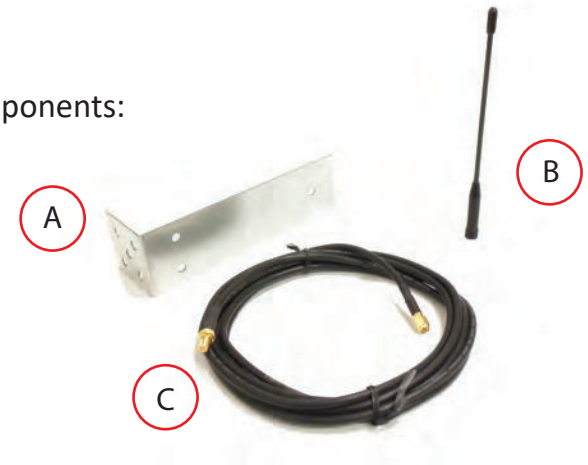
3 REMOTE ANTENNA KIT (NL-RAK)

The **Remote Antenna Kit** consists of the following components:

A) Antenna “L” Bracket (1)

B) 900MHz Antenna (1)

C) 20’ Coax Cable



STEP 1

Attach the remote antenna bracket to the side of the building at the roof line away from any obstructions. The short end of the bracket (with 5 holes) should be attached to the building with the appropriate anchors (Not supplied).

STEP 2

Insert the threaded end of the coax cable in the hole near the end of the remote antenna bracket and tighten down the nut (comes with the cable included). Make sure it’s tightened down securely.

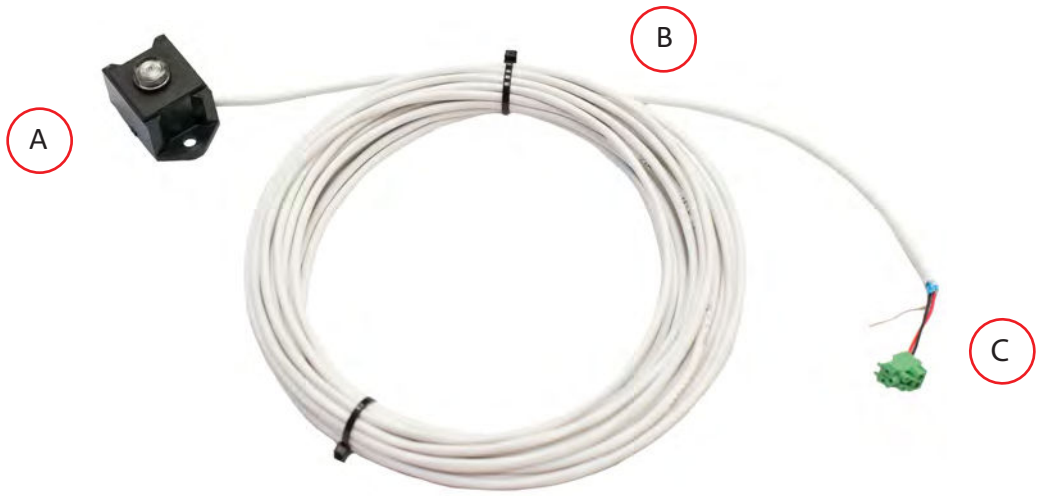
STEP 3

Now the antenna can be screwed onto the threaded end of coax bulkhead sticking out of the top of the bracket. Once completed, the antenna must be above the roof line and gutters.

STEP 4

Now you route and secure the coax cable up/down the wall to the wall mount node location without bending or creating sharp angles. Remove the red cover from the top of the wall mount node and screw on the coax cable. The coax cable cannot be cut or shortened. Please coil up the excess and zip tie it together in a neat looking and secure manner.

3 REMOTE PHOTOCELL KIT (NL-RPK)



The **Remote Photocell Kit** consists of the following components:

A. Photocell Enclosure
B. 25’ Cable
C. Green Phoenix 2 Pin

REMOTE PHOTO CELL KIT INSTALLATION INSTRUCTIONS

1. Install the photocell enclosure outside so it can detect natural dark/light (dusk-to-dawn) conditions. It can be mounted on a wall surface, under a soffit overhang, or just about any place it can see natural light/darkness. Make sure it is not in direct view of any spill light that may falsely trigger the photocell. **DO NOT INSTALL UNDER OR NEAR ANY ARTIFICIAL LIGHT SOURCE.**

2. Inside the wall mounted node, locate the green Phoenix 2-pin “J-3” connector at the upper right corner on the circuit board (see the Remote CT diagram) with (2) BLACK wires connected. Remove the (2) wires and cap off and tuck them away if a remote (NL-RPK) is used.

   NOTE: If you need more than 20’ of cable, please contact LINC TECH Technical Support immediately at 214.net.LiNK.

3. Connect one wire to terminal #1, and the other wire to terminal #2 on the “J-3” terminal block in the node.

4. Connect the ground wire with ring terminal to the PCB low voltage ground screw on the upper corner of the circuit board along with the ground wire.