



LX-1000 Series

Powerline Carrier Installation and Operation Instructions

Section 1: Installation of the LX-1010A PLC Transmitter

When mounting the Wirelynx Model LX-1010A transmitter, it is important to locate the transmitter as close as possible to the building's service entrance. For commercial buildings, in most cases this will be at or near the main switchgear or load center (circuit breaker panel). Mount the transmitter at the circuit breaker panel that is closest to the main distribution panel of the building. This is so the LX-1010A's RF signal will be transmitted evenly over the powerlines throughout the building. In applications, like irrigation systems, where the signal is required to be sent through one particular set of conductors, mount the transmitter on those conductors to minimize transmission distance. For instance, if the transmitter can be mounted in one location or another 50 feet way on the same conductors, mount it in the location that minimizes the distance between it and the receiver(s).

- 1.) Mount the LX-1010A transmitter chassis or enclosure in the desired location according to the guidelines above.
- 2.) Connect the green wire in the lower right corner of the LX-1010's transmitter board to Neutral using #12 or #14 AWG wire. In applications where Neutral does not exist, connect the Green wire to Ground.
- 3.) A. On 120/240VAC single-phase applications, connect one of the three red wires of the LX-1010A's transmitter board to each "hot" phase using #12 or #14AWG wire through a 15A 2-pole circuit breaker. Cap the third red wire, which will not be used.
- 4.) On 120/208VAC Wye, and 120/240VAC Delta three-phase applications, connect each red wire to a 120VAC voltage phase through a 15A 3-pole circuit breaker. (The high leg on the Delta will be 208VAC.) It does not matter which red wire is connected to what phase, just as long as each phase is coupled to the transmitter using one of the red wires.
- 5.) On 277/480VAC 3-phase, 4-wire applications with a Neutral, connect each red wire to a 277VAC voltage phase through a 15A 3-pole circuit

breaker. It does not matter which red wire is connected to what phase, just as long as each phase is coupled to the transmitter using one of the red wires.

- 6.) For 480VAC 3-phase, 3-wire services (NO Neutral), use the LX-2299A three-phase adapter between the transmitter and a 15A 2-pole 480VAC breaker. If no suitable breaker is available use a 2-pole 600V disconnect switch with fuses no larger than 15A; 5 Amps is preferable.
- 7.) Connect the 16VAC power transformer of the LX-1010A transmitter to 120VAC "Hot" and Neutral. Connect the black wire to "hot". The "hot" lead may be connected to the same circuit breaker that connects one of the red 120VAC wires. Connect the white wire to Neutral. (Some transformers have two black wires on the primary. If this is the case, wire one wire to hot and the other to neutral.)
- 8.) Turn on the power to the LX-1010A transmitter unit. On 240VAC split single-phase applications make sure that the two red wires used are connected to the same double-pole breaker. On three-phase applications make sure that the three red wires are connected to the same 3-pole breaker. Turn on this breaker.
- 9.) The green LED on the LX-1010A's front panel should come on indicating that the transmitter is transmitting an RF signal. The intensity of this LED will vary depending on powerline loading. Under heavy loading the LED may be very dim and difficult to see.
- 10.) There is no programming necessary on the LX-1010A. Simply wire the desired input(s) to a switch, relay or other switching mechanism for turning on or off the receiver command. A closure of the switch on the transmitter input corresponds to the receiver's relay coil being energized. The input relay or switch used must be a dry-contact type, meaning that no external voltage is required to switch the signal to the transmitter. See diagram attached.

Section 2: Installation of the LX-10xx PLC Receivers

LX-1000 Series receivers require a few settings to make the receiver respond correctly. The channel number that each receiver will respond to must be set along with enabling or disabling the 5-minute minimum energize time delay.

- 1.) Set Channel Number – See the installation sheet for each specific receiver model. In general, on single channel receivers, the channel number is set with the first 4 dip switches in binary format 8-4-2-1 plus one. On 2-channel receivers only the first three dip switches are used

thus making the address of relay #1 the receiver an odd number. Relay #2 is the address of relay #1 plus one.

- 2.) Set House Code – Down for House A and Up for House B. This allows two separate Wirelynx LX-1000 systems to operate in the same building without interfering with each other. All receivers must be set to the same House letter as the transmitter.
- 3.) Enable or Disable Minimum Energize time. Down for disable; Up for enable.
- 4.) Set number of Channels – LX-1022 receivers can be operated in the 1-Channel or 2-Channel mode depending on the state of this switch. See the LX-1022 documentation for specific information.
- 5.) See each receiver's specific installation sheet for specific wiring instructions.

Section 3: Operation

1. Turn on the circuit breakers for the LX-1010A PLC transmitter and LX-1000 Series receivers. This assumes that each PLC receiver is powered by the same circuit breaker as the load(s) it is controlling.
2. The Green LED on the LX-1010A transmitter should light indicating that an RF signal is being generated and transmitting data onto the power lines. The brightness of this LED will vary depending on the powerline loading.
3. Each receiver's Green LED should flash approximately once per second interval indicating that a complete data packet has been received from the LX-1010A transmitter.
4. The Red LED on the receiver should be lit when the relay is energized (which is when it's channel's input is "closed" on the transmitter). The normally-closed contact should open and the normally-open contact should close.
5. When the input switch closure is opened on the LX-1010A transmitter, the Red LED should go out and the relay coil should de-energize, unless the minimum enable time delay is in effect.
6. Expect a 1 to 2 second delay between the time that the switch closure input is made and the time the receiver's relay switches.

7. Verify under actual operation conditions that the Red LED in the receiver lights up when the transmitter's switch closure input(s) are closed.

Troubleshooting

- 1.) The transmitter and all receivers must be on the same utility transformer and must be on the same operating voltage within the building. The transmitter's RF signal cannot transmit through a step-down power transformer. For example, on a 277/480VAC service with additional transformers to step the voltage down from 277/480 to 120/208VAC, the powerline carrier signal will not be able to get to any receivers connected to the 120/208VAC power lines without RF signal coupling around each transformer. Contact the factory for more information on signal coupling.
- 2.) Make sure to mount the LX-1010A transmitter as close to the service entrance as possible. In applications that only involve a single branch circuit, mount the transmitter as close in wire-feet to the receiver as possible.
- 3.) There is no limit to the number of receivers that can be deployed in an application. All receivers that are set for the same channel number will operate together.
- 4.) The LX-1000 Series receivers include a minimum-energize time. If you have an application that requires delay protection, enable the time delay. However, the relay coil will not de-energize the receiver relay regardless of the state of the input switch, until the time delay has timed out.
- 5.) If the transmitter loses power for two minutes, all receivers will default to the normally-closed ("shelf") state. Thus, the normally-open contact will open and the normally-closed contact will close.

Technical Support

For Technical Support, call Brayden Automation Corp at (888) BRAYDEN (888-272-9336).