



LX-400 Series

Powerline Carrier Installation and Operation Instructions

Section 1: Installation of the LX-401A PLC Transmitter

When mounting the Wirelynx Model LX-401A 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-401A's RF signal that is transmitted over the powerlines will be transmitted evenly around 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-401A transmitter chassis or enclosure in the desired location according to the note above.
- 2.) Connect the green wire in the lower right corner of the LX-401's transmitter board to Neutral using #12 or #14 AWG wire. In applications where Neutral does not exist, the Green wire can be connected to Ground.
- 3.) A. On 120/240VAC single-phase applications, connect one of the three red wires of the LX-401A'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 connect to which phase.
- 5.) On 277/480VAC three phase applications, use the LX-2299A three-phase adapter.

- 6.) Connect the 16VAC power transformer of the LX-401A 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.
- 7.) Turn on the power to the LX-401A 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.
- 8.) The green LED on the LX-401A’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.
- 9.) There is no programming necessary on the LX-401A. Simply wire the desired input(s) to a switch, relay or other switching mechanism for turning on or off the receiver command. The 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-4xx PLC Receivers

LX-400 Series receivers do not require any programming other than to set the channel number that they will respond to.

- 1.) Set Channel Number - Remove the cover of the LX-4xx series receiver and place the jumper in the correct location to connect the set of pins for the desired channel number from 1 to 4. These channel numbers match the input channel numbers on the LX-401A transmitter. All receivers, unless otherwise designated, come with the channel jumper placed on Channel 1.
- 2.) Set Failsafe Mode – It is possible to determine the “failsafe” state in which the receiver will default if the transmitter stops sending signals. This can either be Normally Open (N/O) or Normally Closed (N/C). If the Normally Open mode is selected, and the transmitter stops sending data, after two minutes the receiver will de-energize the coil, the normally open contact will open and the normally closed contact will close. If the Normally Closed mode is selected, and the transmitter stops sending data, after two minutes the receiver will energize the coil, the normally open contact will close and the normally closed

contact will open. Once a signal from the transmitter is re-established the receiver will act according to the command received. Unless otherwise designated at the time of ordering, the default failsafe mode is Normally-Open.

- 3.) See each receiver's specific installation sheet for specific wiring instructions.

Section 3: Operation

1. Turn on the circuit breakers for the LX-401A PLC transmitter and LX-400 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-401A 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 two-second interval indicating that a complete data packet has been received from the LX-401A transmitter.
4. The Red LED on the receiver should be lit when the relay is energized (which is when its 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-401A transmitter, the Red LED should go out and the relay coil should de-energize.
6. Expect a 2 to 4 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-401A 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-400 Series receivers do not contain any minimum-energize times like the LX-1000 receivers. If you have an application that requires delay protection, add an external time-delay relay or convert your application to the LX-1000 Series PLC system.
- 5.) If the transmitter loses power for two minutes, all receivers will default to the failsafe state that is designated by the JP5 jumper on each receiver. The factory default is the Normally-Open failsafe mode, where the receiver will de-energize the coil, the normally open contact will open and the normally closed contact will close. Be sure to carefully determine the correct failsafe mode for your application.

Technical Support

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