Digital Intelligent Outlet Relay

Specifications

Input Power	110-120VAC, 15A
Max Current	15A per recptacle & combined
Receptacle Type	NEMA 5-15R
Independent Relays	4
Status Indicators	Red LED
Enclosure Knock-Outs	(2) dia. 7/8"
Enclosure Rating	IP40
Minimum Cycle Time	1 second
Interface	GrowNET, MODBUS or WiFi
Relay Ratings	1,000,000 cycles
Relay Cycle Counters	Up to 4 billion cycles per relay

Modbus

Contents

Installation Instructions

General Notes:

1. Install with the connections facing down to reduce the risk of water permeating the enclosures.
2. For indoor installation only. Enclosures are not water-proof.
3. Power may be provided by conduit installation or pig-tail cord kit.

⚠ **Disconnect power from all devices before connecting or disconnecting cables to prevent damage to components.**

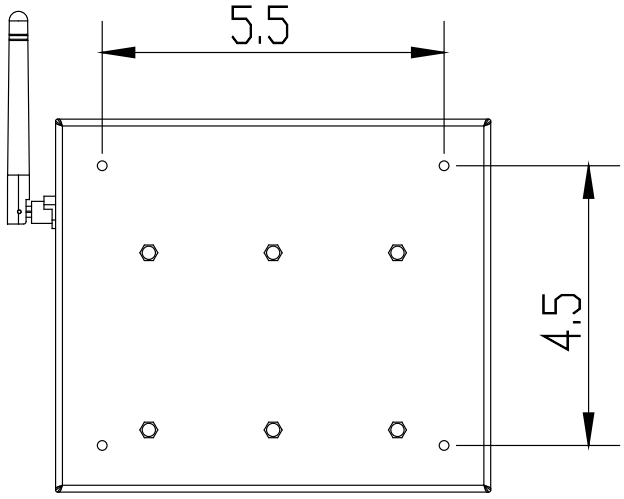
Mounting the RX4i Relay

The RX4i intelligent relay is to be securely installed to a vertical wall surface using the four mounting holes provided in the rear of the enclosure.

1. Remove the front cover panel using caution not to damage the LED light pipes.
2. Locate the relay box and mark the mounting hole locations or use the dimensions below.
3. Pre-drill and install anchors if necessary. Keep dust and debris away from the circuit board.

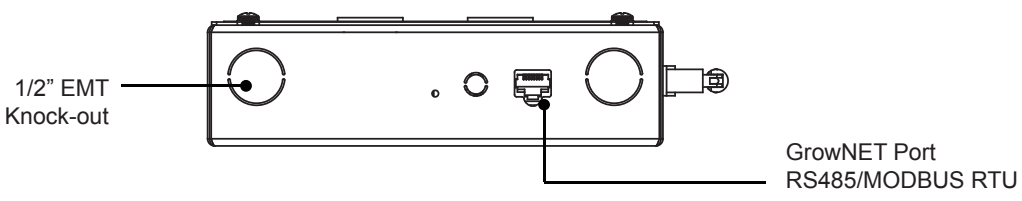
Ensure all dust and contaminants have been blown out of the enclosure.
Hardware is not provided. Drywall screws are recommended.

⚠ **Do NOT drill holes into the enclosure or enlarge holes. Metal chips from drills can cause short circuits on the PCB.**



Electrical Connections

The RX4i intelligent relay requires a 120Vac power source from a 15A branch protected circuit. A built-in DC power supply operates the electronics in the RX4i from the 120Vac input. Terminal blocks are provided on the left hand side of the circuit board. Standard 7/8" diameter knock-outs are provided on the bottom of the enclosure for 1/2" EMT conduit fittings.



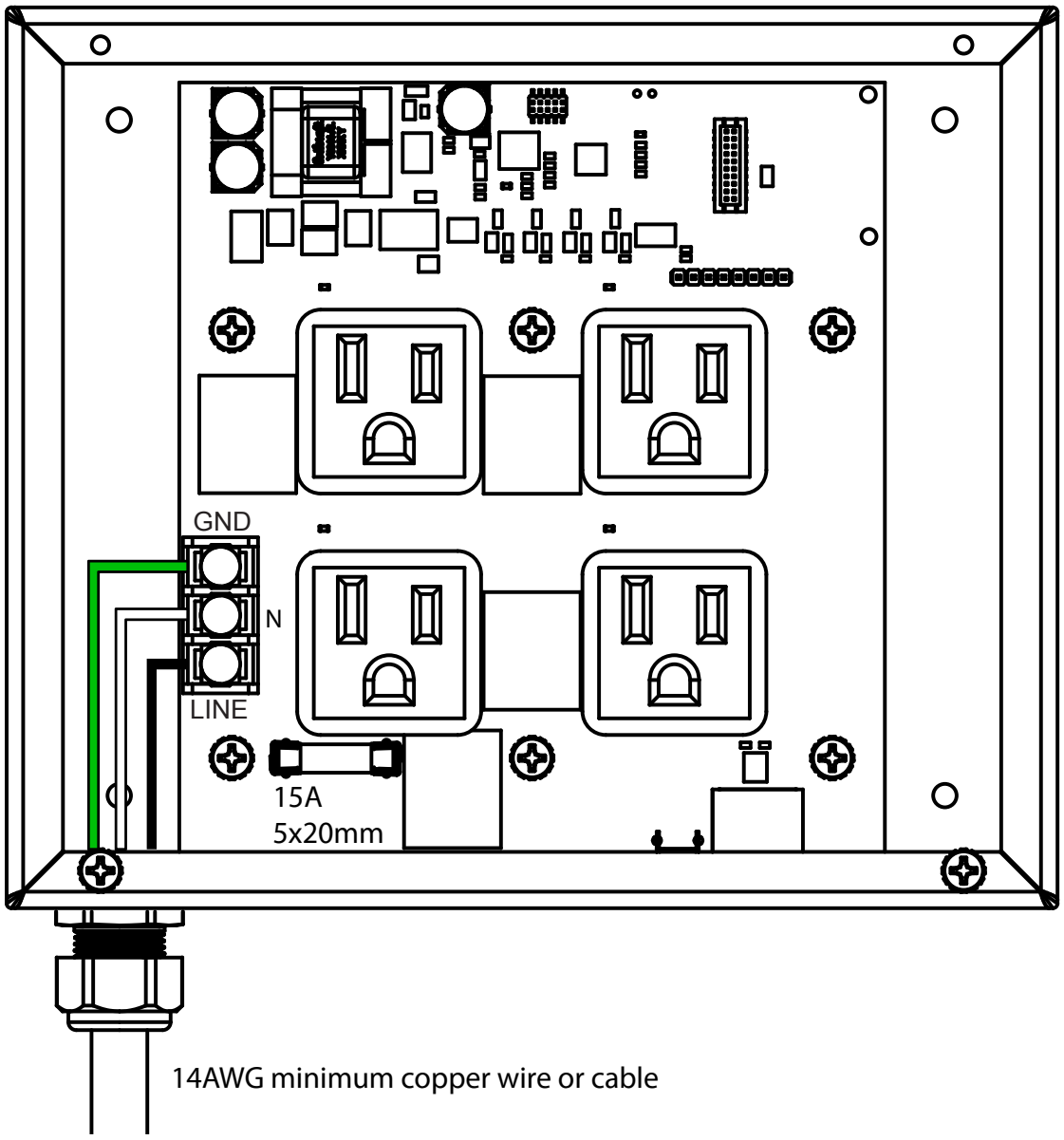
Conduit Installation

1. Remove the left hand knock-out.
2. Install a 1/2" EMT conduit fitting and fit the conduit.
3. Wire in accordance with the connection diagram and national and local electrical codes.

Cord Kit Installation

1. Remove the left hand knock-out.
2. Install the provided cord grip into the knock-out hole.
3. Thread the cord wire through the cord crip up to the terminal block.
4. Make connections in accordance with the connection diagram.
5. Re-install the cover then plug the power cord into a 120V 15A receptacle.

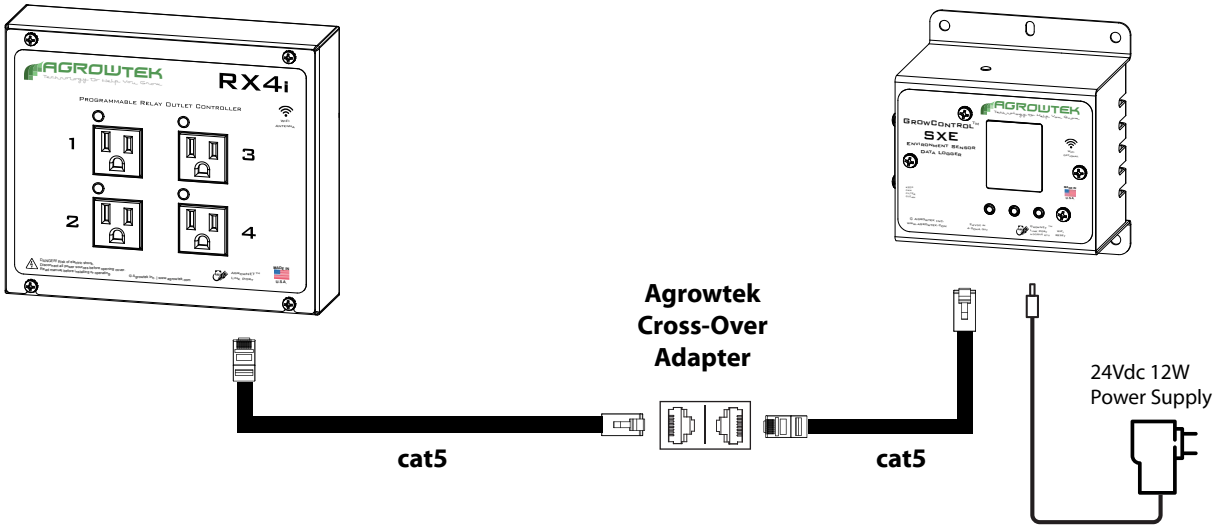
⚠ **DANGER! Risk of injury or death from electric shock; disconnect all power before wiring or service.**



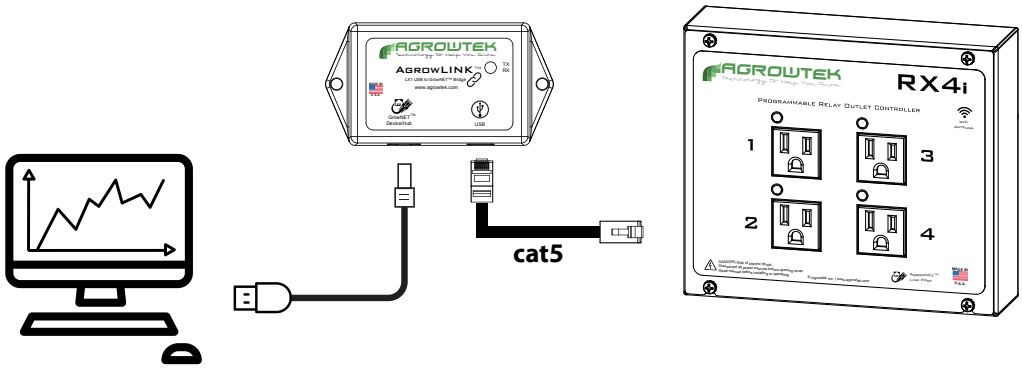
Connection to GrowNET Sensor

A direct-link connection between a sensor and intelligent relay requires Agrowtek's cross-over adapter.

IMPORTANT! ONLY use cross-over adapters provided by Agrowtek. Do not use other cross-over adapters or cross-over cables unless they are constructed exactly as diagramed on the cross-over diagram. Incorrect cross-over adapters or cables can cause damage to the equipment.



Connection to USB AgrowLINK



LX1 USB AgrowLINK connects Agrowtek's devices to a computer's USB port for:

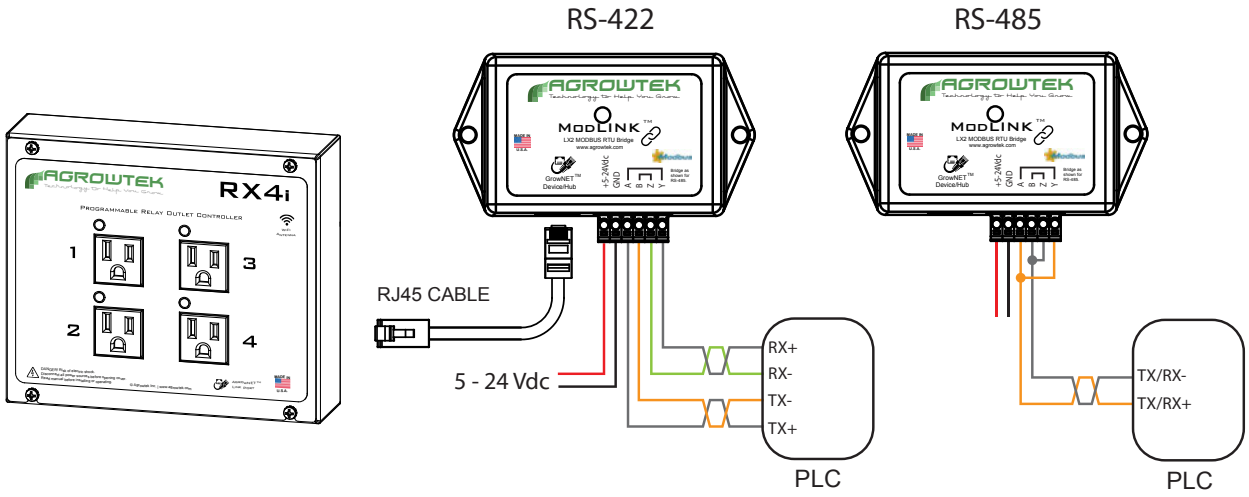
- Firmware Updates
- Manual Operation
- API Based Control
- More

Agrowtek's intelligent relays may be connected to the LX1 USB AgrowLINK for firmware updates, communication protocol configuration, addressing and manual operation. Standard drivers automatically install in Windows for the LX1 USB AgrowLINK. GrowNET API is available for custom software applications.

Connection to MODBUS RTU

RS-485 / RS-422

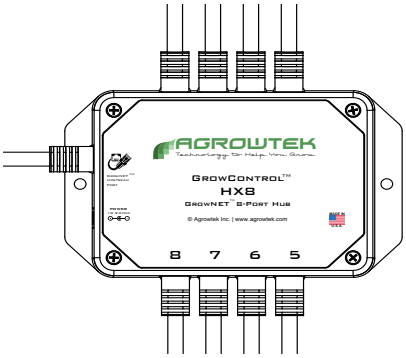
Use the LX2 ModLINK to connect MODBUS devices to the GrowNET™ port.



HX8 8-Port Hubs

HX8 GrowNET ™ Hubs allow multiple GrowNET™ sensors, relays and dosing pumps to be connected to a single LX1 or LX2 interface. Individually buffered, full-duplex ports for signal integrity. Hubs can be daisy chained to form a network of up to 247 devices.

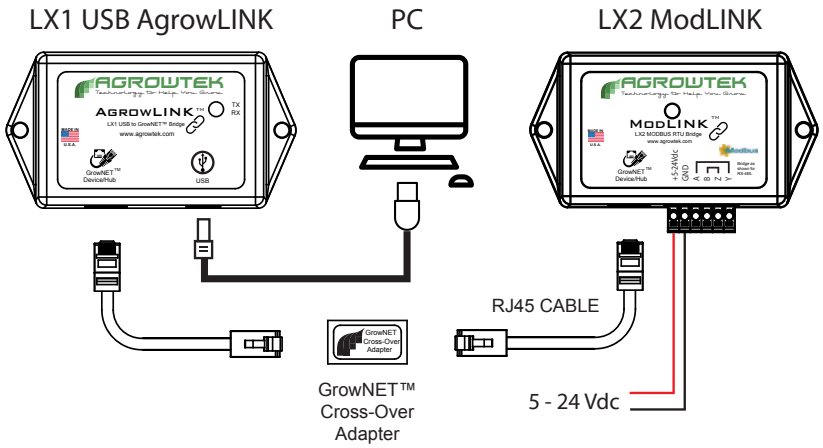
Hubs provide up to 1A of power for operating sensors and some relays directly over the GrowNET cable. A DC jack on the hub provides 24Vdc power to the ports from the included 120V wall power supply.

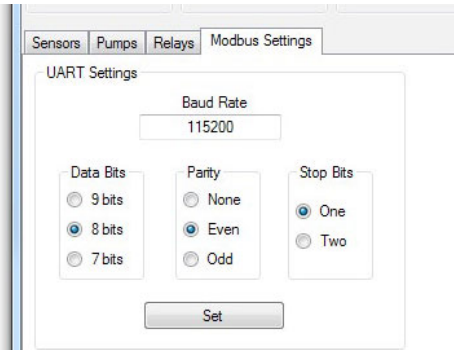


Serial Speed & Format

The default serial data format for the LX2 ModLINK interface is: **19,200 baud, 8-N-1**.

Alternate speeds and formats between 9,600 - 115,200 baud may be configured with the free AgrowLINK PC utility using a LX1 USB AgrowLINK and the cross-over adapter supplied with the LX2 ModLINK.





See MODBUS manual for more information.

MODBUS Manual

Supported Commands

0x01 Read Coils
0x03 Read Multiple Registers
0x05 Write Single Coil
0x06 Write Single Register
0x15 Write Multiple Coils

Register Types

Data registers are 16 bits wide with addresses using the standard MODICON protocol. Floating point values use the standard IEEE 32-bit format occupying two contiguous 16 bit registers. ASCII values are stored with two characters (bytes) per register in hexadecimal format.

Coil registers are single bit values which control and indicate the status of a relay; 1 being on and 0 being off.

MODBUS Register Map

Parameter	Function	Type	Scale	Access	Address
Device Address	Slave Address	Value, 1-247	8 bit	R/W	40001
Serial#	Serial Number	ASCII	8 Char	R	40004
DOM	Date of Manufacture	ASCII	8 Char	R	40008
HW Version	Hardware Version	ASCII	8 Char	R	40012
FW Version	Firmware Version	ASCII	8 Char	R	40016
Relay 1 Count	Operation Cycle Count	Value	32 bit	R	49000
Relay 2 Count	Operation Cycle Count	Value	32 bit	R	49002
Relay 3 Count	Operation Cycle Count	Value	32 bit	R	49004
Relay 4 Count	Operation Cycle Count	Value	32 bit	R	49006
Relay Coil 1	Relay Coil	Coil	1 bit	R/W	00001
Relay Coil 2	Relay Coil	Coil	1 bit	R/W	00002
Relay Coil 3	Relay Coil	Coil	1 bit	R/W	00003
Relay Coil 4	Relay Coil	Coil	1 bit	R/W	00004

Technical Information

Troublshooting

Relays are not activating, no power LED on PCB
Ensure the relay input terminals have 120VAC and are correctly wired. A dimliy lit red LED should illuminate when the circuit board has power. If there is 120VAC at the input terminals, check that the fuse is not damaged (see fuse replacement.)

Relays are clicking but no power to an outlet
Check the status LED to determine if AC power is reaching the line terminal of the receptacle. The red LED is powered by AC voltage from the line voltage terminal of the receptacle and will only illuminate if voltage is passed through the relay to the terminal. If the status LED for the receptacle is on, check the equipment by bypassing the relay.

Maintenance & Service

Exterior Cleaning
Exterior may be wiped with a damp cloth wish mild dish detergent, then wiped dry. Disconnect power before cleaning the enclosure to prevent electrical shock.

Fuse Replacement
Replace fuses only with the size and current rating as marked on the PCB. Never install fuses with a current rating greater than that marked on the PCB. Disconnect power before removing cover and replacing fuse. If a fuse has blown, then the loads are too high for the relay and should be moved to separate relay devices.

Storage and Disposal

Storage
Store equipment in a clean, dry environment with ambient temperature between10-50°C.

Disposal
This indsutrial control equipment may contain traces of lead or other metals and environmental contaminants and must not be discarded as unsorted municipal waste, but must be collected separately for the purpose of treatment, recovery and environmentally sound disposal. Wash hands after handling internal components or PCB's.

Warranty

Agrowtek Inc. warrants that all manufactured products are, to the best of its knowledge, free of defective material and workmanship and warrants this product for 1 year from the date of purchase. This warranty is extended to the original purchaser from the date of receipt. This warranty does not cover damages from abuse, accidental breakage, or units that have been modified, altered, or installed in a manner other than that which is specified in the installation instructions. Agrowtek Inc. must be contacted prior to return shipment for a return authorization. No returns will be accepted without a return authorization. This warranty is applicable only to products that have been properly stored, installed, and maintained per the installation and operation manual and used for their intended purpose. This limited warranty does not cover products installed in or operated under unusual conditions or environments including, but not limited to, high humidity or high temperature conditions. The products which have been claimed and comply with the aforementioned restrictions shall be replaced or repaired at the sole discretion of the Agrowtek Inc. at no charge. This warranty is provided in lieu of all other warranty provisions, express or implied. It is including but not limited to any implied warranty of fitness or merchantability for a particular purpose and is limited to the Warranty Period. In no event or circumstance shall Agrowtek Inc. be liable to any third party or the claimant for damages in excess of the price paid for the product, or for any loss of use, inconvenience, commercial loss, loss of time, lost profits or savings or any other incidental, consequential or special damages arising out of the use of, or inability to use, the product. This disclaimer is made to the fullest extent allowed by law or regulation and is specifically made to specify that the liability of Agrowtek Inc. under this limited warranty, or any claimed extension thereof, shall be to replace or repair the Product or refund the price paid for the Product.