

Digital Intelligent Outlet Relay

Specifications

Input Power (GrowNET™)	1 W @ 12-24Vdc ---
Max Current	12A @ 120Vac ~
HP Rating	1/2HP (8FLA @ 120Vac ~)
Frequency	60 Hz
Receptacle Type	NEMA 5-15R
Independent Relays	1
Status Indicators	Red LED
Enclosure Knock-Outs	(2) dia. 7/8"
Enclosure Rating	IP40
Minimum Cycle Time	1 second
Interface	GrowNET™, MODBUS
Relay Ratings	100,000 cycles
Relay Cycle Counters	Up to 4 billion cycles per relay



Contents

Installation Instructions	2
Mounting the RX1i Relay	2
Connection to USB AgrowLINK	3
Connection to MODBUS RTU	3
HX8 8-Port Hubs	3
Serial Speed & Format	4
Supported Commands	4
Register Types	4
MODBUS Register Map	4
Technical Information	5
Troubleshooting	5
Maintenance & Service	5
Storage and Disposal	5
Warranty	5



KEEP THESE INSTRUCTIONS

Installation Instructions

DANGER Electrocutation Hazard

Always un-plug the relay module before servicing or wiring; ensure all power is disconnected. For continued protection against electric shock plug into grounded outlets only and do not remove the ground pin. Install all electrical equipment and wiring in accordance with national and local electric codes. For indoor use in dry locations only (0-80% RH non-condensing.) Do not open the relay; there are no user-serviceable parts inside.

DANGER Risque d'électrocution

Toujours non brancher le module de relais avant l'entretien ou le câblage; assurer l'alimentation est débranché. Pour une protection continue contre le bouchon de choc électrique dans des prises mises à la terre et ne pas retirer la broche de terre. Installez tous les équipements électriques et le câblage conformément aux codes électriques nationaux et locaux. Pour une utilisation en intérieur dans des endroits secs seulement (0-80% sans condensation.) Ne ouvrez pas le relais; il n'y a aucune pièce réparable par l'utilisateur.

General Notes:

1. Install into a vertical receptacle with the RJ45 connection facing down to maintain enclosure rating.
2. Device is not intended for use with an extension cord.
3. For indoor use and installation only.

Mounting the RX1i Relay

The RX1i intelligent relay is designed to be plugged into a standard 120Vac wall outlet mounted on a vertical wall surface.

A screw tab is provided which can be used to fix the relay to the wall outlet preventing accidental disconnection from the receptacle.

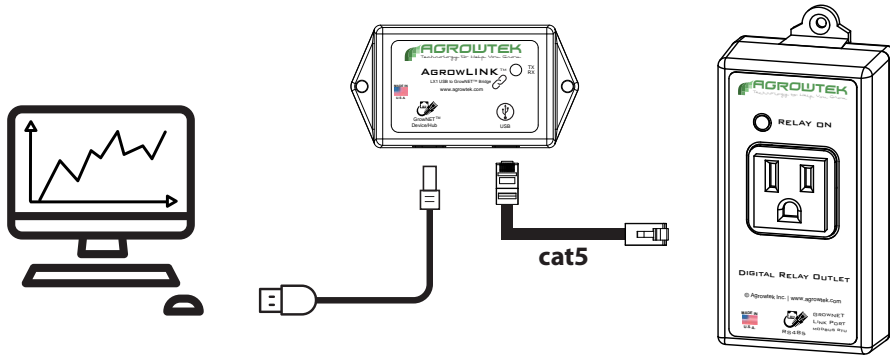
Equipment to be controlled is then plugged into the outlet on the RX1i. When the RX1i is activated, power will be switched to the outlet on the RX1i from the wall outlet.

NOTICE:

Plug the relay fully flush into a wall receptacle.
Do not plug the relay into an extension cord.



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

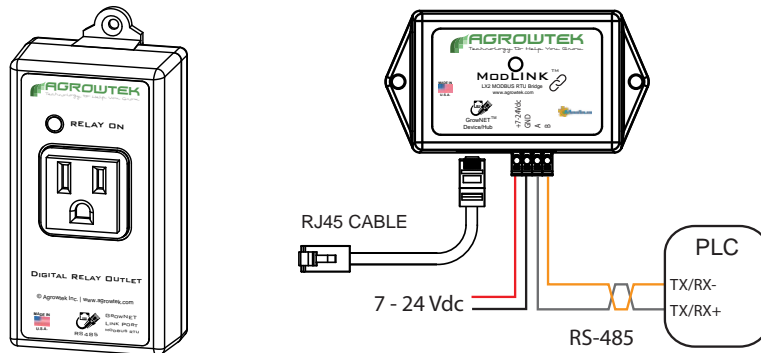
Agrowtek's intelligent relays may be connected to the LX1 USB AgrowLINK for firmware updates, communication protocol configuration, addressing and manual operation. Standard drivers automatically install in Windows for the LX1 USB AgrowLINK. GrowNET API is available for custom software applications.

Connection to MODBUS RTU

RS-485 / RS-422

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

NOTE: HX8 Hub is required to provide power to the RX1i.



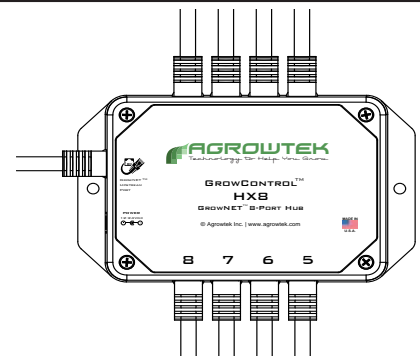
3.3/5Vdc Serial Bus Compatible.

Include required bus terminating resistors per EIA standard.

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.

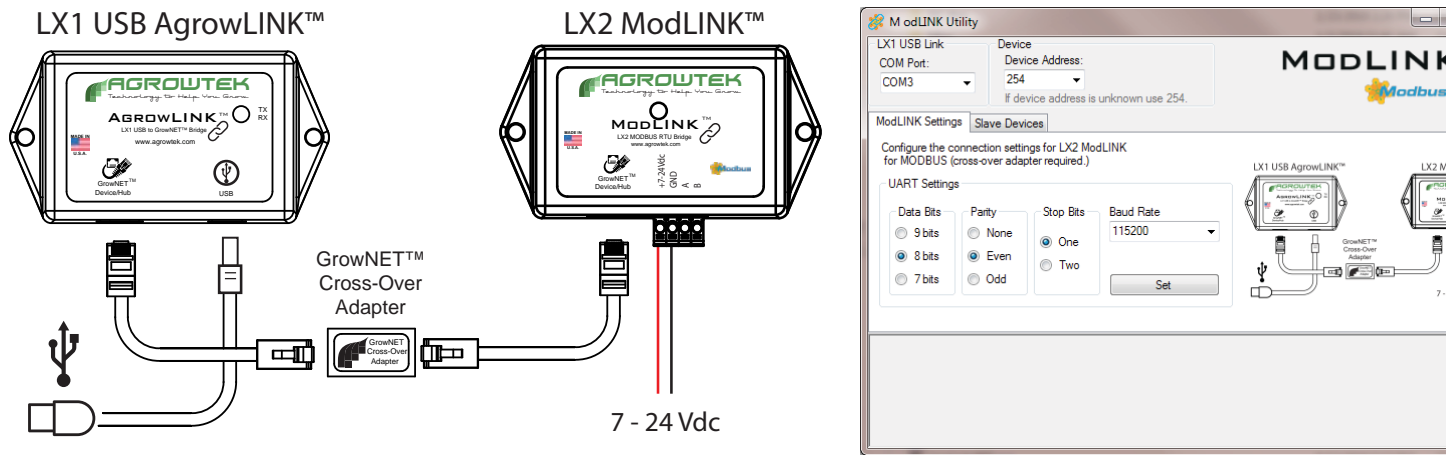
Hubs provide up to 1A of power for operating sensors and RX1i relays directly over the GrowNET cable. A DC jack on the hub provides 24Vdc power to the ports from the included 120V wall power supply.



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.



Supported Commands

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

A request to use a function that is not available will return an illegal function exception.

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	Description	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
Timeout (seconds)	Turn off relay if no comms	Value	16 bit	R/W	41001
Relay 1 Count	Operation Cycle Count	Value	32 bit	R	49001
Relay Coil 1	Relay Coil	Coil	1 bit	R/W	1

A request to read or write a register that is not available will return an illegal address exception.

Technical Information

Troubleshooting

Relays are not activating, no power LED on PCB

Ensure the relay is plugged into 120VAC outlet and the power is on to the outlet.

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 with mild dish detergent, then wiped dry. Disconnect power before cleaning the enclosure to prevent electrical shock.

Fuse Replacement

There are no fuses or servicable components inside the RX1i. Do not open the enclosure.

Storage and Disposal

Storage

Store equipment in a clean, dry environment with ambient temperature between 10-50°C.

Disposal

This industrial 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.