

Digital Intelligent Outlet Relay

Specifications

Input Power (GrowNET™)	1 W @ 24Vdc ---
Max Current	6A @ 120Vac ~
Frequency	60 Hz
Receptacle Type	NEMA 5-15R
Independent Relays	1
Status Indicators	Red LED
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



Electrical Process Control Equipment
File No.: E516807

Contents

Warnings & Notices	2
Installation Instructions	3
Mounting the RX1i Relay	3
Installation Notes	4
Connection to GrowControl™ GCX	4
GrowNET™ Hubs	4
Connection to USB AgrowLINK	5
Connection to MODBUS RTU	5
Serial Speed & Format	6
Supported Commands	6
Register Types	6
MODBUS Register Map	6
Technical Information	7
Troubleshooting	7
Maintenance & Service	7
Storage and Disposal	7
Warranty	7



KEEP THESE INSTRUCTIONS

REV 11/24

This product is intended for commercial use only.

Warnings & Notices

This is a precision electronic instrument which requires proper installation and care to maintain reliability.

READ & UNDERSTAND ENTIRE MANUAL PRIOR TO INSTALLATION OR OPERATION.

Failure to read, understand and comply with warnings and installation requirements may result in property damage, personal injury or death.

DANGER Electrocutation Hazard

Disconnect all power sources before servicing or wiring. For continued protection against electric shock ensure the enclosure is properly grounded at the marked chassis ground terminal. Install all electrical equipment and wiring in accordance with national and local electric codes. For indoor use in dry locations only (0-75% RH non-condensing.) Replace serviceable parts only with those recommended by Agrowtek Inc.

DANGER Risque d'électrocution

Débranchez toutes les sources d'alimentation avant l'entretien ou le câblage. Pour une protection continue contre les chocs électriques assurer l'enceinte est correctement reliée à la borne de terre du châssis marquée. 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% RH sans condensation.) Remplacer les pièces réparable seulement avec ceux recommandés par Agrowtek Inc.

THIS PRODUCT IS NOT INTENDED FOR LIFE SAFETY APPLICATIONS.

Do not install in hazardous locations or rely solely on this equipment for control over life safety.

INSTALL IN ACCORDANCE with all national and local plumbing and electrical codes.

Information in this manual is intended for use by individuals possessing adequate backgrounds of electrical and mechanical experience and who comply with all federal, state, and local laws, rules, orders, or regulations related to the installation, service, or repair of electrical, HVAC and related equipment. Any attempt to install, service, or repair equipment may result in personal injury and/or property damage. The manufacturer or seller cannot be responsible for the interpretation of the information contained herein, nor can it assume any liability in connection with its use.

DANGER: ELECTROCUTION HAZARD

Disconnect power before maintenance or service on the system or system components to prevent equipment damage or electrical shock. Use caution when servicing plumbing to drain the system off away from electrical components and connections. Connect the system and components to GFCI fault protected energy sources to reduce risk of electric shock.

INDOOR LOCATIONS ONLY

This system is designed for indoor mounting only and must be protected from weather and direct sunlight.

PREVENT OVER HEATING

Keep air space around the system cool and ventilated to prevent overheating of system components.

WARNING

This product may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Installation Instructions

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.



Installation Notes

⚠ NOTICE

GrowNET™ ports use standard RJ-45 connections but are NOT compatible the Ethernet network equipment. *Do not connect GrowNET™ ports to Ethernet ports or network switch gear.*

⚠ DIELECTRIC GREASE

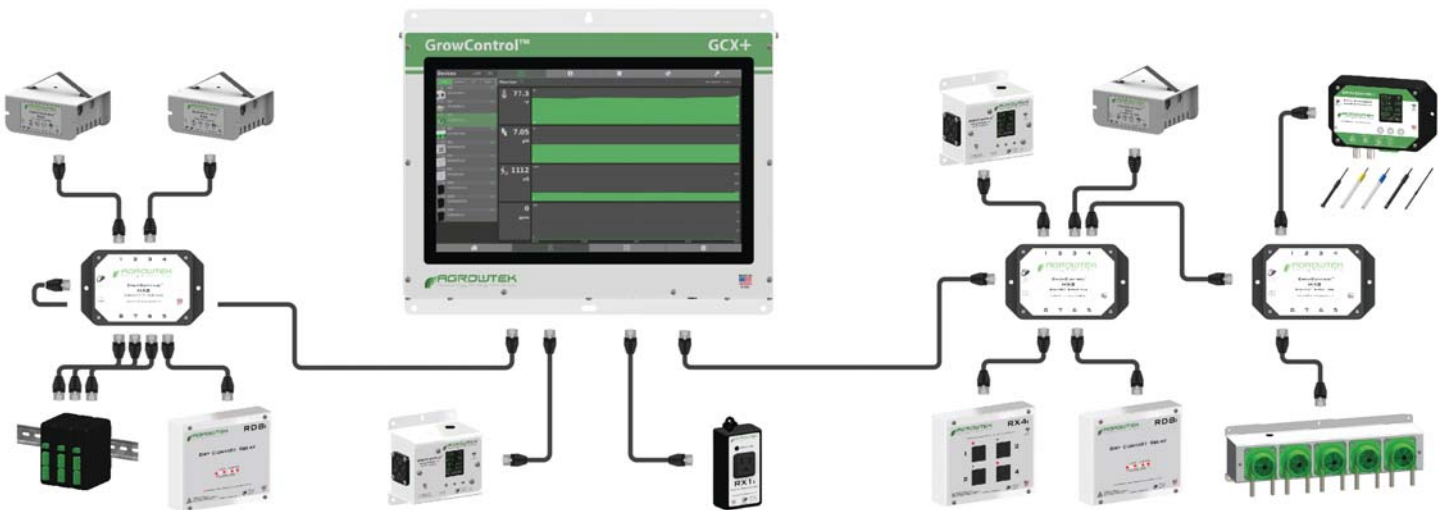
Dielectric grease is recommended on RJ-45 GrowNET™ connections when used in humid environments. Place a small amount of grease onto the RJ-45 plug contacts before inserting into the GrowNET™ port. *Non-conductive grease is designed to prevent corrosion from moisture in electrical connectors.*

- Loctite LB 8423
- Dupont Molykote 4/5
- CRC 05105 Di-Electric Grease
- Super Lube 91016 Silicone Dielectric Grease
- Other Silicone or Lithium based insulating grease

Connection to GrowControl™ GCX

All GrowNET™ devices are connected using standard CAT5 Ethernet cable with RJ-45 connections.

Devices can be connected directly to the GrowNET™ ports on the bottom of the controller, or through HX8 GrowNET™ hubs. It is typical to simplify cabling by locating hubs centrally in hall ways and rooms allowing single runs from an 8-port device hub back to a central hub or back to the controller.



Refer to the GCX controller manual for details on adding the device to the system.

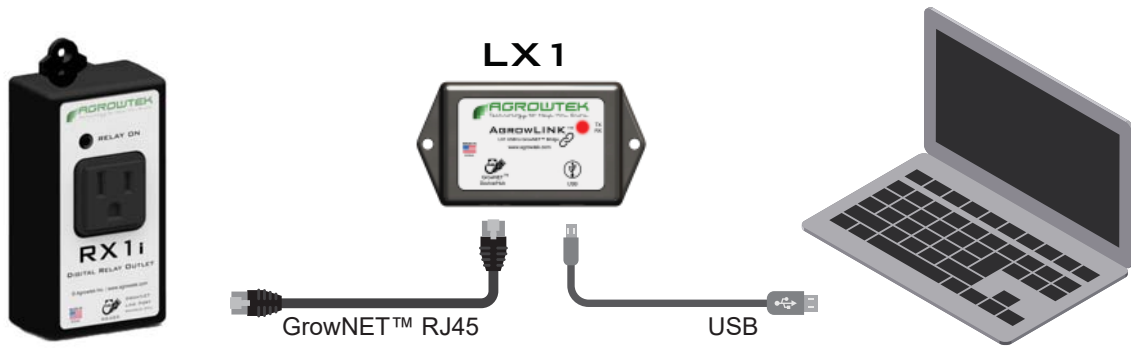
GrowNET™ Hubs

HX8 GrowNET™ hubs expand a single port into eight more ports. Hubs can be daisy-chained to form a network of up to 100 devices per GrowNET™ bus. Individually buffered port transceivers provide excellent signal integrity and extended communication strength and range.

Hubs provide up to 1A of power for operating sensors and most relays directly over the CAT5 cable. A DC jack on the hub provides 24Vdc power to the ports from the included wall power supply. A terminal block power option is also available.



Connection to USB AgrowLINK



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

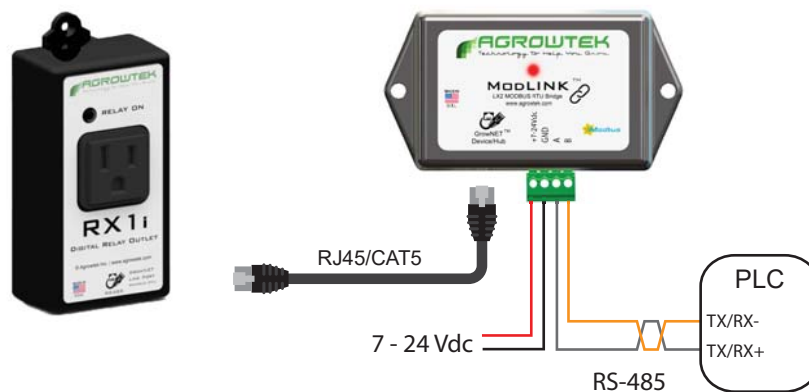
- Firmware Updates
- Manual Operation
- API Based Control
- More

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.

Connection to MODBUS RTU

RS-485 / RS-422

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



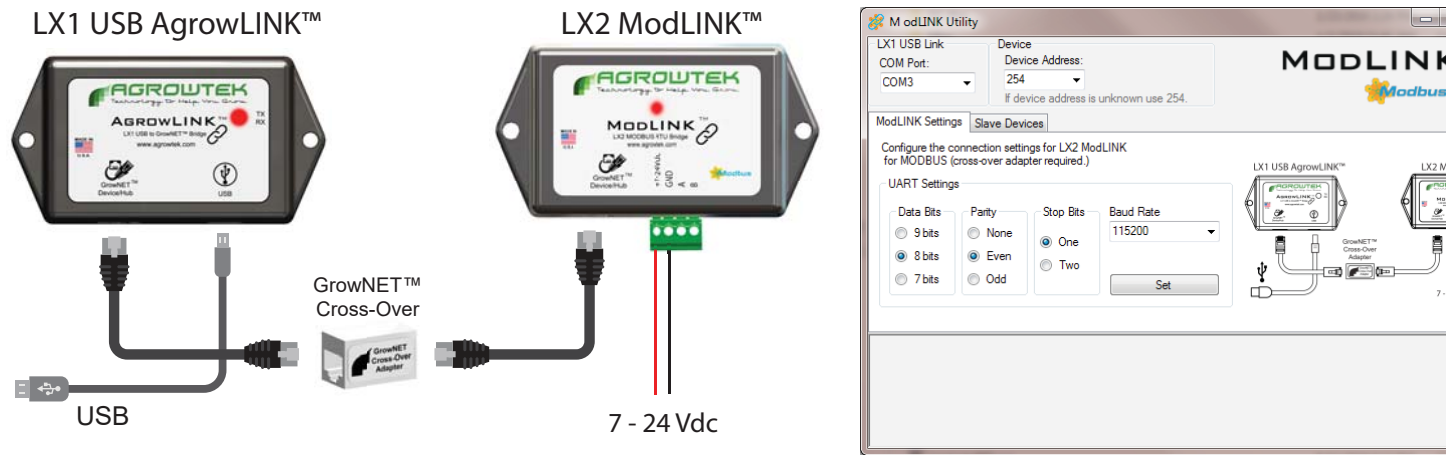
3.3/5Vdc Serial Bus Compatible.

Include required bus terminating resistors per EIA standard.

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

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 one (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. 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, excessive humidity or extreme temperature conditions outside of the specified limits. Agrowtek Inc. must be contacted prior to return shipment for a return authorization. No returns will be accepted without a return authorization. Returns not purchased directly from Agrowtek Inc. must include proof of purchase date otherwise purchase date is considered date of manufacture. 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.