

LX4 Analog 4-20mA Conversion Module for GrowNET™ Sensors

Specifications

Input Power	1A@24Vdc --- Class II / Limited Energy Power Supply
Max Device Current	1A
RJ-45 Port	GrowNET™ Sensor Device
Outputs	4x 4-20mA
Resolution	12 Bit DAC
Data Indicator	Red LED
Enclosure Rating	TYPE 12 NEMA
Protocols Supported	MODBUS RTU



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KEEP THESE INSTRUCTIONS

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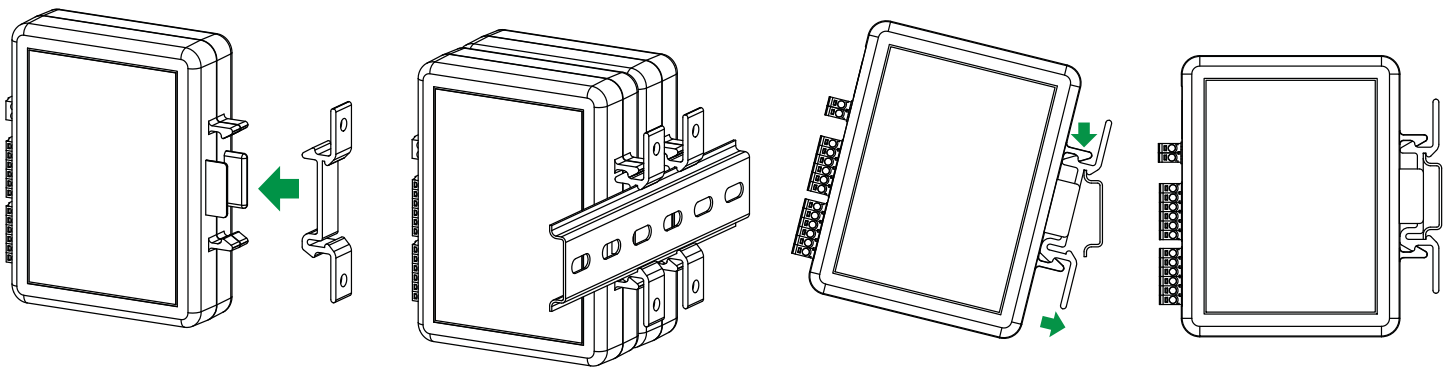
Introduction

Agrowtek's intelligent sensors communicate via digital protocols including GrowNET™ and MODBUS RTU. Many PLC systems and building automation systems utilize analog 4-20mA inputs as a means to input sensor data to the system.

The LX4 module allows any Agrowtek "SX" series sensor to be automatically converted to a standard 4-20mA scaled output signal simply by plugging the two devices together and connecting the analog output terminals and power to the customer PLC.

Installation Instructions

LX4 modules are designed for DIN rail mounting in electrical control cabinets and should be enclosed due to the exposed terminal design. If DIN rail is not available, brackets include mounting holes for surface mounting.



Wiring terminals are "pluggable" blocks and can be removed from the module by pulling the terminal block away from the module face. This is convenient for wiring and for replacing a module in the event of a failure without the need to remove wiring from the terminals.

Warnings & Precautions

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

Disconnected all power sources before servicing or wiring. 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.) 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. 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.

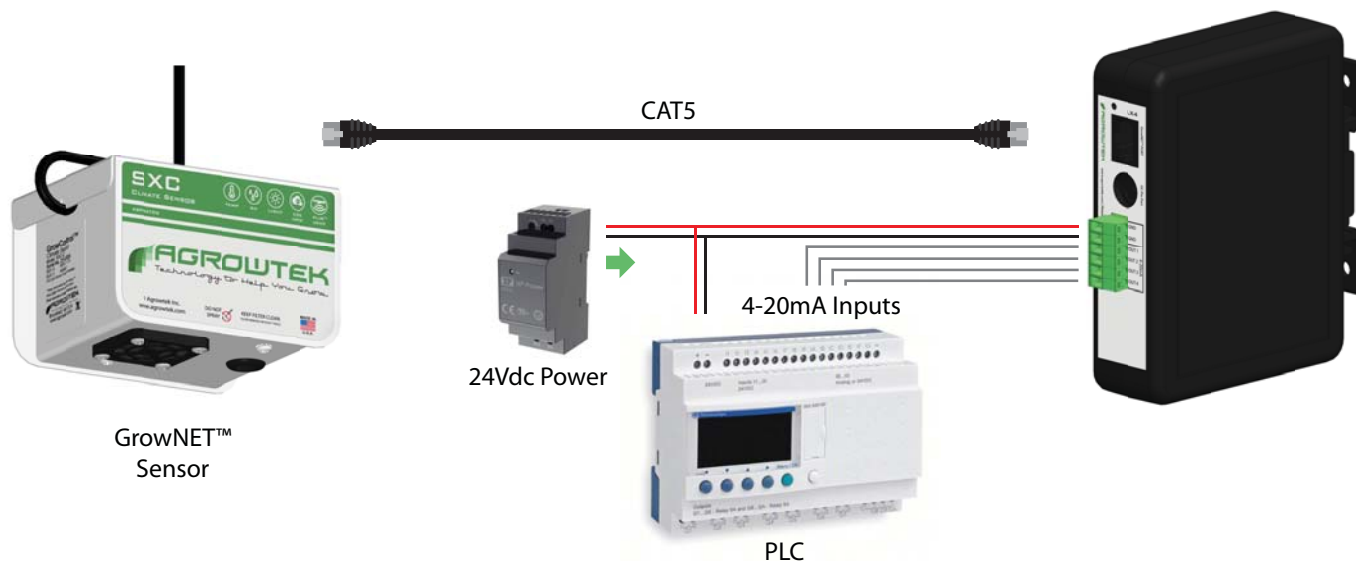
PREVENT OVER HEATING

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

Connections, PLC

Electrical connections are simple for most applications.

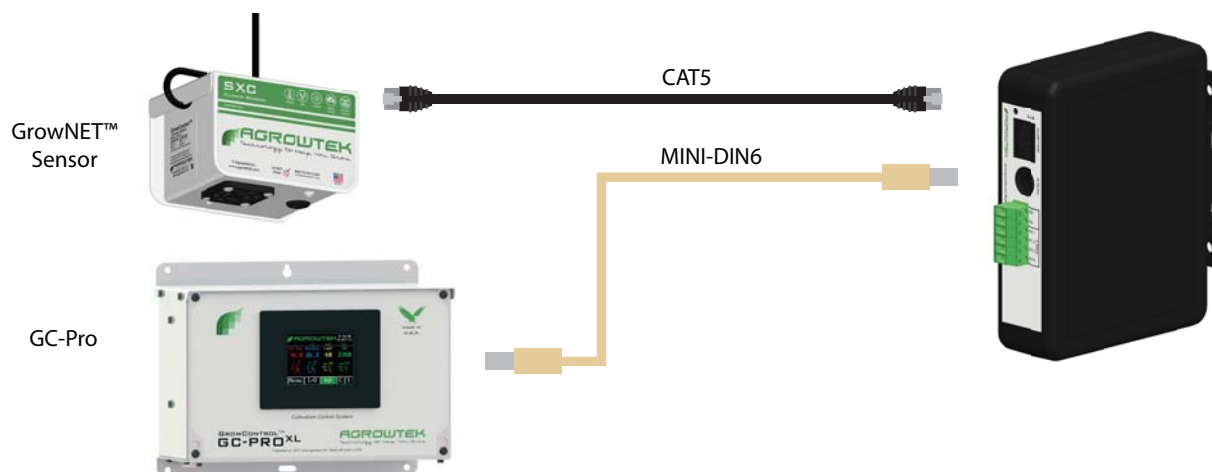
1. Plug in the Agrowtek sensor to the LX4 module using a standard straight-through RJ-45 Ethernet cable.
2. Connect the LX4's output terminals to the analog input terminals of the PLC.
3. Connect the LX4's power terminals to the DC power supply of the PLC system.



Connections, GC-Pro

GC-Pro controllers used 4-20mA type sensors which are no longer available from Agrowtek. Current production sensors can still be used on older GC-Pro systems using the LX4-G module. The "G" model includes a special Mini-DIN6 port which is directly compatible with the GC-Pro series sensor cables.

1. Plug in the Agrowtek sensor to the LX4 module using a standard straight-through RJ-45 Ethernet cable.
2. Connect the GC-Pro's sensor cable to the GC-Pro port on the LX4.



Output Scaling

Output channels are automatically configured and scaled according to the device type that is connected to the LX4 module.

Environment Sensors with CO2 (SXC, SXE, SXW)

Output	Description	Range
1	Temperature	-20 - 60 °C
2	Humidity	0 - 100 %RH
3	Light	0 - 1000 W/m2 or 0 - 5000 umol/m2/s
4	CO2	0 - 2,000ppm

Environment Sensors without CO2 (SXC with PLIR)

Output	Description	Range
1	Temperature	-20 - 60 °C
2	Humidity	0 - 100 %RH
3	Light	0 - 1000 W/m2 or 0 - 5000 umol/m2/s
4	IR Temperature	-20 - 60 °C

SXG CO2 Gas Sensors

Output	Description	Range
1	CO2	0 - 2,000ppm

SXIR Surface Temperature Sensor

Output	Description	Range
1	Temperature	-20 - 60 °C

SXH Hydroponics Sensors with ORP

Output	Description	Range
1	Temperature	-20 - 60 °C
2	pH	0 - 14 pH
3	EC	0 - 5000 uS
4	ORP	-1000 to +1000 mV

SXH Hydroponics Sensors with Flow

Output	Description	Range
1	Temperature	-20 - 60 °C
2	pH	0 - 14 pH
3	EC	0 - 5000 uS
4	Flow	0 - 150 lpm (0 - 40 gpm)

PHX Hydroponics Sensors with ORP

Output	Description	Range
1	Temperature	-20 - 60 °C
2	pH	0 - 14 pH
3	ORP	-1000 to +1000 mV

Technical Information

Troubleshooting

Outputs are not activating, LED does not flash

The status LED will flash three times on power-up and each time data is transmitted.

Ensure the input power has 9-24Vdc and are correctly wired for polarity.

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.

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.