Climate Sensor & Data Logger with LCD Display

Specifications

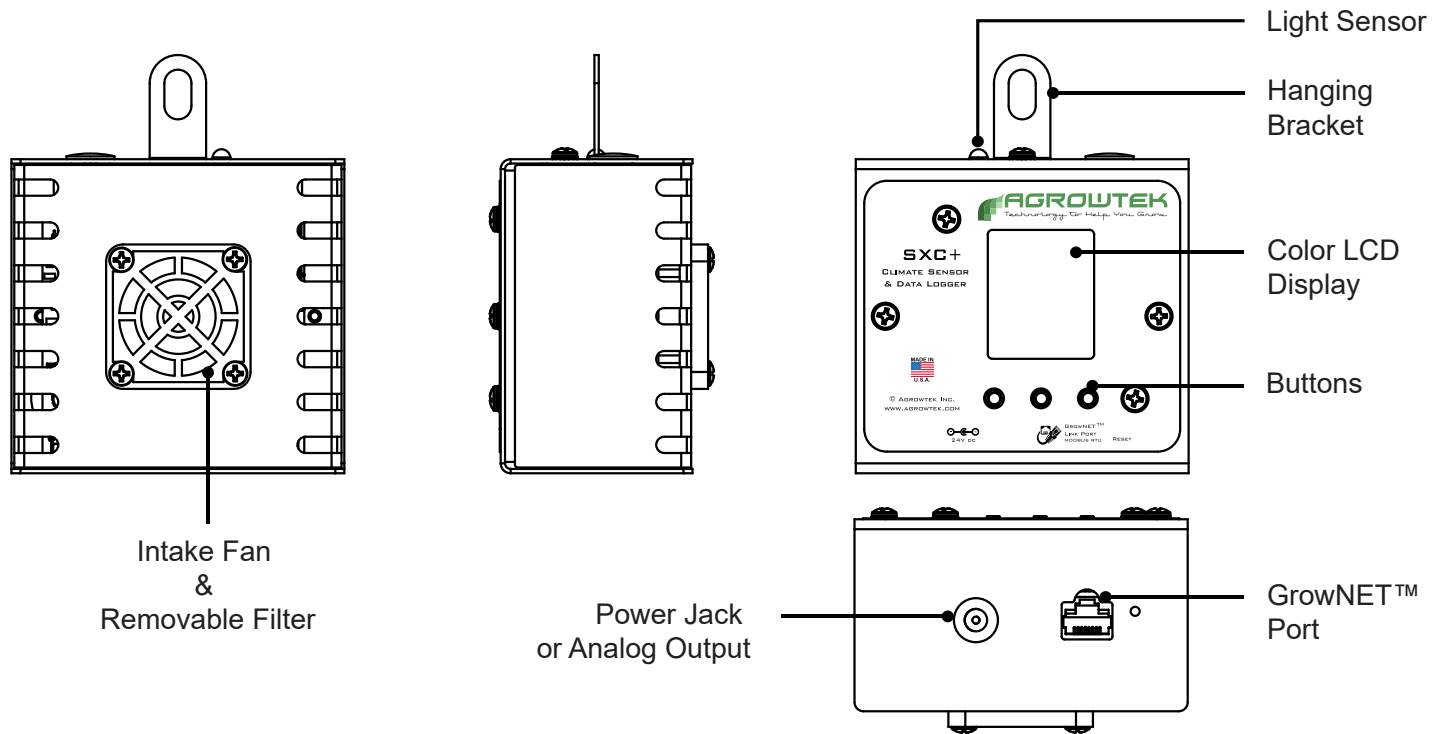|	
Power	24Vdc, ~5W
Max Cable Distance	1000ft
Aspirator	6cfm Fan with Foam Filter
Temperature Range	-20 - 60°C
Temperature Accuracy	±0.2°C typical ±0.4°C maximum
Humidity Range	0-100% RH (non condensing)
Humidity Accuracy	±2% 0-80% typical ±4% maximum
Light Irradiance Range	0 - 1000W/m2
Light Accuracy	±10%
CO2 Range	0-10,000ppm
CO2 Accuracy	±50ppm + 3% of reading
4-20mA DAC Resolution	12 bit, 0.005mA
Interface	GrowNET, MODBUS or WiFi

Contents

Installation Instructions

Intended for hanging above plant canopies using the integrated hanging bracket. Do not drill additional holes into the enclosure. Install in locations with adequate access to the environmental conditions and away from extreme influences such as ventilation ducts, doorways, windows or heat generating equipment such as lights and ballasts.

Light Sensor

Hanging Bracket

Color LCD Display

Buttons

GrowNET™ Port

Intake Fan & Removable Filter

Power Jack or Analog Output

⚠ **Do NOT connect the GrowNET port to Ethernet networks.**

⚠ **Disconnect power while making connections to prevent damage to any components.**

LCD Menu Operation

The main screen displays the real-time sensor readings from the attached sensors.

Three buttons are located beneath the screen. Each button is labeled at the bottom of the display to describe it's function in the current screen or menu.

The main screen displays the real-time sensor readings from the attached sensors. Each button is labeled at the bottom of the display to describe it's function on the current screen or menu.


High / Low History

H/L

Simple minimum and maximum recorded values are stored until the user resets the values to the current readings. To view the minimum and maximum values since the last reset, press the button labeled **H/L**.

To clear the min/max history, press the **RST** button to reset. The min and max values will all be set to the current readings and will update with higher or lower readings as they occur.

LOW	HIGH	
68.4	72.0	°F
23.1	45.2	%
0	123	W/m^2
455	1255	ppm

EXIT   RST
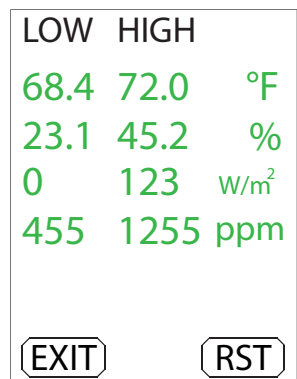
Graphing

GPH

The display can graph the most recent 120 data points from the sensor's internal data point memory. With the default logging interval of 60 seconds, the graph displays the last two hours of data.

The sensor value is plotted in green. Temperature, if overlaid on the plot, is red. Alarm levels as set by the user are plotted in yellow. Pressing the **RFH** button refreshes the data and replots the graph.

High Alarm

Sensor Data (RH)

Temperature

Low Alarm
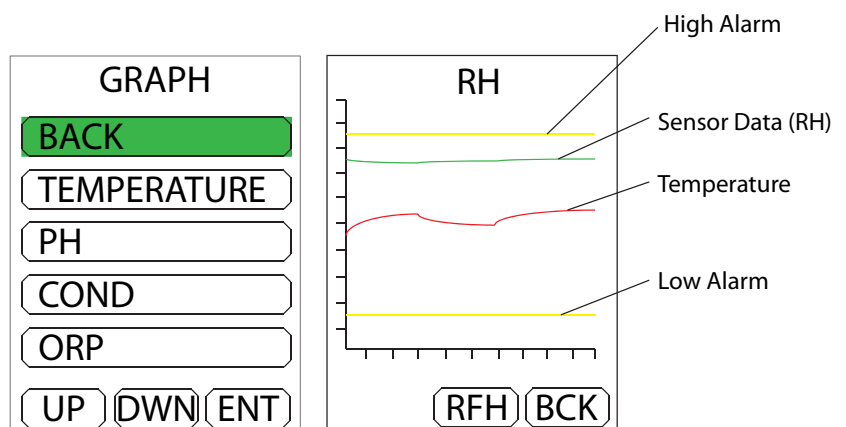
Main Menu

MNU

The main menu is how the alarms are set, sensors are calibrated and general settings such as time, date and units are configured.

If a dosing pump is directly connected to the SXHM GrowNET port, the pump settings are also accessed by the main menu.

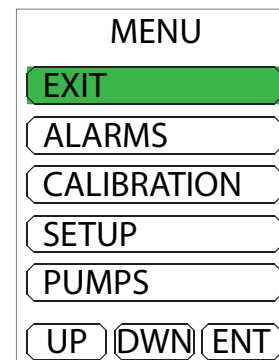Use the **UP** or **DWN** buttons to navigate the menu.
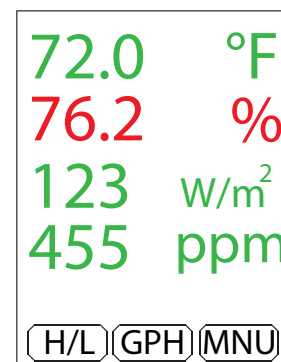
Use the **ENT** button to enter a selection.

```
          MENU
  ┌──────────────────┐
  │ EXIT             │
  ├──────────────────┤
  │ ALARMS           │
  ├──────────────────┤
  │ CALIBRATION      │
  ├──────────────────┤
  │ SETUP            │
  ├──────────────────┤
  │ PUMPS            │
  └──────────────────┘
   UP   DWN   ENT
```
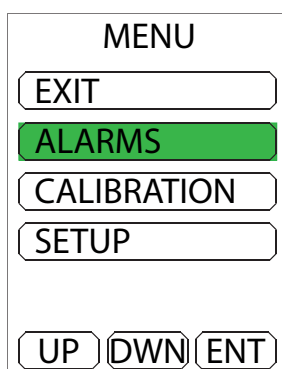
Alarms Menu

MNU ▶ ALARMS

High and low alarm set points may be configured for each sensor value to activate an internal buzzer or send alerts with the optional wifi module.

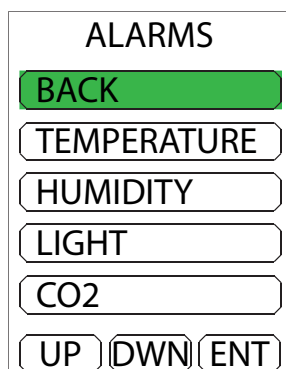The out-of-range value will be displayed in red to indicate the cause for the alarm.

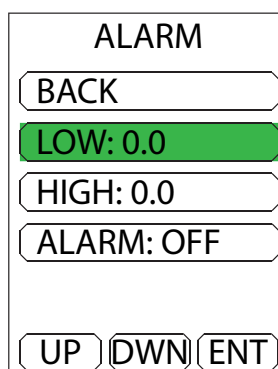Additionally, alarm limits are plotted on the graphs to indicate values are within the desired range.

```
  72.0     °F
  76.2      %
  123    W/m²
  455   ppm

  H/L   GPH   MNU
```

Alarms Configuration

```
          MENU
  ┌──────────────────┐
  │ EXIT             │
  ├──────────────────┤
  │ ALARMS           │
  ├──────────────────┤
  │ CALIBRATION      │
  ├──────────────────┤
  │ SETUP            │
  └──────────────────┘
   UP   DWN   ENT
```
1. Select **ALARMS** from the main menu.

```
         ALARMS
  ┌──────────────────┐
  │ BACK             │
  ├──────────────────┤
  │ TEMPERATURE      │
  ├──────────────────┤
  │ HUMIDITY         │
  ├──────────────────┤
  │ LIGHT            │
  ├──────────────────┤
  │ CO2              │
  └──────────────────┘
   UP   DWN   ENT
```
2. Select a sensor to configure set points.

```
         ALARM
  ┌──────────────────┐
  │ BACK             │
  ├──────────────────┤
  │ LOW: 0.0         │
  ├──────────────────┤
  │ HIGH: 0.0        │
  ├──────────────────┤
  │ ALARM: OFF       │
  └──────────────────┘
   UP   DWN   ENT
```
3. Select the setting to adjust.
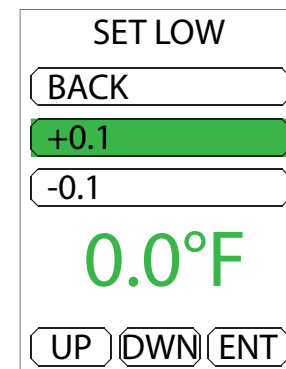
```
        SET LOW
  ┌──────────────────┐
  │ BACK             │
  ├──────────────────┤
  │ +0.1             │
  ├──────────────────┤
  │ -0.1             │
  └──────────────────┘
      0.0°F
   UP   DWN   ENT
```
4. Adjust to the desired value. Hold **UP** or **DWN** to jog the value.

Alarm Buzzer

```
       ALARM
┌─────────────────┐
│ BACK            │
├─────────────────┤
│ LOW: 0.0        │
├─────────────────┤
│ HIGH: 0.0       │
├─────────────────┤
│ ALARM: OFF      │
└─────────────────┘

  UP   DWN  ENT
```

1. Select **ALARM: OFF**

```
     SET ALARM
┌─────────────────┐
│ BACK            │
├─────────────────┤
│ SET ON          │
├─────────────────┤
│ SET OFF         │
└─────────────────┘

      OFF

  UP   DWN  ENT
```

2. Select **SET ON** then press **BACK** to exit.

To disable the alarm buzzer, set the alarm to OFF.

Calibration Menu

MNU ▶ CALIBRATION

Calibration can be performed for each sensor with the LCD interface using either standard calibration wizards, or advanced manual calibration methods for non-standard calibration solutions.

The date of the last calibration for each sensor is stored in memory and displayed at the start of each calibration wizard.

```
        MENU
┌─────────────────┐
│ EXIT            │
├─────────────────┤
│ ALARMS          │
├─────────────────┤
│ CALIBRATION     │
├─────────────────┤
│ SETUP           │
└─────────────────┘

  UP   DWN  ENT
```

```
     CALIBRATION
┌─────────────────┐
│ BACK            │
├─────────────────┤
│ TEMPERATURE     │
├─────────────────┤
│ HUMIDITY        │
├─────────────────┤
│ CO2             │
├─────────────────┤
│ CLEAR ALL       │
└─────────────────┘

  UP   DWN  ENT
```

Temperature or Humidity Calibration

MNU ▶ CALIBRATION ▶ TEMPERATURE

```
     CALIBRATION
┌─────────────────┐
│ BACK            │
├─────────────────┤
│ CALIBRATE       │
├─────────────────┤
│ ADVANCED        │
└─────────────────┘

  UP   DWN  ENT
```

1. Select **CALIBRATE** from the temperature calibration menu.

```
    TEMPERATURE
  LAST CALIBRATION
     10/19/2017

  PRESS NEXT TO
  ADJUST
  TEMPERATURE
  READING.
  EXIT        NEXT
```

2. Press **NEXT** to continue.

```
       OFFSET
┌─────────────────┐
│ BACK            │
├─────────────────┤
│ +0.1            │
├─────────────────┤
│ -0.1            │
└─────────────────┘

      72.2°F

  UP   DWN  ENT
```

3. Adjust to the desired value. Hold **ENT** to jog the value by 10x.

```
     CONFIRM?
       OLD
    68.1  °F
       NEW
    72.2  °F
  YES        NO
```

4. Confirm the new reading or press **NO** to cancel.

CO2 Calibration

MNU ▶ CALIBRATION ▶ TEMPERATURE

CALIBRATION	CO2 LAST CALIBRATION 10/19/2017	CO2
BACK		**389 ppm**
CALIBRATE	PUT SENSOR IN OUTDOOR AIR.	WAIT FOR READING TO STABILIZE THEN PRESS DONE.
ADVANCED		
UP DWN ENT	EXIT NEXT	EXIT DNE

1. Select **CALIBRATE** from the temperature calibration menu.

2. Press **NEXT** to continue.

3. Wait 5-10 minutes and allow reading to normalize. Then press done to complete the calibration.

⚠️ **Keep away from the sensor during normalization (step 3) and press the done button upon approaching the sensor to avoid disturbing the calibration. Do not breathe near the sensor or locate near individuals, vehicles or other sources of carbon dioxide during calibration.**

Clear Calibration

MNU ▶ CALIBRATION ▶ NEXT

Calibration can be restored to factory defaults by selecting **CLEAR ALL**.

CALIBRATION	
BACK	RESTORE TO FACTORY CALIBRATION?
TEMPERATURE	
PH	
COND	
CLEAR ALL	
UP DWN ENT	YES NO

1. Select **CLEAR ALL** from the calibration menu.

2. Press **YES** to restore factory calibration.

Advanced Calibration

Sensors values may be manually calibrated and if equipped, 4-20mA analog outputs may also be calibrated with a positive or negative offset to compensate for variation in DAC's/ADC's.

CO2
OFFSET calibration applies a linear offset adjustment to the value and can provide calibration to another meter as an alternative to calibrating in outdoor air. Adjust the value as required and confirm the new reading.

```
     CALIBRATION
  ( BACK            )
  ( CALIBRATE       )
  ( ADVANCED        )


  ( UP )(DWN)(ENT)
```

Analog Output Calibration

4-20mA analog outputs may also be calibrated with a positive or negative offset to compensate for variation in DAC's/ADC's. The sensors' current output may be incrementally increased or decreased in steps of 0.005mA over a range of +/-2mA.

1 Offset bit = 0.005mA, Range = +/-400 bits (+/-2mA)

This calibration procedure is optional and only for use with custom PLC applications.

1. Observe the PLC's input or data readings.
2. Increase or decrease the offset value to incremenetally adjust the current output until the values match.
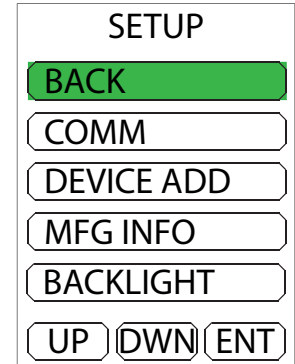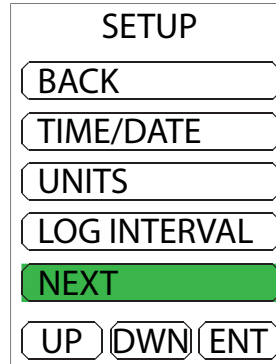
```
       ANALOG
  ( BACK            )
  ( +1              )
  ( -1              )
       -5
  ( UP )(DWN)(ENT)
```
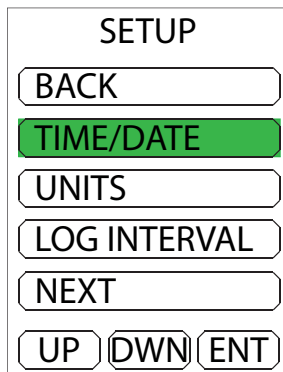
Setup Menu

MNU ▶ SETUP

The setup menu is where the time and date are set, the units are configured, logging interval is adjusted and advanced communications settings are available.
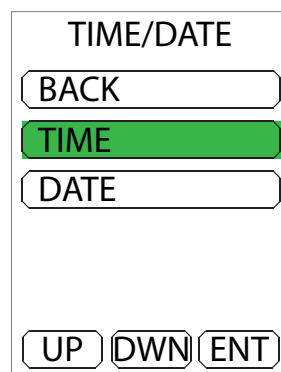
```
        SETUP
  BACK
  TIME/DATE
  UNITS
  LOG INTERVAL
  NEXT
  UP   DWN  ENT
```

```
        SETUP
  BACK
  COMM
  DEVICE ADD
  MFG INFO
  BACKLIGHT
  UP   DWN  ENT
```

Time / Date

MNU ▶ SETUP ▶ TIME/DATE

Sensors include a precision real-time clock with battery back-up for time-stamping the data log information with the time and date. The last calibration for each sensor is also time stamped.
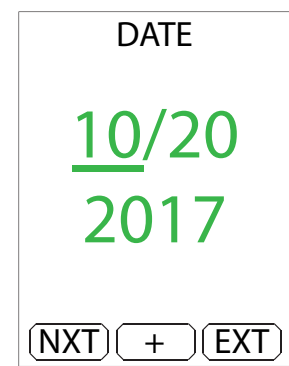
```
        SETUP
  BACK
  TIME/DATE
  UNITS
  LOG INTERVAL
  NEXT
  UP   DWN  ENT
```

```
      TIME/DATE
  BACK
  TIME
  DATE


  UP   DWN  ENT
```

```
        TIME

     13:37:51

  NXT    +    EXT
```

```
        DATE

     10/20
     2017

  NXT    +    EXT
```

1. Select **TIME/DATE** from the setup menu.

2. Select **TIME** or **DATE** to adjust.
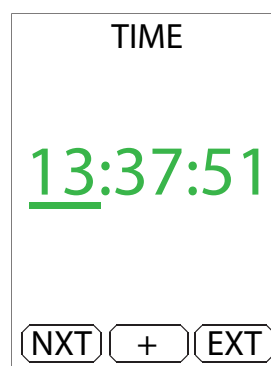
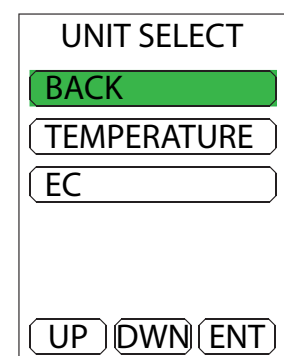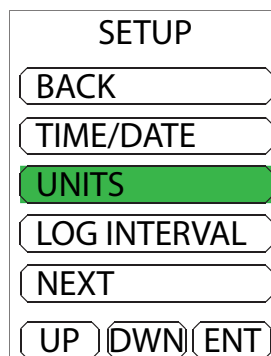3. Use **NXT** to select the value to adjust. Use + to increment the value.

4. Use EXT to exit the menu.

Units

MNU ▶ SETUP ▶ UNITS

Temperature and Conductivity may be displayed in alternate units.

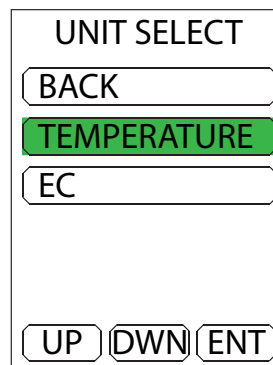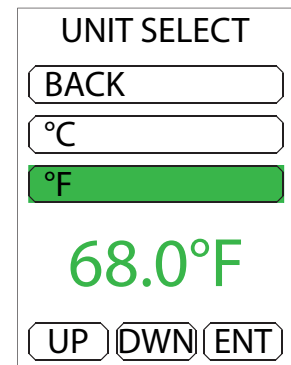Select a sensor value to change the default display and working units.

```
        SETUP
  BACK
  TIME/DATE
  UNITS
  LOG INTERVAL
  NEXT
  UP   DWN  ENT
```

```
     UNIT SELECT
  BACK
  TEMPERATURE
  EC



  UP   DWN  ENT
```

Configure temperature units:

Temperature may be displayed in °F or °C.

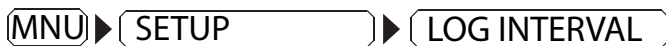Note: Check alarm settings when converting temperature units.

```
       UNIT SELECT
     BACK
     TEMPERATURE
     EC



     UP   DWN  ENT
```

```
       UNIT SELECT
     BACK
     °C
     °F


       68.0°F

     UP   DWN  ENT
```

1. Select **TEMPERATURE** from the units menu.

2. Select the desired units and press **ENT**.

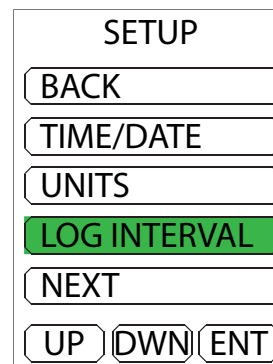# Logging Interval

MNU ▶ SETUP ▶ LOG INTERVAL

Adjust the interval for recording data points in the on-board memort. Acceptable values are from 1 - 65535 seconds.
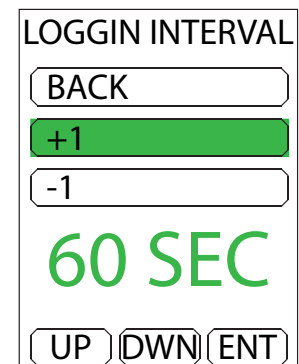
21,600 data points can be stored for each sensor value. The most recent 120 data points are shown on the graphical history.

The entire data history may be downloaded from the sensor to a .csv file with the LX1 USB AgrowLINK and free software.

Note: 60 second intervals = 15 days of data storage.

```
         SETUP
     BACK
     TIME/DATE
     UNITS
     LOG INTERVAL
     NEXT
     UP   DWN  ENT
```

```
     LOGGIN INTERVAL
     BACK
     +1
     -1

       60 SEC

     UP   DWN  ENT
```

1. Select **LOG INTERVAL** from the setup menu.

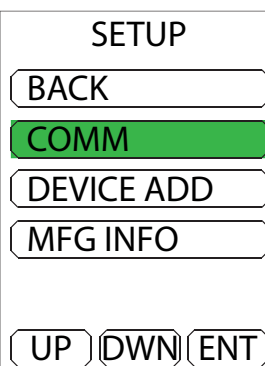2. Adjust the value then select **BACK**.
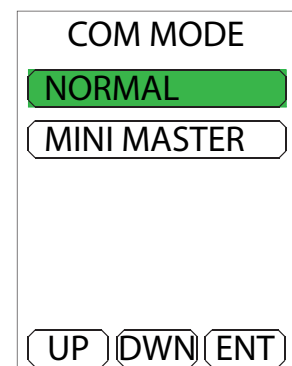
COMM Mode

MNU ▶ SETUP ▶ NEXT ▶ COMM

COMM mode specifies whether the sensor is a normal passive device or "mini-master" device.

NORMAL Use with GrowControl master controller systems or stand-alone and data logging applications.

MINI-MASTER Use with MCX mini-climate control system. (GrowNET cross-over adapter required.)

```
         SETUP
     BACK
     COMM
     DEVICE ADD
     MFG INFO


     UP   DWN  ENT
```

```
        COM MODE
     NORMAL
     MINI MASTER




     UP   DWN  ENT
```

1. Select **COMM** from the setup menu.

2. Select a mode and press **ENT**.

Device Address

MNU ▶ SETUP ▶ NEXT ▶ DEVICE ADD

Sensors are digitally addressable from 1-249 and will be assigned an address automatically by Agrowtek's control systems, or can be configured manually for MODBUS applications via the menu.

NOTE: All of Agrowtek's devices use address 254 as a broadcast address.

⚠️ **NOTE: Address must be set to 0 for Relay control.** The "RELAY" menu item will not appear unless the device address is set to 0.

SETUP
- BACK
- COMM
- DEVICE ADD
- MFG INFO
- BACKLIGHT

UP DWN ENT

1. Select **DEVICE ADD** from the setup menu.

DEVICE ADDRESS
- BACK
- +1
- -1

0 Addr

UP DWN ENT

2. Adjust the value then select **BACK**.

Manufacturing Info

MNU ▶ SETUP ▶ NEXT ▶ MFG INFO

Manufacturer information such as serial number, date of manufacture, hardware and firmware versions can be read from the MFG INFO page.

SETUP
- BACK
- COMM
- DEVICE ADD
- MFG INFO
- BACKLIGHT

UP DWN ENT

SERIAL NUMBER:
17090554
DATE OF MFG:
09/15/17
HW VERSION:
C
FW VERSION:
02.03.84

EXIT

Display Back Light Timer

MNU ▶ SETUP ▶ NEXT ▶ BACKLIGHT

The display back light can be programmed to turn off after a specified time of inactivity from the last time a button is pressed.

The delay can be set from 1-255 minutes, or set to 0 to disable the back light timer and keep the display on continuously.

SETUP
- BACK
- COMM
- DEVICE ADD
- MFG INFO
- BACKLIGHT

UP DWN ENT

BACKLIGHT
- BACK
- +1
- -1

60 Min

UP DWN ENT

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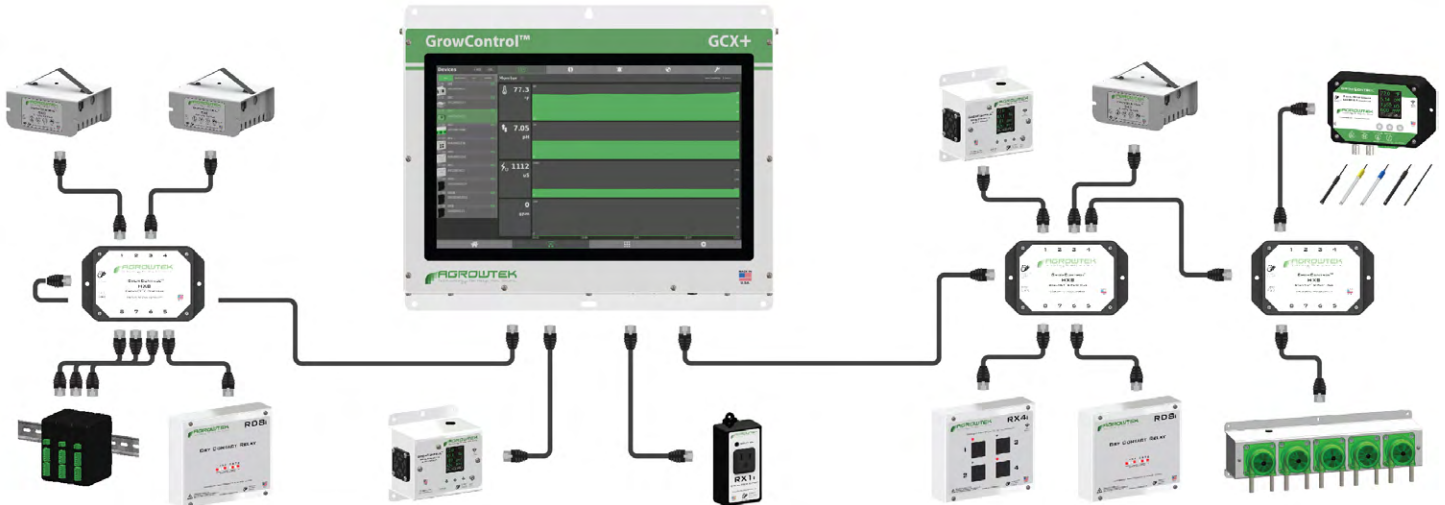
Refer to the GCX controller manual for details on adding the device to the system.

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 transcievers 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.


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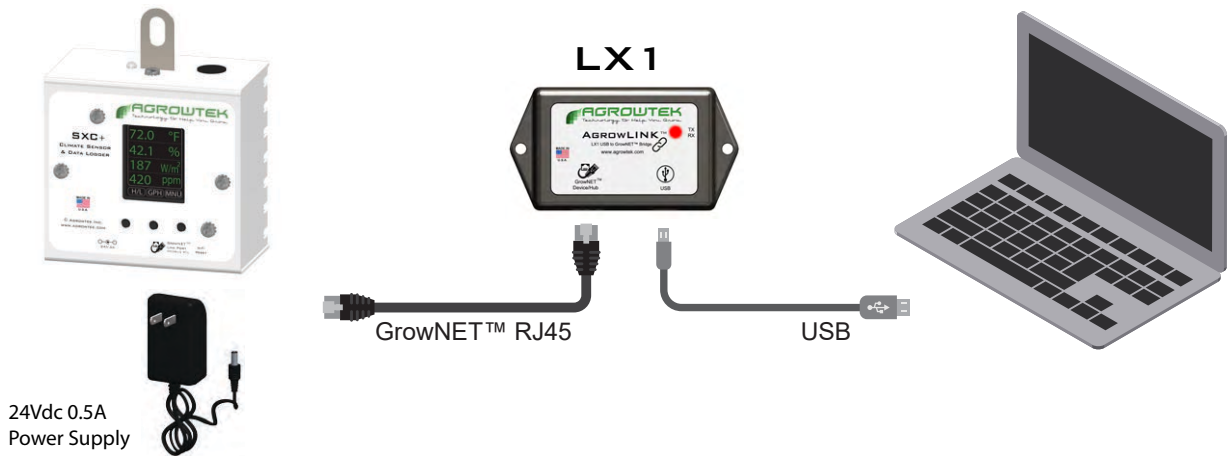
LX1 USB AgrowLINK connects Agrowtek's devices to a computer's USB port for:

- Firmware Updates
- Calibration
- Configuration
- Data Logging Download
- More

Visit www.agrowtek.com for free software applications.

Standard FTDI drivers automatically install in Windows. GrowNET protocol available for custom software applications; sample C# code available. See software manual for more information.

Connection to 4-20mA Outputs

SXC+ sensors are available special order with a 4-channel 4-20mA output.

Use the LX3 Analog Bridge with Mini-Din 6 analog sensor port connection and removable terminal block for wire connections. Terminal block includes 24V power terminals and four terminals for the analog channels. 4-20mA linear outputs correspond to the ranges in the specifications table.

Connection to MODBUS RTU

RS-485
Use the LX2 ModLINK to connect MODBUS devices to the GrowNET™ port.

RJ45/CAT5

7 - 24 Vdc

PLC

TX/RX-
TX/RX+

RS-485
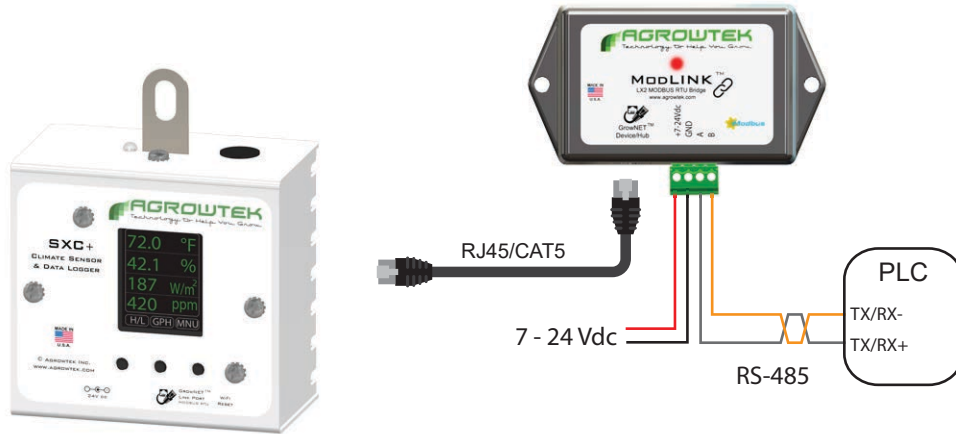
3.3/5Vdc Serial Bus Compatible.
Include required bus terminating resistors per EIA standard.

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.

LX1 USB AgrowLINK™

LX2 ModLINK™

GrowNET™
Cross-Over

USB

7 - 24 Vdc
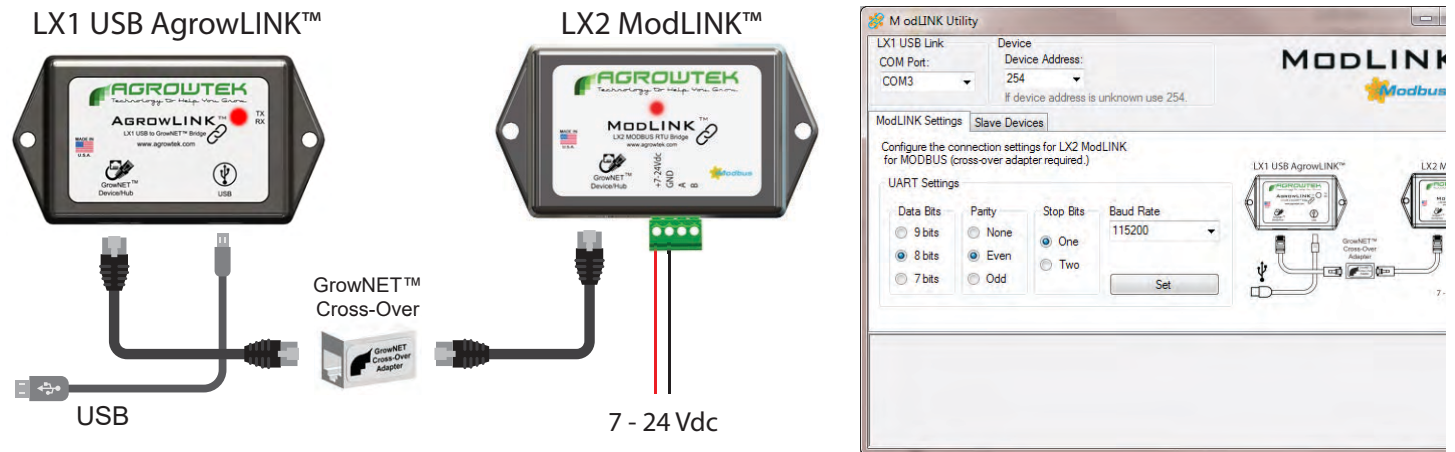
See MODBUS manual for more information.

MODBUS Manual

Supported Commands

0x03 Read Multiple Registers
0x06 Write Single Register

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

Register Types

All 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.

Sensor Value Registers

Sensor values are available in integer or floating point formats depending on the register requested (see map.)

Sensor #	Type	Integer Scale	Range
1	Temperature	x100	-2000 - 6000 (-20 - 60°C) / -400 - 14000 (-4 - 140°F)
2	Humidity	x10	0 - 1000 (0 - 100%)
3	Light	x1	0 - 1000 W/m2
4	CO2	x1	0 - 10,000 ppm

For example: an integer temperature value of 2417 is equal to a temperature reading of 24.17°C.

The value "9999" is representative of a failed sensor (with the exception of CO_2 which will read 0.)

Toggle Units Register

Sensors with alternate units may toggle the units using the "toggle units" register. To toggle the units, send the sensor channel number to to the toggle register. *This register is write-only.*

For example: to toggle between °F and °C, send a "1" to register 1002.

Calibration Registers

Calibration registers are 16-bit signed integers for the purpose of calibrating the sensor values or analog output channels. Calibration may be achieved by writing the desired calibrated value to the associated register. Writing to the calibration registers automatically invokes the calibration routine for that register.

Offset Calibration
Offset, or zero calibration, is an arithmatic positive or negative correction to the sensor reading and is the only type of sensor calibration available on climate/environmental sensors.

To perform a sensor offset calibration, simply write the corrected sensor value to the offset calibration register (taking into account the integer scale as shown above.)

For example: to set the temperature to a calibrated value of 25°C, write the value "2500."

Analog Calibration
Analog output calibration sends a positive or negative offset to the respective output channel's digital to analog converter (DAC.) The DAC has a resolution of 0.005mA/bit.

±1 calibration bit = ±0.005mA adjustment

For example: to shift the analog output up by 0.1mA, set the analog offest value to +20. (0.1 / 0.005 = 20)

MODBUS Holding Registers

Parameter	Description	Range	Type	Access	Address
Address	Device Slave Address	1 - 247	8 bit	R/W	40001
Serial#	Device 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
Toggle Units	Toggle sensor units	1 - 4	16 bit, unsigned	W	41002
Sensor Reading, Integer	Temperature	-2000 - 6000 (-20 - 60°C)	16 bit, signed	R	40101
	Humidity	0 - 1000 (0 - 100%)			40102
	Light	0 - 1000 W/m2			40103
	CO2	0 - 10,000ppm			40104
Sensor Reading, Float	Temperature	-20.00- 60.00 °C	32 bit, floating pt	R	40201
	Humidity	0 - 100.0 %			40203
	Light	0 - 1000 W/m2			40205
	CO2	0 - 10,000ppm			40207
Calibration Input, Offset (Zero)	Temperature	See integer ranges above.	16 bit, signed	W	41101
	Humidity				41102
	Light				41103
	CO2				41104
Calibration Input, Analog Output	Temperature	-255 - 255 (bits)	16 bit, signed	W	41301
	Humidity				41302
	Light				41303
	CO2				41304

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

CO2 ppm Sensor Upgrade

The SXE sensor may be upgrade to sense and control CO2 ppm with a precision NDIR type CO2 sensor.

1. Disconnect power from the sensor.
2. Remove the rear cover by removing the two screws; use caution not to damage the fan wires.
3. Locate the CO2 headers.
4. Position and install the CO2 sensor module ensuring the sensor is oriented with the correct pin headers.
5. Re-install the rear cover and re-connect power. Check to ensure the CO2 reading is now working.

CO2 Sensor Module

4 pins

CO2 Sensor Headers

5 pins

⚠ **Note correct pin alignment.**

Rear Cover
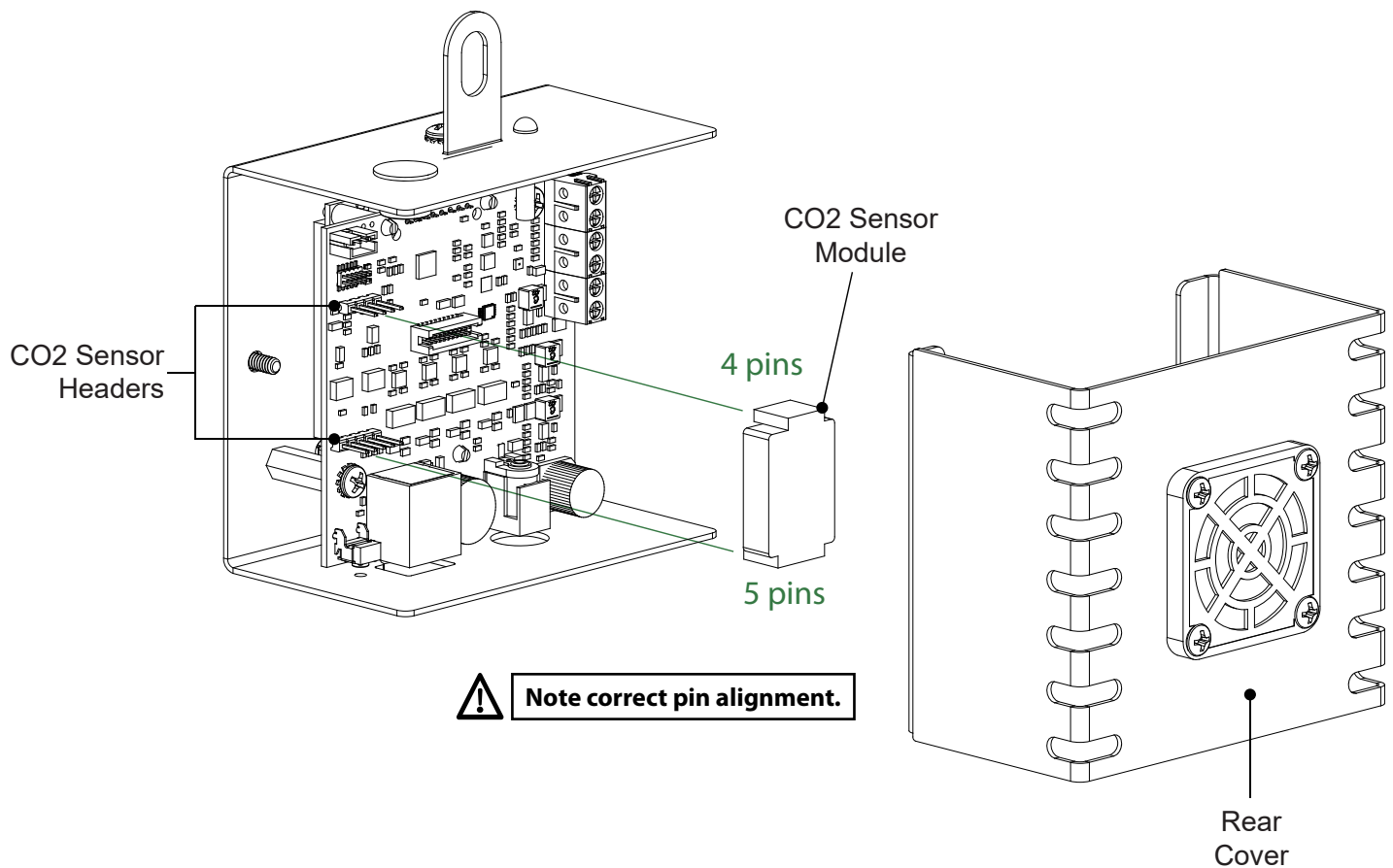
Maintenance & Service

Sensors require periodic maintenance to ensure proper performance.

Cleaning

Exterior and label surfaces may be wiped with a damp cloth wish mild dish detergent, then wiped dry. Avoid spraying the sensor with chemicals or water spray.

Fan Filter

The fan air filter should be periodically removed for cleaning.

It is NOT necessary to remove the fan.

1. Pry the retaining grate (1) out of the base (3) using a small flat blade eye-glass screwdriver.

2. Remove the foam filter (2) and replace, or clean with mild dish detergent and water, then pat dry.

3. Check for proper fan operation while the filter is removed.
   If fan is not spinning or is making noise, replace the fan.

4. Re-install the foam filter (2) and grate (1) into the base (3) gently snapping the grate back into place.

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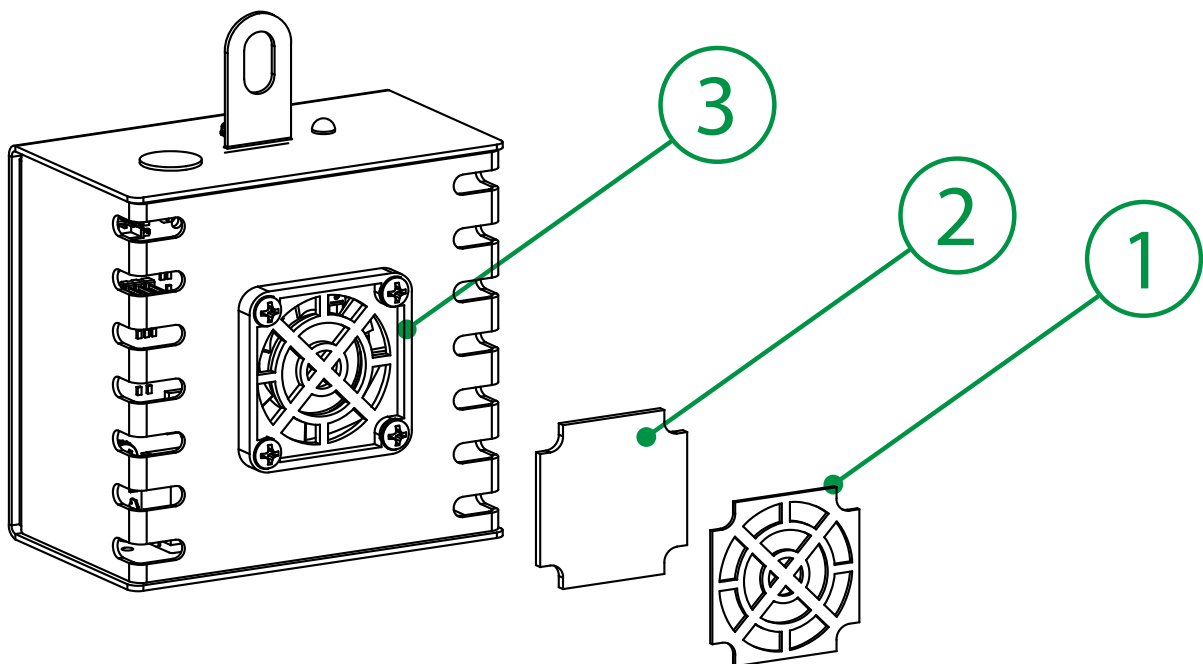
Storage and Disposal

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