



User Guide iGS-061

CO₂ 0-5000 ppm Controller



novabioamatique.com

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Thank you for purchasing this **PLUG'N'GROW** easy to use and reliable controller

Your wise choice will not only procure you precise and easy to use control but also give you access to our toll free technical support.

Contents

- iGS-061, 0-5000 ppm CO₂ controller with unacceptable high temperature shut-off feature and light sensor.
- Adapter
100-240 Vac-12 Vcc
- User guide



Plugging both AC adapter and 120 V power cord is required for the controller complete operation.

This iGS-061 may be used as a carbon dioxide (CO₂) actual concentration **monitor** when **only the AC adapter is powered up**. Plugging the 120V power cord is not required only to measure CO₂ concentration.

To switch on and power up a CO₂ gas combustion generator or a bottled CO₂ regulator, plug the power cord to a live 120Vac outlet to supply the equipment with electricity. Also if iGS-061 is used to activate a fan to exhaust the excess CO₂, the power cord has to be plugged to a live outlet.

CALIBRATION

The CO₂ NDIR sensor used in this controller is a delicate piece of measuring technology that can loose calibration easily in transport and handling. It should be calibrated at the store before delivery to make sure its readings will be right in the garden.

INSTALLATION

Install the iGS-061 CO₂ controller in the grow location in a position where light can be sensed by the photocell. Take care in locating the control unit not too close to intake/exhaust fans or to your CO₂ generator or regulator. The control unit should also be protected from water and dust. Venting slits located under the controller are protected by a dust guard filter that should be there at all times. We recommend to clean or replace regularly the dust guard filter to improve the controller's effectiveness and its length of life (To remove the filter, lift up the black plastic cover. Be careful to keep the screen located inside). Once the unit is properly installed, plug in your gas burner or CO₂ regulator electric cord into the panel output.

IMPORTANT SAFETY INSTRUCTIONS

DANGER: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, CAREFULLY FOLLOW THESE INSTRUCTIONS

CAUTION	THE EQUIPMENT(S) PLUGGED TO THE IGS-061 OUTLET MUST HAVE THEIR OWN OVERHEATING PROTECTION BREAKER OR APPROPRIATE DEVICE
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Safe Installation

The iGS-061 controller unit must be mounted on a vertical wall using 4 wood screws. The unit shall be located at no more than 5 feet from a standard 125 V-15 A electrical receptacle due to the length of the attached power cord. We also recommend to disconnect the power cord before servicing.

Electrical Specifications

Input : 120V-60Hz— 15A

Output voltage : 120V— 60Hz

Output maximum current

Load	Current Rating
General purpose (inductive)	15 A total for receptacle
Resistive	15 A total for receptacle
Motor	1/2 HP

HOW IT WORKS

The iGS-061 will perform CO₂ enrichment during the day only (when light is sensed by the photocell): plants only use during photosynthesis when there is light. The enrichment starts when the CO₂ concentration falls below the setpoint minus the differential.

i.e. Setpoint = 1200 ppm Differential = 150

CO₂ enrichment starts below 1050 ppm and stops beyond 1050 ppm

The differential modifies itself automatically until the controller senses no more overshooting or undershooting of user setpoint. Fixed differential values can also be set for more specific needs (go to step 3A).

As a safety feature, the high temperature shut off feature will inhibit operation of a gas combustion generator while temperature is over the user setting. This interruption is maintained until temperature falls below the user high temperature setting. To inhibit this feature, simply set the limit to its highest value.

The controller can also be set to vent (extract) CO₂ (operating mode 1-02). In this case, the high temp shut off feature becomes a low temp shut off limit to prevent excessive cooling conditions.

SET-UP

Pressing & releasing the black knob will light in sequence the four indicator lights located under the display. When an indicator is lit, the user can modify or view the associated feature. When the pressure on the knob is maintained more than 3 seconds, four (4) more modes are accessible. Table on pages 6 to 9 presents each basic feature and the associate supplemental features (#1S à #4S).

Note on using intake and/or exhaust ventilation

Adding CO₂ in a closed grow room is made easy with this controller. Unfortunately some grow rooms use intake and/or exhaust ventilation to maintain adequate temperature and relative humidity levels. Adding CO₂ while these fans are ON results in wasted CO₂. An optional OFF switcher (iLS120-OFF 120Vac Off Switcher) can be purchased to prevent the controller from adding CO₂ while other equipment is in operation.

ERROR, ADVICE AND ALARM MESSAGES

The iGS-061 is able to display three types of messages to the user.

The ERROR messages DO require immediate attention. They show up when a hardware failure has been detected. While displaying Error Messages, the module STOPS CONTROLLING the equipment, turning its OUTPUT OFF.

The ADVICE messages (you see “Adu” on display) DO NOT require immediate attention or action to be taken. They simply inform the user that a special condition has been met, that may require some non urgent user validation, although the module KEEPS CONTROLLING the equipment.

The ALARM messages ONLY INDICATE USER ALARM conditions. The module KEEPS CONTROLLING the equipment. The controller continues operation but could turn off the outlet until the alarm condition is corrected.

WARRANTY


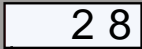


Nova Biomatique, Inc. (hereafter NBI) warrants this PLUG'N'GROW product to be free of defects in material and workmanship for a period of three (3) years from the date of original purchase by the end-user (proof of purchase required). The warranty only applies to the original purchaser of the new product from an authorised store. The warranty claim is submitted to NBI by the retailer. The warranty is limited to the repair or replacement, upon NBI's appraisal, of any defective part of the product covered by warranty.

The warranty does not cover the following: defects resulting from shipping (insurance is recommended), customers' installation, improper or abusive uses (excessive dirty condition), excessive wear, negligence or tampering.

Nova Biomatique, Inc., distributors, dealers or other sales representatives are prohibited from adding or deleting items from this warranty coverage.

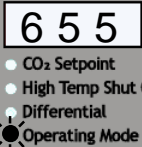
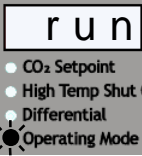
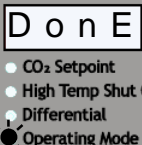
Shipping fees are the customer's responsibility, except for repairs covered by the warranty, where NBI will only assume the return standard ground shipping fees.

For any question related to your warranty, to repairs and to technical support, please visit novabiomatique.com or contact us by email at tech@igrowing.ca

Function	Controller's Functions	How to access this function	Function display and Pilot light(s)
0	<p>Normal control operation and CO₂ ppm display</p> <p>The display shows current CO₂ level while controlling the CO₂ generator. No CO₂ injection during the night.</p>	<p>Default display and operation mode, active upon power-up</p> <p>If any light indicators is ON, press knob & release until all lights turn OFF.</p>	 <ul style="list-style-type: none"> ● CO₂ Setpoint ● High Temp Shut Off ● Differential ● Operating Mode
#0S	<p>Normal control operation and temperature display</p> <p>The display shows current temperature value while controlling the CO₂ generator.</p>	<ol style="list-style-type: none"> 1. Press knob & release until all lights turn OFF; 2. Press & hold down knob for at least 3 whole seconds until the two first indicators blink; This value is read-only and CAN NOT be modified; 3. Press & release knob to return to default mode 	 <ul style="list-style-type: none"> ● CO₂ Setpoint ● High Temp Shut Off ● Differential ● Operating Mode
#1	<p>Setting the CO₂ setpoint</p> <p>Modify your CO₂ setpoint between 0 and 5000 ppm.</p>	<ol style="list-style-type: none"> 1. Press & release knob until first pilot light is ON; 2. Modify this value by rotating the knob left & right; 3. Press & release knob to return to default mode 	 <ul style="list-style-type: none"> ● CO₂ Setpoint ● High Temp Shut Off ● Differential ● Operating Mode
#1S	<p>Altitude correction factor</p> <p>Altitude correction may be required for facilities above 1000 ft. The displayed value is given in 1000-foot units (300 m)</p>	<ol style="list-style-type: none"> 1. Press & release knob until first pilot light is ON; 2. press & hold down knob for at least 3 whole seconds until display changes first pilot light blinks; 3. Modify this value by rotating the knob left & right, 1,5 means 1500 feet; 4. Press & release knob to return to default mode 	 <ul style="list-style-type: none"> ● CO₂ Setpoint ● High Temp Shut Off ● Differential ● Operating Mode

<p>#2</p>	<p>High temperature shut off : The CO₂ generator will be stopped when room temperature reaches this value.</p>	<ol style="list-style-type: none"> 1. Press & release knob until 2nd pilot light is ON; 2. Modify this value by rotating the knob left or right; 3. Press & release knob to return to default mode 	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>1 0 4</p> <ul style="list-style-type: none"> <input type="checkbox"/> CO₂ Setpoint <input checked="" type="checkbox"/> High Temp Shut Off <input type="checkbox"/> Differential <input type="checkbox"/> Operating Mode </div>
<p>#2S</p>	<p>Celsius or Fahrenheit temperature unit All temperature can be displayed either in Fahrenheit or Celsius (FAHR or CELS)</p>	<ol style="list-style-type: none"> 1. Press & release knob until 2nd pilot light is ON; 2. press & hold down knob for at least 3 whole seconds until second pilot light blinks; 3. Modify unit by rotating the knob left or right; 4. Press & release knob to return to default mode 	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>C E L S</p> <ul style="list-style-type: none"> <input type="checkbox"/> CO₂ Setpoint <input checked="" type="checkbox"/> High Temp Shut Off <input type="checkbox"/> Differential <input type="checkbox"/> Operating Mode </div>
<p>#3</p>	<p>Displaying the control differential : The CO₂ enrichment equipment starts when the actual CO₂ concentration is below the setpoint minus the differential.</p>	<ol style="list-style-type: none"> 1. Press & release knob until third pilot light is ON; 2. This value is read-only and CAN NOT be modified; 3. Press & release knob to return to default mode 	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>5 0</p> <ul style="list-style-type: none"> <input type="checkbox"/> CO₂ Setpoint <input type="checkbox"/> High Temp Shut Off <input checked="" type="checkbox"/> Differential <input type="checkbox"/> Operating Mode </div>
<p>#3S 1st Step</p>	<p>Fixed differential parameters (low): The differential is modified automatically to minimize overshoot during enrichment. The automatic differential range is limited by a minimum value (part 1) and a maximum value (part 2).</p>	<ol style="list-style-type: none"> 1. Press & release knob until third pilot light is ON; 2. Press & hold down knob for at least 3 whole seconds until the third indicator blinks; 3. Modify this value by rotating the knob left or right; 4. Press & release knob to go to next step; 	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>L 5 0</p> <ul style="list-style-type: none"> <input type="checkbox"/> CO₂ Setpoint <input type="checkbox"/> High Temp Shut Off <input checked="" type="checkbox"/> Differential <input type="checkbox"/> Operating Mode </div>

<p>#3S 2nd Step</p>	<p>Fixed differential parameters (high) See part I above</p>	<p>1. Modify this value by rotating the knob left or right; 2. Press & release knob to return to default mode</p>	<div style="border: 1px solid black; padding: 5px; background-color: #f0f0f0;"> <p style="font-size: 24px; margin: 0;">H 5 0 0</p> <ul style="list-style-type: none"> <input type="radio"/> CO₂ Setpoint <input type="radio"/> High Temp Shut Off <input checked="" type="radio"/> Differential <input type="radio"/> Operating Mode </div>
<p>#4</p>	<p>Setting the Operating Mode The OPERATING MODE can be either “CO₂ Enrichment” or “CO₂ extraction”.</p>	<p>1. Press & release knob until fourth pilot light is ON; 2. Modify this value by rotating the knob left or right Enrich, set to 1-01 : Extract, set to 1-02; 3. Press & release knob to return to default mode</p>	<div style="border: 1px solid black; padding: 5px; background-color: #f0f0f0;"> <p style="font-size: 24px; margin: 0;">1 - 0 1</p> <ul style="list-style-type: none"> <input type="radio"/> CO₂ Setpoint <input type="radio"/> High Temp Shut Off <input type="radio"/> Differential <input checked="" type="radio"/> Operating Mode </div>
<p>#4S 1st Step</p>	<p>CO₂ sensor Calibration The CO₂ sensor calibration can be performed 2 different ways :</p> <p>Quick Calib requires you to bring the unit outdoors in order to calibrate it using the 400 ppm natural CO₂ concentration met in most non urban environments: in the city the CO₂ varies between 400 and many hundreds.</p> <p>Regular Calib requires you to know the actual CO₂ concentration using another calibrated CO₂ controller or monitor as a reference unit or a calibration kit using a certified concentration CO₂ gas mix.</p>	<p>1. Press & release knob until fourth pilot light is ON; 2. Press & hold down knob for at least 3 whole seconds until CO₂ & CAL alternate on display;</p> <p>WHATEVER THE METHOD AVOID EXHALING NEAR OR ABOVE THE CONTROLLER: your breath is at a level of 40 000 to 60 000 ppm CO₂</p> <p>Quick Calibration: Hold down knob until display shows CAL & RUN in sequence, and jump to Step 3;</p> <p>Regular Calibration Press & release knob, the display will show CAL & a numeric CO₂ ppm value in sequence; jump to Step 2;</p>	<div style="border: 1px solid black; padding: 5px; background-color: #f0f0f0;"> <p style="font-size: 24px; margin: 0;">C A L</p> <ul style="list-style-type: none"> <input type="radio"/> CO₂ Setpoint <input type="radio"/> High Temp Shut Off <input type="radio"/> Differential <input checked="" type="radio"/> Operating Mode </div>

<p>#4S 2nd Step</p>	<p>At this point you need to read the reference controller or monitor or enter the calibration gas specified concentration : this value must be within 0 and 5000 ppm</p>	<p>1. Modify displayed value by rotating the knob left or right to get the nearest value to the reference controller or monitor or calibration gas concentration; 2. Press & hold down knob until CAL & RUN alternate on display; jump to Step 3;</p>	 <p>6 5 5</p> <ul style="list-style-type: none"> <input type="radio"/> CO₂ Setpoint <input type="radio"/> High Temp Shut Off <input type="radio"/> Differential <input checked="" type="radio"/> Operating Mode
<p>#4S 3rd Step</p>	<p>The sensor within the unit is being recalibrated, it may take up to 8 minutes to complete. AVOID EXHALING NEAR OR ABOVE THE CONTROLLER DURING THE PROCESS</p>	<p>When done the unit will jump automatically to step 4</p>	 <p>r u n</p> <ul style="list-style-type: none"> <input type="radio"/> CO₂ Setpoint <input type="radio"/> High Temp Shut Off <input type="radio"/> Differential <input checked="" type="radio"/> Operating Mode
<p>#4S 4th Step</p>	<p>The calibration process has completed successfully. HOWEVER CHECK THE DISPLAYED VALUE AFTER 10 minutes</p>	<p>Press & release knob to return to default mode.</p>	 <p>D o n e</p> <ul style="list-style-type: none"> <input type="radio"/> CO₂ Setpoint <input type="radio"/> High Temp Shut Off <input type="radio"/> Differential <input checked="" type="radio"/> Operating Mode

ERROR, ADVICE AND ALARM MESSAGES.

The ERROR messages DO require immediate attention: the module STOPS CONTROLLING the equipment, turning its OUTPUT OFF.

The ADVICE messages (“Adu”) DO NOT require immediate action be taken: the module KEEPS CONTROLLING the equipment.

The ALARM messages ONLY INDICATE USER ALARM conditions: the module KEEPS CONTROLLING the equipment. The controller continues operation but could turn off the outlet until the alarm condition is corrected.

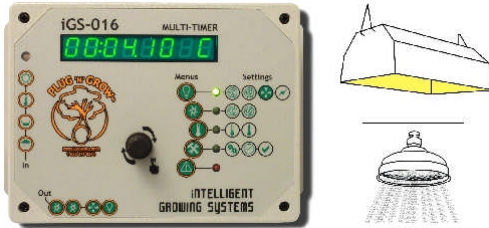
Message	Cause	Controller action	Message reset condition
ERR3	CO ₂ Sensor Failure	Output is turned OFF	Auto reset or reboot or permanent: power off and turn back on, may require replacement at factory
ERR4	Temperature Sensor Failure	Output is turned OFF	Auto reset or reboot or permanent: power off and turn back on, may require replacement at factory
ERR6	Automatic system recovery failed	Output is turned OFF	Auto reset or reboot or permanent: power off and turn back on, may require replacement at factory
Adu1	CO ₂ Sensor overflow (over 5000 ppm)	No action	Auto reset when level goes below 5000
Adu2	CO ₂ Sensor calibration time	No action	After calibration
Adu3	Automatic system recovery successful	No action	Enter in edit mode and check settings
Alr3	Temperature in the room is currently BELOW the LOW limit.	Output is turned OFF	Auto Reset when temperature returns to normal range
Alr4	La température dans la chambre est AU DESSUS de la valeur de coupure.	Output is turned OFF	Auto Reset when temperature returns below set value

PLUG'N'GROW's multi-timer iGS-016

To put an end to roasted plants!

A precise control for LIGHTING, IRRIGATION and lamps cooling

- High flexibility for cycle adjustment settings (up to 72 hours)
 - Create your “short day”: 16 hours? 18 hours? YES, IT DOES IT
 - Water 6 of every 23 seconds? YES, GO AHEAD!
- Adjustment settings to the second
- Perfect lighting and irrigation coordination



Reinforced PROTECTION for plants and equipments

In case of:

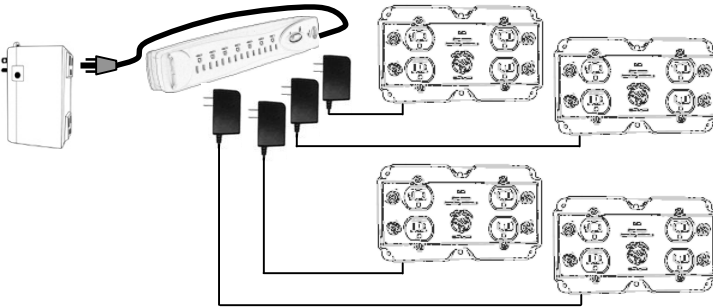
- Pump breakdown ⇒ *Switch on emergency pump (dual pump system)*
- Power failure ⇒ *Lamps restart delay adjustable*
- Low nutrient solution level ⇒ *Pump and lamps switch off*
- Overheated growing environment ⇒ *Lamps switch off*

❖ **2 pumps outlets: 1 for main pump and 1 for emergency pump**

❖ **1 lighting outlet** (in example below, used to activate 16 lamps)

❖ **1 lamps cooling fan outlet**

Visit novabioamatique.com for details



ELECTRICAL LOAD SWITCHER MODULE capable of sequential outlets switching

- iLS4-121:** Supply line 120 Vac : 4 outlets @ 120 Vac 15 A
iLS4-121S: Supply line 240 Vac : 4 outlets @ 120 Vac 15 A
iLS4-241: Supply line 240 Vac : 4 outlets @ 240 Vac 15 A



The 3 basic module models switch ON all 4 outlets at once when voltage is applied to the sense AC adapter. This sense adapter may be plugged in a timer (e.g. lighting) or a climate controller managing high electrical load equipment. An On-delay timer and sequential switch on device (see below) is sold separately.

Having two same model iLS4 modules combined on the same electrical circuit wired to the electrical service panel works great up to 40 Amps.

Start up delay timer and sequential outlets switching device

SOLD SEPARATELY

- iLS4T-1: one by one / iLS4-121 only
 iLS4T-2: two by two/ any model



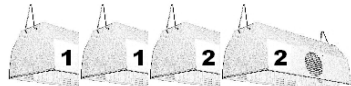
START UP SEQUENCE

iLS4-121 and iLS4-121S



START UP SEQUENCE

iLS4-241



PLUG'N'GROW's Bottled CO₂ Regulator RG1

- works with any CO₂ control device with a standard 110-120 Volt, 3 prongs outlet: ppm display CO₂ controller recommended
- Grow room 650 and up to 7500 cubic feet
- CO₂ Flow up to 50 SCFH, 2.5 -3 times the maximum flow offered by competing products
- ASCO™, North American made "continuous duty" industrial solenoid valve, 20 000 000 cycles life expectancy
- Features a heater to avoid regulator and valve freezing and seizing at high CO₂ flow
- Designed to last years and years and covered by a 3 year warranty

