CHEMGLASS

DC Motor Controller
Operations Manual

CG-2033-X-31(Y) used with 1/4HP XP Motor

Operating Specifications:

Supply voltage required: 120VAC@60Hz
RS232 output communications: 9 pin serial ASCII output
Analog output communications: 0 to +10Vdc output
Torque: 0z/in

Operating Instructions:
Standard Controller:

1- Attach the motor plug to the receptacle located on the rear of the motor controller unit (turn and locks).
2- Turn the speed control knob on the face of the controller counter-clockwise until it stops.
3- Plug the motor controller into the appropriate power receptacle.
4- Turn the power switch to "ON".
5- Switch the Speed/Torque switch to the Speed position.
6- Select the desired motor direction either Forward (CW) /Reverse (CCW). Note: the direction may be changed at any time. The motor will slow to a stop and change direction.
7- Turn the speed control knob clockwise until the desired speed (RPM's) is shown on the display.
8- To display the torque, press the Speed/Torque switch to the Torque position.

Torque: Torque is displayed in oz/in. The torque displayed on startup is the torque required to maintain the motor at the set rpm's. This value will vary per controller and per motor. When the motor requires more torque to maintain the set rpm's the value will increase.

Note: Controllers are calibrated to test motors running at 350 – 500 rpm's for a minimum of 40 minutes. This allows the motors to "warm-up" before the controllers are calibrated.

Controller with Communications:

Serial Output: (Any standard 9-pin RS-232 cable is required)
         The serial port sends a digital output signal every 10 seconds to a computer's serial port via Windows HyperTerminal or through another data logging program. The serial output allows the unit to digitally output whatever is displayed on the Motor controller readout. To change the output time duration; refer to **Adjusting the Output Time Duration**.

Computer communications port settings:
        Bits per second: 9600
        Data Bits: 8
        Parity: None
        Stop Bits: 1
        Flow Control: None

Windows HyperTerminal Setup:
        1- Start the Microsoft HyperTerminal program on the PC.
        2- Select **Properties** from the **File** menu.
        3- Select your COM port from the **Connect using** pull down menu.
        4- Click the **Configure** button.
        5- Adjust the pull down menus to the settings listed above.
        6- Click **OK.**

7- Click on the **Settings** tab.
8- Select **Auto Detect** from the **Emulation** pull down menu.
9- Click on the **ASCII Setup** button.
10- Check the **Echo typed characters locally** check box.
11- Click **OK.**
12- Click **OK.**

Now if the communication port is configured correctly the displayed value on the controller should appear in the HyperTerminal window. The controller is set to output a value every 10 seconds; this value can be adjusted if needed.

Adjusting the output time duration:
1- Depress the Program and Down button on the display window.
2- Press the Program Button repeatedly until the display toggles between [SPC_5] and [000].
3- Using the Up or Down buttons adjust the display to read [007].
4- Press the Program button until [on_t] and [00010] is displayed.
5- Using the Up or Down buttons adjust the display to read the desired output time in seconds.
6- Press the Program button.
7- Depress the Program and Down button.

Analog Output: **(A 3-pin Nano connector is required. P/N: CG-2033-50)**
The analog outputs the Forward (CW) RPM value only. The analog is set to output 10Vdc when the controller's speed is at 100% and 0Vdc when set 0%. To approximate the analog output value per volt dc, divide the max rpm display by 10.
This will give you rpm's per 1-volt dc.

> **Example:**
> **Max RPM: 500**
> **500/10= 50**
> **Therefore every 50 rpm's = 1Vdc**
> **In this example: If 90 rpm's are displayed, then the analog output is about 1.8 Vdc**
> **(90/50 = 1.8 Vdc)**

Note: Analog output will not work properly when the motor is reversed or when the motor controller is switched to Torque. To display torque or the motor's rpm's in reverse use the Serial output.

1- Attach the yellow analog cable to the Analog port located in the rear of the motor controller.
2- Attach the brown wire to the (+ Vdc) terminal on your analog input device.
3- Attach the blue wire to the (- Vdc) terminal on your analog input device.

Warranty

Chemglass, Inc. guarantees this unit against defects in material and workmanship for a period of two years from the date of sale. If the unit should malfunction it must be returned for evaluation. If the unit is determined to have a defect in materials or workmanship then it will be repaired or replaced at no charge. Tampering or damage resulting from excessive current, heat, moisture, vibration, corrosive materials, or misuse will void this warranty. Programming changes or reconfiguration are not covered under warranty. To return this item under warranty, advise Chemglass technical service department of the situation and they will provide you with a return authorization number. The unit will be evaluated and repaired as required in accordance to the warranty.

Please contact the Chemglass technical service department with warranty repair information.
Chemglass technical service department:
tel: 1-800-843-1794
fax: 1-800-922-4361
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