



CG-1995-01 Digital Temperature Controller

OPERATIONS MANUAL



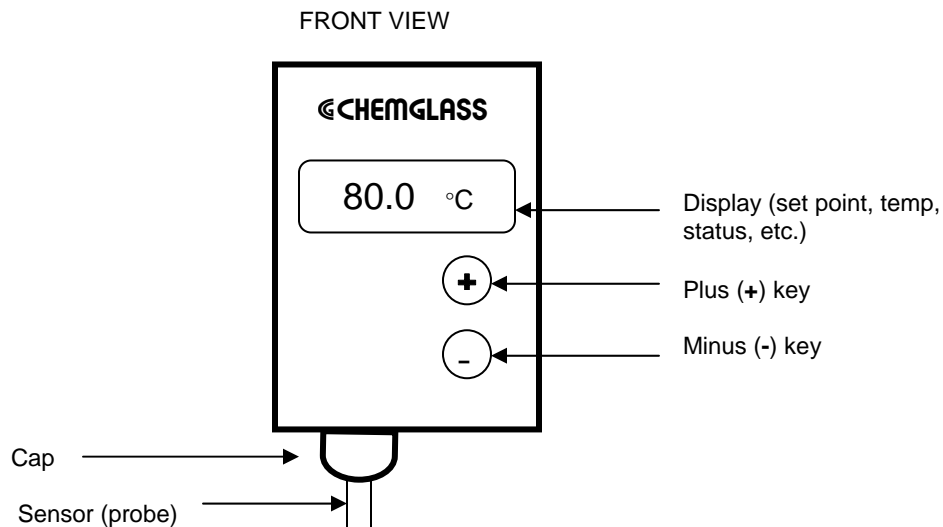
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QUICK SET-UP

**This unit is factory set to start operating in "A" Mode.*

- 1) Insert the CG-1995-01 cord into the thermometer receptacle located in the rear of the Hot Plate/Stirrer being used (e.g. CG-1990-12, CG-1990-13, etc.).
- 2) Place the sensor's tip into the medium to be heated. It is recommended that the tip be submerged 2/3 into the medium.
- 3) Turn the rotary Temp. knob located on the front of the Hot Plate/Stirrer **fully clockwise**.
- 4) Turn the Hot Plate/Stirrer "ON". This will power up the CG-1995-01 Digital Temperature Controller.
- 5) A Self-Diagnostic test will take place.
- 6) Once the Diagnostic test is complete, use the (+) key to enter the desired set point (the temperature at which the medium is to be heated).



Operating Modes

The Optichem® CG-1995-01 Digital Temperature Controller can be run in three different modes, "A", "B", or "C". Each Mode can be accessed by depressing the (+) key while turning the power ON. Each time the power is cycled ON, while pressing the (+) key, the Operating Mode will change – "A", then "B", then "C", then "A", etc. The Mode will be temporarily displayed during starting up.

- **Operating Mode A** – This unit is factory set to Mode "A". When the unit is switched ON the temperature set point is always -10°C. The set point can be easily changed by pressing the (+) or (-) keys.
The **HI-TEMP** setting can only be changed in this mode. The HI-TEMP setting limits the highest set point temperature entered to this number (e.g. 300°C). The **HI-TEMP** setting can be changed by pressing either the (+) or (-) keys to raise or lower this value, while the "HI TEMP" is flashing during the initial start up. Once the word "TEMP" changes to "OK", the value has been set.
- **Operating Mode B** – In this Mode, the most recent set point temperature is activated when powered ON. The set point can be changed at anytime by pressing the (+) or (-) keys.
- **Operating Mode C** – In this Mode, the most recent set point temperature is again activated when powered ON. However, the set point cannot be changed. All input parameters are locked in this mode and cannot be inadvertently or otherwise changed.

Control Modes

There are three control modes that can be used with the CG-1995-01 Digital Temperature Controller – FUZZY control, FAST FUZZY control, and ON/OFF control. Any of these modes can be accessed by pressing and holding the (-) key while turning the power ON. Once the word "FUZZY" is displayed, press either the (+) or (-) keys to change from "FAST FUZZY" to "ON / Off" or back to "FUZZY". The setting will be saved if no key is pressed for approximately 5 seconds.

- **FUZZY control** – Standard factory setting. Best control characteristics.
- **Fast FUZZY control** – Faster warm up than with Fuzzy with good control characteristics. The ">" symbol will be shown in the display for this mode.
- **ON/OFF control** – Fastest warm up than with Fuzzy or Fast Fuzzy, however, severe overshoot may occur from set point temperature. The ":" symbol will be displayed for this mode.

Adjusting “Er5” response time

The “Er5” value is the amount of time, in minutes, which the unit requires to sense that the sensor is not in the medium being heated. For example, if the “Er5” value is 3 minutes and the unit does sense a change in temperature during those 3 minutes, then an error message will be displayed. This value can be changed by pressing and holding the (–) key, while turning the power ON. When the display flashes “Er5”, press either the (+) or (–) keys to raise or lower the value. The adjusted value is saved, if no key is pressed for approximately 5 seconds.

Quick Tips

- 1) When changing the set point temperature, if the (+) or (–) keys are depressed and held, the values will change rapidly.
- 2) The (★) symbol shown in the bottom right portion of the display indicates that the unit is being operated in either “B” or “C” mode.
- 3) To change from Mode to Mode, hold the (+) key while cycling the power on and off.
- 4) Any changed setting will be saved if no key is pressed for approximately 5 seconds.
- 5) The unit can be reset to factory settings by holding in the (–) key while turning on and not pressing any keys thereafter, until unit displays the medium temperature.

Error Messages

The following error messages may occur on the display. The primary causes and solutions are listed next to the error message. The user should reset the unit's configuration if problem persists before calling for service. See page 5, Quick Tip #5.

<u>Error Message</u>	<u>Problem</u>	<u>Action</u>
Er 1	Sensor not connected or defective	Connect or replace
Er 2	Analog output voltage too low	Call for Service
Er 3	Internal temperature above 768C	Call for Service
Er 5	Sensor not in medium (unit detected no change in medium temperature)	Place sensor in medium. Adjust "Er5" time, see page 5.
Er 6	Sensor has short circuit	Replace Sensor
Er 7	The maximum set HI-TEMP is exceeded	Adjust HI-TEMP setting – see pg. 4
Er 8	Calibration error	Call for service – Technician required
Er 9	IC107 (4066) defective	Call for Service
Er 10	T_105 defective	Call for Service
Er 11	Supply voltage <7.5V	Call for Service
Er 12	Supply voltage >16.1V	Call for Service

Technical Data

▪ Measuring range	°C	-10 to 400
▪ Resolution	°C	0.1 (-10 to 100°C) 1.0 (100 to 400°C)
▪ Measuring Accuracy	°C	+/- .3 plus sensor tolerance
▪ Supply voltage	VDC	8 to 16
▪ Current use	mA	16 (at 9V)
▪ Ambient temperature	°C	0 to 60
▪ Relative humidity	%	80
▪ Cable length	mm	350
▪ Plug type		6-pin DIN 45 322
▪ Connection		DIN 12 878 Class 2
▪ Dimensions (w x d x h)	mm	70 x 150 x 65 (without sensor)
▪ Weight	kg	0.2

Warranty

Chemglass, Inc. warrants 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 reconfigurations are not covered under warranty. To return this item under warranty, advise Chemglass Electronics 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 Electronics Department for accessories along with warranty repair information.

Chemglass Electronics Department:

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