



TC3051 Temperature Controller User Guide

Version 1.1

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Overview

The Meadowlark Optics TC3051 is a single channel, microprocessor based temperature controller specifically designed to work with Meadowlark Optics' liquid crystal devices equipped with the Temperature Sensing and Control (TSC) option.

Setup

The TC3051 requires minimal setup. All that is required is to connect the included power supply, connect the temperature control cable to both the TC3051 and the liquid crystal device and turn the power on.

Operation

At power on, the TC3051 will display the firmware version for one second before beginning to operate.

Normally, the TC3051 will show the current temperature of the attached liquid crystal device in degrees Celsius. There is also an LED in the bottom right of the display that indicates when the temperature is within 0.5°C of the setpoint.

There are two buttons on the front panel. If either button is pressed and released, the current setpoint will be displayed for one second before the display reverts back to displaying the temperature of the Liquid Crystal device. If the "+" button is pressed and held, the setpoint will increase by one degree at a time, until reaching the upper limit of 60°C. If the "-" button is held, the setpoint will decrease by 1°C at a time to the lower limit of 20°C.

Upon release of either button, the new setpoint will be displayed for one second and then the display will revert to displaying the current temperature. The new setpoint is also saved to memory. This feature allows the unit to be powered off and then return to the previous setpoint the next time the power is turned on.

The factory default setpoint is 40 degrees Celsius, but is user configurable to any temperature between +20 and +60 degrees Celsius. The TC3051 will not cool the device below ambient temperature.

Troubleshooting

There are no user serviceable parts inside the controller.

If the display shows "E2" after displaying the firmware version, please make sure that the temperature control cable is securely connected between the controller and the LC. Upon reconnection of the temperature control, there will be a short delay before the TC3051 reads a correct temperature. As soon as a valid temperature is read, the display will revert to showing the current temperature.

If the display shows "E1", an internal fault has occurred. Turn off the controller, wait 10 seconds and turn on the controller. If this does not return the TC3051 to proper operation, please contact Meadowlark Optics for further assistance.

If the attached liquid crystal device does not get warm to the touch, but shows a valid temperature, first check the setpoint by pressing and releasing either the "+" or "-" button. If the setpoint is correct, either the cell's heater has failed or the TC3051's internal fuse has blown. Please contact Meadowlark Optics for further assistance.

Specifications

Power requirements: 100 – 240V ac, 47 – 63 Hz, 500 mA

Fuse: Internal (not user serviceable)

Environment: 0° C to +50° C (Operating); -55° C to +100° C (Storage)

External Dimensions (W x D x H): 5.08 x 5.25 x 1.50 in. (12.90 x 13.33 x 3.81 cm)

Weight: 1 lb. (0.45 kg)

Temperature readout resolution: 1 degree Celsius

Temperature readout range: 0 to 99 degrees Celsius.

Setpoint resolution: 1 degree Celsius

Setpoint range: 20 to 60 degrees Celsius

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