



deltaT

Temperature controller for dew caps and mirror heater

User's manual V1.1



Thank you for buying the automated temperature controller from Lacerta

Shipping unit

The regulator comes with two measurement lines for two dewcaps or mirror heaters (telescope tube and finder or secondary mirror). For power supply the deltaT comes with a 2m 12V power cable with a cigarette lighter plug.

- deltaT controller box
- measurement line 1 (Y-cable) with heater1 sensor (black) and ambient temperature sensor (yellow)
- measurement line 2 with heater2 sensor (white) for second dewcap or mirror heater
- DC 12V power cable with cigarette lighter plug

Installation

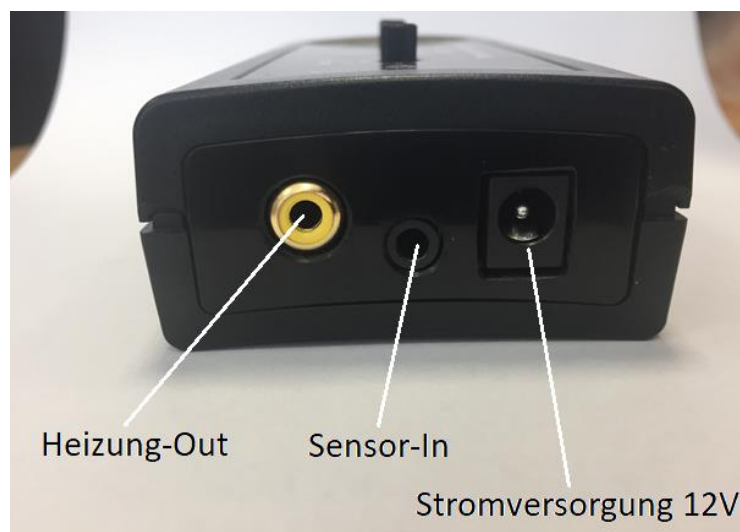
For the control of a dewcap or a mirror heater, the temperature has to be measured permanently. Therefore the temperature sensor 1 (black) is placed between the telescope tube and the dewcap. **IMPORTANT:** for the correct temperature value of the heater, an insulation between the telescope tube and the sensor is used (plastic or cardboard). As an alternative, the sensor can be placed outside on the dewcap above the hot area with a tape (test the hot area first)

The ambient sensor (yellow) should be placed in distance to hot parts (cold side of the dewcap or on the telescope or mount)

The two sensors (Ambient & Temp Probe1) use the same jack-plug and should be plugged in to the Temp Probe1 plug.

The dewcap or mirror heater should be plugged into the Heater1 output beside the sensor plug.

After that, the power cable has to be plugged in to one of the two power plugs (They are equivalent In/Out). The other DC IN/OUT could be used to power other 12V devices.



The operation

After all cables are plugged in, a short LED-test (3x Red, Green and Blue LED flashing) happens. After that, the LEDs change to orange. This shows the normal operation of the deltaT. It heats up until he reaches the required temperature. This can take a few minutes (depending of the telescope size). When the temperature is reached, the LED went to green light. This means, the deltaT reached the required temperature and holds it.

If the second Channel is not connected, the second LED stays red and the output is switched off.

If a lower or higher temperature is required, the temperature pre-set knob has to be adjusted to the new temperature. The LED went to Orange (The new temperature is not reached yet). After a few minutes the LED should went to Green again. There are two temperature knobs for the two outputs (for example: Channel1: Telescope 11°C above ambient temperature, Channel2: Guidescope 6°C above ambient temperature)

When a mobile power supply is used, the supply voltage should not be lower than 10.8V. When this low voltage occurs, both outputs turns off and both LEDs flashing RED.

Error analysis

RED, GREEN, RED blinking LEDs at start up

- LED test at start up, normal operation

Both LEDs blinking RED

- Too low supply voltage-> Change Battery or Supply

Both LED switch to RED

- Sensor error for ambient temperature-> Check whether the ambient sensor (yellow) is connected to output 1 (Y-cable together with Temp Probe1)
- Double sensor error: Both sensors (Temp Probe1 & Temp Probe2) are broken.

One LED stays RED (other LED is Green or Orange)

- The sensor of this channel is broken or incorrectly plugged in. -> Ambient sensor (Y-cable with Temp Probe1 Sensor on channel 1, Temp Probe2 sensor (white) at channel 2

LED stays ORANGE

- Sensor error -> checking the correct position of the sensors. If the dewcap is hot, the "Temp Probe" sensor should be isolated to the Telescope (cardboard or plastic sheet).
- Heater Error -> If the dewcap is cold, it could be broken and can't reach the required temperature
- Ambient temperature sensor (yellow) error: The sensor is positioned on a warm place or too near to the hot dewcap. -> Change the sensor position.