Laird Engineered Thermal Systems
Technical Manual

PR-59 Frequently Asked Questions

March 2017

Table of Contents

What is the TC-NTC-1?

Q. What is the TC-NTC-1?

A. It is a NTC-sensor that can be used for both control and alarm sensor input on the PR-59. The sensor head is 15 mm long with max 6mm diameter. full length of cables including head is 175 mm. R=10kOhms +/-2% at 0°C. B-value is 3860 +/-1%.

What is the NTC-2?

Q. What is the TC-NTC-2?

A. It is a high precision thermistor that is intended to be used as main temperature sensor with the PR-59-controller. Tolerance is +/-0.1°C (25 to 95°C). Sensor head is 5mm long and diameter is 1.6mm maximum. Total length is 157mm (wires+sensor head).

What is the TC-WIRE2-PR-59?

Q. What is the TC-WIRE2-PR-59?
A. It is a piece of cable (700mm) with connector suited for the two alarm sensors and for the alarm relay output on the PR-59-controller.

What is the TC-WIRE3-PR-59?

Q. What is the TC-WIRE3-PR-59?

A. It is a piece of cable (700mm) with connector suited for the main temperature sensor on the PR-59-controller. Note that all three wires has to be connected to the sensor according to the connection description on the TC-XX-PR-59-drawing.

What is the maximum power output?

Q. What is the maximum power output that the controller can handle?

A. The maximum output current is 15A regardless of voltage. The maximum output current for the Fan outputs are 2A each.

Why doesn't the controller change behavior after I changed settings?

Q. I have changed the settings for the controller in the SC_Interface program but the controller has not reacted.

A. When a change in settings has been made in the SC_Interface program, this change will first take place after you have clicked on the SEND-button.

Why doesn't the controller keep it's settings after a power down?

Q. Why doesn't the controller keep it's settings after a power down?

A. When you change settings and click on the SEND-button you update the volatile memory in the controller. To keep the settings as power on default values you need to make a save to flash. This command is found in the Regulator-menu.

Do I need to download new firmware?

Q. Do I need to download new firmware to the regulator?

A. You NEVER need to download any firmware, unless you get a new firmware sent from us with the instructions to do so. The firmware is already in the regulator.

What does the LEDs on the board indicate?

Q. There are 4 LEDs on the PR-59 board. A yellow which I have had a mixture of flashing and on constantly, a red and 2 green. What is the significance of these LEDs and what do they indicate?

A. The two green LEDs is indicating that there is 12V and 5V internal supply voltage. The red LED is indicating that there is an alarm or any fault, but will also stay on for 4 s after a fault is cleared. When power-up, it will stay on for 4 s to indicate power-up phase, and if there is no faults or alarms, it will go off when 4s elapsed. The yellow LED is flashing to indicate that the command loop internally is running. If all four LEDs are steady on all the time, the unit is in bootloader mode. This mode in only entered if a new firmware is downloaded.

I had problems and tried to download new firmware, now all LEDs are on?

Q. I had problems and tried to download new firmware, now all LEDs are on. Unfortunately also this afternoon when I was attempting to start the system, I seem to have lost contact with the regulator. I did try to download new firmware to the regulator and failed, though whether this was because I had already lost communication and didn't realize or caused communication to be lost I am not sure. All LEDs are on and nothing in a steady state manner.

A. You NEVER need to download a firmware. The lost communications could depend on many other things. Connect the serial cable, power-up the regulator board, start software, click on the connect button. If everything is correct you will get live data from the board. The board can be powered-up after the software has started as well.

But, if you lost communication DURING download of firmware. You need to download the firmware again. After that you NEVER need to download the firmware again, unless Supercool is advising you to do so.
The best way of downloading the firmware is:
1. Start the GUI, but do not start or click on anything
2. Power-up the regulator board
3. Select "Download firmware" from "Setup" menu. (Do not connect prior this)
4. Select file to download and wait until it is ready.
5. Now you can press connect button, and you will get live data.

I want to disable the filters in the PID-regulator?

Q. I would like to disable the two filters in the PID-regulator. What values should I put in to achieve this?

A. You enter the value 0.05 in the Tr and Te box to disable the filters.

What are the factors Ki and Kd?

Q. What are the factors Ki and Kd?

A. Ki is the integral constant that determines …. unit:1/seconds. Kd is the derivative constant that ….unit:seconds.

What kind of temperature sensors can I use with the controller?

Q. What kind of temperature sensors can I use with the controller?

A. The controller is made to work with NTC-sensors only. The measuring span ranges from 200 Ohm to 500 kOhm so the sensor need to be working in this area to be useable with the controller. Measurement resolution is 0.1% or 1 Ohm whichever is greatest. To get better resolution the measured resistance should be between 400 and 250.000 Ohms.

Is there need for additional cooling when running at max load?

Q. Do I need additional cooling when running the controller at maximum load?

A. If the controller is mounted in a ventilated area there is no need to add cooling. If it is mounted in a closed compartment, you might need additional cooling. The temperature T4 senses the heat sink temperature for the MosFets and there is an alarm set at 60°C as default. If you go above these 60°C you need additional cooling.

My Laptop does not have a RS232. Can I use USB to connect?

Q. My laptop does not have a RS232-port. Is it possible to connect to the controller through a USB-port?

A. Yes, but you need a USB to RS232-converter like US232B from FTDI (see http://www.ftdichip.com/Products/EvaluationKits/USB-Serial.htm)

Is it possible to send new parameters without the software that came with the controller?

Q. Is it possible to send new parameters without using the software that came with the controller?

A. Yes, you can take full command over the controller, adjusting all parameters and issuing all commands available in the software and more…. See the document SSCInterface that you access from the SC_Interface group under start-programs.

Can I set multiple set points in the controller?

Q. Can the controller handle multiple set points?

A. No, the controller is a single set point device. If you want to change the set point you need to either use the GUI or write directly to the corresponding register through the RS232.

Can the controller handle voltages above 30V?

Q. Is it possible to work at a higher voltage than 30 VDC?

A. The controller is designed for maximum 30VDC. We do not recommend to use voltages higher than that.

I cannot get a connection to the controller?

Q. I cannot get a connection in SCInterface to the controller.

A. Check the following:
1. Check that you have chosen Baudrate 115200 in global setup
2. Check that you have chosen the correct comport in global setup. If you do not know, you can try each listed comport in the list and try to connect. This should help you find the correct comport setting.
3. Check the wiring between computer and controller.
4. You can use the windows terminal program to see if you have problems due to the speed of the communication. Create a new connection in HyperTerminal and setup as follows:
   Baudrate 115200
   Databits 8
   Parity none
   Stopbits 1
   Flowcontrol none

If you connect and issue the command $v and then press enter you should get a response like: SC_v2.6.23 SSCI_v1.6d if the communication is ok. If this works and SCInterface does not connect, try to switch off all other applications on your computer and try again. It might be that the computer does not have time enough to keep the communication going.

About Laird

Laird is a global technology business focused on enabling wireless communication and smart systems, and providing components and systems that protect electronics. Laird operates through two divisions, Wireless Systems and Performance Materials. Wireless Systems solutions include antenna systems, embedded wireless modules, telematics products and wireless automation and control solutions. Performance Materials solutions include electromagnetic interference shielding, thermal management and signal integrity products. As a leader in the design, supply and support of innovative technology, our products allow people, organizations, machines and applications to connect effectively, helping to build a world where smart technology transforms the way of life. Custom products are supplied to major sectors of the electronics industry including the handset, telecommunications, IT, automotive, public safety, consumer, medical, rail, mining and industrial markets. Providing value and differentiation to our customers through innovation, reliable fulfilment and speed, Laird PLC is listed and headquartered in London, and employs over 9,000 people in more than 58 facilities located in 18 countries.

LAIRDTECH.COM

Contact Laird Engineered Thermal Systems

Have a question or need more information about Laird Engineered Thermal Systems? Please give us a call or contact via the web.

America: +1 919 597 7300
Europe: +46 31 420530
Asia: +86 755 2714 1166

https://www.lairdtech.com/solutions/thermal-management/contact

Laird-ETS-PR-59-Frequently-Asked-Questions-030917