

# Temperature Controller

The temperature controller used for regulating and stabilizing the temperature of the laser diode is a **Meerstetter TEC-1091-NTC56k-Pinheader** - [IQWiki entry](#)

## Current Setup - Rack Mount



- **Switch:** controls connection between lab power supply and meerstetter
- **Power LED:** on = power on, off = power off
- **Status LED:** on = Temperature at setpoint, blinking = ramping to setpoint, off = power off or error

- **USB:** connection to PC, see [Meerstetter wiki entry](#) for more information
- **SUB D-9:** male connector, connects to [laser mount](#)
- **Tuchel socket:** connection to 5-24V @ 4A max

| Socket | Pin Name  | Connected To | Explanation                      |
|--------|-----------|--------------|----------------------------------|
| X1     | VIN       | XLR Plus     | connections for the power supply |
|        | GND       | XLR GND      |                                  |
|        | RES2      | LED Anode    | status LED                       |
| X2     | OUT +     | SUB D Pin 4  | TEC (+)                          |
|        | OUT -     | SUB D Pin 5  | TEC (-)                          |
|        | OBJ T° UA | SUB D Pin 3  | NTC (-)                          |
|        | OBJ T° UB | SUB D Pin 2  | NTC (+)                          |
|        | Shield    | SUB D Pin 9  | GND for shield of cable          |

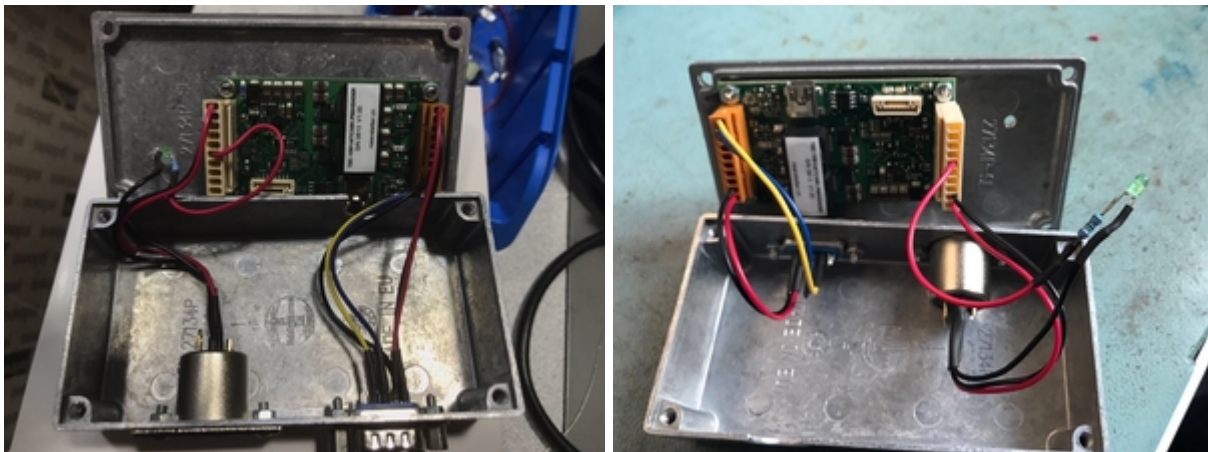
The output of the Meerstetter is filtered as shown [here](#).

For the configuration file of the Meerstetter refer to `\\AFS\iqo.uni-hannover.de\projects\magnesium\Projekte\PTB Ultrastable laser\Laser at IQO\meerstetter rack einschub`

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## Old setup - in a Box

### Overview





- The **subD9 connector** is used to connect the Meerstetter to the Thorlabs mount for the laser diode and is configured specially for that purpose.
- The **XLR socket** is used to connect the Meerstetter to a power supply.
- The **Mini-USB socket** is used to connect the Meerstetter to a PC for configuration and data logging.

There is also a **status LED** connected to the Meerstetter. If the LED is constantly on, the wanted temperature is reached. A blinking LED means that the system is currently ramping towards the wanted temperature and if the led is off, there is an error or the Meerstetter is currently turned off.

## Power Supply

The voltage range with which the Meerstetter can be powered is 5-24V DC, currently it is driven with **18V DC**. The power supply should be capable of delivering **4A**. Always use a **seperate power supply** for powering the Meerstetter.

## Connections within the Case

### Current Connections

Currently the connections are as shown in the table below:

| Socket | Pin Name  | Connected To | Explanation                      |
|--------|-----------|--------------|----------------------------------|
| X1     | VIN       | XLR Plus     | connections for the power supply |
|        | GND       | XLR GND      |                                  |
|        | RES4      | LED Anode    | status LED                       |
| X2     | OUT +     | SUB D Pin 4  | TEC (+)                          |
|        | OUT -     | SUB D Pin 5  | TEC (-)                          |
|        | OBJ T° UA | SUB D Pin 3  | NTC (-)                          |
|        | OBJ T° UB | SUB D Pin 2  | NTC (+)                          |
|        | Shielding | SUB D Pin 9  | GND for shield of cable          |



| LED          | Meaning                            |
|--------------|------------------------------------|
| constanly on | target temperature is reached      |
| blinking     | ramping towards target temperature |
| off          | error/Meerstetter is off           |

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