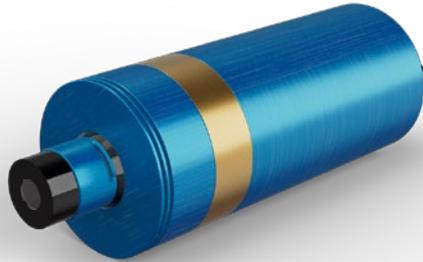# MVgoldHP

Technical Explanation and Instructions for the High-Power Laser Module



## Installation and Operation

Please pay attention to the clamping area and refer to the data sheet when mounting the laser module. Clamping areas vary for different laser module types. To ensure proper heat dissipation, clamp the module only at the specified position and apply thermal paste or heat-conductive foil to the overlapping surfaces of the module and mount. If you are uncertain about mounting under specific conditions (e.g., ambient temperature, surrounding equipment), please contact us for guidance.
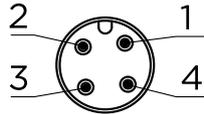


Clamping Area
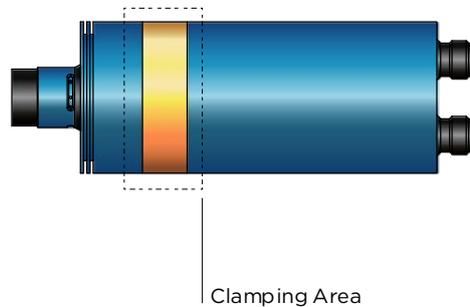
## Electronic Overheating Protection

The laser diode temperature is actively controlled by an internal TEC (thermoelectric cooler). However, proper cooling is ensured only as long as effective heat dissipation from the heat sink is maintained (refer to the datasheet for the specified housing temperature of the laser module). If this condition is not met, the module's integrated electronic protection system prevents overheating. Should the laser module exceed the specified maximum temperature, the protection system is activated, and the laser switches off automatically. Once the temperature falls below the specified housing temperature, the module switches on again automatically. This switch-on and switch-off process is subject to a hysteresis with a temperature difference of 5 °C and is used for the cooling phase.
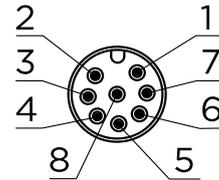
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## M12-Connectors for Power Supply and Communication

The pin assignments of the two M12 connectors – one for the power supply, the other for the communication interface – are as follows:

| M12 connector 4-pin, male | M12 connector 8-pin, male |
|---|---|



| | | | |
|---|---|---|---|
| Pin 1: | +VDC | Pin 1: | RX (RS-232 0-5 V or RS-485) |
| Pin 2: | Modulation M/MI | Pin 2: | TX (RS-232 0-5 V or RS-485) |
| Pin 3: | GND | Pin 3: | GND |
| Pin 4: | Reserved | Pin 4-8: | Reserved |

## Focusing Mechanism

The focal distance of the uniform laser line can be adjusted with the provided pin tool.
Stick the pin into one of the holes of the inner ring and turn it clockwise/counterclockwise.
The focal distance decreases/increases.



Bore in focus slit

Counterclockwise: Near

Clockwise: Far

b e y o n d   b o r d e r s
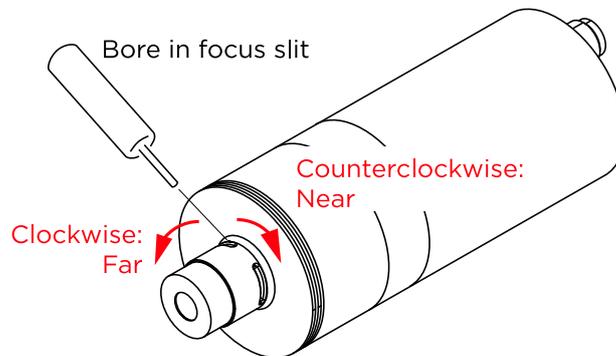
## Communication

The module provides an RS-232 with 0-5 V interface (RS485 optional) to read out parameters and change them. With the RS485 option, the modules can be connected to a bus system and addressed via their specific serial number. A specific serial number between 1 and 255 can be assigned to an MVgoldHP module by the user. The factory preset serial number is 1. The serial number must be assigned individually to each module before using it in the bus system during set-up of the bus.

RS-232/RS485 parameters:

Baud rate     = 115200 1/s
Parity bit    = None
Data bit      = 8
Stop bit      = 1
Flow control  = None

Command structure: When using the RS232 interface, commands can be entered as listed below. If the optional RS485 interface is used, all commands must start with the character "#" followed by the 3-digit serial number defined by the customer, or with "#000", which addresses every module regardless of the serial number. All transmitted commands must be terminated with the character NULL \0. Each response ends with the character \r.

| Command | Explanation | Example | Answer | Explanation Answer |
|---|---|---|---|---|
| getIdcurrent | returns the current through the laser diode of the last pulse in mA | RS232: getIdcurrent<br>RS485: #000getIdcurrent | 1300\r | 1300mA |
| getserial | returns the 3 digit serial number of the module | RS232: getserial<br>RS485 #000getserial | 233\r | serial number 233 |
| gethours | returns the duration the laser module was connected to a voltage supply in hours | RS232: gethours<br>RS485: #000gethours | 3400\r | module was connected to power supply for 3400 hours |
| geterror | returns an error code | RS232: geterror<br>RS485: #000geterror | 1\r | 0: laser ok,<br>1: laser over temperature |
| setserial[1-255] | sets the serial number | RS232: setserial255<br>RS485: #000setserial255 | 255\r | sets the serial number to 255 |

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