



Koheron CTL200 is the digital version of the popular [CTL101 analog laser controller](#). It combines a low noise current driver with modulation and a temperature controller. The CTL200 fits in a 75 mm x 75 mm square, uses a single 5.9 V supply, and can operate between 0 and 50°C. The CTL200 is conduction-cooled. It comes with an aluminum base plate and a zero insertion force socket for easy mounting. The CTL200 is also available in a [screw terminal version](#).

Specifications

CTL200 laser controller is available for type 1 lasers (CTL200-1-) and type 2 lasers (CTL200-2-).

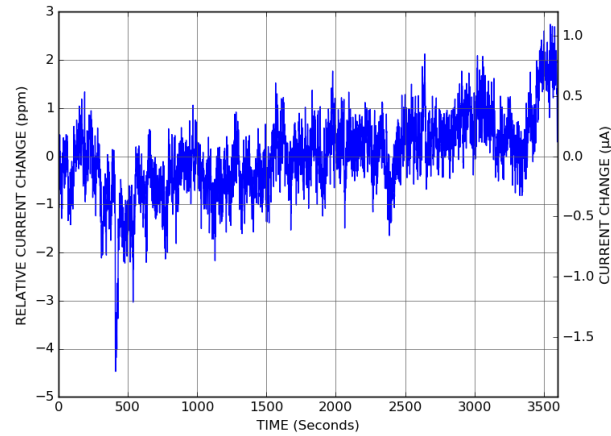
	B-100	B-200	B-400	B-600
Current driver				
Laser current	3 mA to 112 mA	5 mA to 225 mA	10 mA to 450 mA	15 mA to 675 mA
Laser current resolution	2.5 μ A	5 μ A	10 μ A	15 μ A
Compliance voltage	3.0 V	3.0 V	3.0 V	2.9 V
RMS noise 10 Hz to 1 MHz	130 nA _{rms}	220 nA _{rms}	430 nA _{rms}	650 nA _{rms}
Current noise density 1 kHz	120 pA/ $\sqrt{\text{Hz}}$	230 pA/ $\sqrt{\text{Hz}}$	450 pA/ $\sqrt{\text{Hz}}$	670 pA/ $\sqrt{\text{Hz}}$
Temperature coefficient	20 ppm/°C	20 ppm/°C	20 ppm/°C	20 ppm/°C
AC modulation cutoff frequency	80 kHz	80 kHz	80 kHz	80 kHz
DC modulation				
Modulation gain L setting	125 μ A/V	250 μ A/V	500 μ A/V	750 μ A/V
Modulation gain M setting	1.25 mA/V	2.5 mA/V	5 mA/V	7.5 mA/V
Modulation gain H setting	12.5 mA/V	25 mA/V	50 mA/V	75 mA/V
3 dB modulation bandwidth	10 MHz	10 MHz	10 MHz	10 MHz
Modulation input impedance	50 Ω	50 Ω	50 Ω	50 Ω
Modulation input range L or M setting	-1.3 V to 1.3 V	-1.3 V to 1.3 V	-1.3 V to 1.3 V	-1.3 V to 1.3 V
Modulation input range H setting	-1.3 V to 1.0 V	-1.3 V to 1.0 V	-1.3 V to 1.0 V	-1.3 V to 1.0 V

TEC controller				
Maximum current	0.8 A	1.2 A	1.2 A	1.2 A
Compliance voltage	-3 V to 3 V	-3 V to 3 V	-3 V to 3 V	-3 V to 3 V
Temperature stability	0.002 °C/°C	0.002 °C/°C	0.002 °C/°C	0.002 °C/°C
Laser power monitor				
Photodiode current	0 mA to 2.5 mA	0 mA to 2.5 mA	0 mA to 2.5 mA	0 mA to 2.5 mA
Other				
Supply voltage	5.7 V to 6.5 V	5.7 V to 6.5 V	5.7 V to 6.5 V	5.7 V to 6.5 V
Power supply connector Standard ZIF sockets laser mount	Jack (2.1 & 2.5 mm) 5.9 V 3 A power supply included	Jack (2.1 & 2.5 mm) 5.9 V 3 A power supply included	Jack (2.1 & 2.5 mm) 5.9 V 3 A power supply included	Jack (2.1 & 2.5 mm) 5.9 V 3 A power supply included
Power supply connector Low profile laser mount	Terminal block Power supply not included	Terminal block Power supply not included	Terminal block Power supply not included	Terminal block Power supply not included
Operating temperature	0 °C to 60 °C	0 °C to 60 °C	0 °C to 60 °C	0 °C to 50 °C
Compatible lasers	Floating diodes	Floating diodes	Floating diodes	Floating diodes
Outside dimensions Standard ZIF sockets laser mount	75 mm x 85 mm x 27 mm	75 mm x 85 mm x 27 mm	75 mm x 85 mm x 27 mm	75 mm x 85 mm x 27 mm
Outside dimensions Low profile laser mount	75 mm x 85 mm x 17 mm	75 mm x 85 mm x 17 mm	75 mm x 85 mm x 17 mm	75 mm x 85 mm x 17 mm
Weight Standard ZIF sockets laser mount	104 g	104 g	104 g	104 g
Weight Low profile laser mount	102 g	102 g	102 g	102 g

Current driver

Current stability

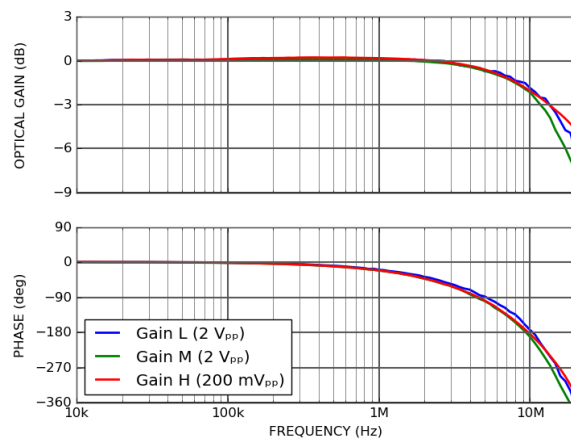
Current stability over 1 hour of a B-400 controller operated at 400 mA.



CTL200-1-B-400 one hour current stability

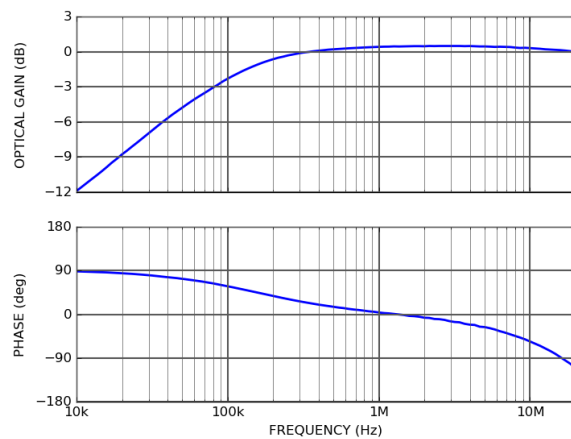
Current modulation

The CTL200 controller has two current modulation inputs available on SMA connectors. The DC modulation input allows to modulate the current setpoint between DC and 10 MHz.



CTL200-2-B-600 DC modulation transfer function

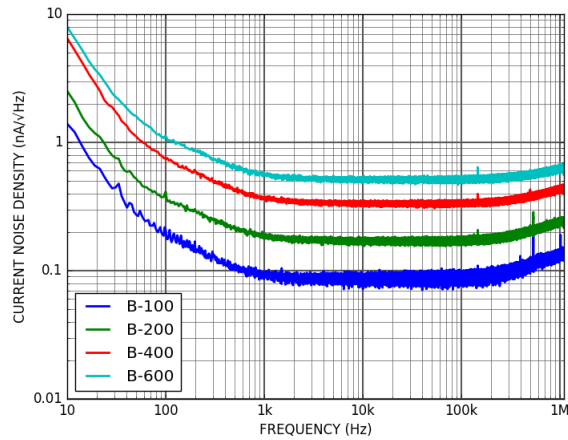
The AC modulation input can be used to modulate the laser above 100 kHz with a modulation gain of 20 mA/V:



CTL200-2-B-600 AC modulation transfer function

Current noise

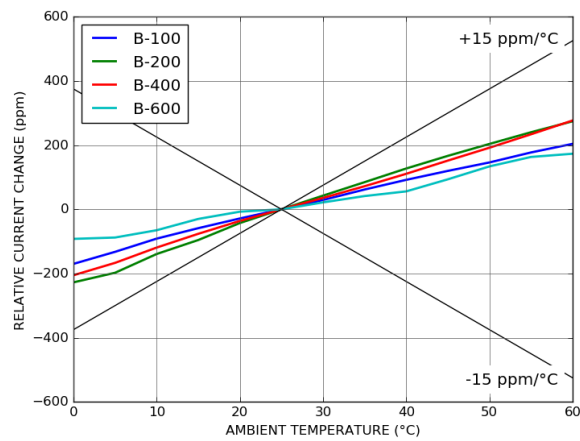
The figure below shows the current noise of the CTL200 controller operating at rated current with the modulation gain set to medium:



CTL200 current noise density

Temperature stability

The figure below shows the variation of the output current against the ambient temperature for controllers operating at rated current:



CTL200 temperature coefficient

Ordering codes

PRODUCT NUMBER	ATTRIBUTE
CTL200-1-B-100	Laser mount Standard ZIF sockets / Laser type 1 / Laser current 100 mA
CTL200-1-B-200	Laser mount Standard ZIF sockets / Laser type 1 / Laser current 200 mA
CTL200-1-B-400	Laser mount Standard ZIF sockets / Laser type 1 / Laser current 400 mA
CTL200-1-B-600	Laser mount Standard ZIF sockets / Laser type 1 / Laser current 600 mA
CTL200-2-B-100	Laser mount Standard ZIF sockets / Laser type 2 / Laser current 100 mA
CTL200-2-B-200	Laser mount Standard ZIF sockets / Laser type 2 / Laser current 200 mA
CTL200-2-B-400	Laser mount Standard ZIF sockets / Laser type 2 / Laser current 400 mA
CTL200-2-B-600	Laser mount Standard ZIF sockets / Laser type 2 / Laser current 600 mA
CTL200-1-B-100-LP	Laser mount Low profile / Laser type 1 / Laser current 100 mA
CTL200-1-B-200-LP	Laser mount Low profile / Laser type 1 / Laser current 200 mA
CTL200-1-B-400-LP	Laser mount Low profile / Laser type 1 / Laser current 400 mA
CTL200-1-B-600-LP	Laser mount Low profile / Laser type 1 / Laser current 600 mA
CTL200-2-B-100-LP	Laser mount Low profile / Laser type 2 / Laser current 100 mA
CTL200-2-B-200-LP	Laser mount Low profile / Laser type 2 / Laser current 200 mA
CTL200-2-B-400-LP	Laser mount Low profile / Laser type 2 / Laser current 400 mA
CTL200-2-B-600-LP	Laser mount Low profile / Laser type 2 / Laser current 600 mA