



Precision Pulse Control

The PCM-7700 series of air-cooled, high-power current sources is designed to drive laser diodes, bars, and arrays with up to 200 A of current (load voltage to 25 V). The PCM-7700-48 has a built-in power supply; the PCM-7700-EX connects to an external supply for higher duty cycles. Both models feature pulse widths from 500 μ s to 50 ms and pulse repetition rates from single shot to 1 kHz.

System Operation

The PCM-7700 output current may be set with a potentiometer on the included evaluation board or with an analog voltage. The pulse width is controlled by the trigger input.

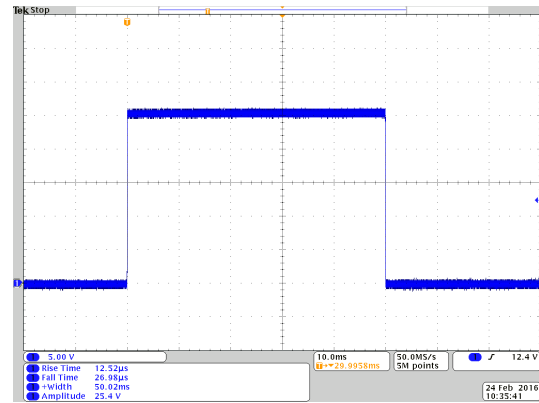
Digital and analog control modes are supported. In digital mode, an input voltage controls the pulse output current and an external trigger signal controls the pulse width. In analog mode, the output current follows the input voltage. Regardless of mode, the instrument must always be operated within the safe operating area (see SOA graphs below).

Complete System Integration

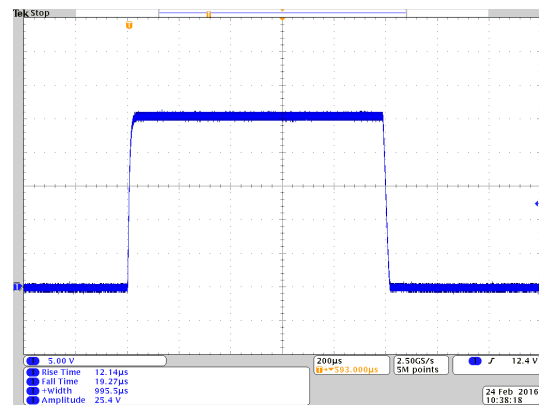
For automated applications, complete control of the instrument is provided through a DB15 male connector.

Ordering Information

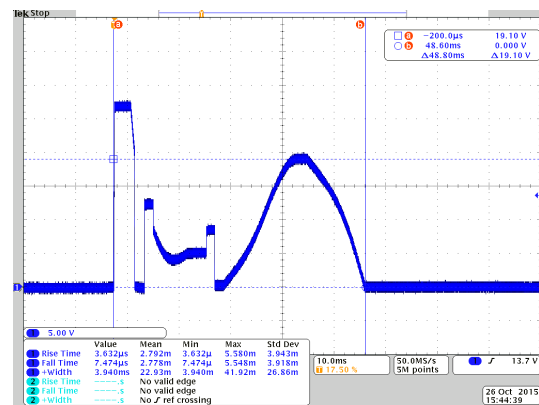
- PCM-7700-48 Internal power supply version
- PCM-7700-EX External power supply version



PCM-7700-48, 200 A, 50 ms pulse width, 1 Hz into a HPL-2400-0.126 load, Digital Control Mode.



PCM-7700-48, 200 A, 1 ms pulse width, 1 Hz into a HPL-2400-0.126 load, Digital Control Mode.



PCM-7700-48, 200 A full scale, into a HPL-2400-0.126 load, Analog Control Mode using the arb function of a Tektronix AFG3051C.

Pulse Amplitude

Output Current Range	5 A to 200 A ¹
Setpoint Resolution	0.050 A
Setpoint Accuracy	± 1 % of full scale current
Current Overshoot	< 0.5 % of full scale current
Current Rise/Fall Time	≤ 75 μs (with I _{OUT} > 10 A)

Pulse width 500 μs to 50 ms

Polarity Positive
 Load Voltage 0 V to 25 V PCM-7700-48²
 0 V to 25 V PCM-7700-EX²

Maximum Output Power See SOA graphs

Gate

Frequency Range Single-shot to 1 kHz

Input Voltage Levels 0 V: output OFF
 5 V: output ON

Gate pulse width 500 μs to 50 ms (Digital Control Mode)
 0 to ∞ ms (Analog Control Mode)

Termination Impedance 50 Ω

Connector DB-15 pin 8

Current Setpoint

Input Voltage Levels 0 V to 10 V
 0.000 V = 0 A output
 10.000 V = 200 A output

Termination impedance 10 kΩ

Response time on change ≤ 5 μs

Connector DB-15 pin 6

Enable Signals

Input Voltage Levels 0 V: Enable
 5 V or open: Disable

Termination impedance 10 kΩ

Response time on change ≤ 200 ms

Connector DB-15 pin 4 (EXT ENABLE 1)
 DB-15 pin 3 (EXT ENABLE 2)

Monitors

Current monitor 5 mV / A
 200 A output current = 1.000 V

(typical)
 Current monitor termination 50 Ω
 Current monitor connector DB-15 pin 2

Voltage monitor 60 mV / V
 30 V output = 1.800 V (typical)

Voltage monitor termination 1 MΩ
 Voltage monitor connector DB-15 pin 1

Output Connector

Output Connector 2 x Amp 1-770974-0
 Pins 1 through 8 = Out –
 Pins 9 through 16 = Out +

Power Specifications

Voltage requirements 100 V AC to 240 V AC
 Line frequency 50 Hz to 60 Hz

Power requirements PCM-7700-48 is 1200 W
 PCM-7700-EX is 250 W

Connector Type IEC 320-C14

General

Size (HxWxD) 27 cm x 27 cm x 39 cm
 Weight 15 kg

Operating Temperature 15 °C to 35 °C
 Cooling Air cooled
 (Air flow from rear to front)

Notes

¹Rise and fall time specifications valid from 10 A to 200 A

²Operation of instrument outside of the listed load voltage and maximum power limits can cause permanent damage to the instrument and/or load. Please see the SOA graphs in the manual for more information.

Warranty: One year parts and labor on defects in materials and workmanship.

The PCM-7700 current source meets or exceeds these specifications. All specifications are measured using the standard included output cable and a HPL-2400 (low-inductance, high-power resistive load). Load not included. Specifications subject to change without notice.

Included Load Board and Evaluation Board

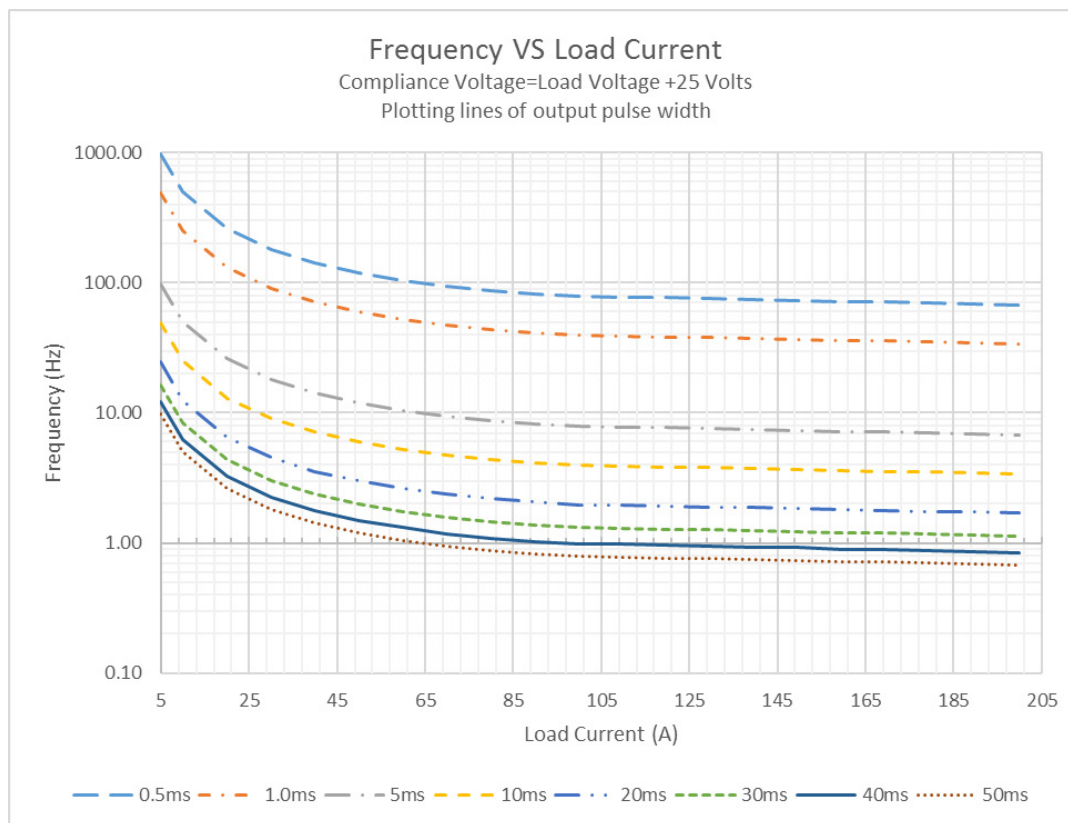


Safe Operating Area Graphs

IMPORTANT: Do not operate the instrument outside of the Safe Operating Area!

Although the PCM-7700's external triggering system allows it to operate outside the Safe Operating Area, such operation will result in permanent damage to the PCM-7700, the laser diode, or both.

The Safe Operating Area is below the line of each graph. Only operate the instrument in this Safe Operating Area.

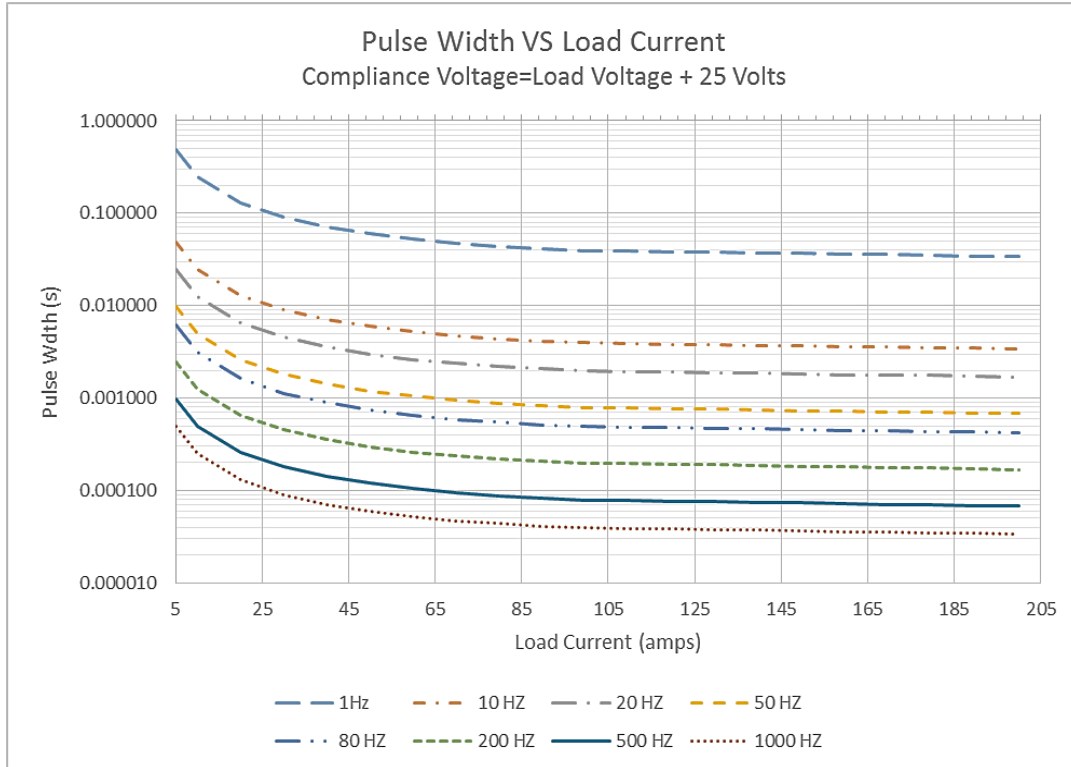


PCM-7700-48

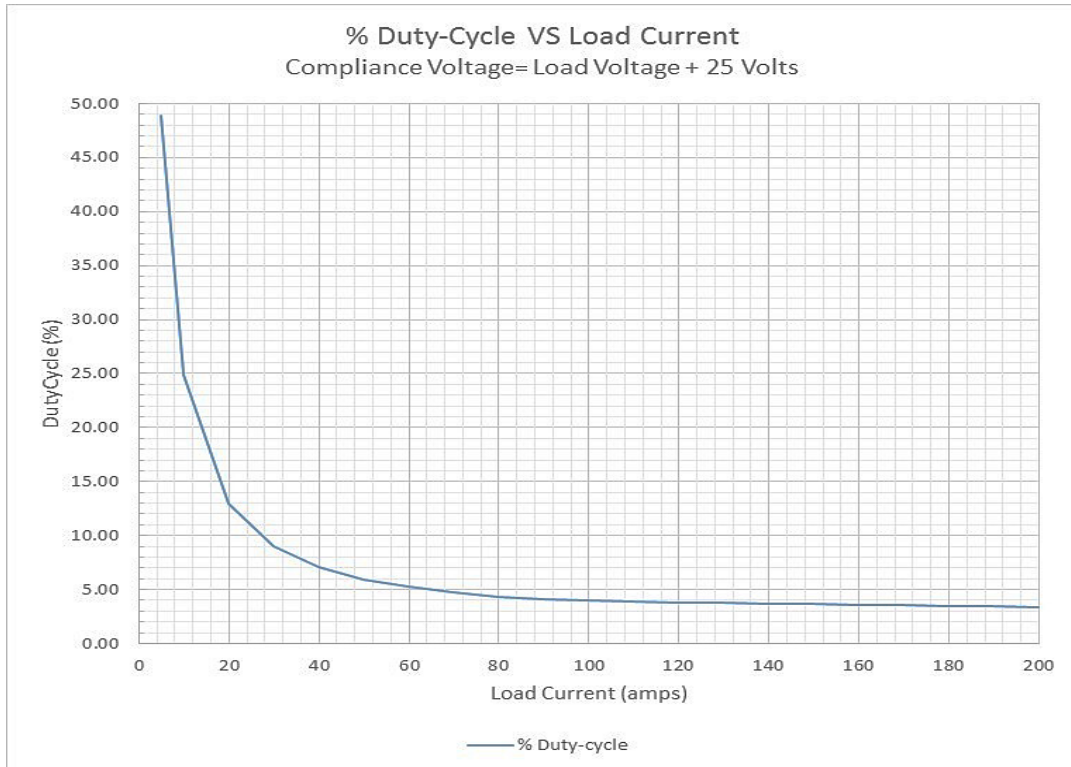
PCM-7700 Pulsed Current Source — Datasheet



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PCM-7700-48

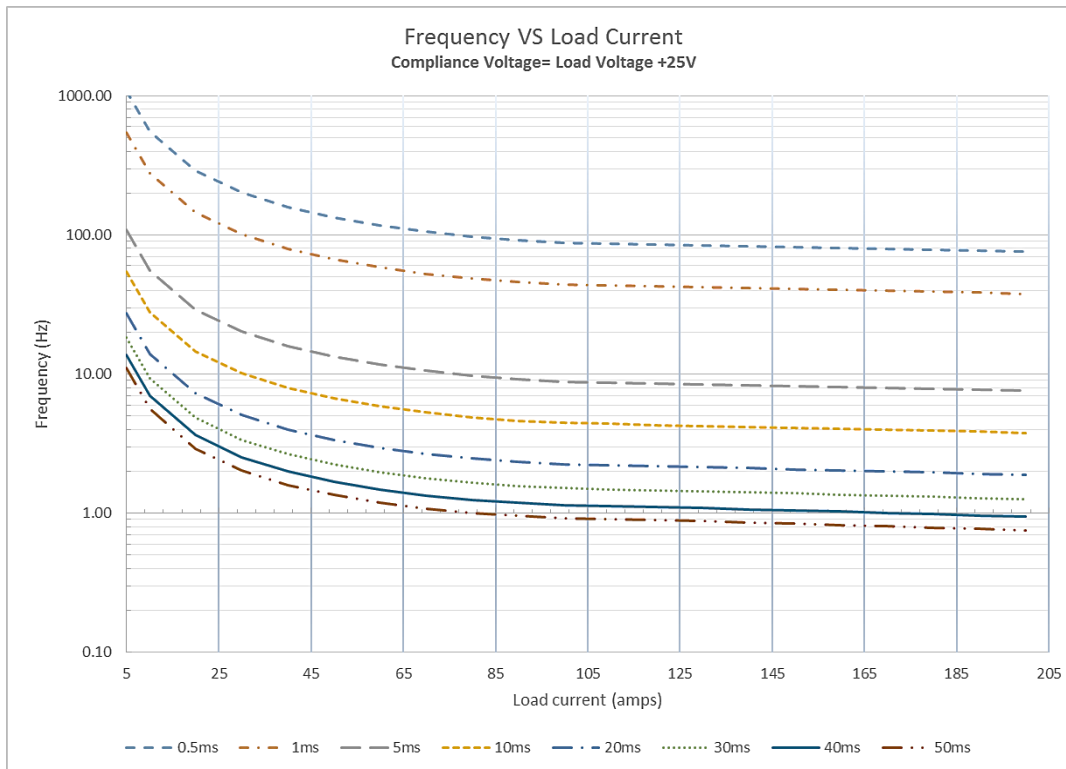


PCM-7700-48

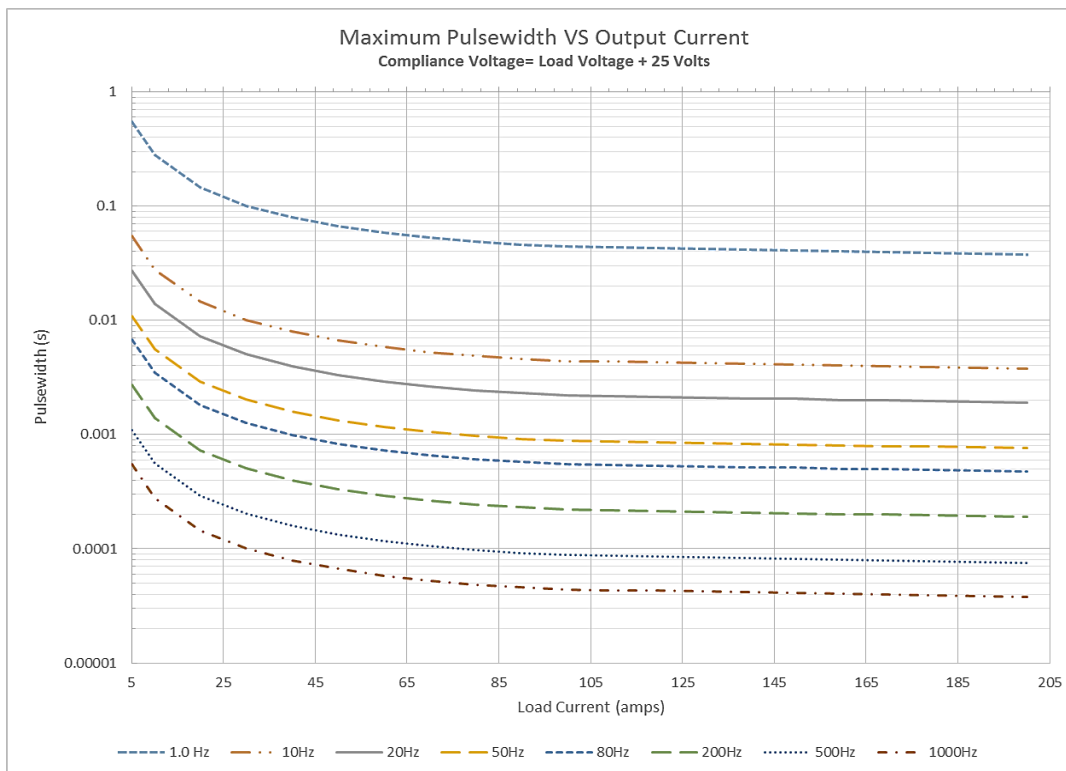
PCM-7700 Pulsed Current Source — Datasheet



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PCM-7700-EX

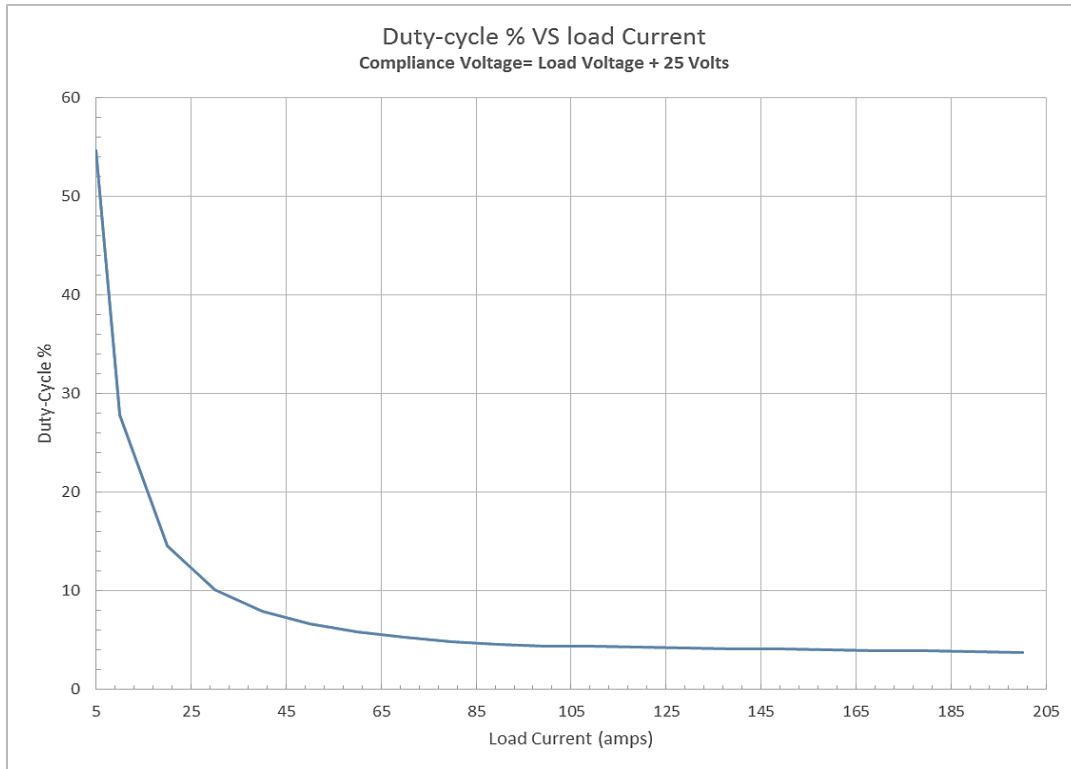


PCM-7700-EX

PCM-7700 Pulsed Current Source — Datasheet



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PCM-7700-EX