

ICE BLOC[®]

QCLD

QCL driver and temperature controller



BUILD A BETTER LAB WITH ICE BLOC

High performance laser instrumentation with state-of-the-art connectivity and modern accessible interfaces. The new Ice Bloc range has been designed to help you capture, extract and view important experimental data with the aim of making your experiments easier to set up, manage and measure. Choose from a range of laser diode drivers, quantum cascade laser and actuator drivers as well as temperature controllers and digital timers.



INTRODUCING ICE BLOC QCLD

Ice Bloc QCLD is a precision current source and temperature controller for building QCL-based photonic systems in research, experimental and production applications.

Driving the latest generation of low current, high compliance voltage quantum cascade lasers, QCLD provides market-leading ultra-low output noise performance with high precision and high resolution current set points. Its integrated temperature controller can control a TEC with user-programmable output current, current polarity, voltage limits, PID control parameters and ramp time settings. It also features various mechanisms to protect the laser. Ice Bloc QCLD also comes with a customisable software interface allowing easy integration with your experiments or OEM setups.

If you would like to drive external stepper and piezo motors for QCL laser tuning, consider Ice Bloc QCLAD.

Optimized for driving CW QCL lasers

Low noise output to drive low current, high compliance semiconductor lasers

High precision temperature control

Real time monitoring/logging of current, voltage, temperature and all signals

External modulation and photodiode inputs

Ethernet connectivity and web interface



ICE BLOC FEATURES

SIMPLE WEB BASED CONTROL

Configure and run experiments from a modern web interface which provides easy access to all features and provides rich data visualization. Ice Bloc has a built-in web server, so there is no software to install or dedicated software drivers to download.

FULL SPEED AHEAD - IT'S CONNECTED BY ETHERNET

Ice Bloc is more secure, faster and works over a longer range than other connection technologies. The built-in 2-port Ethernet router makes it easy to connect to your lab's network for fast, secure, local and remote access. This set up means you'll be able to easily control, monitor, diagnose, even upgrade your system, from any computer.

ENGINEERED FOR HIGH PERFORMANCE AND LOW NOISE

Ice Bloc's high-end design and engineering strikes the optimum balance between noise, power and efficiency. All our components and electronics are fully optimised and highly sensitive ensuring you get the precision and power you need in your experiments.

CUSTOM CONTROL, WHENEVER YOU NEED IT

Control Ice Bloc with your own custom software or use any third-party packages including MATLAB, Python and LabVIEW. You can record internal and external measurement values for display or download.

HIGHLY CUSTOMISABLE

We're no strangers to customising devices to meet the exacting experimental requirements of our customers. If you need something different, for example reduced output noise, or a higher output current, we'll create an Ice Bloc to suit you.



Pictured: Ice Bloc user interface (content varies between models)

SPECIFICATIONS

DIODE DRIVER

| | |
|---------------------------------|---|
| Output current range | 0 - 2.5 A |
| Output compliance voltage range | 0 - 17 V |
| Output noise density | <2nA/VHz for frequency range 10 Hz - 1 MHz |
| Current setting resolution | 1 mA |
| Current accuracy | ±0.1 % |
| Current temperature stability | ±20 ppm/°C |

MODULATION

Slow modulation input

| | |
|--------------------------------|-------------|
| Modulation frequency bandwidth | DC - 100 Hz |
| Modulation sensitivity | 10 mA/V |
| Input impedance | 200 kΩ |
| Maximum safe input | ±5 V |

Fast modulation input

| | |
|--------------------------------|---------------------------|
| Modulation frequency bandwidth | 1.6 kHz - 3 MHz |
| Modulation sensitivity | 10 mA/V |
| Input impedance | 50Ω (at high frequencies) |
| Maximum safe input | ±2.5 V |

PHOTODIODE INPUTS X 2

| | |
|---------------------------|----------------------|
| Input impedance | 10Ω (transimpedance) |
| Transimpedance gain range | 200 V/A - 20kV/A |
| Maximum safe input | ±0.6 V (protected) |
| Input linear range | ±10 mA |
| Input resolution | 24 bits |

ANALOGUE INPUTS X 2

| | |
|--------------------|--------------------|
| Maximum safe input | ±5.5 V (protected) |
| Input linear range | ±5 V |

AUXILIARY I/O

Interlock

| | |
|---------------------------|--------|
| Open circuit voltage | 3.3 V |
| Closed maximum resistance | 5.6 kΩ |

Emission LED

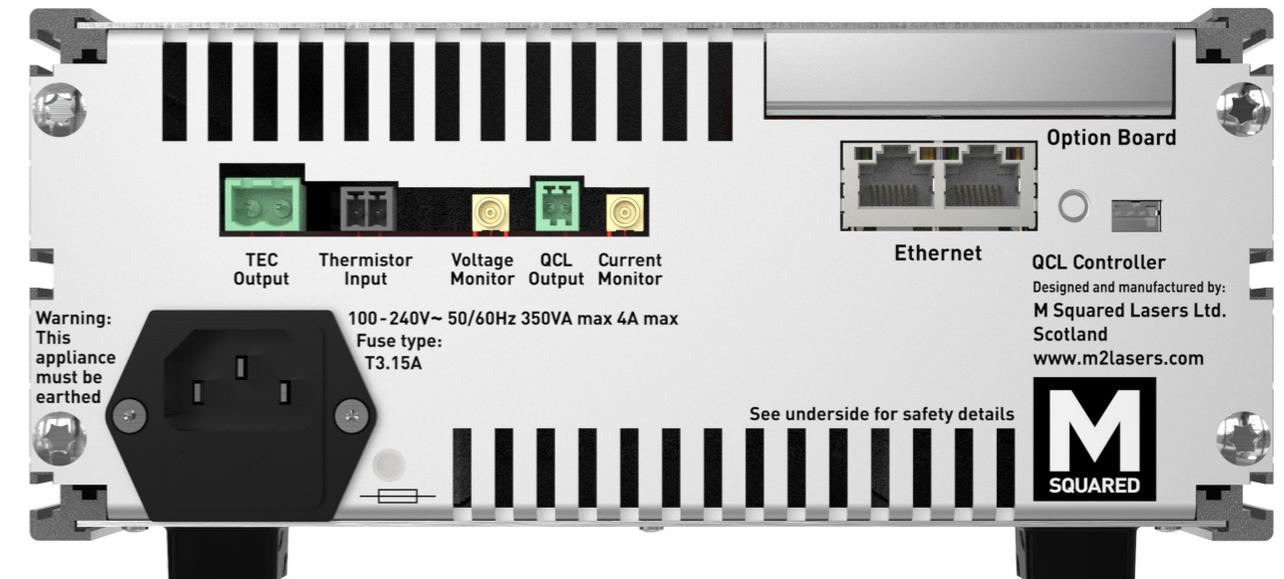
| | |
|-----------------------------|--------|
| Output voltage | +5.5 V |
| Current limiting resistance | 360 Ω |

TEMPERATURE CONTROLLER

| | |
|-----------------------------------|--------------------------|
| Output voltage range | 0 V - 16 V |
| Output type | Bi-directional, linear |
| Output current range | 0 - 8 A |
| Temperature set point resolution | 0.001 °K - typical value |
| Temperature control stability | <1 mK |
| Set point temperature coefficient | <5 ppm / °K |
| Temperature set point range | -20.15 °C to +79.85 °C |
| NTC thermistor range | 10 kΩ - 100 kΩ |
| Extended thermistor range | 1 kΩ - 1 MΩ |

GENERAL

| | |
|-----------------------|--|
| Mains input voltage | 100-240 V |
| | AC 50/60 Hz |
| | 350 VA (typical power:15 W) |
| Size (W x H x D) | Half rack (203 mm) x 2U (89 mm) x 345 mm (8" x 3.5" x 13.6") |
| Weight | 4.1 kg |
| Operating temperature | 0 °C to 70 °C |
| Storage temperature | -20 °C to 85 °C |
| Relative humidity | <90 % humidity, non-condensing |
| Indoor/outdoor use | Indoor use only |
| Altitude | <2000 m |



Ice Bloc rear view: Industrial-grade connectors give quick, solder-free connection to photonic system components.

ICE BLOC®

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