

LASERBANK Controller

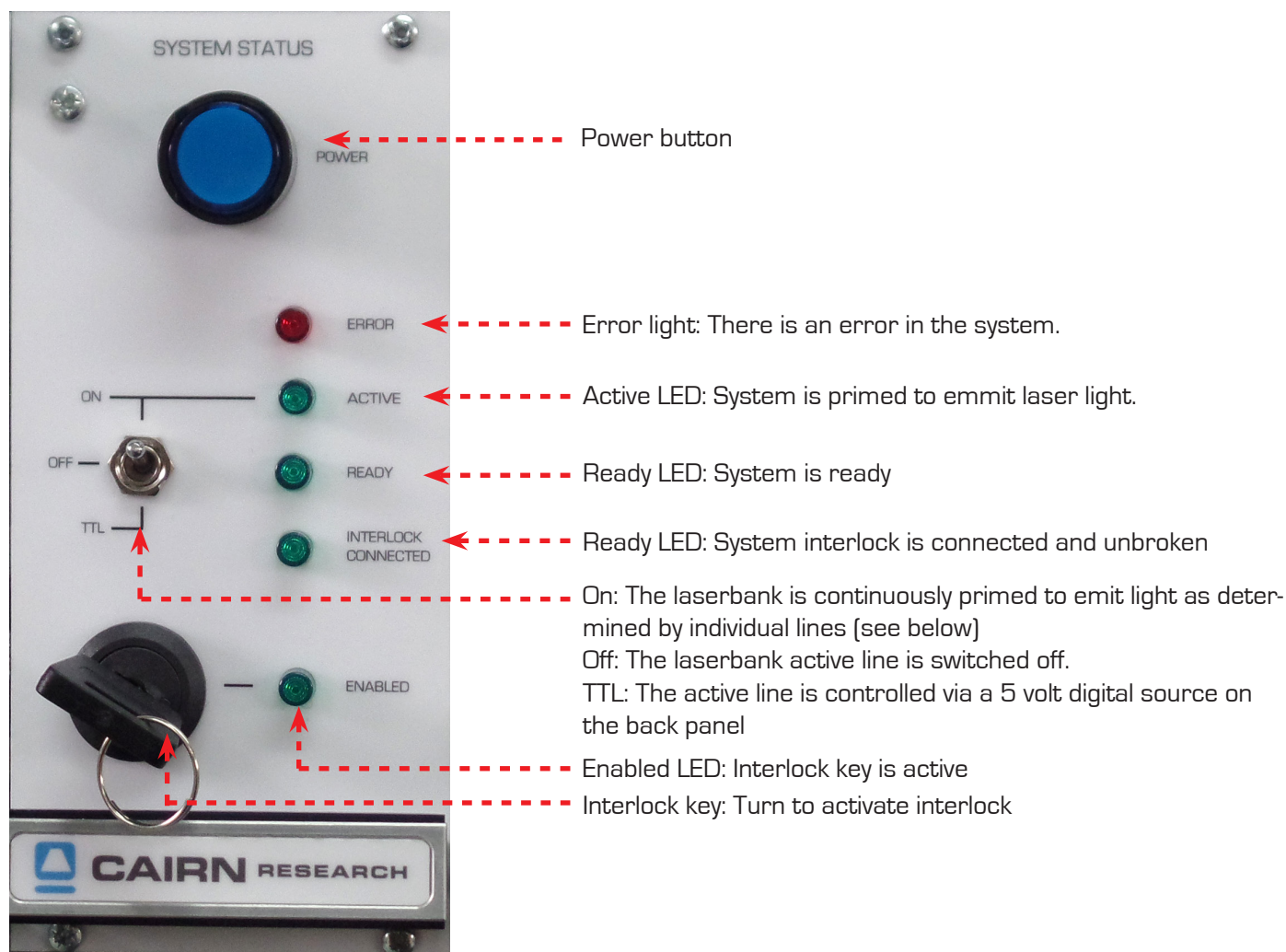
Set up guide



The Cairn LaserBank Controller is a flexible and modular, rack-based unit designed to work with our TriLine and MultiLine laser combiners or other standalone lasers. It provides a generic interface for fast digital and analog modulation using front panel controls, analog and digital signals, or USB. In addition to the individual laser controllers it also accommodates modules for galvanometer beam switching, laser despeckling and various combinations of interlocks, and shutters. There is a dedicated module to support the excellent iLAS2 TIRF / FRAP system from Roper France and other modules can be made to order to help make your system turnkey.

Master Control

This Module is the master control module of the laserbank controller, it houses the power button, interlock key status LEDs and the Active digital signal switch.



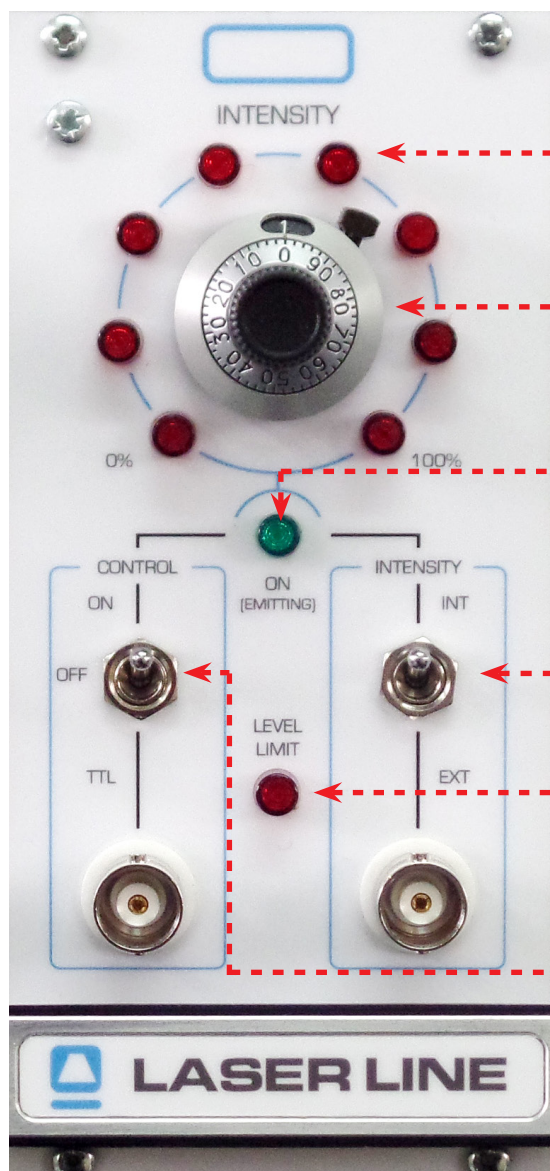
Operation

In order to isolate sensitive electronics from AC mains and to allow for upgrade to more powerful lasers in the future we house the mains power supplies in a separate unit. This draws negligible current when not in use and can be left switched on.

To start using the LaserBank first switch on the power buttons on both boxes and then rotate the interlock key in a clockwise direction. The Enable LED, Interlock connected LED and Ready LED should be illuminated, the Error LED should not be illuminated. If the switch is in the On position then the Active LED should be illuminated. If the interlock LED does not light up then please check continuity on this connection from the rear of the LaserBank Controller. If other LEDs show a problem then please consult with Cairn or other system integrator.

Laserline Module

The laserline module controls the individual laser, one module per laser, it allows for the digital and analog modulation of the individual lasers.



Intensity display

Intensity control

On LED: Associated Laser is emitting light, the digital modulation line is active

Intensity:

Int: Laser intensity controlled by the Intensity control.

Ext: Laser intensity controlled by an external source via the BNC below or the Analog BNC on the back that co-respondes to the laserline

Level Limit LED: An over/under voltage on the intensity control is detected. (the laser is automatically protected)

Control

On: The digital modulation line is continuously on.

Off: The digital modulation line is off.

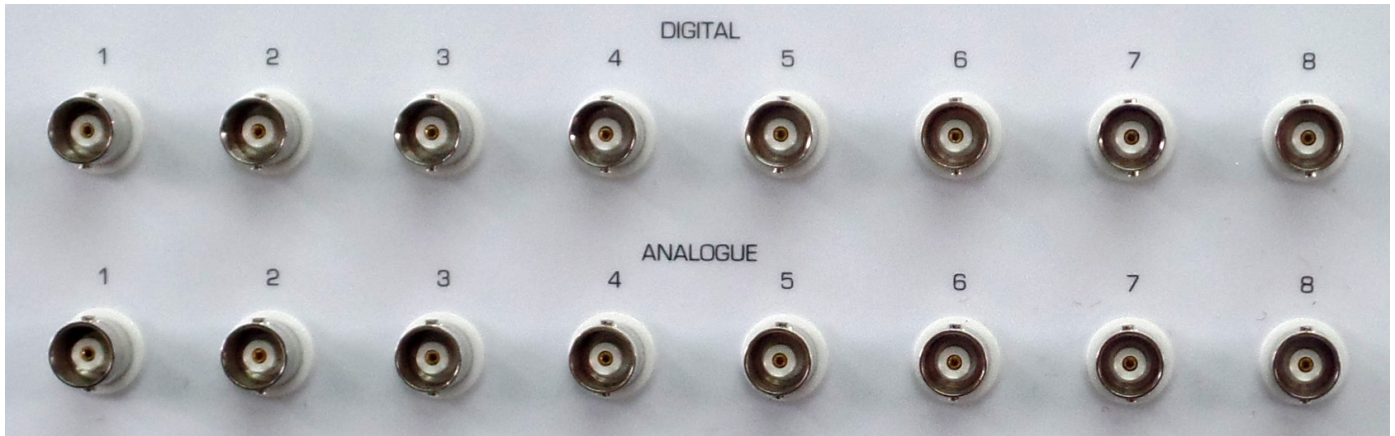
TTL: The digital modulation is controlled by an external source via the BNC below or the Digital BNC on the back that co-respondes to the laserline

Operation

If both the Control and intensity switches are in the ON and INT positions the laserbank is under manual control from this panel, the laser will start emitting once the intensity dial rises above a minimum threshold. If the Control switch is in the TTL position the digital modulation of the laser is under external control. If the Intensity switch is in the EXT position the Analog modulation (Intensity) of the laser is under external control.

Rear Panel BNCs

The individual laserline modules can also be controlled by the BNCs on the back panel. The digital BNCs control the digital modulation of the lasers, and the Analogue BNCs the analog modulation.



Lasers Control

The Lasers Control BNC controls the global Active signal, this allows one TTL line to digitally modulate all the lasers that have their Control setting active, via either setting the control switch on the laserline module to ON or TTL with a TTL high signal on the Control BNC or co-responding rear panel Digital BNC. This is typically used to blank all lines during camera readout.

The Lasers Control Active switch, controls the polarity of the active line.



Interlock

This is where the external Interlock is connected.