

1. What is clariFAM ?

A family of modular, expandable, feature-rich, fully customizable, yet very affordable control systems and drivers for hi-tech lab equipment such as laser-diode drivers, TEC controllers, motion control systems, and test chambers.

Protect your valuable experimental systems, save development time and costs, exploit the modularity and extensibility as your needs grow and evolve. You concentrate on creativity, we'll provide robust customizable tools which will help you solve today's problems and can then be recycled into your next project.

Good enough to last a working lifetime, cheap enough that it's not a disaster if you blow one up :)

2. Where can I use clariFAM ?

Lab, field, and prototyping, with OEM modules available for custom products. The modules can be physically separated for convenience — keep the clariCTRL control module at your workstation, with up to 10 meters between it and the clariLDRV laser-driver module or the clariTEC thermoelectric module. Start small, and grow your clariFAM system as needed. It's fully scalable and networkable from one device to hundreds. Use secure remote operation over the Internet.

3. What is clariCTRL ?

The microcomputer brain of clariFAM. Provides local and remote programmatic control of all features, such as closed-loop servos, logging and charting, interlocks, custom procedures, and over/under/rate shutdowns.

- LCD touchscreen, programmable soft buttons, trend charting
- Interchangeable comms modules
- 1 meter to clariLDRV and clariTEC, 10 meters with extenders
- 70 uncommitted digital I/O lines
- TEC auto tune, thermal history charts, high/low/rate shutdowns
- Safety interlocks, motion detection shutdown, auto color balance

4. What are my communications options ?

Hot-swappable auto-detecting clariTALK modules. Choose from:

- Ethernet 10/100baseT with auto MDI/MDX
- Wi-Fi 802.11 b/g/n
- Bluetooth V4.0 with EDR and BLE
- RS-232 up to 250 kBd
- USB 2.0 (port)
- USB 2.0 (HID/FTDI) + I2C
- SPI at up to 16 MHz clock + serial at up to 912.6 kBd
- I2C (with daisy-chain support) up to 400 kHz

5. What is clariLDRV ?

A range of laser-diode drivers at scalable power levels. When you change your laser, just swap to a power-match clariLDRV, and all your control system hardware and software stays unchanged. Designed and built by electronics experts for laser experts. We couldn't find what we needed for our own projects, and we were horrified how badly cheap drives risked damaging our valuable lasers, so we decided to do it ourselves, and added in all the neat convenience and safety features we've always wanted, such as shutter controls, motor driver for despeckling, and a TEC drive. Use clariLDRV to color balance and power tune your system.

Entry-level clariLDRV provides :

- Three laser drivers, ideal for color systems, each up to 400 mA, PWM modulation up to ½MHz
- Common anode, common cathode, or independent
- Real-time current monitoring and colorimetry/power feedback
- Independent external sync, CAT-7 cables
- Integrated 16 W TEC controller
- Downloadable custom control algorithms



6. What are clariMNTS ?

Convenient feature-rich laser mounts, including TECs and numerous convenience and safety features, such as lab-friendly mounting holes and alignment features, digital interlock, accelerometer (auto-shutdown if your laser moves), DC motor driver for despecklers, shutter controls.

Examples :

- Sumitomo 180-C (RGB 80/55/50 mW)
- LaserLand 11010003 (RGB 120/130/50 mW)

7. What is clariTEC ?

A range of TEC controllers at scalable power levels. When your heating/cooling needs change, just swap to a matched clariTEC, and all your control system hardware and software stays unchanged. Designed and built by electronics experts. We couldn't find networkable systems we liked for our rack test stations, so we decided to do it ourselves.

For example, the clariTEC-500 provides :

- Up to 500 W (electrical), 12 to 36 V, 16 A, 50 kHz PWM modulation
- Multiple inputs for thermistors, thermocouples, RTDs, SPI, or a prototyping board for quick customization
- Multiple outputs for parallel and serial TEC configurations
- Multiple 12 V fan outputs
- Auto-tune for optimal thermal performance with your thermal loads and sinks
- Over/under/rate shutdown of TECs and your external equipment
- Protect your valuable systems via custom clariCTRL programs for graceful progressive shutdown if things get out of hand
- Logging, real-time and historical charting on clariCTRL
- Command set emulation to protect your software investments

Other TEC modules up to 5 kW.

8. What else can I build using clariFAM ?

The next members of the family will be clariTEST for automatic burn-in, life-cycle, and environmental testing of complex electronic and optical systems, clariGROW for tissue culturing, and clariMTR for multi-axis motor control. All using the same modularity and communications flexibility. All interoperable, using clariTEC for thermal control and clariLDRV for illumination control. We need these capabilities for our own projects, so expect the same attention to conveniences and advanced features.

9. Support ?

Yes! Just ask for what you need. We are constantly improving and extending our software and hardware based on user feedback and our own applications. A QR code right on the front panel of each module takes you directly to support documents, downloads, and online chat with our engineers when that's what you need.

10. Show me !

At our booth this year we're showing :

- Interactive CIE color-mixer, using color sensing via clariCTRL, with RGB lasers under PWM control from a touchscreen tablet
- Accelerometer protected laser, using clariCTRL & clariLDRV — lasers color cycle... until you hit it to lock in the current color
- Custom clariMNTs for Sumitomo and LaserLand lasers
- The full set of clariTALK comms modules

Also see :

- Prototyping capability for multicolor holographic light-guides and HOEs
- Large HOEs on glass and plastic substrates
- Interactive phase CGH game with real-time digital focusing and multiple holographic sprites
- Online CGH generation as a service
- Talk with our engineers about custom optoelectronic prototyping, design, and consultancy services