

Key Features & Benefits

Electronics

- Input voltage range: 0–10 V with input level control
- Programmable analog output levels with amplitude range of $\pm 25V$ per channel
- Advanced stochastic parallel gradient descent (SPGD⁺) control algorithm with controllable iteration rate from 10 to 250,000 SPGD iterations per second
- Full LAN remote control through 10/100Base-TX Ethernet Interface

Software

- Graphical user interface
- Real-time display of the analog input signal and each channel's output voltage
- Setting of a fixed output voltage per individual channel
- Setting the limits of the output voltage range per individual channel
- Options for setting or updating the SPGD control parameters
- Windows XP or later, Linux or Mac
- TCP/IP connection between a computer and the INFOCO SPGD⁺ CU required

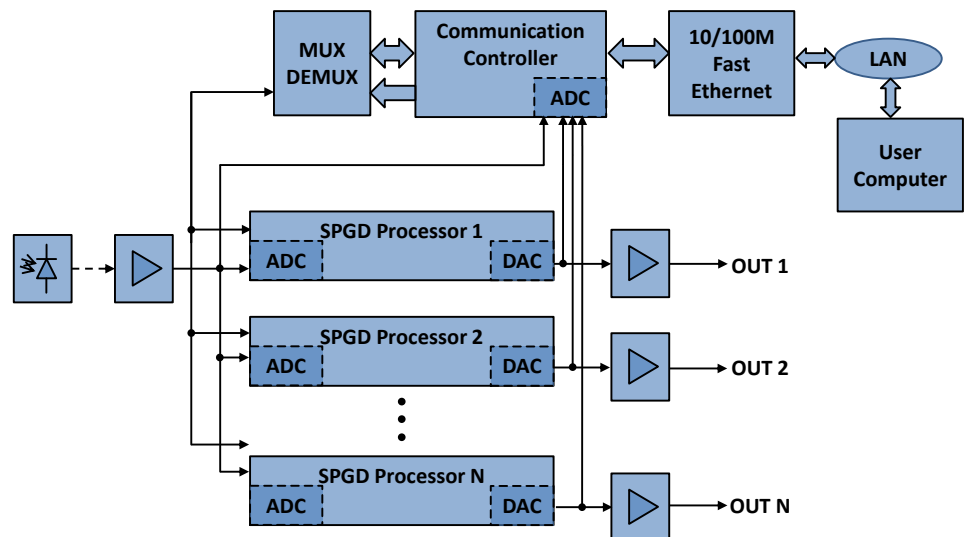
SPGD⁺ CU

SPGD⁺ Multi-Channel Blind Optimization Control Unit

An 8, 16, or 24 channel control unit implementing the proprietary Optonicus Advanced Stochastic Parallel Gradient Descent (SPGD⁺) control algorithm.



The control unit can be used for various optimization tasks including phase locking of fiber-array systems, compensation of optical phase distortions, mitigation of mechanical and/or acoustical jitter and to drive deformable mirrors for adaptive optic applications.



SPGD⁺ CU Block Diagram

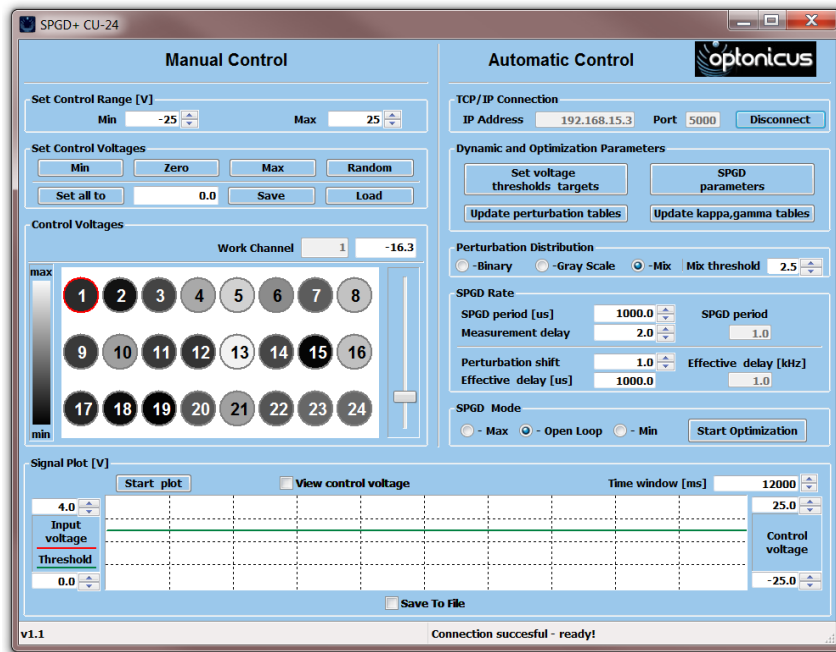
The SPGD⁺ CU receives an analog input signal that is used as the metric input to the Optonicus SPGD⁺ control algorithm running simultaneously on each individual channel's processor. The SPGD⁺ algorithm computes a digital output value based on the current input metric value. This digital value is then converted to the individual channel's analog output signal. In addition, a communication controller provides the interface between the end-user computer and the SPGD⁺ CU, sending and receiving commands and system data through a local area network (LAN).

SPGD⁺ CU: SPGD⁺ Multi-Channel Blind Optimization Control Unit

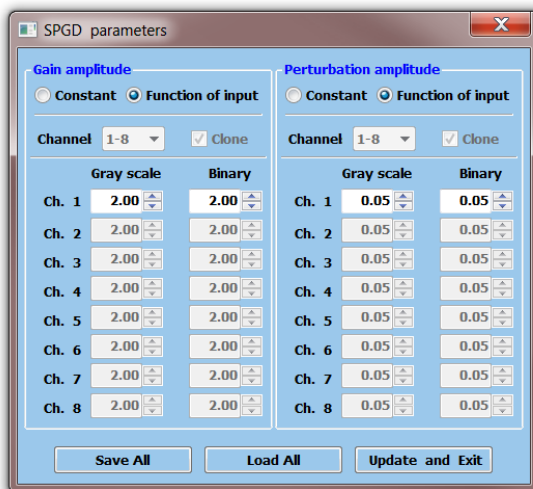
The SPGD+ CU GUI software provides an easy to use graphical user interface for the end user.

Features include:

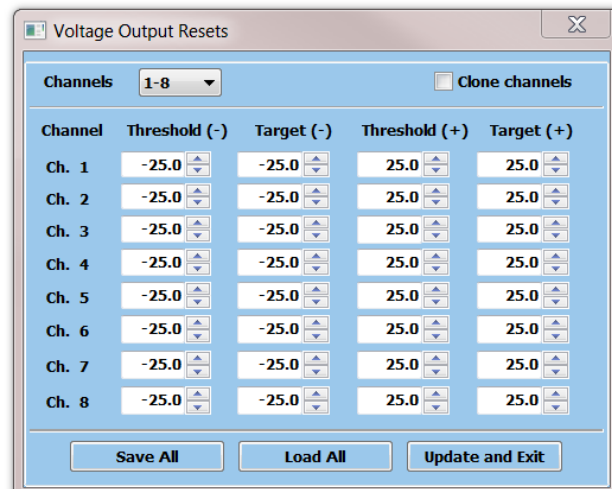
- Interactive start and stop of the SPGD optimization processor
- Interactive editing of SPGD control parameters for system fine tuning
- Setting of output voltage limits and reset values
- Provides real-time monitoring of the input (performance metric) and output signals
- Allows manual setting of the individual channel output voltages



Above: SPGD+ CU-24 GUI



SPGD Parameter menu



Voltage Output Reset menu