FIBLAS

LASER MODULATION SYSTEM FOR FIBER LASERS

Converts PWM input to parallel digital power control

STANDARD HARDWARE FEATURES

- PWM input at up to 50khz repitition rate.
- RS-485 input to set parameters and check status.
- Built-in switching boost power supply to support long cables.
- Indicators on all I/O pins.
- Plugs directly into IPG or NUFERN lasers with DB25 mating connector.
- Red Beam control over RS-485 and status feedback.
- Emergency Stop input.
- Works directly with all Testra SyncroStep* Motion Controls.
- Buffered and static protected inputs.
- Laser reset input to initialize IPG lasers.
- Default settings on power up to work without using RS-485.
- 4 pin Modular Connector for RS-485.
- 6 pin Modular Connector for PWM, Reset, E-Stop, +5v, Gnd.
- Frequency Programmable Sync Rates to 97650 Hz.
- Customize RS485 Baud Rates 9600 19200 28800 38400 115200.



Sync Rates

3150 6300 9450 12600 15750 18900 22050 25200 28350 *31500 34650 37800 40950 44100 47250 50400 53550 56700 59850 63000 66150 69300 72450 75600 78750) 81900 85050 88200 91350 94500 97650

Control Cable

Modular 6 pin connector with cable 1 Blue +5v 2 Yellow PWM 3 Green Ground 4 Red /PEN 5 Black ESTOP 6 White /RESET

RS-485 Cable

Modular 4 pin connector with cable to 4pin 1 Black TRXA 2 Red TRXB 2 Green +5V 4 Yellow GROUND

RS-485 Protocol **DB25 Laser Connector** SYMBOL DESCRIPTION A byte is 9 bits. Bit 0 is transmitted first. Bit 8 (mark) is set high to signify the Address Byte Power bit0 sum = check addition of all message 8b bytes NOTES D1 " bit1 sn0 =low order byte of serial number for the module 2 3 D2bit2 Control Packet: 50.03.sn0.dat.sum **Note 1**: The baud rate is fixed at 57600 bit3 Rates Packet: 51.03.sn0.dat.sum Note 2: If ESTOP is not used it must be 4 D3 " 5 D4 bit4 03.sts.res.sum Response: tied to ground. " bit5 **D5** Note 3: /RESET should be tied to +5v " bit6 D6 Control Register 76543210 if not used. It is there for use when Power bit7 D7 EOSC ____ | LRED Beam RS485 control is not available. The STB Strobe IPG laser is initialized by toggling. 10-15 GND Note 4: Indicators on signals to the Rate Register 76543210 16 ST0 Status bit0 PWM Pulses/Strobe | SYNC Rates Laser are on when LOW. +5V for Red Led 17 AUX Note 5: Indicators on control inputs 0=Off 1=3150 ... 31=97650 0=1...7=818 Enable Oscilator **EOSC** PEN, PWM, ESTOP are on when true. Default = 6Default=31500 19 BOOST Laser on (PEN signal) **Returned Byte sts** 7 6 5 4 3 2 1 0 Note 6: PWM signal 0=off +5v=on 20 Syncronization (20-80Khz) SYNC Note 7: PWM Pulses/Strobe needs to Status 21 ST1 Status bit1 0 = Laser temperature is out of operating range. be set to keep the update rate to the 22 RED Enable Red Led laser at less than 10Khz. It is also the 1 = Normal Operation 23 ESTOP Emergency Stop 2 = Laser OFF from Back Reflection. integration factor for computing the 24 **GND** 3 = Master Oscillator failure. digital power value. Reserved

OEM Custom Solutions

We will work with original equipment manufacturers to either integrate our standard controllers into their product or do custom solutions. When volume justifies it we will license our design and assist in your system development. We can also do turnkey designs and manufacturing of your product in its entirety including ASIC evelopment to put in all on a chip. Custom software solutions are also available.

Note: Unused bytes are included in the Checksum.

SyncroStepping *

All of our motion systems utilize a method that synchronously microsteps samples and corrects the current on multiple axes of control at a 50 kHz rate resulting in servo like smoothness of control to a stepper motor system.





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