

# FIBLAS

## LASER MODULATION SYSTEM FOR FIBER LASERS

Converts PWM input to parallel digital power control

### STANDARD HARDWARE FEATURES

- PWM input at up to 50khz repetition 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	Control Cable	RS-485 Cable
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	Modular 6 pin connector with cable 1 Blue +5v 2 Yellow PWM 3 Green Ground 4 Red /PEN 5 Black ESTOP 6 White /RESET	Modular 4 pin connector with cable to 4pin 1 Black TRXA 2 Red TRXB 2 Green +5V 4 Yellow GROUND

DB25 Laser Connector			RS-485 Protocol	
PIN	SYMBOL	DESCRIPTION	A byte is 9 bits. Bit 0 is transmitted first. Bit 8 (mark) is set high to signify the Address Byte	
1	D0	Power bit0	sum = check addition of all message 8b bytes	<b>NOTES</b> <b>Note 1:</b> The baud rate is fixed at 57600 <b>Note 2:</b> If ESTOP is not used it must be tied to ground. <b>Note 3:</b> /RESET should be tied to +5v if not used. It is there for use when RS485 control is not available. The IPG laser is initialized by toggling. <b>Note 4:</b> Indicators on signals to the Laser are on when LOW. <b>Note 5:</b> Indicators on control inputs PEN, PWM, ESTOP are on when true. <b>Note 6:</b> PWM signal 0=off +5v=on <b>Note 7:</b> PWM Pulses/Strobe needs to be set to keep the update rate to the laser at less than 10Khz. It is also the integration factor for computing the digital power value.
2	D1	" bit1	sn0 =low order byte of serial number for the module	
3	D2	" bit2	Control Packet: 50.03.sn0.dat.sum	
4	D3	" bit3	Rates Packet: 51.03.sn0.dat.sum	
5	D4	" bit4	Response: 03.sts.res.sum	
6	D5	" bit5		
7	D6	" bit6		
8	D7	Power bit7	<b>Control Register</b> 7 6 5 4 3 2 1 0 EOSC _____   _____ RED Beam	
9	STB	Strobe		
10-15	GND			
16	ST0	Status bit0	<b>Rate Register</b> 7 6 5 4 3 2 1 0 PWM Pulses/Strobe _____   _____ SYNC Rates 0=1...7=8 0=Off 1=3150 ... 31=97650 Default = 6 Default=31500	
17	AUX	+5V for Red Led		
18	EOSC	Enable Oscillator		
19	BOOST	Laser on (PEN signal)		
20	SYNC	Synchronization (20-80Khz)		
21	ST1	Status bit1	<b>Returned Byte sts</b> 7 6 5 4 3 2 1 0 <b>Status</b> _____   _____ 0 = Laser temperature is out of operating range. 1 = Normal Operation 2 = Laser OFF from Back Reflection. 3 = Master Oscillator failure.	
22	RED	Enable Red Led		
23	ESTOP	Emergency Stop		
24	GND			
25	---	Reserved	Note: Unused bytes are included in the Checksum.	

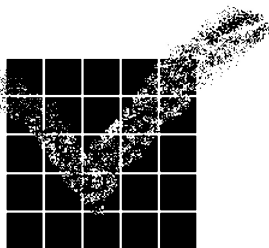
### OEM Custom Solutions

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 development to put in all on a chip. Custom software solutions are also available.

### 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.

\* US Patent 5,650,705



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