JPT new laser usb port command structure

1、Initialization:

Baud rate：9600bits/s （Can be changed）

Parity bit/Flow control：None

Start/Stobits：8 data bits，1start bit and 1 Stop bit

2、 Command structure（ASCII codes）

$	Command code	;	Parameters	*（hex：2A）

3、Laser reply structure（ASCII code）

$	Command code	;	Parameters	*（hex：2A）

4、Command code is decimal ASCII code，See【Table.0】。

5、Command parameters is a text string. If the parameter is a numerical value, it shoule be converted into a decimal ASCII String.

6、The returned value is also a text string. If the requested value is numerical, the oppsite conversion from text string to the numerical value is required.

7、All commands should be terminated by “*” symbol, hex valve“ 2 A ”the RS-232C buffer of the laser receives bytes until the * symbol occurs. All bytes before this symbol are interpreted as a command. Bytes after * until next * will be interpreted as a text command.

8、For all strings send to the laser, which were not recognized as valid commands, the laser sends “E” as parameter. EG:$1;*,Return E

9、All commands are not allowed to send to the laser during emition except laser off and power setting commands . If sending commands to the laser during emition, the laser will return $_;E*.

10、 All the setting parameters should be filled with “0” if the bytes are not enough. EG. Setting default pulse width to 20ns: $34;020*

【Table.0】				
Type	Command	Command code	Return value	Description
read	SN	10	(11 characters)	Read serial numbers of the laser
read	Software version	11	(33 characters)	Read hardware version
read	DB25_input power monitor	12	(3 characters)	Value=0-255, 8bits power setting receive from db25 interface
read	Laser output power	13	(3 characters)	Value=0-100, unit:%
read	DB25_PA status	15	(1 characters)	Value=1or0, 1: on, 0:off
read	DB25_MO status	14	(5 characters)	Value=1or0, 1: on, 0:off
read	Pulse width	16	(3 characters)	Value=1-350
read	Frequency	17	(3 characters)	Value=1-999, unit:khz
read	Tempreture monitor	18	(5 characters)	see【table.1】
read	Alarm times	19	(12 characters)	see【table.2】
read	PUMP temp	20	(2 characters)	Value=0-99, unit:℃
read	Default SIMMER	21	(2 characters)	Value=1-max simmer
read	Max SIMMER	22	(2 characters)	Value=1-50
read	Default frequency	23	(3 characters)	Value=1-999, unit:khz
read	Default pulse width	24	(3 characters)	Value=1-350, unit:ns
read	Inner/ex frequency control state	25	(1 characters)	Value=1or0,1:EX PRR,0:Inner PRR
read	Control mode selection	26	(2 characters)	Value=0-15, see【table.3】
SET	Power	27	(3 characters)	Value=0-100, unit:%
SET	Frequency	28	(3 characters)	Value=1-999, unit:khz
SET	Pulse width	29	(3 characters)	Value=1-350, unit:ns
SET	PA	30	(1 characters)	Value=1or0, 1: on, 0:off
SET	Control mode selection	31	(2 characters)	Value=0-15
SET	Inner/ex frequency control state	32	(1 characters)	Value=1or0,1:EX PRR,0:Inner PRR
SET	Default frequency	33	(3 characters)	Value=1-999, unit:khz

SET	Default pulse width	34	(3 characters)	Value=1-350
SET	Default simmer	35	(2 characters)	Value=0-max simmer
read	Board temp	37	(2 characters)	Value=0-99, unit:℃
SET	MO	38	(1 characters)	Value=1or0, 1: on, 0:off
SET	功率监控斜率	39	(3 characters)	Value=0 or 255
SET	功率监控截距	40	(3 characters)	Value=0 or 2555
read	功率监控斜率	41	(3 characters)	Value=0 or 255
read	功率监控截距	42	(3 characters)	Value=0 or 255
SET	Baud rate	43	(1 characters)	Value=0-3, see【table.4】

【表.0】说明

1. GUI_MO($38),和 GUI 开光 PA($30),组合开关说明
   当只发送 PA 信号($30; 1*)，激光器在收到该指令后先生成 MO 信号，8ms 后再生成 PA 信号，激光器见 PA 信号就会开光。
   当发送 MO 信号($38; 1*)，激光器在就是到该指令后，会生成 MO 信号，然后当激光器在接受到 PA 信号($30; 1*)后，就立即开光。
2. 功率监控斜率（k）. 功率监控截距(b)和激光器功率$13（y）的关系。
   y=kx+b;其中 x 为激光器内部泵浦电流采样值。

【table1】$18 retune alarm explain

位	状态	描述	消息类型
1	1	光路温度报警	告警
	0	光路无温度报警	
2	1	电路温度报警	告警
	0	电路无温度报警	
3	1	一级电流低报警	告警
	0	一级无电流低报警	
4	1	种子源 TEC 报警	告警
	0	种子源无 TEC 报警	
5	1	种子源漏脉冲报警	告警
	0	种子源无漏脉冲报警	
6	1	24v 供电低报警	告警
	0	24v 无供电低报警	

EG.: send$18;*//read alarm
retune$18;100000*
解释：光路温度报警，其他无报警

【table3】$26, $31 return value of setting command			
return value is decimal number. Need to transfer to binary code.			
bytes	state	discription	Type of command
1	1	GUIcontrol power	Setting
	0	DB25 control power	
2	1	GUI control pulse width	Setting
	0	DB25 control pulse width	
3	1	GUI control frequency	Setting
	0	DB25 control frequency	
4	1	GUI control emitting	Setting
	0	DB25 control emitting	
EG: $26;*//Read control mode Return: $26;4* Explanation: Decimal number 4 turn to binary code=0100, So it means, Only pulse width is control by RS232. The others control by DB25 interface.			

【表 2】$19 报警次数命令返回值解释		
位	值	消息类型
1	光路温度报警次数	次数值
2		
3	电路温度报警次数	次数值
4		
5	一级电流低报警次数	次数值
6		
7	种子源 TEC 报警次数	次数值
8		
9	种子源漏脉冲报警次数	次数值
10		
11	24v 供电低报警次数	次数值
12		
例：发送$19;*//读报警次数 返回$19;121314150000* 解释：光路温度报警次数 12 次 电路温度报警次数 13 次 一级电流低报警次数 14 次 种子源 TEC 报警次数 15 次 种子源漏脉冲次数 00 次 24v 供电低报警次数 00 次		

【表. 4】$43 波特率表		
值	波特率	返回值
0	9600	9600
1	19200	19200
2	57600	57600
3	115200	115200
其他	保留之前的	E
举例：发送$43;1* 返回$43;19200* 发送$43;4* 返回$43;E*		