

Commands for the host computer of EDFA

1. Data Transmission (transmitted in hexadecimal, baud rate 9600,1 stop bit, no parity bit, 8 data bits)

HEAD1	HEAD2	LEN	ADDR	DATA	SUM
-------	-------	-----	------	------	-----

HEAD: 0xEF 0xEF

LEN: DATA Length (number of DATA bits+2)

ADDR: Data address bit

DATA: Data bit (DATA is empty during query)

SUM: Checksum $SUM=HEAD1+HEAD2+LEN+ADDR+DATA$

2. Data Reception (received in hexadecimal, baud rate 9600, 1 stop bit,no parity bit, 8 data bits)

HEAD1	HEAD2	LEN	ADDR	DATA	SUM
-------	-------	-----	------	------	-----

HEAD: 0xED 0xFA

LEN: DATA Length (number of DATA bits+2)

ADDR: Data address bit

DATA: Data bit

SUM: Checksum $SUM=HEAD1+HEAD2+LEN+ADDR+DATA$

3. Query Device Status (Data Address bit 0x00)

Send command:

0xEF	0xEF	0x02	0x00	0xE0
------	------	------	------	------

Return command:

0xED	0xFA	0x0E	0x00	DATA(1~12)	SUM
------	------	------	------	------------	-----

Current Read = $DATA1*256+DATA2(mA)$

Input Power Read = $(DATA5*256+DATA6)/100-70(dBm)$

Output Power Read = $(DATA7*256+DATA8)/100-70(dBm)$

Example:

Send command: EF EF 02 00 E0

Return command: ED FA 0E 00 03 E8 00 00 17 70 23 28 00 00 00 00 B2

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Current Read= $0x03*256+0xE8=1000(\text{mA})$

Input Power Read = $(0x17*256+0x70)/100-70=-10.00(\text{dBm})$

Output Power Read = $(0x23*256+0x28)/100-70=20.00(\text{dBm})$

4. Query Power (Data Address bit 0x03)

Send command:

0xEF	0xEF	0x02	0x03	0xE3
------	------	------	------	------

Return command:

0xED	0xFA	0x04	0x03	DATA(1~2)	SUM
------	------	------	------	-----------	-----

Target Power= $(\text{DATA1}*256+\text{DATA2})/100-70(\text{dBm})$

Example:

Send command: EF EF 02 03 E3

Return command: ED FA 04 03 23 28 39

Target Power= $(0x23*256+0x28)/100-70=20.00(\text{dBm})$

5. Setting Power (Data Address bit 0x04)

Send command:

0xEF	0xEF	0x04	0x04	DATA(1~2)	SUM
------	------	------	------	-----------	-----

Return command:

0xED	0xFA	0x04	0x03	DATA(1~2)	SUM
------	------	------	------	-----------	-----

Target Power= $(\text{DATA1}*256+\text{DATA2})/100-70(\text{dBm})$

Example:

Send command: EF EF 04 04 23 27 30

Return command: ED FA 04 03 23 27 38

Target Power= $(0x23*256+0x27)/100-70=19.99(\text{dBm})$

6. Query Operating Mode(Data Address bit 0x05)

Send command:

0xEF	0xEF	0x02	0x05	0xE5
------	------	------	------	------

Return command:

0xED	0xFA	0x03	0x05	DATA	SUM
------	------	------	------	------	-----

Work Mode=DATA (0x00 for APC, 0x01 for ACC, 0x02 for AGC)

Example:

Send command: EF EF 02 05 E5

Return command: ED FA 03 05 00 EF

Work Mode=0x00 (APC)

Return command: ED FA 03 05 01 F0

7. Setting Operating Mode(Data Address bit 0x06)

Send command:

0xEF	0xEF	0x03	0x06	DATA	SUM
------	------	------	------	------	-----

Return command:

0xED	0xFA	0x03	0x05	DATA	SUM
------	------	------	------	------	-----

Work Mode=DATA (0x00 for APC, 0x01 for ACC, 0x02 for AGC)

Example:

Send command: EF EF 03 06 00 E7

Return command: ED FA 03 05 00 EF

Work Mode=0x00 (APC)

8. Query Target Current(Data Address bit 0x07)

Send command:

0xEF	0xEF	0x02	0x07	0xE7
------	------	------	------	------

Return command:

0xED	0xFA	0x06	0x07	DATA(1~4)	SUM
------	------	------	------	-----------	-----

Current=DATA1*256+DATA2(mA)

Example:

Send command: EF EF 02 07 E7

Return command: ED FA 06 07 01 F4 00 00 E9

Current=0x01*256+0xF4=500(mA)

9. Query the Maximum Limiting Current(Data Address bit 0x09)

Send command:

0xEF	0xEF	0x02	0x09	0xE9
------	------	------	------	------

Return command:

0xED	0xFA	0x06	0x09	DATA(1~4)	SUM
------	------	------	------	-----------	-----

Current Limitation=DATA1*256+DATA2(mA)

Example:

Send command: EF EF 02 09 E9

Return command: ED FA 06 09 21 34 00 00 4B

Current=0x21*256+0x34=8500(mA)

10. Setting Target Current(Data Address bit 0x0C)

Send command:

0xEF	0xEF	0x04	0x0C	DATA(1~2)	SUM
------	------	------	------	-----------	-----

Return command:

0xED	0xFA	0x06	0x07	DATA(1~4)	SUM
------	------	------	------	-----------	-----

Current=DATA1*256+DATA2(mA)

Example:

Send command: EF EF 04 0C 01 F3 E2

Return command: ED FA 06 07 01 F3 00 00 E8

Current=0x01*256+0xF3=499(mA)

If the set value exceeds the maximum limit current, the current target current is returned.

11. Query Core Temperature(Data Address bit 0x0B)

Send command:

0xEF	0xEF	0x02	0x0B	0xEB
------	------	------	------	------

Return command:

0xED	0xFA	0x06	0x0B	DATA(1~4)	SUM
------	------	------	------	-----------	-----

$$\text{LD Temp}=(\text{DATA1} * 256 + \text{DATA2}) / 100(^{\circ}\text{C})$$

Example:

Send command: EF EF 02 0B EB

Return command: ED FA 06 0B 09 C4 00 00 C5

$$\text{LD Temp}=(0x09 * 256 + 0xC4) / 100 = 25.00(^{\circ}\text{C})$$

12. Query Target Gain(Data Address bit 0x10)

Send command:

0xEF	0xEF	0x02	0x10	0xF0
------	------	------	------	------

Return command:

0xED	0xFA	0x04	0x10	DATA(1~2)	SUM
------	------	------	------	-----------	-----

$$\text{Gain}=(\text{DATA1} * 256 + \text{DATA2}) / 100(\text{dB})$$

Example:

Send command: EF EF 02 10 F0

Return command: ED FA 04 10 07 D0 D2

$$\text{Gain}=(0x07 * 256 + 0xD0) / 100 = 20.00(\text{dB})$$

13. Setting Target Gain(Data Address bit 0x11)

Send command:

0xEF	0xEF	0x04	0x11	DATA(1~2)	SUM
------	------	------	------	-----------	-----

Return command:

0xED	0xFA	0x04	0x10	DATA(1~2)	SUM
------	------	------	------	-----------	-----

$$\text{Gain}=(\text{DATA1} * 256 + \text{DATA2}) / 100(\text{dB})$$

Example:

Send command: EF EF 04 11 07 D1 CB

Return command: ED FA 04 10 07 D1 D3

$$\text{Gain}=(0x07 * 256 + 0xD1) / 100 = 20.01(\text{dB})$$

14. Soft Activation Inquiry(Address bit 0x25)

Send command:

0xEF	0xEF	0x02	0x25	0x05
------	------	------	------	------

Return command:

0xED	0xFA	0x03	0x25	DATA	SUM
------	------	------	------	------	-----

SoftActive=DATA 1-Activate 0-Off

Example:

Send command: EF EF 02 25 05

Return command: ED FA 03 25 01 10 Activate ED FA 03 25 00 0F Off

15. Soft-Activation Setting(Address bit 0x26)

Send command:

0xEF	0xEF	0x03	0x26	DATA	SUM
------	------	------	------	------	-----

Return command:

0xED	0xFA	0x03	0x25	DATA	SUM
------	------	------	------	------	-----

SoftActive=DATA 1-Activate 0-Off

Example:

Setting Laser Activation

Send command: EF EF 03 26 01 08

Return command: ED FA 03 25 01 10

Setting Laser Shutdown

Send command: EF EF 03 26 00 07

Return command: ED FA 03 25 00 0F

Sending an activation command is only valid if the laser is in normal condition and the key is turned on.