# Host Computer Commands for Adjustable Light Sources

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

| HEAD1 | HEAD2 | ADDR | DATAH | DATAL | SUM |
|---|---|---|---|---|---|

HEAD: Data Settings 0x00 0x01

Data Query 0x01 0x00

ADDR: Data Address Bits Channel: 0x01 Power: 0x02 Open/Close: 0x03

DATA: Data Bits

SUM：Checksum SUM = HEAD1+HEAD2+ADDR+DATAH+DATAL

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

| HEAD1 | HEAD2 | ADDR | DATAH | DATAL | SUM |
|---|---|---|---|---|---|

HEAD: 0x01 0x01

ADDR: Data Address Bits Channel: 0x01 Power: 0x02 Open/Close: 0x03

DATA: Data Bits

SUM： Checksum SUM = HEAD1+HEAD2+ADDR+DATAH+DATAL

**3. Set/Query Channel (Data Address Bit 0x01)**

Send Command (Set):

| 0x00 | 0x01 | 0x01 | DATAH | DATAL | SUM |
|---|---|---|---|---|---|

Return Command:

| 0x01 | 0x01 | 0x01 | DATAH | DATAL | SUM |
|---|---|---|---|---|---|

DATAH=Channel/256 DATAL=Channel%256

See address bit 0x04 for channel range queries.

**Example:**

Set Channel 20：DATAH=0x00，DATAL=0x14

Send command:00 01 01 00 14 16

Return command:01 01 01 00 14 17

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Send Command (Query):

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x00 | 0x01 | 0x00 | 0x00 | 0x02 |

Return Command:

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x01 | 0x01 | DATAH | DATAL | SUM |

Channel=DATAH*256+DATAL

**Example:**

Send Command:01 00 01 00 00 02

Return Command:01 01 01 00 13 16

Channel=0x00*256+0x13=19

**4. Set/Query Power (Data Address Bit 0x02)**

Send Command (Set):

| | | | | | |
|---|---|---|---|---|---|
| 0x00 | 0x01 | 0x02 | DATAH | DATAL | SUM |

Return Command:

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x01 | 0x02 | DATAH | DATAL | SUM |

Power=Power(dBm)*100

DATAH=Power/256 DATAL=Power%256

Power Range：C Band：700-1300　L Band：700-1000

**Example:**

Set Power 9.99dBm：DATAH=999/256=3=0x03，DATAL=999%256=231=0xE7

Send command:00 01 02 03 E7 ED

Return command:01 01 02 03 E7 EE

Send Command (Query):

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x00 | 0x02 | 0x00 | 0x00 | 0x03 |

Return command:

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x01 | 0x02 | DATAH | DATAL | SUM |

Power=DATAH*256+DATAL

Power=Power/100 (dBm)

**Example:**

Send command:01 00 02 00 00 03

Return command:01 01 02 03 E8 EF

Power=0x03*256+0xE8=1000  Power=10.00 dBm

**5. Set/Query Laser On/Off (Data Address Bit 0x03)**

Send Command (Set):

| | | | | | |
|---|---|---|---|---|---|
| 0x00 | 0x01 | 0x03 | DATAH | DATAL | SUM |

Return command:

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x01 | 0x03 | DATAH | DATAL | SUM |

**Example:**

Turn on the laser: DATAH=DATAL=0x01

Send command:00 01 03 01 01 06

Return command:01 01 03 01 01 07

Turn off the laser: DATAH=DATAL=0x00

Send command:00 01 03 00 00 04

Return command:01 01 03 00 00 05

Send Command (Query):

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x00 | 0x03 | 0x00 | 0x00 | 0x04 |

Return command:

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x01 | 0x03 | DATAH | DATAL | SUM |

**Example:**

Send command:01 00 03 00 00 04

Return command:01 01 03 01 01 07

The laser is now active

Send command:01 00 03 00 00 04

Return command:01 01 03 00 00 05

The laser has been turned off

**6. Query the maximum number of laser channels (data address bit 0x04)**

Send Command (Query):

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x00 | 0x04 | 0x00 | 0x00 | 0x05 |

Return Command:

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x01 | 0x04 | DATAH | DATAL | SUM |

ChnMax=DATAH*256+DATAL

**Example:**

Send command:01 00 04 00 00 05

Return command:01 01 04 00 59 5F

ChnMax=0x00*256+0x59=89

**7. Query the maximum power setting of the laser (data address 0x05)**

Send Command (Query):

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x00 | 0x05 | 0x00 | 0x00 | 0x06 |

Return Command:

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x01 | 0x05 | DATAH | DATAL | SUM |

PowMax=(DATAH*256+DATAL)/100 dBm

**Example:**

Send command:01 00 05 00 00 06

Return command:01 01 05 05 14 20

PowMax=(0x05*256+0x14)/100 dBm=13.00 dBm

**8. Query the minimum power setting for the laser (data address 0x06)**

Send Command (Query):

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x00 | 0x06 | 0x00 | 0x00 | 0x07 |

Return Command:

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x01 | 0x06 | DATAH | DATAL | SUM |

PowMin=(DATAH*256+DATAL)/100 dBm

**Example:**

Send command:01 00 06 00 00 07

Return command:01 01 06 02 BC C6

PowMax=(0x02*256+0xBC)/100 dBm=7.00 dBm

**9. Query the laser's initial channel frequency (data address bit 0x07)**

Send Command (Query):

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x00 | 0x07 | 0x00 | 0x00 | 0x08 |

Return command:

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x01 | 0x07 | DATAH | DATAL | SUM |

FreqFirst=(DATAH*256+DATAL)+ 180000 GHz

**Example:**

Send command:01 00 07 00 00 08

Return command:01 01 07 2C 24 59

FreqFirst =(0x2C*256+0x24)/100 + 180000 GHz=191300 GHz

10. **Query laser channel spacing (data address bit 0x08)**

Send Command (Query):

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x00 | 0x08 | 0x00 | 0x00 | 0x09 |

Return command:

| | | | | | |
|---|---|---|---|---|---|
| 0x01 | 0x01 | 0x08 | DATAH | DATAL | SUM |

DATAH*256+DATAL < 36863

FreqGrid=(DATAH*256+DATAL) GHz

DATAH*256+DATAL > 36863

FreqGrid=(DATAH*256+DATAL)- 65536 GHz

FreqCurrent=FreqFirst+FreqGrid*( Channel-1)

**Example:**

Send command:01 00 08 00 00 09

Return command:01 01 08 FF 9C A5

FreqGrid =(0xFF*256+0x9C) - 65536 GHz= -100 GHz

Send command:01 00 08 00 00 09

Return command:01 01 08 00 32 3C

FreqGrid =(0x00*256+0x32) = 50 GHz