

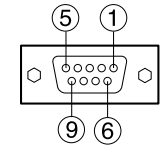
Panasonic Projectors RS-232C Control Specifications

PT-D7700/PT-DW7000 PT-D3500

The main unit is equipped with SERIAL terminals located in its terminal section on the side, and this terminal is compliant with RS-232C.

Pin assignments and signal names

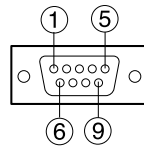
D-Sub 9-pin (female), external appearance



Serial input terminal

| Pin No. | Signal name | Description |
|---------|-------------|----------------------|
| ① | | NC |
| ② | TXD | Send data |
| ③ | RXD | Receive data |
| ④ | | Connected internally |
| ⑤ | GND | Ground |
| ⑥ | | NC |
| ⑦ | CTS | Connected internally |
| ⑧ | RTS | |
| ⑨ | | NC |

D-Sub 9-pin (male), external appearance



Serial output terminal

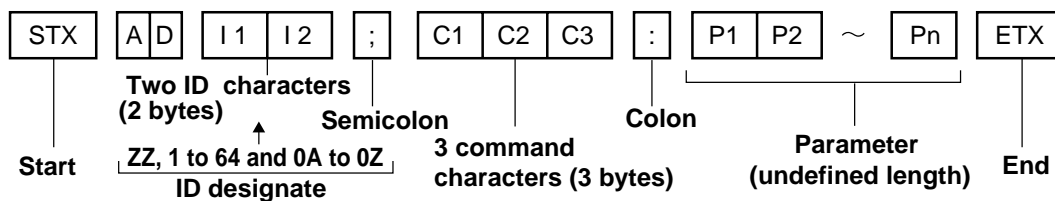
| Pin No. | Signal name | Description |
|---------|-------------|----------------------|
| ① | | NC |
| ② | RXD | Receive data |
| ③ | TXD | Send data |
| ④ | | NC |
| ⑤ | GND | Ground |
| ⑥ | | NC |
| ⑦ | RTS | Connected internally |
| ⑧ | CTS | |
| ⑨ | | NC |

Communication conditions (Factory setting)

| Signal level | RS-232C-compliant |
|------------------------|----------------------------|
| Synchronization method | Start-stop synchronization |
| Baud rate | 9 600bps |
| Parity | None |
| Character length | 8 bits |
| Stop bit | 1 bit |
| X parameter | None |
| S parameter | None |

Basic format

Transmission from the computer begins with STX, then the ID, command, parameter, and ETX are sent in this order. Add parameters according to the details of control.



- Attention**
- No command can be sent or received for 10 to 60 seconds after the lamp starts lighting. Try sending any command after that period has elapsed.
 - When sending several commands, be sure to wait for more than 0.5 seconds after receiving a response from the projector, and then send the next command.
 - When sending commands without parameters, a colon (:) is not necessary.

- Note**
- If a wrong command is received, the projector will send an ER401 or ER402 command to the computer.
 - Projector ID supported on the RS-232C interface is ZZ (ALL) and a group of 1 to 64 and 0A to 0Z.
 - If a command is sent with a projector ID specified, the projector will return answer back only in the following cases:
 - If it coincides with the projector ID,
 - ID specification is ALL and VPS-SYSTEM is the master, or
 - ID specification is group and Group is the master.

Control commands

| Item | Command:Parameter | Function | Call Back | D7700/DW7000 | D3500 | Remarks |
|--------------|-------------------|------------------------|-------------|--------------|-------|---------|
| POWER | PON | POWER ON | PON | YES | YES | |
| | POF | STANDBY(POWER OFF) | POF | YES | YES | |
| FREEZE | OFZ:0 | FREEZE OFF | OFZ:0 | YES | YES | |
| | OFZ:1 | FREEZE ON | OFZ:1 | YES | YES | |
| AUTO SETUP | OAS | AUTO SETUP | OAS | YES | YES | |
| SHUTTER | OSH:0 | SHUTTER OFF | OSH:0 | YES | YES | |
| | OSH:1 | SHUTTER ON | OSH:1 | YES | YES | |
| INPUT SELECT | IIS:RG1 | RGB-1 | IIS:RG1 | YES | YES | |
| | IIS:RG2 | RGB-2 | IIS:RG2 | YES | YES | |
| | IIS:VID | VIDEO | IIS:VID | YES | YES | |
| | IIS:SVD | S-VIDEO | IIS:SVD | YES | YES | |
| | IIS:DVI | DVI | IIS:DVI | NO | YES | |
| | IIS:AUX | AUX | IIS:AUX | YES | NO | |
| | IIS:AUX,AW1 | AUX LINE(Only MD95VM2) | IIS:AUX,AW1 | YES | NO | |
| | IIS:AUX,AW2 | AUX Y/C (Only MD95VM2) | IIS:AUX,AW2 | YES | NO | |
| TEST | OTS:00 | EXIT Test Pattern | OTS:00 | YES | YES | |
| | OTS:01 | WHITE | OTS:01 | YES | YES | |
| | OTS:02 | BLACK | OTS:02 | YES | YES | |
| | OTS:03 | CHECKER1 | OTS:03 | YES | YES | |
| | OTS:04 | CHECKER2 | OTS:04 | YES | NO | |
| | OTS:05 | 1% WHITE WINDOW | OTS:05 | YES | YES | |
| | OTS:06 | 1% BLACK WINDOW | OTS:06 | YES | YES | |
| | OTS:07 | CROSS HATCH | OTS:07 | YES | YES | |
| | OTS:08 | COLOR BAR | OTS:08 | YES | YES | |
| | OTS:09 | RAMP | OTS:09 | NO | YES | |
| ON SCREEN | OOS:0 | OSD OFF | OOS:0 | YES | YES | |
| | OOS:1 | OSD ON | OOS:1 | YES | YES | |
| MUTE | AMT:0 | AUDIO MUTE OFF | AMT:0 | NO | YES | |
| | AMT:1 | AUDIO MUTE ON | AMT:1 | NO | YES | |

Adjustment Mode

| Item | Command:Parameter | Function | Call Back | D7700/DW7000 | D3500 | Remarks |
|--------------|-----------------------|-------------------------|-----------------------|--------------|-------|---|
| PICTURE MODE | VPM:NAT | NATURAL | VPM:NAT | YES | YES | |
| | VPM:STD | STANDARD | VPM:STD | YES | YES | |
| | VPM:DYN | DYNAMI | VPM:DYN | YES | YES | |
| | VPM:CIN | CINEMA | VPM:CIN | YES | YES | |
| | VPM:GRA | GRAPHIC | VPM:GRA | YES | YES | |
| COLOR | VCO:p1p2p3 | COLOR Value Adjust | VCO:p1p2p3 | YES | YES | From0 To 100 *1 |
| TINT | VTN:p1p2p3 | TINT Value Adjust | VTN:p1p2p3 | YES | YES | From0 To 62 *3 |
| COLOR TEMP. | OTE:0 | LOW | OTE:0 | YES | NO | |
| | OTE:1 | MIDDLE | OTE:1 | YES | YES | |
| | OTE:2 | HIGH | OTE:2 | YES | YES | |
| | OTE:4 | USER (USER1) | OTE:4 | NO | YES | |
| | OTE:9 | USER2 | OTE:9 | YES | NO | |
| | OTE:10 | DEFAULT | OTE:10 | YES | YES | |
| CONTRAST | VCN:p1p2p3 | CONTRAST Value Adjust | VCN:p1p2p3 | YES | YES | From0 To 63 *1 |
| BRIGHTNESS | VBR:p1p2p3 | BRIGHTNESS Value Adjust | VBR:p1p2p3 | YES | YES | From0 To 63 *1 |
| SHARPNESS | VSR:p1p2p3 | SHARPNESS Value Adjust | VSR:p1p2p3 | YES | YES | <SD> From0 To 15, <HD,RGB>From0 To 7 *1 |
| SET DATE | TSD:y1y2y3y4m1m2d1d2w | Set Date | TSD:y1y2y3y4m1m2d1d2w | YES | YES | y1y2y3y4m1m2d1d2+Date of Week Mon=1,Tue=2,...,Sun=7 *2 |
| SET TIME | TST:h1h2m1m2s1s2 | Set Time | TST:h1h2m1m2s1s2 | YES | YES | *2 |
| VOLUME | AVL:p1p2p3 | AUDIO VOLUME | AVL:p1p2p3 | NO | YES | |
| | | | | NO | YES | |

*1: Regarding p1p2p3, +1,+01,+001,1,01,001 are All Accepted *2: Date/Time Should be set on UTC (Coordinate Universal Time)

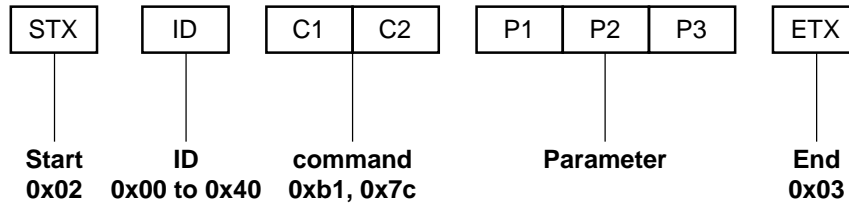
Status Asking Comman

| Item | Command:Parameter | Function | Call Back | D7700/DW7000 | D3500 | Meaning | Remarks |
|-----------------|-----------------------------|--------------------------------|--------------------|--------------|----------|---------------------|--------------------|
| POWER CONDITION | QPW | Main Power Status | 000 | YES | YES | STANDBY(OFF) | |
| | | | 001 | YES | YES | ON | |
| FREEZE | QFZ | Freeze Function Status | 0 | YES | YES | OFF | |
| | | | 1 | YES | YES | ON | |
| SHUTTER | QSH | Shutter Status | 0 | YES | YES | OFF | |
| | | | 1 | YES | YES | ON | |
| INPUT SIGNAL | QIN QIN:AW QIN:AW | Input Signal Status | RG1 | YES | YES | RGB1 | |
| | | | RG2 | YES | YES | RGB2 | |
| | | | VID | YES | YES | VIDEO | |
| | | | SVDYES | YES | YES | S-VIDEO | |
| | | | DVI | NO | YES | DVI | |
| | | | AUX | YES | NO | AUX | |
| | | | AUX,AW1 AUX,AW2 | YES YES | NO NO | AUX LINE AUX Y/C | MD95VM2 MD95VM2 |
| TEST | QTS | Test Pattern Status | 00 | YES | YES | EXIT Test Pattern | |
| | | | 01 | YES | YES | WHITE | |
| | | | 02 | YES | YES | BLACK | |
| | | | 03 | YES | YES | CHECKER1 | |
| | | | 04 | YES | NO | CHECKER2 | |
| | | | 05 | YES | YES | 1% WHITE WINDOW | |
| | | | 06 | YES | YES | 1% BLACK WINDOW | |
| | | | 07 | YES | YES | CROSS HATCH | |
| | | | 08 | YES | YES | COLOR BAR | |
| | | | 09 | NO | YES | RAMP | |
| ON SCREEN | QOS | ON SCREEN Status | 0 | YES | YES | off | |
| | | | 1 | YES | YES | on | |
| PICTURE MODE | QPM | PICTURE MODE Status | NAT | YES | YES | NATURAL | |
| | | | STD | YES | YES | STANDARD | |
| | | | DYN | YES | YES | DYNAMIC | |
| | | | CIN | YES | YES | CINEMA | |
| | | | GRA | YES | YES | GRAPHIC | |
| COLOR | QVC | COLOR Adjust Value Check | p1p2p3 | YES | YES | | |
| TINT | QVT | TINT Adjust Value Check | p1p2p3 | YES | YES | | |
| COLOR TEMP. | QTE | COLOR TEMP Status Check | 0 | YES | NO | LOW | |
| | | | 1 | YES | YES | MIDDLE | |
| | | | 2 | YES | YES | HIGH | |
| | | | 4 | YES | YES | USER (USER1) | |
| | | | 9 | YES | NO | USER2 | |
| | | | 10 | YES | YES | DEFAULT | |
| CONTRAST | QVR | CONTRAST Adjust Value Checking | p1p2p3 | YES | YES | | |
| BRIGHTNESS | QVB | BRIGHTNESS Adjust Value | p1p2p3 | YES | YES | | |
| SHARPNESS | QVS | SHARPNESS Adjust Value | p1p2p3 | YES | YES | | |
| SET RUNTIME | QST | Set Run Time Check | p1p2p3p4p5 | YES | ES | 00000h-99999h | |
| LAMP ON TIME | Q\$!:1 Q\$!:2 | LAMP1 Run Time Check | p1p2p3p4 | YES | YES | 0000h-9999h | |
| | | LAMP2 Run Time Check | p1p2p3p4 | YES | NO | | |
| LAMP SELECT | QSL | Lamp Operation Mode Check | 0 | YES | NO | DUAL | |
| | | | 1 | YES | NO | SINGLE | |
| | | | 2 | YES | NO | LAMP1 | |
| | | | 3 | YES | NO | LAMP2 | |
| LAMP POWER | QLP | LAMP POWER Mode Check | 0 | YES | YES | HIGH | |
| | | | 1 | YES | YES | LOW | |
| | | | 2 | TBD | YES | (RESERVED) | |
| VPS SYSTEM | QVY | VPS SYSTEM Check | 0 | YES | NO | SLAVE | |
| | | | 1 | YES | NO | MASTER | |

| | | | | | | | |
|-------------|-------------------------|--|--|-----|----------------|----------------------------|--|
| INPUT BOARD | QIB | Check the type of Input Board | p1p2p3p..... (Voluntary length) | YES | NO | MD95VM2 | No board Unknown board Unsupported board |
| | | | YES | NO | MD95SD1 | | |
| | | | YES | NO | MD95SD2 | | |
| | | | YES | NO | MD95SD3 | | |
| | | | YES | NO | MD95RGB | | |
| | | | YES | NO | MD75NT | | |
| | | | YES | NO | MD75DV | | |
| | | | YES | NO | MD77SD1 | | |
| | | | YES | NO | MD77SD3 | | |
| | | | YES | NO | MD77DV | | |
| | | | YES | NO | NONE | | |
| YES | NO | UNKNOWN | | | | | |
| YES | NO | NOT SUPPORT | | | | | |
| TEMP CHECK | QTM:0 QTM:1 QTM:2 | Check the status of Temperature Sensor | p1p2p3p4/p5p6p7p8 (Celsius/ Fahrenheit) | YES | YES | INPUT AIR | |
| | | | YES | NO | OUTPUT AIR | | |
| | | | YES | YES | OPTICAL MODULE | | |
| GET DATE | QGD | Check the Day | y1y2y3y4m1m2d1d2w | YES | YES | Yyyymmdd (day of the week) | Mon=1,Tur=2,...,Sun=7 |
| GET TIME | QGT | Check the Time | h1h2m1m2s1s2 | YES | YES | hhmmss | UTC |
| MUTE | QAM | Audio Mute Status | 0 | NO | YES | MUTE OFF | |
| | | | 1 | NO | YES | MUTE ON | |
| VOLUME | QAV | Volume Status | p1p2p3 | NO | YES | | |

Extended format for lens

Transmission from the computer begins with STX, then the ID, command, parameter, and ETX are sent in this order.



*Lens commands are binary 8byte command. PT-D7600/D7500 ware supported version 2.07

ID: D ALL=0x00, ID1=0x01, ID2=0x02, ID3=0x03, ID4=0x04,... ,ID63=0x3f, ID64=0x40 Projector default setting is ID ALL.
 C1 C2: 0xb1 0x7c

| P1 | P2 | P3 | Function | D7700/DW7000 | D3500 |
|------|------|------|--------------------------------------|--------------|-------|
| 0x00 | 0x00 | 0x00 | HORIZONTAL SHIFT RIGHT SLOW | YES | NO |
| 0x00 | 0x01 | 0x00 | HORIZONTAL SHIFT RIGHT NORMAL | YES | NO |
| 0x00 | 0x02 | 0x00 | HORIZONTAL SHIFT RIGHT FAST | YES | NO |
| 0x00 | 0x00 | 0x01 | HORIZONTAL SHIFT LEFT SLOW | YES | NO |
| 0x00 | 0x01 | 0x01 | HORIZONTAL SHIFT LEFT NORMAL | YES | NO |
| 0x00 | 0x02 | 0x01 | HORIZONTAL SHIFT LEFT FAST | YES | NO |
| 0x01 | 0x00 | 0x00 | VERTICAL SHIFT UP SLOW | YES | YES |
| 0x01 | 0x01 | 0x00 | VERTICAL SHIFT UP NORMAL | YES | YES |
| 0x01 | 0x02 | 0x00 | VERTICAL SHIFT UP FAST | YES | YES |
| 0x01 | 0x00 | 0x01 | VERTICAL SHIFT DOWN SLOW | YES | YES |
| 0x01 | 0x01 | 0x01 | VERTICAL SHIFT DOWN NORMAL | YES | YES |
| 0x01 | 0x02 | 0x01 | VERTICAL SHIFT DOWN FAST | YES | YES |
| 0x02 | 0x00 | 0x00 | FOCUS +(SHORT) SLOW | YES | YES |
| 0x02 | 0x01 | 0x00 | FOCUS +(SHORT) NORMAL | YES | YES |
| 0x02 | 0x02 | 0x00 | FOCUS +(SHORT) FAST | YES | YES |
| 0x02 | 0x00 | 0x01 | FOCUS -(LONG) SLOW | YES | YES |
| 0x02 | 0x01 | 0x01 | FOCUS -(LONG) NORM | YES | YES |
| 0x02 | 0x02 | 0x01 | FOCUS -(LONG) FAS | YES | YES |
| 0x03 | 0x00 | 0x00 | ZOOM + SLOW | YES | YES |
| 0x03 | 0x01 | 0x00 | ZOOM + NORMAL | YES | YES |
| 0x03 | 0x02 | 0x00 | ZOOM + FAST | YES | YES |
| 0x03 | 0x00 | 0x01 | ZOOM - SLOW | YES | YES |
| 0x03 | 0x01 | 0x01 | ZOOM - NORMAL | YES | YES |
| 0x03 | 0x02 | 0x01 | ZOOM - FAST | YES | YES |
| 0x00 | 0x80 | 0x01 | HORIZONTAL SHIFT HOME POSITION START | NO | NO |
| 0x00 | 0x80 | 0x00 | HORIZONTAL SHIFT HOME POSITION STOP | NO | NO |

For example

1. LENS ZOOM + NORMAL for ID ALL

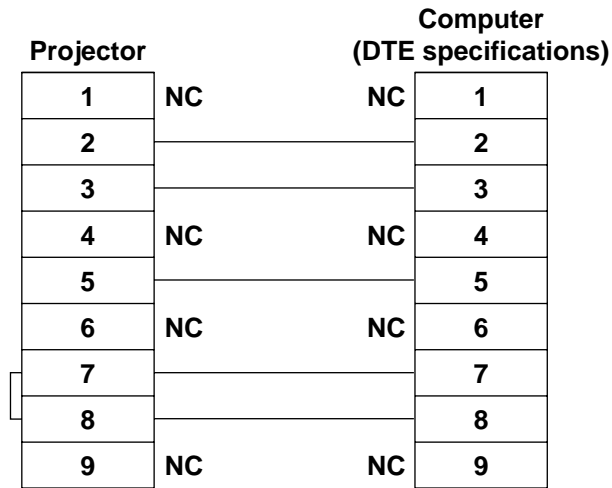
Send 8 byte command 0x02 0x00 0xb1 0x7c 0x03 0x01 0x00 0x03
 Receive 8 byte message from projector 0x02 0x00 0xb3 0x7c 0x03 0x01 0x00 0x03

2. VERTICAL SHIFT DOWN FAST for ID ALL

Send 8 byte command 0x02 0x00 0xb1 0x7c 0x01 0x02 0x01 0x03
 Receive 8 byte message from projector 0x02 0x00 0xb3 0x7c 0x01 0x02 0x01 0x03

■ Cable specifications

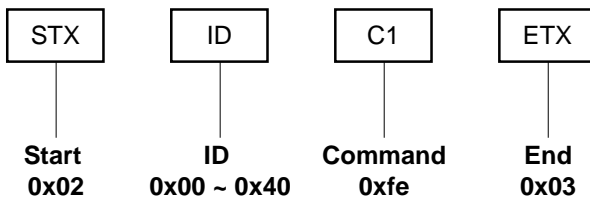
<Connecting to a PC>



Attention • To connect the computer to the SERIAL terminal, prepare an adequate communication cable that fits to your personal computer.

■ Transmission from the computer

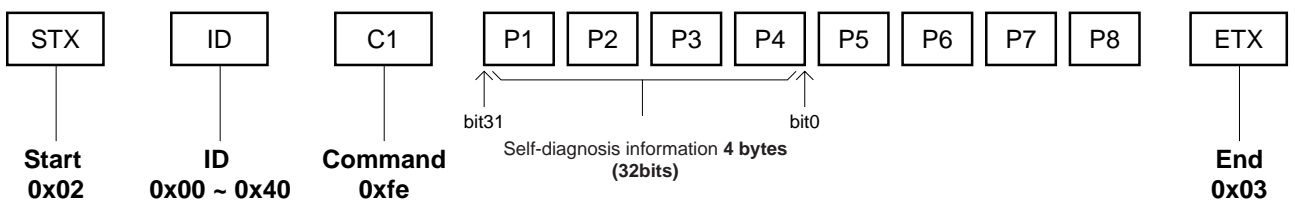
Transmission from the computer begins with STX, then the ID, command, and ETX are sent in this order.



Self-diagnosis result read commands is binary 4 byte command.

ID: ID ALL=0x00, ID1=0x01, ID2=0x02, ID3=0x03, ID4=0x04, ... ,ID63=0x3f, ID64=0x40
Projector default setting is ID ALL.

■ Responses from the projector



Responses are binary 12 byte command.
Self-diagnosis results are 4 byte (32bit) command.
P5-P8, all 4 bytes are extended bits and the values are undefined.

Bit allocation for Self-diagnosis information

| Bit | Title | Description | Condition to clear bit | D7700/DW7000 | D3500 |
|-------|---|--|---|--|-------|
| bit31 | MAIN CPU BUS ERROR | Trouble has occurred in the microcomputer circuitry. If it does not recover after turning power back on, consult your dealer. | Power on | YES | YES |
| bit30 | FAN ERROR | Trouble has occurred in the fan or its drive circuit. If it does not recover after turning power back on, consult your dealer. | Power on | YES | YES |
| bit29 | OPTICS MODULE TEMPERATURE ERROR | The temperature inside the projector is high and the projector has shut down. • Check if the ventilation port is blocked. | Power on | YES | YES |
| bit28 | INPUT AIR TEMPERATURE ERROR | • Is the room air temperature too high? • Check the air filter for clogging. | Power on | YES | YES |
| bit27 | OUTPUT AIR OR LAMP AMBIENT TEMPERATURE ERROR | | Power on | YES | YES |
| bit26 | EXTENSION | Undefined value | - | NO | NO |
| bit25 | LAMP2 REMAIN TIME ERROR (Shutdown) | The lamp runtime has exceeded the prescribed cumulative time, and it is now time to replace the lamp. | LAMP 2 reset | YES | NO |
| bit24 | LAMP1 REMAIN TIME ERROR (Shutdown) | | LAMP 1 reset | YES | YES |
| bit23 | LAMP2 FAILED TO LIGHT | The lamp has failed to light. | LAMP 2 illuminates | YES | NO |
| bit22 | LAMP1 FAILED TO LIGHT | Did you turn the power back on immediately after turning it off? | LAMP 1 illuminates | YES | YES |
| bit21 | APERTURE (CONTRAST- SHUTTER) ERROR | Trouble has occurred in the aperture. If it does not recover after turning power back on, consult your dealer. | Power on or normal operation of the aperture | YES | NO |
| bit20 | SHUTTER ERROR | Trouble has occurred in the shutter circuitry. If it does not recover after turning power back on, consult your dealer. | Power on | YES or normal operation of the shutter | YES |
| bit19 | OPTICS MODULE TEMP. SENSOR ERROR | Trouble has occurred in the temperature detection sensor inside the projector. Consult your dealer. | Main power on | YES | YES |
| bit18 | INPUT AIR TEMP. SENSOR ERROR | Trouble has occurred in the sensor used to detect the input air temperature. Consult your dealer. | Main power on | YES | YES |
| bit17 | OUTPUT AIR OR LAMP AMBIENT TEMPERATURE ERROR | Trouble has occurred in the sensor used to detect the output air temperature or lamp ambient temperature. Consult your dealer. | Main power on | YES | YES |
| bit16 | CLOCK BATTERY WARNING | The battery has been run out. consult your dealer. | The battery has been changed. | NO | YES |
| bit15 | OPTICS MODULE SENSOR LOW TEMP. WARNING | It may be that the projector is being used where the ambient temperature is low (approx. 0). If the temperature in the projector does not go up within 5 min., the projector will shut down. | • Higher temperature than the warning level during power on • Power on | YES | YES |
| bit14 | OPTICS MODULE SENSOR HIGH TEMP. WARNING | The temperature inside the projector is high. If the temperature goes up, the projector will shut down. | • Higher temperature than the warning level during power on • Power on | YES | YES |
| bit13 | INPUT AIR HIGH TEMP. WARNING | • Check if the ventilation port is blocked. • Is the room air temperature too high? | | YES | YES |
| bit12 | OUTPUT AIR OR LAMP AMBIENT HIGH TEMP. WARNING | • Check the air filter for clogging. Undefined value | | YES | YES |
| bit11 | TEST | Undefined value | Main power on | YES | YES |
| bit07 | LAMP2 REMAIN TIME WARNING | It is time to replace the lamp. Prepare the new lamp. The projector will shut down within 200 hours. | LAMP 2 reset | YES | NO |
| bit06 | LAMP1 REMAIN TIME WARNING | | LAMP 1 reset | YES | YES |
| bit03 | AIRFLOW SENSOR | Trouble has occurred in the air volume sensor. Consult your dealer. | Main power on | NO | NO |
| bit02 | COLOR WHEEL ERROR | Trouble has occurred in the color wheel or its drive circuit. If it does not recover after turning power back on, consult your dealer. | Power on | NO | YES |

*The value of NO is undefined.

■ Example

-When the transmission ID from PC is ID ALL and the projector ID is ALL,

Send (the data sent from the computer)

0x02 0x00 0xfe 0x03

Receive (the data received by the computer)

0x02 0x00 0xfe 0x10 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x03

Self-diagnosis information is x10000000, or bit 28 is one so that it is Input temp. error.

- When the transmission ID from PC is ID ALL and the projector ID is 2

Send (the data sent from the computer)

0x02 0x00 0xfe 0x03

Receive (the data received by the computer)

0x02 0x02 0xfe 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x03

Self-diagnosis information is 0x00000000 and it is normal.

Note

•Values of extension bits are undefined. It is normal even if self-diagnosis information is 0x00000001.