

2 Ext Option

This projector has EXT OPTION in addition to standard on-screen menus.

- There are SELF CHECK and SERVICE MODE for service, etc.

2.1. Procedure to enter EXT OPTION

1. Press "MENU" button on the main unit or remote control unit to display "MENU" screen, then select "OPTION" and press "ENTER" button.
2. Select "INPUT GUIDE" on "OPTION" menu and press "ENTER" button 3 seconds or longer.
MENU → OPTION → INPUT GUIDE

2.2. EXT OPTION Menu and Functions

EXT OPTION

FREEZE MSG	OFF / ON
ANGLE RESET	OFF / ON
FAN FULL MODE	OFF / ON
AUTO SETUP	STANDARD / SPECIAL
SYNC	STANDARD / SPECIAL
VGA60/480p	AUTO / VGA60 / 480p
SELF CHECK	
TEST PATTERN	
FLICKER ADJUST	
HPLL	OFF / ON

• FREEZE MSG

Switching ON/OFF "FREEZE" on-screen display

• ANGLE RESET

Switching ON/OFF "Realtime Keystone" reference level setting

Note:

- Normally, do not select. (Angle reset data will be rewritten.)

• FAN FULL MODE

Setting the cooling fan motor rotation speed

- Switching ON "FAN FULL MODE", the rotation level of the fan becomes high-speed rotation (fixed). Moreover, when "FAN FULL MODE" is ON, changing "HIGHLAND" in OPTION becomes impossible (setting "FAN FULL MODE" is given priority more than "HIGHLAND").

• AUTOSETUP

Setting AUTO SETUP mode

- STANDARD: To set the normal mode (the dot clock is adjusted strictly))
- SPECIAL: To set the special mode (the dot clock is adjusted roughly)

Note:

- Do not change the initial setting (STANDARD).

• SYNC

Setting SYNC processing mode

- STANDARD: To set the normal mode
- SPECIAL: To set the special mode (noise reduction mode)

Note:

- Do not change the setting when it is possible to receive normally.

Change the setting only when the image is not displayed normally because of the sync signal noise of connected equipment.

• VGA60/480p

- AUTO: Switching RGB of VGA60 and 480p automatically

- VGA60: Inputting signals in 59.9Hz / VGA480
- 480p: Inputting signals in RGB of 480p
- SELF CHECK
 - To enter the self-check mode
- TEST PATTERN
 - To enter the service mode
- FLICKER ADJUST
 - To enter the flicker adjustment mode
- HPLL
 - When non-standard signal of VIDEO/S-VIDEO is inputted (VTR, VHD, etc.), horizontal synchronization might be disordered according to connected equipment. In this case, set HPLL to OFF.

2.3. Canceling EXT OPTION

Press "MENU" button on the main unit or remote control unit.

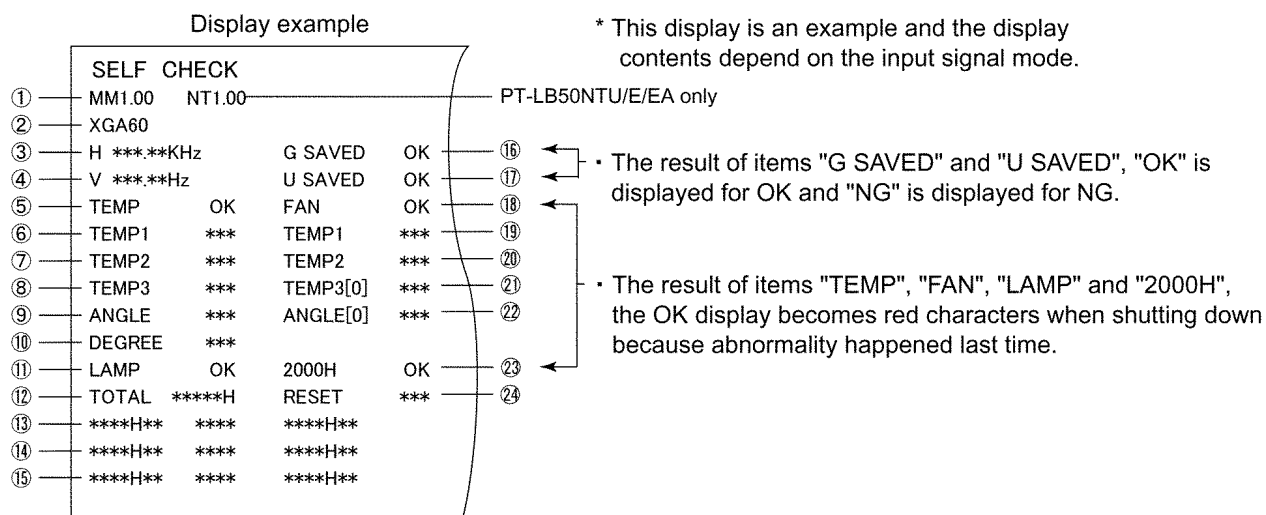
3 Self-Check Mode

This mode is used to narrow down the location of the failure.

3.1. Procedure to enter the self-check mode

Select "SELF CHECK" on "EXT OPTION" menu and press "ENTER" button on the main unit or remote control unit.

3.2. Self Check Display and Contents



	Display Contents	Remarks	
①	Microcomputer Version Display	Software Version	
②	Resolution Name	Different display according to the input signal	
③	Horizontal Signal Frequency	RGB or YPbPr signal reception only	
④	Vertical Signal Frequency		
⑤	Temperature Abnormality Check	Cause of Lamp Malfunction	
⑥	Thermosensor 1 Measurement Value ^{*1}	Around Air Outlet (A/D conversion value: 0 - 255)	
⑦	Thermosensor 2 Measurement Value ^{*1}	Around Air Inlet (A/D conversion value: 0 - 255)	
⑧	Thermosensor 3 Measurement Value	Around Tilt Sensor (A/D conversion value: 0 - 1 023)	
⑨	Tilt Sensor Measurement Value	Voltage Value (0.00 - 3.30)	
⑩	Tilt Degree ^{*2}	Degree of tilt of the projector, that is a value by which temperature correction is given to the tilt sensor A/D conversion value. (When realtime keystone, the keystone distortion is corrected with this value.)	
⑪	Lamp - Abnormality Check	Cause of Lamp Malfunction	
⑫	Total Usage Time	Projector Cumulative Usage Time	
⑬	Lamp ON - Cumulative Usage Time / Frequency / Cumulative Usage Time	Current	Cumulative Usage Time (actual time), ON Frequency and Cumulative Usage Time (conversion time for 165 W) of the lamp are shown from the left.
⑭		Second	
⑮		First	
⑯	Gamma Correction Data Check	It is distinguished whether gamma data is stored in the flash ROM.	
⑰	Color Unevenness Correction Data Check	It is distinguished whether color unevenness correction data is stored in the flash ROM.	
⑱	Fan Stop Check	Cause of Lamp Malfunction	
⑲	Thermosensor 1 A/D Conversion Value	Temperature around the air outlet when the last thermal shutdown occurs	
⑳	Thermosensor 2 A/D Conversion Value	Temperature around the air inlet when the last thermal shutdown occurs	
㉑	Thermosensor 3 Reference Value	Thermosensor 3 A/D Conversion Value (0 - 1 023) at angle reset	
㉒	Tilt Sensor Reference Value	Tilt Sensor Voltage Value (0.00 - 3.30) at angle reset	
㉓	Lamp - Judgment for Cumulative Usage more than 2 000 h ^{*3}	Judgment for Replacement Time of Lamp	
㉔	Lamp - Reset Frequency of Cumulative Usage Time	Reset Frequency (0 - 255)	

^{*1} When detected abnormal temperature (high temperature around the air inlet and/or outlet ports, large difference between temperature around the air inlet/outlet ports), TEMP indicator turned on. If arriving at the critical temperature, the power supply will be shutdown automatically and the indicator will flash.

^{*2} When "Realtime Keystone" is set to ON, the keystone distortion is corrected automatically with this value during automatic setup.

^{*3} Warning of the lamp cumulative usage time and shutdown use the conversion time for 165 W.

3.3. Canceling the self-check mode

Press "MENU" button on the main unit or remote control unit.

4 Service Mode

This mode is used to display seven kinds of test patterns [Horizontal lines, Vertical lines, Dots, Crosshatch, White cross, Black cross and White (No pattern)] in the four colors (White, Red, Green and Blue)..

Note:

- On the service mode, displays above patterns by each color without test equipment such as PC or SG. Use the service mode for simplified adjustments by your eyes and so on.

4.1. Procedure to enter the service mode

Select "TEST PATTERN" on "EXT OPTION" menu and press "ENTER" button on the main unit or remote control unit.

Note:

- In the service mode, pressing the up-arrow " ▲ " or down-arrow " ▼ " button allows the test pattern selection and the left-arrow " ◀ " or right-arrow " ▶ " button the color selection (White / Red / Green / Blue).

4.2. Canceling the service mode

Press "MENU" button on the main unit or remote control unit.

5 Flicker Adjustment Mode

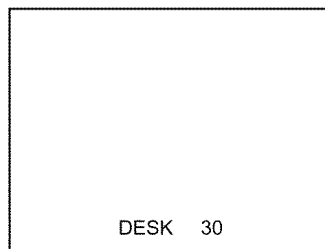
If replacing the optical parts (Analysis / LCD / Lens block) of this projector and/or A-P.C.Board (assembly), enter the flicker adjustment mode and minimize the flicker.

5.1. Procedure to enter the adjustment mode

Select "FLICKER ADJUST" on "EXT OPTION" menu and press "ENTER" button on the main unit or remote control unit.

Note:

"DESK setting (blue)" is displayed when entering the adjustment mode.



Adjustment Display when DESK setting

5.2. Adjustment Display and Contents

- Setting value is increased and decreased with the right-arrow " ▶ " and left-arrow " ◀ " buttons.
 - " ◀ ": Decrease, " ▶ ": Increase
 - Adjust the setting value to minimize the flicker on the screen.
 - Execute the adjustment by 6 patterns below.
- The pattern (adjustment display) is switched with the up-arrow " ▲ " and down-arrow " ▼ " buttons.
 - " ▲ ": Forward direction, " ▼ ": Reverse direction
 - There are 6 patterns of "DESK setting (blue)", "DESK setting (red)", "DESK setting (green)", "CEILING setting (blue)", "CEILING setting (red)" and "CEILING setting (green)".
 - The setting value is saved into this projector when the pattern is switched.

5.3. Canceling the flicker adjustment mode

Press "MENU" button on the main unit or remote control unit.

Note:

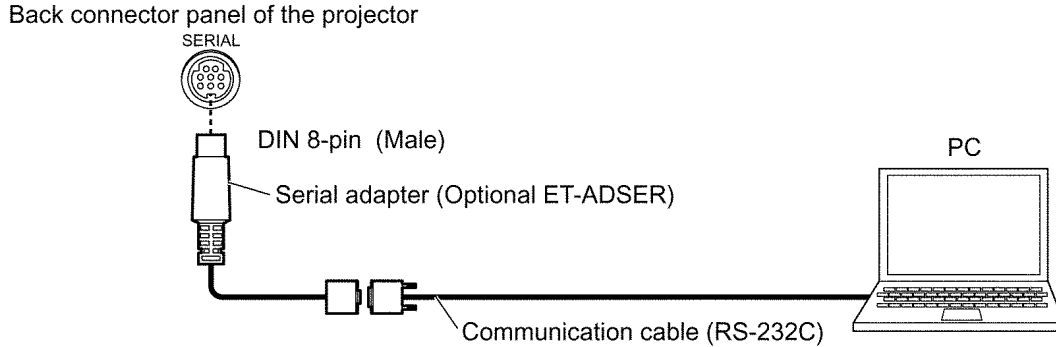
When "MENU" button is pressed, the setting value at that time is saved into this projector and the adjustment mode is canceled.

6 Using the SERIAL Connector

The serial connector which is on the back connector panel of the projector conforms to RS-232C standard. This projector can be controlled by a PC which is connected as shown in "6.1. Connection".

For controlling this projector by a PC, requires communication software on the market, and inputs control commands according to communication settings and basic format below.

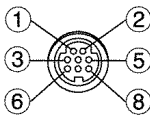
6.1. Connection



Note:
Use a proper communication cable which is suitable for the PC to connect the optional serial adapter, which is connected with SERIAL connector of this projector, and the PC.

6.2. Pin Layout and Signal Names for SERIAL Connector

DIN 8-pin (female)
seen from outside



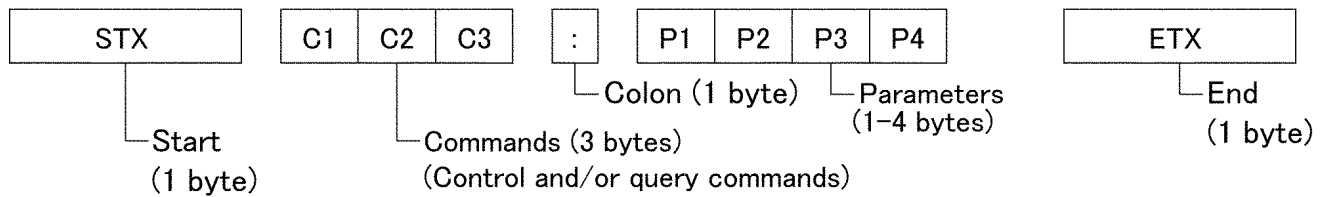
Pin No	Signal Name	Contents
3	RXD	Receive data
4	GND	Ground
5	TXD	Transmit data
1	---	Connected internally
2	---	
6	---	
7	---	NC
8	---	NC

6.3. Communication Settings

Signal Level	Contents		Description
Sync. method	Conforms to RS-232C standard	Asynchronous	Synchronizes every 1 character (8 bits)
Baud rate		9 600 bps	Data transfer speed
Parity		None	Error detection method
Character length		8 bits	Number of bit composing 1 character
Stop bit		1 bit	Uses stop bit when asynchronous method
X parameter		Not used	
S parameter		Not used	

6.4. Basic Format

The data sent from the PC to the projector is transmitted in the format shown below.



Notes:

- If sending multiple commands, check that a call back has been received from the projector for 1 command before sending the next command.
- When a command which does not require parameters is sent, the colon (:) is not required.

6.5. Control / Query Commands

Control Commands

Command Name (Parameter format is shown in <>)	Function / Contents	Call back from Projector (Parameter format is shown in <>)	Minimum Value of Parameter	Maximum Value of Parameter
PON *1	POWER ON	PON	—	—
POF *1	POWER OFF	POF	—	—
AVL :<pl>	VOLUME	AVL :<pl>	0	63
IIS :<input signal>	INPUT SELECT	IIS :<input signal>	—	—
OST	DEFAULT	OST	—	—
OFZ :<off_on>	FREEZE	OFZ :<off_on>	0	1
OEN :	ENTER	OEN	—	—
VPM :<picture mode>	PICTURE MODE	VPM :<picture mode>	—	—
<NAT>	NATURAL	<NAT>	—	—
<STD>	STANDARD	<STD>	—	—
<DYN>	DYNAMIC	<DYN>	—	—
<BBD>	BLACK-BD	<BBD>	—	—
AUU	VOLUME UP	AUU	—	—
AUD	VOLUME DOWN	AUD	—	—
OMN	MENU	OMN	—	—
OCU	CURSOR UP	OCU	—	—
OCD	CURSOR DOWN	OCD	—	—
OCL	CURSOR LEFT	OCL	—	—
OCR	CURSOR RIGHT	OCR	—	—
OAS	AUTO SETUP	OAS	—	—
OSH *1 *3	SHUTTER	OSH	—	—
OIX	INDEX WINDOW (Double)	OIX	—	—
DZU	D.ZOOM UP	DZU	—	—
DZD	D.ZOOM DOWN	DZD	—	—
OLP :<lamp power> *1 *2	LAMP POWER	OLP :<lamp power>	0	1

*1 Do not transmit the PON, POF, OSH and/or OLP commands continuously in a short time.

The lamp may be damaged and/or cause malfunctions.

*2 The OLP command is invalid at a no signal.

*3 If a command except OSH is sent from the PC during "SHUTTER" mode, the "ER401" command will be sent from the projector to the PC, and the projector is going to return to normal operating mode.

Query Commands

Query Command	Contents	Call back from Projector (Parameter format is shown in < >)
QPW	POWER CONDITION	<power condition>
QIN	INPUT SIGNAL	<input signal>
QAV	VOLUME LEVEL	<pl>
QVC	COLOR LEVEL	<pl>
QVT	TINT LEVEL	<pl>
QVB	BRIGHT LEVEL	<pl>
QVR	CONTRAST LEVEL	<pl>
QVS	SHARPNESS LEVEL	<pl>
QWR	WHITE BALANCE LEVEL (RED)	<pl>
QWG	WHITE BALANCE LEVEL (GREEN)	<pl>
QWB	WHITE BALANCE LEVEL (BLUE)	<pl>
QHP	H-POSITION LEVEL	<pl>
QVP	V-POSITION LEVEL	<pl>
QCP	COLOR PHASE LEVEL	<pl>
QDC	DOT CLOCK LEVEL	<pl>
QSP	INSTALLATION	<installation>
QLG	LANGUAGE	<language>
QPM	PICTURE MODE	<NAT>=NATURAL <STD>=STANDARD <DYN>=DYNAMIC <BBD>=BLACK-BD
QFZ	FREEZE	<off_on>
QLP	LAMP POWER	<lamp power>
Q\$L	LAMP ON TIME	<acctch>
QSH	SHUTTER	<off_on>
QKS	KEystone	<pl>
QTE	COLOR TEMPERATURE	<color temp.>

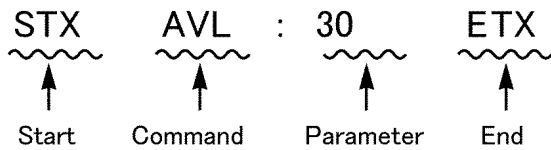
Parameters

Parameter Format	Parameter Size (Byte)	Parameter Definition
<pl>	3 (provided that approves of 1 byte or 2 bytes when control)	Decimal notation without plus/minus sign (0 to 999), Decimal notation with plus/minus sign (-99 to +99) Returns 3 bytes call back from the projector. Decimal notation without plus/minus sign (000, 001, 002, ..., 999). Decimal notation with plus/minus sign (-99, -98, ..., -01, +00, +01, ..., +99)
<off__on>	1	0=OFF, 1=ON
<input signal>	3	VID=VIDEO, SVD=S-VIDEO, RG1=PC1, RG2=PC2 NWP = WIRELESS (PT-LB50NTU/E/EA only)
<installation>	1	0=FRONT/DESK, 1=REAR/DESK, 2=FRONT/CEILING, 3=REAR/CEILING
<language>	3	ENG=English, DEU=German, FRA=French, ESP=Spanish, ITA=Italian, JPN=Japanese, CHI=Chinese, KOR=Korean, RUS=Russian, POR=Portuguese, SVE=Swedish, NOR=Norwegian, DAN=Danish, POL=Polish, CES=Czech, MAG=Hungarian, THA=Thai
<power condition>	3	000=Power OFF, 001=Power ON
<acctch>	4	Decimal notation without plus/minus sign: 0000 hour to 9999 hours
<lamp power>	1	0=ECO, 1=STD
<color temp.>	1	0=LOW, 1=STD, 2=HIGH

* If an incorrect command is sent from the PC, the "ER401" command will be sent from the projector to the PC.

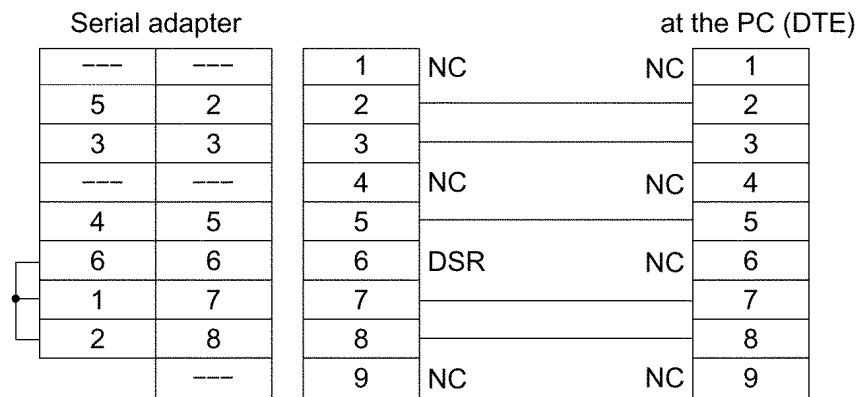
[Example]

When controls the audio volume to +30 by a PC
(Sends commands as the following:)



· When a command which does not require parameters is sent, the colon (:) is not required.

6.6. Communication Cable Specifications



6.7. Signal Selector Connecting Cable Specifications

When connecting to a signal selector (ex. TW-SWS62J), use a cable with specifications below.

Connecting method: Connects a video signal cable from the signal selector to "VIDEO IN", and an RGB signal cable to "RGB1 IN".

At the signal selector D-sub 9p (male)		At the serial adapter (DCE) D-sub 9p (male)		Serial adapter	
Signal Name	Pin No.	Pin No.	Signal Name	Pin No. (cable side)	Pin No. (projector side)
NC	1	1	NC	---	---
RD Receive data	2	2	SD Transmit data	2	5
SD Transmit data	3	3	RD Receive data	3	3
NC	4	4	NC	---	---
GND Ground	5	5	GND Ground	5	4
NC	6	6	DSR	6	6
RS Transmit request	7	7	CS Transmit permission	7	1
CS Transmit permission	8	8	RS Transmit request	8	2
NC	9	9	NC	---	---

Note:

Set VP control terminal switch of the signal selector to VP TYPE "B".