



DATA Projector
XD200U
SD200U

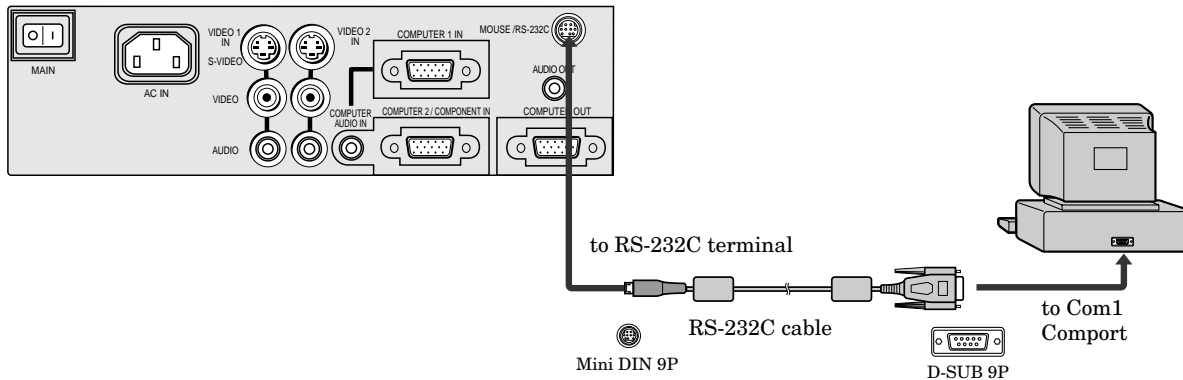
Control projector by using a personal computer

This projector can be controlled by connecting a personal computer with RS-232C terminal.

Functions can be controlled by a personal computer:

- Turn the ON or OFF
- Changing input signals
- Menu setting (for picture related setting only)

Connection



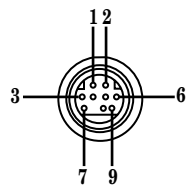
- This cable is a special cable. For more details, consult your dealer.

Important:

- Make sure that your computer and projector are turned off before connection.
- Turn on the projector after the computer is started up.
(If you do not follow this order, the Comport may not function.)
- Adapters may be necessary depending on the PC connected to this projector. Contact your dealer for details.

1) Interface

PROTOCOL	RS-232C
BAUD RATE	9600 [bps]
DATA LENGTH	8 [bits]
PARITY BIT	NONE
STOP BIT	1 [bit]
FLOW CONTROL	NONE



- 1 RXD (IN: on the Projector side)
- 4 GND
- 7 TXD (OUT: on the Projector side)

This projector uses RXD, TXD and GND lines for RS-232C control.
For RS-232C cable, the reverse type cable should be used.

2) Control command diagram

The command is structured by the address code, function code, data code and end code. The length of the command is different by each function.

	Address code	Function code	Data code	End code
HEX	30h 30h	Function	Data	0Dh
ASCII	'0' '0'	Function	Data	↵

- [Address code] 30h 30h (In ASCII code, '0' '0') fixed.
- [Function code] A code of each fixed control move.
- [Data code] A code of each fixed control data (number) and not always indicated.
- [End code] 0Dh (In ASCII code, '↵') fixed.

3) Control sequence

- (1) Send the command from a personal computer to the projector. (The commands must be sent at least 400ms apart.)
- (2) The projector will send a return command 400ms* after it has received an end code. If the command is not received correctly, the projector will not send the return command.
- (3) The personal computer checks the command and confirms if the command which has been sent has been executed or not.
- (4) This projector sends various codes other than the return code. When having a control sequence by RS-232C, reject other codes from personal computer side.
 - The first character of the Status code from projector may not be displayed correctly. In this case, reject the first character on the computer side.
 - *: The sending time of return command may delay depending on the condition (during changing the input signal, etc.).

[Example] Turn the power ON (' is for ASCII code)

Sending commands from the PC etc.	Status code from projector	Meaning
30 30 21 0D '0' '0' '!' '↵'		Command for POWER ON
	30 30 21 0D '0' '0' '!' '↵'	Command received (Command echo back)

4) Operation commands

The operation commands execute the basic operation setting of this projector. It may not operate when changing the signal.

Operation	ASCII	HEX
POWER ON	!	21h
POWER OFF	"	22h
INPUT COMPUTER 1	_r1	5Fh 72h 31h
INPUT COMPUTER 2	_r2	5Fh 72h 32h
INPUT VIDEO 1	_v1	5Fh 76h 31h
INPUT VIDEO 2	_v2	5Fh 76h 32h

- POWER OFF command will not work for 1 minute after the power is turned on.
- POWER ON command will not work for 1 minute after the power is turned off.

[Example] Set the input signal to COMPUTER (' is for ASCII code)

Sending commands from the PC etc.	Status code from projector	Meaning
30 30 5F 72 31 0D '0' '0' '_' 'r' '1' '↵'		Command for setting the input signal to COMPUTER
	30 30 5F 72 31 0D '0' '0' '_' 'r' '1' '↵'	Command received (Command echo back)

5) Volume commands

The volume commands execute the volume setting of this projector with the value.

ITEM	ASCII	HEX	VALUE
VOLUME	VL	56h 4Ch	00 - 31

How to set the grade

Use ASCII letters code to set the grade for setting data. Please refer to the table below for HEX code.

ASCII	'0'	'1'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'9'
HEX	30h	31h	32h	33h	34h	35h	36h	37h	38h	39h

[Example] Set the volume to 15 (Standard value) (' is for ASCII code)

Sending commands from the PC etc.	Status code from projector	Meaning
30 30 56 4C 31 35 0D '0' '0' 'V' 'L' '1' '5' '↵'		Command for setting the volume
	30 30 56 4C 31 35 0D '0' '0' 'V' 'L' '1' '5' '↵'	Command received (Command echo back)

6) Remote commands

Some remote control operations can be done by remote command codes.

Button's name on remote	ASCII	HEX
KEYSTONE	r43	72h 34h 33h
+ (KEYSTONE/VOLUME)	r06	72h 30h 36h
- (KEYSTONE/VOLUME)	r07	72h 30h 37h
EXPAND	r02	72h 30h 32h
PinP	r04	72h 30h 34h
▲	r53	72h 35h 33h
▼	r2b	72h 32h 62h
◀	r4f	72h 34h 66h
▶	r59	72h 35h 39h
MENU	r54	72h 35h 34h
ENTER	r10	72h 31h 30h
AUTO POSITION	r09	72h 30h 39h
STILL	ra4	72h 61h 34h

[Example] Display MENU selection bar. (' ' is for ASCII code)

Sending commands from the PC etc.	Status code from projector	Meaning
30 30 72 35 34 0D '0' '0' 'r' '5' '4' '▣'		Command as same as MENU button
	30 30 72 35 34 0D '0' '0' 'r' '5' '4' '▣'	Command received (Command echo back)

7) Reading command diagram

Monitor projector operation status. The power ON, OFF and input terminal settings can be monitored.

	ASCII		HEX	
	Function	Data (Receive)	Function	Data (Receive)
POWER ON	vP	1	76h 50h	31h
POWER OFF	vP	0	76h 50h	30h
INPUT COMPUTER 1	vI	r1	76h 49h	72h 31h
INPUT COMPUTER 2	vI	r2	76h 49h	72h 32h
INPUT VIDEO 1	vI	v1	76h 49h	76h 31h
INPUT VIDEO 2	vI	v2	76h 49h	76h 32h

When a personal computer sends the command, data code will not be attached. On the other hand, the projector which has received a command will attach the recent operating status and then send.

[Example] Input was Video 1 when the operating status of the input terminal was confirmed.

Sending commands from the PC etc.	Status code from projector	Meaning
30 30 76 49 0D '0' '0' 'v' '1' '▣'		Command to confirm input
	30 30 76 49 76 31 0D '0' '0' 'v' '1' 'v' '1' '▣'	Command (Input is Video 1) carried out

8) Menu setting commands

The menu setting commands execute the menu setting of this projector. If the personal computer doesn't send the commands without attaching the data code, the projector which has received the command replays the setting data as data code.

ITEM	ASCII	HEX	VALUE
CONTRAST	P	50h	±20
BRIGHTNESS	Q	51h	±20
sRGB	SRGB	53h 52h 47h 42h	0 (OFF), 1 (ON)
COLOR MATRIX (MODE)	CMT	43h 4Dh 54h	1 (VIDEO), 2 (COMPUTER), 3 (USER), 4 (OFF)
COLOR MATRIX (R, G, B)	MRGB	4Dh 52h 47h 42h	±30±30±30 (R+G+B)
COLOR MATRIX (Y, C, M)	MYCM	4Dh 59h 43h 4Dh	±30±30±30 (Y+C+M)
COLOR MATRIX (SATURATION)	MSAT	4Dh 53h 41h 54h	±10
COLOR TEMP.	A	41h	1 (Standard), 2 (High), 3 (Low), 4 (User)
TINT	S	53h	±10
COLOR	T	54h	±10
SHARPNESS	R	52h	±05
LANGUAGE	LG	4Ch 47h	0 (日本語), 1 (English), 2 (Español), 3 (Deutsch), 4 (Français), 5 (Italiano), 6 (中文)
RESET ALL	RSTALL	52h 53h 54h 41h 4Ch 4Ch	
MUTE	MUTE	4Dh 55h 54h 45h	0 (MUTE OFF), 1 (MUTE ON)

How to set the grade

Use ASCII letters code to set the grade for setting data. Please refer to the table below for HEX code.

ASCII	'+'	'-'	'0'	'1'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'9'
HEX	2Bh	2Dh	30h	31h	32h	33h	34h	35h	36h	37h	38h	39h

[Example 1] Set the MUTE to ON.

Sending commands from the PC etc.	Status code from projector	Meaning
30 30 4D 55 54 45 31 0D '0' '0' 'M' 'U' 'T' 'E' '1' '↵'		Command for setting the MUTE to ON
	30 30 4D 55 54 45 31 0D '0' '0' 'M' 'U' 'T' 'E' '1' '↵'	Command received (Command echo back)

[Example 2] The TINT was set to +10 when the setting status was confirmed.

Sending commands from the PC etc.	Status code from projector	Meaning
30 30 53 0D '0' '0' 'S' '↵'		Command to confirm setting of TINT
	30 30 53 2B 31 30 0D '0' '0' 'S' '+' '1' '0' '↵'	Command (setting of TINT is +10) carried out