SHARP

PN-M432/PN-M502/PN-M552/PN-M652 /PN-P436/PN-P506/PN-P556/PN-P656

LCD MONITOR

OPERATION MANUAL for S-Format command

Controlling the Monitor with a computer (RS-232C)

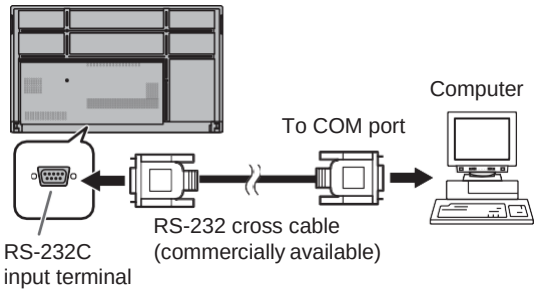
You can control this monitor from a computer via RS-232C (COM port) on the computer.

TIPS

Please refer to "Controlling the monitor via RS-232C" in the user manual.

Computer connection

Connect with RS-232 cross cable between the computer's COM port (RS-232C connector) and the RS-232C input terminal on the monitor.



Communication conditions

Set the RS-232C communication settings on the computer to match the monitor's communication settings as follows:

Baud rate	9600 bps
Data length	8 bits
Parity bit	None

Stop bit	1 bit
Flow control	None

Controlling the Monitor with a computer (LAN)

You can control this monitor from a computer via network.

TIPS

- Please refer to "Controlling the monitor via LAN" in the user manual.
- The settings for the commands are set in "PC CONTROL" on the web page.

Command-based control

You can control the monitor using S-Format commands (see page 6) via terminal software and other appropriate applications.
Read the manual for the terminal software for detailed instructions.

Command setting for normal communication

You can control user access by setting a login name and password.

(1) Put a check mark on “HTTP SERVER” from “NETWORK” > “NETWORK SERVICES”
(2) Press the DISPLAY button and check the IP address of the monitor at the top left of the screen.
(3) Input the address in the Web browser, then login page is displayed.
(4) Register an administator password when you log in for the first time. From the next time you log in, enter the password you registered the first time.
(5) Select “PC CONTROL” in the side menu.
(6) Set “PC CONTROL” to ENABLE
(7) Set “S-FORMAT LOGIN AUTH” to ENABLE and set USER NAME and PASSPWORD if you need.
(8) Press “APPLY” button.

Command control via normal communication.

(1) Connect the computer to the monitor.
1. Specify the IP address and data port number (Default setting: 10008) and connect the computer to the monitor.
   When connection has been established successfully, [Login:] is returned as response.
2. Send the user name.
   - Send [user name] + [↵].
   - When the transmission is successful, [↵ Password:]is returned as response.
3. Send the password.
   - Send [password] + [↵].
   - If the password is not set, send [↵].
   - When the transmission is successful, [OK ↵] is returned as response.

(2) Send commands to control the monitor.
- The commands used are the same as those for RS-232C. Refer to the communication procedure (see page 4) for operation.
- Usable commands are provided in S-Format command table (see page 6).

(3) Disconnect the connection with the monitor and quit the function.
1. Send [BYE↵].
   When the transmission is successful, [Goodbye ↵] is returned and the connection is disconnected.

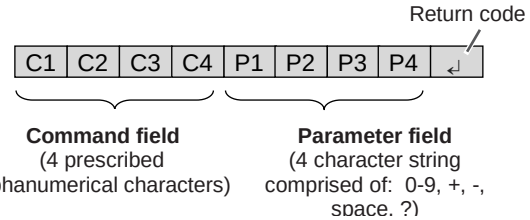
TIPS

- You can access by settings of user name and password registered in USER NAME / PASSWORD when “LOGIN AUTH” is set to ENABLE.
- When access control is not used, set “LOGIN AUTH” to DISABLE. In this case send [blank] + [↵] as user name and password.
- If "AUTO LOGOUT" is ENABLE, the connection will be disconnected after 15 minutes of no command communication.
- Up to 3 connections can be used at the same time.

Communication Procedure

■ Command format

When a command is sent from the computer to monitor, the monitor operates according to the received command and sends a response message to the computer.



Example: VOLM0030
VOLM␣␣30

* Be sure to input 4 characters for the parameter. Pad with spaces (" ") if necessary.
(" ↵ " is a return code (0D$_H$, 0A$_H$ or 0D$_H$))

If a command has "R" listed for "Direction" in the S-Format command table on page 6, the current value can be returned by using "?" as the parameter.

Example:

VOLM????	←	From computer to monitor (How much is current volume setting?).
30	←	From monitor to computer (Current volume setting: 30).

■ Response code format

When a command has been executed correctly

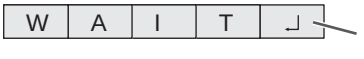
A response is returned after a command is executed.

When a command has not been executed

TIPS

- "ERR" is returned when there is no relevant command or when the command cannot be used in the current state of the monitor.
- If use only lower case characters in the command field, nothing is returned (not even ERR)
- If communication has not been established for reasons such as a bad connection between the computer and monitor, nothing is returned (not even ERR).
- "ERR" may be returned when a command cannot be received correctly due to interference from the surrounding environment. Please ensure that the system or software resends the command if this occurs.

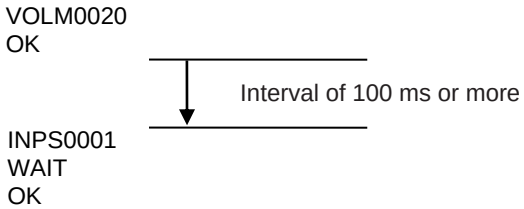
If execution of the command is taking some time



When "WAIT" is returned, a value will be returned if you wait a while. Do not send any command during this period.

■ Communication interval

- To set a timeout for the command response, specify 10 seconds or longer.
- Provide an interval of 100 ms or more between the command response and the transmission of the next command.



TIPS

- Before sending a power "On" or "Off" command, it is recommended that you perform buffer clear at the sending application side.
- After executing a power "On" or "Off" command, wait at least 1 minute before sending the next command.

■ Repeater control

This system has a function to allow setting of multiple monitors connected in a daisy chain using a single command.
This function is called repeater control.
For information on how to connect for repeater control, refer to "Controlling the monitor via LAN" - "Connecting multiple monitors" in the user manual.

■ Repeater control command

Repeater control is achieved by setting the FOURTH CHARACTER of the parameter to “+”.

Example:
VOLM030+ ← Sets volume of all monitors to 30.

In repeater control, responses are returned by all the connected monitors.
If you want to determine that a value has been returned by a specific set, assign ID numbers to each monitor in advance.
When some monitors do not return their responses, the probable cause is that the monitors could not receive the command or command processing is not complete. Do not send a new command.

Example: (When 4 monitors are connected, and assigned ID numbers: 1 through 4)

```
VOLM030+
WAIT
OK␣001
OK␣002
OK␣003
OK␣004      ← If 4 monitors are connected in a chain, reliable operation can be ensured by sending a new command only after a reply has been returned by 4th (last) monitor.
```

Repeater control can also be used for reading settings.

Example:

```
VOLM???+
WAIT
10␣001
20␣002
30␣003
30␣004      ] Volume settings for all monitors are returned.
```

■ Repeater controllable command list

Repeater controllable commands are listed below.
* For details on each command, refer to the S-Format command list on page 6.

POWR
INPS
VLMP
VOLM
MUTE
INF1
SRNO
DSTA

S-Format Command table

Command table

How to read the command table

Command: Command field (See page 4.)
Direction: W When the “Parameter” is set in the parameter field (see page 4), the command functions as described under “Control/Response Contents”.
R The returned value indicated under “Reply” can be obtained by setting “????” or “␣␣␣?” in the parameter field. (See page 4.)
Parameter: Parameter field (See page 4.)
Reply: Response (Returned value)

Power control

Function	Command	Direction	Parameter	Reply	Control/Response contents
Power control	POWR	W	0		Switches to OFF state.
			1		Resume from OFF state
		R		0	OFF
				1	ON
				2	Standby (Power save)

INPUT menu

Function	Command	Direction	Parameter	Reply	Control/Response contents
Input mode selection	INPS	W	0		Toggle change for input mode.
		WR	10	10	HDMI1
			13	13	HDMI2
			14	14	DisplayPort
			21	21	OPTION
			27	27	USB-C
			28	28	COMPUTE MODULE
Check the resolution	PXCK	R		-	Returns current resolution in the form of hhh, vvv.
HDR	HDRS	WR	0～1	0～1	0: OFF, 1: ON
VIDEO RANGE	INPR	WR	0～2	0～2	0: AUTO, 1: FULL, 2: LIMITED

PICTURE menu

Function	Command	Direction	Parameter	Reply	Control/Response contents
PICTURE MODE	BMOD	WR	4	4	HIGH BRIGHT (available only SVE=OFF)
			8	8	CUSTOM (available only SVE=OFF)
			10	10	NATIVE (available only SVE=OFF)
			22	22	RETAIL (available only SVE=OFF)
			23	23	CONFERENCING (available only SVE=OFF)
			25	25	TRANSPORTATION (available only SVE=OFF)
			201	201	SVE_1 (available only SVE=ON)
			202	202	SVE_2 (available only SVE=ON)
			203	203	SVE_3 (available only SVE=ON)
			204	204	SVE_4 (available only SVE=ON)
			205	205	SVE_5 (available only SVE=ON)
BACKLIGHT	VLMP	WR	0 - 100	0 - 100	
VIDEO BLACK LEVEL	BLVL	WR	0 - 100	0 - 100	
GAMMA	GAMM	WR	1	1	2.2 (available only SVE=OFF)
			2	2	2.4 (available only SVE=OFF)
			3	3	DICOM SIMULATION
			21	21	NATIVE (available only SVE=OFF)
			22	22	HYBRID LOG
			23	23	ST2084(PQ)
			24	24	S GAMMA (available only SVE=OFF)
			25	25	sRGB (available only SVE=ON)
			26	26	LSTAR (available only SVE=ON)
			27	27	BT1886 (available only SVE=ON)
			99	99	CUSTOM (available only SVE=ON)
			101	101	PROGRAMABLE1
			102	102	PROGRAMABLE2 (available only SVE=OFF)
			103	103	PROGRAMABLE3 (available only SVE=OFF)
AUTO HDR SELECT	ADHD	WR	0 – 1	0 – 1	0: OFF, 1: ON
COLORS	COLR	WR	0 - 100	0 - 100	
CONTRAST	CONT	WR	0 - 100	0 - 100	
BACKLIGHT DIMMING	BADI	WR	0 – 1	0 – 1	0: OFF, 1: ON

Function	Command	Direction	Parameter	Reply	Control/Response contents
SHARPNESS	SHRP	WR	0 - 10	0 - 10	0 : 0 1 : 10 … 10 : 100
ASPECT SETTINGS	WIDE	WR	1 – 4, 11	1 – 4, 11	1: WIDE, 2: Normal, 3: Dot by Dot, 4: Zoom, 11: FULL
AMBIENT LIGHT SENSING -MODE	ALSM	WR	0 - 1	0 - 1	0: OFF, 1: ON
AMBIENT LIGHT SENSING - MAX AMBIENT LIGHT	AIBI	WR	0 - 100	0 - 100	
AMBIENT LIGHT SENSING - MAX DISPLAY BRIGHT	AIBB	WR	0 - 100	0 - 100	
AMBIENT LIGHT SENSING – MIN AMBIENT LIGHT	AIDI	WR	0 - 100	0 - 100	
AMBIENT LIGHT SENSING – MIN DISPLAY BRIGHT	AIDB	WR	0 - 100	0 - 100	
AMBIENT LIGHT SENSING - STATUS AMBIENT LIGHT	ASIL	R		0 - 100	
AMBIENT LIGHT SENSING - STATUS DISPLAY BRIGHT	ASBR	R		0 - 100	
HUMAN SENSING - MODE	HUSM	WR	0 - 2	0 - 2	0: OFF, 1: ON, 2: CUSTOM
HUMAN SENSING - WAITING TIME	HAWT	WR	30 – 600	30 - 600	30 – 600: second
MULTI PICTURE MODE	MWIN	WR	0 - 2	0 - 2	0: OFF, 1: PIP, 2: PbyP
RESET	ARST	W	2		PICTURE RESET

AUDIO menu

Function	Command	Direction	Parameter	Reply	Control/Response contents
AUDIO MODE	AUMO	WR	1	1	CONFERENCING
			3	3	CUSTOM
			4	4	NATIVE
			5	5	RETAIL
			6	6	HIGHBRIGHT
			7	7	TRANSPORTATION
VOLUME	VOLM	WR	0 - 100	0 - 100	
MONAURAL AUDIO	MONO	WR	0 - 1	0 - 1	0: STEREO, 1: MONO
BALANCE	AUBL	WR	-25 - 25	-25 - 25	-25: L50 -24: L48 … -1 : L2 0 : Center 1 : R2 … 24: R48 25: R50
TREBLE	AUTR	WR	-5 - 5	-5 - 5	-5: -50 -4: -40 … -1: -10 0: 0 1: 10 … 4: 40 5: 50
BASS	AUBS	WR	-5 - 5	-5 - 5	-5: -50 -4: -40 … -1: -10 0: 0 1: 10 … 4: 40 5: 50
LINEOUT	AOUT	WR	0 - 1	0 - 1	0: VARIABLE1, 1: FIXED
RESET	ARST	W	3		AUDIO RESET

SLOT menu

Function	Command	Direction	Parameter	Reply	Control/Response contents
AUTO SHUTDOWN	CCOP	WR	0 - 1	0 - 1	0: OFF, 1: ON

PROTECT menu

Function	Command	Direction	Parameter	Reply	Control/Response contents
POWER SAVE	PMNG	WR	0 - 1	0 - 1	0: OFF, 1: ON
QUICK START	QUST	WR	0 - 1	0 - 1	0: OFF, 1: ON
TEMPERATURE READ	ERRT	R		Value	Temperature

SYSTEM menu

Function		Command	Direction	Parameter	Reply	Control/Response contents
Model		INF1	R		Model name	
Serial no.		SRNO	R		Serial no	
TIME ZONE		TIZO	WR	0 - 48	0 - 48	0: UTC -12: 00 1: UTC -11: 30 ・・・ 23: UTC -0;30 24: UTC -0: 00 25: UTC +0: 30 ・・・ 47: UTC +11: 30 48: UTC +12: 00
INTERNET TIME SERVER		INTS	WR	0 - 1	0 - 1	0: OFF, 1: ON
INTERNET TIME SERVER ADDRESS		TSAD	WR	ASCII strings up to 32 characters	ASCII strings up to 32 characters	Time server name with a maximum of 32 characters
DATE/TIME SETTING		DATE	WR	YYMMDDhhmm	YYMMDDhhmm	YY: Year, MM: month, DD: Day. hh: Hour, mm: Minute
DAYLIGHT SAVING	SETTING	DLSA	WR	0 - 1	0 - 1	0: OFF, 1: ON
	BEGIN MONTH	DSBM	WR	1 - 12	1 - 12	1: Jan. … 12: Dec.
	BEGIN DAY (WEEKS)	DSBW	WR	0 - 4	0 - 4	0: FIRST WEEK, 1: SECOND WEEK, 2: THIRD WEEK, 3: 4th WEEK, 4: FINAL WEEK
	BEGIN DAY OF WEEK	DSBD	WR	0 - 6	0 - 6	0: Monday … 6: Sunday
	BEGIN TIME	DSBT	WR	0 - 23	0 - 23	0: 00:00 … 23: 23:00
	END MONTH	DSEM	WR	1 - 12	1 - 12	1: Jan. … 12: Dec.
	END DAY (WEEKS)	DSEW	WR	0 - 4	0 - 4	0: FIRST WEEK, 1: SECOND WEEK, 2: THIRD WEEK, 3: 4th WEEK, 4: FINAL WEEK
	END DAY OF WEEK	DSED	WR	0 - 6	0 - 6	0: Monday … 6: Sunday
	END TIME	DSET	WR	0 - 23	0 - 23	0: 00:00 … 23: 23:00
	TIME DIFFERENCE	DSTD	WR	22 - 26	22 - 26	22: -1:00, 23: -0:30, 24: 0:00, 25: +0;30, 26: +1:00
LANGUAGE		LANG	WR	1	1	Germany
				2	2	French
				3	3	Italian
				4	4	Spanish
				5	5	Russian
				6	6	Japanese
				7	7	Chinese
				8	8	Swedish
				14	14	English
OSD H-POS		OSDH	WR	0 - 255	0 – 255	
OSD V-POS		OSDV	WR	0 - 255	0 – 255	
OSD ROTATION		STDR	WR	0 - 1	0 - 1	0: LANDSCAPE, 1: PORTRAIT
POWER INDICATOR		OFLD	WR	0 - 1	0 - 1	0: LED ON, 1: LED OFF
MUTE SETTING		MUTE	WR	0 - 1	0 - 1	0: OFF, 1: ON
USB-C SETTING		USBC	WR	0 - 1	0 - 1	0: USB3.2, 1: USB2.0
TEMPERATURE MONITOR		DSTA	R		0 - 3	0: Normal, 1: Abnormal (Power OFF), 2: Abnormal (Currently normal, but temperature abnormality occurs during use) 3: Abnormal (Low backlight brightness condition)