SONY

FLAT WIDE DISPLAY MONITOR

FWD-50PX3

PROTOCOL MANUAL (For Customer)

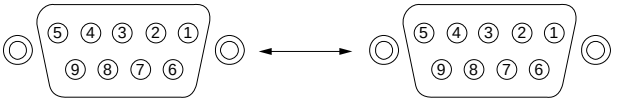
Table of Contents

1. Communication Parameters

Communication method	RS-232C
Synchronous method	Asynchronous
Baud rate	9600bps
Character length	8bit
Parity	None
Start bit length	1bit
Stop bit length	1bit
Flow control	None

2. Pin Assignment

Monitor side (D-sub 9-pin) Host side (D-sub 9-pin)



– External view – – External view –

Pin No.	Function
1	NC
2	TXD
3	RXD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

Pin No.	Function
1	NC
2	RXD
3	TXD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

3. Communication Data Format

(a) Control message

No.	Item	Value
1	Header	0x8C: Control
2	Category	0xXX
3	Function	0xXX
4	Data1 (Length)	0xXX
5	Data2 (Data1)	0xXX
:	:	0xXX
:	:	0xXX
X	DataX	0xXX
X+1	Check Sum	0xXX

* Check Sum: Sum total of 1 to X. Lower one-byte data is validated when a value exceeds 255 (1byte).
* Set the command interval to 500 ms or more when transmitting the Control command continuously.
* Set the command interval to 500 ms or more when transmitting the same command (Enquiry) after the Control command.

(b) Enquiry message

No.	Item	Value
1	Header	0x83: Enquiry
2	Category	0xXX
3	Function	0xXX
4	Data1	0xFF
5	Data2	0xFF
6	Check Sum	0xXX

* Check Sum: Sum total of 1 to X. Lower one-byte data is validated when a value exceeds 255 (1byte).

(c) Answer message

① Control answer

No.	Item	Value
1	Header	0x70: Answer
2	Answer*	0x00: Completed
		0x01: Limit Over
		0x02: Limit Under
		0x03: Command Canceled
3	Check Sum	0xXX

* 0x00: Completed — Packet is correctly received and process is also correctly completed.
  0x01: Limit Over — Packet is correctly received, but the data value is over the upper limit.
  0x02: Limit Under — Packet is correctly received, but the data value under the lower limit.
  0x03: Command Canceled — Packet is correctly received, but the data value is not correct or the request cannot be accepted in the current host state.
* Check Sum: Sum total of 1 to X. Lower one-byte data is validated when a value exceeds 255 (1byte).

② Enquiry answer (Complete)

No.	Item	Value
1	Header	0x70: Answer
2	Answer	0x00: Completed
3	Return Data Size	0xXX
4	Return Data1	0xXX
:	:	0xXX
:	:	0xXX
X	Return DataX	0xXX
X+1	Check Sum	0xXX

* 0x00: Completed — Packet is correctly received and process is also correctly completed.
* Return Data: Returns the read value.
* Check Sum: Sum total of 1 to X. Lower one-byte data is validated when a value exceeds 255 (1byte).

③ Enquiry answer (Command cancel)

No.	Item	Value
1	Header	0x70: Answer
2	Answer	0x03: Command Canceled
3	Check Sum	0x73

0x03: Command Canceled — Packet is correctly received, but the data value is not correct or the request cannot be accepted in the current host state.

④ Error answer

No.	Item	Value
1	Header	0xE0: Answer
2	Answer*	0x00: No Function Error
		0x01: Check Sum Error
		0x02: Data Length Error
3	Check Sum	0xXX

* 0x00: No Function Error — Packet header,category or function code are not included in this protocol.
  0x01: Check Sum Error — Check sum value or received packet is not correct.
  0x02: Data Length Error — Packet is correctly received,but the data size is over the upper limit.

4. General Function

(a) Mode Control

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Control	0x8C	0x00	Code Table (1-a) [a]	0x02	Code Table (1-a) [b]	0xXX
Enquiry	0x83			0xFF	0xFF	0xXX

Answer	Header	Answer	Check Sum	
Control	0x70	0x00	0x70	Completed
	0x70	0x01	0x71	Limit Over
	0x70	0x02	0x72	Limit Under
	0x70	0x03	0x73	Command Canceled

Answer	Header	Answer	Return to Data Size	Return Data1	Check Sum	
Enquiry	0x70	0x00	0x02	Code Table (1-a) [b]	0xXX	Completed

Code Table (1-a)

[a]Function		[b]Range/Switch Code		Command Control	Enquiry	Standby	Power On
0x00	Power	0x00	OFF	Yes	Yes	Enable	Enable
		0x01	ON				
0x01	Input Select*4	0x08	INPUT1 RGB (Analog)	Yes	Yes	Disable	Enable
		0x09	INPUT1 YUV (Analog)				
		0x0C	OPTION1 VIDEO				
		0x0D	OPTION1 S-VIDEO				
		0x0E	OPTION1 RGB				
		0x0F	OPTION1 COMPONENT				
		0x10	OPTION2 VIDEO				
		0x11	OPTION2 S-VIDEO				
		0x12	OPTION2 RGB				
		0x13	OPTION2 COMPONENT				
		0x20	Input1 DVI				
		0x84	Option1 Digital1				
		0x85	Option1 Digital2				
0x02	Force Status Display	0x00	ON	Yes	Yes	Disable	Enable
		0x01	OFF				
0x03	Audio Mute	0x00	OFF	Yes	Yes	Disable	Enable
		0x01	ON				
0x04	Auto Status Display	0x00	ON	Yes	Yes	Enable	Enable
		0x01	OFF				

(Continued)

Code Table (1-a)

[a]Function		[b]Range/Switch Code		Command Control	Enquiry	Standby	Power On
0x06	Color System	0x00	Auto	Yes	Yes	Disable	Enable
		0x01	NTSC				
		0x02	NTSC4.43				
		0x03	PAL				
		0x05	PAL-M				
		0x06	PAL-N				
		0x07	PAL60				
0x0B	Picture Inversion	0x00	OFF	Yes	Yes	Disable	Enable
		0x01	Auto				
		0x02	On				
0x0C	Picture Orbit	0x00	OFF	Yes	Yes	Disable	Enable
		0x01	ON				
0x0D	Orbit Range	0x00	Small	Yes	Yes	Disable	Enable
		0x01	Middle				
		0x02	Large				
0x0E	Orbit Cycle	0x00	Speed1 (10 sec)	Yes	Yes	Disable	Enable
		0x01	Speed2 (30 sec)				
		0x02	Speed3 (1 min)				
		0x03	Speed4 (5 min)				
0x0F	Language	0x00	Japanese	Yes	Yes	Disable	Enable
		0x01	English				
		0x02	Deutsch				
		0x03	Français				
		0x04	Español				
		0x05	Italiano				
0x10	Index Number	0x01-0xFF		Yes	Yes	Disable	Enable
0x12	Standby Power	0x00	Standard	Yes	Yes	Disable	Enable
		0x01	Low				
0x13	ECO Mode (Power Saving)	0x00	Off	Yes	Yes	Disable	Enable
		0x01	ECO High				
		0x02	ECO Low				
0x14	Speaker Out	0x00	ON	Yes	Yes	Disable	Enable
		0x01	OFF				
0x18	Sync Mode	0x00	H/Comp	Yes	Yes	Disable	Enable
		0x01	Video				
0x1B	Clock Display	0x00	OFF	Yes	Yes	Disable	Enable
		0x01	ON				

(Continued)

Code Table (1-a)

[a]Function		[b]Range/Switch Code		Command Control	Enquiry	Standby	Power On
0x24	Input Detect (Option1)	0x00	FW12 (HD15)	No	Yes	Disable	Enable
		0x01	FW10 (VIDEO, S-VIDEO) BNC				
		0x02	FW11 (BNC)				
		0x03	Reserved				
		0x04	FW31/32				
		0x05	FW50 (RGB)				
		0x06	FW20 (UART + CTRL-S)				
		0x07	FW13 (COMPONENT) RCA				
		0x08	FW15 (HDMI × 2)				
		0x09	FW16 (Digital × 1)				
		0x0A	Reserved				
		0x0B	Reserved				
		0x0C	Reserved				
		0x0D	Reserved				
		0x0E	Reserved				
		0x0F	Not Connect				
0x25	Input Detect (Option2)	0x00	FW12 (HD15)	No	Yes	Disable	Enable
		0x01	FW10 (VIDEO, S-VIDEO) BNC				
		0x02	FW11 (BNC)				
		0x03	Reserved				
		0x04	FW31/32				
		0x05	FW50 (RGB)				
		0x06	FW20 (UART + CTRL-S)				
		0x07	FW13 (COMPONENT) RCA				
		0x08	FW15 (HDMI × 2)				
		0x09	FW16 (Digital × 1)				
		0x0A	Reserved				
		0x0B	Reserved				
		0x0C	Reserved				
		0x0D	Reserved				
		0x0E	Reserved				
		0x0F	Not Connect				
0x26	Auto Shut OFF	0x00	OFF	Yes	Yes	Disable	Enable
		0x01	ON				
0x27	Auto Screen Adjust	0x00	OFF	Yes	Yes	Disable	Enable
		0x01	ON				
0x30	PAP	0x00	OFF	Yes	Yes	Disable	Enable
		0x01	P&P				
		0x02	PinP				

(Continued)

Code Table (1-a)

[a]Function		[b]Range/Switch Code		Command Control	Enquiry	Standby	Power On
0x31	Active Picture	0x00	Left (P&P)/Main (PinP)	Yes	Yes	Disable	Enable
		0x01	Right (P&P)/Sub (PinP)				
		0x02	Swap				
0x32	Picture Size (P&P)	0x00-0x0E		Yes	Yes	Disable	Enable
0x33	Sub Picture Size (PinP)	0x00	Large	Yes	Yes	Disable	Enable
		0x01	Small				
0x34	Picture Position (PinP)	0x00	Position1	Yes	Yes	Disable	Enable
		0x01	Position2				
		0x02	Position3				
		0x03	Position4				
0x35	PAP Input Detect (Left/Main)	0x08	INPUT1 RGB (Analog)	No	Yes	Disable	Enable
		0x09	INPUT1 YUV (Analog)				
		0x0C	OPTION1 VIDEO				
		0x0D	OPTION1 S-VIDEO				
		0x0E	OPTION1 RGB				
		0x0F	OPTION1 COMPONENT				
		0x10	OPTION2 VIDEO				
		0x11	OPTION2 S-VIDEO				
		0x12	OPTION2 RGB				
		0x13	OPTION2 COMPONENT				
		0x20	INPUT1 DVI				
		0x84	Option1 Digital1				
		0x85	Option1 Digital2				
0x36	PAP Input Detect (Right/Sub)	0x08	INPUT1 RGB (Analog)	No	Yes	Disable	Enable
		0x09	INPUT1 YUV (Analog)				
		0x0C	OPTION1 VIDEO				
		0x0D	OPTION1 S-VIDEO				
		0x0E	OPTION1 RGB				
		0x0F	OPTION1 COMPONENT				
		0x10	OPTION2 VIDEO				
		0x11	OPTION2 S-VIDEO				
		0x12	OPTION2 RGB				
		0x13	OPTION2 COMPONENT				
		0x20	INPUT1 DVI				
		0x84	Option1 Digital1				
		0x85	Option1 Digital2				
0x40	All White	0x00	OFF	Yes	Yes	Disable	Enable
		0x01	ON				
0x41	BackGround	0x00	Gray	Yes	Yes	Disable	Enable
		0x01	Dark Gray				
		0x02	Black				

(Continued)

Code Table (1-a)

[a]Function		[b]Range/Switch Code		Command Control	Enquiry	Standby	Power On
0x44	Logo Illumination & Status LED	0x00	Logo Off	Yes	Yes	Enable	Enable
		0x01	Logo On (Low)				
		0x02	Logo On (High)				
		0x04	LED Off				
		0x05	LED On				
0x45	Control Mode	0x00	Main + Remocon	Yes	Yes	Disable	Enable
		0x01	Main				
		0x02	Remocon				
		0x03	All Off				
		0x04	Limited*5				
0x46	On Off Timer Mode	0x00	Every Day (Repeat)	Yes	Yes	Enable	Enable
		0x01	Day Of Week				
0x47	On Timer Enable	bit0	Sunday 1: Enable, 0: Disable	Yes	Yes	Enable	Enable
		bit1	Monday 1: Enable, 0: Disable				
		bit2	Tuesday 1: Enable, 0: Disable				
		bit3	Wednesday 1: Enable, 0: Disable				
		bit4	Thursday 1: Enable, 0: Disable				
		bit5	Friday 1: Enable, 0: Disable				
		bit6	Saturday 1: Enable, 0: Disable				
		bit7	Every day 1: Enable, 0: Disable				
0x48	Off Timer Enable	bit0	Sunday 1: Enable, 0: Disable	Yes	Yes	Enable	Enable
		bit1	Monday 1: Enable, 0: Disable				
		bit2	Tuesday 1: Enable, 0: Disable				
		bit3	Wednesday 1: Enable, 0: Disable				
		bit4	Thursday 1: Enable, 0: Disable				
		bit5	Friday 1: Enable, 0: Disable				
		bit6	Saturday 1: Enable, 0: Disable				
		bit7	Every day 1: Enable, 0: Disable				
0x49	Auto Dimmer	0x00	OFF	Yes	Yes	Disable	Enable
		0x01	ON				
0x65	IP Setting Mode	0x00	DHCP	Yes	Yes	Enable	Enable
		0x01	Manual				
		0x02	Speed				
0x66	IP Setting Execute	0x00	No	No	Yes	Enable	Enable
		0x01	Yes				
		0X02	NVR Reset				

(Continued)

Code Table (1-a)

[a]Function		[b]Range/Switch Code		Command Control	Enquiry	Standby	Power On
0x67	IP Setting Result	0x00	Done	Yes	No	Enable	Enable
		0x01	Error 1 (UART Commu.)				
		0x02	Error 2 (Duplication)				
		0x03	Error 3 (IP Add Setting)				
		0x04	Error 4 (GW Add setting)				
		0x05	Error 5 (DNS1 Setting)				
		0x06	Error 6 (DNS2 Setting)				
		0x07	Error 7 (Sbnt Msk Setting)				
0x68	Speed Setting	0x00	100Mbps/Full Duplex	Yes	Yes	Enable	Enable
		0x01	100Mbps/Half Duplex				
		0x02	10Mbps/Full Duplex				
		0x03	10Mbps/Half Duplex				
		0x04	Auto				
0x70	Input Skip	bit0	HD15	Yes	Yes	Disable	Enable
		bit1	DVI				
		bit2	Reserved				
		bit3	Reserved				
		bit4	Reserved				
		bit5	Reserved				
		bit6	Reserved				
		bit7	Reserved				
0x71	Default Input	0x00	Last Memory	Yes	Yes	Enable	Enable
		0x01	Option1				
0x72	Input Detect (Option3)*3	0x00	FW12 (HD15)	No	Yes	Disable	Enable
		0x01	FW10 (VIDEO, S-VIDEO) BNC				
		0x02	FW11 (BNC)				
		0x03	Reserved				
		0x04	FW31/32				
		0x05	FW50 (RGB)				
		0x06	FW20 (UART + CTRL-S)				
		0x07	FW13 (COMPONENT) RCA				
		0x08	FW15 (HDMI × 2)				
		0x09	FW16 (Digital × 1)				
		0x0A	Reserved				
		0x0B	Reserved				
		0x0C	Reserved				
		0x0D	Reserved				
		0x0E	Reserved				
		0x0F	Not Connect				

(Continued)

Code Table (1-a)

[a]Function		[b]Range/Switch Code		Command Control	Enquiry	Standby	Power On
0x74	Digital Signal Detect (DVI/HDMI/etc.) ∗6	0x00	VIDEO	No	Yes	Disable	Enable
		0x01	PC				
0x75	Signal Status∗7	0x00	Stable	No	Yes	Disable	Enable
		0x01	Unstable/No Signal				
0x76	VIDEO Signal Detect	0x00	NTSC	No	Yes	Disable	Enable
		0x01	PAL (SECAM)				

∗3: Option3 Slot is Not Connect Now.
∗4: Auto Signal Detect becomes Disable. When Option Slot is connected, Option command is Enable.
∗5: Restricts a part of keys operation following below.
[Remote Commander]
Menu, Picture, Sound, ECO (Power Saving), Sleep, Freeze, Contrast+/–,Brightness, Chroma, H Shift, V Shift, V size, PAP
[Main]
Menu
∗6: Digital Signal Status is Enable for Digital Input Signal Detect Function only in Stable.
∗7: Digital Signal or VIDEO Signal is Enable. Return Signal Status of Active Window.

NOTE: modified RS-232 protocol
If “everyday” is selected, the enable bit for “everyday” should be copied to the bit for each day of week.

5. Analog Signal Detect Function

(a) Mode Control

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x00	Code Table (1-a) [a]	Code Table (1-d)	0xFF	0xXX

Answer	Header	Answer	Return to Data Size	Return Data1	Data2	Check Sum	
Enquiry	0x70	0x00	0x02	Code Table (1-a) [b]	0xFF	0xXX	Completed

Code Table (1-a)

[a]Function		[b]Range/Switch Code		Command Control	Enquiry	Standby	Power On
0x78	Analog Signal Detect	0x00	VIDEO	No	Yes	Disable	Enable
		0x01	PC				

Code Table (1-d)

Input Select	
0x00	Main
0x01	Sub
0xFF	Present input

1-a[b]
When input is no signal or not supported signal, return value is Video(0x00).

6. Priority Signal Select Function

(a) Mode Control

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x00	Code Table (2-a) [a]	Code Table (2-d)	0xFF	0xXX

Answer	Header	Answer	Return to Data Size	Return Data1	Data2	Check Sum	
Enquiry	0x70	0x00	0x02	Code Table (2-a) [b]	0xFF	0xXX	Completed

Code Table (2-a)

[a]Function		[b]Range/Switch Code		Command Control	Enquiry	Standby	Power On
0x77	Priority Signal Select	0x00	Input1 Auto	No	Yes	Disable	Enable
		0x01	Input1 RGB				
		0x02	Input1 YPbPr				

Code Table (2-d)

Input Select	
0x00	HD15
0x01	Option1
0xFF	Option2

(b) Color Matrix

Syntax	Header	Category	Function	Data1	Data2	Data3	Data4	Check Sum
Control	0x8C	0x00	Code Table (1-b) [a]	0x04	Code Table (1-c)	Code Table (1-b) [b]	Code Table (1-d)	0xXX

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x00	Code Table (1-b) [a]	Code Table (1-c)	Code Table (1-d)	0xXX

Answer	Header	Answer	Check Sum	
Control	0x70	0x00	0x70	Completed
	0x70	0x03	0x73	Command Canceled

Answer	Header	Answer	Return to Data Size	Return Data1	Return Data2	Return Data3	Check Sum	
Enquiry	0x70	0x00	0x04	Code Table (1-c)	Code Table (1-b) [b]	Code Table (1-d)	0xXX	Completed

Code Table (1-b)

[a]Function		[b]Range/Switch Code		Command Control	Enquiry	Standby	Power On
0x1D	Color Matrix	0x00	YCbCr	Yes	Yes	Disable	Enable
		0x01	YPbPr				

Code Table (1-c)

Format Select	
0x00	480P
0x01	1080i
0x02	720P
0x03	480i

Code Table (1-d)

Input Select	
0x00	HD15 (Component)
0x01	Option1
0x02	Option2

(c) Time Control

Clock Set (Hour, Minute)

Syntax	Header	Category	Function	Data1	Data2	Data3	Check Sum
Control	0x8C	0x00	0x22	0x03	Hour: 0x00-0x17	Minute: 0x00-0x3B	0xXX

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x00	0x22	0xFF	0xFF	0xA3

Answer	Header	Answer	Check Sum	
Control	0x70	0x00	0x70	Completed
	0x70	0x01	0x71	Limit Over
	0x70	0x02	0x72	Limit Under
	0x70	0x03	0x73	Command Canceled

Answer	Header	Answer	Return to Data Size	Return Data1	Return Data2	Check Sum	
Enquiry	0x70	0x00	0x03	Hour: *0x00-0x17	Minute: 0x00-0x3B	0xXX	Completed

Clock Set (Week)

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Control	0x8C	0x00	0x23	0x02	Week: Code Table (1-e)	0xXX

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x00	0x23	0xFF	0xFF	0xA4

Answer	Header	Answer	Check Sum	
Control	0x70	0x00	0x70	Completed
	0x70	0x01	0x71	Limit Over
	0x70	0x02	0x72	Limit Under
	0x70	0x03	0x73	Command Canceled

Answer	Header	Answer	Return to Data Size	Return Data1	Check Sum	
Enquiry	0x70	0x00	0x02	Week: Code Table (1-e)	0xXX	Completed

Code Table (1-e)

Week Select	
0x00	Sunday
0x01	Monday
0x02	Tuesday
0x03	Wednesday
0x04	Thursday
0x05	Friday
0x06	Saturday

On Timer, Off Timer

Syntax	Header	Category	Function	Data1	Data2	Data3	Check Sum
Control	0x8C	0x00	Code Table (1-f) [a]	0x03	Hour: 0x00-0x17	Minute: 0x00-0x3B	0xXX

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x00	Code Table (1-f) [a]	0xFF	0xFF	0xXX

Answer	Header	Answer	Check Sum	
Control	0x70	0x00	0x70	Completed
	0x70	0x01	0x71	Limit Over
	0x70	0x02	0x72	Limit Under
	0x70	0x03	0x73	Command Canceled

Answer	Header	Answer	Return to Data Size	Return Data1	Return Data2	Check Sum	
Enquiry	0x70	0x00	0x03	Hour: 0x00-0x17	Minute: 0x00-0x3B	0xXX	Completed

Code Table (1-f)

[a]Function		[b]Range/Switch code	Command Control	Enquiry	Standby	Power On
Invert Timer						
0x20	Invert Start Time	–	Yes	Yes	Disable	Enable
0x21	Invert End Time	–				
On Timer						
0x50	Sunday	–	Yes	Yes	Disable	Enable
0x51	Monday	–				
0x52	Tuesday	–				
0x53	Wednesday	–				
0x54	Thursday	–				
0x55	Friday	–				
0x56	Saturday	–				
0x57	Every day	–				
Off Timer						
0x58	Sunday	–	Yes	Yes	Disable	Enable
0x59	Monday	–				
0x5A	Tuesday	–				
0x5B	Wednesday	–				
0x5C	Thursday	–				
0x5D	Friday	–				
0x5E	Saturday	–				
0x5F	Every day	–				

(d) IP Address Setting

IP Address

Syntax	Header	Category	Function	Data1	Data2	Data3	Data4	Data5	Check Sum
Control	0x8C	0x00	0x42	0x05	Address 0 0x00-0xFF	Address 1 0x00-0xFF	Address 2 0x00-0xFF	Address 3 0x00-0xFF	0xXX

Subnet Mask

Syntax	Header	Category	Function	Data1	Data2	Data3	Data4	Data5	Check Sum
Control	0x8C	0x00	0x61	0x05	Address 0 0x00-0xFF	Address 1 0x00-0xFF	Address 2 0x00-0xFF	Address 3 0x00-0xFF	0xXX

Gateway Address

Syntax	Header	Category	Function	Data1	Data2	Data3	Data4	Data5	Check Sum
Control	0x8C	0x00	0x62	0x05	Address 0 0x00-0xFF	Address 1 0x00-0xFF	Address 2 0x00-0xFF	Address 3 0x00-0xFF	0xXX

DNS Primary

Syntax	Header	Category	Function	Data1	Data2	Data3	Data4	Data5	Check Sum
Control	0x8C	0x00	0x63	0x05	Address 0 0x00-0xFF	Address 1 0x00-0xFF	Address 2 0x00-0xFF	Address 3 0x00-0xFF	0xXX

DNS Secondary

Syntax	Header	Category	Function	Data1	Data2	Data3	Data4	Data5	Check Sum
Control	0x8C	0x00	0x64	0x05	Address 0 0x00-0xFF	Address 1 0x00-0xFF	Address 2 0x00-0xFF	Address 3 0x00-0xFF	0xXX

Answer	Header	Answer	Check Sum	
Control	0x70	0x00	0x70	Completed
	0x70	0x03	0x73	Command Canceled

IP Address ex)
192.128.14.1 →192 (0xC0) Address 0
128 (0x80) Address 1
14 (0x0E) Address 2
1 (0x01) Address 3
∗ IP address command can be carried out even in the standby state.

Code Table (1-a)

[a]Function		[b]Range/Switch code	Command Control	Enquiry	Standby	Power On
0x42	IP Address	–	Yes	Yes	Enable	Enable
0x61	Subnet Mask	–				
0x62	Gateway Address	–				
0x63	DNS Primary	–				
0x64	DNS Secondary	–				

7. Picture/Sound

(a) Picture/Sound

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Control	0x8C	0x10	Code Table (2-a) [a]	0x02	Code Table (2-a) [b]	0xXX
Enquiry	0x83			0xFF	0xFF	0xXX

Answer	Header	Answer	Check Sum	
Control	0x70	0x00	0x70	Completed
	0x70	0x01	0x71	Limit Over
	0x70	0x02	0x72	Limit Under
	0x70	0x03	0x73	Command Canceled

Answer	Header	Answer	Return to Data Size	Return Data1	Check Sum	
Enquiry	0x70	0x00	0x02	Code Table (2-a) [b]	0xXX	Completed

Code Table (2-a)

[a]Function		[b]Range/Switch code		Command Control	Enquiry	Standby	Power On
0x00	Contrast	0x00-0x64		Yes	Yes	Disable	Enable
0x01	Brightness	0x00-0x64		Yes	Yes	Disable	Enable
0x02	Chroma	0x00-0x32		Yes	Yes	Disable	Enable
0x03	Phase	0x00-0x64		Yes	Yes	Disable	Enable
0x04	Color Temp	0x00	Cool	Yes	Yes	Disable	Enable
		0x01	Neutral				
		0x02	Warm				
		0x03	Custom				
0x09	Sharpness	0x00-0x14		Yes	Yes	Disable	Enable
0x0A	NR	0x00	OFF	Yes	Yes	Disable	Enable
		0x01	Low				
		0x02	Mid				
		0x03	High				
0x0B	Cinema Drive	0x00	Auto	Yes	Yes	Disable	Enable
		0x01	OFF				
0x0C	Dynamic Picture	0x00	OFF	Yes	Yes	Disable	Enable
		0x01	ON				
		0x02	Reserve				
0x0D	Color Correct	0x00	ON	Yes	Yes	Disable	Enable
		0x01	OFF				
0x0E	Gamma Correct	0x00	High	Yes	Yes	Disable	Enable
		0x01	Mid				
		0x02	Low				
0x10	Picture Mode	0x00	Standard	Yes	Yes	Disable	Enable
		0x01	Vivid				
		0x02	Custom				
		0x05	Reserve				
		0x06	Conference Camera				
0x30	Volume	0x00-0x64		Yes	Yes	Enable	Enable
0x31	Treble*1	0x00-0x64		Yes	Yes	Disable	Enable
0x32	Bass*1	0x00-0x64		Yes	Yes	Disable	Enable
0x33	Balance	0x00-0x64		Yes	Yes	Disable	Enable
0x34	Surround	0x00	OFF	Yes	Yes	Disable	Enable
		0x01	Hall				
		0x02	Simulate				
0x35	Sound Mode	0x00	Dynamic	Yes	Yes	Disable	Enable
		0x01	Standard				
		0x02	Reserve				
		0x03	Custom				

(Continued)

Code Table (2-a)

[a]Function		[b]Range/Switch code		Command Control	Enquiry	Standby	Power On
0x36	Default Volume Set	0x00-0x64		Yes	Yes	Enable	Enable
0x37	Volume Select	0x00	Last Memory	Yes	Yes	Enable	Enable
		0x01	Default Setting				
0x38	Max Volume Set	0x32	50	Yes	Yes	Enable	Enable
		0x46	70				
		0x64	100				

∗1 Sound Mode = Custom Only is Enabled.

(b) Color Temp

Syntax	Header	Category	Function	Data1	Data2	Data3	Check Sum
Control	0x8C	0x10	Code Table (2-b) [a]	0x03	Code Table (2-c)	Code Table (2-b) [b]	0xXX

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x10	Code Table (2-b) [a]	Code Table (2-c)	0xFF	0xXX

Answer	Header	Answer	Check Sum	
Control	0x70	0x00	0x70	Completed
	0x70	0x03	0x73	Command Canceled

Answer	Header	Answer	Return to Data Size	Return Data1	Return Data2	Check Sum	
Enquiry	0x70	0x00	0x03	Code Table (2-c)	Code Table (2-b) [b]	0xXX	Completed

Code Table (2-b)

[a]Function		[b]Range/Switch code	Command Control	Enquiry	Standby	Power On
0x05	Red Gain	0x00-0x1E	Yes	Yes	Disable	Enable
0x06	Green Gain					
0x07	Blue Gain					

Code Table (2-c)

Format Select	
0x00	Cool
0x01	Neutral
0x02	Warm
0x03	Custom

8. Size/Shift

(a) 8Bits Register

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Control	0x8C	0x20	Code Table (3-b) [a]	0x02	Code Table (3-b) [b]	0xXX
Enquiry	0x83			0xFF	0xFF	0xXX

Answer	Header	Answer	Check Sum	
Control	0x70	0x00	0x70	Completed
	0x70	0x01	0x71	Limit Over
	0x70	0x02	0x72	Limit Under
	0x70	0x03	0x73	Command Canceled

Answer	Header	Answer	Return to Data Size	Return Data1	Check Sum	
Enquiry	0x70	0x00	0x02	Code Table (3-b) [b]	0xXX	Completed

Code Table (3-b)

[a]Function		[b]Range/Switch code		Command Control	Enquiry	Standby	Power On
0x00	H Size	0x00-0x3C		Yes	Yes	Disable	Enable
0x01	H Shift	0x00-0x3C		Yes	Yes	Disable	Enable
0x02	V Size	0x00-0x0A		Yes	Yes	Disable	Enable
0x03	V Shift	0x00-0x3C		Yes	Yes	Disable	Enable
0x04	Aspect	0x00	Wide Zoom (VIDEO Only)	Yes	Yes	Disable	Enable
		0x01	Zoom (VIDEO Only)				
		0x02	Full (VIDEO Only)				
		0x04	Normal (PC:Real, VIDEO: 4:3)				
		0x05	Full 1 (PC Only)				
		0x06	Full 2 (PC Only)				
0x05	Multi Display	0x00	OFF	Yes	Yes	Disable	Enable
		0x01	2 × 2				
		0x02	3 × 3				
		0x03	4 × 4				
		0x04	1 × 2				
		0x05	1 × 3				
		0x06	1 × 4				
		0x07	2 × 1				
		0x08	3 × 1				
		0x09	4 × 1				

(Continued)

Code Table (3-b)

[a]Function		[b]Range/Switch code		Command Control	Enquiry	Standby	Power On
0x06	Auto Pixel Adjust	0xFF	Execute	Yes	No	Disable	Enable
0x07	Dot Phase	0x00-0x1F		Yes	Yes	Disable	Enable
0x0B	Multi Position (2 × 2 ,1 × 2, 2 × 1) *1	0x00	Position1	Yes	Yes	Disable	Enable
		0x01	Position2				
		0x02	Position3				
		0x03	Position4				
0x0C	Multi Position (3 × 3, 1 × 3, 3 × 1) *1	0x00	Position1	Yes	Yes	Disable	Enable
		0x01	Position2				
		0x02	Position3				
		0x03	Position4				
		0x04	Position5				
		0x05	Position6				
		0x06	Position7				
		0x07	Position8				
		0x08	Position9				
0x0D	Multi Position (4 × 4, 1 × 4, 4 × 1) *1	0x00	Position1	Yes	Yes	Disable	Enable
		0x01	Position2				
		0x02	Position3				
		0x03	Position4				
		0x04	Position5				
		0x05	Position6				
		0x06	Position7				
		0x07	Position8				
		0x08	Position9				
		0x09	Position10				
		0x0A	Position11				
		0x0B	Position12				
		0x0C	Position13				
		0x0D	Position14				
		0x0E	Position15				
		0x0F	Position16				
0x0E	Over Scan	0x00	OFF	Yes	Yes	Disable	Enable
		0x01	ON				
0x0F	Multi Display Output Format	0x00	Tiles	Yes	Yes	Disable	Enable
		0x01	Window				

∗1 Arrangement of Multi Position.

Multi Position (2 × 2)

1	2
3	4

Multi Position (1 × 2)

1
2

Multi Position (2 × 1)

1	2

Multi Position (3 × 3)

1	2	3
4	5	6
7	8	9

Multi Position (1 × 3)

1
2
3

Multi Position (3 × 1)

1	2	3

Multi Position (4 × 4)

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

Multi Position (1 × 4)

1
2
3
4

Multi Position (4 × 1)

1	2	3	4

9. Status Enquiry

(a) Model Name

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x30	0x00	0xFF	0xFF	0xB1

Answer	Header	Answer	Return to Data Size	Return Data1	Check Sum	
Enquiry	0x70	0x00	0x02	Code Table (4-a)	0xXX	Completed

Code Table (4-a)

Format Select	
0x25	FWD-50PX3

(b) Serial Number

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x30	0x01	0xFF	0xFF	0xB2

Answer	Header	Answer	Return to Data Size	Return Data1	Return Data2	Return Data3	Return Data4	Check Sum	
Enquiry	0x70	0x00	0x05	Upper 8bit Data	Middle Upper Data	Middle Lower Data	Lower 8bit Data	0xXX	Completed

Return Data1-Data4: 0x00000000-0x0098967F (0,000,000-9,999,999)

(c) Operation Time

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x30	0x02	0xFF	0xFF	0xB3

Answer	Header	Answer	Return to Data Size	Return Data1	Return Data2	Return Data3	Return Data4	Check Sum	
Enquiry	0x70	0x00	0x05	Upper 8bit Data	Middle Upper Data	Middle Lower Data	Lower 8bit Data	0xXX	Completed

Return Data1-Data4: 0x00000000-0xD693A3FF (0sec.-3,599,999,99sec.)

(d) Soft Version (Main CPU)

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x30	0x03	0xFF	0xFF	0xB4

Answer	Header	Answer	Return to Data Size	Return Data1	Return Data2	Check Sum	
Enquiry	0x70	0x00	0x03	Upper 8bit Data	Lower 8bit Data	0xXX	Completed

Return Data1-Data2: 0x0000-0xFFFF (BCD Format)
ex) In Version0.100, it is set to 01 and 00.

(e) 8bits Register

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x30	Code Table (4-b)	0xFF	0xFF	0xXX

Answer	Header	Answer	Return to Data Size	Return Data1	Check Sum	
Enquiry	0x70	0x00	0x02	Code Table (4-b)	0xXX	Completed

Code Table (4-b)*

Function		Return Data	Unit
0x07	Digital 3.3 V	0x00-0xFF	
0x08	Main Power (Vs)	0x00-0xFF	
0x09	Digital 5 V	0x00-0xFF	
0x0A	Temp1	0x00-0xFF	
0x0B	Temp2	0x00-0xFF	
0x0C	Temp3	0x00-0xFF	
0x10	Analog 9 V	0x00-0xFF	
0x11	Shutdown Log	0x00-0xFF	
0x12	Digital 3.3 V (Failure)	0x00-0xFF	
0x13	Digital 5 V (Failure)	0x00-0xFF	
0x14	Analog 9 V (Failure)	0x00-0xFF	
0x15	Main Power (Va)	0x00-0xFF	
0x16	Analog Power 12 V	0x00-0xFF	

* FWD-50PX3 returns not the AD value but the display value.

- **For function 0x08 and 0x15**
  When the display value is 190 V, 0xBE (190) is returned.
- **For function 0x0A, 0x0B and 0x0C**
  When the display value is 50 deg, 0x32 (50) is returned.
  When the display value is -20 deg, 0xEC is returned.
- **For function 0x07, 0x09, 0x10, 0x12, 0x13, 0x14 and 0x16**
  When the display value is 3.0 V, 0x1E (30) is returned.

(f) Shutdown Log

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x30	0x11	0xFF	0xFF	0xC2

Answer	Header	Answer	Return to Data Size	Return Data1	Check Sum	
Enquiry	0x70	0x00	0x02	Shutdown Log Code Table (4-c)	0xXX	Completed

Return Data1: 0x00-0xFF

Code Table (4-c)

Shutdown Information		
bit0	Reserved	
bit1	1: FAN Sensor Abnormal	0: Normal
bit2	1: Panel Voltage Abnormal	0: Normal
bit3	1: Temperature Sensor Abnormal	0: Normal
bit4	Reserved	
bit5	1: Power Abnormal (3.3 V, 5 V)	0: Normal
bit6	1: Analog Power Abnormal (12 V, 9 V, 5 V)	0: Normal
bit7	Reserved	

(g) Auto Input Detect

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x30	0x30	0xFF	0xFF	0xE1

Answer	Header	Answer	Return to Data Size	Return Data1	Return Data2	Return Data3	Return Data4	Return Data5
Enquiry	0x70	0x00	0x0C	Input1 Input Type Code Table (4-e)	Input2 Input Type Code Table (4-e)	Input3 Input Type Code Table (4-e)	Input4 Input Type Code Table (4-e)	Input5 Input Type Code Table (4-e)

Return Data6	Return Data7	Return Data8	Return Data9	Return Data10
Option1 Option Type Code Table (4-e)	Option1 Input Type Code Table (4-e)	Option2 Option Type Code Table (4-e)	Option2 Input Type Code Table (4-e)	Option3 Option Type Code Table (4-e)

Return Data11	Check Sum	
Option3 Input Type Code Table (4-e)	0xXX	Completed

Code Table (4-e)

Input	Input Type (Basic)		Option Type		Input Type (Option)	
INPUT1	0x06	RGB/YUV (Analog)				
INPUT2	0x07	DVI				
INPUT3	0x00	No Input				
INPUT4	0x00	No Input				
INPUT5	0x00	No Input				
OPTION1			0x00	Analog Only	0x00	No Input
			0x00	Analog Only	0x03	Video/S-Video
			0x00	Analog Only	0x06	RGB/YUV (Analog)
			0x00	Analog Only	0x07	Video/S-Video/RGB/YUV (Analog)
			0x01	Analog/Com	0x04	RGB
			0x03	Com Only	0x00	No Input
			0x04	Digital Only	0x0E	Digital/Digital
			0x04	Digital Only	0x0D	Digital
OPTION2			0x00	Analog Only	0x00	No Input
			0x00	Analog Only	0x03	Video/S-Video
			0x00	Analog Only	0x06	RGB/YUV (Analog)
			0x03	Com Only	0x00	No Input
OPTION3			0x00	Analog Only	0x00	No Input

(h) Auto Panel Type Detect

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x30	0x31	0xFF	0xFF	0xE2

Answer	Header	Answer	Return to Data Size	Return Data1	Check Sum	
Enquiry	0x70	0x00	0x02	Code Table (4-h)	0x72	Completed

Code Table (4-h)

Panel Type	
0x01	PDP

Code Table (4-d)

[a]Function		[b]Range/Switch code	Command Control	Enquiry	Standby	Power On
0x00	Model Name	0x0C-0x11, 0x40-0x41, 0x60	No	Yes	Enable	Enable
0x01	Serial Number	0x00000000-0x0098967F (0,000,000-9,999,999)				
0x02	Operation Time	0x00000000-0x15751BF0 (0sec.-359,996,400sec.)				
0x03	Soft Version (Main)	0x0000-0x9999				
0x07	Digital 3.3 V	0x00-0xFF				
0x08	Main Power (Vs)	0x00-0xFF				
0x09	Digital 5 V	0x00-0xFF				
0x0A	Temp1	0x00-0xFF				
0x0B	Temp2	0x00-0xFF				
0x0C	Temp3	0x00-0xFF				
0x10	Analog 9 V	0x00-0xFF				
0x11	Shutdown Log	0x00-0xFF				
0x12	Digital 3.3 V (Failure)	0x00-0xFF				
0x13	Digital 5 V (Failure)	0x00-0xFF				
0x14	Analog 9 V (Failure)	0x00-0xFF				
0x15	Main Power (Va)	0x00-0xFF				
0x16	Analog Power 12 V	0x00-0xFF				
0x30	Auto Input Detect					
0x31	Auto Panel Type Detect					

10. User Reset

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Control	0x8C	0x50	Code Table (5)	0x02	0xFF	0xXX

Answer	Header	Answer	Check Sum	
Control	0x70	0x00	0x70	Completed
	0x70	0x03	0x73	Command Canceled

Code Table (5)

Function		Range/Switch code	Command Control	Enquiry	Standby	Power On
0x00	Picture Reset		Yes	No	Disable	Enable
0x01	Audio Reset					
0x02	Size Reset	Size, Shift				
0x03	Picture Reset2 (FW50)	Contrast, Brightness, Chroma, Phase				
0x04	All Reset					