SONY

FLAT WIDE DISPLAY MONITOR

FWD-S55H2
FWD-S46H2
FWD-S42H2
FWD-55B2
FWD-46B2
FWD-42B2
FWD-32B1

PROTOCOL MANUAL

1st Edition (Revised 1)

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理などを行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

Table of Contents

Overview

This protocol manual explains the basic configuration, operation and details of each command that are used for a flat wide display monitor (hereinafter referred to as a display). The display (this unit) can be controlled using commands described in Section 5.

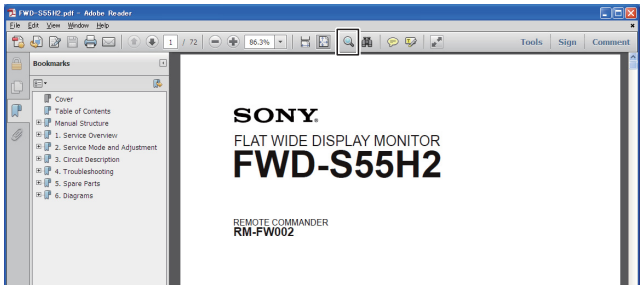
Search Function

Notes

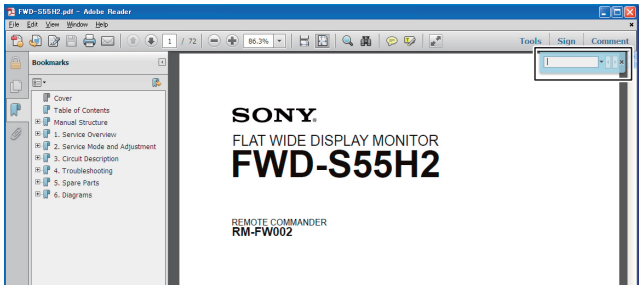
- The following shows the example when using Adobe Reader X.
- If you cannot find the search function, select Edit → Find (Ctrl + F) from the pull-down menu.

A function, menu, and command are searched using a service/protocol manual.

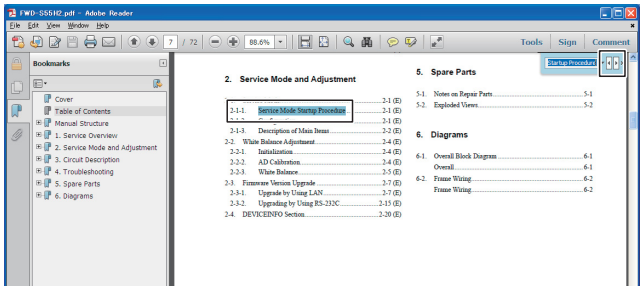
1. Open a file, click the icon in the frame on the screen below.



2. Enter the word to be searched in the frame and press the Enter key.
   The corresponding words in a document file is searched.



3. Click the button in the enclosed portion.
   Search the corresponding place.



Adobe Reader is a trademark of Adobe Systems Incorporated in the United States and/or other countries.

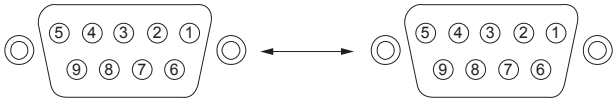
Section 1
RS-232C

1-1. 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

1-2. 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

Note

Use the RS-232C straight cable.

1-3. 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

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

(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

*: 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*1
		0x01: Limit Over*2
		0x02: Limit Under*3
		0x03: Command Canceled*4
3	Check Sum*5	0xXX

*1: Packet is correctly received and process is also correctly completed.
*2: Packet is correctly received, but the data value is over the upper limit.
*3: Packet is correctly received, but the data value under the lower limit.
*4: Packet is correctly received, but the data value is not correct. The request cannot be accepted in the current host state.
*5: 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*1
3	Return Data Size	0xXX
4	Return Data1*2	0xXX
:	:	0xXX
:	:	0xXX
X	Return DataX	0xXX
X+1	Check Sum*3	0xXX

*1: Packet is correctly received and process is also correctly completed.
*2: Returns the read value.
*3: 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

*: Packet is correctly received, but the data value is not correct. 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*1
		0x01: Check Sum Error*2
		0x02: Data Length Error*3
3	Check Sum	0xXX

*1: Packet header, category or function code are not included in this protocol.
*2: Check sum value of received packet is not correct.
*3: The data size of received packet is not correct.

1-4. Outline of Communication

A controller (PC) communicates with a display according to the communication data format. Communication is started by issuing a command from the controller. Communication is terminated when the display sends return data (an answer message) to the controller after it receives the issued command.
It is inhibited that a controller sends multiple commands at a time.
Therefore, a controller cannot send other commands until return data is sent back from a display after it sends one command. The display sends return data after command processing is completed.

Section 2
SNMP

2-1. SNMP

This unit installs SNMP (Simple Network Management Protocol). SNMP is a standard protocol for network management that was standardized in IETF (Internet Engineer Task Force).
By using SNMP, the management information of equipment connected to a network can be gotten via a network. The information of multiple equipment gotten using SNMP can also be unitarily managed by using SNMP management software.
The equipment corresponding to SNMP has a "management information database" called MIB (Management Information Base) in the inside of equipment. In SNMP, the bidirectional communication of data contained in MIB is realized between a "management system" and "management object system" that exist in a network.
In MIB, there is the standard MIB prescribed by RFC. Especially, MIB-II is its representative MIB. MIB-II was established to manage a network. MIB-II is installed in much network equipment such as a PC, router, and switch as a standard feature. This unit installs this MIB-II.
Monitoring and monitored sides exist when equipment is monitored via a network using SNMP. The monitoring side is called an "SNMP manager". It is mainly constituted by the software of PC. For the monitored side, a module called an "SNMP agent" is installed. SNMP-compatible equipment transmits MIB information to an SNMP manager via this SNMP agent. This unit installs this SNMP agent. This unit can realize the communication with a general-purpose SNMP manager using this SNMP agent. Basically, an SNMP agent replies only when an inquiry is sent from an SNMP manager.
The SNMP manager periodically inquires the equipment, which it manages, about MIB information. This way to get information is called "polling". In polling, equipment replies using a response command when an SNMP manger sends a request command to equipment. By polling, therefore, equipment can be monitored without applying a high load to the equipment.
On the other hand, notification can also be done from the equipment side to an SNMP manager. This notification is called a "trap". Using this trap, when a serious trouble occurred in equipment, it can be notified to the SNMP manager in a short time.
This unit is compatible with the two polling and trap protocols described above. Equipment can be efficiently monitored using these protocols.

2-2. Specifications of SNMP Installation

The specifications of the SNMP agent installed in this unit are shown in below.

- SNMP version: SNMPv1
- MIB definition: SMIv2
- Support PDU: GetRequest
  SetRequest
  GetNextRequest
  Trap
- Standard MIB to be installed: MIB-II

2-3. Installation

The setting below is required to use the SNMP function of this unit. (Set according to your network environment and SNMP management environment.)

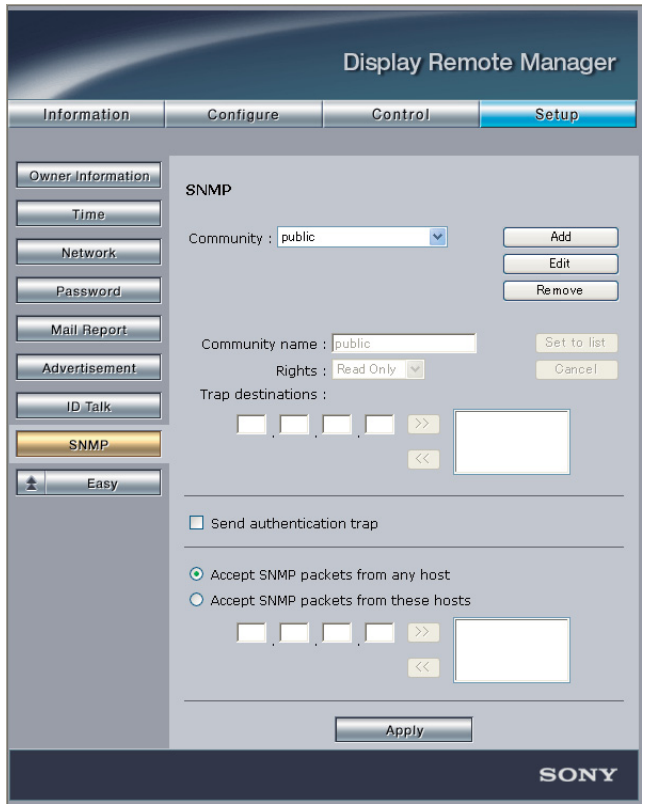
- Community and its Community property
- Authentication trap
- Host restriction

The Web server function of this unit is used for setting. Refer to the Operation Manual of this unit for the operation of the Web server.
The contents of each item and the setting of SNMP are fully described in this specification.

2-4. Operation of SNMP Setting Window

This section describes the procedure and contents for setting of SNMP.
Open the Web page of this unit and click the SNMP button in the Advanced setting item on the Setup page (where an administrator's password is necessary). The SNMP setting window is displayed.

- User name: root
- Password: pudadm



SNMP Setting window (on Web Page)

2-4-1. Community

A Community name is used as the password for SNMP access. The request received from an SNMP manager is accepted when the Community name contained in the request coincides with the Community name set. The request is rejected when the former does not coincide with the latter.

A maximum of three Communities can be set.
There are "Rights" and "Trap destinations" items in the property of Community. The property can be set for each set Community.

Note

When multiple Communities are set, all set Communities are validated.

1. Rights

The rights that can be set are as follows:

Read Only: An SNMP manager can reference MIB information using this Community name.
Read Write: This Community must be set when a write request is sent from an SNMP manager.
Other: Do not set this option because it is used for the function extension in future.

2. Trap destinations

When Trap destinations are set, during trap occurrence, a trap is notified to the equipment set as trap destinations using the Community name set.
Up to four Trap destinations can be set to one Community.
Trap destinations are not set in default.

Note

This product can be set on only the Web screen because it does not install the automatic setting function of Trap destinations.

3. Setting procedure of Community

Community can be added, edited, and removed.
The addition, editing, and removal procedures of Community are described below.

Addition of Community

1. Click the Add button.
   The "Community name", "Rights", and "Trap destinations" text boxes, and Set to List and Cancel buttons are validated.
2. Type the Community name you want to add.
3. Set the Rights of Community and the Trap destinations you want to add.
   When you want to save the setting, click the Set to List button and then click the Apply button at the bottom of the window.

   Notes
   - Click the Cancel button when you want to discard the setting during setting.
   - When you want to save setting, be sure to click the Set to List button and then click the Apply button.

Editing of Community

1. Select the Community, you want to edit, from a drop-down list.
2. Click the Edit button.
   The "Community name", "Rights", and "Trap destinations" text boxes, and Set To List and Cancel buttons are validated.
   Edit the Community name when you want to edit a Community name.
3. Set the Rights of Community and the Trap destinations you want to edit.
   Notes
   - Click the Cancel button when you want to discard the setting during setting.
   - When you want to save the setting, click the Set to List button and then click the Apply button at the bottom of the window.

Removal of Community

1. Select the Community, you want to remove, from a drop-down list.
2. Click the Remove button and then click the Apply button at the bottom of the window.
   Note
   Be sure to click the Remove button and then click the Apply button.

2-4-2. Authentication Trap

An authentication trap is the trap for making it detect by an SNMP manager that an illegal access was gained to this unit using an SNMP protocol.

- The authentication trap is validated when this check box is selected. A trap is transmitted when an illegal access is gained.
- The authentication trap is invalidated when this check box is not selected. A trap is not transmitted even if an illegal access is gained.

Note

Be sure to click the Apply button when you edited setting.

2-4-3. IP Restriction of Host

It is possible to put restrictions on the IP address of an SNMP manager, as one of the security countermeasures, which communicates using an SNMP protocol.

- IP address restriction is invalidated when you select "Accept packets from any host".
- Only the SNMP access from an SNMP manager that has the set IP address is accepted when you select "Accept packets from those hosts". The SNMP access from an IP address that has not been set is rejected.

Notes

- Up to four IP restrictions can be set.
- Be sure to click the Apply button when you edited setting.

2-5. MIB to Be Installed

This unit installs MIB-II.
MIB-II is the most representative standard MIB. It is installed in various network products.
The statistical information on the amount of network traffic or the number of transmitted and received packets is defined, and the change or transition can be monitored by polling the information periodically.
Additionally, the management items to be installed can be defined using a TCP/IP device so as to get the information effective for the monitoring of the network communication state.
Refer to RFC1213 for the detailed definition of MIB-II.

2-6. Information to Be Notified on Trap

The software have a function that transmits error information to this unit. The error trap and authentication trap are installed.

Section 3
ID Talk

ID Talk is set as described below. ID Talk is a protocol for operating the function of this unit via a network.

3-1. Default Setting

Item	Description
Transport	TCP
Port number	53484 (Factory setting)
TCP connection time-out	30 seconds (Factory setting)

3-2. Setting Items

The items that can be set to ID Talk are shown in the table below.

Item	Description
Start ID Talk Service	Select the check box when using ID Talk. Clear the check box when using no ID Talk. (default setting: OFF)
Port No.	Changes the port number. A port number have to change port number 53484 cannot be used because it has been already used for another purpose.
Timeout	Specify the timeout time of connection. Connection is automatically disconnected when communication is not done for the specified time.
IP address of client (Host Address)	Executes only the request from the specified IP address. ID Talk does not have the security function such as user authentication. During installation, safety can be improved by setting this item. Multiple host addresses can be set.
Community	Changes the community of a header. Four (upper-or-lower case) alphanumeric characters can be set. (default setting: SONY)

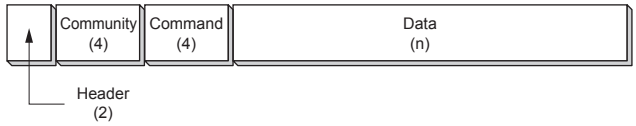
Set the items described above properly on the SETUP → ID Talk page of the Web page when using ID Talk.

Enter the SETUP page using the user name and password below.

- User name: root
- Password: pudadm

3-3. Packet Structure

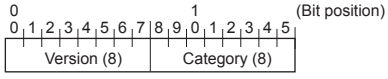
The packet structure of ID Talk is described below.



Packet structure

1. Header

The header is constituted by two bytes consisting of a version (8 bits) and category (8 bits).



Header structure

Version

Indicates the version number of an ID Talk protocol.
This version is fixed to 02h (version 2).

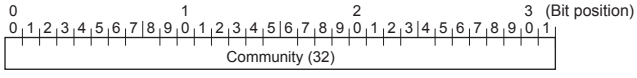
Category

Contains the category number of display equipment to be controlled. A category number is confirmed on the display equipment side. A request is ignored when a different category number is contained.

Code	Category
10h	Information Display

2. Community

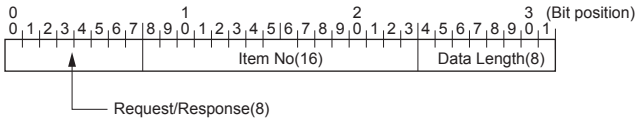
A request is executed when community coincides with the community set in display equipment. Community consists of four (upper- or lower-case) alphanumeric characters. "SONY" is a factory-setting value. The set character can be changed on the Web page.



Community packet

3. Command

The format of a request packet and response packet is described below.



Command packet

4. Request

The format when sending a request from a host to display equipment is described below.

Community

This is the same alphanumeric character as the community set in display equipment that sends a request.

Request

This is a request for display equipment.

Item No.

This is the item number to be treated for request.

Data Length

This is the length of data incident to a request. The maximum length is 128 bytes. The length of data is "0" when no data exists.

Data

This is data incident to a request.

5. Response

The format when display equipment returns a response to the request from a host is described below.

Community

This contains the same alphanumeric character as a request. For a short header and short community, this is embedded with 00h.

Response

This contains the result of a request.

Item No.

This is the item number to be treated for response.

Data Length

This is the length of data incident to a response. The maximum length is 128 bytes. The length of data is "0" when no data exists.

Data

This is data incident to a response.

3-4. Requests and Responses

Requests and responses are described below.

1. Requests

Requests are only a GET request that gets the display information or state and a SET request that changes the setting of display equipment.

Request	Contents
SET (00h)	Writes data in the register of display equipment.
GET (01h)	Gets the installation information, equipment state, or setting values.

SET command:

Communication with the main microcomputer of display equipment can be done via a network by using the protocol dedicated to this unit as well as an ID Talk protocol. Use a SET command in this case. (Also, use a SET command when receiving information from the display equipment.)

2. Responses

A response returns the result of execution to the request from a host.

Response	Contents
NG (00h)	Indicates that a request is invalid or could not be executed.
OK (01h)	Indicates that a request could be executed normally.

3. SET request

The SET request sets a new value to the specified item. A request and its response are described in details below.

Request

Request	Item No.	Data Length	Data
00h	Item No.	n	Set Data(n byte)

SET request

Response

OK(01h)	Item No.	n	Get Data(n byte)

Response to SET request

4. GET request

The GET request gets the value of the specified item. A request and its response are described in details below.

Request

Request	Item No.	Data Length
01h	Item No.	0

GET request

Response

OK(01h)	Item No.	n	Get Data(n byte)

Response to GET request

5. ERROR response

An NG message is returned as a response when an error occurs in the contents of a request or the result of execution.

NG(00h)	Item No.	2	Error Code(16)

ERROR response

3-5. Items

Category	Contents	SET	GET
80**h	Gets the information of this unit	○	○
90**h	Gets the network setting information.	–	○
F100h	This unit dedicated protocol		

1. 80**h

This item gets the information of the connected display equipment.

Lower byte	Contents	SET	GET
00h	Category Code	–	○
01h	Model Name	–	○
02h	Serial Number	–	○
03h	Installation Place	○	○

0x8000 Category code

1 byte

0x8001 Model name

12 alphanumeric characters

For under 12 alphanumeric characters, the remaining section is set as 00h.

0x8002 Serial number

4 bytes

0x8003 Installation place

24 alphanumeric characters

For under 24 alphanumeric characters, the remaining section is set as 00h.

2. 90**h

This item gets the network setting information.

Lower byte	Contents	SET	GET
00h	MAC Address	–	○
01h	IP Address	–	○
02h	Subnet Mask	–	○
03h	Default Gateway	–	○
04h	DHCP	–	○

0x9000 MAC Address

6 bytes

0x9001 IP Address

4 bytes

0x9002 Subnet Mask

4 bytes

0x9003 Default Gateway

4 bytes

0x9004 DHCP

1 byte

DHCP invalid data value: 0

DHCP valid data value: 1

3. F100h

This unit dedicated protocol packets can be transmitted to the main microcomputer of this unit as ID Talk data according to this unit dedicated protocol. The response of protocol is returned as the data of ID Talk response packets.

3-6. Error Codes

An error code list and its details are shown in the table below.

Category	Error	Error code
Item Error (01∗∗h)	Invalid Item	01h
	Invalid Item Request	02h
	Invalid Length	03h
	Invalid Data	04h
	Short Data	11h
	Not Applicable Item	80h
Community Error (02∗∗h)	Different Community	01h
Request Error (10∗∗h)	Invalid Version	01h
	Invalid Category	02h
	Invalid Request	03h
	Short Header	11h
	Short Community	12h
	Short Command	13h
Network Error (20∗∗h)	Timeout	01h
Comm Error (F0∗∗h)	Timeout	01h
	Check Sum Error	10h
	Framing Error	20h
	Parity Error	30h
	Over Run Error	40h
	Other Comm Error	50h
	Unknown Response	F0h
NVRAM Error (F1∗∗h)	Read Error	10h
	Write Error	20h

1. Item errors

An item error occurs when the Item No. or Data of a request is invalid. The conditions under which each error occurs are described below.

Invalid Item

When Item No. that is not supported is specified

Invalid Item Request

When Item No. is supported, but Request that is not supported is requested

Invalid Length

When the Data Length of the specified Item No. is too long

Invalid Data

When the Data of the specified Item No. differs in the setting range

Short Data

When the length of data differs from the value specified using Data Length

Not Applicable Item

When an item that is not valid at present is specified

2. Community error

This error occurs when community differs.

3. Request errors

These errors occur when a header or command is invalid. The conditions under which each error occurs are described below.

Invalid Version

When the version of a header is other than 2

Invalid Category

When a category differs

Invalid Request

When a request that is not supported is specified

Short Header

When the received data is 1 byte

Short Community

When the received data is 2 to 5 bytes

Short Command

When the received data is 6 to 9 bytes

4. Network error

This error occurs in TCP/IP. The conditions under which an error occurs are described below.

Timeout

When communication was interrupted halfway

5. Comm error

This is an error that occurs during communication with the main control microcomputer of display equipment.

Timeout

When the received data is not sent after data transmission

Check Sum Error

When a check sum error occurs in the main control microcomputer

Framing Error

When a framing error occurs

Parity Error

When a parity error occurs

Over Run Error

When an overrun error occurs

Other Comm Error

When other errors occur

Unknown Response

When data that cannot be processed is received

6. NVRAM error

Read Error

When the read operation from NVRAM fails

Write Error

When the write operation to NVRAM fails

Simultaneous processing is not performed when one unit is controlled from multiple hosts via a network in Section 1.
A cancel command is returned to connection when access is gained from another host during processing of one command.
(0x02 0x10 0x53 0x4F 0x4E 0x59 0x00 0xF1 0x00 0x03 0x70 0x03 0x73)

Section 4
Command Examples

4-1. RS232 Command Examples

(1) Power On

	Header	Category	Function	Data1	Data2	Check Sum
Command	0x8C	0x00	0x00	0x02	0x01	0x8F
	Control	Mode Control	Power	FIX	ON	= 0x8C + 0x00 + 0x00 + 0x02 + 0x01

	Header	Answer	Check Sum	
Answer	0x70	0x00	0x70	: When a command is completed
	Control	Complete		

	Header	Answer	Check Sum	
	0x70	0x03	0x73	: When a command is canceled
	Control	Command Canceled		

(2) INPUT SELECT HD15 RGB

	Header	Category	Function	Data1	Data2	Check Sum
Command	0x8C	0x00	0x01	0x02	0x08	0x97
	Control	Mode Control	Input Select	FIX	HD15 RGB	= 0x8C + 0x00 + 0x01 + 0x02 + 0x08

	Header	Answer	Check Sum	
Answer	0x70	0x00	0x70	: When a command is completed
	Control	Complete		

(3) MULTI DISPLAY BATCH

	Header	Category	Function	Data1	Data2	Data3	Data4
Command	0x8C	0x20	0x11	0x08	0x01	0x03	0x00
	Control	Size/Shift	Multi Display Batch	FIX	2 × 2	Position 4	Tiles

Data5	Data6	Data7	Data8	Check Sum
0x1E	0x1E	0x1E	0x1E	0x41
H Size	H Shift	V Size	V Shift	= 0x8C + 0x20 + 0x11 + 0x08 + 0x01 + 0x03 + 0x00 + 0x1E + 0x1E + 0x1E + 0x1E = 0x141

Arbitrary numbers in the range of 0x00 (minimum) to 0x3C (maximum)

∗ Lower one-byte data “41” is validated because the sum total exceeds 255 (0xFF).

	Header	Answer	Check Sum	
Answer	0x70	0x00	0x70	: When a command is completed
	Control	Complete		

Set to position 4 by multi-display 2 × 2.

1	2
3	4

4-2. ID Talk Command Examples

(1) Power On

Command

Header		Community				Request/ Response	Item No	
0x02	0x10	0x53	0x4F	0x4E	0x59	0x00	0xF1	0x00
FIX (Version)	FIX (Category)	FIX (S)	FIX (O)	FIX (N)	FIX (Y)	Set	FIX	FIX

Data Length	Header	Category	Function	Data1	Data2	Check Sum
0x06	0x8C	0x00	0x00	0x02	0x01	0x8F
Data length after the above.	Control	Mode Control	Power	Data length after the above.	ON	= 0x8C + 0x00 + 0x00 + 0x02 + 0x01

Answer

Header		Community				Request/ Response	Item No	
0x02	0x10	0x53	0x4F	0x4E	0x59	0x00	0xF1	0x00
FIX (Version)	FIX (Category)	FIX (S)	FIX (O)	FIX (N)	FIX (Y)	Set	FIX	FIX

Data Length	Header	Answer	Check Sum	
0x03	0x70	0x00	0x70	: When a command is completed
Data length after the above.	Control	Complete		

Header		Community				Request/ Response	Item No	
0x02	0x10	0x53	0x4F	0x4E	0x59	0x00	0xF1	0x00
FIX (Version)	FIX (Category)	FIX (S)	FIX (O)	FIX (N)	FIX (Y)	Set	FIX	FIX

Data Length	Header	Answer	Check Sum	
0x03	0x70	0x03	0x73	: When a command is canceled
Data length after the above.	Control	Command Canceled		

(2) INPUT SELECT HD15 RGB

Command

Header		Community				Request/ Response	Item No	
0x02	0x10	0x53	0x4F	0x4E	0x59	0x00	0xF1	0x00
FIX (Version)	FIX (Category)	FIX (S)	FIX (O)	FIX (N)	FIX (Y)	Set	FIX	FIX

Data Length	Header	Category	Function	Data1	Data2	Check Sum
0x06	0x8C	0x00	0x01	0x02	0x08	0x97
Data length after the above.	Control	Mode Control	Input Select	Data length after the above.	HD15 RGB	= 0x8C + 0x00 + 0x01 + 0x02 + 0x08

Answer

Header		Community				Request/ Response	Item No	
0x02	0x10	0x53	0x4F	0x4E	0x59	0x00	0xF1	0x00
FIX (Version)	FIX (Category)	FIX (S)	FIX (O)	FIX (N)	FIX (Y)	Set	FIX	FIX

Data Length	Header	Answer	Check Sum
0x03	0x70	0x00	0x70
Data length after the above.	Control	Complete	

: When a command is completed

(3) MULTI DISPLAY BATCH

Command

Header		Community				Request/ Response	Item No	
0x02	0x10	0x53	0x4F	0x4E	0x59	0x00	0xF1	0x00
FIX (Version)	FIX (Category)	FIX (S)	FIX (O)	FIX (N)	FIX (Y)	Set	FIX	

Data Length	Header	Category	Function	Data1	Data2	Data3	Data4
0x0C	0x8C	0x20	0x11	0x08	0x01	0x03	0x00
Data length after the above.	Control	Size/Shift	Multi Display Batch	Data length after the above.	2 × 2	Position 4	Tiles

Data5	Data6	Data7	Data8	Check Sum
0x1E	0x1E	0x1E	0x1E	0x41
H Size	H Shift	V Size	V Shift	= 0x8C + 0x20 + 0x11 + 0x08 + 0x01 + 0x03 + 0x00 + 0x1E + 0x1E + 0x1E + 0x1E = 0x141

Arbitrary numbers in the range of 0x00 (minimum) to 0x3C (maximum)

∗ Lower one-byte data “41” is validated because the sum total exceeds 255 (0xFF).

Set to position 4 by multi-display 2 × 2.

1	2
3	4

Answer

Header		Community				Request/ Response	Item No	
0x02	0x10	0x53	0x4F	0x4E	0x59	0x00	0xF1	0x00
FIX (Version)	FIX (Category)	FIX (S)	FIX (O)	FIX (N)	FIX (Y)	Set	FIX	FIX

Data Length	Header	Answer	Check Sum
0x03	0x70	0x00	0x70
Data length after the above.	Control	Complete	

: When a command is completed

Section 5
Command

5-1. General Function

5-1-1. Mode Control

(a) Mode Control 1

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*1	0x08	HD15 RGB	Yes	Yes	Disable	Enable
		0x09	HD15 YUV				
		0x0B	Component				
		0x20	DVI				
		0x30	Video				
		0x44	HDMI				
		0x84	Option Digital1 (SDI)				
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	Disable	Enable
		0x01	OFF				
0x06	Color System	0x00	Auto	Yes	Yes	Disable	Enable
		0x01	NTSC				
		0x03	PAL				

(Continue)

Code Table (1-a)

[a]Function		[b]Range/Switch Code		Command Control	Enquiry	Standby	Power On
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
0x13	ECO Mode	0x00	Off	Yes	Yes	Disable	Enable
	(Power Saving)	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				
0x24	Input Detect(Option)	0x09	FW16 (Digital × 1)	No	Yes	Disable	Enable
		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※4	0x00	OFF	Yes	Yes	Disable	Enable
		0x02	PinP				
0x31	Active Picture※4	0x00	Main (PinP)	Yes	Yes	Disable	Enable
		0x01	Sub (PinP)				
		0x02	Swap				
0x33	Sub Picture Size	0x00	Large	Yes	Yes	Disable	Enable
	(PinP)※4	0x01	Small				
0x34	Picture Position	0x00	Position1	Yes	Yes	Disable	Enable
	(PinP)※4	0x01	Position2				
		0x02	Position3				
		0x03	Position4				

(Continue)

Code Table (1-a)

[a]Function		[b]Range/Switch Code		Command Control	Enquiry	Standby	Power On
0x35	PAP Input Detect (Main)*4	0x08	HD15 RGB	No	Yes	Disable	Enable
		0x09	HD15 YUV				
		0x0B	Component				
		0x20	DVI				
		0x30	Video				
		0x44	HDMI				
		0x84	Option Digital1 (SDI)				
0x36	PAP Input Detect (Sub)*4	0x08	HD15 RGB	No	Yes	Disable	Enable
		0x09	HD15 YUV				
		0x0B	Component				
		0x20	DVI				
		0x30	Video				
		0x44	HDMI				
		0x84	Option Digital1 (SDI)				
0x40	Screen Saver	0x00	OFF	Yes	Yes	Disable	Enable
		0x01	All White ON				
		0x02	Sweep ON				
		0x03	Standby				
0x43	BackLight	0x00-0x64		Yes	Yes	Disable	Enable
0x45	Control Mode	0x00	Main+Remocon	Yes	Yes	Disable	Enable
		0x01	Main				
		0x02	Remocon				
		0x03	All Off				
0x46	On Off Timer Mode	0x00	Every Day(Repeat)	Yes	Yes	Disable	Enable
		0x01	Day Of Week				
0x47	On Timer Enable	bit0	Sunday 1: Enable, 0: Disable	Yes	Yes	Disable	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	Disable	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				

(Continue)

Code Table (1-a)

[a]Function		[b]Range/Switch Code		Command Control	Enquiry	Standby	Power On
0x65	IP Setting Mode	0x00	DHCP	Yes	Yes	Disable	Enable
		0x01	Manual				
		0x02	Speed				
0x68	Speed Setting	0x00	100Mbps/Full Duplex	Yes	Yes	Disable	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	HDMI				
		bit3	Video				
		bit5	Component				
0x71	Default Input	0x00	Last Memory	Yes	Yes	Disable	Enable
		0x01	Option1				
0x74	Digital Signal Detect	0x00	VIDEO	No	Yes	Disable	Enable
	(DVI/HDMI/etc.)*2	0x01	PC				
0x75	Signal Status*3	0x00	Stable	No	Yes	Disable	Enable
		0x01	Unstable/No Signal				
0x76	VIDEO Signal Detect	0x00	NTSC	No	Yes	Disable	Enable
		0x01	PAL				
0x7A	Menu Position*5	0x01	Landscape	Yes	Yes	Disable	Enable
		0X02	Portrait				
0x7F	LED	0x00	OFF	Yes	Yes	Disable	Enable
		0x01	ON				
0x80	Standby Screen	0x00	0.5H	Yes	Yes	Disable	Enable
	Saver Time	Data	1h*Data (Data: 0x01-0x17)				
0x81	Power On Delay	0x00-0x78: 1sec*Data		Yes	Yes	Disable	Enable
0x82	Audio Delay	0x00-0x18: 5msec*Data		Yes	Yes	Disable	Enable
0x8B	Warm Up Mode	0x00	OFF	Yes	Yes	Disable	Enable
		0x01	ON (TIMER)				
		0x02	ON (ALL)				
0x8C	Warm Up Time	0x01-0x0C		Yes	Yes	Disable	Enable
0x8D	Picture Mute	0x00	OFF (Mute Cancel)	Yes	Yes	Disable	Enable
		0x01	ON				
0x8E	HDMI Control	0x00	OFF	Yes	Yes	Enable	Enable
		0x01	ON				
0x8F	Auto Device Off	0x00	OFF	Yes	Yes	Enable	Enable
		0x01	ON				
0x90	Auto Display On	0x00	OFF	Yes	Yes	Enable	Enable
		0x01	ON				

*1: Auto Signal Detect and Input Select becomes Disable. When Option Slot is connected, Option command is Enable.
*2: Digital Signal Status is Enable for Digital Input Signal Detect Function only in Stable.
*3: Digital Signal or Analog Signal is Enable. Return Signal Status of Active Window.
*4: FWD-S55H2/S46H2/S42H2 Only
*5: FWD-32B1 is Disable.

(b) Mode Control 2 (Priority signal select)

Syntax Sum	Header	Category	Function	Data1	Data2	Data3	Check
Control	0x8C	0x00	Code Table(2-a)[a]	0x03	Code Table (2-b)	Code Table (2-a)[b]	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

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

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
0x77	Priority Signal Select	0x00	Input1 Auto	Yes	Yes	Disable	Enable
		0x01	Input1 RGB				
		0x02	Input1 YPbPr				

Code Table (2-b)

Input Select	
0x00	HD15
0x01	Option

(c) Mode Control 3 (Analog signal detect)

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x00	Code Table (3-a) [a]	Code Table (3-b)	0xFF	0xXX

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

Code Table (3-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 (3-b)

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

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

(d) Mode Control 4 (RGB signal)

Syntax	Header	Category	Function	Data1	Data2	Data3	Check Sum
Control	0x8C	0x00	Code Table(4-a)[a]	0x03	Code Table (4-b)	Code Table (4-a)[b]	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

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x00	Code Table(4-a)[a]	Code Table(4-b)	0xFF	0xXX

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

Code Table (4-a)

[a]Function		[b]Range/Switch Code		Command Control	Enquiry	Standby	Power On
0x8A	RGB Signal	0x00	VIDEO	Yes	Yes	Disable	Enable
		0x01	PC				

Code Table (4-b)

Input Select	
0x00	HD15
0x01	DVI
0x02	HDMI

5-1-2. Sub Screen Setting (FWD-S55H2/S46H2/S42H2)

(a) 16 bit Register (Special PinP)

Syntax	Header	Category	Function	Data1	Data2	Data3	Data4
Control	0x8C	0x00	0x79	0x07	Sub Screen Size	Sub Screen Size	Sub Screen H Position

Data5	Data6	Data7	Check Sum
Sub Screen H Position	Sub Screen V Position	Sub Screen V Position	0xXX

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x00	0x79	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	Return Data3
Enquiry	0x70	0x00	0x07	Sub Screen Size	Sub Screen Size	Sub Screen H Position

Return Data4	Return Data5	Return Data6	Check Sum	
Sub Screen H Position	Sub Screen V Position	Sub Screen V Position	0xXX	Completed

Code Table (1-a)

[a]Function		[b]Range/Switch code	Command Control	Enquiry	Standby	Power On
0x79	Sub Screen Setting		Yes	Yes	Disable	Enable

Sub Screen size (H)	0x0080-0x0780
Sub Screen H position	0x0000-0x0700
Sub Screen V position	0x0000-0x03F0

∗: If an overflowing set value that all sub-screens cannot be displayed in display area (1980 × 1080) on a main screen is sent, the command is canceled.

(b) PIP/PAP Batch

Syntax	Header	Category	Function	Data1	Data2	Data3
Control	0x8C	0x00	0x84	0x05	PIP/PAP setting Code Table(2-a)[a]	Input (Main) Code Table(2-a)[b]

Data4	Data5	Check Sum
Input (Sub) Code Table(2-a)[b]	Active Picture Code Table(2-a)[c]	0xXX

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x00	0x84	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	Data2	Data3
Enquiry	0x70	0x00	0x05	PIP/PAP setting Code Table(2-a)[a]	Input (Main) Code Table(2-a)[b]

Data4	Data5	Check Sum	
Input (Sub) Code Table(2-a)[b]	Active Picture Code Table(2-a)[c]	0xXX	Completed

Code Table (2-a)

PIP/PAP Setting [a]	0x00	OFF
	0x02	PinP
	0x03	Special PinP
PIP/PAP Input [b]	0x08	HD15 RGB
	0x09	IHD15 YUV
	0x0E	OPTION RGB
	0x0F	OPTION COMPONENT
	0x20	DVI
	0x30	Video
	0x84	Option Digital1(SDI)
Active Picture [c]	0x00	Main(PinP)
	0x01	Sub(PinP)

Code Table (2-b)

[a]Function		[b]Range/Switch code	Command Control	Enquiry	Standby	Power On
0x84	PIP/PAP Batch		Yes	Yes	Disable	Enable

(c) 16 bit Register (Special PinP 2)

Syntax	Header	Category	Function	Data1	Data2	Data3	Data4
Control	0x8C	0x00	0x87	0x09	Sub Screen H Size	Sub Screen H Size	Sub Screen V Size

Data5	Data6	Data7	Data8	Data9	Check Sum
Sub Screen V Size	Sub Screen H Position	Sub Screen H Position	Sub Screen V Position	Sub Screen V Position	0xXX

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x00	0x87	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	Return Data3
Enquiry	0x70	0x00	0x09	Sub Screen H Size	Sub Screen H Size	Sub Screen V Size

Return Data4	Return Data5	Return Data6	Return Data7	Return Data8	Check Sum	
Sub Screen V Size	Sub Screen H Position	Sub Screen H Position	Sub Screen V Position	Sub Screen V Position	0xXX	Completed

Code Table (3-a)

[a]Function	[b]Range/Switch code	Command Control	Enquiry	Standby	Power On
0x87	Sub Screen Setting2	Yes	Yes	Disable	Enable

Sub Screen size (H)	0x0080-0x0780
Sub Screen size (V)	0x0048-0x0438
Sub Screen H position	0x0000-0x0700
Sub Screen V position	0x0000-0x03F0

∗: If an overflowing set value that all sub-screens cannot be displayed in display area (1980 × 1080) on a main screen is sent, the command is canceled.

(d) Active Frame for Special PIP

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Control	0x8C	0x00	0x88	0x02	Frame Setting Code Table(4-a)[a]	0xXX

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x00	0x88	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	Data2	Check Sum	
Enquiry	0x70	0x00	0x02	Frame setting Code Table(4-a)[a]	0xXX	Completed

Code Table (4-a)

Fram Setting [a]	0x00	OFF
	0x01	ON

Code Table (4-b)

[a]Function		[b]Range/Switch code	Command Control	Enquiry	Standby	Power On
0x84	Active Frame		Yes	Yes	Disable	Enable

5-1-3. Time Control

Data Set (Month, Date)

Syntax	Header	Category	Function	Data1	Data2	Data3	Check Sum
Control	0x8C	0x00	0x7C	0x03	Month: 0x01-0x0C	Date: 0x01-0x1F	0xXX

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x00	0x7C	0xFF	0xFF	0xFD

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	Month: 0x00-0x0C	Date: 0x01-0x1F	0xXX	Completed

Year Set

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Control	0x8C	0x00	0x7B	0x02	Year: 0x00-0x63	0xXX

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x00	0x7B	0xFF	0xFF	0xFC

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	Year: 0x00-0x63	0xXX	Completed

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
Enquiry	0x83	0x00	0x23	0xFF	0xFF	0xA4

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

Code Table (1-a)

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-b) [a]	0x03	Hour: 0x00-0x17	Minute: 0x00-0x3B	0xXX

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

[a]Function		[b]Range/Switch Code	Command Control	Enquiry	Standby	Power On
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	–				

Time Set (Hour, Minute, Second)

Syntax Sum	Header	Category	Function	Data1	Data2	Data3	Data4	Check
Control	0x8C	0x00	0x4A	0x04	Hour: 0x00-0x17	Minute: 0x00-0x3B	Second: 0x00-0x3B	0xXX

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x00	0x4A	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	Return Data3	Check Sum	
Enquiry	0x70	0x00	0x04	Hour:* 0x00-0x17	Minute: 0x00-0x3B	Second: 0x00-0x3B	0xXX	Completed

5-1-4. IP Address Setting

Syntax	Header	Category	Function	Data1	Data2	Data3	Data4	Data5	Check Sum
Control	0x8C	0x00	Code Table (1-a)[a]	0x05	Address 0 0x00-0xFF	Address 1 0x00-0xFF	Address 2 0x00-0xFF	Address 3 0x00-0xFF	0xXX

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

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

Answer	Header	Category	Function	Data1	Data2	Data3	Data4	Data5	Check Sum
Enquiry	0x8C	0x00	Code Table (1-a)[a]	0x05	Address 0 0x00-0xFF	Address 1 0x00-0xFF	Address 2 0x00-0xFF	Address 3 0x00-0xFF	0xXX

IP Address ex)
192.128.14.1 → 192 (0xC0) Address 0
128 (0x80) Address 1
14 (0x0E) Address 2
1 (0x01) Address 3

Code Table (1-a)

[a]Function		[b]Range/Switch Code	Command Control	Enquiry	Standby	Power On
0x42	IP Address	–	Enable	Enable	Disable	Enable
0x61	Subnet Mask	–				
0x62	Gateway Address	–				
0x63	DNS Primary	–				
0x64	DNS Secondary	–				
0x83	IP Address(Player)	–				

5-1-5. Picture/Sound

(a) Picture/Sound

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Control	0x8C	0x10	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	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				
0x0E	Gamma Correct	0x00	High	Yes	Yes	Disable	Enable
		0x01	Mid				
		0x02	Low				
		0x03	DICOM GSDF Sim.*3				
0x10	Picture Mode	0x00	Standard	Yes	Yes	Disable	Enable
		0x01	Vivid				
		0x02	Custom				
		0x05	TC Control*3				
		0x06	Conference				
0x11	Brightness Boost*1	0x00	ON	Yes	Yes	Disable	Enable
		0x01	OFF				
0x30	Volume	0x00-0x64		Yes	Yes	Disable	Enable
0x31	Treble*2	0x00-0x64		Yes	Yes	Disable	Enable
0x32	Bass*2	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*4				
		0x10	ON				
0x35	Sound Mode	0x00	Dynamic	Yes	Yes	Disable	Enable
		0x01	Standard				
		0x03	Custom				
0x36	Default Volume Set	0x00-0x64		Yes	Yes	Disable	Enable
0x37	Volume Select	0x00	Last Memory	Yes	Yes	Disable	Enable
		0x01	Default Setting				
0x38	Max Volume Set	0x32	50	Yes	Yes	Disable	Enable
		0x46	70				
		0x64	100				

∗1: Picture Mode = Vivid Only is Enabled.
∗2: Sound Mode = Custom Only is Enabled.
∗3: FWD-S55H2/S46H2/S42H2 Only
∗4: FWD-S46H2 and FWD-S42H2 are Disable.

(b) Color Temp

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

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

Code Table (2-a)

[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-b)

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

5-1-6. Size/Shift

(a) Size/Shift

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Control	0x8C	0x20	Code Table (1-a) [a]	0x02	Code Table (1-a) [b]	0xXX

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x20	Code Table (1-a) [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	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	H Size	0x00-0x3C		Yes	Yes	Disable	Enable
0x01	H Shift	0x00-0x3C		Yes	Yes	Disable	Enable
0x02	V Size	0x00-0x3C		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				

(Continue)

Code Table (1-a)

[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	0x00	Position1	Yes	Yes	Disable	Enable
	(2 × 2, 1 × 2, 2 × 1)*1	0x01	Position2				
		0x02	Position3				
		0x03	Position4				
0x0C	Multi Position	0x00	Position1	Yes	Yes	Disable	Enable
	(3 × 3, 1 × 3, 3 × 1)*1	0x01	Position2				
		0x02	Position3				
		0x03	Position4				
		0x04	Position5				
		0x05	Position6				
		0x06	Position7				
		0x07	Position8				
		0x08	Position9				
0x0D	Multi Position	0x00	Position1	Yes	Yes	Disable	Enable
	(4 × 4, 1 × 4, 4 × 1)*1	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				
		0x02	Auto				
0x0F	Multi Display	0x00	Tiles	Yes	Yes	Disable	Enable
	Output Format	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

(b) Multi Display Batch

Syntax	Header	Category	Function	Data1	Data2	Data3	Data4
Control	0x8C	0x20	0x11	0x08	Multi Setting Code Table(2-a)[a]	Position Code Table(2-a)[b]	Output Format Code Table(2-a)[c]

Data5	Data6	Data7	Data8	Check Sum
H-Size Code Table(2-a)[d]	H-Shift Code Table(2-a)[e]	V-Size Code Table(2-a)[f]	V-Shift Code Table(2-a)[g]	0xXX

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x20	0x11	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	Data2	Data3	Data4
Enquiry	0x70	0x00	0x08	Multi Setting Code Table(2-a)[a]	Position Code Table(2-a)[b]	Output Format Code Table(2-a)[c]

Data5	Data6	Data7	Data8	Check Sum
H-Size Code Table(2-a)[d]	H-Shift Code Table(2-a)[e]	V-Size Code Table(2-a)[f]	V-Shift Code Table(2-a)[g]	0xXX

Code Table (2-a)

Multi Display[a]	0x00	OFF
	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
Multi Position[b]	0x00	Position1
	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
Multi Display Output Format[c]	0x00	Tiles
	0x01	Window
H Size[d]	0x00-0x3C	
H Shift[e]	0x00-0x3C	
V Size[f]	0x00-0x3C	
V Shift[g]	0x00-0x3C	

Code Table (2-b)

[a]Function		[b]Range/Switch Code	Command Control	Enquiry	Standby	Power On
0x11	Multi Display Batch		Yes	Yes	Disable	Enable

5-1-7. Power On Batch

Syntax	Header	Category	Function	Data1	Data2	Data3	Check Sum
Control	0x8C	0x00	0x85	0x03	Input Select Code Table (1-a)[a]	Volume Code Table (1-a)[b]	0xXX

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x00	0x85	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	Data2	Data3	Check Sum
Enquiry	0x70	0x00	0x03	Input Select Code Table (1-a)[a]	Volume Code Table (1-a)[b]	0xXX

Code Table (1-a)

Input Select [a]*	0x08	HD15 RGB
	0x09	HD15 YUV
	0x0B	Component
	0x20	DVI
	0x30	Video
	0x44	HDMI
	0x84	Option Digital1(SDI)
Volume [b]	0x00-0x64	

*: Input Select setting, Auto Signal Detect becomes Disable. When Option Slot is connected, Option command is Enable.

Code Table (1-b)

[a]Function		[b]Range/Switch code	Command Control	Enquiry	Standby	Power On
0x85	Power On Batch*		Yes	Yes	Enable	Control/Disable Enquiry/Enable

*: When this control command is received, the power of a set will be turned on first.

5-1-8. Display Setting Batch

Syntax	Header	Category	Function	Data1	Data2	Data3
Control	0x8C	0x00	0x91	0x0D	Picture Mode Code Table(1-a)[a]	Backlight Code Table(1-a)[b]

Data4	Data5	Data6	Data7	Data8	Data9
Contrast Code Table(1-a)[c]	Brightness Code Table(1-a)[d]	Gamma Correct Code Table(1-a)[e]	Color Temp Code Table(1-a)[f]	Brightness Boost Code Table(1-a)[g]	Aspect Code Table(1-a)[h]

Data10	Data11	Data12	Data13	Check Sum
Eco Code Table(1-a)[i]	Status Display Code Table(1-a)[j]	Logo Illumination Code Table(1-a)[k]	Control Mode Code Table(1-a)[l]	0xXX

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x00	0x91	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	Data2	Data3	Data4
Enquiry	0x70	0x00	0x0D	Picture Mode Code Table(1-a)[a]	Backlight Code Table(1-a)[b]	Contrast Code Table(1-a)[c]

Data5	Data6	Data7	Data8	Data9	Data10
Brightness Code Table(1-a)[d]	Gamma Correct Code Table(1-a)[e]	Color Temp Code Table(1-a)[f]	Brightness Boost Code Table(1-a)[g]	Aspect Code Table(1-a)[h]	Eco Code Table(1-a)[i]

Data11	Data12	Data13	Check Sum
Status Display Code Table(1-a)[j]	Logo Illumination Code Table(1-a)[k]	Control Mode Code Table(1-a)[l]	0xXX

Code Table (1-a)

Picture Mode[a]	0x00	Standard
	0x01	Vivid
	0x02	Custom
	0x05	TC Control*1
	0x06	Conference Camera
Backlight[b]	0x00-0x64	
Contrast[c]	0x00-0x64	
Brightness[d]	0x00-0x64	
Gamma Correct[e]	0x00	High
	0x01	Mid
	0x02	Low
	0x03	Option
Color Temp[f]	0x00	Cool
	0x01	Neutral
	0x02	Warm
	0x03	Custom
Brightness Boost[g]*2	0x00	ON
	0x01	OFF
Aspect[h]	0x00	Wide Zoom (VIDEO Only)
	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)
Eco Mode[i]	0x00	OFF
	0x01	High
	0x02	Low
Auto Status Display[j]	0x00	ON
	0x01	OFF
Logo Illmination[k]	0x00	OFF
	0x01	Low
	0x02	High
Control Mode[l]	0x00	Main+Remocon
	0x01	Main
	0x02	Remocon
	0x03	All OFF

∗1: FWD-S55H2/S46H2/S42H2 Only
∗2: Picture Mode = Vivid Only is Enabled.

5-1-9. 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 (1-a)	0xXX	Completed

Code Table (1-a)

Format Select	
0x2B	FWD-32B1
0x2C	FWD-42B2
0x2D	FWD-46B2
0x2E	FWD-55B2
0x2F	FWD-S42H2
0x30	FWD-S46H2
0x31	FWD-S55H2

(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.-3,599,999,999sec.)

(d) Main CPU Soft Version

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

ex) In Version1.000, Data1 and 2 are set to 10 and 00.

(e) 8 bits Register

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x30	Code Table (5-b)	0xFF	0xFF	0xXX

Answer	Header	Answer	Return to Data Size	Return Data1	Check Sum	
Enquiry	0x70	0x00	0x02	Code Table (5-b)	0xXX	Completed

Code Table (5-b)

Function		Return Data	Unit
0x09	Digital 5 V	0x00-0xFF	
0x0A	Temp1	0x00-0xFF	
0x0B	Temp2	0x00-0xFF	
0x0C	Temp3	0x00-0xFF (∗1)	
0x11	Shutdown Log	0x00-0xFF	
0x16	Digital 12 V	0x00-0xFF	

∗1: FWD-S46H2/S42H2 Only

- For function 0x09 and 0x16 in the left table. When the display value is 3.0 V, “0x1E” (30) is returned.
- For function 0x0A and 0x0B in the left table. When the display value is 50 °C, “0x32” (50) is returned. When the display value is −20 °C, “0xEC” 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 (6-a)	0xXX	Completed

Code Table (6-a)

Shutdown Information		
bit5	1: Power Abnormal (3.3 V, 5 V)	0: Normal

(g) Shutdown Log Clear

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Control	0x8C	0x30	0x11	0x02	0x00	0xCF

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

(h) Auto Input Detect

Syntax	Header	Category	Functi on	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 (8-a)	Input2 Input Type Code Table (8-a)	Input3 Input Type Code Table (8-a)	Input4 Input Type Code Table (8-a)	Input5 Input Type Code Table (8-a)

Return Data6	Return Data7	Return Data8	Return Data9	Return Data10
Option1 Option Type Code Table (8-a)	Option1 Input Type Code Table (8-a)	Option2 Option Type Code Table (8-a)	Option2 Input Type Code Table (8-a)	Option3 Option Type Code Table (8-a)

Return Data11	Check Sum	
Option3 Input Type Code Table (8-a)	0xXX	Completed

Code Table (8-a)

Input	Input Type (Basic)		Option Type		Input Type (Option)	
INPUT1	0x0a	Component				
INPUT2	0x01	Video				
INPUT3	0x06	RGB/YUV(Analog)				
INPUT4	0x07	DVI				
INPUT5	0x08	HDMI				
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
OPTION3			0x00	Analog Only	0x00	No Input

(i) 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 (9-a)	0x72	Completed

Code Table (9-a)

Panel Type	
0x00	LCD

Code Table (9-b)

H_Resolution	0x0780 (1920)
V_Resolution	0x0438 (1080)

Code Table (9-c)

Input Quantity	0x05
Option Slot Quantity	0x01

(j) Auto Plug Detect

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Enquiry	0x83	0x30	0x32	0xFF	0xFF	0xE3

Answer	Header	Answer	Return to Data Size	Return Data1	Return Data2	Return Data3
Enquiry	0x70	0x00	0x21	Panel Type Code Table (9-a)	H_Resolution (H) Code Table (9-b)	H_Resolution (L) Code Table (9-b)

Return Data4	Return Data5	Return Data6	Return Data7
V_Resolution (H) Code Table (9-b)	V_Resolution (L) Code Table (9-b)	Input Quantity Code Table (9-c)	Input1 Input Type Code Table (8-a)

Return Data8	Return Data9	Return Data10	Return Data11
Input2 Input Type Code Table (8-a)	Input3 Input Type Code Table (8-a)	Input4 Input Type Code Table (8-a)	Input5 Input Type Code Table (8-a)

Return Data12	Return Data13	Return Data14	Return Data15
Option Slot Quantity Code Table (9-c)	Option1 Option Type Code Table (8-a)	Option1 Input Type Code Table (8-a)	Option2 Option Type Code Table (8-a)

Return Data16	Return Data17	Return Data18	Return Data19
Option2 Input Type Code Table (8-a)	Option3 Option Type Code Table (8-a)	Option3 Input Type Code Table (8-a)	(Reserve) 0xFF

Return Data20	Return Data21	Return Data22	Return Data23
(Reserve) 0xFF	(Reserve) 0xFF	(Reserve) 0xFF	(Reserve) 0xFF

(Continue)

Return Data24	Return Data25	Return Data26	Return Data27
(Reserve) 0xFF	(Reserve) 0xFF	(Reserve) 0xFF	(Reserve) 0xFF

Return Data28	Return Data29	Return Data30	Return Data31
(Reserve) 0xFF	(Reserve) 0xFF	(Reserve) 0xFF	(Reserve) 0xFF

Return Data32	Check Sum
(Reserve) 0xFF	0xXX

5-1-10. User Reset

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Control	0x8C	0x50	Code Table (1-a)	0x02	0xFF	0xXX

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

Code Table (1-a)

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				
0x04	All Reset					

5-1-11. User Memory

Factory Default

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Control	0x8C	0x40	0x88	0x02	0xFF	0x55

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

5-1-12. Mode

(a) Mode Flag

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Control	0x8C	0xF0	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
0x02	Alarm Shut Down	0x00	ON	Yes	Yes	Disable	Enable
		0x01	OFF				
0x10	Debug On/Off	0x00	ON				
		0x01	OFF				

(b) Mode Flag

Syntax	Header	Category	Function	Data1	Data2	Check Sum
Control	0x8C	0xF0	Code Table(7-b)[a]	0x02	Code Table(7-b)[b]	0xXX
Enquiry	0x83			OxFF	OxFF	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 Canceld

Answer	Header	Answer	Return to Data Size	Return Data1	Check Sum	
Enquiry	0x70	0x00	0x02	Code Table(7-b)[b]	0xXX	Completed

Code Table(7-b)

[a]Function		[b]Range/Switch Code		Command Control	Enquiry	Standby	Power On
0x03	RS-232C Control Mode	0x00	Control	Yes	Yes	Disable	Enable
		0x01	Download	Yes	Yes	Disable	Enable

FWD-32B1 (SY)
FWD-42B2 (SY)
FWD-46B2 (SY)
FWD-55B2 (SY)
FWD-S42H2 (SY)
FWD-S46H2 (SY)
FWD-S55H2 (SY) E
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