FOR.A®
INNOVATIONS IN VIDEO
and AUDIO TECHNOLOGY

RS-232C/422/485/ LAN COMMAND

MV-410HS

Multi Viewer

Version 2.0 - Higher

FOR-A COMPANY LIMITED

Table of Contents

1. Communication Setting

1-1. RS-232C / 422 / 485 Interface Communication Standards

The communication standards when connecting the unit to a serial controller via RS-232C, RS-422 or RS-485 are as follows.

Transmission speed	9600bps, 19200bps or 38400bps
Data length	8 [bit]
Stop bit	1 [bit]
Parity	None, Odd, Even
X parameter (flow control)	None

1-2. LAN Interface Communication Setting

The communication standards when connecting the unit to a serial controller via LAN are as follows.

◆ **Communication Protocols**

Application Layer	Original protocol described in this manual
Transport Layer	TCP, UDP
Network Layer	IP, ICMP, ARP, RARP
Network Interface Layer	Ethernet (CSMA/CD, 10BASE-T/100BASE-TX)

◆ **Network Setting**

Item	Default Setting	Setting Range
IP address	192.168.0.1	[0-255].[0-255].[0-255].[0-255] (Except 0.0.0.0 and 1.0.0.0)
Subnet mask (Mask length)	24	0-31
Multcast address	239.255.0.0	[224-239].[0-255].[0-255].[0-255] (Except 224.0.0.0 to 224.0.0.255)
Multcast port	2100	1024 to 65535
Gateway	0.0.0.0	[0-255].[0-255].[0-255].[0-255] Gateway (0.0.0.0) means the default gateway is not set.
Port number	-	2010: Used to send and receive commands 2000: Used to receive image data (Cannot be changed)
MAC address	Set at the factory	(Cannot be changed.)

NOTE
The network settings above are made in the LAN menu in MV-410HS. See 7-3. "LAN" in the MV-410HS Operation Manual for details.

1-3. Notes on the LAN Interface

1) IP address, Subnet mask, Gateway and Port number settings must be set to suit your network system.

2) Consult your system administrator before setting IP address, Subnet mask, Gateway and Port number to avoid troubles, if configuring the system in an existing LAN.

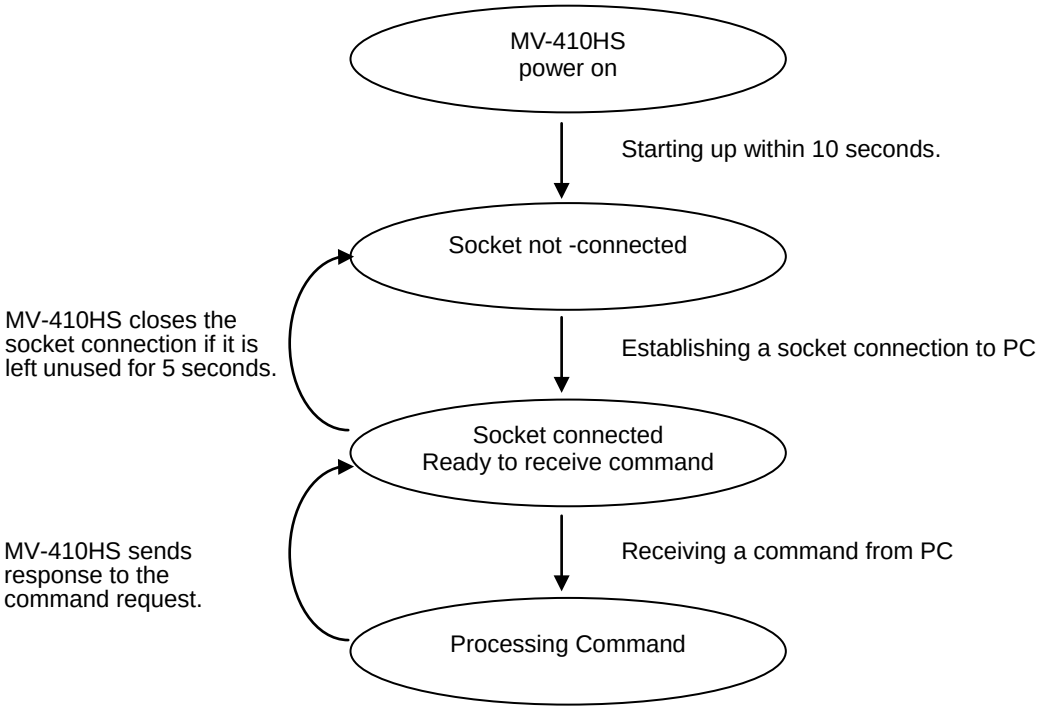
3) The MV-410HS cannot establish connections to multiple PCs via LAN.

4) Release the port on the MV-410HS when terminating the control from the PC, so that the MV-410HS can establish a connection again to the PC or to another PC.

5) It takes approxmately 10 seconds to release port2000 on MV-410HS after port2000 (for image data transmission) is released on the computer, and during this period you cannot establish a connection.

6) The command port (port2010) automatically closes the socket connection to the computer if the socket connection is left unused for 5 seconds.

◆ **State Transition Diagram of MV-410HS**



2. Command Protocol Format

All command contents are transmitted and received in ASCII code. Follow each format to make and send message commands. The command formats are as shown in the following pages.

2-1. Commands Formats for RS-232C, RS-422 and LAN (without Password)

◆ **Command Format**

Command code **+** Command parameter **+** CR **+** LF
(3 byte) (Bytes specified for each parameter)

(Works without LF as well)

Ex.) When sending a command to display in full screen

Byte	Parameter	Command	Description
1-3	Command code	SDF	
4	Reserve	0	Fixed to "0"
5-6	Input channel	01-04	Channel no. 1-4
7	End code	CR	
8		LF	

NOTE

The MV-410HS sends a response or a message when receiving a command. Do not send the next command before receiving the response or the message transmitted by the MV-410HS; Otherwise, the command cannot be read properly.

2-2. Commands Formats for RS-485

The ID header is located in front of the Command code. The ID number specifies the ID of MV-410HS (00-31) to be controlled. The ID number is set in the menu of MV-410HS.

◆ **Command Format**

I **+** ID number **+** Command code **+** Command parameter **+** CR **+** LF
(2 byte) (3 byte) (Bytes specified for each parameter)

(Works without LF as well)

Ex.) When sending a command to display in full screen

Byte	Parameter	Command	Description
1	ID header	I	
2-3		00-31	
4	Command code	S	
5		D	
6		F	
7	Reserve	0	Fixed to "0"
8-9	Input channel	01-04	Channel no. 1-4
10	End code	CR	
11		LF	

NOTE

The MV-410HS sends a response or a message when receiving a command. Do not send the next command before receiving the response or the message transmitted by the MV-410HS. Otherwise, the command cannot be read properly.

Do not use the same ID number for two or more devices in an RS-485 system. If there exists any device which has the same ID number as MV-410HS in the RS-485 system, the MV-410HS connection does not work properly.

2-3. Commands Formats for LAN (with Password)

The ID header is located in front of the Command code. The ID number and Password are set in the menu of MV-410HS.

◆ **Command Format**

ID number **+** Password **+** Command code **+** Command parameter **+** CR **+** LF
(n byte) (5 byte) (3 byte) (Bytes specified for each parameter)

(Works without LF as well)

Ex.) When sending a command to display in full screen

Byte	Parameter	Command	Description
1	Number of characters for ID	1-8	1- 8 characters
2 to n	ID		ID set for the controlled MV-410HS.
n+1	Password	1-9	1st digit
n+2		1-9	2nd digit
n+3		1-9	3rd digit
n+4		1-9	4th digit
n+5		1-9	5th digit
n+6	Command code	S	
n+7		D	
n+8		F	
n+9	Reserve	0	Fixed to "0"
n+10 to n+11	Input channel	01-04	Channel no. 1-4
n+12	End code	CR	
n+13		LF	

NOTE

The MV-410HS sends a response or a message when receiving a command. Do not send the next command before receiving the response or the message transmitted by the MV-410HS. Otherwise, the command cannot be read properly.

2-4. Response Message Format

After sending commands, you will receive response messages from MV-410HS.

- **Normal end**

  Messages in the following format are returned after normal reception and processing.

Byte	Parameter	Message	Description
1-2	Message code	OK	"OK"
3	End code	CR	
4		LF	

- **Abnormal end**

  If something prevents commands from being issued normally, messages in the following format are returned.

Byte	Parameter	Message	Description
1-3	Message code	ERR	"ERR"
4-6	Error code	001	Command Error
		002	Command Length Error
		003	Parameter Range Error
		004	MV-410HS is in menu mode.
		005	Setting not-available (function not-installed)
		006-999	Future use
7	End code	CR	
8		LF	

3. Control Commands

3-1. Full Screen Display

Displays the specified channel in full screen.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SDF	
4	Reserve	0	Fixed to "0"
5-6	Input channel	01-04	Channel no. 1-4
7	End code	CR	
8		LF	

3-2. Layout Display

Displays the specified layout.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SDS	
4	Reserve	0	Fixed to "0"
5-6	Layout	01-04	Layout no. 1-4
7	End code	CR	
8		LF	

3-3. Frame Rate Setting for Video Transmission

Sets a frame rate for video transmission.
With normal reception and processing, the response message is "OK."

Byte	Parameter	Command	Description	
1-3	Command code	SNF		
4	Frame rate	0	0fps (No video transmission)	
		1	1fps (60Hz, 59.94Hz)	1fps (50Hz)
		2	5fps (60Hz, 59.94Hz)	4fps (50Hz)
		3	10fps (60Hz, 59.94Hz)	8fps (50Hz)
		4	15fps (60Hz, 59.94Hz)	12fps (50Hz)
		5	30fps (60Hz, 59.94Hz)	25fps (50Hz)
		6	60fps (60Hz, 59.94Hz)	50fps (50Hz)
5	End code	CR		
6		LF		

NOTE

Video transmission starts when "Frame rate" is set other than "0." To stop video transmission, set "Frame rate" to "0."

In some cases video cannot be sent by the specified frame rate due to the video resolution, JPEG compression ratio, PC performance or the network environment. In this case, increase the JPEG compression ratio to reduce the data size.

3-4. JPEG Compression Setting for Transmission

Sets a JPEG compression ratio for video transmission.
With normal reception and processing, the response message is "OK."

Byte	Parameter	Command	Description
1-3	Command code	SNJ	
4	JPEG compression ratio	0	Low quality
		1	Normal quality
		2	Fine quality
		3	Superfine quality
5	End code	CR	
6		LF	

3-5. Output Video Frequency Setting

Sets the output video frequency.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SOF	
4	Reserve	0	Fixed to "0"
5	Frequency	0	60Hz
		1	59.94Hz
		2	50Hz
6	End code	CR	
7		LF	

3-6. Display Mode Setting

Selects a display mode.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SAM	
4-5	Reserve	00	Fixed to "00"
6	Display mode	0	Mode1
		1	Mode2
		2	Mode3
7	End code	CR	
8		LF	

◆ **Display mode**

Mode1 *	The aspect ratio of input video is retained. In full screen, title (caption) and audio level meter are displayed outside images
Mode2 *	The aspect ratio of input video is retained. In full screen, title (caption) and audio level meter are displayed on images
Mode3	The aspect ratio of input video is not retained and video image is fitted to screen width.

* In split screen, mode1 and mode 2 have the same appearance.

3-7. Output Resolution Setting for Layout Screen

Sets an output resolution for layout screen.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SLO	
4	Reserve	0	Fixed to "0"
5-6	Layout	01-04	Layout no. 1-4
7-8	Output Resolution	00	1280 x 1024
		01	1360 x 768
		02	1600 x 1200
		03	1920 x 1200
		04	1440 x 900
		05	1680 x 1050
		06	1920 x 1080
		07	1280 x 720
9	End code	CR	
10		LF	

NOTE
All channel assignments are cleared when the output size is changed.

3-8. Screen Layout Setting

Defines each screen layout (Layout1-4).
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SLD	
4	Reserve	0	Fixed to "0"
5-6	Layout screen	01-04	Layout no. 1-4
7-8	Displayed channel	01-04	Channel no. 1-4
		80	CLOCK
9	Display ON/OFF	0	OFF
		1	ON
10-11	Layer (display priority)	01-05	Sets layer priority in the layout (*1) 01(Lowest) to 05(Highest)
12-15	Window position: LEFT	0000-1800	Set in multiples of 2. (*1)
16-19	Window position: TOP	0000-1120	Set in multiples of 2. (*1)
20-23	Window size: WIDTH	0120-1920	Set in multiples of 8. (*1)
24-27	Window size: HEIGHT	0080-1200	Set in multiples of 8. (*1)
28-31	Title position: LEFT	0000-1920	Set in multiples of 2. (*1)
32-35	Title position: TOP	0000-1200	Set in multiples of 2. (*1)
36-39	Level meter (L) position: LEFT	0000-1920	Set in multiples of 2. (*2)
40-43	Level meter (L) position: TOP	0000-1200	Set in multiples of 2. (*2)
44-47	Level meter (R) position: LEFT	0000-1920	Set in multiples of 2. (*2)
48-51	Level meter (R) position: TOP	0000-1200	Set in multiples of 2. (*2)
52	Level meter size: WIDTH	1-3	(*2)
53-54	Level meter size: HEIGHT	01-10	(*2)
55	End code	CR	
56		LF	

(*1) Set all digits to "0" when "Display ON/OFF" is set "OFF".
(*2) Set all digits to "0" when "Display ON/OFF" is set "OFF" or "CLOCK" is selected for "Displayed channel."

NOTE

"ERR003" message is returned if any number other than the specified multiples is set, or the total of the values set for window position and window size exceeds the actual output resolution.

3-9. Crop Area Setting

Specifies the area and size to crop images.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SRG	
4-5	Displayed channel	01-04	
6-9	Crop area size (Top)	0000-0120	Set in multiples of 4.
10-13	Crop area size (Bottom)	0000-0120	Set in multiples of 4.
14-17	Crop area size (Left)	0000-0120	Set in multiples of 4. (1=2pixels)
18-21	Crop area size (Right)	0000-0120	Set in multiples of 4. (1=2pixels)
22	End code	CR	
23		LF	

3-10. Save Layout

Saves screen layouts.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SLS	
4	Reserve	0	Fixed to "0"
5-6	Layout screen	01-04	Layout no. 1-4
7	End code	CR	
8		LF	

3-11. Audio Level Meter Display

Selects audio level meter display ON/OFF and audio channels to be displayed for each channel.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SAC	
4	Reserve	0	Fixed to "0"
5-6	Screen Layout	00	Full screen
		01-04	Layout no. 1-4
7-8	Displayed channel	01-04	Channel no. 1-4
9	Level meter display	0	OFF
		1	ON
10	Number of audio channels in level meter	0	2CH
		1	4CH
		2	8CH
11-15	Reserve	00000	
16	End code	CR	
17		LF	

3-12. Audio Level Meter Display Function Setting

Sets display functions in audio level meter. With normal reception and processing, the response message is "OK." "ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SAD	
4-5	Reference level	01-60	-1dBFS to -60dBFS
6-7	Peak level	00-30	0dBFS to -30dBFS * Peak level must be set higher than the Reference level.
8-9	Peak hold time	00	OFF
		01-10	1sec to 10sec
10-14	Reserve	00000	
15	End code	CR	
16		LF	

3-13. Title Setting

Specifies the title settings for each channel.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	STT	
4	Reserve	0	Fixed to "0"
5-6	Screen Display	00	Full screen
		01-04	Layout no. 1-4
7-8	Title setting channel	01-04	Channel no. 1-4
		80	CLOCK
9	Title display	0	OFF
		1	ON
10	Title character size	0	SMALL
		1	MEDIUM
		2	LARGE
11-12	Title color	00	WHITE
		01	YELLOW
		02	GREEN
		03	CYAN
		04	RED
		05	MAGENTA
		06	BLUE
		07	GRAY
		08	BLACK
13- (n –2)	Text data (1byte/character)	ASCII code	Maximum of 16 characters
n-1	End code	CR	
n		LF	

3-14. Border Setting

Specifies the border settings for each channel.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SBD	
4	Reserve	0	Fixed to "0"
5-6	Screen Display	01-04	Layout no. 1-4
7-8	Border setting channel	00	Fixed to "00"
9	Border Display	0	OFF
		1	ON
10-11	Border width: TOP	00-50	In 2-line steps (0-100lines)
12-13	Border width: BOTTOM	00-50	In 2-line steps (0-100lines)
14-15	Border width: LEFT	00-50	In 2-pixel steps (0-100pixels)
16-17	Border width: RIGHT	00-50	In 2-pixel steps (0-100pixels)
18-19	Border color	00	WHITE
		01	YELLOW
		03	CYAN
		05	MAGENTA
		06	BLUE
		07	GRAY
		08	BLACK
20-21	Reserve	00000	
22	End code	CR	
23		LF	

3-15. Full Screen Setting

Specifies the settings for full screen display.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SFL	
4	Reserve	0	Fixed to "0"
5-6	Full screen output size (Resolution)	00	1280 x 1024
		01	1360 x 768
		02	1600 x 1200
		03	1920 x 1200
		04	1440 x 900
		05	1680 x 1050
		06	1920 x 1080
		07	1280 x 720
7	End code	CR	
8		LF	

3-16. Tally Display Setting

Specifies the settings for tally display.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	STL	
4-5	Reserve	00	Fixed to "00"
6	Tally detection	0	OFF
		1	ON
7	Simultaneous tallies indication	0	RED
		1	UMBER
8-12	Reserve	00000	
13	End code	CR	
14		LF	

3-17. Video Loss ON/OFF

Sets video loss detection ON/OFF.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SVO	
4-5	Video loss setting channel	01-04	Channel no. 1-4
6	Video loss detection	0	OFF
		1	ON
7	End code	CR	
8		LF	

3-18. Video Loss Display Setting

Specifies the setting for video loss alarm display.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SVL	
4-6	Video loss display time	000	Reset by "Video loss reset command", video switching or input restoration.
		001-100	1-100sec (Reset after a specified-second display)
7-11	Reserve	00000	
12	End code	CR	
13		LF	

3-19. Video Loss Reset

Performs alarm reset for video loss.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SVR	
4	End code	CR	
5		LF	

3-20. Reference Clock Selection

Selects the reference clock to synchronize the analog or digital clock display.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SDC	
4	Time source	0	Internal clock
		1	LTC
5	End code	CR	
6		LF	

3-21. Clock Display Selection

Selects a clock type for the clock display.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SDD	
4	Output channel	0	
5	Clock type	0	Analog clock
		1	Digital clock
6-7	Display type	00-01	
8-12	Reserve	00000	
13	End code	CR	
14		LF	

3-22. Internal Clock Adjustment

Adjusts date and time for the internal clock, on which the analog clock display on the screen or other clock functions are based.
With normal reception and processing, the response message is "OK."
"ERR004" message is returned during MENU screen display.

Byte	Parameter	Command	Description
1-3	Command code	SDT	
4-15	Date and Time	00-99	Year (last two digits)
		01-12	Month
		01-31	Day
		00-23	Hour
		00-59	Minute
		00-59	Second
16	End code	CR	
17		LF	

4. Status Request Commands

4-1. Version

Requests the software version and hardware version of the MV-410HS.
Returns a message as shown below after normal reception and processing.

◆ **[RVS] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RVS	
4	End code	CR	
5		LF	

◆ **[AVS] Status Request Response Messages**

Byte	Parameter	Message	Description
1-3	Message code	AVS	
4-7	Software version	AAAA	Software version (AA.AA)
8-11	Hardware1 version	BBBB	Hardware1 version (BB.BB)
12-15	Hardware2 version	CCCC	Hardware2 version (CC.CC)
16-19	Hardware3 version	DDDD	Hardware3 version (DD.DD)
20	End code	CR	
21		LF	

4-2. Input Video Format

Requests the video format of current input.
Returns a message as shown below after normal reception and processing.

◆ **[RIF] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RIF	
4-5	Target channel	01-04	Channel no. 1-4
6	End code	CR	
7		LF	

◆ **[AIF] Status Request Response Message**

Byte	Parameter	Message	Description
1-3	Message code	AIF	
4-5	Target channel	01-04	Channel no. 1-4
6-7	Input Format	00	1080/59.94i
		01	1080/50i
		10	720/59.94p
		11	720/50p
		20	525/60
		21	625/50
		30	NTSC
		31	PAL
		80	LOSS
8	End code	CR	
9		LF	

4-3. Output Screen Status

Requests the current status of "Output channel."
Returns a message as shown below after normal reception and processing.

◆ **[RDP] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RDP	
4	Reserve	0	Fixed to "0"
5	End code	CR	
6		LF	

◆ **[ADP] Status Request Response Message**

Byte	Parameter	Message	Description
1-3	Message code	ADP	
4	Reserve	0	
5	Display mode	0	Video display mode
		2	Menu display mode
6	Screen display (Fixed to "0" in MENU mode)	0	Full screen display
		1	Split screen display
7	Selected screen (Fixed to "01" in MENU mode)	01-04	In Full screen display: Channel no. 1-4 In Split screen display: Layout no. 1-4
8	End code	CR	
9		LF	

4-4. Fan Alarm Status

Requests the current status of "Fan alarm."
Returns a message as shown below after normal reception and processing.

◆ **[RFA] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RFA	
4	End code	CR	
5		LF	

◆ **[AFA] Status Request Response Message**

Byte	Parameter	Message	Description
1-3	Message code	AFA	
4	Fan alarm Status	0	No fan alarm
		1	Fan alarm
5	End code	CR	
6		LF	

4-5. Video Transmission Information

Requests the current status of "Video transmission."
Returns a message as shown below after normal reception and processing.

◆ **[RNR] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RNR	
4	End code	CR	
5		LF	

◆ **[ANR] Status Request Response Message**

Byte	Parameter	Message	Description	
1-3	Message code	ANR		
4	Frame rate	0	0fps (No video transmission)	
		1	1fps (60Hz, 59.94Hz)	1fps (50Hz)
		2	5fps (60Hz, 59.94Hz)	4fps (50Hz)
		3	10fps (60Hz, 59.94Hz)	8fps (50Hz)
		4	15fps (60Hz, 59.94Hz)	12fps (50Hz)
		5	30fps (60Hz, 59.94Hz)	25fps (50Hz)
		6	60fps (60Hz, 59.94Hz)	50fps (50Hz)
5	JPEG compression ratio	0	Low quality	
		1	Normal quality	
		2	Fine quality	
		3	Superfine quality	
6	End code	CR		
7		LF		

4-6. Output Video Frequency

Requests the setting status of output video frequency.
Returns a message as shown below after normal reception and processing.

◆ **[ROF] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	ROF	
4	Reserve	0	Fixed to "0"
5	End code	CR	
6		LF	

◆ **[AOF] Status Request Response Message**

Byte	Parameter	Message	Description
1-3	Message code	AOF	
4	Reserve	0	
5	Frequency	0	60Hz
		1	59.94Hz
		2	50Hz
6	End code	CR	
7		LF	

4-7. Display Mode

Requests the setting status of display mode.
Returns a message as shown below after normal reception and processing.

◆ **[RAM] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RAM	
4-5	Reserve	00	Fixed to "00"
6	End code	CR	
7		LF	

◆ **[AAM] Status Request Response Message**

Byte	Parameter	Message	Description
1-3	Message code	AAM	
4-5	Reserve	00	
6	Screen display mode	0	Mode1
		1	Mode2
		2	Mode3
7	End code	CR	
8		LF	

4-8. Output Resolution of Layout Screen

Requests the setting status of "Output resolution" for each layout screen.
Returns a message as shown below after normal reception and processing.

◆ **[RLO] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RLO	
4	Reserve	0	Fixed to "0"
5-6	Target screen	01-04	
7	End code	CR	
8		LF	

◆ **[ALO] Status Request Response Message**

Byte	Parameter	Message	Description
1-3	Message code	ALO	
4	Reserve	0	
5-6	Target screen	01-04	Layout no. 1-4
7-8	Output Resolution	00	1280 x 1024
		01	1360 x 768
		02	1600 x 1200
		03	1920 x 1200
		04	1440 x 900
		05	1680 x 1050
		06	1920 x 1080
		07	1280 x 720
9	End code	CR	
10		LF	

4-9. Layout Screen Information

Requests the information of each layout screen.
Returns a message as shown below after normal reception and processing.

◆ **[RLD] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RLD	
4	Reserve	0	Fixed to "0"
5-6	Target screen	01-04	Layout no. 1-4
7-8	Target channel	01-04	Channel no. 1-4
		80	CLOCK
9	End code	CR	
10		LF	

◆ **[ALD] Status Request Response Message**

Byte	Parameter	Message	Description
1-3	Message code	ALD	
4	Reserve	0	
5-6	Target screen	01-04	Layout no. 1-4
7-8	Target channel	01-04	Channels no. 1-4
		80	CLOCK
9	Display ON/OFF	0	OFF
		1	ON
10-11	Layer (display priority)	00-05	Layer priority in layout screen
12-15	Window position: LEFT	0000-1800	(*1)
16-19	Window position: TOP	0000-1120	(*1)
20-23	Window size: WIDTH	0120-1920	(*1)
24-27	Window size: HEIGHT	0080-1200	(*1)
28-31	Title position: LEFT	0000-1920	(*1)
32-35	Title position: TOP	0000-1200	(*1)
36-39	Level meter (L) position: LEFT	0000-1920	(*2)
40-43	Level meter (L) position: TOP	0000-1200	(*2)
44-47	Level meter (R) position: LEFT	0000-1920	(*2)
48-51	Level meter (R) position: TOP	0000-1200	(*2)
52	Level meter size: WIDTH	1-3	(*2)
53-54	Level meter size: HEIGHT	01-10	(*2)
55	End code	CR	
56		LF	

(*1) All digits are "0" when "Display ON/OFF" is set "OFF".
(*2) All digits are "0" when "Display ON/OFF" is set "OFF or "CLOCK" is selected for "Target channel."

4-10. Crop Area Setting

Requests the setting status of "Crop area".
Returns a message as shown below after normal reception and processing.

◆ **[RRG] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RRG	
4-5	Target channel	01-04	Channel no. 1-4
6	End code	CR	
7		LF	

◆ **[ARG] Status Request Response Message**

Byte	Prameter	Message	Description
1-3	Command code	ARG	
4-5	Target channel	01-04	Channel no. 1-4
6-9	Crop area size (Top)	0000-0120	Set in multiples of 4.
10-13	Crop area size (Bottom)	0000-0120	Set in multiples of 4.
14-17	Crop area size (Left)	0000-0120	Set in multiples of 4. (1=2pixels)
18-21	Crop area size (Right)	0000-0120	Set in multiples of 4. (1=2pixels)
22	End code	CR	
23		LF	

4-11. Audio Level Meter Display

Requests the display status (ON/OFF) and audio channel selection of "Audio level meter."
Returns a message as shown below after normal reception and processing.

◆ **[RAC] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RAC	
2		A	
3		C	
4	Reserve	0	Fixed to "0"
5-6	Target screen	00	Full screen
		01-04	Layout no. 1-4
7-8	Target channel	01-04	Channel no. 1-4
9	End code	CR	
10		LF	

◆ **[AAC] Status Request Response Message**

Byte	Parameter	Message	Description
1-3	Message code	AAC	
4	Reserve	0	
5-6	Target screen	00	Full screen
		01-04	Layout no. 1-4
7-8	Target channel	01-04	Channel no. 1-4
9	Level meter display	0	OFF
		1	ON
10	Number of channels to be displayed	0	2CH
		1	4CH
		2	8CH
11-15	Reserve	00000	
16	End code	CR	
17		LF	

4-12. Audio Level Meter Display Function Setting

Requests the display setting status of "Audio level meter."
Returns a message as shown below after normal reception and processing.

◆ **[RAD] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RAD	
4	End code	CR	
5		LF	

◆ **[AAD] Status Request Response Message**

Byte	Parameter	Message	Description
1-3	Message code	AAD	
4-5	Reference level	01-60	-1dBFS to -60dBFS
6-7	Peak level	00-30	0dBFS to -30dBFS
8-9	Peak hold time	00	OFF
		01-10	1sec to 10sec
10-14	Reserve	00000	
15	End code	CR	
16		LF	

4-13. Title Information

Requests the title information for each channel.
Returns a message as shown below after normal reception and processing.

◆ **[RTT] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RTT	
4	Reserve	0	Fixed to "0"
5-6	Target screen	00	Full screen
		01-04	Layout no. 1-4
7-8	Target channel	01-04	Channel no. 1-4
		80	CLOCK
9	End code	CR	
10		LF	

◆ **[ATT] Status Request Response Message**

Byte	Parameter	Message	Description
1-3	Message code	ATT	
4	Reserve	0	
5-6	Target screen	00	Full screen
		01-04	Layout no. 1-4
7-8	Target channel	01-04	Channel no. 1-4
		80	CLOCK
9	Title display	0	OFF
		1	ON
10	Title character size	0	SMALL
		1	MEDIUM
		2	LARGE
11-12	Title color	00	WHITE
		01	YELLOW
		02	GREEN
		03	CYAN
		04	RED
		05	MAGENTA
		06	BLUE
		07	GRAY
		08	BLACK
13- (n-2)	Text data (1byte/character)	ASCII code	Maximum of 16 characters
n-1	End code	CR	
n		LF	

4-14. Border Information

Requests the border information for each layout screen.
Returns a message as shown below after normal reception and processing.

◆ **[RBD] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RBD	
4	Reserve	0	Fixed to "0"
5-6	Target screen	01-04	Layout no. 1-4
7-8	Target channel	00	
9	End code	CR	
10		LF	

◆ **[ABD] Status Request Response Message**

Byte	Parameter	Message	Description
1-3	Message code	ABD	
4	Reserve	0	
5-6	Target screen	01-04	Layout no. 1-4
7-8	Target channel	00	
9	Border Display	0	OFF
		1	ON
10-11	Border width: TOP	00-50	0-100 lines
12-13	Border width: BOTTOM	00-50	0-100 lines
14-15	Border width: LEFT	00-50	0-100 pixels
16-17	Border width: RIGHT	00-50	0-100 pixels
18-19	Border color	00	WHITE
		01	YELLOW
		03	CYAN
		05	MAGENTA
		06	BLUE
		07	GRAY
		08	BLACK
20-21	Reserve	00000	
22	End code	CR	
23		LF	

4-15. Full Screen Information

Requests the setting status of "Output resolution" and "Display mode" for full screen.
Returns a message as shown below after normal reception and processing.

◆ **[RFL] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RFL	
4	Reserve	0	Fixed to "0"
5	End code	CR	
6		LF	

◆ **[AFL] Status Request Response Message**

Byte	Parameter	Message	Description
1-3	Message code	AFL	
4	Reserve	0	
5-6	Full screen output Resolution	00	1280 x 1024
		01	1360 x 768
		02	1600 x 1200
		03	1920 x 1200
		04	1440 x 900
		05	1680 x 1050
		06	1920 x 1080
		07	1280 x 720
7	End code	CR	
8		LF	

4-16. Tally Display Setting

Requests the setting status of tally display.
Returns a message as shown below after normal reception and processing.

◆ **[RTL] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RTL	
4-5	Reserve	00	Fixed to "00"
6	End code	CR	
7		LF	

◆ **[ATL] Status Request Response Message**

Byte	Parameter	Message	Description
1-3	Message code	ATL	
4-5	Reserve	00	
6	Tally detection	0	OFF
		1	ON
7	Simultaneous tallies indication	0	RED
		1	UMBER
8-12	Reserve	00000	
13	End code	CR	
14		LF	

4-17. Video Loss ON/OFF

Requests the setting status of "Video loss detection."
Returns a message as shown below after normal reception and processing.

◆ **[RVO] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RVO	
4-5	Target channel	01-04	Channel no. 1-4
6	End code	CR	
7		LF	

◆ **[AVO] Status Request Response Message**

Byte	Parameter	Message	Description
1-3	Message code	AVO	
4-5	Target channel	01-04	Channel no. 1-4
6	Video loss detection	0	OFF
		1	ON
7	End code	CR	
8		LF	

4-18. Video Loss Display Time Setting

Requests the setting status of "Video loss display time."
Returns a message as shown below after normal reception and processing.

◆ **[RVL] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RVL	
4	End code	CR	
5		LF	

◆ **[AVL] Status Request Response Message**

Byte	Parameter	Message	Description
1-3	Message code	AVL	
4-6	Video loss display time	000	Reset by "Video loss reset command", video switching or input restoration.
		001-100	1-100sec (Reset after a specified-second display.)
7-11	Reserve	00000	
12	End code	CR	
13		LF	

4-19. Reference Clock Selection

Requests the setting status of "Reference Clock" for the clock display.
Returns a message as shown below after normal reception and processing.

◆ **[RDC] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RDC	
4	End code	CR	
5		LF	

◆ **[ADC] Status Request Response Message**

Byte	Parameter	Message	Description
1-3	Command code	ADC	
4	Time source	0	Internal clock
		1	LTC
5	End code	CR	
6		LF	

4-20. Clock Display Selection

Request the setting status of "Clock display types".
Returns a message as shown below after normal reception and processing.

◆ **[RDD] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RDD	
4	Reserve	0	
5	End code	CR	
6		LF	

◆ **[ADD] Status Request Response Message**

Byte	Parameter	Message	Description
1-3	Command code	ADD	
4	Reserve	0	
5	Clock type	0	Analog clock
		1	Digital clock
6-7	Display type	00-01	
8-12	Reserve	00000	
13	End code	CR	
14		LF	

4-21. Internal Clock Time

Requests the current internal clock time.
Returns a message as shown below after normal reception and processing.

◆ **[RDT] Status Request Command**

Byte	Parameter	Command	Description
1-3	Command code	RDT	
4	End code	CR	
5		LF	

◆ **[ADT] Status Request Response Message**

Byte	Parameter	Message	Description
1	Message code	A	
2		D	
3		T	
4-15	Date/Time	00-99	Year (last two digits)
		01-12	Month
		01-31	Day
		00-23	Hour
		00-59	Minute
		00-59	Second
16	End code	CR	
17		LF	