SONY

MEMORY STORAGE UNIT

SR-R1000

MULTI PORT AV STORAGE UNIT

PWS-4400
PWS-4500

PROTOCOL MANUAL
(VIDEO DISK COMMUNICATIONS PROTOCOL)
1st Edition (Revised 3)

⚠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

1. General Information

Communications Signal

- Asynchronous
- Conforms to EIA RS-422A
- Full-duplex communications channel
- Baud rate: 38.4 kbps

Bit Configuration

- 1 start bit
- 8 data bits
- 1 parity bit (odd parity)
- 1 stop bit

Note

It takes 0.286 ms for 1-byte communication.

Connection

The following table lists 9-pin connector signals of the controlling device and controlled device.

PIN	Controlling Device	Controlled Device
1	GND	GND
2	RX-A	TX-A
3	TX-B	RX-B
4	TX-Common	RX-Common
5	Spare	Spare
6	RX-Common	TX-Common
7	RX-B	TX-B
8	TX-A	RX-A
9	GND	GND

2. Communication Commands and Data

2-1. Command

A communication command and data are structured as follows.

STX	BC	TYPE/UA	CMD-2	DATA-1	DATA-2	.....	DATA-N	CS
		CMD-1						

STX

Start of Text Code (**0x02**)

BC (Byte Count)

BC of up to 0xFF (255) can be specified as format, but every command and response must be 100 bytes or less (to maintain the frame accuracy control to enable all data to be transmitted and received within a single frame).

Note

BC: Number of bytes from the next of Byte Count to before Check Sum (CMD-1 to DATA-N)

CMD-1

CMD-1 consists of Command Type (upper 4 bits) and Unit Address (lower 4 bits).

- **Command Type**

Command Type	Description	Remarks
0	SYSTEM Command Format	
1	IMMEDIATE Command Format	(Transport system such as PLAY)
2	PRESET/SELECT Command Format	(Preset system such as Input Select)
3	SENSE REQUEST	(Sense system such as Status Sense)
4	DEFFERED (TIMELINE) Command Format	
5	MACRO Command Format	
6	(Not Defined)	
7	(Not Defined)	
8	VARIABLE ID LENGTH SYSTEM Command Format	
9	VARIABLE ID LENGTH IMMEDIATE Command Format	(Not defined at present)
A	VARIABLE ID LENGTH PRESET/SELECT Command Format	
B	VARIABLE ID LENGTH SENSE REQUEST	
C	(Not Defined)	
D	VARIABLE ID LENGTH MACRO Command Format	
E	(Not Defined)	
F	ARCHIVE Command Format (defined by other specifications)	

- **Unit Address**

  Defines the address of a sub-system within the device. The base unit is 0x0.

CMD-2

Indicates a command code.
This may have bit map that indicates the following data in the same manner as the VTR/Disk Protocol (bytes following CMD-2). Multiple pieces of data corresponding to bit map data 1 (data present) must be arranged sequentially from the LSB.

Check Sum

Check Sum is the two's complement of the sum of data from CMD1 to immediately before CS.

Note

STX and BC are excluded.

2-2. Response

The response to command types 0 (SYSTEM), 1 (IMMEDIATE), and 2 (PRESET/SELECT) is ACK (0x04) or NAK (0x05).
The response to command type 3 (SENSE REQUEST) is sent back with the MSB set to 1.
Example) The response to command 0x29 is 0xA9.

2-3. Examples of Command

Immediate Commands

Command Code: 0x01 (CMD2)
Name: PLAY
Data Format:

STX	BC	CMD-1	CMD-2	CS
02	02	10	01	EF

Response: ACK (0x04) / NAK (0x05)

Preset / Select Commands

Command Code: 0x22 (CMD2)
Name: Select Port
Data Format:

STX	BC	CMD-1	CMD-2	MODE	CS
02	03	2X	22	Port ID	

Response: ACK (0x04) / NAK (0x05)

Sense Request

Command Code: 0x05 (CMD2)
Name: Port Status Request
Data Format:

STX	BC	CMD-1	CMD-2	BITMAP	CS
02	03	3X	05	*	

* BIT MAP

PSTAT 8	PSTAT 7	PSTAT 6	PSTAT 5	PSTAT 4	PSTAT 3	PSTAT 2	PSTAT 1

Response:

Command Code: 0x85 (CMD2)
Name: Port Status Return
Data Format:

STX	BC	CMD-1	CMD-2	DATA	CS
02	04	3X	85	D1	

2-4. Command Execution Delay and Time-Out

1. The following rules are provided for the execution of type 1 command.
   (1) PLAY, RECORD, STILL, CONTINUE must be executed with fixed delay. The fixed delay is not applied to any other commands.
   (2) Frame accurate command (fixed delay command)
   A command received in Field 1 must be executed at the beginning of the next frame (or N frames after).
   A command received in Field 2 must be executed at the beginning of the frame following the next frame (or N+1 frames after).
2. This unit must return a response within 6 msec. after receiving the last byte from the controlling device.
3. The controlling device must not send the next command before receiving the response from this unit.
4. The controlling device must not sense status in the same frame from which a command is sent.
5. The controlling device detects a time-out when it receives no reply within 100 msec.
6. If this unit cannot receive type 0 (SYSTEM), 2 (PRESET/SELECT), or 3 (SENSE REQUEST) command, it may set the Busy bit in Port Status. This busy status does not affect the reception and execution of the type 1 (immediate control) command.

2-5. IDs (File Names)

Fixed 8-character IDs

IDs are always 8 bytes in commands 0X, 2X, 3X, and 5X. If an ID is shorter than 8 bytes, it is padded with space characters (0x20).

Variable-length IDs

- This unit supports variable-length IDs.
- Commands 8X, AX, BX, and DX are not padded with any characters, and the ID length is indicated in the byte next to ID. (Only visible ASCII characters are available for IDs.)
- All 8X, AX, BX, and DX commands are identical to 0X, 2X, 3X, and 5X commands except the 8-byte padded ID is changed to a variable-length ID. Since no ID is specified for the 1X or 4X command, the 9X and CX commands are not defined.
- Every command and response must be 100 bytes or less (to maintain the frame accuracy control to enable all data to be transmitted and received within a single frame). The ID data of a command that includes two or more IDs (such as ID List and Next) must be 80 bytes or less. For example, if each ID is 25 bytes, only three IDs can be included in a response to the list type command. Therefore, the maximum number of IDs that can send ID data becomes 40 in the case of single-character ID (1 ID byte + 1 ID length byte = 2 bytes).

2-6. Determining Files to Which Play Command and Variable-Speed Play Commands are Applied

Six states of playback port are considered in the VDCP.

1. **IDLE state**
   A state where no file is open
2. **CUE state**
   A state where only a single file is open and cue processing is in progress (not in CUE DONE state)
3. **CUE DONE state**
   A state where only a single file is open and cue processing has been completed (not in PLAY state)
4. **PLAY state**
   A state where only a single file is open and the file is in the play or variable-speed play mode
5. **CUE/PLAY state**
   A state where a single file is in the play or variable-speed play mode and cue processing for another file is in progress
6. **CUE DONE/PLAY state**
   A state where a single file is in the play or variable-speed play mode and cue processing for another file has been completed.

IDLE or CUE state:	No play command or variable-speed play command *1 can be accepted (CUE NOT DONE).
CUE DONE or PLAY state:	The play command and variable-speed play commands *1 are applied to the single file.
CUE/PLAY state:	The play command cannot be accepted (CUE NOT DONE). Variable-speed play commands *1 are applied to files in the play or variable-speed play mode.
CUE DONE/PLAY state:	The play command is applied to Cue Done files. Variable-speed play commands *1 are applied to files in the play or variable-speed play mode.

∗1: Still, Step, Continue, Jog, and Variable Play

2-7. Drop Frame

When length and position values are handled in the BCD format for the VDCP command and status in this unit, they follow the DF mode setting of Setup/Menu in the system frequency at 29.97 Hz.
DF converted values are used for command parameters and return status shown in the table below. The following two rules are used for DF conversion.

Rule 1: When the specified parameter corresponds to a drop frame (example: 0:01:00.00), it is regarded that a value that is not the immediately after drop frame (example: 0:01:00.02) is specified.

Rule 2: When a value indicates a length (such as duration), it must be a value considering a drop frame beginning with 0:00:00.00.

Command	Parameter/Status	Applicable Rule 1	Applicable Rule 2
Record Init	Duration	Applicable	Applicable
Record Init With Data	Start Position	Applicable	Not applicable
	Duration	Applicable	Applicable
Cue With Data	Position	Applicable	Not applicable
	Duration	Applicable	Applicable
Position Request	Position (in the case of Time Remain)	Not applicable	Applicable
System Status Request	Storage Time Remaining	Not applicable	Applicable
ID Size Request	ID Size	Not applicable	Applicable

3. Original Specifications of the Unit

3-1. Connection and Preparation

Connection

This unit has four input/output ports A to D (or eight ports of A-1 to D-2). They are called “signal ports”. Any port can be controlled from any one of the REMOTE 1 to REMOTE 4 (9P) connectors (communication port) by using the Unit Address and PORT ID.
For the Unit Address and PORT ID, refer to “3-2. Unit Address and PORT ID.”

Preparation

Perform the following setting by the setup menu.
For how to make settings and specific for each menu, refer to the Operation Manual.

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Setting menu of input/output ports

Note

Each item is settable for each port, but we recommend that you make the same settings for all ports to be controlled by the VDCP. Use the PORT SELECT button to select ports to be set.
If different settings for them are required, perform in-depth examination and operation verification of the entire system including the controller in advance.

	Menu item	Setting	
1	HOME > F8 (REMOTE 9PIN)	“On”	
2	HOME > ALT/F3 (CONTINU)	“Off”	(Only when the output port is selected)
3	TC > F1 (TCG SRC)	“preset”	(Only when the input port is selected)
4	TC > F3 (RUN)	“Rec”	(Only when the input port is selected)
5	TC > F5 (TM SEL)	• Specify “TC” by F5 (TM SEL) key when the value read from the timecode reader or the value generated by the timecode generator is used as a reference value.	
		• Specify “TM2” by F5 (TM SEL) key when the counter is used as a time counter in which the fi le head is set to 0.	
6	VIDEO > ALT/F10 (PORT CONFIG)	Make the same settings for all ports to be controlled by the VDCP.	

Setting menu of remote connectors

Note

Each item is settable for each remote connector, but we recommend that you make the same settings for all remote connectors (9PIN 1 to 9PIN 4) that use the VDCP.
If different settings for them are required, perform in-depth examination and operation verification of the entire system including the controller in advance.

	Menu item	Setting
1	HOME > ALT/F10 (REMOTE CONFIG) > F1 (REMOTE SLOT)	Specify the SRMemory card slot for recording or playback. Set “Slot 1”, “Slot 2”, “Slot 3”, or “Slot 4”.
2	HOME > ALT/F10 (REMOTE CONFIG) > F2 (REMOTE PROTOCOL)	Select the communication protocol of Remote (9P) connector to be used. “VDCP”
3	HOME> ALT/F10 (REMOTE CONFIG) > F3 (REMOTE FILELIST)	Specify the method of creating an SRMemory card file list. Set “Editable A”, “Editable B”, “Editable C”, or “Editable D” according to output ports A to D to be controlled.

Tip

In each menu screen, the REMOTE 1 (9P) to REMOTE 4 (9P) are assigned to the function keys F1 to F4. Each press of these function keys changes the setting. If desired setting is obtained, press F10 key to return the menu screen.

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Setting menu of Web

	Web menu Item/tab	Setting
1	System screen/Remote tab	Select the protocol. Remote Protocol: VDCP
2	Port screen	Set the input port as follows. Remote 9 pin: On TCG Source: Internal Preset Run Mode: Rec Run Timer Select: TC or TM2
3	System screen/Board tab	Set the same settings for the all ports. Click the “Setting” button on the lower part of the screen and configure the input/output boards. Then follow the wizard. Refer to the operation manual for details.
4	Port screen	Set the output ports as follows. Continuous Mode: Single File Normal.

3-2. Unit Address and PORT ID

- A unit address of 0x0 (Base Unit) is used for controlling the unit.
- PORT ID values in the table below are used for controlling the unit.

Port	ID for input port	ID for output port
A or A-1	0x81	0x01
B or B-1	0x82	0x02
C or C-1	0x83	0x03
D or D-1	0x84	0x04
A-2	0x85	0x05
B-2	0x86	0x06
C-2	0x87	0x07
D-2	0x88	0x08

3-3. Variable-Speed Back to Back Playback

When the PLAY command to the next file is issued and the VARIABLE PLAY command is issued in the next flame, playback starts at the speed specified by the next file.

Note

Note that, if the VARIABLE PLAY is issued with a delay, there is a period where the next file is played at ×1 speed.

3-4. Specifying Duration of CUE WITH DATA Command

If the specified duration exceeds EOF of the file, the command is accepted with the existing duration. The area up to EOF of the file can be played.

3-5. File Name of the Unit

Length of file name is up to 55 characters.

3-6. Remote/Local

The Remote/Local settings are applied to the signal port in this unit. Therefore, except for Sense commands, commands that require select port ("–" is indicated in "CODE" of each command) are affected by this, and do not operate for local set signal port. (ACK is returned and the "Cue or Operation Failed" bit is set to 1 without operation.) The following describes operations for each command type.

System commands
Support commands (Delete Protect ID and Undelete Protect ID) are acceptable when at least one input/output port is set to "Remote."

Immediate commands
All commands including Play, Record, and Stop are unacceptable with the Local setting.

Preset/Select commands
Close Port, Record Init, Play Cue, Cue With Data, and Record Init With Data are unacceptable with the Local setting.

Sense Request commands
All support commands are also acceptable with the Local setting.

The Remote and Local setup status can be acquired by the SYSTEM STATUS REQUEST command. For details, refer to "3X•10: SYSTEM STATUS REQUEST" in "5-5. Sense Request."

3-7. Operation during Startup

Until the Memory Storage mount processing has been completed, this unit does not accept any VDCP control (such as recording and playback) for the Memory Storage.

4. Command List

4-1. SYSTEM Command Format

Command from controlling device				Return from controlled device				SR-R1000/ PWS-4400/ PWS-4500
BC	CMD1	CMD2	NAME	BC	CMD1	CMD2	NAME	
0A	0X*1/8X*2	15	DELETE PROTECT ID			04	ACK	○
0A	0X*1/8X*2	16	UNDELETE PROTECT ID			04	ACK	○

○: The relevant model can be supported as a device and the response described in the "Return from controlled device" column is returned.

*1: Fixed-length command
*2: Variable-length command

4-2. IMMEDIATE Command Format

Command from controlling device				Return from controlled device				SR-R1000/ PWS-4400/ PWS-4500
BC	CMD1	CMD2	NAME	BC	CMD1	CMD2	NAME	
02	1X	00	STOP			04	ACK	○
02	1X	01	PLAY			04	ACK	○
02	1X	02	RECORD			04	ACK	○
02	1X	04	STILL			04	ACK	○
02	1X	05	STEP			04	ACK	○
02	1X	06	CONTINUE			04	ACK	○
03	1X	07	JOG			04	ACK	○
05	1X	08	VARI. PLAY			04	ACK	○

○: The relevant model can be supported as a device and the response described in the "Return from controlled device" column is returned.

4-3. PRESET/SELECT Command Format

Command from controlling device				Return from controlled device				SR-R1000/ PWS-4400/ PWS-4500
BC	CMD1	CMD2	NAME	BC	CMD1	CMD2	NAME	
12	2X*1/AX*2	1D	RENAME ID			04	ACK	○
03	2X	21	CLOSE PORT			04	ACK	○
03	2X	22	SELECT PORT			04	ACK	○
0E	2X*1/AX*2	23	RECORD INIT			04	ACK	○
0A	2X*1/AX*2	24	PLAY CUE			04	ACK	○
12	2X*1/AX*2	25	CUE WITH DATA			04	ACK	○
0A	2X*1/AX*2	26	DELETE ID			04	ACK	○
02	2X	29	CLEAR			04	ACK	○
12	2X*1/AX*2	2C	RECORD INIT WITH DATA			04	ACK	○

○: The relevant model can be supported as a device and the response described in the "Return from controlled device" column is returned.

*1: Fixed-length command
*2: Variable-length command

4-4. SENSE REQUEST

Command from controlling device				Return from controlled device				SR-R1000/ PWS-4400/ PWS-4500
BC	CMD1	CMD2	NAME	BC	CMD1	CMD2	NAME	
04	3X	01	OPEN PORT	03	3X	81	GRANT/DENIED	○
02	3X*1/BX*2	02	NEXT	XX	3X*1/BX*2	82	LIST OF IDS	○
03	3X	05	PORT STATUS REQUEST	XX	3X	85	PORT STATUS	○
03	3X	06	POSITION REQUEST	07	3X	86	POSITION	○
02	3X*1/BX*2	07	ACTIVE ID REQUEST	11	3X*1/BX*2	87	ACTIVE ID	○
02	3X	08	DEVICE TYPE REQUEST	XX	3X	88	DEVICE TYPE	○
03	3X	10	SYST. STATUS REQUEST	XX	3X	90	SYSTEM STATUS	△
02	3X*1/BX*2	11	ID LIST	XX	3X*1/BX*2	91	LIST OF IDS	○
0A	3X*1/BX*2	14	ID SIZE REQEUST	06	3X*1/BX*2	94	ID SIZE	○
0A	3X*1/BX*2	16	ID REQUEST	03	3X*1/BX*2	96	ID PRESENCE	○

○: The relevant model can be supported as a device and the response described in the “Return from controlled device” column is returned.

△: A response is returned, but the contained status information is not supported.

*1: Fixed-length command
*2: Variable-length command

5. Details of Commands

- Unless otherwise specified, a bit set to 1 is true in bit maps.
  The LSB is the rightmost bit and the MSB is the leftmost bit.
- All numbers are hexadecimal numbers.
- All time values are in frames, seconds, minutes, and hours in BCD. Frames are sent first and hours are sent last.
- The left side of "/" shows a fixed-length command, and the right side of "/" shows a variable-length command.
- Unspecified ports are input or output signal ports.

5-1. General Information

04: ACK

In this unit, ACK must be sent in response to all commands defined for sending ACK in the table. Commands that do not support also send ACK, but the Not Supported bit in Port Error Status of PORT STATUS is set to 1 in that case.

05: NAK

When this unit has detected an error or it cannot recognize the command as any of the VDCP, it sends a NAK response back to the controller.
Since the DATA-1 bit is set to 1 depending on the error type, NAK is always sent in 2 bytes.

DATA-1

BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
TIME OUT	FRAMING ERROR	OVERRUN ERROR	PARITY ERROR		CHECKSUM ERROR		UNDEFINED ERROR

Undefined Error

This error bit is set to 1 when the received command cannot be recognized as any command of the VDCP. The command is ignored.

Checksum Error

This error bit is set to 1 when a checksum error is detected in the received command. The command is ignored.

Parity Error, Overrun Error, Framing Error

These error bits conform to the RS-422 specifications.

Time Out

This bit is set to 1 when none of data specified by Byte Count has been received and a time period of 10 milliseconds has passed since the last byte was received.

5-2. System Commands

0X/8X･15: DELETE PROTECT ID

This command sets protection of the specified ID to prevent it from being deleted by the DELETE ID command.
The Protect attribute is retained until the protection is canceled by the next UNDELETE PROTECT ID command.

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	DATA-2		DATA-n	CS
02	0A/XX	0X/8X	15	N1/LEN	N2	...	N8	CS

CMD-1 (0X/8X): System Command, Unit Address X
CMD-2 (15): DELETE PROTECT ID

DATA	Name	Description
DATA-1	Fixed-length: Protect ID	ID to be protected
	Variable-length: File ID Length	File ID length
DATA-2 to DATA-n	Protect ID	ID to be protected

Return

ACK

0X/8X･16: UNDELETE PROTECT ID

This command is opposite of DELETE PROTECT ID, which cancels the Protect attribute of the specified ID and allows it to be deleted by the DELETE ID command.

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	DATA-2		DATA-n	CS
02	0A/XX	0X/8X	16	N1/LEN	N2	...	N8	CS

CMD-1 (0X/8X): System Command, Unit Address X
CMD-2 (16): UNDELETE PROTECT ID

DATA	Name	Description
DATA-1	Fixed-length: Protect ID	ID to be protected
	Variable-length: File ID Length	File ID length
DATA-2 to DATA-n	Protect ID	ID to be protected

Return

ACK

5-3. Immediate Commands

1X･00: STOP

The STOP command returns the selected port to the IDLE state.
This command closes all files in use.

Command Format

STX	BC	CMD-1	CMD-2	CS
02	02	1X	00	CS

CMD-1 (1X): Immediate Command, Unit Address X
CMD-2 (00): Stop

Return

ACK/NAK

Operation/Conditions

- In the IDLE state, the port outputs gray images.
- The Cue/Init operation, Play/Rec operation, and Cue/Init Done state are aborted and canceled and the port enters the IDLE state.
- When the port is being recorded (in RECORD state), this unit stops recording, and the recorded file length is updated in the internal database until the STOP command is received and the file is closed. The recorded file is retained on the Memory Storage until the STOP command is received to be able to be played.
- The port must be open and selected.

Status

The state becomes IDLE when the processing ends.

1X･01: PLAY

The PLAY command starts playing.

Command Format

STX	BC	CMD-1	CMD-2	CS
02	02	1X	01	CS

CMD-1 (1X): Immediate Command, Unit Address X
CMD-2 (01): Play

Return

ACK/NAK

Operation/Conditions

- When only one file is open in the CUE/INIT DONE state, the ID specified by the preceding PLAY CUE command is played out at the selected port.
  When two files are open, the file in the CUE/INIT DONE state is played out.
- When the play ends successfully, the CUE/INIT DONE bit is cleared and the PLAY OR RECORD bit is set to 1.
- When a file is played until EOF after the PLAY command is executed, and playing has proceeded to the last frame of the ID and the STOP command or any other playback command has not been received at that time, the last frame of video is output (audio mute) and then the play stops. The PLAY OR RECORD bit is set to 1 at the beginning of play, and the STILL bit is also set to 1 when the play reaches EOF.

1X・02: RECORD

Upon receiving this command, this unit starts recording.
The CUE/INIT bit in PORT STATUS is cleared by this command.

Command Format

STX	BC	CMD-1	CMD-2	CS
02	02	1X	02	CS

CMD-1 (1X): Immediate Command, Unit Address X
CMD-2 (02): Record

Return

ACK/NAK

Operation/Conditions

Operation

- This command is processed only when this port has finished preparation for recording (CUE/INIT DONE) by the RECORD INIT command.
- When the server receives this command in the CUE/INIT DONE state, it starts recording for the LENGTH specified in the RECORD INIT command.
- When the recording ends successfully, the CUE/INIT DONE bit is cleared and the PLAY OR RECORD bit is set to 1.
- After the specified recording time has passed, the port transitions from the PLAY OR RECORD state to the IDLE state.
- Even when there is no Video, Audio, or Ref input in this unit, recording does not result in an error.

Conditions

The following shows a control sequence for recording new files.

1. RECORD INIT or RECORD INIT WITH DATA (File 1)
2. RECORD → File 1 starts recording.
3. STOP → File 1 ends recording.

1X•04: STILL

The STII command causes the currently playing ID to pause and continues to output the last frame image.

Command Format

STX	BC	CMD-1	CMD-2	CS
02	02	1X	04	CS

CMD-1 (1X): Immediate Command, Unit Address X
CMD-2 (04): Still

Return

ACK/NAK

Operation/Conditions

- The output port must be in the PLAY state.
- When two or more files are in the play mode or variable-speed play mode in the CUE/INIT DONE state, this command is applied to such files.
- To resume play of the current ID, use the CONTINUE command.
- This command continues to output the last frame that was played before the STILL command is received.
- The STILL bit and PLAY OR RECORD bit are set to 1 at the beginning of Still processing.

1X•05: STEP

The STEP command causes the ID that is currently playing or in the STILL state to advance to the next frame and STILL.
This command is equivalent to the case where one frame is specified by the JOG command.

Command Format

STX	BC	CMD-1	CMD-2	CS
02	02	1X	05	CS

CMD-1 (1X): Immediate Command, Unit Address X
CMD-2 (05): Step

Return

ACK/NAK

Operation/Conditions

- The output port must be in the PLAY state.
- When two or more files are in the play mode or variable-speed play mode in the CUE/INIT DONE state, this command is applied to such files.
- To resume play of the current ID, use the CONTINUE command.
- This command continues to output the frame next to the frame that was played before the STEP command is received.
- The JOG bit is set to 1 at the beginning of Step processing. The JOG bit is cleared to 0 and the STILL bit is set to 1 at the end of Cueup processing.

1X·06: CONTINUE

The CONTINUE command causes the ID that is currently in the STILL or variable-speed play state to exit the state and restart playing.

Command Format

STX	BC	CMD-1	CMD-2	CS
02	02	1X	06	CS

CMD-1 (1X): Immediate Command, Unit Address X
CMD-2 (06): Continue

Return

ACK/NAK

Operation/Conditions

- The output port must be in the PLAY state.
- When two or more files are in the play mode or variable-speed play mode in the CUE/INIT DONE state, this command is applied to such files.
  This command differs from the PLAY command only in one point, that is, the PLAY command is applies to only files in the CUE/INIT DONE state.
- The PLAY OR RECORD bit is set to 1 at the end of processing.

1X·07: JOG

The JOG command moves the specified number of frames from the current position forward or backward.

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	DATA-2	DATA-3	DATA-4	CS
02	03/06	1X	07	MSB	FRM	FRM	LSB	CS

CMD-1 (1X): Immediate Command, Unit Address X
CMD-2 (07): Jog
DATA1 (to DATA4): Frames (number of frames moved by the JOG command)
When BC = 03 (1 byte)
Only DATA-1: −128 to +128 (1-byte data: 2's complement) frames
When BC = 06 (4 bytes)
DATA-1 to DATA-4: −2592000 to +2592000 (4-byte data: 2's complement)
Example) +108000 frame (=1h): DATA1 to DATA4 = 0x00, 0x01, 0xa5, 0xe0
−108000 frame: DATA1 to DATA4 = 0xff, 0xfe, 0x5a, 0x20
MSB is sent first.

Return
ACK/NAK

Operation/Conditions
- The output port must be in the PLAY state.
- When two or more files are in the play mode or variable-speed play mode in the CUE/INIT DONE state, this command is applied to such files.
- To resume play of the current ID, use the CONTINUE command.
- After the processing ends, this command continues to output the frame at the specified position.
- The JOG bit and PLAY bit are set to 1 at the beginning of Jog processing. The STILL bit and PLAY bit are set to 1 at the end of Cueup processing by this command.

1X･08: VARIABLE PLAY
When the VARIABLE PLAY command is received, this unit starts traveling at the speed specified in DATA1 to DATA3.

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	DATA-2	DATA-3	CS
02	05	1X	08	MSB	SPD	LSB	CS

CMD-1 (1X): Immediate Command, Unit Address X
CMD-2 (08): Vari. Play
DATA1 to DATA3: Speed (variable playback speed)
×-128 to ×+127 (Complement of 3-byte Data 2)
0x000000: STILL
0x010000: ×1 (Forward direction)
0x7F0000: Approx. ×127 (Forward direction)
0xFF0000: ×1 (Reverse direction)
0x800000: ×128 (Reverse direction)
0xFF8000: ×0.5 (Reverse direction) (DATA1 = 0xFF, DATA2 = 0x80, DATA3 = 0x00)

Return
ACK/NAK

Operation/Conditions
- The output port must be in the PLAY state.
- When two or more files are in the play mode or variable-speed play mode in the CUE/INIT DONE state, this command is applied to such files.
- The VARIABLE PLAY bit and PLAY bit are set to 1 at the beginning of VARIABLE PLAY processing.
- When the controlled device has reached SOF or EOF or when Speed = 0, the VARIABLE PLAY and STILL bits are set to 1.

5-4. Preset/Select Commands

2X/AX･1D: RENAME ID

The RENAME ID command renames a file ID from the Original ID to the New ID.

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	...	DATA-m	...	CS
02	12/XX	2X/AX	1D	O1	...	N1	...	CS

CMD-1 (2X): Preset / Select Command, Unit Address X
CMD-2 (1D): Rename ID

DATA	Name	Description
DATA-1	Fixed length: Original ID	File name before Rename
	Variable length: Original ID Length	File name length before Rename
DATA-2 to DATA-m-1	Original ID	File name before Rename
DATA-m	Fixed length: New ID	File name after Rename
	Variable length: New ID Length	File name length after Rename
DATA-m+1 to DATA-n	New ID	File name after Rename

Original ID

File name before Rename

Original ID Length (only for variable length)

File name length before Rename

New ID

File name after Rename

New ID Length (only for variable length)

File name length after Rename

Return

ACK

Operation/Conditions

After this command is executed, the Original ID does not exist.

2X･21: CLOSE PORT

The CLOSE command breaks communication with the Signal Port established by the preceding OPEN PORT command.

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	CS
02	03	2X	21	Port ID	CS

CMD-1 (2X): Preset / Select Command, Unit Address X
CMD-2 (21): Close Port

DATA	Name	Description
DATA1	Port ID	Port number to be closed (Signed 8-bit data)

Port ID

Port number to be closed (signed 8-bit data)
The eighth bit of Port ID (Signal Port) indicates the input or output direction. (Zero is not used.)
If playback port type differs from recording port type, an error (WRONG PORT TYPE) occurs.
This port number is also used in the OPEN PORT command and the SELECT PORT command.

Return

ACK

Operation/Conditions

- When the specified port is open, it is closed.
- When the specified port is selected, Select information is also cleared.

2X･22: SELECT PORT

The SELECT PORT command selects a signal port from signal ports opened of the communication port (RS-422 port).
Each RS-422 port is assigned to the selected signal port until another SELECT PORT command is received next. Communication with only the selected signal port is enabled.
The CLOSE command or next SELECT PORT command breaks this selection status. Port number represents available I/O signal ports.

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	CS
02	03	2X	22	Port ID	CS

CMD-1 (2X): Preset / Select Command, Unit Address X
CMD-2 (22): Select Port

DATA	Name	Description
DATA1	Port ID	Port number to be selected (Signed 8-bit data)

Port ID

Port number to be selected (signed 8-bit data)
The eighth bit of Port ID (Signal Port) indicates the input or output direction. (Zero is not used.)
If playback port type differs from recording port type, an error (WRONG PORT TYPE) occurs.
This port number is also used in the OPEN PORT command and the CLOSE PORT command.

Return

ACK

Operation/Conditions

The specified port must have been opened in advance from the RS-422 port.

2X/AX•23: RECORD INIT

When this command is received at the selected video input port, the system starts preparing for recording.

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	...	DATA-m	...	...	DATA-m+3	CS
02	0E/XX	2X/AX	23	F1	...	Frm	Sec	Min	Hou	CS

CMD-1 (2X/AX): Preset / Select Command, Unit Address X
CMD-2 (23): Record Init

DATA	Name	Description
DATA-1	Fixed length: File ID	File ID to be recorded newly
	Variable length: File ID Length	File ID length
DATA-2 -	File ID	File ID to be recorded newly
DATA-m -	Length	Duration (BCD) of recording

Return

ACK

Operation/Conditions

- The RECORD INIT command contains an ID that indicates file and a Length. The ID is an 8-byte or variable-length identifier (file name). The Length is a BCD value that represents the duration of recording.
- When preparation for recording is started, the CUE/INIT bit is set to 1. When preparation for recording ends and the port becomes ready to receive the RECORD command, the CUE/INIT DONE bit in Port Status is set to 1 and the CUE/INIT bit is cleared to 0.
- When playback port is selected, an error (WRONG PORT TYPE) occurs.

2X/AX･24: PLAY CUE

The PLAY CUE command starts preparation for playback of the specified ID in the selected port.

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	...	CS
02	0A/XX	2X/AX	24	F1	...	CS

CMD-1: 2X/AX: Preset / Select Command, Unit Address X
CMD-2: 24: Play Cue

DATA	Name	Description
DATA-1 -	File ID	File ID to be cued

File ID

File name to be cued

Return

ACK

Operation/Conditions

- When the PLAY CUE command is received in the IDLE state, this unit cues the specified ID and outputs still pictures.
- When the command has been accepted and it has been confirmed that the PLAY CUE processing is enabled, the CUE/INIT bit in Port Status is set to 1. When the cueing is completed and the ID is ready to be played, the CUE/INIT DONE bit is set to 1 and the CUE/INIT bit is cleared to 0.
- The PLAY command can be issued only when the CUE/INIT DONE bit is set to 1. When the PLAY command has been accepted, playback is started. If another PLAY CUE command is received before receiving a PLAY command, PLAY CUE operation is performed for the newly specified ID while maintaining the playback state.
- When the receive port is not a playback port, an error (WRONG PORT TYPE) occurs and the port retains the previous state.

2X/AX•25: CUE WITH DATA

This command is similar to the PLAY CUE command, but allows the specified range of the specified ID to be played.

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	...	DATA-m	...	DATA-m+4	...	CS
02	12/XX	2X/AX	25	F1	...	S1	...	D1	...	CS

CMD-1: 2X/AX: Preset / Select Command, Unit Address X
CMD-2: 25: Cue With Data

DATA	Name	Description
DATA-1	Fixed length: File ID	File ID to be cued
	Variable length: File ID Length	File ID length
DATA-2 -	File ID	File ID to be cued
DATA-m to DATA-m+3	Position	Play out position (BCD) in the order of Frame, Sec, Min, and Hour
DATAm+4 to DATAm+7	Duration	Play out duration (BCD) in the order of Frame, Sec, Min, and Hour

Return

ACK

Operation/Conditions

- Regarding the specified START position as play position top, the device does not return over the START position and stops at the START position even if it is returned reversely by Jog or Variable Play.
- Other operations are similar to the PLAY CUE command.

2X/AX•26: DELETE ID

The DELETE ID command specifies a file name and deletes the file.

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	...	CS
02	0A/XX	2X/AX	26	F1	...	CS

CMD-1 (2X/AX): Preset / Select Command, Unit Address X
CMD-2 (26): DELETE ID

DATA	Name	Description
DATA-1	Fixed length: ID	ID to be deleted
	Variable length: ID Length	ID length
DATA-2 to DATA-n	ID	ID to be deleted

Return

ACK

2X･29: CLEAR

This command is used to clear the file in the Memory Storage.

Command Format

STX	BC	CMD-1	CMD-2	CS
02	02	2X	29	CS

CMD-1 (2X): Preset/Select Command, Unit Address X
CMD-2 (29): CLEAR

Return

ACK

Operation/Conditions

All files are cleared.

Note

In case SR-R1000, the SRMemory card inserted into the slot set in row 1 of table in “Setting menu of remote connectors” above in “3-1. Connection and Preparation” is cleared.

2X/AX･2C: RECORD INIT WITH DATA

The RECORD INIT WITH DATA command prepares for recording in Remote Port (with specified start time).

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	...	DATA-m	...	DATA-m+4	...	CS
02	12/XX	2X/AX	2C	F1	...	S1	...	D1	...	CS

CMD-1 (2X/AX): Preset / Select Command, Unit Address X
CMD-2 (2C): Record Init With Data

DATA	Name	Description
DATA-1	Fixed length: File ID	File ID to be recorded
	Variable length: File ID Length	File ID length
DATA-2 -	File ID	File ID to be recorded
DATA-m to DATA-m+3	Start Position	Recording start position (BCD) or starting timecode in the order of Frame, Sec, Min, and Hour
DATAm+4 to DATAm+7	Duration	Recording duration (BCD) in the order of Frame, Sec, Min, and Hour

Return

ACK

Operating/Conditions

- The port must be IDLE.
- Even if there is no audio/video/ref input, XDS-1000 must not fail.
- Dub over existing ID is not supported.
- The timecode of the first frame of the file to be recorded becomes the timecode specified in DATA9 to DATA12.
- Other operations are similar to the RECORD INIT command.

5-5. Sense Request

3X･01: OPEN PORT

The OPEN PORT command opens a signal port from the communication port (RS-422 port).
The OPEN PORT, CLOSE PORT, and SELECT PORT commands are used to set the relationship between signal port and RS-422 port.
Once a signal port corresponding to the communication port has been set by the SELECT PORT command, the received command is processed as a command to control the signal port.

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	DATA-2	CS
02	04	3X	01	Port ID	Security Mode	CS

CMD-1 (3X): Sense Request Command, Unit Address X
CMD-2 (01): Open Port

DATA	Name	Description
DATA-1	Port ID	Specifies the corresponding signal port with an 8-bit signed integer.
DATA-2	Security Mode	00: Unlocked Mode (shared mode) 01: Locked Mode (exclusive mode)

Port ID

Specifies the corresponding signal port with an 8-bit signed integer.
The eighth bit of Port ID (Signal Port) represents the input or output direction. (Zero is not used.)
These port numbers are also used in the SELECT PORT and CLOSE PORT commands.

Security Mode

Specifies the corresponding signal port with an 8-bit signed integer.
0x00: Unlocked mode (shared mode)
0x01: Locked mode (exclusive mode)
This unit supports only unlocked mode.
Even if a value other than 0x00 is specified for Security Mode, the system operates as the unlocked mode.

Return

GRANT/DENIED

Operation/Conditions

- Multiple signal ports (IO ports) can be opened from a single RS-422 port (communication port).
  A single port is selected from opened ports, and control commands are issued only to the selected port. Unused ports are closed.
- Each port has input or output direction (ENC/DEC). For ports that have only one direction, opening a port is successful only when the sign of the port ID matches the sign of the port ID specified when opening the port.

<Normal control flow>
OPEN PORT XX: Opens Port XX.
SELECT PORT XX: Selects a port to be controlled from ports opened by OPEN XX.
PLAY, REC etc: Starts normal operation.
CLOSE PORT XX: Closes Port XX.

<Details of operation>
1. When OPEN command is issued to a signal port that has not been opened
   Opening port is successful with any Security Mode value. (A value of 1 is returned.)
   However, opening port fails if the signal port input or output direction is not supported. (A value of DENIED is returned.)
2. When OPEN command is issued to already opened signal port
   When the port was opened by another communication port, the INVALID PORT bit of PORT STATUS 3 is set to 1 in Port Status that is viewed from the opened communication port.
   Port Status that is unique to each communication port is returned even with the same signal port. Therefore, Port Status at the time of file open is not IDLE in some cases, but this unit does nothing and regards that file open is successful.

3X･81: GRANT/DENIED

The GRANT/DENIED command returns the OPEN PORT execution result.

Require

OPEN PORT

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	CS
02	03	3X	81	RESULT	CS

CMD-1 (3X): Sense Request Command, Unit Address X
CMD-2 (81): Grant/Denied

DATA	Name	Description
DATA-1	Result	00: OPEN PORT failed. 01: OPEN PORT succeeded.

3X/BX･02: NEXT

The NEXT command is called repeatedly after the ID LIST command is received and “List of IDs” is returned.
When this command is received, a list of up to 10 unreturned IDs are returned. The format of this command is similar to the ID LIST command format.

Command Format

STX	BC	CMD-1	CMD-2	CS
02	02/XX	3X/BX	02	CS

CMD-1 (3X/BX): Sense Request Command, Unit Address X
CMD-2 (02): Next

Return

LIST OF IDS

Operating/Conditions

When the fixed ID length format is specified, files with an ID length of 9 bytes or more are ignored.
If the NEXT command is continuously issued at short intervals, no file name list is contained in the "LIST OF IDS" response in some cases. If any list is remaining even in this case, the number of remaining files is not zero. Therefore, the remaining file list can be acquired by continuously issuing the NEXT command.

3X/BX･82: LIST OF IDS

The LIST OF IDS command returns the NEXT command execution result.

Require

NEXT

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	DATA-2	DATA-3	...	DATA-n	...	CS
02	XX	3X/BX	82	MSB	LSB	ID 1-1	...	ID 2-1	...	CS

CMD-1 (3X/BX): Sense Request Command, Unit Address X
CMD-2 (82): List of IDs

DATA	Name	Description
DATA-1	MSB	Number of remaining files
DATA-2	LSB	Number of remaining files
DATA-3	Fixed length: ID 1	ID 1 file name
	Variable length: ID Length 1	ID 1 file name length
DATA-4 -	ID 1	ID 1 file name
DATA-n	Fixed length: ID 2	ID 2 file name
	Variable length: ID Length 2	ID 2 file name length
DATA-n+1 -	ID 2	ID 2 file name

MSB/LSB

Number of remaining files (excluding the File List count included in this packet)

ID 1/ID 2

File name list

- Fixed-length file IDs (CMD-1 = 3X)
  An 8-byte (fixed) file name per item. If a file name is shorter than 8 bytes, Null (0x00) are padded. If a file name is longer than 8 bytes, no response is returned. Up to 10 file IDs are included in one packet.
- Variable-length file IDs (CMD-1 = BX)
  The first byte of an item is file ID length, and file IDs are padded in the following bytes (80 bytes or less per packet). Up to 10 file IDs are included in one packet.

3X•05: PORT STATUS REQUEST

The PORT STATUS REQUEST command returns the port status corresponding to the specified bitmap.

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	CS
02	03	3X	05	Bitmap	CS

CMD-1 (3X): Sense Request Command, Unit Address X
CMD-2 (05): Port Status Request

DATA	Name	Description
DATA-1	Bitmap	Specifies which status to request in bitmap format.

ID

BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
–	Extended PS2 7	Extended PS3 6	Port Status 5	Port Status 4	Port Status 3	Port Status 2	Port Status 1

Port Status 1 to Port Status 5 are defined.
BIT 6 and BIT 5 are set when Extended Option is specified for Port Status 2 and Port Status 3.

Return

PORT STATUS
For details, refer to PORT STATUS TABLE in “3X•85: PORT STATUS” below.

3X·85: PORT STATUS

The PORT STATUS command returns the PORT STATUS REQUEST command execution result.

Require

PORT STATUS REQUEST

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	DATA-2	...	CS
02	XX	3X	85	Bitmap	STS 1	...	CS

CMD-1 (3X): Sense Request Command, Unit Address X
CMD-2 (85): PortStatus Return

DATA	Name	Description
DATA-1	Bitmap	Specifies which status to request in bitmap format.
DATA-2 -	Status	Port status corresponding to bitmap

ID

BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
–	Extended PS2 7	Extended PS3 6	Port Status 5	Port Status 4	Port Status 3	Port Status 2	Port Status 1

Port Status 1 to Port Status 5 are defined.
BIT 6 and BIT 5 are set when Extended Option is specified for Port Status 2 and Port Status 3.

PORT STATUS TABLE

Port Status 1 (2 bytes)

State and Flag Status

Table No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
0	CUE/ INIT DONE	PORT BUSY	VAR PLAY	JOG	STILL	PLAY/ REC	CUE/ INIT	IDLE
1	PORT ID							

Table 0

BIT 0: IDLE

Indicates that the system is in the IDLE state.
The output is gray images and there is no signal port activity.

BIT 1: CUE/INIT

Indicates that the playback port is in processing after receiving PLAY CUE or CUE WITH DATA command and that the recording port is in processing after receiving RECORD INIT or RECORD INIT WITH DATA command.

BIT 2: PLAY OR RECORD

This bit is set to 1 when the playback port is in play mode or when the recording port is in recording mode.

BIT 3: STILL

This bit is set to 1 together with the PLAY bit while the system is in the STILL state. This bit is not set independently.

BIT 4: JOG

This bit is set to 1 while the system is in the JOG or STEP state. The system transitions to the STILL state normally upon completion of the JOG or STEP operation. This bit is set to 1 together with the PLAY bit.

BIT 5: VARIABLE PLAY

This bit is set to 1 together with the PLAY bit while the system is in the VARIABLE PLAY state.

BIT 6: PORT BUSY

The PORT BUSY bit is always cleared to 0 in this unit.

BIT 7: CUE/INIT DONE

This bit indicates that PLAY CUE and CUE WITH DATA commands have been completed in the playback port and the RECORD INIT/RECORD INIT WITH DATA command has been completed in the recording port and that the Play command and Record command are executable in each port.

Table 1
PORT ID
Returns the ID of the currently selected port.

Port Status 2 (Short Option: 1 byte, Extended Option: 2 bytes)

Port HW / Media Status (Short Option)

Table No.	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
0	AUDIO OVERLOAD	NO AUDIO INPUT	NO VIDEO INPUT	NO REF INPUT	ID'S ADDED TO ARCH.	ID'S DELETED	ID'S ADDED	PORT DOWN

Port HW / Media Status (Extended Option)

Table No.	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
0	AUDIO OVERLOAD	NO AUDIO INPUT	NO VIDEO INPUT	NO REF INPUT	ID'S ADDED TO ARCH.	ID'S DELETED	ID'S ADDED	PORT DOWN
1	–	–	–	–	–	–	–	No Time Code Input

Table 0

BIT 0: PORT DOWN

This bit indicates that the port is not available.

BIT 1: ID'S ADDED

This bit is not supported in this unit and is always set to 0.

BIT 2: ID'S DELETED

This bit is not supported in this unit and is always set to 0.

BIT 3: ID'S ADDED TO ARCHIVE

This bit is not supported in this unit and is always set to 0.

BIT 4: NO REFINPUT

This bit is not supported in this unit and is always set to 0.

BIT 5: NO VIDEO INPUT

This bit is not supported in this unit and is always set to 0.

BIT 6: NO AUDIO INPUT

This bit is not supported in this unit and is always set to 0.

BIT 7: AUDIO OVERLOAD

This bit is not supported in this unit and is always set to 0.

Table 1

BIT 0: NO TIMECODE INPUT

This bit is not supported in this unit and is always set to 0.

Port Status 3 (Short Option: 3 bytes, Extended Option: 6 bytes)

Port Error Status (Short Option)

Table No.	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
0	NOT SUPPORTED	CMD WHILE BUSY	DISK FULL	COMMAND QUEUE FULL	WRONG PORT TYPE	INVALID PORT	ILLEGAL VALUE	SYSTEM ERROR
1	ID DELETE PROTECTED	ID NOT TRANS TO ARCH	ID NOT TRANS FROM ARCH	ID STILL PLAYING	ID STILL RECORDING	ID ALREADY EXISTS	ID NOT FOUND	INVALID ID
2	SYSTEM REBOOTED	NETWORK ERROR	CUE OR OPERATION FAILED	PORT NOT ACTIVE	PORT PLAYING/ ACTIVE	PORT NOT IDLE	CUE NOT DONE	NOT IN CUE/INIT STATE

Port Error Status (Extended Option)

Table No.	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
0	NOT SUPPORTED	CMD WHILE BUSY	DISK FULL	COMMAND QUEUE FULL	WRONG PORT TYPE	INVALID PORT	ILLEGAL VALUE	SYSTEM ERROR
1	ID DELETE PROTECTED	ID NOT TRANS TO ARCH	ID NOT TRANS FROM ARCH	ID STILL PLAYING	ID STILL RECORDING	ID ALREADY EXISTS	ID NOT FOUND	INVALID ID
2	SYSTEM REBOOTED	NETWORK ERROR	CUE OR OPERATION FAILED	PORT NOT ACTIVE	PORT PLAYING/ ACTIVE	PORT NOT IDLE	CUE NOT DONE	NOT IN CUE/INIT STATE
3	–	–	–	–	–	–	–	–
4	–	–	–	–	–	–	–	–
5	–	–	–	–	–	–	–	–

Every error bit is set to 1 when an error occurs and is cleared to 0 when the bit is read by controller's sensing of PORT STATUS.

Table 0

BIT 0: SYSTEM ERROR

This bit is set to 1 when the system has detected any critical error.

BIT 1: ILLEGAL VALUE

This bit is set to 1 when a command with an illegal value is received, and the command is ignored.

Example) CLOSE PORT, SELECT PORT,RECORD INIT, OPEN PORT

BIT 2: INVALID PORT

This bit is set to 1 when the communication port selected a signal port but when the specified port number is invalid.

No command to signal ports is executed.

BIT 3: WRONG PORT TYPE

This bit is set to 1 when an unexecutable command (with incorrect port type) is received.

Example) When the RECORD INIT command is received at a playback port,
When the PLAY CUE command is received at a recording port, etc.

BIT 4: COMMAND QUEUE FULL

This bit is not supported in this unit and is always set to 0.

BIT 5: DISK FULL

This bit is not supported in this unit and is always set to 0.

BIT 6: CMD WHILE BUSY

This bit is not supported in this unit and is always set to 0.

BIT 7: NOT SUPPORTED

This bit is set to 1 when a command, parameter, or mode that is not supported by this unit is received, and the command is ignored.

Table 1

BIT 0: INVALID ID

This bit is not supported in this unit and is always set to 0.

BIT 1: ID NOT FOUND

This bit is set to 1 when the specified ID does not exist, and the command is ignored.

Example) PLAY CUE, CUE WITH DATA, DELETE, DELETE PROTECT, UNDELETE PROTECT, ID SIZE REQUEST

BIT 2: ID ALREADY EXISTS

This bit is set to 1 when the ID specified by the RECORD INIT command already exists, and the command is ignored.

BIT 3: ID STILL RECORDING

This bit is not supported in this unit and is always set to 0.

BIT 4: ID STILL PLAYING

This bit is not supported in this unit and is always set to 0.

BIT 5: ID NOT TRANSFERRED FROM ARCHIVE

This bit is not supported in this unit and is always set to 0.

BIT 6: ID NOT TRANSFERRED TO ARCHIVE

This bit is not supported in this unit and is always set to 0.

BIT 7: ID DELETE PROTECTED

This bit is set to 1 when the DELETE command is received for files that are protected against deletion, and the command is ignored.

Table 2

BIT 0: NOT IN CUE/INIT STATE

This bit is not supported in this unit and is always set to 0.

BIT 1: CUE NOT DONE

This bit is set to 1 when a command that is executable only in the CUE/INIT DONE state is accepted, and the command is ignored.
Example) PLAY, RECORD, JOG, VAR PLAY, STEP, CONTINUE

BIT 2 PORT NOT IDLE

This bit is not supported in this unit and is always set to 0.

BIT 3: PORT PLAYING / ACTIVE

This bit is not supported in this unit and is always set to 0.

BIT 4: PORT NOT ACTIVE

This bit is set to 1 when a command that is executable only during play, recording, or active (other than IDLE) state is accepted in other state, and the command is ignored.
Example) STILL, STEP, CONTINUE, JOG, VAR PLAY, POSITION REQ, ACTIVE ID REQ, PLAY, RECORD

BIT 5: CUE OR OPERATION FAILED

This bit is set to 1 when an ACK response to the CUE command or another command was sent back but a problem has occurred during subsequent operation.
The command is not executed correctly.

BIT 6: NETWORK ERROR

This bit is not supported in this unit and is always set to 0.

BIT 7: SYSTEM REBOOTED

Indicates that this unit has been rebooted and the controller must begin with PORT OPEN and PORT SELECT operations.

Port Status 4 (1 Byte)

Port Settings

Table No.	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
0	–	–	–	D1	YUV	S-VIDEO	COMPOSITE	OFF

A response with D1 = 1 (other bits: 0) is always sent back in this unit.

Port Status 5 (The number of bytes depends on device.)

Video Compression Types Supported

Table No.	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
0	Number off supported video types							
1 to n	TYPE X							

A response with 0 is always sent back in this unit.

3X･06: POSITION REQUEST

The POSITION REQUEST command sends back position data of ID being recorded or played.
Time remaining from the current position, timecode of the current position based on SOM, or timecode value of the current position based on file top can be selected and sensed.

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	CS
02	03	3X	06	Time Type	CS

CMD-1 (3X): Sense Request Command, Unit Address X
CMD-2 (06): Position Request

DATA	Name	Description
DATA-1	Time Type	Specifies what is requested. 00: Time remaining The time from the current file to the file end is sent back. 01: Position (SOM Based Timecode) Timecode value of the current position based on SOM is sent back. 02: Frame (Zero Based Timecode) Timecode value of the current position with File Top = 0 is sent back.

Return

POSITION
For details, refer to “Time Type” in “3X•86: POSITION” below.

Operation/Conditions

When the port is not active, a response “00:00:00:00” is sent back.

3X･86: POSITION

Require
POSITION REQUEST

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	DATA-2	DATA-3	DATA-4	DATA-5	CS
02	07	3X	86	Type	Frame	Sec	Min	Hour	CS

CMD-1 (3X): Sense Request Command, Unit Address X
CMD-2 (86): Position Request Return

DATA	Name	Description
DATA-1	Time Type	Data type to be returned 00: Time remaining The time from the current file to the file end is sent back. 01: Position (SOM Based Timecode) Timecode value of the current position based on SOM is sent back. 02: Frame (Zero Based Timecode) Timecode value of the current position with File Top = 0 is sent back.
DATA-2 to DATA-5	Data	Timecode data (BCD) in the order of Frame, Sec, Min, and Hour

Time Type
- Time remaining
  When playing, the Cue Up position (Cue Up position specified by the CUE WITH DATA command, which is SOF in the PLAY CUE command) is set to “00:00:00:00” and the remaining amount from the Cue Up position to the end of the file is sent back.
- Position (SOM Based Timecode)
  This shows the current position based on the first timecode (STC) specific to Clip.
- Frame (Zero Based Timecode)
  Offset value from the Cue Up position is sent back.

Data
Timecode data (BCD)

3X/BX•07: ACTIVE ID REQUEST

The ACTIVE ID REQUEST command acquires an active file ID.

Command Format

STX	BC	CMD-1	CMD-2	CS
02	02	3X/BX	07	CS

CMD-1 (3X/BX): Sense Request Command, Unit Address X
CMD-2 (07): Active ID Request

Return

ACTIVE ID

Operation/Conditions

A 3X/BX•87: ACTIVE ID is returned regardless of port status.

3X/BX•87: ACTIVE ID

The ACTIVE ID command sends information on whether sensed ports are active and on active IDs back to the controller. This sensing does not affect AV output.

Require

ACTIVE ID REQUEST

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	DATA-2	DATA-3	...	CS
02	11	3X/BX	87	STS	A1	A2	...	CS

CMD-1 (3X): Sense Request Command, Unit Address X
CMD-2 (87): Active ID Request Return

DATA	Name	Description
DATA-1	Port State	Indicates whether the port is active or not. 00: Not active 01: Active
DATA-2	Fixed length: Active ID	Active ID
	Variable length: Active ID Length	Length of active ID
DATA-3 -	Active ID	Active ID

Operation/Conditions

- DATA-1 is set to 1 in an active state (PLAY, REC, CUEING, and CUED), and active file IDs follow.
- If there is no active file, DATA-1 is set to 0 and ACTIVE ID LENGTH and ACTIVE ID fields are not sent.

3X･08: DEVICE TYPE REQUEST

The DEVICE TYPE REQUEST command requests information of the device.

Command Format

STX	BC	CMD-1	CMD-2	CS
02	02	3X	08	CS

CMD-1 (3X): Sense Request Command, Unit Address X
CMD-2 (08): Device Type Request

Return

DEVICE TYPE

3X･88: DEVICE TYPE

The DEVICE TYPE command returns the device information.

Require

DEVICE TYPE REQUEST

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	...	CS
02	XX	3X	88	D1	...	CS

CMD-1 (3X): Sense Request Command, Unit Address X
CMD-2 (88): Device Type

DATA	Name	Description
DATA-1 -	DeviceTypeData	“Manufacturer ID: device information” format

Operation/Conditions

In this unit, the device information is returned as below.

In case SR-R1000
“sony: SR-R1000” is returned.
In case PWS-4400
“sony PWS-4400” is returned.
In case PWS-4500
“sony PWS-4500” is returned.

3X•10: SYSTEM STATUS REQUEST

The SYSTEM STATUS REQUEST command requests the system status corresponding to the specified bitmap.

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	CS
02	03	3X	10	Bitmap	CS

CMD-1 (3X): Sense Request Command, Unit Address X
CMD-2 (10): System Status Request

DATA	Name	Description
DATA-1	Bitmap	Specifies which status to request in bitmap format.

Bitmap

BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
–	Extended SS1 & SS2	System Status 6	System Status 5	System Status 4	System Status 3	System Status 2	System Status 1

The Extended SS1 & SS2 bit specifies whether System Status 1 and System Status 2 are returned with Short Option or Extended Option.

Return

SYSTEM STATUS
For details, refer to “SYSTEM STATUS TABLE” in “3X•90: SYSTEM STATUS” below.

3X•90: SYSTEM STATUS

The SYSTEM STATUS command returns the system status corresponding to the specified bitmap.

Require

SYSTEM STATUS REQUEST

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	DATA-2	...	CS
02	XX	3X	90	Bitmap	STS1	...	CS

CMD-1 (3X): Sense Request Command, Unit Address X
CMD-2 (90): System Status Return

DATA	Name	Description
DATA-1	Bitmap	Same as the bitmap of requested status
DATA-2 -	System Status	System status corresponding to bitmap

Note

This unit does not support the SYSTEM STATUS TABLE at all.

3X/BX･11: ID LIST

The ID LIST command acquires a list of files from the beginning.

Command Format

STX	BC	CMD-1	CMD-2	CS
02	02	3X/BX	11	CS

CMD-1 (3X/BX): Sense Request Command, Unit Address X
CMD-2 (11): ID List

Return

LIST OF IDS

Operation/Condition

When fixed ID length is specified, files with an ID length of 9 bytes or more are ignored.

3X/BX･91: LIST OF IDS

The LIST OF IDS command returns a list of files.

Require

ID LIST

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	DATA-2	DATA-3	...	DATA-n	...	CS
02	XX	3X/BX	91	MSB	LSB	ID 1-1	...	ID 2-1	...	CS

CMD-1 (3X/BX): Sense Request Command, Unit Address X
CMD-2 (91): ID List Return

DATA	Name	Description
DATA-1	MSB	Number of remaining files
DATA-2	LSB	Number of remaining files
DATA-3	Fixed length: ID List 1	ID 1 file name
	Variable length: ID List Length 1	ID 1 file name length
DATA-4 -	ID List 1	ID 1 file name
DATA-n	Fixed length: ID List 2	ID 2 file name
	Variable length: ID List Length 2	ID 2 file name length
DATA-n+1 -	ID List 2	ID 2 file name

MSB/LSB

Number of remaining files (excluding the number of file lists included in this packet)

ID List

File name list

- Fixed-length file IDs (CMD-1 = 3X)
  An 8-byte (fixed) file name per item. If a file name is shorter than 8 bytes, Null (0x00) are padded. If a file name is longer than 8 bytes, no response is returned for the file. Up to 10 file IDs are included in one packet.
- Variable-length File IDs (CMD-1 = BX)
  The first byte of an item is file ID length, and file IDs are padded in the following bytes (80 bytes or less per packet).

3X/BX•14: ID SIZE REQUEST

The ID SIZE REQUEST command requests the file duration.

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	...	CS
02	0A/XX	3X/BX	14	F1	...	CS

CMD-1 (3X/BX): Sense Request Command, Unit Address X
CMD-2 (14): ID Size Request

DATA	Name	Description
DATA-1	Fixed length: File ID	File ID
	Variable length: File ID Length	File ID length
DATA-2 -	File ID	File ID

Return

ID SIZE

3X/BX•94: ID SIZE

The ID SIZE command returns the file duration.

Require

ID SIZE REQUEST

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	DATA-2	DATA-3	DATA-4	CS
02	06	3X/BX	94	Frame	Sec	Min	Hour	CS

CMD-1 (3X/BX): Sense Request Command, Unit Address X
CMD-2 (94): ID Size Request Return

DATA	Name	Description
DATA-1 to DATA-4	Size	Size (returned in duration format) in the order of Frame, Sec, Min, and Hour

Operation/Conditions

- If the specified file is not found, a duration value of “00:00:00:00” is returned.

3X/BX･16: ID REQUEST

The ID REQUEST command requests information on file IDs.

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	...	CS
02	0A/XX	3X/BX	16	F1	...	CS

CMD-1 (3X/BX): Sense Request Command, Unit Address X
CMD-2 (16): ID Request

DATA	Name	Description
DATA-1	Fixed length: File ID	File ID
	Variable length: File ID Length	File ID length
DATA-2 -	File ID	File ID

Return

ID PRESENCE

3X/BX･96: ID PRESENCE

The ID PRESENCE command returns information on file IDs.

Require

ID REQUEST

Command Format

STX	BC	CMD-1	CMD-2	DATA-1	DATA-2	DATA-3	CS
02	XX	3X/BX	96	STS 1	STS 2	STS 3	CS

CMD-1 (3X/BX): Sense Request Command, Unit Address X
CMD-2 (96): ID Request Return

DATA	Name	Description
DATA-1	Status 1	Status 1
DATA-2	Status 2	Status 2
DATA-3	Status 3	Status 3

Status 1

BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
Query Pending	Transfer In Progress	In Offline Transfer List	In Offline Storage	Delete Protected	In Archive	In Arcive Transfer List	In Disk

Status 2

BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
					Not Ready To Archive	Not Ready To Transfer	Not Ready To Play

Status 3

BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
Video Type							

Operation/Conditions

- In Disk
  The specified ID exists.
  Status bits other than In Disk are always 0.

SR-R1000 (SY)
SR-R1000 (CN)
PWS-4400 (SY)
PWS-4400 (CN)
PWS-4500 (SY)
PWS-4500 (CN) E
9-968-966-04

Sony Corporation

Printed in Japan
2018. 2 08