SONY

MEMORY STORAGE UNIT

SR-R1000

PORTABLE MEMORY RECORDER

SR-R1

MULTI PORT AV STORAGE UNIT

PWS-4400
PWS-4500

PROTOCOL OF REMOTE (9-pin) CONNECTOR

1st Edition (Revised 3)

Table of Contents

The Connector Panel of Memory Storage Unit (referred to as STORAGE UNIT) implements a 9-pin connector for REMOTE. This section explains the contents of serial signals processed through this 9-pin connector.

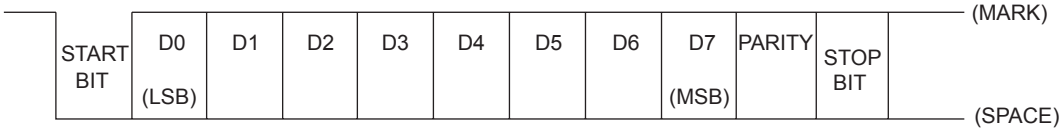
The definition of CONTROLLER and DEVICE is shown in the follows,

"CONTROLLER" means the unit which controls STORAGE UNIT.
"DEVICE" means the unit (STORAGE UNIT) which is controlled.

Example)
When the remote controller is connected with one or more STORAGE UNIT, this remote controller names CONTROLLER and all STORAGE UNITs are name DEVICE.

1. Interface System Overview

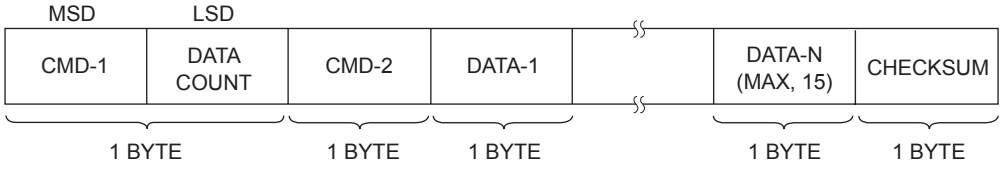
- Conforming to EIA RS-422A.
- Full duplex communications channel is utilized.
- Data is transmitted asynchronously, bit serial, word serial with data exchange between devices.
- Standard transmission rate on the interface bus is 38.4 kilobits per second (kbps).
- The data word utilized by the interface system is as follows:



- 1 START BIT + 8 DATA BITs + 1 PARITY BIT + 1 STOP BIT.
  ODD parity: The total of "1"s in D0+D1+ • • • D7+PARITY equals an odd number.

2. Command Block Format

The communication between the CONTROLLER and the DEVICE is composed of CMD-1 + DATA COUNT, CMD-2, DATA, and CHECKSUM, and is transmitted from CMD-1 + DATA COUNT in order. When DATA COUNT is zero, the data is not transmitted. When it is not zero, the data corresponding to the value is inserted between CMD-2 and CHECKSUM.



CMD-1: CMD-1 classifies commands into the main groups which indicates the function and direction of commands as follows.

Content of CMD-1

CMD-1	FUNCTION	DIRECTION	
		CONTROLLER	DEVICE
0	SYSTEM CONTROL		→
1	SYSTEM CONTROL RETURN	←	
2	TRANSPORT CONTROL		→
4	PRESET & SELECT CONTROL		→
6	SENSE REQUEST		→
7	SENSE RETURN	←	

DATA COUNT: DATA COUNT indicates the number of data words attached to the command. (0 to FH)

CMD-2: Specifies a command.

DATA: The number of data words and their contents are defined by the command.

CHECKSUM: The CHECKSUM is the sum of the DATA (D0 to D7) contained in each data word, from CMD-1/DATA COUNT to last data word before CHECKSUM. The CHECKSUM is used to verify data accuracy and reject communication sequence when the bit error is contained.

3. Connector Pin Assignment

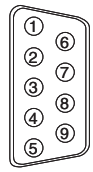
Interface connector: 9 pin D-sub miniature female (D-9S)

Note

A conversion cable (D-sub ↔ LEMO) is supplied with the SR-R1.

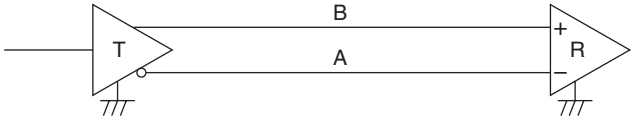
The pin assignment of the CONTROLLER and the DEVICE is shown in the following table.

Signal / Pin	CONTROLLER	DEVICE
1	Frame Ground	Frame Ground
2	Receive A	Transmit A
3	Transmit B	Receive B
4	Transmit Common	Receive Common
5	Spare	Spare
6	Receive Common	Transmit Common
7	Receive B	Transmit B
8	Transmit A	Receive A
9	Frame Ground	Frame Ground



External View

"A" and "B" are defined as shown below.



A < B ⇨"1" (MARK)

A > B ⇨"0" (SPACE)

4. Communication Protocol

1) All communications between the CONTROLLER and the DEVICE will be under the direct supervision of the CONTROLLER.
   When the DEVICE (STORAGE UNIT) receives the COMMAND from CONTROLLER, the following COMMAND is returned.

   - ACK : In case that the DEVICE receives a COMMAND not requiring data
   - COMMAND + DATA : In case that the DEVICE receives a COMMAND requiring data
   - NAK + ERROR DATA : In case that a communication error is detected or an undefined COMMAND is received

2) The CONTROLLER must not transmit additional COMMAND blocks to a DEVICE (STORAGE UNIT) prior to response to a previous COMMAND block.

3) The CONTROLLER must transmit of bytes in a COMMAND block for with intervals less than 10 milliseconds. If a DEVICE (STORAGE UNIT) detects an interruption of a byte in a COMMAND BLOCK that exceeds 10 milliseconds, it executes a TIME-OUT error sequence, voids the receiving COMMAND block, and transmit a NAK (TIME OUT).

4) When a DEVICE (STORAGE UNIT) receives a COMMAND block from the CONTROLLER, the DEVICE must transmit a response within 9 milliseconds.
   Therefore if the CONTROLLER cannot receive the appropriate response from the DEVICE within 10 milliseconds after transmitting the COMMAND block the CONTROLLER detects a communication error, and must execute an appropriate process.

5) When the DEVICE (STORAGE UNIT) detects a communication error, it must immediately transmit a NAK to the CONTROLLER. (The content of an error is shown on the COMMAND tables.)
   When the CONTROLLER receives a NAK, it must immediately stop transmission of the COMMAND block. The DEVICE must not accept a subsequent command within 10 milliseconds after that (except NAK-UNDEFINED command) and must execute a necessary process.

5. Command Table

The marks shown in the tables mean the following contents.

1) Commands marked ○ support the unit as the DEVICE.
   When there is a description in the “RETURN” column, the content and DATA must be returned, and if not (blanc), ACK will be returned.
2) The unit returns a ACK or a STATUS as a RETURN in response to the commands marked △ with no action.

COMMAND	RETURN	SR-R1000	SR-R1	PWS-4400 PWS-4500
00•11 : DEVICE TYPE REQUEST	12•11 : DEVICE TYPE RETURN	○	○	○
20•00 : STOP	10•01 : ACK	○	○	○
20•01 : PLAY		○	○	○
20•02 : REC		○	○	○
20•0F : EJECT		△	○	△
20•10 : FAST FWD		○	○	○
2X•11 : JOG FWD		○	○	○
2X•12 : VAR FWD		○	○	○
2X•13 : SHUTTLE FWD		○	○	○
20•20 : REWIND		○	○	○
2X•21 : JOG REV		○	○	○
2X•22 : VAR REV		○	○	○
2X•23 : SHUTTLE REV		○	○	○
20•30 : PREROLL		○	○	○
24•31 : CUE UP WITH DATA		○	○	○
21•38 : P PLAY+		○	△	○
21•39 : P PLAY–		○	△	○
20•60 : FULL EE OFF		△	○	△
20•61 : FULL EE ON		△	○	△
20•6A : FREEZE OFF		○	△	○
20•6B : FREEZE ON		○	△	○
44•00 : TIMER -1 PRESET		○	○	○
44•04 : TIME CODE PRESET		○	○	○
44•05 : USER'S BIT PRESET		○	○	○
40•08 : TIMER -1 RESET		○	○	○
40•10 : IN ENTRY		○	○	○
40•11 : OUT ENTRY		○	○	○
40•12 : A IN ENTRY		△	△	△
40•13 : A OUT ENTRY		△	△	△
44•14 : IN DATA PRESET		○	○	○
44•15 : OUT DATA PRESET		○	○	○
44•16 : A IN DATA PRESET		○	△	○
44•17 : A OUT DATA PRESET		○	△	○
40•18 : IN SHIFT +		○	○	○
40•19 : IN SHIFT –		○	○	○
40•1A : OUT SHIFT +		○	○	○
40•1B : OUT SHIFT –		○	○	○
40•1C : A IN SHIFT +		△	△	△
40•1D : A IN SHIFT –		△	△	△
40•1E : A OUT SHIFT +		△	△	△
40•1F : A OUT SHIFT –		△	△	△
40•20 : IN RESET		○	○	○
40•21 : OUT RESET		○	○	○
40•22 : A IN RESET		△	△	△
40•23 : A OUT RESET		△	△	△
40•24 : IN RECALL		○	○	○
40•25 : OUT RECALL		○	○	○
40•26 : A IN RECALL		△	△	△

COMMAND	RETURN	SR-R1000	SR-R1	PWS-4400 PWS-4500
40•27 : A OUT RECALL	10•01 : ACK	△	△	△
40•2D : LOST LOCK RESET		○	○	○
44•31 : PREROLL TIME PRESET		○	○	○
41•36 : TIMER MODE SELECT		○	○	○
41•38 : PB FIELD/FRAME SELECT		○	△	○
4X•54 : EXTENDED DA INPUT SELECT		○	△	○
47•95 : EXTENDED OUTPUT VIDEO CONTROL		○	△	△
41•9E : SUPERIMPOSE		○	△	○
4X•9F : VIDEO CONTROL DATA SET		○	△	△
4X•A0 : AUDIO INPUT LEVEL		○	○	○
4X•A1 : AUDIO OUTPUT LEVEL		○	○	○
4X•A3 : EXTENDED AUDIO INPUT LEVEL		○	○	○
4X•A4 : EXTENDED AUDIO OUTPUT LEVEL		○	○	○
4X•AE : AUDIO MONITOR CHANNEL SELECT		△	△	△
4X•AF : AUDIO CONTROL DATA SET		○	△	○
61•0A : TC GEN DATA SENSE	74•08 : GEN TC DATA	○	○	○
	78•08 : GEN TC & UB DATA	○	○	○
	74•09 : GEN UB DATA	○	○	○
61•0C : CURRENT TIME SENSE	74•00 : TIMER -1 DATA	○	○	○
	74•01 : TIMER -2 DATA	○	○	○
	74•04 : LTC TIME DATA	○	○	○
	78•04 : LTC TIME & UB DATA	○	○	○
	74•05 : LTC UB DATA	○	○	○
	74•06 : VITC TIME DATA	○	○	○
	78•06 : VITC TIME & UB DATA	○	○	○
	74•07 : VITC UB DATA	○	○	○
60•10 : IN DATA SENSE	74•10 : IN DATA	○	○	○
60•11 : OUT DATA SENSE	74•11 : OUT DATA	○	○	○
60•12 : A IN DATA SENSE	74•12 : A IN DATA	○	△	○
60•13 : A OUT DATA SENSE	74•13 : A OUT DATA	○	△	○
61•20 : STATUS SENSE	7X•20 : STATUS DATA	○	○	○
61•21 : EXTENDED VTR STATUS SENSE	7X•21 : EXTENDED VTR STATUS	○	○	○
62•25 : VIDEO CONTROL DATA SENSE	7X•25 : VIDEO CONTROL DATA	○	△	○
62•26 : AUDIO CONTROL DATA SENSE	7X•26 : AUDIO CONTROL DATA	○	△	○
60•2B : REMAIN TIME SENSE	76•2B : REMAIN TIME DATA	△	○	△
60•2E : COMMAND SPEED SENSE	71•2E : COMMAND SPEED DATA	○	○	○
60•31 : PREROLL TIME SENSE	74•31 : PREROLL TIME DATA	○	○	○
60•36 : TIMER MODE SENSE	71•36 : TIMER MODE DATA	○	○	○
60•50 : DA INPUT SENSE	72•50 : DA INPUT STATUS	○	○	○
6X•54 : EXTENDED DA INPUT SENSE	7X•54 : EXTENDED DA INPUT STATUS	○	○	○
60•58 : DA SAMPLING FREQ SENSE	71•58 : DA SAMPLING FREQ STATUS	○	△	○
60•9E : SUPERIMPOSE SENSE	71•9E : SUPERIMPOSE	○	○	○
60•AE : AUDIO MONITOR CHANNEL SENSE	74•AE : AUDIO MONITOR CHANNEL STATUS	△	△	△

6. Detailed Description of Commands

00•11: DEVICE TYPE REQUEST
12•11: DEVICE TYPE

The "00•11: DEVICE TYPE REQUEST" command is used for asking the specifications of the STORAGE UNIT used as DEVICE. When the DEVICE receives this command, it attaches 2-byte specification data to "12•11: DEVICE TYPE" and sends the information to the CONTROLLER.

MODEL	DATA-1	DATA-2
SR-R1000	9X	20
SR-R1	9X	30
PWS-4400	9X	40
PWS-4500	9X	41

Since DEVICE (STORAGE UNIT) equipment can change their own specifications by themselves using menu, the equipment returns current operation mode to CONTROLLER.

SR-R1000/SR-R1/PWS-4400/PWS-4500	
59.94i, 29.97PsF, or 720/60P system:	X = 0
50i, 25PsF, or 720/50P system:	X = 1
23.98PsF system:	X = 2

10•01: ACK

When a command from the CONTROLLER is received normally, the DEVICE returns this command as acknowledgement.

11•12: NAK

When a communication error is detected or an undefined COMMAND is received, the DEVICE returns this command as not-acknowledgement. BIT-7 to BIT-0 of DATA-1 will be set in accordance with the contents.

[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	SOFTWARE OVERRUN	UNDEFINED COMMAND

20•00: STOP
20•01: PLAY
20•02: REC

When one of the above commands is received, the DEVICE becomes the specified mode.

20•0F: EJECT

This command is used to unmount the media of the DEVICE.

20•10: FAST FWD
2X•11: JOG FWD
2X•12: VAR FWD
2X•13: SHUTTLE FWD
20•20: REWIND

When one of the above commands is received, the DEVICE becomes the specified mode.

2X•21: JOG REV
2X•22: VAR REV
2X•23: SHUTTLE REV

When one of the above commands is received, the DEVICE starts running at the playback speed in accordance with speed data defined by the DATA-1 and DATA-2.
When only DATA-1 is given, (X = 1) and the playback speed will be defined as follows.

PLAYBACK SPEED = $10^{(N/32-2)}$, N: SPEED DATA (DECIMAL)

Example)

PLAYBACK	SPEED	DATA
STILL	0	(0H)
0.1 times normal speed	32	(20H)
1.0 times normal speed	64	(40H)
About 2.9 times normal speed	79	(4FH)

When setting more precise value than the playback speed defined by DATA-1, DATA-2 will be added. However, the precise value is a linear approximate value. (X = 2)
When both DATA-1 and DATA-2 are given, the playback speed will be defined as follows.

PLAYBACK SPEED = $10^{(N/32-2)} + N'/256 \times \{10^{[(N+1)/32-2]} - 10^{(N/32-2)}\}$
N: SPEED DATA OF DATA-1 (DECIMAL)
N': SPEED DATA OF DATA-2 (DECIMAL)

20•30: PREROLL

This command is used to cue up DEVICE to a position where the PREROLL time is subtracted from IN POINT.
IN POINT: The timer or timecode value stored in the IN ENTRY memory by the "40•10 : IN ENTRY" command.
PREROLL time: The time set by the "44•31 : PREROLL TIME PRESET" command.

24•31: CUE UP WITH DATA

This command is used for cueing up the DEVICE to the position assigned by the time data of DATA-1 through DATA-4.
Units of respective data are as follows:

DATA-1		DATA-2		DATA-3		DATA-4	
10 Frame	1 Frame	10 Second	1 Second	10 Minute	1 Minute	10 Hour	1 Hour
MSD	LSD	MSD	LSD	MSD	LSD	MSD	LSD

21•38: P PLAY+
21•39: P PLAY−

These commands are used for playing back the DEVICE in steps of 0.1% within the range of ±15 % against the normal PLAY (×1) speed.

DATA-1

MSD	LSD

· · · 8 BITS SPEED DATA : 00 ~ 96 (0 ~ 150 : DECIMAL)
00 ~ FF (0 ~ 255 : DECIMAL)

Relationship between the deviation (%) from the normal PLAY (×1) speed and SPEED DATA is defined as follows:
DEVIATION (%) = 0.1 × SPEED DATA (Decimal)

20•60: FULL EE OFF
20•61: FULL EE ON

These commands are used for setting or clearing all channels to E-E mode.

20•6A: FREEZE OFF

This command is used to clear the FREEZE mode.

20•6B: FREEZE ON

This command sets the DEVICE to the FREEZE mode.

44•00: TIMER-1 PRESET

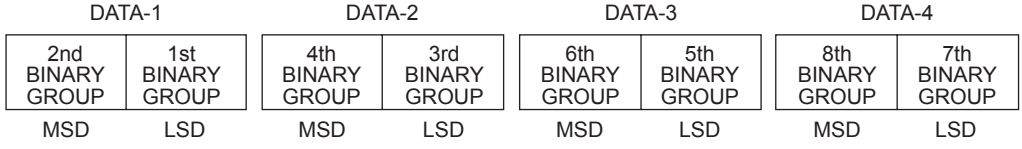
This command is used for presetting the value, which has been given by the DATA-1 through DATA-4, to the TIMER-1 of the DEVICE.
For the data format, refer to "24•31: CUE UP WITH DATA" command.

44•04: TIMER CODE PRESET

This command is used for presetting the value, which has been given by the DATA-1 through DATA-4, to the TIME CODE of the time code generator.
For the data format, refer to "24•31: CUE UP WITH DATA" command.
For the timing, refer to Appendix.

44•05: USER'S BIT PRESET

This command is used for presetting the value, which has been given by the DATA-1 through DATA-4, to the USER'S BIT of the time code generator.
For the timing, refer to Appendix.



40•08: TIMER-1 RESET

This command is used for resetting the TIMER-1 to zero.

40•10: IN ENTRY
40•11: OUT ENTRY
40•12: A IN ENTRY
40•13: A OUT ENTRY

These commands are used for storing the value of the TIMER or the TIME CODE data, which is displayed on the DEVICE, into the IN, OUT, A IN or A OUT memory as IN POINT, OUT POINT, A IN POINT or A OUT POINT data.

44•14: IN DATA PRESET
44•15: OUT DATA PRESET
44•16: A IN DATA PRESET
44•17: A OUT DATA PRESET

These commands are used for presetting the value, which has been given by the DATA-1 to DATA-4, into the IN or OUT.
For the data format, refer to the "24•31: CUE UP WITH DATA" command.

44•18: IN SHIFT +
44•19: IN SHIFT –

These commands are used for adding or subtracting the value of the TIME DATA, which has been stored as IN POINT, by one frame.

40•1A: OUT SHIFT +
40•1B: OUT SHIFT –

These commands are used for adding or subtracting the value of the TIME DATA, which has been stored as OUT POINT, by one frame.

40•1C: A IN SHIFT +
40•1D: A IN SHIFT –

These commands are used for adding or subtracting the value of the TIME DATA, which has been stored as AUDIO IN POINT, by one frame.

40•1E: A OUT SHIFT +
40•1F: A OUT SHIFT –

These commands are used for adding or subtracting the value of the TIME DATA, which has been stored as AUDIO OUT POINT, by one frame.

40•20: IN RESET
40•21: OUT RESET
40•22: A IN RESET
40•23: A OUT RESET

These commands are used for turning off the IN, OUT, AUDIO IN or AUDIO OUT indicator.

40•24: IN RECALL
40•25: OUT RECALL
40•26: A IN RECALL
40•27: A OUT RECALL

These commands are used for turning on the IN, OUT, AUDIO IN or AUDIO OUT indicator.

40•2D: LOST LOCK RESET

This command is used for resetting the "DATA No. 8 BIT-6: LOST LOCK" of the "7X•20: STATUS DATA" command.
LOST LOCK STATUS is set in the case of synchronization loss of the REFERENCE signal during the PLAY, REC or EDIT mode. This command is used to reset LOST LOCK STATUS.

44•31: PREROLL TIME PRESET

This command is used for presetting the preroll time, which has given by DATA-1 through DATA-4, to the DEVICE. Setting PREROLL TIME is allowed in units of second within the range of 0 to 30 seconds.
For the data format, refer to the "24•31: CUE UP WITH DATA" command.

Example) Preroll Time = 5 sec.

DATA-1	DATA-2	DATA-3	DATA-4
00	05	00	00

41•36: TIMER MODE SELECT

This command is used for selecting the TIMER system used in the AUTO mode by the value of DATA-1. This is used for the IN ENTRY, OUT ENTRY, IN PRESET, OUT PRESET, PRE-ROLL and CUE UP WITH DATA, etc.

[DATA-1] 00: TIME CODE
01: TIMER-1
02: TIMER-2

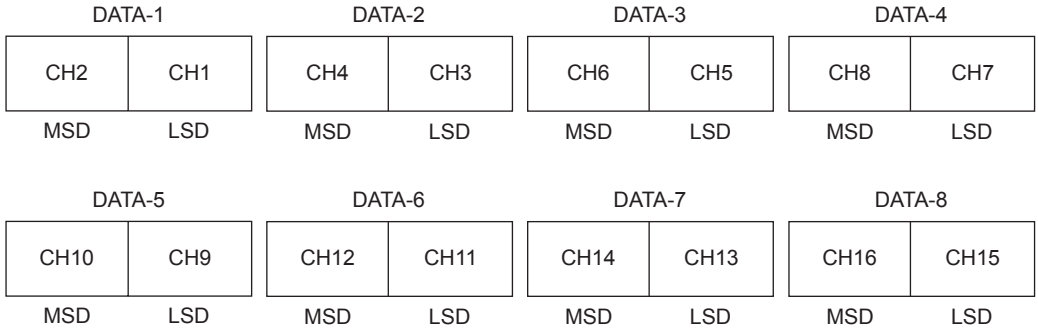
41•38: PB FIELD/FRAME SEL

This command is used to select either a Field or Frame for the playback in accordance with the contents of DATA-1.

[DATA-1] 00: FIELD
01: FRAME

4X•54: EXTENDED DA INPUT SELECT

This command is used for selecting the input audio source according to the values of DATA-1 to DATA-4.



4-BIT DATA 1: AES/EBU
2: SDI
F: NO CHANGE

Example)
In the case of "42•54•22•11" (Specify the DATA-1 and DATA-2 only)
CH-1 & CH-2: SDI input
CH-3 & CH-4: AES/EBU input

Note

In PWS-4400/PWS-4500, SDI is the only option available for audio inputs from CH9 to CH16.

47•95: EXTENDED OUTPUT VIDEO LEVEL CONTROL

This command is used for selecting the output video source according to the values of DATA-1 to DATA-7.
This command is constituted DATA-1 to DATA-7.

The upper 4-bit of DATA-1 define the control mode, and the lower 3-bit define validity of the DATA-2 through DATA-7.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
				0	DATA-6, DATA-7 1 : VALID 0 : INVALID	DATA-4, DATA-5 1 : VALID 0 : INVALID	DATA-2, DATA-3 1 : VALID 0 : INVALID

BIT-7	BIT-6	BIT-5	BIT-4	MODE
1	0	1	0	HD $Y/P_B/P_R$

BIT-3 is always set to "0".

The DATA-2 through DATA-7 is 16-bit level control data. These contents depend on control mode.

MODE	DATA-2/DATA-3	DATA-4/DATA-5	DATA-6/DATA-7
HD Y/P_B/P_R	Y	P_B	P_R

The each input levels are as shown below.

OUTPUT = $20 \log \frac{N\ (H)}{4000\ (H)}$ [dB]

N: Level control data (16-bit straight binary)
UNITY = 4000 (H)

HUE (CHROMA PHASE) = $45° \times \frac{N\ (H)}{1000\ (H)}$ [dB]

N: HUE (CHROMA PHASE) control data (16-bit binary, Twos complement)
UNITY = 0000 (H)

41•9E: SUPERIMPOSE

This command is used to control the SUPERIMPOSE mode of the DEVICE according to the value of DATA-1.

[DATA-1] 00: SUPERIMPOSE OFF
01: SUPERIMPOSE ON

4X•9F: VIDEO CONTROL DATA SET

This command is used to specify the VIDEO CONTROL DATA according to the DATA-1 and DATA-2.

[DATA-1]
Upper 4-bit are used to specify the block.
The data defined below must be set for BIT-7 to BIT-4. BIT-3 to BIT-0 is always set to "0".

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
				0	0	0	0

BIT-7	BIT-6	BIT-5	BIT-4	BLOCK
1	0	1	0	HD Y/P_B/P_R

[DATA-2]
Indicates the starting data No. of the setting data.

[DATA-3 or followings]
Setting data.
The number of data is according to the byte count of the command set.
For the data format, refer to the "7X•25: VIDEO CONTROL DATA" command.

When specified data includes undefined area, it will be ignored.

4X•A0: AUDIO INPUT LEVEL

This command is used to control the audio input level.
This command is used to select the control channel by DATA-1.

Note

This command is not available for DA9 and later channels.

When the DEVICE receives "41•A0" command, the audio input level of the channels assigned by DATA-1 will be set to the reference level of the DEVICE.
The level data are composed of 2 bytes for each channel, and they are arranged in the sequence of DA1 and DA2 channels.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
DA8	DA7	DA6	DA5	DA4	DA3	DA2	DA1

(Example) When DATA-1 is "00001001", the data format is as shown below.

DATA-1	DATA-2	DATA-3	DATA-4	DATA-5
09	LOWER	UPPER	LOWER	UPPER
	DA1 LEVEL DATA		DA4 LEVEL DATA	

If the value of the level data is assumed to be N, then the signal level is defined as follows.

N: Level data (16-bit straight binary, Linear code)
Cover range: +12 dB to − ∞

$$\text{INPUT SIGNAL LEVEL} = 20 \log \frac{N\ (H)}{4000\ (H)}\ [dB]$$

4X•A1: AUDIO OUTPUT LEVEL

This command is used to control the audio output level.
For the data format, refer to the "4X•A0: AUDIO INPUT LEVEL" command.

When the DEVICE receives the "41•A1" command, the audio output level is set to the unity level of the DEVICE.

4X•A3: EXTENDED AUDIO INPUT LEVEL
4X•A4: EXTENDED AUDIO OUTPUT LEVEL

This command is used to select the channel to be controlled by each bit of DATA-1, DATA-2, and DATA-3 and to show the level data of the channel to be controlled by the following three-byte data.

[DATA-1: Auxiliary audio channel]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
*	*	*	*	*	*	*	*

* : Reserved

[DATA-2: Main audio 1 through 8 channels]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
CH-8	CH-7	CH-6	CH-5	CH-4	CH-3	CH-2	CH-1

[DATA-3: Main audio 9 through 16 channels]
If selected main audio 9 through 16 channels, command will be “46•A3” or “46•A4”.

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
CH-16	CH-15	CH-14	CH-13	CH-12	CH-11	CH-10	CH-9

(Example) When the “45•A3” command is received

DATA-1	DATA-2	DATA-3	DATA-4	DATA-5
00000000	00001111	Level Data (Lower)	Level Data	Level Data (Upper)

In this instance, this requests to indicate the each value of level data on CH-1 through CH-4. If the value of the level data is assumed to be N, then the input signal level is defined by the following formula.

N: Level data (24-bit straight binary, Linear code)
Cover range: + 24 dB to −∞ , 000000 (H) = − ∞

$$\text{INPUT SIGNAL LEVEL} = 20 \log \frac{\text{N (H)}}{\text{100000 (H)}} \text{ [dB]}$$

4X•AE: AUDIO MONITOR CHANNEL SELECT

This command is used for selecting audio monitoring mode for left channel and right channel respectively.

[DATA-1: Specify the auxiliary channel for monitoring left channel]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
							0 (FIXED)

[DATA-2: Specify the auxiliary channel for monitoring right channel]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
							0 (FIXED)

[DATA-3: Specify the main channel for monitoring left channel]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
CH-8	CH-7	CH-6	CH-5	CH-4	CH-3	CH-2	CH-1

[DATA-4: Specify the main channel for monitoring right channel]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
CH-8	CH-7	CH-6	CH-5	CH-4	CH-3	CH-2	CH-1

[DATA-5: Specify the main channel for monitoring left channel]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
CH-16	CH-15	CH-14	CH-13	CH-12	CH-11	CH-10	CH-9

[DATA-6: Specify the main channel for monitoring right channel]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
CH-16	CH-15	CH-14	CH-13	CH-12	CH-11	CH-10	CH-9

It is possible to select the channels multiple all at once.

4X•AF: AUDIO CONTROL DATA SET

This command is used to specify the AUDIO CONTROL DATA by DATA-1 and DATA-2.

[DATA-1]
Upper 4 bits are used to specify the AUDIO INPUT/OUTPUT CONTROL DATA.

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
0	0	OUT	IN	0	0	0	0

BIT-5	BIT-4	
0	1	INPUT (AUDIO INPUT CONTROL DATA)
1	0	OUTPUT (AUDIO OUTPUT CONTROL DATA)
1	1	INPUT & OUTPUT

[DATA-2]
Indicates the first data No. of the setting data.

[DATA-3 or followings]
Setting data.
The number of set data is according to byte count of the command set.
For the data format, refer to the “7X•26: AUDIO CONTROL DATA” command.

When specified data includes undefined area, it will be ignored.
When the DATA from No. 15 through 1A of the AUDIO INPUT CONTROL DATA is set, it will be ignored.

61•0A: TC GEN DATA SENSE

This command is used for requesting the TIME CODE data that the DEVICE is generating. The DEVICE will make a response with the TIME CODE data according to the content of the DATA-1.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
			GEN UB				GEN TC

REQUEST COMMAND		RESPONSE COMMAND
DATA-1 = 01: Request for GEN TC	———	"74.08: GEN TIME DATA"
DATA-1 = 10: Request for GEN UB	———	"74.09: GEN UB DATA"
DATA-1 = 11: Request for GEN TC & UB	———	"78.08: GEN TC & UB DATA"

74•08: GEN TC DATA

When the DEVICE receives the "61•0A: TC GEN DATA SENSE" command and its DATA-1 is "01", the TC TIME data generated by the DEVICE will be added to DATA-1 through DATA-4 of the "74•08: GEN TC DATA" command.
For the data format, refer to the "24•31: CUE UP WITH DATA" command.

78•08: GEN TC & UB DATA

When the DEVICE receives the "61•0A: TC GEN DATA SENSE" command and its DATA-1 is "11", the TIME DATA will be added to DATA-1 through DATA-4 of the "74•08: GEN TC DATA" command and the USER'S BIT DATA will be added to DATA-5 to DATA-8.
For the data format, refer to the "24•31: CUE UP WITH DATA" and "44•05: USER'S BIT PRESET" commands.

74•09: GEN UB DATA

When the DEVICE receives the "61•0A: TC GEN DATA SENSE" command and its DATA-1 is "10", the UB data of TC generated by the DEVICE will be added to DATA-1 through DATA-4 of the "74•09: GEN UB DATA" command.
For the data format, refer to the "44•05: USER'S BIT PRESET" command.

61•0C: CURRENT TIME SENSE

This command is used for requesting the TIME DATA or USER'S BIT. The DEVICE will make a response according to the content of DATA-1.
When accurate time data is requested in the normal playback mode, the following condition must be satisfied.

- Select external reference mode.
- CURRENT TIME SENSE and its return must be completed within the field-2.

[DATA-1] The response command to the request command is as follows.

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
		VITC UB	LTC UB	TIMER-2	TIMER-1	VITC TIME	LTC TIME
		MSB				LSB	

RESPONSE \ REQUEST DATA-1	01	02	03 *2	04	08	10	20	30 *2	11 *1	22 *1	33 *1, *2
74•00 : TIMER-1 DATA				○							
74•01 : TIMER-2 DATA					○						
74•04 : LTC TIME DATA	○		○								
74•05 : LTC UB DATA						○		○			
78•04 : LTC TIME & UB DATA									○		○
74•06 : VITC TIME DATA		○	○								
74•07 : VITC UB DATA							○	○			
78•06 : VITC TIME & UB DATA										○	○

Notes

*1) If the request DATA-1 equals 11, 22 or 33, TIME DATA is returned by DATA-1 through DATA-4 and USER'S BIT DATA is returned by DATA-5 through DATA-8.

*2) When VITC and LTC are requested at the same time, the USER'S BIT or TIME DATA to be returned is determined in accordance with the table shown below.

UB or TC reading		Return data
LTC	VITC	
OK	OK	LTC
NG	OK	VITC
OK	NG	LTC
NG	NG	LTC

74•00: TIMER-1 DATA

When the DEVICE is required the TIMER-1 data by the "61•0C: CURRENT TIME SENSE" command, the TIMER-1 data will be added to DATA-1 through DATA-4.
At that time, the DF/NDF mode of TIMER-1 is set to BIT-6 of DATA-1.
For the data format, refer to the "24•31: CUE UP WITH DATA" command.

74•01: TIMER-2 DATA

When the DEVICE is required the TIMER-2 data by the "61•0C: CURRENT TIME SENSE" command, the TIMER-2 data will be added to DATA-1 through DATA-4.
At that time, the DF/NDF mode of TIMER-2 is set to BIT-6 of DATA-2.
For the data format, refer to the "24•31: CUE UP WITH DATA" command.

74•04: LTC TIME DATA

When the DEVICE is required the LTC TIME DATA by the "61•0C: CURRENT TIMER SENSE" command, the LTC TIME DATA will be added to DATA-1 through DATA-4.
For the data format, refer to "24•31: CUE UP WITH DATA" command.

78•04: LTC TIME & UB DATA

When the DEVICE is required the LTC TIME DATA and USER'S BIT DATA by the "61•0C: CURRENT TIME SENSE" command, the LTC TIME DATA will be added to DATA-1 through DATA-4 and the LTC USER'S BIT DATA will be added to DATA-5 through DATA-8.
For the data format, refer to the "24•31: CUE UP WITH DATA" and "44•05: USER'S BIT PRESET" commands.

74•05: LTC UB DATA

The DEVICE is required the LTC USER'S BIT DATA by the "61•0C: CURRENT TIMER SENSE" command, the LTC USER'S BIT DATA will be added to DATA-1 through DATA-4.
For the data format, refer to the "44•05: U-BIT PRESET" command.

74•06: VITC TIME DATA

The DEVICE is required the VITC TIME DATA by the "61•0C: CURRENT TIME SENSE" command, the VITC TIME DATA will be added to DATA-1 through DATA-4.
For the data format, refer to the "24•31: CUE UP WITH DATA" command.

78•06: VITC TIME & UB DATA

When the DEVICE is required the VITC TIME DATA and USER'S BIT DATA by "61•0C: CURRENT TIME SENSE" command, the VITC TIME DATA will be added to DATA-1 through DATA-4 and the VITC USER'S BIT DATA will be added to DATA-5 through DATA-8.
For the data format, refer to the "24•31: CUE UP WITH DATA" or "44•05: USER'S BIT PRESET" command.

74•07: VITC UB DATA

The DEVICE is required the VITC USER'S BIT DATA by the "61•0C: CURRENT TIME SENSE" command, the VITC USER'S BIT DATA will be added to DATA-1 through DATA-4.
For the data format, refer to the "44•05: USER'S BIT PRESET" command.

60•10: IN DATA SENSE
60•11: OUT DATA SENSE
60•12: A IN DATA SENSE
60•13: A OUT DATA SENSE

These commands are used for requesting the IN/OUT DATA and the AUDIO IN or AUDIO OUT DATA.
For the data format, refer to the "24•31: CUE UP WITH DATA" command.

REQUEST COMMAND		RESPONSE COMMAND
60•10 : IN DATA SENSE	———	74•10 : IN DATA
60•11 : OUT DATA SENSE	———	74•11 : OUT DATA
60•12 : A IN DATA SENSE	———	74•12 : A IN DATA
60•13 : A OUT DATA SENSE	———	74•13 : A OUT DATA

74•10: IN DATA

When the DEVICE receives the "60•10: IN DATA SENSE" command, the IN DATA will be added to DATA-1 through DATA-4 of the "74•10: IN DATA" command.
For the data format, refer to the "24•31: CUE UP WITH DATA" command.

74•11: OUT DATA

When the DEVICE receives the “60•11: OUT DATA SENSE” command, the OUT DATA will be added to DATA-1 through DATA-4 of the “74•11: OUT DATA” command.
For the data format, refer to the “24•31: CUE UP WITH DATA” command.

74•12: A IN DATA

When the DEVICE receives the “60•12: A IN DATA SENSE” command, the A IN DATA will be added to DATA-1 through DATA-4 of the “74•12: A IN DATA” command.
For the data format, refer to the “24•31: CUE UP WITH DATA” command.

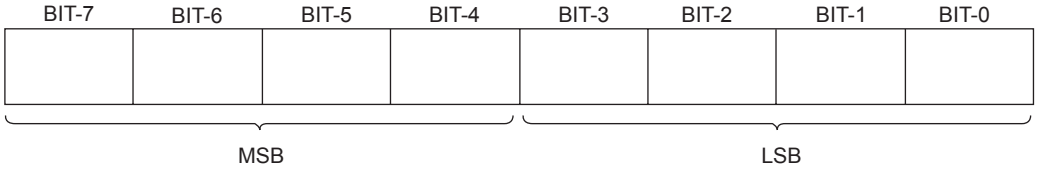
74•13: A OUT DATA

When the DEVICE receives the “60•13: A OUT DATA SENSE” command, the A OUT DATA will be added to DATA-1 through DATA-4 of the “74•13: A OUT DATA” command.
For the data format, refer to the “24•31: CUE UP WITH DATA” command.

61•20: STATUS SENSE

This command is used for requesting the status of the DEVICE.
It specifies the data to be sent back by the “7X•20: STATUS DATA” command according to DATA-1 added to this command.

[DATA-1]



MSD (BIT-7 to 4): Indicates the starting DATA No. of the data to be sent back.
LSD (BIT-3 to 0): Indicates the number of data bytes (1H to FH) to be sent back.

Example) When the DATA-1 of the “61•20: STATUS SENSE” command is “2A”.
The STATUS DATA of the DEVICE will send back ten bytes from the DATA No.2, i.e. DATA No.2 to DATA No.B.

7X•20: STATUS DATA

When the DEVICE receives the “61•20: STATUS SENSE” command, the following data will be sent back in accordance with the request.

SR-R1000/PWS-4400/PWS-4500 STATUS DATA

	BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
DATA No. 0						HARD ERROR		LOCAL
DATA No. 1	STANDBY ON		STOP	EJECT	REW	F.FWD	REC	PLAY
DATA No. 2	SERVO LOCK		SHUTTLE	JOG	VAR	DIRECTION	STILL	CUE UP COMPLETE
DATA No. 3		FREEZE ON			AUDIO OUT	AUDIO IN	OUT	IN
DATA No. 4								PREROLL OR CUE UP
DATA No. 5								
DATA No. 6		STILL LED ON	FWD LED ON	REV LED ON				
DATA No. 7								
DATA No. 8		LOST LOCK						
DATA No. 9								
DATA No. A								
DATA No. B								
DATA No. C								
DATA No. D								
DATA No. E								
DATA No. F								

SR-R1 STATUS DATA

	BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
DATA No. 0			MEDIA OUT	SERVO REF. MIS		HARD ERROR		LOCAL
DATA No. 1	STANDBY ON		STOP	EJECT	REW	F.FWD	REC	PLAY
DATA No. 2	SERVO LOCK		SHUTTLE	JOG	VAR	DIRECTION	STILL	CUE UP COMPLETE
DATA No. 3		FREEZE ON					OUT	IN
DATA No. 4		FULL EE ON						PREROLL OR CUE UP
DATA No. 5								
DATA No. 6		STILL LED ON	FWD LED ON	REV LED ON				
DATA No. 7								
DATA No. 8	BUZZER ON	LOST LOCK	NEAR MEDIA FULL	MEDIA FULL			SYSTEM ALARM	REC INHIBIT
DATA No. 9	FUNCTION ABORT							
DATA No. A								
DATA No. B								
DATA No. C								
DATA No. D								
DATA No. E								
DATA No. F								

STATUS DATA No. 0

BIT-5: MEDIA OUT

This bit is set to “1” when there is no media threading on the DEVICE.

BIT-4: REFERENCE VIDEO MISSING

This bit is set to “1” when the REFERENCE signal is not detected.

BIT-2: HARD ERROR

This bit is set to “1” when there is a problem with the hardware.
For details, refer to the maintenance manual “SELF DIAGNOSTICS”, etc.

BIT-0: LOCAL

SR-R1000:
This bit is set to “1” when the REMOTE/LOCAL switch on the front panel is set to “LOCAL”.
SR-R1:
This bit is set to “1” when “LOCAL” is set in the REMOTE/LOCAL menu of the System Setup menu.

STATUS DATA No. 1

BIT-7: STANDBY
This bit is set to “1” when the DEVICE is in the STANDBY ON mode.

BIT-5: STOP
This bit is set to “1” when the DEVICE receives the “20•00: STOP” command and goes into the STOP mode. This bit is also set to “1” during GUI display.

BIT-4: EJECT
This bit is set to “1” when the DEVICE receives the “20•0F: EJECT” command and goes into the EJECT mode.

BIT-3: REW
This bit is set to “1” when the DEVICE receives the “20•20: REWIND” command and goes into the REVERSE mode.

BIT-2: F.FWD
This bit is set to “1” when the DEVICE receives the “20•10: FAST FWD” command and goes into the FORWARD mode.

BIT-1: REC
This bit is set to “1” when the DEVICE receives the “20•02: REC” command and goes into the REC mode.
This bit is also set to “1” when “DATA No. 4/BIT-4 EDIT” is set to “1”.

BIT-0: PLAY
This bit is set to “1” when the DEVICE receives the “20•01: PLAY”, “20•02: REC” or “20•65: EDIT ON” command and goes into the PLAY, REC or EDIT mode.

STATUS DATA No. 2

BIT-7: SERVO LOCK
This bit is set to “1” when the DEVICE is in the condition that the normal-speed run is locked in the PLAY mode.

BIT-5: SHUTTLE
This bit is set to “1” when the DEVICE receives the “2X•13: SHUTTLE FWD” or “2X•23: SHUTTLE REV” command and goes into the SHUTTLE mode.

BIT-4: JOG
This bit is set to “1” when the DEVICE receives the “2X•11: JOG FWD” or “2X•21: JOG REV” command and goes into the JOG mode.

BIT-3: VAR
This bit is set to “1” when the DEVICE is in the following mode.
• VAR mode (“2X•12: VAR FWD” or “2X•23: VAR REV” command is received.)

BIT-2: DIRECTION
This bit shows the direction of playback defined in the DEVICE.
0 = FWD
1 = REV

BIT-1: STILL
This bit is set to "1" when the DEVICE is in the STILL mode of SHUTTLE/JOG/VAR.
This bit is set to "0" when DEVICE is in the STOP mode.

BIT-0: CUE UP COMPLETE
This bit is set to "1" when the DEVICE receives "20•30: PREROLL" or "24•31: CUE UP WITH DATA" command and then cue-up operation is completed.

STATUS DATA No. 3

BIT-6: FREEZE ON
This bit is set to "1" when the DEVICE receives the "20•6B : FREEZE ON" command and enters into he FREEZE mode.

BIT-3: AUDIO OUT
BIT-2: AUDIO IN
BIT-1: OUT
BIT-0: IN
When the DEVICE receives ENTRY, PRESET and RECALL commands of each editing point (IN, OUT, AUDIO IN or AUDIO OUT), the corresponding bit is set to "1", and TIMER-1 or TIME CODE data is memorized.

STATUS DATA No. 4

BIT-6: FULL EE ON
This bit is set to "1" when the DEVICE receives the "20•61 : FULL EE ON" command.

BIT-0: PREROLL or CUE UP
This bit is set to "1" when the DEVICE receives the "20•30: PREROLL" or "24•31: CUE UP WITH DATA" command and goes into the PREROLL and CUE-UP mode, and this bit is also set to "1" when the PREROLL is performed in the AUTO EDIT or PREVIEW mode.

STATUS DATA No. 6

BIT-6: STILL LED ON
BIT-5: FWD LED ON
BIT-4: REV LED ON
When the DEVICE receives the command, the each bit will be set to "1" according to the received command.

STATUS DATA No. 8

BIT-7 : BUZZER ON

This bit is set to “1” when any abnormalities have occurred in hardware of the device.

BIT-6: LOST LOCK

This bit is set to “1” when the REFERENCE lock is released while the DEVICE is in the PLAY, REC, or EDIT mode.
This bit is cleared to “0” when the DEVICE receives the “40•2D: LOST LOCK RESET” command.

BIT-5 : NEAR MEDIA FULL

This bit is set to “1” when three-minute (or less) area of the recording media of DEVICE is remaining.

BIT-4 : MEDIA FULL

This bit is set to “1” when DEVICE detects that no area of the recording media is remaining.

BIT-1 : SYSTEM ALARM

This bit is set to “1” when even one error in the internal ERROR STATUS of the DEVICE has occurred.

BIT-0 : REC INHIBIT

This bit is set to “1” when the REC INHIBIT menu on the DEVICE is set to “ON” or recording is disabled by the WP switch of the media or FS LOCK (File System Lock).

STATUS DATA No.9

BIT-7 : FUNCTION ABORT

This bit is set to “1” when normal operation has not completed during CUE UP operation.

61•21: EXTENDED VTR STATUS SENSE

This command is used to request the EXTENDED STATUS of the DEVICE.
And specifies the data to be sent back by the “7X•21: EXTENDED VTR STATUS DATA” command according to DATA-1 added to this command.

[DATA-1]
Requests the data in the block corresponding to the bits set to “1” in DATA-1.

Note

The number of the bits that cam be set to “1” are maximum three bits. Therefore, the CONTROLLER can request 3 blocks at one time.
In case of the four or more bits are set to “1”, the 3 blocks (BLOCK 0, BLOCK 1, BLOCK 2) will be sent back.

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
BLOCK No.7	BLOCK No.6	BLOCK No.5	BLOCK No.4	BLOCK No.3	BLOCK No.2	BLOCK No.1	BLOCK No.0

7X•21: EXTENDED VTR STATUS

When the DEVICE receives the “61•21: EXTENDED VTR STATUS SENSE” command, the following data will be sent back in accordance with the request.

[DATA-1]
The bits corresponding to the requested data block are set to “1”.

[DATA-2]
This is byte count of sending data. (4-byte unit, maximum of 12 bytes)

BLOCK No.	DATA No.	BIT-7 (MSB)	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-7 (MSB)
0	0	PB SPEED (LOWER BYTE)							
	1	PB DIR	PB SPEED (UPPER BYTE)						
SERVO STATUS	2	*	*	*	*	*	*	*	*
	3	*	*	*	*	*	*	*	*

62•25: VIDEO CONTROL DATA SENSE

This command specifies the data to be sent back by the “7X•25: VIDEO CONTROL DATA” command according to the state of DATA-1 and DATA-2.

[DATA-1]
MSD (BIT-7 to 4): indicates the block of the VIDEO CONTROL DATA.
LSD (BIT-3 to 0): indicates the number of data bytes (1H to FH) to be sent back.

Don’t make a set for BIT-7 and BIT-4 using ones other than codes below.

BIT-7	BIT-6	BIT-5	BIT-4	BLOCK
1	0	1	0	HD Y/P_B/P_R

[DATA-2]
Indicate starting DATA No. for return.

7X•25: VIDEO CONTROL DATA

When the DEVICE receives the “62•25: VIDEO CONTROL DATA SENSE” command, the data shown below will be sent back. Preset value is returned for unsupported data.
When undefined block or undefined code are specified, the “70•25” command will be sent back.
When the data beyond No. 19 are requested, the data up to No. 18 are sent back.

DATA No.	HD Y/P_B/P_R	
00	00H	
01	00H	
02	00H	
03	00H	
04	00H	
05	00H	
06	OUTPUT Y LEVEL	(LOWER)
07	OUTPUT Y LEVEL	(UPPER)
08	OUTPUT P_B LEVEL	(LOWER)
09	OUTPUT P_B LEVEL	(UPPER)
0A	OUTPUT P_R LEVEL	(LOWER)
0B	OUTPUT P_R LEVEL	(UPPER)
0C	OUTPUT FINE PHASE	(LOWER)
0D	OUTPUT FINE PHASE	(UPPER)
0E	OUTPUT SYNC PHASE	(LOWER)
0F	OUTPUT SYNC PHASE	(UPPER)
10	00H	
11	00H	
12	00H	
13	00H	
14	00H	
15	00H	
16	00H	
17	00H	
18	00H	

62•26: AUDIO CONTROL DATA SENSE

This command specifies the data to be sent back by the "7X•26: AUDIO CONTROL DATA" command according to DATA-1 and DATA-2.
For the supported channel, it can be checked by the "61•24: SUPPORTED SIGNAL SENSE" command.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
0	0	OUT	IN				

BIT-5/BIT-4: Specify the input (AUDIO INPUT CONTROL DATA) or output (AUDIO OUTPUT CONTROL DATA).

BIT-5	BIT-4	
0	1	INPUT (AUDIO INPUT CONTROL DATA)
1	0	OUTPUT (AUDIO OUTPUT CONTROL DATA)
1	1	UNDEFINED

BIT-3 to BIT-0: indicate the byte count of the data to be sent back.

[DATA-2]
Indicate starting DATA No. to be sent back.

7X•26: AUDIO CONTROL DATA

When the DEVICE receives the "62•26: AUDIO CONTROL DATA SENSE" command, the data shown below will be sent back. When data for unsupported channel has no meanings.
When the data beyond No. 33 are requested, the data up to No. 32 are sent back.

(1) Audio Input Control Data

DATA No.	BIT-7 (MSB)	BIT-0 (LSB)
00		
01		
02		
03		
04		
05		
06		
07		
08		
09		
0A		
0B		
0C		
0D		
0E		
0F		
10		
11		
12		
13		
14		
15	UNDEFINED	
16	UNDEFINED	
17	UNDEFINED	
18	UNDEFINED	
19	UNDEFINED	
1A	UNDEFINED	
1B	CH-1 INPUT SET LEVEL	(LOWER)
1C	CH-1 INPUT SET LEVEL	
1D	CH-1 INPUT SET LEVEL	(UPPER)
1E	CH-2 INPUT SET LEVEL	(LOWER)
1F	CH-2 INPUT SET LEVEL	
20	CH-2 INPUT SET LEVEL	(UPPER)
21	CH-3 INPUT SET LEVEL	(LOWER)
22	CH-3 INPUT SET LEVEL	
23	CH-3 INPUT SET LEVEL	(UPPER)
24	CH-4 INPUT SET LEVEL	(LOWER)
25	CH-4 INPUT SET LEVEL	
26	CH-4 INPUT SET LEVEL	(UPPER)
27	CH-5 INPUT SET LEVEL	(LOWER)
28	CH-5 INPUT SET LEVEL	
29	CH-5 INPUT SET LEVEL	(UPPER)
2A	CH-6 INPUT SET LEVEL	(LOWER)
2B	CH-6 INPUT SET LEVEL	
2C	CH-6 INPUT SET LEVEL	(UPPER)
2D	CH-7 INPUT SET LEVEL	(LOWER)
2E	CH-7 INPUT SET LEVEL	
2F	CH-7 INPUT SET LEVEL	(UPPER)
30	CH-8 INPUT SET LEVEL	(LOWER)
31	CH-8 INPUT SET LEVEL	
32	CH-8 INPUT SET LEVEL	(UPPER)
33	CH-9 INPUT SET LEVEL	(LOWER)
34	CH-9 INPUT SET LEVEL	
35	CH-9 INPUT SET LEVEL	(UPPER)
36	CH-10 INPUT SET LEVEL	(LOWER)
37	CH-10 INPUT SET LEVEL	
38	CH-10 INPUT SET LEVEL	(UPPER)
39	CH-11 INPUT SET LEVEL	(LOWER)
3A	CH-11 INPUT SET LEVEL	
3B	CH-11 INPUT SET LEVEL	(UPPER)
3C	CH-12 INPUT SET LEVEL	(LOWER)
3D	CH-12 INPUT SET LEVEL	
3E	CH-12 INPUT SET LEVEL	(UPPER)
3F	CH-13 INPUT SET LEVEL	(LOWER)
40	CH-13 INPUT SET LEVEL	
41	CH-13 INPUT SET LEVEL	(UPPER)
42	CH-14 INPUT SET LEVEL	(LOWER)
43	CH-14 INPUT SET LEVEL	
44	CH-14 INPUT SET LEVEL	(UPPER)
45	CH-15 INPUT SET LEVEL	(LOWER)
46	CH-15 INPUT SET LEVEL	
47	CH-15 INPUT SET LEVEL	(UPPER)
48	CH-16 INPUT SET LEVEL	(LOWER)
49	CH-16 INPUT SET LEVEL	
50	CH-16 INPUT SET LEVEL	(UPPER)

(2) Audio Output Control Data

DATA No.	BIT-7 (MSB)	BIT-0 (LSB)
00		
01		
02		
03		
04		
05		
06		
07		
08		
09		
0A		
0B		
0C		
0D		
0E		
0F		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
1A		
1B	CH-1 OUTPUT SET LEVEL	(LOWER)
1C	CH-1 OUTPUT SET LEVEL	
1D	CH-1 OUTPUT SET LEVEL	(UPPER)
1E	CH-2 OUTPUT SET LEVEL	(LOWER)
1F	CH-2 OUTPUT SET LEVEL	
20	CH-2 OUTPUT SET LEVEL	(UPPER)
21	CH-3 OUTPUT SET LEVEL	(LOWER)
22	CH-3 OUTPUT SET LEVEL	
23	CH-3 OUTPUT SET LEVEL	(UPPER)
24	CH-4 OUTPUT SET LEVEL	(LOWER)
25	CH-4 OUTPUT SET LEVEL	
26	CH-4 OUTPUT SET LEVEL	(UPPER)
27	CH-5 OUTPUT SET LEVEL	(LOWER)
28	CH-5 OUTPUT SET LEVEL	
29	CH-5 OUTPUT SET LEVEL	(UPPER)
2A	CH-6 OUTPUT SET LEVEL	(LOWER)
2B	CH-6 OUTPUT SET LEVEL	
2C	CH-6 OUTPUT SET LEVEL	(UPPER)
2D	CH-7 OUTPUT SET LEVEL	(LOWER)
2E	CH-7 OUTPUT SET LEVEL	
2F	CH-7 OUTPUT SET LEVEL	(UPPER)
30	CH-8 OUTPUT SET LEVEL	(LOWER)
31	CH-8 OUTPUT SET LEVEL	
32	CH-8 OUTPUT SET LEVEL	(UPPER)
33	CH-9 OUTPUT SET LEVEL	(LOWER)
34	CH-9 OUTPUT SET LEVEL	
35	CH-9 OUTPUT SET LEVEL	(UPPER)
36	CH-10 OUTPUT SET LEVEL	(LOWER)
37	CH-10 OUTPUT SET LEVEL	
38	CH-10 OUTPUT SET LEVEL	(UPPER)
39	CH-11 OUTPUT SET LEVEL	(LOWER)
3A	CH-11 OUTPUT SET LEVEL	
3B	CH-11 OUTPUT SET LEVEL	(UPPER)
3C	CH-12 OUTPUT SET LEVEL	(LOWER)
3D	CH-12 OUTPUT SET LEVEL	
3E	CH-12 OUTPUT SET LEVEL	(UPPER)
3F	CH-13 OUTPUT SET LEVEL	(LOWER)
40	CH-13 OUTPUT SET LEVEL	
41	CH-13 OUTPUT SET LEVEL	(UPPER)
42	CH-14 OUTPUT SET LEVEL	(LOWER)
43	CH-14 OUTPUT SET LEVEL	
44	CH-14 OUTPUT SET LEVEL	(UPPER)
45	CH-15 OUTPUT SET LEVEL	(LOWER)
46	CH-15 OUTPUT SET LEVEL	
47	CH-15 OUTPUT SET LEVEL	(UPPER)
48	CH-16 OUTPUT SET LEVEL	(LOWER)
49	CH-16 OUTPUT SET LEVEL	
50	CH-16 OUTPUT SET LEVEL	(UPPER)

60•2B: REMAIN TIME SENSE

This command is used to request the remaining time data of the media in the DEVICE.
When the DEVICE receives this command, it attaches 6-byte remaining time data of the recording media to "76•2B : REMAIN TIME" command and sends the information to the CONTROLLER

76•2B: REMAIN TIME DATA

When the DEVICE receives the "60•2B : REMAIN TIME SENSE" command from CONTROLLER, the 6-byte remaining time data of the recording media will be sent back in accordance with the request.

【RETURN DATA】

DATA-1		DATA-2		DATA-3		DATA-4		DATA-5	DATA-6
10 Frame	1 Frame	10 Second	1 Second	10 Minute	1 Minute	10 Hour	1 Hour	0 (Reserved)	0 (Reserved)
MSD	LSD	MSD	LSD	MSD	LSD	MSD	LSD		

60•2E: COMMAND SPEED SENSE

This command is used for requesting the operating SPEED COMMAND of the DEVICE.
When the DEVICE receives this command, it returns command "71•2E: COMMAND SPEED DATA" command.

71•2E: COMMAND SPEED DATA

When the DEVICE receives the "60•2E: CMD SPEED SENSE" command, the speed data of the DEVICE will be sent back.
For the data format, refer to the "2X•11: JOG FWD" commands.

60•31: PREROLL TIME SENSE

This command is used to request the PREROLL TIME setting data of the DEVICE.
When the DEVICE receives this command, it returns the "74•31: PREROLL TIME DATA" command.

74•31: PREROLL TIME DATA

When the DEVICE receives the "60•31: PREROLL TIME SENSE" command, the preroll time data (DATA-1 to DATA-4) will be returned.
For the data format, refer to the "24•31: CUE UP WITH DATA" command.

60•36: TIMER MODE SENSE

This command is used to request the TIMER MODE (TIMER-1 or TIME CODE) setting data of the DEVICE.
When the DEVICE receives this command, it returns the "71•36: TIMER MODE DATA" command.

71•36: TIMER MODE DATA

When the DEVICE receives the "60•36: TIMER MODE SENSE" command, the timer mode status (DATA-1) will be returned.

[DATA-1] 00: TIME CODE
01: TIMER-1
02: TIMER-2

60•50: DA INPUT SENSE

This command is used to request the digital audio input signal selection status of the DEVICE.
When the DEVICE receives this command, it returns "71•50: DA INPUT STATUS" command.

72•50: DA INPUT STATUS

When the DEVICE receives the "60•50: DA INPUT SENSE" command, the digital audio input selection status data will be returned.

【DATA-1】

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
DA8	DA7	DA6	DA5	DA4	DA3	DA2	DA1

【DATA-2】

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
DA16	DA15	DA14	DA13	DA12	DA11	DA10	DA9

1 : ANALOG AUDIO INPUT
0 : DIGITAL AUDIO INPUT

6X•54: EXTENDED DA INPUT SENSE

This command is used to request the digital audio input status.
When the DEVICE receives this command, it returns the "7X•54: EXTENDED DA INPUT STATUS" command.

When the "60•54" command is specified, this command requests the status of all the input channels.

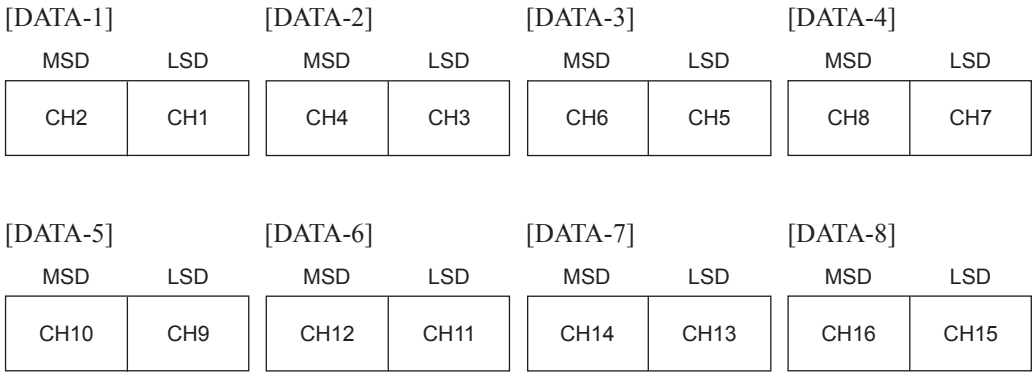
When the "61•54" command is specified, this command requests the status of the channel groups corresponding to the bitmap data as follows.

[DATA-1]

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
CH15, CH16	CH13, CH14	CH11, CH12	CH9, CH10	CH7, CH8	CH5, CH6	CH3, CH4	CH1, CH2

7X•54: EXTENDED DA INPUT STATUS

When the DEVICE receives the “60•54: EXTENDED DA INPUT SENSE” command, the status data of the digital audio input will be sent back in accordance with the request.
When the “60•54” command is received, the status data of all channels (channel 1 through N) will be sent back. Each channel status is composed of 4-bit data as follows.



4-BIT DATA
0: ANALOG
1: AES/EBU
2: SDI
:
E: INTERNAL SG
F: INVALID

When the “61•54” command is received, the specified status data corresponding to the bitmap will be sent back from the lower channel number. The data format is same as the return status for “60•54” command.

60•58: DA SAMPLING FREQ SENSE

This command is used to request the sampling frequency of the DEVICE digital audio channels.
When the DEVICE receives this command, it returns the “71•58: DA SAMPLING FREQ DATA” command.

71•58: DA SAMPLING FREQ STATUS

When the DEVICE receives the “60•58: DA SAMPLING FREQ SENSE” command, digital audio sampling frequency status data will be sent back.
[DATA-1] 01: 48.0 kHz

60•9E: SUPERIMPOSE SENSE

This command is used to request SUPERIMPOSE STATUS of the DEVICE.
When the DEVICE receives this command, it returns the “71•9E: SUPERIMPOSE STATUS” command.

71•9E: SUPERIMPOSE STATUS

When the DEVICE receives the “60•9E: SUPERIMPOSE SENSE” command, SUPERIMPOSE ON/OFF data will be sent back.
For the data format, refer to the “42•9E: SUPERIMPOSE” command.

60•AE: AUDIO MONITOR CHANNEL SENSE

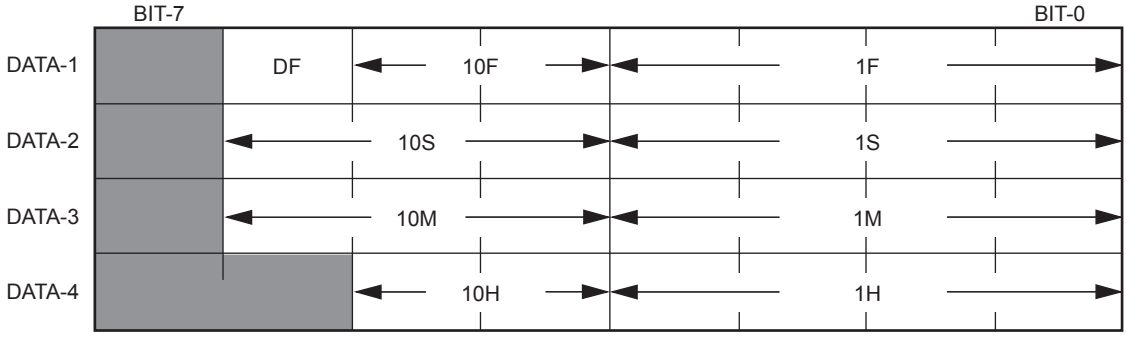
This command requests the status of audio monitoring channel.
When the DEVICE receives this command, it returns the "74•AE: AUDIO MONITOR CHANNEL STATUS" command. DATA-1 to DATA-4 in "74.AE: AUDIO MONITOR CHANNEL STATUS" show the setting status.

74•AE: AUDIO MONITOR CHANNEL STATUS

When the DEVICE receives the "60•AE: AUDIO MONITOR CHANNEL SENSE" command, the status of audio monitoring channel will be sent back.
For the data format, refer to "44•AE: AUDIO MONITOR CHANNEL SELECT" command.

Time Data Format

The following shows the time data format used by commands such as "24•31: CUE UP WITH DATA".



Although the shaded null bits have no meaning as time data, they are set in the following cases.

1. DATA-1, BIT-6: DF FLAG ("1" DF, "0" NDF) ••••• NTSC operation mode

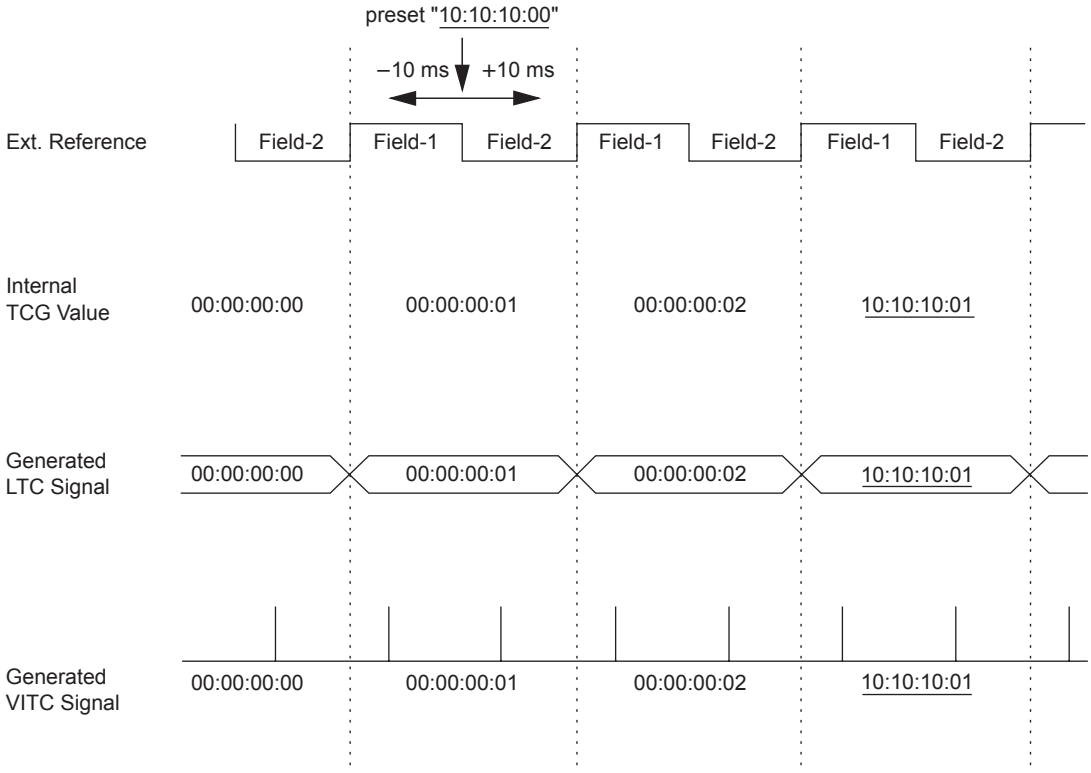
   This bit is set in a response command from DEVICE of "61•0C: CURRENT TIME SENSE" according to the DF or NDF mode of DEVICE.
   It is also set to specify the DF or NDF mode of the TIME CODE GENERATOR of DEVICE of "44•04: TIME CODE PRESET" command.

2. Other bits

   The other bits are defined by SMPTE/EBU in a response command of TIME CODE DATA from DEVICE of "61•0C: CURRENT TIME SENSE" command. Flags conforming to the TIME CODE FORMAT are set in some cases.

Appendix

(1) 44•04 [TIME CODE PRESET], 4X•05 [USER BIT PRESET]



SR-R1000 (SY)
SR-R1000 (CN)
SR-R1 (SY)
PWS-4400 (SY)
PWS-4400 (CN)
PWS-4500 (SY)
PWS-4500 (CN) E
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