8-3. Control Command

The control command list below shows the standard control commands for **Crosspoint remote control**, **Crosspoint remote control 2** and **Audio remote settings**, which are available for both LAN and serial interfaces.

◆ **Control command list**

Function		Serial	LAN *1	Protocol *2
1	Commands (S?) for requesting the crosspoints list	Yes	Yes	Crosspoint remote control / Crosspoint remote control 2
2	Commands (X?) for requesting information on crosspoints (by specifying a destination and level.)	Yes	Yes	
3	Commands (X:) for switching over a crosspoint (single channel)	Yes	Yes	
4	Commands for switching over crosspoints (multi-channel simultaneous switchover)	Yes	Yes	
5	Commands (W:) for locking a destination	Yes	Yes	
6	Commands (Z:) for reinitializing a unit	Yes	Yes	
7	Commands (K?) for requesting input/output channel names	-	Yes	Crosspoint remote control 2
8	Commands (A?) for requesting CPU status.	-	Yes	
9	Commands (W?) for requesting Destination Lock status.	-	Yes	
10	Commands (K:) for importing signal names	-	Yes	
11	Commands (F?) for requesting System Size	Yes	Yes	Crosspoint remote control / Crosspoint remote control 2
12	Commands for setting video format (reference and/or switching point).	-	Yes	Crosspoint remote control 2
13	Commands for setting audio input channels	-	Yes	Audio remote settings
14	Commands for mapping audio channels	-	Yes	
15	Commands for setting link function (enable/disable)	-	Yes	
16	Commands for setting video format and delay	-	Yes	

*1 When commands are sent via LAN, an Echo, Prompt, S response and other response messages may be included in a single packet or divided into two or more packets. Therefore, do not process commands in a per packet basis but a per stream basis.

*2 A command protocol should be selected in the [Web-based Control: **Port Settings** page].

◆ **Command formats**

Func.	Control command	Command response	Ref.
1	@[sp]S?<Lvl>	S:<Lvl><Dest>,<Src>	-
2	@[sp]X?<Lvl><Dest>	S:<Lvl><Dest>,<Src>	-
3	@[sp]X:<Lvls>/<Dest>,<Src>	S:<Lvl><Dest>,<Src> C:<Lvls>/<Dest>,<Src>[…..[S<Salvo number>][L<Link number>]]:I<ID>	-
4	Clear a preset crosspoint. @[sp]B**:C**		-
	Preset a crosspoint. @[sp]P:<Lvl>/<Dest>,<Src>		
	Read a preset crosspoint specifying a level and destination. @[sp]P?**<**Lvl><Dest>	V:<Lvl><Dest>,<Src>	
	Read preset crosspoints for all channels in the specified level. @[sp]V?**<**Lvl>	V:<Lvl><Dest>,<Src>	
	Set the preset crosspoints simultaneously. @[sp]B:E	S:<Lvl><Dest>,<Src> C:<Lvls>/<Dest>,<Src>[…..[S<Salvo number>][L<Link number>]]:I<ID>	-

Func.	Control command		Command response	Ref.
5	LOCK ALL units. @[sp]W:<Lvl>/<Dest>,<ID>,1		W!<Lvl><Dest>,<ID>,1	-
	LOCK OTHER units. @[sp]W:<Lvl>/<Dest>,<ID>,2		W!<Lvl><Dest>,<ID>,2	-
	Disable LOCK. @[sp]W:<Lvl>/<Dest>,<ID>,0		W!<Lvl><Dest>,<ID>,0	-
6	@[sp]Z:<Lvls>		S:<Lvl><Dest>,<Src> C:<Lvls>/<Dest>,<Src>[…..[S<Number of crosspoints in Salvo>][L<Number of Links>]]:I<ID>	-
7	@[sp]K?<SorD><AorK>,<Ofset>		K:<SorD><AorK><No.>,<Dat>	8-3-3
8	@[sp]A?	If CPU is active:	A:<ID>	8-3-4
		If CPU is passive:	(No response)	
9	@[sp]W?<Lvl>,<Dest>		W!<Lvl><Dest>,<ID>,0-2	8-3-5
10	K:<S or D><S or L or A><No.>,<Dat>			8-3-6
11	@[sp]F?<Lvl>		F:<Lvl><Dst Size>,<Src Size>/< Dst Size >,<Src Size>	8-3-7
12	**Preset video format, reference and switching point.** @[sp]UF:<YY>/<R#>,<S$>		UF!<YY>/<R#>,<S$>	8-3-8
	Set preset settings. @[sp]UE:A		UR!W UR!<YY>/<R#>,<S$>	
			UR!E(Error response)	
	Cancel preset settings. @[sp]UE:C		UR!C	
13	@[sp]AA:<SlotNo.><Grp>/<I-No>,<L-Lvl><L-Src><T#>		AA:<SlotNo.><Grp>/<I-No>,<L-Lvl><L-Src><T#>	8-3-9
14	@[sp]AX:<SlotNo.><Grp>/<O-BNC><O-CH>,<I-No.><I-CH>		AC:<SlotNo.><Grp>/<O-BNC><O-CH>,<I-No.><I-CH>:I<ID>	8-3-10
15	@[sp]AL:<ONorOFF>		AL:<ONorOFF>	8-3-11
16	**Preset video format and delay.** @[sp]AF:<SlotNo.><Grp>/<FORMAT>,<D#>		AF!<SlotNo.><Grp>/<FORMAT>,<D#>	8-3-12
	Set preset settings. @[sp]AE:A		AR!W AR!<SlotNo.><Grp>/<FORMAT>,<D#>	
			AR!N (Error response)	
	Cancel preset settings. @[sp]AE:R		AR!R	

* [sp] indicates a space.

* Commands must end with a carriage return (ASCII code 0x**0D**) only or carriage return and line feed (ASCII code 0x**0A**). MFR units add **a carriage return** and **line feed** in front of and at the end of reply messages.

Command parameters and setting range

<Lvl>	0 - 7	Allows you to specify the level to switch crosspoints. * When in single-level operation.
<Lvls>	0 - 7	Allows you to specify the levels to switch crosspoints. * When in multiple-level operation
<Dest>	000-0FF	Allows you to specify the crosspoint switchover destination.
<Src>	000 - 0FF	Allows you to specify the source of crosspoint switchover.
<ID>	0 - FE	Unit ID. The ID must be different from that of other devices in the same network. Use **1** to **FE** for ID numbers. The host returns **0** when the lock is released.

* All command values are in hexadecimal, starting from 0 (zero).
(For example, Source "**16**" is represented as <Src>"**F**.")

* If levels are not in use, set <Lvl> or <Lvls> to "0"(zero).

8-3-1. Command Responses (Commands 1-6)

- **Echo and Prompt**
  Responses will be sent as shown below when receiving commands:

A command is received. ↓ Echo ↓ Prompt	 @[sp]X:<Lvls>/<Dest>,<Src>[CR] [CR][LF]>

* MFR units respond with an Echo Reply with the same data that they received. Therefore, echo reply messages end with [CR][LF] or [CR] only. If echo messages with [CR][LF] are received, only [LF] composes the second line.
* MFR units read a command, ended with a newline, and return a prompt to notify that they are ready to receive a new command.
* A carriage return and line feed are not added at the end of "Echo Reply" and "Prompt"
* Echo ON/OFF can be set in [Web-Based Control: **Port Settings** page.

- **"C" responses**
  A "C" response is sent as shown below when a control command is received:

[CR][LF]C:<Lvls>/<Dest>,<Src>[…[S<**Salvo number**>][L<**Link number**>]]:I<ID>[CR][LF]

* C responses are sent to all the terminals in the system.
* C response ON/OFF can be set in [Web-Based Control: **Port Settings** page.

Parameter	Setting range	Description
<Salvo number>	1-FFF	The number of crosspoints that are to be changed simultaneously by Salvo settings. A response if 3 crosspoints are to be changed simultaneously: **C:0/0,0...S2:IA**
<Link number>	1-FFF	The number of crosspoints that are to be changed simultaneously by Link settings. A response if 2 crosspoints are to be changed simultaneously: **C:0/0,2...L1:IA**

- **"S" responses**
  An "S" response is sent as shown below when crosspoints are switched by a command.

[CR][LF]S:<Lvl><Dest>,<Src>[CR][LF]

* If a crosspoint is switched by an X or B command, its "S" response is sent to all the terminals in the system. However, if any crosspoints are not switched (specifying the same crosspoint as the current one), its "S" response is sent only to the terminal that sent the command.
* C responses are sent before S responses in some cases.
* A command is received from another terminal while a B or X command is processed, MFR units send "S" response messages to the terminals, notifying only the latest crosspoint states.
* A crosspoint switch command is not performed if the relevant crosspoint is locked or inhibited to change.
* S response ON/OFF can be set in [Web-Based Control: **Port Settings** page.

Ex. 1) When Source 5 is selected for Destination 3 in Level 1: (Function ③)

(A)	@ X:0/2,4[CR] [CR][LF]>
(B)	[CR][LF] C:0/2,4:IA[CR][LF]
(C)	[CR][LF] S:02,4[CR][LF]

Terminal display:

```
@ X:0/2,4
>
C:0/2,4:IA

S:02,4
```

Ex. 2) When Source 113 is selected for Destination 49 in Levels 2 to 7: (Function ③)

(A)	@ X:123456/30,70[CR][CR][LF]>
(B)	[CR][LF] C:123456/30,70...S5:IA[CR][LF]
(C)	[CR][LF] S:130,70[CR][LF]
(C)	[CR][LF] S:230,70[CR][LF]
(C)	[CR][LF] S:330,70[CR][LF]
(C)	[CR][LF] S:430,70[CR][LF]
(C)	[CR][LF] S:530,70[CR][LF]
(C)	[CR][LF] S:630,70[CR][LF]

Terminal display:

```
@ X:123456/30,70
>
C:123456/30,70…S5:IA
S:130,70
S:230,70
S:330,70
S:430,70
S:530,70
S:630,70
```

* [CR] and [LF] represent Carriage Return (0x0D) and Line Feed (0x0A) respectively.

8-3-2. Receiving Responses (Commands 1-6)

- **Timeout Waiting for Command Response from MFR**
  Set the **timeout** period (maximum permitted time until its response returns from the MFR unit) to **1 second** for short message commands and to **5 seconds** for long message commands.

- **If Sending Commands Successively:**
  -For "**X:**", "**B:C**", "**P:**" and "**W:**" commands, send the next command **after** a **prompt** returns.
  -For "**S?**", "**X?**", "**P?**", "V?", "**B:E**" and "**Z:**" commands, send the next command **after** a **prompt and reply messages** return.
  -For "**S?**" and "**Z:**" commands as well as "**V?**" and "**B:E**" commands after executing many preset commands, send the next command **after** having finished receiving **all strings** of reply messages.

Ex. 1)
Allows to send the next command when receiving a prompt.
Resends the previous command when the timeout period (5 seconds) have elapsed without reply after sending a command.

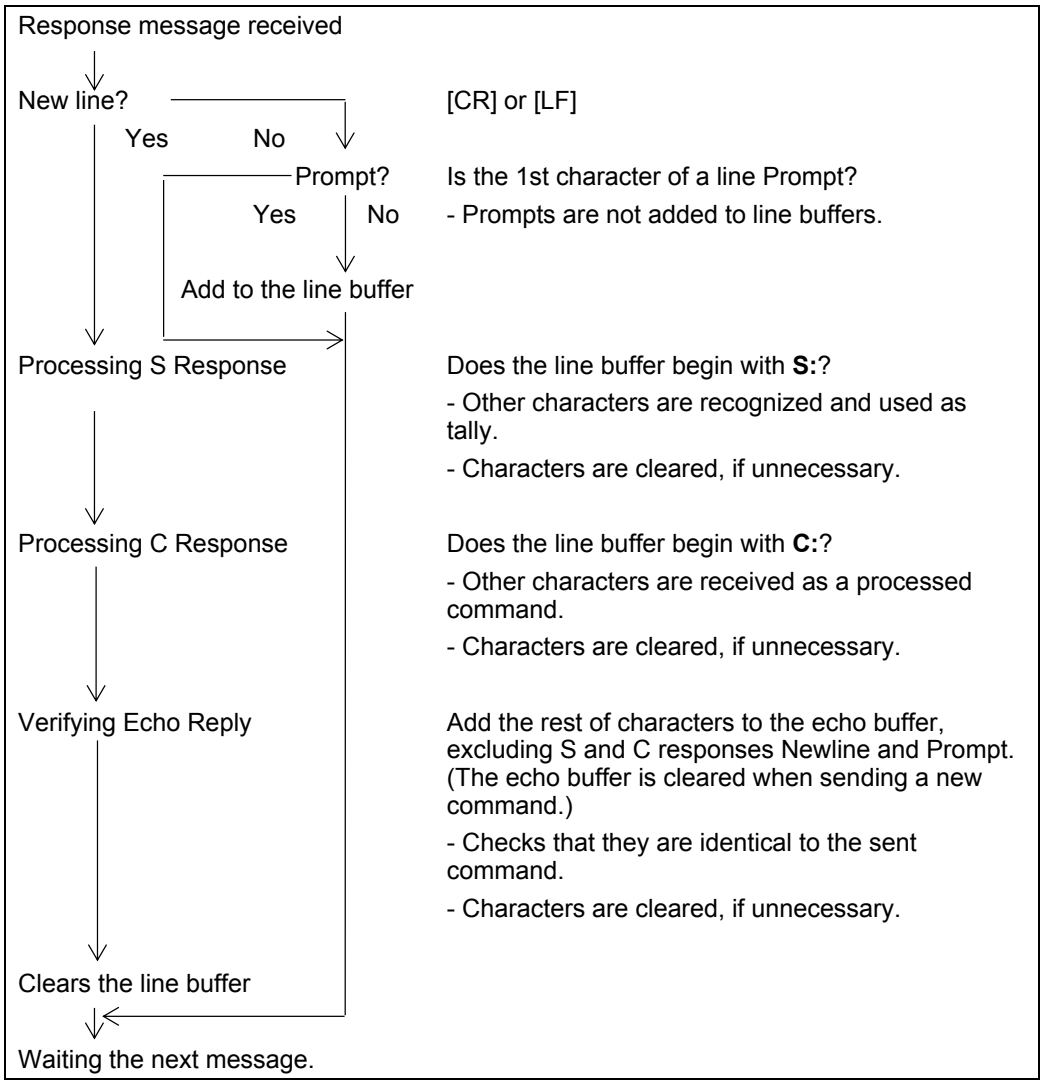
Ex. 2)
Allows to send the next command when receiving a prompt.
Resends the previous command when the timeout period (5 seconds) have elapsed without reply after sending a command.
Recognizes and uses "S" responses as tallies (crosspoint states).

Ex. 3)
Allows to send the next command when receiving a prompt.
Recognizes and uses "S" responses as tallies (crosspoint states).
Resends the previous command when the timeout period (5 seconds) have elapsed without reply after sending a command.
Sets the maximum number of continuous resendings, because crosspoints cannot be changed if they are locked or inhibited to change.

Ex. 4)
Allows to send the next command when receiving a prompt.
Resends the previous command when the timeout period (5 seconds) have elapsed without reply (echo) after sending a command.

Ex. 5)
Allows to send the next command when receiving a prompt.

- **Response Message Evaluation Example:**



- **If Commands are Overlapped:**
  Two or more commands are sent from different terminals (via serial or LAN interface, or Remote Control units), all command results (C and S responses) are sent to all these terminals from the MFR.
  The following command examples shows how overlapped commands are processed.

Ex.) Assume that the following commands are overlapped:
Terminal 1 sent "@ X:0/2,4."
Terminal 2 sent "@ X:123456/30,70."

Message examples returned to Terminal 1

1-(A)	@ X:0/2,4[CR] [CR][LF]>
1-(B)	[CR][LF] C:0/2,4:IA[CR][LF]
2-(B)	[CR][LF] C:123456/30,70...S5:IA[CR][LF]
1-(C)	[CR][LF] S:02,4[CR][LF]
2-(C)	[CR][LF] S:130,70[CR][LF]
2-(C)	[CR][LF] S:230,70[CR][LF]
2-(C)	[CR][LF] S:330,70[CR][LF]
2-(C)	[CR][LF] S:430,70[CR][LF]
2-(C)	[CR][LF] S:530,70[CR][LF]
2-(C)	[CR][LF] S:630,70[CR][LF]

Terminal display

```
@ X:0/2,4
>
C:0/2,4:IA

C:123456/30,70...S5:IA

S:02,4

S:130,70

S:230,70

S:330,70

S:430,70

S:530,70

S:630,70
```

Message examples returned to Terminal 2

2-(A)	@ X:123456/30,70[CR] [CR][LF]>
1-(B)	[CR][LF] C:0/2,4:IA[CR][LF]
2-(B)	[CR][LF] C:123456/30,70...S5:IA[CR][LF]
1-(C)	[CR][LF] S:02,4[CR][LF]
2-(C)	[CR][LF] S:130,70[CR][LF]
2-(C)	[CR][LF] S:230,70[CR][LF]
2-(C)	[CR][LF] S:330,70[CR][LF]
2-(C)	[CR][LF] S:430,70[CR][LF]
2-(C)	[CR][LF] S:530,70[CR][LF]
2-(C)	[CR][LF] S:630,70[CR][LF]

Terminal display

```
@ X:123456/30,70
>
C:0/2,4:IA
C:123456/30,70...S5:IA

S:02,4

S:130,70

S:230,70

S:330,70

S:430,70

S:530,70

S:630,70
```

* C responses are sent before S responses in some cases.

8-3-3. Channel Name Request Commands (7)

K? Commands allow you to obtain Source and Destination names in ASCII and/or in Kanji set in the MFR Web-based Control menu.

◆ **Command Format**

Command	Command response
@[sp]K?<SorD><AorK>,<Ofset>	K:<SorD><AorK><No.>,<Dat>

BYTE No.	1	2	3	4	5	6	7	8-10	11
Command	@	[sp]	K	?	S	A	,	000-0FF	CR
					D	K		000-0FF	

BYTE No.	1	2	3	4	5	6	7-9	10	11-		
Response	CR	LF	K	:	S	A	000-0FF	,		CR	LF
					D	K	000-0FF				

Command Response	BYTE 5	<S or D> Select between S (Source) or D (Destination) S: Source, D: Destination
	BYTE 6	<A or K> Select A (Ascii) or K (Kanji) for names.
Command	BYTE8-10	<Offset> Specify the start number of channels. Source: 000-0FF, Destination: 000-0FF
Response	BYTE7-9	<No.> Indicates the channel number. Source: 000-0FF, Destination: 000-0FF
Response	BYTE11-	<Dat> Indicates the channel name in Ascii or Kanji using hex characters (max. 128 bytes). Character code for Ascii names: **Ascii** Character code for Kanji names: **UTF-8**
Command Response	CR	Carriage return
	LF	Line feed

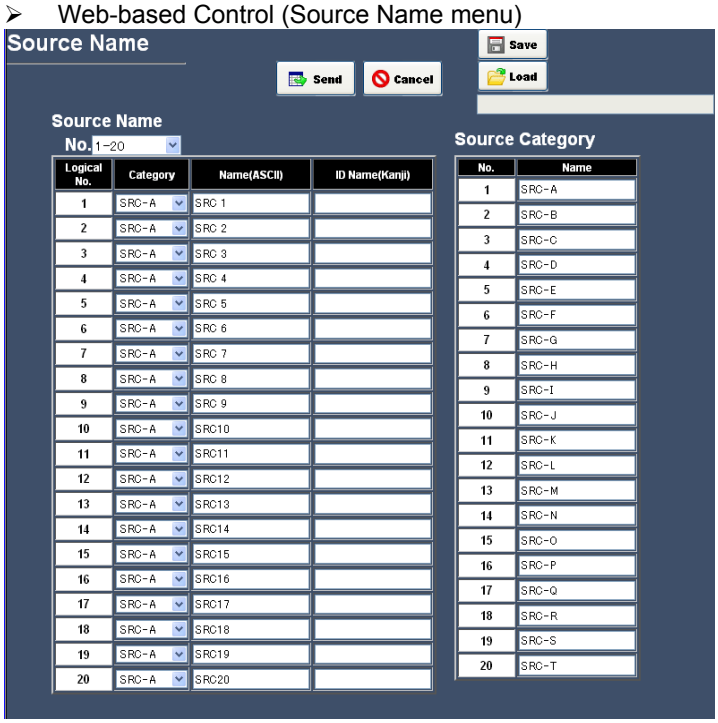
Up to 32 channel names can be obtained per a single request.

Note that the number of request channels exceeds the system maximum size, no data will return for the exceeded channels.

► See the [Web-based Control: **SystemSize/LevelName** page].

◆ **Command Example 1: Requesting the Source Channel 1 Ascii Name**

➢ Web-based Control (Source Name menu)



➢ Terminal display

Command	@ K?SA,000

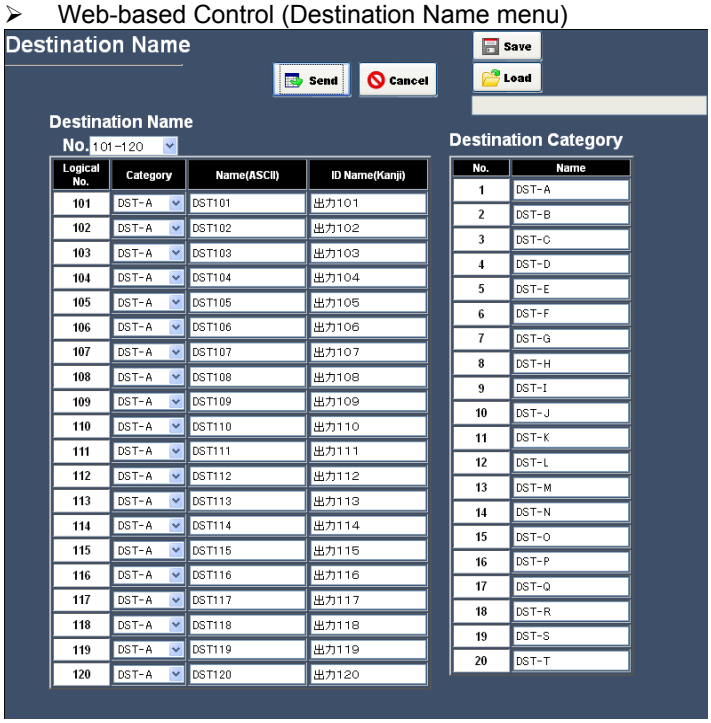
Response	@ K?SA,000	Echo
	K:SA**000**,5352432031	Ascii Name for Source **Channel 1** is SRC 1.
	K:SA**001**,5352432032	Ascii Name for Source **Channel 2** is SRC 2.
	K:SA**002**,5352432033	Ascii Name for Source **Channel 3** is SRC 3.
	I	
	K:SA**01F**,5352433332	Ascii Name for Source **Channel 32** is SRC32.
	>	Prompt

➢ Response details

K:	S	A	000,	53	52	43	20	31
	Source	ASCII	Channel 1	S	R	C	[sp]	1

◆ **Command Example 2: Requesting the Destination Channel 101 Kanji Name**

➢ Web-based Control (Destination Name menu)



➢ Terminal display

Command	@ K?DK,064

Response	@ K?DK,064	Echo
	K:DK**064**,E587BAE58A9BEFBC91EFBC90EFBC91	Kanji Name for Destination **Channel 101** is 出力１０１.
	K:DK**065**,E587BAE58A9BEFBC91EFBC90EFBC92	Kanji Name for Destination **Channel 102** is 出力１０２.
	K:DK**066**,E587BAE58A9BEFBC91EFBC90EFBC93	Kanji Name for Destination **Channel 103** is 出力１０３.
	I	
	K:DK**083**,E587BAE58A9BEFBC91EFBC93EFBC92	Kanji Name for Destination **Channel 132** is 出力１３２.
	>	Prompt

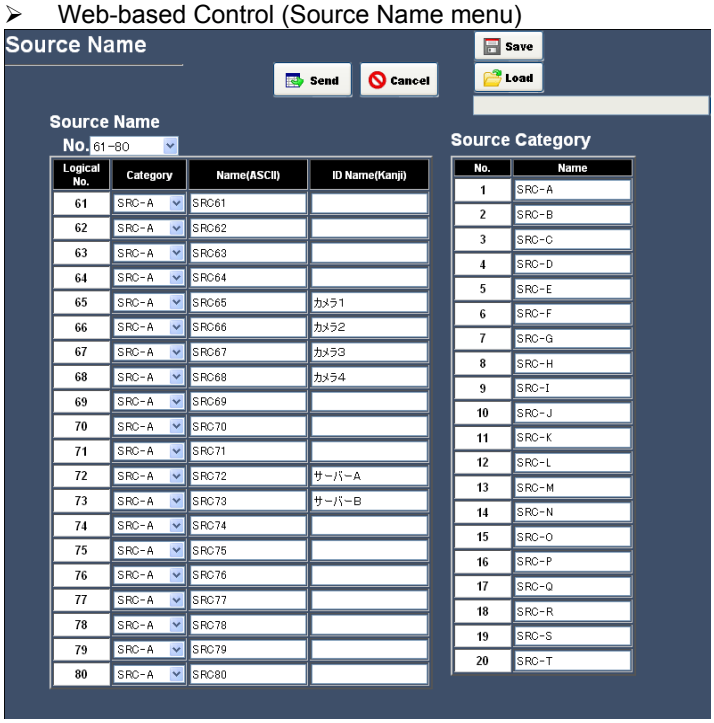
➢ Response details

K:	D	K	064,	E587BA	E58A9B	EFBC91	EFBC90	EFBC91
	Destination	Kanji	Channel 101	出	力	1	0	1

K:	D	K	065,	E587BA	E58A9B	EFBC91	EFBC90	EFBC92
	Destination	Kanji	Channel 102	出	力	1	0	2

◆ **Command Example 3: Requesting the Source Channel 65 Kanji Name**

➢ Web-based Control (Source Name menu)



➢ Terminal display

Command	@ K?SK,040

Response	@ K?SK,040	Echo
	K:SK**040**,E382ABE383A1E383A9EFBC91	Kanji Name for Source **Channel 65** is カメラ１.
	K:SK**041**,E382ABE383A1E383A9EFBC92	Kanji Name for Source **Channel 66** is カメラ２.
	K:SK**042**,E382ABE383A1E383A9EFBC93	Kanji Name for Source **Channel 67** is カメラ３.
	K:SK**043**,E382ABE383A1E383A9EFBC94	Kanji Name for Source **Channel 68** is カメラ４.
	K:SK**044**,	Kanji Name for Source **Channel 69** is empty.
	K:SK**045**,	Kanji Name for Source **Channel 70** is empty.
	K:SK**046**,	Kanji Name for Source **Channel 71** is empty.
	K:SK**047**,E382B5E383BCE38390E383BCEFBCA1	Kanji Name for Source **Channel 72** is サーバーＡ.
	I	
	K:SK**05F**,	Kanji Name for Source **Channel 96** is empty.
	>	Prompt

➢ Response details

K:	S	K	040,	E382AB	E383A1	E383A9	EFBC91
	Source	Kanji	Channel 65	カ	メ	ラ	1

K:	S	K	044,	
	Source	Kanji	Channel 69	(Empty)

K:	S	K	047,	E382B5	E383BC	E38390	E383BC	EFBCA1
	Source	Kanji	Channel 72	サ	―	バ	―	A

8-3-4. CPU Status Request Command (8)

This command allows you to indicate which CPU is active in the MFR-3000.

◆ **Command format**

Command	Command response
@[sp]A?	A:<ID>

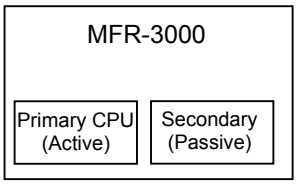
BYTE No.	1	2	3	4	5
Command	@	[sp]	A	?	CR

BYTE No.	1	2	3
Response	A	:	<ID>

<ID>: CPU Unit ID (01 to FE)

◆ **Command Response**

There are two response types whether the CPU is active or passive state.



If the MFR-3000 CPU is active:

Response	@ A?	Echo
	A:A	Unit ID number is 10 (0x0A)
		New line
	>	Prompt

8-3-5. Destination Lock Status Request Command (9)

This command (W?) allows you to indicate the destination lock status in the MFR system.

◆ **Command format**

Command	Command response
@[sp]W?<Lvl>,<Dest>	W! <Lvl><Dest>,<ID>,0 to 2

BYTE No.	1	2	3	4	5	6	7	8
Command	@	[sp]	W	?	<Lvl>	,	<Dest>	CR

<Dest>: Destination channel number

BYTE No.	1	2	3	4	5	6	7	8	9	10	11	12
Response	CR	LF	W	!	<Lvl>	<Dest>	,	<ID>	,	0	CR	LF
										1		
										2		

0: Nothing locked
1: LOCK ALL
2: LOCK OTHER

◆ **Command Response Examples**

If Destination 1 is locked by ID10 Unit using LOCK, Destination 1 status returns as shown below:

Response	@ W?0,0	Echo
	W!00,A,1	Dest 1 is locked by ID10 (0x0A) unit using LOCK ALL.
		CR LF
	>	Prompt

If Destination 2 is locked by ID11 Unit using LOCK OTHER, Destination 2 status returns as shown below:

Response	@ W?0,1	Echo
	W!01,B,2	Dest 2 is locked by ID11 (0x0B) unit using LOCK OTHER.
		CR LF
	>	Prompt

If Destination 3 is not locked, Destination 3 status returns as shown below:

Response	@ W?0,2	Echo
	W!02,0,0	Dest 3 is not locked.
		CR LF
	>	Prompt

8-3-6. Channel Name Import Commands (10)

K: commands allow you to import Source and Destination names from the device that sends K: commands to the MFR system.

◆ **Command Format**

Command	Command response
K:<S or D><S or L or A><No.>,<Dat>	Echo Prompt

BYTE No.	1	2	3	4	5-7	8	9	
Command	K	:	S	S	000-0FF	,		CR
			D	L				
				A				

BYTE 3	<S or D> Select between S (Source) or D (Destination)
BYTE 4	<S or L or A > Select the destination to which names are imported. S: Source Name or Destination Name, ID Name (Kanji) fields on the Web GUI. L: Source Name or Destination Name, Import Name fields on the Web GUI. A: Source Name or Destination Name, Name (ASCII) fields on the Web GUI.
BYTE5-7	<No.> Indicates the channel number. Source: 000-0FF, Destination: 000-0FF
BYTE9-	<Dat> Channel names Strings in Hex characters (max. 128 bytes). Character code: UTF-8
CR	Carriage return

8-3-7. System Size Request Command (11)

F? Commands allow you to obtain MFR-3000 system size.

◆ **Command Format**

Command	Command response
@[sp]F?<Lvl>	F:<Lvl><Dst Size>,<Src Size>/< Dst Size >,<Src Size>

BYTE No.	1	2	3	4	5	6
Command	@	[sp]	F	?	<Lvl>	CR

BYTE No.	1	2	3	4	5	6	7	8	9	10
Response	F	:	<Lvl>	<Dst Size>	,	<Src Size>	/	<Dst Size>	,	<Src Size>

<Dst Size>: Destination channel number
<Src Size>: Source channel number

◆ **Command / Response Example**

Response	@ F?0	Echo
	F:0FF,FF/FF,FF	256 destination channels and 256 source channels.
		CR LF
	>	Prompt

8-3-8. Video Format Commands (12)

Video Format commands allow you to change router video format. The router restarts automatically when commands are accepted. The commands can also change reference and switching point settings.

◆ **Command Format**

Command description		Command	Command response
(1)	Preset video format, reference and switching point.	@[sp]UF:<YY>/<R#>,<S$> *1	UF!<YY>/<R#>,<S$>
(2)	Set preset settings. *1	@[sp]UE:A	UR!W *2 UR!<YY>/<R#>,<S$>
			UR!E (error response)
(3)	Cancel preset settings.	@[sp]UE:C	UR!C

*1 Reference and Switching Point values are non-compulsory. When they are not set, their present settings are returned in the command response.

*2 "UR!W" is issued at 5-second intervals after receiving "@[sp]UE:A." When the command execution is ready, "UR!<YY>/<R#>,<S$>" is issued.

BYTE	1	2	3	4	5	6	7	8	9	10	11	12	13	14
(1)	@	[sp]	U	F	:	<YY>		/	<R#>		,	<S$>		CR
(2)	@	[sp]	U	E	:	A	CR							
(3)	@	[sp]	U	E	:	C	CR							

<YY>	Video format	**00**: 1080/59.94i **01**: 1080/59.94p **02**: 1080/60i **03**: 1080/60p **04**: 1080/50i **05**: 1080/50p **06**: 720/60p	**07**: 720/59.94p **08**: 720/50p **09**: 1080/30p **0A**: 1080/29.97p **0B**: 1080/25p **0C**: 1080/24p **0D**: 1080/23.98p	**0E**: 1080/30PsF **0F**: 1080/29.97PsF **10**: 1080/25PsF **11**: 1080/24PsF **12**: 1080/23.98PsF **13**: 525/59.94i 14**:** 625/50i
<R#>	Reference	**RA**: Auto	RB: B.B	RT: Tri-Sync
<S$>	Switching point	**SF**: Field	SO: Odd	SE: Even

* Commands are not executed if no video format is preset or the current video format is the same as preset setting.

◆ **Command Example 1**

Change Video Format to 720/59.94p.

Command	Command response
@[sp]UF:07[CR]	[CR][LF]UF!07/RA,SF[CR]
@[sp]UE:A[CR]	[CR][LF]UR!W [CR][LF]UR!07/RA,SF[CR] (The router automatically restarts)

◆ **Command Example 2**

Change Video Format to 1080/59.94p, Reference to Tri-level Sync and Switching Point to Field.

Command	Command response
@[sp]UF:01/RT,SF[CR]	[CR][LF]UF!01/RT,SF[CR]
@[sp]UE:A[CR]	[CR][LF]UR!W [CR][LF]UR!01/RT,SF[CR] (The router automatically restarts)

8-3-9. MFR-8MADIPO/8AESPO Input Setting Command (13)

This command allows you to setup audio inputs (streams) for MFR-8MADIPO/8AESPO.
► [Web-based Control: **Audio Settings - Input Type** page]

◆ Command Format

Command	@[sp]AA:<SlotNo.><Grp>/<I-No>,<L-Lvl><L-Src><T#>
Command response	AA:<SlotNo.><Grp>/<I-No>,<L-Lvl><L-Src><T#>

Parameter

<SlotNo.>	0-7	Slot9 to Slot16
<Grp>	0	**0**: Group1
<I-No>	0-7	Input channel (stream) CH1 to CH8
<L-Lvl>	0-7	Level1 to Level8
<L-Src>	0-FF, FFF, 7FF	Logical input channel (Logical No./Name) **0-FF**: SRC1 to SRC256 **FFF**: No assignment (*1) **7FF**: Main MTX (*2)
<T#>	T0-T4	Input signal type **T0**: None **T1**: SDI **T2**: AES/EBU **T3**: MADI (1 to 32) **T4**: MADI (32 to 64)

(*1) If set to “no assignment” for <L-Src>, set “0” and “T0” for <L-Lvl> and <T#>.
(*2) If set to “Main MTX” for <L-Src>, set “0” for <L-Lvl>.

◆ Command / Response Example

Assign Level1 SRC129 (AES/EBU signal) to Group1 Input Channel 8 (on Slot 11).

Command	Parameter	Description
@ AA:		
2	<SlotNo.>	Slot11
0	<Grp>	Group1
/		
7	<I-No>	CH8
,		
0	<L-Lvl>	Level1
80	<L-Src>	SRC129
T2	<T#>	AES/EBU

Response	Description
AA: 20/7,080T2	The requested assignment has succeeded: Level1 SRC129(AES/EBU signal) to Group 1 Input Channel 8 on Slot 11.

8-3-10. Audio Channel Mapping Command (14)

This command allows you to map audio channels on MFR-8MADIPO/8AESPO.
► [Web-based Control: **Audio Settings - Audio Mapping** page]

◆ **Command Format**

Command	@[sp]AX:<SlotNo.><Grp>/<O-BNC><O-CH>,<I-No><I-CH>
Command response	AC:<SlotNo.><Grp>/<O-BNC><O-CH>,<I-No><I-CH>:I<ID>

Parameter

<SlotNo.>	0-7	Slot9 to Slot16
<Grp>	0	**0**: Group1
<O-BNC>	0-7	Output channel (stream) CH1 to CH8
<O-CH>	0-1F	Audio channel in the Output stream CH1 to CH32
<I-No>	0-7	Input channel (stream) CH1 to CH8
<I-CH>	0-1F, FF	Audio channel in the Input stream **0-1F**: CH1 to CH32 **FF**: Silence
<ID>	01-FF	Unit ID

◆ **Command / Response Example**

Assign CH 4 in Audio Input 3 (stream) to CH 17 in Group1 Audio Output 2 (on Slot 9).

Command	Parameter	Description
@ AX:		
0	<SlotNo.>	Slot9
0	<Grp>	Group1
/		
1	<O-BNC>	Audio output (stream) 2
10	<O-CH>	Output channel 17
,		
2	<I-No>	Audio input (stream) 3
03	<I-CH>	Input Channel 4

Response	Description
AC:00/10,203:IA	Received mapping switch request from the unit ID10: Assign CH 4 in Audio Input 3 (stream) to CH 17 in Group1 Audio Output 2 (on Slot 9).

8-3-11. Link Enable / Disable Command (15)

Link Enable/ Disable Commands allow you to enable/ disable audio channel mapping linked to a logical crosspoint switch. (For MFR-8MADIPO/8AESPO)
► [Web-based Control: **Audio Settings - Audio Mapping - Link** page]

◆ **Command Format**

Command	Command response
@[sp]AL:<ONorOFF>	AL:<ONorOFF>

Parameter

<ONorOFF>	0-1	**0**: Disables the Link function **1**: Enables the Link function

◆ **Command / Response Example**
Enable the Link function.

Command	Parameter	Description
@ AL:		
1	<ONorOFF>	Enables the Link function

Response	Description
AL:1	Enables the Link function

8-3-12. Video Format and Output Delay Command (16)

This command allows you to set the video format and output delay. (MFR-8MADIPO/ 8AESPO)
► [Web-based Control: **Audio Settings - Audio Output** page (Format, Delay)]

◆ **Command Sequence**

Command		Command format	Response
(1)	Preset video format and output delay.	@[sp]AF:<SlotNo.><Grp> /<FORMAT>,<D#>	AF!<SlotNo.><Grp>/<FORMAT>,<D#>
(2)	Set preset settings. (*1)	@[sp]AE:A	<<Normal response>> AR!W AR!<SlotNo.><Grp>/<FORMAT>,<D#> (*2)
			<<Error response>> AR!N
(3)	Cancels preset settings.	@[sp]AE:R	AR!R

(*1) If the video format and output delay are not set or the same as current ones, the command will not be executed.
(*2) “AR!<SlotNo.><Grp>/<FORMAT>,<D #>” is issued when command execution is ready after receiving “@ AE: A”. If the video format setting is different from the current setting, the card is automatically rebooted.

Parameter

<SlotNo.>	0-7	Slot9 to Slot16
<Grp>	0	**0**: Group1
<FORMAT>	00, 01, 04, 05, 07, 0F, 12	Video Format **00**: 1080/59.94i **01**: 1080/59.94p **04**: 1080/50i **05**: 1080/50p **07**: 720/59.94p **0F**: 1080/29.97PsF **12**: 1080/23.98PsF
<D#>	D0-D8	Output delay Pattern 1 to Pattern 9 * The output delay varies depending on the video format. (See table below)

FORMAT	Output Delay [µs]								
	D0	D1	D2	D3	D4	D5	D6	D7	D8
00:1080/59.94i	5.93	8.90	11.86	14.83	17.80	20.76	23.73	26.69	29.66
01:1080/59.94p	2.97	4.45	5.93	7.41	8.90	10.38	11.86	13.35	14.83
04:1080/50i	7.11	10.67	14.22	17.78	21.33	24.89	28.44	32.00	35.56
05:1080/50p	3.56	5.33	7.11	8.89	10.67	12.44	14.22	16.00	17.78
07:720/59.94p	4.45	6.67	8.90	11.12	13.35	15.57	17.80	20.02	22.24
0F:1080/29.97PsF	5.93	8.90	11.86	14.83	17.80	20.76	23.73	26.69	29.66
12:1080/23.98PsF	7.41	11.12	14.83	18.54	22.24	25.95	29.66	33.37	37.07

◆ **Command / Response Example**

(1) Set the SDI output video format of Group1 in Slot13 to **1080/59.94p** and Output Delay to **14.83µs** (Pattern 9).

Command	Parameter	Description
@ AF:		
4	<SlotNo.>	Slot13
0	<Grp>	Group1
/		
01	<FORMAT>	1080/59.94p
,		
D8	<D#>	Pattern 9

Response	Description
AF!41/01,D8	Preset settings are done: SDI output video format of Group1 in Slot13 to 1080/59.94p and Output Delay to 14.83µs.

(2) Performs the set changes.

Command	Description
@ AE:A	Set the preset settings.

Response	Description
AR!W	In preparation.
AR!41/01, D8	Setting preset settings starts.