

***Multiple Display Control Protocol***  
for SyncMaster 42TS/42PS P50Hn  
P50F(n) P63F(n)  
320MX(n) 400CX(n)  
400MX(n) 460CX(n)

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**Subject :** Technical Writer, Programmer, Developer

**Outline :** Protocol type document of Multiple Display Control 1.0

**History :**

Version	Date	Content	Prepared by	Compared by
1.0	2005. 01. 05.	Protocol for Multiple Display Control	S. Jang	
1.1	2005. 01. 07	Add Safety Lock	S. Jang	
1.2	2005. 01. 18	Add Video Wall	J. Lee	
1.3	2005. 01. 26	modify Maintenance Control	S. Jang	
1.4	2005. 03. 11	modify Baudrate, PIP Control	J. Lee	
1.5	2005. 07. 04	Add Commands	S. Jang	
1.6	2005. 11. 11	Add Command ( Screen Scroll On)	S. Jang	
1.7	2006. 02. 01	Add Commands	H. Park	
1.8	2006. 10. 02	Add Commands	H. Park	

<b>1.9</b>	<b>2006. 12. 18</b>	<b>Add Commands ( New Video Wall )</b>	<b>H. Park</b>	
<b>Version</b>	<b>Date</b>	<b>Content</b>	<b>Prepared by</b>	<b>Compared by</b>
<b>2.0</b>	<b>2007. 04. 17.</b>	<b>Add Commands</b>	<b>H. Park</b>	
<b>2.1</b>	<b>2008. 06. 26.</b>	<b>Add Commands</b>	<b>J. Choi</b>	

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# 1. INTERFACE

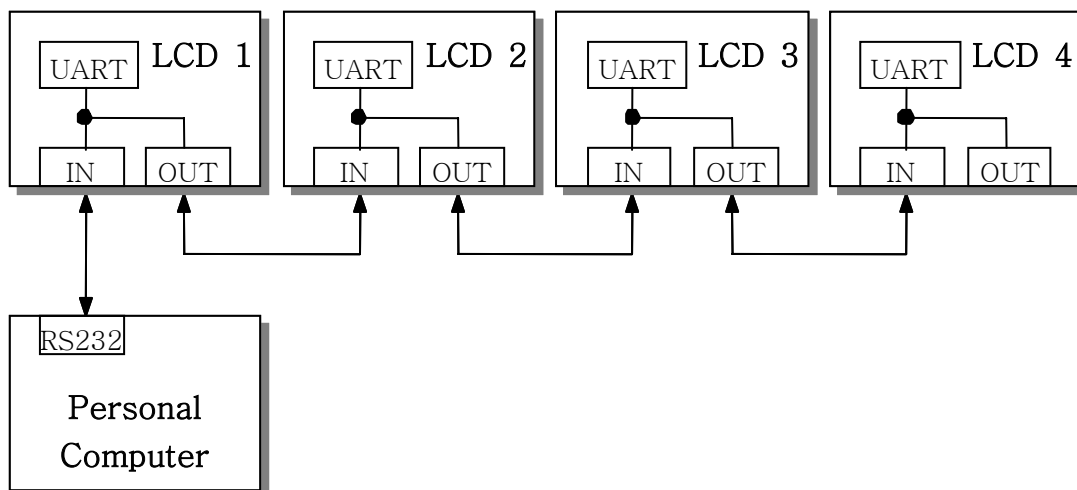
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## 1.1. Connecting Method

### 1) Connecting method

- As of Figure 1-1, connect RS232-In(9Pin) to Personal Computer, connect the next TV of Display to be connected from RS232-Out (9Pin).
- In doing so, each TV or Monitor ID can be given from 0 to 99.
- ID cannot be given duplicated.
- When granting ID, it does not need to be given out in the connecting order.

Figure1-1 PC,TV or Monitor connecting method



## 1.2. Connection Spec.

### 1) Connection Spec.

- Interactive communications using RS232.
- Of RS232 standards, three signals TxD(No.2), RxD(No.3) and GND(No.5) are used → Refer to Figure 1
- Limit the distance between devices to less than 4m.
- Currently, out of 9 PIN RS232 terminal, PINS in use are numbers 2, 3 and 5.
- ID should show hexadecimal value of assigned ID, but ID 0 should be 0xFF.
- Every communication will be made in hexadecimals and Checksum is the sum of all remainings. If it exceeds two digits, for example, it is 11+FF+01+01=112, discard the number in the first digit like below.

example) Power On & ID=0

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x11		1	Power	

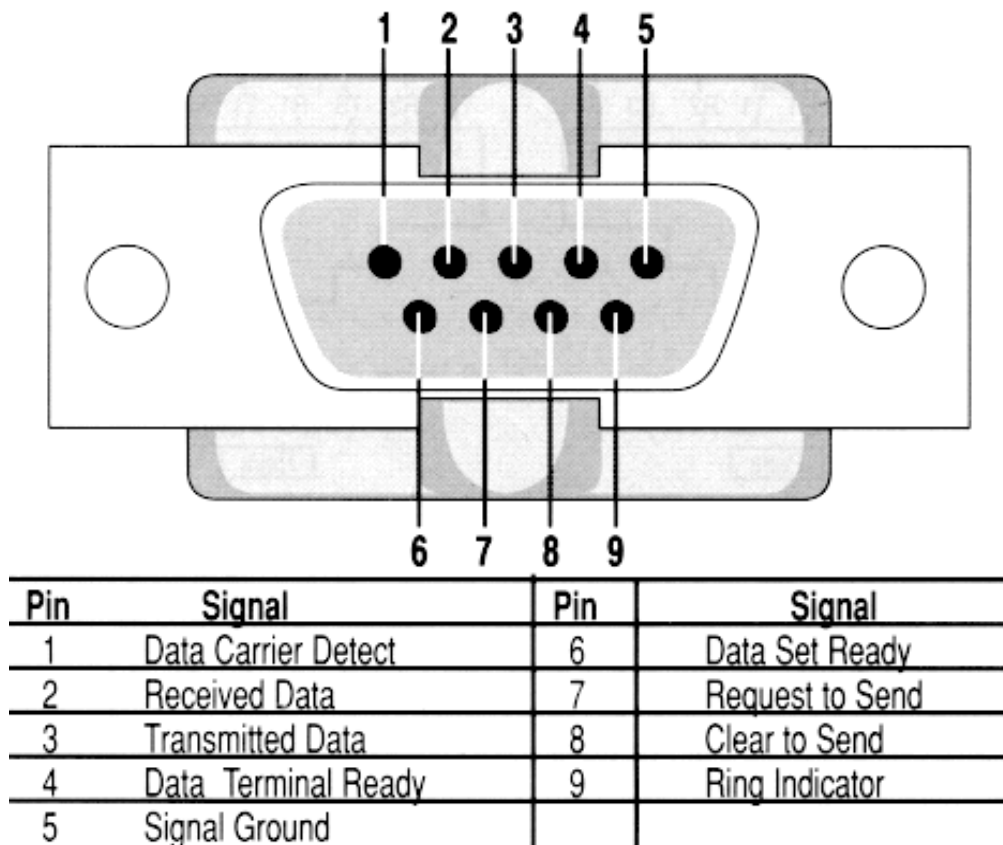
→	Header	Command	ID	Data Length	Data 1	Checksum
	0xAA	0x11	0xFF	1	1	12

- If you want to control every mechanism connected with Serial Cable regardless of its ID, set ID part to "0xFE" and send commands. At the time, each SET will follow commands but it will not respond with ACK.

Table 2-1 RS232 Network spec

Bits Rate	9600 bps
Data Bits	8 bits
Parity	None
Stop Bits	1 bit
Flow Control	None

Figure 2-1 RS-232 pin out DB-9 pin used for Asynchronous Data



## 2. Commanding words

No	Command Type	Command	Value Range
1	Status Control	0x00	-
2	Time Control	0x01	-
3	On Time Control	0x02	-
4	Off Time Control	0x03	-
5	Video Control	0x04	-
6	Audio Control	0x05	-
7	RGB Control	0x06	-
8	PIP Status Control	0x07	-
9	Maintenance Control	0x08	-
10	Serial Number Control	0x0B	-
11	Display Status Control	0x0D	-
12	Software Version Control	0x0E	-
13	Model Number Control	0x10	-
14	Power Control	0x11	0 ~ 1
15	Volume Control	0x12	0 ~ 100
16	Mute Control	0x13	0 ~ 1
17	Input Source Control	0x14	-
18	Image Size Control	0x15	-
19	Direct Channel Control	0x16	-
20	Screen Mode Control	0x18	-
21	Screen Size Control	0x19	0 ~ 255
22	Red Offset Control	0x1A	0 ~ 100
23	Green Offset Control	0x1B	0 ~ 100
24	Blue Offset Control	0x1C	0 ~ 100
25	Contrast Control	0x24	0 ~ 100
26	Brightness Control	0x25	0 ~ 100
27	Sharpness Control	0x26	0 ~ 100
28	Color Control	0x27	0 ~ 100
29	Tint Control	0x28	0 ~ 100
30	Red Gain Control	0x29	0 ~ 100

31	Green Gain Control	0x2A	0 ~ 100
32	Blue Gain Control	0x2B	0 ~ 100
33	Treble Control	0x2C	0 ~ 100
34	Bass Control	0x2D	0 ~ 100
35	Coarse Control	0x2F	0 ~ 1
36	Fine Control	0x30	0 ~ 1
37	H-Position Control	0x31	0 ~ 1
38	V-Position Control	0x32	0 ~ 1
39	Clear Menu Control	0x34	0
40	Remote Control	0x36	0 ~ 1
41	RGB Contrast Control	0x37	0 ~ 100
42	RGB Brightness Control	0x38	0 ~ 100
43	PIP On/Off Control	0x3C	0 ~ 1
44	Auto Adjustment Control	0x3D	0
45	Color Tone Control	0x3E	0 ~ 4
46	Color Temperature Control	0x3F	0 ~ 10
47	PIP Source Control	0x40	-
48	Main-PIP Swap Control	0x41	0 ~ 1
49	PIP Size Control	0x42	-
50	PIP Locate Control	0x43	0 ~ 4
51	Sound Select Control	0x47	0 ~ 1
52	Pixel Shift Control	0x4C	-
53	Video Wall Control	0x4F	-
54	Auto Lamp Control	0x57	-
55	Manual Lamp Control	0x58	0 ~ 100
56	Safety Screen Run Control	0x59	0 ~ 6
57	Safety Screen Control	0x5B	-
58	Video Wall Mode Control	0x5C	0 ~ 1
59	Safety Lock	0x5D	0 ~ 1
60	Panel Lock	0x5F	0 ~ 1
61	OSD On/OFF	0x70	0 ~ 1
62	P. Mode Control	0x71	-
63	S. Mode Control	0x72	0 ~ 4
64	NR Mode Set	0x73	0 ~ 1
65	PC Color Tone Control	0x75	0 ~ 3



## SEC-VD-DSW External Control – 0008

[illegible]

"-" indicates multiple setting items—refer to "2.1. Command Detailed Explanation" for more details.

## 2.1. Command Detailed Explanation

### \* Status Control

#### ● Function

Personal Computer shows current setting condition of TV / Monitor.

#### ● Get Status

Header	Command	ID	Data Length	Check Sum
0xAA	0xFF		0	

#### ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2	
0xAA	0xFF		9	'A'	0x00	Power	Volume	
Val 3	Val 4	Val 5	Val 6	Val 7	Check Sum			
Mute	Input	Aspect	N Time NF	F Time NF				

**Power** : Power code to be set on TV / Monitor

**Volume** : Volume value code ( 0 ~ 100 ) to be set on TV / Monitor

**Mute** : Mute code to be set on TV / Monitor

**Input** : Input Source code to be set on TV/Monitor

**Aspect** : Image Size code to be set on TV/Monitor

**N Time NF** : OnTime ON/OFF value of time to set TV/Monitor

**F Time NF** : OffTime ON/OFF value of time to set TV/Monitor

#### ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x00	ERR	

**ERR** : Error code that shows what occurred error is

0	Check Sum Error
1	etc.

## ★ Time Control

## ● Function

Personal Computer controls current time of TV / Monitor.

## ● Get Time Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x01		0	

## ● Set Time

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0x01		5	AP Time	H Time	M Time	0

Data 5	Check Sum
0	

**AP Time** : AM/PM value to be set on TV/Monitor

1	AM
0	PM

**H Time** : Hour value ( 1 ~ 12 ) to be set on TV/Monitor

**M Time** : Minute value ( 0 ~ 59 ) to be set on TV/Monitor

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		7	'A'	0x01	AP Time	H Time

Val 3	Val 4	Val 5	Check Sum
M Time	0	0	

**AP Time, H Time, M Time** : Same as above

H Time, M Time if current time was not set on Monitor, 0xFF

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x01	ERR	

**ERR** : Error code that shows what occurred error is

## ★ On Time Control

## ● Function:

Personal Computer controls the time that TV / Monitor turns on.

## ● Get On Time Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x02		0	

## ● Set On Time

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0x02		6	N AP Time	N H Time	N M Time	N Time VR

Data 5	Data 6	Check Sum
N Time NF	N Time SC	

**N AP Time** : On Time AM/PM value to be set on TV/Monitor

1	AM
0	PM

**N H Time** : On Time Hour value ( 1 ~ 12 ) to be set on TV/Monitor

**N M Time** : On Time Minute value ( 0 ~ 59 ) to be set on TV/Monitor

**N Time VR** : On Time Volume value ( 0 ~ 100 ) to be set on TV/Monitor

**N Time NF** : On Time ON/OFF value to be set on TV/Monitor

1	On Time ON
0	On Time OFF

**N Time SC** : On Time ON/OFF Control Source value (refer to *Input Source Control* )

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		8	'A'	0x02	N AP Time	N H Time

Val 3	Val 4	Val 5	Val 6	Check Sum
N M Time	N Time VR	N Time NF	N Time SC	

**N AP Time, N H Time, N M Time, N Time VR, N Time NF, N Time SC** : Same as above

**N H Time, N M Time** if On Time was not set on Monitor, 0xFF

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x02	ERR	

**ERR** : Error code that shows what occurred error is

### \* Off Time Control

#### ● Function

Personal Computer controls the time that TV / Monitor turns off.

#### ● Get Off Time Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x03		0	

#### ● Set Off Time

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0x03		6	F AP Time	F H Time	F M Time	0

Data 5	Data 6	Check Sum
F Time NF	0	

**F AP Time** : Off Time AM/PM value to be set on TV/Monitor

1	AM
0	PM

**F H Time** : Off Time Hour value ( 1 ~ 12 ) to be set on TV/Monitor

**F M Time** : Off Time Minute value ( 0 ~ 59 ) to be set on TV/Monitor

**F Time NF** : Off Time ON/OFF value to be set on TV/Monitor

1	Off Time ON
0	Off Time OFF

#### ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		8	'A'	0x03	F AP Time	F H Time

Val 3	Val 4	Val 5	Val 6	Check Sum
F M Time	0	F Time NF	0	

**F AP Time, F H Time, F M Time, F Time NF** : Same as above

F H Time, F M Time if Off Time was not set on, 0xFF

#### ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x03	ERR	

**ERR** : Error code that shows what occurred error is

★ Video Control (ATV, DTV, AV, S-Video, Component, HDMI Only)

● Function

Personal Computer shows the screen condition of TV / Monitor.

● Get Video Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x04		0	

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x0A	'A'	0x04	Contrast	Brightness
Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Check Sum	
Sharpness	Color	Tint	ColorTone	ColorTemp	0		

Contrast, Brightness, Sharpness, Color, Tint, ColorTone, ColorTemp :

Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x04	ERR	

ERR : Error code that shows what occurred error is

### \* Audio Control

#### ● Function

Personal Computer shows the sounds condition of TV / Monitor.

#### ● Get Audio Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x05		0	

#### ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x05	'A'	0x05	Treble	Bass
Val 3	Check Sum						
Balance							

Treble, Bass, Balance : Same as above

#### ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x05	ERR	

ERR : Error code that shows what occurred error is

## \* RGB Control (PC, BNC, DVI Only)

## ● Function

Personal Computer shows screen condition of TV / Monitor.

## ● Get Video Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x06		0	

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x0A	'A'	0x06	Contrast	Brightness

Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Check Sum
ColorTone	ColorTemp	0	Red Gain	Green Gain	Blue Gain	

Contrast, Brightness, ColorTone, ColorTemp, Red, Green, Blue : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x06	ERR	

ERR : Error code that shows what occurred error is



### \* PIP Status Control

#### ● Function

Personal Computer shows PIP setting state of TV / Monitor.

#### ● Get PIP Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x07		0	

#### ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		6	'A'	0x07	P.Size	P.Source
Val 3	Val 4	Check Sum					
0	0						

**P.Size** : PIP Size value code set at TV / Monitor

0x00	PIP Off
0x06	Large
0x08	Small
0x04	Double 1
0x05	Double 2
0x09	Double 3

**P.Source** : PIP Source value code set at TV / Monitor

#### ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x07	ERR	

**ERR** : Error code that shows what occurred error is

## ★ Maintenance Control

## ● Function

Personal Computer shows maintenance state of TV / Monitor.

## ● Get Maintenance Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x08		0	

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x15	'A'	0x08	Power	P.Size
Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
P.Source	LMax_H	LMax_M	LMax_AP	LMaxValue	LMin_H	LMin_M	LMin_AP
Val 11	Val 12	Val 13	Val 14	Val 15	Val 16		
LMinValue	LampValue	ScreenInterval	ScreenTime	ScreenType	V.Wall		
Val17	Val 18	Val19	Check Sum				
V.WallFormat	V.WallDivid	V.WallSet					

**Power** : Power code set on TV / Monitor

**P.Size** : PIP Size value code set on TV / Monitor

**P.Source** : PIP Source value code set on TV / Monitor

**LMax\_H** : Auto Lamp Max Time Hour (1 ~ 12) set on TV / Monitor

**LMax\_M** : Auto Lamp Max Time Minute (0 ~ 59) set on TV / Monitor

**LMax\_AP** : Auto Lamp Max Time AM/PM set on TV / Monitor

**LMaxValue** : Auto Lamp Max value (0 ~ 100) set on TV / Monitor

**LMin\_H** : Auto Lamp Min Time Hour (1 ~ 12) set on TV / Monitor

**LMin\_M** : Auto Lamp Min Time Minute (0 ~ 59) set on TV / Monitor

**LMin\_AP** : Auto Lamp Min Time AM/PM set on TV / Monitor

**LMinValue** : Auto Lamp Min value (0 ~ 100, 0xFF) set on TV / Monitor

**LampValue** : Manual Lamp Control value (0 ~ 100, 0xFF) set on TV / Monitor

**ScreenInterval** : Safety Screen Interval (Per Hour, 0(Off)~10) set on TV / Monitor

**ScreenTime** : Safety Screen Time (Per Second, 0(off) ~5) set on TV / Monitor

**ScreenType** : Safety Screen Type (3 ~ 6) set on TV / Monitor

**V.Wall** : Video Wall Mode code set on TV / Monitor

**V.WallFormat** : Video Wall Format code set on TV / Monitor

**V.WallDivid** : Video Wall Divider code set on TV / Monitor

**V.WallSet** : Video Wall Set Number code set on TV / Monitor

**Caution** : If LMinValue is **Returned to 0xFF** then Auto Lamp Control is OFF.

If LampValue is **Returned to 0xFF** then Manual Lamp Control is OFF.

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x08	ERR	

**ERR** : Error code that shows what occurred error is

## ★ Serial Number Control

## ● Function

Personal Computer controls serial number of TV / Monitor.

## ● Get SerialNum Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x0B		0	

## ● Ack SerialNum

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x10	'A'	0x0B	Data1	Data2
Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
Data3	Data4	Data5	Data6	Data7	Data8	Data9	Data10
Val 11	Val 12	Val 13	Val 14	Check Sum			
Data11	Data12	Data13	Data14				

Data1 ~ Data14 : Serial Number set on TV / Monitor.

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x0B	ERR	

ERR : Error code that shows what occurred error is

### \* Display Status Control

#### ● Function

Personal Computer shows display condition of TV / Monitor.

#### ● Get Maintenance Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x0D		0	

#### ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x08	'A'	0x0D	Lamp	Temperature
Val 3		Val 4	Val 5	Val 6	Check Sum		
Bright_Sensor		No_Sync	Cur_Temp	FAN			

**Lamp** : Lamp Error code (0 : Normal, 1 : Error) to be set on TV / Monitor

**Temperature** : Temperature Error code (0: Normal, 1: Error) to be set on TV / Monitor

**Bright\_Sensor** : Bright Sensor Error code (0: Normal, 1: Error) to be set on TV/Monitor

**No\_Sync**: Sync Error code(0: Normal, 1: Error, No Sync) to be set on TV / Monitor

**Cur\_Temp** : Current temperature of TV / Monitor

**FAN** : Fan Error code (0 : Normal, 1 : Error) to be set on TV / Monitor

#### ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x0D	ERR	

**ERR** : Error code that shows what occurred error is

### \* SW Version Control

#### ● Function

Personal Computer shows version information of TV / Monitor.

#### ● Get Version Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x0E		0	

#### ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x11	'A'	0x0E	Version1	Version2
Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
Version3	Version4	Version5	Version6	Version7	Version8	Version9	Version10
Val 11	Val 12	Val 13	Val 14	Val 15	Check Sum		
Version11	Version12	Version13	Version14	Version15			

Version1 ~ Version11 : Project Info. of TV/Monitor

Version12 ~ Version15 : Software version of TV/Monitor

#### ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x06	ERR	

ERR : Error code that shows what occurred error is

## ★ Model Number Control

## ● Function

Personal Computer grasps and shows model number of TV / Monitor.

## ● Get Model Number Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x10		0	

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2	Val 3	Check Sum
0xAA	0xFF		0x05	'A'	0x10	Species	Model	TV	0

**Species** : Types of panel used in TV / Monitor

0x01	PDP
0x02	LCD
0x03	DLP

**Model** : TV / Monitor Model Name

0x01	PPM50H2	0x13	SyncMaster 400TX(n)
0x02	PPM42S2	0x14	SyncMaster 570DX
0x03	PS-42P2ST	0x15	SyncMaster 320DX
0x04	PS-50P2HT		SyncMaster 820DX
0x05	SyncMaster 400T		SyncMaster 400DX(n)
0x06	SyncMaster 403T		SyncMaster 460DX(n)
0x07	PPM42S3, SPD-42P3SM		SyncMaster 700DX(n)
0x08	PPM50H3, SPD-50P3HM		SyncMaster 820DX(n)
0x09	PPM63H3, SPD-63P3HM	0x16	SyncMaster 460TX(n)
0x0A	PS-42P3ST	0x17	SyncMaster 400UX(n)
0x0B	SyncMaster 323T		SyncMaster 460UX(n)
0x0C	SyncMaster 403T - CT40CS(N)	0x18	SyncMaster 42TS/42PS
		0x19	SyncMaster P50Hn
0x0D	PPMxxM5x	0x1A	SyncMaster P50F/P50Fn
0x0E	SyncMaster 460P(n)	0x1B	SyncMaster P63F/P63Fn
	SyncMaster 400P(n)	0x1C	SyncMaster 320MX/320MXn
	SyncMaster 320P(n)	0x1D	SyncMaster 400CX/400CXn
0x10	SyncMaster 320Px	0x1E	SyncMaster 400MX/400MXn
	SyncMaster 400Px/400Pxn	0x20	SyncMaster 460CX/460CXn
	SyncMaster 460Px/460Pxn		

**TV** : TV support of TV / Monitor

0x00	does not support TV
0x01	does support TV

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x10	<b>ERR</b>	

**ERR** : Error code that shows what occurred error is

★ Power Control

● Function

Personal Computer turns TV / Monitor power ON/OFF.

● Get Power ON/OFF Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x11		0	

● Set Power ON/OFF

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x11		1	<b>Power</b>	

**Power** : Power code to be set on TV / Monitor

1	Power ON
0	Power OFF

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x11	<b>Power</b>	

**Power** : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x11	<b>ERR</b>	

**ERR** : Error code that shows what occurred error is



## \* Volume Control

## ● Function

Personal Computer changes volume of TV / Monitor.

## ● Get Volume Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x12		0	

## ● Set Volume

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x12		1	Volume	

**Volume** : Volume value code to be set on TV/Monitor (0 ~ 100 )

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x12	Volume	

**Volume** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x12	ERR	

**ERR** : Error code that shows what occurred error is

## ★ Mute Control

## ● Function

Personal Computer turns TV / Monitor mute ON/OFF.

## ● Get Mute ON/OFF Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x13		0	

## ● Set Mute ON/OFF

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x13		1	Mute	

**Mute** : Mute code to be set on TV / Monitor

1	Mute ON
0	Mute OFF

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x13	Mute	

**Mute** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x13	ERR	

**ERR** : Error code that shows what occurred error is

### \* Input Source Control

#### ● Function

Personal Computer changes input source of TV / Monitor.

#### ● Get Input Source Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x14		0	

#### ● Set Input Source

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x14		1	<b>Input</b>	

**Input** : Input Source code to be set on TV / Monitor

0x14	PC
0x1E	BNC
0x18	DVI
0x0C	AV
0x04	S-Video
0x08	Component
0x20	MagicNet
0x1F	DVL_VIDEO
0x30	RF(TV)
0x40	DTV
0x21	HDMI
0x22	HDML_PC

**Caution** : DVL\_VIDEO, HDML\_PC → Get Only

In the case of MagicNet, only possible with models include MagicNet.

In the case of TV, only possible with models include TV.

#### ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x14	<b>Input</b>	

**Input** : Same as above

#### ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x14	<b>ERR</b>	

**ERR** : Error code that shows what occurred error is

## \* Picture Size Control

## ● Function

Personal Computer changes Picture Size of TV / Monitor.

Cannot control when Video Wall is on.

## ● Get Picture Size Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x15		0	

## ● Set Picture Size

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x15		1	Aspect	

Aspect : Picture Size mode to be set on TV / Monitor

PC1, PC2, DVI, BNC	
0x10	16 : 9
0x18	4 : 3
AV, S-Video, Component	
0x00	Auto Wide
0x01	16 : 9
0x04	Zoom
0x05	Zoom1
0x06	Zoom2
0x09	Just Scan
0x31	Wide Zoom
0x0B	4 : 3
0x0C	Wide Fit

**Caution** :For some Image, sizes are not supported depending on some input signals (720p, 1080i).

For MFM model only possible for those include Europe TV if size is Auto Wide.

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x15	Aspect	

Aspect : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x15	ERR	

ERR : Error code that shows what occurred error is

★ Direct Channel Control (DTV)

Caution : Only works with models include TV.

● Function

Personal Computer can control TV Channel.

● Get Channel

Header	Command	ID	Data Length	Check Sum
0xAA	0x17		0	

● Set Channel

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0x17		0x09	Country	ATV_DTV	AirCable	CH_NUM

Data 5	Data 6	Data 7	Data 8	Check Sum
Sel_Minor	Minor_CH	Reserved	Reserved	

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2	
0xAA	0xFF		0x06	'A'	0x16	Country	ATV_DTV	
Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Check Sum		
AirCable	CH_NUM	Sel_Minor	Minor_CH	0	0			

Country : Select the country to be set on TV / Monitor ( 0 : Korea, 1: USA, .... )

ATV\_DTV : Select Analog TV and DTV to be set on TV / Monitor ( 0 : Analog TV, 1: Digital TV)

AirCable : Select if TV is cabled or general ( 0 : general, 1: cabled)

CH\_NUM : TV channel number to be set on TV / Monitor ( Analog TV : 1 ~ 135 , Digital TV : 0 ~ 999)

Sel\_Minor : Select minor channel when DTV is to be set on TV / Monitor( 0 : minor channel not selected. 1: minor channel selected.)

Minor\_CH : Select minor channel number when DTV is to be set on TV / Monitor ( 0 ~ 999.)

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x17	ERR	

ERR : Error code that shows what occurred error is

## \* Screen Mode Control

### ● Function

Personal Computer changes screen mode of TV / Monitor.

Cannot control when Video Wall is on and only operates when Picture Size is Auto Wide.

### ● Get Screen Mode Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x18		0	

### ● Set Picture Size

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x18		1	ScrMode	

**ScrMode** : Screen Mode Code to be set on TV / Monitor

0x01	16 : 9
0x04	Zoom
0x31	Wide Zoom
0x0B	4 : 3

### ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x18	ScrMode	

**ScrMode** : Same as above

### ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x18	ERR	

**ERR** : Error code that shows what occurred error is

### \* Screen Size Control

- Function

Personal Computer recognizes the screen size of TV / Monitor.

- Get Screen Size Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x19		0	

- Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x19	Screen Size	

**Screen Size** : Screen size of TV / Monitor (Range: 0 ~ 255, Unit: Inch)

- Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x19	ERR	

**ERR** : Error code that shows what occurred error is

### \* Red Offset Control

#### ● Function

Personal Computer changes R Offset from Signal Control function of TV / Monitor.

※ Signal Control R Offset Control only operates when Signal Balance is on and current input source is PC and BNC.

#### ● Get Signal Control R Offset Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x1A		0	

#### ● Set Signal Control R Gain

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x1A		1	R Offset	

**R Offset** : R Gain value to be set on TV/Monitor (0 ~ 100)

#### ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x1A	R Offset	

**R Offset** : Same as above

#### ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x1A	ERR	

**ERR** : Error code that shows what occurred error is



### \* Green Offset Control

#### ● Function

Personal Computer changes G Offset from Signal Control function of TV / Monitor.

※ Signal Control G Offset Control only operates when Signal Balance is on and current input source is PC and BNC.

#### ● Get Signal Control G Offset Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x1B		0	

#### ● Set Signal Control G Gain

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x1B		1	G Offset	

**G Offset** : G Offset value to be set on TV/Monitor (0 ~ 100)

#### ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x1B	G Offset	

**G Offset** : Same as above

#### ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x1B	ERR	

**ERR** : Error code that shows what occurred error is

### \* Blue Offset Control

#### ● Function

Personal Computer changes B Offset from Signal Control function of TV / Monitor.

※ Signal Control B Offset Control only operates when Signal Balance is on and current input source is PC and BNC.

#### ● Get Signal Control B Offset Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x1C		0	

#### ● Set Signal Control B Offset

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x1C		1	B Offset	

**B Offset** : B Offset value to be set on TV/Monitor (0 ~ 100)

#### ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x1C	B Offset	

**B Offset** : Same as above

#### ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x1C	ERR	

**ERR** : Error code that shows what occurred error is

★ Contrast Control (ATV, DTV, AV, S-Video, Component, HDMI Only)

● Function

Personal Computer changes contrast of TV / Monitor.

● Get Contrast Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x24		0	

● Set Contrast

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x24		1	Contrast	

**Contrast** : Contrast value code to be set on TV/Monitor ( 0 ~ 100 )

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x24	Contrast	

**Contrast** : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x24	ERR	

**ERR** : Error code that shows what occurred error is

★ Brightness Control (ATV, DTV, AV, S-Video, Component, HDMI Only)

● Function

Personal Computer changes brightness of TV / Monitor.

● Get Brightness Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x25		0	

● Set Brightness

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x25		1	Brightness	

**Brightness** : Brightness value code to be set on TV/Monitor ( 0 ~ 100 )

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x25	Brightness	

**Brightness** : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x25	ERR	

**ERR** : Error code that shows what occurred error is

\* Sharpness Control (ATV, DTV, AV, S-Video, Component, HDMI Only)

● Function

Personal Computer changes sharpness of TV / Monitor.

● Get Sharpness Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x26		0	

● Set Sharpness

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x26		1	Sharpness	

**Sharpness** : Sharpness value code to be set on TV/Monitor ( 0 ~ 100 )

**Caution** : Sharpness could only be set in 50 Steps (0, 2, 4, 6... 100)

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x26	Sharpness	

**Sharpness** : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x26	ERR	

**ERR** : Error code that shows what occurred error is

★ Color Control (ATV, DTV, AV, S-Video, Component, HDMI Only)

● Function

Personal Computer changes the color of TV / Monitor.

● Get Color Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x27		0	

● Set Color

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x27		1	Color	

**Color** : Color value code to be set on TV/Monitor( 0 ~ 100 )

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x27	Color	

**Color** : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x27	ERR	

**ERR** : Error code that shows what occurred error is

\* Tint Control (ATV, DTV, AV, S-Video, Component, HDMI Only)

● Function

Personal Computer changes tint of TV / Monitor when visual display is NTSC.

Does not operate with PAL signals.

● Get Tint Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x28		0	

● Set Tint

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x28		1	Tint	

**Tint** : Tint value code to be set on TV/Monitor (0 ~ 100 )

<b>R</b>	Tint Value
<b>G</b>	(100 - Tint) Value

**Caution** : Tint could only be set in 50 Steps (0, 2, 4, 6... 100)

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x28	Tint	

**Tint** : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x28	ERR	

**ERR** : Error code that shows what occurred error is

## \* Red Gain Control (PC, BNC Only)

## ● Function

Personal Computer changes Red Gain of TV / Monitor.

## ● Get Red Gain Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x29		0	

## ● Set Red Gain

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x29		1	Red	

Red : Red Gain value code to be set on TV/Monitor ( 0 ~ 100 )

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x29	Red	

Red : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x29	ERR	

ERR : Error code that shows what occurred error is



\* Green Gain Control (PC, BNC Only)

● Function

Personal Computer changes Green Gain of TV / Monitor.

● Get Green Gain Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x2A		0	

● Set Green Gain

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x2A		1	Green	

**Green** : Green Gain value code to be set on TV/Monitor ( 0 ~ 100 )

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x2A	Green	

**Green** : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x2A	ERR	

**ERR** : Error code that shows what occurred error is

## \* Blue Gain Control (PC, BNC Only)

## ● Function

Personal Computer changes Blue Gain of TV / Monitor.

## ● Get Blue Gain Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x2B		0	

## ● Set Blue Gain

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x2B		1	Blue	

Blue : Blue Gain value code to be set on TV/Monitor ( 0 ~ 100 )

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x2B	Blue	

Blue : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x2B	ERR	

ERR : Error code that shows what occurred error is

## \* Treble Control

## ● Function

Personal Computer changes Treble of TV / Monitor.

## ● Get Treble Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x2C		0	

## ● Set Treble

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x2C		1	Treble	

**Treble** : Treble value code to be set on TV/Monitor ( 0 ~ 100 )

**Caution** : Treble could only be set in 40 Steps (0, 2, 5, 7... 100)

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x2C	Treble	

**Treble** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x2C	ERR	

**ERR** : Error code that shows what occurred error is

## \* Bass Control

## ● Function

Personal Computer changes Bass of TV / Monitor.

## ● Get Bass Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x2D		0	

## ● Set Bass

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x2D		1	Bass	

**Bass** : Bass value code ( 0 ~ 100 )

**Caution** : Bass could only be set in 40 Steps. (0, 2, 5, 7... 100)

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x2D	Bass	

**Bass** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x2D	ERR	

**ERR** : Error code that shows what occurred error is

## \* Balance Control

## ● Function

Personal Computer changes Balance of TV / Monitor.

## ● Get Balance Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x2E		0	

## ● Set Balance

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x2E		1	Balance	

**Balance** : Balance value code to be set on TV/Monitor ( 0 ~ 100 )

L	(100 - Balance) Value
R	Balance Value

**Caution** : Balance could only be set in 22 Steps. (0, 4, 9, 13... 100)

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x2E	Balance	

**Balance** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x2E	ERR	

**ERR** : Error code that shows what occurred error is

## \* Coarse Control (PC, BNC Only)

## ● Function

Personal Computer adjusts Coarse of TV / Monitor.

## ● Get Coarse Status

None

## ● Set Coarse

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x2F		1	Coarse	

**Coarse** : Coarse Increase/Decrease code to be set on TV/Monitor

1	Increase
0	Decrease

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x2F	Coarse	

**Coarse** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x2F	ERR	

**ERR** : Error code that shows what occurred error is

## \* Fine Control (PC, BNC Only)

## ● Function

Personal Computer adjusts Fine of TV / Monitor.

## ● Get Fine Status

None

## ● Set Fine

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x30		1	<b>Fine</b>	

**Fine** : Phase Increase/Decrease code

1	Increase
0	Decrease

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x30	<b>Fine</b>	

**Fine** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x30	<b>ERR</b>	

**ERR** : Error code that shows what occurred error is

## \* H-Position Control (PC, BNC Only)

## ● Function

Personal Computer adjusts Horizontal Position of TV / Monitor.

## ● Get H-Position Status

None

## ● Set H-Position

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x31		1	H-Pos	

**H-Pos** : H-Position Increase/Decrease code to be set on TV/Monitor

1	Move to Right
0	Move to Left

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x31	H-Pos	

**H-Pos** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x31	ERR	

**ERR** : Error code that shows what occurred error is



## \* V-Position Control (PC, BNC Only)

## ● Function

Personal Computer adjusts Vertical Position of TV/Monitor.

## ● Get V-Position Status

None

## ● Set V-Position

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x32		1	V-Pos	

**V-Pos** : V-Position Increase/Decrease code to be set on TV/Monitor

1	Move Down
0	Move Up

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x32	V-Pos	

**V-Pos** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x32	ERR	

**ERR** : Error code that shows what occurred error is

## \* Clear Menu Control

## ● Function

Personal Computer removes Menu OSD left in TV / Monitor.

## ● Get Clear Menu Status

None

## ● Set Clear Menu

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x34		1	Clear	

Clear : 0x00 (Always)

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x34	Clear	

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x34	ERR	

ERR : Error code that shows what occurred error is

## \* Remote Control

### ● Function

Personal Computer enables/disables IR receiving function of TV/Monitor/

Can operate regardless of whether power is ON/OFF

### ● Get Remote Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x36		0	

### ● Set Remote Enable/Disable

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x36		1	RMC	

RMC : Power code to be set on TV/Remocon

1	Remocon Enable
0	Remocon Disable

### ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x36	RMC	

RMC : Same as above

### ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x36	ERR	

ERR : Error code that shows what occurred error is

## \* RGB Contrast Control (PC, BNC, DVI Only)

## ● Function

Personal Computer changes contrast of TV / Monitor when Input Source is PC.

## ● Get Contrast Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x37		0	

## ● Set Contrast

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x37		1	Contrast	

**Contrast** : RGB Contrast value code to be set on TV/Monitor ( 0 ~ 100 )

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x37	Contrast	

**Contrast** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x37	ERR	

**ERR** : Error code that shows what occurred error is

## \* RGB Brightness Control (PC, BNC, DVI Only)

## ● Function

Personal Computer changes Brightness when Input Source of TV / Monitor is PC.

## ● Get Brightness Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x38		0	

## ● Set Brightness

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x38		1	Brightness	

**Brightness** : RGB Brightness value code to be set on TV/Monitor ( 0 ~ 100 )

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x38	Brightness	

**Brightness** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x38	ERR	

**ERR** : Error code that shows what occurred error is

## \* PIP On / Off Control

## ● Function

Personal Computer turns PIP of TV / Monitor ON/OFF.

Does not operate in MagicNet.

## ● Get PIP ON/OFF Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x3C		0	

## ● Set PIP ON/OFF

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x3C		1	PIP	

PIP : PIP On/Off code to be set on TV/Monitor

1	PIP ON
0	PIP OFF

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x3C	PIP	

PIP : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x3C	ERR	

ERR : Error code that shows what occurred error is

## \* Auto Adjustment Control (PC, BNC Only)

## ● Function

Personal Computer controls PC system screen automatically.

## ● Get Auto Adjustment Status

None

## ● Set Auto Adjustment

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x3D		1	Auto	

Auto : 0x00 (Always)

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x3D	Auto	

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x3D	ERR	

ERR : Error code that shows what occurred error is

## \* Color Tone Control (ATV, DTV, AV, S-Video, Component, HDMI Only)

## ● Function

Personal Computer changes Color Tone of TV / Monitor.

## ● Get Color Tone Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x3E		0	

## ● Set Color Tone

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x3E		1	Color Tone	

**Color Tone** : Color Tone value code to be set on TV/Monitor ( 0 ~ 4 )

0x00	Cool 2
0x01	Cool 1
0x02	Normal
0x03	Warm 1
0x04	Warm 2
0x50	Off

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x3E	Color Tone	

**Brightness** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x3E	ERR	

**ERR** : Error code that shows what occurred error is



### \* Color Temperature Control

- Function

Personal Computer changes Color Temperature value of TV / Monitor.

Only operates when Color Tone is set to Off.

- Get C\_Temp Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x3F		0	

- Set Brightness

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x3F		1	C_Temp	

C\_Temp : Color Temperature value code to be set on TV/Monitor ( 0 ~ 10 )

- Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x3F	C_Temp	

C\_Temp : Same as above

- Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x3F	ERR	

ERR : Error code that shows what occurred error is

## ★ PIP Source Control

## ● Function

Personal Computer changes PIP source of TV / Monitor.

Does not operate in MaginNet.

Only works with TV/Monitor where PIP is on.

## ● Get PIP Source Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x40		0	

## ● Set PIP Source

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x40		1	P.Source	

**P.Source** : Input Source code to be set on TV/Monitor

**Caution** : PIP Source convert may not operate depending on Main Source. Refer to table below.

## \* Models with no DTV

	PC	BNC	DVI	AV	S-Video	Comp.	HDMI
PC	X	X	X	○	○	○	X
BNC	X	X	X	○	○	○	○
DVI	X	X	X	○	○	○	○
AV	○	○	○	X	X	X	X
S-Video	○	○	○	X	X	X	X
Component	○	○	○	X	X	X	X
HDMI	○	○	○	X	X	X	X

## \* Models with DTV

	PC	DVI	TV/DTV	AV	S-Video	Comp.	HDMI
PC	X	X	X	○	○	○	X
DVI	X	X	X	○	○	○	X
TV/DTV	X	X	X	X	X	X	X
AV	○	○	X	X	X	X	X
S-Video	○	○	X	X	X	X	X
Component	○	○	X	X	X	X	X
HDMI	X	X	X	X	X	X	X

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x40	P.Source	

**P.Source** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x40	ERR	

**ERR** : Error code that shows what occurred error is

## ★ Main-PIP Swap Control

## ● Function

Personal Computer swaps Main screen and PIP screen.

Does not operate in MagicNet.

## ● Get Main-PIP Swap Status

None

## ● Set Main-PIP Swap

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x41		1	Swap	

Swap : 0x00 (Always)

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x41	Swap	

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x41	ERR	

ERR : Error code that shows what occurred error is

## \* PIP Size Control

## ● Function

Personal Computer changes PIP Size of TV / Monitor.

Does not operate in MagicNet.

## ● Get PIP Size Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x42		0	

## ● Set PIP Size

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x42		1	P.Size	

P.Size : PIP Size value code to be set on TV/Monitor

0x00	PIP Off
0x06	Large
0x08	Small
0x04	Double 1
0x05	Double 2
0x09	Double 3

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x42	P.Size	

P.Size : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x42	ERR	

ERR : Error code that shows what occurred error is

## \* PIP Locate Control

## ● Function

Personal Computer controls PIP position of TV / Monitor.

Does not operate in MagicNet.

## ● Get PIP Locate Status

None

## ● Set PIP Locate

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x43		1	P.Locate	

**P.Locate** : PIP Locate Increase/Decrease code to be set on TV/Monitor

0	PIP Off(Get Only)
1	Upper Left
2	Upper Right
3	Lower Right
4	Lower Left

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x43	P.Locate	

**P.Locate** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x43	ERR	

**ERR** : Error code that shows what occurred error is

## ★ Sound Select Control

## ● Function

Personal Computer converts Sound when PIP of TV / Monitor is on.

## ● Get Sound Select

Header	Command	ID	Data Length	Check Sum
0xAA	0x47		0	

## ● Set Sound Select

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x47		1	S.Select	

**S.Select** : Sound Select code to be set on TV/Monitor

1	Main
0	Sub

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x47	S.Select	

**S.Select** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x47	ERR	

**ERR** : Error code that shows what occurred error is

## \* Pixel Shift Control

## ● Function

Personal Computer controls Pixel Shift function of TV / Monitor.

Cannot control when Video Wall is on or when Zoom(0x39) is set or when Input Signal is VESA Mode in DVI.

## ● Get Pixel Shift Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x4C		0	

## ● Set Pixel Shift

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0x4C		0x04	Shift	H.Dot	V.Line	S.Time
Check Sum							

**Shift** : Pixel Shift On/Off Code to be set on TV/Monitor

**Caution** : If **Shift** value is off, H.Dot, V.Line, S.Time values are ignored in TV / Monitor.

1	ON
0	OFF

**H.Dot** : Horizontal Dot value code set on TV/Monitor (0 ~ 4)

**V.Line** : Vertical Line value code set on TV/Monitor (0 ~ 4)

**S.Time** : Shift Time value code set on TV/Monitor (1 ~ 4)

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x06	'A'	0x4C	Shift	H.Dot
Val 3	Val 4	Check Sum					
V.Line	S.Time						

**Shift, H.Dot, V.Line, S.Time** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x4C	ERR	

**ERR** : Error code that shows what occurred error is

## ★ Video Wall Control

## ● Function

Personal Computer turns Video Wall function of TV / Monitor ON/OFF.

Does not operate in MagicNet.

## ● Get Video Wall Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x4F		0	

## ● Set Video Wall

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x4F		1	V.Wall	

V.Wall : Video Wall code set on TV/Monitor

Set	2 X 2	3 X 3	4 X 4	1 X 5	5 X 1	1 X 2	2 X 1
OFF	0x00	0x00	0x00	0x00	0x00	0x00	0x00
No. 1	0x11	0x21	0x31	0x41	0x51	0x61	0x71
No. 2	0x12	0x22	0x32	0x42	0x52	0x62	0x72
No. 3	0x13	0x23	0x33	0x43	0x53		
No. 4	0x14	0x24	0x34	0x44	0x54		
No. 5		0x25	0x35	0x45	0x55		
...		...	...				
No. 9		0x29	0x39				
...			...				
No. 16			0x40				

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x4F	V.Wall	

V.Wall : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x4F	ERR	

ERR : Error code that shows what occurred error is



## ★ Auto Lamp Control

## ● Function

Personal Computer sets Auto Lamp Function of TV / Monitor.

When Manual Lamp Control is on, Auto Lamp Control will automatically turn off.

## ● Get Auto Lamp

Header	Command	ID	Data Length	Check Sum
0xAA	0x57		0	

## ● Set Auto Lamp

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4	
0xAA	0x57		8	LMax_H	LMax_M	LMax_AP	LMaxValue	
Data 5	Data 6	Data 7	Data 8	Check Sum				
LMin_H	LMin_M	LMin_AP	LMinValue					

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2	
0xAA	0xFF		0x0A	'A'	0x57	LMax_H	LMax_M	
Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Check Sum		
LMax_AP	LMaxValue	LMin_H	LMin_M	LMin_AP	LMinValue			

**LMax\_H** : Auto Lamp Max Time Hour set on TV/Monitor (1 ~ 12)

**LMax\_M** : Auto Lamp Max Time Minute set on TV/Monitor (0 ~ 59)

**LMax\_AP** : Auto Lamp Max Time set on TV/Monitor AM/PM

**LMaxValue** : Auto Lamp Max Value set on TV/Monitor (0 ~ 100)

**LMin\_H** : Auto Lamp Min Time Hour set on TV/Monitor (1 ~ 12)

**LMin\_M** : Auto Lamp Min Time Minute set on TV/Monitor (0 ~ 59)

**LMin\_AP** : Auto Lamp Min Time set on TV/Monitor AM/PM

**LMinValue** : Auto Lamp Min Value set on TV/Monitor (0 ~ 100)

**Caution:** When LMinValue is **Returned** to **0xFF**, Auto Lamp Control is off.

When Dynamic contrast is on, Auto Lamp Control does not operate.

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x57	ERR	

**ERR** : Error code that shows what occurred error is

### \* Manual Lamp Control

#### ● Function

Personal Computer sets Manual Lamp Function of TV / Monitor.

When Auto Lamp Control is on, Manual Lamp Control will automatically turn off.

#### ● Get Manual Lamp Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x58		0	

#### ● Set Manual Lamp

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x58		1	LampValue	

**LampValue** : Manual Lamp value to be set on TV/Monitor (0 ~ 100)

#### ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x58	LampValue	

**LampValue** : Same as above

**Caution** : When LampValue is **Returned** to **0xFF**, Manual Lamp Control is off.

When Dynamic contrast is on, Manual Lamp Control does not operate.

#### ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x58	ERR	

**ERR** : Error code that shows what occurred error is

### \* Safety Screen Run Control

- Function

Personal Computer will make Safety Screen function to operate immediately, not by Timer operation.

- Get Safety Screen Run Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x59		0	

- Set Safety Screen Run

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x59		1	Safety Screen Type	

**Safety Screen Type** : Safety Screen Type to be set on TV/Monitor (1~6)

0	Off
1	Signal Pattern
2	All White
3	Scroll
4	Bar
6	Eraser

- Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x59	Safety Screen Type	

**Safety Screen Type** : Same as above

- Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x59	ERR	

**ERR** : Error code that shows what occurred error is

## ★ SBP Timer Control (TV)

## ● Function

Personal Computer sets Screen Burn Protection Timer of TV/Monitor.

## ● Get SBP Timer Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x5B		0	

## ● Set SBP Timer

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Check Sum
0xAA	0x5B		3	Timer	T.Period	T.Time	

**Timer** : SBP Timer code to be set on TV/Monitor

0	OFF
1	Pattern
2	All White
3	Inverse
4	Bar
5	Bar & Inverse

**T.Period** : SBP Timer Period value code to be set on TV/Monitor (1~24 Hr.)

**T.Time** : SBP Timer Time value code set on TV/Monitor (1~30 min.)

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2	Check Sum	
0xAA	0xFF		5	'A'	0x5B	Timer	T.Period		
Val 3	Check Sum								
T.Time									

**Timer, T.Period, T.Time** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x5B	ERR	

**ERR** : Error code that shows what occurred error is

### \* Video Wall Mode Control

- Function

Personal Computer converts Video Wall Mode of TV / Monitor when Video Wall is ON.

Only works with TV/Monitor where Video Wall is on.

Does not operate in MagicNet.

- Get Video Wall Mode

Header	Command	ID	Data Length	Check Sum
0xAA	0x5C		0	

- Set Video Wall Mode

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x5C		1	WallMode	

**WallMode** : Video Wall Mode code to be set on TV/Monitor

1	Full
0	Natural

- Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x5C	WallMode	

**WallMode** : same as above

- Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x5C	ERR	

**ERR** : Error code that shows what occurred error is

## \* Safety Lock

### ● Function

Personal Computer turns Safety Lock function of TV/Monitor On/Off.

전원 On/Off 여부와 상관없이 동작할 수 있다.

### ● Get Safety Lock Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x5D		0	

### ● Set Safety Lock Enable/Disable

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x5D		1	Lock	

**Lock** : Lock code to be set on TV/Monitor

1	On
0	Off

### ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x5D	Lock	

**Lock** : Same as above

### ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x5D	Lock	

**ERR** : Error code that shows what occurred error is

## \* Panel Lock

## ● Function

Personal Computer turns Panel function Key Lock of TV/Monitor On/OFF.

Can operate regardless of whether power is on/off.

## ● Get Panel Lock Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x5F		0	

## ● Set Panel Lock

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x5F		1	Panel Lock	

**Panel Lock** : Panel Key Lock On/Off code to be set on TV/Monitor

1	Lock
0	Unlock

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x5F	Panel Lock	

**Panel Lock** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x5F	ERR	

**ERR** : Error code that shows what occurred error is

## ★ OSD On/Off

## ● Function

Personal Computer turns OSD of TV / Monitor On/Off.

When OSD is on, OSD will be shown on screen

When OSD is off, OSD will not shown on screen at all

## ● Get OSD Enable Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x70		0	

## ● Set OSD Enable/Disable

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x70		1	OSD	

OSD : OSD On/Off code to be set on TV/Monitor

1	OSD On
0	OSD Off

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x70	OSD	

OSD : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x70	ERR	

ERR : Error code that shows what occurred error is



## \* P.Mode Control

## ● Function

Personal Computer changes Picture Mode of TV / Monitor.

## ● Get PMode Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x71		0	

## ● Set PMode

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x71		1	PMode	

**PMode** : Picture Mode code to be set on TV/Monitor

Source	Data	Mode
AV S-Video Component HDCP ( TV )	0x00	Dynamic
	0x01	Standard
	0x02	Movie
	0x03	Custom
	0x50	Off
PC BNC DVI ( MagicNet )	0x10	Entertain
	0x11	Internet
	0x12	Text
	0x13	Custom
	0x50	Off

**Caution** : Dynamic Contrast will not operate in any other mode except Off mode.

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x71	PMode	

**PMode** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x71	ERR	

**ERR** : Error code that shows what occurred error is

### \* S.Mode Control

- Function

Personal Computer changes Sound Mode of TV / Monitor.

- Get SMode Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x72		0	

- Set SMode

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x72		1	SMode	

**SMode** : Sound Mode code to be set on TV/Monitor

Data	Mode
0x00	Standard
0x01	Music
0x02	Movie
0x03	Speech
0x04	Custom

- Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x72	SMode	

**SMode** : Same as above

- Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x72	ERR	

**ERR** : Error code that shows what occurred error is

★ NR Mode Set (ATV, DTV, AV, S-Video, Component, HDMI Only)

● Function

Personal Computer changes Digital NR mode.

● Get NR Mode Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x73		0	

● Set NR Mode

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x73		1	NR Mode	

**NR Mode** : NR Mode On/Off code to be set on TV/Monitor

1	NR Mode On
0	NR Mode Off

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x73	NR Mode	

**NR Mode** : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x73	ERR	

**ERR** : Error code that shows what occurred error is

★ PC Color Tone Control (PC, BNC, DVI Only)

● Function

Personal Computer can change color tone of Monitor.

● Get Color Tone Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x75		0	

● Set Color Tone

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x75		1	Color Tone	

**Color Tone** : Color Tone value code to set on TV/Monitor (0 ~ 3)

Source	Data	Mode
PC DVI BNC	0x00	Custom
	0x01	Cool
	0x02	Normal
	0x03	Warm
	0x50	Off

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x75	Color Tone	

**Color Tone** : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x75	ERR	

**ERR** : Error code that shows what occurred error is

## \* Auto AutoAdjustment

## ● Function

Personal Computer can Enable/Disable Auto Adjustment function.

On 되었을 경우에만 Auto Auto Adjustment 기능이 동작된다.

## ● Get A.Adjustment Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x76		0	

## ● Set A.Adjustment

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x76		1	A.Adjustment	

**A.Adjustment** : Auto Auto Adjustment Value Code to be set on TV/Monitor

1	Enable
0	Disable

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x76	A.Adjustment	

**A.Adjustment** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x76	ERR	

**ERR** : Error code that shows what occurred error is

★ All Keys Lock

● Function

Personal Computer turns both REMOCON and Panel Key Lock function on/off.

Can operate regardless of whether power is on/off.

● Get All Key Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x77		0	

● Set All Key Lock/Unlock

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x77		1	All Key	

All Key : Lock On/Off code of every Key to be set on TV/Monitor

1	Lock
0	Unlock

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x77	All Key	

All Key : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x77	ERR	

ERR : Error code that shows what occurred error is

### \* SRS TS XT Control

#### ● Function

Personal Computer turns SRS TS XT of TV / Monitor on/off.

Can only operate with TV/Monitor that has SRS TS XT function.

#### ● Get SRS TS XT Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x78		0	

#### ● Set SRS TSXT

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x78		1	<b>SRS</b>	

**SRS** : SRS TS XT code to be set on TV/Monitor

1	SRS ON
0	SRS OFF

#### ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x78	<b>SRS</b>	

**SRS** : Same as above

#### ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x78	<b>ERR</b>	

**ERR** : Error code that shows what occurred error is

## ★ Film Mode Control

## ● Function

Personal Computer turns Film Mode of TV / Monitor on/off.

## ● Get Film Mode Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x79		0	

## ● Set Film Mode

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x79		1	FMode	

**FMode** : Film Mode code to be set on TV/Monitor

1	Film Mode ON
0	Film Mode OFF

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x79	FMode	

**FMode** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x79	ERR	

**ERR** : Error code that shows what occurred error is



★ Signal Balance ( PC, BNC Only)

● Function

Personal Computer turns Signal Balance of TV / Monitor ON/OFF.

● Get Signal Balance Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x7A		0	

● Set Signal Balance

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x7A		1	<b>SBalance</b>	

**SBalance** : Signal Balance code to be set on TV/Monitor

1	Signal Balance ON
0	Signal Balance OFF

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x7A	<b>SBalance</b>	

**SBalance** : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x7A	<b>ERR</b>	

**ERR** : Error code that shows what occurred error is

★ SB Gain ( PC, BNC Only)

● Function

Personal Computer changes Gain value of Monitor Signal Balance.

● Get SBGain Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x7E		0	

● Set SBGain

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x7E		1	SBGain	

SBGain : Phase B value code of Signal Balance to be set on Monitor ( 0 ~ 100 )

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x7E	SBGain	

SBGain : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x7E	ERR	

ERR : Error code that shows what occurred error is

★ SB Sharpness ( PC, BNC Only)

● Function

Personal Computer changes Sharpness value of Monitor Signal Balance.

● Get SBSharpness Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x7F		0	

● Set SBSharpness

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x7F		1	SBSsharpness	

**SBSsharpness** : Signal Balance Sharpness value code to be set on Monitor ( 0 ~ 100 )

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x7F	SBSsharpness	

**SBSsharpness** : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x7F	ERR	

**ERR** : Error code that shows what occurred error is

## ★ Panel On Time

## ● Function

Personal Computer shows Panel On Time of TV / Monitor.

## ● Get Panel On Time Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x83		0	

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2	
0xAA	0xFF		0x05	'A'	0x83	PTime_H	PTime_L	

Check Sum
-----------

PTime\_H : Panel On Time High.

PTime\_L : Panel On Time Low.

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x83	ERR	

ERR : Error code that shows what occurred error is

## ★ Video Wall On

## ● Function

Personal Computer turns Video Wall of TV / Monitor ON/OFF.

Does not operate in MagicNet.

## ● Get Video Wall On/Off Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x84		0	

## ● Set Video Wall On/Off

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x84		1	V.Wall_On	

**V.Wall\_On** : Video Wall Code to set on TV / Monitor

1	Video Wall ON
0	Video Wall OFF

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x84	V.Wall_On	

**V.Wall\_On** : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x84	ERR	

**ERR** : Error code that shows what occurred error is

## ★ Temperature Control

## ● Function

Personal Computer sets the maximum value of TV / Monitor temperature.

Only supports models with Temperature notification function.

## ● Get Temperature Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x85		0	

## ● Set Temperature Status

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x85		1	Temperature	

Temperature : Temperature code to be set on TV/Monitor

Data	45 ~ 125(℃)
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## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x85	Temperature	

Temperature : Same as above

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x85	ERR	

ERR : Error code that shows what occurred error is

## \* Brightness Sensor

## ● Function

Personal Computer turns Brightness Sensor of TV / Monitor on/off.

Only supports models with Brightness Sensor.

## ● Get Brightness Sensor ON/OFF Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x86		0	

## ● Set Brightness Sensor ON/OFF

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x86		1	BR_Sensor	

BR\_Sensor : Power code to be set on TV/Monitor

1	Brightness Sensor ON
0	Brightness Sensor OFF

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x86	BR_Sensor	

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x86	ERR	

ERR : Error code that shows what occurred error is

## \* Dynamic Contrast (ATV, DTV, AV, S-Video, Component, HDMI Only)

## ● Function

Personal Computer turns Dynamic Contrast of TV / Monitor on/off.

Does not operate in PC, DVI and MagicNet.

## ● Get Dynamic Contrast ON/OFF Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x87		0	

## ● Set Dynamic Contrast ON/OFF

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x87		1	DY_Cont	

**DY\_Cont** : Power code to be set on TV/Monitor

1	Dynamic Contrast ON
0	Dynamic Contrast OFF

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'A'	0x87	DY_Cont	

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x87	ERR	

**ERR** : Error code that shows what occurred error is



## \* Video Wall User Control

## ● Function

Personal Computer turns Video Wall function of TV / Monitor on/off.

Does not operate in MagicNet.

Does not operate when PIP is at operating status.

## ● Get Video Wall Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x89		0	

## ● Set Video Wall

Header	Command	ID	Data Length	Data 1	Data 2	Check Sum
0xAA	0x89		2	Wall_Div	Wall_SNo	

**Wall\_Div** : Video Wall Divider code set on TV/Monitor

H \ V	1	2	3	4	5
OFF	0x00	0x00	0x00	0x00	0x00
1	0x11	0x12	0x13	0x14	0x15
2	0x21	0x22	0x23	0x24	0x25
3	0x31	0x32	0x33	0x34	0x35
4	0x41	0x42	0x43	0x44	0x45
5	0x51	0x52	0x53	0x54	0x55

**Wall\_SNo** : TV/Monitor Number code set on TV/Monitor

Set Number	Data
1	0x01
2	0x02
...	...
24	0x18
25	0x19

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2	Check Sum
0xAA	0xFF		4	'A'	0x89	Wall_Div	Wall_SNo	

## ● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0x89	ERR	

**ERR** : Error code that shows what occurred error is

## \* Model Name Control

## ● Function

Personal Computer grasps TV / Monitor Model Name and display.

## ● Get Model Number Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x8A		0	

## ● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2	
0xAA	0xFF		0x12	'A'	0x8A	M_Name1	M_Name2	
Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10	
M_Name3	M_Name4	M_Name5	M_Name6	M_Name7	M_Name8	M_Name9	M_Name10	
Val 11	Val 12	Val 13	Val 14	Val 15	Val 16			
M_Name11	M_Name12	M_Name13	M_Name14	M_Name15	M_Name16			
Check Sum								

M\_Name1 ~ M\_Name16 : TV / Monitor의 Model Name

M_Name1	'S'
M_Name2	'y'
M_Name3	'n'
M_Name4	'c'
M_Name5	'M'
M_Name6	'a'
M_Name7	's'
M_Name8	't'
M_Name9	'e'
M_Name10	'r'
M_Name11	'4'
M_Name12	'0'
M_Name13	'0'
M_Name14	'D'
M_Name15	'X'
M_Name16	'n'