Multiple Display Control Protocol

0

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Revision History :

Version	날 짜	내 용	작 성 자	승 인 자
1.0	2015.07.24	Protocol for Multiple Display Control	B.I.Choi	

1. INTERFACE

1.1. Connection Method

There are 2 available ways of connecting. one is RS232, the other is RJ45.

1.1.1 Connection method (with RS232)

- 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.
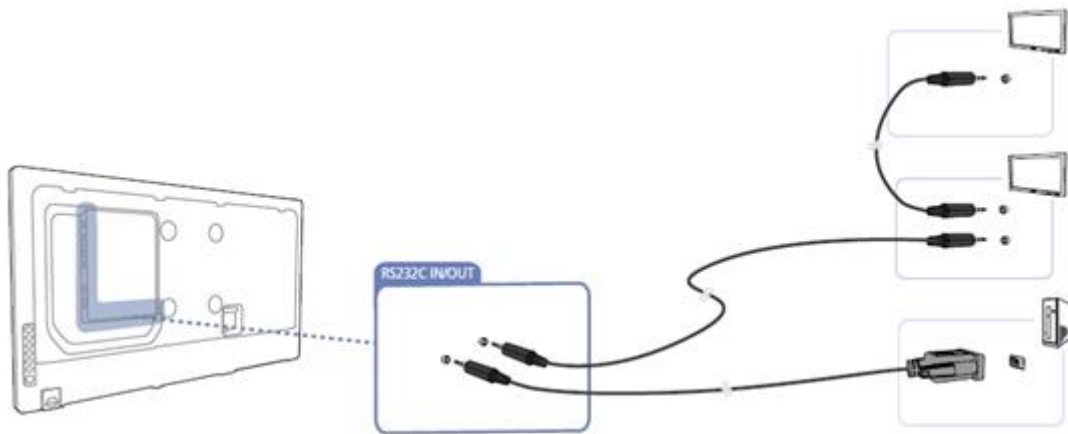
Figure1-1   PC,TV or Monitor connecting method(with RS232)

1.1.2 Connecting method(with RJ45)

- There are several ways to connect Personal Computer and TV(or Monitor).
- As of Figure 1-2, connect Hub and Personal Computer(using Ethernet).
  connect each TV of Display to be connected to the Hub.
- In doing so, each TV or Monitor must have an IP address.
- TV or Monitor connected by protocol's IP address must have the same ID with the protocol's ID.
- Each TV or Monitor ID can be duplicated.
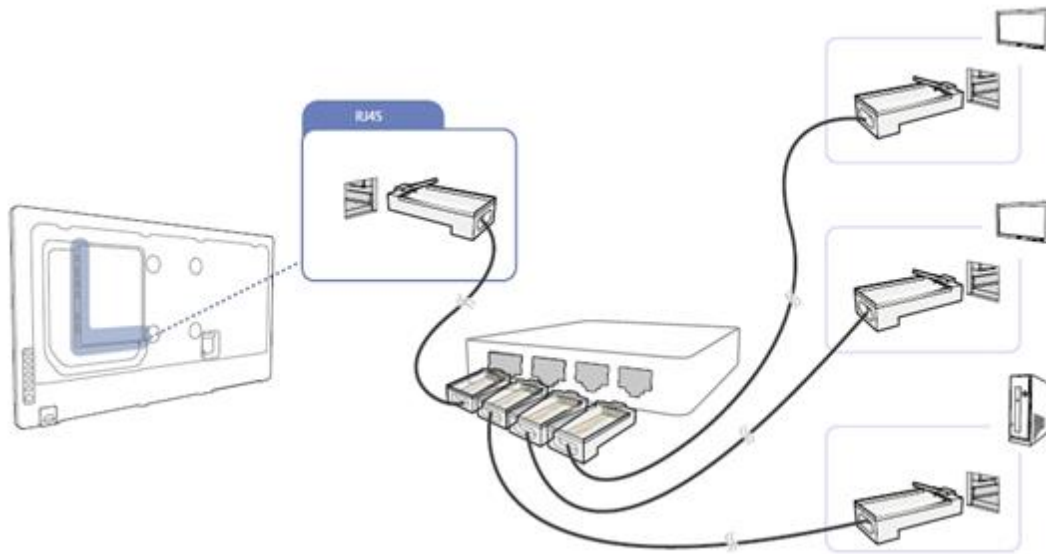
Figure1-2   PC,TV or Monitor connecting method(with RJ45)

1.1.3 Connecting method(with RJ45 & RS232C)

- As of Figure 1-3, connect TV and Personal Computer(using Ethernet),
  connect the next TV of Display to be connected from RS232-Out (9Pin).
- In doing so, only TV(connected to Personal Computer) needs an IP address.
  and 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.
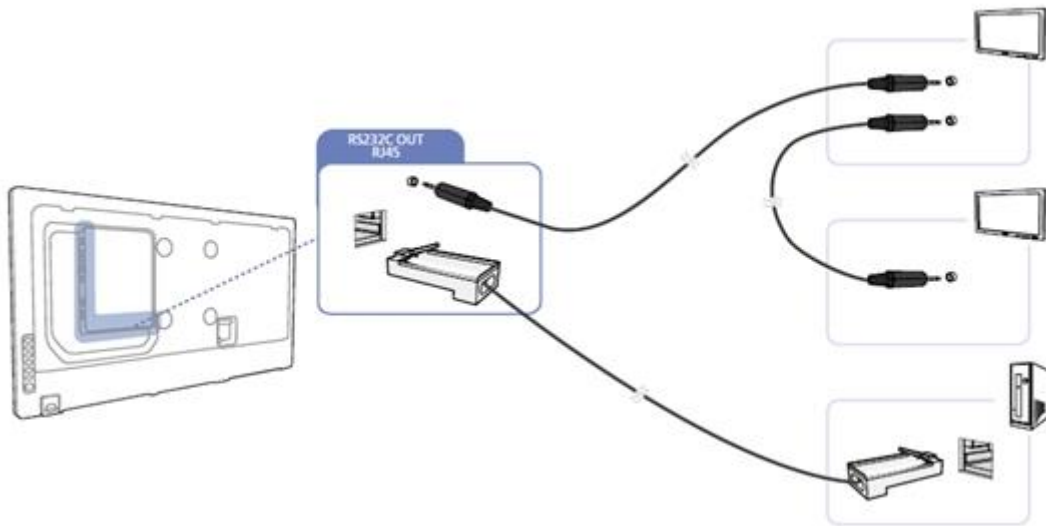
Figure1-3   PC,TV or Monitor connecting method(with RJ45 & RS232C)

1.2. Connection Spec

1.2.1 RS232 Connection Spec.

- Interactive communications using RS232.
- Of RS232 standards, three signals RxD(No.2), TxD(No.3) and GND(No.5) are used
    → Refer to Figure 2-1
- 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.
- 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+FE+01+01=111,
   discard the number in the first digit like below.
    example) Power On & ID=FE

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

→

Header	Command	0xFE	Data Length	Data 1	11
0xAA	0x11		1	1	

- 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

Pin	Signal	Pin	Signal
1	Data Carrier Detect	6	Data Set Ready
2	Received Data	7	Request to Send
3	Transmitted Data	8	Clear to Send
4	Data Terminal Ready	9	Ring Indicator
5	Signal Ground		
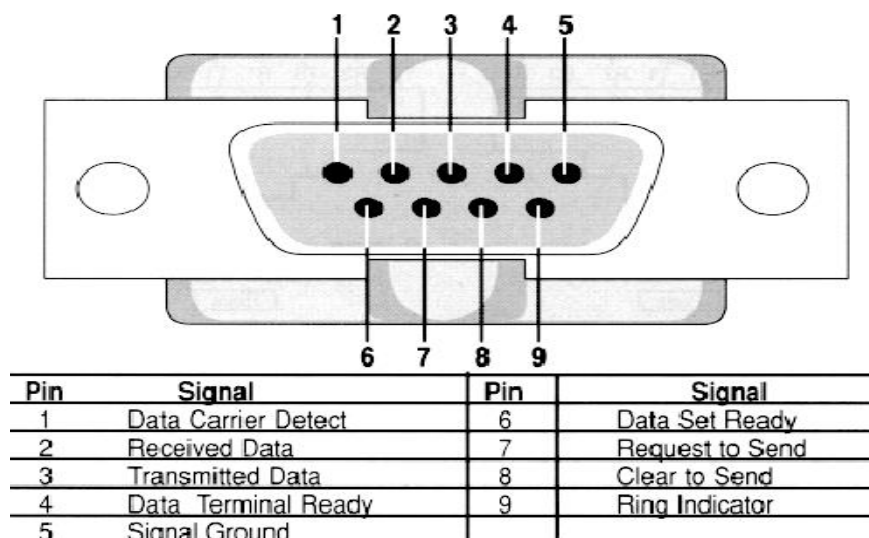
Figure 2-1 RS-232 pin out DB-9 pin used for Asynchronous Data

1.2.2 RJ45 Connection Spec.

- Interactive communications using RJ45.
- Transmit the MDC protocol using TCP/IP Format. the protocol information is stored in data area.
- The protocol information format is the same as RS232's.

example) Power Off & ID=0

Header	Command	ID	Data Length	Data1	Checksum
0xAA	0x11		1	Power	

TCP		UDP	
IP	ICMP	ARP	RARP

Hardware Interface(Ethernet, PPP etc.)

→

Header	Command	0xFE	Data Length	Data1	10
0xAA	0x11		1	0	

TCP		UDP	
IP	ICMP	ARP	RARP

Hardware Interface(Ethernet, PPP etc.)

- default ip : 192.168.0.10 PORT : 1515
- The RJ45 plug has 8-Pins as below.

Table 2-2　RJ45 plug 8-Pins

RJ45 PIN#	Wire Color(T568A)	10Base-T Signal 100Base-TX Signal	1000Base-T Signal
1	White/Green	Transmit+	BI_DA+
2	Green	Transmit-	BI_DA-
3	White/Orange	Receive+	BI_DB+
4	Blue	Unused	BI_DC+
5	White/Blue	Unused	BI_DC-
6	Orange	Receive-	BI_DB-
7	White/Brown	Unused	BI_DD+
8	Brown	Unused	BI_DD-

2. Command

Command No	Command Type	Sub Command	Data Type
0x00	Status Control	–	Multi Param
0x01	Clock Control	–	Multi Param
0x02	On Time Control	–	Multi Param
0x03	Off Time Control	–	Multi Param
0x04	Video Control	–	Multi Param
0x05	Audio Control	–	Multi Param
0x06	RGB Control	–	Multi Param
0x07	PIP Status Control	–	Multi Param
0x08	Maintenance Control	–	Multi Param
0x09	Sound Control	–	Multi Param
0x0A	SignagePlayer Control	0x81 : Child Status	Multi Param
0x0B	Serial Number Control	–	String
0x0C	Reserved	–	–
0x0D	Display Status Control	–	Multi Param
0x0E	SW Version Control	–	String
0x0F	Auto Motion Plus	–	Multi Param
0x10	Model Number Control	–	Multi Param
0x11	Power Control	–	Discrete
0x12	Volume Control	–	0 ~ 100
0x13	Mute Control	–	0, 1
0x14	Input Source Control	–	Discrete
0x15	Image Size Control	–	Discrete
0x16	Direct Channel Control (ATV)	–	Multi Param
0x17	Direct Channel Control (DTV)	–	Multi Param
0x18	Screen Mode Control	–	Discrete
0x19	Screen Size Control	–	Discrete
0x1A	Outdoor Mode	–	Multi Param
0x1B	Network Configuration	0x81 : MAC Address	Discrete
0x1C	Reserved	–	–
0x1D	MDC Connection Type	–	Discrete
0x1E	Image Retention Free	–	Discrete

0x1F	Reserved	–	–
0x20	Reserved	–	–
0x21	Reserved	–	–
0x22	Reserved	–	–
0x23	Reserved	–	–
0x24	Contrast Control	–	0 ~ 100
0x25	Brightness Control	–	0 ~ 100
0x26	Sharpness Control	–	0 ~ 100
0x27	Color Control	–	0 ~ 100
0x28	Tint Control	–	0 ~ 100
0x29	Red Gain Control	–	0 ~ 100
0x2A	Green Gain Control	–	0 ~ 100
0x2B	Blue Gain Control	–	0 ~ 100
0x2C	Treble Control	–	0 ~ 100
0x2D	Bass Control	–	0 ~ 100
0x2E	Balance Control	–	0 ~ 100
0x2F	Coarse Control	–	0, 1
0x30	Fine Control	–	0, 1
0x31	H–Position Control	–	0, 1
0x32	V–Position Control	–	0, 1
0x33	Auto Power	–	0, 1
0x34	Clear Menu Control	–	0
0x35	Reserved	–	–
0x36	Remote Control	–	0, 1
0x37	RGB Contrast Control	–	0 ~ 100
0x38	RGB Brightness Control	–	0 ~ 100
0x39	Reserved	–	–
0x3A	Reserved	–	–
0x3B	Reserved	–	–
0x3C	PIP On/Off Control	–	0, 1
0x3D	Auto Adjustment Control	–	0
0x3E	Color Tone Control	–	Discrete
0x3F	Color Temperature Control	–	Discrete
0x40	PIP Source Control	–	Discrete
0x41	Main–PIP Swap Control	–	0
0x42	PIP Size Control	–	Discrete

0x43	PIP Locate Control	–	Discrete
0x44	Fan Speed Setting	–	0 ~ 100
0x45	User Auto Color	–	0, 1
0x46	Reserved	–	–
0x47	Sound Select Control	–	0, 1
0x48	Auto Volume	–	Discrete
0x49	Reserved	–	–
0x4A	Standby Control	–	Discrete
0x4B	Video Picture Position & Size	–	Multi Param
0x4C	Pixel Shift Control	–	Multi Param
0x4D	Reserved	–	–
0x4E	All White Control	–	0, 1
0x4F	Video Wall Control	–	–
0x50	Reserved	–	–
0x51	EQ 100Hz Control	–	0 ~ 20
0x52	EQ 300Hz Control	–	0 ~ 20
0x53	EQ 1kHz Control	–	0 ~ 20
0x54	EQ 3kHz Control	–	0 ~ 20
0x55	EQ 10kHz Control	–	0 ~ 20
0x56	Energy Saving_LFD	–	0, 1
0x57	Auto Lamp Control	–	Multi Param
0x58	Manual Lamp Control	–	0 ~ 100
0x59	Safety Screen Run Control	–	Discrete
0x5A	Inverse Control	–	0, 1
0x5B	Safety Screen Control (MFM)	–	Multi Param
0x5C	Video Wall Mode Control	–	0, 1
0x5D	Safety Lock	–	0, 1
0x5E	Reserved	–	–
0x5F	Key Lock Control (MFM)	–	0, 1
0x60	Reserved	–	–
0x61	Channel Up/Down	–	0, 1
0x62	Volume Up/Down	–	0, 1
0x63	Ticker	–	Multi Param
0x64	Reserved	–	–
0x65	Sound Select Control	–	0, 1
0x66	PC Module Detect	–	Discrete

0x67	Device Name	–	String
0x68	Speaker Select	–	0, 1
0x69	Reserved	–	
0x6A	Reserved	–	
0x6B	Reserved	–	
0x6C	Reserved	–	
0x6D	Reserved	–	
0x6E	Reserved	–	
0x6F	Reserved	–	
0x70	OSD Off/On	–	0, 1
0x71	P. Mode Control	–	Discrete
0x72	S. Mode Control	–	Discrete
0x73	Digital NR	–	Discrete
0x74	RGB Color Control	–	0 ~ 100
0x75	PC Color Tone Control	–	Discrete
0x76	Auto Auto Adjustment	–	0, 1
0x77	All Keys Lock	–	0, 1
0x78	SRS TSXT Control	–	0, 1
0x79	Film Mode	–	Discrete
0x7A	Signal Balance	–	0, 1
0x7B	Reserved	–	–
0x7C	Reserved	–	–
0x7D	Reserved	–	–
0x7E	SB Gain	–	0 ~ 100
0x7F	SB Sharpness	–	0 ~ 100
0x80	Reserved	–	
0x81	Bar Control	–	0, 1
0x82	Reserved	–	–
0x83	Panel On Time	–	Multi Param
0x84	Video Wall On	–	0, 1
0x85	Temperature Control	–	75 ~ 124
0x86	Brightness Sensor	–	0, 1
0x87	Dynamic Contrast	–	Discrete
0x88	Safety Screen On	–	1 ~ 5
0x89	Video Wall User Control	–	Multi Param
0x8A	Model Name	–	String

0x8B	Video Wall Direct User Control	–	Multi Param
0x8C	Video Wall Feature Control	0x81 : Reverse Scan	0, 1
		0x82 : Frame Lock	0, 1
		0x83 : Frame Delay	Multi Param
		0x90 : ID Display	0, 1
		0xA0 : Irregular Videowall	Multi Param
0x8D	Movie Plus	–	0, 1
0x8E	Internal Mute	–	0, 1
0x8F	Fan	–	0, 1
0x90	Game Mode	–	0, 1
0x91	Blue Screen	–	0, 1
0x92	Energy Saving	–	Discrete
0x93	HTPC	–	0, 1
0x94	HDMI Black Level	–	0, 1
0x95	Black Adjust	–	Discrete
0x96	Gamma	–	Discrete
0x97	White Balance	–	Multi Param
0x98	Reserved	–	–
0x99	Reserved	–	–
0x9A	Reserved	–	–
0x9B	Reserved	–	–
0x9C	Edge Enhancement	–	0, 1
0x9D	Color Space	–	Discrete
0x9E	xvYCC	–	0, 1
0x9F	Reset Control	–	Discrete
0xA0	Firmware Update	–	Multi Param
0xA1	Ambient Brightness Mode	–	Multi Param
0xA2	RJ45 Setting Refresh	–	1
0xA3	OSD Display Type On/Off	–	Multi Param
0xA4	Timer 1 Control_MFM	–	Multi Param
0xA5	Timer 2 Control_MFM	–	Multi Param
0xA6	Timer 3 Control_MFM	–	Multi Param
0xA7	Clock Control_MFM	–	Multi Param
0xA8	Holiday Add/Delete Control	–	Multi Param
0xA9	Holiday Get Control	–	Multi Param
0xAA	Reserved	–	

0xAB	Timer4 Control	–	Multi Param
0xAC	Timer5 Control	–	Multi Param
0xAD	Timer6 Control	–	Multi Param
0xAE	Timer7 Control	–	Multi Param
0xAF	Edit Name Control	–	Discrete
0xB0	Virtual Remote Control	–	Discrete
0xB1	Display Port Daisy Chain	–	0, 1
0xB2	3Screen/4Screen Mode Control	–	Multi Param
0xB3	Video Conference Sound Mode Control	–	0, 1
0xB4	Screen Mute Control	–	Multi Param
0xB5	Network Standby Control	–	0, 1
0xB6	DST (Daylight Saving Time) Control	–	Multi Param
0xB7	Custom PIP Control	–	Multi Param
0xB8	Auto ID Setting Status Control	–	0, 1
0xB9	Display ID Infomation	–	0, 1
0xBA	Upgrade Control	0x81 : Submicom Upgrade	Multi Param
0xBB	Reserved	–	
0xBC	Reserved	–	
0xBD	Reserved	–	
0xBE	Reserved	–	
0xBF	Reserved	–	
0xC0	RTV Commond	Refer Annex A for detail	Multi Param
0xC1	MagicInfo Remote Control	–	Discrete
0xC2	User Gamma Control	–	Multi Param
0xC3	Apply Calibrated data for All Source or Current Source	–	0, 1
0xC4	Supported Function Control in LFD	–	Multi Param
0xC5	Clock Control_MFM	–	Multi Param
0xC6	Eco Solution	0x81 : Auto Power Off	Discrete
0xC7	Execute Launcher	0x81 : Launcher Mode	Discrete
		0x82 : URL Address	String
0xC8	OnScreen Display Control	0x81 : Menu Orientation	Discrete
		0x82 : Source Orientation	Discrete
		0x83 : Aspect Ration(Rotated)	Discrete
		0x84 : PIP Orientation	Discrete

0xC9	Reserved	–	
0xCA	Reserved	–	
0xCB	Reserved	–	
0xCC	Reserved	–	
0xCD	Reserved	–	
0xCE	Reserved	–	
0xCF	Reserved	–	
0xD0	LED Product Feature	0x81 : Device Type	Discrete
		0x82 : Input Source Info	Discrete
		0x83 : Product Info	Discrete
		0x84 : Monitoring	Discrete
0xD1	Reserved	–	
0xD2	Reserved	–	
0xD3	Reserved	–	
0xD4	Reserved	–	
0xD5	Reserved	–	
0xD6	Reserved	–	
0xD7	Reserved	–	
0xD8	Reserved	–	
0xD9	Reserved	–	
0xDA	Reserved	–	
0xDB	Reserved	–	
0xDC	Reserved	–	
0xDD	Reserved	–	–
0xDE	Reserved	–	
0xDF	Reserved	–	
0xE0	Net PIP Command	–	Multi Param
0xE1	Peripheral Chip Control	–	Multi Param
0xE2	Advanced IDG control	–	Multi Param
0xE3	Control ACM mode	–	Multi Param
0xE4	Apply To Control	–	0, 1
0xE5	MGA Gamma Data Control	–	Multi Param
0xE6	Reserved	–	
0xE7	Reserved	–	
0xE8	Reserved	–	
0xE9	Reserved	–	

0xEa	Reserved	–	
0xEB	Reserved	–	
0xEC	Reserved	–	
0xED	Reserved	–	
0xEE	Reserved	–	
0xEF	Reserved	–	
0xF0	Reserved	–	
0xF1	Reserved	–	
0xF2	Reserved	–	
0xF3	Reserved	–	
0xF4	Reserved	–	
0xF5	Reserved	–	
0xF6	Reserved	–	
0xF7	Reserved	–	
0xF8	Reserved	–	
0xF9	Panel On Off	–	0, 1
0xFA	Reserved	–	
0xFB	Reserved	–	
0xFC	Reserved	–	
0xFD	Auto ID	–	Multi Param
0xFE	White Balance MDC Control	0x51 : Pattern Display	Discrete
		0x61 : White Balance Type	Discrete
		0x71 : Default color	Discrete
		0x81 : White Balance Red Gain	Discrete
		0x91 : White Balance Green Gain	Discrete
		0xA1 : White Balance Blue Gain	Discrete
		0xB1 : White Balance Red Offset	Discrete
		0xC1 : White Balance Green Offset	Discrete
		0xD1 : White Balance Blue Offset	Discrete
		0xE1 : White Balance Sub Brightness	Discrete
		0xF1 White Balance Sub Contrast	Discrete
		0xF2 : Reset	Discrete
0xFF	ACK/NAK	–	

Note : Depends on each model spec, a certain command will be supported or not

Depends on each model spec, an option of a certain command will be differ

* Greyed commands are reserved.

* Blued commands are internal use only

2.1 Common Protocol

2.1.00 Status Control

● **Function**

   Personal Computer shows current setting condition of TV / Monitor.

● **Get Status**

Header	Command	ID	Data Length	Check Sum
0xAA	0x00		0x00	

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x09	'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

   Note ：   If use New Timer (0xA4, 0xA5, 0xA6, 0xA7, 0xA8, 0xA9) command. Do as below.

         N Time NF ： OnTime ON/OFF value of time to set TV/Monitor(old type Timer)

         F Time NF ： OffTime ON/OFF value of time to set TV/Monitor(old type Timer)

         → It was supported for old type Timer.   Now, It is always 0x00.

● **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

2.1.04 Video Control

● Function

Personal Computer shows the screen condition of TV / Monitor.

● Working Condition

1. ATV, DTV, AV, S-Video, Component, HDMI Only

2. A product which has **** Text , **** Video/Image and Calibration as picture mode,

  it will not affect by the 1st condition and instead,

  - No limitation for specific source

  - Work with PIC_MODE is PIC_MODE_VIDEO

    (In case of PIC_MODE is PIC_MODE_PC or PIC_MODE_CALIB, it will not work)

  * For the PIC_MODE definition pls refer AnnexB

● Get Video Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x04		0x00	

● 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 ：Contrast value to set the TV / Monitor (0 ~ 100)

Brightness ：Brightness value to set the TV / Monitor (0 ~ 100)

Sharpness ：Sharpness value to set the TV / Monitor (0 ~ 100)

Color ：Color value to set the TV / Monitor (0 ~ 100)

Tint ：Tint value to set the TV / Monitor (0 ~ 100)

Color Tone ：Color Tone value to set the TV / Monitor

ColorTemp ：Color Temperature value to set the TV / Monitor

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x04	ERR	

ERR ：Error code that shows what occurred error is

2.1.06 RGB Control

● Function

　Personal Computer shows screen condition of TV / Monitor.

● Working Condition

　1. PC, BNC, DVI Only

　　(On the DVI source Red, Green, Blue Gainwill not work)

　2. A product which has **** Text , **** Video/Image and Calibration as picture mode,

　　it will not affect by the 1st condition and instead,

　　　- No limitation for specific source

　　　- Work with PIC_MODE is PIC_MODE_PC

　　　　(In case of PIC_MODE is ***:video or Caliration, it will not work)

　　　* For the PIC_MODE definition pls refer AnnexB

● Get RGB Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x06		0x00	

● 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		

Val 1 ~ Val 8 : Same as above

Note : If LFD model doesn't support RGB Gain, those values should be replied with 0xFF.
　　　　If then MDC application can ignore these values.

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x06	ERR	

ERR : Error code that shows what occurred error is

2.1.07 PIP Status Control

● Function

The PC displays the PIP settings of a TV or monitor.

● Get PIP Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x07		0x00	

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x06	'A'	0x07	P.Size	P.Source
Val 3	Val 4	Check Sum					
0	0						

P.Size : The PIP size code set for the TV or monitor.

0x00	PIP Off
0x04	Double 1(Double Window)
0x05	Double 2(Double Wide)
0x06	Large
0x08	Small
0x09	Double 3(POP)

P.Source : The PIP source code set for the TV or monitor.

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x07	ERR	

ERR : The error code indicating which error occurred.

2.1.08 Maintenance Control

● Function

  Personal Computer shows maintenance state of TV / Monitor.
  Note : Depends on each model spec 0x15data length or 0x19 data length format will be supported

● Get Maintenance Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x08		0x00	

● Ack

. Data Length 0x15

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	Val 17	Val 18
LMin Value	Lamp Value	Screen Interval	Screen Time	Screen Type	V.Wall	V.Wall Format	V.Wall Divid
Val 19	Check Sum						
V.Wall Set							

. Data Length 0x 19

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x19	'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	LMax Value	LMin_H	LMin_M	LMin_AP
Val 11	Val 12	Val 13	Val 14	Val 15	Val 16	Val 17	Val 18
LMin Value	Lamp Value	Start Time – Hour	Start Time- Min	Screen Type	Start Time- am/pm	End Time – Hour	End Time- Min.
Val 18	Val 19	Val 20	Val 21	Val 22	Val 23	Check Sum	
End Time- Min.	End Time- am/pm	V.Wall	V.Wall Format	V.Wall Divid	V.Wall Set		

Power : Power code set on TV / Monitor

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

P.Source : 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(0ff)~10) set on TV / Monitor

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

ScreenType : SBP Type Code set on TV / Monitor

Note : Case : Value is not 0x00 : BIT 7 is 0 → Timer set Repeat.

BIT 7 is 1 → Timer set Interval.

- The data transmission(The following combinations), NAK processing.

(1) Data Length 15 & Type's kind Timer Interval

(2) Data Length 19 & Type's kind Timer Repeat

0x00	OFF	0x00	OFF
0x01		0x81	
0x02		0x82	
0x03	Scroll (Timer : Repeat)	0x83	Scroll (Timer : Interval)
0x04	Pixel (Timer : Repeat)	0x84	Pixel (Timer : Interval)
0x05	Bar (Timer : Repeat)	0x85	Bar (Timer : Interval)
0x06	Eraser (Timer : Repeat)	0x86	Eraser (Timer : Interval)
0x09	All White (Timer : Repeat)	0x89	All White (Timer : Interval)
0x0A	Pattern (Timer : Repeat)	0x8A	Pattern (Timer : Interval)
…		…	
0x10	Rolling Bar (Timer : Repeat)	0x90	Rolling Bar (Timer : Interval)
0x11	Fading Screen (Timer : Repeat)	0x91	Fading Screen (Timer : Interval)

Start Time-Hour : Start Time Hour value (1 ~ 12)

Start Time-Min : Start Time Minute value (0 ~ 59)

Start Time-am/pm : Start Time AM/PM (0 ~ 1), 1 : AM, 0 : PM

End Time-Hour : Start Time Hour value (1 ~ 12)

End Time-Min : Start Time Minute value (0 ~ 59)

End Time-am/pm : Start Time AM/PM (0 ~ 1), 1 : AM, 0 : PM

V.Wall : 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 f Set Number code set on TV / Monitor

Note : 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		0x03	'N'	0x08	ERR	

ERR : Error code that shows what occurred error is

2.1.09 Sound Control

● Function

  Personal Computer shows Sound state of TV / Monitor

● Get Audio Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x09		0x00	

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x0D	'A'	0x09	Vol	Balance

Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
100Hz	300Hz	1kHz	3kHz	10kHz	0	0	0

Val 11	Check Sum
SRS	

Vol, Balance : Vol, Balance value set on TV / Monitor

100Hz, 300Hz, 1kHz, 3kHz, 10kHz : Each the frequency of the Equalizer value set on TV / Monitor

SRS : SRS TSXT On/Off value set on TV / Monitor

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x09	ERR	

ERR : Error code that shows what occurred error is

2.1.0B Serial Number Control

● Function

    Personal Computer controls serial number of TV / Monitor.

● Get SerialNum Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x0B		0x00	

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x14	'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 15	Val 16	Val 17	Val 18	Check Sum
Data11	Data12	···	Data15	Data16	Data17	Data18	

    Data 1 ~ Data 15 : Serial Number set on TV / Monitor.

    Data 16 ~ Data 18 : Reserved

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x0B	ERR	

    ERR : Error code that shows what occurred error is

2.1.0D Display Status Control

● **Function**

Personal Computer shows display condition of TV / Monitor.

● **Get Maintenance Status**

Header	Command	ID	Data Length	Check Sum
0xAA	0x0D		0x00	

● **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 : Brighte Sensor Error code (0: NONE, 1: Error, 2: NORMAL) 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 (0℃ ~ 125℃)

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		0x03	'N'	0x0D	ERR	

ERR : Error code that shows what occurred error is

2.1.0E SW Version Control

● Function

   Personal Computer shows version information of TV / Monitor.

● Get Version Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x0E		0x00	

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x34(MAX)	'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 ~ Version12 : Project Info. of TV/Monitor

Version13 ~ Version50 : Software version of TV/Monitor

Note : Because Version information is variable, The Data Length 2-52 (0x34) is variably value
        (Real Value Val(0~50) +2 (Ack/Nak, r-CMD))

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x06	ERR	

ERR : Error code that shows what occurred error is

2.1.0F Auto Motion Plus

● Function

Personal Computer controls the Auto Motion Plus that TV / Monitor.

Note : It is dependent on Product Specifications- 120Hz Panel.

● Get Auto Motion Plus Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x0F		0x00	

● Set Auto Motion Plus Status

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Check Sum
0xAA	0x0F		0x03	Mode	Blur Reduction	Judder Reduction	

Mode

0x00	Off
0x01	Clear
0x02	Standard
0x03	Smooth
0x04	Custom
0x05	Demo

Blur reduction : It is only for "Mode: Custom". If "Mode" is not custom, then it is "don't care". (0 ~ 10)

Judder reduction : It is only for "Mode: Custom". If "Mode" is not custom, then it is "don't care". (0~ 10)

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x05	'A'	0x0F	Mode	Blur Reduction

Val 3	Check Sum
Judder Reduction	

Mode : Same as above

Blur Reduction, Judder Reduction :

Ack For Set command Type, Data2 and Data3 is same with Set command.

Ack For Get command Type, Date2 and Data2 is LFD's Value.(even If "Mode" is not custom.)

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x0F	ERR	

ERR : Error code that shows what occurred error is

2.1.10 Model Number Control

● Function

Personal Computer shows Model Number of TV / Monitor

● Get Model Number Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x10		0x00	

● Ack

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

Val 3	Check Sum
TV	

Species : TV / Monitor 's Panel Type.

0x01	PDP
0x02	LCD
0x03	DLP
0x04	LED
0x05	CRT
0x06	OLED

Model : TV / Monitor's Model Number.

Value	Model Name	Remarks		
		IC Vender	IC Name	Etc IC (Color Enhancer)
0x01	PPM50H2			
0x02	PPM42S2			
0x03	PS-42P2ST			
0x04	PS-50P2HT			
0x05	SyncMaster 400T			
0x06	SyncMaster 403T			
0x07	PPM42S3, SPD-42P3SM			
0x08	PPM50H3, SPD-50P3HM			
0x09	PPM63H3, SPD-63P3HM			
0x0A	PS-42P3ST			
0x0B	SyncMaster 323T			
0x0C	SyncMaster 403T - CT40CS(N)			
0x0D	PPMxxM5x			

0x0E	SyncMaster 320P(n) SyncMaster 400P(n) SyncMaster 460P(n)			
0x0F	–			
0x10	SyncMaster 320PX SyncMaster 400PX(n) SyncMaster 460PX(n)			
0x11	–			
0x12	–			
0x13	SyncMaster 400TX(n)	MSTAR	Lola	–
0x14	SyncMaster 570DX	MSTAR	Lola	–
0x15	SyncMaster 320DX(n) SyncMaster 400DX(n) SyncMaster 460DX(n) SyncMaster 700DX(n) SyncMaster 820DX(n)	MSTAR	Lola	–
0x16	SyncMaster 460TX(n)	MSTAR	Lola	–
0x17	SyncMaster 400UX(n) SyncMaster 460UX(n) SyncMaster 460DR(n)	MSTAR	Lola	–
0x18	SyncMaster 42TS SyncMaster 42PS SyncMaster P42HP	MSTAR	Lola	–
0x19	SyncMaster P50Hn	MSTAR	Lola	–
0x1A	SyncMaster P50F(n) SyncMaster P50FP	MSTAR	Lola	–
0x1B	SyncMaster P63F(n) SyncMaster P63FP	MSTAR	Lola	–
0x1C	SyncMaster 320MX(n)	MSTAR	Lola	–
0x1D	SyncMaster 400CX(n) SyncMaster 400MX(n) SyncMaster 400MP(n)	MSTAR	Lola	–
0x1E	–	–	–	–
0x1F	–	–	–	–
0x20	SyncMaster 460CX(n) SyncMaster 460MP(n)	MSTAR	Lola	–
0x21	SyncMaster 520DX(n)	MSTAR	Lola	–
0x22	SyncMaster 400UXn-UD SyncMaster 460UXn-UD	ST	Sequoia	–
0x23	SyncMaster 400FX(n)	MSTAR	Lola	–
0x24	SyncMaster 460DRn-A	MSTAR	Lola	–
0x25	SyncMaster 460UTn-UD	MSTAR	Lola	–
0x26	SyncMaster 460UT(n)	MSTAR	Lola	–
0x27	SyncMaster 320MX(n)-2	MSTAR	Lola	–

	SyncMaster 320MP-2			
0x28	SyncMaster 400MX(n)-2 SyncMaster 400FP(n)-2	MSTAR	Lola	-
0x29	SyncMaster 460MX(n)-2 SyncMaster 460FP(n)-2	MSTAR	Lola	-
0x2A	SyncMaster P42H-2	MSTAR	Lola	-
0x2B	SyncMaster P50HP	MSTAR	Lola	-
0x2C	SyncMaster P50FP	MSTAR	Lola	-
0x2D	SyncMaster P63FP	MSTAR	Lola	-
0x2E	SyncMaster 460Rn-S	MSTAR	Lola	-
0x2F	SyncMaster 400DXn-S	MSTAR	Lola	-
0x30	SyncMaster 460DXn-S	MSTAR	Lola	-
0x31	SyncMaster 400CX(n)-2 SyncMaster 460CX(n)-2	ST	Sequoia	-
0x32	SyncMaster 400DX(n)-2 SyncMaster 460DX(n)-2 SyncMaster 700DX(n)-2 SyncMaster 820DX(n)-2 SyncMaster 650MP(n)	ST	Sequoia	
0x33	SyncMaster 400UX(n)-2 SyncMaster 460UX(n)-2	ST	Sequoia	
0x34	SyncMaster 700DRn	MSTAR	Lola	
0x35	SyncMaster 230TSn SyncMaster 230MXn	MSTAR	Lola	
0x36	SyncMaster 460DMn			
0x37	SyncMaster 400UXn-UD2 SyncMaster 460UXn-UD2	ST	Sequoia	
0x38	SyncMaster P50HP-2	MSTAR	Lola	
0x39	SyncMaster P63FP-2	MSTAR	Lola	
0x3A	SyncMaster 400EXn	ST	Mars	
0x3B	SyncMaster 460EXn	ST	Mars	
0x3C	SyncMaster 550EXn	ST	Mars	
0x3D	SyncMaster 460UT(n)-2	ST	Mars	
0x3E	SyncMaster 550DX(n)	ST	Mars	
0x3F	SyncMaster 460CX(n)-3 SyncMaster 400CX(n)-3 SyncMaster 320CX(n)-3	ST	Mars	
0x40	SyncMaster 520LD	ST	Mars	
0x41	SyncMaster 460UX(n)-3 SyncMaster 400UX(n)-3 SyncMaster 400BX	ST	Mars	
0x42	SyncMaster 460TS(n)-3 SyncMaster 400TS(n)-3	ST	Mars	
0x43	SyncMaster 460UT(n)-UD2	ST	Mars	

0x44	UE46A/UE55A ME40A/ME46A/ME55A DE40A/DE46A/DE55A MD32B/MD40B/MD46B/MD55B ME32B/ME40B/ME46B ME55B/ME65B/ME75B	Samsung	Genoa-P	
	SL46B	Samsung	Genoa-P	ACM12
0x45	SyncMaster UD55A	ST	Mars	
0x46	DE40C/DE46C/DE55C UD46C/UD55C/ UE46C/UE55C/	Samsung	Echo-E	ACM12
0x47	SyncMaster UD22A	ST	Mars	
0x48	SyncMaster NL22B	ST	Mars	
0x49	MD32C, MD40C, MD46C, MD55C, ME95C	Samsung	Echo-P	STDP7310
0x4A	ED32C/ED40C/ED46C/ ED55C/ED65C/ED75C/ ED32D/ED40D/ED46D/ ED55D/ED65D/ED75D/	Novatek	NT72569(NT13)	
0x4B	SyncMaster LE32C SyncMaster LE46C SyncMaster LE55C	ST	Mars	
0x4C	SyncMaster UD46C-B	ST	Mars	
0x4D	ME32C/ME40C/ME46C/ME55C/	Samsung	Echo-E	
0x4E	SyncMaster UD55C-B	ST	Mars	ACM12
0x4F	DB22D/DB32D/DB40D/ DB48D/DB55D/DM32D/ OH46D/OH55D	Samsung	Golf-S	
0x50	DM40D/DM48D/DM55D DM65D/DM75D	Samsung	Golf-S	
	UE46D/UE55D	Samsung	Golf-S	ACM12
	DH40D/DH48D/DH55D	Samsung	Golf-S	
	OM46D/OM55D/OM75D	Samsung	Golf-S	ACM12
0x51	EB40D/EB48D	Novatek	NT72456(NT14L)	
0x52	SyncMasterQM55D SyncMasterQM85D SyncMasterQM50D SyncMasterQM40D SyncMasterQM105D	Mstar	SE13U	
0x53	**EM65E/EM75E** **ED65E/ED75E**	Novatek	NT72456 (NT14L)	
0x54	DH40E,DH48E,DH55E	Samsung	Golf-S	
	DM32E,DM40E,DM48E,	Samsung	Golf-S	

	DM55E,DM65E,DM75E			
	DB32E,DB40E,DB48E,DB55E	Samsung	Golf-S	
	DM65E-BR, DM75E-BR, DM82E-BR	Samsung	Golf-S	
	PE40E,PE46E,PE55E	Samsung	Golf-S	ACM
	UD46E-P, UD55E-P, UD55E-S	Samsung	Golf-S	ACM
0x55	RH48E, RH55E	Samsung	Golf-S	
0x56	SyncMaster UD46E-B SyncMaster UD55E-B SyncMaster UD46E-C	Novatek	SE15HV	ACM12
0x57	IL015E/ IL025E	Novatek	NT14F	
0x58	SBB-ES	Samsung	GOLF-S	

TV : TV / Monitor's TV support/not support.

0x00	Support TV	0x01	Do not support TV

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x10	ERR	

ERR : Error code that shows what occurred error is

2.1.11 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		0x00	

● Set Power ON/OFF

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x11		0x01	Power	

Power : Power code to be set on TV / Monitor

0x00	Power OFF	0x01	Power ON

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x11	Power	

Power : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x11	ERR	

ERR : Error code that shows what occurred error is

Note :

  - When you execute power on function by RJ45 MDC then you must re-connect

    a socket connection after 10 sec.

  - When Monitor is Power Off status and connect by RJ45 Then you must transmit the WOL

    protocol instead of MDC protocol using TCP/IP Format for Power On.

    (In "Network Standby : Off" Condition(DMD/DBD/DHD/UED/DMD-S)

     and always (Other Models)

  - If you send a MDC Command for "PowerOn" or "PowerOff"

    It must retry for 3 times every 2 Seconds until ACK command.

    If there is no ACK within 3 times, It means failure.

  Please refer below explanation

  1) SET POWER OFF

  0xAA,0x11,0x01,0x00,0x0x12   : MONITOR 1

  0xAA,0x11,0x02,0x00,0x0x13   : MONITOR 2

  0xAA,0x11,0x01,0x00,0x0x12   : MONITOR 1

```
0xAA,0x11,0x02,0x00,0x0x13      :   MONITOR 2
0xAA,0x11,0x01,0x00,0x0x12      :   MONITOR 1
0xAA,0x11,0x02,0x00,0x0x13      :   MONITOR 2
```

2) SET POWER ON

```
0xAA,0x11,0x01,0x01,0x0x13      :   MONITOR 1
0xAA,0x11,0x02,0x01,0x0x14      :   MONITOR 2
0xAA,0x11,0x01,0x01,0x0x13      :   MONITOR 1
0xAA,0x11,0x02,0x01,0x0x14      :   MONITOR 2
0xAA,0x11,0x01,0x01,0x0x13      :   MONITOR 1
0xAA,0x11,0x02,0x01,0x0x14      :   MONITOR 2
```

2.1.12 Volume Control

● Function

  Personal Computer changes volume of TV / Monitor.

● Get Volume Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x12		0x00	

● Set Volume

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x12		0x01	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		0x03	'A'	0x12	Volume	

  Volume : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x12	ERR	

  ERR : Error code that shows what occurred error is

2.1.13 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		0x00	

● Set Mute ON/OFF

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x13		0x01	Mute	

Mute ：Mute code to be set on TV / Monitor

0x00	Mute OFF	0x01	Mute ON

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x13	Mute	

Mute ：Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x13	ERR	

ERR ：Error code that shows what occurred error is

2.1.14 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		0x00	

● Set Input Source

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x14		0x01	Input	

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

0x04	S-Video	0x08	Component
0x0C	AV1 (AV)	0x0D	AV2
0x0E	Ext. (SCART1)	0x18	DVI
0x14	PC		
0x1E	BNC	0x1F	DVI_VIDEO
0x20	Magicinfo	0x21	HDMI1
0x22	HDMI1_PC	0x23	HDMI2
0x24	HDMI2_PC	0x25	DispalyPort(DispalyPort1)
0x26	DispalyPort2	0x27	DispalyPort3
0x30	RF(TV)	0x31	HDMI3
0x32	HDMI3_PC		
0x40	TV (DTV)		
0x50	Plug In Module	0x55	HDBaseT
0x60	Media/MagicInfo S	0x61	WiDi/Screen Mirroring
0x62	Internal/USB	0x63	URL Launcher
0x64	IWB		

    Note : DVI_VIDEO, HDMI1_PC, HDMI2_PC, HDMI3_PC → Get Only

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

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

        In case of AV2, Ext, only possible with models include AT2, Ext.

        On Timer function, Do not use 0x61. and use 0x62 by Internal/USB

        URL Launcher can be supported on DB/DM/DH/UE Model.

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x14	Input	

Input : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x14	ERR	

ERR : Error code that shows what occurred error is

2.1.15 Picture Size Control

● Function

   Personal Computer changes Picture Size of TV / Monitor.

● Working Condition

   It will not work with Video Wall: On

● Get Picture Size Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x15		0x00	

● Set Picture Size

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x15		0x01	Aspect	

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

PC1, PC2, DVI, BNC, HDMI_PC, DP		AV, S-VIdeo, Component, DVI_Video, HDMI_Video	
0x10	16 : 9	0x00	Auto Wide
0x18	4 : 3	0x01	16 : 9
0x20	Original Ratio	0x04	Zoom
0x21	21 : 9	0x05	Zoom1
		0x06	Zoom2
		0x09	Just Scan(Screen Fit)
		0x0B	4 : 3
		0x0C	Wide Fit
		0x0D	Custom
		0x0E	Smart View 1
		0x0F	Smart View 2
		0x31	Wide Zoom
		0x32	21 : 9

Note :

   - Some of theimage 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
   - Previous Models to 2013, PC and AV are separated by Selection of Editname.
     Models from 2014, PC and AV are separated by status Text/Video on Picture.
   - Depends on each model specification, all or some of the picure size mode will be available.

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x15	Aspect	

Aspect : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x15	ERR	

ERR : Error code that shows what occurred error is

2.1.17 Direct Channel Control (DTV)

● Function

Personal Computer can control TV Channel.

Note : Only works with models include TV

● Get Channel

Header	Command	ID	Data Length	Check Sum
0xAA	0x17		0x00	

● Set Channel

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0x17		0x08	Country	ATV_DTV	AirCable	CH_NUM (High)

Data 5	Data 6	Data 7	Data 8	Check Sum
CH_NUM (Low)	Sel_Minor	Minor_CH (High)	Minor_CH (Low)	

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x0A	'A'	0x17	Country	ATV_DTV

Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Check Sum
AirCable	CH_NUM (Hgh)	CH_NUM (Low)	Sel_Minor	Minor_CH (Hgh)	Minor_CH (Low)	

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		0x03	'N'	0x17	ERR	

ERR : Error code that shows what occurred error is

2.1.18 Screen Mode Control

● **Function**

Personal Computer changes screen mode of TV

● **Working Condition**

It will work on Video Wall Off, Landscape or Picture size is Auto Wide

Picture Size Auto Wide is only used on European Tuner Signal

● **Get Screen Mode Status**

Header	Command	ID	Data Length	Check Sum
0xAA	0x18		0x00	

● **Set Picture Size**

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x18		0x01	ScrMode	

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

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

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x18	ScrMode	

ScrMode : Same as above

● **Nak**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x18	ERR	

ERR : Error code that shows what occurred error is

2.1.19 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		0x00	

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'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		0x03	'N'	0x19	ERR	

ERR : Error code that shows what occurred error is

2.1.1D MDC Connection Type

● Function

Personal Computer get MDC Connection Type of TV / Monitor.

Note : It is dependent on Product Specifications- RJ45 MDC Connection
       It is Get Commnad Only.

● Get MDC Connection Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x1D		0x00	

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x1D	Connection Type	

Connection Type :

0x00	RS232C MDC	0x01	RJ45 MDC

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x1D	ERR	

ERR ： Error code that shows what occurred error is

2.1.24 Contrast Control

● Function

Personal Computer changes contrast of TV / Monitor.

● Working Condition

1. AV, S-Video, Component, DVI(HDCP) Only
2. A product which has **** Text , **** Video/Image and Calibration as picture mode,
   it will not affect by the 1st condition and instead,
   - It will be work on all source but If PIC_MODE is PIC_MODE_CALIB it will not work
   * For the PIC_MODE definition pls refer AnnexB

● Get Contrast Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x24		0x00	

● Set Contrast

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x24		0x01	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		0x03	'A'	0x24	Contrast	

Contrast : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x24	ERR	

ERR : Error code that shows what occurred error is

2.1.25 Brightness Control

● Function

  Personal Computer changes brightness of TV / Monitor.

● Working Condition

  1. AV, S-Video, Component, DVI(HDCP) Only

  2. A product which has **** Text , **** Video/Image and Calibration as picture mode,

     it will not affect by the 1st condition and instead,

     - It will be work on all source but if PIC_MODE is PIC_MODE_CALIB it will not work

     * For the PIC_MODE definition pls refer AnnexB

● Get Brightness Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x25		0x00	

● Set Brightness

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x25		0x01	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		0x03	'A'	0x25	Brightness	

Brightness ：Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x0	'N'	0x25	ERR	

ERR ：Error code that shows what occurred error is

2.1.26 Sharpness Control

● Function

   Personal Computer changes sharpness of TV / Monitor.

● Working Condition

   1. AV, S-Video, Component, DVI(HDCP) Only
   2. A product which has **** Text , **** Video/Image and Calibration as picture mode,
      it will not affect by the 1st condition and instead,
      - It will be work on all source but if PIC_MODE is PIC_MODE_CALIB it will not work
      * For the PIC_MODE definition pls refer AnnexB

● Get Sharpness Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x26		0x00	

● Set Sharpness

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x26		0x01	Sharpness	

   Sharpness : Sharpness 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		0x03	'A'	0x26	Sharpness	

   Sharpness : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x26	ERR	

   ERR : Error code that shows what occurred error is

2.1.27 Color Control

● Function

Personal Computer changes the color of TV / Monitor.

● Working Condition

1. AV, S-Video, Component, DVI(HDCP) Only
2. A product which has **** Text , **** Video/Image and Calibration as picture mode,
   it will not affect by the 1st condition and instead,
   - It will be work on all source and the PIC_MODE is PIC_MODE_VIDEO
   * For the PIC_MODE definition pls refer AnnexB

● Get Color Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x27		0x00	

● Set Color

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x27		0x01	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		0x03	'A'	0x27	Color	

Color : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x27	ERR	

ERR : Error code that shows what occurred error is

2.1.28 Tint Control

● Function

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

● Working Condition

1. AV, S-Video, Component, DVI(HDCP) Only
2. A product which has **** Text , **** Video/Image and Calibration as picture mode,
   it will not affect by the 1st condition and instead,
   - It will be work on all source and the PIC_MODE is PIC_MODE_VIDEO
   * For the PIC_MODE definition pls refer AnnexB

● Get Tint Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x28		0x00	

● Set Tint

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x28		0x01	Tint	

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

R	Tint Value
G	(100 - Tint) Value

Note : 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		0x03	'A'	0x28	Tint	

Tint : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x28	ERR	

ERR : Error code that shows what occurred error is

2.1.2F Coarse Control

● **Function**

Personal Computer adjusts Coarse of TV / Monitor.

● **Working Condition**

- PC(D-Sub), BNC Only
- It will not work in case of Videowall is On

● **Get Coarse Status**

None

● **Set Coarse**

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x2F		0x01	Coarse	

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

0x00	Decrease	0x01	Increase

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x2F	Coarse	

Coarse : Same as above

● **Nak**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x2F	ERR	

ERR : Error code that shows what occurred error is

2.1.30 Fine Control

● Function

　　　　Personal Computer adjusts Fine of TV / Monitor.

● Working Condition

　- PC(D-Sub), BNC Only

　- It will not work in case of Videowall is On

● Get Fine Status

None

● Set Fine

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x30		0x01	Fine	

Fine : Phase Increase/Decrease code

0x00	Decrease	0x01	Increase

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x30	Fine	

Fine : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x30	ERR	

ERR : Error code that shows what occurred error is

2.1.31 H-Position Control

● Function

   Personal Computer adjusts Horizontal Position of TV / Monitor.

● Working Condition

   - PC(D-Sub), BNC Only

   - When Video Wall is on or Zoom (0x39) is set, you can not control

● Get H-Position Status

   None

● Set H-Position

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x31		0x01	H-Pos	

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

0x00	Move to Left	0x01	Move to Right

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'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		0x03	'N'	0x31	ERR	

ERR : Error code that shows what occurred error is

2.1.32 V-Position Control

● **Function**

Personal Computer adjusts Vertical Position of TV/Monitor.

● **Working Condition**

- PC(D-Sub), BNC Only
- When Video Wall is on or Zoom (0x39) is set, you can not control

● **Get V-Position Status**

None

● **Set V-Position**

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x32		0x01	V-Pos	

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

0x00	Move Up	0x01	Move Down

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'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		0x03	'N'	0x32	ERR	

ERR : Error code that shows what occurred error is

2.1.33 Auto Power

● Function

Personal Computer adjusts Auto Power Control of TV/Monitor.

● Get Auto Power

Header	Command	ID	Data Length	Check Sum
0xAA	0x33		0x00	

● Set Auto Power

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x33		0x01	Auto Power	

Auto Power : The Auto Power Control code to set for the TV or monitor

0x00	Auto Power Off	0x01	Auto Power On

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x33	Auto Power	

Auto Power : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x33	ERR	

ERR : Error code that shows what occurred error is

2.1.34 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		0x01	Clear	

Clear : 0x00 (Always)

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x34	Clear	

Clear : Same as above

● **Nak**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x34	ERR	

ERR : Error code that shows what occurred error is

2.1.36 Remote Control

● Function

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

● Working Condition

- Can operate regardless of whether power is ON/OFF

  (If DPMS Situation in LFD, it operate Remocon regardless of set value.)

● Get IR Lock Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x36		0x00	

● Set IR Lock

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x36		0x01	RMC	

RMC : Power code to be set on TV/Remocon

0x00	Remocon Disable	0x01	Remocon Enable

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x36	RMC	

RMC : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x36	ERR	

ERR : Error code that shows what occurred error is

2.1.37 RGB Contrast Control

● Function

Personal Computer changes contrast of TV / Monitor

● Working Condition

1. PC, BNC, DVI Only

2. A product which has **** Text , **** Video/Image and Calibration as picture mode,

it will not affect by the 1st condition and instead,

- No limitation for specific source but it will not work on PIC_MODE is PIC_MODE_CALIB

* For the PIC_MODE definition pls refer AnnexB

● 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		0x01	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		0x03	'A'	0x37	Contrast	

Contrast : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x37	ERR	

ERR : Error code that shows what occurred error is

2.1.38 RGB Brightness Control

● Function

　Personal Computer changes Brightness of TV / Monitor

● Working Condition

　1. PC, BNC, DVI Only

　2. A product which has **** Text , **** Video/Image and Calibration as picture mode,
　　it will not affect by the 1st condition and instead,
　　　- No limitation for specific source but it will not work on PIC_MODE is PIC_MODE_CALIB
　　　* For the PIC_MODE definition pls refer AnnexB

● Get Brightness Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x38		0x00	

● Set Brightness

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x38		0x01	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		0x03	'A'	0x38	Brightness	

Brightness : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x38	ERR	

ERR : Error code that shows what occurred error is

2.1.3C PIP On/Off Control

● **Function**

The PC turns the PIP function of a TV or monitor on/off.

● **Working Condition**

- This does not operate in MagicNet mode.
- When Video Wall is On, you can not control.

● **Get PIP ON/OFF Status**

Header	Command	ID	Data Length	Check Sum
0xAA	0x3C		0x00	

● **Set PIP ON/OFF**

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x3C		0x01	PIP	

PIP: The PIP On/Off code to set for the TV or monitor.

0x00	PIP OFF	0x01	PIP ON

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x3C	PIP	

PIP: Same as above.

● **Nak**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x3C	ERR	

ERR: The error code indicating which error occurred.

2.1.3D Auto Adjustment Control

● Function

Personal Computer controls PC system screen automatically.

● Working Condition

  - PC(D-Sub), BNC Only
  - In case of videlwall is on or picture size is Zoom, it will not work

● Get Auto Adjustment Status

None

● Set Auto Adjustment

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x3D		0x01	Auto	

Auto ： 0x00 (Always)

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x3D	Auto	

Auto ： Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x3D	ERR	

ERR ： Error code that shows what occurred error is

2.1.3E Color Tone Control

● **Function**

Personal Computer changes Color Tone of TV / Monitor.

● **Working Condition**

1. A product which has **** Text , **** Video/Image and Calibration as picture mode,
   - It will work in case of PIC_MODE is PIC_MODE_VIDEO
   * For the PIC_MODE definition pls refer AnnexB

● **Get Color Tone Status**

Header	Command	ID	Data Length	Check Sum
0xAA	0x3E		0x00	

● **Set Color Tone**

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x3E		0x01	Color Tone	

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

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

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x3E	Color Tone	

Color Tone : Same as above

● **Nak**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x3E	ERR	

ERR : Error code that shows what occurred error is

2.1.3F Color Temperature Control

● Function

  Personal Computer changes Color Temperature value of TV / Monitor.

● Working Condition

  1. Only operates when Color Tone is set to Off.

  2. A product which has **** Text , **** Video/Image and Calibration as picture mode,

    - It will work in case of PIC_MODE is PIC_MODE_VIDEO

    * For the PIC_MODE definition pls refer AnnexB

● Get Color Temperature

Header	Command	ID	Data Length	Check Sum
0xAA	0x3F		0x00	

● Set Color Temperature

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x3F		0x01	C_Temp (or Extended)	

C_Temp : Color Temperature value code to be set on TV/Monitor

0x00 ~ 0x10	5000K ~ 15000K
0xFD	2800K
0xFE	3000K
0xFF	4000K

C_Temp (Extended) : Color Temperature value code to be set on TV/Monitor

28(0x1c)	2800K	95(0x5f)	9500K
30(0x1e)	3000K	100(0x64)	10000K
35(0x23)	3500K	105(0x69)	10500K
40(0x28)	4000K	110(0x6e)	11000K
45(0x2d)	4500K	115(0x73)	11500K
50(0x32)	5000K	120(0x78)	12000K
55(0x37)	5500K	125(0x7d)	12500K
60(0x3c)	6000K	130(0x82)	13000K
65(0x41)	6500K	135(0x87)	13500K
70(0x46)	7000K	140(0x8c)	14000K
75(0x4b)	7500K	145(0x91)	14500K
80(0x50)	8000K	150(0x96)	15000K
85(0x55)	8500K	155(0x9b)	15500K
90(0x5a)	9000K	160(0xa0)	16000K

Note : Depends on each model spec, it will work for the both of C_Temp and C_Temp (Extended) but in case of get it will returns as C_Temp (Extended)

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'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		0x03	'N'	0x3F	ERR	

ERR : Error code that shows what occurred error is

2.1.40 PIP Source Control

● **Function**

The PC changes the PIP source of a TV or monitor.

● **Working Condition**

- This only operates for a TV or monitor where PIP is set to On.
- This does not operate in MagicNet mode.

● **Get PIP Source Status**

Header	Command	ID	Data Length	Check Sum
0xAA	0x40		0x00	

● **Set PIP Source**

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x40		0x01	P.Source	

P.Source: The input source code to set for the TV or monitor.

Note : The PIP source swap may not function according to the main source.

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'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		0x03	'N'	0x40	ERR	

ERR: The error code indicating which error occurred.

2.1.42 PIP Size Control

● Function

The PC changes the PIP size of a TV or monitor.

● Working Condition

- This does not operate in MagicNet mode.

● Get PIP Size Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x42		0x00	

● Set PIP Size

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x42		0x01	P.Size	

P.Size : The PIP size code set for the TV or monitor.

0x00	PIP Off
0x04	Double 1(Doble Window)
0x05	Double 2(Double Wide)
0x06	Medium
0x07	Large
0x08	Small
0x09	Double 3(POP)
0x10	Custom

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'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		0x03	'N'	0x42	ERR	

ERR: The error code indicating which error occurred.

2.1.43 PIP Locate Control

● **Function**

   The PC adjusts the PIP position of a TV or monitor.

● Working Condition

   - This does not operate in MagicInfo mode.

   - Only TV / Monitor that PIP is On Can use this command.

● Get PIP Locate Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x43		0x00	

● Set PIP Locate

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x43		0x01	P.Locate	

P.Locate : The PIP Locate Increase/Decrease code to set for the TV or monitor.

0x00	PIP Off(Get Only)
0x01	Upper Left
0x02	Upper Right
0x03	Lower Right
0x04	Lower Left

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'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		0x03	'N'	0x43	ERR	

ERR: The error code indicating which error occurred.

2.1.44 Fan Speed Setting

● Function

The PC adjusts the Fan Speed of a TV or monitor.

● Get Fan Speed

Header	Command	ID	Data Length	Check Sum
0xAA	0x44		0x00	

● Set Fan Speed

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x44		0x01	FAN Speed	

FAN Speed : The Fan Speed to set for the TV or monitor.(0 ~ 100)

Note : If you send "Set Fan speed", then "Fan Control" changed "Manual".
(refer "Fan Control" command (0x8F))

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x44	FAN Speed	

FAN Speed : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x44	ERR	

ERR: The error code indicating which error occurred.

2.1.45 User Auto Color

● **Function**

The PC adjusts the User Auto Color Control of a TV or monitor.

Note : It is dependent on Product Specifications.

● **Working Condition**

- PC(D-Sub) Only

- It will support only Scaler model

● **Get User Auto Color**

It will return NAK always

● **Set User Auto Color**

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x45		0x01	Auto Color Cmd	

Auto Color Cmd : The Auto Color Cmd to set for the TV or monitor.

0x00	Reset	0x01	Auto Color

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x45	Auto Color Cmd	

Auto Color Cmd : Same as above

● **Nak**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x45	ERR	

ERR: The error code indicating which error occurred.

2.1.47 Sound Select Control

● Function

The PC changes the sound when the PIP of a TV or monitor is set to On.

Note : Same function is also exist on 0x65

● Get the Sound Select

Header	Command	ID	Data Length	Check Sum
0xAA	0x47		0x00	

● Set the Sound Select

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x47		0x01	S.Selct	

S.Select: The Sound Select code to set for the TV or monitor

0x00	Sub	0x01	Main

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'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		0x03	'N'	0x47	ERR	

ERR: The error code indicating which error occurred.

2.1.48 Auto Volume Control

● Function

The PC changes the Auto Volume.

● Get Auto Volume

Header	Command	ID	Data Length	Check Sum
0xAA	0x48		0x00	

● Set Auto Volume

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x48		0x01	A_VOL	

A_VOL : The Auto Volume code to set for the TV or monitor.

0x00	OFF
0x01	Normal(On)
0x02	Night

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x48	A_VOL	

A_VOL : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x48	ERR	

ERR: The error code indicating which error occurred.

2.1.4A Standby Control

● Function

The PC adjusts the Standby Control of a TV or monitor.

● Working Condition

It is work for PC/DVI/HDMI/DisplayPort.

● Get Standby Setting

Header	Command	ID	Data Length	Check Sum
0xAA	0x4A		0x00	

● Set Standby Setting

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x4A		0x01	Standby Setting	

Standby Setting : The Standyby Setting code to set for the TV or monitor

0x00	Off
0x01	On
0x02	Auto

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x4A	Standby Setting	

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x4A	ERR	

ERR: The error code indicating which error occurred.

2.1.4B Video Picture Position & Size

● **Function**

    The PC adjusts the Picture Position & Size of a TV or monitor.

● **Working Condition**

    1. Video Source Only

    2. A product which has **** Text , **** Video/Image and Calibration as picture mode,

       it will not affect by the 1st condition and instead,

          - It will work in case of PIC_MODE is PIC_MODE_VIDEO

          * For the PIC_MODE definition pls refer AnnexB

    3. And "Picture Size" is must be zoom1,zoom2, Screen Fit, Custom.

       Other Picture sizes doesn't support this function.
       (For detail, plase refer below table.)

	Reset	Position				Size			
		Up	Down	Left	Right	Up	Down	Left	Right
Zoom1	O	O	O	X	X	X	X	X	X
Zoom2	O	O	O	X	X	X	X	X	X
Screen Fit	O	O	O	O	O	X	X	X	X
Custom	O	O	O	O	O	O	O	O	O
Zoom	O	O	O	X	X	X	X	X	X

● **Get Video Picture Position & Size**

    It will return NAK always

● **Set Video Picture Position & Size**

Header	Command	ID	Data Length	Data 1	Data 2	Header	Check Sum
0xAA	0x4B		0x02	Type CMD	Direction CMD	0xAA	

Type CMD: The Standyby Setting code to set for the TV or monitor
Direction CMD: It is work for Type CMD Size or Position.
              If "Type CMD" is Reset, then "Direction CMD" is not work.

Type CMD		Direction CMD	
0x00	Reset	0x00	Down
0x01	Position	0x01	Up
0x02	Size	0x02	Left
		0x03	Right

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x03	'A'	0x4B	Type CMD	Direction CMD

Check
Sum

Type CMD, Direction CMD : Same as Above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x4B	ERR	

ERR: The error code indicating which error occurred.

2.1.4C Pixel Shift Control

● **Function**

Personal Computer controls Pixel Shift function of TV / Monitor.

● **Working Condition**

－ When Video Wall is on or Zoom (0x39) is set or

DVI's Input Signal set VESA Mode, you can not control

● **Get Pixel Shift Status**

Header	Command	ID	Data Length	Check Sum
0xAA	0x4C		0x00	

● **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

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

0x00	OFF	0x01	ON

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		0x03	'N'	0x4C	ERR	

ERR : Error code that shows what occurred error is

2.1.51 EQ 100Hz Control

● Function

Personal Computer controls 100Hz field of Equalizer in TV / Monitor.

● Get EQ 100Hz Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x51		0	

● Set EQ 100Hz

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x51		0x01	100Hz	

100Hz : 100Hz feild data among Equalizer set up in TV/Monitor (0~20)

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x51	100Hz	

100Hz : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x51	ERR	

ERR : Error code that shows what occurred error is

2.1.52 EQ 300Hz Control

● Function

Personal Computer controls 300Hz field of Equalizer in TV / Monitor.

● Get EQ 300Hz Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x52		0x00	

● Set EQ 300Hz

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x52		0x01	300Hz	

300Hz : 300Hz feild data among Equalizer set up in TV/Monitor (0~20)

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x52	300Hz	

300Hz : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x52	ERR	

ERR : Error code that shows what occurred error is

2.1.53 EQ 1kHz Control

● Function

Personal Computer controls 1KHz field of Equalizer in TV / Monitor.

● Get EQ 1kHz Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x53		0x00	

● Set EQ 1kHz

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x53		0x01	1kHz	

1kHz : 1KHz feild data among Equalizer set up in TV/Monitor (0~20)

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x53	1kHz	

1kHz : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x53	ERR	

ERR : Error code that shows what occurred error is

2.1.54 EQ 3kHz Control

● Fuction

Personal Computer controls 3KHz field of Equalizer in TV / Monitor.

● Get EQ 3kHz Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x54		0x00	

● Set EQ 3kHz

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x54		0x01	3kHz	

3kHz ：3KHz feild data among Equalizer set up in TV/Monitor (0~20)

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x54	3kHz	

3kHz ：Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x54	ERR	

ERR ：Error code that shows what occurred error is

2.1.55 EQ 10kHz Control

● Function

Personal Computer controls 10KHz field of Equalizer in TV / Monitor.

● Get EQ 10kHz Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x55		0x00	

● Set EQ 10kHz

Header	Command	ID	Data Length	Data 1	Header	Command	Check Sum
0xAA	0x55		0x01	10kHz	0xAA	0x55	

10kHz : 10KHz feild data among Equalizer set up in TV/Monitor (0~20)

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x55	10kHz	

10kHz : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x55	ERR	

ERR : Error code that shows what occurred error is

2.1.57 Auto Lamp Control

● **Function**

Personal Computer sets Auto Lamp Function of TV / Monitor.

Note :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		0x00	

● Set Auto Lamp

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0x57		0x08	LMax_H	LMax_M	LMax_AP	LMaxValue
Data 5	Data 6	Data 7	Data 8	Check Sum			
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 (AM :1 / PM:0)

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 (AM :1 / PM:0)

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

Note : When LMinValue is returned to 0xFF, Auto Lamp Control is off.

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

● 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		

Val 1 ~ Val 8 : Same as above

● 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

2.1.58 Manual Lamp Control

● Function

Personal Computer sets Manual Lamp Function of TV / Monitor.

Note : 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		0x00	

● Set Manual Lamp

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x58		0x01	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		0x03	'A'	0x58	LampValue	

LampValue : Same as above

Note : 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		0x03	'N'	0x58	ERR	

ERR : Error code that shows what occurred error is

2.1.59 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		0x00	

● Set Safety Screen Run

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x59		0x01	Safety Screen Type	

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

0x00	Off
0x01	Signal Pattern
0x02	All White
0x03	Scroll
0x04	Bar
0x06	Eraser
0x07	Pixel
...	
0x10	Rolling Bar
0x11	Fading Screen

Note : 1(0x01), 2(0x02) only works with PDP models

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'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		0x03	'N'	0x59	ERR	

ERR : Error code that shows what occurred error is

2.1.5A Inverse Control

● Function

Personal Computer Set Inverse On/Off.

● Get Inverse Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x5A		0x00	

● Set Inverse

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x5A		0x01	Inverse	

Inverse : Inverse On/Off Code to be set on TV/Monitor

0x00	OFF	0x01	ON

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x5A	Inverse	

Inverse : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x5A	ERR	

ERR : Error code that shows what occurred error is

2.1.5B Safety Screen Control

● Function

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

● Get Safety Screen Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x5B		0x00	

● Set Safety Screen

When the Timer is Repeat

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Check Sum
0xAA	0x5B		0x03	Type	T.Period	T.Time	

When the Timer is Interval

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0x5B		0x07	Type	StartTime-Hour	StartTime-Min.	StartTime-am/pm

Data 5	Data 6	Data 7	Check Sum
EndTime-Hour	EndTime-Min.	EndTime-am/pm	

Type :Timer type to set TV / Monitor

Note :

- If the valueix 0x00, means timer is off.(It dosen't matter the length 3/7)
- If the value is not 0x00 and the MSB is 00 means timer type is Repeat
      and the MSB is 1 means timer type is interval
- If the command has make like below condition, it will be get ACK
  (1) Data Length is 3 and timer typeis Interval
  (2) Data Length is 7and timer type is Repeat

0x00	OFF	0x00	OFF
...		...	
0x03	Scroll (Timer : Repeat)	0x83	Scroll (Timer : Interval)
0x04	Pixel (Timer : Repeat)	0x84	Pixel (Timer : Interval)
0x05	Bar (Timer : Repeat)	0x85	Bar (Timer : Interval)
0x06	Eraser (Timer : Repeat)	0x86	Eraser (Timer : Interval)
0x09	All White (Timer : Repeat)	0x89	All White (Timer : Interval)
0x0A	Pattern (Timer : Repeat)	0x8A	Pattern (Timer : Interval)
...		...	

0x10	Rolling Bar (Timer : Repeat)	0x90	Rolling Bar (Timer : Interval)
0x11	Fading Screen (Timer : Repeat)	0x91	Fading Screen (Timer : Interval)

Note : 9(0x09), 10(0x0A)는 PDP 모델에서만 동작한다.

T.Period : Timer periode hour data to set TV / Monitor (1 ~ 10 Hr.)

T.Time :Timer periode code to set TV / Monitor (10 ~ 50 sec.)

0x01	10 sec
0x02	20 sec
0x03	30 sec
0x04	40 sec
0x05	50 sec

Note : If the timer type is Rolling Bar or Fading Scree, timer will work only 1 cycleregardless it's type

If the timer periode is 0 or timer time is 0, timer will turn off

(IF the timer type is Rolling Bar or Fading Scree it will not turns off)

Start Time-Hour : The value of Start Time Hour (1 ~ 12)

Start Time-Min : The value of Start Time Minute (0 ~ 59)

Start Time-am/pm : The value of Start Time AM/PM (1 : AM, 0 : PM)

End Time-Hour : The value of End Time Hour (1 ~ 12)

End Time-Min : The value of End Time Minute 값 (0 ~ 59)

End Time-am/pm : The value of End Time AM/PM (1 : AM, 0 : PM)

● Ack

When the Timer is Repeat

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x05	'A'	0x5B	Type	T.Period
Val 3	Check Sum						
T.Time							

Type, T.Period, T.Time : Same as above

When the Timeris Interval

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x09	'A'	0x5B	Type	StartTime-Hour
Val 3	Val 4	Val 5	Val 6	Val 7	Check Sum		
StartTime-Min	StartTime-am/pm	End Time-Hour	End Time-Min	End Time-am/pm			

Val 1 ~ Val 7 : 상동

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x5B	ERR	

ERR : The error code indicating which error occurred.

2.1.5C Video Wall Mode Control

● Function

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

● Working Condition

- 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		0x00	

● Set Video Wall Mode

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x5C		0x01	WallMode	

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

0x00	Full	0x01	Natural

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x5C	WallMode	

WallMode : same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x5C	ERR	

ERR : Error code that shows what occurred error is

2.1.5D Safety Lock

● **Function**

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

   Note :Can operate regardless of whether power is on/off.

● **Get Safety Lock Status**

Header	Command	ID	Data Length	Check Sum
0xAA	0x5D		0x00	

● **Set Safety Lock Enable/Disable**

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x5D		0x01	Lock	

Lock : Lock code to be set on TV/Monitor

0x00	Off	0x01	On

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x5D	Lock	

Lock : Same as above

● **Nak**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x5D	ERR	

ERR : Error code that shows what occurred error is

2.1.5F Panel Lock

● Function

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

Note : Can operate regardless of whether power is on/off.

● Get Button Lock Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x5F		0x00	

● Set Button Lock

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x5F		0x01	ButtonLock	

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

0x00	Unlock	0x01	Lock

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x5F	ButtonLock	

Button Lock : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x5F	ERR	

ERR : Error code that shows what occurred error is

2.1.61 Channel Up/Down

● Function

Personal Computer can control TV Channel.

Note : If PIP is on and pip source is TV, it also should work.

Only works with models include TV.

● Set TV Channel Up/Down

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x61		0x01	Channel Up/Down	

Channel Up/Down: Channel UP or Down to be set on TV / Monitor (0~1)

0x00	Up	0x01	Down

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x61	Channel Up/Down	

Channel Up/Down : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x61	ERR	

ERR : Error code that shows what occurred error is

2.1.62 Volume Up/Down

● **Function**

Personal Computer changes volume of TV / Monitor.

● **Get Volume Up/Down Status**

Nothing

● **Set Volume Up/Down**

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x62		0x01	Volume Up/Down	

Volume Up/Down : Volume UP or Down to be set on TV / Monitor (0 ~ 100)

0x00	Up	0x01	Down

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x62	Volume Up/Down	

Volume Up/Down ： Same as above

● **Nak**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x62	ERR	

ERR ： Error Code showing what occurred error is.

2.1.63 Ticker

● Function

Personal Computer control the ticker of LFD

● Get Ticker Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x63		0x00	

● Set Ticker

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0x63		Length	Ticker On/Off	Start Hour	Start Minute	Start AM/PM
Data 5	Data 6	Data 7	Data 8	Data 9	Data 10	Data 11	Data 12
End Hour	End Minute	End AM/PM	Position Horizontal	Position Vertical	Motion On/Off	Motion Direction	Motion Speed
Data 13	Data 14	Data 15	Data 16	Data 17	Data 18	Data 19	Data 20
Font Size	Foreground Color	Background Color	Foreground Opacity	Background Opacity	Message Date 1	Message Date 2	Message Date 3
Data 21	Data 22	Data N	Check Sum				
Message Date 4	...	Message Date N					

Length : It means the variable length of data that is going to be sent.
You can set it differently depending on the length of message data and you need to input messages according to length that already set. (0 ~ 128)

Ticker On/Off :Ticker's On/Off Code that is going to be set in TV / Monitor(0 ~ 1)

0x00	Ticker Off	0x01	Ticker On

Start Hour : The value of Start Time Hour that operate Ticker in TV / Monitor (1 ~ 12)

Strat Minute :　 The value of Start Time Minute that operate Ticker in TV / Monitor (0 ~ 59)

Start AM/PM : Start Time AM/PM that operate Ticker in TV / Monitor(0 ~ 1)

0x00	PM	0x01	AM

End Hour : The value of End Time Hour that operate Ticker in TV / Monitor(1 ~ 12)

End Minute : The value of End Time Minute that operate Ticker in TV / Monitor (0 ~ 59)

End AM/PM : End Time AM/PM that operate Ticker in TV / Monitor(0 ~ 1)

0x00	PM	0x01	AM

Position Horizontal : Value of horizontal position of message that is presented in TV / Monitor (0 ~ 2)
Position Vertical : The value of vertical position of message that is presented in TV / Monitor (0 ~ 2)

Position Horizontal		Position Vertical	
0x00	Center	0x00	Center
0x01	Left	0x01	Left
0x02	Right	0x02	Right

Motion On/Off : On/Off Code of Motion that is set in TV / Monitor (0 ~ 1)

0x00	Motion Off	0x01	Motion On

Motion Direction : The direction which motion that is set in TV / Monitor moves (0 ~ 3)

0x00	Left
0x01	Right
0x02	Up
0x03	Down

Motion Speed : The speed which motion that is set in TV / Monitor moves (0 ~ 2)

Font Size : The font size of message that is set in TV / Monitor (0 ~ 2)

Motion Speed		Font Size	
Normal	0x00	Normal	0x00
Slow	0x01	Slow	0x01
Fast	0x02	Fast	0x02

Foreground Color : Foreground Color of message that is set in TV / Monitor (0 ~ 7)

Background Color : Background Color of message that is set in TV / Monitor (0 ~ 7)

Foreground Color		Background Color	
0x00	Black	0x00	Black
0x01	White	0x01	White
0x02	Red	0x02	Red
0x03	Green	0x03	Green
0x04	Blue	0x04	Blue
0x05	Yellow	0x05	Yellow
0x06	Magenta	0x06	Magenta
0x07	Cyan	0x07	Cyan

Foreground Opacity : Foreground Opacity of message that is set in TV / Monitor (0 ~ 3)

Background Opacity : Background Opacity of message that is set in TV / Monitor (0 ~ 3)

Foreground Opacity		Background Opacity	
0x00	Solid	0x00	Black
0x01	Transparent	0x01	White
0x02	Translucent	0x02	Red
0x03	Flashing	0x03	Green
0x04	Flash All	0x04	Blue
0x05	Off	0x05	Yellow

Message Date : Enter Ticker Message that is displayed in TV / Monitor.

It is sent as hexadecimal value of unicode and it can be entered up to 111 words.

ex) Hello => 0x48 0x65 0x6C 0x6C 0x6F

Font Style Reset : If font size reset is chosen in MDC Application, all values from Data 13 to Data 17 will be 0x00 and Set command is sent to get Default value.

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2

0xAA	0xFF		Length	'A'	0x63	Ticker On/Off	Start Hour
Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
Start Minute	Start AM/PM	End Hour	End Minute	End AM/PM	Position Horizontal	Position Vertical	Motion On/Off
Val 11	Val 12	Val 13	Val 14	Val 15	Val 16	Val 17	Val 18
Motion Direction	Motion Speed	Font Size	Foreground Color	Background Color	Foreground Opacity	Background Opacity	Message Date 1
Val 19	Val 20	Val 21	Val 22	Val N	Check Sum		
Message Date 2	Message Date 3	...	...	Message Date N			

Val1 ~ ValN : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x63	ERR	

ERR : Error Code showing what occurred error is.

2.1.65 Sound Select Control

● Function

The PC changes the sound when the PIP of a TV or monitor is set to On.

Note : Same function is also exist on 0x47

● Get the Sound Select

Header	Command	ID	Data Length	Check Sum
0xAA	0x65		0x00	

● Set the Sound Select

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x65		0x01	S.Selct	

S.Select: The Sound Select code to set for the TV or monitor

0x00	Sub	0x01	Main

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x65	S.Select	

S.Select: Same as above.

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x65	ERR	

ERR: The error code indicating which error occurred.

2.1.66 PC Module Detect

● Function

　Check ths connection status of PC Modules

● Get Only

Header	Command	ID	Data Length	Check Sum
0xAA	0x66		0x00	

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x66	Detection Source	

Detection Source : Information of detected Source

0x00	Not Detected
0x01	MagicInfo
0x02	Plug In Module

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x66	ERR	

ERR : Error Code showing what occurred error is.

2.1.67 Device Name

● **Function**

It reads the device name which user set up in network.

● Get Only

Header	Command	ID	Data Length	Check Sum
0xAA	0x67		0x00	

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		Length	'A'	0x67	Device Name Data1	Device Name Data 2

Val 3	Val 4	Val 5	Val N	Check Sum
Device Name Data 3	…	…	Device Name Data N	

Length : It means the variable length of data transmitted.
It can be answered differently depending on the length of message data and the maximum length of device name is 15.

Device Name : It shows the information about entered device name.

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x67	ERR	

ERR : Error Code showing what occurred error is.

2.1.68 Speaker Select

● **Function**

Personal Computer chooses a Speaker in TV / Monitor

● Get Speaker Select

Header	Command	ID	Data Length	Check Sum
0xAA	0x68		0x00	

● Set Speaker Select

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x68		0x01	S.Selct	

S.Select : Speaker Select Code that is going to be set in TV / Monitor

0x00	Internal	0x01	External

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0x68		0x03	'A'	0x68	S.Select	

S.Select : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x68	ERR	

ERR : Error Code showing what occurred error is.

2.1.70 OSD On/Off

● Function

Personal Computercontrol OSD on/off of TV / Monitor

Note : In case OSD on Set display ODS on it's screen and in the case off there will be no ODS

● Get OSD Enable Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x70		0x00	

● Set OSD Enable/Disable

Header	Command	ID	Data Length	Data 1	Header	Command	Check Sum
0xAA	0x70		0x01	OSD	0xAA	0x70	

OSD : OSD code to set TV / Monitor

0x00	OSD Off	0x01	OSD On

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x70	OSD	

OSD : Same as above

Note : Depends on HongKong airport protocol option, ACK/NAK will returned in opposite way

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x70	ERR	

ERR : Error Code showing what occurred error is.

2.1.71 P.Mode Control

● Function

Personal Computercontrol picture mode of the TV / Monitor

● Get Picture Mode Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x71		0x00	

● Set Picture Mode

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x71		0x01	PMode	

PMode : Picture mode to set MFM/LFD

Source	Data	Mode
AV S-Video Component HDCP (TV)	0x00	Dynamic
	0x01	Standard
	0x02	Movie
	0x03	Custom
	0x04	Natural
	0x05	Calibration
	0x50	Off
PC BNC DVI DisplayPort (MagicNet)	0x10	Entertain
	0x11	Internet
	0x12	Text
	0x13	Custom
	0x14	Advertisement
	0x15	Information
	0x16	Calibration
	0x50	Off
All	0x20	Shop & Mall - Video
	0x21	Shop & Mall - Text
	0x22	Office & School - Video
	0x23	Office & School - Text
	0x24	Terminal & Station - Video
	0x25	Terminal & Station - Text

	0x26	Videowall - Video
	0x27	Videowall - Text

Note :

- Dynamic contrast will work only the picture mode is off
- Depends on each model spec it will support the picture mode : 0x16 and 0x20~0x27 only

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x71	PMode	

PMode ： 상동

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x71	ERR	

ERR ：The error code indicating which error occurred.

2.1.72 S.Mode Control

● Function

　Personal Computer Set sound mode on TV / Monitor

● Get Sound Mode Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x72		0x00	

● Set Sound Mode

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x72		0x01	SMode	

SMode : Sound Mode Code

0x00	Standard
0x01	Music
0x02	Movie
0x03	Speech
0x04	Custom
0x05	Amplify

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x72	SMode	

SMode : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x72	ERR	

ERR : Error Code showing what occurred error is.

2.1.73 Digital NR Control

● **Function**

Personal Computer changes Digital NR mode.

● **Working Condition**

1. AV, S-Video, Component, DVI(HDCP) Only
2. A product which has **** Text , **** Video/Image and Calibration as picture mode,
   it will not affect by the 1st condition and instead,
   - It will work in case of PIC_MODE is PIC_MODE_VIDEO
   * For the PIC_MODE definition pls refer AnnexB

● Get NR Mode Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x73		0x00	

● Set NR Mode

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x73		0x01	NR Mode	

NR Mode ： NR Mode On/Off code to set in TV / Monitor

0x00	NR Mode Off
0x01	NR Mode Low(On)
0x02	NR Mode Medium
0x03	NR Mode High
0x04	NR Mode Auto
0x05	NR Mode Auto Visualization

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'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		0x03	'N'	0x73	ERR	

ERR ： Error Code showing what occurred error is.

2.1.75 PC Color Tone Control

● Function

　　Personal Computer can change color tone of Monitor.

● Working Condition

　　1. PC, BNC, DVI Only

　　2. A product which has **** Text , **** Video/Image and Calibration as picture mode,
　　　　it will not affect by the 1st condition and instead,
　　　　- It will work in case of PIC_MODE is PIC_MODE_PC
　　　　* For the PIC_MODE definition pls refer AnnexB

● Get Color Tone Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x75		0x00	

● Set Color Tone

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x75		0x01	Color Tone	

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

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		0x03	'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		0x03	'N'	0x75	ERR	

ERR : Error code that shows what occurred error is

2.1.76 Auto AutoAdjustment

● Function

Personal Computer can Enable/Disable Auto Adjustment function.

Note : If this value is Disable. then Auto Adjustment is not work.

● Get A.Adjustment Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x76		0x00	

● Set A.Adjustment

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x76		0x01	A.Adjustment	

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

0x00	Disable	0x01	Enable

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'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		0x03	'N'	0x76	ERR	

ERR : Error code that shows what occurred error is

2.1.77 All Keys Lock

● Function

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

　Note : Can operate regardless of whether power is on/off.

● Get All Key Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x77		0x00	

● Set All Key Lock/Unlock

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x77		0x01	AKL	

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

0x00	OFF	0x01	ON

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x77	AKL	

All Key : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x77	ERR	

ERR : Error code that shows what occurred error is

2.1.78 SRS TSXT Control

● Function

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

● Get SRS TS XT Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x78		0x00	

● Set SRS TSXT

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x78		0x01	SRS	

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

0x00	SRS OFF	0x01	SRS ON

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x78	SRS	

SRS : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x78	ERR	

ERR : Error code that shows what occurred error is

2.1.79 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		0x00	

● Set Film Mode

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x79		0x01	FMode	

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

0x00	Film Mode OFF
0x01	Film Mode Auto1
0x02	Film Mode Auto2
0x03	Film Cinema Smooth

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x79	FMode	

FMode : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x79	ERR	

ERR : Error code that shows what occurred error is

2.1.83 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		0x00	

● 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		0x03	'N'	0x83	ERR	

ERR : Error code that shows what occurred error is

2.1.84 Video Wall On

● Function

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

● Working Condition

- Does not operate in MagicNet source.

● Get Video Wall On/Off Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x84		0x00	

● Set Video Wall On/Off

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x84		0x01	V.Wall_On	

V.Wall_On : Video Wall Code to set on TV / Monitor

0x00	Video Wall OFF	0x01	Video Wall ON

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'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		0x03	'N'	0x84	ERR	

ERR : Error code that shows what occurred error is

2.1.85 Temperature Control

● Function

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

● Working Condition

  - Only supports models with Temperature notification function.

● Get Temperature Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x85		0x00	

● Set Temperature Status

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x85		0x01	Temperature	

Temperature : Temperature code to be set on TV/Monitor(75 ~ 124 ℃)

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x85	Temperature	

Temperature : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x85	ERR	

ERR : Error code that shows what occurred error is

2.1.86 Brightness Sensor

● Function

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

● Get Brightness Sensor ON/OFF Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x86		0x00	

● Set Brightness Sensor ON/OFF

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x86		0x01	BR_Sensor	

BR_Sensor : Brightness Sensor Code to be set on TV/Monitor

0x00	Brightness Sensor OFF	0x01	Brightness Sensor ON

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x86	BR_Sensor	

BR_Sensor : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x86	ERR	

ERR : Error code that shows what occurred error is

2.1.87 Dynamic Contrast

● **Function**

Personal Computer changes Dynamic Contrast of TV/Monitor.

Note : It will be work or not depends on the Picture mode

● **Get Dynamic Contrast Status**

Header	Command	ID	Data Length	Check Sum
0xAA	0x87		0x00	

● **Set Dynamic Contrast**

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x87		0x01	DY_Cont	

DY_Cont : Dynamic Contrast code to be set on TV/Monitor

0x00	Dynamic Contrast OFF
0x01	Dynamic Contrast Low(ON)
0x02	Dynamic Contrast Medium
0x03	Dynamic Contrast High

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x87	DY_Cont	

_Cont : Same as above

● **Nak**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x87	ERR	

ERR : Error code that shows what occurred error is

2.1.89 Video Wall User Control

● **Function**

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

● **Working Condition**

Does not operate in MagicNet mode.
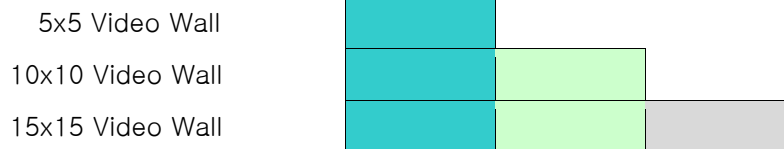
● **Get Video Wall Status**

Header	Command	ID	Data Length	Check Sum
0xAA	0x89		0x00	

● **Set Video Wall**

Header	Command	ID	Data Length	Data 1	Data 2	Check Sum
0xAA	0x89		0x02	Wall_Div	Wall_SNo	

Wall_Div : Video Wall Divider code set on TV/Monitor

Note : It is dependent on Product Specifications.

5x5 Video Wall

10x10 Video Wall

15x15 Video Wall

V\H	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
OFF	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00
1	0x11	0x12	0x13	0x14	0x15	0x16	0x17	0x18	0x19	0x1A	0x1B	0x1C	0x1D	0x1E	0x1F
2	0x21	0x22	0x23	0x24	0x25	0x26	0x27	0x28	0x29	0x2A	0x2B	0x2C	0x2D	0x2E	0x2F
3	0x31	0x32	0x33	0x34	0x35	0x36	0x37	0x38	0x39	0x3A	0x3B	0x3C	0x3D	0x3E	0x3F
4	0x41	0x42	0x43	0x44	0x45	0x46	0x47	0x48	0x49	0x4A	0x4B	0x4C	0x4D	0x4E	0x4F
5	0x51	0x52	0x53	0x54	0x55	0x56	0x57	0x58	0x59	0x5A	0x5B	0x5C	0x5D	0x5E	0x5F
6	0x61	0x62	0x63	0x64	0x65	0x66	0x67	0x68	0x69	0x6A	0x6B	0x6C	0x6D	0x6E	0x6F
7	0x71	0x72	0x73	0x74	0x75	0x76	0x77	0x78	0x79	0x7A	0x7B	0x7C	0x7D	0x7E	0x7F
8	0x81	0x82	0x83	0x84	0x85	0x86	0x87	0x88	0x89	0x8A	0x8B	0x8C	0x8D	0x8E	0x8F
9	0x91	0x92	0x93	0x94	0x95	0x96	0x97	0x98	0x99	0x9A	0x9B	0x9C	0x9D	0x9E	0x9F
10	0xA1	0xA2	0xA3	0xA4	0xA5	0xA6	0xA7	0xA8	0xA9	0xAA	0xAB	0xAC	0xAD	0xAE	0xAF
11	0xB1	0xB2	0xB3	0xB4	0xB5	0xB6	0xB7	0xB8	0xB9	0xBA	0xBB	0xBC	0xBD	0xBE	0xBF
12	0xC1	0xC2	0xC3	0xC4	0xC5	0xC6	0xC7	0xC8	0xC9	0xCA	0xCB	0xCC	0xCD	0xCE	0xCF
13	0xD1	0xD2	0xD3	0xD4	0xD5	0xD6	0xD7	0xD8	0xD9	0xDA	0xDB	0xDC	0xDD	0xDE	0xDF
14	0xE1	0xE2	0xE3	0xE4	0xE5	0xE6	0xE7	0xE8	0xE9	0xEA	0xEB	0xEC	0xED	0xEE	0xEF
15	0xF1	0xF2	0xF3	0xF4	0xF5	0xF6	0xF7	0xF8	0xF9	0xFA	0xFB	0xFC	0xFD	0xFE	0xFF

Wall_SNo : TV / Monitor 에 설정된 TV/Monitor 의 Number code.

- 5x5　Video Wall Model : (1 ~ 25)
- 10x10 Video Wall Model : (1 ~ 100)
- 15x15 Video Wall Model : (1 ~ 225)

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x04	'A'	0x89	Wall_Div	Wall_SNo
Check Sum							

Wall_Div, Wall_SNo : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x89	ERR	

ERR : Error code that shows what occurred error is

2.1.8A 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		0x00	

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		Length	'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	Val 17	Val ...
M_Name11	M_Name12	M_Name13	M_Name14	M_Name15	M_Name16	M_Name17	M_Name...
Check Sum							

M_Name1 ~ M_Name... : TV / Monitor's Model Name.

Length : Length means number of M_Name elements & Ack/Nak & r-CMD.

Ex) SyncMaster400DXn

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'

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check

0xAA	0xFF		0x03	'N'	0x8A	ERR	Sum

ERR : Error Code showing what occurred error is.

2.1.8B Video Wall Direct User Control

● **Function**

The PC turns the Video Wall of a TV or monitor on/off.

● **Working Condition**

This does not operate while PIP is operating.

● **Get the Video Wall Status**

Header	Command	ID	Data Length	Check Sum
0xAA	0x8B		0x00	

● **Set the Video Wall**

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0x8B		0x05	V.Wall_On	WallMode	Wall_Div	Wall_SNo

Data 5	Check Sum
Input	

V.Wall_On: The Video Wall code to set for the TV or monitor.

0x00	Video Wall OFF	0x01	Video Wall ON

WallMode: The Video Wall mode code to set for the TV or monitor.

0x00	Natural	0x01	Full

Wall_Div: The Video Wall Divider code set for the TV or monitor.

 - Please refer Wall_Div table of Command 0x89, Video Wall User Control

Wall_SNo: The TV/Monitor serial number code set for the TV or monitor.

 - Please refer Wall_SNo table of Command 0x89, Video Wall User Control

Input : The input source code to set for the TV or monitor.

 - Please refer Input table of Command 0x14, Input Source Control (MFM).

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x07	'A'	0x8B	V.Wall_On	WallMode

Val 3	Val 4	Val 5	Check Sum
Wall_Div	Wall_SNo	Input	

Val 1 ~ Val 5 : Same as above

● **Nak**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x8B	ERR	

ERR : Error Code showing what occurred error is.

2.1.8F Fan Control

● Function

The PC adjusts the Fan Control of a TV or monitor.

● Get Fan Control Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x8F		0x00	

● Set Fan Control

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x8F		0x01	FAN	

FAN : Fan Control code to be set on TV/Monitor

0x00	Fan Control Manual	0x01	Fan Control Auto

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x8F	FAN	

FAN : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x8F	ERR	

ERR : Error code that shows what occurred error is

2.1.92 Energy Saving Control

● Function

The PC adjusts the Energy Saving of a TV or monitor.

● Get Energy Saving Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x92		0x00	

● Set Energy Saving

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x92		0x01	E_SAV	

Energy Saving : Energy Saving code to be set on TV/Monitor

0x00	Energy Saving Control OFF
0x01	Energy Saving Control Low(ON)
0x02	Energy Saving Control Medium
0x03	Energy Saving Control High
0x04	Energy Saving Picture Off

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x92	E_SAV	

E_SAV : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x92	ERR	

ERR : Error code that shows what occurred error is

2.1.94 HDMI Black Level Control

● **Function**

Personal Computer turns HDMI Black Level function of TV / Monitor.

● Get HDMI Black Level Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x94		0x00	

● Set HDMI Black Level

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x94		0x01	HDMI_b	

HDMI_b : HDMI Black Level Control code set on TV/Monitor

0x00	Normal
0x01	Low
0x02	Auto

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x94	HDMI_b	

HTPC : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x94	ERR	

ERR : Error code that shows what occurred error is

2.1.96 Gamma Control

● Function

The PC adjusts the Gamma Control of a TV or monitor.

● Get Gamma Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x96		0x00	

● Set Gamma

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x96		0x01	GAMMA	

GAMMA : Gamma code to be set on TV/Monitor

0x00	Natural (0)
0x01	Mode1 (1)
0x02	Mode2 (2)
0x03	Mode3 (3)
0x04	Mode4 (4)
0x05	Mode5 (5)
0x11	-1
0x12	-2
0x13	-3
0x14	-4
0x15	-5
0x20	Custom

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x96	GAMMA	

GAMMA : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x96	ERR	

ERR : Error code that shows what occurred error is

2.1.9C Edge Enhancement Control

● Function

Personal Computer changes Edge Enhancement of TV/Monitor.

● Working Condition

- Depends on each model spec it will be supported or not

● Get Edge Enhancement Status

Header	Command	ID	Data Length	Check Sum
0xAA	0x9C		0x00	

● Set Edge Enhancement

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x9C		0x01	EDGE	

EDGE : Edge Enhancement Control value set on TV/Monitor

0x00	Edge Enhancement Control OFF	0x01	Edge Enhancement Control ON

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x9C	EDGE	

EDGE : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x9C	ERR	

ERR : Error code that shows what occurred error is

2.1.9D Color Space Control

● **Function**

Personal Computer changes Color Space of TV/Monitor.

● **Working Condition**

1. A product which has **** Text , **** Video/Image and Calibration as picture mode,
   - It will work in case of PIC_MODE is PIC_MODE_VIDEO
   * For the PIC_MODE definition pls refer AnnexB

● **Get Color Space Status**

Header	Command	ID	Data Length	Check Sum
0xAA	0x9D		0x00	

● **Set Color Space**

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x9D		0x01	COS	

COS : Color Space Control value set on TV/Monitor

0x00	Color Space Control Auto
0x01	Color Space Control Native
0x02	Color Space Control Custom

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x9D	COS	

COS : Same as above

● **Nak**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x9D	ERR	

ERR : Error code that shows what occurred error is

2.1.9E xvYCC Control

● **Function**

Personal Computer changes xvYCC of TV/Monitor.

● **Working Condition**

- Depends on each model spec it will be supported or not

● **Get xvYCC Status**

Header	Command	ID	Data Length	Check Sum
0xAA	0x9E		0x00	

● **Set xvYCC**

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x9E		0x01	XVYCC	

XVYCC : xvYCC Control code set on TV/Monitor

0x00	xvYCC Control OFF	0x01	xvYCC Control ON

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x9E	XVYCC	

xvYCC : Same as above

● **Nak**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x9E	ERR	

ERR : Error code that shows what occurred error is

2.1.9F Reset Control

● **Function**

The PC adjusts the Reset Control of a TV or monitor.

● **Get Reset**

It will always returns as NAK

● **Set Reset**

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0x9F		0x01	RST	

RST : Reset code to be set on TV/Monitor

0x00	Picture Reset
0x01	Sound Reset
0x02	Setup Reset(System Reset)
0x03	Reset All
0x04	Screen Display Reset

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0x9F	RST	

RST : Same as above

● **Nak**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0x9F	ERR	

ERR : Error code that shows what occurred error is

2.1.A1 Ambient Brightness Mode

● Function

The PC adjusts Ambient Brightness Mode On/Off of a TV or monitor.

And, Setting Lamp value for Ambient Brightness On.

● Get Ambient Brightness Mode Status

Header	Command	ID	Data Length	Check Sum
0xAA	0xA1		0x00	

● Set Ambient Brightness Mode, Set Lamp Value

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Check Sum
0xAA	0xA1		0x03	AB_Mode	Valid_ LampValue	Lamp Value	

AB_Mode: Ambient Mode On/Off code to be set on TV/Monitor

0x00	Ambient Brightness Mode Off	0x01	Ambient Brightness Mode On

Valid_LampValue : Lamp Value Apply/Not apply to be set on TV/Monitor

0x00	Invalid Lamp Value(Don't apply)	0x01	Valid Lamp Value (Apply)

Lamp Value : Lamp Value to be set on TV/Monitor (0 ~ 100),

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x04	'A'	0xA1	AB_Mode	Lamp Value

Check Sum

AB_Mode, Valid_LampValue,Lamp Value : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0xA1	ERR	

ERR : Error code that shows what occurred error is

2.1.A3 OSD Display Type On/Off

● Function

The PC adjusts the OSD Display Control of a TV or monitor.

"OSD On" means, Display OSD which is set on OSD Type.

"OSD Off" means, Does not display which is set on OSD Type.

● Get OSD Enable Status

Header	Command	ID	Data Length	Check Sum
0xAA	0xA3		0x00	

● Set OSD Enable/Disable

Header	Command	ID	Data Length	Data 1	Data 2	Check Sum
0xAA	0xA3		0x02	OSD Type	OSD On/Off	

OSD Type: Select OSD Type code to be set on TV/Monitor

0x00	Source OSD
0x01	Not Optimum Mode OSD
0x02	No Signal OSD
0x03	MDC OSD

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

0x00	OSD Off	0x01	OSD On

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	
						BIT7	BIT6
0xAA	0xFF		0x03	'A'	0xA3	Reserved	Reserved

Val 1						Check Sum
BIT5	BIT4	BIT3	BIT2	BIT1	BIT0	
Reserved	Reserved	Type 3 On/Off	Type 2 On/Off	Type 1 On/Off	Type 0 On/Off	

Type(OSD Type) : Same as Above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0xA3	ERR	

ERR : Error code that shows what occurred error is

2.1.A4 Timer1 Control_MFM

● Function:

Personal Computer controls the Timer1 that TV / Monitor.

Note : It is dependent on Product Specifications.

● Get Timer1 Status

Header	Command	ID	Data Length	Check Sum
0xAA	0xA4		0x00	

● Set Timer1

On Timer/Off Timer Integrated.

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xA4		0x0D	On H	On M	On AM/PM	On_Act
Data 5	Data 6	Date 7	Data 8	Data 9	Data 10	Data 11	Data 12
Off H	Off M	Off AM/PM	Off_Act	Repeat	Manual Weekday	Volume	Source
Data 13	Check Sum						
Holiday Apply							

On Timer/Off Timer Seperated (Added two Items, Data Length is different)

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xA4		0x0F	On H	On M	On AM/PM	On_Act
Data 5	Data 6	Date 7	Data 8	Data 9	Data 10	Data 11	Data 12
Off H	Off M	Off AM/PM	Off_Act	Repeat_On	Manual WeekdayOn	Repeat_Off	Manual WeekdayOff
Data 13	Data 14	Data 15	Check Sum				
Volume	Source	Holiday Apply					

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

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

On AM/PM :On Time AM/PM value to be set on TV/Monitor (0~1)

0x00	PM	0x01	AM

On_Act : On Time Inactivated /Activated to be set on TV/Monitor (0(off)~1(on))

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

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

Off AM/PM :   Off Time AM/PM value to be set on TV/Monitor (0~1)

0x00	PM	0x01	AM

Off_Act   :   Off Time Inactivated /Activated   to be set on TV/Monitor (0(off)~1(on))

Repeat_On/Repeat Off : Repeat value to be set on TV/Monitor (0~5)

0x00	Once	0x01	Everyday
0x02	Mon~Fri	0x03	Mon~Sat

0x04	Sat~Sun	0x05	Manual Weekday

ManualWeekday/ManualWeekdayOn/ManualWeekdayOff ： Weekday value to be set on TV/Monitor.

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
X	Sat	Fri	Thu	Wed	Tue	Mon	Sun

Note : Don't care for BIT7

Volume ： Volume to be set on TV/Monitor.

Source ： Source to be set on TV/Monitor.

Note： 0x61, WiDi is not available, 0x62 : Internal/USB, USB

Holiday Apply : Apply or not the Holiday to On/Off Timer1 (0 ~ 3)

0x00	Dont't Apply(Both)	0x01	Apply(Both)
0x02	On Timer1 only Apply	0x03	Off Timer1 only Apply

● **Ack**

On Timer/Off Timer Integrated

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x0F	'A'	0xA4	On H	On M
Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
On AM/PM	On_Act	Off H	Off M	Off AM/PM	Off_Act	Repeat	Manula Weekday
Val 11	Val 12	Val 13	Check Sum				
Volume	Source	Holiday Apply					

On Timer/Off Timer Seperated (Added two Items, Data Length is different)

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x11	'A'	0xA4	On H	On M
Va 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
On AM/PM	On_Act	Off H	Off M	Off AM/PM	Off_Act	Repeat_On	Manual WeekdayOn
Val 11	Val 12	Val 13	Val 14	Val 15	Check Sum		
Repeat_Off	Manual Week dayOff	Volume	Source	Holiday Apply			

Val1 ~ Val15 : Same as above

Note : If H/M Time values are 0xFF, Time didn't set in LFD.

● **Nak**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0xA4	ERR	

ERR : Error code that shows what occurred error is

2.1.A5 Timer2 Control_MFM

● Function:

Personal Computer controls the Timer2 that TV / Monitor.

Note : It is dependent on Product Specifications.

● Get Timer2 Status

Header	Command	ID	Data Length	Check Sum
0xAA	0xA5		0x00	

● Set Timer2

On Timer/Off Timer Integrated

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xA5		0x0D	On H	On M	On AM/PM	On_Act
Data 5	Data 6	Date 7	Data 8	Data 9	Data 10	Data 11	Data 12
Off H	Off M	Off AM/PM	Off_Act	Repeat	Manual Weekday	Volume	Source
Data 13	Check Sum						
Holiday Apply							

On Timer/Off Timer Seperated (Added two Items, Data Length is different)

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xA5		0x0F	On H	On M	On AM/PM	On_Act
Data 5	Data 6	Date 7	Data 8	Data 9	Data 10	Data 11	Data 12
Off H	Off M	Off AM/PM	Off_Act	Repeat_On	Manual WeekdayOn	Repeat_Off	Manual WeekdayOff
Data 13	Data 14	Data 15	Check Sum				
Volume	Source	Holiday Apply					

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

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

On AM/PM :On Time AM/PM value to be set on TV/Monitor (0~1)

0x00	PM	0x01	AM

On_Act : On Time Inactivated /Activated to be set on TV/Monitor (0(off)~1(on))

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

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

Off AM/PM : Off Time AM/PM value to be set on TV/Monitor (0~1)

0x00	PM	0x01	AM

Off_Act : Off Time Inactivated /Activated to be set on TV/Monitor (0(off)~1(on))

Repeat_On/Repeat Off : Repeat value to be set on TV/Monitor (0~5)

0x00	Once	0x01	Everyday
0x02	Mon~Fri	0x03	Mon~Sat

0x04	Sat~Sun	0x05	Manual Weekday

ManualWeekday/ManualWeekdayOn/ManualWeekdayOff : Weekday value to be set on TV/Monitor.

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
X	Sat	Fri	Thu	Wed	Tue	Mon	Sun

Note : Don't care for BIT7

Volume : Volume to be set on TV/Monitor.

Source : Source to be set on TV/Monitor.

Note : 0x61, WiDi is not available, 0x62 : Internal/USB, USB

Holiday Apply : Apply or not the Holiday to On/Off Timer2 (0 ~ 3)

0x00	Dont't Apply(Both)	0x01	Apply(Both)
0x02	On Timer2 only Apply	0x03	Off Timer2 only Apply

● Ack

On Timer/Off Timer Integrated

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x0F	'A'	0xA5	On H	On M
Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
On AM/PM	On_Act	Off H	Off M	Off AM/PM	Off_Act	Repeat	Manula Weekday
Val 11	Val 12	Val 13	Check Sum				
Volume	Source	Holiday Apply					

On Timer/Off Timer Seperated (Added two Items, Data Length is different)

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x11	'A'	0xA5	On H	On M
Va 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
On AM/PM	On_Act	Off H	Off M	Off AM/PM	Off_Act	Repeat_On	Manual WeekdayOn
Val 11	Val 12	Val 13	Val 14	Val 15	Check Sum		
Repeat_Off	Manual Week dayOff	Volume	Source	Holiday Apply			

Val1 ~ Val15 : Same as above

Note : If H/M Time values are 0xFF, Time didn't set in LFD.

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0xA5	ERR	

ERR : Error code that shows what occurred error is

2.1.A6 Timer3 Control_MFM

● Function:

Personal Computer controls the Timer3 that TV / Monitor.

Note : It is dependent on Product Specifications.

● Get Timer3 Status

Header	Command	ID	Data Length	Check Sum
0xAA	0xA6		0x00	

● Set Timer3

On Timer/Off Timer Integrated.

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xA6		0x0D	On H	On M	On AM/PM	On_Act
Data 5	**Data 6**	**Date 7**	**Data 8**	**Data 9**	**Data 10**	**Data 11**	**Data 12**
Off H	Off M	Off AM/PM	Off_Act	Repeat	Manual Weekday	Volume	Source
Data 13	**Check Sum**						
Holiday Apply							

On Timer/Off Timer Seperated (Added two Items, Data Length is different)

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xA6		0x0F	On H	On M	On AM/PM	On_Act
Data 5	**Data 6**	**Date 7**	**Data 8**	**Data 9**	**Data 10**	**Data 11**	**Data 12**
Off H	Off M	Off AM/PM	Off_Act	Repeat_On	Manual WeekdayOn	Repeat_Off	Manual WeekdayOff
Data 13	**Data 14**	**Data 15**	**Check Sum**				
Volume	Source	Holiday Apply					

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

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

On AM/PM :On Time AM/PM value to be set on TV/Monitor (0~1)

0x00	PM	0x01	AM

On_Act : On Time Inactivated /Activated to be set on TV/Monitor (0(off)~1(on))

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

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

Off AM/PM : Off Time AM/PM value to be set on TV/Monitor (0~1)

0x00	PM	0x01	AM

Off_Act : Off Time Inactivated /Activated to be set on TV/Monitor (0(off)~1(on))

Repeat_On/Repeat Off : Repeat value to be set on TV/Monitor (0~5)

0x00	Once	0x01	Everyday
0x02	Mon~Fri	0x03	Mon~Sat

0x04	Sat~Sun	0x05	Manual Weekday

ManualWeekday/ManualWeekdayOn/ManualWeekdayOff : Weekday value to be set on TV/Monitor.

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
X	Sat	Fri	Thu	Wed	Tue	Mon	Sun

Note : Don't care for BIT7

Volume : Volume to be set on TV/Monitor.

Source : Source to be set on TV/Monitor.

Note : 0x61, WiDi is not available, 0x62 : Internal/USB, USB

Holiday Apply : Apply or not the Holiday to On/Off Timer3 (0 ~ 3)

0x00	Dont't Apply(Both)	0x01	Apply(Both)
0x02	On Timer3 only Apply	0x03	Off Timer3 only Apply

● **Ack**

On Timer/Off Timer Integrated

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x0F	'A'	0xA6	On H	On M
Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
On AM/PM	On_Act	Off H	Off M	Off AM/PM	Off_Act	Repeat	Manula Weekday
Val 11	Val 12	Val 13	Check Sum				
Volume	Source	Holiday Apply					

On Timer/Off Timer Seperated (Added two Items, Data Length is different)

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x11	'A'	0xA6	On H	On M
Va 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
On AM/PM	On_Act	Off H	Off M	Off AM/PM	Off_Act	Repeat_On	Manual WeekdayOn
Val 11	Val 12	Val 13	Val 14	Val 15	Check Sum		
Repeat_Off	Manual Week dayOff	Volume	Source	Holiday Apply			

Val1 ~ Val15 : Same as above

Note : If H/M Time values are 0xFF, Time didn't set in LFD.

● **Nak**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0xA6	ERR	

ERR : Error code that shows what occurred error is

2.1.A7 Clock Control_MFM

● **Function**

Personal Computer controls current time of TV / Monitor

Note : It is dependent on Product Specifications.

● **Working Condition**

- model is developed until 2013, For after 2014 refer to 0xC5

● **Get Time Status**

Header	Command	ID	Data Length	Check Sum
0xAA	0xA7		0x00	

● **Set Time**

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xA7		0x07	Day	H Time	M Time	Month

Data 5	Data 6	Data 7	Check Sum
Year1	Year2	AP Time	

Day : Day value to be set on TV/Monitor (1 ~ 31)

Month : Month value to be set on TV/Monitor (1 ~ 12)

Year1 : Year value to be set on TV/Monitor (High Byte)

Year2 : Year value to be set on TV/Monitor (Low Byte)

　　　　ex) Current year is 2010.

　　　　　　2010(Dec) → 0x07DA(Hex)　=> Year1: 0x07, Year2: 0xDA

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

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

AmPm : AM/PM value to be set on TV/Monitor (0 ~ 1)

0x00	PM	0x01	AM

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x09	'A'	0xA7	Day	H Time

Val 3	Val 4	Val 5	Val 6	Val 7	Check Sum
M Time	Month	Year1	Year2	AP Time	

Val 1 ~ Val 7 : Same as above

Note : **Hour, Minute** 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		0x03	'N'	0xA7	ERR	

ERR : Error code that shows what occurred error is

2.1.A8 Holiday Add/Delete Control

● Function

Personal Computer controls Holiday List of TV / Monitor.

● Set Holiday Status

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xA8		0x05	Management command	Month1	Day1	Month2

Data 5	Check Sum
Day2	

Management Command: Adjust Command Holiday List of TV / Monitor.

0x00	Add Holiday
0x01	Delete Holiday
0x02	Delete All

Note :

- If param is Delete All, Data 2 ~ Data 5 must be set 0.
- Add Holiday : Add New Holiday Information "Month1/Day1 ~ Month2/Day2".
- Delete Holiday : Delete one Holiday Information "Month1/Day1 ~ Month2/Day2".
- Delete All : Delete All Holiday Information.("Data2 ~ Data5" must be 0x00.)

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x07	'A'	0xA8	Management command	Month1

Val 3	Val 4	Val 5	Check Sum
Day1	Month2	Day2	

Val 1 ~ Val 5 : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0xA8	ERR	

ERR : Error code that shows what occurred error is

2.1.A9 Holiday Get Control

● **Function**

　Personal Computer get Holiday List of TV / Monitor.

　Note : It is dependent on Product Specifications.

● **Get Total Number of Holiday**

　Request Total number of Holiday information of TV/Monitor.

Header	Command	ID	Data Length	Check Sum
0xAA	0xA9		0x00	

● **Get Holiday Date**

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0xA9		0x01	Index	

　Index :　Index value on Holiday List.

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x07	'A'	0xA9	Index	Month1

Val 3	Val 4	Val 5	Check Sum
Day1	Month2	Day2	

　When the value of Val 2 ~ Val 5 is 0, "Get Holiday" is an ACK, Val 1 is number of Holiday information set on TV/Monitor

　When the value of Val 2 ~ Val 5 is 0xFF, requested information of index that doesn't set holiday.

　Rule of Ack Command.

Input Type	Index	Month 1	Day 1	Month 2	Day 2
Get Number of Holiday	Total number	0	0	0	0
Index which is set Holiday	Set Index	Month1 (Index's data)	Day1 (Index's data)	Month2 (Index's data)	Day2 (Index's data)
Index which is not set Holiday	Set Index	0xFF	0xFF	0xFF	0xFF

● **Nak**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0xA9	ERR	

　ERR : Error code that shows what occurred error is

2.1.AB Timer4 Control

● Function:

Personal Computer controls the Timer4 that TV / Monitor.

Note : It is dependent on Product Specifications.

● Get Timer4 Status

Header	Command	ID	Data Length	Check Sum
0xAA	0xAB		0x00	

● Set Timer4

On Timer/Off Timer Integrated.

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xAB		0x0D	On H	On M	On AM/PM	On_Act

Data 5	Data 6	Date 7	Data 8	Data 9	Data 10	Data 11	Data 12
Off H	Off M	Off AM/PM	Off_Act	Repeat	Manual Weekday	Volume	Source

Data 13	Check Sum
Holiday Apply	

On Timer/Off Timer Seperated (Added two Items, Data Length is different)

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xAB		0x0F	On H	On M	On AM/PM	On_Act

Data 5	Data 6	Date 7	Data 8	Data 9	Data 10	Data 11	Data 12
Off H	Off M	Off AM/PM	Off_Act	Repeat_On	Manual WeekdayOn	Repeat_Off	Manual WeekdayOff

Data 13	Data 14	Data 15	Check Sum
Volume	Source	Holiday Apply	

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

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

On AM/PM :On Time AM/PM value to be set on TV/Monitor（0~1）

0x00	PM	0x01	AM

On_Act : On Time Inactivated /Activated to be set on TV/Monitor（0(off)~1(on)）

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

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

Off AM/PM : Off Time AM/PM value to be set on TV/Monitor（0~1）

0x00	PM	0x01	AM

Off_Act : Off Time Inactivated /Activated to be set on TV/Monitor（0(off)~1(on)）

Repeat_On/Repeat Off : Repeat value to be set on TV/Monitor（0~5）

0x00	Once	0x01	Everyday
0x02	Mon~Fri	0x03	Mon~Sat

0x04	Sat~Sun	0x05	Manual Weekday

ManualWeekday/ManualWeekdayOn/ManualWeekdayOff : Weekday value to be set on TV/Monitor.

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
X	Sat	Fri	Thu	Wed	Tue	Mon	Sun

Note : Don't care for BIT7

Volume : Volume to be set on TV/Monitor.

Source : Source to be set on TV/Monitor.

Note : 0x61, WiDi is not available, 0x62 : Internal/USB, USB

Holiday Apply : Apply or not the Holiday to On/Off Timer4 (0 ~ 3)

0x00	Dont't Apply(Both)	0x01	Apply(Both)
0x02	On Timer4 only Apply	0x03	Off Timer4 only Apply

● Ack

On Timer/Off Timer Integrated

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x0F	'A'	0xAB	On H	On M
Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
On AM/PM	On_Act	Off H	Off M	Off AM/PM	Off_Act	Repeat	Manula Weekday
Val 11	Val 12	Val 13	Check Sum				
Volume	Source	Holiday Apply					

On Timer/Off Timer Seperated (Added two Items, Data Length is different)

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x11	'A'	0xAB	On H	On M
Va 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
On AM/PM	On_Act	Off H	Off M	Off AM/PM	Off_Act	Repeat_On	Manual WeekdayOn
Val 11	Val 12	Val 13	Val 14	Val 15	Check Sum		
Repeat_Off	Manual Week dayOff	Volume	Source	Holiday Apply			

Val1 ~ Val15 : Same as above

Note : If H/M Time values are 0xFF, Time didn't set in LFD.

● Nak

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

ERR : Error code that shows what occurred error is

2.1.AC Timer5 Control

● Function:
Personal Computer controls the Timer1 that TV / Monitor.
Note : It is dependent on Product Specifications.

● Get Timer5 Status

Header	Command	ID	Data Length	Check Sum
0xAA	0xAC		0x00	

● Set Timer5
On Timer/Off Timer Integrated.

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xAC		0x0D	On H	On M	On AM/PM	On_Act
Data 5	Data 6	Date 7	Data 8	Data 9	Data 10	Data 11	Data 12
Off H	Off M	Off AM/PM	Off_Act	Repeat	Manual Weekday	Volume	Source
Data 13	Check Sum						
Holiday Apply							

On Timer/Off Timer Seperated (Added two Items, Data Length is different)

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xAC		0x0F	On H	On M	On AM/PM	On_Act
Data 5	Data 6	Date 7	Data 8	Data 9	Data 10	Data 11	Data 12
Off H	Off M	Off AM/PM	Off_Act	Repeat_On	Manual WeekdayOn	Repeat_Off	Manual WeekdayOff
Data 13	Data 14	Data 15	Check Sum				
Volume	Source	Holiday Apply					

On H : On Time Hour value to be set on TV/Monitor（ 1 ~ 12)
On M : On Time Minute value to be set on TV/Monitor（ 0 ~ 59)
On AM/PM :On Time AM/PM value to be set on TV/Monitor（0~1)

0x00	PM	0x01	AM

On_Act : On Time Inactivated /Activated to be set on TV/Monitor（0(off)~1(on))
Off H : Off Time Hour value to be set on TV/Monitor（ 1 ~ 12)
Off M : Off Time Minute value to be set on TV/Monitor（ 0 ~ 59)
Off AM/PM : Off Time AM/PM value to be set on TV/Monitor（0~1)

0x00	PM	0x01	AM

Off_Act : Off Time Inactivated /Activated to be set on TV/Monitor（0(off)~1(on))
Repeat_On/Repeat Off : Repeat value to be set on TV/Monitor（0~5)

0x00	Once	0x01	Everyday
0x02	Mon~Fri	0x03	Mon~Sat

0x04	Sat~Sun	0x05	Manual Weekday

ManualWeekday/ManualWeekdayOn/ManualWeekdayOff : Weekday value to be set on TV/Monitor.

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
X	Sat	Fri	Thu	Wed	Tue	Mon	Sun

Note : Don't care for BIT7

Volume : Volume to be set on TV/Monitor.

Source : Source to be set on TV/Monitor.

Note : 0x61, WiDi is not available, 0x62 : Internal/USB, USB

Holiday Apply : Apply or not the Holiday to On/Off Timer5 (0 ~ 3)

0x00	Dont't Apply(Both)	0x01	Apply(Both)
0x02	On Timer5 only Apply	0x03	Off Timer5 only Apply

● Ack

On Timer/Off Timer Integrated

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x0F	'A'	0xAC	On H	On M
Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
On AM/PM	On_Act	Off H	Off M	Off AM/PM	Off_Act	Repeat	Manula Weekday
Val 11	Val 12	Val 13	Check Sum				
Volume	Source	Holiday Apply					

On Timer/Off Timer Seperated (Added two Items, Data Length is different)

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x11	'A'	0xAC	On H	On M
Va 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
On AM/PM	On_Act	Off H	Off M	Off AM/PM	Off_Act	Repeat_On	Manual WeekdayOn
Val 11	Val 12	Val 13	Val 14	Val 15	Check Sum		
Repeat_Off	Manual Week dayOff	Volume	Source	Holiday Apply			

Val1 ~ Val15 : Same as above

Note : If H/M Time values are 0xFF, Time didn't set in LFD.

● Nak

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

ERR : Error code that shows what occurred error is

2.1.AD Timer6 Control

● Function:

Personal Computer controls the Timer1 that TV / Monitor.

Note : It is dependent on Product Specifications.

● Get Timer6 Status

Header	Command	ID	Data Length	Check Sum
0xAA	0xAD		0x00	

● Set Timer6

On Timer/Off Timer Integrated.

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xAD		0x0D	On H	On M	On AM/PM	On_Act
Data 5	Data 6	Date 7	Data 8	Data 9	Data 10	Data 11	Data 12
Off H	Off M	Off AM/PM	Off_Act	Repeat	Manual Weekday	Volume	Source
Data 13	Check Sum						
Holiday Apply							

On Timer/Off Timer Seperated (Added two Items, Data Length is different)

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xAD		0x0F	On H	On M	On AM/PM	On_Act
Data 5	Data 6	Date 7	Data 8	Data 9	Data 10	Data 11	Data 12
Off H	Off M	Off AM/PM	Off_Act	Repeat_On	Manual WeekdayOn	Repeat_Off	Manual WeekdayOff
Data 13	Data 14	Data 15	Check Sum				
Volume	Source	Holiday Apply					

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

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

On AM/PM :On Time AM/PM value to be set on TV/Monitor (0~1)

0x00	PM	0x01	AM

On_Act : On Time Inactivated /Activated to be set on TV/Monitor (0(off)~1(on))

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

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

Off AM/PM : Off Time AM/PM value to be set on TV/Monitor (0~1)

0x00	PM	0x01	AM

Off_Act : Off Time Inactivated /Activated to be set on TV/Monitor (0(off)~1(on))

Repeat_On/Repeat Off : Repeat value to be set on TV/Monitor (0~5)

0x00	Once	0x01	Everyday
0x02	Mon~Fri	0x03	Mon~Sat

0x04	Sat~Sun	0x05	Manual Weekday

ManualWeekday/ManualWeekdayOn/ManualWeekdayOff : Weekday value to be set on TV/Monitor.

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
X	Sat	Fri	Thu	Wed	Tue	Mon	Sun

Note : Don't care for BIT7

Volume : Volume to be set on TV/Monitor.

Source : Source to be set on TV/Monitor.

Note : 0x61, WiDi is not available, 0x62 : Internal/USB, USB

Holiday Apply : Apply or not the Holiday to On/Off Timer6 (0 ~ 3)

0x00	Dont't Apply(Both)	0x01	Apply(Both)
0x02	On Timer1 only Apply	0x03	Off Timer1 only Apply

● **Ack**

On Timer/Off Timer Integrated

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x0F	'A'	0xAD	On H	On M
Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
On AM/PM	On_Act	Off H	Off M	Off AM/PM	Off_Act	Repeat	Manula Weekday
Val 11	Val 12	Val 13	Check Sum				
Volume	Source	Holiday Apply					

On Timer/Off Timer Seperated (Added two Items, Data Length is different)

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x11	'A'	0xAD	On H	On M
Va 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
On AM/PM	On_Act	Off H	Off M	Off AM/PM	Off_Act	Repeat_On	Manual WeekdayOn
Val 11	Val 12	Val 13	Val 14	Val 15	Check Sum		
Repeat_Off	Manual Week dayOff	Volume	Source	Holiday Apply			

Val1 ~ Val15 : Same as above

Note : If H/M Time values are 0xFF, Time didn't set in LFD.

● **Nak**

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

ERR : Error code that shows what occurred error is

2.1.AE Timer7 Control

● Function:

Personal Computer controls the Timer1 that TV / Monitor.

Note : It is dependent on Product Specifications.

● Get Timer7 Status

Header	Command	ID	Data Length	Check Sum
0xAA	0xAE		0x00	

● Set Timer7

On Timer/Off Timer Integrated.

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xAE		0x0D	On H	On M	On AM/PM	On_Act
Data 5	Data 6	Date 7	Data 8	Data 9	Data 10	Data 11	Data 12
Off H	Off M	Off AM/PM	Off_Act	Repeat	Manual Weekday	Volume	Source
Data 13	Check Sum						
Holiday Apply							

On Timer/Off Timer Seperated (Added two Items, Data Length is different)

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xAE		0x0F	On H	On M	On AM/PM	On_Act
Data 5	Data 6	Date 7	Data 8	Data 9	Data 10	Data 11	Data 12
Off H	Off M	Off AM/PM	Off_Act	Repeat_On	Manual WeekdayOn	Repeat_Off	Manual WeekdayOff
Data 13	Data 14	Data 15	Check Sum				
Volume	Source	Holiday Apply					

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

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

On AM/PM :On Time AM/PM value to be set on TV/Monitor（0~1）

0x00	PM	0x01	AM

On_Act : On Time Inactivated /Activated to be set on TV/Monitor（0(off)~1(on)）

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

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

Off AM/PM ： Off Time AM/PM value to be set on TV/Monitor（0~1）

0x00	PM	0x01	AM

Off_Act ： Off Time Inactivated /Activated to be set on TV/Monitor（0(off)~1(on)）

Repeat_On/Repeat Off : Repeat value to be set on TV/Monitor（0~5）

0x00	Once	0x01	Everyday
0x02	Mon~Fri	0x03	Mon~Sat

0x04	Sat~Sun	0x05	Manual Weekday

ManualWeekday/ManualWeekdayOn/ManualWeekdayOff : Weekday value to be set on TV/Monitor.

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
X	Sat	Fri	Thu	Wed	Tue	Mon	Sun

Note : Don't care for BIT7

Volume   : Volume to be set on TV/Monitor.

Source   :   Source   to be set on TV/Monitor.

Note :   0x61, WiDi is not available, 0x62 : Internal/USB, USB

Holiday Apply : Apply or not the Holiday to On/Off Timer7 (0 ~ 3)

0x00	Dont't Apply(Both)	0x01	Apply(Both)
0x02	On Timer1 only Apply	0x03	Off Timer1 only Apply

● Ack

On Timer/Off Timer Integrated

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x0F	'A'	0xAE	On H	On M
Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
On AM/PM	On_Act	Off H	Off M	Off AM/PM	Off_Act	Repeat	Manula Weekday
Val 11	Val 12	Val 13	Check Sum				
Volume	Source	Holiday Apply					

On Timer/Off Timer Seperated (Added two Items, Data Length is different)

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x11	'A'	0xAE	On H	On M
Va 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9	Val 10
On AM/PM	On_Act	Off H	Off M	Off AM/PM	Off_Act	Repeat_On	Manual WeekdayOn
Val 11	Val 12	Val 13	Val 14	Val 15	Check Sum		
Repeat_Off	Manual Week dayOff	Volume	Source	Holiday Apply			

Val1 ~ Val15 : Same as above

Note : If H/M Time values are 0xFF, Time didn't set in LFD.

● Nak

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

ERR : Error code that shows what occurred error is

2.1.AF Edit Name Control

● **Function**

Personal Computer sets Edit Name for the present input of TV/Monitor.

● Get Edit Name Status

Header	Command	ID	Data Length	Check Sum
0xAA	0xAF		0x00	

● Set Edit Name

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0xAF		0x01	EName	

EName : TV 가 설정할 Edit Name Code

0x00	NONE	0x10	DMA
0x01	VCR	0x11	DVD Receiver
0x02	DVD	0x12	HD STB
0x03	Cable STB	0x13	DVD Combo
0x04	Satelite STB	0x14	DHR
0x05	PVR STB		
0x06	AV Receiver		
0x07	Game		
0x08	Camcorder		
0x09	PC		
0x0A	DVI PC		
0x0B	DVI Devices		
0x0C	TV		
0x0D	IPTV		
0x0E	Blu-ray		
0x0F	HD DVD		

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0xAF	EName	

EName : Same as Above

● Nak

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

ERR : Error code that shows what occurred error is

2.1.B0 Virtual Remote Control

● Function

This function support that MDC command can work same as remote control.

● Set Virtual Remote Control

Header	Command	ID	Data Length	Val 1	Check Sum
0xAA	0xB0		0x01	KeyCode	

KeyCode

0X01	KEY_SOURCE	0x02	KEY_POWER
0x04	KEY_1	0x05	KEY_2
0x06	KEY_3	0x07	KEY_VOLUME_UP
0x08	KEY_4	0x09	KEY_5
0x0A	KEY_6	0x0B	KEY_VOLUME_DOWN
0x0C	KEY_7	0x0D	KEY_8
0x0E	KEY_9	0x0F	KEY_MUTE
0x10	KEY_CHANNEL_DOWN	0x11	KEY_0
0x12	KEY_CHANNEL_UP	0x14	KEY_GREEN
0x15	KEY_YELLOW	0x16	KEY_CYAN
0x1A	KEY_MENU	0x1F	KEY_DISPLAY
0x23	KEY_DIGIT	0x24	KEY_PIP_TV_VIDEO
0x2D	KEY_EXIT	0x45	KEY_REW
0x46	KEY_STOP	0x47	KEY_PLAY
0x48	KEY_FF	0x4A	KEY_PAUSE
0x4B	KEY_TOOLS	0x58	KEY_RETURN
0x5B	KEY_MAGICINFO_LITE	0x60	KEY_CURSOR_UP
0x61	KEY_CURSOR_DOWN	0x62	KEY_CURSOR_RIGHT
0x65	KEY_CURSOR_LEFT	0x68	KEY_ENTER
0x6C	KEY_RED	0x77	KEY_LOCK
0x79	KEY_CONTENT	0x98	DISCRET_POWER_OFF
0x9F	KEY_3D		

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check

| 0xAA | 0xFF | | 0x03 | 'A' | 0xB0 | KeyCode | Sum |

KeyCode : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0xB0	ERR	

ERR : Error code that shows what occurred error is

2.1.B1 Display Port Daisy Chain

● **Function**

Value of Display Port Daisy Chain sets Clone or Expand.

● Get Display Port Daisy Chain Clone/Expand

Header	Command	ID	Data Length	Check Sum
0xAA	0xB1		0x00	

● Set Display Port Daisy Chain Clone/Expand

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0xB1		0x01	Value	

Value : The Value of set for Display Port Daisy Chain.

0x00	Clone	0x01	Expand

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0xB1	Value	

Value : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0xB1	ERR	

ERR : Error Code which is displayed when error is occured.

2.1.B3 Video Conference Sound Mode Control

● Function

Personal Computer set Video Conference sound mode of TV/Monitor.

● Working Condition

In case of PIP is on and the C.Sound is on PIP sound select will not work

When S.Sound mode set off, PIP sound will change as it's last memory value

C.Sound will support last memory

● Get Conference Sound Mode Status

Header	Command	ID	Data Length	Check Sum
0xAA	0xB3		0x00	

● Set Conference Sound Mode Status

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0xB3		0x01	C.Sound On/Off	

C.Sound On/Off : Video Conference Sound On/Off set Value.

0x00	Video Conference Sound Off	0x01	Video Conference Sound On

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0xB3	C.Sound On/Off Status	

C.Sound On/Off Status : Video Conference Sound On/Off set Value.

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0xB3	ERR	

ERR : Error Code which is displayed when error is occured.

2.1.B5 Network Standby Control

● Function

In Network supported Model, Control Network Standby function.

● Get Network Standby Status

Header	Command	ID	Data Length	Check Sum
0xAA	0xB5		0x00	

● Set Network Standby Status

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0xB5		0x01	Network Standby On/Off	

Network Standby On/Off : Network Standby Value

0x00	Network Standby Off	0x01	Network Standby On

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0xB5	Network Standby On/Off	

Value : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0xB5	ERR	

ERR : Error Code which is displayed when error is occured.

2.1.B6 DST (Daylight Saving Time) Control

● Function

Control function of DST (Daylight Saving Time)

● Get DST Value

Header	Command	ID	Data Length	Check Sum
0xAA	0xB6		0x00	

● Set DST Value

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xB6		0x0C	DST On/Off	Month of Start Date	Value1 of Day on Start Date	Value2 of Day on Start Date

Data 5	Data 6	Data 7	Data 8	Data 9	Data 10	Data 11	Date 12
Time H of Start date	Time M of Start date	Month of End Date	Value1 of Day on End Date	Value2 of Day on End Date	Time H of End date	Time M of End date	Time Off Set

Check Sum

DST On/Off : DST Value

Tunerless Model		Tuner supported Model	
0x00	DST Off	0x00	DST Off
0x01	--	0x01	Auto
0x02	DST On	0x02	Manual

Note : Data2 ~12 are valid in case of DST On or Manual

Month of Start Date : Month in which DST starts(0x00 : Jan ~ 0x0b : Dec)

Month of End Date : Month in which DST ends (0x00 : Jan ~ 0x0b : Dec)

Value1 of Day on Start Date : Order of the day of the week in which DST start.

Value1 of Day on End Date : Order of the day of the week in which DST ends.

0x00	1st
0x01	2nd
0x02	3rd
0x03	4th
0x04	Last

Value2 of Day on Start Date : Day of week in which DST starts(0x00 : Jan ~ 0x0b : Dec)

Value2 of Day on End Date : Day of week in which DST ends(0x00 : Jan ~ 0x0b : Dec)

Time H of Start date : Hours of the time that DST starts (0 ~ 23)

Time M of Start date : Minutes of the time that DST starts (0 ~ 59)

Time H of End date : Hours of the time that DST ends (0 ~ 23)

Time M of End date : Minutes of the time that DST ends (0 ~ 59)

Time Off Set : Value of Time offset

0x00	+1:00	0x01	+2:00

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x0F	'A'	0xB6	DST On/Off	Month of Start Date
Val 3	**Val 4**	**Val 5**	**Val 6**	**Val 7**	**Val 8**	**Val 9**	**Val 10**
Value1 of Day on Start Date	Value2 of Day on Start Date	Time H of Start date	Time M of Start date	Month of End Date	Value1 of Day on End Date	Value2 of Day on End Date	Time H of End date
Val 11	**Val 12**	**Val 13**	**Check Sum**				
Time M of End date	Time Off Set	Tuner/Tuner less Model					

Tuner/Tunerless Model : Tuner - 1, Tunerless - 0

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0xB6	ERR	

ERR : Error Code which is displayed when error is occured.

2.1.B7 Custom PIP Control

● Function

When PIP Size is set to "Custom", control the value of custom PIP.

● Get Custom PIP status

Header	Command	ID	Data Length	Check Sum
0xAA	0xB7		0x00	

● Set Custom PIP

Header	Command	ID	Data Length	Data 1	Data 2	Data 3	Data 4
0xAA	0xB7		0x08	H Position High-Byte	H Position Low-Byte	V Position High-Byte	V Position Low-Byte

Data 5	Data 6	Data 7	Data 8	Check Sum
H Size High-Byte	H Size Low-Byte	V Size High-Byte	V Size Low-Byte	

H Position High-Byte : The Position value code for PIP H-Start High-Byte.
H Position Low-Byte : The Position value code for PIP H-Start Low-Byte.
V Position High-Byte : The Position value code for PIP V-Start High-Byte.
V Position Low-Byte : The Position value code for PIP V-Start Low-Byte.
H Size High-Byte : The Size value code for PIP H-width High-Byte.
H Size Low-Byte : The Size value code for PIP H-width Low-Byte.
V Size High-Byte : The Size value code for PIP V-width High-Byte.
V Size Low-Byte : The Size value code for PIP V-width Low-Byte.
Note :
    - The PIP Start Position and Size can not over panel H, V size
    - H/V Size : 512 * 288 ~ 1632 * 918   (H Interval : 160 pixel, V Interval : 90 pixel)
       512*288, 672*378, 832*468, 992*558, 1152*648, 1312*738, 1472*828, 1632*918
    - H/V Position : Interval 10 Pixel

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x0A	'A'	0xB7	H Position High-Byte	H Position Low-Byte

Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Check Sum
V Position High-Byte	V Position Low-Byte	H Size High-Byte	H Size Low-Byte	V Size High-Byte	V Size Low-Byte	

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0xB7	ERR	

ERR : Error Code which is displayed when error is occured.

2.1.B8 Auto ID Setting Status Control

● Function

Control Start/End of Auto ID Setting.

● Get Auto ID Setting Status

Header	Command	ID	Data Length	Check Sum
0xAA	0xB8		0x00	

● Set Auto ID Setting Status

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0xB8		0x01	Status	

Status : value of Auto ID settings status.

0x00	Auto ID Setting START	0x01	Auto ID Setting END

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0xB8	Status	

Value : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0xB8	ERR	

ERR : Error Code which is displayed when error is occured.

2.1.B9 Display ID Information

● **Function**

Displaying function ID of Monitor.

● **Set Monitor ID**

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0xB9		0x01	ID Display On/Off	

ID Display On/Off : Monitor ID

0x00	Monitor ID Display Off	0x01	Monitor ID Display On

● **Ack**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0xB9	ID Display On/Off	

Value : Same as above

● **Nak**

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0xB9	ERR	

ERR : Error Code which is displayed when error is occured.

2.1.C6 EcoSolution control in MDC Protocol

● Function

Control Eco Solution by MDC Protocol.

● Get Eco Solution info

Header	Command	ID	Data Length	Sub CMD	Check Sum
0xAA	0xc6		0x01	Function	

Sub CMD : Function

No	Sub CMD	Function
1	0x81	Auto Power Off

● Set Eco Solution - Overall

Header	Command	ID	Data Length	Sub CMD	Data1	...	DataN
0xAA	0xc6		xx	Function	xx	…	xx

Check Sum

. Set Eco Solution - Sub CMD : Auto Power Off

Header	Command	ID	Data Length	Sub CMD	Data1	Check Sum
0xAA	0xc6		0x02	Function	AutoPower Off Mode	

AutoPowerOff Mode

0x00	Off
0x01	4 Hour(On)
0x02	6 Hour
0x03	8 Hour

Note : If the model has On/Off value only, Data 0 is Off and Data 1 is On. ,

● Ack

. Sub CMD : Get/Set Auto Power Off

Header	Command	ID	Data Length	Ack	r-CMD	Sub CMD	Val1
0xAA	0xFF		0x04	'A'	0xc6	0x81	AutoPower Off Mode

Check Sum

AutoPowerOff Mode : Same as above

● Nak

Header	Command	ID	Data Length	Nak	r-CMD	Val1	Check Sum
0xAA	0xFF		0x03	'N'	0xc6	ERR	

ERR : Error code that shows what occurred error is

2.1.C7 Control Launcher by MDC Protocol

● Function

Control Launcher by MDC Protocol.

● Working Condition

- Depends on each model spec it will be supported or not

● Get Launcher Info

Header	Command	ID	Data Length	Sub CMD	Check Sum
0xAA	0xc7		0x01	Function	

Sub CMD : Function

Sub CMD	Function
0x81	Play Via Mode
0x82	URL Address

● Set Launcher – Overall

Header	Command	ID	Data Length	Sub CMD	Data1	...	DataN
0xAA	0xc7		xx	Function	xx	...	xx

Check Sum

. Set Launcher – Sub CMD : Set Play Via Mode

Header	Command	ID	Data Length	Sub CMD	Data1	Check Sum
0xAA	0xc7		0x02	0x81	Play Via Mode	

Play Via Mode

0x00	MagicInfo
0x01	URL Launcher
0x02	MagicIWB

Note : When the Magicinfo S or MagicIWB or URL Launcher is running, "Set Play via command" will return NAK.

. Set Launcher – Sub CMD : Set URL

Header	Command	ID	Data Length	Sub CMD	Data1	...	DataN	Check Sum
0xAA	0xc7		Variable	0x82		URL Address		

URL Address : ASCII code data, support 200 characters.

● Ack

. Sub CMD : Get/Set Play Via

Header	Command	ID	Data Length	Ack	r-CMD	Sub CMD	Val1

0xAA	0xFF		0x04	'A'	0xc7	0x81	Play Via Mode
Check Sum							

. Sub CMD : Get/Set URL

Header	Command		Data Length	Ack	r-CMD	Sub CMD	Val1
0xAA	0xFF	ID	Variable	'A'	0xc7	0x82	URL Address
Val2	...	ValN	Check Sum				
URL Address							

● Nak

Header	Command		Data Length	Nak	r-CMD	Val1	Check Sum
0xAA	0xFF	ID	0x03	'N'	0xc7	ERR	

ERR : Error code that shows what occurred error is

2.1.E0 Net PIP (MagicInfo Only)

● Function

The Computer turns the PIP function ON/OFF at MagicInfo.

※ 1. The possible PIP composition and PIP size depends on H/W spec.

2. After Net PIP turns on, if user changes other sources and come back to Magicinfo,
Net PIP also should be shown.

● Get MagicInfo PIP status
Not Support

● Set MagicInfo PIP On –

Header	Command	ID	Data Length	PIP ON	Data 1	Data 2	Data 3
0xAA	0xE0		0x14	0x01	H Position High-Byte	H Position Low-Byte	V Position High-Byte
Data 4	Data 5	Data 6	Data 7	Data 8	Data 9	Data 10	Data 11
V Position Low-Byte	H Size High-Byte	H Size Low-Byte	V Size High-Byte	V Size Low-Byte	P.Source	TV Channel	S.Select
Data 12	Data 13	Data 14	Data 15	Data 16	Data 17	Data 18	Data 19
Country	ATV/ DTV	AirCable	CH_NUM High_Byte	CH_NUM Low_Byte	Sel_Minor	Minor_CH High_Byte	Minor_CH Low_Byte
Check Sum							

H Position High-Byte : The Position value code for PIP H-Start High-Byte.

H Position Low-Byte : The Position value code for PIP H-Start Low-Byte.

V Position High-Byte : The Position value code for PIP V-Start High-Byte.

V Position Low-Byte : The Position value code for PIP V-Start Low-Byte.

H Size High-Byte : The Size value code for PIP H-width High-Byte.

H Size Low-Byte : The Size value code for PIP H-width Low-Byte.

V Size High-Byte : The Size value code for PIP V-width High-Byte.

V Size Low-Byte : The Size value code for PIP V-width Low-Byte.

Note : The PIP Start Position and Size do not over panel H, V size

P.Source : The input source code to set for the TV or monitor.

－ Please refer Input table of Command 0x14, Input Source Control (MFM).

TV Channel : Channel Number (0 ~ 99)

Note : 460Txn Only (Platform LFD don't use this byte)

S.Select : The Sound select Code

0x00	MagicInfo Sound	0x01	PIP Sound

Country : The value code for the country of the TV / Monitor(0 : Korea, 1 : U.S.A, …)

ATV_DTV : The value code for the ATV/DTV of the TV / Monitor(0 : Analog TV, 1 : Digital TV)

AirCable : The value code for the Air/Cable of the TV / Monitor(0 : Air, 1 : Cable)

CH_NUM High_Byte : The value code for the Major Channel High-Byte of the TV / DTV

(Analog TV : 1 ~ 135, Digital TV : 0 ~ 999)

CH_NUM Low_Byte : The value code for the Major Channel Low-Byte of the TV / DTV

(Analog TV : 1 ~ 135, Digital TV : 0 ~ 999)

Sel_Minor : The value code for the Minor Channel Enable/Disable of the TV / Monitor

(0 : Enable, 1 : Disable)(DTV Only)

Minor_CH High_Byte : The value code for the Minor Channel High-Byte of the TV /

Monitor(0 ~ 999)(DTV Only)

Minor_CH Low_Byte : The value code for the Minor Channel Low-Byte of the TV /

Monitor(0 ~ 999)(DTV Only)

Note : CH_NUM High_Byte = 0xFF, CH_NUM Low_Byte = 0xFF, Sel_Minor =

0x01, Minor_CH High_Byte = 0xFF, Minor_CH Low_Byte = 0xFF

=> Net PIP tune as last Memory channel of TV source

● Set MagicInfo PIP Off

Header	Command	ID	Data Length	PIP Off	Check Sum
0xAA	0xE0		0x01	0x00	

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	PIP ON	Val 1
0xAA	0xFF		0x16	'A'	0xE0	0x01	H Position Low-Byte
Val 2	Val 3	Val 4	Val 5	Val 6	Val 7	Val 8	Val 9
H Position High-Byte	V Position Low-Byte	V Position High-Byte	H Size Low-Byte	H Size High-Byte	V Size Low-Byte	V Size High-Byte	P.Source
Val 10	Val 11	Val 12	Val 13	Val 14	Val 15	Val 16	Val 17
TV Channel	S.Select	Country	ATV_DTV	AirCable	CH_NUM High_Byte	CH_NUM Low_Byte	Sel_Minor
Val 18	Val 19	Check Sum					
Minor_CH High_Byte	Minor_CH Low_Byte						

Val 1 ~ Val 19 : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		3	'N'	0xE0	ERR	

ERR : Error Code which is displayed when error is occured.

2.1.E4 Apply To Status Control On Video Wall

● Function

Control source for displaying on video wall.

● Get Apply to status

Header	Command	ID	Data Length	Check Sum
0xAA	0xE4		0x00	

● Set Apply to Status

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0xE4		0x01	Status	

Status : value of Apply to settings status.

0x00	Current Source	0x01	MagicInfo Player S

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0xE4	Status	

Status : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0xE4	ERR	

ERR : Error Code which is displayed when error is occured.

2.1.F9 Panel On/Off

● Function

Personal Computer turns Panel of TV / Monitor on/off.

● Get Panel ON/OFF Status

Header	Command	ID	Data Length	Check Sum
0xAA	0xF9		0x00	

● Set Panel ON/OFF

Header	Command	ID	Data Length	Data 1	Check Sum
0xAA	0xF9		0x01	PN_State	

PN_State : Panel ON/OFF code to be set on TV/Monitor

0x01	PANEL OFF	0x00	PANEL ON

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'A'	0xF9	PN_State	

PN_State : Same as above

● Nak

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Check Sum
0xAA	0xFF		0x03	'N'	0xF9	ERR	

ERR : Error code that shows what occurred error is

2.1.FD Auto ID Setting MDC Control Command

● Function

● Get Auto ID

Header	Command	ID	Data Length	Check Sum
0xAA	0xFD		0x00	

● Set Auto ID

Header	Command	ID	Data Length	Data 1	Data 2	Check Sum
0xAA	0xFD		0x02	RS_Status	M_ID	

Note : If M_ID is 0, can't chage ID. (previous value.)

RS_Status : RS232 Output , ID information

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0	0	0	1 or 0	0	0	0	1 or 0
1 : Initialize Monitor ID (Initiailize Monitor ID to 0) 0 : –				1 : RS232 Loop Out Disable 0 : RS232 Loop Out Enable			

Note : In Get Auto ID,can't know Monitor ID's reset status.

M_ID : ID

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Change ID(1~99)							

Note : If Monitor ID reset bit of RS_Status is set, ignore M_ID

● Ack

Header	Command	ID	Data Length	Ack/Nak	r-CMD	Val 1	Val 2
0xAA	0xFF		0x04	'A'	0xFD	RS_Status	M_ID

Check Sum

RS_Status : Same as above

M_ID : Same as above

Note : Get cmd - In Ack, M_ID is current ID which is set.

● Nak

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

ERR : Error Code which is displayed when error is occured.

        ex) 1. All ID Reset   : aa fd fe 02 10 00
             2. All Loopout disable   : aa fd fe 02 01 00
             3. Set ID #1   : aa fd 00 02 01 01
             4. Enable ID #1   : aa fd 01 02 00 01

2.1.FF ACK/NAK

● Function

Acknowledge or Negative acknowledge packet for other command

Note : Daetail format is defined on ezch command

Annex B. Suported Model Table

B.1 2015.8.28. Supported Model Table

No	Command Name(User)	Command	Value Range	Supported Model Table					
				DB10E	DBE	DME/DHE	UDE-P/S	RHE/BHE	SPE-ES
1	Status Control	0x00	Multi Param	O	O	O	O	O	O
2	Reserved	0x01	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
3	Reserved	0x02	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
4	Reserved	0x03	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
5	Video Control	0x04	Multi Param	O	O	O	O	O	O
6	Reserved	0x05	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
7	RGB Control	0x06	Multi Param	O	O	O	O	O	O
8	PIP Status Control	0x07	Multi Param	X	O	O	O	O	O
9	Maintenance Control	0x08	Multi Param	O	O	O	O	O	O
10	Sound Control	0x09	Multi Param	O	O	O	X	O	O
11	SignagePlayer Control	0x0A	Multi Param	X	X	X	X	X	O
12	Serial Number Control	0x0B	String	O	O	O	O	O	O
13	Reserved	0x0C	-	N/A	N/A	N/A	N/A	N/A	N/A
14	Display Status Control	0x0D	Multi Param	O	O	O	O	O	O
15	SW Version Control	0x0E	String	O	O	O	O	O	O

16	Auto Motion Plus	0x0F	Multi Param	X	X	X	X	X	X
17	Model Number Control	0x10	Multi Param	O	O	O	O	O	O
18	Power Control	0x11	Discrete	O	O	O	O	O	O
19	Volume Control	0x12	0 ~ 100	O	O	O	O	O	O
20	Mute Control	0x13	0, 1	O	O	O	O	O	O
21	Input Source Control	0x14	Discrete	O	O	O	O	O	O
22	Image Size Control	0x15	Discrete	O	O	O	O	O	O
23	Reserved	0x16	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
24	Direct Channel Control (DTV)	0x17	Multi Param	X	O	O	X	X	X
25	Screen Mode Control	0x18	Discrete	O	X	X	X	O	X
26	Screen Size Control	0x19	Discrete	X	O	O	O	O	X
27	Reserved	0x1A	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
28	Reserved	0x1B	Discrete	N/A	N/A	N/A	N/A	N/A	N/A
29	Reserved	0x1C	–	N/A	N/A	N/A	N/A	N/A	N/A
30	MDC Connection Type	0x1D	Discrete	O	O	O	O	O	O
31	Reserved	0x1E	Discrete	N/A	N/A	N/A	N/A	N/A	N/A
32	Reserved	0x1F	–	N/A	N/A	N/A	N/A	N/A	N/A
33	Reserved	0x20	–	N/A	N/A	N/A	N/A	N/A	N/A
34	Reserved	0x21	–	N/A	N/A	N/A	N/A	N/A	N/A

35	Reserved	0x22	–	N/A	N/A	N/A	N/A	N/A	N/A
36	Reserved	0x23	–	N/A	N/A	N/A	N/A	N/A	N/A
37	Contrast Control	0x24	0 ~ 100	O	O	O	O	O	X
38	Brightness Control	0x25	0 ~ 100	O	O	O	O	O	X
39	Sharpness Control	0x26	0 ~ 100	O	O	O	O	O	X
40	Color Control	0x27	0 ~ 100	O	O	O	O	O	X
41	Tint Control	0x28	0 ~ 100	O	O	O	O	O	X
42	Reserved	0x29	0 ~ 100	N/A	N/A	N/A	N/A	N/A	N/A
43	Reserved	0x2A	0 ~ 100	N/A	N/A	N/A	N/A	N/A	N/A
44	Reserved	0x2B	0 ~ 100	N/A	N/A	N/A	N/A	N/A	N/A
45	Reserved	0x2C	0 ~ 100	N/A	N/A	N/A	N/A	N/A	N/A
46	Reserved	0x2D	0 ~ 100	N/A	N/A	N/A	N/A	N/A	N/A
47	Reserved	0x2E	0 ~ 100	N/A	N/A	N/A	N/A	N/A	N/A
48	Coarse Control	0x2F	0, 1	X	O	O	O	O	X
49	Fine Control	0x30	0, 1	X	O	O	O	O	X
50	H-Position Control	0x31	0, 1	X	O	O	O	O	X
51	V-Position Control	0x32	0, 1	X	O	O	O	O	X
52	Auto Power	0x33	0, 1	O	O	O	O	O	O
53	Clear Menu Control	0x34	0	X	X	X	X	X	X

54	Reserved	0x35	–	N/A	N/A	N/A	N/A	N/A	N/A
55	Remote Control	0x36	0, 1	O	O	O	O	O	O
56	RGB Contrast Control	0x37	0 ~ 100	O	O	O	O	O	X
57	RGB Brightness Control	0x38	0 ~ 100	O	O	O	O	O	x
58	Reserved	0x39	–	N/A	N/A	N/A	N/A	N/A	N/A
59	Reserved	0x3A	–	N/A	N/A	N/A	N/A	N/A	N/A
60	Reserved	0x3B	–	N/A	N/A	N/A	N/A	N/A	N/A
61	PIP On/Off Control	0x3C	0, 1	X	O	O	O	O	O
62	Auto Adjustment Control	0x3D	0	X	O	O	O	O	X
63	Color Tone Control	0x3E	Discrete	O	O	O	O	O	X
64	Color Temperature Control	0x3F	Discrete	O	O	O	O	O	X
65	PIP Source Control	0x40	Discrete	X	O	O	O	O	O
66	Reserved	0x41	0	N/A	N/A	N/A	N/A	N/A	N/A
67	PIP Size Control	0x42	Discrete	X	O	O	O	O	O
68	PIP Locate Control	0x43	Discrete	X	O	O	O	O	O
69	Fan Speed Setting	0x44	0 ~ 100	X	X	X	O	X	X
70	User Auto Color	0x45	0, 1	X	X	X	X	X	X
71	Reserved	0x46	–	N/A	N/A	N/A	N/A	N/A	N/A
72	Sound Select Control	0x47	0, 1	X	O	O	O	O	X

73	Auto Volume	0x48	Discrete	O	O	O	O	O	X
74	Reserved	0x49	–	N/A	N/A	N/A	N/A	N/A	N/A
75	Standby Control	0x4A	Discrete	O	O	O	O	O	O
76	Video Picture Position & Size	0x4B	Multi Param	X	X	X	X	X	X
77	Pixel Shift Control	0x4C	Multi Param	O	O	O	O	O	X
78	Reserved	0x4D	–	N/A	N/A	N/A	N/A	N/A	N/A
79	Reserved	0x4E	0, 1	N/A	N/A	N/A	N/A	N/A	N/A
80	Reserved	0x4F	–	N/A	N/A	N/A	N/A	N/A	N/A
81	Reserved	0x50	–	N/A	N/A	N/A	N/A	N/A	N/A
82	EQ 100Hz Control	0x51	0 ~ 20	O	O	O	O	O	X
83	EQ 300Hz Control	0x52	0 ~ 20	O	O	O	O	O	x
84	EQ 1kHz Control	0x53	0 ~ 20	O	O	O	O	O	X
85	EQ 3kHz Control	0x54	0 ~ 20	O	O	O	O	O	X
86	EQ 10kHz Control	0x55	0 ~ 20	O	O	O	O	O	X
87	Reserved	0x56	0, 1	N/A	N/A	N/A	N/A	N/A	N/A
88	Auto Lamp Control	0x57	Multi Param	X	O	O	O	O	X
89	Manual Lamp Control	0x58	0 ~ 100	O	O	O	O	O	X
90	Safety Screen Run Control	0x59	Discrete	X	O	O	O	O	X
91	Inverse Control	0x5A	0, 1	X	O	O	O	O	O

92	Safety Screen Control (MFM)	0x5B	Multi Param	O	O	O	O	O	X
93	Video Wall Mode Control	0x5C	0, 1	O	O	O	O	X	X
94	Safety Lock	0x5D	0, 1	O	O	O	O	O	O
95	Reserved	0x5E	–	N/A	N/A	N/A	N/A	N/A	N/A
96	Key Lock Control (MFM)	0x5F	0, 1	O	O	O	O	O	O
97	Reserved	0x60	–	N/A	N/A	N/A	N/A	N/A	N/A
98	Channel Up/Down	0x61	0, 1	X	O	O	X	O	X
99	Volume Up/Down	0x62	0, 1	O	O	O	O	O	O
100	Ticker	0x63	Multi Param	O	O	O	O	O	O
101	Reserved	0x64		N/A	N/A	N/A	N/A	N/A	N/A
102	Sound Select Control	0x65	0, 1	X	O	O	O	O	X
103	PC Module Detect	0x66	Discrete	X	O	O	O	O	O
104	Device Name	0x67	String	O	O	O	O	O	O
105	Speaker Select	0x68	0, 1	O	O	O	O	O	X
106	Reserved	0x69		N/A	N/A	N/A	N/A	N/A	N/A
107	Reserved	0x6A		N/A	N/A	N/A	N/A	N/A	N/A
108	Reserved	0x6B		N/A	N/A	N/A	N/A	N/A	N/A
109	Reserved	0x6C		N/A	N/A	N/A	N/A	N/A	N/A
110	Reserved	0x6D		N/A	N/A	N/A	N/A	N/A	N/A

111	Reserved	0x6E		N/A	N/A	N/A	N/A	N/A	N/A
112	Reserved	0x6F		N/A	N/A	N/A	N/A	N/A	N/A
113	OSD Off/On	0x70	0, 1	O	O	O	O	O	O
114	P. Mode Control	0x71	Discrete	O	O	O	O	O	X
115	S. Mode Control	0x72	Discrete	O	O	O	O	O	X
116	Digital NR	0x73	Discrete	O	O	O	O	O	X
117	Reserved	0x74	0 ~ 100	N/A	N/A	N/A	N/A	N/A	N/A
118	PC Color Tone Control	0x75	Discrete	O	O	O	O	O	X
119	Auto Auto Adjustment	0x76	0, 1	X	O	O	O	O	X
120	All Keys Lock	0x77	0, 1	O	O	O	O	O	O
121	SRS TSXT Control	0x78	0, 1	X	O	O	O	O	X
122	Film Mode	0x79	Discrete	O	O	O	O	O	X
123	Reserved	0x7A	0, 1	N/A	N/A	N/A	N/A	N/A	N/A
124	Reserved	0x7B	–	N/A	N/A	N/A	N/A	N/A	N/A
125	Reserved	0x7C	–	N/A	N/A	N/A	N/A	N/A	N/A
126	Reserved	0x7D	–	N/A	N/A	N/A	N/A	N/A	N/A
127	Reserved	0x7E	0 ~ 100	N/A	N/A	N/A	N/A	N/A	N/A
128	Reserved	0x7F	0 ~ 100	N/A	N/A	N/A	N/A	N/A	N/A
129	Reserved	0x80		N/A	N/A	N/A	N/A	N/A	N/A

130	Reserved	0x81	0, 1	N/A	N/A	N/A	N/A	N/A	N/A
131	Reserved	0x82	–	N/A	N/A	N/A	N/A	N/A	N/A
132	Panel On Time	0x83	Multi Param	O	O	O	O	O	X
133	Video Wall On	0x84	0, 1	O	O	O	O	X	X
134	Temperature Control	0x85	75 ~ 124	O	O	O	O	O	X
135	Brightness Sensor	0x86	0, 1	X	O	O	O	O	X
136	Dynamic Contrast	0x87	Discrete	O	O	O	O	O	X
137	Reserved	0x88	1 ~ 5	N/A	N/A	N/A	N/A	N/A	N/A
138	Video Wall User Control	0x89	Multi Param	O	O	O	O	X	X
139	Model Name	0x8A	String	O	O	O	O	O	O
140	Video Wall Direct User Control	0x8B	Multi Param	O	O	O	O	X	X
141	Reserved	0x8C	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
142	Reserved	0x8D	0, 1	N/A	N/A	N/A	N/A	N/A	N/A
143	Reserved	0x8E	0, 1	N/A	N/A	N/A	N/A	N/A	N/A
144	Fan	0x8F	0, 1	X	X	X	O	X	X
145	Reserved	0x90	0, 1	N/A	N/A	N/A	N/A	N/A	N/A
146	Reserved	0x91	0, 1	N/A	N/A	N/A	N/A	N/A	N/A
147	Energy Saving	0x92	Discrete	O	O	O	O	O	X
148	Reserved	0x93	0, 1	N/A	N/A	N/A	N/A	N/A	N/A

149	HDMI Black Level	0x94	0, 1	O	X	X	X	X	X
150	Reserved	0x95	Discrete	N/A	N/A	N/A	N/A	N/A	N/A
151	Gamma	0x96	Discrete	O	O	O	O	O	X
152	Reserved	0x97	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
153	Reserved	0x98	–	N/A	N/A	N/A	N/A	N/A	N/A
154	Reserved	0x99	–	N/A	N/A	N/A	N/A	N/A	N/A
155	Reserved	0x9A	–	N/A	N/A	N/A	N/A	N/A	N/A
156	Reserved	0x9B	–	N/A	N/A	N/A	N/A	N/A	N/A
157	Edge Enhancement	0x9C	0, 1	X	X	X	X	X	X
158	Color Space	0x9D	Discrete	X	O	O	O	O	X
159	xvYCC	0x9E	0, 1	X	X	X	X	X	X
160	Reset Control	0x9F	Discrete	O	O	O	O	O	O
161	Reserved	0xA0	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
162	Ambient Brightness Mode	0xA1	Multi Param	X	O	O	O	O	X
163	Reserved	0xA2	1	N/A	N/A	N/A	N/A	N/A	N/A
164	OSD Display Type On/Off	0xA3	Multi Param	O	O	O	O	O	O
165	Timer 1 Control_MFM	0xA4	Multi Param	O	O	O	O	O	O
166	Timer 2 Control_MFM	0xA5	Multi Param	O	O	O	O	O	O
167	Timer 3 Control_MFM	0xA6	Multi Param	O	O	O	O	O	O

168	Clock Control_MFM	0xA7	Multi Param	O	O	O	O	O	O
169	Holiday Add/Delete Control	0xA8	Multi Param	O	O	O	O	O	O
170	Holiday Get Control	0xA9	Multi Param	O	O	O	O	O	O
171	Reserved	0xAA		N/A	N/A	N/A	N/A	N/A	N/A
172	Timer4 Control	0xAB	Multi Param	O	O	O	O	O	O
173	Timer5 Control	0xAC	Multi Param	O	O	O	O	O	O
174	Timer6 Control	0xAD	Multi Param	O	O	O	O	O	O
175	Timer7 Control	0xAE	Multi Param	O	O	O	O	O	O
176	Edit Name Control	0xAF	Discrete	X	O	O	O	O	O
177	Virtual Remote Control	0xB0	Discrete	O	O	O	O	O	O
178	Display Port Daisy Chain	0xB1	0, 1	X	X	O	O	O	O
179	Reserved	0xB2	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
180	Video Conference Sound Mode Control	0xB3	0, 1	X	O	O	O	O	X
181	Reserved	0xB4	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
182	Network Standby Control	0xB5	0, 1	O	O	O	O	O	O
183	DST (Daylight Saving Time) Control	0xB6	Multi Param	X	O	O	O	O	O
184	Custom PIP Control	0xB7	Multi Param	X	O	O	O	O	O
185	Auto ID Setting Status Control	0xB8	0, 1	O	O	O	O	O	O
186	Display ID Infomation	0xB9	0, 1	O	O	O	O	O	O

187	Reserved	0xBA	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
188	Reserved	0xBB		N/A	N/A	N/A	N/A	N/A	N/A
189	Reserved	0xBC		N/A	N/A	N/A	N/A	N/A	N/A
190	Reserved	0xBD		N/A	N/A	N/A	N/A	N/A	N/A
191	Reserved	0xBE		N/A	N/A	N/A	N/A	N/A	N/A
192	Reserved	0xBF		N/A	N/A	N/A	N/A	N/A	N/A
193	Reserved	0xC0	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
194	Reserved	0xC1	Discrete	N/A	N/A	N/A	N/A	N/A	N/A
195	Reserved	0xC2	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
196	Reserved	0xC3	0, 1	N/A	N/A	N/A	N/A	N/A	N/A
197	Reserved	0xC4	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
198	Reserved	0xC5	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
199	Eco Solution	0xC6	Discrete	O	O	O	O	O	O
200	Execute Launcher	0xC7	Discrete	O	O	O	O	O	O
201	Reserved	0xC8	Discrete	N/A	N/A	N/A	N/A	N/A	N/A
202	Reserved	0xC9		N/A	N/A	N/A	N/A	N/A	N/A
203	Reserved	0xCA		N/A	N/A	N/A	N/A	N/A	N/A
204	Reserved	0xCB		N/A	N/A	N/A	N/A	N/A	N/A
205	Reserved	0xCC		N/A	N/A	N/A	N/A	N/A	N/A

206	Reserved	0xCD		N/A	N/A	N/A	N/A	N/A	N/A
207	Reserved	0xCE		N/A	N/A	N/A	N/A	N/A	N/A
208	Reserved	0xCF		N/A	N/A	N/A	N/A	N/A	N/A
209	Reserved	0xD0	Discrete	N/A	N/A	N/A	N/A	N/A	N/A
210	Reserved	0xD1		N/A	N/A	N/A	N/A	N/A	N/A
211	Reserved	0xD2		N/A	N/A	N/A	N/A	N/A	N/A
212	Reserved	0xD3		N/A	N/A	N/A	N/A	N/A	N/A
213	Reserved	0xD4		N/A	N/A	N/A	N/A	N/A	N/A
214	Reserved	0xD5		N/A	N/A	N/A	N/A	N/A	N/A
215	Reserved	0xD6		N/A	N/A	N/A	N/A	N/A	N/A
216	Reserved	0xD7		N/A	N/A	N/A	N/A	N/A	N/A
217	Reserved	0xD8		N/A	N/A	N/A	N/A	N/A	N/A
218	Reserved	0xD9		N/A	N/A	N/A	N/A	N/A	N/A
219	Reserved	0xDA		N/A	N/A	N/A	N/A	N/A	N/A
220	Reserved	0xDB		N/A	N/A	N/A	N/A	N/A	N/A
221	Reserved	0xDC		N/A	N/A	N/A	N/A	N/A	N/A
222	Reserved	0xDD	–	N/A	N/A	N/A	N/A	N/A	N/A
223	Reserved	0xDE		N/A	N/A	N/A	N/A	N/A	N/A
224	Reserved	0xDF		N/A	N/A	N/A	N/A	N/A	N/A

225	Net PIP Command	0xE0	Multi Param	O	O	O	O	O	O
226	Reserved	0xE1	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
227	Reserved	0xE2	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
228	Reserved	0xE3	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
229	Apply To Control	0xE4	0, 1	X	O	O	O	O	O
230	Reserved	0xE5	Multi Param	N/A	N/A	N/A	N/A	N/A	N/A
231	Reserved	0xE6		N/A	N/A	N/A	N/A	N/A	N/A
232	Reserved	0xE7		N/A	N/A	N/A	N/A	N/A	N/A
233	Reserved	0xE8		N/A	N/A	N/A	N/A	N/A	N/A
234	Reserved	0xE9		N/A	N/A	N/A	N/A	N/A	N/A
235	Reserved	0xEa		N/A	N/A	N/A	N/A	N/A	N/A
236	Reserved	0xEB		N/A	N/A	N/A	N/A	N/A	N/A
237	Reserved	0xEC		N/A	N/A	N/A	N/A	N/A	N/A
238	Reserved	0xED		N/A	N/A	N/A	N/A	N/A	N/A
239	Reserved	0xEE		N/A	N/A	N/A	N/A	N/A	N/A
240	Reserved	0xEF		N/A	N/A	N/A	N/A	N/A	N/A
241	Reserved	0xF0		N/A	N/A	N/A	N/A	N/A	N/A
242	Reserved	0xF1		N/A	N/A	N/A	N/A	N/A	N/A
243	Reserved	0xF2		N/A	N/A	N/A	N/A	N/A	N/A

244	Reserved	0xF3		N/A	N/A	N/A	N/A	N/A	N/A
245	Reserved	0xF4		N/A	N/A	N/A	N/A	N/A	N/A
246	Reserved	0xF5		N/A	N/A	N/A	N/A	N/A	N/A
247	Reserved	0xF6		N/A	N/A	N/A	N/A	N/A	N/A
248	Reserved	0xF7		N/A	N/A	N/A	N/A	N/A	N/A
249	Reserved	0xF8		N/A	N/A	N/A	N/A	N/A	N/A
250	Panel On Off	0xF9	0, 1	O	O	O	O	O	X
251	Reserved	0xFA		N/A	N/A	N/A	N/A	N/A	N/A
252	Reserved	0xFB		N/A	N/A	N/A	N/A	N/A	N/A
253	Reserved	0xFC		N/A	N/A	N/A	N/A	N/A	N/A
254	Auto ID	0xFD	Multi Param	O	O	O	O	O	O
255	Reserved	0xFE	Discrete	N/A	N/A	N/A	N/A	N/A	N/A