



# **SMQ Series Control Command**

# 1. INTRODUCTION

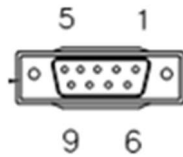
## 1.1 Purpose

The purpose of this document is to explain in detail the commands and steps that can be used to control a display via serial RS232C.

## 1.2 Serial RS232 Physical Specification

- Baud Rate: 9600 bps
- Data bits: 8 bits
- Parity: None
- Stop Bit: 1 bit
- Flow Control: None
- The Pin Assignments for DB9 Female connector:

Female D-Sub 9-Pin (outside view)



Pin #	Signal	Remark
1	NC	
2	TXD	Output from LCD Monitor
3	RXD	Input to LCD Monitor
4	NC	
5	GND	
6	NC	
7	NC	
8	NC	
9	NC	
frame	GND	

Display use RXD 、TXD and GND pins for RS232C control.

### 1.3 Communication Procedure

Control commands can be sent from a host controller via the RS232/Ethernet (port 5000) connection. A new command should not be sent until the previous command is acknowledged. However, if a response is not received within 500 milliseconds a retry may be triggered. Every valid command receives an ACK. A command that is valid but not supported in the current implementation will be responded to with a NAV (Not Available). If the command buffer is corrupt (transmission errors) the command will be responded to with a NACK. The display operates according to the received command. If the command is a valid “Get” command, the display responds with the requested info. If the command is a valid “Set” command allowed, the display performs the requested operation.

Figure 1 and 2 explain the mechanism of the Get and Set commands.

Note: For LAN control, the port number is **5000**.

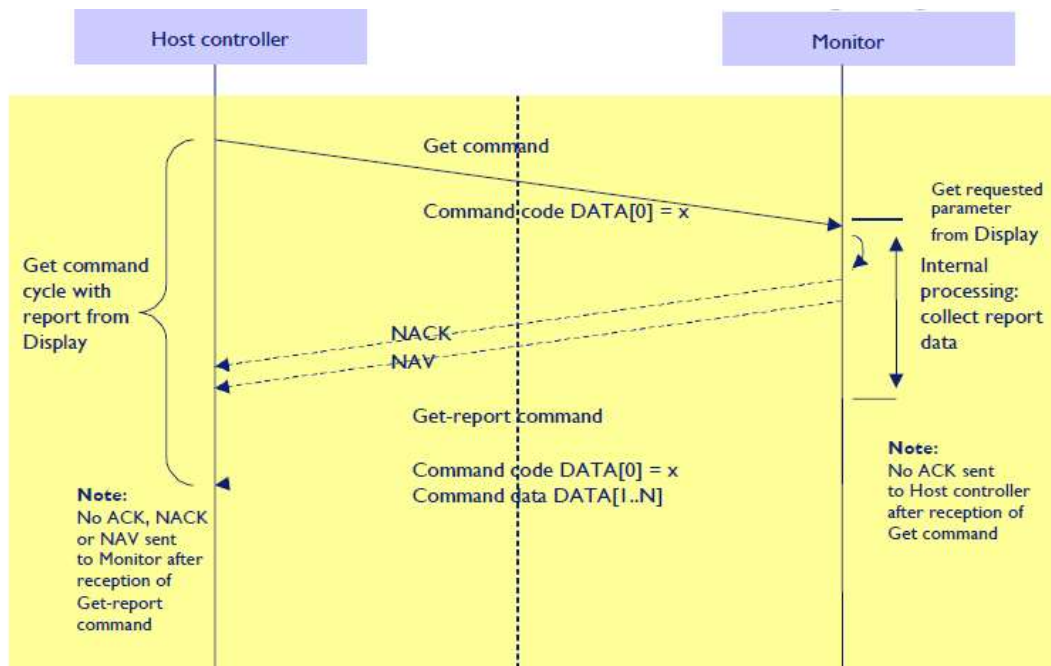


Figure 1: Explanation of mechanism of Get Command.

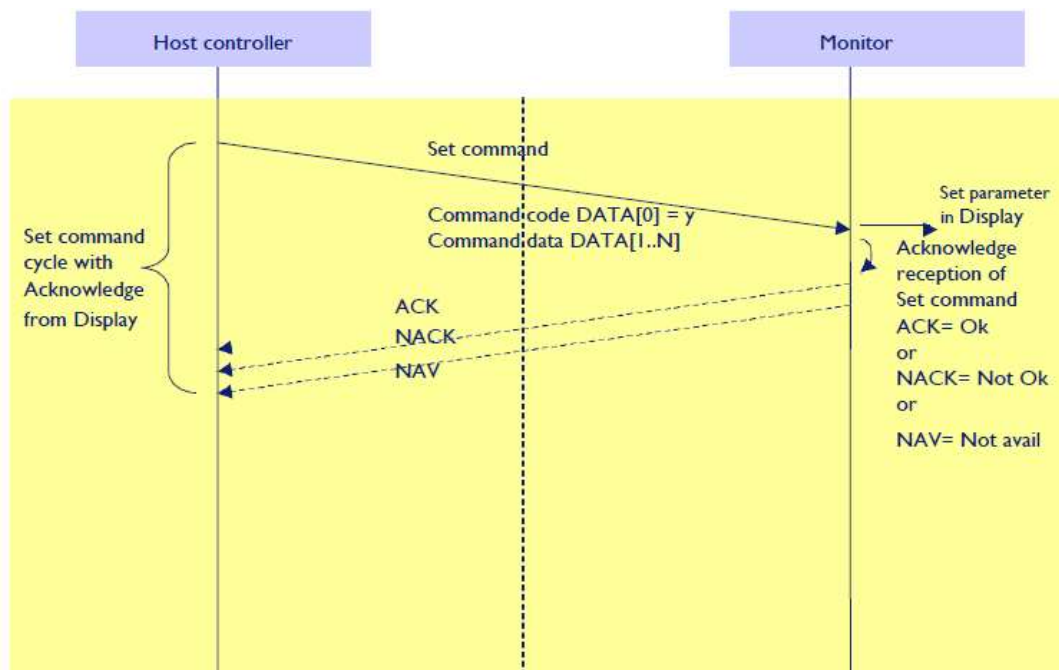


Figure 2: Explanation of mechanism of Set Command.

## 2. Command Format

The command packet format:

Header	Monitor ID	Category	Code 0	Code 1	Length	Data Control	Data [0]	...	Data [N]	Checksum
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### Set / Get in detail:

Number of Field	Name of Field	Description
Byte 1	Header	Header = 0xA6
Byte 2	Monitor ID	Monitor ID Range: 1 ~ 255, 0 = broadcast. Single mode: Display Address range from 1 to 255 Broadcast mode: Display Address is 0 which indicates no ACK or Report is expected.
Byte 3	Category	Category = 0x00 (fixed)
Byte 4	Code0 (Page)	Page = 0x00 (fixed)
Byte 5	Code1 (Function)	Reserve (0x00 fixed)
Byte 6	Length	Length of message plus checksum code. Calculate the length from Control byte to Checksum byte. Length has to be calculated in the following way. Length = N + 3
Byte 7	Data Control	Data Control = 0x01 (fixed)
Byte 8	Data[0]	Command code.
Byte 9 ~ Byte 44	Data[1]~Data[N]	This field can be also empty. If not empty then the range of Data Size, N = 0 to 36
Last Byte	Checksum	Checksum. Range = 0 to 255 (0xFF). Algorithm: The EXCLUSIVE-OR (XOR) of all bytes in the message except the checksum itself. Checksum = [Header] XOR [Monitor ID] XOR ... DATA[0] ... XOR DATA[N]

### 3. Message System

This defines the feedback command from monitor to host controller when it receives the display command from the host controller, depending on the command reported back to host controller can be one of the status (0x00: Completed, 0x03: Command canceled or 0x04: Parse Error).

Note: there is no reply message when the wrong ID address is being used.

#### Message - Report

Number of Field	Name of Field	Description
Byte 1	Header	Header = 0x21
Byte 2	Monitor ID	Monitor ID Range: 1 ~ 255.
Byte3	Category	0x00
Byte4	Code0 (Page)	0x00
Byte5	Msg Length	Length of message plus checksum code. Calculate the length from Control byte to Checksum byte.
Byte6	Data Control	Data Control = 0x01(fixed)
Byte7	Command	Data[0] (Communication control). ACK Data[0] =0x00
Byte8~Byte8+(N-1)	Data[1]~Data[N]	Returned data associated with command code.
Byte 8+N	Checksum	XOR of all byte in reply/report packet (except checksum itself).

#### Example: ACK reply (Display address 01)

Header	Monitor ID	Category	Page	Length	Control	Data [0]	Data [1]	Checksum	Description
0x21	0x01	0x00	0x00	0x04	0x01	0x00	0x00	0x25	Command is well executed.

#### Example: NACK reply (Display address 01)

Header	Monitor ID	Category	Page	Length	Control	Data [0]	Data [1]	Checksum	Description
0x21	0x01	0x00	0x00	0x04	0x01	0x00	0x03	0x26	No this command code – Data (0), the system will reply “NACK”.

#### Example: NAV reply: (Display address 01)

Header	Monitor ID	Category	Page	Length	Control	Data [0]	Data [1]	Checksum	Description
0x21	0x01	0x00	0x00	0x04	0x01	0x00	0x04	0x21	1. Checksum error, the system will reply “NAV”. 2. No this parameter – Data (1), the system will reply “NAV”.

Data [1]:

0x00: Completed, normal response.

0x03: Command canceled, the packet is received normally but either the value of data is incorrect or request is not permitted for the current host value.

0x04: Parse Error, received not defined format data or check sum error.

## 4. Message General

### 4.1 Picture Mode

This command is used to set/get the Picture Mode setting as it is defined as below.

#### 4.1.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0xD0 = Picture Mode - Set		Command to change the Picture Mode setting of the display.
Data [1]	Picture Mode state		0x30 = Standard 0x32 = Vivid 0x33 = CCTV 0x39 = SOFT 0x3B = Movie

Example: The current Picture Mode is set to Standard (Display address 01)

Header	Monitor ID	Category	Code[0]	Code[1]	Length	Data Control	Data[0]	Data[1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0xD0	0x30	0x42

#### 4.1.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0xD1 = Picture Mode - Get		Command requests the display to report its current setting.

Example: Get Picture Mode (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0xD1	0x74

#### 4.1.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0xD1 = Picture Mode - Report		Command reports Picture Mode setting.
Data [1]	Picture Mode state		0x30 = Standard 0x32 = Vivid 0x33 = CCTV 0x39 = SOFT 0x3B = Movie

Example: The current Picture Mode is Standard (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0xD1	0x30	0xC4

## 4.2 BRIGHTNESS

This command is used to set/get the Brightness as it is defined as below.

### 4.2.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0xC0 = Brightness - Set		Command to change the Brightness level of the display.
Data [1]	Brightness level		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the Brightness.

Example: The current Brightness is set to 50 (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0xC0	0x32	0x50

### 4.2.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0xC1 = Brightness - Get		Command requests the display to report its current Brightness level.

Example: Get the Brightness level (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0xC1	0x64

### 4.2.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0xC1 = Brightness - Report		Command reports Brightness level.
Data [1]	Brightness level		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the Brightness.

Example: The current Brightness level is 50 (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0xC1	0x32	0xD6

## 4.3 CONTRAST

This command is used to set/get the Contrast as it is defined as below.

### 4.3.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0xC2 = Contrast - Set		Command to change the Contrast level of the display.
Data [1]	Contrast level		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the Contrast.

Example: The current Contrast is set to 50 (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0xC2	0x32	0x52

### 4.3.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0xC3 = Contrast - Get		Command requests the display to report its current Contrast level.

Example: Get the Contrast level (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0xC3	0x66

### 4.3.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0xC3 = Contrast - Report		Command reports Contrast level.
Data [1]	Contrast level		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the Contrast.

Example: The current Contrast level is 50 (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0xC3	0x32	0xD4



## 4.4 HUE

This command is used to set/get the HUE level as it is defined as below.

### 4.4.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0xC8 = HUE - Set		Command to change the HUE level of the display.
Data [1]	HUE level		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the HUE level.

Example: The current HUE is set to 50 (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0xC8	0x32	0x58

### 4.4.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0xC9 = HUE (TINT) - Get		Command requests the display to report its current HUE level.

Example: Get the HUE level - Get (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0xC9	0x6C

### 4.4.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0xC9 = HUE (TINT) - Report		Command reports HUE level.
Data [1]	HUE level		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the HUE level.

Example: The current HUE level is 50 (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0xC9	0x32	0xDE

## 4.5 SATURATION

This command is used to set/get the Saturation as it is defined as below.

### 4.5.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0xCA = Saturation - Set		Command to change the Saturation level of the display.
Data [1]	Saturation level		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the Saturation.

Example: The current Saturation is set to 50 (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0xCA	0x32	0x5A

### 4.5.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0xCB = Saturation - Get		Command requests the display to report its current Saturation level.

Example: Get the Saturation level (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0xCB	0x6E

### 4.5.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0xCB = Saturation - Report		Command reports Saturation level.
Data [1]	Saturation level		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the Saturation.

Example: The current Saturation Level is 50 (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0xCB	0x32	0xDC

## 4.6 Sharpness

This command is used to set/get the Sharpness as it is defined as below.

### 4.6.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0xC6 = Sharpness - Set		Command to change the Sharpness level of the display.
Data [1]	Sharpness level		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the Sharpness.

Example: The current Sharpness is set to 50 (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0xC6	0x32	0x56

### 4.6.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0xC7 = Sharpness - Get		Command requests the display to report its current Sharpness level.

Example: Get the sharpness level (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0xC7	0x62

### 4.6.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0xC7 = Sharpness - Report		Command reports Sharpness level.
Data [1]	Sharpness level		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the Sharpness.

Example: The Current Sharpness level is 50 (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0xC7	0x32	0xD0

## 4.7 Black Level

This command is used to set/get the Black level as it is defined as below.

### 4.7.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0xC4 = Black level - Set		Command to change the Black level of the display.
Data [1]	Black level range		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the Black level.

Example: The current Black level is set to 50 (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0xC4	0x32	0x54

### 4.7.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0xC5 = Black level - Get		Command requests the display to report its current Black level.

Example: Get the Black level range (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0xC5	0x60

### 4.7.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0xC5 = Black level - Report		Command reports Black level.
Data [1]	Black level value		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the Black level.

Example: The current Black level range is 50 (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0xC5	0x32	0xD2

## 4.8 Picture Format (Aspect)

This command is used to set/get the Picture Format (Aspect) setting as it is defined as below.

### 4.8.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0x3A = Picture Format - Set		Command to change the Picture Format of the display.
Data [1]	Picture Format setting		0x30 = Full 0x31 = REAL (1:1) 0x33 = Normal ( Native ) 0x37 = Zoom 0x3B = Custom

Example: The current Picture Format is Set to Native (Display address 01)

Header	Monitor ID	Category	Code[0]	Code[1]	Length	Data Control	Data[0]	Data[1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0x3A	0x30	0xA8

### 4.8.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x3B = Picture Format - Get		Command requests the display to report its current setting.

Example: Get the Picture Format (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x3B	0x9E

### 4.8.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x3B = Picture Format - Report		Command reports Picture Format setting.
Data [1]	Picture Format setting		0x30 = Full 0x31 = REAL (1:1) 0x33 = Normal ( Native ) 0x37 = Zoom 0x3B = Custom

Example: The current Picture Format is Native (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0x3B	0x30	0x2E

## 4.9 H.ZOOM

This command is used to set/get the H.ZOOM setting as it is defined as below.

### 4.9.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0x60 = H.ZOOM - Set		Command to change the H.ZOOM setting of the display.
Data [1]	H.ZOOM range		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the display.

Example: The current H.ZOOM is set to 50 (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0x60	0x32	0xF0

### 4.9.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x61 = H.ZOOM - Get		Command requests the display to report its current H.ZOOM setting.

Example: Get the Display H.ZOOM (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x61	0xC4

### 4.9.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x61 = H.ZOOM - Report		Command reports H.ZOOM setting.
Data [1]	H.ZOOM range		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the display.

Example: The current H.ZOOM is 50 (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0x61	0x32	0x76

## 4.10 V.ZOOM

This command is used to set/get the V.ZOOM setting as it is defined as below.

### 4.10.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0x62 = V.ZOOM - Set		Command to change the V.ZOOM setting of the display.
Data [1]	V.ZOOM range		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the display.

Example: The current V.ZOOM is Set to 50 (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0x62	0x32	0xF2

### 4.10.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x63 = V.ZOOM - Get		Command requests the display to report its current V.ZOOM setting.

Example: Get the Display V.ZOOM (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x63	0xC6

### 4.10.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x63 = V.ZOOM - Report		Command reports V.ZOOM setting.
Data [1]	V.ZOOM range		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the display.

Example: The current V.ZOOM is 50 (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0x63	0x32	0x74

## 4.11 Custom Zoom H. POSITION

This command is used to set/get the H. POSITION setting as it is defined as below.

### 4.11.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0x66 = H. POSITION - Set		Command to change the H. POSITION setting of the display.
Data [1]	H. POSITION range		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the display.

Example: The current H. POSITION is set to 50 (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0x66	0x32	0xF6

### 4.11.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x67 = H. POSITION - Get		Command requests the display to report its current H. POSITION setting.

Example: Get the Display H. POSITION (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x67	0xC2

### 4.11.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x67 = H. POSITION - Report		Command reports H. POSITION setting.
Data [1]	H. POSITION range		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the display.

Example: The current H. POSITION is 50 (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0x67	0x32	0x70



## 4.12 Custom Zoom V. POSITION

This command is used to set/get the V. POSITION setting as it is defined as below.

### 4.12.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0x68 = V. POSITION - Set		Command to change the V. POSITION setting of the display.
Data [1]	V.POSITION value		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the display.

Example: The current V. POSITION is set to 50 (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0x68	0x32	0xF8

### 4.12.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x69 = V. POSITION - Get		Command requests the display to report its current V. POSITION setting.

Example: Get the Display V. POSITION (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x69	0xCC

### 4.12.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x69 = V. POSITION - Report		Command reports V. POSITION setting.
Data [1]	V.POSITION value		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the display.

Example: The current V. POSITION is 50 (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0x69	0x32	0x7E

## 4.13 OVERSCAN

This command is used to set/get the OVERSCAN setting as it is defined as below.

### 4.13.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0x64 = OVERSCAN - Set		Command to change the OVERSCAN setting of the display.
Data [1]	OVERSCAN range		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the display.

Example: The current OVERSCAN is set to 50 (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0x64	0x32	0xF4

### 4.13.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x65 = OVERSCAN - Get		Command requests the display to report its current OVERSCAN setting.

Example: Get the Display OVERSCAN (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x65	0xC0

### 4.13.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x65 = OVERSCAN - Report		Command reports OVERSCAN setting.
Data [1]	OVERSCAN range		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the display.

Example: The current OVERSCAN is 50 (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0x65	0x32	0x72

## 4.14 Color Temperature

This command is used to set/get the color temperature setting as it is defined as below.

### 4.14.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0x34 = Color temperature - Set		Command to change the color temperature setting of the display.
Data [1]	Color temperature state		0x20 = WARM 0x21 = COOL 0x23 = USER 0x2D = NATIVE 0x2F = Normal

Example: The current Color temperature is set to 50 (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0x34	0x20	0xB6

### 4.14.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x35 = Color temperature - Get		Command requests the display to report its current setting.

Example: Get the Color temperature (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x35	0x90

### 4.14.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x35 = Color temperature - Report		Command reports color temperature setting.
Data [1]	Color temperature state		0x20 = WARM 0x21 = COOL 0x23 = USER 0x2D = NATIVE 0x2F = Normal

Example: The current Color temperature is Cool (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0x35	0x21	0x31

#### 4.15 Color Temperature Parameters

This command is used to set/get the color temperature parameter setting as it is defined as below.

##### 4.15.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0x36 = Color temperature Parameters - Set		Command to change the color temperature parameter of the display.
Data [1]	Red color gain value		0 ~ 255 (0x00 ~ 0xFF) of the user selectable range of the color temperature.
Data [2]	Green color gain value		0 ~ 255 (0x00 ~ 0xFF) of the user selectable range of the color temperature.
Data [3]	Blue color gain value		0 ~ 255 (0x00 ~ 0xFF) of the user selectable range of the color temperature.
Data [4]	Reserved		Reserved ( Fixed 0x00 )
Data [5]	Reserved		Reserved ( Fixed 0x00 )
Data [6]	Reserved		Reserved ( Fixed 0x00 )

Example: The current Color RGB parameter is set to 255 (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Data [2]
0xA6	0x01	0x00	0x00	0x00	0x09	0x01	0x36	0xFF	0xFF

Data [3]	Data [4]	Data [5]	Data [6]	Checksum
0xFF	0x00	0x00	0x00	0x66

##### 4.15.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x37 = Color temperature Parameters - Get		Command requests the display to report its current setting.

Example: Get the Display Color parameter (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x37	0x92

##### 4.15.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x37 = Color temperature Parameters - Report		Command reports color temperature parameter setting.
Data [1]	Red color gain value		0 ~ 255 (0x00 ~ 0xFF) of the user selectable range of the color temperature.
Data [2]	Green color gain value		0 ~ 255 (0x00 ~ 0xFF) of the user selectable range of the color temperature.
Data [3]	Blue color gain value		0 ~ 255 (0x00 ~ 0xFF) of the user selectable range of the color temperature.
Data [4]	Reserved e		Reserved ( Fixed 0x00 )
Data [5]	Reserved		Reserved ( Fixed 0x00 )
Data [6]	Reserved		Reserved ( Fixed 0x00 )

Example: The current Color RGB parameter is 255 (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Data [2]
0x21	0x01	0x00	0x00	0x09	0x01	0x37	0xFF	0xFF

Data [3]	Data [4]	Data [5]	Data [6]	Checksum
0xFF	0x00	0x00	0x00	0xE0

## 4.16 Gamma

This command is used to set/get the Gamma setting as it is defined as below.

### 4.16.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0xDC = Gamma - Set		Command to change the Gamma setting of the display.
Data [1]	Gamma state		0x00 = 2.2 0x01 = 2.4 0x06 = Native

Example: The current Gamma is set to 2.4 (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0xDC	0x01	0x7F

### 4.16.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0xDD = Gamma - Get		Command requests the display to report its current setting.

Example: Get the Display Gamma (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0xDD	0x78

### 4.16.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0xDD = Gamma - Report		Command reports Gamma setting.
Data [1]	Gamma state		0x00 = 2.2 0x01 = 2.4 0x06 = Native

Example: The current Gamma is 2.2 (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0xDD	0x00	0xF8

## 4.17 Backlight

This command is used to set/get the Backlight as it is defined as below.

### 4.17.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0x30 = Backlight - Set		Command to change the Backlight of the display.
Data [1]	Backlight level		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the Backlight level.

Example: The Backlight is set to 50 (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0x30	0x32	0xA0

### 4.17.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x31 = Backlight - Get		Command requests the display to report its current Backlight level.

Example: Get the Display Backlight (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x31	0x94

### 4.17.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x31 = Backlight - Report		Command reports Backlight level.
Data [1]	Backlight level		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the Backlight level.

Example: The current Backlight level is 50 (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0x31	0x32	0x26

## 4.18 Sound Mode

This command is used to set/get the audio Sound Mode setting as it is defined as below.

### 4.18.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0x78 = Sound Mode - Set		Command to change the audio Sound Mode parameters of the display.
Data [1]	Sound Mode parameters		0x01 = Standard 0x02 = Custom 0x06 = Rock 0x07 = POP 0x08 = Jazz 0x09 = Classical

Example: The current Sound mode is set to Custom (Display address 01)

Header	Monitor ID	Category	Code[0]	Code[1]	Length	Data Control	Data[0]	Data[1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0x78	0x02	0xD8

### 4.18.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x79 = Sound Mode - Get		Command requests the display to report its current audio Sound Mode parameters.

Example: Get the Sound Mode (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x79	0xDC

### 4.18.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x79 = Sound Mode - Report		Command reports audio Sound Mode parameters.
Data [1]	Sound Mode		0x01 = Standard 0x02 = Custom 0x06 = Rock 0x07 = POP 0x08 = Jazz 0x09 = Classica

Example: The current Sound mode is Custom (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0x79	0x02	0x5E



## 4.19 Audio source

This command is used to set/get the Audio Source setting as it is defined as below.

### 4.19.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0x5E = Audio Source - Set		Command to change the Audio Source setting of the display.
Data [1]	Audio Source		0x00 = Analog 0x01 = Digital

Example: The current Audio source is set to Analog (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0x5E	0x01	0xFD

### 4.19.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x5F = Audio Source - Get		Command requests the display to report its current setting.

Example: Get the Audio source (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x5F	0xFA

### 4.19.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x5F = Audio Source - Report		Command reports Audio Source setting.
Data [1]	Audio Source		0x00 = Analog 0x01 = Digital

Example: The current Audio source is Digital (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0x5F	0x01	0x7B

## 4.20 Sound Mute

This command is used to set the Volume Mute as it is defined as below.

### 4.20.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data[0]	0x40 = Sound Mute - Set		Command to set the Sound Mute function of the display.
Data[1]	Sound Mute state		0x00 = Unmute Audio 0x01 = Audio Mute

Example: The current Sound Mute is set to Unmute Audio - (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0x40	0x01	0xE3

### 4.20.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x41 = Sound Mute state - Get		Command requests the display to report its current Audio Mute.

Example: Get the Sound Mute state – (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x41	0xE4

### 4.20.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x41 = Sound Mute state - Report		Command reports Sound Mute status.
Data [1]	Sound Mute status		0x00 = Unmute Audio 0x01 = Audio Mute

Example: The current Sound Mute is on - (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0x41	0x01	0x65

## 4.21 Language

This command is used to set/get the Language setting it is defined as below.

### 4.21.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0x7C = Language - Set		Command to change the Language setting of the display.
Data [1]	Language state		0x00 = ENGLISH 0x01 = GERMAN 0x02 = SIMPLIFIED_CHINESE 0x03 = FRENCH 0x05 = SPANISH 0x09 = TRADITIONAL_CHINESE

Example: The current Language is set to TRADITIONAL\_CHINESE (Display address 01)

Header	Monitor ID	Category	Code[0]	Code[1]	Length	Data Control	Data[0]	Data[1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0x7C	0x09	0xD7

### 4.21.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x7D = Language - Get		Command requests the display to report its current setting.

Example: Get the Display Language (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x7D	0xD8

### 4.21.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x7D = Language - Report		Command reports Language setting.
Data [1]	Language state		0x00 = ENGLISH 0x01 = GERMAN 0x02 = SIMPLIFIED_CHINESE 0x03 = FRENCH 0x05 = SPANISH 0x09 = TRADITIONAL_CHINESE

Example: The current Language is ENGLISH (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0x7D	0x00	0x58

## 4.22 Power Saving

This command is used to set/get the Power Saving setting it is defined as below.

### 4.22.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0xE2 = Power Saving - Set		Command to change the Power Saving setting of the display.
Data [1]	Power Saving state		<b>0x00 = OFF</b> <b>0x01 = 10 Secons</b> <b>0x02 = 30 Seconds</b> <b>0x03 = 1 minute</b> <b>0x04 = 5 minutes</b> <b>0x05 = 10 minutes</b>

Example: The Current Power Saving is set to 10 Seconds (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0xE2	0x01	0x41

### 4.22.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0xE3 = Power Saving - Get		Command requests the display to report its current setting.

Example: Get the Power Saving (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0xE3	0x46

### 4.22.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0xE3 = Power Saving - Report		Command reports Power Saving setting.
Data [1]	Power Saving state		<b>0x00 = OFF</b> <b>0x01 = 10 Secons</b> <b>0x02 = 30 Seconds</b> <b>0x03 = 1 minute</b> <b>0x04 = 5 minutes</b> <b>0x05 = 10 minutes</b>

Example: The Current Power Saving is Off (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0xE3	0x00	0xC6

## 4.23 Auto Source

This command is used to set/get the Auto Source setting it is defined as below.

### 4.23.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0xAE = Auto Source - Set		Command to change the Auto Source setting of the display.
Data [1]	Auto Source state		0x00 = Off 0x01 = AUTO 0x02 = Custom

Example: The Current Auto Source is set to AUTO (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0xAE	0x01	0x0D

### 4.23.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0xAF = Auto Source - Get		Command requests the display to report its current setting.

Example: Get the Auto Source (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0xAF	0x0A

### 4.23.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0xAF = Auto Source - Report		Command reports Auto Source setting.
Data [1]	Auto Source state		0x00 = Off 0x01 = AUTO 0x02 = Custom

Example: The Current Auto Source is AUTO (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0xAF	0x01	0x8B

## 4.24 Auto Adjust

The command works for VGA (host controller) video auto adjust.

### 4.24.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0x70 = Auto Adjust - Set		Command requests the display to make auto adjustment on VGA input source.
Data [1]	Item		0x40 = Auto Adjust (All other values are reserved)
Data [2]	Reserved		Reserved, default 0.

Example: Perform the Auto Adjust (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Data [2]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x05	0x01	0x70	0x40	0x00	0x93

## 4.25 Keypad Lock

This command is used to set/get the Keypad Lock setting as it is defined as below.

### 4.25.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0x1A = Keypad Lock -Set		Command to change the Keypad Lock setting of the display.
Data [1]	Keypad Lock state		0x01 = Unlock all 0x02 = Lock all 0x03 = Lock all but Power 0x07 = Lock all except Power & Volume

Example: Set Keypad is Lock all (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0x1A	0x02	0xBA

### 4.25.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x1B = Keypad Lock - Get		Command requests the display to report its current setting.

Example: Get keypad lock state (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x1B	0xBE

### 4.25.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x1B = Keypad Lock - Report		Command reports Keypad Lock Control setting.
Data [1]	Keypad Lock state		0x01 = Unlock all 0x02 = Lock all 0x03 = Lock all but Power 0x07 = Lock all except Power & Volume

Example: The current keypad state is Lock all (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0x1B	0x02	0x3C

## 4.26 Lock Function for IR-Remote Control

This command is used to set/get Lock for IR-Remote Control state and define as below.

### 4.26.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0x1C = Lock for IR-Remote Control- Set		Command to change the IR-Remote Control setting of the display.
Data [1]	IR-Remote Control lock state		0x01 = Unlock all 0x02 = Lock all 0x03 = Lock all but Power 0x07 = Lock all except Power & Volume

Example: Set IR-Remote Control is Lock all (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0x1C	0x02	0xBC

### 4.26.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x1D = Lock for IR-Remote Control - Get		Command requests the display to report its current setting.

Example: Get IR-Remote control state (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x1D	0xB8

### 4.26.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x1D = Lock for IR-Remote Control - Report		Command reports Remote Control Lock - IR setting.
Data [1]	IR-Remote Control lock state		0x01 = Unlock all 0x02 = Lock all 0x03 = Lock all but Power 0x07 = Lock all except Power & Volume

Example: The current IR-Remote Control is Lock all (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0x1D	0x02	0x3A



## 4.27 ANTI-BURN-IN

This command is used to set/get the Anti-Burn-in setting it is defined as below.

### 4.27.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0xE4 = Anti-Burn-in - Set		Command to change the Anti-Burn-in setting of the display.
Data [1]	Enable / Disable		0x00 = OFF 0x01 = ON
Data [2]	Anti-Burn-in Interval		0x01 = 4 (Hours) 0x02 = 5 0x03 = 6 0x04 = 8
Data [3]	Anti-Burn-in Type		0x01 = A 0x02 = B 0x03 = C

Example: The current **ANTI-BURN-IN** are set ON / 4 Hours / Type A (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Data [2]
0xA6	0x01	0x00	0x00	0x00	0x06	0x01	0xE4	0x01	0x01

Data [3]	Checksum
0x01	0x45

### 4.27.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0xE5 = Anti-Burn-in - Get		Command requests the display to report its current setting.

Example: Get the Anti-Burn-in parameters (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0xE5	0x40

### 4.27.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0xE5 = Anti-Burn-in - Report		Command reports Anti-Burn-in setting.
Data [1]	Enable / Disable		0x00 = OFF

			0x01 = ON
Data [2]	Anti-Burn-in Interval		0x01 = 4 (Hours) 0x02 = 5 0x03 = 6 0x04 = 8
Data [3]	Anti-Burn-in Type		0x01 = A 0x02 = B 0x03 = C

Example: The current ANTI-BURN-IN parameters are ON / 4 Hours / Type A (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Data [2]
0x21	0x01	0x00	0x00	0x06	0x01	0xE5	0x01	0x01

Data [3]	Checksum
0x01	0xC3

## 4.28 Volume

This command is used to set/get the volume as it is defined as below.

### 4.28.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0x44 = Volume - Set		Command to change the Volume of the display.
Data [1]	Volume level		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the volume level.

Example: Set the Display Volume to 50 (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0x44	0x32	0xD4

### 4.28.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x45 = Volume level - Get		Command requests the display to report its current Volume level.

Example: Get the Display Volume (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x45	0xE0

### 4.28.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x45 = Volume level - Report		Command reports Volume level.
Data [1]	Volume level		0x00 ~ 0x64 (0 ~ 100) of the user selectable range of the volume level.

Example: The current Volume level is 50 (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0x45	0x32	0x52

## 4.29 Input Source

This command is used to set/get the Input Source setting it is defined as below.

### 4.29.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0xAC = Input Source - Set		Command to change the Input Source setting of the display.
Data [1]	Input Source Type		0x01 = CVBS 0x05 = VGA 0x0D = HDMI 0x0E = DVI 0x1B = SDI
Data [2]	Reserved		Reserved, default 0x00
Data [3]	Reserved		Reserved, default 0x00
Data [4]	Reserved		Reserved, default 0x00

Example: The Input Source is set to HDMI (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Data [2]
0xA6	0x01	0x00	0x00	0x00	0x07	0x01	0xAC	0x0D	0x00

Data [3]	Data [4]	Checksum
0x00	0x00	0x00

### 4.29.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0xAD = Input Source - Get		Command requests the display to report its current setting.

Example: Get the Input Source (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0xAD	0x08

### 4.29.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0xAD = Input Source - Report		Command reports Input Source setting.

Data [1]	Input Source Type		0x01 = CVBS 0x05 = VGA 0x0D = HDMI 0x0E = DVI 0x1B = SDI
Data [2]	Reserved		Reserved, default 0x00
Data [3]	Reserved		Reserved, default 0x00
Data [4]	Reserved		Reserved, default 0x00

Example: The current Input Source is HDMI (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Data [2]
0x21	0x01	0x00	0x00	0x07	0x01	0xAD	0x0D	0x00

Data [3]	Data [4]	Checksum
0x00	0x00	0x01

### 4.30 Power State

This command is used to set/get the power state as it is defined as below.

#### 4.30.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data [0]	0x18 = Power state - Set		Command to change the Power state of the display.
Data [1]	Power state		0x01 = Power OFF 0x02 = Power ON

Example: The current Display Power is set to OFF (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0x18	0x01	0xBB

#### 4.30.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x19 = Power state - Get		Command requests the display to report its current Power state.

Example: Get Power State (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x19	0xBC

#### 4.30.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x19 = Power state - Report		Command reports Power state.
Data [1]	Power state		0x01 = Power OFF 0x02 = Power ON

Example: The current Display Power is On (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0x19	0x02	0x3E

## 4.31 Screen Mute

This command is used to set the Screen Mute function as it is defined as below.

### 4.31.1 Message – Set

Bytes	Bytes Description	Bits	Description
Data[0]	0xAA = “Screen Mute” - Set		Command to set the Screen Mute function of the display.
Data[1]	“Screen Mute” Status		0x00 = Screen Mute off 0x01 = Screen Mute

Example: The current Screen Mute is set to Mute (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0xAA	0x01	0x09

### 4.31.2 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0xAB = Screen Mute state - Get		Command requests the display to report its current Screen mute status.

Example: Get the Screen Mute state (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0xAB	0x0E

### 4.31.3 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0xAB = Screen Mute state - Report		Command reports Screen Mute status.
Data [1]	Screen Mute State		0x00 = Screen Mute off 0x01 = Screen Mute

Example: The current “Screen Mute” is on - (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	<b>0xAB</b>	0x01	<b>0x8F</b>

## 4.32 Temperature Sensors

This command is used to get the Temperature Sensors value as it is defined as below.

### 4.32.1 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x2F = Temperature Sensors - Get		Command requests the display to report its current Temperature Sensors value.

Example: Get current Temperature value (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x03	0x01	0x2F	0x8A

### 4.32.2 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x2F = Temperature Sensors - Report		Command reports Temperature Sensors value.
Data [1]	Temperature Sensor		0x00 ~ 0x64 (0 ~ 100) in Celsius degrees represented in hex.

Example: Sensor read out value is 35°C (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Checksum
0x21	0x01	0x00	0x00	0x04	0x01	0x2F	0x23	0x29



## 4.34 Model Name

This command is used to get the Model Name as it is defined as below.

### 4.34.1 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0xA2 = Model Name - Get		Command requests the display to report its current Model Name.
Data [1]	Model Name Label		0x01 = Model Name

Example: Get Model Name (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0xA2	0x01	0x01

### 4.34.2 Message – Get Report

Bytes	Bytes Description	Bits	Description
Data [0]	0xA2 = Model Name - Report		Command reports Model Name
Data [1] To Data [N]	Character [1] to [N]		Character acc. ASCII character map (hex) for N -digit serial code. N is no. of character maximum: 36 (0x24). The actual size determines the value of the message size byte.

Example: The current Model Name is “SMQ-5501” (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Data [2]
0x21	0x01	0x00	0x00	0x0B	0x01	0xA2	0x53	0x4D

Data [3]	Data [4]	Data [5]	Data [6]	Data [7]	Data [8]	Check sum
0x51	0x2D	0x35	0x35	0x30	0x31	0xEB

## 4.35 Operating Hours

The command is used to record the working hours of the display.

### 4.35.1 Message – Get

Bytes	Bytes Description	Bits	Description
Data [0]	0x0F = Miscellaneous Info. - Get		Command requests the display to report from miscellaneous information.
Data [1]	Subcommand		0x02 = Operating Hours

Example: Get the display operation hours (Display address 01)

Header	Monitor ID	Category	Code [0]	Code [1]	Length	Data Control	Data [0]	Data [1]	Checksum
0xA6	0x01	0x00	0x00	0x00	0x04	0x01	0x0F	0x02	0xAF

### 4.35.2 Message – Report

Bytes	Bytes Description	Bits	Description
Data [0]	0x0F = Miscellaneous Info. - Get		Command reports current information.
Data [1] to Data [2]	Operating Hours		DATA[1] and DATA[2] form the MSByte and LSByte, respectively, of the 16-bit-wide Operational Hours value.

Example: The current operation hour is 10 hours. (Display address 01)

Header	Monitor ID	Category	Page	Length	Data Control	Data [0]	Data [1]	Data [2]	Checksum
0x21	0x01	0x00	0x00	0x05	0x01	0x0F	0x00	0x0A	0x21

## 5. Command Summary

Command Name	Set Command	Get Command	Command Code	Remark
Picture Mode Set	V		0xD0	
Picture Mode Get		V	0xD1	
Brightness Set	V		0xC0	
Brightness Get		V	0xC1	
Contrast Set	V		0xC2	
Contrast Get		V	0xC3	
HUE(TINT) Set	V		0xC8	
HUE(TINT) Get		V	0xC9	
Saturation Set	V		0xCA	
Saturation Get		V	0xCB	
Sharpness Set	V		0xC6	
Sharpness Get		V	0xC7	
Black Level Set	V		0xC4	
Black Level Get		V	0xC5	
Picture Format (Aspect) Set	V		0x3A	
Picture Format (Aspect) Get		V	0x3B	
H.ZOOM Set	V		0x60	
H.ZOOM Get		V	0x61	
V.ZOOM Set	V		0x62	
V.ZOOM Get		V	0x63	
Custom Zoom H. Position Set	V		0x66	
Custom Zoom H. Position Get		V	0x67	
Custom Zoom V. Position Set	V		0x68	
Custom Zoom V. Position Get		V	0x69	
OVERSCAN Set	V		0x64	
OVERSCAN Get		V	0x65	
Color Temp. Set	V		0x34	
Color Temp. Get		V	0x35	
Color Temp. parameters Set	V		0x36	
Color Temp. parameters Get		V	0x37	
Gamma Set	V		0xDC	
Gamma Get		V	0xDD	
Backlight Level Set	V		0x30	
Backlight Level Get		V	0x31	

Sound Mode Set	V		0x78	
Sound Mode Get		V	0x79	
Audio source Set	V		0x5E	
Audio source Get		V	0x5F	
Sound Mute Set	V		0x40	
Sound Mute Get		V	0x41	
Language Set	V		0x7C	
Language Get		V	0x7D	
Power Saving Set	V		0xE2	
Power Saving Get		V	0xE3	
Auto Source Set	V		0xAE	
Auto Source Get		V	0xAF	
Auto Adjust Set	V		0x70	
Keypad Control Lock Set	V		0x1A	
Keypad Control Lock Get		V	0x1B	
Remote Control Lock Set	V		0x1C	
Remote Control Lock Get		V	0x1D	
ANTI-BURN-IN Set	V		0xE4	
ANTI-BURN-IN Get		V	0xE5	
Volume Set	V		0x44	
Volume Get		V	0x45	
Input Source Set	V		0xAC	
Input Source Get		V	0xAD	
Power State Set	V		0x18	
Power State Get		V	0x19	
Screen Mute Set	V		0xAA	
Screen Mute Get		V	0xAB	
Temperature Sensors Get		V	0x2F	
Model Name Get		V	0xA2	
Operating Hours Get		V	0x0F	

## Revision History

Date	Version	Description
2021/07/30	1.0	preliminary
2021/08/06	1.1	
2021/12/20	1.2	SN Get Revise , Zoom H&V position
<b>2022/01/05</b>	<b>1.21</b>	<b>Revise Power saving , Delect Get SN command</b>