SERIAL / ETHERNET INTERFACE COMMUNICATION PROTOCOL SPECIFICATION (SICP V2.10)

For PHILIPS Professional Displays

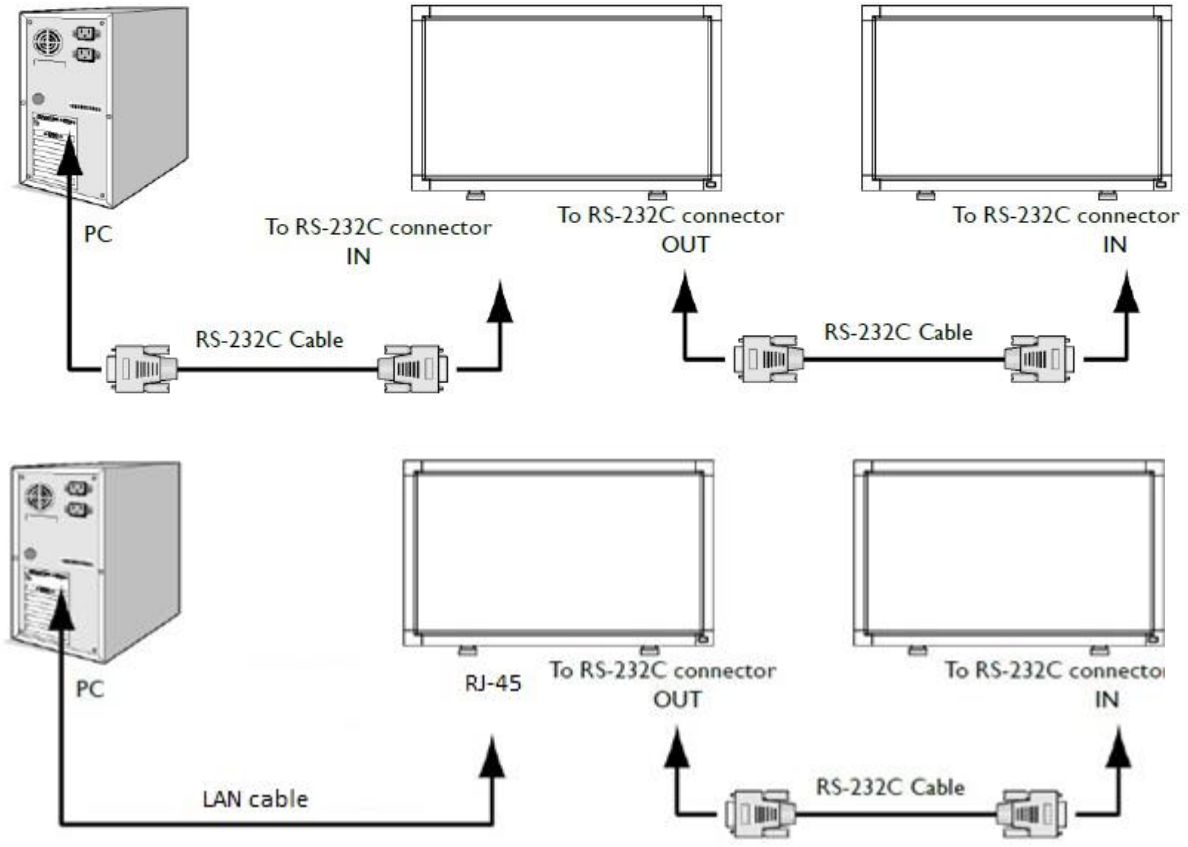
Table of Contents

March 1, 2024

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 Philips display via RS232C / ethernet.



1.2. Definitions, Abbreviations and Acronyms

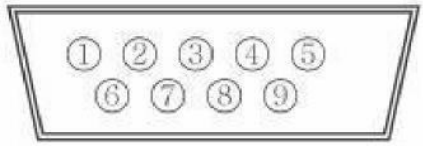
PBS	Professional Business Solutions
RC	Remote Control
ACK	Acknowledge
NACK	Not Acknowledge
NAV	Not Available
ID	Identification
0xXX	Hexadecimal notation
OSD	On Screen Display (menu information on the screen of the monitor)
IWB	interactive white board
APM	advanced power management

2. Command Packet Format

2.1. Physical Specifications

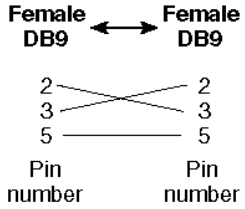
2.1.1. RS232

Baud Rate :, **9600**
Data bits: 8
Parity : None
Stop Bit : 1
Flow Control : None
The Pin Assignments for DB9 male connector: Male D-Sub 9-Pin (outside view)

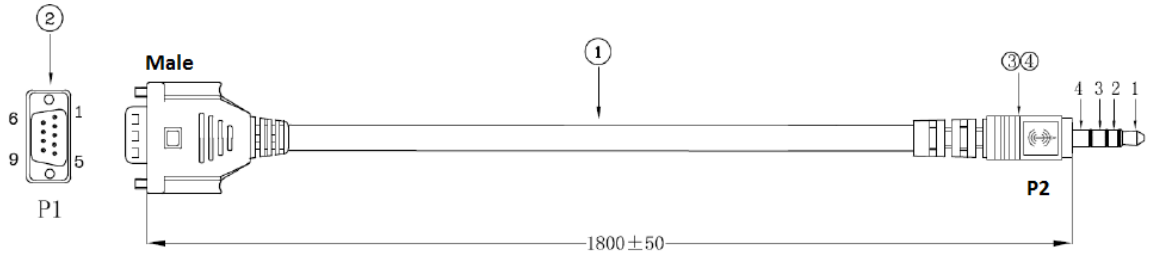


Pin #	Signal	Remark
1	NC	
2	RXD	Input to LCD Monitor
3	TXD	Output from LCD Monitor
4	NC	
5	GND	
6	NC	
7	NC	
8	NC	
9	NC	
frame	GND	

Note: A crossover cable (null modem) is needed for connection to the host controller:



Philips Signage displays use RXD, TXD and GND pins for RS-232C control. For RS-232C cable, the reverse type cable should be used.
If the RS232 is a jack 2.5 mm connection in the monitor than also a jack to SubD9 cable is included in the box of the monitor, see picture below:



WIRING TABLE

P1	WIRING COLOR	P2
2	RED 红色	1
3	BLUE 蓝色	2
9	BLACK 黑色	3
5	DRAIN 地线	4

2.1.2. TCP/IP

To establish communication via TCP/IP connect to display on port 5000. TCP/IP port 5000 is the default control port in all displays at the time of writing. Some displays have the option to change the communication port in the settings.

2.2. 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.

ACK reply: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum	Description
0x06	0x01	**0x01**	0x00	0x06	0x00	Command is well executed.

NAV reply: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum	Description
0x06	0x01	**0x01**	0x00	0x18	0x1E	Command is not supported.

NACK reply: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum	Description
0x06	0x01	**0x01**	0x00	0x15	0x13	Checksum/Format error.

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.

Figure1 and Figure2 explain the mechanism of the Get and Set commands.

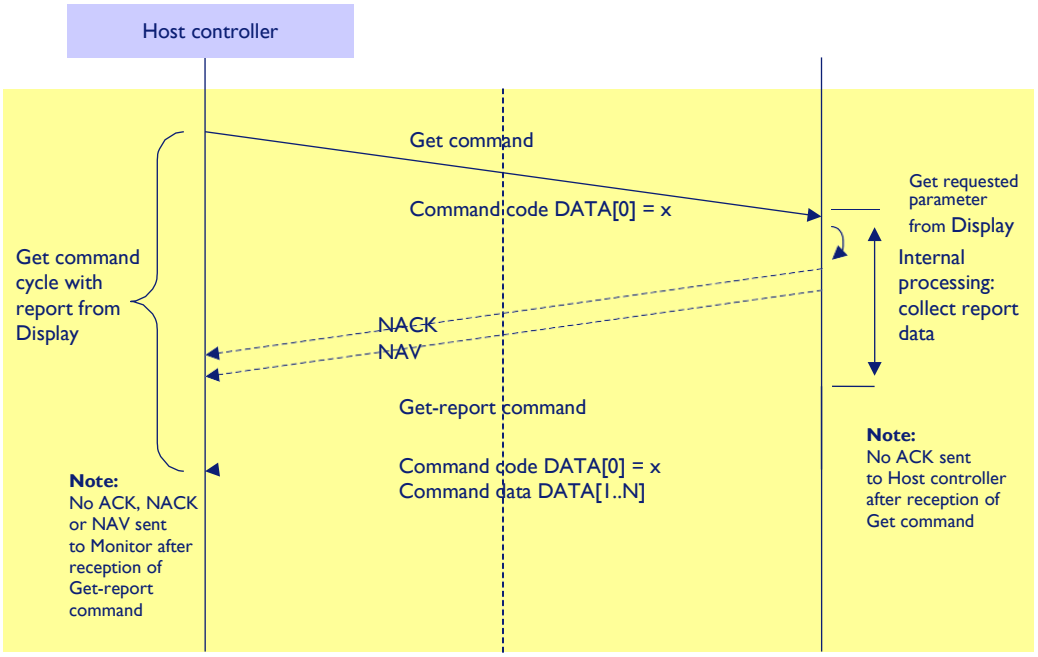


Figure 1: Explanation of mechanism of Get Command.

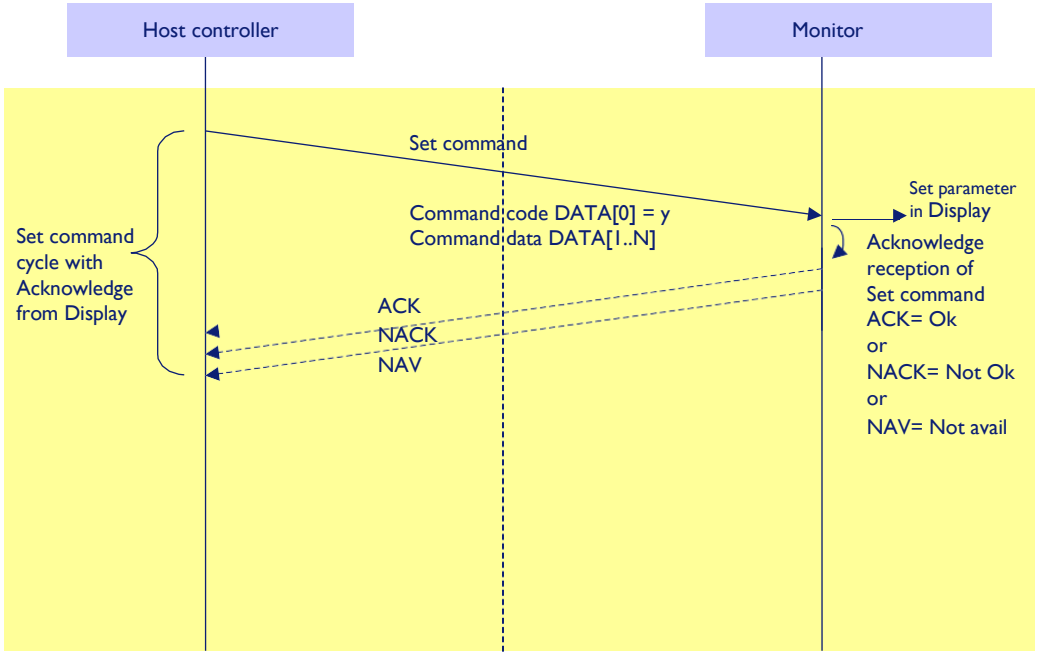


Figure 2: Explanation of mechanism of Set Command.

2.3. Command Format

The serial/TCP command packet format is as follows:

MsgSize	Control ID	Group	Data[0]	Data[1]	…	Data[N]	Checksum

<table>
<tr><th>Byte #</th><th>Byte Name</th><th>Description</th></tr>
<tr><td>Byte 1:</td><td>MsgSize</td><td>Message Size has to be calculated in the following way:
MsgSize + Control + Data[0] + …. + Data [N] + Checksum
Range = 3 to 40 (0x03 to 0x28)</td></tr>
<tr><td>Byte 2:</td><td>Control</td><td>Message Control or Monitor ID

Signal mode: Display Address range from 1 to 255(0x01 to 0xFF)
Broadcast mode: Display Address is 0(0x00) which indicates that no ACK or Report is expected
The display will reply with the Monitor ID set in the display.

Example:
Monitor ID = 03 (set in the display)
Group ID = 00
Sending 05 03 00 19 1F (get power state)
Response: 06 03 01 19 02 1C</td></tr>
<tr><td>Byte 3:</td><td>Group</td><td>Group ID range = 1 to 254(0x01 to 0xFE)

<table>
<tr><th>Monitor ID</th><th>Group ID</th><th></th><th>ACK & Report</th></tr>
<tr><td>0</td><td>0</td><td>Broadcast</td><td>No</td></tr>
<tr><td>1-255</td><td>0</td><td>Control by Monitor ID</td><td>Yes</td></tr>
<tr><td>0-255</td><td>1-254</td><td>Control by Group ID</td><td>No</td></tr>
</table>
</td></tr>
<tr><td>Byte 4 to Byte 39:</td><td>Data[0] to Data[N]</td><td>Data parameters.
This field can also be empty.
If not empty the range of Data Size, N = 0 to 36.</td></tr>
<tr><td>Last Byte:</td><td>Checksum</td><td>Checksum.

Range = 0 to 255(0x00 to 0xFF)
Algorithm: The EXCLUSIVE-OR (XOR) of all bytes in the message except the checksum itself.
Checksum = [MsgSize] XOR [CONTROL] XOR [GROUP] XOR [DATA[0]] XOR … XOR [DATA[N]]</td></tr>
</table>

3. Display Information

3.1. SICP Version & Platform Information

3.1.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xA2**		Request the SICP version & Platform Information
DATA[1]	Which Label		0x00 = Get SICP implementation version* 0x01 = Get the platform label 0x02 = Get the platform version* *reply without the letter "V" from SICP 2.09 onwards

Example: Get SICP version (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0xA2	0x00	0xA5

3.1.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xA2**		Report the SICP version & Platform Information
DATA[1] to DATA[N]	Character[0] to Character[N-1]		36 (0x24) characters maximum. No. of characters, N = 1 to 36 (0x24). The actual size determines the value of the message size byte.

3.2. Model & Firmware Information

3.2.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xA1**		Request the Model Number and FW versions of the device
DATA[1]	Codes to request		0x00 = Model Number (read also the stroke number, ex.43BDL4550D/00, stroke number supported from SICP2.09 onwards) 0x01 = FW version* 0x02 = Build date (YYYY/MM/DD) 0x03 = Android FW version (FBxx.xx) 0x04 = HDMI Switch version* 0x05 = LAN FW version* 0x06 = HDMI Switch 2 version** *reply without the letter "V" from SICP 2.09 onwards **supported from SICP 2.10 onwards. Reply without the letter "v"

Examples:

06 01 00 A1 00 A6 : model number
06 01 00 A1 01 A7 : Firmware version
06 01 00 A1 02 A4 : Build date
06 01 00 A1 03 A5 : Android firmware version
06 01 00 A1 04 A2 : HDMI switch firmware version
06 01 00 A1 05 A3 : LAN firmware version
06 01 00 A1 06 A0 : HDMI Switch 2 firmware version

3.2.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xA1**		Report the Model Number, FW version, Build Date, Android FW version, Switch version or LAN FW version
DATA[1] to DATA[N]	Character[0] to Character[N-1]		36 (0x24) characters maximum. No. of characters, N = 1 to 36 (0x24). The actual size determines the value of the message size byte.

3.3. Operating Hours

3.3.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x0F**		Requests the miscellaneous information parameters.
DATA[1]	Item		0x02 = Operating Hours (All other values are reserved)

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x0F	0x02	0x0A

3.3.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x0F**		Command reports current Operating Hours
DATA[1] to DATA[2]	Operating Hours		DATA [1] and DATA [2] form the MS Byte and LSByte, respectively, of the 16-bit-wide Operational Hours value. Example: 098D = 2445 hours 098E = 2446 hours

Example: Current Display Operation Hours counter value (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Checksum
0x07	0x01	**0x01**	0x0F	0x4D	0x00	0x45

4D00 = 19712 hours

3.4. Temperature Sensors

3.4.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x2F**		Requests the value of the temperature sensors (±3°C).

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x2F	0x2B

3.4.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x2F**		Reports Temperature sensor values.
DATA[1]	Temperature Sensor 1		0-100 in Celsius degrees represented in hex. 0x00 to 0x64
DATA[2]	Temperature Sensor 2		0-100 in Celsius degrees represented in hex. 0x00 to 0x64

NOTE: Dragon 1.0 & 2.0 Platforms only support DATA[1]. DATA[2] value is invalid.

Example: Temp Sensor 1 read out: = 28°C(0x1C), Temp Sensor 2 read out: = 31°C(0x1F) (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Checksum
0x07	0x01	**0x01**	0x2F	0x1C	0x1F	0x2B

3.5. Serial Number

3.5.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x15**		Requests the display's Serial Number, 14 digits

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x15	0x11

3.5.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x15**		Reports the display's Serial Number
DATA[1]	1st Character		Character acc. ASCII character map (HEX)
DATA[2]	2nd Character		
DATA[3]	3rd Character		
…	…		
DATA[14]	14th Character		Character acc. ASCII character map (HEX)

TIP: *Use the* Conversion Table HEX-ASCII-DEC *to translate the serial number.*

Example: Current Display settings: Serial Code = HA1A0917123456 (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Data[5]	Data[6]
0x13	0x01	**0x01**	0x15	0x48	0x41	0x31	0x41	0x30	0x39
Data [7]	Data [8]	Data[9]	Data[10]	Data[11]	Data[12]	Data[13]	Data[14]	Checksum	
0x31	0x37	0x31	0x32	0x33	0x34	0x35	0x36	0x77	

3.6. Video Signal Present

This command is supported from SICP version 2.03 onwards.
The request is used to get information if there is a video signal present on the current selected input.

3.6.1. Message-Get

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x59**		Requests the current Video Signal status

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]
0x05	0x01	**0x00**	0x59	0x5D

3.6.2. Message-Report

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x59**		Report the current Video Signal status
DATA[1]	Video Signal status		0x00 video signal not present 0x01 video signal present

Example:

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Video signal not present	0x06	0x01	**0x01**	0x59	0x00	0x5F
Video signal present	0x06	0x01	**0x01**	0x59	0x01	0x5E

4. Power

4.1. Power State

4.1.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x19**		Requests the current power state

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x19	0x1D

4.1.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x19**		Reports the current Power state
DATA[1]	Power State		0x01 = Power Off 0x02 = On

Example: Power State On (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x19	0x02	0x1D

Special Note: 2016 model 10BDL3051T defines DATA[1] meaning as below
0x01 = Power Off (backlight off/CPU clock low)
0x02 = On (means backlight on/CPU clock normal)

4.1.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x18**		Set the Power state of the display
DATA[1]	Power state		0x01 = Power Off 0x02 = On

Example: Power State Deep Sleep (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x18	0x01	0x1E

Special Note: 2016 model 10BDL3051T defines DATA[1] meaning as below
0x01 = Power Off (backlight off/CPU clock low)
0x02 = On (means backlight on/CPU clock normal)

If Power On command is not working via TCP/IP please check the Power Save/APM/Eco mode settings in the menu of your display. More information can be found in the manual of your display.

4.2. Power state at Cold Start

Command is used to set the cold start power state. This determines the behavior of the display every time it is connected to the mains power of resumed after a power interruption.
In the OSD settings on the display this setting is called “switch on state”.

Power Off: The display remains in Standby and will not boot. Interaction with Remote Control, Keypad or RS232 is required. Power On via TCP/IP connection or signal detection will not be possible.
Forced On: The display will be powered on automatically.
Last Status: The display will return to its last known state. Note that when the display remains in standby interaction with Remote Control, Keypad or RS232 is required. Power On via TCP/IP connection or signal detection will not be possible.

4.2.1. Message-Get

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0xA4**		Request the current Power state at Cold Start state

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0xA4	0xA0

4.2.2. Message-Report

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0xA4**		Report the current Power state at Cold Start state
DATA[1]	Power at Cold Start		0x00 = Power Off 0x01 = Forced On 0x02 = Last Status

Example: Current Power state at Cold Start state: Last Status (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0xA4	0x02	0xA0

4.2.3. Message-Set

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0xA3**		Set Power state at Cold Start
DATA[1]	Power at Cold Start		0x00 = Power Off 0x01 = Forced On 0x02 = Last Status

Example: Set Power state at cold start to last status (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0xA3	0x02	0xA6

4.3. Power Saving

4.3.1. Power Save Mode

4.3.1.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xD3**		Requests the current Power Save Mode.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0xD3	0xD7

4.3.1.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xD3**		Reports the current Power Save Mode.
DATA[1]	Off / On		0x00 = RGB Off & Video Off 0x01 = RGB Off, Video On 0x02 = RGB On, Video Off 0x03 = RGB On & Video On 0x04 = mode 1 0x05 = mode 2 0x06 = mode 3 0x07 = mode 4

Example: Current Display Power Saving Mode setting: RGB & Video off (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0xD3	0x00	0xD5

4.3.1.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xD2**		Set the Power Save Mode
DATA[1]	Off / On		0x00 = RGB Off & Video Off 0x01 = RGB Off, Video On 0x02 = RGB On, Video Off 0x03 = RGB On & Video On 0x04 = mode 1 0x05 = mode 2 0x06 = mode 3 0x07 = mode 4

Example: Set the Display to the fallowing: Power Saving Mode RGB & Video Off (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0xD2	0x00	0xD5

4.3.2. Smart Power

4.3.2.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xDE**		Requests the current Power Saving Mode.

Example: Get the Smart Power Level (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0xDE	0xDA

4.3.2.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xDE**		Reports the current Power Saving Mode.
DATA[1]	Level of Smart Power control		0x00 = OFF 0x01 = Low (defined to be same as OFF) 0x02 = Medium 0x03 = High

Example: Current Display settings: Power Saving Mode setting is Low (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0xDE	0x01	0xD9

4.3.2.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xDD**		Set the specified Power Saving Mode.
DATA[1]	Level of Smart Power control		For the currently-defined Type = 0: 0x00 = OFF (no special action, default mode) 0x01 = Low (defined to be same as OFF) 0x02 = Medium 0x03 = High

Example: Set the Display to Medium Smart Power Level (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0xDD	0x02	0xD8

Note1: This command controls the level of power-saving when the display is active-on.
Note2: Exactly how this feature is implemented, or whether it can be done at all, depends on the platform. It is possible that the picture quality might be compromised as a trade-off.

4.3.3. Advanced Power Management

Supported on Himalaya & Eagle 1.3 Platforms.

4.3.3.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xD1**		Requests the current APM setting.

Example: (Display address 01)

MsgSize	Control	**Group**	Data(0)	Checksum
0x05	0x01	**0x00**	0xD1	0xD5

4.3.3.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xD1**		Reports the current APM setting.
DATA[1]			0x00 = Off 0x01 = On 0x02 = Mode 1 (TCP off / WOL on) 0x03 = Mode 2 (TCP on / WOL off)

NOTE: Himalaya Platform only support off/Mode1/Mode2.
Eagle 1.3 Platform only support on/off.

Example: Current Display APM setting: Off (Display address 01)

MsgSize	Control	**Group**	Data(0)	Data[1]	Checksum
0x06	0x01	**0x01**	0xD1	0x00	0xD7

4.3.3.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xD0**		Set APM
DATA[1]			0x00 = Off 0x01 = On 0x02 = Mode 1 (TCP off / WOL on) 0x03 = Mode 2 (TCP on / WOL off)

NOTE: Himalaya Platform only support off/Mode1/Mode2.
Eagle 1.3 Platform only support on/off.

Example: Set the Display to the fallowing: APM off (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0xD0	0x00	0xD7

4.3.4. ECO Mode

This command is supported from SICP version 2.00 onwards.

4.3.4.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x63**		Requests the current ECO mode setting

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x63	0x67

4.3.4.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x63**		Reports the current ECO mode setting
DATA[1]			0x00 = Off 0x01 = On

Example: Current ECO Mode setting: (Display address 01)

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Off	0x06	0x01	**0x01**	0x63	0x00	0x65
On	0x06	0x01	**0x01**	0x63	0x01	0x64

4.3.4.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x64**		Set the ECO mode
DATA[1]			0x00 = Off 0x01 = On

Example: Set Eco Mode (Display address 01)

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Off	0x06	0x01	**0x00**	0x64	0x00	0x63
On	0x06	0x01	**0x00**	0x64	0x01	0x62

4.4. Monitor Restart

This command is used to restart/reboot the display.
Supported from SICP 2.02 onwards.

4.4.1. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x57**		Command to restart monitor
DATA[1]	Select target system to restart		0x00 = Android 0x01 = Scalar (?)

Example: Restart Android system of the monitor (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x57	0x00	0x50

4.5. Backlight

Supported from SICP 2.03 onwards.

4.5.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x71**		Request the current Backlight state.

Example: Get the current Backlight state (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x71	0x75

4.5.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x71**		Report the current Backlight state.
DATA[1]			0x00 = On 0x01 = Off

Example: Current Backlight state: off (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x71	0x01	0x76

4.5.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x72**		Command to switch on-off the backlights
DATA[1]			0x00 = On 0x01 = Off

Example: set backlight off (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x72	0x01	0x74

4.6. OPS/SDM Power settings

Supported from SICP version 2.08 onwards.

4.6.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x6E**		Request the current OPS/SDM Power settings

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x6E	0x6A

4.6.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x6E**		Reports the current OPS/SDM Power settings
DATA[1]			0x00 = Always Off 0x01 = Always On 0x02 = Auto

Example1: Report OPS or SDM is always on

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x6E	0x01	0x69

4.6.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x6F**		Set the OPS/SDM Power settings
DATA[1]			0x00 = Always Off 0x01 = Always On 0x02 = Auto

Example1: Set OPS or SDM always on

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Always Off	0x06	0x01	**0x00**	0x6F	0x00	0x68
Always On	0x06	0x01	**0x00**	0x6F	0x01	0x69
Auto	0x06	0x01	**0x00**	0x6F	0x02	0x6A

5. Inputs

5.1. Input Source

This command is used to change/request the current input source.

5.1.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xAD**		Request the current Input Source.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0xAD	0xA9

5.1.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xAD**		Report the current Input Source
DATA[1]	**Input Source Type/Number**		0x01 = VIDEO 0x02 = S-VIDEO 0x03 = COMPONENT 0x04 = CVI 2 (not applicable) 0x05 = VGA 0x06 = HDMI 2 0x07 = Display Port 2 0x08 = USB 2 0x09 = Card DVI-D 0x0A = Display Port 1 0x0B = Card OPS 0x0C = USB 1 0x0D = HDMI 0x0E = DVI-D 0x0F = HDMI3 0x10 = BROWSER 0x11 = SMARTCMS 0x12 = DMS (Digital Media Server) 0x13 = INTERNAL STORAGE 0x14 = Reserved 0x15 = Reserved 0x16 = Media Player 0x17 = PDF Player 0x18 = Custom 0x19 = HDMI 4 0x1A =VGA2 0x1B = VGA3 0x1C = IWB 0x1D = CMND&Play Web 0x1E = Home/Launcher 0x1F = USB TypeC 0x20 = Kiosk 0x21 = Smart Info 0x22 = Tuner 0x23 = Google Cast 0x24 = Interact 0x25 = USB TypeC 2

DATA[2]	Get the selected playlist file number on source input media player or PDF player. Get the selected URL number on browser input.		0x00 = no playlist or URL 0x01 = playlist file 1 or URL 1 0x02 = playlist file 2 or URL 2 0x03 = playlist file 3 or URL 3 0x04 = playlist file 4 or URL 4 0x05 = playlist file 5 or URL 5 0x06 = playlist file 6 or URL 6 0x07 = playlist file 7 or URL 7 0x08 = USB autoplay
DATA[3]	**OSD Style**		Reserved. Is always 0x01 from SICP 2.09 onwards
DATA[4]	**Mute Style**		Reserved Is always 0x00 from SICP 2.09 onwards

Example: Current Input Source: VIDEO *(Display address 01)*

MsgSize	Control	**Group**	Data [0]	Data [1]	Data [2]	Data [3]	Data [4]	Checksum
0x09	0x01	**0x01**	0xAD	0x01	0x00	0x01	0x00	0xA5

5.1.3. Message-Set

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0xAC**		Set the current Input Source
DATA[1]	Input Source Type/Number		0x01 = VIDEO 0x02 = S-VIDEO 0x03 = COMPONENT 0x04 = CVI 2 (not applicable) 0x05 = VGA 0x06 = HDMI 2 0x07 = Display Port 2 0x08 = USB 2 0x09 = Card DVI-D 0x0A = Display Port 1 0x0B = Card OPS 0x0C = USB 1 0x0D = HDMI 0x0E = DVI-D 0x0F = HDMI3 0x10 = BROWSER 0x11 = SMARTCMS 0x12 = DMS (Digital Media Server) 0x13 = INTERNAL STORAGE 0x14 = Reserved 0x15 = Reserved 0x16 = Media Player 0x17 = PDF Player 0x18 = Custom 0x19 = HDMI 4 0x1A =VGA2 0x1B = VGA3 0x1C = IWB 0x1D =CMND&Play Web 0x1E = Home/Launcher 0x1F = USB TypeC 0x20 = Kiosk 0x21 = Smart Info 0x22 = Tuner 0x23 = Google Cast 0x24 = Interact 0x25 = USB TypeC 2

DATA[2]	Start playlist file number on source input media player or PDF player. Start URL number on browser input.		0x00 = no playlist or URL 0x01 = playlist file 1 or URL 1 0x02 = playlist file 2 or URL 2 0x03 = playlist file 3 or URL 3 0x04 = playlist file 4 or URL 4 0x05 = playlist file 5 or URL 5 0x06 = playlist file 6 or URL 6 0x07 = playlist file 7 or URL 7 0x08 = USB autoplay
DATA[3]	OSD Style		0x00 > Source label not displayed 0x01 > Source label displayed
DATA[4]	Mute Style		0x00 = reserved

Example: Set on DVI-D with Source label displaying on OSD (Display address 01)

MsgSize	Control	**Group**	Data [0]	Data [1]	Data [2]	Data [3]	Data [4]	Checksum
0x09	0x01	**0x00**	0xAC	0x0E	0x00	0x01	0x00	0xAB

Source command examples:

HDMI 1	09 01 00 AC 0D 00 01 00 A8
HDMI 2	09 01 00 AC 06 00 01 00 A3
HDMI 3	09 01 00 AC 0F 00 01 00 AA
HDMI 4	09 01 00 AC 19 00 01 00 BC
Displayport	09 01 00 AC 0A 00 01 00 AF
DVI-D	09 01 00 AC 0E 00 01 00 AB
OPS	09 01 00 AC 0B 00 01 00 AE
Browser	09 01 00 AC 10 00 01 00 B5
Browser URL 1	09 01 00 AC 10 01 01 00 B4
Mediaplayer	09 01 00 AC 16 00 01 00 B3
Mediaplayer playlist 5	09 01 00 AC 16 05 01 00 B6
Mediaplayer Autoplay	09 01 00 AC 16 08 01 00 BB
Custom	09 01 00 AC 18 00 01 00 BD
SmartCMS	09 01 00 AC 11 00 01 00 B4

5.2. Boot on Source

This command is supported from SICP version 2.05 onwards.

5.2.1. Message-Get

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0xBA**		Requests the current Boot on Source

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0xBA	0xBE

5.2.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xBA**		Reports the current Boot on Source
DATA[1]	Video source		0x00 = Last input 0x01 = VIDEO 0x02 = S-VIDEO 0x03 = COMPONENT 0x04 = CVI 2 (not applicable) 0x05 = VGA 0x06 = HDMI 2 0x07 = Display Port 2 0x08 = USB 2 0x09 = Card DVI-D 0x0A = Display Port 0x0B = Card OPS 0x0C = USB 0x0D = HDMI 0x0E = DVI-D 0x0F = HDMI3 0x10 = BROWSER 0x11 = SMARTCMS 0x12 = DMS (Digital Media Server) 0x13 = INTERNAL STORAGE 0x14 = reserved 0x15 = Reserved 0x16 =Media Player 0x17 =PDF Player 0x18 =Custom 0x19 = HDMI 4 0x1A = VGA2 0x1B = VGA3 0x1C = IWB 0x1D = CMND&Play Web 0x1E = Home/Launcher 0x1F = USB TypeC 0x20 = kiosk 0x21= Smart Info 0x22 = Tuner 0x23 = Google Cast 0x24 = Interact 0x25 = USB TypeC 2
DATA[2]	Bookmark/Playlist/File Tag(s)		0x00 = Tag 0 0x01 = Tag 1 0x02 = Tag 2 0x03 = Tag 3 0x04 = Tag 4 0x05 = Tag 5 0x06 = Tag 6 0x07 = Tag 7 0x08 = USB Autoplay

Examples:

	MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Checksum
Last Input	0x07	0x01	**0x01**	0xBA	0x00	0x00	0xBD
HDMI 1	0x07	0x01	**0x01**	0xBA	0x0D	0x00	0xB0
Mediaplayer PL. 1	0x07	0x01	**0x01**	0xBA	0x16	0x01	0xAA

5.2.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xBB**		Set the Boot on Source
DATA[1]	Video source		0x00 = Last input 0x01 = VIDEO 0x02 = S-VIDEO 0x03 = COMPONENT 0x04 = CVI 2 (not applicable) 0x05 = VGA 0x06 = HDMI 2 0x07 = Display Port 2 0x08 = USB 2 0x09 = Card DVI-D 0x0A = Display Port 0x0B = Card OPS 0x0C = USB 0x0D = HDMI 0x0E = DVI-D 0x0F = HDMI3 0x10 = BROWSER 0x11 = SMARTCMS 0x12 = DMS (Digital Media Server) 0x13 = INTERNAL STORAGE 0x14 = reserved 0x15 = Reserved 0x16 = Media Player 0x17 = PDF Player 0x18 = Custom 0x19 = HDMI 4 0x1A = VGA2 0x1B = VGA3 0x1C = IWB 0x1D = CMND&Play Web 0x1E = Home/Launcher 0x1F = USB TypeC 0x20 = kiosk 0x21 = Smart Info 0x22 = Tuner 0x23 = Google Cast 0x24 = Interact 0x25 = USB TypeC 2
DATA[2]	Bookmark/Playlist/File Tag(s)		0x00 = Tag 0 0x01 = Tag 1 0x02 = Tag 2 0x03 = Tag 3 0x04 = Tag 4 0x05 = Tag 5 0x06 = Tag 6 0x07 = Tag 7 0x08 = USB Autoplay

Examples:

	MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Checksum
Last Input	0x07	0x01	**0x00**	0xBB	0x00	0x00	0xBD
Custom	0x07	0x01	**0x00**	0xBB	0x18	0x00	0xA5
Mediaplayer PL. 1	0x07	0x01	**0x00**	0xBB	0x16	0x01	0xAA

5.3. Number of Input Sources

This command requests the number of source inputs and which source inputs are available.
Command is available from SICP version 2.05 onwards.

5.3.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xAB**		Requests the number of source inputs and which source inputs are available.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0xAB	0xAF

5.3.2. Message-Report

NOTE: The source values can be found in chapter 5.1.3 "Input Source – Message-Set"

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xAB**		Command reports total number of source inputs
DATA[1]	Number of source input		Total number of source inputs
DATA[2]	Source input		Source input name 1
DATA[3]	Source input		Source input name 2
DATA[x]	Source input		Source input name …

Example:
If the monitor has 11 source input then the reply would be:

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Data[5]
0x11	0x01	**0x01**	0xAB	0x0B	0x0D	0x06	0x0F	0x19
Data[6]	Data[7]	Data[8]	Data[9]	Data[10]	Data[11]	Data[12]	Checksum	
0x05	0x0A	0x10	0x16	0x17	0x11	0x18	0xBB	

Data[1] 0x0B = 11 source inputs available
Data[2] through Data[12] show which sources are available.

	Value	***Source Name***
Data[2]	*0x0D*	*HDMI 1*
Data[3]	*0x06*	*HDMI 2*
Data[4]	*0x0F*	*HDMI 3*
Data[5]	*0x19*	*HDMI 4*
Data[6]	*0x05*	*VGA*
Data[7]	*0x0A*	*Displayport*
Data[8]	*0x10*	*Browser*
Data[9]	*0x16*	*Media Player*
Data[10]	*0x17*	*PDF Player*
Data[11]	*0x11*	*CMND&Play*
Data[12]	*0x18*	*Custom*

5.4. Auto Signal Detection

5.4.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xAF**		Requests the display to report its current Auto Signal Detecting status

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0xAF	0xAB

5.4.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xAF**		Reports Auto Signal Detecting Setting
DATA[1]	Signal Detection setting		0x00 = Off 0x01 = All 0x02 = Reserved 0x03 = PC sources only 0x04 = Video sources only 0x05 = Failover

Special Note:

Some models don't have the PC sources and video sources only in the OSD, check the manual of your monitor.

Example: Current Display settings: Off and All (Display address 01)

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Off	0x06	0x01	**0x01**	0xAF	0x00	0xA9
All	0x06	0x01	**0x01**	0xAF	0x01	0xA8
Failover	0x06	0x01	**0x01**	0xAF	0x05	0xAC

5.4.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xAE**		Set the Signal Detection setting
DATA[1]	On / All /PC sources only / Video sources only / Failover		0x00 = Off 0x01 = All 0x02 = Reserved 0x03 = PC sources only 0x04 = Video sources only 0x05 = Failover

Special Note:

Some models don't have the PC sources and video sources only in the OSD, check the manual of your monitor.

Example: Set the Display to the fallowing: Auto Signal Detecting Off (Display address 01)

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Off	0x06	0x01	**0x00**	0xAE	0x00	0xA9
All	0x06	0x01	**0x00**	0xAE	0x01	0xA8
Failover	0x06	0x01	**0x00**	0xAE	0x05	0xAC

5.5. Failover

Before setting the priority of the Failover please first set the Auto Signal Detection to Failover.

5.5.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xA6**		Request the current Failover settings

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	0x00	0xA6	0xA2

5.5.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xA6**		Reports the current Failover settings
DATA[1] Until DATA[17]	Failover Priority 1 through 17		0x00 = HDMI 0x01 = Component 0x02 = Composite 0x03 = Display Port 0x04 = DVI-D 0x05 = VGA 0x06 = OPS 0x07 = USB 0x08 = Browser 0x09 = SmartCMS 0x0A= Internal Storage 0x0B = DMS (Digital Media Server) 0x0C = HDMI2 0x0D = HDMI3 0x0E = USB Playlist 0x0F = USB AutoPlay 0x10= Media Player 0x11= PDF Player 0x12= Custom 0x13= HDMI 4 0x14 =VGA2 0x15 = VGA3 0x16 = IWB 0x17 = CMND&Play Web 0x18= Home/Launcher 0x19= USB TypeC 0x1A= Kiosk 0x1B= Smart Info 0x1C= Tuner 0x1D= Google Cast 0x1E= Interact 0x1F = USB TypeC 2

Example: Current Display settings: Sources priority = HDMI – Component – Composite – Display Port – DVI-D – VGA – OPS – USB – Browser – SmartCMS – Internal Storage – DMS – HDMI 2 – HDMI3 (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Data[5]	Data[6]	Data[7]
0x16	0x01	**0x01**	0xA6	0x00	0x01	0x02	0x03	0x04	0x05	0x06
Data[8]	Data[9]	Data[10]	Data[11]	Data[12]	Data[13]	Data[14]	Data[15]	Data[16]	Data[17]	CS
0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x00	0x00	0x00	0xB1

5.5.3. Message-Set

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0xA5**		Set the Failover settings
DATA[1] Until DATA[14]	Failover priority 1 through 14		0x00 = HDMI 0x01 = Component 0x02 = Composite 0x03 = Display Port 0x04 = DVI-D 0x05 = VGA 0x06 = OPS 0x07 = USB 0x08 = Browser 0x09 = SmartCMS 0x0A= Internal Storage 0x0B = DMS (Digital Media Server) 0x0C = HDMI2 0x0D = HDMI3 0x0E = USB Playlist 0x0F = USB AutoPlay 0x10= Media Player 0x11= PDF Player 0x12= Custom 0x13 = HDMI 4 0x14 =VGA2 0x15 = VGA3 0x16 = IWB 0x17 = CMND&Play Web 0x18= Home/Launcher 0x19= USB TypeC 0x1A= Kiosk 0x1B= Smart Info 0x1C= Tuner 0x1D= Google Cast 0x1E= Interact 0x1F = USB TypeC 2

Example: Set the Display to the fallowing: Sources priority = HDMI – Component – Composite – Display Port – DVI- D – VGA – OPS – USB – Browser – SmartCMS – Internal Storage – DMS – HDMI2 – HDMI3 (Display address 01)

MsgSize	Control	**Group**	Data [0]	Data [1]	Data [2]	Data [3]	Data [4]	Data [5]	Data [6]
0x13	0x01	0x00	0xA5	0x00	0x01	0x02	0x03	0x04	0x05
Data [7]	Data [8]	Data [9]	Data[10]	Data[11]	Data[12]	Data[13]	Data[14]	Checksum	
0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0xB6	

5.6. Picture-in-Picture (PIP)

5.6.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x3D**		Requests the current PIP settings.

Example: Get PIP setting (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x3D	0x39

5.6.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x3D**		Reports the current PIP settings.
DATA[1]	Picture-in-Picture	Bit 7..4	(reserved, default 0)
		Bit 0..3	0x00 = Off 0x01 = On (PIP) 0x02 = POP 0x03 = Quick swap 0x04 = PBP 2win 0x05 = PBP 3win 0x06 = PBP 4win 0x07 = PBP 3win-1 0x08 = PBP 3win-2 0x09 = PBP 4win-1 0x0A = SICP (Custom) Note: 1.Eagle 1.3 platform only support (0x00 / 0x01) 2.HIMALAYA 1.0 & 1.2 platform only support (0x00 ~0x06) 3.DRAGON 1.0, 1.5, 1.6 platform only support (0x00 / 0x01/ 0x03 /0x04 / 0x0A) 4.Phoenix platform doesn't support PIP. 5. HIMALAYA 2.0 doesn't support 0X02
DATA[2]	Additional PIP parameters	Bit 7..3	(reserved, default 0)
		Bit 2..0	Position of the PIP window: 0x00 = position 0 (typically bottom-left) 0x01 = position 1 (typically top-left) 0x02 = position 2 (typically top-right) 0x03 = position 3 (typically bottom-right) 0x04 = position 4 (typically center).
DATA[3]			(reserved, default 0)
DATA[4]			(reserved, default 0)

Example: Current PIP setting is enabling and located at position 2 (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Checksum
0x09	0x01	**0x00**	0x3D	0x01	0x02	0x00	0x00	0x37

NOTE: When DATA[1] is set to "0x0A = SICP (Custom)" please refer to Custom Multi-Window Settings to specify window locations and size.

5.6.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x3C**		Set the PIP settings.
DATA[1]	Picture-in-Picture	Bit 7..4	(reserved, default 0)
		Bit 0..3	0x00 = Off 0x01 = On (PIP) 0x02 = POP 0x03 = Quick swap 0x04 = PBP 2win 0x05 = PBP 3win 0x06 = PBP 4win 0x07 = PBP 3win-1 0x08 = PBP 3win-2 0x09 = PBP 4win-1 0x0A = SICP (Custom) Note: Platforms 1.Eagle 1.3 platform only support (0x00 / 0x01) 2.HIMALAYA 1.0 & 1.2 platform only support (0x00 ~0x06) 3.DRAGON 1.0, 1.5, 1.6 platform only support (0x00 / 0x01/ 0x03 /0x04 / 0x0A) 4.Phoenix platform doesn't support PIP. 5. HIMALAYA 2.0 doesn't support 0X02
DATA[2]	Additional PIP parameters	Bit 7..2	(reserved, default 0)
		Bit 1..0	Position of the PIP window: 0x00 = position 0 (typically bottom-left) 0x01 = position 1 (typically top-left) 0x02 = position 2 (typically top-right) 0x03 = position 3 (typically bottom-right) 0x04 = position 4 (typically center).
DATA[3]			(reserved, default 0)
DATA[4]			(reserved, default 0)

Example: Set PIP ON, top-right (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Checksum
0x09	0x01	**0x00**	0x3C	0x01	0x02	0x00	0x00	0x37

NOTE: When DATA[1] is set to "0x0A = SICP (Custom)" please refer to Custom Multi-Window Settings to specify window locations and size.

5.7. Picture-in-Picture (PIP) Source

This command is used to control the PIP source settings for each display quadrant on the screen.

Himalaya 1.x & 2.0 Platforms carries the following PIP Design only
Example: If display resolution is 4K2K, user can select input source for each Full HD quadrant.

Q1 (main)	Q2
Q3	Q4

PIP Set/Get can only change input source for Q2, Q3, and Q4 individually by following the commands below.

Dragon 1.x Platforms and older Platforms(Eagle) carries the following PIP Design only.

Main Source

5.7.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x85**		Requests the current PIP source setting.

This command is used to get the source for the PIP window when PIP feature is activated.

Example: Get PIP source setting (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x85	0x81

5.7.2. Message-Report

Dragon 1.x & 1.6 Platforms - DATA[3] & DATA[4] are not available.
Return bytes are DATA[0]~DATA[2]+Checksum byte.

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x85**		Requests the current PIP source setting.
DATA[1]	Source Type		0xFD = Input Source (normal state) 0xFE = Reserved for smartcard
DATA[2]	Q2 Source Number		If Source types == 0xFD then… 0x01 = VIDEO 0x02 = S-VIDEO 0x03 = COMPONENT 0x04 = CVI 2 (not applicable) 0x05 = VGA 0x06 = HDMI 2 0x07 = Display Port 2 0x08 = USB 2 0x09 = Card DVI-D 0x0A = Display Port 0x0B= Card OPS 0x0C = USB 0x0D= HDMI 0x0E= DVI-D 0x0F = HDMI3 0x10= BROWSER 0x11= SMARTCMS 0X12= DMS (Digital Media Server) 0x13= INTERNAL STORAGE 0x14= Reserved 0x15= Reserved 0x16= Media Player 0x17= PDF Player 0x18= Custom 0x19 = reserved 0x1A = VGA2 0x1B = VGA3 0x1C = IWB 0x1D= CMND&Play Web 0x1E = USB TypeC 0x1F = Kiosk 0x20= Smart Info 0x21= Tuner 0x22= Google Cast 0x23= Interact 0x24 = USB TypeC 2
DATA[3]	Q3 Source Number		**See list at DATA[2]**
DATA[4]	Q4 Source Number		**See list at DATA[2]**

Example: Get PIP source report (Display address 01, Q2 Video, Q3 VGA, Q4 DVI-D)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Checksum
0x09	0x01	**0x01**	0x85	0xFD	0x01	0x05	0x0E	0x7B

5.7.3. Message-Set

This is the PIP source selection command

Dragon 1.x & 2.0 Platforms – DATA[3] & DATA[4] may not be send.
Return bytes are DATA[0]~DATA[2]+Checksum byte.

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x84**		Set the PIP source.
DATA[1]	Source Type		0xFD = Input Source (normal state) 0xFE = Reserved for smartcard
DATA[2]	Q2 Source Number		If Source type == 0xFD then… 0x01 = VIDEO 0x02 = S-VIDEO 0x03 = COMPONENT 0x04 = CVI 2 (not applicable) 0x05 = VGA 0x06 = HDMI 2 0x07 = Display Port 2 0x08 = USB 2 0x09 = Card DVI-D 0x0A = Display Port 0x0B= Card OPS 0x0C = USB 0x0D= HDMI 0x0E= DVI-D 0x0F = HDMI3 0x10= BROWSER 0x11= SMARTCMS 0X12= DMS (Digital Media Server) 0x13= INTERNAL STORAGE 0x14= Reserved 0x15= Reserved 0x16= Media Player 0x17= PDF Player 0x18= Custom 0x19 = reserved 0x1A = VGA2 0x1B = VGA3 0x1C = IWB 0x1D= CMND&Play Web 0x1E = USB TypeC 0x1F= Kiosk 0x20= Smart Info 0x21= Tuner 0x22= Google Cast 0x23= Interact 0x24 = USB TypeC 2
DATA[3]	Q3 Source Number		**See list at DATA[2]**
DATA[4]	Q4 Source Number		**See list at DATA[2]**

This command is used to select the source for the PIP window before the PIP feature is activated.

Example: Set source PIP (Display address 01, Q2 Video, Q3 VGA, Q4 DVI-D)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Checksum
0x09	0x01	**0x00**	0x84	0xFD	0x01	0x05	0x0E	0x7B

5.8. Custom Multi-Window Settings

These commands are used to set the window settings when Picture-in-Picture (PIP) setting is set to "0x0A = Custom" in DATA[1].

NOTE: Dragon 1.x & 1.6 Platforms supports only a maximum of 2 windows. Main window and a sub(x) window.
NOTE: Dragon 1.x Platform doesn't support DATA [11] value 0x05.

5.8.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xFD**		Requests the current window setting of the specified window
DATA[1]	Window		0x00 = Main(Display Win1) 0x01 = Sub1(Display Win2) 0x02 = Sub2(Display Win3) 0x03 = Sub3(Display Win4)

Example: Get information of Main window (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0xFD	0x00	0xFA

5.8.2. Message-Report

This message report can be just about which window is currently active or can be very detailed. Both examples are presented after the table.

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xFD**		Report the current window settings for the specified window
DATA[1]	Window		0x00 = Main(Display Win1) 0x01 = Sub1(Display Win2) 0x02 = Sub2(Display Win3) 0x03 = Sub3(Display Win4)
DATA[2]	Image rotation		0x00 = ROT_NONE (OFF) 0x01 = ROT_90 (ON) 0x02 = ROT_270, 0x03 = ROT_H_MIRROR 0x04 = ROT_V_MIRROR 0x05 = ROT_HV_MIRROR
DATA[3]	X position of image(High byte)		X position of image(High byte)
DATA[4]	X position of image(Low byte)		X position of image(Low byte)
DATA[5]	Y position of image(High byte)		Y position of image(High byte)
DATA[6]	Y position of image(Low byte)		Y position of image(Low byte)
DATA[7]	Width of image(High byte)		Width of image(High byte)
DATA[8]	Width of image(Low byte)		Width of image(Low byte)
DATA[9]	Height of image(High byte)		Height of image(High byte)
DATA[10]	Height of image(Low byte)		Height of image(Low byte)
DATA[11]	Picture Format		Picture Format. 0x00 = Normal (4:3) 0x01 = Custom 0x02 = Real (1:1) 0x03 = Full 0x04 = 21:9 0x05 = Dynamic 0x06 = 16:9

Example: Display address 01, Main window, ROT_NONE, X:0, Y:0, W:1920, H:1080, Zoom mode: Full

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]
0x10	0x01	**0x01**	0xFD	0x00	0x00	0x00	0x00
Data[5]	Data[6]	Data[7]	Data[8]	Data[9]	Data[10]	Data[11]	Checksum
0x00	0x00	0x07	0x80	0x04	0x38	0x03	0x55

5.8.3. Message-Set

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0xFC**		Set the windows settings for the specified window
DATA[1]	Window		0x00 = Main(Display Win1) 0x01 = Sub1(Display Win2) 0x02 = Sub2(Display Win3) 0x03 = Sub3(Display Win4)
DATA[2]	Image rotation		0x00 = ROT_NONE (OFF) 0x01 = ROT_90 (ON) 0x02 = ROT_270, 0x03 = ROT_H_MIRROR 0x04 = ROT_V_MIRROR 0x05 = ROT_HV_MIRROR
DATA[3]	X position of image(High byte)		X position of image(High byte)
DATA[4]	X position of image(Low byte)		X position of image(Low byte)
DATA[5]	Y position of image(High byte)		Y position of image(High byte)
DATA[6]	Y position of image(Low byte)		Y position of image(Low byte)
DATA[7]	Width of image(High byte)		Width of image(High byte)
DATA[8]	Width of image(Low byte)		Width of image(Low byte)
DATA[9]	Height of image(High byte)		Height of image(High byte)
DATA[10]	Height of image(Low byte)		Height of image(Low byte)
DATA[11]	Picture Format		Picture Format. 0x00 = Normal 0x01 = Custom 0x02 = Real 0x03 = Full 0x04 = 21:9 0x05 = Dynamic 0x06 = 16:9 0xFF = Current setting(don't change)

Example: Set Display address 01, Main window, ROT_NONE, X:0, Y:0, W:1280, H:2160, Zoom mode: Full

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]
0x10	0x01	**0x00**	0xFC	0x00	0x00	0x00	0x00
Data[5]	Data[6]	Data[7]	Data[8]	Data[9]	Data[10]	Data[11]	Checksum
0x00	0x00	0x07	0x80	0x04	0x38	0x03	0x55

5.9. Channel Number

This command is supported on displays with an internal tuner.

5.9.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xC1**		Requests the current channel number.

Example:

MsgSize	Control	Group	Data[0]	Checksum
0x05	0x01	0x00	0xC1	0xC5

5.9.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xC1**		Reports the current channel number.
DATA[1]	Channel high byte value		0x00 > 0x27
DATA[2]	Channel low byte value		0x00 > 0xFF If data [1] >= 0x27 > data[2] max = 0x0F

(*) currently the max channel number = 9999 which is 0x27 high byte value and 0x0F low byte value = 270F hex

Example1: reported channel number = 2054 (806 hex = 2054 dec)

MsgSize	Control	Group	Data[0]	Data[1]	Data[2]	Checksum
0x07	0x01	0x00	0xC1	0x08	0x06	0xC9

5.9.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xC2**		Set channel number.
DATA[1]	Channel high byte value		0x00 > 0x27
DATA[2]	Channel low byte value		0x00 > 0xFF* If data [1] >= 0x27 > data[2] max = 0x0F

(*) currently the max channel number = 9999 which is 0x27 high byte value and 0x0F low byte value = 270F hex

Examples: set channel number = 99, 254 & 1250

	MsgSize	Control	Group	Data[0]	Data[1]	Data[2]	Checksum
99	0x07	0x01	0x00	0xC2	0x00	0x63	0xA7
254	0x07	0x01	0x00	0xC2	0x00	0xFE	0x3A
1250	0x07	0x01	0x00	0xC2	0x04	0xE2	0x22

5.10. Channel Number Step

Command is supported on displays with an internal tuner.

5.10.1. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xC3**		Set channel number one step up or down
DATA[1]			0x00 = step down 0x01 = step up

Example:

	MsgSize	Control	Group	Data[0]	Data[1]	Checksum
Step +	0x06	0x01	0x00	0xC3	0x01	0xC5
Step -	0x06	0x01	0x00	0xC3	0x00	0xC4

6. Audio

6.1. Volume

This command is used to set/get the speaker & audio output volume as defined below.

6.1.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x45**		Requests the current Volume levels of speakers & audio output

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x45	0x41

6.1.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x45**		Reports current Volume levels
DATA[1]	Speaker Volume level		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64
DATA[2]	Audio Out Volume level		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64

NOTE: Below table is applicable for Phoenix 2.0 Platform(BDLxx70EL/BDLxx90VL/BDLxx30QL/BDLxx35QL)

DATA[1]	Speaker Out Volume level		0 to 60 (%) of the user selectable range of the display. 0x00 to 0x3C
DATA[2]	Audio Out Volume level		0 to 60 (%) of the user selectable range of the display. 0x00 to 0x3C

*Example: Speaker Volume = **22% (0x16)** and Audio Out Volume = **10% (0x0A)**(Display address 01)*

MsgSize	Control	**Group**	Data(0)	Data[1]	Data[2]	Checksum
0x07	0x01	**0x01**	0x45	0x16	0x0A	0x5E

NOTE: HIMALAYA 1.0 & 1.2 and Eagle Platforms don't support variable Audio Out volume. Data[2] is not received.

Example: HIMALAYA 1.0&1.2 and Eagle platform Speaker volume level = 100% (0x64)

MsgSize	Control	**Group**	Data(0)	Data[1]	Checksum
0x06	0x01	**0x01**	0x45	0x64	0x27

6.1.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x44**		Set the Volume levels.
DATA[1]	Speaker Out Volume level		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64 0xFF = no change (supported from SICP 2.09 onwards)
DATA[2]	Audio Out Volume level		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64 0xFF = no change (supported from SICP 2.09 onwards)

NOTE: Below table is applicable for Phoenix 2.0 Platform(BDLxx70EL/BDLxx90VL/BDLxx30QL/BDLxx35QL)

DATA[1]	Speaker Out Volume level		0 to 60 (%) of the user selectable range of the display. 0x00 to 0x3C
DATA[2]	Audio Out Volume level		0 to 60 (%) of the user selectable range of the display. 0x00 to 0x3C

*Example: Set Speaker Volume to **22% (0x16)** and Audio Out Volume to **50 %(0x32)**(Display address 01)*

MsgSize	Control	**Group**	Data(0)	Data[1]	Data[2]	Checksum
0x07	0x01	**0x00**	0x44	0x16	0x32	0x66

NOTE: HIMALAYA 1.0 & 1.2 and Eagle Platforms don't support variable Audio Out volume. Data[2] may not be sent.

Example: HIMALAYA 1.0&1.2 and Eagle platform set Speaker volume level to 22% (0x16)

MsgSize	Control	**Group**	Data(0)	Data[1]	Checksum
0x06	0x01	**0x00**	0x44	0x16	0x55

6.2. Volume Step

This command can be used to increment or decrement the Speaker & Audio Out volume individually.
Some Platforms don't support variable audio output. For those displays Data[2] may not be sent.

6.2.1. Message-Set

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x41**		Adjust volume up/down
DATA[1]	Speaker Out.		0x00 = Vol Down 0x01 = Vol Up 0x02 = No Change*
DATA[2]	Audio Out.		0x00 = Vol Down 0x01 = Vol Up 0x02 = No Change*

*0x02 is supported on the following Platforms: Dragon 1.0(after V1.3xx), Dragon 1.5(after V1.2xx), Dragon 1.6, Himalaya 2.0 and all new models from 2020 onwards

Example: Speaker Volume: Up(0x01) and Audio Out: No Change(0x02) (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Checksum
0x07	0x01	**0x00**	0x41	0x01	0x02	0x44

NOTE: HIMALAYA 1.0 & 1.2 and Eagle Platforms don't support variable Audio Out volume. Data[2] may not be sent.

	MsgSize	Control	Group	Data[0]	Data[1]	Checksum
Vol -	0x06	0x01	0x00	0x41	0x00	0x46
Vol +	0x06	0x01	0x00	0x41	0x01	0x47

6.3. Mute

This command is supported from SICP version 2.00 onwards.
The command mutes both the internal speakers and the audio output.

6.3.1. Message-Get

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x46**		Requests current volume mute status

Example : get mute status

MsgSize	Control	**Group**	Data[0]	checksum
0x05	0x01	**0x00**	0x46	0x42

6.3.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x46**		Report current mute status
DATA[1]			0x00 = Mute Off 0x01 = Mute On

Example: Mute = On

MsgSize	Control	**Group**	Data[0]	Data[1]	checksum
0x06	0x01	**0x01**	0x46	0x01	0x41

6.3.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x47**		Set mute status
DATA[1]			0x00 = Mute Off 0x01 = Mute On

Example: Set Mute = Off

MsgSize	Control	**Group**	Data[0]	Data[1]	checksum
0x06	0x01	**0x00**	0x47	0x00	0x40

6.4. Volume Limits

The following commands are used to set or get the volume limits and switch on volume of the Speakers and Audio Output.

Supported from SICP version 1.88 onwards.

The commands contain three values: minimum volume, maximum volume and switch on volume.
The switch on volume must fall in the range between the minimum and maximum volume.
Min vol <= Switch on vol =< Max vol.

6.4.1. Speaker Volume Limits

6.4.1.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xB6**		Request the current Speaker Volume limits.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0xB6	0xB2

6.4.1.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xB6**		Reports the current Speaker Volume limits
DATA[1]	Minimum Volume		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64
DATA[2]	Maximum Volume		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64
DATA[3]	Switch on Volume		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64

NOTE: Below table is applicable for Phoenix 2.0 Platform(BDLxx70EL/BDLxx90VL/BDLxx30QL/BDLxx35QL)

DATA[1]	Minimum Volume		0 to 60 (%) of the user selectable range of the display. 0x00 to 0x3C
DATA[2]	Maximum Volume		0 to 60 (%) of the user selectable range of the display. 0x00 to 0x3C
DATA[3]	Switch on Volume		0 to 60 (%) of the user selectable range of the display. 0x00 to 0x3C

Example: Speaker volume limits: Min = 10%(0x0A), Max = 77%(0x4D), Switch on = 50%(0x32) (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Checksum
0x08	0x01	**0x01**	0xB6	0x0A	0x4D	0x32	0xCB

6.4.1.3. Message-Set

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0xB8**		Set the Speaker volume limits
DATA[1]	Minimum Volume		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64
DATA[2]	Maximum Volume		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64
DATA[3]	Switch on Volume		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64

NOTE: Below table is applicable for Phoenix 2.0 Platform(BDLxx70EL/BDLxx90VL/BDLxx30QL/BDLxx35QL)

DATA[1]	Minimum Volume		0 to 60 (%) of the user selectable range of the display. 0x00 to 0x3C
DATA[2]	Maximum Volume		0 to 60 (%) of the user selectable range of the display. 0x00 to 0x3C
DATA[3]	Switch on Volume		0 to 60 (%) of the user selectable range of the display. 0x00 to 0x3C

Example: Set the Speaker volume limits: Min = 10%(0x0A), Max = 77%(0x4D), Switch on = 50%(0x32) (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Checksum
0x08	0x01	**0x00**	0xB8	0x0A	0x4D	0x32	0xC4

6.4.2. Audio Output Limits

6.4.2.1. Message-Get

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0xB7**		Request the current Audio Output Volume limits.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0xB7	0xB3

6.4.2.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xB7**		Reports the current Audio Output Volume limits
DATA[1]	Minimum Volume		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64
DATA[2]	Maximum Volume		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64
DATA[3]	Switch on Volume		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64

NOTE: Below table is applicable for Phoenix 2.0 Platform(BDLxx70EL/BDLxx90VL/BDLxx30QL/BDLxx35QL)

DATA[1]	Minimum Volume		0 to 60 (%) of the user selectable range of the display. 0x00 to 0x3C
DATA[2]	Maximum Volume		0 to 60 (%) of the user selectable range of the display. 0x00 to 0x3C
DATA[3]	Switch on Volume		0 to 60 (%) of the user selectable range of the display. 0x00 to 0x3C

Example: Speaker volume limits: Min = 10%(0x0A), Max = 77%(0x4D), Switch on = 50%(0x32) (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Checksum
0x08	0x01	**0x01**	0xB7	0x0A	0x4D	0x32	0xCA

6.4.2.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xB9**		Set the Audio Output Volume limits
DATA[1]	Minimum Volume		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64
DATA[2]	Maximum Volume		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64
DATA[3]	Switch on Volume		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64

NOTE: Below table is applicable for Phoenix 2.0 Platform(BDLxx70EL/BDLxx90VL/BDLxx30QL/BDLxx35QL)

DATA[1]	Minimum Volume		0 to 60 (%) of the user selectable range of the display. 0x00 to 0x3C
DATA[2]	Maximum Volume		0 to 60 (%) of the user selectable range of the display. 0x00 to 0x3C
DATA[3]	Switch on Volume		0 to 60 (%) of the user selectable range of the display. 0x00 to 0x3C

Example: Speaker volume limits: Min = 10%(0x0A), Max = 77%(0x4D), Switch on = 50%(0x32) (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Checksum
0x08	0x01	**0x00**	0xB9	0x0A	0x4D	0x32	0xC5

6.5. Speakers On/Off

This command is supported from SICP version 2.07 onwards.

6.5.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x8F**		Requests current speaker status

Example : get speaker status

MsgSize	Control	Group	Data[0]	checksum
0x05	0x01	**0x00**	0x8F	0x8B

6.5.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x8F**		Reports current speaker status
DATA[1]			0x00 = Speakers Off 0x01 = Speakers On

Example: the internal speakers are on

MsgSize	Control	Group	Data[0]	Data[1]	checksum
0x06	0x01	**0x01**	0x8F	0x01	0x88

6.5.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x8E**		Set speakers status
DATA[1]			0x00 = Speakers Off 0x01 = Speakers On

Example: Set speakers off

MsgSize	Control	Group	Data[0]	Data[1]	checksum
0x06	0x01	**0x00**	0x8E	0x00	0x89

6.6. Audio Sync

This command is supported from SICP version 2.07 onwards.

6.6.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x8D**		Requests the current audio sync parameter.

Example: (Display address 01)

MsgSize	Control	Group	Data[0]	Checksum
0x05	0x01	**0x00**	0x8D	0x89

6.6.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x8D**		Reports the current audio sync parameter.
DATA[1]			0x00 = Audio Sync Off 0x01 = Audio Sync On

Example1: Report audio sync ON

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x8D	0x01	0x8A

6.6.3. Message-Set

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x8C**		Set Audio sync parameter
DATA[1]			0x00 = Audio Sync Off 0x01 = Audio Sync On

Example1: set audio sync on

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x8C	0x01	0x8A

6.7. Audio Parameters

6.7.1. Message-Get

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x43**		Requests the current audio parameters

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x43	0x47

6.7.2. Message-Report

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x43**		Reports the current audio parameters
DATA[1]	Treble.		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64
DATA[2]	Bass.		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64

NOTE: Below table is applicable for Phoenix 2.0 Platform(BDLxx70EL/BDLxx90VL/BDLxx30QL/BDLxx35QL)

DATA[1]	Treble.		-8 to 8 of the user selectable range of the display.
DATA[2]	Bass.		-8 to 8 of the user selectable range of the display.

The value (-8) ~ (-1)

-8	-7	-6	-5	-4	-3	-2	-1
0xF8	0xF9	0xFA	0xFB	0xFC	0xFD	0xFE	0xFF

Example: Current audio parameters: Treble = 80%(0x50), Bass = 93%(0x5D) (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Checksum
0x07	0x01	**0x01**	0x43	0x50	0x5D	0x49

6.7.3. Message-Set

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x42**		Set the audio parameters
DATA[1]	Treble.		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64
DATA[2]	Bass.		0 to 100 (%) of the user selectable range of the display. 0x00 to 0x64

NOTE: Below table is applicable for Phoenix 2.0 Platform(BDLxx70EL/BDLxx90VL/BDLxx30QL/BDLxx35QL)

DATA[1]	Treble.		-8 to 8 of the user selectable range of the display.
DATA[2]	Bass.		-8 to 8 of the user selectable range of the display.

The value (-8) ~ (-1)

-8	-7	-6	-5	-4	-3	-2	-1
0xF8	0xF9	0xFA	0xFB	0xFC	0xFD	0xFE	0xFF

Example: Set audio parameters: Treble = 77%(0x4D), Bass = 77%(0x4D) (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Checksum
0x07	0x01	**0x00**	0x42	0x4D	0x4D	0x44

7. Control

7.1. Remote Control & Keypad Lock

The following commands are used to lock/unlock the Remote Control and Keypad.

7.1.1. Remote Control Lock

7.1.1.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x1D**		Request the current status of the Remote Control Lock

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x1D	0x19

7.1.1.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x1D**		Report the current status of the Remote Control Lock
DATA[1]	Status indicator byte for Remote Control Lock		0x01 = Unlock all 0x02 = Lock all 0x03 = Lock all but Power 0x04 = Lock all but Volume 0x05 = Primary (Master) 0x06 = Secondary (Daisy chain PD) 0x07 = Lock all except Power & Volume

Example: Unlock all on IR Remote Control on (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x1D	0x01	0x1B

7.1.1.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x1C**		Set the Remote Control Lock
DATA[1]	Status indicator byte for Remote Control		0x01 = Unlock all 0x02 = Lock all 0x03 = Lock all but Power 0x04 = Lock all but Volume 0x05 = Primary (Master) 0x06 = Secondary (Daisy chain PD) 0x07 = Lock all except Power & Volume

Example: IR Remote Control – lock all but power (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x1C	0x03	0x18

7.1.2. Keypad Lock

7.1.2.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x1B**		Request the current status of the Keypad Lock

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x1B	0x1F

7.1.2.2. Message-Report

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x1B**		Report the current status of the Keypad Lock
DATA[1]	Status indicator byte for Keypad Lock		0x01 = Unlock all 0x02 = Lock all 0x03 = Lock all but Power* 0x04 = Lock all but Volume* 0x07 = Lock all except Power & Volume*

(*) not valid for 10BDL3151T & 24BDL2451T

Example: Reporting status of Keypad indicating Lock all for (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x1B	0x02	0x1F

7.1.2.3. Message-Set

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x1A**		Set the Keypad Lock
DATA[1]	Status indicator byte for Keypad Lock		0x01 = Unlock all 0x02 = Lock all 0x03 = Lock all but Power* 0x04 = Lock all but Volume* 0x07 = Lock all except Power & Volume*

(*) not valid for 10BDL3151T & 24BDL2451T

Example: Set Lock all on Keypad for (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x1A	0x02	0x1F

7.2. Remote Control Simulation

This command is used to simulate button presses of the remote control.
Supported from SICP version 2.10 onwards.

7.2.1. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xFE**		Simulate RC button press
DATA[1]	RC Button		0x00 = Key 0 0x01 = Key 1 0x02 = Key 2 0x03 = Key 3 0x04 = Key 4 0x05 = Key 5 0x06 = Key 6 0x07 = Key 7 0x08 = Key 8 0x09 = Key 9 0x0A = Back 0x0D = Mute 0x0F = Info 0x10 = Vol + 0x11 = Vol – 0x28 = FWD 0x2B = RWD 0x2C = Play 0x30 = Pause 0x31 = Stop 0x38 = Sources 0x40 = Options 0x54 = HOME 0x58 = Arrow Up 0x59 = Arrow Down 0x5A = Arrow Left 0x5B = Arrow Right 0x5C = OK 0x6D = Red 0x6E = Green 0x6F = Yellow 0x70 = Blue 0x8B = List 0x90 = Adjust 0xBE = Power On 0xBF = Power Off 0xF5 = Format
DATA[2]			0x00 = Reserved

Examples:

	MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Checksum
Power On	0x07	0x01	**0x00**	0xFE	0xBE	0x00	0x46
OK	0x07	0x01	**0x00**	0xFE	0x5C	0x00	0xA4
Vol +	0x07	0x01	**0x00**	0xFE	0x10	0x00	0xE8

7.3. RS232 Routing

Supported from SICP version 2.07 onwards.

7.3.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x9A**		Requests the current RS232 routing

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x9A	0x9E

7.3.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x9A**		Reports the current RS232 Routing
DATA[1]	RS232 parameter		0x00 = RS232 0x01 = LAN > RS232 0x02 = CARD-OPS > RS232 0x03 = Reserved

Example: Report RS232 routing = LAN > RS232

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x9A	0x01	0x9D

7.3.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x9B**		Set the RS232 Routing
DATA[1]	RS232 parameter		0x00 = RS232 0x01 = LAN > RS232 0x02 = CARD-OPS > RS232 0x03 = Reserved

Examples:

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
RS232	0x06	0x01	**0x00**	0x9B	0x00	0x9C
LAN > RS232	0x06	0x01	**0x00**	0x9B	0x01	0x9D
CARD-OPS > RS232	0x06	0x01	**0x00**	0x9B	0x02	0x9E

7.4. SICP Serial Port Forwarding

This command is only available on the CRD50.
Supported from SICP version 2.07 onwards.

7.4.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xBE**		Request the current SICP Serial Port Forwarding setting

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0xBE	0xBA

7.4.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xBE**		Reports the current SICP Serial Port Forwarding setting
DATA[1]			0x00 = Off (normal RS232) 0x01 = On (RS232 port forwarding)

Example1: Report SICP port forwarding is enabled

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Off	0x06	0x01	**0x01**	0xBE	0x00	0xB8
On	0x06	0x01	**0x01**	0xBE	0x01	0xB9

7.4.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xBF**		Set the SICP Serial Port Forwarding setting
DATA[1]			0x00 = Off (normal RS232) 0x01 = On (RS232 port forwarding)

Examples:

	MsgSize	Control	Group	Data[0]	Data[1]	Checksum
Off	0x06	0x01	0x00	0xBF	0x00	0xB8
On	0x06	0x01	0x00	0xBF	0x01	0xB9

7.5. HDMI One Wire (CEC)

Supported from SICP version 2.07 onwards.

NOTE: Not all displays have the "HDMI One Wire Power Off" setting available. Please check the user manual for your display if this option is available on your display.

7.5.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xBC**		Requests the current HDMI One Wire settings

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0xBC	0xB8

7.5.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xBC**		Reports the current HDMI One Wire settings
DATA[1]			0x00 = Off 0x01 = On "HDMI one wire power off" is available: 0x00 = Off 0x01 = On & "HDMI one wire power off" = Off 0x11 = On & "HDMI one wire power off" = On

Example1: Report HDMI one wire ON and HDMI one wire power off is on

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0xBC	0x01	0xBB

7.5.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xBD**		Set the HDMI One Wire settings
DATA[1]			0x00 = Off 0x01 = On "HDMI one wire power off" is available: 0x00 = Off 0x01 = On & "HDMI one wire power off" = Off 0x11 = On & "HDMI one wire power off" = On

Example1: set HDMI one wire ON and "HDMI one wire power off" = off

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0xBD	0x01	0xBB

7.6. Touch Lock

7.6.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x1F**		Requests the current Touch Lock setting.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x1F	0x1B

7.6.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x1F**		Reports the Touch Lock setting.
DATA[1]	On / Off		0x00 = Touch Off with pin code(locked)* 0x01 = Touch On (unlocked) 0x10 = Touch Off without pin code(locked)** * locked with password and OSD message is displayed when touching the screen. (if supported by the monitor) ** from SICP 2.09 onwards, locked and no OSD message (Touch Locked) is displayed when touching the screen. (if supported by the monitor).

Example: Current settings: Touch Off with pincode (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x1F	0x00	0x19

7.6.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x1E**		Set the Touch Lock.
DATA[1]	On /Off		0x00 = Touch Off with pin code (locked)* 0x01 = Touch On (unlocked) 0x10 = Touch Off without pin code (locked)** * locked with password and OSD message is displayed when touching the screen. (if supported by the monitor) ** from SICP 2.09 onwards, locked and no OSD message (Touch Locked) is displayed when touching the screen. (if supported by the monitor).

Example: Set the Display to the fallowing: Touch Off with pin code (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x1E	0x00	0x19

7.7. Navigation Bar

This command is supported on touch models with a navigation bar.
Supported from SICP version 2.04 onwards, Auto Hide option is supported from SICP version 2.09 onwards.

7.7.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x74**		Requests the current Navigation Bar setting

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x74	0x70

7.7.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x74**		Reports the current Navigation Bar setting
DATA[1]			0x00 = disable navigation bar (Always Off) 0x01 = enable navigation bar (Always On) 0x02 = Auto Hide* * supported from SCIP 2.09 onwards

Example: reply from monitor:

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Off	0x06	0x01	**0x01**	0x74	0x00	0x72
On	0x06	0x01	**0x01**	0x74	0x01	0x73
Auto Hide	0x06	0x01	**0x01**	0x74	0x02	0x70

7.7.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x75**		Set the Navigation Bar setting
DATA[1]			0x00 = disable navigation bar (Always Off) 0x01 = enable navigation bar (Always On) 0x02 = Auto Hide* '* supported from SCIP 2.09 onwards

Examples:

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Off	0x06	0x01	**0x00**	0x75	0x00	0x72
On	0x06	0x01	**0x00**	0x75	0x01	0x73
Auto Hide	0x06	0x01	**0x00**	0x75	0x02	0x70

7.8. Admin Menu

This command is used to open the Android Admin Menu.
Command is supported from SICP version 2.10 onwards.

NOTE 1: When the Pin code to enter the Admin menu is disabled the display will ignore DATA[1] through DATA[6].

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x73**		Open Android Admin menu
DATA[1] through DATA[6]			Pin code to enter Admin menu

Examples:

	MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Data[5]	Data[6]	Checksum
123456	0x0B	0x01	**0x00**	0x73	0x31	0x32	0x33	0x34	0x35	0x36	0x7E
987654	0x0B	0x01	**0x00**	0x73	0x39	0x38	0x37	0x36	0x35	0x34	0x78

NOTE 2: Displays with SICP version 2.04 through 2.09 use the below code to open the Admin Menu.

Example: admin menu will be displayed on the monitor

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x73	0x77

7.9. TeamViewer

This command will enable or disable the possibility of using TeamViewer on Android Displays.
Support from SICP version 2.07 onwards.

7.9.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x93**		Requests the current TeamViewer setting

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x93	0x97

7.9.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x93**		Reports the current TeamViewer setting
DATA[1]	TeamViewer		0x00 = off 0x01 = on

Example: Report TeamViewer On

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x93	0x01	0x94

7.9.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x94**		Enable/Disable TeamViewer
DATA[1]	TeamViewer		0x00 = off 0x01 = on

Example: Set TeamViewer On

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x94	0x01	0x92

7.10. Light Sensor

This command is only available when a CRD41 is used or the display has an internal light sensor. Please review the manual for your display.

7.10.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x25**		Requests the current light sensor settings

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x25	0x21

7.10.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x25**		Reports the current Light Sensor settings

DATA[1]	On / Off		0x00 = Off 0x01 = On 0xFF = HW unavailable in this model

Example: Current Display settings: Off and On (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x25	0x00	0x23
0x06	0x01	**0x01**	0x25	0x01	0x22

7.10.3. Message-Set

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x24**		Set the Light Sensor settings
DATA[1]	On / Off		0x00 = Off 0x01 = On

Example: Set the Display to the fallowing: Light Sensor off (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x24	0x00	0x23

7.11. Human Sensor

This command is only available when a CRD41 is used or the display has an internal light sensor. Please review the manual for your display.
This command is available from SICP version 1.99 onwards.

7.11.1. Message-Get

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0xB3**		Requests the current Human Sensor settings

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0xB3	0xB7

7.11.2. Message-Report

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0xB3**		Reports the current Human Sensor settings
DATA[1]	Off /mins		0x00 = Off 0x01 = 10 mins 0x02 = 20 mins 0x03 = 30 mins 0x04 = 40 mins 0x05 = 50 mins 0x06 = 60 mins 0xFF = HW unavailable in this model

Example: Current Display settings: Off and 30 mins (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0xB3	0x00	0XB5
0x06	0x01	**0x01**	0xB3	0x03	0xB6

7.11.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xB4**		Set the Human Sensor settings
DATA[1]	Off /mins		0x00 = Off 0x01 = 10 mins 0x02 = 20 mins 0x03 = 30 mins 0x04 = 40 mins 0x05 = 50 mins 0x06 = 60 mins

Example: Set the Display to the fallowing: Human Sensor off and 50 mins (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0xB4	0x00	0xB3
0x06	0x01	**0x00**	0xB4	0x05	0xB6

7.12. Off Timer

This command is supported from SICP version 1.99 onwards.

7.12.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x91**		Requests the current Off Timer value

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x91	0x95

7.12.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x91**		Reports the current Off Timer value
DATA[1]	Off /Hours		0x00 = Off 0x01 = 1 Hour 0x02 = 2 Hours 0x03 = 3 Hours 0x04 = 4 Hours … 0x18 = 24 Hours

Example: Current Display settings: Off and 3 hours (Display address 01)

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Off	0x06	0x01	**0x01**	0x91	0x00	0x97
3 Hours	0x06	0x01	**0x01**	0x91	0x03	0x94

7.12.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x92**		Set the Off Timer value
DATA[1]	Off /Hours		0x00 = Off 0x01 = 1 Hour 0x02 = 2 Hours 0x03 = 3 Hours 0x04 = 4 Hours … 0x18 = 24 Hours

Example: Set the Display to the fallowing: Pixel Sensor off and 5 hours (Display address 01)

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Off	0x06	0x01	**0x00**	0x92	0x00	0x95
5 Hours	0x06	0x01	**0x00**	0x92	0x05	0x90

7.13. IP Parameters

This command is used to get/set IP Parameters.
Supported from SICP version 2.10 onwards.

NOTE: All addresses are to be sent to the display without any dots and in full length of 12 numbers.

NOTE: Values are sent/returned in HEX format. Please use Conversion Table HEX-ASCII-DEC to convert between Text(ASCII) and HEX.

7.13.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x82**		Requests the current IP Parameter defined in DATA[1]
DATA[1]			0x01 = IP Address 0x02 = Subnet 0x03 = Gateway 0x04 = DNS 1 0x05 = DNS 2 0x06 = Ethernet MAC Address 0x07 = WiFi MAC Address

Example: Request current IP Address (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x82	0x01	0x84

7.13.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x82**		Reports the current IP Parameter defined in DATA[3]
DATA[1]			0x00 = DHCP 0x01 = Static IP
DATA[2]			0x01 = reserved
DATA[3]	IP Parameter		0x01 = IP Address 0x02 = Subnet 0x03 = Gateway 0x04 = DNS 1 0x05 = DNS 2 0x06 = Ethernet MAC Address 0x07 = WiFi MAC Address
DATA[4] – DATA[15]	Parameter Address		Addresses are returned without any punctuation marks and in full length of 12 characters

Example 1: Current IP Address is Static 192.168.001.010 (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Data[5]	Data[6]
0x14	0x01	**0x01**	0x82	0x01	0x01	0x01	0x31	0x39	0x32
Data[7]	Data[8]	Data[9]	Data[10]	Data[11]	Data[12]	Data[13]	Data[14]	Data[15]	Checksum
0x31	0x36	0x38	0x30	0x30	0x31	0x30	0x31	0x30	0x92

Example 2: Current IP Address is Static, Ethernet MAC address is 08:5B:D6:08:61:B9(Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Data[5]	Data[6]
0x14	0x01	**0x01**	0x82	0x01	0x01	0x06	0x30	0x38	0x35
Data[7]	Data[8]	Data[9]	Data[10]	Data[11]	Data[12]	Data[13]	Data[14]	Data[15]	Checksum
0x42	0x44	0x36	0x30	0x38	0x36	0x31	0x42	0x39	0xE9

7.13.3. Message-Set

NOTE: DATA[2] defines if the IP Parameter sent to the display is put in a queue waiting for confirmation or if it is immediately Set and confirmed. When 0x01 is used all previously queued parameters are set.
Please note that confirming to soon can result in the loss of connection.

NOTE: The display needs all parameters to switch from DHCP to Static. Please make sure that all parameters including both DNS addresses are executed at once so the display is able to stay connected to the network.

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x81**		Change the IP Parameter defined in DATA[3]
DATA[1]			0x00 = DHCP 0x01 = Static IP 0xFF = No Change
DATA[2]	Queue/Confirm		0x00 = Queue change 0x01 = Set and confirm all queued changed
DATA[3]	IP Parameter		0x00 = Reserved(used when DATA[1] is set to DHCP) 0x01 = IP Address 0x02 = Subnet 0x03 = Gateway 0x04 = DNS 1 0x05 = DNS 2
DATA[4] – DATA[15]	Parameter Address		Addresses to be sent without any punctuation marks. In case of DATA[1] is 0x00 = DHCP: DATA[4] – DATA[15] are all 0x00

Example 1: Queue Gateway to Static 192.168.102.001 (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Data[5]	Data[6]
0x14	0x01	**0x00**	0x81	0x01	0x00	0x03	0x31	0x39	0x32
Data[7]	Data[8]	Data[9]	Data[10]	Data[11]	Data[12]	Data[13]	Data[14]	Data[15]	Checksum
0x31	0x36	0x38	0x31	0x30	0x32	0x30	0x30	0x31	0x91

Example 2: Set and confirm IP Address to 192.168.102.235(No Change for DHCP/Static IP) (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Data[5]	Data[6]
0x14	0x01	**0x00**	0x81	0xFF	0x01	0x01	0x31	0x39	0x32
Data[7]	Data[8]	Data[9]	Data[10]	Data[11]	Data[12]	Data[13]	Data[14]	Data[15]	Checksum
0x31	0x36	0x38	0x31	0x30	0x32	0x32	0x33	0x35	0x69

Example 3: Set and Confirm IP address to DHCP(Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Data[5]	Data[6]
0x14	0x01	**0x00**	0x81	0x00	0x01	0x00	0x00	0x00	0x00
Data[7]	Data[8]	Data[9]	Data[10]	Data[11]	Data[12]	Data[13]	Data[14]	Data[15]	Checksum
0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x95

7.14. Wake on LAN(WOL)

Supported from SICP version 2.07 onwards.

7.14.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x9C**		Requests the current Wake on LAN setting

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x9C	0x98

7.14.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x9C**		Reports the current Wake on LAN setting
DATA[1]	Wake on LAN		0x00 = Off 0x01 = On

Exampl1: Report Wake on LAN = On

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x9C	0x01	0x9B

7.14.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x9D**		Set Wake on LAN
DATA[1]	Wake on LAN		0x00 = Off 0x01 = On

Examples:

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Off	0x06	0x01	**0x00**	0x9D	0x00	0x9A
On	0x06	0x01	**0x00**	0x9D	0x01	0x9B

7.15. Monitor ID

This command is used to change the Monitor ID of the display.
Supported from SICP version 2.03 onwards.

7.15.1. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x69**		Change the Monitor ID
DATA[1]	monitor ID		1 to 255 (0x01 to 0xFF)

Example: set the Monitor with monitor ID = 3 to monitor ID = 6

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x03	**0x00**	0x69	0x06	0x6A

7.16. Group ID

Supported from SICP version 1.86 onwards.

7.16.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x5D**		Requests the current Group ID

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x5D	0x59

7.16.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x5D**		Reports the current Group ID
DATA[1]	Group ID		0x01-0xFE = 1-254 0xFF = Off* *Only supported by a select amount of displays, current models do not support this value.

Example: Group ID = 1 (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x5D	0x01	0x5A

7.16.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x5C**		Set the Group ID
DATA[1]	Group ID		0x01-0xFE = 1-254 0xFF = Off* *Only supported by a select amount of displays, current models do not support this value.

Example: set the Group ID = 1 (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x5C	0x01	0x5A

8. Picture

8.1. Freeze Image

This command is supported from SICP version 2.06 onwards.

8.1.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x76**		Requests the current Freeze state

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x76	0x72

8.1.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x76**		Reports the current Freeze state
DATA[1]			0x00 = screen is not frozen 0x01 = screen is frozen

Example: reply from monitor:

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x76	0x00	0x70
0x06	0x01	**0x01**	0x76	0x01	0x71

8.1.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x77**		Freeze/Unfreeze the image
DATA[1]			0x00 = unfreeze screen 0x01 = freeze screen

Example:

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x77	0x00	0x70
0x06	0x01	**0x00**	0x77	0x01	0x71

8.2. A/V Mute

Supported from SICP version 2.09 onwards.
This command will turn off the backlight, mute the audio & turn off the touch function.

8.2.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x7A**		Request the current A/V Mute state

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x7A	0x7E

8.2.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x7A**		Reports the current A/V Mute state
DATA[1]			0x00 = A/V Mute Off 0x01 = A/V Mute On

Example1: Report A/V Mute is on

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x7A	0x01	0x7D

8.2.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x7B**		Set A/V Mute Off or On
DATA[1]			0x00 = A/V Mute Off 0x01 = A/V Mute On

Example1: A/V Mute set it on.

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
A/V Mute Off	0x06	0x01	**0x00**	0x7B	0x00	0x7C
A/V Mute On	0x06	0x01	**0x00**	0x7B	0x01	0x7D

8.3. OSD Rotation

This command defines the orientation of the OSD menu.
Please note that not all displays have this option, if the option is not available in the OSD menu the display does not support this function.

8.3.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x27**		Requests the current OSD rotation setting

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x27	0x23

8.3.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x27**		Reports the current OSD Rotation setting
DATA[1]	On / Off		0x00 = Off 0x01 = On

Example: Current Display settings: Off and On (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x27	0x00	0x21
0x06	0x01	**0x01**	0x27	0x01	0x20

8.3.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x26**		Set the OSD Rotation
DATA[1]	On / Off		0x00 = Off 0x01 = On

Example: Set the Display to the fallowing: OSD rotating Off (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x26	0x00	0x21

8.4. Image Rotation

This command is supported from SICP version 1.90 onwards.
Please review the manual of your display to check if the display supports image rotation.

8.4.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x16**		Requests the current Image Rotation settings

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x16	0x12

8.4.2. Message-Report

NOTE: Himalaya2.0 Platform only support OSD Rotation(DATA[2]) and Image rotation on main window(DATA[4])

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x16**		Reports the current display orientation settings.
DATA[1]	Auto Rotate		0x00 = Off 0x01 = On (only available on Dragon 1 & 1.5 Platforms)
DATA[2]	OSD Rotation		0x00 = Landscape 0x01 = Portrait
DATA[3]	Image All		0x00 = Off 0x01 = On (not supported on the CRD50) 0x02 = On Clock Wise* 0x03 = On Counter Clock Wise* (*) only supported on the CRD50
DATA[4]	Display Window 1(Main)		0x00 = Off 0x01 = On
DATA[5]	Display Window 2(Sub1)		0x00 = Off 0x01 = On
DATA[6]	Display Window 3(Sub2)		0x00 = Off 0x01 = On
DATA[7]	Display Window 4(Sub3)		0x00 = Off 0x01 = On

8.4.3. Message-Set

NOTE: Himalaya 2.0 Platform only support OSD Rotation(DATA[2]) and Image rotation on main window(DATA[4]).
Some monitors don't support rotation (on all the source inputs), check the manual of your monitor.

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x17**		Set the display orientation settings
DATA[1]	Auto Rotate		0x00 = Off 0x01 = On (only available on Dragon 1 & 1.5 Platforms)
DATA[2]	OSD Rotation		0x00 = Landscape 0x01 = Portrait
DATA[3]	Image All		0x00 = Off 0x01 = On (not supported on the CRD50) 0x02 = On Clock Wise*

			0x03 = On Counter Clock Wise* (*) only supported on the CRD50
DATA[4]	Display Window 1(Main)		0x00 = Off 0x01 = On
DATA[5]	Display Window 2(Sub1)		0x00 = Off 0x01 = On
DATA[6]	Display Window 3(Sub2)		0x00 = Off 0x01 = On
DATA[7]	Display Window 4(Sub3)		0x00 = Off 0x01 = On

Examples:(Display address 01)

	MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Data[5]	Data[6]	Data[7]	Checksum
Landscape	0x0C	0x01	**0x00**	0x17	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x1A
Portrait	0x0C	0x01	**0x00**	0x17	0x00	0x01	0x01	0x01	0x00	0x00	0x00	0x1B

8.5. Tiling

8.5.1. Message-Get

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x23**		Requests the current Tiling settings.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x23	0x27

8.5.2. Message-Report

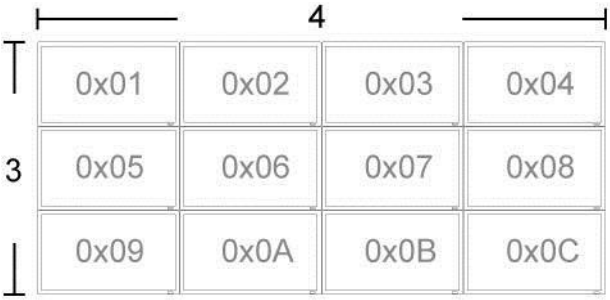
Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x23**		Reports the current Tiling Setting
DATA[1]	Enable		0x00 = No 0x01 = Yes
DATA[2]	Frame comp.		0x00 = No 0x01 = Yes
DATA[3]	Position		0x01 = position 1 0x02 = position 2 … See Positions
DATA[4]	V Monitors, H Monitors		0x00 = don't care 0x01 = V Monitors =1, H Monitors =1 0x02 = V Monitors =1, H Monitors =2 … See Formulas

8.5.2.1. Positions

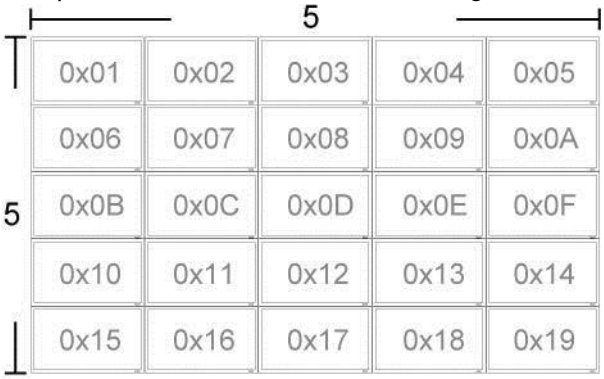
The position is counted from left to right and then from top to bottom.

Maximum values:
Maximum Tiling 15x10: 150(0x96)

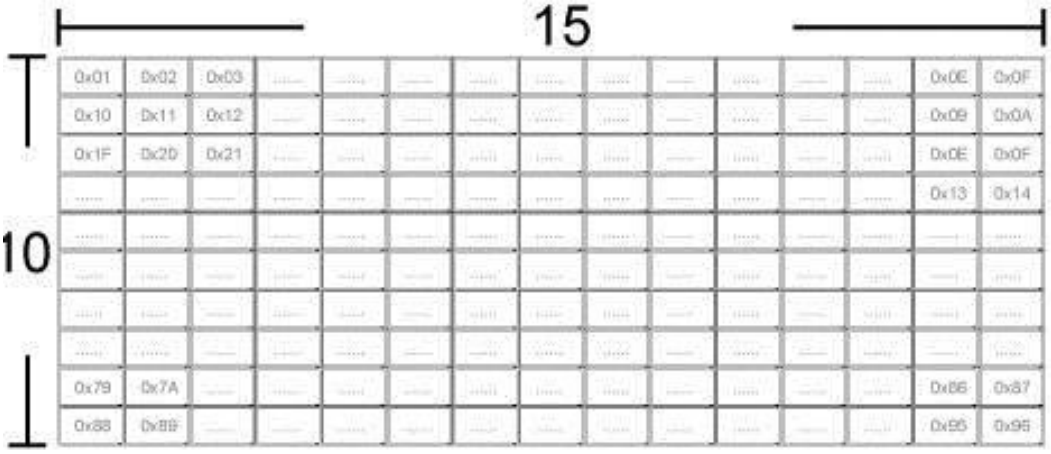
Example 1: Hexadecimal values for a 4x3 Tiling.



Example 2: Hexadecimal values for a 5x5 Tiling.



Example 3: Hexadecimal values for a 15x10 Tiling.



8.5.2.2. Formulas

To calculate the amount of horizontal and vertical monitors using the value of DATA[4] please use the below formulas.

Determine Tiling matrix from DATA[4]:
Convert DATA[4] from HEX to Decimal. *Use the Conversion Table HEX-ASCII-DEC*
Horizontal monitors = (DATA[4] MOD 15)
Vertical monitors = ((INT(DATA[4] / 15) + 1)

Example: DATA[4] = 87(0x57)
Horizontal monitors = (87 MOD 15) = 12
Vertical monitors = ((INT(87/15) + 1) = ((INT(5,8) + 1) = 5 + 1 = 6

Determine DATA[4] from Tiling matrix:
The decimal value of DATA[4] is determined using the following formula.
Decimal DATA[4] = (("V-Mon"-1) x 15 + "H-Mon").
Converting this decimal value to HEX will result in the actual DATA[4] parameter.

8.5.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x22**		Command reports Tiling Setting
DATA[1]	Enable		0x00 = No 0x01 = Yes
DATA[2]	Frame comp.		0x00 = No 0x01 = Yes 0x02 = don't overwrite (keep previous value)
DATA[3]	Position		0x00 = don't overwrite (keep previous value) 0x01 = position 1 0x02 = position 2 … See Positions
DATA[4]	V Monitors, H Monitors		0x00 = don't overwrite (keep previous value) 0x01 = V Monitors =1, H Monitors =1 0x02 = V Monitors =1, H Monitors =2 … See Formulas

Example: Set the display as follows:
Tiling enabled: Yes
Frame comp.: No
Position: 2
H Monitors: 3
V monitors: 2
Display Address: 01

Data [4] value will be (2–1) x 15 + 3 = 18 (hex value: 0x12)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Checksum
0x09	0x01	**0x00**	0x22	0x01	0x00	0x02	0x12	0x3B

8.6. Switch On Delay

8.6.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x55**		Requests the current Switch On Delay setting.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x55	0x51

8.6.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x55**		Reports the current Switch On Delay setting.
DATA[1]	Switch on delay time		0x00 = Off 0x01 = Auto 0x02 = 2 seconds 0x03 = 3 seconds 0x04 = 4 seconds …… 0xFD = 253 seconds 0xFE = 254 seconds 0xFF = 255 seconds

Example: Current Display Switch On Delay (Tiling) Feature settings: Off (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x55	0x01	0x52

8.6.3. Message-Set

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x54**		Set the Switch On Delay setting.
DATA[1]	Switch on delay time		0x00 = Off 0x01 = Auto 0x02 = 2 seconds 0x03 = 3 seconds 0x04 = 4 seconds …… 0xFD = 253 seconds 0xFE = 254 seconds 0xFF = 255 seconds

Example: Set the Display to the fallowing: Switch On Delay (Tiling) Feature: Off (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x54	0x00	0x53

8.7. Frame Compensation

These commands are supported from SICP version 2.03 onwards.

8.7.1. Horizontal Frame Compensation

8.7.1.1. Message-Get

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x5E**		Requests the current Horizontal Frame Compensation value
DATA[1]	Frame compensation Left or Right		0x00 = Frame compensation Horizontal value 0x01 = Frame compensation Left value 0x02 = Frame compensation Right value

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x5E	0x00	0x59

8.7.1.2. Message-Report

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x5E**		Reports the current Horizontal Frame Compensation value
DATA[1]	Frame compensation Left or Right		0x00 = Frame compensation Horizontal value 0x01 = Frame compensation Left value 0x02 = Frame compensation Right value
DATA[2]			0x00 = 00 0x01 = 01 … 0x64 = 100

Example: Current Display settings:

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Checksum
0x07	0x01	**0x01**	0x5E	0x00	0x00	0x59
0x07	0x01	**0x01**	0x5E	0x01	0x03	0x5B

8.7.1.3. Message-Set

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x5F**		Set Horizontal Frame Compensation value
DATA[1]	Frame compensation Left or Right		0x00 = Frame compensation Horizontal value 0x01 = Frame compensation Left value 0x02 = Frame compensation Right value
DATA[2]			0x00 = 00 0x01 = 01 … 0x64 = 100

Example: Current Display settings:

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Checksum
0x07	0x01	**0x00**	0x5F	0x00	0x00	0x59
0x07	0x01	**0x00**	0x5F	0x01	0x03	0x5B

8.7.2. Vertical Frame Compensation

8.7.2.1. Message-Get

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x67**		Requests the current Vertical Frame Compensation value
DATA[1]	Frame compensation Top or Bottom		0x00 = Frame compensation Vertical value 0x01 = Frame compensation Top value 0x02 = Frame compensation Bottom value

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x67	0x00	0x60

8.7.2.2. Message-Report

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x67**		Reports the current Vertical Frame Compensation value
DATA[1]	Frame compensation Top or Bottom		0x00 = Frame compensation Vertical value 0x01 = Frame compensation Top value 0x02 = Frame compensation Bottom value
DATA[2]			0x00 = 00 0x01 = 01 … 0x64 = 100

Example: Current Display settings:

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Checksum
0x07	0x01	**0x01**	0x67	0x00	0x00	0x60
0x07	0x01	**0x01**	0x67	0x01	0x03	0x62

8.7.2.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x68**		Set Vertical Frame Compensation value
DATA[1]	Frame compensation Top or Bottom		0x00 = Frame compensation Vertical value 0x01 = Frame compensation Top value 0x02 = Frame compensation Bottom value
DATA[2]			0x00 = 00 0x01 = 01 … 0x64 = 100

Example: Current Display settings:

MsgSize	Control	Group	Data[0]	Data[1]	Data[2]	Checksum
0x07	0x01	0x00	0x68	0x00	0x00	0x6E
0x07	0x01	0x00	0x68	0x01	0x03	0x6C

8.8. AnyTile(Canvas)

Tiling can be set beyond the OSD menu options and therefore can be flexible to a certain extent allowable by command thresholds.
SPECIAL NOTE: only 2016 Dragon 1.x, Dragon 1.6 & Himalaya2.0 Platforms supports these commands
Those commands only work if the the canvas tiling is activated from the admin menu.

8.8.1. AnyTile Assign Group ID and monitor ID

Change the monitor ID & Group ID of the monitor, this command is only working via IP connection and not via RS232.

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xC0** = Set Group ID & Monitor ID (this command only works via IP)		Change Group ID and monitor ID of the monitor
DATA[1]	Monitor ID		Monitor ID
DATA[2]	Group ID		Group ID

8.8.2. Display monitor ID

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x4C** = Display monitor ID – Set		Enable or Disable displaying monitor ID on the monitor
DATA[1]	Monitor ID		

8.8.3. AnyTile –Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x4A**		Command reports Custom Tiling Setting
DATA[1]	Enable		0x00 = No 0x01 = Yes
DATA[2]	Rotation (lsb)		0 degree > lsb= 0x00 & msb= 0x00 90 degree > lsb= 0x5A & msb= 0x00
DATA[3]	Rotation (msb)		

			270 degree > lsb= 0x0E & msb= 0x10
DATA[4]	Input H Start(lsb)		H Start of captured input picture(lsb).
DATA[5]	Input H Start(msb)		H Start of captured input picture(msb).
DATA[6]	Input V Start(lsb)		V Start of captured input picture(lsb).
DATA[7]	Input V Start(msb)		V Start of captured input picture(msb).
DATA[8]	Input H Size(lsb)		H Size of captured input picture(lsb).
DATA[9]	Input H Size(msb)		H Size of captured input picture(msb).
DATA[10]	Input V Size(lsb)		V Size of captured input picture(lsb).
DATA[11]	Input V Size(msb		V Size of captured input picture(msb).

Example: 05 01 00 4A 4E

Data[4] to Data[11] is the pixel value in hex, max value depends of the panel.
If FHD : max = 1920/1080

8.8.4. AnyTile Set

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x4B**		Set Custom Tiling Setting
DATA[1]	Enable		0x00 = No 0x01 = Yes
DATA[2]	Rotation (lsb)		0 degree > lsb = 0x00 & msb = 0x00 90 degree > lsb = 0x5A & msb = 0x00 270 degree > lsb = 0x0E & msb = 0x10
DATA[3]	Rotation (msb)		
DATA[4]	Input H Start(lsb)		H Start of captured input picture(lsb).
DATA[5]	Input H Start(msb)		H Start of captured input picture(msb).
DATA[6]	Input V Start(lsb)		V Start of captured input picture(lsb).
DATA[7]	Input V Start(msb)		V Start of captured input picture(msb).
DATA[8]	Input H Size(lsb)		H Size of captured input picture(lsb).
DATA[9]	Input H Size(msb)		H Size of captured input picture(msb).
DATA[10]	Input V Size(lsb)		V Size of captured input picture(lsb).
DATA[11]	Input V Size(msb		V Size of captured input picture(msb).

8.8.5. AnyTile Set/Get Resolution Mode

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x4E** = Display monitor ID – Get **0x4F** = Display monitor ID – Set		Set/get the resolution input mode
DATA[1]	Mode		0x00 : default 0x01 : FHD 0x02 : UHD4K

8.9. Picture Style

This command is supported from SICP version 2.03 onwards.

8.9.1. Message-Get

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x65**		Requests the current Picture Style setting

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x65	0x61

8.9.2. Message-Report

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x65**		Reports the current Picture Style
DATA[1]	Picture style*		0x00 = Highbright 0x01 = sRGB 0x02 = Vivid 0x03 = Natural 0x04 = Standard 0x05 = Video 0x06 = Static Signage 0x07 = Text 0x08 = Energy saving 0x09 = Soft 0x0A = User

**: could be that not all the picture styles are available, check the OSD menu of your display*

Example: Current picture style setting: (Display address 01)

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Highbright	0x06	0x01	**0x01**	0x65	0x00	0x63
Natural	0x06	0x01	**0x01**	0x65	0x03	0x62

8.9.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x66**		Set the Picture Style
DATA[1]	Picture style*		0x00 = Highbright 0x01 = sRGB 0x02 = Vivid 0x03 = Natural 0x04 = Standard 0x05 = Video 0x06 = Static Signage 0x07 = Text 0x08 = Energy saving 0x09 = Soft 0x0A = User

**: could be that not all the picture styles are available, check the OSD menu of your monitor*

Example : set picture style to highbright

MsgSize	Control	**Group**	Data[0]	DATA[1]	Checksum
0x06	0x01	**0x00**	0x66	0x00	0x61

8.10. Video Parameters

The following commands are used to define/read the video parameters.

Note 1: This command is not supported on below models:
10BDLxxxxT, 24BDL4151T

Note 2: This command is only supported on external sources(HDMI, DVI, …) and not on Android sources(Browser, Mediaplayer, Custom App) on all models where video parameters are greyed out in the menu when an internal source is active. This includes but is not restricted to the following models:
xxBDL3452T, xxBDL3651T, xxBDL3552T, xxBDL3652T, xxBDL3052E, xxBDL4052E/00 & /02, xxBDL3550Q, xxBDL3650Q, xxBDL4550D

8.10.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x33**		Requests the current video parameters.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x33	0x37

8.10.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x33**		Reports the current video parameters of the display.
DATA[1]	Brightness.		0 to 100 (%) of the user selectable range of the display.
DATA[2]	Color.		0 to 100 (%) of the user selectable range of the display.
DATA[3]	Contrast.		0 to 100 (%) of the user selectable range of the display.
DATA[4]	Sharpness.		0 to 100 (%) of the user selectable range of the display.
DATA[5]	Tint (Hue)		0 to 100 (%) of the user selectable range of the display.
DATA[6]	Black Level		0 to 100 (%) of the user selectable range of the display.
DATA[7]	Gamma Selection		0x01= Native 0x02 = S gamma 0x03 = 2.2 0x04 = 2.4 0x05 = D-image(DICOM gamma)

Example: All video parameters are set to 55%(0x37) & Gamma 2.2 (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Data[5]	Data[6]	Data[7]	Checksum
0x0C	0x01	**0x01**	0x33	0x37	0x37	0x37	0x37	0x37	0x37	0x03	0x3C

Below table it only applicable for Phoenix 2.0 platform. (BDLxx70EL, BDLxx90VL, BDLxx30QL, BDLxx35QL)

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x33**		Reports the current video parameters of the display.
DATA[1]	Brightness.		0 to 100 (%) of the user selectable range of the display.
DATA[2]	Color.		0 to 100 (%) of the user selectable range of the display.
DATA[3]	Contrast.		0 to 100 (%) of the user selectable range of the display.
DATA[4]	Sharpness.		0 to 10 (%) of the user selectable range of the display.
DATA[5]	Tint (Hue)		-50 to +50 (%) of the user selectable range of the display.
DATA[6]	Black Level		0 to 100 (%) of the user selectable range of the display.
DATA[7]	Gamma Selection		0x01= Native 0x02 = S gamma 0x03 = 2.2 0x04 = 2.4 0x05 = D-image(DICOM gamma)

8.10.3. Message-Set

IMPORTANT: Please see note 1 & 2 in chapter 8.1 "Video Parameters".

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x32**		Set the video parameters.
DATA[1]	Brightness.		0 to 100 (%) of the user selectable range of the display. 0xFF no change*
DATA[2]	Color.		0 to 100 (%) of the user selectable range of the display. 0xFF no change*
DATA[3]	Contrast.		0 to 100 (%) of the user selectable range of the display. 0xFF no change*
DATA[4]	Sharpness.		0 to 100 (%) of the user selectable range of the display. 0xFF no change*
DATA[5]	Tint (Hue)		0 to 100 (%) of the user selectable range of the display. 0xFF no change*
DATA[6]	Black Level		0 to 100 (%) of the user selectable range of the display. 0xFF no change*
DATA[7]	Gamma Selection		0x01= Native 0x02 = S gamma 0x03 = 2.2 0x04 = 2.4, 0x05 = D-image(DICOM gamma) 0xFF no change*
			*: 0xFF means the value is not changed in the monitor, supported from SICP2.09 onwards

Example: Set aall video parameters to 55%(0x37) & Gamma 2.2 (Display address 01)

MsgSize	Control	**Group**	Data [0]	Data [1]	Data [2]	Data [3]	Data [4]	Data [5]	Data [6]	Data [7]	Checksum
0x0C	0x01	**0x00**	0x33	0x37	0x37	0x37	0x37	0x37	0x37	0x03	0x3C

Below tables are only applicable for Phoenix 2.0 platform. (BDLxx70EL, BDLxx90VL, BDLxx30QL, BDLxx35QL)

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x32**		Set the video parameters
DATA[1]	Brightness.		0 to 100 (%) of the user selectable range of the display.
DATA[2]	Color.		0 to 100 (%) of the user selectable range of the display.
DATA[3]	Contrast.		0 to 100 (%) of the user selectable range of the display.
DATA[4]	Sharpness.		0 to 10 (%) of the user selectable range of the display.
DATA[5]	Tint (Hue)		-50 to +50 (%) of the user selectable range of the display.
DATA[6]	Black Level		0 to 100 (%) of the user selectable range of the display.
DATA[7]	Gamma Selection		0x01= Native 0x02 = S gamma 0x03 = 2.2 0x04 = 2.4 0x05 = D-image(DICOM gamma)

Below table represents the Tint(Hue) value from -50 to -1.

-50	-49	-48	-47	-46	-45	-44	-43	-42	-41
0xCE	0xCF	0xD0	0xD1	0xD2	0xD3	0xD4	0xD5	0xD6	0xD7
-40	-39	-38	-37	-36	-35	-34	-33	-32	-31
0xD8	0xD9	0xDA	0xDB	0xDC	0xDD	0xDE	0xDF	0xE0	0xE1
-30	-29	-28	-27	-26	-25	-24	-23	-22	-21
0xE2	0xE3	0xE4	0xE5	0xE6	0xE7	0xE8	0xE9	0xEA	0xEB
-20	-19	-18	-17	-16	-15	-14	-13	-12	-11

0xEC	0xED	0xEE	0xEF	0xF0	0xF1	0xF2	0xF3	0xF4	0xF5
-10	-9	-8	-7	-6	-5	-4	-3	-2	-1
0xF6	0xF7	0xF8	0xF9	0xFA	0xFB	0xFC	0xFD	0xFE	0xFF

8.11. Color Temperature

IMPORTANT: Please see note 1 & 2 above in chapter 8.1 "Video Parameters".

8.11.1. Message-Get

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x35**		Requests the current color temperature.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x35	0x31

8.11.2. Message-Report

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x35**		Reports the current color temperature of the display.
DATA[1]	**Color temperature**		0x00 = User 1 0x01 = Native 0x02 = 11000K(Not applicable) 0x03 = 10000K 0x04 = 9300K 0x05 = 7500K 0x06 = 6500K 0x07 = 5770K(Not applicable) 0x08 = 5500K(Not applicable) 0x09 = 5000K 0x0A = 4000K 0x0B = 3400K(Not applicable) 0x0C = 3350K(Not applicable) 0x0D = 3000K 0x0E = 2800K(Not applicable) 0x0F = 2600K(Not applicable) 0x10 = 1850K(Not applicable) 0x12 = User 2

Example: The current color temperature is set to Native (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x35	0x01	0x32

8.11.3. Message-Set

IMPORTANT: Please see note 1 & 2 above in chapter 8.1 "Video Parameters".

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x34**		Set the color temperature
DATA[1]	Color temperature		0x00 = User 1 0x01 = Native 0x02 = 11000K(Not applicable) 0x03 = 10000K 0x04 = 9300K 0x05 = 7500K 0x06 = 6500K 0x07 = 5770K(Not applicable) 0x08 = 5500K(Not applicable) 0x09 = 5000K 0x0A = 4000K 0x0B = 3400K(Not applicable) 0x0C = 3350K(Not applicable) 0x0D = 3000K 0x0E = 2800K(Not applicable) 0x0F = 2600K(Not applicable) 0x10 = 1850K(Not applicable) 0x12 = User 2

Example: Set color temperature to Native (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x34	0x01	0x32

8.12. Color Temperature 100K steps

IMPORTANT: see note 1 & 2 above in chapter 8.1 "Video Parameters".
NOTE: These settings are only available if Color Temperature is set to "User 2"

8.12.1. Message-Get.

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x12**		Requests the current color temperature 100K steps.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x12	0x16

8.12.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x12**		Reports the current color temperature 100K steps of the display.
DATA[1]	**Color temperature steps**		20 to 100 of the user selectable range of the display. 0x14(20) = 2000K 0x15(21)= 2100K 0x16(22) = 2200K …… 0x61(97) = 9700K 0x62(98) = 9800K 0x63(99) = 9900K 0x64(100) = 10000K

NOTE: Following table applicable for Phoenix 2.0 platform only (BDLxx70EL/BDLxx90VL/BDLxx30QL/BDLxx35QL).

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x12**		Reports the current color temperature 100K steps of the display.
DATA[1]	**Color temperature steps**		20 to 100 of the user selectable range of the display. **0x1A(26) = 2600K** **0x1B(27) = 2700K** **0x1C(28) = 2800K** …… 0x61(97) = 9700K 0x62(98) = 9800K 0x63(99) = 9900K 0x64(100) = 10000K

Example: The current color temperature is set to 10000K (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x12	0x64	0x70

8.12.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x11**		Set the color temperature 100K steps.
DATA[1]	Color temperature		20 to 100 of the user selectable range of the display. 0x14(20) = 2000K 0x15(21) = 2100K 0x16(22) = 2200K …… 0x61(97) = 9700K 0x62(98) = 9800K 0x63(99) = 9900K 0x64(100) = 10000K

NOTE: Following table applicable for Phoenix 2.0 platform only (BDLxx70EL/BDLxx90VL/BDLxx30QL/BDLxx35QL).

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x11**		Set the color temperature 100K steps.
DATA[1]	Color temperature		20 to 100 of the user selectable range of the display. **0x1A(26) = 2600K** **0x1B(27) = 2700K** **0x1C(28) = 2800K** …… 0x61(97) = 9700K 0x62(98) = 9800K 0x63(99) = 9900K 0x64(100) = 10000K

Example: Set the color temperature to 10000K (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x11	0x64	0x72

8.13. RGB Parameters

IMPORTANT: see note 1 & 2 above in chapter 8.1 "Video Parameters".
NOTE 1: This command is not working on Platform QL3 on inputs: Browser, PDF Player, Mediaplayer, SmartCMS, Custom
NOTE 2: These settings are only available if Color Temperature is set to "User 1"

8.13.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x37**		Requests the current color parameters.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x37	0x33

8.13.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x37**		Reports the current color parameters of the display.
DATA[1]	Red color gain value		0 to 255 of the user selectable range of the display.
DATA[2]	Green color gain value		0 to 255 of the user selectable range of the display.
DATA[3]	Blue color gain value		0 to 255 of the user selectable range of the display.
DATA[4]	Red color offset value		0 to 255 of the user selectable range of the display.
DATA[5]	Green color offset value		0 to 255 of the user selectable range of the display.
DATA[6]	Blue color offset value		0 to 255 of the user selectable range of the display.

Example: All color parameters are set to 128 (0x80) (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Data[5]	Data[6]	Checksum
0x0B	0x01	**0x01**	0x37	0x80	0x80	0x80	0x80	0x80	0x80	0x3C

8.13.3. Message-Set

IMPORTANT: see note 1 & 2 above in chapter 8.1 "Video Parameters".
NOTE 1: This command is not working on Platform QL3 on inputs: Browser, PDF Player, Mediaplayer, SmartCMS, Custom
NOTE 2: These settings are only available if Color Temperature is set to "User 1"

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x36**		Set the current color parameters
DATA[1]	Red color gain value		0 to 255 of the user selectable range of the display.
DATA[2]	Green color gain value		0 to 255 of the user selectable range of the display.
DATA[3]	Blue color gain value		0 to 255 of the user selectable range of the display.
DATA[4]	Red color offset value		0 to 255 of the user selectable range of the display.
DATA[5]	Green color offset value		0 to 255 of the user selectable range of the display.
DATA[6]	Blue color offset value		0 to 255 of the user selectable range of the display.

Example: Set all color parameters to 128 (0x80) (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Data[5]	Data[6]	Checksum
0x0B	0x01	**0x00**	0x36	0x80	0x80	0x80	0x80	0x80	0x80	0x3C

8.14. Picture Format

8.14.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x3B**		Requests the current picture format.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x3B	0x3F

8.14.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x3B**		Report the current picture format.
DATA[1]	Picture Format*	Bit 7..4	Not used.
		Bit 3..0	Picture Format. 0x00 = Normal (4:3) 0x01 = Custom 0x02 = Real (1:1) 0x03 = Full 0x04 = 21:9 0x05 = Dynamic 0x06 = 16:9

* For further explanations, please see chapter 8.14.3 "Picture Format – Message-Set".

NOTE: DATA [1] value 0x05 = Dynamic is not supported in 2016 Dragon 1.0 platform.

Example: Current Picture Format is Full (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x3B	0x03	0x3E

8.14.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x3A**		Set the specified picture format.
DATA[1]	Picture Format	Bit 7..4	Not used.
		Bit 3..0	Picture Format. 0x00 = Normal 0x01 = Custom 0x02 = Real 0x03 = Full 0x04 = 21:9 0x05 = Dynamic 0x06 = 16:9

NOTE: DATA [1] value 0x05 = Dynamic is not supported in 2016 Dragon 1.0 platform.

The display shall respond with NAV if it receives a Picture Format that is not relevant to its Display Aspect Ratio.
The display shall ignore the [Picture Format – Set] if it receives a Picture Format that it cannot execute.

Example: Set Picture Format to Full (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[0]	Checksum
0x06	0x01	**0x00**	0x3A	0x03	0x3E

8.15. HDMI Input Range

This command is only supported on displays that have the HDMI Range parameter in the OSD menu.
Supported from SICP version 2.06 onwards.

8.15.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x6A**		Requests the current HMDI Input Range

Example: (Display address 01)

MsgSize	Control	Group	Data[0]	Checksum
0x05	0x01	**0x00**	0x6A	0x6E

8.15.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x6A**		Reports the current HDMI Input Range
DATA[1]	HDMI range value		0x01 = Auto 0x02 = Limit(PC) 0x03 = Full(Video)

Example: HDMI range = Limit (Display address 01)

MsgSize	Control	Group	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x6A	0x02	0x6E

8.15.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x6B**		Set the HDMI Input Range
DATA[1]	HMDI range value		0x01 = Auto 0x02 = Limit(PC) 0x03 = Full(Video)

Example: set HDMI range value Full (Display address 01)

MsgSize	Control	Group	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x6B	0x03	0x6F

8.16. Scan Mode

8.16.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x51**		Requests the current Scan Mode setting.

Example: (Display address 01)

MsgSize	Control	Group	Data[0]	Checksum
0x05	0x01	**0x00**	0x51	0x55

8.16.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x51**		Reports the Scan Mode setting.
DATA[1]	Over scan / Under scan		0x00 = Over scan 0x01 = Under scan 0x02 = Off 0x03 > 0x1C (from 0 > 25)*

(*) From 0 > 25 only valid for challenger 2.1 Platform

Example: Current Display Scan Mode Feature settings: Over scan (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x51	0x00	0x57

8.16.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x50**		Command to set the Scan mode Feature of the display enabled or disabled
DATA[1]	Over scan / Under scan		0x00 = Over scan 0x01 = Under scan 0x02 = Off 0x03 > 0x1C (from 0 > 25)*

(*) From 0 > 25 only valid for challenger 2.1 Platform

Example: Set the Display to the fallowing: Scan Mode Feature over scan (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x50	0x00	0x57

8.17. Scan Conversion

NOTE: Please review the user manual of your display to check if your display supports this feature.

8.17.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x53**		Requests the current Scan Conversion setting.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x53	0x57

8.17.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	0x53		Reports the current Scan Conversion setting.
DATA[1]	Progressive / Interlace		0x00 = Progressive 0x01 = Interlace

Example: Current Display Scan Conversion Feature settings: Progressive (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x53	0x00	0x55

8.17.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x52**		Set the Scan Conversion setting.
DATA[1]	Progressive / Interlace		0x00 = Progressive 0x01 = Interlace

Example: Set the Display to the fallowing: Scan Conversion Feature Progressive (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x52	0x00	0x55

8.18. MEMC

NOTE: Please review the user manual of your display to check if the display supports this feature.

8.18.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x29**		Requests the current MEMC setting.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x29	0x2D

8.18.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x29**		Reports the current MEMC setting.
DATA[1]	Off/Low/Medium/High		0x00 = Off 0x01 = Low 0x02 = Medium 0x03 = High

Example: Current Display MEMC settings: Off (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x29	0x00	0x2F

8.18.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x28**		Set the MEMC setting.
DATA[1]	Off/Low/Medium/High		0x00 = Off 0x01 = Low 0x02 = Medium 0x03 = High

Example: Set the Display to the fallowing: MEMC Effect off (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x28	0x00	0x2F

8.19. Noise Reduction

8.19.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x2B**		Requests the current Noise Reduction setting.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x2B	0x2F

8.19.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x2B**		Reports the current Noise Reduction setting.
DATA[1]	Off / Low / Middle / High		0x00 = Off 0x01 = Low 0x02 = Middle 0x03 = High 0x04 = default*

(*) only valid for challenger2.1 Platform

Example: Current Display Noise Reduction Feature settings: Off (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x2B	0x00	0x2D

8.19.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x2A**		Set the Noise Reduction setting.
DATA[1]	Off / Low / Middle / High		0x00 = Off 0x01 = Low 0x02 = Middle 0x03 = High 0x04 = default*

(*) only valid for challenger2.1 Platform

Example: Set the Display to the fallowing: Noise Reduction Feature off (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x2A	0x00	0x2D

8.20. Stretch

Supported from SICP 2.09 onwards. Current supported models: 37BDL3050S

8.20.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x4D**		Request the current Stretch value.

Example: Get the picture Stretch status

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x4D	0x49

8.20.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x4D**		Report the current Stretch status.
DATA[1]	Stretch on-off		0x00 = stretch off 0x01 = stretch on
DATA[2]	Stretch value		0x01 = 10 0x02 = 20 0x03 = 30 0x04 = 40 etc… 0x36 = 540 0xFF = the stretch value is not supported .

Example: Get the picture Stretch status

	MsgSize	Control	**Group**	Data[0]	Data [1]	Data [2]	Checksum
Off	0x07	0x01	**0x01**	0x4D	0x00	0x3C	0x76
Off	0x07	0x01	**0x01**	0x4D	0x00	0x01	0x4B
On / 60	0x07	0x01	**0x01**	0x4D	0x01	0x06	0x4D
On / 100	0x07	0x01	**0x01**	0x4D	0x01	0x0A	0x41
On / N/A	0x07	0x01	**0x01**	0x4D	0x01	0xFF	0xB4
Off / N/A	0x07	0x01	**0x01**	0x4D	0x00	0xFF	0xB5

8.20.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x40**		Set the Stretch parameter from off to 540 (max)
DATA[1]	Stretch on-off		0x00 = stretch off 0x01 = stretch on
DATA[2]	Stretch value		0x01 = 10 0x02 = 20 0x03 = 30 0x04 = 40 etc… 0x36 = 540 This data[2] byte is ignored by the monitor if it is not supported by the monitor.

Example: Set the picture Stretch status

	MsgSize	Control	**Group**	Data[0]	Data [1]	Data [2]	Checksum
Off	0x07	0x01	**0x00**	0x40	0x00	0x00	0x46
On / 10	0x07	0x01	**0x00**	0x40	0x01	0x01	0x46
On / 150	0x07	0x01	**0x00**	0x40	0x01	0x0F	0x48
On / 540	0x07	0x01	**0x00**	0x40	0x01	0x36	0x71

8.21. Pixel Shift

Supported from SICP version 1.99 onwards.

8.21.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xB1**		Requests the current Pixel Shift value

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0xB1	0xB5

8.21.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xB1**		Reports the current Pixel Shift value
DATA[1]	Off /secs		0x00 = Off 0x01 = 10 secs 0x02 = 20 secs 0x03 = 30 secs 0x04 = 40 secs … 0x5A = 900 secs 0x5B = AUTO

Example: Current Display settings: Off and xx secs (Display address 01)

	MsgSize	Control	Group	Data[0]	Data[1]	Checksum
Off	0x06	0x01	**0x01**	0xB1	0x00	0xB7
30 Sec.	0x06	0x01	**0x01**	0xB1	0x03	0xB4

8.21.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xB2**		Set the Pixel Shift value
DATA[1]	Off /mins		0x00 = Off 0x01 = 10 secs 0x02 = 20 secs 0x03 = 30 secs 0x04 = 40 secs … 0x5A = 900 secs 0x5B = AUTO

Example: Set the Display to the fallowing: Pixel Sensor off and 50 secs (Display address 01)

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Off	0x06	0x01	**0x00**	0xB2	0x00	0xB5
50 Sec.	0x06	0x01	**0x00**	0xB2	0x05	0xB0

8.22. Test Pattern

This command is not supported on the xxBDL4550D / xxBDL3550Q / xxBDL3452T / xxBDL3651T.
Supported from SICP version 2.06 onwards.

8.22.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x6C**		Requests the current internal test pattern

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x6C	0x68

8.22.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x6C**		Reports the current test pattern
DATA[1]	Test Pattern		0x00 = off 0x01 = white 100% 0x02 = red 0x03 = green 0x04 = blue 0x05 = black 0x06 = half white Top 0x07 = half white Button 0x08 = ramp 0x09 = white 12% 0x0A = white 25% 0x0B = white 65%

Example: internal red pattern is on (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x6C	0x02	0x68

8.22.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x6D**		Set the internal test pattern
DATA[1]	Test Pattern		0x00 = off 0x01 = white 100% 0x02 = red 0x03 = green 0x04 = blue 0x05 = black 0x06 = half white Top 0x07 = half white Button 0x08 = ramp 0x09 = white 12% 0x0A = white 25% 0x0B = white 65%

Example: set white internal test pattern on (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x6D	0x01	0x6B

8.23. VGA video Parameters

8.23.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x39**		Requests the current VGA video parameters.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x39	0x3D

8.23.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x39**		Reports the current VGA video parameters.
DATA[1]	Clock		0 to 100 (%) of the user selectable range of the display.
DATA[2]	Clock Phase		0 to 100 (%) of the user selectable range of the display.
DATA[3]	H. position		0 to 100 (%) of the user selectable range of the display.
DATA[4]	V. Position		0 to 100 (%) of the user selectable range of the display.

Example: All VGA video parameters are set to 55 % (0x37) (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Checksum
0x09	0x01	**0x01**	0x39	0x37	0x37	0x37	0x37	0x30

8.23.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x38**		Set the VGA current video parameters.
DATA[1]	Clock		0 to 100 (%) of the user selectable range of the display.
DATA[2]	Clock Phase		0 to 100 (%) of the user selectable range of the display.
DATA[3]	H. position		0 to 100 (%) of the user selectable range of the display.
DATA[4]	V. Position		0 to 100 (%) of the user selectable range of the display.

Example: Set all VGA video parameters to 0x37 (55 %) (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Checksum
0x09	0x01	**0x00**	0x38	0x37	0x37	0x37	0x37	0x30

8.24. VGA Auto Adjust

This command works on VGA input only.

8.24.1. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x70**		Command to perform adjustment on VGA Input source.
DATA[1]	Item		0x40 = Auto Adjust (* All other values are reserved *)
DATA[2]			(reserved, default 0)

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Checksum
0x07	0x01	**0x00**	0x70	0x40	0x00	0x36

9. Date & Time Settings

9.1. Date

These commands are used to report or adjust the Date.
Supported from SICP version 2.07 onwards.

9.1.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x95**		Requests the current date

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x95	0x91

9.1.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x95**		Reports the current date
DATA[1]	Date - Day		0 to 31 (0x01 to 0x1F)
DATA[2]	Date - Month		0 to 12 (0x01 to 0x0C)
DATA[3]	Date – Year* - High Byte		0 to 99 (0x00 to 0x63)
DATA[4]	Date – Year* - Low Byte		0 to 99 (0x00 to 0x63)

(*) the max YEAR number is 9999 which is 0x63 high byte value and 0x63 low byte value.
Example: year 2021:
Data[3] = high byte = 21dec = 0x15
Data[4] = low byte = 20dec = 0x14

Example: Report date: 10 April 2021

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Checksum
0x09	0x01	**0x01**	0x95	0x0A	0x04	0x15	0x14	0x93

9.1.3. Message-Set

NOTE: Message-Set only works if the Auto Time Sync is turned off.

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x96**		Set the date
DATA[1]	Date - Day		0 to 31 (0x01 to 0x1F)
DATA[2]	Date - Month		0 to 12 (0x01 to 0x0C)
DATA[3]	Date – Year* - High Byte		0 to 99 (0x00 to 0x63)
DATA[4]	Date – Year* - Low Byte		0 to 99 (0x00 to 0x63)

(*) the max YEAR number is 9999 which is 0x63 high byte value and 0x63 low byte value.
Example: year 2021:
Data[3] = high byte = 21dec = 0x15
Data[4] = low byte = 20dec = 0x14

Example: set date: 28 May 2021

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Checksum
0x09	0x01	**0x00**	0x96	0x1C	0x05	0x15	0x14	0x86

9.2. Clock

These commands are used to report or adjust the Clock.
Supported from SICP version 2.07 onwards.
NOTE: Clock is 24Hour based.

9.2.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x87**		Requests the current Time

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x87	0x83

9.2.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x87**		Reports the the current Time
DATA[1]	Clock hour		0 to 23 (0x00 to 0x17)
DATA[2]	Clock minutes		0 to 59 (0x00 to 0x3B)

Example1: Report clock time = 08:06 (AM)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Checksum
0x07	0x01	**0x00**	0x87	0x08	0x06	0x8F

9.2.3. Message-Set

NOTE: Message-Set only works if the Auto Time Sync is turned off.

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x86**		Set the Time
DATA[1]	Clock hour		0 to 23 (0x00 to 0x17)
DATA[2]	Clock minutes		0 to 59 (0x00 to 0x3B)

Example1: set clock time = 10:08 (AM)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Checksum
0x07	0x01	**0x00**	0x86	0x0A	0x08	0x82

9.3. Auto Time Sync

Supported from SICP version 2.07 onwards.

9.3.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x89**		Requests the current Auto Time Sync setting

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x89	0x8D

9.3.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x89**		Reports the current Auto Time Sync setting
DATA[1]	Auto Time Sync		0x00 = off 0x01 = on

Example: Report Auto Time Sync On

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x89	0x01	0x8E

9.3.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x88**		Set the Auto Time Sync
DATA[1]	Auto Time Sync		0x00 = off 0x01 = on

Example: Set Auto Time Sync On

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x88	0x01	0x8E

9.4. Time Zone

Supported on Android Displays from SICP version 2.07 onwards.

9.4.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x8B**		Requests the current Time Zone.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x8B	0x8F

9.4.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x8B**		Reports the current Time Zone
DATA[1]	Time Zone		See the Time Zone List, Column Data[1]

Example: Report Time Zone London:

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x8B	0x1D	0x90

9.4.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x8A**		Set the Time Zone
DATA[1]	Time zone		See the Time Zone List, Column Data[1]

Example: Set Time Zone Pacific/Fiji

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x8A	0x54	0xD9

9.4.4. Time Zone List

Data[1]	GMT	ID String	Display Name	Description
0x01	-11	Pacific/Midway	Midway Island	Samoa Standard Time
0x02	-10	Pacific/Honolulu	Hawaii	Hawaii-Aleutian Standard Time
0x03	-9	America/Anchorage	Alaska	Alaska Standard Time
0x04	-8	America/Los_Angeles	Pacific Time	Pacific Standard Time
0x05	-8	America/Tijuana	Tijuana	Pacific Standard Time
0x06	-7	America/Phoenix	Arizona	Mountain Standard Time
0x07	-7	America/Chihuahua	Chihuahua	Mexican Pacific Standard Time
0x08	-7	America/Denver	Mountain Time	Mountain Standard Time
0x09	-6	America/Costa_Rica	Central America	Central Standard Time
0x0A	-6	America/Chicago	Central Time	Central Standard Time
0x0B	-6	America/Mexico_City	Mexico City	Central Standard Time
0x0C	-6	America/Regina	Saskatchewan	Central Standard Time
0x0D	-5	America/Bogota	Bogota	Colombia Standard Time
0x0E	-5	America/New_York	Eastern Time	Eastern Standard Time
0x0F	-4	America/Caracas	Venezuela	Venezuela Time
0x10	-4	America/Barbados	Atlantic Time(Barbados)	Atlantic Standard Time
0x11	-4	America/Halifax	Atlantic Time (Canada)	Atlantic Standard Time
0x12	-4	America/Manaus	Manaus	Amazon Standard Time
0x13	-4	America/Santiago	Santiago	Chile Standard Time
0x14	-3.5	America/St_Johns	Newfoundland	Newfoundland Standard Time
0x15	-3	America/Sao_Paulo	Brasilia	Brasilia Standard Time
0x16	-3	America/Argentina/Buenos_Aires	Buenos Aires	Argentina Standard Time
0x17	-3	America/Godthab	Greenland	West Greenland Standard Time
0x18	-3	America/Montevideo	Montevideo	Uruguay Standard Time
0x19	-2	Atlantic/South_Georgia	Mid-Atlantic	South Georgia Time
0x1A	-1	Atlantic/Azores	Azores	Azores Standard Time
0x1B	-1	Atlantic/Cape_Verde	Cape Verde Islands	Cape Verde Standard Time
0x1C	0	Africa/Casablanca	Casablanca	Western European Standard Time
0x1D	0	Europe/London	London, Dublin	Greenwich Mean Time
0x1E	1	Europe/Amsterdam	Amsterdam, Berlin	Central European Standard Time
0x1F	1	Europe/Belgrade	Belgrade	Central European Standard Time
0x20	1	Europe/Brussels	Brussels	Central European Standard Time
0x21	1	Europe/Sarajevo	Sarajevo	Central European Standard Time
0x22	1	Africa/Windhoek	Windhoek	West Africa Standard Time
0x23	1	Africa/Brazzaville	W. Africa Time	West Africa Standard Time
0x24	2	Asia/Amman	Amman, Jordan	Eastern European Standard Time
0x25	2	Europe/Athens	Athens, Istanbul	Eastern European Standard Time
0x26	2	Asia/Beirut	Beirut, Lebanon	Eastern European Standard Time
0x27	2	Africa/Cairo	Cairo	Eastern European Standard Time
0x28	2	Europe/Helsinki	Helsinki	Eastern European Standard Time
0x29	2	Asia/Jerusalem	Jerusalem	Israel Standard Time
0x2A	2	Africa/Harare	Harare	Central Africa Time

0x2B	3	Europe/Minsk	Minsk	Moscow Standard Time
0x2C	3	Asia/Baghdad	Baghdad	Arabian Standard Time
0x2D	3	Europe/Moscow	Moscow	Moscow Standard Time
0x2E	3	Asia/Kuwait	Kuwait	Arabian Standard Time
0x2F	3	Africa/Nairobi	Nairobi	East Africa Time
0x30	3.5	Asia/Tehran	Tehran	Iran Standard Time
0x31	4	Asia/Baku	Baku	Azerbaijan Standard Time
0x32	4	Asia/Tbilisi	Tbilisi	Georgia Standard Time
0x33	4	Asia/Yerevan	Yerevan	Armenia Standard Time
0x34	4	Asia/Dubai	Dubai	Gulf Standard Time
0x35	4.5	Asia/Kabul	Kabul	Afghanistan Time
0x36	5	Asia/Karachi	Islamabad, Karachi	Pakistan Standard Time
0x37	5	Asia/Oral	Ural'sk	West Kazakhstan Time
0x38	5	Asia/Yekaterinburg	Yekaterinburg	Yekaterinburg Standard Time
0x39	5.5	Asia/Calcutta	Kolkata	India Standard Time
0x3A	5.5	Asia/Colombo	Sri Lanka	India Standard Time
0x3B	5.75	Asia/Katmandu	Kathmandu	Nepal Time
0x3C	6	Asia/Almaty	Astana	East Kazakhstan Time
0x3D	6.5	Asia/Rangoon	Yangon	Myanmar Time
0x3E	7	Asia/Krasnoyarsk	Krasnoyarsk	Krasnoyarsk Standard Time
0x3F	7	Asia/Bangkok	Bangkok	Indochina Time
0x40	7	Asia/Jakarta	Jakarta	Western Indonesia Time
0x41	8	Asia/Shanghai	Beijing	China Standard Time
0x42	8	Asia/Hong_Kong	Hong Kong	Hong Kong Standard Time
0x43	8	Asia/Irkutsk	Irkutsk	Irkutsk Standard Time
0x44	8	Asia/Kuala_Lumpur	Kuala Lumpur	Malaysia Time
0x45	8	Australia/Perth	Perth	Australian Western Standard Time
0x46	8	Asia/Taipei	Taipei	Taipei Standard Time
0x47	9	Asia/Seoul	Seoul	Korean Standard Time
0x48	9	Asia/Tokyo	Tokyo, Osaka	Japan Standard Time
0x49	9	Asia/Yakutsk	Yakutsk	Yakutsk Standard Time
0x4A	9.5	Australia/Adelaide	Adelaide	Australian Central Standard Time
0x4B	9.5	Australia/Darwin	Darwin	Australian Central Standard Time
0x4C	10	Australia/Brisbane	Brisbane	Australian Eastern Standard Time
0x4D	10	Australia/Hobart	Hobart	Australian Eastern Standard Time
0x4E	10	Australia/Sydney	Sydney, Canberra	Australian Eastern Standard Time
0x4F	10	Asia/Vladivostok	Vladivostok	Vladivostok Standard Time
0x50	10	Pacific/Guam	Guam	Chamorro Standard Time
0x51	11	Asia/Magadan	Magadan	Magadan Standard Time
0x52	12	Pacific/Majuro	Marshall Islands	Marshall Islands Time
0x53	12	Pacific/Auckland	Auckland	New Zealand Standard Time
0x54	12	Pacific/Fiji	Fiji	Fiji Standard Time
0x55	13	Pacific/Tongatapu	Tonga	Tonga Standard Time

10. Scheduling

10.1. Power & Input Scheduling

10.1.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x5B**		Requests the current schedule for the specified page
DATA[1]	Page		1 to 7 (0x01 to 0x07)

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x5B	0x01	0x5D

10.1.2. Message-Report

NOTE: Only Dragon 1.0, 1.5, 1.6, QL3, 10BDL3051T, 10BDL4151T, 75BDL3151T, CRD50 & Himalaya 2.0 Platforms and all monitors from SICP version 2.05 onwards support DATA[8] to indicate playlist/bookmark/file number.

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x5B**		Reports the current schedule for the specified page
DATA[1]	Page		0x00: Page disable 0x01: Page enable
DATA[2]	Start time hour		0 to 23(0x00 to 0x17) 24(0x18): NULL
DATA[3]	Start time minute		0 to 59(0x00 to 0x3B) 60(0x3C): NULL
DATA[4]	End time hour		0 to 23(0x00 to 0x17) 24(0x18): NULL
DATA[5]	End time minute		0 to 59(0x00 to 0x3B) 60(0x3C): NULL
DATA[6]	Video source		0x00 = NULL 0x01 = VIDEO 0x02 = S-VIDEO 0x03 = COMPONENT 0x04 = CVI 2 (not applicable) 0x05 = VGA 0x06 = HDMI 2 0x07 = Display Port 2 0x08 = USB 2 0x09 = Card DVI-D 0x0A = Display Port 0x0B= Card OPS 0x0C = USB 0x0D= HDMI 0x0E= DVI-D 0x0F = HDMI3 0x10= BROWSER 0x11= SMARTCMS 0X12= DMS (Digital Media Server) 0x13= INTERNAL STORAGE 0x14= reserved 0x15= Reserved 0x16=Media Player 0x17=PDF Player

			0x18=Custom 0x19= HDMI 4 0x1A = VGA2 0x1B = VGA3 0x1C = IWB 0x1D=CMND&Play Web 0x1E= Home/Launcher 0x1F= USB TypeC 0x20= Kiosk 0x21= Smart Info 0x22= Tuner 0x23= Google Cast 0x24= Interact 0x25 = USB TypeC 2
DATA[7]	Working day(s)		To set the scheduling working days. Bit0 = 1: every week Bit1 = Monday Bit2 = Tuesday Bit3 = Wednesday Bit4 = Thursday Bit5 = Friday Bit6 = Saturday Bit7 = Sunday
DATA[8]	Bookmark/Playlist/File Tag(s)		0x01 = Tag 1 0x02 = Tag 2 0x03 = Tag 3 0x04 = Tag 4 0x05 = Tag 5 0x06 = Tag 6 0x07 = Tag 7 0x08 = USB autoplay

Example1: Report page1 with display port starts at 06:30 and ends at 22:00 every day for non android monitors

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]
0x0D	0x01	**0x01**	0x5B	0x01	0x06	0x1E
Data[4]	Data[5]	Data[6]	Data[7]	Data[8]	Checksum	
0x16	0x00	0x0A	0xFF	0x00	0xAC	

Example 2: Every Monday from 06:30 to 22:00 on HDMI 1 for Android Monitors.

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]
0x0D	0x01	**0x01**	0x5B	0x01	0x06	0x1E
Data[4]	Data[5]	Data[6]	Data[7]	Data[8]	Checksum	
0x16	0x00	0x0D	0x03	0x01	0x56	

10.1.3. Message-Set

NOTE: Only Dragon 1.0, 1.5, 1.6, QL3, 10BDL3051T, 10BDL4151T, 75BDL3151T, CRD50 & Himalaya 2.0 Platforms and all monitors from SICP version 2.05 onwards support DATA[8] to indicate playlist/bookmark/file number.

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x5A**		Set the schedule for the specified page
DATA[1]	Page		BIT 7-BIT4: 1 to 7 of the scheduling pages BIT 3-BIT0: 0: Page disable 1: Page enable *Example: Page 2 Enabled = 0x21*
DATA[2]	Start time hour		0 to 23(0x00 to 0x17) 24(0x18): NULL
DATA[3]	Start time minute		0 to 59(0x00 to 0x3B) 60(0x3C): NULL
DATA[4]	End time hour		0 to 23(0x00 to 0x17) 24(0x18): NULL
DATA[5]	End time minute		0 to 59(0x00 to 0x3B) 60(0x3C): NULL
DATA[6]	Video source		0x00 = NULL 0x01 = VIDEO 0x02 = S-VIDEO 0x03 = COMPONENT 0x04 = CVI 2 (not applicable) 0x05 = VGA 0x06 = HDMI 2 0x07 = Display Port 2 0x08 = USB 2 0x09 = Card DVI-D 0x0A = Display Port 0x0B= Card OPS 0x0C= USB 0x0D= HDMI 0x0E= DVI-D 0x0F = HDMI3 0x10= BROWSER 0x11= SMARTCMS 0X12= DMS (Digital Media Server) 0x13= INTERNAL STORAGE 0x14= reserved 0x15= Reserved 0x16=Media Player 0x17=PDF Player 0x18=Custom 0x19= HDMI 4 0x1A = VGA2 0x1B = VGA3 0x1C = IWB 0x1D=CMND&Play Web 0x1E= Home/Launcher 0x1F= USB TypeC 0x20= kiosk 0x21= Smart Info 0x22= Tuner 0x23= Google Cast 0x24= Interact

			0x25 = USB TypeC 2
DATA[7]	Working day(s)		To set the scheduling working days. Bit0 = 1: every week Bit1 = Monday Bit2 = Tuesday Bit3 = Wednesday Bit4 = Thursday Bit5 = Friday Bit6 = Saturday Bit7 = Sunday
DATA[8]	Bookmark/Playlist/File Tag(s)		To set the set Tag from 1 through 7 0x01 = Tag 1 0x02 = Tag 2 0x03 = Tag 3 0x04 = Tag 4 0x05 = Tag 5 0x06 = Tag 6 0x07 = Tag 7 0x08 = USB autoplay

Example: every Monday from 06:30 to 22:00 on HMDI 1for android monitors

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]
0x0D	0x01	**0x00**	0x5A	0x11	0x06	0x1E
Data[4]	Data[5]	Data[6]	Data[7]	Data[8]	Checksum	
0x16	0x00	0x0D	0x03	0x01	0x46	

10.2. Brightness Scheduling

This command is used to change the Brightness parameter in the scheduler page.
Supported form SICP version 2.09 onwards.
NOTE: Not all displays have this parameter available. Please review the manual of your display or check the OSD menu.

10.2.1. Message-Get

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x7C**		Request the current Brightness of the specified scheduler page
DATA[1]	Page		1 to 7 (0x01 to 0x07)

Example: Request the Brightness for scheduler page 1 (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x7C	0x01	0x7A

10.2.2. Message-Report

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x7C**		Reports the current brightness setting of the specified page
DATA[1]	Brightness		

Examples:

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Off	0x06	0x01	**0x01**	0x7C	0xFF	0x85
50%	0x06	0x01	**0x01**	0x7C	0x32	0x48
100%	0x06	0x01	**0x01**	0x7C	0x64	0x1E

10.2.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x7D**		Set the Brightness for the specified scheduler page
DATA[1]	Page		0x00 = All pages 0x01 to 0x07 = Page 1 to 7
DATA[2]	Brightness		0 to 100% (0x00 to 0x64) 0xFF = Off

Examples:

	MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Checksum
All Pages 25%	0x07	0x01	**0x00**	0x7D	0x00	0x19	0x62
Page 2: 50%	0x07	0x01	**0x00**	0x7D	0x02	0x32	0x4B
Page 1: 75%	0x07	0x01	**0x00**	0x7D	0x01	0x4B	0x31

10.3. Reset Scheduler

Supported from SICP version 2.09 onwards.

10.3.1. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x60**		Set the default values for the specified scheduler page
DATA[1]			0x00 = reset all the scheduler pages 0x01 to 0x07 = Reset page 1 through 7

Examples:

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Reset all pages	0x06	0x01	**0x00**	0x60	0x00	0x67
Reset page 1	0x06	0x01	**0x00**	0x60	0x01	0x66

11. Miscellaneous

11.1. Power On Logo

11.1.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x3F**		Requests the current Power On Logo setting.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x3F	0x3B

11.1.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x3F**		Reports the current Power On Logo setting.
DATA[1]	Off / On / User		0x00 = Off 0x01 = On 0x02 = User

Example: Current Display Power On logo setting: Off (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x3F	0x00	0x39

11.1.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x3E**		Set the Power On Logo setting.
DATA[1]	Off / On / User		0x00 = Off 0x01 = On 0x02 = User

Example: Set the Display to the fallowing: Power on logo Off (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x3E	0x00	0x39

11.2. External Storage Lock(MicroSD/USB Lock)

This command locks all the USB and MicroSD ports. At Lock state connected devices will receive power but won't be recognizable/accessible. By default, this feature is unlocked.

11.2.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xF2**		Request External Storage Lock state

Example:

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0xF2	0xF6

11.2.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xF2**		Reports the current External Storage Lock state
DATA[1]			0x00 = Unlocked (default) 0x01 = Locked

Examples:

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Unlocked	0x06	0x01	**0x01**	0xF2	0x00	0xF4
Locked	0x06	0x01	**0x01**	0xF2	0x01	0xF5

11.2.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xF1**		Set External Storage Lock
DATA[1]			0x00 = Unlock 0x01 = Lock

Examples:

	MsgSize	Control	Group	Data[0]	Data[1]	Checksum
Unlock	0x06	0x01	0x00	0xF1	0x00	0xF6
Lock	0x06	0x01	0x00	0xF1	0x01	0xF7

11.3. Information OSD

This feature determines how long the OSD notifications are visible on screen.

11.3.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x2D**		Requests the current Information OSD setting

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x2D	0x29

11.3.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x2D**		Reports the current Information OSD setting.
DATA[1]	Off, 1 – 60		0x00 = Off 0x01 – 0x3C = 1 – 60

Example: Current Display Information OSD Feature settings: Off (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x2D	0x00	0x2B

11.3.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x2C**		Set the Information OSD setting.
DATA[1]	Off, 1 – 60		0x00 = Off 0x01 – 0x3C = 1 – 60

Example: Set the Display to the fallowing: Information OSD Feature: Off (Display address 01)

MsgSize	Control	Group	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x2C	0x00	0x2B

11.4. OSD Language

Supported from SICP version 2.07 onwards.

11.4.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xA7**		Request the current OSD Language

Example: (Display address 01)

MsgSize	Control	Group	Data[0]	Checksum
0x05	0x01	**0x00**	0xA7	0xA3

11.4.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xA7**		Reports the current OSD Language
DATA[1]			See Language Table, Column DATA[1]

Example1: Report English language.

MsgSize	Control	Group	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0xA7	0x01	0xA0

11.4.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xA8**		Set the OSD Language
DATA[1]			See Language Table, Column DATA[1]

Example1: Set English language.

MsgSize	Control	Group	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0xA8	0x01	0xAE

11.4.4. Language Table

DATA[1]	ID String	Support Language	Display String
0x01	en_US	ENGLISH	English
0x02	es_ES	SPANISH	Español
0x03	fr_FR	FRENCH	Français
0x04	it_IT	ITALIAN	Italiano
0x05	lv_LV	LATVIAN	Latviešu
0x06	lt_LT	LITHUANIAN	Lietuvių
0x07	nl_NL	DUTCH	Nederlands
0x08	nb_NO	NORWEGIAN	Norsk bokmål
0x09	pl_PL	POLSKI	Polski
0x0A	pt_PT	PORTUGUESE	Português
0x0B	fi_FI	FINNISH	Suomi
0x0C	sv_SE	SWEDISH	Svenska
0x0D	tr_TR	TURKISH	Türkçe
0x0E	ru_RU	RUSSIAN	Русский
0x0F	ar_EG	ARABIC	العربية
0x10	zh_CN	SIMPLIFIED CHINESE	中文(简体)
0x11	zh_TW	TRADITIONAL CHINESE	中文(繁體)
0x12	ja_JP	JAPANESE	日本語
0x13	cs_CZ	CZECH	Čeština
0x14	da_DK	DANISH	Dansk
0x15	de_DE	GERMAN	Deutsch
0x16	et_EE	ESTONIAN	Eesti
0x17*	el_EL	GREEK	ελληνικά

**Supported from SICP version 2.10 onwards*

11.5. Power LED

Supported from SICP version 2.08 onwards.

11.5.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x48**		Request the current Power LED setting

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x48	0x4C

11.5.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x48**		Reports the current Power LED setting
DATA[1]			0x00 = LED Off 0x01 = LED On

Example1: Report Power LED is on

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x48	0x01	0x4F

11.5.3. Message-Set

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x49**		Set the Power LED setting
DATA[1]			0x00 = LED Off 0x01 = LED On

Examples:

	MsgSize	Control	Group	Data[0]	Data[1]	Checksum
LED Off	0x06	0x01	0x00	0x49	0x00	0x4E
LED On	0x06	0x01	0x00	0x49	0x01	0x4F

11.6. Auto Restart

Supported from SICP version 2.07 onwards.

11.6.1. Message-Get

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x9E**		Requests the current Auto Restart settings

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x9E	0x9A

11.6.2. Message-Report

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x9E**		Reports the current Auto Restart settings
DATA[1]	Auto restart on-off		0x00 = Off 0x01 = On
DATA[2]	Auto restart hour		0 to 23 (0x00 to 0x17) 24 (0x18): NULL
DATA[3]	Auto restart minutes		0 to 59 (0x00 to 0x3B) 60 (0x3C): NULL

Example1: Report auto restart enabled & restart time = 08:06 (AM)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Checksum
0x08	0x01	**0x01**	0x9E	0x01	0x08	0x06	0x99

11.6.3. Message-Set

Bytes	**Bytes Description**	**Bits**	**Description**
DATA[0]	**0x9F**		Set the Auto Restart settings
DATA[1]	Auto restart on-off		0x00 = Off 0x01 = On
DATA[2]	Auto restart hour		0 to 23 (0x00 to 0x17)
DATA[3]	Auto restart minutes		0 to 59 (0x00 to 0x3B)

Example1: enable the auto restart and set restart time time = 10:08 (AM)

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Checksum
0x08	0x01	**0x00**	0x9F	0x01	0x0A	0x08	0x95

11.7. Force Restart Custom App

Supported from SICP version 2.08 onwards.

11.7.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x78**		Request the current Force Restart Custom App setting

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x78	0x7C

11.7.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x78**		Reports the current Force Restart Custom App setting
DATA[1]			0x00 = Off 0x01 = On

Example1: Report Force restart custom app is on

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x78	0x01	0x7F

11.7.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x79**		Set the Force Restart Custom App setting
DATA[1]			0x00 = Off 0x01 = On

Examples:

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Off	0x06	0x01	**0x00**	0x79	0x00	0x7E
On	0x06	0x01	**0x00**	0x79	0x01	0x7F

11.8. LED Strip 10BDLxx51T

The RGB LED strips can be switched on or off and the color can be defined.
Both sides are controlled by the same command and there is no individual control possible.
xxBDL3051T supports dimming for each color with a range from 0 to 255. Later models only support on and off for each color, 0 or 255.

11.8.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xF4**		Request current LED light values

Example: LED strips are On and show Orange

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0xF4	0xF0

11.8.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xF4**		Report current LED light values
DATA[1]	Light up status		0x00 = Off (default) 0x01 = On
DATA[2]	Red value		0x00 = Off 0xFF = On *For 10BDL3051T only:* *Range from 0x00 to 0xFF*
DATA[3]	Green value		0x00 = Off 0xFF = On *For 10BDL3051T only:* *Range from 0x00 to 0xFF*
DATA[4]	Blue value		0x00 = Off 0xFF = On *For 10BDL3051T only:* *Range from 0x00 to 0xFF*

Example: LED strips are On and show Orange

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Checksum
0x09	0x01	**0x01**	0xF4	0x01	0xFF	0xFF	0x00	0xFC

11.8.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0xF3**		Set LED Strips On/Off and Choose color
DATA[1]	Light up status		0x00 = Off (default) 0x01 = On
DATA[2]	Red value		0x00 = Off 0xFF = On *For 10BDL3051T only:* *Range from 0x00 to 0xFF*
DATA[3]	Green value		0x00 = Off 0xFF = On *For 10BDL3051T only:* *Range from 0x00 to 0xFF*
DATA[4]	Blue value		0x00 = Off 0xFF = On *For 10BDL3051T only:* *Range from 0x00 to 0xFF*

Example: Set LED strips On and show Cyan

MsgSize	Control	**Group**	Data[0]	Data[1]	Data[2]	Data[3]	Data[4]	Checksum
0x09	0x01	**0x00**	0xF3	0x01	0x00	0xFF	0xFF	0xFA

11.9. Send screenshot

Take a screenshot of current source and send it via Email**.**

This command is supported from SCIP 2.02 onwards.

NOTES:

- Different models may not be able to take a screenshot of all sources. Video layers & external sources can't be captured either.
- Email information should be set in Settings-> Signage Display -> Server Settings -> Email Notification
- The screenshot will be named, {yyyy-MM-dd-HH-mm-ss}.png and saved in {internal storage}/Philips/Screenshots

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x58**		Take a screenshot

Example: Take a screenshot

MsgSize	Control	Group	Data[0]	Checksum
0x05	0x01	0x00	0x58	0x5C

11.10. Fan Speed

Supported from SICP version 1.87.

Please review the user manual of your display to check if the display supports this feature.

11.10.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x62**		Requests the current Fan Speed setting.

Example: (Display address 01)

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x62	0x66

11.10.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x62**		Reports the current Fan Speed setting.
DATA[1]	Off / Auto / Low / Middle / High		0x00 = Off 0x01 = Auto 0x02 = Low 0x03 = Middle 0x04 = High

Example: Current Display Fan Speed settings: Off (Display address 01)

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x62	0x00	0x64

11.10.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x61**		Set the Fan Speed.
DATA[1]	Off / Auto / Low / Middle / High		0x00 = Off 0x01 = Auto 0x02 = Low 0x03 = Middle 0x04 = High

Example: Set the Display to the fallowing: Fan Speed off (Display address 01)

MsgSize	Control	Group	Data[0]	Data[1]	Checksum
0x06	0x01	0x00	0x61	0x00	0x66

11.11. Factory Color Calibration

Supported from SICP 2.09 onwards.

11.11.1. Message-Get

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x31**		Request the current Factory Color Calibration status.

Example: get the Factory colour calibration

MsgSize	Control	**Group**	Data[0]	Checksum
0x05	0x01	**0x00**	0x31	0x35

11.11.2. Message-Report

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x31**		Report the Factory Color Calibration status.
DATA[1]			0x00 = Factory color calibration off 0x01 = Factory color calibration locked 0x02 = Factory color calibration adjustable

Examples: (Display address 01)

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Off	0x06	0x01	**0x01**	0x31	0x00	0x37
Locked	0x06	0x01	**0x01**	0x31	0x01	0x36
Adjustable	0x06	0x01	**0x01**	0x31	0x02	0x35

11.11.3. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x30**		Set the Factory Color Calibration.
DATA[1]			0x00 = Factory color calibration off 0x01 = Factory color calibration locked 0x02 = Factory color calibration adjustable

Examples: (Display address 01)

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Off	0x06	0x01	**0x00**	0x30	0x00	0x37
Locked	0x06	0x01	**0x00**	0x30	0x01	0x36
Adjustable	0x06	0x01	**0x00**	0x30	0x02	0x35

11.12. Firmware Upgrade

Supported on Android displays from SICP version 2.06 onwards.

NOTE: The Android firmware file(update.zip) must be located in the root path of the internal storage of the display. The root path is the path you see when you are connected to the display via FTP or MicroUSB.

11.12.1. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x20**		Invoke the android firmware upgrade
DATA[1]	reserved		Reserved for future use.

Example: Start the firmware upgrade.

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x00**	0x20	0x00	0x27

Upon start of the firmware upgrade the display will respond with the following message:

MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
0x06	0x01	**0x01**	0x20	0x06	0x20

The system will restart and continue the update flow, it will take 5+ mins in total.
After system restart the Get firmware command can be used to check if the upgrade was successful.

11.13. Clear Storage

Supported from SICP version 2.09 onwards.

The command clears all the data in the folder named “philips” under the root directory of the targeted storage.

11.13.1. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x2E**		Clear the targeted storage.
DATA[1]			0x00 = Erase all 0x01 = Internal storage 0x02 = USB storage 0x03 = SD storage

Examples:

	MsgSize	Control	Group	Data[0]	Data[1]	Checksum
Clear All	0x06	0x01	0x00	0x2E	0x00	0x29
Clear Internal Storage	0x06	0x01	0x00	0x2E	0x01	0x28
Clear USB Storage	0x06	0x01	0x00	0x2E	0x02	0x2B
Clear SD Storage	0x06	0x01	0x00	0x2E	0x03	0x2A

11.14. Factory Reset

11.14.1. Message-Set

Bytes	Bytes Description	Bits	Description
DATA[0]	**0x56**		Command to do the Factory Reset of the display
DATA[1]			0x01 = Scaler 0x02 = Android

Example: Factory reset Scaler

	MsgSize	Control	**Group**	Data[0]	Data[1]	Checksum
Scaler	0x06	0x01	**0x00**	0x56	0x01	0x50
Android	0x06	0x01	**0x00**	0x56	0x02	0x53

12. Platforms

Very often this document refers to platforms. Please find below a list of models and their corresponding platform.

Model	Platform	Model	Platform	Model	Platform	Model	Platform	Model	Platform
10BDL3051T	10BDL3051T	BDL6520EL	eagle 1.2	BDL5586XL	eagle 1.3	65BDL3000Q	Phoenix 1.0	55BDL1005/7X	Phoenix 1.0
32BDL4050D	Dragon 1.0	BDL6524ET/02	eagle 1.2	BDL8470EU	Himalaya	65BDL3010T	Phoenix 1.0	BDL4990VL	Phoenix 2.0
43BDL4050D	Dragon 1.0	BDL3250EL	eagle 1.3	BDL8470QT	Himalaya	BDL3260EL	Phoenix 1.0	BDL5570EL	Phoenix 2.0
43BDL4051T	Dragon 1.0	BDL4250EL	eagle 1.3	BDL8470QU	Himalaya	BDL4260EL	Phoenix 1.0	BDL5590VL	Phoenix 2.0
49BDL4050D	Dragon 1.0	BDL4252EL	eagle 1.3	BDL9870EU	Himalaya	BDL4280VL	Phoenix 1.0	xxBDL3050Q	QL3
55BDL4050D	Dragon 1.0	BDL4254ET	eagle 1.3	75BDL3000U	Himalaya 1.2	BDL4660EL	Phoenix 1.0	XxBDL4051D	Dragon 1.6
55BDL4051T	Dragon 1.0	BDL4256ET	eagle 1.3	75BDL3010T	Himalaya 1.2	BDL4680VL	Phoenix 1.0	xxBDL4150D	Himalaya 2.0
65BDL3051T	Dragon 1.0	BDL4271VL	eagle 1.3	75BDL3003H	Himalaya 1.2	BDL4765EL	Phoenix 1.0	xxBDL3010Q	Challenger 2.1
65BDL4050D	Dragon 1.0	BDL4650EL	eagle 1.3	BDL3220QL	MTK5580	BDL4780VH	Phoenix 1.0	10BDL4151T	Discovery 1.1
42BDL5055P	Dragon 1.5	BDL4652EL	eagle 1.3	BDL4220QL	MTK5580	BDL4988XC	Phoenix 1.0	CRD50	CRD50
42BDL5057P	Dragon 1.5	BDL4671VL	eagle 1.3	BDL4235DL	MTK5580	BDL4988XL	Phoenix 1.0	xxBDL4031D	Dragon 1a
49BDL5055P	Dragon 1.5	BDL4677XH	eagle 1.3	BDL4620QL	MTK5580	BDL5560EL	Phoenix 1.0	10BDL4551T	10BDL4551T
49BDL5057P	Dragon 1.5	BDL4678XL	eagle 1.3	BDL5520QL	MTK5580	BDL5580VL	Phoenix 1.0	xxBDL6051C	BDL6051C 1.0
55BDL5055P	Dragon 1.5	BDL4776XL	eagle 1.3	BDL3230QL	MTK5580P2	BDL5588XC	Phoenix 1.0	xxBDL3552T	BDL3552T 1.0
55BDL5057P	Dragon 1.5	BDL4777XH	eagle 1.3	BDL4330QL	MTK5580P2	BDL5588XH	Phoenix 1.0	xxBDL8051C	BDL8051C 1.0
BDL4676XL	eagle	BDL4777XL	eagle 1.3	BDL4335QL	MTK5580P2	BDL5588XL	Phoenix 1.0	xxBDL3451T	BDL3452T 3.0
BDL4677XL	eagle	BDL5551EL	eagle 1.3	BDL4830QL	MTK5580P2	BDL6520QL	Phoenix 1.0	xxBDL3651T	BDL3651T 3.0
BDL4682XL	eagle	BDL5554ET	eagle 1.3	BDL4835QL	MTK5580P2	BDL6526QT	Phoenix 1.0	xxBDL3550Q	BDL3550Q
BDL5585XL	eagle	BDL5556ET	eagle 1.3	BDL5530QL	MTK5580P2	BDL4270EL	Phoenix 2.0	xxBDL4550D	BDL4550D 3.0
BDL5587XL	eagle	BDL5571VL	eagle 1.3	BDL5535QL	MTK5580P2	BDL4290VL	Phoenix 2.0	xxBDL3510Q	Challenger 2.1
BDL6551V	eagle	BDL5586XH	eagle 1.3	55BDL1005X	Phoenix 1.0	BDL4970EL	Phoenix 2.0	xxBDL4510D	Challenger 2.1
xxBDL3017P	Challenger 2.1	xxBDL2005X	Phoenix 1.1	xxBDL310x	Phoenix 1.1	xxBDL4005X	Phoenix 1.1	xxBDL3005	Phoenix 1.1
24BDL4151T	Dragon 2								

13. Conversion Table HEX-ASCII-DEC

HEX	DEC	Abbr		HEX	DEC	ASCII		HEX	DEC	ASCII		HEX	DEC	ASCII
0	0	NUL		20	32	Space		40	64	@		60	96	`
1	1	SOH		21	33	!		41	65	A		61	97	a
2	2	STX		22	34	“		42	66	B		62	98	b
3	3	ETX		23	35	#		43	67	C		63	99	c
4	4	EOT		24	36	$		44	68	D		64	100	d
5	5	ENQ		25	37	%		45	69	E		65	101	e
6	6	ACK		26	38	&		46	70	F		66	102	f
7	7	BEL		27	39	‘		47	71	G		67	103	g
8	8	BS		28	40	(		48	72	H		68	104	h
9	9	HT		29	41	)		49	73	I		69	105	i
0A	10	LF		2A	42	*		4A	74	J		6A	106	j
0B	11	VT		2B	43	+		4B	75	K		6B	107	k
0C	12	FF		2C	44	,		4C	76	L		6C	108	l
0D	13	CR		2D	45	-		4D	77	M		6D	109	m
0E	14	SO		2E	46	.		4E	78	N		6E	110	n
0F	15	SI		2F	47	/		4F	79	O		6F	111	o
10	16	DLE		30	48	0		50	80	P		70	112	p
11	17	DC1		31	49	1		51	81	Q		71	113	q
12	18	DC2		32	50	2		52	82	R		72	114	r
13	19	DC3		33	51	3		53	83	S		73	115	s
14	20	DC4		34	52	4		54	84	T		74	116	t
15	21	NAK		35	53	5		55	85	U		75	117	u
16	22	SYN		36	54	6		56	86	V		76	118	v
17	23	ETB		37	55	7		57	87	W		77	119	w
18	24	CAN		38	56	8		58	88	X		78	120	x
19	25	EM		39	57	9		59	89	Y		79	121	y
1A	26	SUB		3A	58	:		5A	90	Z		7A	122	z
1B	27	ESC		3B	59	;		5B	91	[		7B	123	{
1C	28	FS		3C	60	<		5C	92	\		7C	124	|
1D	29	GS		3D	61	=		5D	93	]		7D	125	}
1E	30	RS		3E	62	>		5E	94	^		7E	126	~
1F	31	US		3F	63	?		5F	95	_				
7F	127	DEL												

HEX	DEC		HEX	DEC		HEX	DEC		HEX	DEC
80	128		A0	160		C0	192		E0	224
81	129		A1	161		C1	193		E1	225
82	130		A2	162		C2	194		E2	226
83	131		A3	163		C3	195		E3	227
84	132		A4	164		C4	196		E4	228
85	133		A5	165		C5	197		E5	229
86	134		A6	166		C6	198		E6	230
87	135		A7	167		C7	199		E7	231
88	136		A8	168		C8	200		E8	232
89	137		A9	169		C9	201		E9	233
8A	138		AA	170		CA	202		EA	234
8B	139		AB	171		CB	203		EB	235
8C	140		AC	172		CC	204		EC	236
8D	141		AD	173		CD	205		ED	237
8E	142		AE	174		CE	206		EE	238
8F	143		AF	175		CF	207		EF	239
90	144		B0	176		D0	208		F0	240
91	145		B1	177		D1	209		F1	241
92	146		B2	178		D2	210		F2	242
93	147		B3	179		D3	211		F3	243
94	148		B4	180		D4	212		F4	244
95	149		B5	181		D5	213		F5	245
96	150		B6	182		D6	214		F6	246
97	151		B7	183		D7	215		F7	247
98	152		B8	184		D8	216		F8	248
99	153		B9	185		D9	217		F9	249
9A	154		BA	186		DA	218		FA	250
9B	155		BB	187		DB	219		FB	251
9C	156		BC	188		DC	220		FC	252
9D	157		BD	189		DD	221		FD	253
9E	158		BE	190		DE	222		FE	254
9F	159		BF	191		DF	223		FF	255

14. Command Summary

Command Name	Set Command	Get Command	Command Code	Remarks
			0x00	
			0x01	
			0x02	
			0x03	
			0x04	
			0x05	
			0x06	
			0x07	
			0x08	
			0x09	
			0x0A	
			0x0B	
			0x0C	
			0x0D	
			0x0E	
Miscellaneous info	√		0x0F	Operating Hours
			0x10	
Color Temperature 100K – Set	√		0x11	
Color Temperature 100K – Get		√	0x12	
			0x13	
Reserved			0x14	
Serial Code Get		√	0x15	
Display orientation get		√	0x16	
Display orientation set	√		0x17	
Power state Set	√		0x18	
Power state Get		√	0x19	
Keypad Lock status Set	√		0x1A	
Keypad Lock status Get		√	0x1B	
IR Lock status Set	√		0x1C	
IR Lock status Get		√	0x1D	
Touch Feature Set	√		0x1E	Himalaya 1.0 – no support
Touch Feature Get		√	0x1F	Himalaya 1.0 – no support
Start android firmware upgrade	√		0x20	
			0x21	
Tiling Set	√		0x22	
Tiling Get		√	0x23	
Light Sensor Set	√		0x24	
Light Sensor Get		√	0x25	
OSD Rotating Set	√		0x26	
OSD Rotating Get		√	0x27	
MEMC Effect Set	√		0x28	
MEMC Effect Get		√	0x29	
Noise Reduction Set	√		0x2A	
Noise Reduction Get		√	0x2B	
Information OSD Features Set	√		0x2C	
Information OSD Features Get		√	0x2D	
Clear storage	√		0x2E	
Temperature Get		√	0x2F	
Factory color calibration Set	√		0x30	
Factory color calibration Get		√	0x31	

Video parameters Set	√		0x32	
Video parameters Get		√	0x33	
Color Temperature Set	√		0x34	
Color Temperature Get		√	0x35	
Color Parameters Set	√		0x36	
Color Parameters Get		√	0x37	
VGA Video Parameters Set	√		0x38	
VGA Video Parameters Get		√	0x39	
Picture Format Set	√		0x3A	
Picture Format Get		√	0x3B	
Picture-in-picture Set	√		0x3C	
Picture-in-picture Get		√	0x3D	
Power On logo Set	√		0x3E	
Power On logo Get		√	0x3F	
Stretch - Set	√		0x40	
Volume up/down Set	√		0x41	
Audio parameters Set	√		0x42	
Audio parameters Get		√	0x43	
Volume Set	√		0x44	
Volume Get		√	0x45	
Volume mute Get		√	0x46	
Volume mute Set	√		0x47	
Power LED Get		√	0x48	
Power LED Set	√		0x49	
Custom tiling report/get		√	0x4A	
Custom tiling set	√		0x4B	
Display monitor ID – Set	√		0x4C	
Stretch - Get		√	0x4D	
Canvas Display monitor ID – Get		√	0x4E	
Canvas Display monitor ID – Set	√		0x4F	
Scan Mode Set	√		0x50	
Scan Mode Get		√	0x51	
Scan Conversion Set	√		0x52	Himalaya 1.0 – no support
Scan Conversion Get		√	0x53	Himalaya 1.0 – no support
Switch On Delay Set	√		0x54	
Switch On Delay Get		√	0x55	
Factory Reset Set	√		0x56	
Reboot monitor	√		0x57	
Send screenshot	√		0x58	
Videosignal present		√	0x59	
Scheduling Set	√		0x5A	
Scheduling Get		√	0x5B	
Group ID Set	√		0x5C	
Group ID Get		√	0x5D	
Get Horz frame compensation value		√	0x5E	
Set Horz frame compensation value	√		0x5F	
Scheduling reset	√		0x60	
Fan Speed status Set	√		0x61	
Fan Speed status Get		√	0x62	
ECO mode Get		√	0x63	
ECO mode Set	√		0x64	
Picture style Get		√	0x65	
Picture style Set	√		0x66	
Get Vert frame compensation value		√	0x67	
Set Vert frame compensation value	√		0x68	

Set monitor ID	√		0x69	
HDMI input range – Get		√	0x6A	
HDMI input range – Set	√		0x6B	
Testpattern – Get		√	0x6C	
Testpattern – Set	√		0x6D	
OPS – SDM settings – Get		√	0x6E	
OPS – SDM settings - Set	√		0x6F	
Auto Adjust	√		0x70	VGA only
Picture mute get		√	0x71	
Picture mute set	√		0x72	
Enter admin menu	√		0x73	
Enable/disable navigation bar Get		√	0x74	
Enable/disable navigation bar Set	√		0x75	
FREEZE/UNFREEZE screen Get		√	0x76	
FREEZE/UNFREEZE screen Set	√		0x77	
Force restart custom App – Get		√	0x78	
Force restart custom App – Set	√		0x79	
A/V Mute Get		√	0x7A	
A/V Mute Set	√		0x7B	
Scheduling Brighntess Get		√	0x7C	
Scheduling Brightness Set	√		0x7D	
			0x7E	
			0x7F	
			0x80	
IP Parameters	√		0x81	
IP Parameters		√	0x82	
			0x83	
PIP source Set	√		0x84	
PIP source Get		√	0x85	
			0x86	
			0x87	
			0x88	
			0x89	
Time zone Set	√		0x8A	
Time zone Get		√	0x8B	
			0x8C	
			0x8D	
Speakers on-off Set	√		0x8E	
Speakers on-off Get		√	0x8F	
			0x90	
Off Timer Get		√	0x91	
Off Timer Set	√		0x92	
Teamviewer Get		√	0x93	
Teamviewer Set	√		0x94	
Date Get		√	0x95	
Date Set	√		0x96	
			0x97	
			0x98	
			0x99	
RS232 routing Get		√	0x9A	
RS232 routing Set	√		0x9B	
WOL Get		√	0x9C	
WOL Set	√		0x9D	
Auto restart Get		√	0x9E	
Auto restart Set	√		0x9F	

			0xA0	
Model Number, FW, Build date		√	0xA1	
Platform and version labels		√	0xA2	
Power state at cold start Set	√		0xA3	
Power state at cold start Get		√	0xA4	
Failover Set	√		0xA5	
Failover Get		√	0xA6	
Language – Get		√	0xA7	
Language - Set	√		0xA8	
			0xA9	
			0xAA	
			0xAB	
Input Source	√		0xAC	
Current Source		√	0xAD	
Auto Signal Detecting Set	√		0xAE	
Auto Signal Detecting Get		√	0xAF	
			0xB0	
Pixel Shift Get		√	0xB1	
Pixel Shift Set	√		0xB2	
Human sensor Get		√	0xB3	
Human sensor Set	√		0xB4	
			0xB5	
Volume Limit Speaker out Get		√	0xB6	
Volume limit Audio out Get		√	0xB7	
Volume limits Speaker out Set	√		0xB8	
Volume limit Audio out Set	√		0xB9	
Boot on source get		√	0xBA	
Boot on source set	√		0xBB	
HDMI one wire Get		√	0xBC	
HDMI one wire Set	√		0xBD	
SICP Serial port Forwarding-Set	√		0xBE	
SICP Serial port Forwarding-Get		√	0xBF	
AnyTile Assign Group ID and Mon ID	√		0xC0	
Channel number Get		√	0xC1	
Channel number Set	√		0xC2	
Channel number Step +/-	√		0xC3	
			0xC4	
			0xC5	
			0xC6	
			0xC7	
			0xC8	
			0xC9	
			0xCA	
			0xCB	
			0xCC	
			0xCD	
			0xCE	
			0xCF	
APM status Set	√		0xD0	
APM status Get		√	0xD1	
Power Save status Set	√		0xD2	
Power Save status Get		√	0xD3	
			0xD4	
			0xD5	
			0xD6	

			0xD7	
			0xD8	
			0xD9	
			0xDA	
			0xDB	
			0xDC	
Smart power Set	√		0xDD	Dimming backlight
Smart power Get		√	0xDE	Dimming backlight
			0xDF	
			0xE0	
			0xE1	
			0xE2	
			0xE3	
			0xE4	
			0xE5	
			0xE6	
			0xE7	
			0xE8	
			0xE9	
			0xEA	
			0xEB	
			0xEC	
			0xED	
			0xEE	
			0xEF	
			0xF0	
External Storage Lock Set	√		0xF1	
External Storage Lock Get		√	0xF2	
Led Control Set	√		0xF3	
Led Control Get		√	0xF4	
			0xF5	
			0xF6	
			0xF7	
			0xF8	
			0xF9	
			0xFA	
Custom Multi-Win Set	√		0xFB	Himalaya 1.0 - no support
Custom Multi-Win Set	√		0xFC	Himalaya 1.0 - no support
Custom Multi-Win Get		√	0xFD	Himalaya 1.0 - no support
Remote Control Simulation	√		0xFE	
			0xFF	

15. Revision History

V1.6 → V1.7

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Power state at cold start	Get	**0xA4**	
Power state at cold start	Set	**0xA3**	
Picture-in-Picture	Get	**0x3D**	
Picture-in-Picture	Set	**0x3C**	
PIP Source	Get	**0x85**	
PIP Source	Set	**0x84**	
Smart Power	Get	**0xDE**	Dimming Backlight
Smart Power	Set	**0xDD**	Dimming Backlight

V1.7 → V1.8

Added Commands

Command Name	Get/Set	Command Code	Remarks
Light Sensor	Get	**0x25**	
Light Sensor	Set	**0x24**	
OSD Rotation	Get	**0x27**	
OSD Rotation	Set	**0x26**	
MEMC	Get	**0x29**	
MEMC	Set	**0x28**	
Touch Lock	Get	**0x1F**	
Touch Lock	Set	**0x1E**	

V1.8 → V1.82

Added Commands

Command Name	Get/Set	Command Code	Remarks
User Input Control State	Get	**0x1B**	
User Input Control State	Set	**0x1A**	
Color Temperature	Get	**0x35**	
Color Temperature	Set	**0x34**	
Color Parameters	Get	**0x37**	
Color Parameters	Set	**0x36**	

V1.8 → V1.82 (Change definition of byte 2)

Old definition

Number of Byte	Name of Byte	Description
Byte 1	MsgSize	Message Size has to be calculated in the following way: MsgSize + Control + Data(0) + … + Data(N) + Checksum Range = 3 to 40 (0x3 to 0x28).
Byte 2	Control	Message Control. Bit 7..6: (reserved; set to 00) Bit 5..0: Monitor ID [Display Address range from 0 to 64]
Byte 3	Control for Broadcast commands	Message Control. Bit 7: Does not allow Replies. Set to 1 to indicate no ACK or Report is expected. Bit 6: (reserved; set to zero) Bit 5..0: Monitor ID [Display Address range from 0 to 64] **Reserved for RS232 chaining**: all zeroes means all devices in the chain.

NEW definition

Number of Byte	Name of Byte	Description
Byte 1	MsgSize	Message Size has to be calculated in the following way: MsgSize + Control + Data(0) + … + Data(N) + Checksum Range = 3 to 40 (0x3 to 0x28).
Byte 2	Control	**Message Control.** **Bit 7..0: Monitor ID** **Signal mode: Display Address range from 1 to 255** **Broadcast mode: Display Address is 0 which indicates no ACK or Report is expected.**

V1.84 → V1.85

Added Commands

Command Name	Get/Set	Command Code	Remarks
VGA Video Parameters	Get	**0x39**	
VGA Video Parameters	Set	**0x38**	
Information OSD	Get	**0x2D**	
Information OSD	Set	**0x2C**	
Noise Reduction	Get	**0x2B**	
Noise Reduction	Set	**0x2A**	
Scan Mode	Get	**0x51**	
Scan Mode	Set	**0x50**	
Scan Conversion	Get	**0x53**	
Scan Conversion	Set	**0x52**	
Switch on Delay	Get	**0x55**	
Switch on Delay	Set	**0x54**	
Factory Reset	Set	**0x56**	

V1.85 → V1.86

Added Group Byte

Number of Byte	Name of Byte	Description
Byte 3	Group	Group ID Range: Off(for old command), 1-254 **Monitor ID** / **Group ID** / — **0-255** / **0-254** / **Range** **0** / **0** / **Broadcast** **1-255** / **0** / **Control by Monitor ID** **0-255** / **1-254** / **Control by Group ID**

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Video Parameters	Get	**0x33**	Added DICOM gamma to DATA[7]: Gamma Selection 0x01= Native, 0x02 = S gamma, 0x03 = 2.2, 0x04 = 2.4, **0x05 = D-image(DICOM gamma)**
Video Parameters	Set	**0x32**	Added DICOM gamma to DATA[7]: Gamma Selection 0x01= Native, 0x02 = S gamma, 0x03 = 2.2, 0x04 = 2.4, **0x05 = D-image(DICOM gamma)**

Added Commands

Command Name	Get/Set	Command Code	Remarks
Power & Input Scheduling	Get	**0x5B**	
Power & Input Scheduling	Set	**0x5A**	
Group ID	Get	**0x5D**	
Group ID	Set	**0x5C**	

V1.86 → V1.87

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Color Temperature	Get	**0x35**	Added "User 2" to DATA[1]: Color temperature. **0x12 = User 2**
Color Temperature	Set	**0x34**	Added "User 2" to DATA[1]: Color temperature. **0x12 = User 2**

Added Commands

Command Name	Get/Set	Command Code	Remarks
Power On Logo	Get	**0x3F**	
Power On Logo	Set	**0x3E**	
Fan Speed	Get	**0x62**	
Fan Speed	Set	**0x61**	

Advanced Power Management	Get	**0xD1**	
Advanced Power Management	Set	**0xD0**	
Power Save Mode	Get	**0xD3**	
Power Save Mode	Set	**0xD2**	
Failover	Get	**0xA6**	
Failover	Set	**0xA5**	
Volume Step	Set	**0x41**	
Color Temperature 100K steps	Get	**0x12**	
Color Temperature 100K steps	Set	**0x11**	

V1.87 → V1.88 August 2015

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Input Source	Get	**0xAC**	Added additional inputs
Input Source	Set	**0xAD**	Added additional inputs
PIP Source	Get	**0x85**	Added additional inputs
PIP Source	Set	**0x84**	Added additional inputs
Picture-in-Picture	Get	**0x3D**	Added quadrant fields to select Q2, Q3, Q4
Picture-in-Picture	Set	**0x3C**	Added quadrant fields to select Q2, Q3, Q4
Auto Signal Detection	Get	**0xAF**	Removed "All except USB". Replaced with "Reserved"
Auto Signal Detection	Set	**0xAE**	Removed "All except USB". Replaced with "Reserved"
Failover	Get	**0xA6**	Added additional inputs
Failover	Set	**0xA5**	Added additional inputs
Power & Input Scheduling	Get	**0x5B**	Added additional inputs
Power & Input Scheduling	Set	**0x5A**	Added additional inputs
SICP Version & Platform Information	Get	**0xA2**	Added "Plaform Label" to DATA[1] **0x01 = Platform Label**
Volume	Get	**0x45**	Added DATA[2]: Audio Out
Volume	Set	**0x44**	Added DATA[2]: Audio Out

Added Commands

Command Name	Get/Set	Command Code	Remarks
Remote Control Lock	Get	**0x1D**	
Remote Control Lock	Set	**0x1C**	
Keypad Lock	Get	**0x1B**	
Keypad Lock	Set	**0x1A**	
Model & Firmware Information	Get	**0xA1**	
Speaker Volume Limits	Get	**0xB6**	
Speaker Volume Limits	Set	**0xB8**	
Audio Output Volume Limits	Get	**0xB7**	
Audio Output Volume Limits	Set	**0xB9**	
Custom Multi-Win	Get	**0xFD**	
Custom Multi-Win	Set	**0xFC**	
Custom Multi-Win	Set	**0xFB**	
MIC Color Calibration	Set	**0xFE**	
Picture Format	Get	**0x3B**	

Picture Format	Set	**0x3A**	

Modified & Added Notes/Comments

Command Name	Get/Set	Command Code	Remarks
Video Parameters	Get	**0x33**	Special Data set for Phoenix 2.0 Platform
Video Parameters	Set	**0x32**	Special Data set for Phoenix 2.0 Platform
Color Temperature 100K steps	Get	**0x12**	Special Data set for Phoenix 2.0 Platform
Color Temperature 100K steps	Set	**0x11**	Special Data set for Phoenix 2.0 Platform
Volume	Get	**0x45**	Special Data set for Phoenix 2.0 Platform
Volume	Set	**0x44**	Special Data set for Phoenix 2.0 Platform
Audio Parameters	Get	**0x43**	Special Data set for Phoenix 2.0 Platform
Audio Parameters	Set	**0x42**	Special Data set for Phoenix 2.0 Platform

V1.88 → V1.89 March 2016

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Color Temperature	Get	**0x35**	Changed DATA[1] naming from "Nature" to "Native"
Color Temperature	Set	**0x34**	Changed DATA[1] naming from "Nature" to "Native"
Input Source	Get	**0xAD**	Added additional inputs
Input Source	Set	**0xAC**	Added additional inputs

V1.89 → V1.90 April 2016

Modified Commands

Command Name	Get/Set	Command Code	Remarks
AnyTile(Canvas)	Get	**0x4A**	
AnyTile(Canvas)	Set	**0x4B**	
Advanced Power Management	Get	**0xD1**	
Advanced Power Management	Set	**0xD0**	
Power Save Mode	Get	**0xD3**	
Power Save Mode	Set	**0xD2**	
Light Sensor	Get	**0x25**	
PIP Source	Get	**0x85**	Added additional inputs
PIP Source	Set	**0x84**	Added additional inputs
Tiling	Get	**0x23**	
Tiling	Set	**0x22**	
Picture-in-Picture	Get	**0x3D**	
Picture-in-Picture	Set	**0x3C**	

Added Commands

Command Name	Get/Set	Command Code	Remarks
Display Orientation	Get	**0x16**	
Display Orientation	Set	**0x17**	

Modified & Added Notes/Comments

Command Name	Get/Set	Command Code	Remarks
Custom Multi-Win	Get	**0xFD**	Special Note added
Custom Multi-Win	Set	**0xFC**	Special Note added
Custom Multi-Win	Set	**0xFB**	Special Note added

V1.90 → V1.91 April 2016

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Display Orientation	Get	**0x16**	
Display Orientation	Set	**0x17**	

V1.91 → V1.92 April 2016

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Power & Input Scheduling	Get	**0x5B**	Added DATA[8]: Playlist/URL/File Tag
Power & Input Scheduling	Set	**0x5A**	Added DATA[8]: Playlist/URL/File Tag

V1.92 → V1.93 June 2016

- Checksum correction
- Typo corrections

V1.93 → V1.97 September 2016

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Platform and Version Labels	Get	**0xA2**	Added "Platform Version" to DATA[1] **0x02 = Platform Version**

Added Commands

Command Name	Get/Set	Command Code	Remarks
LED Strip	Get	**0xF4**	
LED Strip	Set	**0xF3**	
External Storage Lock	Get	**0xF2**	
External Storage Lock	Set	**0xF1**	

Modified & Added Notes/Comments

Command Name	Get/Set	Command Code	Remarks
Power State	Get	**0x19**	Special Note added
Power State	Set	**0x18**	Special Note added

V1.97 → V1.98 April 2017

- Group byte example inclusion
- TCP/IP communication port definition added
- Checksum corrections
- Typo corrections
- PIP source platform name changes

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Volume	Get	**0x45**	Changed valid range. Old: 0x00 – 0xFE **New:** 0x00 – 0x64
Volume	Set	**0x44**	Changed valid range. Old: 0x00 – 0xFE **New:** 0x00 – 0x64

Modified & Added Notes/Comments

Command Name	Get/Set	Command Code	Remarks
Volume Step	Set	**0x41**	Note added with regards to models with no variable audio output

V1.98 → V1.99 October 2017

- Checksum corrections
- Add QL3.0 models in Platform list
- Updated phase 2 and 3 phrasing to "after V1.2xx" and "after V1.3xx"
- Updated Command Summary

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Volume Step	Set	**0x41**	Added "0x02 = No Change" to DATA[1] & [2]
Input Source	Get	**0xAD**	Added additional inputs
Input Source	Set	**0xAC**	Added additional inputs
Power & Input Scheduling	Get	**0x5B**	Added additional inputs
Power & Input Scheduling	Set	**0x5A**	Added additional inputs
Failover	Get	**0xA6**	Added additional inputs
Failover	Set	**0xA5**	Added additional inputs
Picture-in-Picture Source	Get	**0x85**	Added additional inputs
Picture-in-Picture Source	Set	**0x84**	Added additional inputs

Added Commands

Command Name	Get/Set	Command Code	Remarks
Pixel Shift	Get	**0xB1**	
Pixel Shift	Set	**0xB2**	
Off Timer	Get	**0x91**	
Off Timer	Set	**0x92**	
Human Sensor	Get	**0xB3**	

Human Sensor	Set	**0xB4**	

V1.99 → V2.00 December 2017

- Updated Platform List
- Updated Platform exceptions throughout document
- Updated the Command Summary

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Advanced Power Management	Get	**0xD1**	Added "0x02 = Mode 1" & "0x03 = Mode 2" to DATA[1]
Advanced Power Management	Set	**0xD0**	Added "0x02 = Mode 1" & "0x03 = Mode 2" to DATA[1]

Added Commands

Command Name	Get/Set	Command Code	Remarks
ECO Mode	Get	**0x63**	
ECO Mode	Set	**0x64**	
Picture Style	Get	**0x65**	
Picture Style	Set	**0x66**	
Volume Mute	Get	**0x46**	
Volume Mute	Set	**0x47**	

Modified & Added Notes/Comments

Command Name	Get/Set	Command Code	Remarks
Picture-in-Picture	Get	**0x3D**	Changed notes to reflect diversity in Himalaya Platform versions
Picture-in-Picture	Set	**0x3C**	Changed notes to reflect diversity in Himalaya Platform versions
AnyTile (Canvas)			Added Himalaya 2.0 platform to the notes

V2.00 → V2.01 July 2018

- Updated Platform name: Dragon 2.0 changed to Dragon 1.6
- Platform names of the following models changed from Dragon 2.0 to Himalaya 2.0: 65" to 98" BDL4150D

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Input Source	Get	**0xAD**	Added Playlist/URL tags to DATA[2]
Input Source	Set	**0xAC**	Added Playlist/URL tags to DATA[2]

Added Commands

Command Name	Get/Set	Command Code	Remarks

Modified & Added Notes/Comments

Command Name	Get/Set	Command Code	Remarks
Video Parameters			Added Note to exclude command on internal sources of QL3 platform
RGB Parameters			Added Note to exclude command on internal sources of QL3 platform

V2.01 → V2.02 October 2018

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Model & Firmware Information	Get	**0xA1**	Added "0x03 = Android FW Version" to DATA[1]
Image Rotation	Get	**0x16**	Added "0x02 = On Clockwise" & "0x03 = On Counter Clockwise" to DATA[3] for CRD50 Added note: "0x01 = On" (Not supported on CRD50)
Image Rotation	Set	**0x17**	Added "0x02 = On Clockwise" & "0x03 = On Counter Clockwise" to DATA[3] for CRD50 Added note: "0x01 = On" (Not supported on CRD50)

Added Commands

Command Name	Get/Set	Command Code	Remarks
Monitor Restart	Set	**0x57**	
Send Screenshot	Set	**0x58**	

Modified & Added Notes/Comments

Command Name	Get/Set	Command Code	Remarks
LED STRIP 10BDLxx51T			Changed description to remove API information
Model & Firmware Information	Get	**0xA1**	Remove specification to report multiple firmware versions with a space between them

V2.02 → V2.03 June 2019

- Updated Command Summary

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Picture Style	Get	**0x65**	Added "0x09 = Soft" & "0x0A = User" to DATA[1]
Picture Style	Set	**0x66**	Added "0x09 = Soft" & "0x0A = User" to DATA[1]
Scan Mode	Get	**0x51**	Added "0x03 > 0x1C" to DATA[1] for Challenger 2.1 platform
Scan Mode	Set	**0x50**	Added "0x03 > 0x1C" to DATA[1] for Challenger 2.1 platform

Noise Reduction	Get	**0x2B**	Added "0x04 = default" to DATA[1] for Challenger 2.1 platform
Noise Reduction	Set	**0x2A**	Added "0x04 = default" to DATA[1] for Challenger 2.1 platform
Power Saving Mode status	Get	**0xD3**	Added "0x04 = Mode 3" & "0x05 = Mode 4" to DATA[1]
Power Saving Mode status	Set	**0xD2**	Added "0x04 = Mode 3" & "0x05 = Mode 4" to DATA[1]

Added Commands

Command Name	Get/Set	Command Code	Remarks
Video Present	Get	**0x59**	
Frame Compensation Horz	Get	**0x5E**	
Frame Compensation Horz	Set	**0x5F**	
Frame Compensation Vert	Get	**0x67**	
Frame Compensation Vert	Set	**0x68**	
Backlight	Get	**0x71**	
Backlight	Set	**0x72**	

Modified & Added Notes/Comments

Command Name	Get/Set	Command Code	Remarks
Keypad Lock	Get	**0x1B**	Added a note excluding two models
Keypad Lock	Set	**0x1A**	Added a note excluding two models
Model & Firmware Information	Get	**0xA1**	Added supported models for DATA[1] "0x03 = Android FW version"

V2.03 → V2.04 September 2019

- Updated Command Summary

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Frame Compensation Horz	Get	**0x5E**	DATA[1] transferred to DATA[2] New DATA[1] added to define Left/Right values
Frame Compensation Horz	Set	**0x5F**	DATA[1] transferred to DATA[2] New DATA[1] added to define Left/Right values
Frame Compensation Vert	Get	**0x67**	DATA[1] transferred to DATA[2] New DATA[1] added to define Top/Bottom values
Frame Compensation Vert	Set	**0x68**	DATA[1] transferred to DATA[2] New DATA[1] added to define Top/Bottom values
Input Source	Get	**0xAD**	Added "0x1D = CMND&Play Web" to DATA[1]
Input Source	Set	**0xAC**	Added "0x1D = CMND&Play Web" to DATA[1]
Failover	Get	**0xA6**	Added "0x17 = CMND&Play Web" to DATA[1] through DATA[17]
Failover	Set	**0xA5**	Added "0x17 = CMND&Play Web" to DATA[1] through DATA[14]
Power & Input Scheduling	Get	**0x5B**	Added "0x1D = CMND&Play Web" to DATA[6]
Power & Input Scheduling	Set	**0x5A**	Added "0x1D = CMND&Play Web" to DATA[6]

PIP Source	Get	**0x85**	Added "0x1D = CMND&Play Web" to DATA[1], DATA[2], DATA[3] & DATA[4]
PIP Source	Set	**0x84**	Added "0x1D = CMND&Play Web" to DATA[1], DATA[2], DATA[3] & DATA[4]

Added Commands

Command Name	Get/Set	Command Code	Remarks
Enter Admin Menu	Set	**0x73**	
Navigation Bar	Get	**0x74**	
Navigation Bar	Set	**0x75**	

V2.04 → V2.05 February 2020

- Removed other baud rate values, only 9600 is supported
- Scheduling examples corrected
- Updated Command Summary

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Input Source	Get	**0xAD**	Added "0x08 = USB Autoplay" to DATA[2]
Input Source	Set	**0xAC**	Added "0x08 = USB Autoplay" to DATA[2]
Power & Input Scheduling	Get	**0x5B**	Added "0x08 = USB Autoplay" to DATA[8]
Power & Input Scheduling	Set	**0x5A**	Added "0x08 = USB Autoplay" to DATA[8]

Added Commands

Command Name	Get/Set	Command Code	Remarks
Number of Input Sources	Get	**0xAB**	
Boot on Source	Get	**0xBA**	
Boot on Source	Set	**0xBB**	

V2.05 → V2.06 November 2020

- Scheduling examples corrected
- Updated Command Summary

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Input Source	Get	**0xAD**	Added "0x1E = Home/Launcher" & "0x1F = USB TypeC" to DATA[1]
Input Source	Set	**0xAC**	Added "0x1E = Home/Launcher" & "0x1F = USB TypeC" to DATA[1]
Failover	Get	**0xA6**	Added "0x18 = Home/Launcher" & "0x19 = USB TypeC" to DATA[1] through DATA[17]
Failover	Set	**0xA5**	Added "0x18 = Home/Launcher" & "0x19 = USB TypeC" to DATA[1] through DATA[14]
Power & Input Scheduling	Get	**0x5B**	Added "0x1E = Home/Launcher" & "0x1F = USB TypeC" to DATA[6]

Power & Input Scheduling	Set	**0x5A**	Added "0x1E = Home/Launcher" & "0x1F = USB TypeC" to DATA[6]
PIP Source	Get	**0x85**	Added "0x1E = USB TypeC" to DATA[1], DATA[2], DATA[3] & DATA[4]
PIP Source	Set	**0x84**	Added "0x1E = USB TypeC" to DATA[1], DATA[2], DATA[3] & DATA[4]

Added Commands

Command Name	Get/Set	Command Code	Remarks
HDMI Input Range	Get	**0x6A**	
HDMI Input Range	Set	**0x6B**	
Test Pattern	Get	**0x6C**	
Test Pattern	Set	**0x6D**	
Freeze Image	Get	**0x76**	
Freeze Image	Set	**0x77**	
Firmware Upgrade	Set	**0x20**	

Modified & Added Notes/Comments

Command Name	Get/Set	Command Code	Remarks
Video Parameters			Modified note to reflect availability of command for QL3 models
Video Parameters	Set	**0x32**	Modified note to reflect command restriction on Android sources

V2.06 → V2.07 October 2021

- Added example in the "command format" in the monitor ID and group ID byte
- The group byte ACK is changed in all the acknowledge examples from 00 > 01
- Updated Platform List
- Updated Command Summary

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Input Source	Get	**0xAD**	Added "0x20 = Kiosk", "0x21 = SmartInfo", "0x22 = Tuner" & "0x23 = Google Cast" to DATA[1]
Input Source	Set	**0xAC**	Added "0x20 = Kiosk", "0x21 = SmartInfo", "0x22 = Tuner" & "0x23 = Google Cast" to DATA[1]
Failover	Get	**0xA6**	Added "0x1A = Kiosk", "0x1B = SmartInfo", "0x1C = Tuner" & "0x1D = Google Cast" to DATA[1] through DATA[17]
Failover	Set	**0xA5**	Added "0x1A = Kiosk", "0x1B = SmartInfo", "0x1C = Tuner" & "0x1D = Google Cast" to DATA[1] through DATA[14]
Power & Input Scheduling	Get	**0x5B**	Added "0x20 = Kiosk", "0x21 = SmartInfo", "0x22 = Tuner" & "0x23 = Google Cast" DATA[6]
Power & Input Scheduling	Set	**0x5A**	Added "0x20 = Kiosk", "0x21 = SmartInfo", "0x22 = Tuner" & "0x23 = Google Cast" to DATA[6]

PIP Source	Get	**0x85**	Added "0x1F = Kiosk", "0x20 = SmartInfo", "0x21 = Tuner" & "0x22 = Google Cast" to DATA[1], DATA[2], DATA[3] & DATA[4]
PIP Source	Set	**0x84**	Added "0x1F = Kiosk", "0x20 = SmartInfo", "0x21 = Tuner" & "0x22 = Google Cast" to DATA[1], DATA[2], DATA[3] & DATA[4]

Added Commands

Command Name	Get/Set	Command Code	Remarks
Date	Get	**0x95**	
Date	Set	**0x96**	
Clock	Get	**0x87**	
Clock	Set	**0x86**	
Auto Time Sync	Get	**0x89**	
Auto Time Sync	Set	**0x88**	
Time Zone	Get	**0x8B**	
Time Zone	Set	**0x8A**	
Speakers On/Off	Get	**0x8F**	
Speakers On/Off	Set	**0x8E**	
Audio Sync	Get	**0x8D**	
Audio Sync	Set	**0x8C**	
TeamViewer	Get	**0x93**	
TeamViewer	Set	**0x94**	
RS232 Routing	Get	**0x9A**	
RS232 Routing	Set	**0x9B**	
Wake on LAN	Get	**0x9C**	
Wake on LAN	Set	**0x9D**	
HDMI One Wire	Get	**0xBC**	
HDMI One Wire	Set	**0xBD**	
SICP Serial Port Forwarding	Get	**0xBE**	
SICP Serial Port Forwarding	Set	**0xBF**	
Auto Restart	Get	**0x9E**	
Auto Restart	Set	**0x9F**	
Channel Number	Get	**0xC1**	
Channel Number	Set	**0xC2**	
Channel Number Step	Set	**0xC3**	
OSD Language	Get	**0xA7**	
OSD Language	Set	**0xA8**	

Modified & Added Notes/Comments

Command Name	Get/Set	Command Code	Remarks
Video Parameters			Notes updated

V2.07 → V2.08 May 2022

- Updated Command Summary

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Model & Firmware Information	Get	**0xA1**	Added "0x04 = Switch Version" & "0x05 = LAN FW Version" to DATA[1]

Added Commands

Command Name	Get/Set	Command Code	Remarks
OTA Update	Set	**0xE1**	
OTA Update Status	Get	**0xE2**	
OTA FW Version	Get	**0xE3**	
OPS/SDM Settings	Get	**0x6E**	
OPS/SDM Settings	Set	**0x6F**	
Power LED	Get	**0x48**	
Power LED	Set	**0x49**	
Force Restart Custom App	Get	**0x78**	
Force Restart Custom App	Set	**0x79**	

Modified & Added Notes/Comments

Command Name	Get/Set	Command Code	Remarks
Test Pattern		**0x6C/0x6D**	Description updated to reflect unsupported models

V2.08 → V2.09 Feb 2023

- Updated Command Summary

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Model & Firmware Information	Get	**0xA1**	Reply formats defined for DATA[1] 0x01, 0x02, 0x04 & 0x05 defined
SICP Version & Platform Information	Get	**0xA2**	Reply formats defined for DATA[1] 0x00 & 0x02
Volume	Set	**0x44**	Added "0xFF = No Change" to DATA[1] & [2]
Navigation Bar	Get	**0x74**	Added "0x02 = Auto Hide" to DATA[1]
Navigation Bar	Set	**0x75**	Added "0x02 = Auto Hide" to DATA[1]
Touch Lock	Get	**0x1F**	Added "0x10 = Locked" to DATA[1] Define difference between Touch Lock options with and without showing a pincode to unlock
Touch Lock	Set	**0x1E**	Added "0x10 = Locked" to DATA[1] Define difference between Touch Lock options with and without showing a pincode to unlock
Input Source	Get	**0xAD**	Added "0x24 = Interact" to DATA[1]

			Changed DATA[3] to "0x01 = reserved" Changed DATA[4] to "0x00 = reserved"
Input Source	Set	**0xAC**	Added "0x24 = Interact" to DATA[1] Changed description for DATA[3] – OSD Style Changed DATA[4] to "0x00 = reserved"
Boot on Source	Get	**0xBA**	Added "0x24 = Interact" to DATA[1]
Boot on Source	Set	**0xBB**	Added "0x24 = Interact" to DATA[1]
Failover	Get	**0xA6**	Added "0x1E = Interact" to DATA[1] through DATA[17]
Failover	Set	**0xA5**	Added "0x1E = Interact" to DATA[1] through DATA[14]
Power & Input Scheduling	Get	**0x5B**	Added "0x24 = Interact" to DATA[6]
Power & Input Scheduling	Set	**0x5A**	Added "0x24 = Interact" to DATA[6]
PIP Source	Get	**0x85**	Added "0x23 = Interact" to DATA[1] through DATA[4]
PIP Source	Set	**0x84**	Added "0x23 = Interact" to DATA[1] through DATA[4]

Added Commands

Command Name	Get/Set	Command Code	Remarks
Scheduling Reset	Set	**0x60**	
Factory Color Calibration	Get	**0x31**	
Factory Color Calibration	Set	**0x30**	
Stretch	Get	**0x4D**	
Stretch	Set	**0x40**	
A/V Mute	Get	**0x7A**	
A/V Mute	Set	**0x7B**	
Brightness Scheduling	Get	**0x7C**	
Brightness Scheduling	Set	**0x7D**	
Clear Storage	Set	**0x2E**	

V2.09 March 2023

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Model & Firmware Information	Get	**0xA1**	DATA[1] 0x00 = Model Number: Include stroke number in model name
Video Parameters	Set	**0x32**	Added "0xFF = No Change" to DATA[1] through DATA[7]
Power LED	Get	**0x48**	Changed description for DATA[1] 0x00 and 0x01
Power LED	Set	**0x49**	Changed description for DATA[1] 0x00 and 0x01

V2.09 May 2023

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Stretch	Get	**0x4D**	Added DATA[2]: Value 10 > 600 in steps of 10
Stretch	Set	**0x40**	Added DATA[2]: Value 10 > 600 in steps of 10

V2.09 July 2023

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Stretch	Get	**0x4D**	Change DATA[2] max value from 600 to 540
Stretch	Set	**0x40**	Change DATA[2] max value from 600 to 540

V2.09 August 2023

- Removed "Communication Control" in the command summary

V2.10 January 2024

- Reorganized chapters
- Changed layout across document to match
- Updated Command Summary

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Factory Reset	Set	**0x56**	Added DATA[1] parameter 0x01 = Scaler 0x02 = Android
Eco Mode	Get	**0x63**	Changed description of DATA[1] 0x00 & 0x01 Old: 0x00 = Low Power Standby, 0x01 = Normal **New:** 0x00 = Off, 0x01 = On
Eco Mode	Set	**0x64**	Changed description of DATA[1] 0x00 & 0x01 Old: 0x00 = Low Power Standby, 0x01 = Normal **New:** 0x00 = Off, 0x01 = On
Input Source	Get	**0xAD**	Added "0x25 = USB TypeC 2" to DATA[1]
Input Source	Set	**0xAC**	Added "0x25 = USB TypeC 2" to DATA[1]
Boot on Source	Get	**0xBA**	Added "0x25 = USB TypeC 2" to DATA[1]
Boot on Source	Set	**0xBB**	Added "0x25 = USB TypeC 2" to DATA[1]
Failover	Get	**0xA6**	Added "0x1F = USB TypeC 2" to DATA[1] through DATA[17]
Failover	Set	**0xA5**	Added "0x1F = USB TypeC 2" to DATA[1] through DATA[14]
Power & Input Scheduling	Get	**0x5B**	Added "0x25 = USB TypeC 2" to DATA[6]
Power & Input Scheduling	Set	**0x5A**	Added "0x25 = USB TypeC 2" to DATA[6]
PIP Source	Get	**0x85**	Added "0x24 = USB TypeC 2" to DATA[1] through DATA[4]
PIP Source	Set	**0x84**	Added "0x24 = USB TypeC 2" to DATA[1] through DATA[4]

Added Commands

Command Name	Get/Set	Command Code	Remarks
Remote Control Simulation	Set	**0xFE**	

IP Parameters	Get	**0x82**	
IP Parameters	Set	**0x81**	

Removed Commands

Command Name	Get/Set	Command Code	Remarks
OTA Update	Set	**0xE1**	
OTA Update Status	Get	**0xE2**	
OTA FW Version	Get	**0xE3**	
MIC Color Calibration	Set	**0xFE**	

V2.10 Rev.1 February 2024

Modified Commands

Command Name	Get/Set	Command Code	Remarks
Model & Firmware Information	Get	**0xA1**	Added DATA[1] parameter 0x06 = HDMI Switch 2 version

V2.10 Rev.2 February 2024

Modified Commands

Command Name	Get/Set	Command Code	Remarks
OSD Language	Get	**0xA7**	Added DATA[1] parameter 0x17 = Greek
OSD Language	Set	**0xA8**	Added DATA[1] parameter 0x17 = Greek
Admin Menu	Set	**0x73**	Added DATA[1] through DATA[6] = Pin Code