ANTRICA

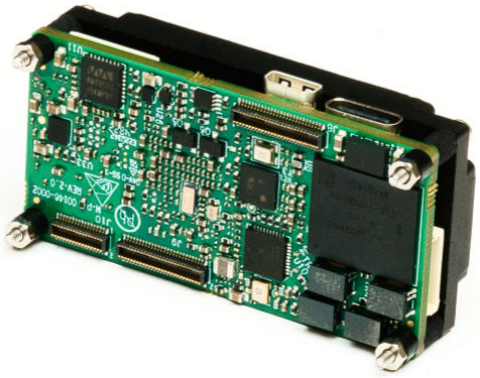
encoders | decoders

ICD Requirements

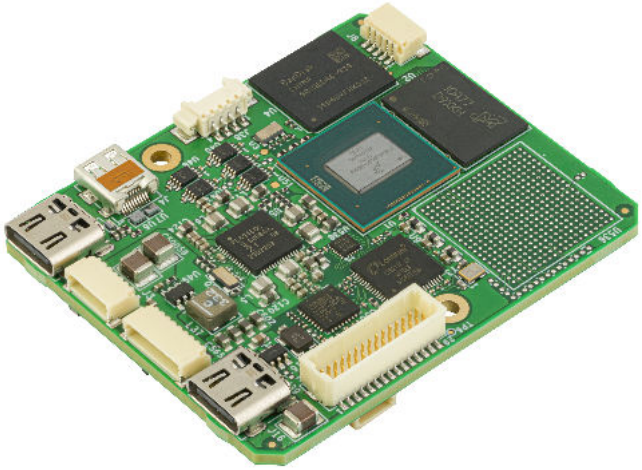
For

ANT-1776 family

ANT-1776



ANT-1776ZB



1 Document Information

Version	Date	Change Description	SW Version	Name
1.0.0	20/10/2022			Nehama Novick
1.0.1	03/06/2023			Nehama Novick
1.0.1.a	04/09/2023	Layout edits to 1.0.1 no technical change		David Mason
1.0.2	12/09/2023	Change Set/Get Video Quality Remove unused parameters		Itamar Levit
1.0.3	19/09/2023	update commands 16,17,18,21,22 according to SW changes. Add cameras codes table. change command - “get storage info” (100)	1.0.9.2	
1.0.4	26/09/2023	Change “get CSI Camera Name” (Command 18)	1.0.9.2	Nehama Novick
1.0.4.a	06/11/2023	Layout edits to 1.0.4 no technical change		David Mason

Table of Contents

Contents

2 General

2.1 LAN Broadcast message for identifying the board from different networks

The board sends a broadcast message once a second to identify the board from different networks, broadcast address: 255.255.255.255:30003

2.2 Remote LAN protocol that controls and operate the LDVC board

Sending the commands for controlling and operate the board will be on port 3100. (Details of the commands see section 2 – API Messages)

2.3 RS232 Interface

- Bits per second: 115200
- Data bits: 8
- Parity: None
- Stop Bit: 1
- Flow Control: None

2.4 Definitions

- **Mux** - Object that is linked to the camera and unites 3 tracks within it – one for video, one for audio and one for data, through this object you can control, operate and configure the camera.
- **Stream File** – transport stream file including video, audio and metadata
- **Data File** – data file in the User's configuration

2.5 Message Encoding

Hexadecimal values will be preceded by a '0x' and the hex-digits (such as 0xAB) and decimal values will appear normally without any header.

The API Protocol is Binary Encoded, Little Endian (least significant byte is stored first).

2.6 Message Format

The message format is comprised of a fixed length Message Header and a variable length Message Data as follows:

Message Section	Field Name	Data Type	Value
Message Header	Message Sync	Byte	0xA5
	Message ID	Byte	
	Checksum	Byte	
	Data Length	Byte	
Message Data	Parameter 1	According to Message	
	…		
	Parameter N	According to Message	

Message Fields:

- **Message Sync** – A Sync byte (0xA5)
- **Message ID** – A unique message identifier
- **Checksum –** A Sum of all the Message (not include itself)
- **Data Length –** Total number of bytes in Message Data
- **Parameters 1 to N** – Message parameters

2.7 ACK/NAK Message Format

The message format is comprised of a fixed length Message Header and data as follows:

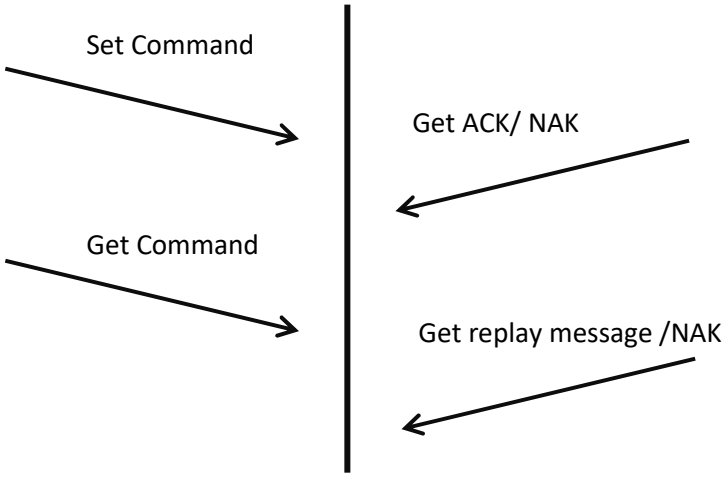
Message Section	Field Name	Data Type	Value
Message Header	Message Sync	Byte	0xA5
	ACK/NAK Message ID	Byte	0xFF
	Checksum	Byte	
	Data Length	Byte	3
	ACK/NAK	Byte	ACK - 0xBB NAK - 0xCC
	Message ID	Byte	

	Error Number	Byte	Not implemented now

Message Fields:

- **Message Sync** – A Sync byte (0xA5**)**
- **Data Number** – A unique message identifier for ack/nack message
- **Checksum –** A Sum of all the Message **(**not include itself**)**
- **Data Length –** Total number of bytes in Message Data
- **Data 0 -** ACK (0xBB) or NACK (0xCC)
- **Data 1** –Message ID we ACK/NAK
- **Data 2** – A unique error identifier

2.8 Data Flow



A message sequence:

- The user sends a message to the board.
- In the case of "set command" the program returns the acknowledge (ACK) for success or not acknowledge (NAK) for failure.
- In the case of "get command" the program returns replay message for success or not acknowledge (NAK) for failure.

3 API Messages

Note: Each command that configs the system is written to a configuration file.

3.1 Power Off (1)

Not implemented, future development.

Note: Shutting down the system after sending an ACK.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 1 Data Length = 4
4	MAGIC ID1	Byte	1	0xD
5	MAGIC ID2	Byte	1	0xE
6	MAGIC ID3	Byte	1	0xA
7	MAGIC ID4	Byte	1	0xD

Reply Message Structure: ACK/NAK

3.2 Set Time & Date (9)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 9 Data Length = 6
4	Hour	Byte	1	Value: 0 – 23
5	Minute	Byte	1	Value: 0 – 59

6	Second	Byte	1	Value: 0 – 59
7	Day	Byte	1	Value: 1 – 31
8	Month	Byte	1	Value: 1 – 12
9	Year	Byte	1	2 last digits of year, start from 2000 (13...)

Reply Message Structure: ACK/NAK

3.3 Get Time & Date (10)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 10 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 10 Data Length = 6
4	Hour	Byte	1	Value: 0 – 23
5	Minute	Byte	1	Value: 0 – 59
6	Second	Byte	1	Value: 0 – 59
7	Day	Byte	1	Value: 1 – 31
8	Month	Byte	1	Value: 1 – 12
9	Year	Byte	1	Year - 1900

3.4 Get Version (11)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 11 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 11 Data Length = 2
4	Version	Byte	1	
5	Subversion	Byte	1	

3.5 Set Factory Default (12)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 12 Data Length = 4
4	MAGIC ID1	Byte	1	0xD
5	MAGIC ID2	Byte	1	0xE
6	MAGIC ID3	Byte	1	0xA
7	MAGIC ID4	Byte	1	0xD

Reply Message Structure: ACK/NAK

3.6 Set Configuration Number (13)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 13 Data Length = 1
4	Config Number	Byte	1	0 – Config 1 (default) 1 – Config 2 2 – Config 3 3 – Config 4

Reply Message Structure: ACK/NAK

3.7 Get Configuration Number (14)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 14 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 14 Data Length = 1
4	Config Number	Byte	1	0 – Config 1 (default) 1 – Config 2 2 – Config 3 3 – Config 4

3.8 Reboot System (15)

Note: Rebooting system after sending an ACK.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 15 Data Length = 4
4	MAGIC ID1	Byte	1	0xD
5	MAGIC ID2	Byte	1	0xE
6	MAGIC ID3	Byte	1	0xA
7	MAGIC ID4	Byte	1	0xD

Reply Message Structure: ACK/NAK

Note: The following commands (16,17,18,21,22) are used for information about the board's cameras,
Here is a cameras codes table for each board (use the appropriate camera code in the places marked in the commands).
this table changes often, make sure you are on the latest version.

Board Name	Cameras
JUPITER-NANO	CSI_1: 0 = ANALOG 1 = QANALOG 2 = HDSDI 3 = HDMI 4 = SONY_PS2802 5 = BOSON CSI_2: 0 = ANALOG 1 = QANALOG 2 = HDSDI 3 = HDMI 4 = SONY_PS2802 5 = BOSON
JUPITER-AI	CSI_1: 0 = QANALOG CSI_2: 0 = HDSDI
JUPITER-RUGED	CSI_1: 0 = QANALOG CSI_2: 0 = HDSDI
JUPITER-SB	CSI_1: 0 = SONYBLOCK CSI_2: 0 = Analog
JUPITER-DROWN	CSI_1: 0 = ANALOG CSI_2: 0 = HDMI
JUPITER-ELBIT	CSI_1: 0 = ANALOG CSI_2: No Cameras

3.9 Set Camera Interface Config (16)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 16 Data Length = 2
4	CSI 1 – Camera Number	Byte	1	See Cameras Codes Table. -1 = None Camera
5	CSI 2 – Camera Number	Byte	1	See Cameras Codes Table. -1 = None Camera

Reply Message Structure: ACK/NAK

3.10 Get Camera Interface Config (17)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 17 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 17 Data Length = 2
4	CSI 1 – Camera Number	Byte	1	See Cameras Codes Table. -1 = None Camera
5	CSI 2 – Camera Number	Byte	1	See Cameras Codes Table. -1 = None Camera

3.11 Get CSI Camera Name (18)

The function returns one device by ID from list.
When ID is wrong, it retunes NAK.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 18 Data Length = 2
4	CSI Number	Byte	1	0 = CSI_0 1 = CSI_1
5	Camera Number	Byte	1	See Cameras Codes Table

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 18 Data Length = 22
4	CSI Number	Byte	1	0 = CSI_0 1 = CSI_1
5	Camera Number	Byte	1	See Cameras Codes Table
6-25	Camera Name	String	20	

3.12 Set Log Bits (19)

Bits for Error info and Debug message put in log files.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 19 Data Length = 4
4-7	Bits Mask	Int	4	

3.13 Get Log Bits (20)

Bits for Error info and Debug message put in log files.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 20 Data Length = 0

Replay Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 20 Data Length = 4
4-7	Bits Mask	Int	4	

3.14 Get Cameras Count (21)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 21 Data Length = 0

Replay Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 21 Data Length = 1
4-7	Count	Byte	1	Maximum Cameras Count

3.15 Get Camera Info (22)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 22 Data Length = 1

4	Camera Index	Byte	1	0 – N (N = "Count" from Command 21) 0 – 3 = CSI_0 4 – 7 = CSI_1 8 = Virtual Camera 9 – 12 = USB 13 – 16 = Ethernet

Replay Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 22 Data Length = 22
4	Index	Byte	1	0 – N (N = "Count" from Command 21) Cameras Index: 0 – 3 = CSI_0 4 – 7 = CSI_1 8 = Virtual Camera 9 – 12 = USB 13 – 16 = Ethernet
5	Device Type	Byte	1	0 – CSI 1 – USB 2 – Virtual Camera 3 – Ethernet
6	Linux Device Index	Byte	1	Linux video capture device
7	Multi-Channel	Byte	1	For Quad Analog
8	Device Status	Byte	1	0 – Not Exist 1 – None Lock 2 - Lock
9	Mode	Byte	1	0 – Progressive 1 – Interlaced 2 – Multi Channel
10	FPS	Byte	1	
11	DevId	Byte	1	
12-15	Format	Int	4	
16-17	Width	Short	2	
18-19	Height	Short	2	
20-23	Ethernet IP	Int	4	
24-25	Ethernet Port	Short	2	

3.16 Set UART Config (23)

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 23 Data Length = 12
4	UART Number	Byte		Values between 0 – 9
5	State	Byte	1	0 – Off 1 – On (default)
6	Baud Rate	Byte	1	0 – 2400 1 – 4800 2 – 9600 3 – 19200 4 – 38400 5 – 57600 6 – 115200 (default) 7 – 230400
7	Flow Control	Byte	1	0 – None (default) 1 – Hardware
8	Parity	Byte	1	0 – None 1 – Odd 2 – Even 3 – Mark 4 – Space
9	Data Size	Byte	1	7 – 7 bits 8 – 8 bits
10-15	Reserved	Byte	6	

Reply Message Structure: ACK/NAK

3.17 Get UART Config (24)

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
	Header		4	Message ID – 24 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 24 Data Length = 12
4	UART Number	Byte	1	Values between 0 – 9
5	State	Byte	1	0 – Off 1 – On
6	Baud Rate	Byte	1	0 – 2400

				1 – 4800 2 – 9600 (default) 3 – 19200 4 – 38400 5 – 57600 6 – 115200 7 – 230400
7	Flow Control	Byte	1	0 – None (default) 1 – Hardware
8	Parity	Byte	1	0 – None 1 – Odd 2 – Even 3 – Mark 4 – Space
9	Size	Byte		7- 7 bits 8 -8 bits
10-15	Reserved	Byte	6	

3.18 Set Generic Camera (25) Not yet implemented

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 25 Data Length = 11
	CSI Number	Byte	1	0 = CSI_1 1 = CSI_2
	Width	Short	2	
	Height	Short	2	
	FPS	Byte	1	
	Lanes	Byte	1	
	Mode	Byte	1	
	Interface	Byte	1	
	Toshiba Reg4	Short	2	

Reply Message Structure: ACK/NAK

3.19 Get Generic Camera (26) Not yet implemented

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 26

				Data Length = 0

Replay Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 26 Data Length = 11
4-7				

3.20 Set Network Interface (27)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 27 Data Length = 28
4	Network ID	Byte	1	0 – eth0 1 – usb0 2 – wlan0 3 – eth1
5	Type	Byte	1	For usb0: 0 – CDC Client 1 – CDC OST
6	Enabled	Byte	1	0 – Off 1 – On
7	Mode	Byte	1	0 – DHCP 1 – Manual 2 – DHCP Server
8-11	IP Address	Byte	4	For Manual mode
12-15	Mask Address	Byte	4	For Manual mode
16-19	Gateway Address	Byte	4	For Manual mode
20-23	Subnet	Byte	4	For DHCP Server mode
24-27	Range Min	Byte	4	For DHCP Server mode
28-31	Range Max	Byte	4	For DHCP Server mode

Reply Message Structure: ACK/NAK

3.21 Get Network Interface (28)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 28 Data Length = 1
4	Network ID	Byte		0 – eth0 1 – usb0 2 – wlan0 3 – eth1

Replay Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 28 Data Length = 28
4	Network ID	Byte	1	0 – eth0 1 – usb0 2 – wlan0 3 – eth1
5	Type	Byte	1	For usb0: 0 – CDC Client 1 – CDC OST
6	Enabled	Byte	1	0 – Off 1 – On
7	Mode	Byte	1	0 – DHCP 1 – Manual 2 – DHCP Server
8-11	IP Address	Byte	4	For Manual mode
12-15	Mask Address	Byte	4	For Manual mode
16-19	Gateway Address	Byte	4	For Manual mode
20-23	Subnet	Byte	4	For DHCP Server mode
24-27	Range Min	Byte	4	For DHCP Server mode
28-31	Range Max	Byte	4	For DHCP Server mode

3.22 Set Record Auto Delete (30)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 30 Data Length = 5
4	Auto Delete Files	Byte	1	0 – Off 1 – On
5-8	Disk Limit Size	Byte	4	In MB

Reply Message Structure: ACK/NAK

3.23 Get Record Auto Delete (31)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 31 Data Length = 0

Replay Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 31 Data Length = 5
4	Auto Delete Files	Byte	1	0 – Off 1 – On
5-8	Disk Limit Size	Byte	4	In MB

3.24 Set Fast Encode Params (38)

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 38 Data Length = 6
4	Mux Number	Byte	1	0 – mux 0 1 – mux 1 … N-1 mux N-1
5	Active flag	Byte	1	Bit 0 – kbps Bit 1 – fps Bit 2 – scale
6	Bitrate	Byte	1	Out of 100 (for example - 0 for 7000 kbps)
7	Fps	Byte	1	
8	Width	Byte	1	Out of 8 (for example - 60 for 480)
9	Height	Byte	1	

Reply Message Structure: ACK/NAK

3.25 Get Capture Camera Status (40)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 40 Data Length = 1
4	Channel Number	Byte	1	Camera logical Channel Depend on the camera CSI and USB camera devices

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 40 Data Length = 9
4	Channel Number	Byte	1	Camera logical Channel Depend on the camera CSI and USB camera devices
5	Status	Byte	1	0 – Not Exist 1 – Unlock 2 – Lock
6	Resolution - std	Byte	1	Reserved
7	Interlaced	Byte	1	0 – Unknown 1 – Noninterlaced 2 – Interlaced
8	Fps	Byte	1	0 – Unknown 30,60,25,50
9-10	Resolution - Width	Byte	2	
11-12	Resolution - Height	Byte	2	

3.26 Setup Streaming Mux (41)

1. When the user selects unicast, the system can transmit broadcast if the IP destination is broadcast IP, for example (192.168.0.255)
   Or multicast when the IP is multicast example(240.1.1.2)
2. In RTSP protocol the user needs to enable the RTSP server because the IP transition and ports are selected by the client.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 41 Data Length = 16
4	Mux Number	Byte	1	0 – N
5	Auto	Byte	1	BIT 0 – Auto Streaming BIT 1 – Auto Recording BIT 2 – Auto Display BIT 3 - VMD 0 – Off 1 – On
6	Video Channel	Byte	1	-1 None, Logical camera channel number depend on the camera devices
7	Audio Channel	Byte	1	-1 – None 0 – Channel1 1 – Channel2
8	Data Channel	Byte	1	-1 – None 0 – Data1 1 – Data2
9	Interface	Byte	1	-1 – None 0 – Network 1 – Data Clock 2 – UART 3 – SPI (Xstream View)
10	Protocol	Byte	1	When Interface = Network 0 – Private 1 – TS 2 – RTP 3 – RTSP 4 - RTMP
11	Net Mode	Byte	1	When Interface = Network Reserved
12	IP Address #1	Byte	1	When Interface = Network 1st Value
13	IP Address #2	Byte	1	When Interface = Network 2nd Value
14	IP Address #3	Byte	1	When Interface = Network 3rd Value
15	IP Address #4	Byte	1	When Interface = Network 4th Value
16	Port Address #1	Byte	1	When Interface = Network 1st Value
17	Port Address #2	Byte	1	When Interface = Network 2nd Value
18	UART Port	Byte	1	When Interface = UART

19	FB Number	Byte	1	

Reply Message Structure: ACK/NAK

3.27 Get Streaming Mux (42)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 42 Data Length = 1
4	Mux Number	Byte	1	0 – N

Replay Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 42 Data Length = 16
4	Mux Number	Byte	1	0 – N
5	Auto	Byte	1	Bits Mask: BIT 0 – Auto Streaming BIT 1 – Auto Recording BIT 2 – Auto Display BIT 3 - VMD 0 – Off 1 – On
6	Video Channel	Byte	1	Camera logical Channel Depend on the camera CSI and USB camera devices
7	Audio Channel	Byte	1	-1 – None 1 – Channel1 2 – Channel2
8	Data Channel	Byte	1	-1 – None 1 – Data1 2 – Data2
9	Interface	Byte	1	-1 – None 0 – Network 1 – Data Clock 2 – UART
10	Protocol	Byte	1	When Interface = Network: 0 – Private 1 – TS 2 – RTP

				3 – RTSP 4 – RTMP
11	Net Mode	Byte	1	When Interface = Network 0 – Unicast 1 – Multicast
12	IP Address #1	Byte	1	When Interface = Network 1st Value
13	IP Address #2	Byte	1	When Interface = Network 2nd Value
14	IP Address #3	Byte	1	When Interface = Network 3rd Value
15	IP Address #4	Byte	1	When Interface = Network 4th Value
16	Port Address #1	Byte	1	When Interface = Network 1st Value
17	Port Address #2	Byte	1	When Interface = Network 2nd Value
18	UART Port	Byte	1	When Interface = UART
19	FB Number	Byte	1	

3.28 Set Streaming Operation (43)

After setting the mux and all other parameters the user can start / stop any stream.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 43 Data Length = 2
4	Mux Number	Byte	1	0 – N
5	Operation	Byte	1	0 – Stop 1 – Start

Reply Message Structure: ACK/NAK

3.29 Set Audio Source mode (45)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 45 Data Length = 10
4	Volume	Byte	1	(Default 20)
5	Channel	Byte	1	0 – Channel1

				1 – Channel2
6	Codec	Byte	1	Values between 0 – 9
7	Sample Rate	Byte	1	0 – 8000 1 – 44100 (default) 2 – 48000
8-10	Bitrate	Int	4	
11	Bit Per Sample	Byte	1	8 Or 16 (16 is default)
12	Channels	Byte	1	1 – Mono (default) 2 – Stereo
13	Input	Byte	1	0 – Line In 1 – Mic

Reply Message Structure: ACK/NAK

3.30 Get Audio Source mode (46)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 46 Data Length = 1
4	Channel Number	Byte	1	0 – Channel 1 1 – Channel 2

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 46 Data Length = 10
4	Volume	Byte	1	(Default 20)
5	Channel Number	Byte	1	0 – Channel 1 1 – Channel 2
6	Codec	Byte	1	Values between 0 – 9
7	Sample Rate	Byte	1	0 – 8000 1 – 44100(default) 2 – 48000
8-10	Bitrate	Int	4	
11	Bit per sample	Byte	1	8 Or 16 (16 is default)
12	Channels	Byte	1	1 – Mono (default) 2 – Stereo
13	Input	Byte	1	0 – Line In 1 – Mic

3.31 Set Video Encoding Params (47)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 47 Data Length = 5
4	Mux Number	Byte	1	0 – N
5	Encode Mode	Byte	1	0 – VBR 1 – CBR (default) 2 – VBR Block
6	Bitrate	Short	2	Kbit / sec
7	GOP	Byte	1	Default: 30

Reply Message Structure: ACK/NAK

3.32 Get Video Encoding Quality (48)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 48 Data Length = 1
4	Mux Number	Byte	1	See video channels

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 48 Data Length = 5
4	Mux Number	Byte	1	0 – N
5	Encode Mode	Byte	1	0 – VBR 1 – CBR
6	Bitrate	Short	2	Kbits / sec
7	GOP	Byte	1	GOP

3.33 Set Video Frame Rate (49)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 49 Data Length = 4
4	Mux Number	Byte	1	0 – N
5	Frame Rate	Byte	1	0 – Full (default) 1 – Time lapse
6	Time Lapse	Byte	1	Time lapse 30(default) FPS
7	Deinterlace	Byte	1	

Reply Message Structure: ACK/NAK

3.34 Get Video Frame Rate (50)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 50 Data Length = 1
4	Mux Number	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 50 Data Length = 4
4	Mux Number	Byte	1	0 – N
5	Frame Rate	Byte	1	0 – Full 1 – Time lapse
6	Time Lapse	Byte	1	Time lapse Fps
7	Reserved	Byte	1	

3.35 Set ROI (51)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 51 Data Length = 8
4	Mux Number	Byte	1	
5	Mode	Byte	1	0 – Disabled(default)

				1 – ROI Zoom 2 – Auto Full D1 3 – Auto 4CIF 4 – Auto CIF 5 - Scale
6	Source Width	Byte	1	[1-255] 1= 8,2-16, ...
7	Source Height	Byte	1	[1-255] 1= 8,2-16, ...
8	Source X	Byte	1	[1-255] 1= 8,2-16, ...
9	Source Y	Byte	1	[1-255] 1= 8,2-16, ...
10	Dist Width	Byte	1	[1-255] 1= 8,2-16, ...
11	Dist Height	Byte	1	[1-255] 1= 8,2-16, ...

Reply Message Structure: ACK/NAK

3.36 Get ROI (52)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 52 Data Length = 1
	Mux Number	Byte		0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 52 Data Length = 8
4	Mux Number	Byte	1	0 – N
5	Mode	Byte	1	0 – Disabled(default) 1 – ROI Zoom 2 – Scale
6	Source Width	Byte	1	[1-255] 1= 8,2-16, ...
7	Source Height	Byte	1	[1-255] 1= 8,2-16, ...
8	Source X	Byte	1	[1-255] 1= 8,2-16, ...
9	Source Y	Byte	1	[1-255] 1= 8,2-16, ...
10	Dist Width	Byte	1	[1-255] 1= 8,2-16, ...
11	Dist Height	Byte	1	[1-255] 1= 8,2-16, ...

3.37 Set Capture Overlay (53)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 53 Data Length = 9 + text length
4	Mux ID	Byte	1	0 – N
5	Overlay ID	Byte	1	Number from 0 – 3
6	Mode	Byte	1	0 – Disabled(default) 1 – Enabled
7	Location	Byte	1	0 – Top-R 1 – Top-L 2 – Bottom-R (default) 3 – Bottom-L 4 – Defined
8	Type	Byte	1	0 – user text 1 – time + frame no 2 – GPS
9	Color	Byte	1	0 – Black 1 – White 2 – Red 3 – Green 4 – Blue 5 – Yellow 6 – Orange
10	H Pixel Position	Byte	1	When Location = Defined Value: N/8
11	V Pixel Position	Byte	1	When Location = Defined Value: N/8
12	Order by	Byte	1	0 – One Line 1 – Lines
13-92	Text	String	80	ASCII String

Reply Message Structure: ACK/NAK

3.38 Get Capture Overlay (54)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 54 Data Length = 2
4	Mux ID	Byte	1	0 – N
5	Overlay ID	Byte	1	Number from 0 – 3

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 54 Data Length = 9 + text length
4	Mux ID	Byte	1	0 – N
5	Overlay ID	Byte	1	Number from 0 – 3
6	Mode	Byte	1	0 – Disabled(default) 1 – Enabled
7	Location	Byte	1	0 – Top-R 1 – Top-L 2 – Bottom-R (default) 3 – Bottom-L 4 – Defined
8	Type	Byte	1	0 – user text 1 – time + frame no 2 – GPS
9	Color	Byte	1	0 – Black 1 – White 2 – Red 3 – Green 4 – Blue 5 – Yellow 6 – Orange
10	H Pixel Position	Byte	1	When Location = Defined Value = N/8
11	V Pixel Position	Byte	1	When Location = Defined Value = N/8
12	Order by	Byte	1	0 – One Line 1 – Lines
13-92	Text	String	80	ASCII String

3.39 Get Active Interface Network (55)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 55 Data Length = 1
4	Network ID	Byte	1	0 – eth0 1 – eth1

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description

0-3	Header		4	Message ID – 55 Data Length = 12
4	Network ID	Byte	1	0 – eth0 1 – eth1 2-3 - USB#
5	Is Exist	Byte	1	0 – No 1 – Yes
6-11	MAC Address	Byte	6	Little endian
12-15	IP Address	Byte	4	Little endian

3.40 Set Recording Operation (58)

After setting the mux and all other parameters, the user can start / stop each stream

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 58 Data Length = 2
4	Mux Number	Byte	1	0 – N
5	Operation	Byte	1	0 – Stop 1 – Start record 2 – Start record TS

Reply Message Structure: ACK/NAK

3.41 Get Active Mux State (59)

Returns byte of status bits for each mux (ON/OFF).

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 59 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 59 Data Length = 4
4-N	Mux 1-N	Byte	1	Bits mask: BIT 0 – Streaming

				BIT 1 – Recording BIT 2 – JPEG BIT 3 – Display 0 – Off 1 – On

3.42 Get Audio Codec (61)

If Codec does not exist, return NAK

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 61 Data Length = 1
4	Codec ID	Byte	1	Values between 0 – 9

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 61 Data Length = 21
4	Codec ID	Byte	1	Values between 0 – 9
5-24	Codec Name	String	20	

3.43 Set Deinterlace Params (66)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 66 Data Length = 3
4	Mux Number	Byte	1	0 – N
5	Mode	Byte	1	0 – Disable 1 – Low 2 – Medium 3 – High
6	Operational	Byte	1	0 – Hardware 1 – Software

Reply Message Structure: ACK/NAK

3.44 Get Deinterlace params (67)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 67 Data Length = 1
	Mux Number	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 67 Data Length = 3
4	Mux	Byte	1	0 – N
5	Mode	Byte	1	0 – Disable 1 – Low 2 – Medium 3 – High
6	Operational	Byte	1	0 – Hardware 1 – Software

3.45 Network Stream Player Operation (70)

Note: The player can display each channel on several displays.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 70 Data Length = 2
4	Mux Number	Byte	1	0 – N
5	Operation	Byte	1	0 – Stop 1 – Start

Reply Message Structure: ACK/NAK

3.46 Get Network Player State (72)

Note: Each bit from 0 to 5 represents a channel.
Bit 0: stops the activity of the channel.
Bit 1: starts the channel activity.
(Start/Stop Network streaming switch for each channel)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 72 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 72 Data Length = 1
	Demux ID	Byte	1	Bits Mask. Demux Number 0 – N 0 – Off 1 – On

2.51 Set Network Playback Parameters (74)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 74 Data Length = 25
4	Demux ID	Byte	1	0-N Demuxer Number
5	Auto	Byte	1	0 – Off 1 – On
6	Interface	Byte	1	0 – Network 1 – Data Clock 2 – UART
7	Protocol	Byte	1	When Interface = Network 0 – Private 1 – TS 2 – RTP 3 – RTSP
8	Net Mode	Byte	1	When Interface = Network 0 – Unicast

				1 – Multicast
9	Port Address #1	Byte	1	When Interface = Network 1st Value
10	Port Address #2	Byte	1	When Interface = Network 2nd Value
11	IP Address #1	Byte	1	When Net Mode = Multicast 1st Value
12	IP Address #2	Byte	1	When Net Mode = Multicast 2nd Value
13	IP Address #3	Byte	1	When Net Mode = Multicast 3rd Value
14	IP Address #4	Byte	1	When Net Mode = Multicast 4th Value
15	UART Port	Byte	1	When Interface = UART
16	Destination Base Port #1	Byte	1	1st Value
17	Destination Base Port #2	Byte	1	2nd Value
18	Destination IP #1	Byte	1	1st Value
19	Destination IP #2	Byte	1	2nd Value
20	Destination IP #3	Byte	1	3rd Value
21	Destination IP #4	Byte	1	4th Value
22	Demux Destination Mode	Byte	1	0 – Separated 1 – Combined
23	Video Flags	Byte	1	BIT 0 – FB 0 BIT 1 – FB 1 BIT 2 – FB 2
24	Audio Flags	Byte	1	BIT 0 – Channel 1 BIT 1 – Channel 2
25	Data Flags	Byte	1	BIT 0 – Data 1 BIT 1 – Data 2
26	Volume	Byte	1	Values between 0 - 100
27-28	Delay	Byte	2	MS value

Reply Message Structure: ACK/NAK

2.52 Get Playback Parameters (75)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 75 Data Length = 1
4	Demux ID	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 75 Data Length = 25
4	Demux ID	Byte	1	0 – N
5	Auto	Byte	1	0 – Off 1 – On
6	Interface	Byte	1	0 – Network 1 - Data Clock 2 – UART
7	Protocol	Byte	1	When Interface = Network 1 – TS 2 – RTP 3 - RTSP
8	Net Mode	Byte	1	When Interface = Network 0 – Unicast 1 – Multicast
9	Port Address #1	Byte		When Interface = Network 1st Value
10	Port Address #2	Byte	1	When Interface = Network 2nd Value
11	IP Address #1	Byte	1	When Net Mode = Multicast 1st Value
12	IP Address #2	Byte	1	When Net Mode = Multicast 2nd Value
13	IP Address #3	Byte	1	When Net Mode = Multicast 3rd Value
14	IP Address #4	Byte	1	When Net Mode = Multicast 4th Value
15	UART Port	Byte	1	When Interface = UART
16	Destination Base Port #1	Byte	1	1st Value
17	Destination Base Port #2	Byte	1	2nd Value
18	Destination IP #1	Byte	1	1st Value
19	Destination IP #2	Byte	1	2nd Value
20	Destination IP #3	Byte	1	3rd Value
21	Destination IP #4	Byte	1	4th Value
22	Demux Destination Mode	Byte	1	0 – Separated 1 – Combined
23	Video Flags	Byte	1	BIT 0 – FB 0 BIT 1 – FB 1 BIT 2 – FB 2
24	Audio Flags	Byte	1	BIT 0 – Channel 1 BIT 1 – Channel 2

25	Data Flags	Byte	1	BIT 0 – Data 1 BIT 1 – Data 2
26	Volume	Byte	1	Values between 0 - 100
27-28	Delay	Byte	2	MS value

2.53 Load AI Module (76)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 76 Data Length = 54
4-53	Module File Name	String	50	
54-55	Width	Short	2	
56-57	Height	Short	2	

Reply Message Structure: ACK/NAK

2.54 Get AI Module (77)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 77 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 77 Data Length = 54
4-53	Module File Name	String	50	
54-55	Width	Short	2	
56-57	Height	Short	2	

2.55 Set AI Discovery Level (78)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 78 Data Length = 2
4	Mux	Byte	1	0 – N
5	Discovery Level	Byte	1	0 – 10 0 = disable AI 1-10 = Enable AI

Reply Message Structure: ACK/NAK

2.56 Get AI Discovery Level (79)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 79 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 79 Data Length = 2
4	Mux	Byte	1	
5	Discovery Level	Byte	1	

2.57 Get Video Codec Name (81)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 81 Data Length = 1
4	Index			0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 81 Data Length = 21
4	Index	Byte	1	
4	Codec Name	String	20	

2.58 Set Extended Video Codec (82)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 78 Data Length = 2
4	Mux	Byte	1	0 – N
5	Codec	Byte	1	
6	File Format	Byte	1	
7	Color	Byte	1	
8	Ts flush	Byte	1	
9	Mirror	Byte	1	
10	Rotate	Byte	1	

Reply Message Structure: ACK/NAK

2.59 Get Extended Video Codec (83)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 79 Data Length = 0
4	Mux	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 79 Data Length = 2
4	Mux	Byte	1	

5	Codec	Byte	1	
6	File Format	Byte	1	
7	Color	Byte	1	
8	Ts flush	Byte	1	
9	Mirror	Byte	1	
10	Rotate	Byte	1	

2.60 Get Current Mount (86)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 86 Data Length = 0

Replay Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 86 Data Length = 1
4	Device	Byte	1	0 – No Device 1 – sd1 2 – sda1

2.61 Set Record Mode (87)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 87 Data Length = 16
4	Mux ID	Byte	1	Mux Number 0 - N
5	Index Mode	Byte	1	0 – Off 1 – On
6	Split Mode	Byte	1	0 – Auto 1 – User 2 – None
7-10	Split Time	Byte	4	In Seconds
11	Split Naming	Byte	1	0 – Time + Index 1 – New Time
12	Protocol	Byte	1	0 – TS 1 – RAW

				2 – JPEG
13-14	Reseved	Byte	2	Not in used
15	Cycle mode	Byte	1	0 – Off 1 – On
16-19	Cycle time (sec)	Byte	4	Cycle mode = On

Reply Message Structure: ACK/NAK

2.62 Get Record Mode (88)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 88 Data Length = 1
0	Mux ID	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 88 Data Length = 16
4	Mux ID	Byte	1	0 – N
5	Index Mode	Byte	1	0 – Off 1 – On
6	Split Mode	Byte	1	0 – Auto 1 – User 2 – None
7-10	Split Time	Byte	4	
11	Split Naming	Byte	1	0 – Time + Index 1 – New Time
12	Protocol	Byte	1	0 – TS 1 – RAW 2 – JPEG
13-14	Rseved	Byte	2	Not in used
15	Cycle mode	Byte	1	0 – Off 1 – On
16-19	Cycle time (sec)	Byte	4	Cycle mode = On

2.63 Get HW Error Count (94)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 94 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 94 Data Length = 1
4	Errors Count	Byte	1	

2.64 Get HW Error Info (95)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 95 Data Length = 1
4	Error Index	Byte	1	Values between 0 to Errors Count

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 95 Data Length = 63
4	Error Index	Byte	1	
5	Type	Byte	1	0 – Analog Camera 1 – Digital Camera 2 – Display 3 – Flash 4 – Memory 5 – Disk 6 – SD 7 – UART 8 – Ethernet
6	Error	Byte	1	0 – None 1 – Chip IO 2 – Memory
7-46	Name	String	40	
46-65	Reserved	Byte	20	

Note: If the device does not exist Replay Message is NAK

2.65 Reset HW Errors (96)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 96 Data Length = 0

Reply Message Structure: ACK/NAK

2.66 Set TTL (97)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 97 Data Length = 1
4	TTL	Byte	1	

Reply Message Structure: ACK/NAK

2.67 Get TTL (98)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 98 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 98 Data Length = 1
4	TTL	Byte	1	

2.68 Get Storage Information (100)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 100 Data Length = 1
4	Device Index	Byte	1	0 = SD 1 = USB 2 = Internal Memory

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 100 Data Length = 29
4	Device Index	Byte	1	0 = SD 1 = USB 2 = Internal Memory
5 - 14	Device Name	String	10	
15	Status	Byte	1	0 = No Device 1 = No Partition 2 = No Format 3 = Active
16	Format Type	Byte	1	0 = NONE 1 = VFAT 2 = Linux EXT4 3 = EXFAT
17-20	Total Size kb	Int	4	in MB
21-24	Partition Size kb	Int	4	in MB
25-28	Use Size kb	Int	4	0 – FAT 1 – EXT (x)
29-32	Free Size kb	Int	4	

2.69 Get UART Device (101)

If UART driver is not exists return NAK

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 101 Data Length = 1
4	UART Number	Byte	1	Values between 0 – 9

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 101 Data Length = 21
4	UART Number	Byte	1	Values between 0 – 9
5-24	UART Name	String	20	

2.70 Set UART Parameters for UART to eth (102)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 102 Data Length = 23
4	UART Number	Byte	1	Values between 0 – 9
5	State	Byte	1	0 – Off (default) 1 – On
6	Source IP #1	Byte	1	1st Value
7	Source IP #2	Byte	1	2st Value
8	Source IP #3	Byte	1	3st Value
9	Source IP #4	Byte	1	4st Value
10	Source Port #1	Byte	1	1st Value
11	Source Port #2	Byte	1	2nd Value
12	Delay	Byte	1	MS
13	Baud Rate	Byte	1	0 – 2400 1 – 4800 2 – 9600 (default) 3 – 19200 4 – 38400 5 – 57600 6 – 115200 7 – 230400
14	Flow Control	Byte	1	0 – None(default) 1 – HW
15	Parity	Byte	1	0 – None (default) 1 – Odd 2 – Even 3 – Mark 4 – Space

16	Size	Byte	1	7 - 7 bits 8 - 8 bits (default)
17-20	Destination IP	Byte	4	
21-22	Destination Port	Byte	2	
23	Net Protocol	Byte	1	0 – UDP 1 – TCP
24-26	Reserved	Byte	3	

Reply Message Structure: ACK/NAK

2.71 Get UART Parameters (103)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 103 Data Length = 1
	UART Number	Byte	1	Values between 0 – 9

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 103 Data Length = 23
4	UART Number	Byte	1	Values between 0 – 9
5	State	Byte	1	0 – Off 1 – On
6	Source IP #1	Byte	1	1st Value
7	Source IP #2	Byte	1	2st Value
8	Source IP #3	Byte	1	3st Value
9	Source IP #4	Byte	1	4st Value
10	Source Port #1	Byte	1	1st Value
11	Source Port #2	Byte	1	2nd Value
12	Delay	Byte	1	
13	Baud Rate	Byte	1	0 – 2400 1 – 4800 2 – 9600 (default) 3 – 19200 4 – 38400 5 – 57600 6 – 115200 7 – 230400
14	Flow Control	Byte	1	0 – None 1 – HW
15	Parity	Byte	1	0 – None

				1 – Odd 2 – Even 3 – Mark 4 – Space
16	Size	Byte	1	7 – 7 bits 8 –8 bits
17-20	Destination IP	Byte	4	
21-22	Destination Port	Byte	2	
23	Net Protocol	Byte	1	0 – UDP 1 – TCP
24-26	Reserved	Byte	3	

2.72 Get Temperature (110)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 110 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 110 Data Length = 1
4	Temperature	Byte	1	Celsius

2.73 Set RTSP Server (111)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 111 Data Length = 70
4	Mode	Byte	1	0 – Off 1 – On
5-6	RTSP Port	Short	2	
7	Authentication	Byte	1	0 – Off 1 – On
8-39	User Name	String	32	
40-71	Password	String	32	
72-73	RTMP Port	Short	2	

Reply Message Structure: ACK/NAK

2.74 Get RTSP Server (112)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 112 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 112 Data Length = 70
4	Mode	Byte	1	0 – Off 1 – On
5	RTSP Port	Byte	2	
7	Authentication	Byte	1	0 – Off 1 – On
8-39	User Name	String	32	
40-71	Password	String	32	
72-73	RTMP Port	Short	2	

2.75 Get System Info (113)

If Codec is not existing return NAK

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 113 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 113 Data Length = 147

4-23	Board Version	String	20	
24-33	CPU Type	String	10	
34	CPU Number	Byte	1	
35-36	CPU Speed	Short	2	
37-66	Linux date	String	30	
67-76	LIBUDVP Version	String	10	
78	LDVC Version	Short	2	
79	FPGA	Byte	1	
80-99	IP Address	String	20	
100-119	MAC Address	String	20	
120	Camera Interface	Byte	1	
121-170	Board Name	String	30	

2.76 Get Display Driver Config (118)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 118 Data Length = 2
4	Frame Buffer ID	Byte	1	Values between 0 – 1
5	Display Driver ID	Byte	1	Values between 0 – 4

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 118 Data Length = 12(+20)
4	Frame Buffer ID	Byte	1	Values between 0 – 1
5	Display Driver ID	Byte	1	Values between 0 – 4
6-15	Driver Name	String	10	
16-25	Reserved	Byte	20	

2.77 Setup Display Config (119)

Select display

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 119

				Data Length = 2(+50)
4	FB 0 Driver ID	Byte	1	-1 = None Values between 0 – 9
5	FB 1 Driver ID	Byte	1	-1 = None Values between 0 – 9
6-55	Reserved	String	50	

Reply Message Structure: ACK/NAK

2.78 Get Display Config (120)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 120 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 120 Data Length = 2(+50)
4	FB 0 Driver ID	Byte	1	-1 = None Values between 0 – 9
5	FB 1 Driver ID	Byte	1	-1 = None Values between 0 – 9
6-55	Reserved	Byte	50	

2.79 Get Display modes (121)

If Codec does not exist, return NAK.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 121 Data Length = 2
4	Frame Buffer ID	Byte	1	Values between 0 – 2
5	Mode Number	Byte	1	Values between 0 – 9

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 121 Data Length = 43 (+50)
4	Frame Buffer ID	Byte	1	Values between 0 – 2
5	Mode Number	Byte	1	Values between 0 – 9
6-45	Mode Name	Byte	40	
46-95	Reserved	Byte	50	

2.80 Get Current Display mode (122)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 122 Data Length = 1
4	Frame Buffer ID	Byte	1	Values between 0 – 2

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 122 Data Length = 42 (+50)
4	Frame Buffer ID	Byte	1	Values between 0 – 2
5	Mode State	Byte	1	0 – None 1 – Off 2 – Active
6-45	Mode Name	Byte	40	When Mode State = Active
46-95	Reserved	Byte	50	

2.81 Set Display Mode (123)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 123 Data Length = 42(+50)
4	Frame Buffer ID	Byte	1	Values between 0 – 2
5	Mode State	Byte	1	0 – None 1 – Off

				2 – Active
6-45	Mode Name	Byte	40	Active
46-95	Reserved	Byte	50	

Reply Message Structure: ACK/NAK

2.82 Set Snapshot Quality (127)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 127 Data Length = 2
4	Mux Number	Byte	1	0 – N
5	Quality	Byte	1	Values between 1 – 10

Reply Message Structure: ACK/NAK

2.83 Get Snapshot Quality (128)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 128 Data Length = 1
4	Mux Number	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 128 Data Length = 2
4	Mux Number	Byte	1	0 – N
5	Quality	Byte	1	Values between 1 – 10

2.84 Start Snapshot (129)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 129 Data Length = 1
4	Mux Number	Byte	1	0 – N

Reply Message Structure: ACK/NAK

2.85 Set Display Operation (134)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 134 Data Length = 2
4	Mux Number	Byte	1	0 – N
5	Mode	Byte	1	0 – Stop 1 – Start

Reply Message Structure: ACK/NAK

2.86 Set Time Source (141)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 141 Data Length = 2
4	Source	Byte	1	0 – User (default) 1 – GPS
5	Offset	Byte	1	

Reply Message Structure: ACK/NAK

2.87 Get Time Source (142)

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 142 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 142 Data Length = 2
4	Source	Byte	1	0 – User (default) 1 – GPS
5	Offset	Byte	1	

2.88 Get USB To Disk Mode (145)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 145 Data Length = 0

Reply Message Structure: (146)

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 145 Data Length = 1
4	Mode	Byte	1	0 – Disable 1 – Enable

2.89 Enable/Disable USB disk mode (146)

Enable to see the board as disk on key

Message Structure:

D-BYTE	Field Name		Data Type	Field Length (bytes)	Description
0-3	Header			4	Message ID – 146 Data Length = 1
4	Mode		Byte	1	0 – Disable 1 – Enable

Reply Message Structure: ACK/NAK

2.90 Format Device (164)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 164 Data Length = 4
4	Device Number	Byte	1	0 = SD 1 = USB 2 = Internal Memory
5	Format Type	Byte	1	1 = FAT32 2 = EXT4 3 = EXFAT
6	Initialize Disk	Byte	1	0 = Not Initialize 1 = Initialize Disk
7	Wipe Disk	Byte	1	0 = Not Wipe 1 = Wipe

Reply Message Structure: ACK/NAK

2.91 Get Format Device Status (165)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 165 Data Length = 0

Reply Message Structure: (165)

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 165 Data Length = 1
4	Format Status	Byte	1	0 – Not Formatting 1 – Formatting

2.92 Maris private Messages (168-169)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 168

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 169

Reply Message Structure: ACK/NAK

2.93 Set Display Rotate (172)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 172 Data Length = 4
4	FB Number	Byte	1	0 Or 1
5	Rotate	Byte	1	0 – None 1 – Rotate 90 2 – Rotate 180 3 – Rotate 270
6	Mirror	Byte	1	0 - None 1- Vertical 2 - Horizontal 3 - Vertical - Horizontal
7	Output	Byte	1	0 – Output Mode 1 – Input Size

Reply Message Structure: ACK/NAK

2.94 Get Display Rotate (173)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 173 Data Length = 1
4	FB Number	Byte	1	0 Or 1

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 173 Data Length = 1
4	FB Number	Byte	1	0 Or 1
5	Rotate	Byte	1	0 – None 1 – Rotate 90 2 – Rotate 180 3 – Rotate 270
6	Mirror	Byte	1	0 - None 1- Vertical 2 - Horizontal 3 - Vertical - Horizontal
7	Output	Byte	1	0 – Output Mode 1 – Input Size

2.95 Set ONVIF Enable Mode (183)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 183 Data Length = 1
4	Mode	Byte	1	0 – Disable 1 – Enable

Reply Message Structure: ACK/NAK

2.96 Get ONVIF Enable Mode (184)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 184 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 184 Data Length = 1
4	Mode	Byte	1	0 – Disable 1 – Enable

Reply Message Structure: ACK/NAK

2.97 Get Active Sensors Count (185)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 185 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 185 Data Length = 1
4	Count	Byte	1	

2.98 Get Sensor Info (186)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 186 Data Length = 1
4	Device Number	Byte	1	Value between 0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description

0-3	Header		4	Message ID – 186 Data Length = 4
4	Device Number	Byte	1	Same as the request
5	Modes Count	Byte	1	The number of modes the sensor has. Like: Resolution, fps, video formats
6	Selected Mode Index	Byte	1	User selected mode index
7	Logical Device Number	Byte	1	(Logical Number) 0 - CSI 0, 1- CSI 1, 2-N USB

2.99 Set Sensor Mode by ID (187)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 187 Data Length = 2
4	Device Number	Byte	1	Value between 0 – N
5	Mode Index	Byte	1	Mode Index

Reply Message Structure: ACK/NAK

2.100 Get Sensor Mode by ID (188)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 188 Data Length = 2
4	Device Number	Byte	1	Value between 0 – N
5	Mode ID	Byte	1	

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 188 Data Length = 9
4	Device Number	Byte	1	
5	Mode Index	Byte	1	
6	Is Select	Byte	1	0 – False 1 – True
7-8	Width	Byte	2	
9-10	Height	Byte	2	
11	Fps	Byte	1	
12	Frame type	Byte	1	0 – MJPEG 1 – YUV

2.101 Set Virtual Video (195)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 195 Data Length = 3
4	Mux Number	Byte	1	0 – N
5	Resolution	Byte	1	0 = 1080 P 30 1 = 720 P 60 2 = 575 P 30
6	FPS	Byte	1	0 – 10 1 – 30 2 – 40

Reply Message Structure: ACK/NAK

2.102 Get Virtual Video (196)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 196 Data Length = 1
4	Mux Number	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 196 Data Length = 3
4	Mux Number	Byte	1	0 – N
5	Resolution	Byte	1	0 = 1080 P 30 1 = 720 P 60 2 = 575 P 30
6	FPS	Byte	1	0 – 10 1 – 30 2 – 40

2.103 Get Application Name (204)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 204 Data Length = 1
4	App Number	Byte	1	0 = None 1 = Quad DVR 2 = DVRU 3 = Nas Control

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 204 Data Length = 25
4	App Name	String	25	

2.104 Set VMD Params (205)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 205 Data Length = 8
4	Mux Number	Byte	1	0 – N
5	Size Sensitivity	Byte	1	

6	Motion Sensitivity	Byte	1	
7	Frame Distance	Byte	1	
8	Activity (MS)	Byte	1	
9	Stop Action After (sec)	Byte	1	
10	Event Flags	Byte	1	BIT 0 – Start action BIT 1 – Stop action
11	Show rectangle	Byte	1	Disabled – 0 Enabled – 1

Reply Message Structure: ACK/NAK

2.105 Get VMD Params (206)

Message Structure:

D-Byte	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 206 Data Length = 1
4	Mux Number	Byte	1	0 – N

Reply Message Structure:

D-Byte	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 206 Data Length = 8
4	Mux Number	Byte	1	0 – N
5	Size Sensitivity	Byte	1	
6	Motion Sensitivity	Byte	1	
7	Frame Distance	Byte	1	
8	Activity(ms)	Byte	1	
9	Stop Action After(sec)	Byte	1	
10	Event Flags	Byte	1	BIT 0 – Start action BIT 1 – Stop action
11	Show rectangle	Byte	1	Disabled – 0 Enabled – 1

2.106 Set Next Vision Camera (219)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 219 Data Length = 26
4	State	Byte	1	0 = 1 =
5	Laser Enable	Byte	1	0 = 1 =
6	Laser Mode	Byte	1	0 = 1 = 2 = 3 =
7	Mode	Byte	1	0/3/4/8/10/30/31
8-11	Pitch	Int	4	0 - 4095
12-15	Roll	Int	4	0 - 4095
16-19	Yaw	Int	4	0
20	Rate calc	Byte	1	0 = 1 =
21	Zoom	Byte	1	0 / 0x64 / 0x80
22	EO IR	Byte	1	0 = 1 =
23	Polarity	Byte	1	0 = 1 =
24	NUC	Byte	1	0 = 1 =
25	Type	Byte	1	0 = 1 = 2 = 3 =
26	OSD Text	Byte	1	0 = 1 =
27	OSD Graphics	Byte	1	0 = 1 =
28	Freese	Byte	1	0 = 1 =
29	Normal	Byte	1	0 / 1

Reply Message Structure: ACK/NAK

2.107 Get Next Vision Camera (220) Not yet implemented.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 220 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 220 Data Length = 0

2.108 Get Update Status (253)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 253 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 253 Data Length = 1
4	Status	Byte	1	0 – Off 1 – Busy

2.109 Set Camera Lose mode (233)

Select behavior when camera video become unlock lock during recording/streaming.

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 233 Data Length = 2
4	Mux Number	Byte	1	0 – N

5	Action	Byte	1	0 – wait video 1 – stop 2 – virtual video 1 (black on white) 3 – virtual video 2 (white on black) Message: No Video on the video.

Reply Message Structure: ACK/NAK

2.110 Get Camera Lose mode (234)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 234 Data Length = 0
4	Mux Number	Byte	1	0 – N

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 234 Data Length = 2
4	Mux Number	Byte	1	0 – N
5	Action	Byte	1	0 – wait video 1 – stop 2 – virtual video 1 (black on white) 3 – virtual video 2 (white on black)

2.111 Set Quad Params (241)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 233 Data Length = 25
4-5	Telemetry Port	Short	2	
6-9	Telemetry IP	Int	4	
10	Add To Video	Byte	1	
11-12	Stream Audio Port	Short	2	
13-16	Stream Audio IP	Int	4	
17	Stream Audio Protocol	Byte	1	0 = MPEG2TS 1= RTP
18-19	Sample Rate	Short	2	
20-21	TCP Server Port	Short	2	
22-23	UDP Server Port	Short	2	
24	Display Camera Source	Byte	1	0 = Gunner 1 = Raw 2 = External 3 = TAS 4 = HD
25-26	Deletion Threshold	Short	2	In GB
27	Auto Delete	Byte	1	0 = Enable 1 = Disable
28	Ethernet Speed	Byte	1	0 = 1000 MB 1 = 100 MB

Reply Message Structure: ACK/NAK

2.112 Get Quad Params (242)

Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 242 Data Length = 0

Reply Message Structure:

D-BYTE	Field Name	Data Type	Field Length (bytes)	Description
0-3	Header		4	Message ID – 242 Data Length = 25
4-5	Telemetry Port	Short	2	
6-9	Telemetry IP	Int	4	
10	Add To Video	Byte	1	0 = Disable

				1 = Enable
11-12	Stream Audio Port	Short	2	
13-16	Stream Audio IP	Int	4	
17	Stream Audio Protocol	Byte	1	0 = MPEG2TS 1= RTP
18-19	Sample Rate	Short	2	
20-21	TCP Server Port	Short	2	
22-23	UDP Server Port	Short	2	
24	Display Camera Source	Byte	1	0 = Gunner 1 = Raw 2 = External 3 = TAS 4 = HD
25-26	Deletion Threshold	Short	2	In GB
27	Auto Delete	Byte	1	0 = Enable 1 = Disable
28	Ethernet Speed	Byte	1	0 = 1000 MB 1 = 100 MB

3 LDVC Config File

The ldvc.cfg file save the parameters that the user sets by command or by self-editing and the system uses them.
If the user doesn't put values the system uses the default values we set.

That is example of ldvc.cfg file:

```
ldvc :
{
 network_mode :
 {
  mode = 1;
  ip = "192.168.0.40";
  mask = "255.255.255.0";
  gateway = "192.168.0.8";
  mac_addr = "0a:3a:4e:db:47:38";
 };
 camera_setup :
 {
  csi1 = -1;
  csi2 = -1;
 };
 mux_0 :
 {
```

```
  mux_setup :
  {
   auto_activ = 0;
   video_src = 1;
   audio_src = 1;
   data_src = -1;
   interface = 0;
   netmode = 0;
   protocol = 1;
   ip = "192.168.0.8";
   port = 1235;
   uart_no = 0;
   pretend_auto = 0;
  };
  video_frame_rate :
  {
   frame_rate = 0;
   time_laps = 30;
   deinterlace = 0;
  };
  video_encode_quality :
  {
   encodemode = 1;
   bitrate = 7000;
   gop = 30;
   iq = 255;
   ql = 23;
  };
  bitrate_setup :
  {
   bitrate_pres = 0;
   jitter_flag = 0;
  };
  roi :
  {
   mode = 0;
   source_width = 720;
   source_height = 480;
   source_x = 0;
   source_y = 0;
   dist_width = 720;
   dist_height = 480;
  };
  video_stabilizer :
  {
   mode = 0;
   margin_w = 10;
   margin_h = 10;
  };
 };
```

```
mux_1 :
{
 mux_setup :
 {
  auto_activ = 0;
  video_src = 1;
  audio_src = 1;
  data_src = -1;
  interface = 0;
  netmode = 0;
  protocol = 1;
  ip = "192.168.0.8";
  port = 1238;
  uart_no = 0;
  pretend_auto = 0;
 };
};
mux_2 :
{
 mux_setup :
 {
  auto_activ = 0;
  video_src = 1;
  audio_src = -1;
  data_src = -1;
  interface = 0;
  netmode = 0;
  protocol = 1;
  ip = "192.168.0.8";
  port = 1240;
  uart_no = 0;
  pretend_auto = 0;
 };
};
rtsp_setup :
{
 mode = 0;
 port = 9999;
};
data_source :
{
 data_0 :
 {
  type = 1;
  ip = "225.0.0.1";
  port = 0;
  buad_rate = 6;
  flow_ctl = 0;
 };
};
```

```
 serial_port :
 {
  uart_0 :
  {
   state = 0;
   s_ip = "0.0.0.0";
   port = 0;
   delay = 10;
   speed = 9600;
   flow_control = 0;
  };
 };
 ch_0 :
 {
  audio_source :
  {
   volume = 30;
   quality = 1;
   codec = 2;
   sample_rate = 1;
   bitrate = 32000;
   channels = 1;
   bits_per_sample = 16;
  };
 };
 tv_1 :
 {
  display_setup :
  {
   mode = 1;
  };
 };
 tv_0 :
 {
  display_setup :
  {
   mode = 1;
  };
 };
};
```