

# 54G30-X22&X26

## Camera Serial Communication Interface Specification

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### 1. BRIEF

The specification of interface, by RS-232 to control 54G30.

By this interface of communication to control zoom, focus, lens iris, slow scan, back light compensation, white balance etc.

The adjustment can be executed from the controller. Below is the detail.

### 2. SERIAL COMMUNICATION I/F

#### 2.1 The connection of controller & camera

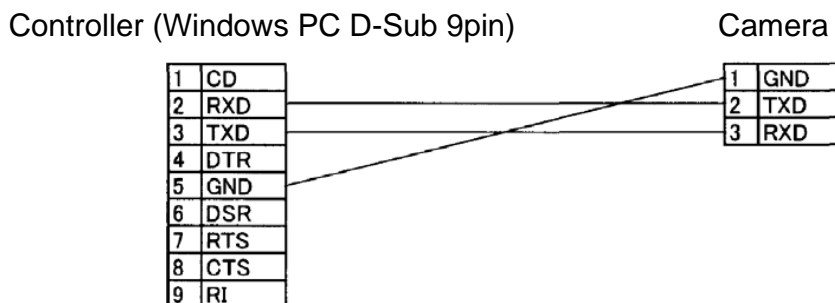


Fig-1 Connection of Controller & Camera

The connection between Controller and Camera, please refer to Fig\_1 ◦

## 2.2 Communication sequence

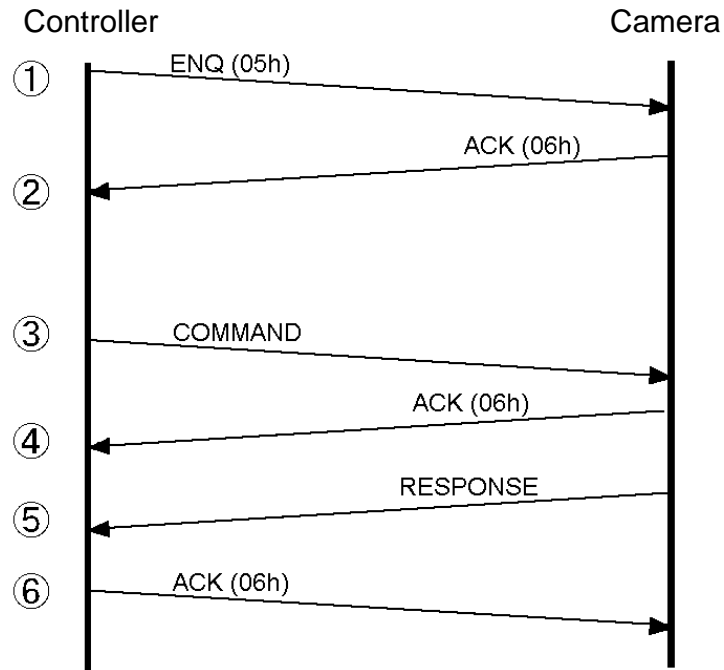


Fig-2 Communication sequence

TABLE-1 Serial communication parameter

The communication flow, please refer to Fig-2.  
 Make sure the connection, ① Controller send out of "ENQ", after ② receive "ACK" from Camera.  
 (Confirm the connection can be omitted)

From controller to ③ send "COMMAND" signal into camera, when camera received "command signal" then ④ return "ACK" back, after that the camera will proceed the "command" then ⑤ send "RESPONSE" signal back to controller, after the controller received the signal then it will ⑥ sends "ACK" signal to the camera.

Repeat following ③~⑥ to communicate

TABLE -1  
 Serial communication parameter

Baud rate	9600BPS
Data length	8Bit
Parity	NO
Stop bit	1Bit
Flow control	NO
Synchrony	Internal

### \*RS-485 Correspond

For corresponding 1 controller to multiple (1:N) cameras, ID is added.

Transmitted command from controller, only to process same ID cameras. When the commanded camera and after command processing then transmit response data.

At the occasion of setting ID to 00h from controller and transmitted command, all of the cameras will process the command. (When ID at 00h, response data can not be transmitted.)

At the occasion of 1 to N, do not transmit (ENQ, ACK from controller)

(Refer to Fig-2 communication flow). Camera would not transmit ACK.

## 2.3 COMMUNICATION FORMAT

(1)ENQ Data length 1byte

05h

(2)ACK:OK Data length 1byte

06h

(3)NAK:ERROR Data length 1byte

15h

(4) COMMAND LINE Data length 7byte

STX	D1	D2	D3	D4	ID	SUM
-----	----	----	----	----	----	-----

STX : 8xh , 9xh

ID : 01h~EFh(ID for identifying camera)  
Special ID

ID = 0x00 (All camera)

ID = 0xF0 ~ 0xFF (Inhibit using)

SUM : STX~SUM add total value of 7byte, made 2's complement, express with Hexadecimal 1 byte (00h).

(5) RESPONSE LINS Data length 7byte

STX	D1	D2	D3	D4	ID	SUM
-----	----	----	----	----	----	-----

STX : 8xh , 9xh (Normal)  
Cxh (Error)

ID : Camera ID

SUM : STX~SUM add total value of 7byte, made 2's complement, express with Hexadecimal 1 byte (00h).

### 3. COMMAND

#### 3.1 CAMERA.ID

(1) CAMERA.ID      Character 1 ~ Character 20    READ  
Command line

80h	00h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2            : 01h (Character 1) ~ 14h (Character 20)

D3~D4        : non-ues

Response line

STX	00h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX          : 80h (Normal), C0h (Error)

D2          : 01h (Character 1) ~ 14h (Character 20)

D3          : CAMERA.ID High Byte Data

D4          : CAMERA.ID Low Byte Data

(2) CAMERA.ID      Position    READ  
Command line

80h	01h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4        : non-ues

Response line

STX	01h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX          : 80h (Normal), C0h (Error)

D2          : Ignore

D3          : POSITION (00h-LEFT UP, 01h-RIGHT UP  
00h-LEFT DOWN, 01h-RIGHT DOWN)

D4          : Ignore



### 3.2 AGC / SENSE UP

#### (1) AGC / SENSE UP READ

Command line

81h	00h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	00h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)  
D2 : Ignore  
D3 : AGC (00h-BASE ~ 08h-MAX)  
D4 : SENSE UP (00h-OFF ~ 08h-X64)

#### (2) AGC WRITE

Command line

81h	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : AGC (00h-BASE ~ 08h-MAX)  
D3~D4 : non-ues

Response line

STX	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)  
D2 : Ignore  
D3 : AGC (00h-BASE ~ 08h-MAX)  
D4 : SENSE UP (00h-OFF ~ 08h-X64)

#### (3) SENSE UP WRITE

Command line

81h	81h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : SENSE UP (00h-OFF ~ 08h-X64)  
D3~D4 : non-ues

Response line

STX	81h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)  
D2 : Ignore  
D3 : AGC (00h-BASE ~ 08h-MAX)  
D4 : SENSE UP (00h-OFF ~ 08h-X64)

### 3.3 ALC / AES

#### (1) ALC READ

Command line

81h	10h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	00h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)

D2 : ALC (00h-AUTO, 01h-FIX)

D3 : ALC AUTO LEVEL (00h-MIN ~ 08h-MAX)

D4 : ALC FIX LEVEL (00h-MIN ~ 08h-MAX)

#### (2) ALC WRITE

Command line

81h	90h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : ALC (00h-AUTO, 01h-FIX)

D3~D4 : non-ues

Response line

STX	90h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)

D2 : ALC (00h-AUTO, 01h-FIX)

D3 : ALC AUTO LEVEL (00h-MIN ~ 08h-MAX)

D4 : ALC FIX LEVEL (00h-MIN ~ 08h-MAX)

#### (3) ALC AUTO LEVEL WRITE

Command line

81h	91h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : ALC AUTO LEVEL (00h-MIN ~ 08h-MAX)

D3~D4 : non-ues

Response line

STX	91h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)

D2 : ALC (00h-AUTO, 01h-FIX)

D3 : ALC AUTO LEVEL (00h-MIN ~ 08h-MAX)

D4 : ALC FIX LEVEL (00h-MIN ~ 08h-MAX)

#### (4) ALC FIX LEVEL WRITE

Command line

81h	92h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : ALC (00h-AUTO, 01h-FIX)

D3~D4 : non-ues

Response line

STX	92h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)

D2 : ALC (00h-AUTO, 01h-FIX)

D3 : ALC AUTO LEVEL (00h-MIN ~ 08h-MAX)

D4 : ALC FIX LEVEL (00h-MIN ~ 08h-MAX)

#### (5) AES READ

Command line

81h	20h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	20h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)

D2 : AES (00h-AUTO, 01h-FIX)

D3 : AES AUTO LEVEL (00h-MIN ~ 08h-MAX)

D4 : AES FIX LEVEL (00h-OFF ~ 08h-1/10000sec.)

#### (6) AES WRITE

Command line

81h	A0h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : AES (00h-AUTO ~ 01h-FIX)

D3~D4 : non-ues

Response line

STX	A0h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)

D2 : AES (00h-AUTO, 01h-FIX)

D3 : AES AUTO LEVEL (00h-MIN ~ 08h-MAX)

D4 : AES FIX LEVEL (00h-OFF ~ 08h-1/10000sec.)



(7) AES AUTO LEVEL WRITE

Command line

81h	A1h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : AES AUTO LEVEL (00h-MIN ~ 08h-MAX)

D3~D4 : non-ues

Response line

STX	A1h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)

D2 : AES (00h-AUTO, 01h-FIX)

D3 : AES AUTO LEVEL (00h-MIN ~ 08h-MAX)

D4 : AES FIX LEVEL (00h-OFF ~ 08h-1/10000sec.)

(8) AES FIX LEVEL WRITE

Command line

81h	A2h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : AES FIX LEVEL

00h - OFF

01h - 1/100

02h - 1/120

03h - 1/250

04h - 1/500

05h - 1/1000

06h - 1/2000

07h - 1/4000

08h - 1/10000

D3~D4 : non-ues

Response line

STX	A2h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)

D2 : AES (00h-AUTO, 01h-FIX)

D3 : AES AUTO LEVEL (00h-MIN ~ 08h-MAX)

D4 : AES FIX LEVEL (00h-OFF ~ 08h-1/10000sec.)

### 3.4 BLC

#### (1) BLC READ

Command line

81h	30h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	30h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)  
D2 : BLC (00h-OFF, 01h-ON)  
D3 : BLC LEVEL (00h-MIN ~ 07h-MAX)  
D4 : non-ues

#### (2) BLC AREA READ1

Command line

81h	31h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	31h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)  
D2 : BLC AREA LINE-1 (Each bit 0-OFF, 1-ON)  
D3 : BLC AREA LINE-2 (Each bit 0-OFF, 1-ON)  
D4 : BLC AREA LINE-3 (Each bit 0-OFF, 1-ON)

#### (3) BLC AREA READ2

Command line

81h	32h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	91h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)  
D2 : BLC AREA LINE-4 (Each bit 0-OFF, 1-ON)  
D3 : BLC AREA LINE-5 (Each bit 0-OFF, 1-ON)  
D4 : BLC AREA LINE-6 (Each bit 0-OFF, 1-ON)

#### (4) BLC WRITE

Command line

81h	B0h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : BLC (00h-OFF, 01h-ON)

D3~D4 : non-ues

Response line

STX	B0h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)

D2 : BLC (00h-OFF, 01h-ON)

D3 : BLC LEVEL (00h-MIN ~ 07h-MAX)

D4 : non-ues

#### (5) BLC LEVEL WRITE

Command line

81h	B1h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : BLC LEVEL (00h-MIN ~ 07h-MAX)

D3~D4 : non-ues

Response line

STX	31h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)

D2 : BLC (00h-OFF, 01h-ON)

D3 : BLC LEVEL (00h-MIN ~ 07h-MAX)

D4 : non-ues

#### (6) BLC AREA WRITE1

Command line

81h	B2h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : BLC AREA LINE-1 (Each bit 0-OFF, 1-ON)

D3 : BLC AREA LINE-2 (Each bit 0-OFF, 1-ON)

D4 : BLC AREA LINE-3 (Each bit 0-OFF, 1-ON)

Response line

STX	B2h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)

D2 : BLC AREA LINE-1 (Each bit 0-OFF, 1-ON)

D3 : BLC AREA LINE-2 (Each bit 0-OFF, 1-ON)

D4 : BLC AREA LINE-3 (Each bit 0-OFF, 1-ON)

#### (7) BLC AREA WRITE2

Command line

81h	B3h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : BLC AREA LINE-4 (Each bit 0-OFF, 1-ON)  
D3 : BLC AREA LINE-5 (Each bit 0-OFF, 1-ON)  
D4 : BLC AREA LINE-6 (Each bit 0-OFF, 1-ON)

Response line

STX	B3h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 81h (Normal), C1h (Error)  
D2 : BLC AREA LINE-4 (Each bit 0-OFF, 1-ON)  
D3 : BLC AREA LINE-5 (Each bit 0-OFF, 1-ON)  
D4 : BLC AREA LINE-6 (Each bit 0-OFF, 1-ON)

### 3.5 WHITE BAL

#### (1) WHITE BALANCE READ

Command line

82h	00h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	00h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 82h (Normal), C2h (Error)

D2 : WHITE BLANCE (00h-ATW, 01h-AWB)

D3~D4 : non-ues

#### (2) ATW LEVEL READ

Command line

82h	01h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	31h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 82h (Normal), C2h (Error)

D2 : ATW LEVEL (00h-RED, 08h-BLUE)

D3~D4 : non-ues

#### (3) AWB LEVEL READ

Command line

82h	02h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	02h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 82h (Normal), C2h (Error)

D2 : AWB LEVEL (00h-RED, 08h-BLUE)

D3 : ONE PUSH ACTIVE (00h- While stopping, 01h- In active)

D4 : non-ues

(4) R-Y Gain B-Y Gain READ

Command line

82h	03h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	93h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 82h (Normal), C2h (Error)

D2 : R-Y Gain (00h-MIN, 08h-MAX)

D3 : B-Y Gain (00h-MIN, 08h-MAX)

D4 : non-ues

(5) WHITE BALANCE WRITE

Command line

82h	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : WHITE BLANCE (00h-ATW, 01h-AWB)

D3~D4 : non-ues

Response line

STX	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 82h (Normal), C2h (Error)

D2 : WHITE BLANCE (00h-ATW, 01h-AWB)

D3~D4 : non-ues

(6) ATW LEVEL WRITE

Command line

82h	81h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : ATW LEVEL (00h-RED, 08h-BLUE)

D3~D4 : non-ues

Response line

STX	81h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 82h (Normal), C2h (Error)

D2 : ATW LEVEL (00h-RED, 08h-BLUE)

D3~D4 : non-ues

(7) AWB LEVEL WRITE

Command line

82h	82h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : AWB LEVEL (00h-RED, 08h-BLUE)

D3~D4 : non-ues

Response line

STX	82h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 82h (Normal), C2h (Error)

D2 : AWB LEVEL (00h-RED, 08h-BLUE)

D3 : ONE PUSH ACTIVE (00h- While stopping, 01h- In active)

D4 : non-ues

(8) R-Y Gain WRITE

Command line

82h	83h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : R-Y Gain (00h-MIN, 08h-MAX)

D3~D4 : non-ues

Response line

STX	83h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 82h (Normal), C2h (Error)

D2 : R-Y Gain (00h-MIN, 08h-MAX)

D3 : B-Y Gain (00h-MIN, 08h-MAX)

D4 : non-ues

(9) B-Y Gain WRITE

Command line

82h	84h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : B-Y Gain (00h-MIN, 08h-MAX)

D3~D4 : non-ues

Response line

STX	84h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 82h (Normal), C2h (Error)

D2 : R-Y Gain (00h-MIN, 08h-MAX)

D3 : B-Y Gain (00h-MIN, 08h-MAX)

D4 : non-ues



(10) AWC TRIGGER WRITE

Command line

82h	85h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	85h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 82h (Normal), C2h (Error)

D2 : AWB LEVEL (00h-RED, 08h-BLUE)

D3 : ONE PUSH ACTIVE (00h- While stopping, 01h- In active)

D4 : non-ues

### 3.6 LENS

#### (1) ZOOM READ

Command line

83h	00h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	00h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)  
D2 : ZOOM (target position HIGH BYTE)  
D3 : ZOOM (target position LOW BYTE)  
D4 : non-ues

#### (2) FOCUS READ

Command line

83h	01h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	01h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)  
D2 : FOCUS (target position HIGH BYTE)  
D3 : FOCUS (target position LOW BYTE)  
D4 : non-ues

#### (3) AUTO FOCUS READ

Command line

83h	02h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	02h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)  
D2 : AUTO FOCUS (00h-OFF, 01h-ON)  
D3 : ZOOM+AF (00h-OFF, 01h-ON)  
D4 : AF SLEEP (00h-SLEEP FUNCTION OFF, 01h-SLEEP FUNCTION ON)

#### (4) DIGITAL ZOOM MAX READ

Command line

83h	03h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	03h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)

D2 : Digital Zoom MAX (00h-OFF, 01h-X2, 02h=X4, 03h-X6, 04h-X8, 05h-X10)

D3~D4 : non-ues

#### (5) LENS SPEED READ

Command line

83h	04h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	04h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)

D2 : ZOOM SPEED (00h-MIN~04h-MAX)

D3 : FOCUS SPEED (00h-MIN~04h-MAX)

D4 : non-ues

(6) ZOOM WIDE

Command line

83h	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)  
D2 : ZOOM (target position HIGH BYTE)  
D3 : ZOOM (target position LOW BYTE)  
D4 : non-ues

(7) ZOOM TELE

Command line

83h	81h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	81h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)  
D2 : ZOOM (target position HIGH BYTE)  
D3 : ZOOM (target position LOW BYTE)  
D4 : non-ues

(8) ZOOM STOP

Command line

83h	82h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	82h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)  
D2 : ZOOM (target position HIGH BYTE)  
D3 : ZOOM (target position LOW BYTE)  
D4 : non-ues

(9) FOCUS NEAR

Command line

83h	83h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	83h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)  
D2 : FOCUS (target position HIGH BYTE)  
D3 : FOCUS (target position LOW BYTE)  
D4 : non-ues

(10) FOCUS FAR

Command line

83h	84h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	84h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)  
D2 : FOCUS (target position HIGH BYTE)  
D3 : FOCUS (target position LOW BYTE)  
D4 : non-ues

(11) FOCUS STOP

Command line

83h	85h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	85h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)  
D2 : FOCUS (target position HIGH BYTE)  
D3 : FOCUS (target position LOW BYTE)  
D4 : non-ues

## (12) AUTO FOCUS

Command line

83h	86h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : AUTO FOCUS (00h-OFF, 01h-ON)

D3~D4 : non-ues

Response line

STX	86h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)

D2 : AUTO FOCUS (00h-OFF, 01h-ON)

D3 : ZOOM+AF (00h-OFF, 01h-ON)

D4 : AF SLEEP (00h-SLEEP FUNCTION OFF, 01h-SLEEP FUNCTION ON)

## (13) ZOOM+AF

Command line

83h	87h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : ZOOM+AF (00h-OFF, 01h-ON)

D3~D4 : non-ues

Response line

STX	87h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)

D2 : AUTO FOCUS (00h-OFF, 01h-ON)

D3 : ZOOM+AF (00h-OFF, 01h-ON)

D4 : AF SLEEP (00h-SLEEP FUNCTION OFF, 01h-SLEEP FUNCTION ON)

## (14) AF SLEEP WRITE

Command line

83h	88h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : AF SLEEP (00h-SLEEP FUNCTION OFF, 01h-SLEEP FUNCTION ON)

D3~D4 : non-ues

Response line

STX	88h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)

D2 : AUTO FOCUS (00h-OFF, 01h-ON)

D3 : ZOOM+AF (00h-OFF, 01h-ON)

D4 : AF SLEEP (00h-SLEEP FUNCTION OFF, 01h-SLEEP FUNCTION ON)

### (15) ONE PUSH AUTO FOCUS

Command line

83h	89h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	89h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)

D2 : AUTO FOCUS (00h-OFF, 01h-ON)

D3 : ZOOM+AF (00h-OFF, 01h-ON)

D4 : AF SLEEP (00h-SLEEP FUNCTION OFF, 01h-SLEEP FUNCTION ON)

### (16) DIGITAL ZOOM MAX WRITE

Command line

83h	8Ah	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : Digital Zoom MAX (00h-OFF, 01h-X2, 02h=X4, 03h-X6, 04h-X8, 05h-X10)

D3~D4 : non-ues

Response line

STX	8Ah	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)

D2 : Digital Zoom MAX (00h-OFF, 01h-X2, 02h=X4, 03h-X6, 04h-X8, 05h-X10)

D3~D4 : non-ues

### (17) ZOOM STEP APPOINT

Command line

83h	8Bh	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : ZOOM (target position HIGH BYTE)

D3 : ZOOM (target position LOW BYTE)

D4 : non-ues

Response line

STX	8Bh	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)

D2 : ZOOM (target position HIGH BYTE)

D3 : ZOOM (target position LOW BYTE)

D4 : non-ues

(18) FOCUS STEP APPOINT

Command line

83h	8Ch	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : FOCUS (target position HIGH BYTE)  
D3 : FOCUS (target position LOW BYTE)  
D4 : non-ues

Response line

STX	8Ch	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)  
D2 : FOCUS (target position HIGH BYTE)  
D3 : FOCUS (target position LOW BYTE)  
D4 : non-ues

(19) ZOOM 1 STEP TELE

Command line

83h	90h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : MOVE STEP NUMBER HIGH BYTE  
D3 : MOVE STEP NUMBER LOW BYTE  
D4 : non-ues

Response line

STX	90h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)  
D2 : ZOOM (target position HIGH BYTE)  
D3 : ZOOM (target position LOW BYTE)  
D4 : non-ues

(20) ZOOM 1 STEP WIDE

Command line

83h	91h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : MOVE STEP NUMBER HIGH BYTE  
D3 : MOVE STEP NUMBER LOW BYTE  
D4 : non-ues

Response line

STX	91h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)  
D2 : ZOOM (target position HIGH BYTE)  
D3 : ZOOM (target position LOW BYTE)  
D4 : non-ues



(21) FOCUS 1 STEP NEAR

Command line

83h	92h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : MOVE STEP NUMBER HIGH BYTE  
D3 : MOVE STEP NUMBER LOW BYTE  
D4 : non-ues

Response line

STX	92h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)  
D2 : FOCUS (target position HIGH BYTE)  
D3 : FOCUS (target position LOW BYTE)  
D4 : non-ues

(22) FOCUS 1 STEP FAR

Command line

83h	93h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : MOVE STEP NUMBER HIGH BYTE  
D3 : MOVE STEP NUMBER LOW BYTE  
D4 : non-ues

Response line

STX	93h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)  
D2 : FOCUS (target position HIGH BYTE)  
D3 : FOCUS (target position LOW BYTE)  
D4 : non-ues

(23) ZOOM SPEED WRITE

Command line

83h	94h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : ZOOM SPEED (00h-MIN~04h-MAX)  
D3~D4 : non-ues

Response line

STX	94h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)  
D2 : ZOOM SPEED (00h-MIN~04h-MAX)  
D3 : FOCUS SPEED (00h-MIN~04h-MAX)  
D4 : non-ues

(24) FOCUS SPEED WRITE

Command line

83h	95h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : FOCUS SPEED (00h-MIN~04h-MAX)

D3~D4 : non-ues

Response line

STX	94h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 83h (Normal), C3h (Error)

D2 : ZOOM SPEED (00h-MIN~04h-MAX)

D3 : FOCUS SPEED (00h-MIN~04h-MAX)

D4 : non-ues

### 3.7 POSITION

#### (1) POSITION OSD READ

Command line

84h	00h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	00h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 84h (Normal), C4h (Error)

D2 : non-ues

D3 : POSITION OSD (00h-OFF, 01h-ON)

D4 : POSITION OSD LOCATION (00h-UP, 01h-DOWN)

#### (2) POSITION BOARD, ALARM READ

Command line

84h	01h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	01h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 84h (Normal), C4h (Error)

D2 : BOARD POSITION No. (01h~40h)

D3 : ALARM POSITION (00h-OFF, 01h~40h-POSITION No.)

D4 : non-ues

#### (3) POSITION No. READ

Command line

84h	02h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	02h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 84h (Normal), C4h (Error)

D2 : POSITION No. (01h~40h)

D3~D4 : non-ues

(4) POSITION ZOOM(EEPROM) READ

Command line

84h	03h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : POSITION No. (01h~40h)

D3~D4 : non-ues

Response line

STX	03h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 84h (Normal), C4h (Error)

D2 : POSITION No. (01h~40h)

D3 : ZOOM HIGH BYTE (EEPROM)

D4 : ZOOM LOW BYTE (EEPROM)

(5) POSITION FOCUS(EEPROM) READ

Command line

84h	04h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : POSITION No. (01h~40h)

D3~D4 : non-ues

Response line

STX	04h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 84h (Normal), C4h (Error)

D2 : POSITION No. (01h~40h)

D3 : FOCUS HIGH BYTE (EEPROM)

D4 : FOCUS LOW BYTE (EEPROM)

(6) POSITION ZOOM(CURRENT) READ

Command line

84h	05h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	05h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 84h (Normal), C4h (Error)

D2 : non-ues

D3 : ZOOM HIGH BYTE (CURRENT)

D4 : ZOOM LOW BYTE (CURRENT)

(7) POSITION FOCUS(CURRENT) READ

Command line

84h	06h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	06h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 84h (Normal), C4h (Error)

D2 : non-ues

D3 : FOCUS HIGH BYTE (CURRENT)

D4 : FOCUS LOW BYTE (CURRENT)

(8) DEFAULT POSITION READ

Command line

84h	10h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	10h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 84h (Normal), C4h (Error)

D2 : DEFAULT POSITION STATE (00h-OFF, 01h-ON)

D3 : DEFAULT POSITION No. (01h~40h- POSITION No.)

D4 : non-use

(9) POSITION CURRENT SAVE

Command line

84h	90h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : POSITION No. (01h~40h- POSITION No.)

D3~D4 : non-ues

Response line

STX	90h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 84h (Normal), C4h (Error)

D2 : POSITION No. (01h~40h- POSITION No.)

D3~D4 : non-use

### (10) POSITION ZOOM SAVE

Command line

84h	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : POSITION No. (01h~40h- POSITION No.)  
D3 : ZOOM HIGH BYTE  
D4 : ZOOM LOW BYTE

Response line

STX	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 84h (Normal), C4h (Error)  
D2 : POSITION No. (01h~40h- POSITION No.)  
D3 : ZOOM HIGH BYTE  
D4 : ZOOM LOW BYTE

### (11) POSITION FOCUS SAVE

Command line

84h	81h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : POSITION No. (01h~40h- POSITION No.)  
D3 : FOCUS HIGH BYTE  
D4 : FOCUS LOW BYTE

Response line

STX	81h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 84h (Normal), C4h (Error)  
D2 : POSITION No. (01h~40h- POSITION No.)  
D3 : FOCUS HIGH BYTE  
D4 : FOCUS LOW BYTE

### (12) POSITION DATA LOAD

Command line

84h	82h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : POSITION No. (01h~40h- POSITION No.)  
D3~D4 : non-use

Response line

STX	82h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 84h (Normal), C4h (Error)  
D2 : POSITION No. (01h~40h- POSITION No.)  
D3 : ZOOM HIGH BYTE  
D4 : ZOOM LOW BYTE

### (13) POSITION OSD WRITE

Command line

84h	83h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : POSITION OSD (00h-OFF, 01h-ON)

D3~D4 : non-use

Response line

STX	83h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 84h (Normal), C4h (Error)

D2 : non-use

D3 : POSITION OSD (00h-OFF, 01h-ON)

D4 : POSITION OSD LOCATION (00h-UP, 01h-DOWN)

### (14) ALARM POSITION No. WRITE

Command line

84h	85h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : ALARM POSITION (00h-OFF, 01h~40h- POSITION No.)

D3~D4 : non-use

Response line

STX	85h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 84h (Normal), C4h (Error)

D2 : POSITION No. (01h~40h)

D3 : ALARM POSITION (00h-OFF, 01h~40h- POSITION No.)

D4 : non-use

### (15) DEFAULT POSITION ON/OFF WRITE

Command line

84h	8Fh	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : DEFAULT POSITION (00h-OFF, 01h-ON)

D3~D4 : non-use

Response line

STX	8Fh	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 84h (Normal), C4h (Error)

D2~D4 : non-use

(16) DEFAULT POSITION No. WRITE

Command line

84h	8Dh	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : DEFAULT POSITION No, (01h~40h- POSITION No.)  
D3~D4 : non-use

Response line

STX	8Dh	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 84h (Normal), C4h (Error)  
D2~D4 : non-use



### 3.8 MOTION

#### (1) MOTION READ 1

Command line

85h	10h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	10h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 85h (Normal), C5h (Error)  
 D2 : MOTION DETECTION (00h-OFF, 01h-ON)  
 D3 : MOTION LEVEL (00h-MIN, 09h-MAX)  
 D4 : non-ues

#### (2) MOTION READ 2

Command line

85h	11h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	11h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 85h (Normal), C5h (Error)  
 D2 : MOTION TIME (00h-10sec, 01h-30sec, 02h-60sec)  
 D3 : MOTION OSD (00h-OFF, 01h-ON)  
 D4 : non-ues

#### (3) MOTION AREA READ 1

Command line

85h	12h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	12h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 85h (Normal), C5h (Error)  
 D2 : MOTION AREA 1<sup>st</sup> Section (each bit 0-OFF, 1-ON)  
 D3 : MOTION AREA 2<sup>nd</sup> Section (each bit 0-OFF, 1-ON)  
 D4 : MOTION AREA 3<sup>rd</sup> Section (each bit 0-OFF, 1-ON)

	B0	B1	B2	B3	B4	B5	B6	B7
1 Section								
2 Section								
3 Section								
4 Section								
5 Section								
6 Section								

#### (4) MOTION AREA READ 2

Command line

85h	13h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	13h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 85h (Normal), C5h (Error)  
D2 : MOTION AREA 4<sup>th</sup> Section (each bit 0-OFF, 1-ON)  
D3 : MOTION AREA 5<sup>th</sup> Section (each bit 0-OFF, 1-ON)  
D4 : MOTION AREA 6<sup>th</sup> Section (each bit 0-OFF, 1-ON)

#### (5) MOTION DETECTION WRITE

Command line

85h	90h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : MOTION DETECTION (00h-OFF, 01h-ON)  
D3~D4 : non-ues

Response line

STX	90h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 85h (Normal), C5h (Error)  
D2 : MOTION DETECTION (00h-OFF, 01h-ON)  
D2 : MOTION LEVEL (00h-MIN, 09h-MAX)  
D4 : non-ues

#### (6) MOTION LEVEL WRITE

Command line

85h	91h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : MOTION LEVEL (00h-MIN, 09h-MAX)  
D3~D4 : non-ues

Response line

STX	91h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 85h (Normal), C5h (Error)  
D2 : MOTION DETECTION (00h-OFF, 01h-ON)  
D2 : MOTION LEVEL (00h-MIN, 09h-MAX)  
D4 : non-ues

### (7) MOTION TIME WRITE

Command line

85h	92h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : MOTION TIME (00h-10sec, 01h-30sec, 02h-60sec)

D3~D4 : non-ues

Response line

STX	92h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 85h (Normal), C5h (Error)

D2 : MOTION TIME (00h-10sec, 01h-30sec, 02h-60sec)

D3 : MOTION OSD (00h-OFF, 01h-ON)

D4 : non-ues

### (8) MOTION OSD WRITE

Command line

85h	93h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : MOTION OSD (00h-OFF, 01h-ON)

D3~D4 : non-ues

Response line

STX	93h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 85h (Normal), C5h (Error)

D2 : MOTION TIME (00h-10sec, 01h-30sec, 02h-60sec)

D3 : MOTION OSD (00h-OFF, 01h-ON)

D4 : non-ues

### (9) MOTION AREA WRITE 1

Command line

85h	84h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : MOTION AREA 1<sup>st</sup> Section (each bit 0-OFF, 1-ON)

D3 : MOTION AREA 2<sup>nd</sup> Section (each bit 0-OFF, 1-ON)

D4 : MOTION AREA 3<sup>rd</sup> Section (each bit 0-OFF, 1-ON)

Response line

STX	84h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 85h (Normal), C5h (Error)

D2 : MOTION AREA 1<sup>st</sup> Section (each bit 0-OFF, 1-ON)

D3 : MOTION AREA 2<sup>nd</sup> Section (each bit 0-OFF, 1-ON)

D4 : MOTION AREA 3<sup>rd</sup> Section (each bit 0-OFF, 1-ON)

(10) MOTION AREA WRITE 2

Command line

85h	84h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : MOTION AREA 4<sup>th</sup> Section (each bit 0-OFF, 1-ON)  
D3 : MOTION AREA 5<sup>th</sup> Section (each bit 0-OFF, 1-ON)  
D4 : MOTION AREA 6<sup>th</sup> Section (each bit 0-OFF, 1-ON)

Response line

STX	84h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 85h (Normal), C5h (Error)  
D2 : MOTION AREA 4<sup>th</sup> Section (each bit 0-OFF, 1-ON)  
D3 : MOTION AREA 5<sup>th</sup> Section (each bit 0-OFF, 1-ON)  
D4 : MOTION AREA 6<sup>th</sup> Section (each bit 0-OFF, 1-ON)

	B0	B1	B2	B3	B4	B5	B6	B7
1 Section								
2 Section								
3 Section								
4 Section								
5 Section								
6 Section								

### 3.9 OTHER

#### (1) OTHER READ 1

Command line

86h	00h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	00h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)  
D2 : PRESET (00h-CANSEL, 01h-OK)  
D3 : INITIAL (00h-OFF, 01h-ON)  
D4 : non-ues

#### (2) OTHER READ 2

Command line

86h	01h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	01h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)  
D2 : H-REVERS (00h-OFF, 01h-ON)  
D3 : V-REVERS (00h-OFF, 01h-ON)  
D4 : NEGATIVE (00h-OFF, 01h-ON)

#### (3) OTHER READ 3

Command line

86h	02h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	02h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)  
D2 : SYNC (00h-V-SYNC, 01h-INTERNAL)  
D3 : PHASE LEVEL (High Byte)  
D4 : PHASE LEVEL (Low Byte)

(4) OTHER READ 4

Command line

86h	03h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	03h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)  
D2 : PHASE LEVEL MAX (High Byte)  
D3 : PHASE LEVEL MAX (Low Byte)  
D4 : non-ues

(5) OTHER READ 5

Command line

86h	04h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	04h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)  
D2 : GAMMA (00h-GAMMA1, 01h-GAMMA2)  
D3 : LANGUAGE (00h-English, 01h-Chinese, 02h-Japanese)  
D4 : non-ues

(6) OTHER READ 6

Command line

86h	05h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	05h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)  
D2 : BOARD ALARM (00h-Not ALARM, 01h-ALARM)  
D3 : MOTION HAPPEN (00h-Not HAPPEN, 01h-HAPPEN)  
D4 : DAY NIGHT (00h-DAY, 01h-NIGHT)

(7) OTHER READ 7

Command line

86h	06h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	06h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)

D2 : BOARD POSITION (01h~40h)

D3 : BOARD H-REVERS (00h-OFF, 01h-ON)

D4 : BOARD V-REVERS (00h-OFF, 01h-ON)

(8) OTHER READ 8

Command line

86h	07h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	07h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)

D2 : TV (00h-PAL, 01h-NTSC)

D3 : Resolution (00h-HIGH, 01h-LOW)

D4 : X22 / X26 (00h-X26, 01h-X22)

(9) H-GAIN, V-GAIN READ

Command line

86h	08h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	08h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)

D2 : H-GAIN (00h-MIN, 0Ch-MAX)

D3 : V-GAIN (00h-MIN, 0Ch-MAX)

D4 : non-ues

(10) FREEZE READ

Command line

86h	09h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	09h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)  
D2 : FREEZE (00h-OFF, 01h-ON)  
D3 : non-ues  
D4 : FREEZE / ALARM (00h-ALARM, 01h-FREEZE)

(11) REVERSE READ

Command line

86h	0Ah	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	0Ah	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)  
D2 : H-Reverse(Board+Software) (00h-OFF, 01h-ON)  
D3 : V-Reverse(Board+Software) (00h-OFF, 01h-ON)  
D4 : non-ues

(12) DAY / NIGHT READ

Command line

86h	10h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	10h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)  
D2 : DAY / NIGHT (00h-NIGHT, 01h-DAY, 02h-AUTO, 03h-EXT)  
D3 : DAY / NIGHT LEVEL (00h-MIN, 08h-MAX)  
D4 : non-ues



(13) MENU ON/OFF READ

Command line

86h	12h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	12h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)

D2 : non-ues

D3 : MENU ON/OFF (00h-OFF, 01h~FFh-ON)

D4 : non-ues

(14) Blue Back READ

Command line

86h	13h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	13h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)

D2 : Blue Back (00h-OFF, 01h-ON)

D3 : Color Bar (00h-OFF, 01h-ON)

D4 : non-ues

(15) PRESET WRITE 1

Command line

86h	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : 02h

D3 : PRESET (00h-OFF, 01h-ON)

D4 : non-ues

Response line

STX	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 26h (Normal), A6h (Error)

D2 : PRESET (00h-OFF, 01h-ON)

D3 : INITIAL (00h-OFF, 01h-ON)

D4 : non-ues

(16) PRESET WRITE 2

Command line

86h	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : 00h  
D3~D4 : non-ues

Response line

STX	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 26h (Normal), A6h (Error)  
D2 : PRESET (00h-OFF, 01h-ON)  
D3 : INITIAL (00h-OFF, 01h-ON)  
D4 : non-ues

(17) INITIAL WRITE

Command line

86h	81h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : INITIAL (00h-OFF, 01h-ON)  
D3~D4 : non-ues

Response line

STX	81h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)  
D2 : PRESET (00h-OFF, 01h-ON)  
D3 : INITIAL (00h-OFF, 01h-ON)  
D4 : non-ues

(18) H-REVERS WRITE

Command line

86h	82h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : H-REVERS (00h-OFF, 01h-ON)  
D3~D4 : non-ues

Response line

STX	82h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)  
D2 : H-REVERS (00h-OFF, 01h-ON)  
D3 : V-REVERS (00h-OFF, 01h-ON)  
D4 : NEGATIVE (00h-OFF, 01h-ON)

(19) V-REVERS WRITE

Command line

86h	83h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : V-REVERS (00h-OFF, 01h-ON)  
D3~D4 : non-ues

Response line

STX	83h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)  
D2 : H-REVERS (00h-OFF, 01h-ON)  
D3 : V-REVERS (00h-OFF, 01h-ON)  
D4 : NEGATIVE (00h-OFF, 01h-ON)

(20) NEGATIVE WRITE

Command line

86h	84h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : NEGATIVE (00h-OFF, 01h-ON)  
D3~D4 : non-ues

Response line

STX	84h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)  
D2 : H-REVERS (00h-OFF, 01h-ON)  
D3 : V-REVERS (00h-OFF, 01h-ON)  
D4 : NEGATIVE (00h-OFF, 01h-ON)

(21) SYNC WRITE

Command line

86h	85h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : SYNC (00h-V-SYNC, 01h-INTERNAL)  
D3~D4 : non-ues

Response line

STX	85h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)  
D2 : SYNC (00h-V-SYNC, 01h-INTERNAL)  
D3 : PHASE LEVEL (High Byte)  
D4 : PHASE LEVEL (Low Byte)

(22) SYNC LEVEL WRITE

Command line

86h	86h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : PHASE LEVEL (High Byte)  
D3 : PHASE LEVEL (Low Byte)  
D4 : non-ues

Response line

STX	86h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 26h (Normal), A6h (Error)  
D2 : SYNC (00h-V-SYNC, 01h-INTERNAL)  
D3 : PHASE LEVEL (High Byte)  
D4 : PHASE LEVEL (Low Byte)

(23) H-REVERS WRITE (EEPROM ON SAVE)

Command line

86h	88h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : H-REVERS (00h-OFF, 01h-ON)  
D3~D4 : non-ues

Response line

STX	88h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)  
D2 : H-REVERS (00h-OFF, 01h-ON)  
D3 : V-REVERS (00h-OFF, 01h-ON)  
D4 : NEGATIVE (00h-OFF, 01h-ON)

(24) V-REVERS WRITE(EEPROM ON SAVE)

Command line

86h	89h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : V-REVERS (00h-OFF, 01h-ON)  
D3~D4 : non-ues

Response line

STX	89h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)  
D2 : H-REVERS (00h-OFF, 01h-ON)  
D3 : V-REVERS (00h-OFF, 01h-ON)  
D4 : NEGATIVE (00h-OFF, 01h-ON)

(25) GAMMA WRITE

Command line

86h	8Ah	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : GAMMA (00h-GAMMA 1, 01h-GAMMA 2)

D3~D4 : non-ues

Response line

STX	8Ah	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)

D2 : GAMMA (00h-GAMMA 1, 01h-GAMMA 2)

D3 : LANGUAGE (00h-English, 01h-Chinese, 02h-Japanese)

D4 : non-ues

(26) LANGUAGE WRITE

Command line

86h	8Bh	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : LANGUAGE (00h-English, 01h-Chinese, 02h-Japanese)

D3~D4 : non-ues

Response line

STX	8Bh	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)

D2 : GAMMA (00h-GAMMA 1, 01h-GAMMA 2)

D3 : LANGUAGE (00h-English, 01h-Chinese, 02h-Japanese)

D4 : non-ues

(27) H-GAIN WRITE

Command line

86h	8Dh	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : H-GAIN (00h-MIN, 0Ch-MAX)

D3~D4 : non-ues

Response line

STX	8Dh	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)

D2 : H-GAIN (00h-MIN, 0Ch-MAX)

D3 : V-GAIN (00h-MIN, 0Ch-MAX)

D4 : non-ues

(28) V-GAIN WRITE

Command line

86h	8Eh	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : V-GAIN (00h-MIN, 0Ch-MAX)

D3~D4 : non-ues

Response line

STX	8Eh	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)

D2 : H-GAIN (00h-MIN, 0Ch-MAX)

D3 : V-GAIN (00h-MIN, 0Ch-MAX)

D4 : non-ues

(29) FREEZE WRITE

Command line

86h	90h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : FREEZE (00h-OFF, 01h-ON)

D3~D4 : non-ues

Response line

STX	90h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)

D2 : FREEZE (00h-OFF, 01h-ON)

D3~D4 : non-ues

(30) DAY / NIGHT WRITE

Command line

86h	A0h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : DAY / NIGHT (00h-NIGHT, 01h-DAY, 02h-AUTO, 03h-EXT)

D3~D4 : non-ues

Response line

STX	A0h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)

D2 : DAY / NIGHT (00h-NIGHT, 01h-DAY, 02h-AUTO, 03h-EXT)

D3 : DAY / NIGHT LEVEL (00h-MIN, 08h-MAX)

D4 : non-ues

### (31) DAY / NIGHT LEVEL WRITE

Command line

86h	A1h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : DAY / NIGHT LEVEL (00h-MIN, 08h-MAX)

D3~D4 : non-ues

Response line

STX	A1h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)

D2 : DAY / NIGHT (00h-NIGHT, 01h-DAY, 02h-AUTO, 03h-EXT)

D3 : DAY / NIGHT LEVEL (00h-MIN, 08h-MAX)

D4 : non-ues

### (33) Blue Back WRITE

Command line

86h	B0h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : Blue Back (00h-OFF, 01h-ON)

D3~D4 : non-ues

Response line

STX	B0h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)

D2 : Blue Back (00h-OFF, 01h-ON)

D3 : Color Bar (00h-OFF, 01h-ON)

D4 : non-ues

### (34) Color Bar WRITE

Command line

86h	B1h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : Color Bar (00h-OFF, 01h-ON)

D3~D4 : non-ues

Response line

STX	B1h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)

D2 : Blue Back (00h-OFF, 01h-ON)

D3 : Color Bar (00h-OFF, 01h-ON)

D4 : non-ues

(35) Freeze Alm WRITE

Command line

86h	C0h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : FREEZE / ALARM (00h-ALARM, 01h-FREEZE)

D3~D4 : non-ues

Response line

STX	C0h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 86h (Normal), C6h (Error)

D2 : DAY / NIGHT (00h-NIGHT, 01h-DAY, 02h-AUTO, 03h-EXT)

D3 : DAY / NIGHT LEVEL (00h-MIN, 08h-MAX)

D4 : non-ues



### 3.10 MASK

#### (1) MASK READ

Command line

88h	00h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	00h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 88h (Normal), C8h (Error)

D2 : non-ues

D3 : MASK ON/OFF

D4 : CONNECTED ON/OFF

D3 Detailed

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
-	-	-	-	MASK D	MASK C	MASK B	MASK A
0	0	0	0	1:ON 0:OFF	1:ON 0:OFF	1:ON 0:OFF	1:ON 0:OFF

D4 Detailed

BIT-7	BIT-6	BIT-5	BIT-4	BIT-3	BIT-2	BIT-1	BIT-0
-	-	-	-	MASK D	MASK C	MASK B	MASK A
0	0	0	0	1:ON 0:OFF	1:ON 0:OFF	1:ON 0:OFF	1:ON 0:OFF

#### (2) MASK H-POSITION READ

Command line

88h	01h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : Each MASK (00h-MASK A, 01h-MASK B, 02h-MASK C, 03h-MASK D)

D3~D4 : non-ues

Response line

STX	01h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 88h (Normal), C8h (Error)

D2 : Each MASK (00h-MASK A, 01h-MASK B, 02h-MASK C, 03h-MASK D)

D3 : H-Posistion Start (00h~FFh)

D4 : H-Posistion End (00h~FFh)

### (3) MASK V-POSITION READ

Command line

88h	02h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : Each MASK (00h-MASK A, 01h-MASK B, 02h-MASK C, 03h-MASK D)  
D3~D4 : non-ues

Response line

STX	02h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 88h (Normal), C8h (Error)  
D2 : Each MASK (00h-MASK A, 01h-MASK B, 02h-MASK C, 03h-MASK D)  
D3 : V-Posistion Start (00h~FFh)  
D4 : V-Posistion End (00h~FFh)

### (4) MASK H-Center, V-Center READ

Command line

88h	03h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	03h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 88h (Normal), C8h (Error)  
D2 : Hor. Image Center Position  
D3 : Ver. Image Center Position  
D4 : non-ues

### (5) MASK H-REVISION READ

Command line

88h	20h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	20h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 88h (Normal), C8h (Error)  
D2 : H-Revision High Byte  
D3 : H-Revision Low Byte  
D4 : non-ues

(6) MASK V-REVISION READ

Command line

88h	21h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	21h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 88h (Normal), C8h (Error)

D2 : H-Revision High Byte

D3 : H-Revision Low Byte

D4 : non-ues

(7) MASK ON/OFF WRITE (EEPROM SAVE)

Command line

88h	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : Each MASK (00h-MASK A, 01h-MASK B, 02h-MASK C, 03h-MASK D)

D3 : MASK (00h-OFF, 01h-ON)

D3~D4 : non-ues

Response line

STX	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 88h (Normal), C8h (Error)

D2~D4 : non-ues

(8) MASK ON/OFF WRITE (EEPROM NO SAVE)

Command line

88h	81h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : Each MASK (00h-MASK A, 01h-MASK B, 02h-MASK C, 03h-MASK D)

D3 : MASK (00h-OFF, 01h-ON)

D3~D4 : non-ues

Response line

STX	81h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 88h (Normal), C8h (Error)

D2~D4 : non-ues

(9) MASK CONNECTED WRITE (EEPROM SAVE)

Command line

88h	82h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : Each MASK (00h-MASK A, 01h-MASK B, 02h-MASK C, 03h-MASK D)

D3 : CONNECTED (00h-OFF, 01h-ON)

D3~D4 : non-ues

Response line

STX	82h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 88h (Normal), C8h (Error)

D2~D4 : non-ues

(10) MASK CONNECTED WRITE (EEPROM NO SAVE)

Command line

88h	83h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : Each MASK (00h-MASK A, 01h-MASK B, 02h-MASK C, 03h-MASK D)

D3 : CONNECTED (00h-OFF, 01h-ON)

D3~D4 : non-ues

Response line

STX	83h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 88h (Normal), C8h (Error)

D2~D4 : non-ues

(11) MASK H-POSITION WRITE (EEPROM SAVE)

Command line

88h	84h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : Each MASK (00h-MASK A, 01h-MASK B, 02h-MASK C, 03h-MASK D)

D3 : H-Posistion Start (00h~FFh)

D4 : H-Posistion End (00h~FFh)

Response line

STX	84h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 88h (Normal), C8h (Error)

D2~D4 : non-ues

(12) MASK H-POSITION WRITE (EEPROM NO SAVE)

Command line

88h	85h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : Each MASK (00h-MASK A, 01h-MASK B, 02h-MASK C, 03h-MASK D)  
D3 : H-Position Start (00h~FFh)  
D4 : H-Position End (00h~FFh)

Response line

STX	85h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 88h (Normal), C8h (Error)  
D2~D4 : non-ues

(13) MASK V-POSITION WRITE (EEPROM SAVE)

Command line

88h	86h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : Each MASK (00h-MASK A, 01h-MASK B, 02h-MASK C, 03h-MASK D)  
D3 : V-Position Start (00h~FFh)  
D4 : V-Position End (00h~FFh)

Response line

STX	86h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 88h (Normal), C8h (Error)  
D2~D4 : non-ues

(14) MASK V-POSITION WRITE (EEPROM NO SAVE)

Command line

88h	87h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : Each MASK (00h-MASK A, 01h-MASK B, 02h-MASK C, 03h-MASK D)  
D3 : V-Position Start (00h~FFh)  
D4 : V-Position End (00h~FFh)

Response line

STX	87h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 88h (Normal), C8h (Error)  
D2~D4 : non-ues

(15) MASK H-REVISION WRITE

Command line

88h	A0h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : H-Revision High Byte  
D3 : H-Revision Low Byte  
D4 : EEPROM (00h-NO SAVE, 01h-SAVE)

Response line

STX	A0h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 88h (Normal), C8h (Error)  
D2~D4 : non-ues

(16) MASK V-REVISION WRITE

Command line

88h	A1h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : V-Revision High Byte  
D3 : V-Revision Low Byte  
D4 : EEPROM (00h-NO SAVE, 01h-SAVE)

Response line

STX	A1h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 88h (Normal), C8h (Error)  
D2~D4 : non-ues

### 3.11 SW

#### (1) SW WRITE

Command line

89h	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : 00h-PRI  
: 01h-ENTER  
: 02h-DOWN  
: 03h-UP

D3~D4 : non-ues

Response line

STX	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 89h (Normal), C9h (Error)

D2~D4 : non-ues

### 3.12 RS-485 Correspond

#### (1) RS485 READ

Command line

89h	10h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	10h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 89h (Normal), C9h (Error)

D2 : COMM. ID (00h~EFh)

D3 : 1 to N Transmit FLAG (00h-1:1, 01h-1:N)

D4 : non-ues

#### (2) Buad Rate READ

Command line

89h	11h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	11h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 89h (Normal), C9h (Error)

D2 : Baud Rate (02h-38,400bps, 01h-19,200bps, 00h-9,600bps)

D3~D4 : non-ues

#### (3) COMM. ID WRITE

Command line

89h	90h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : COMM. ID (00h~EFh)

D3~D4 : non-ues

Response line

STX	90h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 89h (Normal), C9h (Error)

D2 : COMM. ID (00h~EFh)

D3 : 1 to N Transmit FLAG (00h-1:1, 01h-1:N)

D4 : non-ues



#### (4) COMM MODE WRITE

Command line

89h	91h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : 1 to N Transmit FLAG (00h-1:1, 01h-1:N)

D3~D4 : non-ues

Response line

STX	91h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 89h (Normal), C9h (Error)

D2 : COMM. ID (00h~EFh)

D3 : 1 to N Transmit FLAG (00h-1:1, 01h-1:N)

D4 : non-ues

#### (5) Buad Rate WRITE

Command line

89h	93h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : Baud Rate (02h-38,400bps, 01h-19,200bps, 00h-9,600bps)

D3~D4 : non-ues

Response line

STX	93h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 89h (Normal), C9h (Error)

D2~D4 : non-ues

The command to execute, the camera must be restart after new Buad Rate is effective
---

### 3.13 MARK

#### (1) MARK READ

Command line

8Ah	00h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	00h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 8Ah (Normal), CAh (Error)  
D2 : MARK (00h-OFF, 01h-ON)  
D3~D4 : non-ues

#### (2) MARK H READ

Command line

8Ah	01h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	01h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 8Ah (Normal), CAh (Error)  
D2 : MARK H High Byte  
D3 : MARK H Low Byte  
D4 : non-ues

#### (3) MARK V READ

Command line

8Ah	90h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2~D4 : non-ues

Response line

STX	90h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 8Ah (Normal), CAh (Error)  
D2 : MARK V High Byte  
D3 : MARK V Low Byte  
D4 : non-ues

(4) MARK WRITE

Command line

8Ah	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : MARK (00h-OFF, 01h-ON)

D3~D4 : non-ues

Response line

STX	80h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 8Ah (Normal), CAh (Error)

D2~D4 : non-ues

(5) MARK H WRITE

Command line

8Ah	81h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : MARK H High Byte

D3 : MARK H Low Byte

D4 : EEPROM SAVE (00h-NO SAVE, 01h-SAVE)

Response line

STX	81h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 8Ah (Normal), CAh (Error)

D2~D4 : non-ues

(6) MARK V WRITE

Command line

8Ah	82h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

D2 : MARK V High Byte

D3 : MARK V Low Byte

D4 : EEPROM SAVE (00h-NO SAVE, 01h-SAVE)

Response line

STX	82h	D2	D3	D4	ID	SUM
-----	-----	----	----	----	----	-----

STX : 8Ah (Normal), CAh (Error)

D2~D4 : non-ues