FUJIFILM

Pelco-D Protocol Specification

for SX1600

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Version 1.00.0

FUJIFILM

Change history

Ver.	Date			Revision
1.00	2023/4/7			First version

Table of contents

1 Summary

This document specifies the Pelco-D protocol in FUJIFILM CCTV lens / cameras. The CCTV lens / cameras to which this version is applied are as follows.

Applicable model: Long Range Surveillance Camera "FUJIFILM SX1600", FW Ver. **1.00** and later

2 Overview

Pelco-D is a protocol proposed by Pelco, mainly for controlling a PTZ camera. It is a commonly published protocol and is adopted from SX800 because it is being standardized worldwide.

3 Overview about Pelco-D

The Pelco-D protocol is a master-slave type protocol, and up to 255 slaves can be connected to one master. The slave side does not transmit data without receiving a request from the master. The address that can be set as this specification is 31 patterns of 1 to 31 at maximum (※ RS485_ID is 1 to 31). Communication shall be set according to the following contents.

■ Serial data format

Baudrate: 2400, 4800, 9600, 19200, 38400, 115200

StartBit: 1

DataLength: 8

StopBit: 1

Parity: None

3.1 Send command format

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	—	—	—	—	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. CMND1 is an extension command (* When adding a command, register this)
4. CMND2 is a command for basic operation
5. Set DATA1 and DATA2 according to the contents of CMND1 and CMND2
6. Set the sum of 2nd to 6th Bytes in 8 bits to CKSM

3. 2 Receive command format

The receive command format differs depending on the command. The commands defined by Pelco are as follows,

3.2.1 Receive command (General Response)

Reply as 4 Bytes data.

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set 0x00 to ALARMS
4. Set the sum of the received CKSM and ALARMS in 8 bits to CKSM

3.2.2 Receive command (Extended Response)

Reply as 7 Bytes data.

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	—	—	—	—	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set received CMND1 and CMND2 to RESP1 and RESP2
4. Set specific data for each commands to DATA1 and DATA2
5. Set the sum of ADDR to DATA2 in 8 bits is set to CKSM

3.2.3 Receive command (Query Response)

Reply as 18 Bytes data

Byte	1	2	3	····	17	18
	SYNC	ADDR	DATA1	····	DATA15	CKSM
	0xFF	—	—	····	—	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set specific data for each commands to DATA1 to DATA15
4. Set the sum of ADDR to DATA15 in 8 bits to CKSM

   * As for Query Serial Number command in this specification, set the sum of ADDR to DATA 15 in 8 bits to CKSM

3.2.4 Receive command(Extended Response2)

Reply as 7 Bytes data

* The difference from Extended Response (3.2.2) is that new CMD1 and CMD2 are used instead of CMD1 and CMD2 received in RESP1 and RESP2.

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	—	—	—	—	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set RESP1、RESP2
4. Set specific data for each commands to DATA1 and DATA2
5. Set the sum of 2nd to 6th Bytes in 8 bits to CKSM

4 Functional specifications

The address used for communication and the baud rate are switched from software by setting.

Address => 1 to 31 (When shipped from factory or after reset, RS485_ID=7 (= device setting ID))

Baud rate => 0 to 5 [Value: 0: 2400, 1: 4800, 2: 9600, 3: 19200, 4: 38400, 5: 115200] (When shipped from the factory or after reset, Baud rate is "2: 9600")

Pelco has specified that all commands of Standard Command described in the next chapter are automatically stopped after driving for up to 15 seconds for runaway detection, and this specification also follows this. As for timeout, if the drive command is received again before the timeout occurs, the timer is reset.

Notes on communicating with the SX1600

- SX1600 does not have the ability to queue commands, so if you issue the next send command before receiving the receive command for the previous send command, the previous command will be discarded

5 Command details

The commands are classified into commands defined by Pelco and commands uniquely defined in this specification.

The commands defined by Pelco are further classified into "**Standard Command**", "**Extended Command**", and "**Original Command**".

5.1 Standard Command

Basic commands defined by Pelco-D.

5.1.1 Send command

Since Bit3-Bit7 of CMND1 is not used in the latest Pelco-D, this specification does not support either.

Bit 0 to Bit 4 of CMND2 is used as a PTZ camera control command only when this camera is in HOST mode. (※ for pan head control)

Byte 3, CMND:1							
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Sense	0	0	Auto/Manual Scan	Camera On/Off	Iris Close	Iris Open	Focus Near
Byte 4, CMND:2							
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Focus Far	Zoom Wide	Zoom Tele	Down	Up	Left	Right	Always 0

5.1.2 Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	－	0x00	－

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set 0x00 to ALARMS
4. Set the sum of the received CKSM and ALARMS in 8 bits to CKSM

5. 2 Extended Command

Extended command specified by Pelco-D.

5.2.1 Set Zoom Speed

Command to change zoom speed (from version 2.00, use 5.13.1, “Set Zoom Speed Ex”)

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x25	0x00	ZOOM_SPEED	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1
5. Set the speed (ZOOM_SPEED) according to the purpose in DATA 2
6. Set the sum of 2nd to 6th Bytes in 8 bits to CKSM

■ Argument of ZOOM_SPEED

DATA2	Description	New commands executed by this command (5.13.1, “Set Zoom Speed Ex”)
0x00	Slowest Speed (=Low Medium Speed)	The new command 0x07 is executed internally.
0x01	Low Medium Speed	The new command 0x05 is executed internally.
0x02	High Medium Speed	The new command 0x03 is executed internally.
0x03	Highest Speed (=High Medium Speed)	The new command 0x01 is executed internally.
Others	Low Medium Speed	The new command 0x05 is executed internally.

Note: With firmware version 1.60 and earlier, 0x00 and 0x02 select the same zoom speeds as 0x01 and 0x03, respectively

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 ADDR
3. Set 0x00 to ALARMS
4. Set the sum of the received CKSM and ALARMS in 8 bits to CKSM

5.2.2 Set Focus Speed

Command to change focus speed (from version 2.00, use 5.13.2, “Set Focus Speed Ex”)

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x27	0x00	FOCUS_SPEED	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1
5. Set the speed (FOCUS_SPEED) according to the purpose in DATA 2
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

Argument of FOCUS_SPEED

DATA2	Description	New commands executed by this command (5.13.2, “Set Focus Speed Ex”)
0x00	Slowest Speed (=High Medium Speed)	The new command 0x07 is executed internally.
0x01	Low Medium Speed (=High Medium Speed)	The new command 0x05 is executed internally.
0x02	High Medium Speed	The new command 0x03 is executed internally.
0x03	Highest Speed (=High Medium Speed)	The new command 0x01 is executed internally.
Others	High Medium Speed	The new command 0x03 is executed internally.

Note: With firmware version 1.60 and earlier, all arguments select the same focus speed.

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	－	0x00	－

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set 0x00 to ALARMS
4. Set the sum of the received CKSM and ALARMS in 8 bits to CKSM

5.2.3 Auto focus on/off

Command to switch auto focus on / off / quick AF

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	－	0x00	0x2B	0x00	AUTO F_CTL	－

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1
5. Set AUTO F_CTL to DATA2
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ AUTO F_CTL

DATA2	Description
0x00	AF on
0x01	AF off (MF)
0x02	Quick AF
Others	AF on

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set 0x00 to ALARMS
4. Set the sum of the received CKSM and ALARMS in 8 bits to CKSM

5.2.4 Auto Iris on/off

Command to switch auto iris on / off

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x2D	0x00	AUTO I_CTL	—

1. Always set 0xFF to SYNC
2. Set 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1
5. Set AUTO I_CTL to DATA2
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ Argument of AUTO I_CTL

DATA2	Description
0x00	Off (Manual iris)
0x01	On (Auto iris)
Others	On (Auto iris)

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set 0x00 to ALARMS
4. Set the sum of the received CKSM and ALARMS in 8 bits to CKSM

5.2.5 AGC auto/on/off

Command to switch AGC standard/off/Hyper

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x2F	0x00	AGC_CTL	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1
5. Set AGC_CTL to DATA2
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ Argument of AGC_CTL

DATA2	Setting
0x00	Standard
0x01	Off
0x02	Hyper
Others	Standard

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set 0x00 to ALARMS
4. Set the sum of the received CKSM and ALARMS in 8 bits to CKSM

5.2.6 Backlight compensation on/off

Command to switch backlight compensation on / off

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x31	0x00	BLC_CTL	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1
5. Set BLC_CT to DATA2
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ Argument of BLC_CTL

DATA2	Description
0x00	OFF
0x01	1: Soft
0x02	2: Hard
Others	OFF

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set 0x00 to ALARMS
4. Set the sum of the received CKSM and ALARMS in 8 bits to CKSM

5.2.7 <Reserved>

5.2.8 Set Zoom Position

Command to set zoom position

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x4F	ZOOM_P MSB	ZOOM_P LSB	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set the zoom position (MSB) according to the purpose to DATA1
5. Set the zoom position (LSB) according to the purpose to DATA2
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ Argument of ZOOM_P

DATA1,DATA2	Description
0～65535	Zoom Position

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set 0x00 to ALARMS
4. Set the sum of the received CKSM and ALARMS in 8 bits to CKSM

5.2.9 Set Remote Baud Rate

Command to set Remote baud rate

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x67	0x00	SET B_RARE	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the baud rate according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1
5. Set the baud rate accordance with the oppose to DATA2
6. Set the sum of ADDT to DATA2 in 8 bits to CKSM

■ Argument of SET B_RARE

DATA	Baud rate
0x00	2400
0x01	4800
0x02	9600(Default)
0x03	19200
0x04	38400
0x05	115200
Others	9600

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set 0xoo to ALARMS
4. Set the sum of the received CKSM and ALARMS in 8 bits to CKSM

5.2.10 Time Set Opcode

Command to set the clock and get the report of clock setting

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	SUB OP CODE	0x77	Various	Various	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set SUB OP CODE to CMND1
4. Set the command accordance with the purpose to CMND2
5. Set the value which are selected by SUB OP CODE to DATA1 and DATA2
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ Argument of SUB OP CODE

Set binary numbers to Second, Minute, Hour, Month, Day, and Year.
In addition, for example, when 24 or more numbers is put into Hour, it is ignored.

CMND1	DATA1	DATA2	Description
0x00	Second		Set second (0x00-0x3B) and synchronize time
0x01	0x00	0x00	Report second
0x02	Hour	Minute	Set hour(0x00-0x17) and minute
0x03	0x00	0x00	Report hour and minute
0x04	Month	Day	Set month(0x01-0x0C) and date(0x01-0x1F)
0x05	0x00	0x00	Report month and date
0x06	Year		Set year (2019 => 0x07E3)
0x07	0x00	0x00	Report year
Other	0x00	0x00	Invalid (no reaction)

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	—	—	Various	Various	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. As for RESP1, set 0x01(ACK) or 0x00(NAK) when setting and set received CMND1 when getting the report.
4. As for RESP2, set 0x01 when setting, and set received CMND2 when getting the report.
5. Set the value selected by SUB OP CODE to DATA1 and DATA2
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ Argument of SUB OP CODE

CMND1 of Send command	RESP1	RESP2	DATA1	DATA2	Description
0x00	0x01 or 0x00	0x01	0x00	0x00	Receive second (0x00-0x3B) and synchronize time
0x01	0x01	0x77	Second		Report second
0x02	0x01 or 0x00	0x01	0x00	0x00	Set hour(0x00-0x17) and minute
0x03	0x03	0x77	Hour	Minute	Report hour and minute
0x04	0x01 or 0x00	0x01	0x00	0x00	Set month(0x01-0x0C) and date(0x01-0x1F)
0x05	0x05	0x77	Month	Day	Report month and date
0x06	0x01 or 0x00	0x00	0x00	0x00	Set year (2019 => 0x07E3)
0x07	0x07	0x77	Year		Report year
Other	0x00	0x00	0x00	0x00	Invalid (no reaction)

5.2.11 Query Zoom Position (Standard)

A command that returns the zoom position (the value returned is the same as that returned by commands 5.3.2, “Query Zoom Position” and 5.3.23, “Query Manual Setting”).

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x55	0x00	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1 and DATA2 (for Response)
5. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ Receive command（0x5D:Query Zoom Position Response）

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x5D	—	—	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set 0x5D to RESP2.
4. Set requested value to DATA1 and DATA2 (Ex. 0xFF00 →DATA1:0xFF、DATA2、0x00)
5. Set the sum of ADDR to DATA2 in 8 bits to CKSM

5.3 FF Extended Command (Original commands of this specification)

Commands specified by FUJIFILM in Extended Command

The calculation method of CKSM is omitted in this chapter. That of [Chapter 3 Pelco-D outline] is adopted.

(0) Send command

Set the sum of ADDR to DATA2 in 8bit to CKSM

(1) Receive command (General Response):

Set the sum of the received CKSM and ALARMS in 8bit in CKSM

(2) Receive command (Extended Response):

Set the sum of ADDR to DATA2 in 8bit to CKSM

(3) Receive command (Query Response):

Set the sum of ADDR to DATA2 in 8bit to CKSM **(Original specification by FUJIFILM)**

(4) Receive command (Original specification by FUJIFILM)

Set the sum of ADDR to DATA2 in 8bit to CKSM

5.3.1 Query Focus Position

Command to get the focus position

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x81	0x00	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1 and DATA2(for Response)
5. Set the sum of ADDR to DATA2 in 8bit to CKSM

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x81	—	—	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set received CMND1 and CMND2 to RESP1 and RESP2.
4. Set requested value to DATA1 and DATA2 (Ex. 0xFF00 -> DATA1:0xFF、DATA2、0x00)
5. CKSM is the sum of ADDR to DATA2 in 8bit

5.3.2 Query Zoom Position

Command to get the zoom position (The data to be obtained by 5.2.11 Query Zoom Position command is the same)

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x83	0x00	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1 and DATA2 (for Response)
5. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x83	—	—	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set received CMND1 and CMND2 to RESP1 and RESP2.
4. Set requested value to DATA1 and DATA2 (Ex. 0xFF00 →DATA1:0xFF、DATA2、0x00)
5. Set the sum of ADDR to DATA2 in 8 bits to CKSM

5.3.3 <Reserved>

5.3.4 <Reserved>

5.3.5 Query Serial Number

Command to get Serial number

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x89	0x00	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1 and DATA2
5. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ Receive command

Byte	1	2	3	4	5	6	7	8	9	10	11 - 17	18
	SYNC	ADDR	DATA1	DATA2	DATA3	DATA4	DATA5	DATA6	DATA7	DATA8	DATA9-DATA15	CKSM
	0xFF	—	—	—	—	—	—	—	—	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set Serial number as ASCII codes to DATA1 to DATA8
4. Set 0x00 to DATA9 to DATA15
5. Set the sum of ADDR to DATA15 in 8 bits to CKSM (* Note that it is different from Query Response)

5.3.6 Query Few Version

Command to get FW (Firmware) Version

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x8B	0x00	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1 (For Response)
5. DATA2 is shown below table
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ Argument of DATA2

DATA2	Description
0x00	Request of System FW version
0x01	Request of Camera FW version
0x02	Request of Lens FW version

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x8B	—	—	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set received CMND1 and CMND2 to RESP1 and RESP2
4. Set major version to DATA and minor version to DATA2 (Ex. Ver1.10=DATA1:0x01,DATA2:0x10, Ver2.0A=DATA1:0x02,DATA2:0x0A)
5. Set the sum of ADDT to DATA2 in 8 bits to CKSM

5.3.7 Query Lens Status

Command to get the lens status

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x8D	0x00	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1 and DATA2 (For Response)
5. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x8D	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set received CMND1 and CMND2 to RESP1 and RESP2
4. Set the lens status to DATA (See below)
5. Set 0x00 to DATA2
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ DATA1 format

DATA1	Lens status	
0x00	No error	the lens work normally
0x01	Lens error	the zoom and/or the focus was stopped forcibly

5.3.8 Set Focus Position

Command to get the focus position

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x8F	FOCUS MSB	FOCUS LSB	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. As for DATA1 and DATA2, see below
5. Set the sum of ADDR to DATA2 in 8 bits to CKSM

DATA1	Value
0x00～0xFF	FOCUS MSB

DATA2	Description
0x00～0xFF	FOCUS LSB

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set 0x00 to ALARMS
4. Set the sum of received CKSM and ALARMS to CKSM

5.3.9 Set Manual Iris

Command to set F number

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x91	0x00	MANU_FNO	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1
5. As for DATA2, see below
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

DATA2	F number (at the wide end)
0x01	F11
0x02	F11
0x03	F11
0x04	F11
0x05	F11
0x06	F11
0x07	F8
0x08	F9

0x09	F10
0x0A	F11
0x0B	F13
0x0C	F14
0x0D	F16
0x0E	F18
0x0F	F20
0x10	F22
0x11	F25
0x12	F29
0x13	F32
Others	F11

■ Received command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set 0x00 to ALARMS
4. Set the sum of received CKSM and ALARMS to CKSM

5.3.10 Set Shutter Limit on Auto

Command to set the lowest limit of the shutter sped at AE

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x93	0x00	A_SHUT_LIM	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1
5. As for DATA2, see below
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

DATA2	Description
0x00	Manual shutter : The value set by SetManualShutterSpeed command (0x00,0x95)
0x01	Auto shutter : Lowest limit 1/8 sec
0x02	Auto shutter : Lowest limit 1/15 sec
0x03	Auto shutter : Lowest limit 1/30 sec
0x04	Auto shutter : Lowest limit 1/60 sec
0x05	Auto shutter : Lowest limit 1/125 sec
Others	Auto shutter : Lowest limit 1/30 sec

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set 0x00 to ALARMS
4. Set the sum of received CKSM and ALARMS to CKSM

5.3.11 Set Manual Shutter Speed

Command to set the shutter speed

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x95	0x00	MANU_SHUT	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1
5. As for DATA2, see below
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

DATA2	Shutter sped (MANU_SHUT) [sec]
0x01	1
0x02	1/1.3
0x03	1/1.6
0x04	1/2
0x05	1/2.5
0x06	1/3
0x07	1/4
0x08	1/5
0x09	1/6

0x0A	1/8
0x0B	1/10
0x0C	1/13
0x0D	1/15
0x0E	1/20
0x0F	1/25
0x10	1/30
0x11	1/40
0x12	1/50
0x13	1/60
0x14	1/80
0x15	1/100
0x16	1/120
0x17	1/125
0x18	1/160
0x19	1/200
0x1A	1/250
0x1B	1/320
0x1C	1/400
0x1D	1/500
0x1E	1/640
0x1F	1/800
0x20	1/1000
0x21	1/1250

0x22	1/1600
0x23	1/2000
0x24	1/2500
0x25	1/3200
0x26	1/4000
0x27	1/5000
0x28	1/6400
0x29	1/8000
0x2A	1/10000
0x2B	1/12800
0x2C	1/16000
0x2D	1/20000
0x2E	1/32000
Others	1/30

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set 0x00 to ALARMS
4. Set the sum of received CKSM and ALARMS to CKSM

5.3.12 Query Manual Shutter Speed

Command to get the shutter speed setting

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x97	0x00	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1 and DATA2 (For Response)
5. Set the sum of ADDT to DATA2 in 8 bits to CKSM

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x97	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set received CMND1 and CMND2 to RESP1 and RESP2
4. Set the shutter speed value to DATA1 (See below)
5. Set 0x00 to DATA2
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ Shute speed value for DATA1

DATA1	Shutter speed value [sec]
0x01	1
0x02	1/1.3
0x03	1/1.6
0x04	1/2
0x05	1/2.5
0x06	1/3
0x07	1/4
0x08	1/5
0x09	1/6
0x0A	1/8
0x0B	1/10
0x0C	1/13
0x0D	1/15
0x0E	1/20
0x0F	1/25
0x10	1/30
0x11	1/40
0x12	1/50
0x13	1/60
0x14	1/80
0x15	1/100
0x16	1/120
0x17	1/125

0x18	1/160
0x19	1/200
0x1A	1/250
0x1B	1/320
0x1C	1/400
0x1D	1/500
0x1E	1/640
0x1F	1/800
0x20	1/1000
0x21	1/1250
0x22	1/1600
0x23	1/2000
0x24	1/2500
0x25	1/3200
0x26	1/4000
0x27	1/5000
0x28	1/6400
0x29	1/8000
0x2A	1/10000
0x2B	1/12800
0x2C	1/16000
0x2D	1/20000
0x2E	1/32000

5.3.13 Set Manual ISO

Command to set the ISO speed (sensitivity)

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x99	0x00	MANU_ISO	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1
5. As for DATA2, see below
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ ISO speed value (MANU_ISO for DATA2

DATA2	ISO speed (MANU_ISO)
0x01	ISO 400
0x02	ISO 500
0x03	ISO 640
0x04	ISO 800
0x05	ISO 1000
0x05	ISO 1250
0x07	ISO 1600
0x08	ISO 2000
0x09	ISO 2500

0x0A	ISO 3200
0x0B	ISO 4000
0x0C	ISO 5000
0x0D	ISO 6400
0x0E	ISO 8000
0x0F	ISO 10000
0x10	ISO 12800
0x11	ISO 25600
0x12	ISO 51200
0x13	ISO 102400
0x14	ISO 204800
0x15	ISO 409600
0x16	ISO 819200
Others	ISO 400

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set 0x00 to ALARMS
4. Set the sum of received CKSM and ALARMS to CKSM

5.3.14 Query Manual ISO

Command to get the ISO speed value

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x9B	0x00	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1 and DATA2 (for Response)
5. Set the sum of ADDT to DATA2 in 8 bits to CKSM

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x9B	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set received CMND1 and CMND2 to RESP1 and RESP2
4. Set Manual ISO speed value to DATA1 (see below)
5. Set 0x00 to DATA2
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ ISO speed value for DATA1

DATA1	ISO speed
0x01	ISO 400
0x02	ISO 500
0x03	ISO 640
0x04	ISO 800
0x05	ISO 1000
0x05	ISO 1250
0x07	ISO 1600
0x08	ISO 2000
0x09	ISO 2500
0x0A	ISO 3200
0x0B	ISO 4000
0x0C	ISO 5000
0x0D	ISO 6400
0x0E	ISO 8000
0x0F	ISO 10000
0x10	ISO 12800
0x11	ISO 25600
0x12	ISO 51200
0x13	ISO 102400
0x14	ISO 204800
0x15	ISO 409600
0x16	ISO 819200

5.3.15 Query Manual Iris

Command to get the F value of the iris

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x9D	0x00	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the command according to the purpose to CMND1 and CMND2
4. Set 0x00 to DATA1 and DATA2 (for Response)
5. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0x9D	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set received CMND1 and CMND2 to RESP1 and RESP2
4. Set F value of the iris to DATA1 (See below)
5. Set 0x00 to DATA2
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ F value of iris for DATA1

DATA1	説明（※FNo は、Wide 端でのF 値）
0x01	Reserved
0x02	Reserved
0x03	Reserved
0x04	Reserved
0x05	Reserved
0x06	Reserved
0x07	F8
0x08	F9
0x09	F10
0x0A	F11
0x0B	F13
0x0C	F14
0x0D	F16
0x0E	F18
0x0F	F20
0x10	F22
0x11	F25
0x12	F29
0x13	F32

5.3.16 <Reserved>

5.3.17 Query Protocol Version

Command to get the supported Pelco Protocol Version

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0xA1	0x00	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set 0x00 to DATA1 and DATA2
4. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0xA1	—	—	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the received command to RESP1 and RESP2
4. Set major version to DATA1 and minor version to DATA2 (Ex. Version 1.10 = DATA1: 0x01, DATA2: 0x10, Version2.0A = DATA1: 0x02, DATA2: 0x0A)
5. Set the sum of ADDR to DATA2 in 8 bits to CKSM

5.3.18 <Reserved>

5.3.19 <Reserved>

5.3.20 <Reserved>

5.3.21 <Reserved>

5.3.22 <Reserved>

5.3.23 Query Manual Setting (Query Manual Setting Response)

Command to get various setting status

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0xAD	—	0x00	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set the query target CMND2 to DATA1 (the CMND2 values, see below)
4. Set 0x00 to DATA2
5. Set the sum of ADDR to DATA2 in 8 bits to CKSM

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0x00	0xAF	—	—	—

1. Always set 0xFF to SYNC
2. Set address 1 to 31 to ADDR
3. Set 0x00 to RESP1

4. Set 0xAF to RESP2
5. Set requested value to DATA1 and DATA2 (See below for the value).
6. Set the sum of ADDR to DATA2 in 8 bits to CKSM

Function	CMND2 set by send command	DATA1 *returned* to receiving command	DATA2 *returned* to receiving command	Description
Query Zoom Speed	0x25	0x00	ZOOM_SPEED	*Returns* the zoom speed.
Query Focus Speed	0x27	0x00	FOCUS SPEED	*Returns* the focus speed.
Query Auto Focus	0x2B	0x00	AUTO F_CTL	AF On / Off / Quick AF
Query Auto Iris	0x2D	0x00	AUTO I_CTL	Auto iris On / Off
Query AGC	0x2F	0x00	AGC_CTL	AGC standard/off/Hyper
Query Backlight	0x31	0x00	BLC_CTL	Backlight compensation On / Off
Query Zoom Position	0x4F	ZOOM MSB	ZOOM LSB	*Returns* the zoom position.
Query Baud Rate	0x67	0x00	SET B_RARE	Set Remote baud rate.
Query Focus Position	0x8F	FOCUS MSB	FOCUS LSB	*Returns* the focus position.
Query Manual Iris	0x91	0x00	MANU_FNO	F value of iris
Query Shutter Limit on Auto	0x93	0x00	A_SHUT_LIM	*Returns* the minimum shutter speed for autoexposure.
Query Manual Shutter Speed	0x95	0x00	MANU_SHUT	*Returns* the shutter speed.
Query Manual ISO	0x99	0x00	MANU_ISO	*Returns* the ISO sensitivity.
	Others			Invalid

5.4 Original Command1 (Original commands of this specification: No.1: Photo Setting)

Original commands extended by FUJIFILM

The calculation method of CKSM is omitted in this chapter. That of [Chapter 3 Pelco-D outline] is adopted.

(0) Send command :

Set the sum of ADDR to DATA2 in 8bit to CKSM

(1) Receive command (General Response):

Set the sum of the received CKSM and ALARMS in 8bit in CKSM

(2) Receive command (Extended Response):

Set the sum of ADDR to DATA2 in 8bit to CKSM

(3) Receive command (Query Response):

Set the sum of ADDR to DATA15 in 8bit to CKSM **(Original specification by FUJIFILM)**

(4) Receive command : (Original specification by FUJIFILM)

Set the sum of ADDR to DATA2 in 8bit to CKSM

5.4.1 <Reserved>

5.4.2 Set AF Sensitivity

Command to set sensitivity at AF

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x05	0x00	SENS GAIN	—

1. Set 0x00 to DATA1
2. Set 1 to 3 as SENS GAIN to DATA2

■ Argument of SENS GAIN

DATA2	Sensitivity
0x01	Low
0x02	Middle
0x03	High
Others	Low

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.4.3 One-push AF

Command to execute One-push AF (Valid when Auto focus is Off)

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x07	0x00	ONE_AF	—

1. Set 0x00 to DATA1
2. Set ONE_AF to DATA2

■ Argument of ONE_AF

DATA2	Operation
0x00	Execute One-push AF
Others	Invalid

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.4.4 <Reserved>

5.4.5 <Reserved>

5.4.6 <Reserved>

5.4.7 <Reserved>

5.4.8 Set Infrared WaveLength

Command to set Infrared wavelength

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x11	0x00	IWL SET	—

1. Set 0x00 to DATA1
2. Set 1 to 4 as IWL SET to DATA2

■ Argument of IWL SET

DATA2	Description
0x00	Visible light
0x01	950 nm
0x02	940 nm
0x03	850 nm
0x04	808 nm
Others	Visible light

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.4.9 Set OIS Mode

Command to set ON / OFF of OIS and EIS

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x13	0x00	OIS MODE	—

1. Set 0x00 to DATA1
2. Set 0 to 3 as OIS MODE to DATA2

■ Argument of OIS MODE

DATA2	Setting
0x01	AUTO(default)
0x02	Only OIS ON
0x03	Only EIS ON
0x04	Off
Others	Off

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.4.10 <Reserved>

5.4.11 Set Photo Mode Preset

Command to set Photo mode preset

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x17	0x00	PHOTO_PRST	—

1. Set 0x00 to DATA1
2. Set 1 or 2 as PHOT_PRST to DATA2

■ Argument of PHOTO_PRST

DATA2	Description
0x01	Surveillance (Focus on resolution)
0x02	Movie (General image quality)
Others	Surveillance

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.4.12 Set DayNight Control by External

Command to switch Day / Night by DayNight trigger signal forcibly

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x19	0x00	EX_TGER	—

1. Set 0x00 to DATA1
2. Set 1 or 2 as EX_TGER to DATA2

■ Argument of EX_TGER

DATA2	Description
0x01	On (DayNight trigger: valid) VLC filter
0x02	On (DayNight trigger : valid) CLEAR filter (Raw glass)
0x03	Off (DayNight trigger : invalid)
0x04	On(DayNight trigger : valid) 4th filter
Others	Off (DayNight trigger : invalid)

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.4.13 <Reserved>

5.4.14 Query Photo Setting (Query Photo Setting Response)

Command to get the camera setting

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x1D	—	0x00	—

1. Set CMND2 of question target to DATA1 (See below for the contents of CMND2)
2. Set 0x00 to DATA2

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x1F	—	—	—

1. Set 0xF0 to RESP1
2. Set 0x1F to RESP2
3. Set the value according to the request to DATA1 and DATA2 (See below for the response)

Function	CMND2 set by Send command	DATA1 *returned* to receiving command	DATA2 *returned* to receiving command	Description
Query AF Sensitivity	0x05	0x00	1–3	*Returns* the ISO sensitivity for autofocus.
Query One-push AF	0x07	0x00	AF_STATUS	AF status when One-Push AF 0x00: Finished 0x01 In process 0xFF: Abnormally
Query Infrared WaveLength	0x11	0x00	0–6	*Returns* the IR filter.
Query OIS Mode	0x13	0x00	0–3	*Returns* OIS status (on/off).
Query Photo Mode Preset	0x17	0x00	1–2	*Returns* the shooting mode preset.
Query DayNight Controll by External	0x19	0x00	1–3	Day / Night swatch by DayNight trigger
	Others			Invalid

5. 5 Original Command2 ((Original commands of this specification: No.2: Image Quality Parameter)

An extended command unique to this specification.

The calculation method of CKSM is omitted in this chapter. That of [Chapter 3 Pelco-D outline] is adopted.

(0) Send command :

Set the sum of ADDR to DATA2 in 8bit to CKSM

(1) Receive command (General Response):

Set the sum of the received CKSM and ALARMS in 8bit in CKSM

(2) Receive command (Extended Response):

Set the sum of ADDR to DATA2 in 8bit to CKSM

(3) Receive command (Query Response):

Set the sum of ADDR to DATA15 in 8bit to CKSM **(Original specification by FUJIFILM)**

(4) Receive command : (Original specification by FUJIFILM)

Set the sum of ADDR to DATA2 in 8bit to CKSM

5.5.1 <Reserved>

5.5.2 Set WideDynamicRange

Command to set the dynamic range

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x23	0x00	D_RANGE	—

1. Set 0x00 to DATA1
2. Set D_RANGE to DATA2

■ Argument of D_RANGE

DATA2	Description
0x01	Off
0x02	1
0x03	2
Other	Off

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.5.3 <Reserved>

5.5.4 Set DeHeatHaze Mode

Command to change De-heat haze mode

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x27	0x00	DE_HEAT_MODE	—

1. Set 0x00 to DATA1
2. Set DE_HEAT_MOD to DATA2

■ Argument of DE_HEAT_MODE

DATA2	Description
0x00	Off
0x01	1
0x02	2
0x03	3
Others	Off

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.5.5 Set Defogging Mode

Command to change De-fogging mode

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x29	0x00	DE_FOG_MODE	—

1. Set 0x00 to DATA1
2. Set DE_FOG_MODE to DATA2

■ Argument of DE_FOG

DATA2	Description
0x00	Off
0x01	1
0x02	2
0x03	3
Others	Off

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.5.6 <Reserved>

5.5.7 <Reserved>

5.5.8 <Reserved>

5.5.9 <Reserved>

5.5.10 Set ColorTemperature on WhiteBalance

Command to set the color temperature on the white balance

This command becomes effective when ColorTemperature (0x06) is set to DATA2 by Set Select WhiteBalance.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x33	0x00	C_WB_TEMP	—

1. Set 0x00 to DATA1
2. Set C_WB_TMP to DATA2

■ Argument of C_WB_TMP

DATA	Description
0x01	3000K
0x02	5000K
0x03	9000K
Others	5000K

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.5.11 Set Select WhiteBalance

Command to set the white balance

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x35	0x00	WB_SEL	—

1. Set 0x00 to DATA1
2. Set WB_SEL to DATA2

■ Argument of WB_SEL

DATA2	Description
0x01	Auto
0x02	Custom1 (Read preset, which can be set only by SDI menu)
0x03	Custom2 (Read preset, which can be set only by SDI menu)
0x04	Day
0x05	Cloud
0x06	ColorTemperature (Set the color temperature by Set ColorTemperature on WhiteBalance)
0x07	Auto (white priority)
Others	Auto

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.5.12 Set Digital Zoom

Command to switch the digital zoom

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x37	0x00	D_ZOOM	—

1. Set 0x00 to DATA1
2. Set D_ZOOM to DATA2

■ Argument of D_ZOOM

DATA2	Digital zoom
0x00	Off
0x01	On: Conventional Digital Zoom (Crop optical tele end)
0x02	Crop: Cropped at any position from wide end to tele end. Set magnification with Set Digital Zoom Ex.
Others	Off

■ Receive mode

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.5.13 Set NR Level

Command to set the noise reduction level

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x39	0x00	NR_LEV	—

1. Set 0x00 to DATA1
2. Set NR_LEV to DATA2

■ Argument of NR_LEV

DATA2	Level
0x01	1: Weak
0x02	2: Middle
0x03	3: Strong
Others	2: Middle

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.5.14 <Reserved>

5.5.15 Query ImageQuality Setting (Query ImageQuality Setting Response)

Command to get the image quality setting

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x3D	—	0x00	—

1. Set CMND2 of question target to DATA1 (See below for the content of CMND2)
2. Set 0x00 to DATA2

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x3F	—	—	—

1. Set 0xF0 to RESP1
2. Set 0x3f to RESP2
3. Set values according to the requested content in DATA1 and DATA2 (see below for the response content)

Function	CMND2 set by send command	DATA1 *returned* to receiving command	DATA2 *returned* to receiving command	Description
Query Wide DynamicRange	0x23	0x00	1–3	*Returns* the dynamic range.
Query DeHeatHaze Mode	0x27	0x00	0–5	*Returns* the heat-haze reduction setting.
Query Defogging Mode	0x29	0x00	0–5	*Returns* the fog reduction setting.
Query ColorTemperature on whiteBalance	0x33	0x00	C_WB_TEMP	*Returns* the color temperature.
Query Select WhiteBalance	0x35	0x00	1–6	*Returns* white balance.
Query Digital Zoom	0x37	0x00	0–2	*Returns* digital zoom.
Query NR Level	0x39	0x00	1–3	*Returns* noise reduction.
	Others			Invalid

5.6 Original Command2 (Original commands of this specification: No.2: ImageQuality Parameter)

Original commands extended by FUJIFILM

The calculation method of CKSM is omitted in this chapter. That of [Chapter 3 Pelco-D outline] is adopted.

(0) Send command :

Set the sum of ADDR to DATA2 in 8bit to CKSM

(1) Receive command (General Response):

Set the sum of the received CKSM and ALARMS in 8bit in CKSM

(2) Receive command (Extended Response):

Set the sum of ADDR to DATA2 in 8bit to CKSM

(3) Receive command (Query Response):

Set the sum of ADDR to DATA15 in 8bit to CKSM **(Original specification by FUJIFILM)**

(4) Receive command : (Original specification by FUJIFILM)

Set the sum of ADDR to DATA2 in 8bit to CKSM

5.6.1 <Reserved>

5.6.2 Set DayTime Display

Command to set data and time

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x43	0x00	TIME_DISP SW	—

1. Set 0x00 to DATA1
2. Set TIME_DISP SW to DATA2

■ Argument of TIME_DISP SW

DATA2	SW
0x00	Off
0x01	On
Others	Off

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.6.3 Set DisplayPosition of DayTime

Command to set the display position of DateTime

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x45	0x00	TIME_DISP POS	—

1. Set 0x00 to DATA1
2. Set TIME_DISP POS to DATA2

■ Argument of TIME_DISP POS

DATA2	Position
0x01	Upper right
0x02	Lower right
0x03	Upper left
0x04	Lower left
Others	Upper right

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.6.4 Set Title Display

Command to display the title

* The title can be set by SDI menu. See the operation manual.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x47	0x00	TITLE_DISP SW	—

1. Set 0x00 to DATA1
2. Set TITLE_DISP SW to DATA2

■ Argument of TITLE_DISP SW

DATA2	Display
0x00	Off
0x01	On
Other	Off

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.6.5 <Reserved>

5.6.6 Set DisplayPosition of Title

Command to set the position of the title display

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x4B	0x00	TITLE_DISP POS	—

1. Set 0x00 to DATA1
2. Set TITLE_DISP POS to DATA2

■ Argument of TITLE_DISP POS

DATA2	Position
0x01	Upper right
0x02	Lower right
0x03	Upper left
0x04	Lower left
Others	Upper right

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.6.7 Set ID Display

Command to display ID

* The ID can be set by SDI menu. See the operation manual.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x4D	0x00	DISP_ID SW	—

1. Set 0x00 to DATA1
2. Set DISP_ID SW to DATA2

■ Argument of DISP_ID SW

DATA2	Display
0x00	Off
0x01	On
Others	Off

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.6.8 Set DisplayPosition of ID

Command to set the display position of ID

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x4F	0x00	ID_DISP POS	—

1. Set 0x00 to DATA1
2. Set ID_DISP POS to DATA2

■ Argument of ID_DISP POS

DATA2	Position
0x01	Upper right
0x02	Lower right
0x03	Upper center
0x04	Lower center
0x05	Upper left
0x06	Lower left
Others	Upper right

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.6.9 Set Center Position Display

Command to display the mark in the middle

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x51	0x00	DISP_C_POS SW	—

1. Set 0x00 to DATA1
2. Set DISP_C_POS SW to DATA2

■ Argument of DISP_C_POS SW

DATA2	Display
0x00	Off (Default)
0x01	On
Others	Off

* Display is OFF after turn on (does not hold the previous setting)

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.6.10 <Reserved>

5.6.11 SetAntialiasing

Command to control the anti-aliasing process of OSD on/off

■Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x55	0x00	ANTIALIASING SW	—

1. Set 0x00 to DATA1
2. Set ANNTIALIASING SW to DATA2

■Argument of ANTIALIASING SW

DATA2	SW
0x00	Off
0x01	On (Default)
Other	On

■Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.6.12 <Reserved>

5.6.13 <Reserved>

5.6.14 <Reserved>

5.6.15 Query Display Setting (Query Display Setting Response)

Command to get the display setting

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x5D	—	0x00	—

1. Set the query target CMND2 to DATA1 (the CMND2 values, see below)
2. Set 0x00 to DATA2

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x5F	—	—	—

1. Set 0xF0 to RESP1
2. Set 0x5F to RESP2
3. Set requested value to DATA1 and DATA2 (the requested values, see below)

Function	CMND2 set by send command	DATA1 *returned* to receiving command	DATA2 *returned* to receiving command	Description
Query DayTime Display	0x43	0x00	0–1	*Returns* the date and time.
Query DisplayPosition of DayTime	0x45	0x00	1–4	*Returns* the date and time display position.
Query Title Display	0x47	0x00	0–1	*Returns* title display status.
Query Display Position of Title	0x4B	0x00	1–4	*Returns* the title display position.
Query ID Display	0x4D	0x00	0–1	*Returns* ID display status.
Query DisplayPosition of ID	0x4F	0x00	1–6	*Returns* the ID display position.
Query Center Position Display	0x51	0x00	0–1	*Returns* the display status of the center reticle.
Query Display Zoom bar & AF Frame	0x53	0x00	0–1	Display of the zoom bar and AF fram ON (Display): 1 OFF (No display): 0 (Display ON/OFF setting is doen be SetBack MCD 0xF0)
Query Antialiasing	0x55	0x00	0–1	Anti-alias status for the OSD ON: 1 OFF: 0
	Others			Invalid

5.7 Original Command 4 (Original commands of this specification: No...4: Operation Setting)

Original commands extended by FUJIFILM

The calculation method of CKSM is omitted in this chapter. That of [Chapter 3 Pelco-D outline] is adopted.

(0) Send command :

Set the sum of ADDR to DATA2 in 8bit to CKSM

(1) Receive command (General Response):

Set the sum of the received CKSM and ALARMS in 8bit in CKSM

(2) Receive command (Extended Response):

Set the sum of ADDR to DATA2 in 8bit to CKSM

(3) Receive command (Query Response):

Set the sum of ADDR to DATA15 in 8bit to CKSM **(Original specification by FUJIFILM)**

(4) Receive command : (Original specification by FUJIFILM)

Set the sum of ADDR to DATA2 in 8bit to CKSM

5.7.1 Set Display Mode of time

Command to switch the time display mode (24h ⇔ 12h)

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x61	0x00	HOUR12_24 SEL	—

1. Set 0x00 to DATA1
2. Set HOUR12_24 SEL to DATA2

■ Argument of HOUR12_24 SEL

DATA2	Display mode
0x01	24h
0x02	12h
Others	24h

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	*0x00*	—

5.7.2 Set DisplayMode of YMD

Command to switch the YMD display mode

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x63	0x00	YMD SEL	—

1. Set 0x00 to DATA1
2. Set YMD SEL to DATA2

■ Argument of YMD SEL

DATA2	Display mode
0x01	Y-M-D
0x02	M-D-Y
0x03	D-M-Y
0x04	Y/M/D
0x05	M/D/Y
0x06	D/M/Y
Others	Y-M-D

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.7.3 <Reserved>

5.7.4 Set Video Mode

Command to switch the video mode (NTSC⇔PAL)

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x67	0x00	VIDEO MODE	—

1. Set 0x00 to DATA1
2. Set VIDEO MODE to DATA2

■ VUDEO MODE 引数

DATA2	Video mode
0x01	NTSC
0x02	PAL
Others	NTSC

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.7.5 Set HD Format

Command to switch the image size of HD and the frame rate

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x69	0x00	HD_FORMAT SW	—

1. Set 0x00 to DATA1
2. Set HD_FORMAT SW to DATA2

■ Argument of HD_FORMAT SW

DATA2	Image size (Frame rate)
0x01	1080p (30p)
0x02	720p (60p)
0x03	480p (60p)
Others	1080p (30p)

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.7.6 Set VideoDisplay Mode

Command to set the display mode of the video

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x6B	0x00	VIDEO_D_MODE	—

1. Set 0x00 to DATA1
2. Set VIDEO_D_MODE to DATA2

■ Argument of VIDEO_D_MODE

DATA2	Display mode
0x01	side cut
0x02	letter box
0x03	squeeze
Others	side cut

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.7.7 <Reserved>

5.7.8 Set RS485 ID

Command to set ID for RS485

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x6F	0x00	RS485_ID	—

1. Set 0x00 to DATA1
2. Set RS485_ID to DATA2 in 16bit binary

■ Argument of RS485_ID

DATA2	Setting
1～31	RS485 ID(Default : 7)
Others	7

* Power OFF→ON sequence is required to reflect the settings

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.7.9 <Reserved>

5.7.10 Set Termination for RS485

Command to switch the termination of RS485

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x73	0x00	TEMINAT SW	—

1. Set 0x00 to DATA1
2. Set TEMINAT SW to DATA2

■ Argument of TEMINAT SW

DATA2	Switch
0x00	Off
0x01	On
Others	Off

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.7.11 <Reserved>

5.7.12 Set RecordingMode on Scared

Command to set SD overwrite recording when card Full

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x77	0x00	SD_RECORD SW	—

1. Set 0x00 to DATA1
2. Set SD_RECORD SW to DATA2

■ Argument of SD_RECORD SW

DATA2	Setting
0x01	Overwrite
0x02	Stop recording (There is on/off setting to display the remaining amount)
Others	Overwrite

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.7.13 SetDisplay Scared Capacity Remaining

Command to set the display of remaining of SD card capacity

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x79	0x00	DISP_CARD_SW	—

1. Set 0x00 to DATA1
2. Set DISP_CARD_SW to DATA2

■ Argument of DISP_CARD_SW

DATA2	Setting
0x01	Display remaining of SD Card capacity : ON
0x02	Display remaining of SD Card capacity : OFF (Even if it is OFF, the remaining time will be displayed when it reaches 30 minutes.)
Others	Display remaining of SD Card capacity : ON

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.7.14 Format SDcard

Command to format SD card

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x7B	0x00	SD_FORMAT	—

1. Set 0x00 to DATA1
2. Set SD_FORMAT to DATA2

■ Argument of SD_FORMAT

DATA2	Format
0x00	Format SD card
Others	Do nothing

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.7.15 Download Firmware

Command used to update FW. SX1600 cannot update FW via RS485. Therefore, even if SX1600 are installed at a remote distance and controlled by RS485, FW update needs to use Ethernet I / F.

When this command is sent, the camera automatically reboots and starts up in the simple WebUI mode, and only the FW download operation via the Ethernet I / F is enabled. After the FW download is completed, reboot automatically again and restart in Pelco mode.

* Note: If this command is sent, it will not be possible to return via RS485, so be careful when sending the command.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x7D	0x00	FW_DL	—

1. Set 0x00 t0 DATA1
2. Set FW_DL to DATA2

■ Argument of FW_DL

DATA2	Action
0x01	Update FW
Others	Invalid

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.7.16 Recode LogData on SDcard

Command to copy the log data on the memory to SD card

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x7F	0x00	LOG_COPY_SD	—

1. Set 0x00 to DATA1
2. Set LOG_COPY_SD to DATA2

■ Argument of LOG_COPY_SD

DATA2	Action
0x00	Does not copy
0x01	Copy the log to SD card
Others	Does not copy

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.7.17 Preset parameters

Command to reset parameters to factory default

* After initializing parameters other than IP settings, the camera sends a receive command and restarts automatically.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x81	0x00	PRESET	—

1. Set 0x00 to DATA1
2. Set PRESET to DATA2

■ Argument of PRESET

DATA2	Action
0x00	Reset parameters other than IP setting
Others	Invalid

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.7.18 Reboot

Command to reboot

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x83	0x00	REBOOT	—

1. Set 0x00 to DATA1
2. Set REBOOT to DATA2

■ Argument of REBOOT

DATA2	Action
0x01	Reboot
Others	Invalid

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.7.19 Set Language

Command to set the language

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x85	0x00	LANGUAGE	—

1. Set 0x00 to DATA1
2. Set LANGUAGE to DATA2

■ Argument of LANGUAGE

DATA2	Language
0x00	English
0x01	French
0x02	Invalid
0x03	Japanese
Others	English

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.7.20 <Reserved>

5.7.21 <Reserved>

5.7.22 <Reserved>

5.7.23 Query Operation Setting (Query Operation Setting Response)

Command to get the camera setting

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x8D	—	0x00	—

1. Set the query target CMND2 to DATA1 (the CMND2 values, see below)
2. Set 0x00 to DATA2

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x8F	—	—	—

1. Set 0xF to RESP1
2. Set 0x8F to RESP2
3. Set requested value to DATA1 and DATA2 (the requested values, see below)

Function	CMND2 set by send command	DATA1 *returned* to receiving command	DATA2 *returned* to receiving command	Description
Query DisplayMode of time	0x61	0x00	1–2	Data/ Time display mode(24h⇔12h)
Query DisplayMode of YMD	0x63	0x00	1–6	YMD mode
Query Video Mode	0x67	0x00	1–2	Video Mode (NTSC⇔PAL)
Query HD Format	0x69	0x00	1–4	HD image size and its frame rate
Query VideoDisplay Mode	0x6B	0x00	1–3	*Returns* the video display mode.
Query RS485 ID	0x6F	0x00	0–255	*Returns* the RS485 ID.
Query Termination for RS485	0x73	0x00	0–1	Termination of RS485
Query RecordingMode on SDcard	0x77	0x00	1–2	Overwrite when SD card is full
Query Display SDcard Capacity Remaining	0x79	0x00	1–2	Display the remaining of SD card capacity
Query Format SDcard	0x7B	0x00	FOMAT_STATUS	Status of formatting SD card 0x00: Completed 0x01: In process 0xFF: Error
Query Record LogData on SDcard	0x7F	0x00	0–1	Copy the log data to SD card
Query Preset parameters	0x81	0x00	0	Reset parameters to factory default
Query Language	0x85	0x00	0–3	*Returns* the language setting.
Query SDcard Status	0x8B	0x00	SD_CARD_STATUS	Status of the SD card (Status of SD_CARD_STATUS is below)
	Others			Invalid

※ Status of SD_CARD_STATUS

SD_CARD_STATUS	Status
0x00	Normal
0x01	SD card error
0x02	Unformatted
0x03	Protected
0x04	File system error
0x05	Full
0x06	No card

◆ Status of formatable card
0x00:Normal
0x01:SD card error
0x02:Unformatted
0x04: File system error
0x05: Full
※ However, formatting may fail when status were 0x01 or 0x04

◆ Video recordable status
0x00:Normal

◆ Video playable status
0x00:Normal
0x03:Protected
0x05: Full

5.8 Original Command 5 (Original commands of this specification: No...5: SET KEY)

Original commands extended by FUJIFILM

The calculation method of CKSM is omitted in this chapter. That of [Chapter 3 Pelco-D outline] is adopted.

(0) Send command :

Set the sum of ADDR to DATA2 in 8bit to CKSM

(1) Receive command (General Response):

Set the sum of the received CKSM and ALARMS in 8bit in CKSM

(2) Receive command (Extended Response):

Set the sum of ADDR to DATA2 in 8bit to CKSM

(3) Receive command (Query Response):

Set the sum of ADDR to DATA15 in 8bit to CKSM **(Original specification by FUJIFILM)**

(4) Receive command : (Original specification by FUJIFILM)

Set the sum of ADDR to DATA2 in 8bit to CKSM

5.8.1 SetEncodeMode

Command to set the video encode format

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x91	0x00	ENCODING	—

1. Set 0x00 to DATA1
2. Set ENCODING to DATA2

■ Argument of ENCODING

DATA2	Encode format
0x01	H.264,
0x02	MJPEG
0x03	MPEG4
Others	H.264

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.8.2 Record LiveView on SDcard

Command to record the live view into SD card

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x93	0x00	LV_RECORD	—

1. Set 0x00 to DATA1
2. Set LV_RECORD to DATA2

■ Argument of LV_RECORD

DATA2	Record
0x00	On
0x01	Off
Others	On

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.8.3 Set 1st file of playing Movie

Command to play the first file

How to use:

First, read out the total number of movie in the SD card by Query Number of Movies on SDcard command (0xF0, 0xB1), and then set the target frame.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x95	F_NO MSB	F_NO LSB	—

1. Set F_NO MSB to DATA1
2. Set F_NO LSB to DATA2

* Set the file index number to playback to F_NO

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

What is File index number:

The camera generates a table of file index numbers (F_NO) on the memory so that the latest file is 0x0001, only for the files recorded by the SX1600 at startup.
When the file is deleted, F_NO of the deleted file becomes an empty number until the file number table is updated next time the power is turned on.

5.8.4 Play Movie from SDcard

Command to set Play/Stop mode of the video file in the SD card

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x97	0x00	PLAY_SET	—

1. Set 0x00 to DATA1
2. Set PLAY_SET to DATA2

■ Argument of PLAY_SET

DATA2	Mode
0x00	Stop (Playback standby state: Thumbnail or inclusion JPEG displayed)
0x01	One frame playback
0x02	Continuous playback (Play from the current position in order of recording time. After the last frame, play the oldest frame in the card.)
0x03	Pause (Display freeze)
0x04	Playback again
Others	Stop (Playback standby state: Thumbnail or inclusion JPEG displayed)

* Default is 0x00。When transitioning from the movie mode to the playback mode, it is always 0x00, and the thumbnail or included JPEG display of the latest time stamp is displayed for the frame.

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.8.5 Delete Movie from SDcard

Command to set the target movie number to delete from SD card

How to use:
First, read out the total number of movie in the SD card by Query Number of Movies on SDcard command (0xF0, 0xB1), and then set the target frame.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x99	F_NO MSB	F_NO LSB	—

1. Set F_NO MSB to DATA1
2. Set F_NO LSB to DATA2

■ Argument of DISP_C_POS SW

DATA1 + DATA2	
File index number	Delete the movie of the file index number
0x0000	All delete

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.8.6 Select Movie mode Play mode

Command to switch Movie mode/Playback mode

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x9B	0x00	MODE_SW	—

1. Set 0x00 to DATA1
2. Set MODE_SW to DATA2

■ Argument of MODE_SW

DATA2	Mode
0x01	Movie mode (When playing back the movie, playback is interrupted and transit to Movie mode)
0x02	Play back mode (When recording a movie, issue this command after stopping movie by 5.8.2 Record LiveView on SDcard (0xF0, 0x93))
Others	Movie mode

* Default is 0x01

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.8.7 <Reserved>

5.8.8 <Reserved>

5.8.9 <Reserved>

5.8.10 <Reserved>

5.8.11 <Reserved>

5.8.12 Set SDI ON MENU OK

Command to switch ON/OFF of SDI display and execute MENU OK command (* this command is available at Pelco Slave mode)

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xA7	0x00	SDI_ON	—

1. Set 0x00 to DATA1
2. Set SDI_ON to DATA2

■ Argument of SDI_ON

DATA2	Mode
0x00	Off (SDI OFF and MENU OFF)
0x01	On (Execute instead of MENU OK key)
Others	Off (SDI OFF and MENU OFF)

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.8.13 Set Direction

Command to move cursor (* this command is available at Pelco Slave mode)

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xA9	0x00	CURSOR	—

1. Set 0x00 to DATA1
2. Set CURSOR to DATA2

■ CURSOR 引数

DATA2	Direction
0x01	Up
0x02	Down
0.03	Left
0x04	Right
Others	Invalid

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.8.14 Set Back CMD

Command to execute MENU BACK (* this command is available at Pelco Slave mode)

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xAB	0x00	M_BACK	—

1. Set 0x00 to DATA1
2. Set M_BACK to DATA2

■ Argument of M_BACK

DATA2	Action
0x00	Invalid
0x01	MENU BACK
Others	Invalid

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.8.15 Query Key Setting (Query Key Setting Response)

Command to get the previous key setting

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xAD	—	0x00	—

1. Set the query target CMND2 to DATA1 (the CMND2 values, see below)
2. Set 0x00 to DATA2

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xAF	—	—	—

1. Set 0xF0 to RESP1
2. Set 0xAF to RESP2
3. Set requested value to DATA1 and DATA2 (See below for the value).

Function	CMND2 set by send command	DATA1 *returned* to receiving command	DATA2 *returned* to receiving command	Description
Query EncodeMode	0x91	0x00	1–2	*Returns* the video encoding.
Query Record LiveView on SDcard	0x93	0x00	0–1	*Returns* live-feed-to-memory-card recording status. 0x00 On 0x01 Off
Query 1st file of playing Movie	0x95	number1	number2	Play the first file
Query Play Movie from SDcard	0x97	0x00	0–4	*Returns* the status of video playback from the memory card. 0x00 Stop 0x01 One frame playback 0x02 Continuous playback 0x03 Pause (Display freeze) 0x04 Playback again
Query Delete Movie from SDcard	0x99	number1	number2	*Returns* the number of the frame to be deleted from the memory card.
Query Select Movie mode Play mode	0x9B	0x00	1–2	*Returns* the video/playback mode toggle status.
Query SDI ON MENU OK	0xA7	0x00	0–1	*Returns* SDI display status (on/off).
Query Direction	0xA9	0x00	1–4	*Returns* cursor movement (0x00 when no cursor history).
Query Back CMD	0xAB	0x00	0–1	*Returns* MENU BACK status.
	Others			Invalid

5.9 Original Command 6 (Original commands of this specification : No. 6 : Query SDcard)

Original commands extended by FUJIFILM

The calculation method of CKSM is omitted in this chapter. That of [Chapter 3 Pelco-D outline] is adopted.

(0) Send command :

Set the sum of ADDR to DATA2 in 8bit to CKSM

(1) Receive command (General Response):

Set the sum of the received CKSM and ALARMS in 8bit in CKSM

(2) Receive command (Extended Response):

Set the sum of ADDR to DATA2 in 8bit to CKSM

(3) Receive command (Query Response):

Set the sum of ADDR to DATA15 in 8bit to CKSM **(Original specification by FUJIFILM)**

(4) Receive command : (Original specification by FUJIFILM)

Set the sum of ADDR to DATA2 in 8bit to CKSM

5.9.1 Query Number of Movies on SDcard (Query Number of Movies on SDcard Response)

Command to get the number of movie files in the SD card

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xB1	0xB3	0x00	—

1. Set the query target CMND2 to DATA1 (0xB3)
2. Set 0x00 to DATA2

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xB3	NUMBER MSB	NUMBER LSB	—

1. Set 0xF0 to RESP1
2. Set 0xB3 to RESP2
3. Set NUMBER MSB to DATA1
4. Set NUMBER LSB to DATA2

5.9.2 Query Year of Movie on SDcard (Query Year of Movie on SDcard Response)

Command to get the recorded year of the movie file in the SD card

How to use:
First, read out the total number of movie in the SD card by Query Number of Movies on SDcard command (0xF0, 0xB1), and then set the target frame.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xB5	F_NO MSB	F_NO LSB	—

1. Set F_NO MSB to DATA1
2. Set F_NO LSB to DATA2

   * F_NO is the File Index number of the movie to playback

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xB7	F_YY MSB	F_YY LSB	—

1. Set 0xF0 to RESP1
2. Set 0xB7 to RESP2
3. Set F_YY MSB to DATA1
4. Set F_YY LSB to DATA2

   * F_YY is the recorded year represented by a 4-digit hexadecimal number (2 Bytes)

5.9.3 Query MonthDay of Movie on SDcard (Query MonthDay of Movie on SDcard Response)

Command to get the recorded date and month of the movie file in the SD card

How to use:

First, get the total number of the files by Query Number of Movies on SDcard(0xF0、0xB1) command, then set the target file

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xB9	F_NO MSB	F_NO LSB	—

1. Set F_NO MSB to DATA1
2. Set F_NO LSB to DATA2

* F_NO is the File Index number of the movie to playback

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xBB	F_MM	F_DD	—

1. Set 0xF0 to RESP1
2. Set 0xB7 to RESP2
3. Set F_MM to DATA1
4. Set F_DD to DATA2

* F_MM and F_DD are the recorded month and date

5.9.4 Query HourMinute of Movie on SDcard (Query HourMinute of Movie on SDcard Response)

Command to get the recorded time of day (24h notation) of the movie file in the SD card

How to use:
First, read out the total number of movie in the SD card by Query Number of Movies on SDcard command (0xF0, 0xB1), and then set the target frame.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xBD	F_NO MSB	F_NO LSB	—

1. Set F_NO MSB to DATA1
2. Set F_NO LSB to DATA2

   * Fanons File Index number of the requested movie

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xBF	F_HH	F_MM	—

1. Set 0xF0 to RESP1
2. Set 0xB7 to RESP2 は 0xB7
3. Set F_HH(Hexadecimal) to DATA1
4. Set F_MM(Hexadecimal)to DATA2

   * F_HH and F_MM are the recorded time of day (hour and minutes in 24h notation)

5.10 Original Command7(In-House Custom Parameter No. 7: Query LogData)

An extended command unique to this specification.

The calculation method of CKSM is omitted in this chapter. That of [Chapter 3 Pelco-D outline] is adopted.

(0) Send command:

Set the sum of ADDR to DATA2 in 8bit to CKSM

(1) Receive command (General Response):

Set the sum of the received CKSM and ALARMS in 8bit in CKSM

(2) Receive command (Extended Response):

Set the sum of ADDR to DATA2 in 8bit to CKSM

(3) Receive command (Query Response):

Set the sum of ADDR to DATA15 in 8bit to CKSM **(Original specification by FUJIFILM)**

(4) Receive command : (Extended Response2) (Original specification by FUJIFILM)

Set the sum of ADDR to DATA2 in 8bit to CKSM

5.10.1 Query LogData (Query LogData Response)

Command to get the LogData of the camera.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xD1	0xD3	LOG_TYPE	—

1. Set the query target CMND2 to DATA1 (0xD3)
2. Set LOG_TYPE to DATA2

■ LOG_TYPE arguments

DATA2 set by send command	Purpose	DATA1,DATA2 (LOG_DAT) set by the receiving command
0x01	Zoom	Cumulative number of moving pulses
0x02	Focus	Cumulative number of moving pulses
0x03	PowerOnTime	Cumulative energization time
0x04	OIS	Cumulative drive time (The time OIS is set to ON)
0x05	Thermal	Recording cycle Recording period : 3 years *) Delete from old records Data is managed in units of year, month, date, and time. Temperature data is obtained from the lens.
0x06	Error	Error history of the recording target
Others	Zoom	Cumulative number of moving pulses

5.11 Original Command 8 (In-House Custom Parameter No. 8: ImageQuality Parameter Fine)

An extended command unique to this specification. The checksum (CKSM) calculation is omitted from this chapter, as we have adopted the method outlined for Pelco-D in Chapter 3. New commands have been added for fine control of image quality parameters.

(0) Command sent:

Set the CKSM to the 8-bit sum of ADDR through DATA2.

(1) Response (General Response):

Set the CKSM to the 8-bit sum of ALARMS and the value returned for CKSM.

(2) Response (Extended Response):

Set the CKSM to the 8-bit sum of ADDR through DATA2.

(3) Response (Query Response):

Set the CKSM to the 8-bit sum of ADDR through DATA15 (*in-house custom parameter*).

(4) Response (Extended Response 2, an in-house custom parameter):

Set the CKSM to the 8-bit sum of ADDR through DATA2.

5.11.1 <Reserved>

5.11.2 <Reserved>

5.11.3 <Reserved>

5.11.4 <Reserved>

5.11.5 <Reserved>

5.11.6 Set Brightness Level Fine

A command used to set brightness.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xEB	0x00	BRIGHT_LV	—

1. DATA1 is fixed at 0x00.
2. DATA2 sets BRIGHT_LV.

■ BRIGHT_LV arguments

DATA2	Description
0x01–0x64	1 – 100
Other	50

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.11.7 Set Contrast Level Fine

A command used to set contrast.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xED	0x00	CONT_LV	—

1. DATA1 is fixed at 0x0.
2. DATA2 sets CONT_LV.

■ CONT_LV arguments

DATA2	Description
0x01-0x64	1 – 100
Other	50

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.11.8 Set ColorSaturation Level Fine

A command used to set color saturation.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xEF	0x00	COLOR_ST_LV	—

1. DATA1 is fixed at 0x00.
2. DATA2 sets COLOR_ST_LV.

■ COLOR_ST_LV arguments

DATA2	Description
0x01-0x64	1 – 100
Other	50

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.11.9 Set Sharpness Level Fine

A command used to set sharpness.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xF1	0x00	SHARP_LV	—

1. DATA1 is fixed at 0x00.
2. DATA2 sets SHARP_LV.

■ SHARP_LV arguments

DATA2	Description
0x01–0x64	1 – 100
Other	20 / 80 *

* Varies with the setting for 5.4.11, “Set Photo Mode Preset” (video/surveillance).

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.11.10 <Reserved>

5.11.11 Set WhiteBalance Shift Red Fine

A command used to set the white-balance shift R component for the current white balance mode.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xF5	0x00	WB_SHIFT_R	—

1. DATA1 is fixed at 0x00.
2. DATA2 sets C_WB_TMP.

■ WB_SHIFT_R arguments

DATA2	Description
0x77-0x89	0x77(-9) – 0x80(0) – 0x89(+9)
Other	0x80

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.11.12 Set WhiteBalance Shift Blue Fine

A command used to set the white-balance shift B component for the current white balance mode.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xF7	0x00	WB_SHIFT_B	—

1. DATA1 is the CMND2 query target (0xD3).
2. DATA2 sets WB_SEL.

■ WB_SHIFT_B arguments

DATA2	Description
0x77–0x89	0x77 (−9) – 0x80 (0) – 0x89 (+9)
Other	0x80

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.11.13 <Reserved>

5.11.14 <Reserved>

5.11.15 Query ImageQuality Setting Fine (Query ImageQuality Setting Response Fine)

A command that returns image quality parameters.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0xFD	—	0x00	—

1. DATA1 is the CMND2 query target (see the table below).
2. DATA2 is fixed at 0x00.

■ Receive command (Extended Response 2)

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0xF0	0x**FF**	—	—	—

1. RESP1 sets 0xF0.
2. RESP2 sets 0xFF.
3. DATA1 and DATA2 are set to values corresponding to the requested content (see table below).

Function	CMND2 set by send command	DATA1 *returned* to receiving command	DATA2 *returned* to receiving command	Description
Query Brightness Level Fine	0xEB	0x00	1-100	*Returns* brightness.
Query Contrast Level Fine	0xED	0x00	1-100	*Returns* contrast.
Query ColorSaturation Level Fine	0xEF	0x00	1-100	*Returns* saturation.
Query Sharpness Level Fine	0xF1	0x00	1-100	*Returns* sharpness.
Query WhiteBalance Shift Red Fine	0xF5	0x00	1-100	*Returns* the white balance shift RED component.
Query WhiteBalance Shift Blue Fine	0xF7	0x00	1-100	*Returns* the white balance shift BLUE component.
	Other	0x00	0x00	Invalid

5.12 Original Command 9 (In-House Custom Parameter No. 9: DayNight Setting Ex)

An extended command unique to this specification. The checksum (CKSM) calculation is omitted from this chapter, as we have adopted the method outlined for Pelco-D in Chapter 3. New commands have been added for fine control of day/night parameters.

(0) Command sent:

Set the CKSM to the 8-bit sum of ADDR through DATA2.

(1) Response (General Response):

Set the CKSM to the 8-bit sum of ALARMS and the value returned for CKSM.

(2) Response (Extended Response):

Set the CKSM to the 8-bit sum of ADDR through DATA2.

(3) Response (Query Response):

Set the CKSM to the 8-bit sum of ADDR through DATA15 (*in-house custom parameter*).

(4) Response (Extended Response 2, an in-house custom parameter):

Set the CKSM to the 8-bit sum of ADDR through DATA2.

5.12.1 Set DayNight Mode

A command used to set the extended day/night mode.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF1	0x01	0x00	DN_MODE	—

1. DATA1 is fixed at 0x00.
2. DATA2 sets DN_MODE.

■ DN_MODE arguments

DATA2	Description
0x00	AUTO
0x01	AUTO&SCHEDULED
0x02	SCHEDULED
0x03	DAY
0x04	NIGHT
Other	AUTO

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.12.2 Set Day to Night Threshold

A command used to set the threshold brightness for switching from day to night mode.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF1	0x03	0x00	D2N_TH	—

1. DATA1 is fixed at 0x00.
2. DATA2 sets D2N_TH.

■ D2N_TH arguments

DATA2	Description
0x00-0xFF	0 – 255

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.12.3 Set Night to Day Threshold

A command used to set the threshold brightness for switching from night to day mode.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF1	0x05	0x00	N2D_TH	—

1. DATA1 is fixed at 0x00.
2. DATA2 sets N2D_TH.

■ N2D_TH arguments

DATA2	Description
0x00-0xFF	0 – 255

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.12.4 Set DayNight Auto Delay

A command used to set the delay (in seconds) for switching between day and night modes.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF1	0x07	0x00	AUTO_DELAY	—

1. DATA1 is fixed at 0x00.
2. DATA2 sets AUTO_DELAY.

■ AUTO_DELAY arguments

DATA2	Description
0x00–0x3C	0 –60
Other	7

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.12.5 Set Day Start Time

A command used to set the start time (SCHEDULED and AUTO&SCHEDULED) for day mode.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF1	0x09	DAYTIME_HH	DAYTIME_MM	—

1. DATA1 sets DAYTIME_HH.
2. DATA2 sets DAYTIME_MM.

■ DAYTIME_HH arguments

DATA2	Description
0x00–0x17	00–23
Other	07:00

■ DAYTIME_MM arguments

DATA2	Description
0x00–0x3B	00–59
Other	07:00

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.12.6 Set Night Start Time

A command used to set the start time (SCHEDULED and AUTO&SCHEDULED) for night mode.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF1	0x0B	NIGHTTIME_HH	NIGHTTIME_MM	—

1. DATA1 sets NIGHTTIME_HH.
2. DATA2 sets NIGHTTIME_MM.

■ NIGHTTIME_HH arguments

DATA2	Description
0x00–0x17	00–23
Other	17:00

■ NIGHTTIME_MM arguments

DATA2	Description
0x00–0x3B	00–59
Other	17:00

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.12.7 Set Optical Filter Day

A command used to set the optical filter for day mode.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF1	0x0D	0x00	OPT_DAY	—

1. DATA1 is fixed at 0x00.
2. DATA2 sets OPT_DAY.

■OPT_DAY arguments

DATA2	Description
0x00	IRC
0x01	VLC
Other	IRC

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.12.8 Set Optical Filter Night

A command used to set the optical filter for night mode.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF1	0x0F	0x00	OPT_NIGHT	—

1. DATA1 is fixed at 0x00.
2. DATA2 sets OPT_NIGHT.

■ OPT_NIGHT arguments

DATA2	Description
0x00	CLEAR
0x01	VLC
Other	CLEAR

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.12.9 <Reserved>

5.12.10 Query DayNight Setting Ex (Query DayNight Setting Ex Response)

A command that returns extended day/night mode parameters.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF1	0x1D	—	0x00	—

1. DATA1 is the CMND2 query target (see the table below).
2. DATA2 is fixed at 0x00.

■ Receive command (Extended Response 2)

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0xF1	0x1F	—	—	—

1. RESP1 sets 0xF1.
2. RESP2 sets 0x1F.
3. DATA1 and DATA2 are set to values corresponding to the requested content (see table below).

Function	CMND2 set by send command	DATA1 *returned* to receiving command	DATA2 *returned* to receiving command	Description
Query Night Mode	0x01	0x00	0x00-0x04	*Returns* the extended day/night mode.
Query Day to Night Threshold	0x03	0x00	0x00-0xFF	The threshold brightness for switching from day to night mode.
Query Night to Day Threshold	0x05	0x00	0x00-0xFF	The threshold brightness for switching from night to day mode.
Query DayNight Auto Delay	0x07	0x00	0x00-0x3C	The delay (in seconds) for switching between day and night modes.
Query Day Start Time	0x09	0x00-0x17	0x00-0x3B	The start time (SCHEDULED and AUTO&SCHEDULED) for day mode.
Query Night Start Time	0x0B	0x00-0x17	0x00-0x3B	The start time (SCHEDULED and AUTO&SCHEDULED) for night mode.
Query Optical Filter Day	0x0D	0x00	0x00-0x01	*Returns* the optical filter for day mode.
Query Optical Filter Night	0x0F	0x00	0x00-0x01	*Returns* the optical filter for night mode.
	Others	0x00	0x00	Invalid

5.13 Original Command 10 (In-House Custom Parameter No. 10: Zoom Focus Setting Ex)

An extended command unique to this specification. The checksum (CKSM) calculation is omitted from this chapter, as we have adopted the method outlined for Pelco-D in Chapter 3. New commands have been added for fine control of zoom and focus speed parameters.

(0) Command sent:

Set the CKSM to the 8-bit sum of ADDR through DATA2.

(1) Response (General Response):

Set the CKSM to the 8-bit sum of ALARMS and the value returned for CKSM.

(2) Response (Extended Response):

Set the CKSM to the 8-bit sum of ADDR through DATA2.

(3) Response (Query Response):

Set the CKSM to the 8-bit sum of ADDR through DATA15 (*in-house custom parameter*).

(4) Response (Extended Response 2, an in-house custom parameter):

Set the CKSM to the 8-bit sum of ADDR through DATA2.

5.13.1 Set Zoom Speed Ex

A command used to set the lens zoom speed.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF1	0x25	0x00	Z_SPEED	—

1. DATA1 is fixed at 0x00.
2. DATA2 sets Z_SPEED.

■ Z_SPEED arguments (time in seconds to go from widest angle to maximum zoom)

DATA2	Description	Values for existing command (5.2.1, “Set Zoom Speed”) are now as follows
0x01	Maximum Speed	0x03
0x02	Lower speed than maximum speed	0x03
0x03	Lower speed than 0x02	0x02
0x04	Lower speed than 0x03	0x02
0x05	Lower speed than 0x04	0x01
0x06	Lower speed than 0x05	0x01
0x07	Lower speed than 0x06	0x00
0x08	Lower speed than 0x07	0x00
0x09	Lower speed than 0x08	0x00
0x0A	Minumum Speed	0x00
Other	Handled as 0x01	0x03

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.13.2 Set Focus Speed Ex

A command used to set the lens focus speed.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF1	0x27	0x00	F_SPEED	—

1. DATA1 is fixed at 0x00.
2. DATA2 sets F_SPEED.

■ F_SPEED arguments (time in seconds to go from minimum to maximum focus distance)

DATA2	Description	Values for existing command (5.2.2, “Set Focus Speed”) are now as follows
0x01	Maximum Speed	0x03
0x02	Lower speed than Maximum Speed	0x03
0x03	Lower speed than 0x02	0x02
0x04	Lower speed than 0x03	0x02
0x05	Lower speed than 0x04	0x01
0x06	Lower speed than 0x05	0x01
0x07	Lower speed than 0x06	0x00
0x08	Lower speed than 0x07	0x00
0x09	Lower speed than 0x08	0x00
0x0A	Minimum Speed	0x00
Other	Handled as 0x01	0x03

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.13.3 Set Digital Zoom Ex

A command used to set the zoom ratio for digital zoom.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF1	0x21	0x00	DZ_MAG	—

1. DATA1 is fixed at 0x00.
2. DATA2 sets DZ_MAG.

■ DZ_MAG arguments

DATA2	Description	Notes
0x00	1.25×	Digital zoom is enabled and disabled via the existing command (F0 37).
0x01	1.50×	Ditto
0x02	1.75×	Ditto
0x03	2.00×	Ditto
Other	Handled as 0x00	Ditto

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.13.4 Query Zoom Focus Speed Setting Ex (Query Zoom Focus Setting Ex Response)

A command that returns the 10-step parameters for zoom/focus.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF1	0x2D	—	0x00	—

1. DATA1 queries the setting for CMND2 (see table below).
2. DATA2 is fixed at 0x00.

■ Receive command (Extended Response 2)

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0xF1	0x2F	—	—	—

- RESP1 sets 0xF1.
- RESP2 sets 0x2F.
- DATA1 and DATA2 are set to values corresponding to the requested content (see table below).

Function	CMND2 set by send command	DATA1 *returned* to receiving command	DATA2 *returned* to receiving command	Description
Query Digital Zoom Ex	0x21	0x00	0x00-0x03	Zoom ratio for digital zoom
Query Zoom Speed Ex	0x25	0x00	0x01-0x0A	Lens zoom speed
Query Focus Speed Ex	0x27	0x00	0x01-0x0A	Lens focus speed
	Other			Invalid

5.14 Original Command11

(0) Command sent:

Set the CKSM to the 8-bit sum of ADDR through DATA2.

(1) Response (General Response):

Set the CKSM to the 8-bit sum of ALARMS and the value returned for CKSM.

(2) Response (Extended Response):

Set the CKSM to the 8-bit sum of ADDR through DATA2.

(3) Response (Query Response):

Set the CKSM to the 8-bit sum of ADDR through DATA15 (*in-house custom parameter*).

(4) Response (Extended Response 2, an in-house custom parameter):

Set the CKSM to the 8-bit sum of ADDR through DATA2.

5.14.1 Set Focus Area Select

A command used to set the Fcus Area Select

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF2	0x01	0x00	Parm1	—

1. DATA1 is fixed at 0x00.
2. DATA2 sets Parm1

■ Parm1 arguments

DATA2	Description	Notes
0x00	Fixed center	
0x01	Handled as 0x00	Reserved
0x02	Aera Select (5X9)	
Other	Handled as 0x00	

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.14.2 Set Focus Area Position

A command used to set the Fcus Area Position

Caution: “Set Focus Area Position”, “Set Focus Area Start Position”, and “Set Focus Area End Position” are set the following steps.

1 Start the Focus Area Position setting

2 Set the Focus Area Start Position

3 Set the Focus Aera End Position

4 Fixed Focus Area Position setting

If other commands are used during the position setting, this process is invalided.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF2	0x03	0x00	Parm1	—

1．DATA1 is fixed at 0x00.

2．DATA2 sets Parm1

■ Parm1 arguments

DATA2	Description	Notes
0x00	Start the Area Position setting	
0x01	Fixed Area Position setting	

■ Receive command (Extended Response)

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	RESP1	RESP2	DATA1	DATA2	CKSM
	0xFF	—	0xF2	0x03	0x00	Parm2	—

1．DATA1 is fixed at 0x00.

2．DATA2 as follows,

■ Parm2 arguments

DATA2(bit)	Description	Notes
0	Completed succesfull	
1	Position Setting Error	
Other	Handled as 0x00	

5.14.3 Set Focus Area Start Position

A command used to set the Fcus Area Start Position

Caution: “Set Focus Area Position”, “Set Focus Area Start Position”, and “Set Focus Area End Position” are set the following steps.

1 Start the Focus Area Position setting

2 Set the Focus Area Start Position

3 Set the Focus Aera End Position

4 Fixed Focus Area Position setting

If other commands are used during the position setting, this process is invalided.

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF2	0x05	X coordinate	Y coordinate	—

●DATA1 and DATA2 are as follows

■ DATA1 and DATA2 arguments

DATA1	Description	Notes
0x00 To 0x12	Set the position of Left Upper Side of rectangle shape	Horizontal axis (0 to 5) In case of using more than 5, setting number is 5 as maximum divide number.
Other	Handled as 0x00	

DATA2	Description	Notes
0x00 To 0x12	Set the position of Left Upper Side of rectangle shape	Vertical axis (0 to 9) In case of using more than 9, setting number is 9 as maximum divide number.
Other	Handled as 0x00	

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.14.4 Set Focus Area End Position

A command used to set the Fcus Area End Position
Caution: “Set Focus Area Position”, “Set Focus Area Start Position”, and “Set Focus Area End Position” are set the following steps.
1 Start the Focus Area Position setting
2 Set the Focus Area Start Position
3 Set the Focus Aera End Position
4 Fixed Focus Area Position setting
If other commands are used during the position setting, this process is invalided.

■ DATA1 and DATA2 arguments

DATA1	Description	Notes
0x00 To 0x12	Set the position of Right Lower Side of rectangle shape	Horizontal axis (0 to 5) In case of using more than 5, setting number is 5 as maximum divide number.
Other	Handled as 0x00	

DATA2	Description	Notes
0x00 To 0x12	Set the position of Right Lower Side of rectangle shape	Vertical axis (0 to 9) In case of using more than 9, setting number is 9 as maximum divide number.
Other	Handled as 0x00	

■ Receive command

Byte	1	2	3	4
	SYNC	ADDR	ALARMS	CKSM
	0xFF	—	0x00	—

5.14.5 Query Focus Area Setting

A command that returns Focus Area Setting

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF2	0x09	0x00	0x00	—

●DATA1 and DATA2 are fixed at 0x00.

■ Receive command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF2	0x09	0x00	Parm1	—

●DATA2 as following table

■ DATA2 arguments

DATA2	Description	Notes
0x00	Center	
1	Area Select (5X9)	
Other	Handled as 0x00	

5.14.6 Query Focus Area Position

A command that returns Focus Area Position

■ Send command

Byte	1	2	3	4	5	6	7
	SYNC	ADDR	CMND1	CMND2	DATA1	DATA2	CKSM
	0xFF	—	0xF2	0x08	0x00	0x00	—

●DATA1 and DATA2 are fixed at 0x00.

■ Receive command (Query Response)

Byte	1	2	3	~	17	18
	SYNC	ADDR	DATA1		DATA15	CKSM
	0xFF	—	Parm1		Parm15	—

●DATA1 to Data17 as following table

■DATA2 arguments

DATA1 to DATA17	Description	Notes
Parm1	Left Upper Side	Horizontal
Parm2	Left Upper Side	Vertical
Parm3	Right Lower Side	Horizontal
Parm4	Right Lower Side	Vertical
Parm5 to 15	Reserved	Fixed at 0x00

EOD

Appendix

Appendix 1. Table of ZOOM Position vs Focal length for SX1600 FW Ver.1.0

Lens			Field of View			Digital ZOOM : OFF					Digital ZOOM : x1.25			
						Pelco (SX1600) : Set Zoom Position (0x00,0x4F) Query Zoom Position (0x00,0x83)			ONVIF (SX1600) Zoom control		Pelco (SX1600) : Set Zoom Position (0x00,0x4F) Query Zoom Position (0x00,0x83)			ONVIF (SX1600) Zoom control *
Motor Pulse	Focal Length		Vertical	Horizontal	Diagonal	CGI (SX1600) : SetAbsoluteZoomPosition GetAbsoluteZoomPosition		CGI (SX1600) : SetZoomControl GetZoomControl			CGI (SX1600) : SetAbsoluteZoomPosition GetAbsoluteZoomPosition		CGI (SX1600) : SetZoomControl GetZoomControl	
Steps	[mm]		[degree]			[DEC]	[HEX]	[DEC]	[DEC]		[DEC]	[HEX]	[DEC]	[DEC]
1	20.0	1.00	11.850	21.010	24.080	0	0	1	0.000	1.00	0	0	1	0.000
2	20.5	1.24	11.590	20.550	23.550	336	150		0.005	1.24	269	10D		0.004
3	20.9	1.48	11.340	20.090	23.030	672	2A0		0.010	1.48	538	21A		0.008
4	21.4	1.70	11.100	19.660	22.530	991	3DF		0.015	1.70	793	319		0.012
5	21.9	1.94	10.850	19.220	22.030	1328	530		0.020	1.94	1062	426		0.016
6	22.4	2.19	10.600	18.770	21.510	1680	690	2	0.026	2.19	1344	540	2	0.021
7	22.9	2.43	10.360	18.360	21.030	2016	7E0		0.031	2.43	1613	64D		0.025
8	23.4	2.66	10.140	17.950	20.560	2353	931		0.036	2.66	1882	75A		0.029
9	23.9	2.89	9.920	17.570	20.130	2672	A70		0.041	2.89	2137	859		0.033
10	24.4	3.13	9.710	17.190	19.690	3008	BC0		0.046	3.13	2406	966		0.037
11	25.0	3.38	9.480	16.790	19.230	3361	D21	3	0.051	3.38	2689	A81	3	0.041
12	25.6	3.61	9.270	16.420	18.810	3697	E71		0.056	3.61	2957	B8D		0.045
13	26.2	3.85	9.070	16.050	18.390	4033	FC1		0.062	3.85	3226	C9A		0.049
14	26.7	4.08	8.880	15.720	18.000	4352	1100		0.066	4.08	3482	D9A		0.053
15	27.4	4.31	8.680	15.370	17.610	4688	1250		0.072	4.31	3751	EA7		0.057
16	28.0	4.56	8.480	15.020	17.200	5041	13B1	4	0.077	4.56	4033	FC1	4	0.062
17	28.7	4.80	8.300	14.690	16.820	5377	1501		0.082	4.80	4302	10CE		0.066
18	29.3	5.04	8.120	14.360	16.450	5713	1651		0.087	5.04	4571	11DB		0.070
19	29.9	5.26	7.950	14.060	16.100	6033	1791		0.092	5.26	4826	12DA		0.074
20	30.6	5.50	7.770	13.750	15.750	6369	18E1		0.097	5.50	5095	13E7		0.078
21	31.4	5.75	7.590	13.440	15.390	6722	1A42	5	0.103	5.75	5377	1501	5	0.082
22	32.1	5.99	7.420	13.140	15.050	7058	1B92		0.108	5.99	5646	160E		0.086
23	32.8	6.23	7.260	12.850	14.720	7394	1CE2		0.113	6.23	5915	171B		0.090
24	33.5	6.45	7.110	12.580	14.410	7713	1E21		0.118	6.45	6170	181A		0.094
25	34.3	6.69	6.950	12.310	14.090	8049	1F71		0.123	6.69	6439	1927		0.098
26	35.1	6.94	6.790	12.020	13.770	8402	20D2	6	0.128	6.94	6722	1A42	6	0.103
27	35.9	7.18	6.640	11.760	13.470	8738	2222		0.133	7.18	6990	1B4E		0.107
28	36.7	7.41	6.500	11.500	13.170	9074	2372		0.138	7.41	7259	1C5B		0.111
29	37.5	7.64	6.360	11.260	12.900	9393	2481		0.143	7.64	7515	1D5B		0.115
30	38.4	7.88	6.220	11.010	12.610	9729	2601		0.148	7.88	7784	1E68		0.119
31	39.3	8.13	6.080	10.760	12.320	10082	2762	7	0.154	8.13	8066	1F82	7	0.123
32	40.2	8.36	5.950	10.520	12.050	10418	28B2		0.159	8.37	8335	208F		0.127
33	41.1	8.60	5.820	10.290	11.790	10754	2A02		0.164	8.60	8604	219C		0.131
34	42.0	8.83	5.690	10.080	11.540	11074	2B42		0.169	8.83	8859	229B		0.135
35	42.9	9.07	5.570	9.860	11.290	11410	2C92		0.174	9.07	9128	23A8		0.139
36	43.9	9.32	5.440	9.630	11.030	11763	2DF3	8	0.179	9.32	9410	24C2	8	0.144
37	44.9	9.55	5.320	9.420	10.790	12099	2F43		0.185	9.55	9679	25CF		0.148
38	45.9	9.79	5.200	9.210	10.550	12435	3093		0.190	9.79	9948	26DC		0.152
39	46.9	10.02	5.090	9.020	10.330	12754	31D2		0.195	10.02	10203	27DB		0.156
40	48.0	10.25	4.980	8.820	10.100	13090	3322		0.200	10.25	10472	28E8		0.160
41	49.1	10.50	4.870	8.620	9.870	13443	3483	9	0.205	10.50	10754	2A02	9	0.164
42	50.3	10.74	4.760	8.430	9.660	13779	35D3		0.210	10.74	11023	2B0F		0.168
43	51.4	10.98	4.660	8.240	9.440	14115	3723		0.215	10.98	11292	2C1C		0.172
44	52.5	11.20	4.560	8.070	9.250	14435	3863		0.220	11.20	11548	2D1C		0.176
45	53.7	11.44	4.460	7.890	9.040	14771	39B3		0.225	11.44	11816	2E28		0.180
46	55.0	11.69	4.360	7.710	8.840	15123	3B13	10	0.231	11.69	12099	2F43	10	0.185
47	56.2	11.93	4.260	7.540	8.640	15460	3C64		0.236	11.93	12368	3050		0.189
48	57.5	12.17	4.170	7.380	8.450	15796	3DB4		0.241	12.17	12636	315C		0.193
49	58.8	12.39	4.080	7.220	8.280	16115	3EF3		0.246	12.39	12892	325C		0.197
50	60.1	12.63	3.990	7.070	8.090	16451	4043		0.251	12.63	13161	3369		0.201
51	61.5	12.88	3.900	6.900	7.910	16804	41A4	11	0.256	12.88	13443	3483	11	0.205
52	62.9	13.12	3.810	6.750	7.740	17140	42F4		0.262	13.12	13712	3590		0.209
53	64.4	13.35	3.730	6.600	7.570	17476	4444		0.267	13.35	13981	369D		0.213
54	65.8	13.58	3.650	6.470	7.410	17795	4583		0.272	13.58	14236	379C		0.217
55	67.2	13.82	3.570	6.320	7.250	18131	46D3		0.277	13.82	14505	38A9		0.221
56	68.8	14.07	3.490	6.180	7.080	18484	4834	12	0.282	14.07	14787	39C3	12	0.226
57	70.4	14.30	3.410	6.040	6.920	18820	4984		0.287	14.30	15056	3AD0		0.230
58	72.0	14.54	3.340	5.910	6.770	19156	4AD4		0.292	14.54	15325	3BDD		0.234
59	73.6	14.77	3.270	5.790	6.630	19476	4C14		0.297	14.77	15581	3CDD		0.238
60	75.2	15.01	3.200	5.660	6.480	19812	4D64		0.302	15.01	15849	3DE9		0.242
61	77.0	15.26	3.120	5.530	6.340	20165	4EC5	13	0.308	15.26	16132	3F04	13	0.246
62	78.8	15.49	3.050	5.410	6.200	20501	5015		0.313	15.49	16401	4011		0.250
63	80.6	15.73	2.990	5.290	6.060	20837	5165		0.318	15.73	16669	411D		0.254
64	82.3	15.96	2.920	5.180	5.930	21156	52A4		0.323	15.96	16925	421D		0.258
65	84.2	16.19	2.860	5.060	5.800	21492	53F4		0.328	16.19	17194	432A		0.262
66	86.2	16.44	2.790	4.950	5.670	21845	5555	14	0.333	16.44	17476	4444	14	0.267
67	88.2	16.68	2.730	4.840	5.550	22181	56A5		0.338	16.68	17745	4551		0.271
68	90.2	16.92	2.670	4.730	5.420	22517	57F5		0.344	16.92	18014	465E		0.275
69	92.1	17.14	2.620	4.630	5.310	22836	5934		0.348	17.14	18269	475D		0.279
70	94.2	17.38	2.560	4.530	5.190	23173	5A85		0.354	17.38	18538	486A		0.283
71	96.4	17.63	2.500	4.430	5.070	23525	5BE5	15	0.359	17.63	18820	4984	15	0.287
72	98.6	17.87	2.440	4.330	4.960	23861	5D35		0.364	17.87	19089	4A91		0.291
73	100.9	18.11	2.390	4.240	4.850	24198	5E86		0.369	18.11	19358	4B9E		0.295
74	103.1	18.33	2.340	4.150	4.750	24517	5FC5		0.374	18.33	19613	4C9D		0.299
75	105.4	18.57	2.290	4.060	4.650	24853	6115		0.379	18.57	19882	4DAA		0.303
76	107.9	18.82	2.240	3.960	4.540	25206	6276	16	0.385	18.82	20165	4EC5	16	0.308
77	110.4	19.06	2.190	3.880	4.440	25542	63C6		0.390	19.06	20433	4FD1		0.312
78	112.9	19.29	2.140	3.790	4.340	25878	6516		0.395	19.29	20702	50DE		0.316
79	115.3	19.52	2.100	3.710	4.250	26197	6655		0.400	19.52	20958	51DE		0.320
80	117.9	19.76	2.050	3.630	4.160	26533	67A5		0.405	19.76	21227	52EB		0.324
81	120.7	20.01	2.000	3.550	4.060	26886	6906	17	0.410	20.01	21509	5405	17	0.328
82	123.5	20.24	1.960	3.470	3.970	27222	6A56		0.415	20.24	21778	5512		0.332
83	126.3	20.48	1.910	3.390	3.890	27558	6BA6		0.421	20.48	22047	561F		0.336
84	129.0	20.71	1.870	3.320	3.810	27878	6CE6		0.425	20.71	22302	571E		0.340
85	132.0	20.95	1.830	3.250	3.720	28214	6E36		0.431	20.95	22571	582B		0.344
86	135.1	21.19	1.790	3.170	3.640	28567	6F97	18	0.436	21.19	22853	5945	18	0.349
87	138.2	21.43	1.750	3.100	3.560	28903	70E7		0.441	21.43	23122	5A52		0.353
88	141.3	21.67	1.710	3.040	3.480	29239	7237		0.446	21.67	23391	5B5F		0.357
89	144.4	21.90	1.680	2.970	3.410	29558	7376		0.451	21.90	23646	5C5E		0.361
90	147.6	22.13	1.640	2.910	3.330	29894	74C6		0.456	22.13	23915	5D6B		0.365
91	151.2	22.38	1.600	2.840	3.250	30247	7627	19	0.462	22.38	24198	5E86	19	0.369
92	154.6	22.62	1.570	2.780	3.180	30583	7777		0.467	22.62	24466	5F92		0.373
93	158.1	22.86	1.530	2.720	3.110	30919	78C7		0.472	22.86	24735	609F		0.377
94	161.5	23.08	1.500	2.660	3.050	31238	7A06		0.477	23.08	24991	619F		0.381
95	165.2	23.32	1.470	2.600	2.980	31574	7B56		0.482	23.32	25260	62AC		0.385
96	169.1	23.57	1.430	2.540	2.910	31927	7CB7	20	0.487	23.57	25542	63C6	20	0.390
97	173.0	23.81	1.400	2.490	2.850	32263	7E07		0.492	23.81	25811	64D3		0.394
98	176.9	24.05	1.370	2.430	2.790	32599	7F57		0.497	24.05	26080	65E0		0.398
99	180.7	24.27	1.340	2.380	2.730	32919	8097		0.502	24.27	26335	66DF		0.402
100	184.9	24.51	1.310	2.330	2.670	33255	81E7		0.507	24.51	26604	67EC		0.406
101	189.3	24.76	1.280	2.270	2.610	33608	8348	21	0.513	24.76	26886	6906	21	0.410
102	193.6	25.00	1.260	2.220	2.550	33944	8498		0.518	25.00	27155	6A13		0.414
103	198.0	25.23	1.230	2.180	2.490	34280	85E8		0.523	25.23	27424	6B20		0.418
104	202.2	25.46	1.200	2.130	2.440	34599	8727		0.528	25.46	27679	6C1F		0.422
105	206.8	25.70	1.180	2.080	2.390	34935	8877		0.533	25.70	27948	6D2C		0.426
106	211.8	25.95	1.150	2.030	2.330	35288	89D8	22	0.538	25.95	28230	6E46	22	0.431
107	216.6	26.18	1.120	1.990	2.280	35624	8B28		0.544	26.18	28499	6F53		0.435
108	221.5	26.42	1.100	1.950	2.230	35960	8C78		0.549	26.42	28768	7060		0.439
109	226.3	26.65	1.080	1.910	2.180	36280	8DB8		0.554	26.65	29024	7160		0.443
110	231.4	26.88	1.050	1.860	2.140	36616	8F08		0.559	26.88	29292	726C		0.447
111	236.9	27.13	1.030	1.820	2.090	36968	9068	23	0.564	27.13	29575	7387	23	0.451
112	242.3	27.37	1.010	1.780	2.040	37305	91B9		0.569	27.37	29844	7494		0.455
113	247.8	27.61	0.980	1.740	2.000	37641	9309		0.574	27.61	30112	75A0		0.459
114	253.2	27.84	0.960	1.710	1.950	37960	9448		0.579	27.84	30368	76A0		0.463
115	258.9	28.07	0.940	1.670	1.910	38296	9598		0.584	28.07	30637	77AD		0.467
116	265.1	28.32	0.920	1.630	1.870	38649	96F9	24	0.590	28.32	30919	78C7	24	0.472
117	271.2	28.56	0.900	1.590	1.830	38985	9849		0.595	28.56	31188	79D4		0.476
118	277.3	28.80	0.880	1.560	1.790	39321	9999		0.600	28.80	31457	7AE1		0.480
119	283.3	29.02	0.860	1.530	1.750	39640	9AD8		0.605	29.02	31712	7BE0		0.484
120	289.7	29.26	0.840	1.490	1.710	39976	9C28		0.610	29.26	31981	7CED		0.488
121	296.6	29.51	0.820	1.460	1.670	40329	9D89	25	0.615	29.51	32263	7E07	25	0.492
122	303.4	29.75	0.800	1.430	1.630	40665	9ED9		0.621	29.75	32532	7F14		0.496
123	310.3	29.98	0.790	1.390	1.600	41001	A029		0.626	29.99	32801	8021		0.501
124	317.0	30.21	0.770	1.370	1.560	41321	A169		0.631	30.21	33057	8121		0.504
125	324.2	30.45	0.750	1.340	1.530	41657	A2B9		0.636	30.45	33325	822D		0.509
126	331.9	30.70	0.740	1.300	1.500	42010	A41A	26	0.641	30.70	33608	8348	26	0.513
127	339.5	30.94	0.720	1.280	1.460	42346	A56A		0.646	30.94	33877	8455		0.517
128	347.2	31.17	0.700	1.250	1.430	42682	A6BA		0.651	31.17	34145	8561		0.521
129	354.7	31.40	0.690	1.220	1.400	43001	A7F9		0.656	31.40	34401	8661		0.525
130	362.7	31.64	0.670	1.190	1.370	43337	A949		0.661	31.64	34670	876E		0.529
131	371.4	31.89	0.660	1.170	1.340	43690	AAAA	27	0.667	31.89	34952	8888	27	0.533
132	379.8	32.12	0.640	1.140	1.310	44026	ABFA		0.672	32.12	35221	8995		0.537
133	388.4	32.36	0.630	1.120	1.280	44362	AD4A		0.677	32.36	35490	8AA2		0.542
134	396.8	32.59	0.620	1.090	1.250	44681	AE89		0.682	32.59	35745	8BA1		0.545
135	405.9	32.82	0.600	1.070	1.230	45018	AFDA		0.687	32.82	36014	8CAE		0.550
136	415.5	33.07	0.590	1.040	1.200	45370	B13A	28	0.692	33.07	36296	8DC8	28	0.554
137	425.0	33.31	0.580	1.020	1.170	45706	B28A		0.697	33.31	36565	8ED5		0.558
138	434.7	33.55	0.560	1.000	1.150	46043	B3DB		0.703	33.55	36834	8FE2		0.562
139	444.0	33.77	0.550	0.980	1.120	46362	B51A		0.707	33.77	37089	90E1		0.566
140	454.1	34.01	0.540	0.960	1.100	46698	B66A		0.713	34.01	37358	91EE		0.570
141	465.0	34.26	0.530	0.930	1.070	47051	B7CB	29	0.718	34.26	37641	9309	29	0.574
142	475.5	34.50	0.520	0.910	1.050	47387	B91B		0.723	34.50	37909	9415		0.578
143	486.4	34.74	0.500	0.890	1.020	47723	BABB		0.728	34.74	38178	9522		0.583
144	496.8	34.96	0.490	0.880	1.000	48042	BBAA		0.733	34.96	38434	9622		0.586
145	508.1	35.20	0.480	0.860	0.980	48378	BCFA		0.738	35.20	38703	972F		0.591
146	520.3	35.45	0.470	0.840	0.960	48731	BE5B	30	0.744	35.45	38985	9849	30	0.595
147	532.1	35.69	0.460	0.820	0.940	49067	BFAB		0.749	35.69	39254	9956		0.599
148	544.2	35.92	0.450	0.800	0.920	49403	C0FB		0.754	35.93	39523	9A63		0.603
149	555.9	36.15	0.440	0.780	0.900	49723	C23B		0.759	36.15	39778	9B62		0.607
150	568.5	36.39	0.430	0.770	0.880	50059	C38B		0.764	36.39	40047	9C6F		0.611
151	582.1	36.64	0.420	0.750	0.860	50412	C4EC	31	0.769	36.64	40329	9D89	31	0.615
152	595.3	36.88	0.410	0.730	0.840	50748	C63C		0.774	36.88	40598	9E96		0.619
153	608.9	37.11	0.400	0.720	0.820	51084	C78C		0.779	37.11	40867	9FA3		0.624
154	622.0	37.34	0.400	0.700	0.800	51403	C8CB		0.784	37.34	41122	A0A2		0.627
155	636.2	37.58	0.390	0.690	0.790	51739	CA1B		0.789	37.58	41391	A1AF		0.632
156	651.3	37.83	0.380	0.670	0.770	52092	CB7C	32	0.795	37.83	41674	A2CA	32	0.636
157	666.1	38.06	0.370	0.650	0.750	52428	CCCC		0.800	38.06	41942	A3D6		0.640

158	681.2	38.30	0.360	0.640	0.730
159	695.8	38.53	0.350	0.630	0.720
160	711.6	38.76	0.350	0.610	0.700
161	728.7	39.01	0.340	0.600	0.690
162	745.4	39.25	0.330	0.590	0.670
163	762.5	39.49	0.320	0.570	0.660
164	779.0	39.71	0.320	0.560	0.640
165	796.5	39.95	0.310	0.550	0.630
166	822.1	1.03	0.300	0.532	0.609
167	848.0	1.06	0.291	0.516	0.591
168	873.9	1.09	0.282	0.500	0.574
169	898.6	1.12	0.275	0.487	0.558
170	924.5	1.16	0.267	0.473	0.542
171	951.7	1.19	0.259	0.460	0.527
172	977.6	1.22	0.253	0.448	0.513
173	1,003.6	1.25	0.246	0.436	0.500
174	1,028.2	1.29	0.240	0.426	0.488
175	1,054.2	1.32	0.234	0.415	0.476
176	1,081.3	1.35	0.228	0.405	0.464
177	1,107.3	1.38	0.223	0.396	0.454
178	1,133.2	1.42	0.218	0.387	0.443
179	1,157.9	1.45	0.213	0.378	0.434
180	1,183.8	1.48	0.209	0.370	0.424
181	1,211.0	1.51	0.204	0.362	0.415
182	1,236.9	1.55	0.200	0.354	0.406
183	1,263.0	1.58	0.196	0.347	0.398
184	1,287.5	1.61	0.192	0.341	0.390
185	1,313.4	1.64	0.188	0.334	0.383
186	1,340.7	1.68	0.184	0.327	0.375
187	1,366.7	1.71	0.181	0.321	0.368
188	1,392.6	1.74	0.177	0.315	0.361
189	1,417.1	1.77	0.174	0.310	0.355
190	1,443.1	1.80	0.171	0.304	0.349
191	1,470.4	1.84	0.168	0.298	0.342
192	1,496.3	1.87	0.165	0.293	0.336
193	1,522.2	1.90	0.162	0.288	0.331
194	1,546.9	1.93	0.160	0.284	0.325
195	1,572.8	1.97	0.157	0.279	0.320
196	1,600.0	2.00	0.154	0.274	0.315
197	1,615.4		0.153	0.272	0.312
198	1,630.8		0.152	0.269	0.309
199	1,646.2		0.150	0.267	0.306
200	1,661.6		0.149	0.264	0.303
201	1,676.9		0.147	0.262	0.300
202	1,692.3		0.146	0.259	0.297
203	1,707.7		0.145	0.257	0.295
204	1,723.1		0.143	0.255	0.292
205	1,738.5		0.142	0.252	0.290
206	1,753.9		0.141	0.250	0.287
207	1,769.3		0.140	0.248	0.285
208	1,784.6		0.138	0.246	0.282
209	1,800.0		0.137	0.244	0.280
210	1,815.4		0.136	0.242	0.277
211	1,830.8		0.135	0.240	0.275
212	1,846.2		0.134	0.238	0.273
213	1,861.5		0.133	0.236	0.270
214	1,877.0		0.132	0.234	0.268
215	1,892.3		0.131	0.232	0.266
216	1,907.7		0.130	0.230	0.264
217	1,923.1		0.129	0.228	0.262
218	1,938.5		0.127	0.226	0.260
219	1,953.9		0.126	0.225	0.258
220	1,969.2		0.126	0.223	0.256
221	1,984.6		0.125	0.221	0.254
222	2,000.0		0.124	0.220	0.252

52764	CE1C		0.805
53083	CF5B		0.810
53419	D0AB		0.815
53772	D20C	33	0.821
54108	D35C		0.826
54444	D4AC		0.831
54764	D5EC		0.836
55100	D73C		0.841
55453	D89D	34	0.846
55789	D9ED		0.851
56125	DB3D		0.856
56444	DC7C		0.861
56780	DDCC		0.866
57133	DF2D	35	0.872
57469	E07D		0.877
57805	E1CD		0.882
58125	E30D		0.887
58461	E45D		0.892
58813	E5BD	36	0.897
59150	E70E		0.903
59486	E85E		0.908
59805	E99D		0.913
60141	EAED		0.918
60494	EC4E	37	0.923
60830	ED9E		0.928
61166	EEEE		0.933
61485	F02D		0.938
61821	F17D		0.943
62174	F2DE	38	0.949
62510	F42E		0.954
62846	F57E		0.959
63166	F6BE		0.964
63502	F80E		0.969
63855	F96F	39	0.974
64191	FABF		0.979
64527	FC0F		0.985
64846	FD4E		0.989
65182	FE9E		0.995
65535	FFFF	40	1.000

38.30	42211	A4E3		0.644
38.53	42467	A5E3		0.648
38.76	42736	A6F0		0.652
39.01	43018	A80A	33	0.656
39.25	43287	A917		0.661
39.49	43556	AA24		0.665
39.71	43811	AB23		0.669
39.95	44080	AC30		0.673
1.03	44362	AD4A	34	0.677
1.06	44631	AE57		0.681
1.09	44900	AF64		0.685
1.12	45155	B063		0.689
1.16	45424	B170		0.693
1.19	45706	B28A	35	0.697
1.22	45975	B397		0.702
1.25	46244	B4A4		0.706
1.29	46500	B5A4		0.710
1.32	46768	B6B0		0.714
1.35	47051	B7CB	36	0.718
1.38	47320	B8D8		0.722
1.42	47588	B9E4		0.726
1.45	47844	BAE4		0.730
1.48	48113	BBF1		0.734
1.51	48395	BD0B	37	0.738
1.55	48664	BE18		0.743
1.58	48933	BF25		0.747
1.61	49188	C024		0.751
1.64	49457	C131		0.755
1.68	49739	C24B	38	0.759
1.71	50008	C358		0.763
1.74	50277	C465		0.767
1.77	50533	C565		0.771
1.80	50801	C671		0.775
1.84	51084	C78C	39	0.779
1.87	51353	C899		0.784
1.90	51621	C9A5		0.788
1.93	51877	CAA5		0.792
1.97	52146	CBB2		0.796
2.00	52428	CCCC	40	0.800
2.02	52933	CEC5		0.808
2.04	53437	D0BD		0.815
2.06	53941	D2B5	41	0.823
2.08	54445	D4AD		0.831
2.10	54949	D6A5	42	0.838
2.12	55453	D89D		0.846
2.13	55957	DA95		0.854
2.15	56461	DC8D	43	0.862
2.17	56966	DE86		0.869
2.19	57470	E07E	44	0.877
2.21	57974	E276		0.885
2.23	58478	E46E		0.892
2.25	58982	E666	45	0.900
2.27	59486	E85E		0.908
2.29	59990	EA56	46	0.915
2.31	60494	EC4E		0.923
2.33	60998	EE46		0.931
2.35	61503	F03F	47	0.938
2.37	62007	F237		0.946
2.38	62511	F42F	48	0.954
2.40	63015	F627		0.962
2.42	63519	F81F		0.969
2.44	64023	FA17	49	0.977
2.46	64527	FC0F		0.985
2.48	65031	FE07		0.992
2.50	65535	FFFF	50	1.000

* Note

Lens			Field of View			Digital ZOOM : x2.00			
						Pelco (SX1600) : Set Zoom Position (0x00,0x4F) Query Zoom Position (0x00,0x83)			ONVIF (SX1600) Zoom control *
Motor Pulse	Focal Length		Vertical	Horizontal	Diagonal	CGI (SX1600) : SetAbsoluteZoomPosition GetAbsoluteZoomPosition		CGI (SX1600) : SetZoomControl GetZoomControl	
Steps	[mm]			[degree]		[DEC]	[HEX]	[DEC]	[DEC]
1	20.0	1.00	11.850	21.010	24.080	0	0	1	0.000
2	20.5	1.24	11.590	20.550	23.550	168	A8		0.003
3	20.9	1.48	11.340	20.090	23.030	336	150		0.005
4	21.4	1.70	11.100	19.660	22.530	496	1F0		0.008
5	21.9	1.94	10.850	19.220	22.030	664	298		0.010
6	22.4	2.19	10.600	18.770	21.510	840	348	2	0.013
7	22.9	2.43	10.360	18.360	21.030	1008	3F0		0.015
8	23.4	2.66	10.140	17.950	20.560	1176	498		0.018
9	23.9	2.89	9.920	17.570	20.130	1336	538		0.020
10	24.4	3.13	9.710	17.190	19.690	1504	5E0		0.023
11	25.0	3.38	9.480	16.790	19.230	1680	690	3	0.026
12	25.6	3.61	9.270	16.420	18.810	1848	738		0.028
13	26.2	3.85	9.070	16.050	18.390	2016	7E0		0.031
14	26.7	4.08	8.880	15.720	18.000	2176	880		0.033
15	27.4	4.31	8.680	15.370	17.610	2344	928		0.036
16	28.0	4.56	8.480	15.020	17.200	2521	9D9	4	0.038
17	28.7	4.80	8.300	14.690	16.820	2689	A81		0.041
18	29.3	5.04	8.120	14.360	16.450	2857	B29		0.044
19	29.9	5.26	7.950	14.060	16.100	3016	BC8		0.046
20	30.6	5.50	7.770	13.750	15.750	3184	C70		0.049
21	31.4	5.75	7.590	13.440	15.390	3361	D21	5	0.051
22	32.1	5.99	7.420	13.140	15.050	3529	D09		0.054
23	32.8	6.23	7.260	12.850	14.720	3697	E71		0.056
24	33.5	6.45	7.110	12.580	14.410	3856	F10		0.059
25	34.3	6.69	6.950	12.310	14.090	4024	FB8		0.061
26	35.1	6.94	6.790	12.020	13.770	4201	1069	6	0.064
27	35.9	7.18	6.640	11.760	13.470	4369	1111		0.067
28	36.7	7.41	6.500	11.500	13.170	4537	11B9		0.069
29	37.5	7.64	6.360	11.260	12.900	4697	1259		0.072
30	38.4	7.88	6.220	11.010	12.610	4865	1301		0.074
31	39.3	8.13	6.080	10.760	12.320	5041	13B1	7	0.077
32	40.2	8.37	5.950	10.520	12.050	5209	1459		0.079
33	41.1	8.60	5.820	10.290	11.790	5377	1501		0.082
34	42.0	8.83	5.690	10.080	11.540	5537	15A1		0.084
35	42.9	9.07	5.570	9.860	11.290	5705	1649		0.087
36	43.9	9.32	5.440	9.630	11.030	5881	16F9	8	0.090
37	44.9	9.55	5.320	9.420	10.790	6049	17A1		0.092
38	45.9	9.79	5.200	9.210	10.550	6217	1849		0.095
39	46.9	10.02	5.090	9.020	10.330	6377	18E9		0.097
40	48.0	10.25	4.980	8.820	10.100	6545	1991		0.100
41	49.1	10.50	4.870	8.620	9.870	6721	1A41	9	0.103
42	50.3	10.74	4.760	8.430	9.660	6889	1AE9		0.105
43	51.4	10.98	4.660	8.240	9.440	7058	1B92		0.108
44	52.5	11.20	4.560	8.070	9.250	7217	1C31		0.110
45	53.7	11.44	4.460	7.890	9.040	7385	1CD9		0.113
46	55.0	11.69	4.360	7.710	8.840	7562	1D8A	10	0.115
47	56.2	11.93	4.260	7.540	8.640	7730	1E32		0.118
48	57.5	12.17	4.170	7.380	8.450	7898	1EDA		0.121
49	58.8	12.39	4.080	7.220	8.280	8057	1F79		0.123
50	60.1	12.63	3.990	7.070	8.090	8225	2021		0.126
51	61.5	12.88	3.900	6.900	7.910	8402	20D2	11	0.128
52	62.9	13.12	3.810	6.750	7.740	8570	217A		0.131
53	64.4	13.35	3.730	6.600	7.570	8738	2222		0.133
54	65.8	13.58	3.650	6.470	7.410	8898	22C2		0.136
55	67.2	13.82	3.570	6.320	7.250	9066	236A		0.138
56	68.8	14.07	3.490	6.180	7.080	9242	241A	12	0.141
57	70.4	14.30	3.410	6.040	6.920	9410	24C2		0.144
58	72.0	14.54	3.340	5.910	6.770	9578	256A		0.146
59	73.6	14.77	3.270	5.790	6.630	9738	260A		0.149
60	75.2	15.01	3.200	5.660	6.480	9906	26B2		0.151
61	77.0	15.26	3.120	5.530	6.340	10082	2762	13	0.154
62	78.8	15.49	3.050	5.410	6.200	10250	280A		0.156
63	80.6	15.73	2.990	5.290	6.060	10418	28B2		0.159
64	82.3	15.96	2.920	5.180	5.930	10578	2952		0.161
65	84.2	16.19	2.860	5.060	5.800	10746	29FA		0.164
66	86.2	16.44	2.790	4.950	5.670	10922	2AAA	14	0.167
67	88.2	16.68	2.730	4.840	5.550	11090	2B52		0.169
68	90.2	16.92	2.670	4.730	5.420	11258	2BFA		0.172
69	92.1	17.14	2.620	4.630	5.310	11418	2C9A		0.174
70	94.2	17.38	2.560	4.530	5.190	11586	2D42		0.177
71	96.4	17.63	2.500	4.430	5.070	11763	2DF3	15	0.179
72	98.6	17.87	2.440	4.330	4.960	11931	2E9B		0.182
73	100.9	18.11	2.390	4.240	4.850	12099	2F43		0.185
74	103.1	18.33	2.340	4.150	4.750	12258	2FE2		0.187
75	105.4	18.57	2.290	4.060	4.650	12426	308A		0.190
76	107.9	18.82	2.240	3.960	4.540	12603	313B	16	0.192
77	110.4	19.06	2.190	3.880	4.440	12771	31E3		0.195
78	112.9	19.29	2.140	3.790	4.340	12939	328B		0.197
79	115.3	19.52	2.100	3.710	4.250	13098	332A		0.200
80	117.9	19.76	2.050	3.630	4.160	13266	33D2		0.202
81	120.7	20.01	2.000	3.550	4.060	13443	3483	17	0.205
82	123.5	20.24	1.960	3.470	3.970	13611	352B		0.208
83	126.3	20.48	1.910	3.390	3.890	13779	35D3		0.210
84	129.0	20.71	1.870	3.320	3.810	13939	3673		0.213
85	132.0	20.95	1.830	3.250	3.720	14107	371B		0.215
86	135.1	21.19	1.790	3.170	3.640	14283	37CB	18	0.218
87	138.2	21.43	1.750	3.100	3.560	14451	3873		0.221
88	141.3	21.67	1.710	3.040	3.480	14619	391B		0.223
89	144.4	21.90	1.680	2.970	3.410	14779	39BB		0.226
90	147.6	22.13	1.640	2.910	3.330	14947	3A63		0.228
91	151.2	22.38	1.600	2.840	3.250	15123	3B13	19	0.231
92	154.6	22.62	1.570	2.780	3.180	15291	3BBB		0.233
93	158.1	22.86	1.530	2.720	3.110	15459	3C63		0.236
94	161.5	23.08	1.500	2.660	3.050	15619	3D03		0.238
95	165.2	23.32	1.470	2.600	2.980	15787	3DAB		0.241
96	169.1	23.57	1.430	2.540	2.910	15963	3E5B	20	0.244
97	173.0	23.81	1.400	2.490	2.850	16131	3F03		0.246
98	176.9	24.05	1.370	2.430	2.790	16299	3FAB		0.249
99	180.7	24.27	1.340	2.380	2.730	16459	404B		0.251
100	184.9	24.51	1.310	2.330	2.670	16627	40F3		0.254
101	189.3	24.76	1.280	2.270	2.610	16804	41A4	21	0.256
102	193.6	25.00	1.260	2.220	2.550	16972	424C		0.259
103	198.0	25.23	1.230	2.180	2.490	17140	42F4		0.262
104	202.2	25.46	1.200	2.130	2.440	17299	4393		0.264
105	206.8	25.70	1.180	2.080	2.390	17467	443B		0.267
106	211.8	25.95	1.150	2.030	2.330	17644	44EC	22	0.269
107	216.6	26.18	1.120	1.990	2.280	17812	4594		0.272
108	221.5	26.42	1.100	1.950	2.230	17980	463C		0.274
109	226.3	26.65	1.080	1.910	2.180	18139	46DB		0.277
110	231.4	26.89	1.050	1.860	2.140	18308	4784		0.279
111	236.9	27.13	1.030	1.820	2.090	18484	4834	23	0.282
112	242.3	27.37	1.010	1.780	2.040	18652	48DC		0.285
113	247.8	27.61	0.980	1.740	2.000	18820	4984		0.287
114	253.2	27.84	0.960	1.710	1.950	18980	4A24		0.290
115	258.9	28.07	0.940	1.670	1.910	19148	4ACC		0.292
116	265.1	28.32	0.920	1.630	1.870	19324	4B7C	24	0.295
117	271.2	28.56	0.900	1.590	1.830	19492	4C24		0.297
118	277.3	28.80	0.880	1.560	1.790	19660	4CCC		0.300
119	283.3	29.02	0.860	1.530	1.750	19820	4D6C		0.302
120	289.7	29.26	0.840	1.490	1.710	19988	4E14		0.305
121	296.6	29.51	0.820	1.460	1.670	20164	4EC4	25	0.308
122	303.4	29.75	0.800	1.430	1.630	20332	4F6C		0.310
123	310.3	29.99	0.790	1.390	1.600	20500	5014		0.313
124	317.0	30.21	0.770	1.370	1.560	20660	50B4		0.315
125	324.2	30.45	0.750	1.340	1.530	20828	515C		0.318
126	331.9	30.70	0.740	1.300	1.500	21004	520C	26	0.321
127	339.5	30.94	0.720	1.280	1.460	21173	52B5		0.323
128	347.2	31.17	0.700	1.250	1.430	21341	535D		0.326
129	354.7	31.40	0.690	1.220	1.400	21500	53FC		0.328
130	362.7	31.64	0.670	1.190	1.370	21668	54A4		0.331
131	371.4	31.89	0.660	1.170	1.340	21845	5555	27	0.333
132	379.8	32.12	0.640	1.140	1.310	22013	55FD		0.336
133	388.4	32.36	0.630	1.120	1.280	22181	56A5		0.338
134	396.8	32.59	0.620	1.090	1.250	22340	5744		0.341
135	405.9	32.82	0.600	1.070	1.230	22508	57EC		0.343
136	415.5	33.07	0.590	1.040	1.200	22685	589D	28	0.346
137	425.0	33.31	0.580	1.020	1.170	22853	5945		0.349
138	434.7	33.55	0.560	1.000	1.150	23021	59ED		0.351
139	444.0	33.78	0.550	0.980	1.120	23181	5A8D		0.354
140	454.1	34.01	0.540	0.960	1.100	23349	5B35		0.356
141	465.0	34.26	0.530	0.930	1.070	23525	5BE5	29	0.359
142	475.5	34.50	0.520	0.910	1.050	23693	5C8D		0.362
143	486.4	34.74	0.500	0.890	1.020	23861	5D35		0.364

144	496.8	34.96	0.490	0.880	1.000
145	508.1	35.20	0.480	0.860	0.980
146	520.3	35.45	0.470	0.840	0.960
147	532.1	35.69	0.460	0.820	0.940
148	544.2	35.93	0.450	0.800	0.920
149	555.9	36.15	0.440	0.780	0.900
150	568.5	36.39	0.430	0.770	0.880
151	582.1	36.64	0.420	0.750	0.860
152	595.3	36.88	0.410	0.730	0.840
153	608.9	37.11	0.400	0.720	0.820
154	622.0	37.34	0.400	0.700	0.800
155	636.2	37.58	0.390	0.690	0.790
156	651.3	37.83	0.380	0.670	0.770
157	666.1	38.06	0.370	0.650	0.750
158	681.2	38.30	0.360	0.640	0.730
159	695.8	38.53	0.350	0.630	0.720
160	711.6	38.76	0.350	0.610	0.700
161	728.7	39.01	0.340	0.600	0.690
162	745.4	39.25	0.330	0.590	0.670
163	762.5	39.49	0.320	0.570	0.660
164	779.0	39.71	0.320	0.560	0.640
165	796.5	39.95	0.310	0.550	0.630
166	822.1	1.03	0.300	0.532	0.609
167	848.0	1.06	0.291	0.516	0.591
168	873.9	1.09	0.282	0.500	0.574
169	898.6	1.12	0.275	0.487	0.558
170	924.5	1.16	0.267	0.473	0.542
171	951.7	1.19	0.259	0.460	0.527
172	977.6	1.22	0.253	0.448	0.513
173	1,003.6	1.25	0.246	0.436	0.500
174	1,028.2	1.29	0.240	0.426	0.488
175	1,054.2	1.32	0.234	0.415	0.476
176	1,081.3	1.35	0.228	0.405	0.464
177	1,107.3	1.38	0.223	0.396	0.454
178	1,133.2	1.42	0.218	0.387	0.443
179	1,157.9	1.45	0.213	0.378	0.434
180	1,183.8	1.48	0.209	0.370	0.424
181	1,211.0	1.51	0.204	0.362	0.415
182	1,236.9	1.55	0.200	0.354	0.406
183	1,263.0	1.58	0.196	0.347	0.398
184	1,287.5	1.61	0.192	0.341	0.390
185	1,313.4	1.64	0.188	0.334	0.383
186	1,340.7	1.68	0.184	0.327	0.375
187	1,366.7	1.71	0.181	0.321	0.368
188	1,392.6	1.74	0.177	0.315	0.361
189	1,417.1	1.77	0.174	0.310	0.355
190	1,443.1	1.80	0.171	0.304	0.349
191	1,470.4	1.84	0.168	0.298	0.342
192	1,496.3	1.87	0.165	0.293	0.336
193	1,522.2	1.90	0.162	0.288	0.331
194	1,546.9	1.93	0.160	0.284	0.325
195	1,572.8	1.97	0.157	0.279	0.320
196	1,600.0	2.00	0.154	0.274	0.315
197	1,615.9	2.02	0.153	0.272	0.311
198	1,631.7	2.04	0.151	0.269	0.308
199	1,647.6	2.06	0.150	0.266	0.305
200	1,663.4	2.08	0.149	0.264	0.303
201	1,679.3	2.10	0.147	0.261	0.300
202	1,695.1	2.12	0.146	0.259	0.297
203	1,710.9	2.14	0.144	0.257	0.294
204	1,726.8	2.16	0.143	0.254	0.292
205	1,742.6	2.18	0.142	0.252	0.289
206	1,758.5	2.20	0.141	0.250	0.286
207	1,774.3	2.22	0.139	0.247	0.284
208	1,790.1	2.24	0.138	0.245	0.281
209	1,806.0	2.26	0.137	0.243	0.279
210	1,821.8	2.28	0.136	0.241	0.276
211	1,837.7	2.30	0.134	0.239	0.274
212	1,853.5	2.32	0.133	0.237	0.272
213	1,869.3	2.34	0.132	0.235	0.269
214	1,885.2	2.36	0.131	0.233	0.267
215	1,901.0	2.38	0.130	0.231	0.265
216	1,916.9	2.40	0.129	0.229	0.263
217	1,932.7	2.42	0.128	0.227	0.261
218	1,948.5	2.44	0.127	0.225	0.258
219	1,964.4	2.46	0.126	0.224	0.256
220	1,980.2	2.48	0.125	0.222	0.254
221	1,996.0	2.50	0.124	0.220	0.252
222	2,011.9	2.51	0.123	0.218	0.250
223	2027.7	2.53	0.122	0.217	0.248
224	2043.6	2.55	0.121	0.215	0.246
225	2059.4	2.57	0.120	0.213	0.245
226	2075.3	2.59	0.119	0.212	0.243
227	2091.1	2.61	0.118	0.210	0.241
228	2106.9	2.63	0.117	0.208	0.239
229	2122.8	2.65	0.116	0.207	0.237
230	2138.6	2.67	0.116	0.205	0.236
231	2154.5	2.69	0.115	0.204	0.234
232	2170.3	2.71	0.114	0.202	0.232
233	2186.2	2.73	0.113	0.201	0.230
234	2202.0	2.75	0.112	0.199	0.229
235	2217.8	2.77	0.111	0.198	0.227
236	2233.7	2.79	0.111	0.197	0.226
237	2249.5	2.81	0.110	0.195	0.224
238	2265.4	2.83	0.109	0.194	0.222
239	2281.2	2.85	0.108	0.193	0.221
240	2297.1	2.87	0.108	0.191	0.219
241	2312.9	2.89	0.107	0.190	0.218
242	2328.8	2.91	0.106	0.189	0.216
243	2344.6	2.93	0.105	0.187	0.215
244	2360.4	2.95	0.105	0.186	0.213
245	2376.3	2.97	0.104	0.185	0.212
246	2392.1	2.99	0.103	0.184	0.211
247	2408.0	3.01	0.103	0.182	0.209
248	2423.8	3.03	0.102	0.181	0.208
249	2439.7	3.05	0.101	0.180	0.207
250	2455.5	3.07	0.101	0.179	0.205
251	2471.3	3.09	0.100	0.178	0.204
252	2487.2	3.11	0.099	0.177	0.203
253	2503.0	3.13	0.099	0.175	0.201
254	2518.9	3.15	0.098	0.174	0.200
255	2534.7	3.17	0.098	0.173	0.199
256	2550.5	3.19	0.097	0.172	0.198
257	2566.4	3.21	0.096	0.171	0.196
258	2582.2	3.23	0.096	0.170	0.195
259	2598.1	3.25	0.095	0.169	0.194
260	2613.9	3.27	0.095	0.168	0.193
261	2629.7	3.29	0.094	0.167	0.192
262	2645.6	3.31	0.093	0.166	0.190
263	2661.4	3.33	0.093	0.165	0.189
264	2677.3	3.35	0.092	0.164	0.188
265	2693.1	3.37	0.092	0.163	0.187
266	2708.9	3.39	0.091	0.162	0.186
267	2724.8	3.41	0.091	0.161	0.185
268	2740.6	3.43	0.090	0.160	0.184
269	2756.5	3.45	0.090	0.159	0.183
270	2772.3	3.47	0.089	0.158	0.182
271	2788.1	3.49	0.089	0.158	0.181
272	2804.0	3.51	0.088	0.157	0.180
273	2819.8	3.52	0.088	0.156	0.179
274	2835.6	3.54	0.087	0.155	0.178
275	2851.5	3.56	0.087	0.154	0.177
276	2867.3	3.58	0.086	0.153	0.176
277	2883.2	3.60	0.086	0.152	0.175
278	2899.0	3.62	0.085	0.152	0.174
279	2914.9	3.64	0.085	0.151	0.173
280	2930.7	3.66	0.084	0.150	0.172
281	2946.6	3.68	0.084	0.149	0.171
282	2962.4	3.70	0.083	0.148	0.170
283	2978.2	3.72	0.083	0.148	0.169
284	2994.1	3.74	0.083	0.147	0.168
285	3009.9	3.76	0.082	0.146	0.167
286	3025.8	3.78	0.082	0.145	0.167
287	3041.6	3.80	0.081	0.144	0.166
288	3057.5	3.82	0.081	0.144	0.165
289	3073.3	3.84	0.080	0.143	0.164
290	3089.1	3.86	0.080	0.142	0.163
291	3105.0	3.88	0.080	0.141	0.162
292	3120.8	3.90	0.079	0.141	0.162
293	3136.7	3.92	0.079	0.140	0.161
294	3152.5	3.94	0.078	0.139	0.160
295	3168.4	3.96	0.078	0.139	0.159
296	3184.2	3.98	0.078	0.138	0.158
297	3200.0	4.00	0.077	0.137	0.158

24021	5DD5		0.367
24189	5E7D		0.369
24365	5F2D	30	0.372
24533	5FD5		0.374
24701	607D		0.377
24861	611D		0.379
25029	61C5		0.382
25205	6275	31	0.385
25373	631D		0.387
25541	63C5		0.390
25701	6465		0.392
25869	650D		0.395
26046	65BE	32	0.397
26214	6666		0.400
26382	670E		0.403
26541	67AD		0.405
26709	6855		0.408
26886	6906	33	0.410
27054	69AE		0.413
27222	6A56		0.415
27381	6AF5		0.418
27549	6B9D		0.420
27726	6C4E	34	0.423
27894	6CF6		0.426
28062	6D9E		0.428
28222	6E3E		0.431
28390	6EE6		0.433
28566	6F96	35	0.436
28734	703E		0.438
28902	70E6		0.441
29062	7186		0.443
29230	722E		0.446
29406	72DE	36	0.449
29574	7386		0.451
29742	742E		0.454
29902	74CE		0.456
30070	7576		0.459
30246	7626	37	0.462
30414	76CE		0.464
30583	7777		0.467
30742	7816		0.469
30910	78BE		0.472
31087	796F	38	0.474
31255	7A17		0.477
31423	7ABF		0.479
31582	7B5E		0.482
31750	7C06		0.484
31927	7CB7	39	0.487
32095	7D5F		0.490
32263	7E07		0.492
32423	7EA7		0.495
32591	7F4F		0.497
32767	7FFF	40	0.500
33092	8144		0.505
33416	8288		0.510
33741	83CD	41	0.515
34065	8511		0.520
34390	8656	42	0.525
34714	879A		0.530
35039	88DF		0.535
35363	8A23	43	0.540
35687	8B67		0.545
36012	8CAC	44	0.550
36336	8DF0		0.554
36661	8F35		0.559
36985	9079	45	0.564
37310	91BE		0.569
37634	9302	46	0.574
37958	9446		0.579
38283	958B		0.584
38607	96CF	47	0.589
38932	9814		0.594
39256	9958	48	0.599
39581	9A9D		0.604
39905	9BE1		0.609
40230	9D26	49	0.614
40554	9E6A		0.619
40878	9FAE	50	0.624
41203	A0F3		0.629
41527	A237		0.634
41852	A37C	51	0.639
42176	A4C0		0.644
42501	A605	52	0.649
42825	A749		0.653
43149	A88D		0.658
43474	A9D2	53	0.663
43798	AB16		0.668
44123	AC5B	54	0.673
44447	AD9F		0.678
44772	AEE4		0.683
45096	B028	55	0.688
45420	B16C		0.693
45745	B2B1	56	0.698
46069	B3F5		0.703
46394	B53A		0.708
46718	B67E	57	0.713
47043	B7C3		0.718
47367	B907	58	0.723
47692	BA4C		0.728
48016	BB90		0.733
48340	BCD4	59	0.738
48665	BE19		0.743
48989	BF5D	60	0.748
49314	C0A2		0.752
49638	C1E6		0.757
49963	C32B	61	0.762
50287	C46F		0.767
50611	C5B3	62	0.772
50936	C6F8		0.777
51260	C83C		0.782
51585	C981	63	0.787
51909	CAC5		0.792
52234	CC0A	64	0.797
52558	CD4E		0.802
52883	CE93		0.807
53207	CFD7	65	0.812
53531	D11B		0.817
53856	D260	66	0.822
54180	D3A4		0.827
54505	D4E9		0.832
54829	D62D	67	0.837
55154	D772		0.842
55478	D8B6	68	0.847
55802	D9FA		0.851
56127	DB3F		0.856
56451	DC83	69	0.861
56776	DDC8		0.866
57100	DF0C	70	0.871
57425	E051		0.876
57749	E195		0.881
58073	E2D9	71	0.886
58398	E41E		0.891
58722	E562	72	0.896
59047	E6A7		0.901
59371	E7EB		0.906
59696	E930	73	0.911
60020	EA74		0.916
60345	EBB9	74	0.921
60669	ECFD		0.926
60993	EE41		0.931
61318	EF86	75	0.936
61642	F0CA		0.941
61967	F20F	76	0.946
62291	F353		0.950
62616	F498		0.955
62940	F5DC	77	0.960
63264	F720		0.965
63589	F865	78	0.970
63913	F9A9		0.975
64238	FAEE		0.980
64562	FC32	79	0.985
64887	FD77		0.990
65211	FEBB		0.995
65535	FFFF	80	1.000

Digital ZOOM : x1.50

Lens: Motor Pulse Steps	Lens: Focal Length [mm]		Field of View: Vertical [degree]	Field of View: Horizontal [degree]	Field of View: Diagonal [degree]	Pelco (SX1600): Set Zoom Position (0x00,0x4F) / Query Zoom Position (0x00,0x83); CGI (SX1600): SetAbsoluteZoomPosition / GetAbsoluteZoomPosition [DEC]	[HEX]	CGI (SX1600): SetZoomControl / GetZoomControl [DEC]	ONVIF (SX1600) Zoom control * [DEC]
1	20.0	1.00	11.850	21.010	24.080	0	0	1	0.000
2	20.5	1.24	11.590	20.550	23.550	224	E0		0.003
3	20.9	1.48	11.340	20.090	23.030	448	1C0		0.007
4	21.4	1.70	11.100	19.660	22.530	661	295		0.010
5	21.9	1.94	10.850	19.220	22.030	885	375		0.014
6	22.4	2.19	10.600	18.770	21.510	1120	460	2	0.017
7	22.9	2.43	10.360	18.360	21.030	1344	540		0.021
8	23.4	2.66	10.140	17.950	20.560	1568	620		0.024
9	23.9	2.89	9.920	17.570	20.130	1781	6F5		0.027
10	24.4	3.13	9.710	17.190	19.690	2005	7D5		0.031
11	25.0	3.38	9.480	16.790	19.230	2241	8C1	3	0.034
12	25.6	3.61	9.270	16.420	18.810	2465	9A1		0.038
13	26.2	3.85	9.070	16.050	18.390	2689	A81		0.041
14	26.7	4.08	8.880	15.720	18.000	2901	B55		0.044
15	27.4	4.31	8.680	15.370	17.610	3126	C36		0.048
16	28.0	4.56	8.480	15.020	17.200	3361	D21	4	0.051
17	28.7	4.80	8.300	14.690	16.820	3585	E01		0.055
18	29.3	5.04	8.120	14.360	16.450	3809	EE1		0.058
19	29.9	5.26	7.950	14.060	16.100	4022	FB6		0.061
20	30.6	5.50	7.770	13.750	15.750	4246	1096		0.065
21	31.4	5.75	7.590	13.440	15.390	4481	1181	5	0.068
22	32.1	5.99	7.420	13.140	15.050	4705	1261		0.072
23	32.8	6.23	7.260	12.850	14.720	4929	1341		0.075
24	33.5	6.45	7.110	12.580	14.410	5142	1416		0.078
25	34.3	6.69	6.950	12.310	14.090	5366	14F6		0.082
26	35.1	6.94	6.790	12.020	13.770	5601	15E1	6	0.085
27	35.9	7.18	6.640	11.760	13.470	5825	16C1		0.089
28	36.7	7.41	6.500	11.500	13.170	6049	17A1		0.092
29	37.5	7.64	6.360	11.260	12.900	6262	1876		0.096
30	38.4	7.88	6.220	11.010	12.610	6486	1956		0.099
31	39.3	8.13	6.080	10.760	12.320	6722	1A42	7	0.103
32	40.2	8.37	5.950	10.520	12.050	6946	1B22		0.106
33	41.1	8.60	5.820	10.290	11.790	7170	1C02		0.109
34	42.0	8.83	5.690	10.080	11.540	7382	1CD6		0.113
35	42.9	9.07	5.570	9.860	11.290	7607	1DB7		0.116
36	43.9	9.32	5.440	9.630	11.030	7842	1EA2	8	0.120
37	44.9	9.55	5.320	9.420	10.790	8066	1F82		0.123
38	45.9	9.79	5.200	9.210	10.550	8290	2062		0.126
39	46.9	10.02	5.090	9.020	10.330	8503	2137		0.130
40	48.0	10.25	4.980	8.820	10.100	8727	2217		0.133
41	49.1	10.50	4.870	8.620	9.870	8962	2302	9	0.137
42	50.3	10.74	4.760	8.430	9.660	9186	23E2		0.140
43	51.4	10.98	4.660	8.240	9.440	9410	24C2		0.144
44	52.5	11.20	4.560	8.070	9.250	9623	2597		0.147
45	53.7	11.44	4.460	7.890	9.040	9847	2677		0.150
46	55.0	11.69	4.360	7.710	8.840	10082	2762	10	0.154
47	56.2	11.93	4.260	7.540	8.640	10306	2842		0.157
48	57.5	12.17	4.170	7.380	8.450	10530	2922		0.161
49	58.8	12.39	4.080	7.220	8.280	10743	29F7		0.164
50	60.1	12.63	3.990	7.070	8.090	10967	2AD7		0.167
51	61.5	12.88	3.900	6.900	7.910	11203	2BC3	11	0.171
52	62.9	13.12	3.810	6.750	7.740	11427	2CA3		0.174
53	64.4	13.35	3.730	6.600	7.570	11651	2D83		0.178
54	65.8	13.58	3.650	6.470	7.410	11864	2E58		0.181
55	67.2	13.82	3.570	6.320	7.250	12088	2F38		0.184
56	68.8	14.07	3.490	6.180	7.080	12323	3023	12	0.188
57	70.4	14.30	3.410	6.040	6.920	12547	3103		0.191
58	72.0	14.54	3.340	5.910	6.770	12771	31E3		0.195
59	73.6	14.77	3.270	5.790	6.630	12984	32B8		0.198
60	75.2	15.01	3.200	5.660	6.480	13208	3398		0.202
61	77.0	15.25	3.120	5.530	6.340	13443	3483	13	0.205
62	78.8	15.49	3.050	5.410	6.200	13667	3563		0.209
63	80.6	15.73	2.990	5.290	6.060	13891	3643		0.212
64	82.3	15.96	2.920	5.180	5.930	14104	3718		0.215
65	84.2	16.19	2.860	5.060	5.800	14328	37F8		0.219
66	86.2	16.44	2.790	4.950	5.670	14563	38E3	14	0.222
67	88.2	16.68	2.730	4.840	5.550	14787	39C3		0.226
68	90.2	16.92	2.670	4.730	5.420	15011	3AA3		0.229
69	92.1	17.14	2.620	4.630	5.310	15224	3B78		0.232
70	94.2	17.38	2.560	4.530	5.190	15448	3C58		0.236
71	96.4	17.63	2.500	4.430	5.070	15684	3D44	15	0.239
72	98.6	17.87	2.440	4.330	4.960	15908	3E24		0.243
73	100.9	18.11	2.390	4.240	4.850	16132	3F04		0.246
74	103.1	18.33	2.340	4.150	4.750	16345	3FD9		0.249
75	105.4	18.57	2.290	4.060	4.650	16569	40B9		0.253
76	107.9	18.82	2.240	3.960	4.540	16804	41A4	16	0.256
77	110.4	19.06	2.190	3.880	4.440	17028	4284		0.260
78	112.9	19.29	2.140	3.790	4.340	17252	4364		0.263
79	115.3	19.52	2.100	3.710	4.250	17465	4439		0.266
80	117.9	19.76	2.050	3.630	4.160	17689	4519		0.270
81	120.7	20.01	2.000	3.550	4.060	17924	4604	17	0.274
82	123.5	20.24	1.960	3.470	3.970	18148	46E4		0.277
83	126.3	20.48	1.910	3.390	3.890	18372	47C4		0.280
84	129.0	20.71	1.870	3.320	3.810	18585	4899		0.284
85	132.0	20.94	1.830	3.250	3.720	18809	4979		0.287
86	135.1	21.19	1.790	3.170	3.640	19044	4A64	18	0.291
87	138.2	21.43	1.750	3.100	3.560	19268	4B44		0.294
88	141.3	21.67	1.710	3.040	3.480	19492	4C24		0.297
89	144.4	21.89	1.680	2.970	3.410	19705	4CF9		0.301
90	147.6	22.13	1.640	2.910	3.330	19929	4DD9		0.304
91	151.2	22.38	1.600	2.840	3.250	20165	4EC5	19	0.308
92	154.6	22.62	1.570	2.780	3.180	20389	4FA5		0.311
93	158.1	22.86	1.530	2.720	3.110	20613	5085		0.315
94	161.5	23.08	1.500	2.660	3.050	20826	515A		0.318
95	165.2	23.32	1.470	2.600	2.980	21050	523A		0.321
96	169.1	23.57	1.430	2.540	2.910	21285	5325	20	0.325
97	173.0	23.81	1.400	2.490	2.850	21509	5405		0.328
98	176.9	24.05	1.370	2.430	2.790	21733	54E5		0.332
99	180.7	24.27	1.340	2.380	2.730	21946	55BA		0.335
100	184.9	24.51	1.310	2.330	2.670	22170	569A		0.338
101	189.3	24.76	1.280	2.270	2.610	22405	5785	21	0.342
102	193.6	25.00	1.260	2.220	2.550	22629	5865		0.345
103	198.0	25.23	1.230	2.180	2.490	22853	5945		0.349
104	202.2	25.46	1.200	2.130	2.440	23066	5A1A		0.352
105	206.8	25.70	1.180	2.080	2.390	23290	5AFA		0.355
106	211.8	25.95	1.150	2.030	2.330	23525	5BE5	22	0.359
107	216.6	26.18	1.120	1.990	2.280	23749	5CC5		0.362
108	221.5	26.42	1.100	1.950	2.230	23973	5DA5		0.366
109	226.3	26.65	1.080	1.910	2.180	24186	5E7A		0.369
110	231.4	26.88	1.050	1.860	2.140	24410	5F5A		0.372
111	236.9	27.13	1.030	1.820	2.090	24646	6046	23	0.376
112	242.3	27.37	1.010	1.780	2.040	24870	6126		0.379
113	247.8	27.61	0.980	1.740	2.000	25094	6206		0.383
114	253.2	27.84	0.960	1.710	1.950	25307	62DB		0.386
115	258.9	28.07	0.940	1.670	1.910	25531	63BB		0.390
116	265.1	28.32	0.920	1.630	1.870	25766	64A6	24	0.393
117	271.2	28.56	0.900	1.590	1.830	25990	6586		0.397
118	277.3	28.80	0.880	1.560	1.790	26214	6666		0.400
119	283.3	29.02	0.860	1.530	1.750	26427	673B		0.403
120	289.7	29.26	0.840	1.490	1.710	26651	681B		0.407
121	296.6	29.51	0.820	1.460	1.670	26886	6906	25	0.410
122	303.4	29.75	0.800	1.430	1.630	27110	69E6		0.414
123	310.3	29.98	0.790	1.390	1.600	27334	6AC6		0.417
124	317.0	30.21	0.770	1.370	1.560	27547	6B9B		0.420
125	324.2	30.45	0.750	1.340	1.530	27771	6C7B		0.424
126	331.9	30.70	0.740	1.300	1.500	28006	6D66	26	0.427
127	339.5	30.93	0.720	1.280	1.460	28230	6E46		0.431
128	347.2	31.17	0.700	1.250	1.430	28455	6F27		0.434
129	354.7	31.40	0.690	1.220	1.400	28667	6FFB		0.437
130	362.7	31.64	0.670	1.190	1.370	28891	70DB		0.441
131	371.4	31.89	0.660	1.170	1.340	29127	71C7	27	0.444
132	379.8	32.12	0.640	1.140	1.310	29351	72A7		0.448
133	388.4	32.36	0.630	1.120	1.280	29575	7387		0.451
134	396.8	32.59	0.620	1.090	1.250	29788	745C		0.455
135	405.9	32.82	0.600	1.070	1.230	30012	753C		0.458
136	415.5	33.07	0.590	1.040	1.200	30247	7627	28	0.462
137	425.0	33.31	0.580	1.020	1.170	30471	7707		0.465
138	434.7	33.55	0.560	1.000	1.150	30695	77E7		0.468
139	444.0	33.77	0.550	0.980	1.120	30908	78BC		0.472
140	454.1	34.01	0.540	0.960	1.100	31132	799C		0.475
141	465.0	34.26	0.530	0.930	1.070	31367	7A87	29	0.479
142	475.5	34.50	0.520	0.910	1.050	31591	7B67		0.482
143	486.4	34.74	0.500	0.890	1.020	31815	7C47		0.485
144	496.8	34.96	0.490	0.880	1.000	32028	7D1C		0.489
145	508.1	35.20	0.480	0.860	0.980	32252	7DFC		0.492
146	520.3	35.45	0.470	0.840	0.960	32487	7EE7	30	0.496
147	532.1	35.69	0.460	0.820	0.940	32711	7FC7		0.499
148	544.2	35.92	0.450	0.800	0.920	32936	80A8		0.503
149	555.9	36.15	0.440	0.780	0.900	33148	817C		0.506
150	568.5	36.39	0.430	0.770	0.880	33372	825C		0.509
151	582.1	36.64	0.420	0.750	0.860	33608	8348	31	0.513
152	595.3	36.88	0.410	0.730	0.840	33832	8428		0.516
153	608.9	37.11	0.400	0.720	0.820	34056	8508		0.520
154	622.0	37.34	0.400	0.700	0.800	34269	85DD		0.523
155	636.2	37.58	0.390	0.690	0.790	34493	86BD		0.526
156	651.3	37.83	0.380	0.670	0.770	34728	87A8	32	0.530
157	666.1	38.06	0.370	0.650	0.750	34952	8888		0.533
158	681.2	38.30	0.360	0.640	0.730	35176	8968		0.537
159	695.8	38.53	0.350	0.630	0.720	35389	8A3D		0.540
160	711.6	38.76	0.350	0.610	0.700	35613	8B1D		0.543
161	728.7	39.01	0.340	0.600	0.690	35848	8C08	33	0.547
162	745.4	39.25	0.330	0.590	0.670	36072	8CE8		0.550
163	762.5	39.49	0.320	0.570	0.660	36296	8DC8		0.554
164	779.0	39.71	0.320	0.560	0.640	36509	8E9D		0.557
165	796.5	39.95	0.310	0.550	0.630	36733	8F7D		0.561
166	821.9	1.03	0.300	0.532	0.609	36968	9068	34	0.564
167	847.9	1.06	0.291	0.516	0.591	37193	9149		0.568
168	873.9	1.09	0.282	0.501	0.574	37417	9229		0.571
169	898.4	1.12	0.275	0.487	0.558	37629	92FD		0.574
170	924.3	1.16	0.267	0.473	0.543	37853	93DD		0.578
171	951.6	1.19	0.259	0.460	0.527	38089	94C9	35	0.581
172	977.6	1.22	0.253	0.448	0.513	38313	95A9		0.585
173	1.003.5	1.25	0.246	0.436	0.500	38537	9689		0.588
174	1.028.2	1.29	0.240	0.426	0.488	38750	975E		0.591
175	1.054.1	1.32	0.234	0.416	0.476	38974	983E		0.595
176	1.081.3	1.35	0.228	0.405	0.464	39209	9929	36	0.598
177	1.107.2	1.38	0.223	0.396	0.454	39433	9A09		0.602
178	1.133.2	1.42	0.218	0.387	0.443	39657	9AE9		0.605
179	1.157.8	1.45	0.213	0.378	0.434	39870	9BBE		0.608
180	1.183.7	1.48	0.209	0.370	0.424	40094	9C9E		0.612
181	1.210.9	1.51	0.204	0.362	0.415	40329	9D89	37	0.615
182	1.236.9	1.55	0.200	0.354	0.406	40553	9E69		0.619
183	1.262.8	1.58	0.196	0.347	0.398	40777	9F49		0.622
184	1.287.5	1.61	0.192	0.341	0.390	40990	A01E		0.625
185	1.313.4	1.64	0.188	0.334	0.383	41214	A0FE		0.629
186	1.340.6	1.68	0.184	0.327	0.375	41449	A1E9	38	0.632
187	1.366.6	1.71	0.181	0.321	0.368	41674	A2CA		0.636
188	1.392.6	1.74	0.177	0.315	0.361	41898	A3AA		0.639
189	1.417.1	1.77	0.174	0.310	0.355	42110	A47E		0.643
190	1.443.0	1.80	0.171	0.304	0.349	42334	A55E		0.646
191	1.470.4	1.84	0.168	0.298	0.342	42570	A64A	39	0.650
192	1.496.3	1.87	0.165	0.293	0.336	42794	A72A		0.653
193	1.522.2	1.90	0.162	0.288	0.331	43018	A80A		0.656
194	1.546.9	1.93	0.160	0.284	0.325	43231	A8DF		0.660
195	1.572.8	1.97	0.157	0.279	0.320	43455	A9BF		0.663
196	1.600.0	2.00	0.154	0.274	0.315	43690	AAAA	40	0.667
197	1.615.7	2.02	0.153	0.272	0.311	44119	AC57		0.673
198	1.631.4	2.04	0.151	0.269	0.308	44547	AE03		0.680
199	1.647.1	2.06	0.150	0.266	0.306	44975	AFAF	41	0.686
200	1.662.8	2.08	0.149	0.264	0.303	45404	B15C		0.693
201	1.678.4	2.10	0.147	0.261	0.300	45832	B308	42	0.699
202	1.694.1	2.12	0.146	0.259	0.297	46260	B4B4		0.706

Digital ZOOM : x1.75

Lens: Motor Pulse Steps	Lens: Focal Length [mm]		Field of View: Vertical [degree]	Field of View: Horizontal [degree]	Field of View: Diagonal [degree]	Pelco (SX1600): Set Zoom Position (0x00,0x4F) / Query Zoom Position (0x00,0x83); CGI (SX1600): SetAbsoluteZoomPosition / GetAbsoluteZoomPosition [DEC]	[HEX]	CGI (SX1600): SetZoomControl / GetZoomControl [DEC]	ONVIF (SX1600) Zoom control * [DEC]
1	20.0	1.00	11.850	21.010	24.080	0	0	1	0.000
2	20.5	1.24	11.590	20.550	23.550	192	C0		0.003
3	20.9	1.48	11.340	20.090	23.030	384	180		0.006
4	21.4	1.70	11.100	19.660	22.530	567	237		0.009
5	21.9	1.94	10.850	19.220	22.030	759	2F7		0.012
6	22.4	2.19	10.600	18.770	21.510	960	3C0	2	0.015
7	22.9	2.43	10.360	18.360	21.030	1152	480		0.018
8	23.4	2.66	10.140	17.950	20.560	1344	540		0.021
9	23.9	2.89	9.920	17.570	20.130	1527	5F7		0.023
10	24.4	3.13	9.710	17.190	19.690	1719	6B7		0.026
11	25.0	3.38	9.480	16.790	19.230	1920	780	3	0.029
12	25.6	3.61	9.270	16.420	18.810	2113	841		0.032
13	26.2	3.85	9.070	16.050	18.390	2305	901		0.035
14	26.7	4.08	8.880	15.720	18.000	2487	9B7		0.038
15	27.4	4.31	8.680	15.370	17.610	2679	A77		0.041
16	28.0	4.56	8.480	15.020	17.200	2881	B41	4	0.044
17	28.7	4.80	8.300	14.690	16.820	3073	C01		0.047
18	29.3	5.04	8.120	14.360	16.450	3265	CC1		0.050
19	29.9	5.26	7.950	14.060	16.100	3447	D77		0.053
20	30.6	5.50	7.770	13.750	15.750	3639	E37		0.056
21	31.4	5.75	7.590	13.440	15.390	3841	F01	5	0.059
22	32.1	5.99	7.420	13.140	15.050	4033	FC1		0.062
23	32.8	6.23	7.260	12.850	14.720	4225	1081		0.064
24	33.5	6.45	7.110	12.580	14.410	4407	1137		0.067
25	34.3	6.69	6.950	12.310	14.090	4600	11F8		0.070
26	35.1	6.94	6.790	12.020	13.770	4801	12C1	6	0.073
27	35.9	7.18	6.640	11.760	13.470	4993	1381		0.076
28	36.7	7.41	6.500	11.500	13.170	5185	1441		0.079
29	37.5	7.64	6.360	11.260	12.900	5368	14F8		0.082
30	38.4	7.88	6.220	11.010	12.610	5560	15B8		0.085
31	39.3	8.13	6.080	10.760	12.320	5761	1681	7	0.088
32	40.2	8.36	5.950	10.520	12.050	5953	1741		0.091
33	41.1	8.60	5.820	10.290	11.790	6145	1801		0.094
34	42.0	8.83	5.690	10.080	11.540	6328	18B8		0.097
35	42.9	9.07	5.570	9.860	11.290	6520	1978		0.099
36	43.9	9.32	5.440	9.630	11.030	6722	1A42	8	0.103
37	44.9	9.55	5.320	9.420	10.790	6914	1B02		0.106
38	45.9	9.79	5.200	9.210	10.550	7106	1BC2		0.108
39	46.9	10.02	5.090	9.020	10.330	7288	1C78		0.111
40	48.0	10.25	4.980	8.820	10.100	7480	1D38		0.114
41	49.1	10.50	4.870	8.620	9.870	7682	1E02	9	0.117
42	50.3	10.74	4.760	8.430	9.660	7874	1EC2		0.120
43	51.4	10.98	4.660	8.240	9.440	8066	1F82		0.123
44	52.5	11.20	4.560	8.070	9.250	8248	2038		0.126
45	53.7	11.44	4.460	7.890	9.040	8440	20F8		0.129
46	55.0	11.69	4.360	7.710	8.840	8642	21C2	10	0.132
47	56.2	11.93	4.260	7.540	8.640	8834	2282		0.135
48	57.5	12.17	4.170	7.380	8.450	9026	2342		0.138
49	58.8	12.39	4.080	7.220	8.280	9209	23F9		0.141
50	60.1	12.63	3.990	7.070	8.090	9401	24B9		0.143
51	61.5	12.88	3.900	6.900	7.910	9602	2582	11	0.147
52	62.9	13.12	3.810	6.750	7.740	9794	2642		0.149
53	64.4	13.35	3.730	6.600	7.570	9986	2702		0.152
54	65.8	13.58	3.650	6.470	7.410	10169	27B9		0.155
55	67.2	13.82	3.570	6.320	7.250	10361	2879		0.158
56	68.8	14.07	3.490	6.180	7.080	10563	2943	12	0.161
57	70.4	14.31	3.410	6.040	6.920	10755	2A03		0.164
58	72.0	14.54	3.340	5.910	6.770	10947	2AC3		0.167
59	73.6	14.77	3.270	5.790	6.630	11129	2B79		0.170
60	75.2	15.01	3.200	5.660	6.480	11321	2C39		0.173
61	77.0	15.26	3.120	5.530	6.340	11523	2D03	13	0.176
62	78.8	15.49	3.050	5.410	6.200	11715	2DC3		0.179
63	80.6	15.73	2.990	5.290	6.060	11907	2E83		0.182
64	82.3	15.96	2.920	5.180	5.930	12089	2F39		0.184
65	84.2	16.19	2.860	5.060	5.800	12281	2FF9		0.187
66	86.2	16.44	2.790	4.950	5.670	12483	30C3	14	0.190
67	88.2	16.68	2.730	4.840	5.550	12675	3183		0.193
68	90.2	16.92	2.670	4.730	5.420	12867	3243		0.196
69	92.1	17.14	2.620	4.630	5.310	13050	32FA		0.199
70	94.2	17.38	2.560	4.530	5.190	13242	33BA		0.202
71	96.4	17.63	2.500	4.430	5.070	13443	3483	15	0.205
72	98.6	17.87	2.440	4.330	4.960	13635	3543		0.208
73	100.9	18.11	2.390	4.240	4.850	13827	3603		0.211
74	103.1	18.33	2.340	4.150	4.750	14010	36BA		0.214
75	105.4	18.57	2.290	4.060	4.650	14202	377A		0.217
76	107.9	18.82	2.240	3.960	4.540	14403	3843	16	0.220
77	110.4	19.06	2.190	3.880	4.440	14596	3904		0.223
78	112.9	19.30	2.140	3.790	4.340	14788	39C4		0.226
79	115.3	19.52	2.100	3.710	4.250	14970	3A7A		0.228
80	117.9	19.76	2.050	3.630	4.160	15162	3B3A		0.231
81	120.7	20.01	2.000	3.550	4.060	15364	3C04	17	0.234
82	123.5	20.25	1.960	3.470	3.970	15556	3CC4		0.237
83	126.3	20.48	1.910	3.390	3.890	15748	3D84		0.240
84	129.0	20.71	1.870	3.320	3.810	15930	3E3A		0.243
85	132.0	20.95	1.830	3.250	3.720	16122	3EFA		0.246
86	135.1	21.20	1.790	3.170	3.640	16324	3FC4	18	0.249
87	138.2	21.43	1.750	3.100	3.560	16516	4084		0.252
88	141.3	21.67	1.710	3.040	3.480	16708	4144		0.255
89	144.4	21.90	1.680	2.970	3.410	16890	41FA		0.258
90	147.6	22.13	1.640	2.910	3.330	17083	42BB		0.261
91	151.2	22.38	1.600	2.840	3.250	17284	4384	19	0.264
92	154.6	22.62	1.570	2.780	3.180	17476	4444		0.267
93	158.1	22.86	1.530	2.720	3.110	17668	4504		0.270
94	161.5	23.08	1.500	2.660	3.050	17851	45BB		0.272
95	165.2	23.32	1.470	2.600	2.980	18043	467B		0.275
96	169.1	23.57	1.430	2.540	2.910	18244	4744	20	0.278
97	173.0	23.81	1.400	2.490	2.850	18436	4804		0.281
98	176.9	24.05	1.370	2.430	2.790	18628	48C4		0.284
99	180.7	24.27	1.340	2.380	2.730	18811	497B		0.287
100	184.9	24.51	1.310	2.330	2.670	19003	4A3B		0.290
101	189.3	24.76	1.280	2.270	2.610	19205	4B05	21	0.293
102	193.6	25.00	1.260	2.220	2.550	19397	4BC5		0.296
103	198.0	25.23	1.230	2.180	2.490	19589	4C85		0.299
104	202.2	25.46	1.200	2.130	2.440	19771	4D3B		0.302
105	206.8	25.70	1.180	2.080	2.390	19963	4DFB		0.305
106	211.8	25.95	1.150	2.030	2.330	20165	4EC5	22	0.308
107	216.6	26.18	1.120	1.990	2.280	20357	4F85		0.311
108	221.5	26.42	1.100	1.950	2.230	20549	5045		0.314
109	226.3	26.65	1.080	1.910	2.180	20731	50FB		0.316
110	231.4	26.88	1.050	1.860	2.140	20923	51BB		0.319
111	236.9	27.13	1.030	1.820	2.090	21125	5285	23	0.322
112	242.3	27.37	1.010	1.780	2.040	21317	5345		0.325
113	247.8	27.61	0.980	1.740	2.000	21509	5405		0.328
114	253.2	27.84	0.960	1.710	1.950	21692	54BC		0.331
115	258.9	28.07	0.940	1.670	1.910	21884	557C		0.334
116	265.1	28.32	0.920	1.630	1.870	22085	5645	24	0.337
117	271.2	28.56	0.900	1.590	1.830	22277	5705		0.340
118	277.3	28.80	0.880	1.560	1.790	22469	57C5		0.343
119	283.3	29.02	0.860	1.530	1.750	22652	587C		0.346
120	289.7	29.26	0.840	1.490	1.710	22844	593C		0.349
121	296.6	29.51	0.820	1.460	1.670	23046	5A06	25	0.352
122	303.4	29.75	0.800	1.430	1.630	23238	5AC6		0.355
123	310.3	29.99	0.790	1.390	1.600	23430	5B86		0.358
124	317.0	30.21	0.770	1.370	1.560	23612	5C3C		0.360
125	324.2	30.45	0.750	1.340	1.530	23804	5CFC		0.363
126	331.9	30.70	0.740	1.300	1.500	24006	5DC6	26	0.366
127	339.5	30.94	0.720	1.280	1.460	24198	5E86		0.369
128	347.2	31.17	0.700	1.250	1.430	24390	5F46		0.372
129	354.7	31.40	0.690	1.220	1.400	24572	5FFC		0.375
130	362.7	31.64	0.670	1.190	1.370	24764	60BC		0.378
131	371.4	31.89	0.660	1.170	1.340	24966	6186	27	0.381
132	379.8	32.12	0.640	1.140	1.310	25158	6246		0.384
133	388.4	32.36	0.630	1.120	1.280	25350	6306		0.387
134	396.8	32.59	0.620	1.090	1.250	25533	63BD		0.390
135	405.9	32.83	0.600	1.070	1.230	25725	647D		0.393
136	415.5	33.07	0.590	1.040	1.200	25926	6546	28	0.396
137	425.0	33.31	0.580	1.020	1.170	26118	6606		0.399
138	434.7	33.55	0.560	1.000	1.150	26310	66C6		0.401
139	444.0	33.78	0.550	0.980	1.120	26493	677D		0.404
140	454.1	34.01	0.540	0.960	1.100	26685	683D		0.407
141	465.0	34.26	0.530	0.930	1.070	26886	6906	29	0.410
142	475.5	34.50	0.520	0.910	1.050	27079	69C7		0.413
143	486.4	34.74	0.500	0.890	1.020	27271	6A87		0.416
144	496.8	34.96	0.490	0.880	1.000	27453	6B3D		0.419
145	508.1	35.20	0.480	0.860	0.980	27645	6BFD		0.422
146	520.3	35.45	0.470	0.840	0.960	27847	6CC7	30	0.425
147	532.1	35.69	0.460	0.820	0.940	28039	6D87		0.428
148	544.2	35.93	0.450	0.800	0.920	28231	6E47		0.431
149	555.9	36.15	0.440	0.780	0.900	28413	6EFD		0.434
150	568.5	36.39	0.430	0.770	0.880	28605	6FBD		0.436
151	582.1	36.64	0.420	0.750	0.860	28807	7087	31	0.440
152	595.3	36.88	0.410	0.730	0.840	28999	7147		0.442
153	608.9	37.11	0.400	0.720	0.820	29191	7207		0.445
154	622.0	37.34	0.400	0.700	0.800	29373	72BD		0.448
155	636.2	37.58	0.390	0.690	0.790	29566	737E		0.451
156	651.3	37.83	0.380	0.670	0.770	29767	7447	32	0.454
157	666.1	38.06	0.370	0.650	0.750	29959	7507		0.457
158	681.2	38.30	0.360	0.640	0.730	30151	75C7		0.460
159	695.8	38.53	0.350	0.630	0.720	30334	767E		0.463
160	711.6	38.77	0.350	0.610	0.700	30526	773E		0.466
161	728.7	39.01	0.340	0.600	0.690	30727	7807	33	0.469
162	745.4	39.25	0.330	0.590	0.670	30919	78C7		0.472
163	762.5	39.49	0.320	0.570	0.660	31111	7987		0.475
164	779.0	39.72	0.320	0.560	0.640	31294	7A3E		0.478
165	796.5	39.95	0.310	0.550	0.630	31486	7AFE		0.480
166	822.2	1.03	0.300	0.532	0.609	31688	7BC8	34	0.484
167	848.1	1.06	0.291	0.516	0.591	31880	7C88		0.486
168	874.0	1.09	0.282	0.500	0.573	32072	7D48		0.489
169	898.6	1.12	0.275	0.487	0.558	32254	7DFE		0.492
170	924.5	1.16	0.267	0.473	0.542	32446	7EBE		0.495
171	951.8	1.19	0.259	0.460	0.527	32648	7F88	35	0.498
172	977.7	1.22	0.253	0.448	0.513	32840	8048		0.501
173	1.003.7	1.25	0.246	0.436	0.500	33032	8108		0.504
174	1.028.2	1.29	0.240	0.426	0.488	33214	81BE		0.507
175	1.054.2	1.32	0.234	0.415	0.476	33406	827E		0.510
176	1.081.4	1.35	0.228	0.405	0.464	33608	8348	36	0.513
177	1.107.4	1.38	0.223	0.396	0.454	33800	8408		0.516
178	1.133.3	1.42	0.218	0.387	0.443	33992	84C8		0.519
179	1.158.0	1.45	0.213	0.378	0.434	34175	857F		0.521
180	1.183.9	1.48	0.209	0.370	0.424	34367	863F		0.524
181	1.211.1	1.51	0.204	0.362	0.415	34568	8708	37	0.527
182	1.237.0	1.55	0.200	0.354	0.406	34760	87C8		0.530
183	1.262.9	1.58	0.196	0.347	0.398	34952	8888		0.533
184	1.287.6	1.61	0.192	0.341	0.390	35135	893F		0.536
185	1.313.6	1.64	0.188	0.334	0.383	35327	89FF		0.539
186	1.340.9	1.68	0.184	0.327	0.375	35529	8AC9	38	0.542
187	1.366.8	1.71	0.181	0.321	0.368	35721	8B89		0.545
188	1.392.7	1.74	0.177	0.315	0.361	35913	8C49		0.548
189	1.417.3	1.77	0.174	0.309	0.355	36095	8CFF		0.551
190	1.443.2	1.80	0.171	0.304	0.349	36287	8DBF		0.554
191	1.470.5	1.84	0.168	0.298	0.342	36489	8E89	39	0.557
192	1.496.4	1.87	0.165	0.293	0.336	36681	8F49		0.560
193	1.522.4	1.90	0.162	0.288	0.330	36873	9009		0.563
194	1.546.9	1.93	0.160	0.284	0.325	37055	90BF		0.565
195	1.572.9	1.97	0.157	0.279	0.320	37247	917F		0.568
196	1.600.0	2.00	0.154	0.274	0.315	37449	9249	40	0.571
197	1.615.9	2.02	0.153	0.272	0.311	37819	93BB		0.577
198	1.631.7	2.04	0.151	0.269	0.308	38189	952D		0.583
199	1.647.4	2.06	0.150	0.266	0.306	38558	969E	41	0.588
200	1.663.2	2.08	0.149	0.264	0.303	38928	9810		0.594
201	1.679.0	2.10	0.147	0.261	0.300	39297	9981	42	0.600
202	1.694.8	2.12	0.146	0.259	0.297	39667	9AF3		0.605

203	1,709.8	2.14	0.145	0.257	0.294
204	1,725.5	2.16	0.143	0.254	0.292
205	1,741.2	2.18	0.142	0.252	0.289
206	1,756.9	2.20	0.141	0.250	0.287
207	1,772.6	2.22	0.139	0.248	0.284
208	1,788.2	2.24	0.138	0.245	0.282
209	1,804.0	2.25	0.137	0.243	0.279
210	1,819.6	2.27	0.136	0.241	0.277
211	1,835.3	2.29	0.135	0.239	0.274
212	1,851.0	2.31	0.134	0.237	0.272
213	1,866.7	2.33	0.132	0.235	0.270
214	1,882.4	2.35	0.131	0.233	0.267
215	1,898.1	2.37	0.130	0.231	0.265
216	1,913.7	2.39	0.129	0.229	0.263
217	1,929.4	2.41	0.128	0.228	0.261
218	1,945.1	2.43	0.127	0.226	0.259
219	1,960.8	2.45	0.126	0.224	0.257
220	1,976.5	2.47	0.125	0.222	0.255
221	1,992.2	2.49	0.124	0.220	0.253
222	2,007.9	2.51	0.123	0.219	0.251
223	2023.5	2.53	0.122	0.217	0.249
224	2039.2	2.55	0.121	0.215	0.247
225	2054.9	2.57	0.120	0.214	0.245
226	2070.6	2.59	0.119	0.212	0.243
227	2086.3	2.61	0.118	0.210	0.241
228	2102.0	2.63	0.118	0.209	0.240
229	2117.7	2.65	0.117	0.207	0.238
230	2133.4	2.67	0.116	0.206	0.236
231	2149.0	2.69	0.115	0.204	0.234
232	2164.7	2.71	0.114	0.203	0.233
233	2180.4	2.73	0.113	0.201	0.231
234	2196.1	2.75	0.113	0.200	0.229
235	2211.8	2.76	0.112	0.199	0.228
236	2227.5	2.78	0.111	0.197	0.226
237	2243.2	2.80	0.110	0.196	0.225
238	2258.8	2.82	0.109	0.194	0.223
239	2274.5	2.84	0.109	0.193	0.221
240	2290.2	2.86	0.108	0.192	0.220
241	2305.9	2.88	0.107	0.190	0.218
242	2321.6	2.90	0.106	0.189	0.217
243	2337.3	2.92	0.106	0.188	0.216
244	2352.9	2.94	0.105	0.187	0.214
245	2368.7	2.96	0.104	0.185	0.213
246	2384.3	2.98	0.104	0.184	0.211
247	2400.0	3.00	0.103	0.183	0.210

46689	B661		0.712
47117	B80D	43	0.719
47545	B989		0.725
47974	BB66	44	0.732
48402	BD12		0.739
48830	BE8E		0.745
49259	C06B	45	0.752
49687	C217		0.758
50115	C3C3	46	0.765
50544	C570		0.771
50972	C71C		0.778
51400	C8C8	47	0.784
51829	CA75		0.791
52257	CC21	48	0.797
52685	CDCD		0.804
53114	CF7A		0.810
53542	D126	49	0.817
53970	D2D2		0.824
54399	D47F	50	0.830
54827	D62B		0.837
55255	D7D7		0.843
55684	D984	51	0.850
56112	DB30		0.856
56540	DCDC	52	0.863
56969	DE89		0.869
57397	E035		0.876
57825	E1E1	53	0.882
58254	E38E		0.889
58682	E53A	54	0.895
59110	E6E6		0.902
59539	E893		0.909
59967	EA3F	55	0.915
60395	EBEB		0.922
60824	ED98	56	0.928
61252	EF44		0.935
61680	F0F0		0.941
62109	F29D	57	0.948
62537	F449		0.954
62965	F5F5	58	0.961
63394	F7A2		0.967
63822	F94E		0.974
64250	FAFA	59	0.980
64679	FCA7		0.987
65107	FE53		0.993
65535	FFFF	60	1.000

203	1,710.6	2.14	0.144	0.257	0.294
204	1,726.4	2.16	0.143	0.254	0.292
205	1,742.1	2.18	0.142	0.252	0.289
206	1,758.0	2.20	0.141	0.250	0.286
207	1,773.8	2.22	0.139	0.247	0.284
208	1,789.5	2.24	0.138	0.245	0.281
209	1,805.3	2.26	0.137	0.243	0.279
210	1,821.1	2.28	0.136	0.241	0.276
211	1,836.9	2.30	0.135	0.239	0.274
212	1,852.7	2.32	0.133	0.237	0.272
213	1,868.5	2.34	0.132	0.235	0.269
214	1,884.3	2.36	0.131	0.233	0.267
215	1,900.1	2.38	0.130	0.231	0.265
216	1,915.9	2.39	0.129	0.229	0.263
217	1,931.7	2.41	0.128	0.227	0.261
218	1,947.4	2.43	0.127	0.225	0.259
219	1,963.2	2.45	0.126	0.224	0.257
220	1,979.0	2.47	0.125	0.222	0.254
221	1,994.8	2.49	0.124	0.220	0.252
222	2,010.6	2.51	0.123	0.218	0.250
223	2026.4	2.53	0.122	0.217	0.249
224	2042.2	2.55	0.121	0.215	0.247
225	2058.0	2.57	0.120	0.213	0.245
226	2073.7	2.59	0.119	0.212	0.243
227	2089.5	2.61	0.118	0.210	0.241
228	2105.3	2.63	0.117	0.209	0.239
229	2121.1	2.65	0.117	0.207	0.237
230	2136.9	2.67	0.116	0.206	0.236
231	2152.7	2.69	0.115	0.204	0.234
232	2168.5	2.71	0.114	0.203	0.232
233	2184.3	2.73	0.113	0.201	0.231
234	2200.0	2.75	0.112	0.200	0.229
235	2215.8	2.77	0.112	0.198	0.227
236	2231.6	2.79	0.111	0.197	0.226
237	2247.4	2.81	0.110	0.195	0.224
238	2263.2	2.83	0.109	0.194	0.223
239	2279.0	2.85	0.108	0.193	0.221
240	2294.8	2.87	0.108	0.191	0.220
241	2310.6	2.89	0.107	0.190	0.218
242	2326.4	2.91	0.106	0.189	0.217
243	2342.1	2.93	0.106	0.188	0.215
244	2357.9	2.95	0.105	0.186	0.214
245	2373.7	2.97	0.104	0.185	0.212
246	2389.5	2.99	0.103	0.184	0.211
247	2405.3	3.01	0.103	0.183	0.209
248	2421.1	3.03	0.102	0.181	0.208
249	2436.9	3.05	0.101	0.180	0.207
250	2452.7	3.07	0.101	0.179	0.205
251	2468.5	3.09	0.100	0.178	0.204
252	2441.5	3.11	0.101	0.180	0.206
253	2500.0	3.13	0.099	0.176	0.202
254	2515.8	3.14	0.098	0.175	0.200
255	2531.6	3.16	0.098	0.174	0.199
256	2547.4	3.18	0.097	0.172	0.198
257	2563.2	3.20	0.096	0.171	0.197
258	2579.0	3.22	0.096	0.170	0.195
259	2594.8	3.24	0.095	0.169	0.194
260	2610.6	3.26	0.095	0.168	0.193
261	2626.3	3.28	0.094	0.167	0.192
262	2642.1	3.30	0.094	0.166	0.191
263	2657.9	3.32	0.093	0.165	0.190
264	2673.7	3.34	0.092	0.164	0.188
265	2689.5	3.36	0.092	0.163	0.187
266	2705.3	3.38	0.091	0.162	0.186
267	2721.1	3.40	0.091	0.161	0.185
268	2736.9	3.42	0.090	0.161	0.184
269	2752.7	3.44	0.090	0.160	0.183
270	2768.4	3.46	0.089	0.159	0.182
271	2784.2	3.48	0.089	0.158	0.181
272	2800.0	3.50	0.088	0.157	0.180

40036	9C64		0.611
40406	9DD6	43	0.617
40775	9F47		0.622
41145	A0B9	44	0.628
41515	A22B		0.633
41884	A39C		0.639
42254	A50E	45	0.645
42623	A67F		0.650
42993	A7F1	46	0.656
43362	A962		0.662
43732	AAD4		0.667
44101	AC45	47	0.673
44471	ADB7		0.679
44841	AF29	48	0.684
45211	B09B		0.690
45580	B20C		0.696
45949	B37D	49	0.701
46319	B4EF		0.707
46688	B660	50	0.712
47058	B7D2		0.718
47427	B943		0.724
47797	BAB5	51	0.729
48167	BC27		0.735
48536	BD98	52	0.741
48906	BF0A		0.746
49275	C07B		0.752
49645	C1ED	53	0.758
50014	C35E		0.763
50384	C4D0	54	0.769
50753	C641		0.774
51123	C7B3		0.780
51492	C924	55	0.786
51862	CA96		0.791
52232	CC08	56	0.797
52601	CD79		0.803
52971	CEEB		0.808
53340	D05C	57	0.814
53710	D1CE		0.820
54079	D33F	58	0.825
54449	D4B1		0.831
54818	D622		0.836
55188	D794	59	0.842
55558	D906		0.848
55927	DA77	60	0.853
56297	DBE9		0.859
56666	DD5A		0.865
57036	DECC	61	0.870
57405	E03D		0.876
57775	E1AF	62	0.882
58146	E321		0.887
58514	E492		0.893
58884	E604	63	0.899
59253	E775		0.904
59623	EBE7	64	0.910
59992	EA58		0.915
60362	EBCA		0.921
60731	ED3B	65	0.927
61101	EEAD		0.932
61470	F01E	66	0.938
61840	F190		0.944
62210	F302		0.949
62579	F473	67	0.955
62949	F5E5		0.961
63318	F756	68	0.966
63688	F8C8		0.972
64057	FA39		0.977
64427	FBAB	69	0.983
64796	FD1C		0.989
65166	FE8E		0.994
65535	FFFF	70	1.000

		Digital Zoom:OFF									Digital ZOOM (Continuous) : x1.25									Digital ZOOM (Continuous) : x1.5									Digital ZOOM (Continuous) : x1.75									Digital ZOOM (Continuous) : x2.0										
Focal Length	mm	20	35.1	61.5	107.9	189.3	331.9	582.1	1081.3	1600	20	40.4	81.5	164.4	331.9	669.9	1405.5	1794.9	2000	20	46.5	107.9	250.6	582.1	1405.5	1846.2	2153.8	2400	20	53.5	142.9	381.9	1081.4	1794.9	2153.9	2512.8	2800	20	61.5	189.3	582.2	1641.3	2051.3	2461.6	2871.7	3200	Focal Length	mm
Zoom Position	HEX	0000	20D2	41A4	6276	8348	A41A	C4EC	E5BD	FFFF	0000	20D2	41A4	6276	8348	A41A	C4EC	E5BD	FFFF	0000	20D2	41A4	6276	8348	A41A	C4EC	E5BD	FFFF	0000	20D2	41A4	6276	8348	A41A	C4EC	E5BD	FFFF	0000	20D2	41A4	6276	8348	A41A	C4EC	E5BD	FFFF	Zoom Position	HEX
Control Resolution *	Pulse	14	35	108	330	1004	3061	6852	9585	9585	14	57	189	913	3061	8647	9585	9585	9585	14	62	330	2107	6852	9585	9585	9585	9585	14	98	575	4857	9585	9585	9585	9585	9585	14	108	1003	6851	9585	9585	9585	9585	9585	Control Resolution *	Pulse
		Focus Position [HEX]									Focus Position [HEX]									Focus Position [HEX]									Focus Position [HEX]									Focus Position [HEX]										
	10	966B	988C	9112	7A60	5558	32BA				966B	96E3	87D1	58A8	32BA					966B	9664	7A5F	42AE						966B	9220	68C2	27D5						966B	9112	555A								10
	12	97A4	9ABE	9657	85C9	692C	4DD4				97A4	9A04	8FF0	6BCA	4DD4					97A4	99B1	85C9	5A8C						97A4	970D	785E	4514						97A4	9657	692D								12
	14	980C	9C32	9A2D	8E07	7775	617E	1D69			980C	9C7E	958E	798F	617E					980C	9C4A	8E07	6BBA	1D65					980C	9AA1	8388	5A4A						980C	9A2D	7776	1D78							14
	17	98DD	9DFD	9E4D	96B6	86BD	768B	46B4			98DD	9ED4	9BA0	8842	768B	05C2				98DD	9EE5	96B6	7E2C	46B3					98DD	9E62	8F7E	710D						98DD	9E4D	86BE	46B9							17
	20	9945	9F16	A0F4	9CCF	9179	856A	5C6D	2A53	2A53	9945	A075	9FF0	9298	856A	3B6F	2A53	2A53	2A53	9945	A08E	9CCF	8B29	5C6C	2A53	2A53	2A53	2A53	9945	A0E7	97D0	8137	2A53	2A53	2A53	2A53	2A53	9945	A0F4	9179	5C71	2A53	2A53	2A53	2A53	2A53		20
	24	9A16	A02E	A39B	A2B3	9BAE	9398	712A	4616	4616	9A16	A224	A3FF	9C66	9398	54D0	4616	4616	4616	9A16	A27D	A2B3	9788	7129	4616	4616	4616	4616	9A16	A36C	9FCF	9099	4616	4616	4616	4616	4616	9A16	A39B	9BAF	712D	4616	4616	4616	4616	4616		24
	28	9A7E	A0E6	A5A7	A6C2	A312	9DD1	8020	5A21	5A21	9A7E	A31F	A6D3	A384	9DD1	671D	5A21	5A21	5A21	9A7E	A382	A6C2	A063	8020	5A21	5A21	5A21	5A21	9A7E	A53E	A578	9BAA	5A21	5A21	5A21	5A21	5A21	9A7E	A5A7	A313	8023	5A21	5A21	5A21	5A21	5A21		28
	33		A1A3	A769	AA92	A9BB	A720	8DD7	6C83	6C83		A449	A95E	A9EC	A720	77EC	6C83	6C83	6C83		A4CB	AA92	A88D	8DD6	6C83	6C83	6C83	6C83		A6E2	AA9F	A5D4	6C83	6C83	6C83	6C83	6C83		A769	A9BB	8DD9	6C83	6C83	6C83	6C83	6C83		33
	40	9AE6	A25A	A8E9	AE5A	B045	B053	9B60	7EAE	7EAE	9AE6	A545	ABE9	B034	B053	8884	7EAE	7EAE	7EAE	9AE6	A5C9	AE5A	B07C	9B60	7EAE	7EAE	7EAE	7EAE	9AE6	A859	AFC4	AFD2	7EAE	7EAE	7EAE	7EAE	7EAE	9AE6	A8E9	B045	9B63	7EAE	7EAE	7EAE	7EAE	7EAE		40
	47	9B4F	A2B6	AA18	B0DF	B4EF	B6CE	A4F2	8B89	8B89	9B4F	A5EC	ADB6	B4AF	B6CE	943E	8B89	8B89	8B89	9B4F	A675	B0DF	B621	A4F1	8B89	8B89	8B89	8B89	9B4F	A967	B349	B6DF	8B89	8B89	8B89	8B89	8B89	9B4F	AA18	B4EF	A4F4	8B89	8B89	8B89	8B89	8B89		47
	56		A317	AB3E	B338	B928	BCC3	ADC2	976C	976C		A66F	AF7A	B8BF	BCC3	9F19	976C	976C	976C		A71A	B338	BB4D	ADC2	976C	976C	976C	976C		AA76	B69D	BD65	976C	976C	976C	976C	976C		AB3E	B928	ADC4	976C	976C	976C	976C	976C		56
	67		A373	AC23	B555	BCD9	C1EC	B561	A1AA	A1AA		A717	B0BF	BC4D	C1EC	A871	A1AA	A1AA	A1AA		A7BE	B555	BFC3	B561	A1AA	A1AA	A1AA	A1AA		AB57	B96E	C2FE	A1AA	A1AA	A1AA	A1AA	A1AA		AC23	BCD9	B563	A1AA	A1AA	A1AA	A1AA	A1AA		67
	79	9BB7	A3CE	AD00	B6D5	BFAB	C5E8	BB46	A9A0	A9A0	9BB7	A79A	B1CF	BF06	C5E8	AFB0	A9A0	A9A0	A9A0	9BB7	A863	B6D5	C337	BB45	A9A0	A9A0	A9A0	A9A0	9BB7	AC1A	BB9A	C759	A9A0	A9A0	A9A0	A9A0	A9A0	9BB7	AD00	BFAB	BB47	A9A0	A9A0	A9A0	A9A0	A9A0		79
	94		A42A	AD9C	B84C	C229	C96E	C08E	B0BE	B0BE		A7EE	B2CC	C169	C96E	B62F	B0BE	B0BE	B0BE		A8BD	B84C	C64E	C08E	B0BE	B0BE	B0BE	B0BE		ACB0	BD96	CB37	B0BE	B0BE	B0BE	B0BE	B0BE		AD9C	C228	C08F	B0BE	B0BE	B0BE	B0BE	B0BE		94
	110		A430	AE2F	B95B	C420	CC32	C499	B633	B633		A841	B392	C34C	CC32	BB2A	B633	B633	B633		A90F	B95B	C8A3	C499	B633	B633	B633	B633		AD28	BF17	CE32	B633	B633	B633	B633	B633		AE2F	C420	C49B	B633	B633	B633	B633	B633		110
	130		A486	AE79	BA69	C5DA	CEA8	C843	BB29	BB29		A895	B451	C4EE	CEA8	BFAF	BB29	BB29	BB29		A961	BA69	CAC9	C842	BB29	BB29	BB29	BB29		AD91	C06F	D0E3	BB29	BB29	BB29	BB29	BB29		AE78	C5DA	C844	BB29	BB29	BB29	BB29	BB29		130
	160		A48B	AF0C	BB6D	C7B3	D135	CC0F	C048	C048		A8C5	B50E	C6BA	D135	C45A	C048	C048	C048		A9B3	BB6E	CD03	CC0F	C048	C048	C048	C048		AE09	C1C6	D3AE	C048	C048	C048	C048	C048		AF0C	C7B3	CC10	C048	C048	C048	C048	C048		160
	190		A4E2	AF5E	BC13	C8EF	D2F7	CEA7	C3CC	C3CC		A8E9	B58D	C7E7	D2F7	C78D	C3CC	C3CC	C3CC		A9BB	BC13	CE7C	CEA7	C3CC	C3CC	C3CC	C3CC		AE55	C2C4	D598	C3CC	C3CC	C3CC	C3CC	C3CC		AF5E	C8EF	CEA8	C3CC	C3CC	C3CC	C3CC	C3CC		190
	220		A4E7	AFA8	BC85	C9D0	D438	D08D	C65B	C65B		A918	B5D6	C8BD	D438	C9E1	C65B	C65B	C65B		AA06	BC85	CF9C	D08C	C65B	C65B	C65B	C65B		AE81	C370	D6FB	C65B	C65B	C65B	C65B	C65B		AFA7	C9CF	D08D	C65B	C65B	C65B	C65B	C65B		220
	270			AFB0	BD2B	CAE6	D5B5	D2C2	C95C	C95C		A93D	B61E	C9CA	D5B5	CCA0	C95C	C95C	C95C		AA0D	BD2B	D0E6	D2C2	C95C	C95C	C95C	C95C		AEA0	C445	D89D	C95C	C95C	C95C	C95C	C95C		AFB0	CAE6	D2C3	C95C	C95C	C95C	C95C	C95C		270
Subject Distance[m]	320			AFF1	BD93	CBA2	D6C2	D44B	CB71	CB71		A96C	B693	CA80	D6C2	CE82	CB71	CB71	CB71		AA58	BD93	D1D1	D44B	CB71	CB71	CB71	CB71		AEEB	C4C8	D9BE	CB71	CB71	CB71	CB71	CB71		AFF1	CBA2	D44C	CB71	CB71	CB71	CB71	CB71	Subject Distance[m]	320
	380			B03B	BDFC	CC40	D7A0	D597	CD35	CD35			B6D3	CB17	D7A0	D01D	CD35	CD35	CD35		AA5F	BDFC	D289	D597	CD35	CD35	CD35	CD35		AF17	C543	DAB3	CD35	CD35	CD35	CD35	CD35		B03B	CC40	D598	CD35	CD35	CD35	CD35	CD35		380
	450			B043	BE39	CCC0	D85E	D6B1	CEAC	CEAC			B6DC	CB96	D85E	D174	CEAC	CEAC	CEAC			BE39	D335	D6B1	CEAC	CEAC	CEAC	CEAC		AF36	C5BE	DB7B	CEAC	CEAC	CEAC	CEAC	CEAC		B043	CCBF	D6B1	CEAC	CEAC	CEAC	CEAC	CEAC		450
	530				BE6D	CD21	D8EF	D791	CFE0	CFE0			B71B	CBF6	D8EF	D289	CFE0	CFE0	CFE0			BE6D	D3B8	D791	CFE0	CFE0	CFE0	CFE0			C610	DC27	CFE0	CFE0	CFE0	CFE0	CFE0			CD20	D792	CFE0	CFE0	CFE0	CFE0	CFE0		530
	630			B084	BEA2	CD81	D97D	D85E	D0F4	D0F4			B724	CC4C	D97D	D387	D0F4	D0F4	D0F4			BEA2	D426	D85E	D0F4	D0F4	D0F4	D0F4		AF63	C641	DCB8	D0F4	D0F4	D0F4	D0F4	D0F4		B084	CD81	D85F	D0F4	D0F4	D0F4	D0F4	D0F4		630
	750			B08D	BED6	CDDC	D9F3	D90A	D1DA	D1DA			B75B	CCA2	D9F2	D458	D1DA	D1DA	D1DA			BED6	D494	D909	D1DA	D1DA	D1DA	D1DA			C693	DD38	D1DA	D1DA	D1DA	D1DA	D1DA		B08D	CDDB	D90A	D1DA	D1DA	D1DA	D1DA	D1DA		750
	890				BF0A	CE1F	DA4D	D996	D29D	D29D			B764	CCE2	DA4C	D50A	D29D	D29D	D29D			BF0A	D4D8	D996	D29D	D29D	D29D	D29D			C6C4	DDA3	D29D	D29D	D29D	D29D	D29D			CE1F	D996	D29D	D29D	D29D	D29D	D29D		890
	1100				BF13	CE5C	DAB0	DA2A	D35F	D35F			B799	CD22	DAB0	D5BC	D35F	D35F	D35F			BF13	D532	DA29	D35F	D35F	D35F	D35F			C6ED	DE10	D35F	D35F	D35F	D35F	D35F			CE5B	DA2A	D35F	D35F	D35F	D35F	D35F		1100
	1300				BF3E	CE98	DAEB	DA86	D3E2	D3E2			B7A2	CD59	DAEB	D633	D3E2	D3E2	D3E2			BF3F	D570	DA86	D3E2	D3E2	D3E2	D3E2			C716	DE50	D3E2	D3E2	D3E2	D3E2	D3E2			CE98	DA87	D3E2	D3E2	D3E2	D3E2	D3E2		1300
	1500				BF47	CEB6	DB22	DACC	D441	D441				CD79	DB22	D687	D441	D441	D441			BF47	D59A	DACC	D441	D441	D441	D441			C73F	DE86	D441	D441	D441	D441	D441			CEB6	DACD	D441	D441	D441	D441	D441		1500
	1800				BF73	CEDB	DB50	DB19	D4A4	D4A4				CD99	DB50	D6E7	D4A4	D4A4	D4A4			BF73	D5CA	DB19	D4A4	D4A4	D4A4	D4A4			C747	DEBD	D4A4	D4A4	D4A4	D4A4	D4A4			CEDB	DB1A	D4A4	D4A4	D4A4	D4A4	D4A4		1800
	2100				BF7C	CEF9	DB79	DB51	D4F1	D4F1				CDAF	DB79	D727	D4F1	D4F1	D4F1			BF7C	D5DE	DB50	D4F1	D4F1	D4F1	D4F1			C768	DEE2	D4F1	D4F1	D4F1	D4F1	D4F1			CEF9	DB51	D4F1	D4F1	D4F1	D4F1	D4F1		2100
	2500					CF00	DB98	DB82	D535	D535				CDB9	DB98	D767	D535	D535	D535				D5F8	DB82	D535	D535	D535	D535	D535			C770	DF0D	D535	D535	D535	D535	D535			CEFF	DB83	D535	D535	D535	D535	D535		2500
	3000					CF18	DBB7	DBAF	D574	D574				CDD8	DBB7	D79E	D574	D574	D574				D61D	DBAF	D574	D574	D574	D574	D574			C791	DF29	D574	D574	D574	D574	D574			CF17	DBAF	D574	D574	D574	D574	D574		3000
	3500					CF36	DBD3	DBCF	D59D	D59D				CDEF	DBD3	D7C5	D59D	D59D	D59D				D622	DBCF	D59D	D59D	D59D	D59D	D59D				DF43	D59D	D59D	D59D	D59D	D59D			CF35	DBD0	D59D	D59D	D59D	D59D	D59D		3500
	4200					CF3D	DBE1	DBF3	D5CA	D5CA					DBE1	D7ED	D5CA	D5CA	D5CA				D637	DBF3	D5CA	D5CA	D5CA	D5CA	D5CA		C799	DF59	D5CA	D5CA	D5CA	D5CA	D5CA			CF3C	DBF4	D5CA	D5CA	D5CA	D5CA	D5CA		4200
	5000						DBF3	DC09	D5EE	D5EE				CDF8	DBF3	D80F	D5EE	D5EE	D5EE				D64C	DC09	D5EE	D5EE	D5EE	D5EE	D5EE				DF71	D5EE	D5EE	D5EE	D5EE	D5EE				DC09	D5EE	D5EE	D5EE	D5EE	D5EE		5000
	6000					CF54	DC00	DC1F	D60E	D60E				CE0F	DC00	D829	D60E	D60E	D60E				D661	DC1F	D60E	D60E	D60E	D60E	D60E				DF7C	D60E	D60E	D60E	D60E	D60E			CF54	DC20	D60E	D60E	D60E	D60E	D60E		6000
	7100					CF5B	DC0E	DC32	D625	D625					DC0E	D841	D625	D625	D625					DC32	D625	D625	D625	D625	D625				DF8D	D625	D625	D625	D625	D625			CF5A	DC33	D625	D625	D625	D625	D625		7100
	8400						DC1C	DC42	D637	D637					DC1C	D850	D637	D637	D637				D666	DC42	D637	D637	D637	D637	D637				DF97	D637	D637	D637	D637	D637				DA87	D637	D637	D637	D637	D637		8400
	Inf	9C20	A543	B0D7	BFB0	CF79	DC49	DC8F	D6A3	D6A3	9C20	A9C0	B7E2	CE2F	DC49	D8B3	D6A3	D6A3	D6A3	9C20	AAB2	BFB0	D690	DC8F	D6A3	D6A3	D6A3	D6A3	9C20	AFAE	C7C2	DFCD	D6A3	D6A3	D6A3	D6A3	D6A3	9C20	B0D6	CF78	DC90	D6A3	D6A3	D6A3	D6A3	D6A3		Inf

	Model			SX800/SX801									SX1600			
	Protocol / FW Ver			v1.00	v1.01	v1.20	v1.30	v1.31	v1.40	v1.50	v1.60	v2.00	v2.12	v1.00	Alternate command	Notes
	CMND1	CMND2	Function													
Standard Command	-	-		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
Extended Command	0x00	0x25	Set Zoom Speed	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	Set Zoom Speed Ex	Recommended to use alternative command.
	0x00	0x27	Set Focus Speed	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	Set Focus Speed Ex	Recommended to use alternative command.
	0x00	0x2B	Auto Focus on/off	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0x00	0x2D	Auto Iris on/off	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0x00	0x2F	AGC auto/on/off	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0x00	0x31	Backlight compensation on/off	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0x00	0x4F	Set Zoom Position	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0x00	0x67	Set Remote Baud Rate	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xXX	0x77	Time Set Opcode	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0x00	0x55	Query Zoom Position			✔	✔	✔	✔	✔	✔	✔	✔	✔		
FF Extended Command	0x00	0x81	Query Focus Position	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0x00	0x83	Query Zoom Position	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0x00	0x89	Query Serial Number	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0x00	0x8B	Query FW Version	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		There are parameter differences for each model.
	0x00	0x8D	Query Lens Status	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0x00	0x8F	Set Focus Position	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0x00	0x91	Set Manual Iris	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		There are parameter differences for each model.
	0x00	0x93	Set Shutter Limit on Auto	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0x00	0x95	Set Manual Shutter Speed	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0x00	0x97	Query Manual Shutter Speed	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0x00	0x99	Set Manual ISO	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0x00	0x9B	Query Manual ISO	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0x00	0x9D	Query Manual Iris	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		There are parameter differences for each model.
	0x00	0xA1	Query Protocol Version											✔		New command for SX1600
	0x00	0xAD	Query Manual Setting	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		**See Table 1 for details**
Original Command1	0xF0	0x03	Set AF Area	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		Set Focus Area Select	Obsolete command. Please use the new alternative command.
	0xF0	0x05	Set AF Sensitivity	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xF0	0x07	One-push AF	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xF0	0x0D	Set Auto Day/Night Control Mode	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		Set Day to Night Threshold Set Night to Day Threshold	Obsolete command. Please use the new alternative command.
	0xF0	0x0F	Set Manual Day/Night	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		Set DayNight Mode	Obsolete command. Please use the new alternative command.
	0xF0	0x11	Set Infrared WaveLength	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xF0	0x13	Set OIS Mode	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xF0	0x17	Set Photo Mode Preset	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xF0	0x19	Set DayNight Controll by External	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		There are parameter differences for each model.
	0xF0	0x1D	Query Photo Setting	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		**See Table 2 for details**
Original Command2	0xF0	0x21	Set VLC Filter	✔	✔ ※	✔	✔	✔	✔	✔	✔	✔	✔		Set Optical Filter Day Set Optical Filter Night	※ Add the new argument Obsolete command. Please use the new alternative command.
	0xF0	0x23	Set WideDynamicRange	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xF0	0x27	Set DeHeatHaze Mode	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xF0	0x29	Set Defogging Mode	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xF0	0x2B	Set Brightness Level	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		Set Brightness Level Fine	Obsolete command. Please use the new alternative command.
	0xF0	0x2D	Set Contrast Level	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		Set Contrast Level Fine	Obsolete command. Please use the new alternative command.
	0xF0	0x2F	Set ColorSaturation Level	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		Set ColorSaturation Level Fine	Obsolete command. Please use the new alternative command.
	0xF0	0x31	Set Sharpness Level	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		Set Sharpness Level Fine	Obsolete command. Please use the new alternative command.
	0xF0	0x33	Set ColorTemperature on whiteBalance	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xF0	0x35	Set Select WhiteBalance	✔	✔	✔	✔	✔	✔	✔	✔	✔ ※	✔	✔		※ Add the new argument
	0xF0	0x37	Set Digital Zoom	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔ ※	✔		※ Add the new argument
	0xF0	0x39	Set NR Level	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xF0	0x3D	Query ImageQuality Setting	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		**See Table 3 for details**
Original Command3	0xF0	0x43	Set DayTime Display	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xF0	0x45	Set DisplayPosition of DayTime	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xF0	0x47	Set Title Display	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xF0	0x4B	Set Display Position of Title	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xF0	0x4D	Set ID Display	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xF0	0x4F	Set DisplayPosition of ID	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xF0	0x51	Set Center Position Display	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
	0xF0	0x55	SetAntialiasing						✔	✔	✔	✔	✔	✔		
	0xF0	0x5D	Query Display Setting	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		**See Table 4 for details**

Original Command4	0xF0	0x61	Set DisplayMode of time	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x63	Set DisplayMode of YMD	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x67	Set Video Mode	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x69	Set HD Format	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x6B	Set VideoDisplay Mode	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x6F	Set RS485 ID	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x73	Set Termination for RS485	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x77	Set RecordingMode on SDcard	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x79	Set Display SDcard Capacity Remaining	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x7B	Format SDcard	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x7D	Download Firmware	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x7F	Record LogData on SDcard	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x81	Preset parameters	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x83	Reboot	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x85	Set Language	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x8D	Query Operation Setting	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			**See Table 5 for details**
Original Command5	0xF0	0x91	Set EncodeMode	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x93	Record LiveView on SDcard	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x95	Set 1st file of playing Movie	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x97	Play Movie from SDcard	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x99	Delete Movie from SDcard	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0x9B	Select Movie mode Play mode	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0xA7	Set SDI ON MENU OK	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0xA9	Set Direction	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0xAB	Set Back CMD	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0xAD	Query Key Setting	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			**See Table 6 for details**
Original Command6	0xF0	0xB1	Query Number of Movies on SDcard	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0xB5	Query Year of Movie on SDcard	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0xB9	Query MonthDay of Movie on SDcard	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
	0xF0	0xBD	Query HourMinute of Movie on SDcard	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
Original Command7	0xF0	0xD1	Query LogData	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			There are parameter differences for each model.
Original Command8	0xF0	0xEB	Set Brightness Level Fine									✔	✔	✔			
	0xF0	0xED	Set Contrast Level Fine									✔	✔	✔			
	0xF0	0xEF	Set ColorSaturation Level Fine									✔	✔	✔			
	0xF0	0xF1	Set Sharpness Level Fine									✔	✔	✔			
	0xF0	0xF5	Set WhiteBalance Shift Red Fine									✔	✔	✔			
	0xF0	0xF7	Set WhiteBalance Shift Blue Fine									✔	✔	✔			
	0xF0	0xFD	Query ImageQuality Setting Fine									✔	✔	✔			**See Table 7 for details**
Original Command9	0xF1	0x01	Set DayNight Mode								✔	✔	✔	✔			
	0xF1	0x03	Set Day to Night Threshold								✔	✔	✔	✔			
	0xF1	0x05	Set Night to Day Threshold								✔	✔	✔	✔			
	0xF1	0x07	Set DayNight Auto Delay								✔	✔	✔	✔			
	0xF1	0x09	Set Day Start Time								✔	✔	✔	✔			
	0xF1	0x0B	Set Night Start Time								✔	✔	✔	✔			
	0xF1	0x0D	Set Optical Filter Day								✔	✔	✔	✔			
	0xF1	0x0F	Set Optical Filter Night								✔	✔	✔	✔			
	0xF1	0x1D	Query DayNight Setting Ex								✔	✔	✔	✔			**See Table 8 for details**
Original Command10	0xF1	0x25	Set Zoom Speed Ex									✔	✔	✔			
	0xF1	0x27	Set Focus Speed Ex									✔	✔	✔			
	0xF1	0x21	Set Digital Zoom Ex									✔	✔	✔			
	0xF1	0x2D	Query Zoom Focus Speed Setting Ex									✔	✔	✔			**See Table 9 for details**
Original Command11	0xF2	0x01	Set Focus Area Select											✔			New command for SX1600
	0xF2	0x03	Set Focus Area Position											✔			New command for SX1600
	0xF2	0x05	Set Focus Area Start Position											✔			New command for SX1600
	0xF2	0x07	Set Focus Area End Position											✔			New command for SX1600
	0xF2	0x09	Query Focus Area Setting											✔			New command for SX1600
	0xF2	0x0B	Query Focus Area Position											✔			New command for SX1600

Table 1		SX800/SX801										SX1600		
Protocol / FW Ver		v1.00	v1.01	v1.20	v1.30	v1.31	v1.40	v1.50	v1.60	v2.00	v2.12	v1.00	Alternate command	Notes
CMND2	Function													
0x25	Query Zoom Speed	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	Query Zoom Speed Ex	Recommended to use alternative command.
0x27	Query Focus Speed	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	Query Focus Speed Ex	Recommended to use alternative command.
0x2B	Query Auto Focus	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x2D	Query Auto Iris	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x2F	Query AGC	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x31	Query Backlight	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x4F	Query Zoom Position	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x67	Query Baud Rate	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x8F	Query Focus Position	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x91	Query Manual Iris	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x93	Query Shutter Limit on Auto	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x95	Query Manual Shutter Speed	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x99	Query Manual ISO	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		

Table 2		SX800/SX801										SX1600		
0x03	Query AF Area	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		Query Focus Area Setting Query Focus Area Position	Obsolete command. Please use the new alternative command.
0x05	Query AF Sensitivity	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x07	Query One-push AF	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x0D	Query Auto Day/Night Control Mode	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		Query DayNight Setting Ex	Obsolete command. Please use the new alternative command.
0x0F	Query Manual Day/Night	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		Query DayNight Setting Ex	Obsolete command. Please use the new alternative command.
0x11	Query Infrared WaveLength	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x13	Query OIS Mode	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x17	Query Photo Mode Preset	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x19	Query DayNight Controll by External	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		

Table 3		SX800/SX801										SX1600		
0x21	Query VLC Filter	✔	✔ ※	✔	✔	✔	✔	✔	✔	✔	✔		Query Optical Filter Day Query Optical Filter Night	Obsolete command. Please use the new alternative command.
0x23	Query Wide DynamicRange	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x27	Query DeHeatHaze Mode	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x29	Query Defogging Mode	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x2B	Query Brightness Level	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		Query Brightness Level Fine	Obsolete command. Please use the new alternative command.
0x2D	Query Contrast Level	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		Query Contrast Level Fine	Obsolete command. Please use the new alternative command.
0x2F	Query ColorSaturation Level	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		Query ColorSaturation Level Fine	Obsolete command. Please use the new alternative command.
0x31	Query Sharpness Level	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		Query Sharpness Level Fine	Obsolete command. Please use the new alternative command.
0x33	Query ColorTemperature on whiteBalance	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x35	Query Select WhiteBalance	✔	✔	✔	✔	✔	✔	✔	✔	✔ ※	✔	✔		※ Add the new argument
0x37	Query Digital Zoom	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔ ※	✔		※ Add the new argument
0x39	Query NR Level	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		

Table 4		SX800/SX801										SX1600		
0x43	Query DayTime Display	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x45	Query DisplayPosition of DayTime	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x47	Query Title Display	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x4B	Query Display Position of Title	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x4D	Query ID Display	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		

0x4F	Query DisplayPosition of ID	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x51	Query Center Position Display	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x53	Query Display Zoom bar & AF Frame						✔	✔	✔	✔	✔	✔		
0x55	Query Antialiasing						✔	✔	✔	✔	✔	✔		

Table 5		SX800/SX801										SX1600		
0x61	Query DisplayMode of time	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x63	Query DisplayMode of YMD	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x67	Query Video Mode	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x69	Query HD Format	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x6B	Query VideoDisplay Mode	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x6F	Query RS485 ID	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x73	Query Termination for RS485	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x77	Query RecordingMode on SDcard	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x79	Query Display SDcard Capacity Remaining	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x7B	Query Format SDcard	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x7F	Query Record LogData on SDcard	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x81	Query Preset parameters	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x85	Query Language	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x8B	Query Sdcard Status	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		

Table 6		SX800/SX801										SX1600		
0x91	Query EncodeMode	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x93	Query Record LiveView on SDcard	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x95	Query 1st file of playing Movie	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x97	Query Play Movie from SDcard	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x99	Query Delete Movie from SDcard	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0x9B	Query Select Movie mode Play mode	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0xA7	Query SDI ON MENU OK	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0xA9	Query Direction	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
0xAB	Query Back CMD	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		

Table 7		SX800/SX801										SX1600		
0xEB	Query Brightness Level Fine									✔	✔	✔		
0xED	Query Contrast Level Fine									✔	✔	✔		
0xEF	Query ColorSaturation Level Fine									✔	✔	✔		
0xF1	Query Sharpness Level Fine									✔	✔	✔		
0xF5	Query WhiteBalance Shift Red Fine									✔	✔	✔		
0xF7	Query WhiteBalance Shift Blue Fine									✔	✔	✔		

Table 8		SX800/SX801										SX1600		
0x01	Query Night Mode								✔	✔	✔	✔		
0x03	Query Day to Night Threshold								✔	✔	✔	✔		
0x05	Query Night to Day Threshold								✔	✔	✔	✔		
0x07	Query DayNight Auto Delay								✔	✔	✔	✔		
0x09	Query Day Start Time								✔	✔	✔	✔		
0x0B	Query Night Start Time								✔	✔	✔	✔		
0x0D	Query Optical Filter Day								✔	✔	✔	✔		
0x0F	Query Optical Filter Night								✔	✔	✔	✔		

Table 9		SX800/SX801										SX1600		
0x21	Query Digital Zoom Ex									✔	✔	✔		
0x25	Query Zoom Speed Ex									✔	✔	✔		
0x27	Query Focus Speed Ex									✔	✔	✔		