SONY

Specification of Sony Security Product Protocol

Ver. 1.01

Ver. 1.00: Issued on August 30, 2002
Ver. 1.01: Issued on September 20, 2002

Sony Corporation
Broadband Solutions Network Company
Business Solutions Company
e-Surveillance Products Dept.

[Specification of Sony Security Product Protocol - Release Record -]

Version	Date of Issue	Changes	Remarks
1.00	’02.08.30	Issued the initial version	
1.01	’02.09.20	“5. Application Layer” is added.	

Table of Contents

1 Purpose

This protocol specifies the communication specifications to connect recorders, cameras, controllers, computers and other necessary devices each other to configure a security system and to control them as integral part of the system.

2 Protocol Structure

This serial communication protocol is structured as follows. Each layer is to be described in the following sections.

Application layer
Data link layer
Physical layer

3 Physical Layer

The interface specifications of this communication are as follows.

Hardware specification	: RS-485
Bit rate	: 38400 bps
Code set	: Ascii data (except control code)
Data length	: 7bits
Parity	: EVEN
Stop	: 1
Command length	: Variable length (Max. 255 bytes including control code)
Bit order	: LSB first
Communication mode	: Asynchronous half-duplex

4 Data Link Layer

The following is the data link of this communication.

Communication method : Polling/Selecting system
(JIS X5002, Corresponding to “Basic Mode Data Transmission Control Procedures”)

Communication configuration : 1-to-N communication (“N”is up to 255.)
=> Master station: Recorder, controller or computer
=> Slave station: Camera/PT

4.1 Format Structure

4.1.1 Polling Format

The master station always calls the slave station through polling. The polling format adheres to the following.

[Polling from the master station]

SOH	CAT	AD0	AD1	ENQ

The characters of AD0 and AD1 consist of the Ascii codes.

(1) Header
SOH : 01h

(2) Category code
CAT : Category code (‘A’ to ‘Z’)

(3) Polling address
AD0 : Destination address (hexadecimal: H)
AD1 : Destination address (hexadecimal: L)

(4) Enquiry
ENQ : 05h

< Packet sample >
Example of polling to the address 20 (decimal)

SOH	CAT	1	4	ENQ

[Response to the polling from the slave station]

When the slave station does not have messages to send, it returns EOT (End of Transmission).

In addition, EOT is sent both from the master station and from the slave station to indicate the end of transmission.

SOH	CAT	AD0	AD1	EOT

The characters of AD0 and AD1 consist of the Ascii codes.

(1) Header

SOH : 01h

(2) Category code

CAT : Category code (‘A’ to ‘Z’)

(3) Address

When a message is sent from the master station, it should specify the address of the device to be controlled. In the case of a message from the slave station, it should specify its own address.

AD0 : Address (Hexadecimal: H)

AD1 : Address (Hexadecimal: L)

(4) End of transmission

EOT : 04h

< Packet sample >

Example of a response to the polling of the address 20 (decimal)

SOH	CAT	1	4	EOT

4.1.2 Selecting Format

For the detailed procedure, refer to the next section. As this communication puts most importance on the control response, it does not execute the station selection sequence of the selecting format that is stipulated by the JIS standards. The selecting format is structured as follow.

[Selecting from the master/slave station]

STX	CAT	AD0	AD1	KD0	KD1	FNC	PARAMETER	ETX	BCC

The characters between AD0 and "PARAMETER" consist of the Ascii codes.

(1) Start of text

STX : 02h

(2) Category code

CAT : Category code ('A' to 'Z')

(3) Address

1. When a message is sent from the master station, it should specify the address of the device to be controlled. In the case of a message from the slave station, it should specify its own address.

2. When a message is addressed to 0, it should be a control message to all slave stations. (The control message can be sent to all slave stations only from the master station. The slave stations do not return ACK/NAK/EOT.)

3. It is possible to set a "group address" arbitrarily depending on categories. When the slave stations can set a group address in addition to their own addresses and a message is addressed to the group address, the slave stations with the corresponding group address should react as is the case with the receipt of a control message to all slave stations.

AD0 : Address (Hexadecimal: H)
AD1 : Address (Hexadecimal: L)

(4) Classification of commands

KD0 : Command (Major classification) ('A' to 'Z')
KD1 : Command (Minor classification) ('A' to 'Z')

(5) Function

FNC : Specifying function ('A' to 'Z')

(6) End of text

ETX : 03h

(7) Checksum

BCC : Exclusive OR between CAT and ETX (Binary: 00~7Fh)

< Packet Sample >

Control command to the address 20 (decimal) (Category: A, Command classification: BC, FNC: Example of Z)

STX	A	1	4	B	C	Z	1	2	3	4	5	6	7	8	9	A	ETX	BCC

Hexadecimal codes 02h 41h 31h 34h 42h 43h 5Ah 31h 32h 33h 34h 35h 36h 37h 38h 39h 41h 03h 6ch

[Response to the selecting from the master/slave station]
(Acknowledgement:ACK)

SOH	CAT	AD0	AD1	ACK

The characters of AD0 and AD1 consist of the Ascii codes.

(1) Header

SOH : 01h

(2) Category code

CAT : Category code (‘A’ to ‘Z’)

(3) Station address

AD0 : Station address (Hexadecimal: H)

AD1 : Station address (Hexadecimal: L)

(4) Acknowledgement

ACK : 06h

< Packet Sample >

Example of an acknowledgement to the selecting of the address 20 (decimal)

SOH	CAT	1	4	ACK

(Negative Acknowledgement:NAK)

SOH	CAT	AD0	AD1	NAK

The characters of AD0 and AD1 consist of the Ascii codes.

(1) Header

SOH : 01h

(2) Category code

CAT : Category code (‘A’ to ‘Z’)

(3) Station address

AD0 : Station address (Hexadecimal: H)

AD1 : Station address (Hexadecimal: L)

(4) Negative acknowledgement

NAK : 15h

<Packet Sample>

Example of a negative acknowledgement to the selecting of the address 20 (decimal)

SOH	CAT	1	4	NAK

4.2 Communication Method

As mentioned above, the communication method should adhere to JIS X5002 “Basic Mode Data Transmission Control Procedures”.

The following 4 types of actual control procedures are described in the subsequent sections.

Polling sequence (Master station)

→ Descriptions on the sequence when the master station calls the slave station through polling

Polling sequence (Slave station)

→ Descriptions on the sequence when the slave station is called through polling

Selecting sequence (Master station)

→ Descriptions on the sequence when the master station calls the slave station through selecting (controlling)

Selecting sequence (Slave station)

→ Descriptions on the sequence when the slave station is called from the master station through selecting

Communication control matrix (Master station)

→ Descriptions by the matrix on the polling/selecting processes from the master station

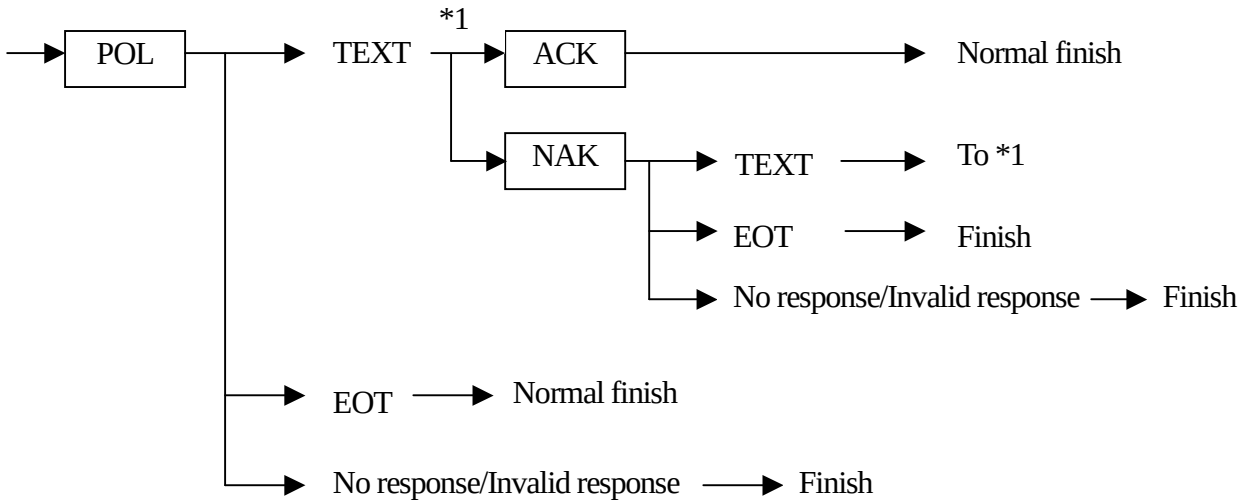
Communication control matrix (Slave station)

→ Descriptions by the matrix on the polling/selecting processes from the slave station

In addition, the minimum interval between the transmission and the reception of data is specified.

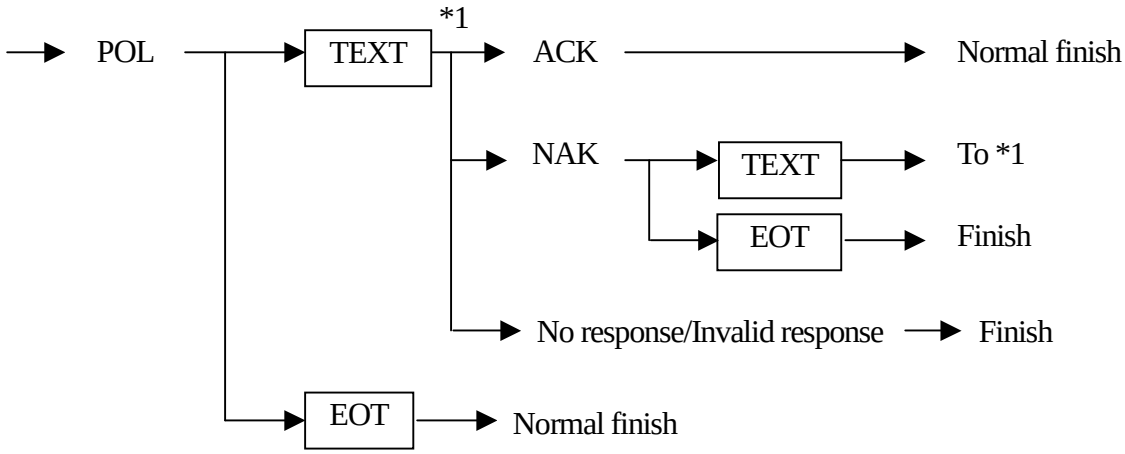
4.2.1 Polling Sequence (Master station)

(=> □ => indicates the send data while => => does the receive data.)



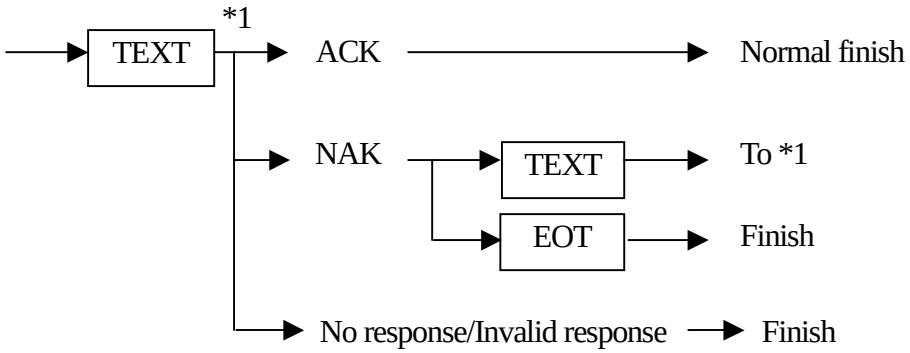
4.2.2 Polling Sequence (Slave station)

(=> □ => indicates the send data while => => does the receive data.)



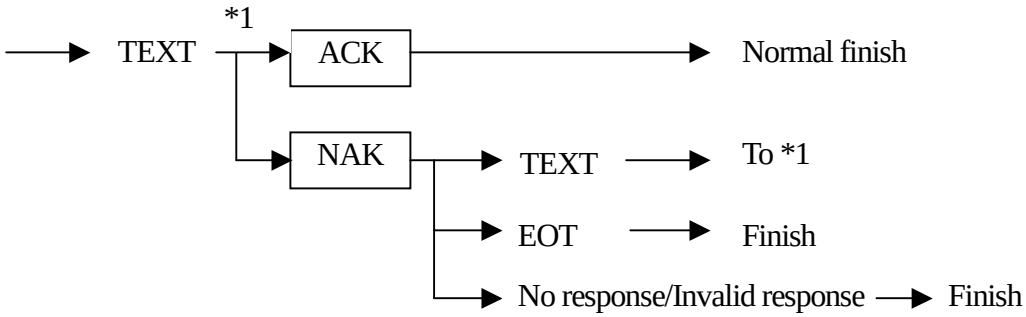
4.2.3 Selecting Sequence (Master station)

(=> ☐ => indicates the send data while => => does the receive data.)



4.2.4 Selecting Sequence (Slave station)

(=> ☐ => indicates the send data while => => does the receive data.)



4.2.5 Communication Control Matrix (Master station)

	Receiving status					
	Normal receipt of data				No response	Reception error
	TEXT	ACK	NAK	EOT		
(1) Idle	Polling transmission => (2) Text transmission => (3)					

(2)
After polling transmission
	if(No room in receiving buffer)
	=> NAK
	=> (4)
	else
	=> ACK
	=> (1)
		=> (1)	=> (1)	=> (1)	TM1
					RT++
					if(RT > RT1)
					=> (1)
					else
					=> Polling re-transmission
					=> (2)
						RT++
						if(RT > RT1)
						=> (1)
						else
						=> Polling re-transmission
						=> (2)

(3)
After text transmission
	=> (1)	=> (1)	RT++
			if(RT > RT2)
			=> EOT
			=> (1)
			else
			=> Text
			=> (3)
				=> (1)	TM2
					=> (1)
						=> (1)

(4)
Text reception => after NAK transmission
	if(No room in receiving buffer)
	=> NAK
	=> (4)
	else
	=> ACK
	=> (1)
		=> (1)	=> (1)	=> (1)	TM3
					=> (1)
						=> (1)

The number of re-transmission

RT 1: It is the number of polling re-transmission to be made when the master station receives no response or invalid responses from the slave stations even though it sent a message through polling.

=> None

RT 2: It is the number of text re-transmission to be made when the master station receives NAK from the slave stations after its transmission of a text.

=> 2 times

Timeout

TM 1: Waiting time of the response after the polling transmission

=> 20msec

TM 2: Waiting time of the response after the text transmission

=> 20msec

TM 3: Waiting time of the response after the receipt of a text and the transmission of NAK

=> 20msec

Reception error

The timeout is to be set to 10ms to the interval between bytes. If no byte is received in 10ms, it becomes a data reception error.

4.2.6 Communication Control Matrix (Slave station)

	Receiving status						
	Normal receipt of data					No response	Reception error
	POL	TEXT	ACK	NAK	EOT		

(1)
Idle
	if(Transmission messages exist)
	=> Text
	=> (2)
	else
	=> EOT
	=> (1)
		if(No room in receiving buffer)
		=> NAK
		=> (3)
		else
		=> ACK
		=> (1)
			=> (1)	=> (1)	=> (1)		=> (1)

(2)
After text transmission
	=> (1)	if(No room in receiving buffer)
		=> NAK
		=> (3)
		else
		=> ACK
		=> (1)
			=> (1)	RT++
				if(RT > RT3)
				=> EOT
				=> (1)
				else
				=> Text re-transmission
					=> (1)	TM4
						=> (1)
							=> (1)

(3)
Text reception => After NAK transmission
	if(Transmission messages exist)
	=> Text
	=> (2)
	else
	=> EOT
	=> (1)
		if(No room in receiving buffer)
		=> NAK
		=> (3)
		else
		=> ACK
		=> (1)
			=> (1)	=> (1)	=> (1)	TM5
						=> (1)
							=> (1)

The number of re-transmission

RT 3: It is the number of the text re-transmission to be made after the transmission of the text and the receipt of NAK.

=> 2times

Timeout

TM 4: Waiting time of the response after the transmission of a text

=> 20msec

TM 5: Waiting time of the response after the receipt of the text and the transmission of NAK

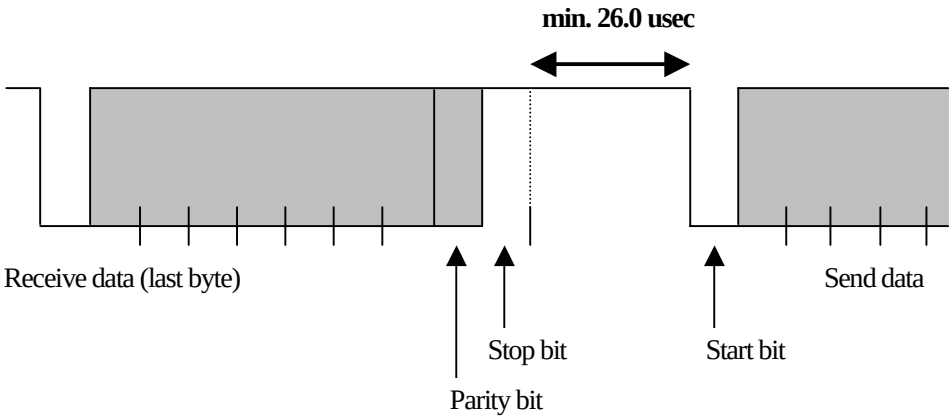
=> 20msec

Reception error

The timeout is to be set to 10ms to the interval between bytes. If no byte is received in 10ms, it should become a data reception error.

4.2.7 Minimum Interval between Transmission and Reception of Data

The minimum value of the interval between the transmission and the receipt of data of the master and slave stations should be 1 bit length (26.0micro-sec) or greater. (Refer to the following figure.)



5 Application Layer

Formatting for realizing a function is performed according to the command format of 4-1 clause. About the classification of a command, each command specifications are considered as reference.

SONY

Command Specifications of SSC-DC590 series

Ver. 1.00

Ver. 1.00: Issued on August 30, 2002

Sony Corporation

Broadband Solutions Network Company

Business Solutions Company

e-Surveillance Products Dept.

【Command Specifications of SSC-DC590 series – Release Record --】

Version	Date of Issue	Changes	Remarks
1.00	’02.08.30	Issued initial version	

KD0	Major command classification	KD1	Minor command classification	FNC	Operation	Function	Page
"E"	Etc	"N"	Power On Notice	"S"	Set	Power on notice (from controller to camera)	4
"E"	Etc	"M"	Model name	"R"	Request	Model name request	5
"E"	Etc	"M"	Model name	"A"	Answer	Model name notice	6
"E"	Etc	"E"	Error	"I"	Information	Command support error	7
"Y"	One Packet	"C"	Camera Mode	"S"	Set	Setting of camera mode	8
"Y"	One Packet	"C"	Camera Mode	"R"	Request	Read request of setting status of camera mode	9
"Y"	One Packet	"C"	Camera Mode	"A"	Answer	Response to read request of setting status of camera mode	10
"B"	Bright	"S"	Shutter	"S"	Set	Manual control of shutter	11
"B"	Bright	"S"	Shutter	"R"	Request	Read request of shutter code	12
"B"	Bright	"S"	Shutter	"A"	Answer	Response to read request of shutter code	13
"B"	Bright	"G"	Gain	"S"	Set	Manual control of gain	14
"B"	Bright	"G"	Gain	"R"	Request	Read request of gain code	15
"B"	Bright	"G"	Gain	"A"	Answer	Response to read request of gain code	16
"B"	Bright	"F"	IR Filter	"S"	Set	On/Off control of IR cut filter	17
"B"	Bright	"D"	Detect Level/Time	"S"	Set	Setting of detect level of Day/Night	18
"B"	Bright	"D"	Detect Level/Time	"R"	Request	Read request of detect level of Day/Night	19
"B"	Bright	"D"	Detect Level/Time	"A"	Answer	Response to read request of detect level of Day/Night	20
"B"	Bright	"V"	Video Level	"S"	Set	Video level control	21
"B"	Bright	"V"	Video Level	"R"	Request	Read request of video level	22
"B"	Bright	"V"	Video Level	"A"	Answer	Response to read request of video level	23
"W"	White	"G"	Gain	"S"	Set	Setting of gain in white balance manual mode	24
"W"	White	"G"	Gain	"R"	Request	Read request of gain of white balance	25
"W"	White	"G"	Gain	"A"	Answer	Response to read request of gain of white balance	26
"W"	White	"D"	DWB Gain	"S"	Set	Setting of gain in white balance dual WB mode	27
"W"	White	"D"	DWB Gain	"R"	Request	Read request of DWB gain of white balance	28
"W"	White	"D"	DWB Gain	"A"	Answer	Response to read request of DWB gain of white balance	29
"W"	White	"P"	Paint	"S"	Set	Paint control (2 axes)	30
"W"	White	"P"	Paint	"R"	Request	Read request of paint (2 axes)	31
"W"	White	"P"	Paint	"A"	Answer	Response to read request of paint (2 axes)	32
"S"	Special Function	"A"	Aperture	"S"	Set	Setting of aperture	33
"S"	Special Function	"A"	Aperture	"R"	Request	Read request of aperture setting	34
"S"	Special Function	"A"	Aperture	"A"	Answer	Response to read request of aperture setting	35
"S"	Special Function	"D"	Data	"S"	Set	Saving of camera settings	36
"S"	Special Function	"W"	Mask Window	"S"	Set	Setting of private mask window	37
"S"	Special Function	"W"	Mask Window	"R"	Request	Read request of private mask window	38
"S"	Special Function	"W"	Mask Window	"A"	Answer	Response to read request of private mask window	39
"C"	Sync	"V"	V Phase	"S"	Set	Adjustment of power supply lock phase	40
"C"	Sync	"V"	V Phase	"R"	Request	Read request of power supply lock phase	41
"C"	Sync	"V"	V Phase	"A"	Answer	Response to read request of power supply lock phase	42
"C"	Sync	"H"	H Phase	"S"	Set	Adjustment of phase of external synchronization signal "VS"	43
"C"	Sync	"H"	H Phase	"R"	Request	Read request of phase adjustment of external synchronization signal "VS"	44
"C"	Sync	"H"	H Phase	"A"	Answer	Response to read request of phase adjustment of external synchronization signal "VS"	45
"D"	Detect	"W"	Window	"S"	Set	Setting of activity detection window	46
"D"	Detect	"W"	Window	"R"	Request	Read request of activity detection window	47
"D"	Detect	"W"	Window	"A"	Answer	Response to read request of activity detection window	48
"D"	Detect	"L"	Level	"S"	Set	Setting of activity detection level	49
"D"	Detect	"L"	Level	"R"	Request	Read request of activity detection	50
"D"	Detect	"L"	Level	"A"	Answer	Response to read request of activity detection	51
"O"	OSD	"M"	Menu	"S"	Set	Menu control	52
"O"	OSD	"M"	Menu	"R"	Request	Read request of menu status	53
"O"	OSD	"M"	Menu	"A"	Answer	Response to read request of menu status	54
"O"	OSD	"S"	String	"S"	Set	Setting of label character string	55
"O"	OSD	"S"	String	"R"	Request	Read request of label character string	56
"O"	OSD	"S"	String	"A"	Answer	Response to read request of label character string	57
"O"	OSD	"F"	Function	"S"	Set	Control of label function	58
"O"	OSD	"F"	Function	"R"	Request	Read request of label function setting status	59
"O"	OSD	"F"	Function	"A"	Answer	Response to read request of label function setting status	60
"O"	OSD	"P"	Position	"S"	Set	Setting of label display position	61

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	00	"E"	"N"	"S"		

<Command name> Power On Notice

Function: It is to notify the camera of “Power On” of the master station.

CAT: CAMERA SYSTEM ADR: nn = "00"

KD0: Etc KD1: Power On Notice

FNC: Set

<Response command> N/A

<Parameter> N/A

<Description>

It is to notify all the connected cameras of "Power On" of the master station.

<SSC-DC590’s specific specification>

When it receives this command while it opens the menu, it closes the menu.

(The settings selected on the camera menu are not saved to EEPROM.)

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"E"	"M"	"R"		

<Command name> Model name data Request

Function: It is to request the model name data (including the version information) to the slave station.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Etc.data KD1: Model name

FNC: Request

<Response command> Available : EMA command

<Parameter> N/A

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER																										NOTE
"C"	nn	"E"	"M"	"A"	M0H	M0L	M1H	M1L	M2H	M2L	…	MFH	MFL	V0H	V0L	V1H	V1L	V2H	V2L	V3H	V3L	V4H	V4L	V5H	V5L	V6H	V6L	V7H	V7L		

<Command name> Model name data Answer

Function: It is to return the model name data (including the version information) to the master station.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Etc.data KD1: Model name

FNC: Answer

<Request command> Available : EMR command

<Parameter>

	Name	Contents
Description	Model name	Model name of the slave station
V0~3	Soft Ver.	Camera software version data (V0V1: Major Ver., V2V3: Minor Ver.)
V4~7	Protocol Ver.	Protocol version data (V4V5: Major Ver., V6V7: Minor Ver.)

<Description>

* It is to return a model name in accordance with the model name of the slave station (Max. 16 bytes). Also, it is to return each version data.
* The return data should consist of the Ascii code.
* The blank space of the model name should be filled with space (e.g. "20"h).
* In the case of Ver.1.23, for example, the version data should be written as follows.
  V0:"0", V1:"1", V2:"2" and V3:"3"
  The actual parameter data becomes 33,30,33,31,33,32,33,33.

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER					NOTE
"C"	nn	"E"	"E"	"I"	K0	K1	F0	I0	I1	

<Command name> Command support error Information

Function: It is to notify the master station that it received a command that it does not support.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Etc.data KD1: Error Information

FNC: Information

<Response command> N/A

<Parameter>

	Name	Contents
Description	Kind	Kind of the received command
F0	Function	Function of the received command
I0~1	Information	Error information (00: Support error, 01: The request command is out of the range of the parameter)

<Description>

* When the slave station received a command that it does not support, it should notify the master station of the fact.
* It should send the above error information using the kind, function and information (10~11) of the received command as parameters.
* The support error should mean that the slave station does not support the command in terms of KD0, KD1 and FNC.

<SSC-DC590's specific specification>

* When the camera received the data out of the parameter range, it ignores it (it should not return the support error).

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER																	NOTE
"C"	nn	"Y"	"C"	"S"	S1	Z1	F1	I1	G1	E1	B1	W1	V1	M1	N1	D1	A1	H1	P1	R1	R2	R3	

<Command name> One Packet Camera Mode Set

Function: It is to make various settings of a camera.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: One Packet KD1: Camera Mode

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
S1	Sync Mode	"0":Internal "1":Line Lock "F":No Action
Z1	Digital Zoom	"0":Off "1":On "2":Toggle(On/Off) "F":No Action
F1	Stop AF	"0":Off "1":On "2":Toggle(On/Off) "F":No Action
I1	Shutter	"0":Off "1":CCD-IRIS "2":Manual "3":FL "F":No Action
G1	Auto Gain Control	"0":Off "1":Turbo "2":Normal "3":Manual "F":No Action
E1	AE Full Auto	"0":Off "1":On "2":Toggle(On/Off) "F":No Action
B1	Backlight Comp.	"0":Off "1":DynaView "2":Multi "3":Spot "4":Weight "5":Smart Control "F":No Action
W1	White Balance	"0":ATW-PRO "1":ATW "2":AWB "3":Manual "4":3200K "5":5600K "6":Dual WB "F":No Action
V1	Image Stabilizer	"0":Off "1":On "2":Toggle(On/Off) "F":No Action
M1	Variable Gamma	"0":Off "1":Auto "2":Manual "3":Scene1 "4":Scene2 "5":Scene3 "6":Scene4 "F":No Action
N1	Day/Night	"0":Off "1":On "2":Toggle(On/Off) "3":External "4":Auto "F":No Action
D1	Noise Reduction	"0":Off "1":On "2":Toggle(On/Off) "F":No Action
A1	Activity Detection	"0":Off "1":On "2":Toggle(On/Off) "F":No Action
H1	Sharpness	"0":Soft "1":Normal "2":Sharp "F":No Action
P1	Private Mask	"0":Off "1":Mask1 On "2":Mask2 On "3":Mask1&2 On "F":No Action
R1	Reserved	
R2	Reserved	
R3	Reserved	

<Description>

"No Action" in each action stands for the continuation of the current status.

<SSC-DC590's specific specification>

* As the camera does not have the functions such as Sync Mode, Digital Zoom, Stop AF, AE Full Auto and Image Stabilizer, the master station sends "No Action".

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"Y"	"C"	"R"		

<Command name> One Packet Camera Mode Read Request

Function: It is to request the reading of the various settings of a camera.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: One Packet KD1: Camera Mode

FNC: Request

<Response command> Available : YCA command

<Parameter> N/A

<Description>

It is to request the reading of the current mode of a camera.

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER																	NOTE
"C"	nn	"Y"	"C"	"A"	S1	Z1	F1	I1	G1	E1	B1	W1	V1	M1	N1	D1	A1	H1	P1	R1	R2	R3	

<Command name> One Packet Camera Mode Read Answer

Function: It is to make various settings of a camera.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: One Packet KD1: Camera Mode

FNC: Answer

<Request command> Available : YCR command

<Parameter>

	Name	Contents
S1	Sync Mode	"0":Internal "1":Line Lock "2":VD-W(Auto-detect) "3":VS(Auto-detect)
Z1	Digital Zoom	"0":Off "1":On
F1	Stop AF	"0":Off "1":On
I1	Shutter	"0":Off "1":CCD-IRIS "2":Manual
G1	Auto Gain Control	"0" : Off "1" : Turbo "2" : Normal "3" : Manual
E1	AE Full Auto	"0":Off "1":On
B1	Backlight Comp.	"0":Off "1":DynaView "2":Multi "3":Spot "4":Weight "5":Smart Control
W1	White Balance	"0":ATW-PRO "1":ATW "2":AWB "3":Manual "4":3200K "5":5600K "6":Dual WB
V1	Image Stabilizer	"0":Off "1":On
M1	Variable Gamma	"0":Off "1":Auto "2":Manual "3":Scene1 "4":Scene2 "5":Scene3 "6":Scene4
N1	Day/Night	"0":Off "1":On "2":External "3":Auto
D1	Noise Reduction	"0":Off "1":On
A1	Activity Detection	"0":Off "1":On
H1	Sharpness	"0":Soft "1":Normal "2":Sharp
P1	Private Mask	"0":Off "1":Mask1 On "2":Mask2 On "3":Mask1&Mask2 On
R1	Reserved	
R2	Reserved	
R3	Reserved	

<Description>

It is to notify the current status.

<SSC-DC590's specific specification>

* As the camera does not have the functions such as Digital Zoom, Stop AF, AE Full Auto and Image Stabilizer, it sends "Off".

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER			NOTE
"C"	nn	"B"	"S"	"S"	A1	C1	C2	

<Command name> Manual Shutter Control

Function: It is to control the shutter manually.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Bright KD1: Shutter

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
A1	Shutter Action	"0":Reset (Return to factory setting)
		"1":Up (Increment Shutter Code)
		"2":Down (Decrement Shutter Code)
		"3":Direct (Set Shutter Code to C1C2)
C1C2	Shutter Code	"00"h(min) ~ "FF"h(max)

<Description>

It is to set a value of the CCD shutter mannually.

<SSC-DC590's specific specification>

* C1C2 should be in the range of "00"h (min) and "07"h (max).
* The shutter speed for each C1C2 value should be as per the follow list.
* "1" and "2" of A1 are to change the shutter speed by one step only.

Shutter action: The parameter "0" is to reset the shutter speed to the factory-shipped state, which is 1/60s for NTSC and 1/50s for PAL.

Code (C1C2)	00	01	02	03	04	05	06	07
NTSC [s]	1/60	1/100	1/250	1/500	1/1000	1/2000	1/4000	1/10000
PAL [s]	1/50	1/120	1/250	1/500	1/1000	1/2000	1/4000	1/10000

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"B"	"S"	"R"		

<Command name> Shutter Code Read Request

Function: It is to request the reading of a shutter code.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Bright KD1: Shutter

FNC: Request

<Response command> Available : BSA command

<Parameter> N/A

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER		NOTE
"C"	nn	"B"	"S"	"A"	C1	C2	

<Command name> Shutter Code Read Answer

Function: It is to respond to the read request of a shutter code.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Bright KD1: Shutter

FNC: Answer

<Request command> Available: BSR command

<Parameter>

	Name	Contents
C1C2	Shutter Code	"00"h(min) ~ "FF"h(max)

<SSC-DC590's specific specification>

* C1C2 should be in the range between "00"h (min) and "07"h (max).
* The shutter speed for each C1C2 value should be as per the following list.

Code (C1C2)	00	01	02	03	04	05	06	07
NTSC [s]	1/60	1/100	1/250	1/500	1/1000	1/2000	1/4000	1/10000
PAL [s]	1/50	1/120	1/250	1/500	1/1000	1/2000	1/4000	1/10000

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER			NOTE
"C"	nn	"B"	"G"	"S"	A1	C1	C2	

<Command name> Manual Gain Control

Function: It is to control the gain manually.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Bright KD1: Gain

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
A1	Gain Action	"0":Reset (Return to factory setting)
		"1":Up (Increment Gain)
		"2":Down (Decrement Gain)
		"3":Direct (Set Gain to C1C2)
C1C2	Gain Code	"00"h(min) ~ "FF"h(max)

<Description>

It is to set the video gain value manually.

<SSC-DC590's specific specification>

* C1C2 should be in the range between "00"h (min) and "18"h (max).

The step should increment/decrement by +1db and so the gain ranges between 0db and +24dB.

* "1" and "2" of A1 are to change the gain by one step.

* Gain action: The parameter"0" is to reset the gain to 0dB.

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"B"	"G"	"R"		

<Command name> Gain Code Read Request

Function: It is to request the reading of the gain code.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Bright KD1: Gain

FNC: Request

<Response command> Available : BGA command

<Parameter> N/A

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER		NOTE
"C"	nn	"B"	"G"	"A"	C1	C2	

<Command name> Gain Code Read Answer

Function: It is to respond to the read request of the gain code.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Bright KD1: Gain

FNC: Answer

<Response command> Available : BGR command

<Parameter>

	Name	Contents
C1C2	Gain Code	"00"h(min) ~ "FF"h(max)

<Description>

It is to read the manual settings of the video gain value.

<SSC-DC590's specific specification>

* C1C2 should be in the range between "00"h (min) and "18"h (max).

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER		NOTE
"C"	nn	"B"	"F"	"S"	I1	L1	

<Command name> IR Cut Filter Control

Function: It is to control the IR cut filter.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Bright KD1: IR Cut Filter

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
I1	Day/Night	"0":Off "1":On "2":Toggle(On/Off) "3":External "4":Auto "F":No Action
L1	IR LED	"0":Off "1":On "2":Toggle(On/Off) "F":No Action

<Description>

It is to control the IR cut filter of a camera.

The IR LED indicates the function of turning on/off LED from the camera regardless of the built-in LED or the external LED.

<SSC-DC590's specific specification>

* As the IR LED function is always turned on when "Day/Night" is turned on (filter off), the users cannot change it. Therefore, the camera should ignore the parameter: L1.

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER				NOTE
"C"	nn	"B"	"D"	"S"	A1	L1	A2	T1	

<Command name> Day/Night Detect Level/Time Control

Function: It is to set the control level and time of the Day/Night function.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Bright KD1: Day/Night Level/Time

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
A1	Level Action	"0": Reset (Return to factory setting)
		"1": Up (Increment Level Code)
		"2": Down (Decrement Level Code)
		"3": Set Level to L1 (Set Level Code to L1)
		"F": No Action (Hold current value)
L1	Level	"0" ~ "F"
A2	Duration Time Action	"0": Reset (Return to factory setting)
		"1": Up (Increment Duration Time Code)
		"2": Down (Decrement Duration Time Code)
		"3": Set Duration Time to T1 (Set Duratin Time Code to T1)
		"F": No Action (Hold current value)
T1	Duration Time	"0"~ "F"

<Description>

It is to set the level of controlling the Day/Night function and its response time.

<SSC-DC590's specific specification>

* Level "0"h ~ "2"h
* Duration Time "0"h (min) ~ "9"h (max)

Code (T1)	0	1	2	3	4	5	6	7	8	9
Duration Time	2sec	5sec	10sec	20sec	30sec	60sec	120sec	180sec	240sec	300sec

Code (L1)	0	1	2
Level	LOW	MIDDLE	HIGH

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"B"	"D"	"R"		

<Command name> Day/Night Detect Level/Time Read Request

Function: It is to request the reading of the control level and time of the Day/Night function.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Bright KD1: Day/Night Level/Time

FNC: Request

<Response command> Available : BDA command

<Parameter> N/A

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER		NOTE
"C"	nn	"B"	"D"	"A"	L1	T1	

<Command name> Day/Night Detect Level/Time Read Answer

Function: It is to respond to the read request of the control level and response time

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Bright KD1: Day/Night Level/Time

FNC: Answer KD1：Day/Night Detect Level/Time

FNC：Answer

<Response command> Available : BDR command

<Parameter>

	Name	Contents
L1	Level	"0" ~ "F"
T1	Duration Time	"0" ~ "F"

<Description>

It is to respond to the read request of the control level and response time of the Day/Night function.

<SSC-DC590's specific specification>

* Level "0"h ~ "2"h
* Duration Time "0"h (min) ~ "9"h (max)

Code (T1)	0	1	2	3	4	5	6	7	8	9
Duration Time	2sec	5sec	10sec	20sec	30sec	60sec	120sec	180sec	240sec	300sec

Code (L1)	0	1	2
Level	LOW	MIDDLE	HIGH

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER			NOTE
"C"	nn	"B"	"V"	"S"	A1	C1	C2	

<Command name> AE Video Level Control

Function: It is to control the video level.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Bright KD1: AE Video Level

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
A1	Level Action	"0":Reset (Return to factory setting)
		"1":Bright (Increment Level Code)
		"2":Dark (Decrement Level Code)
		"3":Direct (Set Level Code to C1C2)
C1C2	Video Level	"00" ~ "FF"

<Description>

It is to control the video level manually.

<SSC-DC590's specific specification>

* Video Level:"00"h (min) ~ "06"h (max)
* Level Action: The parameter "0" is to reset the video level to "03"h.

Code (C1C2)	00	01	02	03	04	05	06
Units in dB	-6.0dB	-4.0dB	-2.0dB	0dB	+2.0dB	+4.0dB	+6.0dB

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"B"	"V"	"R"		

<Command name> AE Video Level Read Request

Function: It is to request the reading of the video level.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Bright KD1: AE Video Level

FNC: Request

<Response command> Available : BVA command

<Parameter> N/A

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER		NOTE
"C"	nn	"B"	"V"	"A"	C1	C2	

<Command name> AE Video Level Read Answer

Function: It is to respond to the read request of the video level.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Bright KD1: AE Video Level

FNC: Answer

<Response command> Available : BVR command

<Parameter>

	Name	Contents
C1C2	Level Code	"00"h (min) ~ "FF"h (max)

<Description>

It is to respond to the read request of the manual control value of the video level.

<SSC-DC590's specific specification>

* Video Level:"00"h (min) ~ "06"h (max)

Code (C1C2)	00	01	02	03	04	05	06
Units in dB	-6.0dB	-4.0dB	-2.0dB	0dB	+2.0dB	+4.0dB	+6.0dB

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER							NOTE
"C"	nn	"W"	"G"	"S"	A1	R1	R2	A2	B1	B2	B3	

<Command name> White Balance Manual Gain Control

Function: It is to set a gain level when the camera is in the white balance manual mode.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: White KD1: Gain

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
A1	R_Gain Action	"0": Reset (Return to factory setting)
		"1": Up (Increment R_Gain)
		"2": Down (Decrement R_Gain)
		"3": Set R_Gain to R1R2 (Set R_Gain to R1R2)
		"F": No Action (Hold current value)
R1R2	R_Gain Value	"00"h(min) ~ "FF"h(max)
A2	B_Gain Action	"0": Reset (Return to factory setting)
		"1": Up (Increment B_Gain)
		"2": Down (Decrement B_Gain)
		"3": Set B_Gain to B1B2 (Set B_Gain to B1B2B3)
		"F": No Action (Hold current value)
B1B2B3	B_Gain Value	"000"h(min) ~ "1FF"h(max)

<Description>

This command becomes enabled when the white balance is set to the manual mode on the menu or with the YCS command.

"1" and "2" of A1 and A2 should change the white balance by one step.

<SSC-DC590's specific specification>

* Action: The parameter"0" is to reset the gain to the gain value of the camera when it is in the 3200K-fixed mode implemented with adjustment.

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"W"	"G"	"R"		

<Command name> White Balance Gain Read Request

Function: It is to request the reading of the gain of the white balance.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: White KD1: Gain

FNC: Request

<Response command> Available : WGA command

<Parameter> N/A

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER					NOTE
"C"	nn	"W"	"G"	"A"	R1	R2	B1	B2	B3	

<Command name> White Balance Gain Read Answer

Function: It is to respond to the read request of the gain of the white balance.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: White KD1: Gain

FNC: Answer

<Request command> Available : WGR command

<Parameter>

	Name	Contents
R1R2	R_Gain Value	"00"h(min) ~ "FF"h(max)
B1B2B3	B_Gain Value	"000"h(min) ~ "1FF"h(max)

<Description>

It is to read the manual gain value of the while balance.

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER						NOTE
"C"	nn	"W"	"D"	"S"	A1	R1	R2	A2	B1	B2	

<Command name> White Balance DualWB Gain Control

Function: It is to set the gain when the camera is in the white balance dual WB mode.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: White KD1: DWB Gain

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
A1	CR_Gain Action	"0": Reset (Return to factory setting)
		"1": Up (Increment CR_Gain)
		"2": Down (Decrement CR_Gain)
		"3": Set CR_Gain to R1R2 (Set CR_Gain to R1R2)
		"F": No Action (Hold current value)
R1R2	CR_Gain Value	"00"h(min) ~ "FF"h(max)
A2	CB_Gain Action	"0": Reset (Return to factory setting)
		"1": Up (Increment CB_Gain)
		"2": Down (Decrement CB_Gain)
		"3": Set CB_Gain to B1B2 (Set CB_Gain to B1B2)
		"F": No Action (Hold current value)
B1B2	CB_Gain Value	"00"h(min) ~ "FF"h(max)

<Description>

This command is enabled when the white balance is set to Dual WB on the menu or with the YCS command.

"1" and "2" of A1 and A2 are to change the gain by one step.

<SSC-DC590's specific specification>

* Action: The parameter "0" is to reset the gain to "80"h.

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"W"	"D"	"R"		

<Command name> White Balance DualWB Gain Read Request

Function: It is to request the reading of the Dual WB gain of the white balance.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: White KD1: DWB Gain

FNC: Request

<Response command> Available : WDA command

<Parameter> N/A

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER				NOTE
"C"	nn	"W"	"D"	"A"	R1	R2	B1	B2	

<Command name> White Balance Dual WB Gain Read Answer

Function: It is to respond to the read request of the Dual WB gain of the white balance.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: White KD1: DWB Gain

FNC: Answer

<Request command> Available : WDR command

<Parameter>

	Name	Contents
R1R2	CR_Gain Value	"00"h(min) ~ "FF"h(max)
B1B2	CB_Gain Value	"00"h(min) ~ "FF"h(max)

<Description>

It is to read the Dual WB gain value of the white balance.

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER						NOTE
"C"	nn	"W"	"P"	"S"	A1	R1	R2	A2	B1	B2	

<Command name> Paint Level Control

Function: It is to set the paint level.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: White KD1: Paint

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
A1	R_Paint Action	"0":Reset (Return to factory setting)
		"1":Up (Increment R_Paint)
		"2":Down (Decrement R_Paint)
		"3":Direct (Set R_Paint to R1R2)
		"F":No Action (Hold current value)
R1R2	R_Paint Value	"00" ~ "FF"
A2	B_Paint Action	"0":Reset (Return to factory setting)
		"1":Up (Increment B_Paint)
		"2":Down (Decrement B_Paint)
		"3":Direct (Set B_Paint to B1B2)
		"F":No Action (Hold current value)
B1B2	B_Paint Value	"00" ~ "FF"

<Description>

It is to adjust the paint level.

"1" and "2" of A1 adjust the paint level by one step.

<SSC-DC590's specific specification>

Action: The parameter "0" is to reset the paint level to "80"h (0 on the menu).

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"W"	"P"	"R"		

<Command name> Paint Lebel Read Request

Function: It is to request the reading of the paint level.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: White KD1: Paint

FNC: Request

<Response command> Available : WPA command

<Parameter> N/A

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER				NOTE
"C"	nn	"W"	"P"	"A"	R1	R2	B1	B2	

<Command name> Paint Level Read Answer

Function: It is to respond to the read request of the paint level.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: White KD1: Paint

FNC: Answer

<Request command> Available : WPR command

<Parameter>

	Name	Contents
R1R2	R_Paint Value	"00" ~ "FF"
B1B2	B_Paint Value	"00" ~ "FF"

<Description>

It is to respond to the read request of the paint level.

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER		NOTE
"C"	nn	"S"	"A"	"S"	A1	V1	

<Command name> Aperture Control

Function: It is to control the aperture.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Special Function KD1: Aperture

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
A1	Action	"0":Reset (Return to factory setting)
		"1":Up (Increment Aperture Code)
		"2":Down (Decrement Aperture Code)
		"3":Direct (Set Aperture Code to V1)
V1	Value	"0"h(min) ~ "F"h(max)

<Description>

It is to set the level of outline compensation.

"1" and "2" of A1 are to change the aperture by one step.

<SSC-DC590's specific specification>

* V1 should be in the range between "0"h (min) and "2"h (max).
* Action: The parameter "0" is to reset the aperture to "1"h, the normal value.

Code (V1)	0	1	2
Value	SOFT	NORMAL	SHARP

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"S"	"A"	"R"		

<Command name> Aperture Value Read Request

Function: It is to request the reading of the aperture value.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Special Function KD1: Aperture

FNC: Request

<Response command> Available : SAA command

<Parameter> N/A

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"S"	"A"	"A"	V1	

<Command name> Aperture Value Read Answer

Function: It is to respond to the read request of the aperture value.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Special Function KD1: Aperture

FNC: Answer

<Request command> Available : SAR command

<Parameter>

	Name	Contents
V1	Value	"0"h(min) ~ "F"h(max)

<Description>

It is to read the level of outline compensation.

<SSC-DC590's specific specification>

* V1V2 should be in the range between "0"h (min) and "2"h (max).

Code (V1)	0	1	2
Value	SOFT	NORMAL	SHARP

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"S"	"D"	"S"	S1	

<Command name> Data Set

Function: It is to select and save the settings of the camera.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Special Function KD1: Data

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
S1	Action	"0":Factory Reset
		"1":Toggle(2~)
		"2":User Preset A
		"3":User Preset B

<Description>

It is to select and save the settings of the factory-shipped state and what the user made on the camera.

"1" is the toggle switch that allows the camera to make settings of the settable pages appearing after "2" one by one.

<SSC-DC590's specific specification>

* The toggle switch is to switch the user preset position between A and B.

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER											NOTE
"C"	nn	"S"	"W"	"S"	A1	N1	V1	V2	V3	V4	H1	H2	H3	H4	M1	

<Command name> Privacy Zone Masking Window Set

Function: It is to set the privacy zone masking window.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Special Function KD1: Mask Window

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
A1	Action	"0":Reset (Return to factory setting)
		"1":Set As N1,V1V2,H1H2,V3V4,H3H4,M1
N1	Window NO.	"0" ~ "F"
V1V2	V Start Pos.	"00" ~ "FF"
V3V4	V End Pos.	"00" ~ "FF"
H1H2	H Start Pos.	"00" ~ "FF"
H3H4	H End Pos.	"00" ~ "FF"
M1	Window Mask	"0":Inner Side "1":Outside

<Description>

It is to set the privacy zone masking window.

It is to specify the start points and the end points of the vertical and horizontal directions to determine the position and size of the window.

<SSC-DC590's specific specification>

* The camera uses only 2 windows, the windows Nos. "0" and "1".
* It is possible to mask the inside or the outside of the 2 windows simultaneously. (M1: Window Mask).
* It is not possible to set the masking area of each window separately. (the settings made later supercede the previous).

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"S"	"W"	"R"	N1	

<Command name> Privacy Zone Masking Window Position/Form Read Request

Function: It is to request the reading of the settings of the privacy zone masking window.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Special Function KD1: Mask Window

FNC: Request

<Response command> Available : SWA command

<Parameter>

	Name	Contents
N1	Window NO.	"0" ~ "F"

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER											NOTE
"C"	nn	"S"	"W"	"A"	S1	N1	V1	V2	V3	V4	H1	H2	H3	H4	M1	

<Command name> Privacy Zone Masking Position/Form Read Answer

Function: It is to respond to the read request of the settings of the privacy zone masking window.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Special Function KD1: Mask Window

FNC: Answer

<Request command> Available : SWR command

<Parameter>

	Name	Contents
S1	On/Off Status	"0":Off
		"1":On (Set As V1,V2,H1,H2,F1,R1,R2,M1)
N1	Window NO.	"0" ~ "F"
V1V2	V Start Pos.	"00" ~ "FF"
V3V4	V End Pos.	"00" ~ "FF"
H1H2	H Start Pos.	"00" ~ "FF"
H3H4	H End Pos.	"00" ~ "FF"
M1	Window Mask	"0":Inner Side "1":Outside

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER			NOTE
"C"	nn	"C"	"V"	"S"	A1	P1	P2	

<Command name> V Phase Control

Function: It is to adjust the power supply lock phase.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Sync KD1: V Phase

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
A1	Action	"0": Reset (Return to factory setting)
		"1": Up
		"2": Down
		"3": Up (valuable)
		"4": Down (valuable)
		"5": Direct (Set Phase to P1P2)
P1P2	Phase Value	"00"h ~ "FF"h

<Description>

It is to adjust the power supply lock phase.

"1" and "2" of this command changes the phase by one step

while "3" and "4" do it in steps within the value specified with P1P2.

<SSC-DC590's specific specification>

* Action: The parameter"0"is to reset the power supply lock phase to the value set at the factory.

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"C"	"V"	"R"		

<Command name> V Phase Read Request

Function: It is to request the reading of the power supply lock phase.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Sync KD1: V Phase

FNC: Request

<Response command> Available : CVA command

<Parameter> N/A

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER		NOTE
"C"	nn	"C"	"V"	"A"	P1	P2	

<Command name> V Phase Read Answer

Function: It is to respond to the read request of the power supply lock phase.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Sync KD1: V Phase

FNC: Answer

<Request command> Available : CVR command

<Parameter>

	Name	Contents
P1P2	Phase Value	"00h" ~ "FFh"

<Description>

It is to return the data of the power supply lock phase.

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"C"	"H"	"R"		

<Command name> H Phase Read Request

Function: It is to request the reading of the phase of the external synchronization signal “VS”.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Sync KD1: H Phase

FNC: Request

<Response command> Available : CHA command

<Parameter> N/A

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER			NOTE
"C"	nn	"C"	"H"	"S"	A1	P1	P2	

<Command name> H Phase Control

Function: It is to adjust the phase of the external synchronization signal “VS”.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Sync KD1: H Phase

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
A1	Action	"0": Reset (Return to factory setting)
		"1": Up
		"2": Down
		"3": Up (valuable)
		"4": Down (valuable)
		"5": Direct (Set Phase to P1P2)
P1P2	Phase Value	"00"h ~ "FF"h

<Description>

It is to adjust the phase of the external synchronization signal "VS".

"1" and "2" of this command change the phase by one step while

"3" and "4" do it in steps of the value specified with P1P2.

<SSC-DC590’s specific specification>

* Action: The parameter "0" is to reset the phase value to what set at the factory.

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER		NOTE
"C"	nn	"C"	"H"	"A"	P1	P2	

<Command name> H Phase Read Answer

Function: It is to respond to the read request of the phase of

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Sync KD1: H Phase

FNC: Answer KD1：H Phase

<Request command> Available : CHR command

<Parameter>

	Name	Contents
P1P2	Phase Value	"00h" ~ "FFh"

<Description>

It is to return the data of the phase of the external synchronization signal "VS".

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER											NOTE
"C"	nn	"D"	"W"	"S"	A1	A2	N1	V1	V2	V3	V4	H1	H2	H3	H4	

<Command name> Activity Detection Window Set

Function: It is to set the Activity Detection window.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Detect KD1: Window

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
A1	On/Off Action	"0":Off
		"1":On
		"F":No Action
A2	Set Action	"0":Reset (Return to factory setting)
		"1":Set As N1,V1V2,V3V4,H1H2,H3H4
		"F":No Action
N1	Window NO.	"0" ~ "F"
V1V2	V Start Pos.	"00" ~ "FF"
V3V4	V end Pos.	"00" ~ "FF"
H1H2	H Start Pos.	"00" ~ "FF"
H3H4	H End Pos.	"00" ~ "FF"

<Description>

It is to set the activity detection window. Specifying the start and end points of the vertical and horizontal directions, it is to determine the position and size of the window.

It is to set On/Off for each detection window.

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"D"	"W"	"R"	N1	

<Command name> Activity Detection Window Read Request

Function: It is to request the reading of the settings of the Activity Detection window.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Detect KD1: Window

FNC: Request

<Response command> Available : DWA command

<Parameter>

	Name	Contents
N1	Window NO.	"0" ～ "F"

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER										NOTE
"C"	nn	"D"	"W"	"A"	S1	N1	V1	V2	V3	V4	H1	H2	H3	H4	

<Command name> Activity Detection Window Read Answer

Function: It is to respond to the read request of the settings of the Activity Detection window.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Detect KD1: Window

FNC: Answer

<Request command> Available : DWR command

<Parameter>

	Name	Contents
S1	On/Off Status	"0":Off
		"1":On (Set As V1,V2,H1,H2,L1)
N1	Window NO.	"0" ~ "F"
V1V2	V Start Pos.	"00" ~ "FF"
V3V4	V End Pos.	"00" ~ "FF"
H1H2	H Start Pos.	"00" ~ "FF"
H3H4	H End Pos.	"00" ~ "FF"

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER						NOTE
"C"	nn	"D"	"L"	"S"	N1	A1	V1	V2	A2	D1	

<Command name> Activity Detection Lebel/Time Control

Function: It is to control the level and alarm duration time of Activity Detection.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Detect KD1: Level and Alarm Duration

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
N1	Window NO.	"0" ~ "F"
A1	Level Action	"0":Reset (Return to factory setting)
		"1":Up (Increment Level Code)
		"2":Down (Decrement Level Code)
		"3":Direct (Set Level Code to V1V2)
		"F":No Action (Hold current value)
V1V2	Level	"00" ~ "FF"
A2	Alarm Duration Action	"0":Reset (Return to factory setting)
		"1":Up (Increment Alarm Duration Code)
		"2":Down (Decrement Alarm Duration Code)
		"3":Direct (Set Alram Duration Code to D1)
		"F":No Action (Hold current value)
D1	Alarm Duration	"0" ~ "F"

<Description>

It is to set the operational level of Activity Detection.

<SSC-DC590's specific specification>

* Level action: The parameter"0" is to reset the level to "02" (high).

Alarm duration action: The parameter "0" is to reset the alarm duration time to "3" (5 seconds).

* It is not possible to set the level and alarm duration time for each window (the settings made later should supercede the previous). Only the windows with the number of "0" ~ "2" are usable.

Code (V1V2)	00	01	02	03	04
Level	Low	Middle	High	Super	Hyper

Code (D1)	0	1	2	3	4
Alarm Duration	0.5sec	1sec	2sec	5sec	10sec

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"D"	"L"	"R"	N1	

<Command name> Activity Detection Level/Time Read Request

Function: It is to request the reading of the level and alarm duration time of Activity Detection.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Detect KD1: Level and Alarm Duration

FNC: Request

<Response command> Available : DLA command

<Parameter>

	Name	Contents
N1	Window NO.	"0" ~ "F"

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER				NOTE
"C"	nn	"D"	"L"	"A"	N1	V1	V2	D1	

<Command name> Activity Detection Level Read Answer

Function: It is to respond to the read request of the level and alarm duration time of

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: Detect KD1: Level and Alarm Duration

FNC: Answer KD1：Level and Alarm Duration

<Response command> Available : DLR command

<Parameter>

	Name	Contents
N1	Window NO.	"0" ~ "F"
V1V2	Level	"00" ~ "FF"
D1	Alarm Duration	"0" ~ "F"

<Description>

It is to read the level settings of Activity Detection.

<SSC-DC590's specific specification>

* The level code and the alarm duration code should be as follows.

Code (V1V2)	00	01	02	03	04
Level	Low	Middle	High	Super	Hyper

Code (D1)	0	1	2	3	4
Alarm Duration	0.5sec	1sec	2sec	5sec	10sec

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER				NOTE
"C"	nn	"O"	"M"	"S"	A1	C1	N1	N2	

<Command name> Menu Control

Function: It is to control the menu display.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: On Screen Display KD1: Menu

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
A1	Menu Action	"0":Menu Close (Close Current Menu C1:Don't Care)
		"1":Menu Open (Open Menu Category C1)
		"2":Toggle （Menu Close/Open）
		"3":Up (Select)
		"4":Down (Select)
		"5":Right (Select)
		"6":Left (Select)
		"7":Decide
C1	Menu Category	"0":Camera Main Menu
		"1":Preset Label Input Menu
		"2":Area Label Input Menu
		"3":Camera Title Input Menu
N1N2	Number	"00"h~"FF"h:Preset Number / Area Number

<Description>

It is to set the status of On Screen Display.

<SSC-DC590's specific specification>

* It is possible to close the menu opened with this command with the following 2 methods.
  1) Close the menu with this command (The camera settings are saved to EEPROM).
  2) Close it at the time of reception of the ENS command (notification of "power-on" at the master station). (The camera settings are not saved to EEPROM.)
* The menu category of C1 has only the camera main menu at "0"h.

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"O"	"M"	"R"		

<Command name> Menu Status Read Request

Function: It is to request the reading of the menu display status.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: On Screen Display KD1: Menu

FNC: Request

<Response command> Available : OMA command

<Parameter> N/A

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER		NOTE
"C"	nn	"O"	"M"	"A"	S1	C1	

<Command name> Menu Status Read Answer

Function: It is to respond to the read request of the menu display status.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: On Screen Display KD1: Menu

FNC: Answer

<Request command> Available : OMR command

<Parameter>

	Name	Contents
S1	Menu Status	"0":Menu is Closed（C1:Don't Care）
		"1":Menu Category C1 is Open
		"2":Under a menu display change
C1	Menu Category	"0":Camera Main Menu
		"1":Preset Label Input Menu
		"2":Area Label Input Menu
		"3":Camera Title Input Menu

<Description>

It is to return the status of On Screen display.

<SSC-DC590's specific specification>

* The menu category of C1 has only the camera main menu at "0"h.
* S1="2"h: When the menu is in the status of "under a menu display change", other commands should not be processed.

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER								NOTE
"C"	nn	"O"	"S"	"S"	C1	N1	N2	H1	L1	…	Hn	Ln	

<Command name> Label String Set

Function: It is to set the label character strings.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: On Screen Display KD1: Label String

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
C1	Label Category	"0":Preset Label
		"1":Area Label
		"2":Camera Title => Don't Care N1N2
N1N2	Number	"00"h~"FF"h:Preset Number / Area Number
H1L1	OSD Address	"00"h~"FF"h:OSD Address of Start Character
…		…
HnLn		"00"h~"FF"h:OSD Address of End Character

<Description>

It is to set the labels altogether. H1L1 ~ HnLn: The OSD address should consist of Ascii codes.

<SSC-DC590's specific specification>

* It does not have the preset label and the area label.
* The character string should be up to 24 characters and variable in length.
* It does not support the Ascii codes that do not exist in the menu (ignore).
* If the Ascii codes that it does not support exist in the OSD address, it should ignore the subsequent codes.

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER			NOTE
"C"	nn	"O"	"S"	"R"	C1	N1	N2	

<Command name> Label String Read Request

Function: It is to request the reading of the character string of the label.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: On Screen Display KD1: Label String

FNC: Request

<Response command> Available : OSA command

<Parameter>

	Name	Contents
C1	Label Category	"0":Preset Label
		"1":Area Label
		"2":Camera Title => Don’t Care N1N2
N1N2	Number	"00"h~"FF"h:Preset Number / Area Number

<SSC-DC590’s specific specification>

* It does not have the preset label and the area label.

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER								NOTE
"C"	nn	"O"	"S"	"A"	C1	N1	N2	H1	L1	…	Hn	Ln	

<Command name> Label String Read Answer

Function: It is to respond to the read request of the label.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: On Screen Display KD1: Label String

FNC: Answer

<Request command> Available : OSR command

<Parameter>

	Name	Contents
C1	Label Category	"0":Preset Label
		"1":Area Label
		"2":Camera Title => Don't Care N1N2
N1N2	Number	"00"h~"FF"h:Preset Number / Area Number
H1L1	OSD Address	"00"h~"FF"h:OSD Address of Start Character
…		…
HnLn		"00"h~"FF"h:OSD Address of End Character

<Description>

It is to return the label settings altogether.

H1L1 ~ HnLn: The OSD address should consist of the Ascii codes.

<SSC-DC590's specific specification>

* It does not have the preset label and the area label.
* The character string should be up to 24 characters and variable in length.
* It does not support the Ascii codes that do not exist in the menu (ignore).
* If the Ascii codes that it does not support exist in the OSD address, it should ignore the subsequent codes.

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER				NOTE
"C"	nn	"O"	"F"	"S"	A1	C1	P1	D1	

<Command name> Label Function Control

Function: It is to set On/Off of the label function.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: On Screen Display KD1: Label Function

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
A1	Area Label	"0":Off
		"1":On
		"2":Toggle (On/Off)
		"F":No Action
C1	Camera Title	"0":Off
		"1":On
		"2":Toggle (On/Off)
		"F":No Action
P1	Preset Label	"0":Off
		"1":On
		"2":Toggle (On/Off)
		"F":No Action
D1	Activity Detection Alarm	"0":Off
		"1":On
		"2":Toggle (On/Off)
		"F":No Action

<Description>

It is to accept the simultaneous transmission (ADR=”00”).

It is to set On/Off of the label display.

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER	NOTE
"C"	nn	"O"	"F"	"R"		

<Command name> Label Function Status Read Request

Function: It is to request the reading of the setting status of the label function.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: On Screen Display KD1: Label Function

FNC: Request

<Response command> Available : OFA command

<Parameter> N/A

[Sony Security Product Protocol Command Format] <<Direction: Camera (slave station) => Master station>>

CAT	ADR	KD0	KD1	FNC	PARAMETER				NOTE
"C"	nn	"O"	"F"	"A"	C1	A1	P1	D1	

<Command name> Label Function Status Read Answer

Function: It is to respond to the read request of the setting status of the label function.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: On Screen Display KD1: Label Function

FNC: Answer

<Request command> Available : OFR command

<Parameter>

	Name	Contents
C1	Camera Title	"0":Off "1":On
A1	Area Label	"0":Off "1":On
P1	Preset Label	"0":Off "1":On
D1	A.D. Alarm	"0":Off "1":On

<Description>

It is to return the setting status of On/Off of the label display.

[Sony Security Product Protocol Command Format] <<Direction: Master station => Camera (slave station)>>

CAT	ADR	KD0	KD1	FNC	PARAMETER						NOTE
"C"	nn	"O"	"P"	"S"	A1	L1	H1	H2	V1	V2	

<Command name> Label Position Control

Function: It is to set the position where the label display moves.

CAT: CAMERA SYSTEM ADR: nn = "01" ~ "FF"

KD0: On Screen Display KD1: Label Position

FNC: Set

<Response command> N/A

<Parameter>

	Name	Contents
A1	Action	"0":Default Position (Return to factory setting)
		"1":Upper Right
		"2":Upper Left
		"3":Lower Right
		"4":Lower Left
		"5":Direct Positon (Set Position to H1H2, V1V2)
L1	Label Name	"0":Camera Title "1":Area Label "2":Preset Label "3":A.D. Alarm
H1H2	H Position	"00"h~"FF"h:Horizontal Position
V1V2	V Position	"00"h~"FF"h:Vertical Position

<Description>

It is to accept the simultaneous transmission (ADR="00").

It is to change the display position of the label.

<SSC-DC590's specific specification>

* The default values should be as follows.

Camera Title:A1="2"h, A.D. Alarm：A1="3"h

* L1: The label name should include only the camera title at "0" and the A.D. Alarm at "3".
* It does not support "5" of Action of A1, "Direct Position" (ignore).