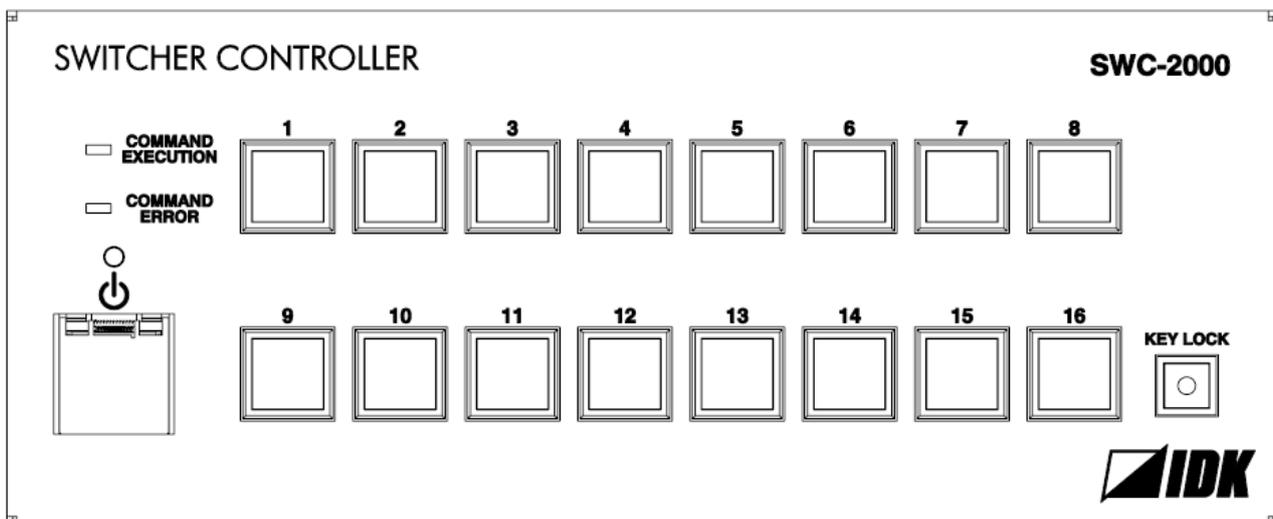


Programmable Button Controller

SWC-2000

<Command Reference Guide>

<Ver.1.3.0>



- Thank you for choosing our product.
- To ensure the best performance of this product, please read this user guide fully and carefully before using it and keep this manual together with the product for future reference as needed.

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- All other company and product names mentioned in this manual are either registered trademarks or trademarks of their respective owners. In this manual, the “®” or “™” marks may not be specified.

Before reading this manual

- All rights reserved.
- Some information contained in this Command guide such as exact product appearance, diagrams, menu operations, communication commands, and so on may differ depending on the product version.
- This Command guide is subject to change without notice. You can download the latest version from IDK's website at: www.idkav.com

The reference manual consists of the following two volumes:

- User guide: Please download the User guide from the website above.
Provides explanations and procedures for operations, installation, connections among devices, I/O adjustment and settings.
- Command guide (this document):
Provides explanations and procedures for external control using RS-232C and LAN communications.

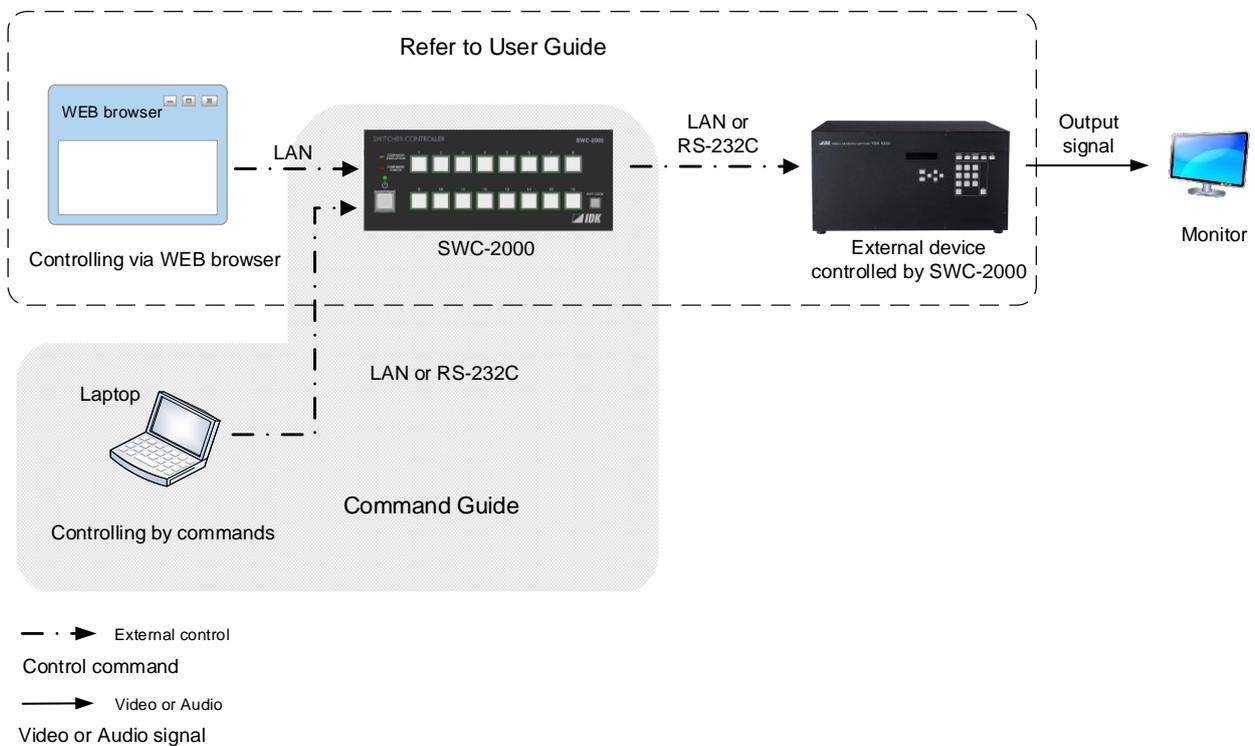
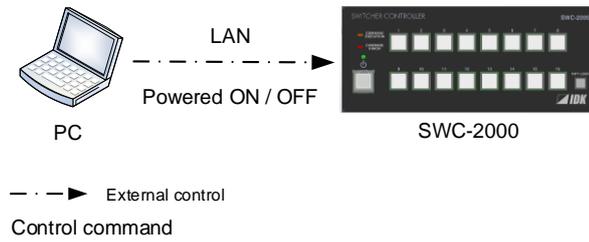


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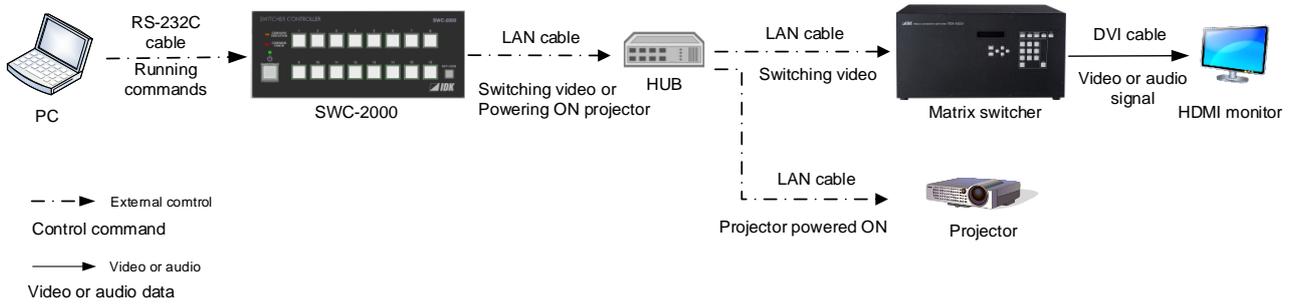
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1 About this Guide

This guide contains the procedure for controlling the SWC-2000 (hereafter referred to as “SWC”) using commands via RS-232C communication or LAN communication.



[Fig. 1.1] Powered ON/OFF



[Fig. 1.2] System control example

【See: 2.1 RS-232C communication】

【See: 2.2 LAN communication】

2 Communication Configuration and Specifications

2.1 RS-232C communication

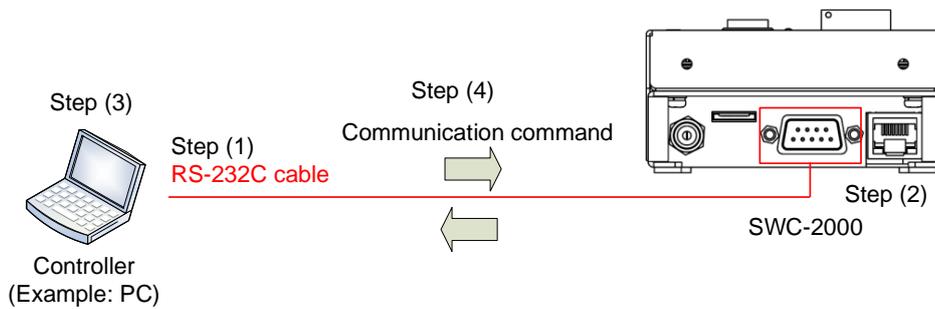
2.1.1 Setting up of RS-232C communication

- (1) Connect the SWC and the control device via an RS-232C cable*
- (2) Set up RS-232C communication as follows:
 - RS-232C communication: Baud rate, data bit length, parity check, and stop bit
 - Operation mode of RS-232C communication: "RECEIVER"

【Reference: User Guide】

- (3) For the control device, set the same values in the same way as RS-232C communication (baud rate, data bit length, parity check, and stop bit) in step (2) above
- (4) Send a communication command from the control device to the SWC in order to check the control status of the SWC

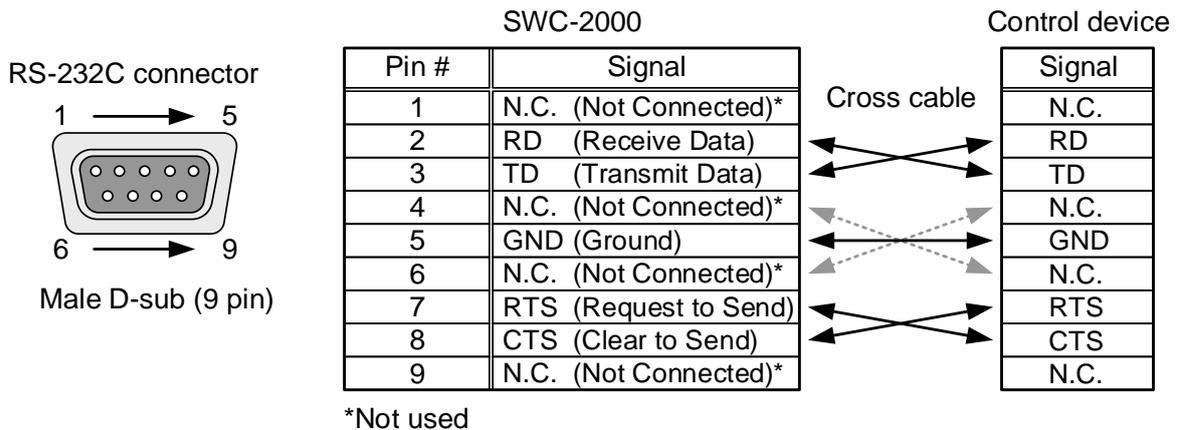
* Use a cross cable to connect the SWC to controller.



[Fig. 2.1] Setting RS-232C communication

2.1.2 RS-232C connector specification

Pin assignment of the RS-232C connector is as follows.



[Fig. 2.2] RS-232C connector

2.1.3 RS-232C communication specification

[Table 2.1] RS-232C specification

Compliant standard	RS-232C
Baud rate	4800/9600/19200/38400 [bps]
Data bit length	7/8 [bit]
Parity check	NONE, EVEN, ODD
Stop bit	1/2 [bit]
X parameter	Invalid
Flow control	None
Delimiter	CR LF (Carriage return and line feed, 0D and 0A in hex)
Communication method	Full duplex

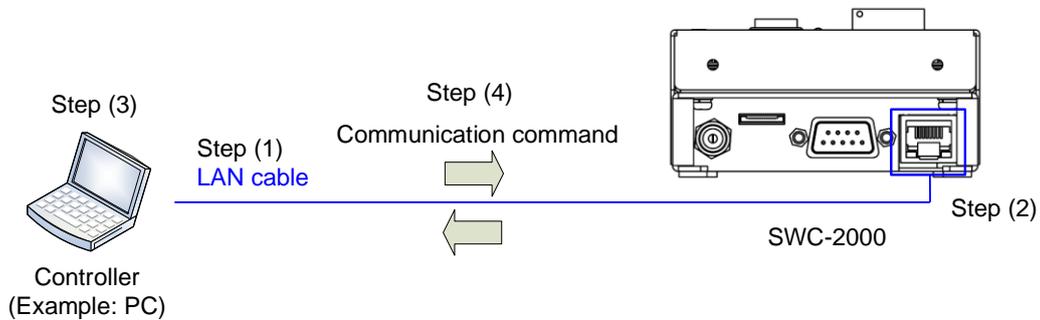
2.2 LAN communication

2.2.1 Setting up LAN communication

- (1) Connect the SWC and the control device via a LAN cable
- (2) Set up LAN communication as follows:
 - Set IP address and subnet mask
 - Operation mode of LAN communication: "RECEIVER"
 - TCP port number: 23, 1100, 6000 to 6999

【Reference: User Guide】

- (3) Establish the connection from the control device to the IP address and TCP port that are set to the SWC in step (2) above.
- (4) Send a communication command from the control device to the SWC in order to check the control status of the SWC.

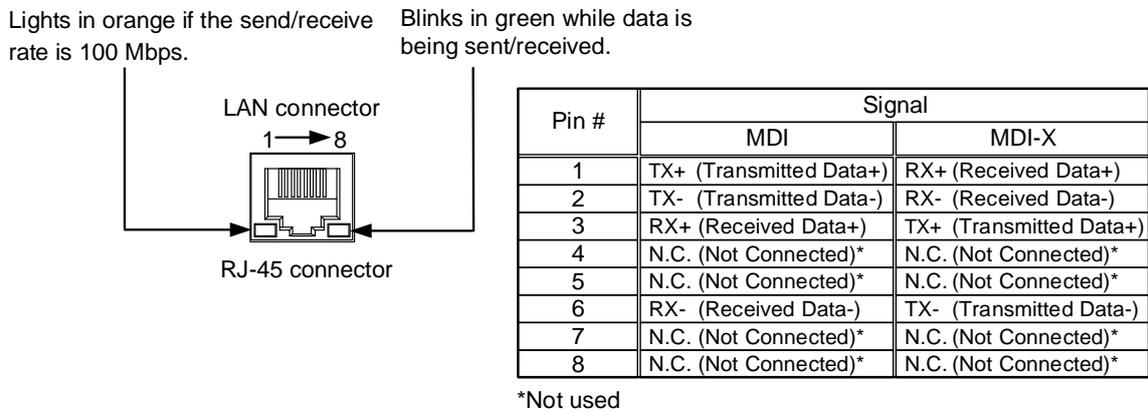


[Fig. 2.3] Setting LAN communication

2.2.2 LAN connector specification

It supports Auto MDI/MDI-X, which distinguishes/switches straight and cross cables automatically.

Pin assignments of LAN connector:



[Fig. 2.4] LAN connector

2.2.3 LAN communication specification

[Table 2.2] Specification of LAN communication

Physical layer	10Base-T (IEEE802.3i)/100Base-TX (IEEE802.3u)
Network layer	ARP, IP, ICMP
Transport layer	TCP
	Port used for command control : 23, 1100, 6000 to 6999 Port used for WEB browser control (HTTP): 80, 5000 to 5999

Note:

Up to 7 connections can be used simultaneously.

2.2.4 The number of TCP-IP connections

The SWC supports up to seven simultaneous TCP-IP connections (seven logical ports). To maintain optimal system accessibility, it is advisable to issue “port-open” and “port-close” commands before and after command or query strings are issued. This approach enables eight or more control devices to be effectively interfaced simultaneously and without concern for communication errors.

[Table 2.3] Increasing connections

Your PC software		SWC
Connecting TCP-IP	→	(Occupying 1 port)
Sending command (@xxx)	→	
	←	Replying command (@xxx)
Closing TCP-IP	→	(Releasing 1port)

Note:

As a safeguard, the SWC incorporates a 30-second timeout window for each port. If any port is inactive for more than 30 seconds, it will be closed automatically.

3 Command

3.1 Summary

A command consists of "@" ("40" in hexadecimal), 3 one-byte alphabetical characters (upper and lower cases), followed by parameters (one-byte numbers). For some commands, multiple parameter values can be specified or parameters are not necessary. Processing is executed by sending a delimiter at the end of the command.

Example: @EXC,1,2,3 ↵

"," (a comma, "2C" in hex) is indicated between a command and parameter and between two parameters.
 "↵" is indicated as a delimiter CR LF (return+line feed, "0D" and "0A" in hex).

■ If there is an error:

An error command is returned if an undefined command or wrong parameter is included.

Example: @SPS,2 ↵
 @ERR,1 ↵

■ Using as HELP

If only delimiter is sent, command list as the help command is returned.

Example: ↵
 ----- HELP (1/4) ----- ↵
 (POWER BUTTON Command) ↵
 @GPS / SPS: Getting/Setting the standby button ↵

3.2 Command list

■ Error status

Command	Function	Page
@ERR	Error status	13

■ Setting standby button

Command	Function	Page
@GPS / @SPS	Standby button	14

■ Setting RS-232C communication

Command	Function	Page
@GCT / @SCT	RS-232C communication	15
@GCF / @SCF	RS-232C communication mode	16

■ Setting LAN communication

Command	Function	Page
@GIP / @SIP	IP address	17
@GSB / @SSB	Subnet mask	17
@GGW / @SGW	Gateway address	17
@GLF / @SLF	LAN communication mode	18
@GLP / @SLP	TCP port number	19
@GMC	MAC address	19

■ Setting control commands

Command	Function	Page
@EXC	Executing control commands	20
@GEC / @SEC	Control command (Communication command)	21
@GEC / @SEC	Control command (Displaying received data)	23
@GRC / @SRC	Response command	25
@GCC / @SCC	Control command link	26
@GTG / @STG	Toggle operation	27
@GUP / @SUP	Plane to be executed when powered ON	27
@GIT / @SIT	Ineffective time during control command execution	28
@DEC	Initializing registered command and link	28
@GTL / @STL	Lighting condition of control command button	29
@GTF / @STF	Blinking time of control command button	30
@GGL / @SGL	LAST BUTTON MEMORY (Start-up lighting by group)	30

■ Advanced setting

Command	Function	Page
@GLS / @SLS	Locking/Unlocking Control command button and standby button lock	31
@GBZ / @SBZ	Buzzer	31
@GIV	Version	31

3.2.1 Error status

@ERR	Error status
Format	Return value only
Return value	@ERR, error ↵
Parameter	error: Error status 1 = Erroneous parameter format or value 2 = Undefined command or wrong format 3 = Currently cannot be used 4 = Currently cannot be used, because the standby button is OFF 5 = The command could not be executed, because the control command was not registered 6 = The command could not be processed since another command was being executed 7 = Not used 8 = Not used 9 = Not used 10 = The control command was stopped according to the stop condition 11 = The control command was stopped since the number of retries exceeded the set value of "RETRY" 12 = The control command of PJLink was stopped since the password did not match 13 = Not used 14 = Not used
Example	@IOS ↵ Sending @IOS command @ERR,2 ↵ Undefined command
Remarks	—

3.2.2 Setting standby button

@GPS / @SPS	Standby button	
Function	Getting	Setting
Format	@GPS ↵	@SPS, onoff ↵
Return value	@GPS, onoff ↵	@SPS, onoff ↵
Parameter	onoff: Standby button 0 = OFF, 1 = ON	
Example	@GPS ↵ @GPS,1 ↵	Getting the standby button status ON
	@SPS,1 ↵ @SPS,1 ↵	Setting the standby button to ON Completed
Remarks	<p>It may take some time to reply, because the execution result is sent after the standby button is controlled.</p> <p>Even if the standby button is "OFF", this command and "@GIV" and "@GPS / @SPS" are valid.</p> <p style="text-align: right;">【See: @GIV Version】</p>	

3.2.3 Setting RS-232C communication

@GCT / @SCT	RS-232C communication	
Function	Getting	Setting
Format	@GCT ↵	@SCT, port, setting ↵
Return value	@GCT, setting ↵	@SCT, port, setting ↵
Parameter	setting: Communication setting - Baud rate (4800, 9600, 19200, 38400 [bps] [Default] 9600) - Data bit length (8, 7 [bit] [Default] 8) - Parity check (NONE, EVEN, ODD [Default] NONE) - Stop bit (1, 2 [bit] [Default] 1) For setting values, see the [Table 3.1].	
	port: RS-232C connector 0 or 1 = RS-232C connector	
Example	@GCT ↵	Getting communication settings of RS-232Cs
	@GCT,24 ↵	- Baud rate : 19200 [bps] - Data bit length : 8 [bit] - Parity check : NONE - Stop bit : 1 [bit]
	@SCT,1,24 ↵	Setting communication settings of RS-232Cs as follows:
	@SCT,1,24 ↵	- Baud rate : 19200 [bps] - Data bit length : 8 [bit] - Parity check : NONE - Stop bit : 1 [bit] Completed
Remarks	If IP address or RS-232C communication setting is changed, the communication may be disabled. Change the environmental settings based on the SWC settings.	

[Table 3.1] Parameter of RS-232C communication settings

Value	Communication			
0	4800	8	NONE	1
1	4800	8	NONE	2
2	4800	8	ODD	1
3	4800	8	ODD	2
4	4800	8	EVEN	1
5	4800	8	EVEN	2
6	4800	7	NONE	1
7	4800	7	NONE	2
8	4800	7	ODD	1
9	4800	7	ODD	2
10	4800	7	EVEN	1
11	4800	7	EVEN	2

Value	Communication			
12	9600	8	NONE	1
13	9600	8	NONE	2
14	9600	8	ODD	1
15	9600	8	ODD	2
16	9600	8	EVEN	1
17	9600	8	EVEN	2
18	9600	7	NONE	1
19	9600	7	NONE	2
20	9600	7	ODD	1
21	9600	7	ODD	2
22	9600	7	EVEN	1
23	9600	7	EVEN	2

Value	Communication			
24	19200	8	NONE	1
25	19200	8	NONE	2
26	19200	8	ODD	1
27	19200	8	ODD	2
28	19200	8	EVEN	1
29	19200	8	EVEN	2
30	19200	7	NONE	1
31	19200	7	NONE	2
32	19200	7	ODD	1
33	19200	7	ODD	2
34	19200	7	EVEN	1
35	19200	7	EVEN	2

Value	Communication			
36	38400	8	NONE	1
37	38400	8	NONE	2
38	38400	8	ODD	1
39	38400	8	ODD	2
40	38400	8	EVEN	1
41	38400	8	EVEN	2
42	38400	7	NONE	1
43	38400	7	NONE	2
44	38400	7	ODD	1
45	38400	7	ODD	2
46	38400	7	EVEN	1
47	38400	7	EVEN	2

@GCF / @SCF	RS-232C communication mode	
Function	Getting	Setting
Format	@GCF ↵	@SCF, port, mode ↵
Return value	@GCF, mode ↵	@SCF, port, mode ↵
Parameter	mode: Operation mode 0 = RECEIVER mode [Default], 1 = TRANSMITTER mode	
	port: RS-232C connector 0 or 1 = RS-232C connector	
Example	@GCF ↵	Getting the set operation mode
	@GCF,1 ↵	TRANSMITTER mode
	@SCF,1,1 ↵	Setting RS-232C connector to
	@SCF,1,1 ↵	TRANSMITTER mode
		Completed
Remarks	If IP address or RS-232C communication setting is changed, the communication may be disabled. Change the environmental settings based on the SWC settings.	

3.2.4 LAN communication

@GIP / @SIP	IP address	
Function	Getting	Setting
Format	@GIP ↵	@SIP, unit_1, unit_2, unit_3, unit_4 ↵
Return value	@GIP, unit_1, unit_2, unit_3, unit_4 ↵	@SIP, unit_1, unit_2, unit_3, unit_4 ↵
Parameter	unit_1: Upper bit of the IP address to unit_4: lower bit of the IP address 0 to 255 = 8 bit (Decimal notation) [Default] 192.168.1.199	
Example	@GIP ↵	Getting the IP address of the SWC
	@GIP,192,168,3,2 ↵	IP address: 192.168.3.2
	@SIP,192,168,3,2 ↵	Setting the IP address to 192.168.3.2
	@SIP,192,168,3,2 ↵	Completed
Remarks	If IP address or RS-232C communication setting is changed, the communication may be disabled. Change the environmental settings based on the SWC settings.	

@GSB / @SSB	Subnet mask	
Function	Getting	Setting
Format	@GSB ↵	@SSB, unit_1, unit_2, unit_3, unit_4 ↵
Return value	@GSB, unit_1, unit_2, unit_3, unit_4 ↵	@SSB, unit_1, unit_2, unit_3, unit_4 ↵
Parameter	unit_1: Upper bit of the subnet mask to unit_4: lower bit of the subnet mask 0 to 255 = 8 bit (Decimal notation) [Default] 255.255.255.0	
Example	@GSB ↵	Getting the set subnet mask of the SWC
	@GSB,255,255,192,0 ↵	Subnet mask: 255.255.192.0 (= 18 bit)
	@SSB,255,255,192,0 ↵	Setting the subnet mask to 255.255.192.0
	@SSB,255,255,192,0 ↵	(= 18 bit) Completed
Remarks	If IP address or RS-232C communication setting is changed, the communication may be disabled. Change the environmental settings based on the SWC settings.	

@GGW / @SGW	Gateway address	
Function	Getting	Setting
Format	@GGW ↵	@SGW, unit_1, unit_2, unit_3, unit_4 ↵
Return value	@GGW, unit_1, unit_2, unit_3, unit_4 ↵	@SGW, unit_1, unit_2, unit_3, unit_4 ↵
Parameter	unit_1: Upper bit of the gateway address to unit_4: lower bit of the gateway address 0 to 255 = 8 bit (Decimal notation) [Default] 192.168.1.200	
Example	@GGW ↵	Getting the set gateway address
	@GGW,192,168,1,254 ↵	Gateway address: 192.168.1.254
	@SGW,192,168,1,254 ↵	Setting the gateway address to
	@SGW,192,168,1,254 ↵	192.168.1.254 Completed
Remarks	If IP address or RS-232C communication setting is changed, the communication may be disabled. Change the environmental settings based on the SWC settings.	

@GLF / @SLF	LAN communication mode	
Function	Getting	Setting
Format	@GLF, connection [↵]	@SLF, connection, mode (, ip_1, ip_2, ip_3, ip_4, pjlink, tcp, password) [↵]
Return value	@GLF, connection, mode (, ip_1, ip_2, ip_3, ip_4, pjlink, tcp, password) [↵]	@SLF, connection, mode (, ip_1, ip_2, ip_3, ip_4, pjlink, tcp, password) [↵]
Parameter	connection: Connection number 1 to 7 = Connection 1 to Connection 7	
	mode: Operation mode 0 = RECEIVER mode [Default], 1 = TRANSMITTER mode	
	ip_1: Upper bit of the destination IP address to ip_4: lower bit of the destination IP address 0 to 255 = 8 bit (Decimal notation) [Default] 192.168.1.198 Available only if the <i>mode</i> is TRANSMITTER.	
	pjlink: PJLink protocol connection 0 = PJLink not used [Default], 1 = PJLink used Available only if the <i>mode</i> is TRANSMITTER.	
	tcp: Destination port number 1 to 65535 [Default] 1100 Available only if "mode" is set to "1" and "pjlink" is set to "0". If "pjlink" is set to "1", "tcp" is set to "4352" (fixed).	
	password: Password of PJLink protocol Up to 32 characters of the following ASCII codes: 20, 30 to 39, 41 to 5A, 61 to 7A (alphanumeric characters). Available only if "mode" is set to "1" and "pjlink" is set to "0". For getting command: Available only if a password is set. For setting command: You can skip this password parameter if "pjlink" is set to "1" and you do not need password authentication.	
Example	@GLF,3 [↵]	Getting mode settings of Connection 3 - Mode: TRANSMITTER mode - Destination IP address: 192.168.1.2 - PJLink protocol connection: to be used - Destination port number: N/A - Password: "PROJECTOR1"
	@GLF,3,1,192,168,1,2,1,PROJECTOR1 [↵]	
	@SLF,3,1,192,168,1,2,1 [↵]	Setting Connection 3 as follows: - Mode: TRANSMITTER mode - Destination IP address: 192.168.1.2 - PJLink protocol connection: to be used - Destination port number: Skipped - Password: Skipped Completed
Remarks	If IP address or RS-232C communication setting is changed, the communication may be disabled. Change the environmental settings based on the SWC settings.	

@GLP / @SLP	TCP port number	
Function	Getting	Setting
Format	@GLP [↵]	@SLP, connection_1, port_1 (, connection_2, port_2···) [↵]
Return value	@GLP, port_1, port_2, port_3, port_4, port_5, port_6, port_7 [↵]	@SLP, connection_1, port_1 (, connection_2, port_2···) [↵]
Parameter	port_1-7: TCP port number 23, 80, 1100, 5000 to 5999, 6000 to 6999 [Default] Connection 1 to 3 = 1100, Connection 4 to 6 = 23, Connection 7 = 80	
	connection_1-7: Connection number 0 = All connections, 1 to 7 = Connection 1 to Connection 7	
Example	@GLP [↵] @GLP,1100,1100,1100,23,23,23,80 [↵]	Getting the set TCP port number - Connection 1 to 3 : 1100 - Connection 4 to 6 : 23 - Connection 7 : 80
	@SLP,7,6000 [↵] @SLP,7,6000 [↵]	Setting port number of Connection 7 to "6000" Completed
Remarks	If IP address or RS-232C communication setting is changed, the communication may be disabled. Change the environmental settings based on the SWC settings.	

@GMC	MAC address	
Function	Getting	
Format	@GMC [↵]	
Return value	@GMC, unit_1, unit_2, unit_3, unit_4, unit_5, unit_6 [↵]	
Parameter	unit_1: Upper bit of the MAC address to unit_6: lower bit of the MAC address 00 to FF = 8 bit (in hex)	
Example	@GMC [↵] @GMC,00,08,E5,69,00,00 [↵]	Getting the MAC address MAC address: 00,08,E5,69,00,00
Remarks	—	

3.2.5 Control commands

@EXC		Executing control commands
Function	Setting	
Format	@EXC, command_1 (, command_2···) 	
Return value	@EXC, command_1 (, command_2···) 	
Parameter	command_1-10: Control command A to P = Control command button 1 to Control command button 16 1 to 32 = COMMAND 1 to COMMAND 32	
Example	@EXC,A 	Executing the control command that is assigned to Control command button 1 Completed
	@EXC,1,2,3 	Executing in order of COMMAND 1, 2, and 3 Completed
	@EXC,6 	Executing COMMAND 6
	@EXC,6,RECV: POWER OFF 	If a command for displaying returned data is executed, the received result is displayed In this example, "POWER OFF" is received from the target device.
	@EXC,A  @ERR,10,A 	Executing the control command that is assigned to Control command button 1 In case of abnormal end, the error status and the control command are returned.
Remarks	Since the result is returned after control command execution is complete, it sometimes may take a time for response. If multiple control commands are executed, multiple errors may be returned.	

@GEC / @SEC	Control command (Communication command)																			
Function	Getting	Setting																		
Format	@GEC, no ↵	@SEC, no, delay, port, memo, length, command, timeout, retry, interval, retryover, display (, recv_1, recv_2···) ↵																		
Return value	@GEC, no, delay, port, memo, length, command, timeout, retry, interval, retryover, display (, recv_1, recv_2···) ↵	@SEC, no, delay, port, memo, length, command, timeout, retry, interval, retryover, display (, recv_1, recv_2···) ↵																		
Parameter	no: Control command 1 to 32																			
	delay: Delay time 0 to 999999 = 0 sec. to 999.999 sec.																			
	port: Output port 1 to 511																			
	<table border="1"> <thead> <tr> <th>bit</th> <th>7</th> <th>6</th> <th>5</th> <th>4</th> <th>3</th> <th>2</th> <th>1</th> <th>0</th> </tr> </thead> <tbody> <tr> <td>port</td> <td>LAN 7</td> <td>LAN 6</td> <td>LAN 5</td> <td>LAN 4</td> <td>LAN 3</td> <td>LAN 2</td> <td>LAN 1</td> <td>RS-232C</td> </tr> </tbody> </table>		bit	7	6	5	4	3	2	1	0	port	LAN 7	LAN 6	LAN 5	LAN 4	LAN 3	LAN 2	LAN 1	RS-232C
	bit	7	6	5	4	3	2	1	0											
	port	LAN 7	LAN 6	LAN 5	LAN 4	LAN 3	LAN 2	LAN 1	RS-232C											
	<table border="1"> <thead> <tr> <th>bit</th> <th>15</th> <th>14</th> <th>13</th> <th>12</th> <th>11</th> <th>10</th> <th>9</th> <th>8</th> </tr> </thead> <tbody> <tr> <td>port</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>LOOP BACK</td> </tr> </tbody> </table>		bit	15	14	13	12	11	10	9	8	port	0	0	0	0	0	0	0	LOOP BACK
	bit	15	14	13	12	11	10	9	8											
	port	0	0	0	0	0	0	0	LOOP BACK											
	<p>“1” is for the bit of the output port to send a command (Since bit 9 to 15 are not used, they are always “0”). For example, if you want to send a command to RS-232C, specify “1” (0000000000000001 in binary). If sending a command to LAN 1, specify “2” (0000000000000010 in binary).</p>																			
	memo: Up to 14 characters of 20 to 7D except 2C (,) of ASCII code																			
	length: Data size of send command (the number of bytes) 0 to 30																			
	command: Send command data Specify “length” × 2 digits with 0 to 9, A to F, a to f: (4 bit per digit in hexadecimal)																			
timeout: Time-out duration 0 to 99999 = 0 sec. to 99.999 sec.																				
retry: The number of retries 0 to 99																				
interval: Retry interval 0 to 99999 = 0 sec. to 99.999 sec.																				
retryover: Processing at retry over 0 = Stop processing, 1 = Continue processing																				
display: Displaying received data 0 = Not displaying received data, 1 = in ASCII codes, 2 = in hexadecimals																				

@GEC / @SEC	Control command (Communication command) (Cont'd)	
Parameter	recv_1-32: Presence or absence of response command check 1 to 32 For get commands, reply command numbers are separated from each other by a comma. For set commands, the reply command number to be checked can be specified. Up to 32 commands can be specified by separating them by a comma. If you send only parameters of reply command number you want to check, the reply commands without sent parameter are automatically set to "not check". Register reply commands in " @GRC / @SRC Response command ".	
Example	@GEC,1 ↵ @GEC,1,10,1,POWER,7,5057204F4E0D0A,1000,2,500,0,0,1,2 ↵	Getting settings registered in Control command 1 - Delay : 10 ms. - Output port : RS-232C - Memo : POWER - Data size : 7 bytes - Command data : PW ON CR LF (ASCII codes) - Timeout : 1000 ms. - Retry : 2 times - Retry interval : 500 ms. - Retry over : Stop - Received data : Not displayed - Response command : Check 1 and 2
	@SEC,2,0,256,IN1 SELECT,10,405353572C312C310D0A,0,0,0,1,0 ↵ @SEC,2,0,256,IN1 SELECT,10,405353572C312C310D0A,0,0,0,1,0 ↵	Setting Control command 2 as follows: - Delay : 0 ms. - Output port : LOOP BACK - Memo : IN1 SELECT - Data size : 10 bytes - Command data : @SSW,1,1 CR LF (ASCII codes) - Timeout : 0 ms. - Retry : 0 time - Retry interval : 0 ms. - Retry over : Execute - Received data : Not displayed - Response command : Not checked Completed
Remarks	—	

@GEC / @SEC	Control command (Displaying received data)																			
Function	Getting	Setting																		
Format	@GEC, no ↵	@SEC, no, delay, port, memo, length, command, timeout, retry, interval, retryover, display, delimiter ↵																		
Return value	@GEC, no, delay, port, memo, length, command, timeout, retry, interval, retryover, display, delimiter ↵	@SEC, no, delay, port, memo, length, command, timeout, retry, interval, retryover, display, delimiter ↵																		
Parameter	no: Control command 1 to 32																			
	delay: Delay time 0 to 999999 = 0 sec. to 999.999 sec.																			
	port: Output port 1 to 511																			
	<table border="1"> <tr> <td>bit</td> <td>7</td> <td>6</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> <tr> <td>port</td> <td>LAN 7</td> <td>LAN 6</td> <td>LAN 5</td> <td>LAN 4</td> <td>LAN 3</td> <td>LAN 2</td> <td>LAN 1</td> <td>RS-232C</td> </tr> </table>		bit	7	6	5	4	3	2	1	0	port	LAN 7	LAN 6	LAN 5	LAN 4	LAN 3	LAN 2	LAN 1	RS-232C
	bit	7	6	5	4	3	2	1	0											
	port	LAN 7	LAN 6	LAN 5	LAN 4	LAN 3	LAN 2	LAN 1	RS-232C											
	<table border="1"> <tr> <td>bit</td> <td>15</td> <td>14</td> <td>13</td> <td>12</td> <td>11</td> <td>10</td> <td>9</td> <td>8</td> </tr> <tr> <td>port</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>LOOP BACK</td> </tr> </table>		bit	15	14	13	12	11	10	9	8	port	0	0	0	0	0	0	0	LOOP BACK
	bit	15	14	13	12	11	10	9	8											
	port	0	0	0	0	0	0	0	LOOP BACK											
	<p>“1” is for the bit of the output port to send a command (Since bit 9 to 15 are not used, they are always “0”). For example, if you want to send a command to RS-232C, specify “1” (0000000000000001 in binary). If sending a command to LAN 1, specify “2” (0000000000000010 in binary).</p>																			
	memo: Up to 14 characters of 20 to 7D except 2C (,) of ASCII code																			
	length: Command data size (the number of bites) 0 to 30																			
	command: Command data Specify “length” x 2 digits with 0 to 9, A to F, a to f: (4 bit per digit in hexadecimal)																			
timeout: Time-out duration 0 to 99999 = 0 sec. to 99.999 sec.																				
retry: The number of retries 0 to 99																				
interval: Retry interval 0 to 99999 = 0 sec. to 99.999 sec.																				
retryover: Processing at retry over 0 = Stop processing, 1 = Continue processing																				
display: Displaying received data 0 = Not displaying received data, 1 = in ASCII codes, 2 = in hexadecimals																				

@GEC / @SEC	Control command (Displaying received data) (Cont'd)	
Parameter	delimiter: 2 digits of 0 to 9, A to F, a to f = 4 bits per digit (in hexadecimal) for monitoring delimiter 100 = Not monitor	
Example	@GEC,3 ↵ @GEC,3,0,2,POWER STATUS,9, 47455420504F570D0A, 2000,2,200,0,1,0D ↵	Getting settings of Control command 3 - Delay time : 0 ms. - Output port : LAN1 - Memo : POWER STATUS - Data size : 9 bytes - Command data : GET POW CR LF (ASCII codes) - Timeout : 2000 ms. - Retry : 2 times - Retry interval : 200 ms. - Retryover : Stop - Received data : Displayed in ASCII codes - Delimiter : 0D in hex (CR =ASCII codes)
	@SEC,3,0,2,POWER STATUS,9, 47455420504F570D0A, 2000,2,200,0,1,0D ↵	Setting Control command 3 as follows: - Delay time : 0 ms. - Output port : LAN1 - Memo : POWER STATUS - Data size : 9 bytes - Command data : GET POW CR LF (ASCII codes) - Timeout : 2000 ms. - Retry : 2 times - Retry interval : 200 ms. - Retryover : Stop - Received data : Displayed in ASCII codes - Delimiter : 0D in hex (CR =ASCII codes)
	@SEC,3,0,2,POWER STATUS,9, 47455420504F570D0A, 2000,2,200,0,1,0D ↵	Completed
Remarks	—	

@GRC / @SRC	Response command	
Function	Getting	Setting
Format	@GRC, no ↵	@SRC, no, process, length, command, mask, memo ↵
Return value	@GRC, no, process, length, command, mask, memo ↵	@SRC, no, process, length, command, mask, memo ↵
Parameter	no: Control command 1 to 32	
	process: Control command status 0 = Stop, 1 = Continue, 2 = Resending commands	
	length: Reply command data size (bytes) 0 to 30	
	command: Reply command data Specify "length" × 2 digits with 0 to 9, A to F, a to f: (4 bit per digit in hexadecimal)	
	mask: Mask data Specify "length" × 2 digits with 0 to 9, A to F, a to f: (4 bit per digit in hexadecimal)	
	memo: Up to 14 characters of 20 to 7D except 2C (,) of ASCII code	
Example	@GRC,2 ↵ @GRC,2,0,1,40,40,NG ↵	Getting settings of Reply command 2: - Control command status : Stop - Reply command data size : 1 byte - Reply command data : 40 (in hex) - Mask data: 40 (checking the second bit from the top) - Memo : NG (no good)
	@SRC,1,1,9, 52454356204F4B0D0A, FFFFFFFFFFFFFFFFFFFF,OK ↵	Setting Reply command 1 as follows: - Control command status : Continue - Reply command data size : 9 bytes - Reply command data: RECV OK CR LF (ASCII) - Mask data : FF (checking all bits) - Memo : OK
	@SRC,1,1,9, 52454356204F4B0D0A, FFFFFFFFFFFFFFFFFFFF,OK ↵	Completed
Remarks	—	

@GCC / @SCC	Control command link	
Function	Getting	Setting
Format	@GCC, event [↵]	@SCC, event, c_1 (, c_2, c_3···) [↵]
Return value	@GCC, event, c_1 (, c_2, c_3···) [↵]	@SCC, event, c_1 (, c_2, c_3···) [↵]
Parameter	event: Control command execution condition For settable values, see the [Table 3.2]. c_1-10: Send command 0 = Not link, 1 to 32 = Control command 1 to 32 Control commands that are registered in one of the following commands can be linked. “@GEC / @SEC Control command (Communication command)”, “@GEC / @SEC Control command (Displaying received data)”	
Example	@GCC,33 [↵]	Getting control commands that will be executed when the SWC is powered on
	@GCC,33,5,2,1 [↵]	Executing in order of Control command 5, 2, and 1
	@SCC,33,5,2,1 [↵]	Executing in order of Control command 5, 2, and 1 when the SWC is powered on
	@SCC,33,5,2,1 [↵]	Completed
Remarks	—	

[Table 3.2] Parameter for “event”

No.	Execution condition	No.	Execution condition	No.	Execution condition
1	Control command button 1-PLANE A	17	Control command button 9-PLANE A	33	POWER ON
2	Control command button 1-PLANE B	18	Control command button 9-PLANE B	34	POWER OFF
3	Control command button 2-PLANE A	19	Control command button 10-PLANE A		
4	Control command button 2-PLANE B	20	Control command button 10-PLANE B		
5	Control command button 3-PLANE A	21	Control command button 11-PLANE A		
6	Control command button 3-PLANE B	22	Control command button 11-PLANE B		
7	Control command button 4-PLANE A	23	Control command button 12-PLANE A		
8	Control command button 4-PLANE B	24	Control command button 12-PLANE B		
9	Control command button 5-PLANE A	25	Control command button 13-PLANE A		
10	Control command button 5-PLANE B	26	Control command button 13-PLANE B		
11	Control command button 6-PLANE A	27	Control command button 14-PLANE A		
12	Control command button 6-PLANE B	28	Control command button 14-PLANE B		
13	Control command button 7-PLANE A	29	Control command button 15-PLANE A		
14	Control command button 7-PLANE B	30	Control command button 15-PLANE B		
15	Control command button 8-PLANE A	31	Control command button 16-PLANE A		
16	Control command button 8-PLANE B	32	Control command button 16-PLANE B		

@GTG / @STG		Toggle operation	
Function	Getting	Setting	
Format	@GTG, event_1 (, event_2···) 	@STG, event_1, toggle_1 (, event_2, toggle_2···) 	
Return value	@GTG, event_1, toggle_1 (, event_2, toggle_2···) 	@STG, event_1, toggle_1 (, event_2, toggle_2···) 	
Parameter	event_1-16: Control command button 0 = All control command buttons, 1 = Control command button 1 to 16 = Control command button 16		
	toggle_1-16: Toggle operation 0 = Disabled, 1 = Enabled		
Example	@GTG,1 	Getting the toggle operation of Control command button 1	
	@GTG,1,1 	Enabled	
	@STG,1,1 	Setting the Control command button 1 to toggle operation	
	@STG,1,1 	Completed	
Remarks	—		

@GUP / @SUP		Plane to be executed when powered ON	
Function	Getting	Setting	
Format	@GUP, event_1 (, event_2···) 	@SUP, event_1, plane_1 (, event_2, plane_2···) 	
Return value	@GUP, event_1, plane_1 (, event_2, plane_2···) 	@SUP, event_1, plane_1 (, event_2, plane_2···) 	
Parameter	event_1-16: Control command button 0 = All control command buttons, 1 = Control command button 1 to 16 = Control command button 16		
	plane_1-16: Plane to be executed when powered ON 0 = AUTO, 1 = PLANE A, 2 = PLANE B		
Example	@GUP,1 	Getting the plane to be executed when Control command button 1 is powered ON	
	@GUP,1,1 	PLANE A	
	@SUP,1,1 	Setting the Control command button 1 to execute PLANE A when powered ON	
	@SUP,1,1 	Completed	
Remarks	—		

@GIT / @SIT		Ineffective time during control command execution	
Function	Getting	Setting	
Format	@GIT [↵]	@SIT, time [↵]	
Return value	@GIT, time [↵]	@SIT, time [↵]	
Parameter	time: Control command Invalid time 0 to 999999 ms. (0 sec. to 999.999 sec.) [Default] 0 sec.		
Example	@GIT [↵]	Getting ineffective time of control command execution	
	@GIT,2000 [↵]	Disabling operation during control command execution or 2000 ms. (2 seconds) after control command starts.	
	@SIT,2000 [↵]	Setting sending ineffective time during control command execution to 2000 ms. (2 seconds)	
	@SIT,2000 [↵]	Completed	
Remarks	—		

@DEC		Initializing registered command and link	
Function	Setting		
Format	@DEC, no_1 (, no_2, no_3···) [↵]		
Return value	@DEC, no_1 (, no_2, no_3···) [↵]		
Parameter	no_1-32: Commands or links you want to initialize 1 to 32: Control commands 1 to 32 101 to 132: Response commands 1 to 32 (“1xx”: xx is the response command number) 【See: @GRC / @SRC Response command】 201 to 234: Control command links 1 to 34 (“2xx”: xx is the control command execution condition) 【See: @GCC / @SCC Control command link】		
Example	@DEC,233 [↵]	Deleting the POWER ON link	
	@DEC,233 [↵]	Completed	
Remarks	—		

@GTL / @STL	Lighting condition of control command button	
Function	Getting	Setting
Format	@GTL, button _1 (,button _2···) ↵	@STL, button _1, led_1 (,button _2, led_2···) ↵
Return value	@GTL, button _1, led_1 (,button _2, led_2···) ↵	@STL, button _1, led_1 (,button _2, led_2···) ↵
Parameter	<p>button_1-16: Control command button 0 = All control command buttons 1 to 16 = Control command button 1 to Control command button 16</p> <p>led_1-16: Lighting condition 0 = Lights when a control command is registered [Default] 1 = Lights while a control command is being executed 2 to 9 = Group 1 to Group 8 2 to 9: - A control command(s) that is linked to a control command button is executed by pressing the desired button when the control command execution button lights Control command button lights regardless of execution - If any control command is not linked to the control command button, the button does not light. Another button in the same group keep lighting</p>	
Example	@GTL,5 ↵	Getting the lighting condition of the Control command button 5
	@GTL,5,0 ↵	The control command button lights if a control command is registered
	@STL,2,1 ↵	Setting the Control command button 2 to light while a command is being executed
	@STL,2,1 ↵	Completed
Remarks	—	

@GTF / @STF		Blinking time of control command button	
Function	Getting	Setting	
Format	@GTF, button _1 (,button _2···) ↵	@STF, button _1, flash_1 (,button _2, flash_2···) ↵	
Return value	@GTF, button _1, flash_1 (,button _2, flash_2···) ↵	@STF, button _1, flash_1 (,button _2, flash_2···) ↵	
Parameter	button _1-16: Control command button 0 = All control command button 1 to 16 = Control command button 1 to Control command button 16		
	flash_1-16: Blinking time -1 = Links during control command execution, 0 = Not blink [Default] 1 to 1000 = 1 sec. to 1000 sec.		
Example	@GTF,6 ↵	Getting the blinking time of Control command button 6	
	@GTF,6,-1 ↵	Blinks during control command execution	
	@STF,4,5 ↵	Setting the Control command button 4 to blink 5 seconds after control command execution starts	
	@STF,4,5 ↵	Completed	
Remarks	—		

@GGL / @SGL		LAST BUTTON MEMORY (Start-up lighting by group)	
Function	Getting	Setting	
Format	@GGL, group _1 (,group _2···) ↵	@SGL, group _1, memory _1 (,group _2, memory _2···) ↵	
Return value	@GGL, group _1, memory _1 (,group _2, memory _2···) ↵	@SGL, group _1, memory _1 (,group _2, led_2···) ↵	
Parameter	group _1-8: Group of control command buttons 0 = All groups 1 to 8 = Group 1 to Group 8		
	memory _1-8: Lighting status of control command buttons during powered on 0 = Does not light [Default] 1 = The last lighting status will be maintained		
Example	@GGL,5 ↵	Getting the lighting status of Group 5's control command buttons during powered on	
	@GGL,5,0 ↵	Not light	
	@SGL,2,1 ↵	Setting Group 2's control command buttons to be the last lighting status during powered on	
	@SGL,2,1 ↵	Completed	
Remarks	—		

3.2.6 Advanced setting

@GLS / @SLS		Locking/Unlocking Control command button and standby button lock	
Function	Getting	Setting	
Format	@GLS ↵	@SLS, lock ↵	
Return value	@GLS, lock ↵	@SLS, lock ↵	
Parameter	lock: Locking/Unlocking control command button and standby button 0 = Unlocking [Default] 1 = Locking 2 = Changing the current setting		
Example	@GLS ↵	Getting the control command buttons and standby button lock status	
	@GLS,1 ↵	Locking	
	@SLS,1 ↵	Locking the control command buttons and standby button	
	@SLS,1 ↵	Completed	
Remarks	You can lock/unlock these buttons by pressing and holding the "KEYLOCK" button.		

@GBZ / @SBZ		Buzzer sound for when pressing buttons	
Function	Getting	Setting	
Format	@GBZ ↵	@SBZ, bz ↵	
Return value	@GBZ, bz ↵	@SBZ, bz ↵	
Parameter	bz: Buzzer sound 0 = OFF, 1 = ON [Default]		
Example	@GBZ ↵	Getting the buzzer sound setting	
	@GBZ,1 ↵	ON	
	@SBZ,1 ↵	Enabling buzzer sound	
	@SBZ,1 ↵	Completed	
Remarks	—		

@GIV		Version	
Function	Getting		
Format	@GIV ↵		
Return value	@GIV, id, ver ↵		
Parameter	id : Model number ver : Firmware version		
Example	@GIV ↵	Getting the product information	
	@GIV,SWC-2000,1.00 ↵	Model number and firmware version are replied	
Remarks	"@GIV" is valid, even if the standby button is "OFF".		

User Guide (Command Guide) of SWC-2000

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