ESC/VP.net SOFTWARE DEVELOPMENT MANUAL

SEIKO EPSON

REVISION HISTORY

REV.	Sheet No.	CONTENTS
A	All pages	New
B	13,36,37-39, 44-53,	Add the new command corresponded to EMP/PL-745/835 and modifying the expression of models.
C	14	Adds new type to IM-Type list
	47	Adds new parameter to parameter list for security system setting command.
	49-51	Adds new commands.
	56, 57	Corrects command list.
D	14	Adds new type to IM-Type list
	57,58	Adds new models
E	14	Adds new type to IM-Type list
	57,58	Adds new models (Type L)
F	58	Adds new models(EB-450Wi/Brigh/tLink450Wi/450W/460i/460/460e/84H/84He/84+/84L/85H/85+/825H/825+/826WH/826W+)

■Contents

1. INTRODUCTION

1.1 Purpose of This Manual

This manual describes the ESC/VP.net protocol specifications and ESC/VP.net command specifications to develop software using ESC/VP.net.

This document provides specifications of ESC/VP.net protocol and its command to develop a software to use ESC/VP.net.

1.2 Scope of application

This protocol applies to the SEIKO EPSON projectors which sapport networking and ESC/VP21.

2. OVERVIEW

ESC/VP.net uses the ESC/VP21 commands to provide the functions to control and monitor a projector via a network (LAN).

2.1 Projector Control

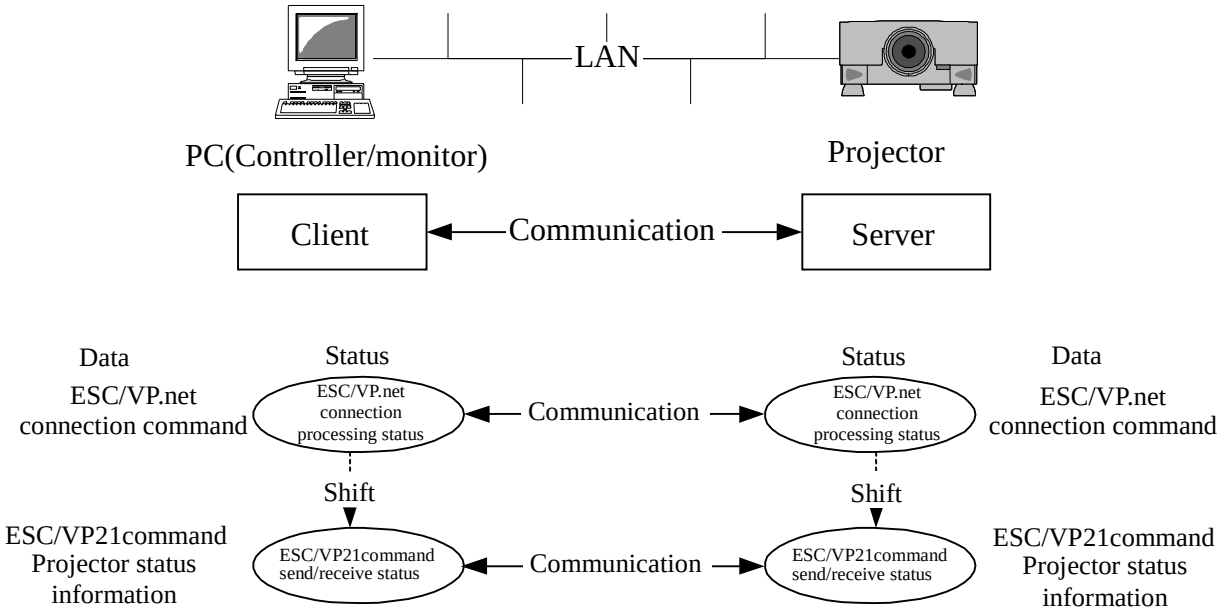
The ESC/VP21 commands are sent to the projector from the controller (example: PC) connected to the network to control the projector.

2.2 Projector Monitoring

The projector connected to the network gives the projector status information, such as an alarm status, to the monitor (example: PC) to monitor the projector status in real time.

3. DETAILS

3.1 System Configuration



ESC/VP.net uses a client-server system, in which the projector side is defined as a server and the controller/monitor side as a client.

In communication between the server and client, ESC/VP.net connection processing is performed, and then the ESC/VP21 commands are sent/received.

3.2 Projector Control

This function controls the projector using the ESC/VP21 commands after completion of ESC/VP.net connection processing. Therefore, it achieves the same function as the projector control using the ESC/VP21 commands with RS-232C or USB.

3.3 Projector Monitoring

This function gives the projector status information from the server to the client to monitor the projector status on the client side. At this time, the projector status information is as described below.

Projector status	:	Standby, warm-up, normal, cool-down
Warning	:	Lamp life, no signal, unsupported signal, air filter, high temperature
Alarm:	:	Lamp ON failure, lamp lid open, lamp burnout (ON, then OFF), fan, temperature sensor, high temperature, interior (system)

*The warning and alarm definitions change depending on the model.

The data format is as follows:

IMEVENT W XX YYYY ZZZZ<CR>:

For the settings of the parameter W, X, Y, Z, refer to the ESC/VP21 command IMEVENT? (refer to 7. Appendix A: COMMAND TO GET PROJECTOR STATUS INFORMATION).

When giving the above information during processing of the command sent from the client on the server side (return a response to the client as the ESC/VP21 command), give it after command processing.

4. PROTOCOLS

4.1 ESC/VP.net Protocol (ESC/VP.net connection processing)

The ESC/VP.net protocol is defined in "5. ESC/VP.net PROTOCOL SPECIFICATIONS".

4.2 ESC/VP.net Communication (after session establishment)

The ESC/VP.net communication protocol shall comply with ESC/VP21.

4.3 ESC/VP.net Commands

The ESC/VP.net commands shall comply with the ESC/VP21 commands.
However, the following commands are defined as the ESC/VP.net dedicated commands.
(Refer to 6. ESC/VP.net COMMAND SPECIFICATIONS.)

5. ESC/VP.net PROTOCOL SPECIFICATIONS

5.1 Glossary

Session	Logical communication from the start to the end of communication between applications.
Client	Program that issues a request to the server. The PC application (EMPMonitor, etc.) is a client.
Server	Program that responds to a request from the client. The projector application is a server.
Message	Datagram that is the basic unit of communication.
Request	Message that describes a request to the target of communication.
Response	Message that describes a response to the request.

5.2 About Notation

5.2.1 About data types

The data types used in this specification are defined as follows.
The byte order shall be the network byte order (big endian).

STR	Fixed-length character string. A character string in excess of the specified byte length cannot be stored. When the character string to be stored is less than the byte length, the storage of the character string starts from the beginning of the area, and the remaining area is filled with 0x00. When the character string is blank, all the area is filled with 0x00. Unless otherwise specified, the character code is US-ASCII.
BYTE	8-bit data sequence
CHAR	8-bit signed value (-128 to +127)
UCHAR	8-bit unsigned value (0 to 255)
SHORT	16-bit signed value (-32768 to +32767)
USHORT	16-bit unsigned value (0 to 65535)

5.2.2 Other notations

Reserved values are unused for such reasons as to maintain future matching. In the installation of the current version, reserved values must not be used.

The part enclosed in double quotation marks represents a character string without the double quotation marks. When there are only double quotation marks, they represent a null character string.
a..b represents the specified range (from a to b).
Values beginning with 0x are hexadecimal numbers, and others are decimal numbers.

5.3 Protocol Specifications Outline

5.3.1 Range of protocol specifications

This protocol realizes non-procedural communication on TCP/IP to achieve projector control using ESC/VP21.
This is the protocol corresponding to the session layer of the OSI reference model.

<table>
<tr><td></td><td>Serial Connection</td><td>TCP/IP Connection</td></tr>
<tr><td>Application layer</td><td colspan="2" rowspan="2">ESC/VP21</td></tr>
<tr><td>Presentation layer</td></tr>
<tr><td>Session layer</td><td rowspan="4">Non-procedural</td><td>ESC/VP.net</td></tr>
<tr><td>Transport layer</td><td>TCP, UDP</td></tr>
<tr><td>Network layer</td><td>IP</td></tr>
<tr><td>Data link layer</td><td rowspan="2">Ethernet, etc.</td></tr>
<tr><td>Physical layer</td><td>RS-232C</td></tr>
</table>

5.3.2 Protocol features

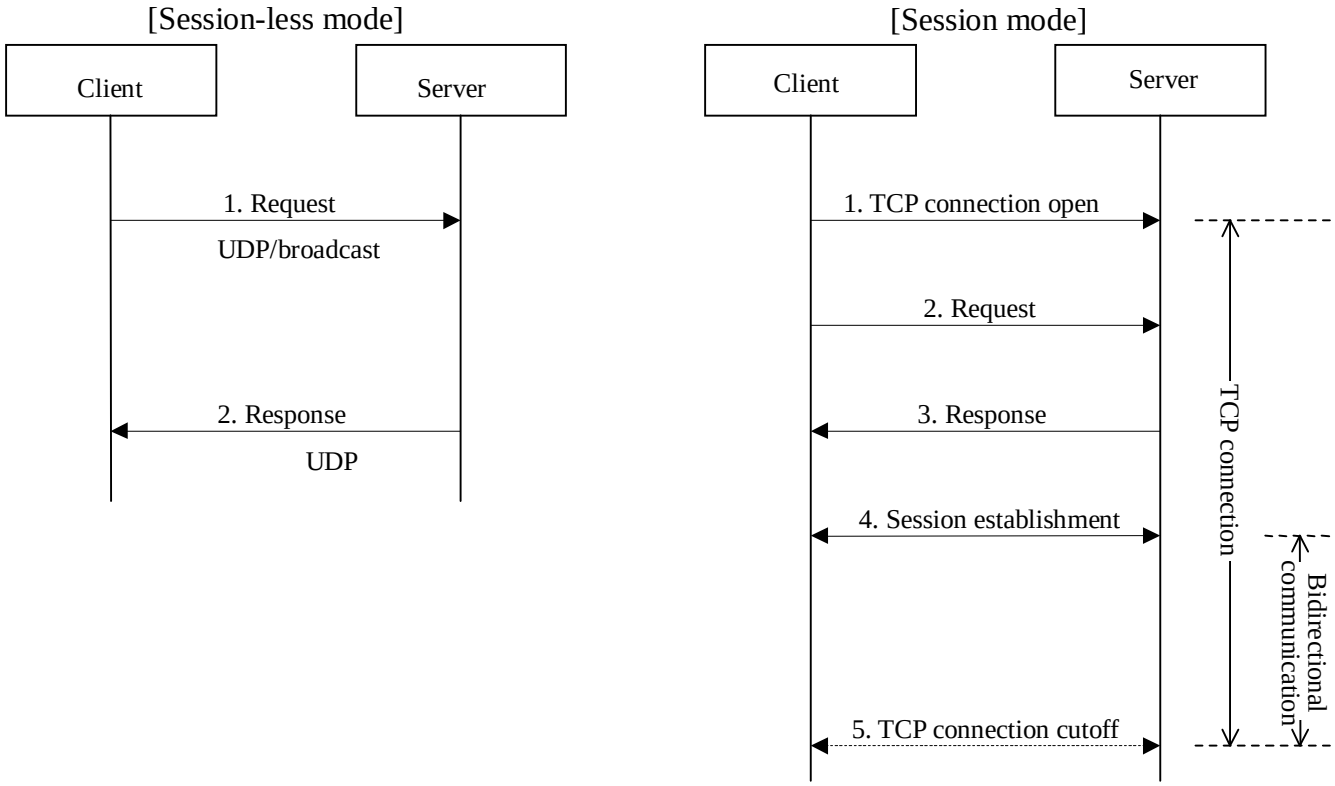
This protocol has the following features.

- Achieves non-procedural communication on TCP/IP.
- Small enough to be installed on a microcomputer of a few resources.
- On the other hand, consideration is given to future extensibility.
- Has a kind of directory service function to grasp the projectors existing on the network if they have not been pre-registered.
- Compatibility with the conventional protocol (ESC/VP over TCP/IP version 1.0) is not taken into consideration. EMPMonitor runs the conventional protocol and new protocol on different ports and different threads independently to hold downward compatibility.
- The purpose is projector control, and no consideration is given to use in presentation support applications, etc.

5.4 Entire Operation

This protocol has two communication modes, session-less mode and session mode. Both modes are for communication made by client/server models.

The TCP/UDP port 3629 is used. This is a default value, and changing the settings of both the client and server enables use of the other port.



5.4.1 Format common to request and response

The part common to the request and response are defied as follows.

The size of the common part is a 16-byte fixed length.

Byte Length	Type	Value	Meaning
10	STR	"ESC/VP.net"	Protocol identifier
1	BYTE	0x10	Version identifier 4 high-order bits indicate a major version, and 4 low-order bits a minor version.
1	UCHAR	0..3	Type identifier 0: NULL (reserved) 1:HELLO 2:PASSWORD 3:CONNECT
2	USHORT		(Reserved) Reserved area for the sequence number. Always set 0 in the current stage.
1	BYTE		Always set 0x00 for a request. Set the status code for a response.
1	UCHAR		Specify the number of headers that will follow. Set 0 when not using headers.
This is followed by the specified number of headers.			

The status code is defined as follows.

0x20	OK	Normal termination
0x40	Bad Request	Request cannot be understood as its grammar is wrong.
0x41	Unauthorized	Password is required. (The client issues a request again with the password added.)
0x43	Forbidden	Password is wrong.
0x45	Request not allowed	Disallowed type request.
0x53	Service Unavailable	The projector is BUSY, etc.
0x55	Protocol Version Not Supported	Unsupported version.

5.4.2 Header

The structure of one header is defined as follows.

The size of one header is 18-byte fixed length. This is repeated by the specified number of times.

Byte Length	Type	Value	Meaning
1	UCHAR	0..5	Header identifier 0:NULL (reserved) 1:Password 2:New-Password 3:Projector-Name 4:IM-Type 5:Projector-Command-Type
1	UCHAR		Header attribute value 0:NULL 1..255: Meaning changes depending on the identifier.
16	STR		Header information

Password header
In the Password header, describe a password as the header information.
As the attribute value, specify the encoding format of the password.
The currently defined attribute values are as follows.

Attribute Value	Meaning
0	NULL means "no password". At this time, the header information must be a null character string.
1	Plain (no encoding) The password is stored into the header information unchanged in plain text. The characters that can be used as a password are printable ASCII characters.

New-Password header
In the New-Password header, describe projector name as the header information.
The attribute values are the same as those of the password header.

Projector-Name header
In the Projector-Name header, describe a new password as the header information.
As the attribute value, specify the character code used to describe the projector name.
The currently defined attribute values are as follows.

Attribute Value	Meaning
0	NULL means "no prokector name". At this time, the header information must be a null character string.
1	US-ASCII
2	Shift-JIS (Reserved)
3	EUC-JP (Reserved)

IM-Type header

In the IM-Type header, specify the IM type as the attribute value. The projector types are listed in Chapter7.1
The header information cannot be described. (Set 0x00 to all.)
The currently defined attribute values are as follows.

Attribute Value	Meaning
10-15	(Reserved)
16-19	Type A
17-19	(Reserved)
0C	Type D
20	Initial model of EMP/PL-735
21	Type C, Type E
22	Type F
23	Type G
24-29	(Reserved)
30	Type B
31-39	(Reserved)
40	Type H
41	Type I
42	Type J
43-49	(Reserved)
50	Type K
51-59	(Reserved)

Projector-Command-Type header

In the Projector-Command-Type header, specify the type of the projector command system as the attribute value.
The header information cannot be described. (Set 0x00 to all.)
The currently defined attribute values are as follows.

Attribute Value	Meaning
22 (0x16)	ESC/VP Level6 (Reserved)
33 (0x21)	ESC/VP21 Ver1.0

4 high-order bits indicate a command system type, and 4 low-order bits a command system version.

5.5 Communication in Session-less Mode

In the session-less mode, a request and response are exchanged without a session being established.
Communication in the session-less mode is made in the following procedure.

1. The client sends a request to all servers.

   The request is sent to the UDP port 3629 of the broadcast address.

2. The server that received the request sends a response to the client that sent the request.

   The response is sent to the UDP port 3629 of the address of the client that sent the request .

A "HELLO" request can be used in the session-less mode.

5.5.1 HELLO request/response

A HELLO request/response confirms the server existence and type.
The request header cannot be used in the HELLO request.
The server must not demand a password for the HELLO request.

The response header of the response in reply to the HELLO request must include all of Projector-Name, IM-Type and Projector-Command-Type.
The IP address of the projector that returned the response is not included in the response since it can be gotten from the UDP packet.

The following indicates an example of HELLO request/response communication.

Request

(Request: Sent to the broadcast address and UDP port 55799 (changeable).)

Byte Length	Type	Value	Meaning
10	STR	"ESC/VP.net"	Protocol identifier
1	BYTE	0x10	Version identifier
1	UCHAR	1	Type identifier: HELLO
2	USHORT	0	(Reserved)
1	BYTE	0x00	Status code: Always set 0x00 since it is a request.
1	UCHAR	0	Number of headers: No headers

Response

(Response: Sent to the address of the client that sent the request and UDP port 3629.)

Byte Length	Type	Value	Meaning
10	STR	"ESC/VP.net"	Protocol identifier
1	BYTE	0x10	Version identifier
1	UCHAR	1	Type identifier: HELLO
2	USHORT	0	(Reserved)
1	BYTE	0x20	Status code: OK
1	UCHAR	3	Number of headers: 3
1	UCHAR	3	Header 1 identifier: Projector-Name
1	UCHAR	1	Header 1 attribute value: US-ASCII
16	STR	"Room 1"	Header 1 information: Projector name
1	UCHAR	4	Header 2 identifier: IM-Type
1	UCHAR	10	Header 2 attribute value: IM-M
16	STR	""	Header 2 information: None
1	UCHAR	5	Header 3 identifier: Projector-Command-Type
1	UCHAR	33	Header 3 attribute value: ESC/VP21 Ver1.0
16	STR	""	Header 3 information: None

Note: the response size of the following projector types is 72Byte.
Type A and D: EMP/PL-830/7800/7900/8300/9300/TW500

(Response: Error response)

Byte Length	Type	Value	Meaning
10	STR	"ESC/VP.net"	Protocol identifier
1	BYTE	0x10	Version identifier
1	UCHAR	1	Type identifier: HELLO
2	USHORT	0	(Reserved)
1	BYTE	0x40	Status code: Bad Request
1	UCHAR	0	Number of headers: 0

5.6 Communication in Session Mode

In the session mode, a request and response are exchanged to establish a session, and non-procedural communication is made after establishment of the session.
Communication in the session mode is made in the following procedure.

1. The server stands by at the TCP port 3629.
2. The client demands a TCP connection for the server address and TCP port 55799 (changeable).
3. When the TCP connection is established, the client sends a request to the server.
4. The server sends a response to the client.
   (a) When the server has returned an error response, it cuts off the TCP connection.
   (b) When a normal termination response is returned
      1) CONNECT request
         The bidirectional communication session of the projector commands starts, with the TCP connection maintained.
      2) Other request
         The TCP connection is cut off.

Communication in the session mode is always started by the client (PC). Communication cannot be started by the server (projector).

When the TCP connection cannot be established as the server is BUSY, etc., the server rejects the TCP connection.

The cut of the TCP connection can be executed by either the client or server.
The requests that can be used in the session mode are "CONNECT" and "PASSWORD".

5.6.1 About bidirectional communication session

The following rules have been set forth to detect the abnormal termination of the communication target or the cutoff of the communication path after a bidirectional communication session has started.

- If a no-communication status continues for longer than 10 minutes (changeable) in the bidirectional communication session, it is regarded as a communication cutoff, the TCP connection is cut off, and the bidirectional communication session is terminated.
- To maintain the session, a null communication is made when half of the above time-out period has elapsed after the last data is received or sent from the client to the server.
  In ESC/VP21, a null command (null line) is sent from the client to the server. In response to this, the server returns ':'. When the server does not return ':', the client judges that the server is BUSY and sends a null command again one minute later. When ':' is not returned after this has been repeated until the end of the time-out period, communication with the server is judged as cut off, the TCP connection is cut off, and the bidirectional communication session is terminated.

5.6.2 PASSWORD request/response

A PASSWORD request/response confirms and changes the password.
The request headers that can be used in the PASSWORD request are Password and New-Password.
The response header is not used in the PASSWORD response.

The following indicates an example of PASSWORD request/response communication.

Request

(Request to confirm the presence/absence of password setting)
After the TCP connection is opened, the following datagram is sent.

Byte Length	Type	Value	Meaning
10	STR	"ESC/VP.net"	Protocol identifier
1	BYTE	0x10	Version identifier
1	UCHAR	2	Type identifier: PASSWORD
2	USHORT	0	(Reserved)
1	BYTE	0x00	Status code: Always set 0x00 since it is a request.
1	UCHAR	0	Number of headers: 0

The server returns the status code 0x20 (OK) when the password has not been set, or the status code 0x41 (Unauthorized) when the password has been set.

(Request to confirm the password)
After the TCP connection is opened, the following datagram is sent.

Byte Length	Type	Value	Meaning
10	STR	"ESC/VP.net"	Protocol identifier
1	BYTE	0x10	Version identifier
1	UCHAR	2	Type identifier: PASSWORD
2	USHORT	0	(Reserved)
1	BYTE	0x00	Status code: Always set 0x00 since it is a request.
1	UCHAR	1	Number of headers: 1
1	UCHAR	1	Header 1 identifier: Password
1	UCHAR	1	Header 1 attribute value: Plain
16	STR	"AbCdEfGhIjk"	Header 1 information: Password character string

The server returns the status code 0x20 (OK) when the password is correct, or the status code 0x43 (Forbidden) when the password is wrong.

(Request to change the password)
After the TCP connection is opened, the following datagram is sent.

Byte Length	Type	Value	Meaning
10	STR	"ESC/VP.net"	Protocol identifier
1	BYTE	0x10	Version identifier
1	UCHAR	2	Type identifier: PASSWORD
2	USHORT	0	(Reserved)
1	BYTE	0x00	Status code: Always set 0x00 since it is a request.
1	UCHAR	2	Number of headers: 2
1	UCHAR	1	Header 1 identifier: Password
1	UCHAR	1	Header 1 attribute value: Plain
16	STR	"AbCdEfGhIjk"	Header 1 information: Password character string
1	UCHAR	2	Header 2 identifier: New-Password
1	UCHAR	1	Header 2 attribute value: Plain
16	STR	"FooBar"	Header 2 information: New password character string

(Request to erase the password setting)
After the TCP connection is opened, the following datagram is sent.

Byte Length	Type	Value	Meaning
10	STR	"ESC/VP.net"	Protocol identifier
1	BYTE	0x10	Version identifier
1	UCHAR	2	Type identifier: PASSWORD
2	USHORT	0	(Reserved)
1	BYTE	0x00	Status code: Always set 0x00 since it is a request.
1	UCHAR	2	Number of headers: 2
1	UCHAR	1	Header 1 identifier: Password
1	UCHAR	1	Header 1 attribute value: Plain
16	STR	"AbCdEfGhIjk"	Header 1 information: Password character string
1	UCHAR	2	Header 2 identifier: New-Password
1	UCHAR	0	Header 2 attribute value: NULL
16	STR	""	Header 2 information: Blank character string

(Request to set a password to the server where no password is currently set)
After the TCP connection is opened, the following datagram is sent.

Byte Length	Type	Value	Meaning
10	STR	"ESC/VP.net"	Protocol identifier
1	BYTE	0x10	Version identifier
1	UCHAR	2	Type identifier: PASSWORD
2	USHORT	0	(Reserved)
1	BYTE	0x00	Status code: Always set 0x00 since it is a request.
1	UCHAR	2	Number of headers: 2
1	UCHAR	1	Header 1 identifier: Password
1	UCHAR	0	Header 1 attribute value: NULL
16	STR	""	Header 1 information: Blank character string
1	UCHAR	2	Header 2 identifier: New-Password
1	UCHAR	1	Header 2 attribute value: Plain
16	STR	"AbCdEfGhIjk"	Header 2 information: Newly set password

Response

(Response to a success in password confirmation or change)
After the following datagram is sent, the TCP connection is cut off.

Byte Length	Type	Value	Meaning
10	STR	"ESC/VP.net"	Protocol identifier
1	BYTE	0x10	Version identifier
1	UCHAR	2	Type identifier: PASSWORD
2	USHORT	0	(Reserved)
1	BYTE	0x20	Status code: OK
1	UCHAR	0	Number of headers: 0

(Response to a failure due to an authentication error)
After the following datagram is sent, the TCP connection is cut off.

Byte Length	Type	Value	Meaning
10	STR	"ESC/VP.net"	Protocol identifier
1	BYTE	0x10	Version identifier
1	UCHAR	2	Type identifier: PASSWORD
2	USHORT	0	(Reserved)
1	BYTE	0x43	Status code: Forbidden
1	UCHAR	0	Number of headers: 0

5.6.3 CONNECT request/response

A session of bidirectional communication with the projector is demanded.

When the server cannot establish a new session, the error code 0x53 is returned.

In a CONNECT request, the request header Password can be used.
In a CONNECT response, the server information can be returned using the response header, but the response header is not used in the current installation.

The following indicates an example of CONNECT request/response communication.

Request

(Request not to use the password)
After the TCP connection is opened, the following datagram is sent.

Byte Length	Type	Value	Meaning
10	STR	"ESC/VP.net"	Protocol identifier
1	BYTE	0x10	Version identifier
1	UCHAR	3	Type identifier: CONNECT
2	USHORT	0	(Reserved)
1	BYTE	0x00	Status code: Always set 0x00 since it is a request.
1	UCHAR	0	Number of headers: 0

(Request to use the password)
After the TCP connection is opened, the following datagram is sent.

Byte Length	Type	Value	Meaning
10	STR	"ESC/VP.net"	Protocol identifier
1	BYTE	0x10	Version identifier
1	UCHAR	3	Type identifier: CONNECT
2	USHORT	0	(Reserved)
1	BYTE	0x00	Status code: Always set 0x00 since it is a request.
1	UCHAR	1	Number of headers: 1
1	UCHAR	1	Header 1 identifier: Password
1	UCHAR	1	Header 1 attribute value: Plain
16	STR	"AbCdEfGhIjk"	Header 1 information: Password character string

Response

(Response to a success in session start)

After the following datagram is sent, the bidirectional session of ESC/VP21 starts with the TCP connection maintained.

Byte Length	Type	Value	Meaning
10	STR	"ESC/VP.net"	Protocol identifier
1	BYTE	0x10	Version identifier
1	UCHAR	3	Type identifier: CONNECT
2	USHORT	0	(Reserved)
1	BYTE	0x20	Status code: OK
1	UCHAR	0	Number of headers: 0

After the bidirectional session has started, the ESC/VP21 commands are transferred directly since direct communication is made with the projector.

The bidirectional session is continued until the TCP connection is cut off from either the server or client.

(Response to a failure in connection due to a BUSY status)

After the following datagram is sent, the TCP connection is closed.

Byte Length	Type	Value	Meaning
10	STR	"ESC/VP.net"	Protocol identifier
1	BYTE	0x10	Version identifier
1	UCHAR	3	Type identifier: CONNECT
2	USHORT	0	(Reserved)
1	BYTE	0x53	Status code: Service Unavailable
1	UCHAR	0	Number of headers: 0

(Response to the necessity of a password)

After the following datagram is sent, the TCP connection is closed.

Byte Length	Type	Value	Meaning
10	STR	"ESC/VP.net"	Protocol identifier
1	BYTE	0x10	Version identifier
1	UCHAR	3	Type identifier: CONNECT
2	USHORT	0	(Reserved)
1	BYTE	0x41	Status code: Unauthorized
1	UCHAR	0	Number of headers: 0

When receiving this response, the client can retry a connection using the password.

(Response to a wrong password)

After the following datagram is sent, the TCP connection is closed.

Byte Length	Type	Value	Meaning
10	STR	"ESC/VP.net"	Protocol identifier
1	BYTE	0x10	Version identifier
1	UCHAR	3	Type identifier: CONNECT
2	USHORT	0	(Reserved)
1	BYTE	0x43	Status code: Forbidden
1	UCHAR	0	Number of headers: 0

5.7 Error Processing

(Common error processing)

Error Definition	Processing Method
Rquest data is illegal. ● Protocol identifier is not "ESC/VP.net". ● Type identifier is outside the defined range. ● Status code is not 0x00. ● Sequence number (reserved area) is not 0. ● Header identifier is outside the defined range. ● Header attribute value is outside the defined range.	The server returns the error code 0x40 (Bad Request) in a response. After that, in the case of the session mode, the server cuts off the TCP connection and waits for the next request.
Version identifier is not 0x10.	The server returns the error code 0x55 (Protocol Version Not Supported) in a response. After that, in the case of the session mode, the server cuts off the TCP connection and waits for the next request.

(Error processing specific to session-less mode)

Error Definition	Processing Method
Type identifier is not 1 (HELLO).	The server returns the error code 0x45 (Request not allowed) in a response.

(Error processing specific to session mode)

Error Definition	Processing Method
Type identifier is not 2 (PASSWORD) or 3 (CONNECT).	The server returns the error code 0x45 (Request not allowed) in a response.After that, the server cuts off the TCP connection and waits for the next request.

(Error processing specific to HELLO request)

Error Definition	Processing Method
In spite of the HELLO request, the request header is used.	The server returns the error code 0x40 (Bad Request) in a response.

(Error processing specific to PASSWORD request)

Error Definition	Processing Method
In spite of the PASSWORD request, the header other than Password/New-Password is used.	The server returns the error code 0x40 (Bad Request) in a response, cuts off the TCP connection, and waits for the next request.
The password or new password includes any character that cannot be printed or that deviates from the US-ASCII code. (0-31 and 127 or more)	
Though the Password/New-Password header identifier is not NULL, the password is a blank character string.	
Though the password is set to the server, the password is not included in the request.	The server returns the error code 0x41 (Unauthorized) in a response, cuts off the TCP connection, and waits for the next request.
Though the password is not set to the server, the password is included in the request.	The server ignores the password in the request. An error does not occur.
The password set to the server differs from the password included in the request.	The server returns the error code 0x43 (Forbidden) in a response, cuts off the TCP connection, and waits for the next request.
The server cannot respond immediately since it is processing the other request, for example.	The server returns the error code 0x53 (Service Unavailable) in a response, cuts off the TCP connection, and waits for the next request.

(Error processing specific to CONNECT request)

Error Definition	Processing Method
Though the password is set to the server, the password is not included in the request.	The server returns the error code 0x41 (Unauthorized) in a response, cuts off the TCP connection, and waits for the next request.
Though the password is not set to the server, the password is included in the request.	The server ignores the password in the request. An error does not occur.
The password set to the server differs from the password included in the request.	The server returns the error code 0x43 (Forbidden) in a response, cuts off the TCP connection, and waits for the next request.
The server cannot respond immediately since it is processing the other request, for example.	The server returns the error code 0x53 (Service Unavailable) in a response, cuts off the TCP connection, and waits for the next request.
The server cannot start a new ESC/VP21 bidirectional session.	

5.8 Restrictions

This protocol does not assume use beyond the firewall.

It does not consider the security for connection to the Internet, either.

6.ESC/VP.net COMMAND SPECIFICATIONS

The following commands are defined as the ESC/VP.net dedicated commands.

Set SNMP trap destination address 1

Command	NWTRAPIP1 xxx.xxx.xxx.xxx (xxx indicates the IP address parameter)						
Parameter	Specify the address with an ASCII character string, whose 3 significant digits are 0 to 255, and a delimiter '.'. The field of less than 3 digits need not be filled with 0. Specify 0.0.0.0 when setting the SNMP trap destination address 1 invalid.						
Function	Set up the trap destination IP address 1 of SNMP in the projector main unit.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example:NWTRAPIP1 163.152.67.1						

Get SNMP trap destination address 1

Command	NWTRAPIP1?						
Parameter	Absence						
Function	Return the trap destination IP address 1 of set SNMP. A return of 0.0.0.0 indicates that the SNMP trap destination address 1 is set invalid.						
Return code	Return the trap destination IP address 1 set with the ASCII character string whose 3 significant digits are 0 to 255. Return example:NWTRAPIP1? NWTRAPIP1=163.152.67.1						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Absence						

Set SNMP trap destination address 2

Command	NWTRAPIP2 xxx.xxx.xxx.xxx (xxx indicates the IP address parameter)						
Parameter	Specify the address with an ASCII character string, whose 3 significant digits are 0 to 255, and a delimiter '.'. The field of less than 3 digits need not be filled with 0. Specify 0.0.0.0 when setting the SNMP trap destination address 2 invalid.						
Function	Set up the trap destination IP address 2 of SNMP in the projector main unit.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example:NWTRAPIP2 163.152.67.1						

Get SNMP trap destination address 2

Command	NWTRAPIP2?						
Parameter	Absence						
Function	Return the trap destination IP address 2 of set SNMP. A return of 0.0.0.0 indicates that the SNMP trap destination address 2 is set invalid.						
Return code	Return the trap destination IP address 2 set with the ASCII character string whose 3 significant digits are 0 to 255. Return example:NWTRAPIP2? NWTRAPIP2=163.152.67.1						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Absence						

Set projector name

Command	NWPNAME xxxxxxxxxxxxxxx (xxx indicates the projector name character string)						
Parameter	Specify an ASCII character string (alphanumeric characters) of up to 15 effective characters. Characters effective for projector name: Refer to "Character Restrictions".						
Function	Set up the projector name (computer name) in the projector main unit.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example:NWPNAME PROJ01						

Get projector name

Command	NWPNAME?						
Parameter	Absence						
Function	Return the set projector name (computer name).						
Return code	Return the projector name (computer name) set with the ASCII character string (alphanumeric characters). Return example:NWPNAME? NWPNAME=PROJ01						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Absence						

Set community name

Command	NWCNAME xxxxxxxxxxxxxxx (xxx indicates the community name character string)						
Parameter	Specify an ASCII character string of up to 8 effective characters. Characters effective for community name: Refer to "Character Restrictions".						
Function	Set up the SNMP community name in the projector main unit.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example:NWCNAME ABCDEF						

Get community name

Command	NWCNAME?						
Parameter	Absence						
Function	Return the set SNMP community name.						
Return code	Return the SNMP community name set with the ASCII character string (alphanumeric characters). Return example:NWCNAME? NWCNAME=ABCDEF						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Absence						

Get MAC address (wired LAN)

Command	NWMAC?						
Parameter	Absence						
Function	Return the network adaptor address of the network projector.						
Return code	Return the MAC address with the ASCII character string of 12 characters (hexadecimal representation). Return example:NWMAC? NWMAC=0040B4123456						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Absence						

Get MAC address (wireless LAN)

Command	NWMAC?						
Parameter	Absence						
Function	Return the network adaptor address of the network projector.						
Return code	Return the MAC address with the ASCII character string of 12 characters (hexadecimal representation). Return example:NWMAC? NWMAC=0040B4123456						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Absence						

Set mail destination address 1

Command	NWSMTPTO1 x						
Parameter	x: Mail destination address 1 sent by SMTP. The number of characters is up to 64. 0 characters set no destination address. Refer to the "Character Restrictions" for the effective characters.						
Function	Set the mail destination address 1 used by the mail send function. Set the send source mail address used by the mail send function.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination, or returned when data is received via external USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example 1: Example of setting epson@exc.co.jp as the destination address :NWSMTPTO1 epson@exc.co.jp : Setting example 2: Example of setting no destination address :NWSMTPTO1 :						

Get mail destination address 1

Command	NWSMTPTO1?						
Parameter	Absence						
Function	Return the mail destination address 1 used by the mail send function. Return the send source mail address used by the mail send function.						
Return code	Return the mail destination address 1 of up to 64 characters. 0 characters indicate that the mail destination address 1 (send source mail address) is not set.						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination, or returned when data is received via external USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Response example: NWSMTPTO1? NWSMTPTO1=epson@ecx.co.jp :						

Set mail destination address 2

Command	NWSMTPTO2 x						
Parameter	x: Mail destination address 2 sent by SMTP. The number of characters is up to 64. 0 characters set no destination address. Refer to the "Character Restrictions" for the effective characters.						
Function	Set the mail destination address 2 used by the mail send function. Set the send source mail address used by the mail send function.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination, or returned when data is received via external USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example 1: Example of setting epson@exc.co.jp as the destination address :NWSMTPTO2 epson@exc.co.jp : Setting example 2: Example of setting no destination address :NWSMTPTO2 :						

Get mail destination address 2

Command	NWSMTPTO2?						
Parameter	Absence						
Function	Return the mail destination address 2 used by the mail send function. Return the send source mail address used by the mail send function.						
Return code	Return the mail destination address 2 of up to 64 characters. 0 characters indicate that the mail destination address 2 is not set.						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination, or returned when data is received via external USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Response example: :NWSMTPTO2? NWSMTPTO2=epson@exc.co.jp :						

Set mail destination address 3

Command	NWSMTPTO3 x						
Parameter	x: Mail destination address 3 sent by SMTP. The number of characters is up to 64. 0 characters set no destination address. Refer to the "Character Restrictions" for the effective characters.						
Function	Set the mail destination address 3 used by the mail send function. Set the send source mail address used by the mail send function.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination, or returned when data is received via external USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example 1: Example of setting epson@exc.co.jp as the destination address :NWSMTPTO3 epson@exc.co.jp : Setting example 2: Example of setting no destination address :NWSMTPTO3 :						

Get mail destination address 3

Command	NWSMTPTO3?						
Parameter	Absence						
Function	Return the mail destination address 3 used by the mail send function. Return the send source mail address used by the mail send function.						
Return code	Return the mail destination address 3 of up to 64 characters. 0 characters indicate that the mail destination address 3 is not set.						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination, or returned when data is received via external USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Response example: :NWSMTPTO3? NWSMTPTO3=epson@exc.co.jp :						

Set SMTP server IP address

Command	NWSMTPSRV xxx.xxx.xxx.xxx						
Parameter	Specify the address with an ASCII character string, whose 3 significant digits are 0 to 255, and a delimiter '.'. The field of less than 3 digits need not be filled with 0.						
Function	Set the SMTP server IP address.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination, or returned when data is received via USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example: :NWSMTPSRV 163.141.12.3 :						

Get SMTP server IP address

Command	NWSMTPSRV?						
Parameter	Absence						
Function	Return the set SMTP server IP address.						
Return code	Return the SMTP server IP address set with the ASCII character string, whose 3 significant digits are 0 to 255, and the delimiter ':'.						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination, or returned when data is received via USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Response example :NWSMTPSRV? NWSMTPSRV=163.141.12.3 :						

Set SMTP port number

Command	NWSMTPPORT xxxxx						
Parameter	ASCII character string whose 5 significant digits are 0 to 65535.						
Function	Set the SMTP port number.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abno rmal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination, or returned when data is received via USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example: :NWSMTPPORT 25 :						

Get SMTP port number

Command	NWSMTPPORT?						
Parameter	Absence						
Function	Return the set SMTP port number.						
Return code	Return the SMTP port number set with the ASCII character string whose 5 significant digits are 0 to 65535.						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination, or returned when data is received via USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Response example :NWSMTPPORT? NWSMTPTO=25 :						

Set notification event 1

Command	NWSMTPEVT1 xxxx yyyy						
Parameter	xxxx: ASCII character string of 0000 to FFFF. (Hexadecimal representation) Correspond to <Parameter 1> of the return code of IMEVENT?. The event of 1 setting is sent as mail when it changes. The event of 0 setting is not sent as mail if it changes. yyyy: ASCII character string of 0000 to FFFF. (Hexadecimal representation) Correspond to <Parameter 2> of the return code of IMEVENT?. The event of 1 setting is sent as mail when it changes. The event of 0 setting is not sent as mail if it changes.						
Function	Specify the event to be sent to the mail destination address 1 among the events to be returned by PJ using IMEVENT?. When 0000 is set to both xxxx and yyyy, no mail is sent.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination, or returned when data is received via USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example 1: Mail is sent if no signal and lamp burnout occurs. :NWSMTPEVT1 0002 0004 : Setting example 2: Mail is not sent if any event occurs. :NWSMTPEVT1 0000 0000						

Get notification event 1

Command	NWSMTPEVT1?						
Parameter	Absence						
Function	Return the setting of the notification event 1.						
Return code	Return the parameter set using NWSMTPEVT1.						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination, or returned when data is received via USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Response example: :NWSMTPEVT1? NWSMTPEVT1=0002 0004 :						

Set notification event 2

Command	NWSMTPEVT2 xxxx yyyy						
Parameter	xxxx: ASCII character string of 0000 to FFFF. (Hexadecimal representation) Correspond to <Parameter 1> of the return code of IMEVENT?. The event of 1 setting is sent as mail when it changes. The event of 0 setting is not sent as mail if it changes. yyyy: ASCII character string of 0000 to FFFF. (Hexadecimal representation) Correspond to <Parameter 2> of the return code of IMEVENT?. The event of 1 setting is sent as mail when it changes. The event of 0 setting is not sent as mail if it changes.						
Function	Specify the event to be sent to the mail destination address 2 among the events to be returned by PJ using IMEVENT?. When 0000 is set to both xxxx and yyyy, no mail is sent.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination, or returned when data is received via USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example 1: Mail is sent if no signal and lamp burnout occurs. :NWSMTPEVT2 0002 0004 : Setting example 2: Mail is not sent if any event occurs. :NWSMTPEVT2 0000 0000						

Get notification event 2

Command	NWSMTPEVT2?						
Parameter	Absence						
Function	Return the setting of the notification event 2.						
Return code	Return the parameter set using NWSMTPEVT2.						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination, or returned when data is received via USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Response example: :NWSMTPEVT2? NWSMTPEVT2=0002 0004 :						

Set notification event 3

Command	NWSMTPEVT3 xxxx yyyy						
Parameter	xxxx: ASCII character string of 0000 to FFFF. (Hexadecimal representation) Correspond to <Parameter 1> of the return code of IMEVENT?. The event of 1 setting is sent as mail when it changes. The event of 0 setting is not sent as mail if it changes. yyyy: ASCII character string of 0000 to FFFF. (Hexadecimal representation) Correspond to <Parameter 2> of the return code of IMEVENT?. The event of 1 setting is sent as mail when it changes. The event of 0 setting is not sent as mail if it changes.						
Function	Specify the event to be sent to the mail destination address 3 among the events to be returned by PJ using IMEVENT?. When 0000 is set to both xxxx and yyyy, no mail is sent.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination, or returned when data is received via USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example 1: Mail is sent if no signal and lamp burnout occurs. :NWSMTPEVT3 0002 0004 : Setting example 2: Mail is not sent if any event occurs. :NWSMTPEVT3 0000 0000						

Get notification event 3

Command	NWSMTPEVT3?						
Parameter	Absence						
Function	Return the setting of the notification event 3.						
Return code	Return the parameter set using NWSMTPEVT3.						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination, or returned when data is received via USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Response example: :NWSMTPEVT3? NWSMTPEVT3=0002 0004 :						

Set mail notification function ON/OFF

Command	NWSMTPACT xxx (xxx indicates the parameter)						
Parameter	Make the mail notification function valid: ON Make the mail notification function invalid: OFF						
Function	Set whether the mail send function is valid or invalid. Change the mail notification function-related settings after making the mail notification function invalid with this command. (The mail notification function-related settings indicate the following. Mail destination address 1 to 3, SMTP server IP address, SMTP port number, notification event 1 to 3).						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example 1: Make the SMTP function valid. :NWSMTPACT ON :						

Get mail notification function ON/OFF

Command	NWSMTPACT?						
Parameter	Absence						
Function	Return the ON/OFF setting of the mail notification function.						
Return code	Mail notification function is valid: ON Mail notification function is invalid: OFF						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination, or returned when data is received via USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Response example: :NWSMTPACT? NWSMTPACT=ON :						

Test mail function

<table>
<tr><td>Command</td><td>NWSMTPTEST</td></tr>
<tr><td>Parameter</td><td>Absence</td></tr>
<tr><td>Function</td><td>Send the mail of the following contents. To make the setting for sending mail, make the setting used to send mail with the mail send function.
Subject:TEST MAIL
Text:
<table>
<tr><td></td><td>Message</td><td>Line feed code</td></tr>
<tr><td>Line 1</td><td>Name:<Projector Name></td><td><CR><LF></td></tr>
<tr><td>Line 2</td><td>IP:<www.xxx.yyy.zzz></td><td><CR><LF></td></tr>
<tr><td>Line 3</td><td>TEST MAIL</td><td><CR><LF></td></tr>
</table>
For details of the text, refer to the mail notification function request specification.</td></tr>
<tr><td>Return code</td><td>Absence</td></tr>
<tr><td>Status</td><td>':' Normal termination.
'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)</td></tr>
<tr><td>Disclosed/non-disclosed</td><td>Non-disclosed</td></tr>
<tr><td>Parameter presence/absence</td><td>
<table>
<tr><td>INIT</td><td>Absence</td><td>INC</td><td>Absence</td><td>DEC</td><td>Absence</td><td></td></tr>
</table>
</td></tr>
<tr><td>Remarks</td><td>Setting example 1:
:NWSMTPTEST
:</td></tr>
</table>

Set IP address, sub-net mask, default gateway (wired LAN)

Command	NWCNF ww xxx.xxx.xxx.xxx yyy.yyy.yyy.yyy zzz.zzz.zzz.zzz
Parameter	ww=DHCP ON/OFF xxx.xxx.xxx.xxx=IP address yyy.yyy.yyy.yyy=Net mask zzz.zzz.zzz.zzz=Default gateway Specify the address with an ASCII character string, whose 3 significant digits are 0 to 255, and a delimiter '.'. The field of less than 3 digits need not be filled with 0.
Function	(1) Set the DHCP, IP address, sub-net mask and default gateway. (2) When DHCP is set to ON, the projector ignores the other parameters and "0. 0. 0. 0（IP address, sub-net mask and default gateway)" is sent from devices to the projector as parameter. (3) When DHCP is set to OFF, the other parameters are set. (4) The status is sent before the connection with the projector is cut off. (5) The parameter check of NWCNF performed by the network projector is divided into two steps. The check in the first step is as follows. · The check is made with the connection of the PC and projector established. · ':' is returned when the result of this check is OK, or 'ERR' is returned when the result is NG. [Check] The parameter is checked as a mere character string. Example) Does the numerical part have only a value? Is the address value 255 or less? Is the DHCP setting either ON or OFF?, etc. The check in the second step is as follows. · This check is made with the connection of the PC and projector cut off. Reason: The EMP-7800/8300 judges whether the value set to ENCORE is appropriate or not. When the value is set, the connection must be cut off once because of the ENCORE specifications. · In this check, whether the result is OK or NG is not sent to the PC. Reason: Since the connection is cut off, the EMP-7800/8300 cannot send the check result to the PC. Remarks: The PC must search for the projector using the HELLP request of the ESC/VP.net protocol. [Check] The validity of the network setting is judged.For validity, the function that ENCORE uses to return the Error status is used. When any of the following conditions is satisfied, the Error status is returned. The result is NG when the Error status is returned, or OK if it is not returned. Error condition 1: [IP address] · The value in the first byte of the IP address is 127 or 224 or more. · All bits in the network part of the IP address are 0. · All bits in the host part of the IP address are 0 or 1. Error condition 2: [Sub-net mask] · All bits of the sub-net mask are 1. · The value in the 8 most significant bits of the sub-net mask is other than 0 or 255. Error condition 3: [Default GW] · The network part of the default GW does not match that of the IP address. · All bits in the host part of the default GW are 0 or 1. · The default GW matches the IP address.
Return code	Absence
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal

	termination, or returned when data is received via USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	:NWCNF OFF 163.141.32.1 255.255.255.0 163.141.32.254 :NWCNF ON 0.0.0.0 0.0.0.0 0.0.0.0 :						

Get IP address, sub-net mask, default gateway (wired LAN)

Command	NWCNF?						
Parameter	Absence						
Function	Return the set DHCP ON/OFF, IP address, sub-net mask and default gateway.						
Return code	Return the IP address, sub-net mask and default gateway set with the ASCII character string, whose 3 significant digits are 0 to 255, and the delimiter '.'.						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination, or returned when data is received via USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Regardless of whether DHCP is ON or OFF, the values of the set IP address, sub-net and default gateway are returned. Response example :NWCNF? NWCNF=OFF 163.141.147.108 255.255.255.0 163.141.147.254 :						

Set WINS address (wired LAN)

Command	NWWINS yyy.yyy.yyy.yyy zzz.zzz.zzz.zzz						
Parameter	Specify the address with an ASCII character string, whose 3 significant digits are 0 to 255, and a delimiter '.'. One parameter may be set if the address is set to only WINS1. The field of less than 3 digits need not be filled with 0. yyy.yyy.yyy.yyy=WINS1 address zzz.zzz.zzz.zzz=WINS2 address						
Function	Set up the WINS server address in the projector main unit.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, DHCP is ON, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example:NWWINS 163.152.67.1 This command can be set only when DHCP is OFF and cannot be set when DHCP is OFF. (ERR)						

Get WINS address (wired LAN)

Command	NWWINS?						
Parameter	Absence						
Function	Return the set WINS address.						
Return code	Return the WINS address set with the 3-digit ASCII character string of 0 to 255. Return example:NWWINS? NWWINS=163.152.67.1 133.159.48.17						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Regardless of whether DHCP is ON or OFF, the setting (value gotten from the server when DHCP is ON) is returned. When there is only one address, only its value is returned.						

Set DNS address (wired LAN)

Command	NWDNS yyy.yyy.yyy.yyy zzz.zzz.zzz.zzz						
Parameter	Specify the address with an ASCII character string, whose 3 significant digits are 0 to 255, and a delimiter '.'.One parameter may be set if the address is set to only DNS1. The field of less than 3 digits need not be filled with 0. yyy.yyy.yyy.yyy=DNS1 address zzz.zzz.zzz.zzz=DNS2 address						
Function	Set up the DNS server address in the projector main unit.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, DHCP is ON, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example:NWDNS 163.152.67.1 This command can be set only when DHCP is OFF and cannot be set when DHCP is OFF. (ERR)						

Get DNS address (wired LAN)

Command	NWDNS?						
Parameter	Absence						
Function	Return the set DNS address.						
Return code	Return the DNS address set with the 3-digit ASCII character string of 0 to 255. Return example:NWDNS? NWDNS=163.152.67.1 133.159.48.17						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Regardless of whether DHCP is ON or OFF, the setting (value gotten from the server when DHCP is ON) is returned.When there is only one address, only its value is returned.						

Set IP address, sub-net mask, default gateway (wireless LAN)

<table>
<tr><td>Command</td><td>NWWLCNF ww xxx.xxx.xxx.xxx yyy.yyy.yyy.yyy zzz.zzz.zzz.zzz t uuu vvvv</td></tr>
<tr><td>Parameter</td><td>
ww=DHCP ON/OFF
xxx.xxx.xxx.xxx=IP address
yyy.yyy.yyy.yyy=Net mask
zzz.zzz.zzz.zzz=Default gateway
Specify the address with an ASCII character string, whose 3 significant digits are 0 to 255, and a delimiter '.'.
The field of less than 3 digits need not be filled with 0.
t = ESSID, WEP, Adhoc flag (1 byte) *
u = ESSID (32 characters)
v = WEP key {hexadecimal 26 bytes (13 characters)}
In the flag, whether the ESSID is specified or not, whether the WEP key is valid or invalid, and whether Adhoc is ON or OFF can be specified as indicated below.
<table>
<tr><td>Value</td><td>Specification</td></tr>
<tr><td>0</td><td>ESSID not specified, WEP key invalid, Adhoc OFF</td></tr>
<tr><td>1</td><td>ESSID not specified, WEP key invalid, Adhoc ON #1</td></tr>
<tr><td>2</td><td>ESSID not specified, WEP key valid, Adhoc OFF</td></tr>
<tr><td>3</td><td>ESSID not specified, WEP key valid, Adhoc ON #1</td></tr>
<tr><td>4</td><td>ESSID specified, WEP key invalid, Adhoc OFF #2</td></tr>
<tr><td>5</td><td>ESSID specified, WEP key invalid, Adhoc ON #3</td></tr>
<tr><td>6</td><td>ESSID specified, WEP key valid, Adhoc OFF #2</td></tr>
<tr><td>7</td><td>ESSID specified, WEP key valid, Adhoc ON #3</td></tr>
</table>
When the ESSID is not specified, set ANY to the system on the network projector side.

*WHEN THERE IS NO ESSID, THE PARAMETER “U” MUST NOT BE SET.

#1 When the projector type is C or E, the specification is the same as that of “Channel ad hoc”.
#2 When the projector type is C or E, the specification is the same as that of “Infrastructure mode”.
#3 When the projector type is C or E, the specification is the same as that of “ESSID ad hoc”.
*Refer to the "Character Restrictions" for the effective characters.
</td></tr>
<tr><td>Function</td><td>Set the DHCP, IP address, sub-net mask, default gateway, ESSID, WEP key and Adhoc.</td></tr>
<tr><td>Return code</td><td>Absence</td></tr>
<tr><td>Status</td><td>':' Normal termination.
'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination, or returned when data is received via USB or RS-232C.)</td></tr>
<tr><td>Disclosed/non-disclosed</td><td>Non-disclosed</td></tr>
<tr><td>Parameter presence/absence</td><td>
<table>
<tr><td>INIT</td><td>Absence</td><td>INC</td><td>Absence</td><td>DEC</td><td>Absence</td><td></td></tr>
</table>
</td></tr>
<tr><td>Remarks</td><td>
When DHCP is ON, the values of the other three parameters are ignored.
A parameter error includes the case where the matching and validity of the settings are lost.
Setting example:NWWLCNF OFF 163.141.12.1 163.141.12.254 255.255.255.0 7 EPSON FFFF
Refer to NWCNF for the restrictions on the IP, sub-net and gateway values.
When the ESSID, WEP, Adhoc flag is specified to make the ESSID absent and the WEP key invalid, the two subsequent parameters can be omitted.
</td></tr>
</table>

Get IP address, sub-net mask, default gateway (wireless LAN)

Command	NWWLCNF?						
Parameter	Absence						
Function	Return the set DHCP ON/OFF, IP address, sub-net mask and default gateway, ESSID, WEP key and Adhoc value.						
Return code	Return the DHC ON/OFF, the IP address, sub-net mask and default gateway set with the ASCII character string, whose 3 significant digits are 0 to 255, and the delimiter '.', the ESSID, WEP and Adhoc flag value, and the ESSID value of max.32 bytes and the WEP key of max.26 bytes.						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination, or returned when data is received via USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Regardless of whether DHCP is ON or OFF, the values of the set IP address, sub-net and default gateway are returned. When there is no ESSID and the WEP key is invalid, these values are not returned. Response example :NWWLCNF? NWWLCNF=OFF 163.141.147.108 255.255.255.0 163.141.147.254 0 :						

Set WINS address (wireless LAN)

Command	NWWLWINS yyy.yyy.yyy.yyy zzz.zzz.zzz.zzz						
Parameter	Specify the address with an ASCII character string, whose 3 significant digits are 0 to 255, and a delimiter '.'. One parameter may be set if the address is set to only WINS1. The field of less than 3 digits need not be filled with 0. yyy.yyy.yyy.yyy=WINS1 address zzz.zzz.zzz.zzz=WINS2 address						
Function	Set up the WINS server address in the projector main unit.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, DHCP is ON, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example:NWWLWINS 163.152.67.1 This command can be set only when DHCP is OFF and cannot be set when DHCP is OFF. (ERR)						

Get WINS address (wireless LAN)

Command	NWWLWINS?						
Parameter	Absence						
Function	Return the set WINS address.						
Return code	Return the WINS address set with the 3-digit ASCII character string of 0 to 255. Return example:NWWLWINS? NWWLWINS=163.152.67.1 133.159.48.17						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Regardless of whether DHCP is ON or OFF, the setting (value gotten from the server when DHCP is ON) is returned.When there is only one address, only its value is returned.						

Set DNS address (wireless LAN)

Command	NWWLDNS yyy.yyy.yyy.yyy zzz.zzz.zzz.zzz						
Parameter	Specify the address with an ASCII character string, whose 3 significant digits are 0 to 255, and a delimiter '.'. One parameter may be set if the address is set to only DNS1. The field of less than 3 digits need not be filled with 0. yyy.yyy.yyy.yyy=DNS1 address zzz.zzz.zzz.zzz=DNS2 address						
Function	Set up the DNS server address in the projector main unit.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, DHCP is ON, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example:NWWLDNS 163.152.67.1 This command can be set only when DHCP is OFF and cannot be set when DHCP is OFF. (ERR)						

Get DNS address (wireless LAN)

Command	NWWLDNS?						
Parameter	Absence						
Function	Return the set DNS address.						
Return code	Return the DNS address set with the 3-digit ASCII character string of 0 to 255. Return example:NWWLDNS? NWWLDNS=163.152.67.1 133.159.48.17						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Regardless of whether DHCP is ON or OFF, the setting (value gotten from the server when DHCP is ON) is returned. When there is only one address, only its value is returned.						

Get communication network IF type

Command	NWIF?						
Parameter	Absence						
Function	Return the type of the communicating network I/F.						
Return code	Hexadecimal 1 byte 0x00 Wired LAN 0x01 802.11b 0x02 802.11a 0x03 802.11g 0x04~0xFF Reserved						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination, or returned when data is received via USB or RS-232C.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	This command gets the network projector side network I/F that is making communication using the ESCVP.net protocol. When both the wired and 802.11b interfaces are installed, 0x01 is returned if the I/F that is actually communicating is 802.11b. Example: :NWIF? NWIF=01 :						

Set DNS suffix (wired LAN)

Command	NWDNSDMNxxxxxxxxx						
Parameter	xxx = DNS suffix (ASCII 96 bytes)						
Function	Set up the DNS suffix (domain suffix) in the projector main unit.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, DHCP is ON, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example:NWDNSDMN easymp.co.jp This command can be set only when DHCP is OFF and cannot be set when DHCP is OFF. (ERR)						

Get DNS suffix (wired LAN)

Command	NWDNSDMN?						
Parameter	Absence						
Function	Return the set DNS suffix.						
Return code	Return the DNS suffix set with the ASCII character string of 96 bytes. Return example:NWDNSDMN? NWDNS=easymp.co.jp						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Regardless of whether DHCP is ON or OFF, the setting (value gotten from the server when DHCP is ON) is returned.						

Set DNS suffix (wireless LAN)

Command	NWWLDNSDMN xxxxxxxxx						
Parameter	xxx = DNS suffix (ASCII 96 bytes)						
Function	Set up the DNS suffix (domain suffix) in the projector main unit.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, DHCP is ON, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example:NWWLDNSDMN easymp.co.jp This command can be set only when DHCP is OFF and cannot be set when DHCP is OFF. (ERR)						

Get DNS suffix (wireless LAN)

Command	NWWLDNSDMN?						
Parameter	Absence						
Function	Return the set DNS suffix.						
Return code	Return the DNS suffix set with the ASCII character string of 96 bytes. Return example:NWWLDNSDMN? NWWLDNS=easymp.co.jp						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Regardless of whether DHCP is ON or OFF, the setting (value gotten from the server when DHCP is ON) is returned.						

Set IP address, sub-net mask, default gateway（for 802.1x）

Command	NWWLCNFS <F1> <F2> <F3><F4> <F5> <F6>						
Parameter	<F1> Whether DHCP is ON or OFF can be specified. <F2>: Specify the IP address of wireless LAN. Specify the address with an ASCII character string, whose 3 significant digits are 0 to 255, and a delimiter '.'. The field of less than 3 digits need not be filled with 0. <F3>: Specify the sub-net mask of wireless LAN. Specify the address with an ASCII character string, whose 3 significant digits are 0 to 255, and a delimiter '.'. The field of less than 3 digits need not be filled with 0. <F4>: Specify the default gateway of wireless LAN. Specify the address with an ASCII character string, whose 3 significant digits are 0 to 255, and a delimiter '.'. The field of less than 3 digits need not be filled with 0. <F5>:Option of wireless LAN.（2 characters. Hexadecimal representation and 1 byte but the command consists of 2 characters.）When the hexadecimal representation is converted to binary notation, each bit represents the following. Bit 0: Ad-Hoc mode Bit 1: ESSID valid/invalid flag On: Valid Bit 2-15: Reserved <F6>: Specify the ESSID. Max. 32 characters. Valid only when Bit 1 of <5> is set. When DHCP is set to ON, the projector ignores the parameters of IP, sub-net mask and default gateway and then devices send “0.0.0.0” to the projector. *Refer to the "Character Restrictions" for the effective characters.						
Function	Set up the wireless LAN parameter in the projector main unit.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example: NWWLCNFS ON 0.0.0.0 0.0.0.0 0.0.0.0 03 ESSID *Valid only when IM-Type is 22 or 23.						

Get IP address, sub-net mask, default gateway（for 802.1x）

Command	NWWLCNFS?						
Parameter							
Function	Return the wireless LAN parameter.						
Return code	NWWLCNFS? NWWLCNFS = ON 163.152.67.1.255.255.255.0 163.152.67.254 03 ESSID						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	*Valid only when IM-Type is 22 or 23.						

Set the second ESSID

Command	NWESSID2 <F1>						
Parameter	<F1>: Specify the second ESSID. Refer to the "Character Restrictions" for the effective characters.						
Function	Set up the second ESSID in the projector main unit.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example: NWESSID2 ESSID2 *Valid only when IM-Type is 22 or 23.						

Get the second ESSID

Command	NWESSID2?						
Parameter							
Function	Return the second ESSID.						
Return code	NWESSID2? NWESSID2＝ESSID2						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	*Valid only when IM-Type is 22 or 23.						

Set the third ESSID

Command	NWESSID3 <F1>						
Parameter	<F1>: Specify the third ESSID. Refer to the "Character Restrictions" for the effective characters.						
Function	Set up the third ESSID in the projector main unit.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example: NWESSID3 ESSID3 *Valid only when IM-Type is 22 or 23.						

Get the third ESSID

Command	NWESSID3?						
Parameter							
Function	Return the third ESSID.						
Return code	NWESSID3? NWESSID3＝ESSID3						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	*Valid only when IM-Type is 22 or 23.						

Set security system

Command	NWWLSEC wxyyzz
Parameter	w = Specify the encryption algorithm.(One character, Hexadecimal notation and 4 bit) 0 : Absence 1 : WEP 2 : TKIP 3 : CKIP 4 : AES 5-F : Reserved x = Specify the key length of the encryption algorithm.(One character, Hexadecimal notation and 4 bit) 0 : Absence 1 : 64 bit 2 : 128 bit 3 : 152 bit 4-F : Reserved yy = Specify the key management system.(Two characters. Notation is hexadecimal number system and the key length is 1 byte. However since the parameter is treated as a character, the parameter consists of two characters.) 00: Absence 01 : Shared key authentication 02 : TTLS 03 : TLS 04 : LEAP 05 : MD5 06 : PEAP 07-FF: Reserved zz = Specify the key management system.(Two characters. Notation is hexadecimal number system and the key length is 1 byte. However since the parameter is treated as a character, the parameter consists of two characters.) 00 : Absence 01 : 802.1x (RADIUS) authentication 02 : WPA 03 : WPA2 04-FF : Reserved
Function	Set up wireless LAN security system in the projector main unit.
Return code	Absence

Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example: When WEP is 64 Bit, NWSEC 110000 *Valid only when IM-Type is 22 or 23.						

Get security system

Command	NWWLSEC?						
Parameter							
Function	Return the wireless LAN security system.						
Return code	When WEP is 64 Bit, NWSEC? NWSEC ＝110000						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	*Valid only when IM-Type is 22 or 23.						

Set WEP Key ID

Command	NWWEPID <F1>						
Parameter	<F1>: Specify key ID. 1 byte. 1: Specify “1” as Key ID. 2: Specify “2” as Key ID. 3: Specify “3” as Key ID. 4: Specify “4” as Key ID. 5-F: Reserved						
Function	Set up the WEP ID information in the projector main unit.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Presence	INC	Absence	DEC	Absence	
Remarks	Setting example: NWWEPID 1 *Valid only when IM-Type is 22 or 23.						

Get WEP Key ID

Command	NWWEPID?						
Parameter	Absence						
Function	Return the WEPID information.						
Return code	NWWEPID? NWWEPID=1						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	*Valid only when IM-Type is 22 or 23.						

Set WEP encryption key 1

Command	NWWEP1 <F1>						
Parameter	<F1> : WEP key * The length depends on parameter “x” of NWWLSEC. 10 bytes or 26 bytes. Notation is hexadecimal number system.						
Function	Set up key WEP encryption key 1 on the projector main unit.						
Return code	None						
Status	‘ : ’ Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Presence	INC	Absence	DEC	Absence	
Remarks	Setting example (10 bytes) : NWWEP1 4141414141 *Valid only when IM-Type is 22 or 23.						

Get WEP encryption key 1

Command	NWWEP1?						
Parameter	None						
Function	Return WEP encryption key 1 from the projector main unit.						
Return code	NWWEP1? NWWEP1= 4141414141						
Status	‘ : ’ Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	*Valid only when IM-Type is 22 or 23.						

Set WEP encryption key 2

Command	NWWEP2 <F1>						
Parameter	<F1> **:** WEP key * The length depends on parameter “x” of NWWLSEC. 10 bytes or 26 bytes. Notation is hexadecimal number system.						
Function	Set up WEP encryption key 2 on the projector main unit.						
Return code	None						
Status	‘ **:** ’ Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Presence	INC	Absence	DEC	Absence	
Remarks	Setting example (10 bytes) **:** NWWEP2 4141414141 *Valid only when IM-Type is 22 or 23.						

Get WEP encryption key 2

Command	NWWEP2?						
Parameter	None						
Function	Return WEP encryption key 2 from the projector main unit.						
Return code	NWWEP2? NWWEP2 = 4141414141						
Status	‘ **:** ’ Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	*Valid only when IM-Type is 22 or 23.						

Set WEP encryption key 3

Command	NWWEP3 <F1>						
Parameter	<F1> **:** WEP key * The length depends on parameter “x” of NWWLSEC. 10 bytes or 26 bytes. Notation is hexadecimal number system.						
Function	Set up WEP encryption key 3 on the projector main unit.						
Return code	None						
Status	‘ **:** ’ Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Presence	INC	Absence	DEC	Absence	
Remarks	Setting example (10 bytes) **:** NWWEP3 4141414141 *Valid only when IM-Type is 22 or 23.						

Get WEP encryption key 3

Command	NWWEP3?						
Parameter	None						
Function	Return WEP encryption key 3 from the projector main unit.						
Return code	NWWEP3? NWWEP3 =4141414141						
Status	‘ **:** ’ Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	*Valid only when IM-Type is 22 or 23.						

Set WEP encryption key 4

Command	NWWEP4 <F1>						
Parameter	<F1> **:** WEP key * The length depends on parameter “x” of NWWLSEC. 10 bytes or 26 bytes. Notation is hexadecimal number system.						
Function	Set up WEP encryption key 4 on the projector main unit.						
Return code	None						
Status	‘ **:** ’ Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Presence	INC	Absence	DEC	Absence	
Remarks	Setting example (10 bytes) **:** NWWEP4 4141414141 *Valid only when IM-Type is 22 or 23.						

Get WEP encryption key 4

Command	NWWEP4?						
Parameter	None						
Function	Return WEP encryption key 4 from the projector main unit.						
Return code	NWWEP4? NWWEP4 =4141414141						
Status	‘ **:** ’ Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	*Valid only when IM-Type is 22 or 23.						

Set prior interface

Command	NWPRIMIF x						
Parameter	X = Specify prior network interface. 1 byte. 0: Give priority to Wired LAN interface. 1: Give priority to Wireless LAN interface.						
Function	Set up prior interface in the projector main body. Specify which interface should be connected to mail server or SNMP.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example : NWPRIMIF 1 *Valid only when IM-Type is 22 or 23.						

Get prior interface

Command	NWPRIMIF?						
Parameter							
Function	Return the prior interface.						
Return code	NWPRIMIF? NWPRIMIF = 1						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	*Valid only when IM-Type is 22 or 23.						

Set LEAP user name

Command	NWSECUSER x						
Parameter	x = User name for LEAP						
Function	Set the user name for LEAP.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example : NWSECUSER 1 *Valid only when IM-Type is 22 or 23.						

Get LEAP user name

Command	NWSECUSER?						
Parameter							
Function	Return the user name for LEAP.						
Return code	NWSECUSER? NWSECUSER＝easympuser						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	*Valid only when IM-Type is 22 or 23.						

Set LEAP passward

Command	NWSECPASSWD x						
Parameter	x = Password for LEAP.						
Function	Set the password for LEAP.						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example: NWSECPASSWD easymppassword *Valid only when IM-Type is 22 or 23.						

Get LEAP password

Command	NWSECPASSWD?						
Parameter							
Function	Return the password for LEAP.						
Return code	NWSECPASSWD? NWSECPASSWD＝easymppassword						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	*Valid only when IM-Type is 22 or 23..						

Set WPA-PSK key

Command	NWSECPSK x						
Parameter	x = WPA-PSK key						
Function	Specify WPA-PSK key						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example: NWSECPSK easymppsk *Valid only when IM-Type is 22 or 23.						

Get WPA-PSK key

Command	NWSECPSK?						
Parameter							
Function	Return the WPA-PSK key.						
Return code	NWSECPSK? NWSECPSK＝easympkey						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	*Valid only when IM-Type is 22 or 23.						

Validate setting value in the projector

Command	NWRESET						
Parameter	Absence						
Function	Validate setting value in the projector						
Return code	Absence						
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when a parameter error occurred, adjustment cannot be made with the input value, or the command termination is other than a normal termination.)						
Disclosed/non-disclosed	Non-disclosed						
Parameter presence/absence	INIT	Absence	INC	Absence	DEC	Absence	
Remarks	Setting example : NWRESET *Valid only when IM-Type is 22 or 23. **Not validate setting when the status of projector is stand-by mode.						

6.1 Character Restrictions

The characters that can be set to the character string of the parameter are defined below.

The character codes, 0x00 to 0x1F and 0x80 to 0xff, cannot be set. The shaded characters cannot be set, either.

If any character that cannot be set exists in the parameter, "ERR" is returned as the status.

	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+a	+b	+c	+d	+e	+f
0x20		!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
0x30	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
0x40	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
0x50	P	Q	R	S	T	U	V	W	X	Y	Z	[	¥	]	^	-
0x60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
0x70	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	

Set projector name (NWPNAME)

	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+a	+b	+c	+d	+e	+f
0x20		!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
0x30	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
0x40	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
0x50	P	Q	R	S	T	U	V	W	X	Y	Z	[	¥	]	^	-
0x60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
0x70	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	

Remarks) From the computer naming rules of Windows

Community name (NWCNAME)

	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+a	+b	+c	+d	+e	+f
0x20		!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
0x30	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
0x40	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
0x50	P	Q	R	S	T	U	V	W	X	Y	Z	[	¥	]	^	-
0x60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
0x70	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	

Mail destination address x(NWSMTPT0x)

	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+a	+b	+c	+d	+e	+f
0x20		!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
0x30	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
0x40	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
0x50	P	Q	R	S	T	U	V	W	X	Y	Z	[	¥	]	^	-
0x60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
0x70	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	

Remarks) Properly, the characters that can be used as the mail address should be defined according to RFC2234, 2821 and 2822, but check is made according to the instructions in the above table.

ＥＳＳＩＤ（NWWLCNF、NWWLCNFS、NWESSID2、NWESSID3）

	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+a	+b	+c	+d	+e	+f
0x20		!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
0x30	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
0x40	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
0x50	P	Q	R	S	T	U	V	W	X	Y	Z	[	¥	]	^	_
0x60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
0x70	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	

Note: IM-Type that is 23 or larger number excluding IM-M and IM-XP, treats "^ " as space by IM internal processing..

6.2 COMMAND LIST

Command list for Tyep A, B, C, D, E, F, G, and H

Command	Explanation	Type								
		A,D,J	B	C	E	F	G	H,I	J	K
NWTRAPIP1	Set SNMP trap destination address 1	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWTRAPIP1?	Get SNMP trap destination address 1	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWTRAPIP2	Set SNMP trap destination address 2	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWTRAPIP2?	Get SNMP trap destination address 2	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWPNAME	Set projector name	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWONAME?	Get projector name	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWCNAME	Set community name	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWCNAME?	Get community name	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWMAC?	Get MAC address	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPTO1	Set mail destination address 1	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPTO1?	Get mail destination address 1	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPTO2	Set mail destination address 2	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPTO2?	Get mail destination address 2	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPTO3	Set mail destination address 3	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPTO3?	Get mail destination address 3	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPSVR	Set SMTP server IP address	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPSVR?	Get SMTP server IP address	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPPORT	Set SMTP port number	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPPORT?	Get SMTP port number	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPEVT1	Set notification event 1	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPEVT1?	Get notification event 1	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPEVT2	Set notification event 2	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPEVT2?	Get notification event 2	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPEVT3	Set notification event 3	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPEVT3?	Get notification event 3	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPACT	Set mail notification function ON/OFF	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPACT?	Get mail notification function ON/OFF	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWSMTPTEST	Test mail function	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWCNF	Set IP, sub-net, gateway (wired LAN)	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWCNF?	Get IP, sub-net, gateway (wired LAN)	OK	OK	OK	OK	OK	OK	OK	OK	OK
NWWLCNF	Set IP, sub-net, gateway (wireless LAN)		OK	OK						
NWWLCNF?	Get IP, sub-net, gateway (wireless LAN)		OK	OK						
NWWINS	Set WINS address		OK							
NWWINS?	Get WINS address		OK							
NWDNS	Set DNS address		OK							
NWDNS?	Get DNS address		OK							
NWDNSDMN	Set DNS suffix		OK							

NWDNSDMN?	Get DNS suffix		OK							
NWIF?	Get communication network IF type	OK	OK	OK	OK	OK	OK			OK
NWWLCNFS	Set IP address, sub-net mask, default gateway（for 802.1x）				OK					OK
NWWLCNFS?	Get IP address, sub-net mask, default gateway（for 802.1x）				OK					OK
NWESSID2	Set the second ESSID				OK					
NWESSID2?	Get the second ESSID				OK					
NWESSID3	Set the third ESSID				OK					
NWESSID3?	Get the third ESSID				OK					
NWWLSEC	Set security system				OK	OK	OK			
NWWLSEC?	Get security system				OK	OK	OK			
NWWEP	Set WEP Key ID				OK	OK	OK			
NWWEP?	Get WEP Key ID				OK	OK	OK			
NWWEP1	Set WEP encryption key 1				OK	OK	OK			
NWWEP1?	Get WEP encryption key 1				OK	OK	OK			
NWWEP2	Set WEP encryption key 2				OK	OK	OK			
NWWEP2?	Get WEP encryption key 2				OK	OK	OK			
NWWEP3	Set WEP encryption key 3				OK	OK	OK			
NWWEP3?	Get WEP encryption key 3				OK	OK	OK			
NWWEP4	Set WEP encryption key 4				OK	OK	OK			
NWWEP4?	Get WEP encryption key 4				OK	OK	OK			
NWPRIMIF	Set prior interface				OK	OK	OK			
NWPRIMIF?	Get prior interface				OK	OK	OK			
NWSECUSER	Set LEAP user name				OK	OK	OK			
NWSECUSER?	Get LEAP user name				OK	OK	OK			
NWSECPASSWD	Set LEAP password				OK	OK	OK			
NWSECPASSWD?	Get LEAP password				OK	OK	OK			
NWSECPSK	Set WPA-PSK key				OK	OK	OK			
NWSECPSK?	Get WPA-PSK key				OK	OK	OK			

6.3 Models

Type A EMP/PL-7800/7900/8300/9300/TW500

Type B EMP/PL-8350, EMP-8300 with ELPXP01

Type C EMP/PL-735/7850/7950

Type D EMP/PL-830

Type E EMP/PL-737/745/755/765/835

Type F EMP/PL-1715/1815

Type G EMP/PL-1825, EB/PL-G5150/G5350/1725/1735W

Type H EMP/PL-6100

Type I EMP/PL-400W/6110/83/83H/83+/822/822H/822+, EB/PL-G5000/G5100/G5200W/G5300/410W

Type J EB/PL-84

Type K

EB/PL-85/826W/825/450Wi/Brigh/tLink450Wi/450W/460i/460/460e/84H/84He/84+/84L/85H/85+/825H/825+/826WH/826W+

7. Appendix A: COMMAND TO GET PROJECTOR STATUS INFORMATION

7.1 Get Event Type (IMEVENT?)

Command	IMEVENT?
Parameter	Absence
Function	Get the event type when an event (INT) is generated from the projector. Return example:IMEVENT? IMEVENT=0001 01 0001 0001
Return code	<Event code> <Parameter 1> <Parameter 2> Parameter 3> Refer to Table 1 for details.
Status	':' Normal termination. 'ERR' Abnormal termination. (Returned when the command termination is other than a normal termination.)
Disclosed/non-disclosed	Non-disclosed
Parameter presence/absence	INIT Absence INC Absence DEC Absence
Remarks	

<Table 1>

Response data of Get event type				Reference
Type	Event code *2	Parameters	Remarks	ESC/VP21-compatible commands *1
Projector status change notification	1	<Parameter 1: 1 byte> Projector status 01: Standby 02: Warmup 03: Normal 04: Cool down 05 to FE: (Empty) FF: Abnormal <Parameter 2: 2 bytes> Warning type Bit 0: Lamp life Bit 1: No signal Bit 2: Unsupported signal Bit 3: Air filter Bit 4: High temperature Bit 5: Reserved (aspect change) Bit 6 to Bit 15 (reserved) <Parameter 3: 2 bytes> Alarm type Bit 0: Lamp ON failure Bit 1: Lamp lid Bit 2: Lamp burnout (ON, then OFF) Bit 3: Fan Bit 4: Temperature sensor Bit 5: High temperature Bit 6: Interior (system) Bit 7 to Bit 15 (Reserved)	· Always check the warning type. (Since no warning is indicated by all bits 0, clear the bits that have restored from the warnings to 0.) The "air filter" is added now for use when a dedicated sensor is installed in the future. For the time being, "high temperature" is used. · The alarm type is valid only when the projector status is "abnormal". (Because of the ESC/VP21 properties, the alarm type can be made not to be sent unless an error occurs. This is entrusted to the judgment of the ESC/VP21 integration committee.)	PWSTATUS? <Parameter 1: 1 byte> Projector status 01: Standby 02: Warmup 03: Normal 04: Cool down 05 to FE: (Empty) FF: Abnormal <Parameter 2: 2 bytes> Warning type Bit 0: Lamp life Bit 1: No signal Bit 2: Unsupported signal Bit 3: Air filter Bit 4: High temperature Bit 5: Reserved (aspect change) Bit 6 to Bit 15 (reserved) <Parameter 3: 2 bytes> Alarm type Bit 0: Lamp ON failure Bit 1: Lamp lid Bit 2: Lamp burnout (ON, then OFF) Bit 3: Fan Bit 4: Temperature sensor Bit 5: High temperature Bit 6: Interior (system) Bit 7 to Bit 15 (Reserved)

* 1 ESC/VP21 commands used when it is desired to get information at other than event occurrence.

* 2 Should be expressed in 32-bit hexadecimal. Up to 32 events from 01 to 8000.