D-ILA™ PROJECTOR

ＤＬＡ－Ｇ３０１０series
ＤＬＡ－Ｍ２０００series

RS-232C CONTROL SPECIFICATIONS

Victor Company of Japan, Limited

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CONTENTS

1. **OUTLINE**

This document describes the communication and data formats used to control the projector via its RS-232C port.

2. **COMMUNICATION FORMAT**

Transfer Rate :   9600, 19200(default) bps
Data Length :   8 bits
Parity Bit   :   None
Start Bit   :   1 bit
Flow Control :   None

3. **DATA FORMAT**

3.1   Command Data Format (External Control to Projector)

| Header | ID | SP | Command | SP | Parameter | SP | Parameter | SP | ·· | CR |

Header   :   Indicates the beginning of data and data type
                   '!'(21H)   :   Command for the Projector
                   '?'(3FH)   :   Query to the Projector (Request for data)

ID   :   Identification number of Projector

SP   :   Indicates the separation between ID and command, command and parameter, parameter and parameter(20H)

CR   :   Indicates the end of data(0DH)

3.2   Tally (Response) Data Format (Projector to External Control)

3.2.1   Tally (Response) Data when Terminated Normally

| Header | ID | SP | Normal Termination Status | SP | Parameter | SP | Parameter | ·· | CR |

Header   :   Indicates the beginning of tally (response) data
                              '@'(40H)

ID   :   Identification number of the Projector

SP   :   Indicates the separation between ID and status, status and parameter, parameter and parameter(20H)

Normal Termination   :   '0'(30H)
Status

CR   :   Indicates the end of data(0DH)

* Parameter is sent when tally (response) data is issued in response to a query (request for data.)   There is

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no parameter for tally (response) data in response to a command.

3.2.2 Tally Data when Error Occurs

Header	ID	SP	Error Status	CR

Header   :   Indicates the beginning of the tally (response) data
       '@'(40H)

ID   :   Identification number of Projector

SP   :   Indicates the separation between ID and Status(20H)

Error   :   'A00' (41H   30H   30H)
Status   'A01' (41H   30H   31H)
      'A02' (41H   30H   32H)
      'A03' (41H   30H   33H)
      'A04' (41H   30H   34H)
      'A05' (41H   30H   35H)
      'A0A' (41H   30H   41H)
      'A0B' (41H   30H   42H)

CR   :   Indicates the end of the data(0DH)

*For details on error status, refer to 8. Tally (Response) Data.

3.3 Internal Error Data Format   (Projector to External Control)

Header	ID	SP	Internal Error Status	SP	Parameter	SP	Parameter	SP	··	CR

Header   :   Indicates the beginning of the internal error data
       '&'(26H)

ID   :   Identification of Projector

SP   :   Indicates the separation between ID and status, status and parameter,
       parameter and parameter(20H)

Internal Error   :   'E01' (45H   30H   31H)
Status   'E02' (45H   30H   32H)
      'E03' (45H   30H   33H)
      'E04' (45H   30H   34H)
      'E06' (45H   30H   36H)
      'E07' (45H   30H   37H)
      'E08' (45H   30H   38H)
      'E09' (45H   30H   39H)
      'E0B' (45H   30H   42H)
      'E0C' (45H   30H   43H)
      'E11' (45H   31H   31H)
      'E12' (45H   31H   32H)
      'E20' (45H   32H   30H)

CR   :   Indicates the end of the data(0DH)

* For details on internal error status, refer to 9. Internal Errors.

4. HEADER

Indicates the beginning and type of communication data.

4.1 External Control to Projector

Character	HEX	Definition
'!'	21	Command to the Projector
'?'	3F	Query (request for information) to the Projector

4.2 Projector to External Control

Character	HEX	Definition
'@'	40	Tally (Response) data
'&'	26	Internal error data

5. ID

   Numeric characters are used to identify an individual Projector when two or more Projector units are connected to a single control machine.
   Setting separate identification numbers for each Projector allows independent control of each Projector unit.

 # Assignable ID numbers
      '0'(30H)   '8' (38H)
      '1'(31H)   '9' (39H)
      '2'(32H)   'A' (41H)
      '3'(33H)   'B' (42H)
      '4'(34H)   'C' (43H)
      '5'(35H)   'D' (44H)
      '6'(36H)   'E' (45H)
      '7'(37H)   'F' (46H)

   * Factory set ID is '1' (31H).

ID number '0' (30H) should be used when assigning all connected Projector units for batch operations. This means that when assigning independent ID numbers to multiple units, 15 of the 16 assignable numbers (from '1' through 'F') can actually be used for registration.

Please note that tally (response) data is not returned from the projector when the global ID assignment function (0) is used.

6. CR

Indicates the end of each set of data. (0DH)

7. PARAMETERS

There are three types of parameters:

1. Indicates the numeric value.
2. Indicates the ON/OFF status.
3. Special parameter.

7.1 Numeric Value Parameter
Signed 2-byte hexadecimal code represented by 4 (byte) characters.
Assignable range is between '8000' and '7FFF'.

Ex-1) The parameter indicating '20' (decimal):
Since '20' (decimal) is represented as '0014' in signed 2-byte hexadecimal,
its parameter is:

'0014'(30H   30H   31H   34H)

Ex-2) The parameter to indicate '-2' (decimal):
Since '-2' (decimal) is represented as 'FFFE' in signed 2-byte hexadecimal,
its parameter is:

'FFFE'(46H   46H   46H   45H)

7.2   ON/OFF Status Parameter
Indicates the ON/OFF status of items such as POWER or HIDE.

Character	HEX	Definition
'0'	30	OFF
'1'	31	ON

7.3 Special Parameters
Parameters other than those described in 7.1 to 7.2.

7.3.1 Menu Display Auto OFF Parameter

Character	HEX	Definition
'0'	30	NO
'1'	31	YES

7.3.2 Transfer Rate Parameter

Character	HEX	Definition
'0'	30	9600bps
'1'	31	19200bps

7.3.3 Decoder Parameter

Character	HEX	Definition
'0'	30	NTSC
'1'	31	NTSC4.43
'2'	32	PAL
'3'	33	SECAM
'4'	34	AUTO

7.3.4 Color Temperature Parameter

Character	HEX	Definition
'0'	30	LOW
'1'	31	MIDDLE
'2'	32	HIGH

7.3.5 Input Select Parameter

Character	HEX	Definition
'0'	30	Y／C
'1'	31	VIDEO
'3'	33	D-SUB
'4'	34	BNC

7.3.6 Projector Operation Mode Parameter

Character	HEX	Definition
'0000'	30H 30H 30H 30H	Standby Mode
'0001'	30H 30H 30H 31H	Power ON Mode
'0002'	30H 30H 30H 32H	Cool-Down Mode
'0004'	30H 30H 30H 34H	Emergency Mode

7.3.7 Text Mode Parameter

Character	HEX	Definition
'0'	30	Text 1
'1'	31	Text 2
'2'	32	Text 3
'3'	33	Text 4
'4'	34	Text 5

7.3.8 Aspect Parameter

Character	HEX	Definition
'0'	30	4 : 3
'1'	31	16 : 9

7.3.9 Resize Parameter

Character	HEX	Definition
'0'	30	1 : 1
'1'	31	Full
'2'	32	Aspect

7.3.10 ID Parameter

Character	HEX	Definition
'0'	30	ID 0(global command for all projectors)
'1'	31	ID 1
'2'	32	ID 2
'3'	33	ID 3
'4'	34	ID 4
'5'	35	ID 5
'6'	36	ID 6
'7'	37	ID 7
'8'	38	ID 8
'9'	39	ID 9
'A'	41	ID 10
'B'	42	ID 11
'C'	43	ID 12
'D'	44	ID 13
'E'	45	ID 14
'F'	46	ID 15

7.3.11 Switcher Number Parameter

Character	HEX	Definition
'0001'	30H 30H 30H 31H	Switcher No.1
'0002'	30H 30H 30H 32H	Switcher No.2
'0003'	30H 30H 30H 33H	Switcher No.3
'0004'	30H 30H 30H 34H	Switcher No.4
'0005'	30H 30H 30H 35H	Switcher No.5
'0006'	30H 30H 30H 36H	Switcher No.6
'0007'	30H 30H 30H 37H	Switcher No.7
'0008'	30H 30H 30H 38H	Switcher No.8
'0009'	30H 30H 30H 39H	Switcher No.9
'000A'	30H 30H 30H 41H	Switcher No.10

8. TALLY(RESPONSE)DATA

The Projector will only accept and process data when the ID number included with the data coincides with the ID-number registered to the Projector itself. (Except when ID = '0') If the received ID-number matches the Projector's ID, it will return a response to the query from the external control unit. This response data is called "Tally (Response) Data". (However, when ID = '0', tally (response) data is not replied.)

The Tally (Response) Data is normally returned within 3 seconds after the data is received.
There are some exceptions, however (e.g. POWER command)

After transmitting data, the external control unit cannot transmit subsequent data until the Tally (Response) Data is received.   However, if Tally (Response) Data is not returned within 3 seconds after transmitting the data (there are some exceptions such as the POWER command), data transmission can be retried.

8.1 Tally (Response) Data Status

8.1.1 Normal Termination Status

Character	HEX	Definition
'0'	30	Command received and processing terminated

8.1.2 Status when Error Occurs (Error Status)

Character	HEX	Definition
'A00'	41H 30H 30H	Command not supported
'A01'	41H 30H 31H	Invalid parameter
'A02'	41H 30H 32H	Parameter value exceeds operation range
'A03'	41H 30H 33H	Unclassified error
'A04'	41H 30H 34H	Unacceptable command in current mode or Unacceptable command with current setting
'A05'	41H 30H 35H	Command cannot be accepted if no signal.
'A0A'	41H 30H 41H	Time-out occurred with the communication with sub microcomputer
'A0B'	41H 30H 42H	Error occurred with the communication with sub microcomputer

8.2 Tally (Response) Data Parameter

The Tally (Response) Data Parameter is returned when the Tally (Response) Data is issued in response to a query (request for data).   No parameter is returned when Tally (Response) Data issued in response to a command or when an error occurs.

9. INTERNAL ERRORS

Error data is returned to the external control unit when an error has occurred.

9.1 Internal Error Data Status (Internal Error Status)

Character	HEX	Definition
'E01'	45H 30H 31H	Lamp did not light
'E02'	45H 30H 32H	Lamp life exceeds guaranteed time
'E03'	45H 30H 33H	IIC ACK error occurs
'E04'	45H 30H 34H	Filter cover on the bottom of the unit is displaced
'E06'	45H 30H 36H	Lamp suddenly goes out (Lamp Shut Down) while projecting (in Power ON mode)
'E07'	45H 30H 37H	Fan is locked
'E08'	45H 30H 38H	Internal temperature is too high.
'E09'	45H 30H 39H	Temperature around air intake is going up abnormally.
'E0B'	45H 30H 42H	Error occurred with the initialization of decoder.
'E0C'	45H 30H 43H	Initialization of Video Sources (Areas) data was failed.
'E11'	45H 31H 31H	Sub microcomputer is not boost up correctly.
'E12'	45H 31H 32H	Initialization of DDIC/DDCTRL was failed.
'E20'	45H 32H 30H	Sleep time function works and lamp was lit off.

9.2 Internal Error Data Parameters
There are two parameters for Internal Error Data.

Header		ID		SP		Internal Error Status		SP		*Parameter 1*		SP		*Parameter 2*		CR

Each parameter shows the slave address (Parameter 1) and Sub-Address (Parameter 2) when an IIC ACK error (Error status: 'E03') occurs.
The parameter type is "numeric value".

* Two parameters are also returned when an internal errors other than IIC ACK errors occur.
In this case, however, the parameter's numeric value has no meaning.

Ex) Internal error data when IIC ACK error occurs with Slave address 'A0H' and Sub-address of '1F20H':

'&'	ID	SP	'E03'	SP	'00A0'	SP	'1F20'	CR

9.3 Internal Error Data Reply Timing

When returning data, the Projector checks for internal error data. If such data exists, <u>the internal error data is returned before the tally (response) data is transmitted.</u> That is, if an internal error occurs, the Projector retains the internal error data, returning it in order of precedence a request for tally (response) data is received. Once transmitted, internal error data is deleted from the Projector.

10. PROJECTOR OPERATION MODES

This section describes the Projector's four basic operation modes.

10.1 Standby Mode
The Projector enters this mode when it is plugged into an AC outlet and the MAIN POWER switch is turned ON.
The lamp does not light and the fans do not operate.

10.2 Power ON Mode
This mode is engaged when the POWER ON command is received and processed normally in the Standby mode. The lamp is lighted and the fans start rotating. Images can be projected in this mode.

10.3 Cool-Down Mode
This mode is engaged when the POWER OFF command is received and processed normally in the Power ON mode.
The lamp goes out and the fans are rotated continuously to cool down the lamp.
To avoid the lamp is lighted again in short time, the POWER ON command is not accepted during this mode.
The DLA-G3010 series, the Cool-Down Mode time is approximate 90 seconds. The lamp goes out and the fans are rotated continuously during this mode to cool down the lamp.
The DLA-M2000 series, the Cool-Down Mode time is approximate 120 seconds. The lamp goes out and the fans are rotated continuously during this mode to cool down the lamp.
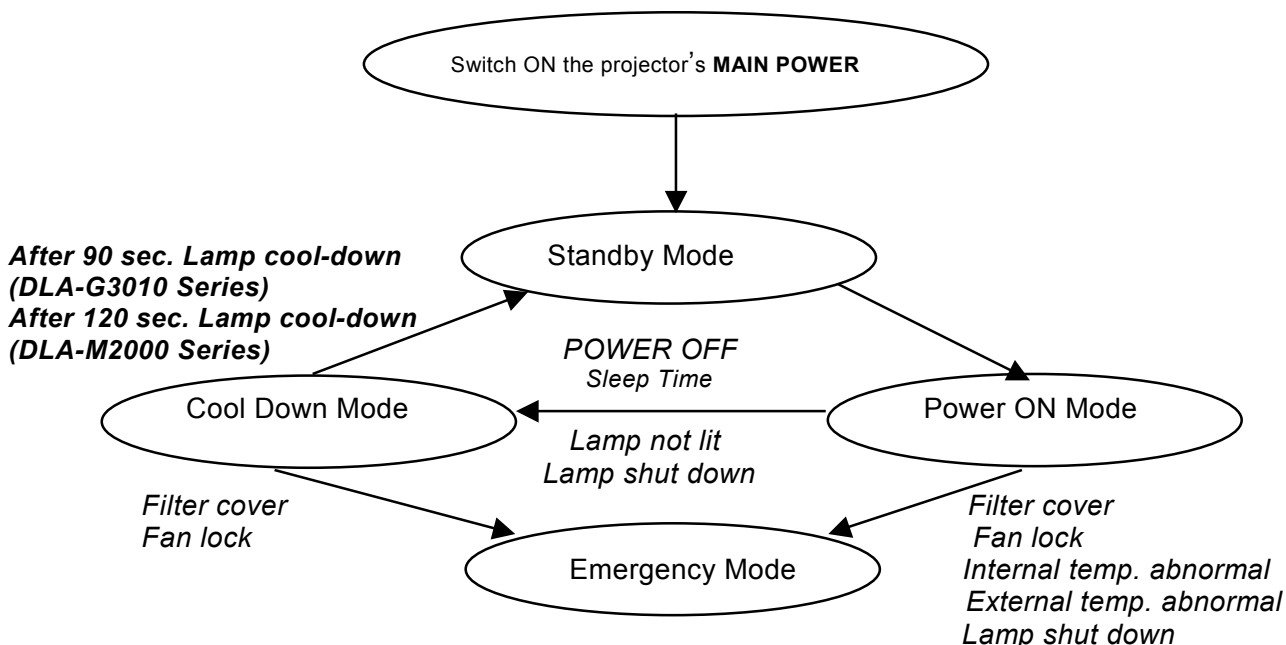After the mentioned time lapse, the unit automatically enters the Standby mode.

10.4 Emergency Mode
This mode is engaged when the projector malfunctions or is improperly operated.
The lamp and the fans are shut down and the MAIN POWER switch is turned OFF.
Non-operation status continues until the reset function is activated.

* Note that the acceptance/non-acceptance condition of a command differs depending on the operation mode.

11. SOURCE

The input signals to projectors can be Computer Sources and Video Sources.
Although the specific signal names are not given to Computer Sources , these can be specified with the combination of Frequency and Resolution.
Video Sources are as follows:

NTSC(480i)
PAL/SECAM
NTSC(480p)
PAL(625p)
DTV(720p)
HDTV(1035i)
HDTV(1080i)

11.1   Sources (Areas) and Source Numbers

When inputs via a composite / S-VIDEO/RGB

Source	Source No. (Character)	Source No. (HEX)
NTSC(480i)	'00'	30H 30H
PAL / SECAM	'02'	30H 32H
NTSC(480p)	'04'	30H 34H
PAL(625p)	'05'	30H 35H
DTV(720p)	'06'	30H 36H
HDTV(1035i)	'07'	30H 37H
HDTV(1080i)	'08'	30H 38H
Computer Sources	'F0'	46H 30H
No Signal	'FF'	46H 46H

When inputs via a YPbPr

Source	Source No. (Character)	Source No. (HEX)
NTSC(480i)	'80'	38H 30H
PAL / SECAM	'82'	38H 32H
NTSC(480p)	'84'	38H 34H
PAL(625p)	'85'	38H 35H
DTV(720p)	'86'	38H 36H
HDTV(1035i)	'87'	38H 37H
HDTV(1080i)	'88'	38H 38H
No Signal	'FF'	46H 46H

RGB signals or YPbPr signal is fed to BNC input terminal , the different Source No is given even if the same type of Source.

※ Note that the acceptance / non-acceptance of a command is differ depending on the Source (Area) actually registered on the Projector.

12. COMMANDS

This section describes the commands that can be used with the Projector.

◇ In the Communication Examples, the ID number registered on the Projector is represented as '1' (31H). This is the default setting.

◇ "CTLR" refers to transmissions from the external control unit and "DLA" refers to transmissions (Tally (Response) Data) from the Projector.

◇ "Reply Time" refers to the maximum time required between command reception and return of Tally (Response) Data. In other words, it refers to the maximum time that the external control unit must wait for the Tally (Response) Data.

◇ For details on the different parameters, refer to 7. Parameters.

◇ Acceptance or non-acceptance of a command in each operation mode is indicated by "O" (accept) or "X" (does not accept).

12.1   HIDE   :'U00'(55H   30H   30H)

Definition   : Controls video signal muting

Command   : 'U00'(55H   30H   30H)
Parameter type : ON／OFF
Reply time   : 3seconds
Conditions   :

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ To turn HIDE ON

CTLR   '!' '1' SP 'U00' SP '1' CR
DLA   '@' '1' SP '0' CR

◇ When requesting current HIDE status (if HIDE status is ON)

CTLR   '?' '1' SP 'U00' CR
DLA   '@' '1' SP '0' SP '1' CR

◇ When trying to change HIDE status in emergency mode (turn ON)

CTLR   '!' '1' SP 'U00' SP '1' CR
DLA   '@' '1' SP 'A04' CR

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12.2   Horizontal Position   :'U02'(55H   30H   32H)

Definition   : Adjusts the horizontal position

Command   :   'U02'(55H   30H   32H)
Parameter type   : Numeric,
Reply time   : 3seconds
Conditions   : Except when there is no Source (Area) signal

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When specifying "30" (decimal) as the horizontal position

CTLR   '!' '1' SP 'U02' SP '001E' CR
DLA   '@' '1' SP '0' CR

◇ When requesting current horizontal position data (if horizontal position is set to "-1")

CTLR   '?' '1' SP 'U02' CR
DLA   '@' '1' SP '0' SP 'FFFF' CR

◇ When specifying the horizontal position, but the Source (Area) has no signal input

CTLR   '!' '1' SP 'U02' SP '001E' CR
DLA   '@' '1' SP 'A05' CR

12.3   Vertical Position   :'U03'(55H   30H   33H)

Definition   : Adjusts the vertical position

Command   :   'U03'(55H   30H   33H)
Parameter type   : Numeric,
Reply time   : 3seconds
Conditions   : Except when there is no Source (Area) signal

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When specifying "5" (decimal) as the vertical position

CTLR   '!' '1' SP 'U03' SP '0005' CR
DLA   '@' '1' SP '0' CR

◇ When requesting current vertical position data (if vertical position is set to "16" (decimal))

CTLR   '?' '1' SP 'U03' CR
DLA   '@' '1' SP '0' SP '0010' CR

12.4　Phase　:'U04'(55H　30H　34H)

Definition　　　　　: Adjusts the phase

Command　　　　　　　:　'U04'(55H　30H　34H)
Parameter type　　　: Numeric
Reply time　　　　　 : 3seconds
Conditions　　　　　 : Eexcept when there is no Source (Area) signal

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

　　◇　When specifying "50" (decimal) as the phase adjust level

CTLR　　　'!'　'1'　SP　'U04'　SP　'0032'　CR
DLA　　　　　　　　　　　　　　　　　'@'　'1'　SP　'0'　CR

　　◇　When requesting the current phase adjust level (if phase adjust level is set to "0" (decimal))

CTLR　　　'?'　'1'　SP　'U04'　CR
DLA　　　　　　　　　　　　　　'@'　'1'　SP　'0'　SP　'0000'　CR

12.5   Tracking   :'U05'(55H   30H   35H)

Definition   : Adjusts tracking

Command   : 'U05'(55H   30H   35H)
Parameter type   : Numeric
Reply time   : 3seconds
Conditions   : Except when there is no Source (Area) signal

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When specifying "50" (decimal) as tracking adjust level

CTLR   '!' '1'   SP   'U05'   SP   '0032'   CR
DLA   '@' '1'   SP   '0'   CR

◇ When requesting current tracking adjust level data (if tracking adjust level is set to "0" (decimal))

CTLR   '?' '1'   SP   'U05'   CR
DLA   '@' '1'   SP   '0'   SP   '0000'   CR

12.6 Contrast :'U06'(55H   30H   36H)

Definition   : Adjusts the contrast

Command   : 'U06'(55H   30H   36H)
Parameter type   : Numeric,
Reply time   : 3seconds
Conditions   : Except when there is no Source (Area) signal

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When specifying "2" (decimal) as the contrast adjust level

CTLR   '!' '1' SP 'U06' SP '0002' CR
DLA   '@' '1' SP '0' CR

◇ When requesting current contrast adjust level data (if contrast adjust level is set to "0" (decimal))

CTLR   '?' '1' SP 'U06' CR
DLA   '@' '1' SP '0' SP '0000' CR

12.7　Brightness　:'U07'(55H　30H　37H)

Definition　　　　　: Adjusts the brightness

Command　　　　　　: 'U07'(55H　30H　37H)
Parameter type　　　: Numeric,
Reply time　　　　　: 3seconds
Conditions　　　　　: Except when there is no Source (Area) signal

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When specifying "-2" (decimal) as the brightness adjust level

CTLR　　　'!'　'1'　SP　'U07'　SP　'FFFE'　CR
DLA　　　　　　　　　　　　　　　　　　'@'　'1'　SP　'0'　CR

◇ When requesting current brightness adjust level data (if brightness adjust level is set to "0" (decimal))

CTLR　　　'?'　'1'　SP　'U07'　CR
DLA　　　　　　　　　　　　　'@'　'1'　SP　'0'　SP　'0000'　CR

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12.8   Sharpness   :'U08'(55H   30H   38H)

Definition   : Adjusts the sharpness

Command   : 'U08'(55H   30H   38H)
Parameter type   : Numeric,
Reply time   : 3seconds
Conditions   : Video Sources (Areas)

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When specifying "2" (decimal) as the sharpness

CTLR   '!'   '1'   SP   'U08'   SP   '0002'   CR
DLA   '@'   '1'   SP   '0'   CR

◇ When requesting current sharpness adjust level data (if sharpness adjust level is set to "7" (decimal))

CTLR   '?'   '1'   SP   'U08'   CR
DLA   '@'   '1'   SP   '0'   SP   '0007'   CR

12.9 Color :'U09'(55H 30H 39H)

Definition : Adjusts the color

Command : 'U09'(55H 30H 39H)
Parameter type : Numeric,
Reply time : 3seconds
Conditions : Video Sources (Areas)

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When specifying "-2" (decimal) as the color adjust level

CTLR '!' '1' SP 'U09' SP 'FFFE' CR
DLA '@' '1' SP '0' CR

◇ When requesting current color adjust level (if color adjust level is set to "0" (decimal))

CTLR '?' '1' SP 'U09' CR
DLA '@' '1' SP '0' SP '0000' CR

12.10   Tint   :'U0A'(55H   30H   41H)

Definition   : Adjusts the tint

Command   : 'U0A'(55H 30H 41H)
Parameter type   : Numeric,
Reply time   : 3seconds
Conditions   : Video Sources (Areas)

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When specifying "-2" (decimal) as the tint adjust level

CTLR   '!' '1'   SP   'U0A'   SP   'FFFE'   CR
DLA   '@'   '1'   SP   '0'   CR

◇ When requesting current tint adjust level data (if tint adjust level is set to "0" (decimal))

CTLR   '?' '1'   SP   'U0A'   CR
DLA   '@'   '1'   SP   '0'   SP   '0000'   CR

12.11   Color Temperature   :'U0B'(55H   30H   42H)

Definition   : Adjusts the color temperature

Command   : 'U0B'(55H   30H   42H)
Parameter type   : Special parameter (Refer to 7.3.4 Color Temperature Parameter.)
Reply time   : 3seconds
Conditions   : Except when there is no Source (Area) signal

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When specifying "MIDDLE" as the color temperature

CTLR   '!' '1'   SP   'U0B'   SP   '1'   CR
DLA   '@'   '1'   SP   '0'   CR

◇ When requesting current color temperature data (if color temperature is set to "LOW")

CTLR   '?' '1'   SP   'U0B'   CR
DLA   '@'   '1'   SP   '0'   SP   '0'   CR

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12.12　R-Gain　:'U0C'(55H　30H　43H)

Definition　　　　: Adjusts the R-gain

Command　　　　　: 'U0C'(55H　30H　43H)
Parameter type　　: Numeric,
Reply time　　　　: 3seconds
Conditions　　　　: Computer Sources (Areas)

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When specifying "-2" (decimal) as the R-gain adjust level

CTLR　　　'!'　'1'　SP　'U0C'　SP　'FFFE'　CR
DLA　　　　　　　　　　　　　　　　　　　'@'　'1'　SP　'0'　CR

◇ When requesting current R-gain adjust level data (if R-gain adjust level is set to "128" (decimal))

CTLR　　　'?'　'1'　SP　'U0C'　CR
DLA　　　　　　　　　　　　　　　'@'　'1'　SP　'0'　SP　'0080'　CR

12.13   G-Gain   :'U0D'(55H   30H   44H)

Definition   : Adjusts the G-gain

Command   : 'U0D'(55H   30H   44H)
Parameter type   : Numeric,
Reply time   : 3seconds
Conditions   : Computer Sources (Areas)

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When specifying "-2" (decimal) as the G-gain adjust level

CTLR   '!' '1' SP 'U0D' SP 'FFFE' CR
DLA   '@' '1' SP '0' CR

◇ When requesting current G-gain adjust level data (if G-gain adjust level is set to "128" (decimal))

CTLR   '?' '1' SP 'U0D' CR
DLA   '@' '1' SP '0' SP '0080' CR

12.14　B-Gain　:'U0E'(55H　30H　45H)

Definition　　　　: Adjusts the B-gain

Command　　　　　　: 'U0E'(55H　30H　45H)
Parameter type　　: Numeric,
Reply time　　　　: 3seconds
Conditions　　　　: Computer Sources (Areas)

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇　When specifying "-2" (decimal) as the B-gain adjust level

CTLR　　　'!'　'1'　SP　'U0E'　SP　'FFFE'　CR
DLA　　　　　　　　　　　　　　　　　　'@'　'1'　SP　'0'　CR

◇　When requesting current B-gain adjust level data (if B-gain adjust level is set to "128" (decimal))

CTLR　　　'?'　'1'　SP　'U0E'　CR
DLA　　　　　　　　　　　　　'@'　'1'　SP　'0'　SP　'0080'　CR

12.15　POWER　:'U0F'(55H　30H　46H)

Definition　　　　: Controls the power

Command　　　　　: 'U0F'(55H　30H　46H)
Parameter type　　: ON／OFF
Reply time　　　　: POWER　ON transmission　100seconds(*1)
　　　　　　　　　　　POWER　OFF transmission　3seconds(*2)
Conditions　　　　: No query

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
O	O	X	X

Communication Examples

◇　When turning the Projector's power ON

```
CTLR       '!'  '1'  SP  'U0F'  SP  '1'  CR
DLA                                            '@'  '1'  SP  '0'  CR
```

*1
When the POWER ON command is received, the Projector returns the Tally (Response) Data after completing all the POWER ON processing operations (lighting lamp, rotating fans, transmitting data, etc.). In most cases, the Tally (Response) Data should be returned within 35 to 40 seconds.
If it takes more time to light up or re-try is done due to internal error , these operations takes maximum around 100 seconds. (The Tally Data is returned within 100 seconds.)

*2
When the POWER OFF command is received during Power-ON mode, the Projector enters the cool-down mode (DLA-G3010 series: for about 90 seconds, DLA-M2000L series: for about 120 seconds) and continue cooling (DLA-G20series: for about 120 seconds, DLA-M4000L series: for about 10 minutes).
After cool-down mode is completed, the Projector automatically enters the stand-by mode. (For operation modes, refer to 10. Projector Operation Modes.)
POWER ON command cannot be accepted in the Cool-Down mode. If POWER ON is requested after POWER OFF command is sent, firstly the current operation mode should be asked and then if Standby Mode is confirmed, POWER ON command should be sent. (For the command to request the current operation mode, refer to 12.41 Operation Mode Query.)

12.16   MENU Auto OFF   :'U10'(55H   31H   30H)

Definition   : Controls the display menu auto-off function

Command   : 'U10'(55H   31H   30H)
Parameter type   : Special parameter (Refer to 7.3.1 Menu Display Auto OFF Parameter.)
Reply time   : 3seconds
Conditions   :

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
O	O	O	X

Communication Examples

◇ When specifying that the menu display is turned off automatically

CTLR   '!' '1'   SP   'U10'   SP   '1'   CR
DLA   '@'   '1'   SP   '0'   CR

◇ When requesting the current menu display auto-off setting (if menu display does not turn off automatically)

CTLR   '?'   '1'   SP   'U10'   CR
DLA   '@'   '1'   SP   '0'   SP   '0'   CR

12.17　Line Display　:'U11'(55H　31H　31H)

Definition　　　　　: Sets the line source (area) display after changing input terminals

Command　　　　　: 'U11'(55H　31H　31H)
Parameter type　　: ON／OFF
Reply time　　　　: 3seconds
Conditions　　　　:

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
O	O	O	X

Communication Examples

◇　When setting the line display to OFF

CTLR　　　'!'　'1'　SP　'U11'　SP　'0'　CR
DLA　　　　　　　　　　　　　　　　　'@'　'1'　SP　'0'　CR

◇　When requesting the current line display setting (if the line display is set to ON)

CTLR　　　'?'　'1'　SP　'U11'　CR
DLA　　　　　　　　　　　　　　　'@'　'1'　SP　'0'　SP　'1'　CR

12.18 Sleep Time :'U12'(55H   31H   32H)

Definition   : Sets the sleep time

Command   : 'U12'(55H   31H   32H)
Parameter type   : (*)
Reply time   : 3seconds
Conditions   :

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
O	O	O	X

The "Sleep time" function automatically turns off the projector power if the no-signal status continues for a specified time.

*Available parameters
  Sleep time can be set to any of the following:
        15 min., 30 min., 60 min., and 0 min.
    When the above times are represented as numerical parameters:

	Character	HEX
15min.	'000F'	30H 30H 30H 46H
30min.	'001E'	30H 30H 31H 45H
60min.	'003C'	30H 30H 33H 43H
0min.	'0000'	30H 30H 30H 30H

The sleep time function is disabled when the time is set to "0 min".

#Tally (Response) data format to current sleep time query

| '@' | '1' | SP | Normal Termination Status | SP | Parameter 1 | SP | Parameter 2 | CR |

    Parameter 1 : Indicates the sleep time specified
                    (Refer to "Available parameters")
    Parameter 2 : Indicates the remaining sleep time.
                   Parameter type is numeric.

Communication Examples

    ◇ When specifying "30 min." as the sleep time

    CTLR   '!' '1' SP 'U12' SP '001E'   CR
    DLA   '@' '1' SP '0' CR

    ◇ When requesting the current sleep time setting (if the sleep time is set to "15 min." and the
       remaining time is 3 min.)

    CTLR   '?' '1' SP 'U12' CR
    DLA   '@' '1' SP '0' SP '000F' SP '0003' CR

12.19   Right/Left Reverse   :'U17'(55H   31H   37H)

Definition   : Reverses the image horizontally

Command   : 'U17'(55H   31H   37H)
Parameter type   : ON／OFF
Reply time   : 3seconds
Conditions   :

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
O	O	O	X

Communication Examples

◇ When reversing the image horizontally (Right /Left reverse)

CTLR   '!' '1'   SP   'U17'   SP   '1'   CR
DLA   '@'   '1'   SP   '0'   CR

◇ When requesting the current R/L reverse setting (if the image is not reversed horizontally)

CTLR   '?' '1'   SP   'U17'   CR
DLA   '@'   '1'   SP   '0'   SP   '0'   CR

12.20   Top/Bottom Invert   :'U18'(55H   31H   38H)

Definition   : Inverts the image vertically

Command   : 'U18'(55H   31H   38H)
Parameter type   : ON／OFF
Reply time   : 3seconds
Conditions   :

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
O	O	O	X

Communication Examples

◇ When inverting the image vertically (Top/Bottom invert)

CTLR   '!' '1'   SP   'U18'   SP   '1'   CR
DLA   '@'   '1'   SP   '0'   CR

◇ When requesting the current Top/Bottom invert setting (if the image is not inverted vertically)

CTLR   '?' '1'   SP   'U18'   CR
DLA   '@'   '1'   SP   '0'   SP   '0'   CR

Definition　　　　　: Selects the color TV broadcast system

Command　　　　　　　: 'U19'(55H　31H　39H)
Parameter type　　　: Special parameter (Refer to 7.3.3 Decoder Parameter.)
Reply time　　　　　: 3seconds
Conditions　　　　　: Except when there is no Source (Area) signal

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇　When selecting "NTSC" as the broadcast system

CTLR　　　'!'　'1'　SP　'U19'　SP　'0'　CR
DLA　　　　　　　　　　　　　　　　　　'@'　'1'　SP　'0'　CR

◇　When requesting the current broadcast system setting (if the broadcast system is set to PAL)

CTLR　　　'?'　'1'　SP　'U19'　CR
DLA　　　　　　　　　　　　　　　　'@'　'1'　SP　'0'　SP　'2'　CR

12.22   Input Select   :'U1A'(55H   31H   41H)

Definition   : Selects the video input terminals

Command   : 'U1A'(55H   31H   41H)
Parameter type   : Special parameter (Refer to 7.3.5 Input Select Parameter.)
Reply time   : 3seconds
Conditions   :

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When selecting "D-SUB" as the video input

CTLR   '!'   '1'   SP   'U1A'   SP   '3'   CR
DLA   '@'   '1'   SP   '0'   CR

◇ When requesting the current video input setting (if the video input is selected)

CTLR   '?'   '1'   SP   'U1A'   CR
DLA   '@'   '1'   SP   '0'   SP   '1'   CR

12.23   Transfer Rate   :'U1B'(55H   31H   42H)

Definition   : Controls the transfer rate for RS-232C

Command   : 'U1B'(55H   31H   42H)
Parameter type   : Special parameter(Refer to 7.3.2 Transfer Rate Parameter.)
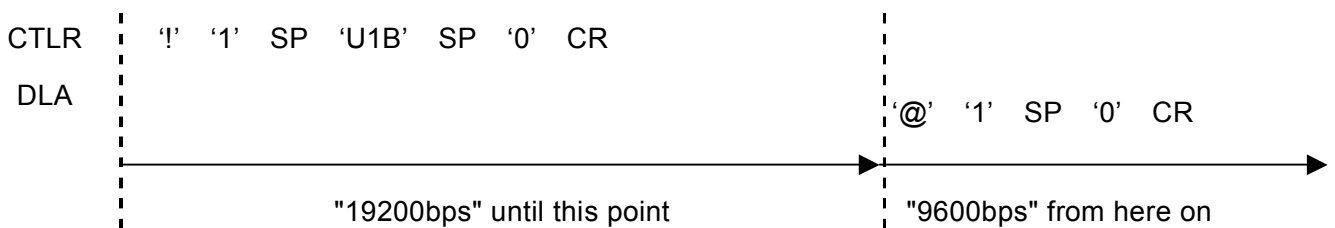Reply time   : 3seconds
Conditions   :

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
O	O	O	X

  * After this command has been received and processed correctly, the Tally (Response) Data is returned at
   the new transfer rate.

Communication Examples

   ◇ When changing the transfer rate to "9600 bps" from the current setting of "19200 bps"

CTLR   '!'   '1'   SP   'U1B'   SP   '0'   CR

DLA   '@'   '1'   SP   '0'   CR

                "19200bps" until this point   "9600bps" from here on

  * The default transfer rate setting is "19200bps".

12.24　Lamp Time　:'U1C'(55H　31H　43H)

Definition　　　　: Reset/check the lamp operation

Command　　　　: 'U1C'(55H　31H　43H)
Parameter type　　: (*)
Reply time　　　　: 3seconds
Conditions　　　 :

Operation mode

△　When resetting

Standby mode	Power ON mode	Cool-down mode	Emergency mode
O	X	X	X

△　When requesting current time

Standby mode	Power ON mode	Cool-down mode	Emergency mode
O	O	O	X

Data Format

△　Reset data format

| '!' | '1' | SP | 'U1C' | SP | Reset Parameter | CR |

(*)Reset parameter

Character	HEX
' [()] '	5BH　28H　29H　5DH

* <u>Never issue the Reset command unless the lamp has been replaced with a new one.</u>

△　Tally (Response) data format when requesting current time

| '@' | '1' | SP | Normal Termination Status | SP | Parameter 1 | SP | Parameter 2 | CR |

(*)Parameter1
　　　　The Projector has an incremental counter which counts Lamp Operation Time at 1 time in every 4 minutes.
　　　　Parameter 1 shows this counter value.　The parameter type is "numeric".
　　　　Actual lamp operating time is obtained by converting the Parameter 1 value into signed 2-byte binary hexadecimal and dividing it by 15.

(*)Parameter2

Parameter 2 shows <u>whether the lamp replacement time is close or not,</u> based on the following calculation:

$$(\text{Lamp service life} - 100 \text{ hours}) \leqq \text{Lamp operating time} < \text{Lamp service life}$$

	Character	HEX
Lamp replacement time not close	'0'	30H
Lamp replacement time close	'1'	31H
Lamp life exceeded	'2'	32H

Communication Examples

◇ When requesting the current lamp operating time (if the lamp operating time is 150 hours)

```
CTLR      '?'  '1'  SP   'U1C'  CR
DLA                            '@'  '1'  SP  '0'  SP  '08CA'  SP  '0'  CR
```

12.25   ID   :'U1D'(55H   31H   44H)

Definition   : Sets the ID for the Projector

Command   : 'U1D'(55H   31H   44H)
Parameter type   : Special parameter(Refer to 7.3.10 ID Parameter.)
Reply time   : 3seconds
Conditions   : No query

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
O	O	O	X

 * When this command is received and processed correctly, the Tally (Response) Data is <u>returned with the changed ID number.</u>

Communication Examples

◇ When changing the ID to '7' from the current setting of '1'

CTLR   '!' '1' SP 'U1D' SP '7' CR
DLA   '@' '7' SP '0' CR

Tally (Response) data is returned with New ID no.

12.26   Volume   :'U20'(55H   32H   30H)

Definition   : Adjusts the audio volume level

Command   : 'U20'(55H   32H   30H)
Parameter type   : Numeric,
Reply time   : 3seconds
Conditions   : Except when there is no Source (Area) signal

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Example

◇ When setting the volume adjust level to "30"

CTLR   '!'   '1'   SP   'U20'   SP   '001E'   CR
DLA   '@'   '1'   SP   '0'   CR

◇ When requesting the current volume adjust level setting (if the volume level is set to "5")

CTLR   '?'   '1'   SP   'U20'   CR
DLA   '@'   '1'   SP   '0'   SP   '0005'   CR

12.27   Quick Alignment   :'U2A'(55H   32H   41H)

Definition   : Controls the quick alignment function

Command   : 'U2A'(55H   32H   41H)
Parameter type   : (*)
Reply time   : 3seconds
Conditions   : Except when there is no Source (Area) signal
                   Normal Tally Data is returned when query.

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

 *Quick Alignment Parameter
   Use only **OFF parameter for ON/OFF.**

   ◇ Quick alignment parameter

	Character	HEX
OFF	'0'	30H

The Projector performs quick alignment processing after returning Normal Termination Status Tally (Response) data.   Therefore, after OFF command transmission, send the following command after waiting for fixed time (about 3 seconds or more).

Communication Example

More than 3 sec
Possible to transmit next command

CTLR   '!' '1' SP 'U2A' SP '0' CR   '?' '1' SP 'Z03' CR
DLA   '@' '1' SP '0' CR
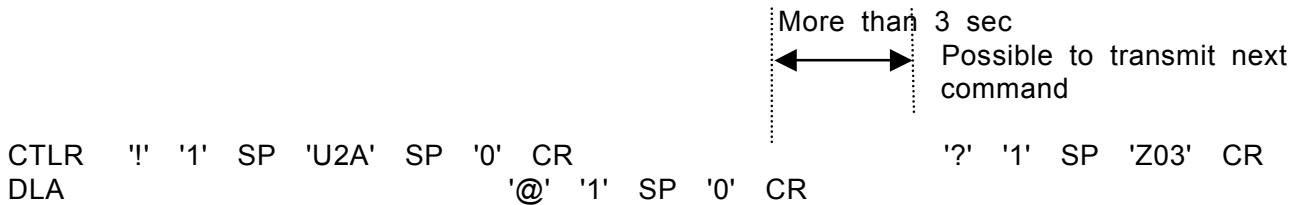
12.28　Text Mode　:'U2C'(55H　32H　43H)

Definition　　　　　: Controls the legibility of screen text

Command　　　　　　　: 'U2C'(55H　32H　43H)
Parameter type　　　: Special parameter(Refer to 7.3.7 Text Mode Parameter.)
Reply time　　　　　: 3seconds
Conditions　　　　　: Computer Sources (Areas)

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇　When setting the text mode to "Normal"

CTLR　　　'!'　'1'　SP　'U2C'　SP　'0'　CR
DLA　　　　　　　　　　　　　　　　　　　　'@'　'1'　SP　'0'　CR

◇　When requesting current text mode setting (if the text mode is set to "Text 1")

CTLR　　　'?'　'1'　SP　'U2C'　CR
DLA　　　　　　　　　　　　　　　　'@'　'1'　SP　'0'　SP　'1'　CR

43

12.29   Resize   :'U2D'(55H   32H   44H)

Definition   : Controls expanded image

Command   : 'U2D'(55H   32H   44H)
Parameter type   : Special parameter(Refer to 7.3.9 Resize Parameter.)
Reply time   : 3seconds
Conditions   : Computer Sources (Areas)

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When setting the resize function to 1:1

CTLR   '!'   '1'   SP   'U2D'   SP   '0'   CR
DLA   '@'   '1'   SP   '0'   CR

◇ When requesting the current resize function setting (if the resize function is set to Full)

CTLR   '?'   '1'   SP   'U2D'   CR
DLA   '@'   '1'   SP   '0'   SP   '1'   CR

12.30 Aspect Change :'U2E'(55H 32H 45H)

Definition   : Controls the aspect ratio of the projected image

Command   : 'U2E'(55H   32H   45H)
Parameter type   : Special parameter(Refer to 7.3.8 Aspect Parameter.)
Reply time   : 3seconds
Conditions   : Video Sources (Areas)

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When setting the aspect ratio to "4:3"

CTLR   '!' '1' SP 'U2E' SP '0' CR
DLA   '@' '1' SP '0' CR

◇ When requesting the current aspect ratio setting(if the aspect ratio is set to "16:9")

CTLR   '?' '1' SP 'U2E' CR
DLA   '@' '1' SP '0' SP '1' CR

12.31   Horizontal Frequency Query   :'U3C'(55H   33H   43H)

Definition   : Requests horizontal frequency of picture that is projected

Command   : 'U3C'(55H   33H   43H)
Parameter type   : Numeric,
Reply time   : 3seconds
Conditions   : Except when there is no Source (Area) signal

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When requesting horizontal frequency (if horizontal frequency is 64.3kHz)

CTLR   '?' '1' SP 'U3C' CR
DLA   '@' '1' SP '0' SP '0283' CR

Note) Horizontal Frequency is 10 times of data to be returned from Projector. This example shows 283 in hexadecimal, which is 643 in decimal. Horizontal Frequency of Projected image is 643/10 = 64.3kHz.

12.32   Vertical Frequency Query   :'U3D'(55H   33H   44H)

Definition   : Requests vertical frequency of picture that is projected

Command   : 'U3D'(55H   33H   44H)
Parameter type   : Numeric,
Reply time   : 3seconds
Conditions   : Except when there is no Source (Area) signal

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When requesting vertical frequency (if vertical frequency is 60Hz)

CTLR   '?' '1' SP 'U3D' CR
DLA   '@' '1' SP '0' SP '003C' CR

12.33   Horizontal Resolution Query   :'U3E'(55H   33H   45H)

Definition   : Requests horizontal resolution of picture that is projected

Command   : 'U3E'(55H   33H   45H)
Parameter type   : Numeric,
Reply time   : 3seconds
Conditions   : Except when there is no Source (Area) signal

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When requesting horizontal resolution (if horizontal resolution is 1280)

CTLR   '?'   '1'   SP   'U3E'   CR
DLA   '@'   '1'   SP   '0'   SP   '0500'   CR

12.34   Vertical Resolution Query   :'U3F'(55H   33H   46H)

Definition   : Requests vertical resolution of picture that is projected

Command   : 'U3F'(55H   33H   46H)
Parameter type   : Numeric,
Reply time   : 3seconds
Conditions   : Except when there is no Source (Area) signal

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When requesting vertical resolution (if vertical resolution is 1024)

CTLR   '?' '1' SP 'U3F' CR
DLA   '@' '1' SP '0' SP '0400' CR

12.35   Keystone(Correction of trapezoid distortion) :'U40'(55H   34H   30H)

Definition   : Correction of Keystone

Command   : 'U40'(55H   34H   30H)
Parameter type   : Numeric,
Reply time   : 3seconds
Conditions   :

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When specifying "0" (decimal) as keystone

CTLR   '!' '1' SP 'U40' SP '0080' CR
DLA   '@' '1' SP '0' CR

◇ When requesting the keystone (if the keystone is set to "0" (decimal))

CTLR   '?' '1' SP 'U40' CR
DLA   '@' '1' SP '0' SP '0080' CR

12.36   Operation Mode Query   :'Z03'(5AH   30H   33H)

Definition   : Requests current operation mode

Command   : 'Z03'(5AH   30H   33H)
Parameter type   : Special parameter(Refer to 7.3.6 Projector Operation Mode Parameter.)
Reply time   : 3seconds
Conditions   : Query only

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
O	O	O	O

When the POWER OFF command is received in the Power ON mode, the Projector first enters
the Cool-Down mode, then automatically enters the Standby mode.
(For information on each operation mode, refer to 10. Projector Operation Modes.)
POWER ON command cannot be accepted in the Cool-Down mode. If POWER ON is requested after
POWER OFF command is sent, firstly the current operation mode should be asked and then if Standby
Mode is confirmed, POWER ON command should be sent.

Communication Examples

◇ When requesting the current operation mode(if the Projector is in the standby mode)

CTLR   '?' '1' SP 'Z03' CR
DLA   '@' '1' SP '0' SP '0000' CR

12.37　Source Query　:'Z05'(5AH　30H　35H)

Definition　　　　: Asks for the Source (Area) setting actually assigned on the Projector.

Command　　　　　　: 'Z05'(5AH　30H　35H)
Parameter type　　:　(Refer to 11.1 Projector Sources and Source Numbers.)
Reply time　　　　: 3seconds
Conditions　　　　: Query only

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Example

◇　When requesting the current Source (Area) setting actually assigned on the Projector
(if Computer Sources is actually assigned)

CTLR　　　'?'　'1'　SP　'Z05'　CR
DLA　　　　　　　　　　　　　'@'　'1'　SP　'0'　SP　'F0'　CR

Definition   : Obtains projector model and software version information.

Command   : 'Z0A'(5AH   30H   41H)
Parameter type   : (*)
Reply time   : 3seconds
Conditions   : Query only

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
O	O	O	X

* Model status data format

◇　Requesting current projector model status

| ' ? ' | '1' | SP | 'Z0A' | CR |

Parameter :   None

Tally (response) data format to query

| '@' | '1' | SP | Normal Termination Status | SP | ***Parameter*** | CR |

Parameter :   12 byte ASCII characters are used for Model and Software version information.

MMMMMMMXXXXX

Software version
Model
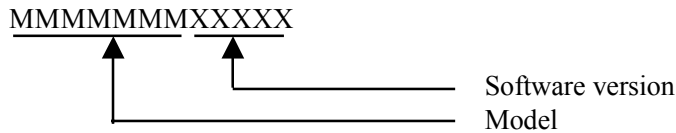
Model	HEX	Definition
'D03————'	44H 30H 33H 2DH 2DH 2DH 2DH	DLA-G3010 Series Projector
'M2000——'	4DH 32H 30H 30H 30H 2DH 2DH	DLA-M2000 Series Projector

Communication Example

◇ When the projector is a M2000 series projector with software version 1.2.1

CTLR   '?'   '1'   SP   'Z0A'   CR
DLA   '@'   '1'   SP   '0'   SP   'M2000--00121'   CR

12.39   Switcher Selection   : 'W00'(57H   30H   30H)

Definition   :   Changes channels according to commands from the Switcher. When Projector receive the command, Projector switches input terminal to RGB. And Source to be matched to input switching number among presetted Sources is displayed.
When it is not set up or not being matched, the source inputted now is newly set up.

Command   : 'W00'(57H   30H   30H)
Parameter type   : The Switcher's input switching number. (Refer to 7.3.11 Switcher Number Parameter.)
Reply time   : 3seconds
Conditions   :

Operation mode

Standby mode	Power ON mode	Cool-down mode	Emergency mode
X	O	X	X

Communication Examples

◇ When specifying Switcher 2 (if a channel specifying input switcher 2 exists.)

CTLR   '!' '1'   SP   'W00'   SP   '0002'   CR
DLA   '@'   '1'   SP   '0'   CR

◇ When requesting the current Switcher No. (if Switcher does not connected)

CTLR   '?' '1'   SP   'W00'   CR
DLA   '@'   '1'   SP   '0'   SP   '0000'   CR

13. APPENDIX

13. 1   External Control Command List

Command	Character	HEX		
Hide	'U00'	55H	30H	30H
Horizontal Position	'U02'	55H	30H	32H
Vertical Position	'U03'	55H	30H	33H
Phase	'U04'	55H	30H	34H
Tracking	'U05'	55H	30H	35H
Contrast	'U06'	55H	30H	36H
Brightness	'U07'	55H	30H	37H
Sharpness	'U08'	55H	30H	38H
Color	'U09'	55H	30H	39H
Tint	'U0A'	55H	30H	41H
Color Temperature	'U0B'	55H	30H	42H
R-Gain	'U0C'	55H	30H	43H
G-Gain	'U0D'	55H	30H	44H
B-Gain	'U0E'	55H	30H	45H
Power	'U0F'	55H	30H	46H
Menu Auto Off	'U10'	55H	31H	30H
Line Display	'U11'	55H	31H	31H
Sleep Time	'U12'	55H	31H	32H
Right/Left Reverse	'U17'	55H	31H	37H
Top/Bottom Invert	'U18'	55H	31H	38H
Decoder	'U19'	55H	31H	39H
Input Select	'U1A'	55H	31H	41H
Transfer Rate	'U1B'	55H	31H	42H
Lamp Time	'U1C'	55H	31H	43H
ID	'U1D'	55H	31H	44H

Volume	'U20'	55H	32H	30H
Quick Alignment	'U2A'	55H	32H	41H
Text Mode	'U2C'	55H	32H	43H
Resize	'U2D'	55H	32H	44H
Aspect Change	'U2E'	55H	32H	45H
Horizontal Frequency Query	'U3C'	55H	33H	43H
Vertical Frequency Query	'U3D'	55H	33H	44H
Horizontal Resolution Query	'U3E'	55H	33H	45H
Vertical Resolution Query	'U3F'	55H	33H	46H
Keystone	'U40'	55H	34H	30H
Operation Mode Query	'Z03'	5AH	30H	33H
Source Query	'Z05'	5AH	30H	35H
Model Status	'Z0A'	5AH	30H	41H
Switcher Selection	'W00'	57H	30H	30H

13. 2 RS-232C Port Pin Configuration

RS-232C Control Port			
D－SUB 9-pin (Male)	Pin No.	Signal	Definition
	1	N／A	Not used
	2	RxD(RD)	Receive data
	3	TxD(SD)	Transmit data
	4	N／A	Not used
	5	GND	GND
	6	N／A	Not used
	7	N／A	Not used
	8	N／A	Not used
	9	N／A	Not used