Ethernet Communication Specifications

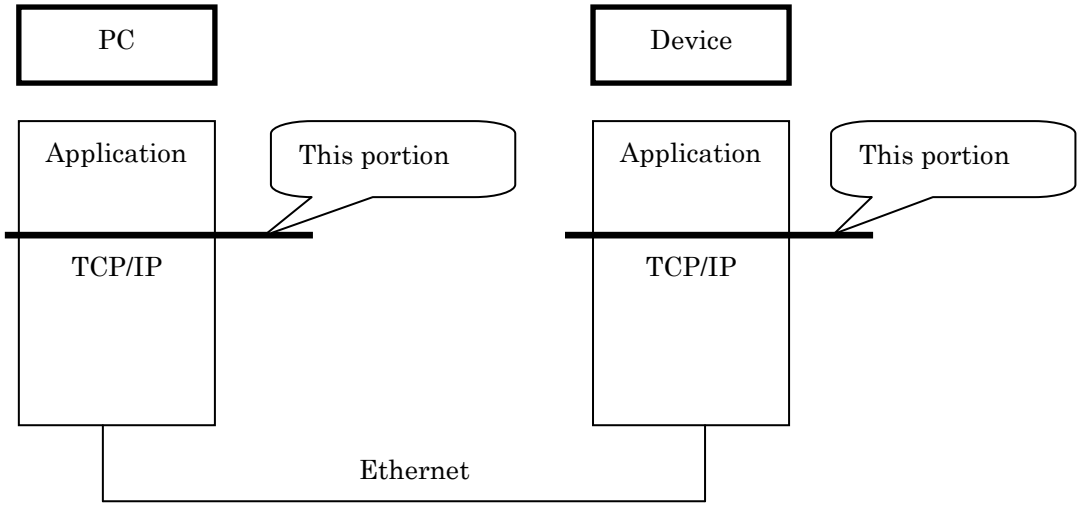
LJ-G5000 Series

History

Dec 20,2007	First edition
June 3,2013	edit2: how to get profile of Head B

Overview

This specifications provide the interface between a PC and our device(hereafter called “device”) and the interface between the communication driver of a device and an application when the PC and device are connected by Ethernet.



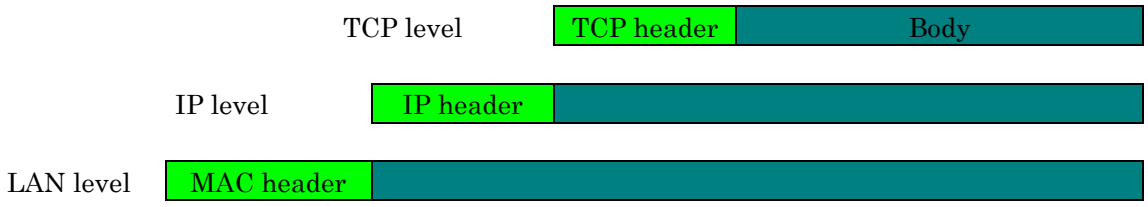
Description of Specifications

- Definition of terms

Controller	LJ-G5000 main body
Command	Communication between PC and controller
Responce	Communication between controller and PC

- Communication method

Ethernet communication is implemented by TCP/IPprotocol.
The TCP/IP port number is 24683.



- Connectio

The PC stores the contents of a command format in a TCP body and transmits the body to the controller. The controller waits reception till reception of data by the length included in the command format is completed.

- Command

The PC stores the contents of a command format in a TCP body and transmits the body to the controller.
The controller waits reception till reception of data by the length included in the command format is completed.
The PC side does not specially need to split and transmit data, etc.

- Response

The controller stores the contents of the command format in the TCP body and returns the body to the PC.
The PC side receives data by the length included in the command format and analyzes the response.

◆ Timeout

Transmission timeout between controller and PC : 100 ms

(If data cannot be transmitted even by 1 byte within the above period, a timeout error occurs to disconnect the TCP connection.)

Reception timeout between PC and controller : 10 min

(If data cannot be received by even 1 byte within the above period, a timeout error occurs to disconnect the TCP connection.)

*If a command is not transmitted for 10 minutes or longer after a TCP connection is established once, the TCP connection is automatically disconnected.
This is specifications for connection recovery when an error such as "The connected application has frozen." occurs.

◆ Command format

The first two bytes of a command format indicate the data length.

1	2	3	4	5	6	7	8
98H	0CH						

0C98H □ 3224 bytes

Note: 3224 bytes include the first two bytes indicating the data length.

Command Format

・Profile data output

Command

1	2	3	4	5	6	7	8
08H	00H	07H	1EH	①	00H	00H	00H

① 00H：head A profile、01H：head B profile
03H：Calculation profile（wide／A+B／A-B）

Response

1	2	3	4	5	6	7	8
98H	0CH	07H	1FH	①	00H	00H	00H

9	10	11	12	13	14	15	16
②	00H	00H	00H	⑥		00H	00H

17	18	19	20	21	22	23	24
③				④			

25	26	27	28	29	30	31	32
⑤Profile data1				⑤Profile data 2			

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・
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3217	3218	3219	3220	3221	3222	3223	3224
⑤Profile data 799				⑤Profile data 800			

① Error Code (Communication)
② Error Code
③ X pitch（0.1um・32-bit signed・Little-endian）
④ First X coordinate（0.1um・32-bit signed・Little-endian）
⑤ Profile data（0.1um・32-bit signed・Little-endian）
max 1600 profiles is returned when “wide” is set.
※Data that is specified by ⑥ is retured.
⑥ the number of profile retured.（unsigned 16bit・little endian）

・Measured value output

Command

1	2	3	4	5	6	7	8
08H	00H	07H	1AH	③	00H	00H	00H

③ OUT number specification
From LSB OUT1～OUT8 Output bit: 1
ex) OUT2・3 06H

Response

1	2	3	4	5	6	7	8
⑤	00H	07H	1BH	①	00H	00H	00H

9	10	11	12	13	14	15	16
②	00H	00H	00H	⑨	⑨	③	⑨

17	18	19	20
⑨	⑨	⑨	⑨

21	22	23	24	25	26	27	28
④				⑨	⑨	⑨	⑨

This example is that OUT number is one. If OUT number is increased, eight data of 21-28 is repeated.

① Error Code (communication)
② Error Code (communication)
③ OUT number
④ Measured value（0.1um・signed 32bit・Little-endian）
0x80000000：Evaluation standby, 0x7FFFFFFF：Alarm
⑤ Data length 20+OUT number x 8
⑨ reserved area

・Move to Communication Mode

Command

1	2	3	4
04H	00H	07H	06H

Response

1	2	3	4	5	6	7	8
0CH	00H	07H	07H	①	00H	00H	00H

9	10	11	12
②	00H	00H	00H

① Error Code (communication)

② Error Code 00H OK
01H NG

・Move to Measurement Mode

Command

1	2	3	4	5	6	7	8
08H	00H	07H	04H	①	00H	00H	00H

① 00H The setting is saved in the FLASH memory
Except 00H The setting is not saved in the FLASH memory

Response

1	2	3	4	5	6	7	8
08H	00H	07H	05H	①	00H	00H	00H

① Error Code (communication)

・IP address setting read

Command

1	2	3	4
04H	00H	07H	A0H

Response

1	2	3	4	5	6	7	8
10H	00H	07H	A1H	①	00H	00H	00H

9	10	11	12	13	14	15	16
②	③	④	⑤	6BH	60H	00H	00H

① : Error Code (communication)
② ③④⑤ : IP address
ex) If IP address is 10.11.12.13,
②＝0AH、③＝0BH、④＝0CH、⑤＝0DH