



LAN Multiplexer 4:1
LNX-204/LNX-204e
User's Manual
Ver. 1.4

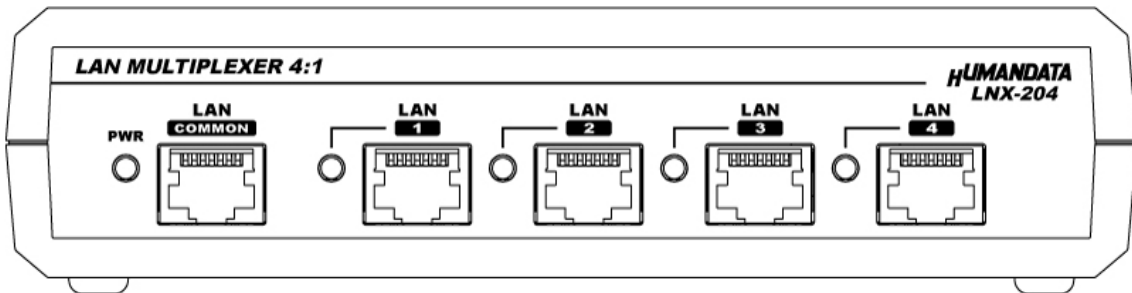




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● **Precautions**

| | | |
|--|---|---|
|  <p>Do Not</p> | 1 | This product uses ordinary off-the-shelf electronic components, and is therefore inappropriate for use in applications that require special quality or reliability and are expected to protect human lives or prevent accidents, such as safety mechanisms in fields including space, aeronautics, medicine, and nuclear power. |
| | 2 | Do not be used underwater or in high-humidity environments. |
| | 3 | Do not be used in the presence of corrosive gases, combustible gases, or other flammable gases. |
| | 4 | Do not turn on power when circuit board surface is in contact with other metal. |
| | 5 | Do not apply voltage higher than rated voltage. |

| | | |
|---|----|--|
|  <p>Attention</p> | 6 | This manual may be revised in the future without notice owing to improvements. |
| | 7 | All efforts have been made to produce the best manual possible, but if users notice an error or other problem, we ask that they notify us. |
| | 8 | Item 7 notwithstanding, HuMANDATA cannot be held liable for the consequences arising from use of this product. |
| | 9 | HuMANDATA cannot be held liable for consequences arising from using this product in a way different from the uses described herein, or from uses not shown herein. |
| | 10 | This manual, circuit diagrams, sample circuits, and other content may not be copied, reproduced, or distributed without permission. |
| | 11 | If the product emits smoke, catches fire, or becomes unusually hot, cut the power immediately. |
| | 12 | Do not install the control cables or communication cables together with the main circuit lines or power cables. In such an environment, it may result in malfunction due to noise. |
| | 13 | Be careful of static electricity. |

● Revision History

| Date | Revision | Description |
|---------------|----------|---|
| Dec. 26, 2018 | v1.0 | Initial release |
| Jul. 9, 2019 | v1.1 | Replaced the order of section 7 and 8 |
| Sep. 5, 2019 | v1.2 | Added P, E, and D command Added password setting |
| Mar. 9, 2021 | v1.3 | Added Additional notes to 4. Specifications |
| Nov. 7, 2024 | v1.4 | Add: LNX-204e (Economy type) is released |

● Introduction

Thank you very much for purchasing our product.

LNX-204/LNX-204e is a LAN multiplexer to switch 4 channel LAN port. It can change the port physically by three ways: send simple command from PC via LAN, input control signal from an external contact point or change switches of the product body.

1. Product Configuration

The following lists the product configuration of the LNX-204.

| | |
|--|---|
| LAN multiplexer (LNX-204) | 1 |
| microSD card with USB adapter | 1 |
| D-Sub 9pin M2.6 screw (#4-40 UNC is mounted) | 2 |
| AC adapter (DC5V) | 1 |
| Driver & Application CD | 1 |

The following lists the product configuration of the LNX-204e.

| | |
|--|---|
| LAN multiplexer - Economy type- (LNX-204e) | 1 |
| microSD card with USB adapter | 1 |
| AC adapter (DC5V) | 1 |
| Driver & Application CD | 1 |

2. Product Summary

LNX-204/LNX-204e is a LAN multiplexer to switch 4 channel LAN port. The function of switching PoE ON/OFF is not supported. All 8-wires are switched physically by the following three ways: send simple command from PC via LAN, input control signal from an external contact point or change switches on the product itself.

A multiplexer IC specialized for LAN is used in the switching circuit. This is very useful to switch external network to internal network, and to connect with the network only when required. It can promote labor-saving for inspection process and auto-inspection system of LAN devices.

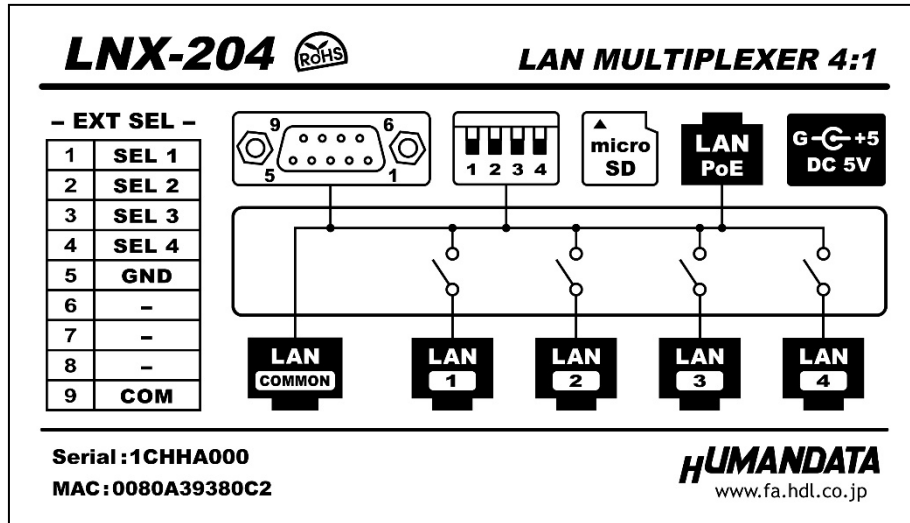
LNX-204 supports PoE. That makes it possible to be powered via a LAN cable (PoE compatible HUB or other is required). It can also be powered by the AC adapter. Network setting can be saved to and restored from a microSD card. Restoring the setting information from a microSD card is very convenient when replacing LNX-204.

LNX-204e is an economy edition of LNX-204 that removes PoE function and an external contact connector.

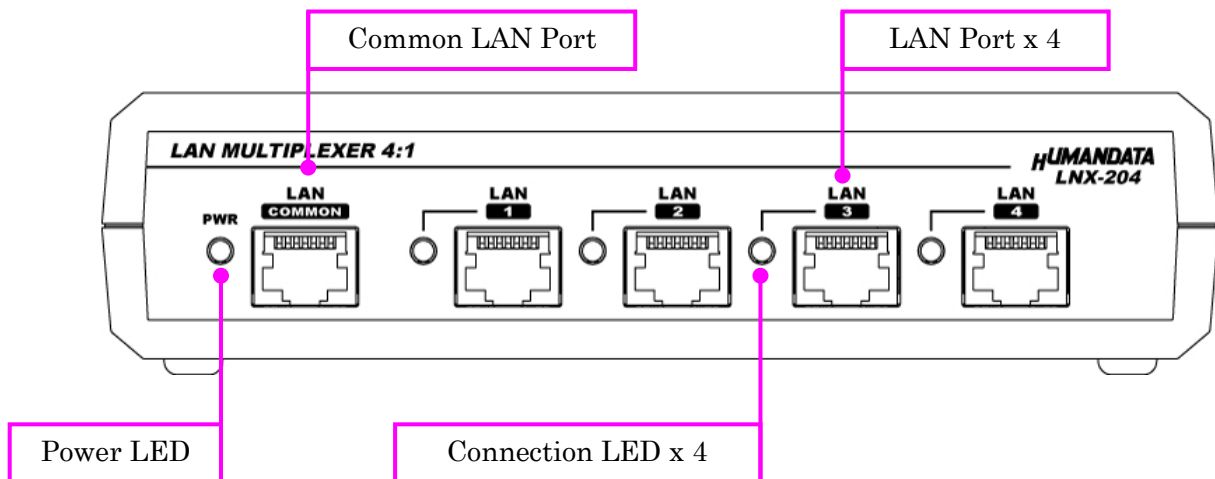
3. Overview

3.1. LNX-204

3.1.1. Block Diagram



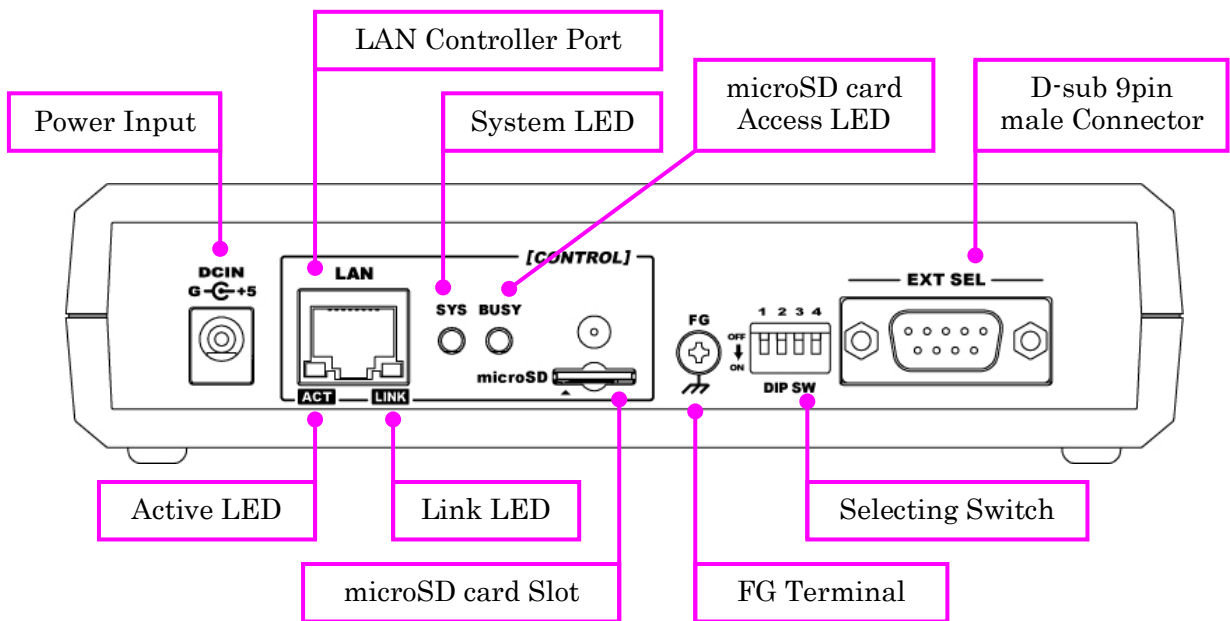
3.1.2. Front Side



LEDs

| | Name (color) | Function |
|--------|----------------------|---|
| PWR | Power LED (red) | Turn on during the power is supplied. |
| LAN1-4 | Connection LED (red) | Turn on during connecting with common LAN Port. |

3.1.3. Rear Side

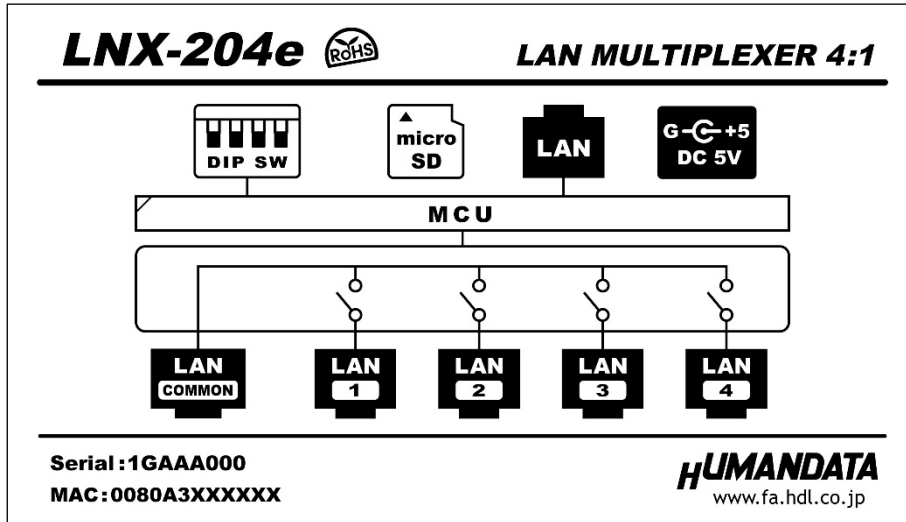


LEDs

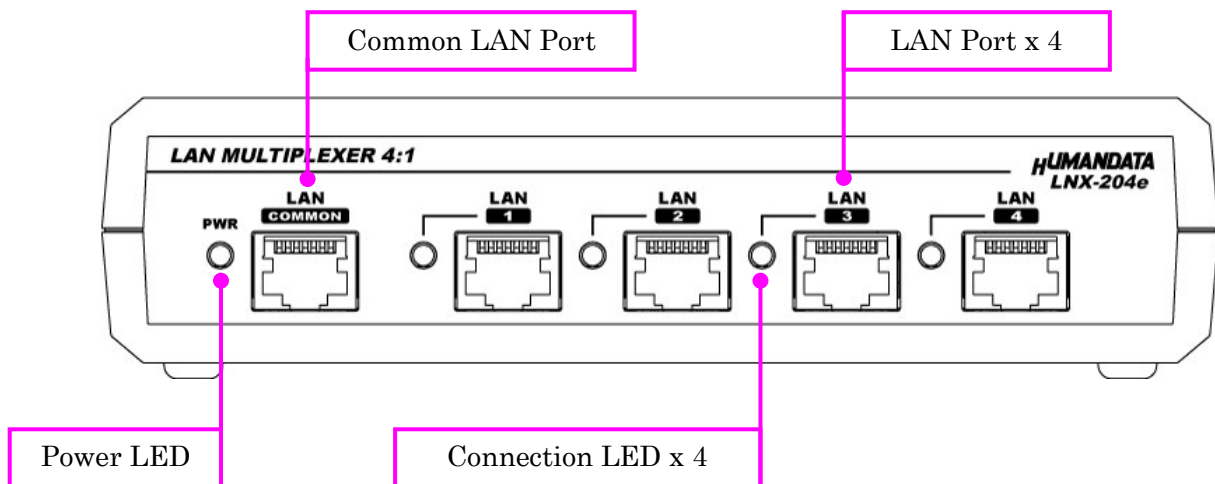
| | Name (color) | Function |
|------|-------------------------------|---|
| ACT | Active LED (green) | Turn on during network port communication. |
| LINK | Link LED (yellow) | Turn on when the power is supplied and LAN cable is connected normally. |
| SYS | System LED (red) | Blink few seconds during reading process. Turn on when system is ready. |
| BUSY | microSD card access LED (red) | Turn on during accessing microSD card. When it turned off, you can extract the card. |

3.2. LNX-204e

3.2.1. Block Diagram



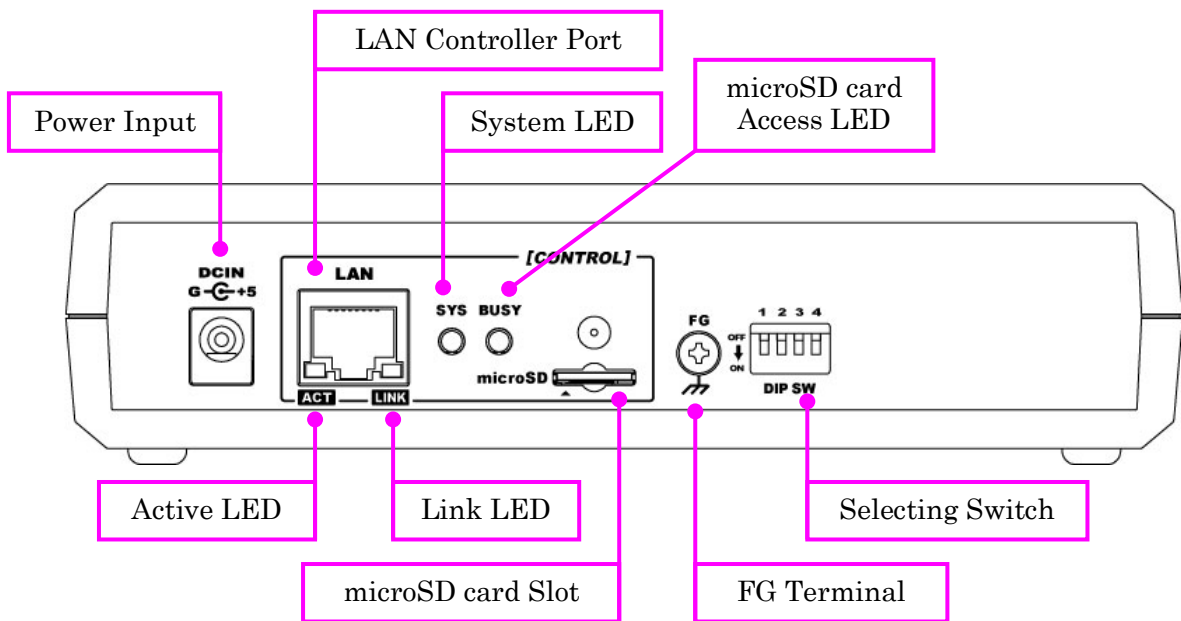
3.2.2. Front Side



LEDs

| | Name (color) | Function |
|--------|----------------------|---|
| PWR | Power LED (red) | Turn on during the power is supplied. |
| LAN1-4 | Connection LED (red) | Turn on during connecting with common LAN Port. |

3.2.3. Rear Side



LEDs

| | Name (color) | Function |
|------|-------------------------------|---|
| ACT | Active LED (green) | Turn on during network port communication. |
| LINK | Link LED (yellow) | Turn on when the power is supplied and LAN cable is connected normally. |
| SYS | System LED (red) | Blink few seconds during reading process. Turn on when system is ready. |
| BUSY | microSD card access LED (red) | Turn on during accessing microSD card. When it turned off, you can extract the card. |

4. Specifications

| Item | Description | | Remarks |
|-------------------------|---|------------------------------|---|
| Model | LNX-204 | LNX-204e | |
| Power | 5VDC, Supplied by AC adapter or LAN connector (PoE function) | 5VDC, Supplied by AC adapter | PoE function supports both mode A and B |
| RS-232C Connector | D-Sub 9pin Male (#4-40 UNC screws are mounted) | None | M2.6 screws are also attached for accessory |
| Current Consumption | Less than 300mA | | |
| Network Interface | IEEE802.3 (10Base-T) IEEE802.3u (100Base-TX) half-duplex / full-duplex (auto detected) | | |
| Common/Selecting Port | 10/100/1000 Base-T *1 | | |
| LAN Connector | RJ45 x 6 | | ESD protection ±11KV |
| Protocol | TCP / UDP / Telnet | | |
| Setting Memory Card | microSD card | | For configuration |
| LED | Power LED, Connection LED x 4 System LED, microSD card access LED LINK Status LED (RJ45 Connector) ACT Status LED (RJ45 Connector) | | |
| Operating Ambient Temp. | -20 to 60 [°C] (-4 to 140 [°F]) | | No condensation permitted |
| Operating Ambient Hum. | 10 to 85 %RH | | |
| Storage Ambient Temp. | -20 to 60 [°C] (-4 to 140 [°F]) | | |
| Storage Ambient Hum. | 10 to 85 % RH | | |
| Weight | Approx. 250 [g] | | Only main body |
| Dimensions | 165 x 80.5 x 39 [mm] (6.496" x 3.169" x 1.535") | | Without projections |

*1 The operation of this product is confirmed with 10/100/100 BASE-T. But the product is inserted between LAN cables, speed reduction can be occurred. The communication speed is not guaranteed. When the LAN cable is long, using giga bit corresponding switching hub may improve the speed reduction.

* There may be cases that these parts and specifications are changed.

* Power saving function (suspend, standby, sleep and others) is not supported

* Please use the microSD card that is included in the package.





4.1. AC adapter (Japan's specifications)

| Item | Description | Remarks |
|-------------------------|---|---------------------------|
| Input | AC100 to 240V, 50/60Hz 0.3A | |
| Output | 5VDC 2.0A | |
| Plug | 2.1mm inner diameter | Positive Tip |
| Compatible DC Jack | 2.1mm inner diameter | |
| Operating Ambient Temp. | 0 to 40 [°C] (32 to 104 [°F]) | No condensation permitted |
| Operating Ambient Hum. | 30 to 85 % RH | |
| Storage Ambient Temp. | -20 to 80 [°C] (-4 to 176 [°F]) | |
| Storage Ambient Hum. | 10 to 95 % RH | |
| Wire Length | 1.6m | |
| Weight | approx. 70 [g] | |
| Dimensions | 46 x 34 x 25 [mm] 1.811" x 1.339" x 0.984" | Without projections |

* This AC adapter is attached for use mainly in Japan. If you use in the other countries, please check the specifications above and plug shape.

* There may be cases that this part and specifications are changed.

4.2. Optional Accessories

| Model Name | Image | Description |
|------------|---|---|
| ACC-027 |  | Attachment for vertical direction JAN: 4937920801096 |
| ACC-028 |  | Attachment for horizontal direction JAN: 4937920801102 |
| ACC-031 |  | Attachment for DIN rail type B JAN: 4937920801256 |
| ACC-036 |  | Neodymium magnet set JAN: 4937920801539 |

4.3. Power Supply

LNX-204 supports PoE function both A and B type as standard which make it possible to be powered via a LAN cable (PoE compatible HUB is required). It also can be powered by the AC adapter.

LNX-204e is an economy edition of LNX-204 that removes only PoE function.

Power for LNX-204e is supplied from AC adapter.

4.4. FG Terminal

Please connect FG terminal with earth ground as necessary.



4.5. Selecting Switch

You can change 4 LAN ports manually by setting selecting switch. When power on, the setting is recognized as the default port setting.

If sending changing port command after setting this switch, the command is prior.

External contact point is also prior to this switch.

When you need to disable the selecting switch, set all the switches to ON.

| Select No Port | Select LAN1 Port | Select LAN2 Port | Select LAN3 Port | Select LAN4 Port |
|--|--|--|--|--|
| <p>1 2 3 4</p> <p>OFF ↓ ON</p> <p>Factory Setting</p> | <p>1 2 3 4</p> <p>OFF ↓ ON</p> | <p>1 2 3 4</p> <p>OFF ↓ ON</p> | <p>1 2 3 4</p> <p>OFF ↓ ON</p> | <p>1 2 3 4</p> <p>OFF ↓ ON</p> |

5. External Contact Connector

D-sub 9 pin connector is mounted as external contact. When SEL1-4 is shorted with GND, the LAN port is switched.

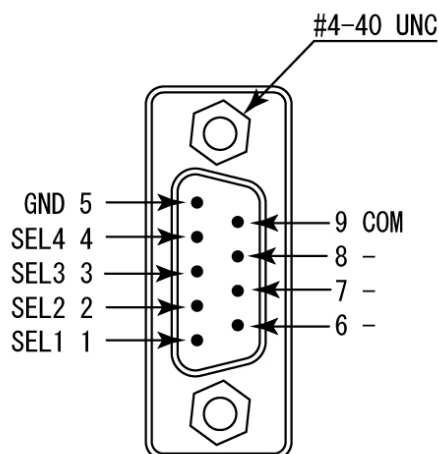
* LNX-204e doesn't have an external contact connector.

e.g. Short SEL3 (pin no. 3) with GND (pin no.5): Common LAN port and LAN3 port is connected.

Notice

To prevent the damage, for SEL 1 to 4 please use no-voltage contact (dry contact) like relay contact or switches.

| Pin No | Name | Direction | Remarks |
|-------------|-------|-----------|--------------------------|
| 1 | SEL 1 | IN | Select LAN1 |
| 2 | SEL 2 | IN | Select LAN2 |
| 3 | SEL 3 | IN | Select LAN3 |
| 4 | SEL 4 | IN | Select LAN4 |
| 5 | GND | - | GND |
| 6 | NC | - | - |
| 7 | NC | - | - |
| 8 | NC | - | - |
| 9 | (COM) | - | Power Input (option) |
| CASE | FG | - | Connect with FG Terminal |



D-Sub 9pin Male

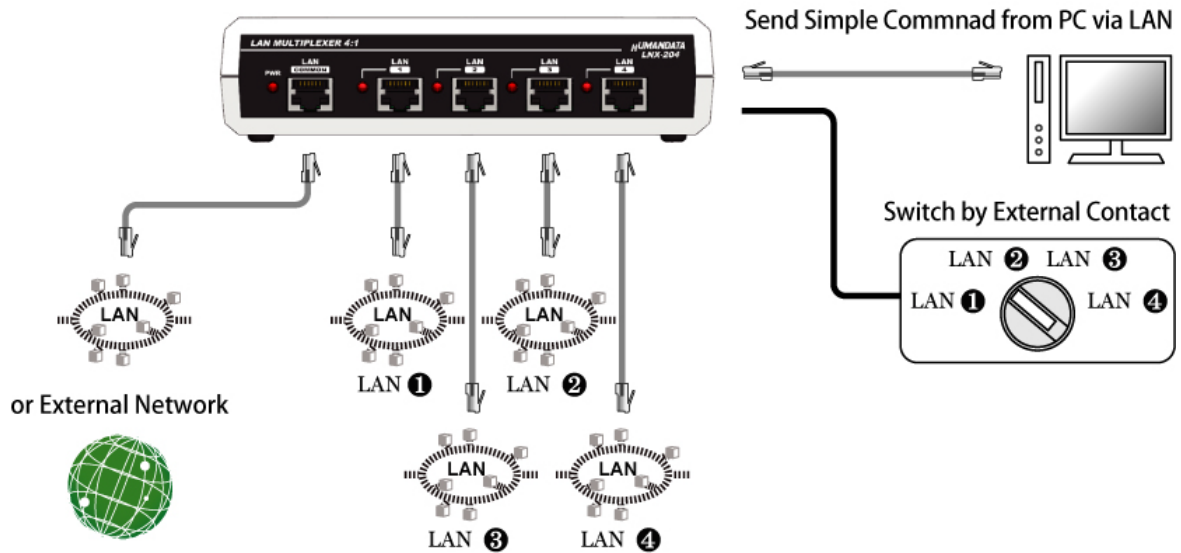
* #4-40 UNC screws are mounted by factory setting. You can change them to attached M2.6 screws.

* COM (pin No.9) is an option for DC 5V to 24V power input.

If you need to change LAN port directly from open collector or transistor, please contact us.

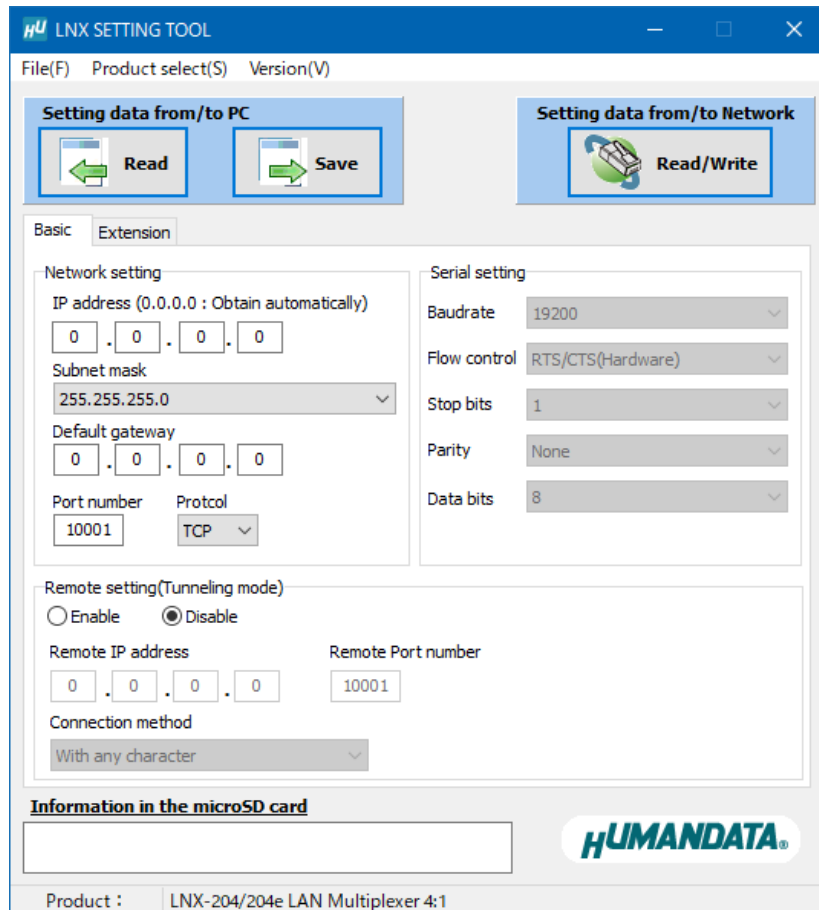
6. Connection examples

Change common port LAN or external network to LAN1-4.



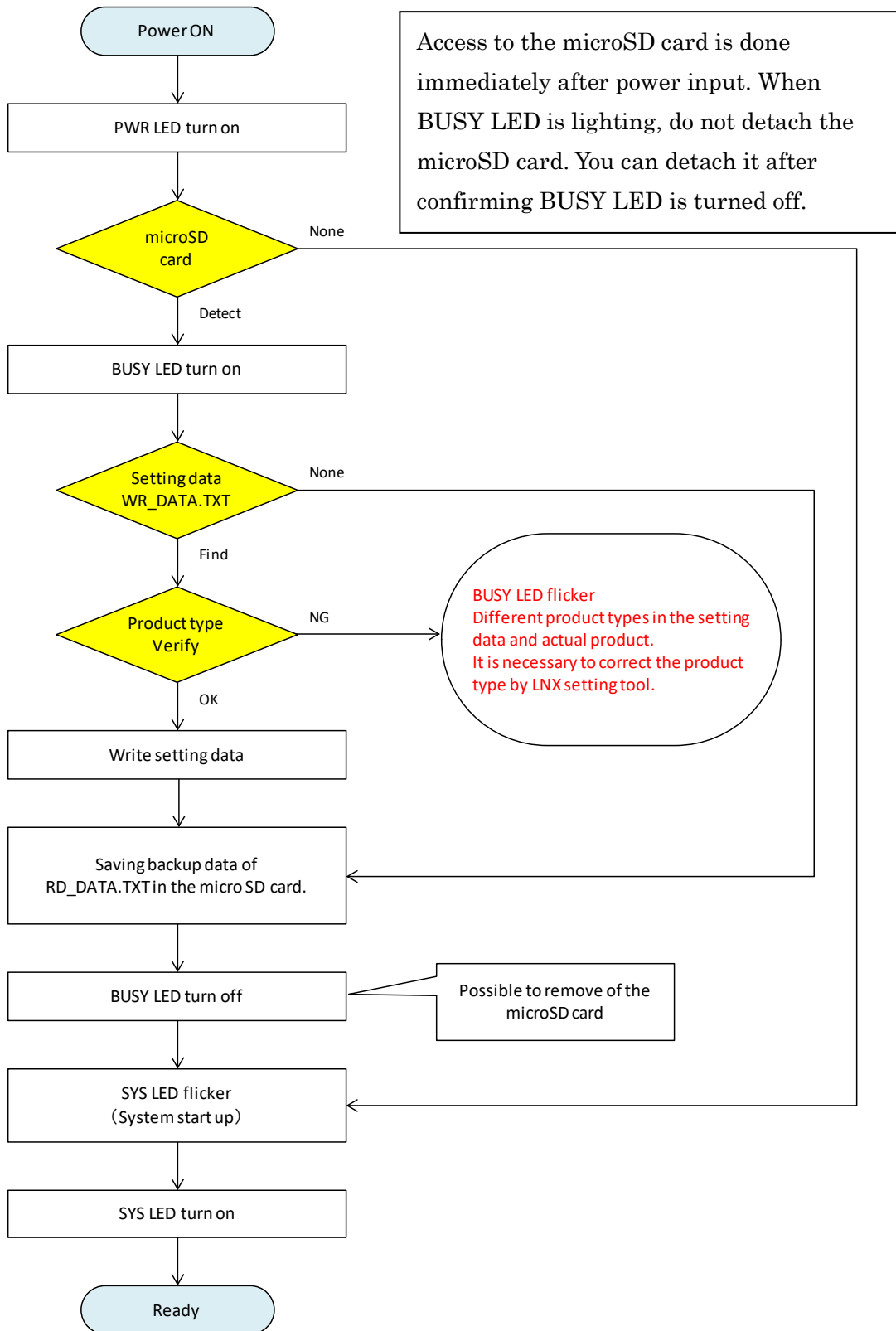
7. Setting Tool

Setting tool supports to save and read network setting by a microSD card. This tool does not require installation.



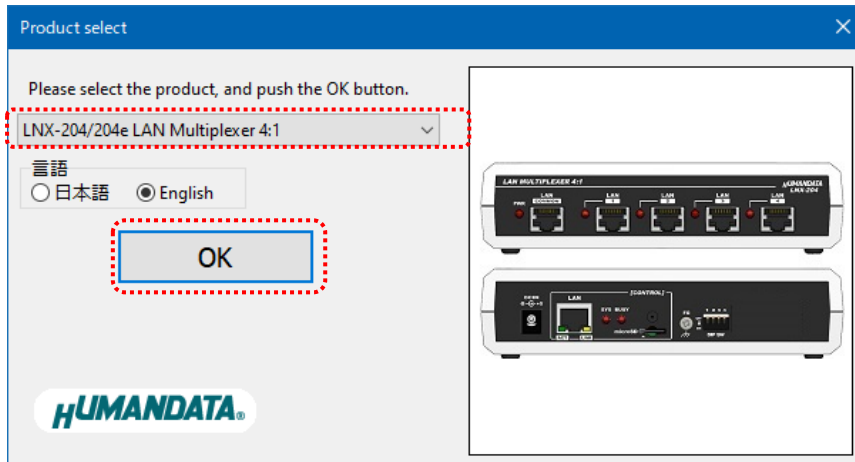
This is a screenshot from version 3.5

7.1. Access Flow of microSD card

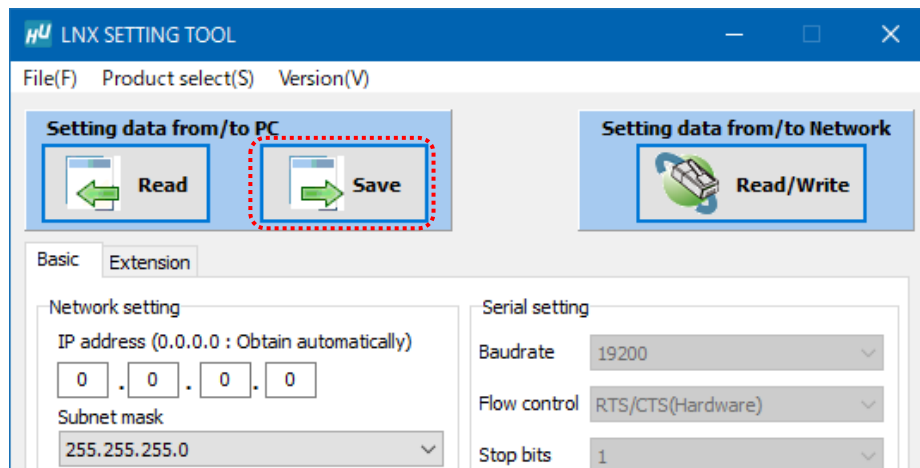


7.2. Write Setting Data

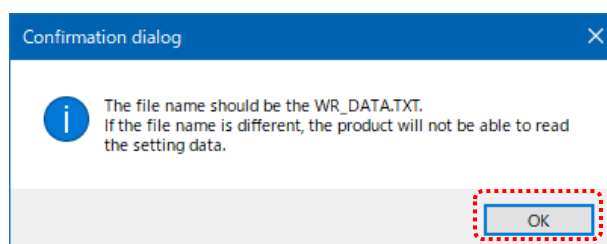
1. Open Setting Tool for LNX series (LNX SETTING TOOL Ver*.*).
2. Select “LNX-204/204e LAN Multiplexer 4:1”, and click “OK”.



3. Enter the setting such as network or serial.
4. Insert a microSD card to PC (A USB adapter is included with the product)
5. Click “Saving data”.



6. Click “OK” in the confirmation dialog.



7. Specify the microSD card as saving destination. Please do not change the file name from “WR_DATA.TXT”.
8. Remove the microSD card from PC and insert it to the product. Please confirm that the product power is turned off.
9. When the product is powered on, the setting data is configured to the product automatically. After the data is stored in the product, microSD card is not needed any more. The start-up time can be shortened if the microSD card is removed from the product.

Please be careful not to detach the microSD card before BUSY LED is turned off.

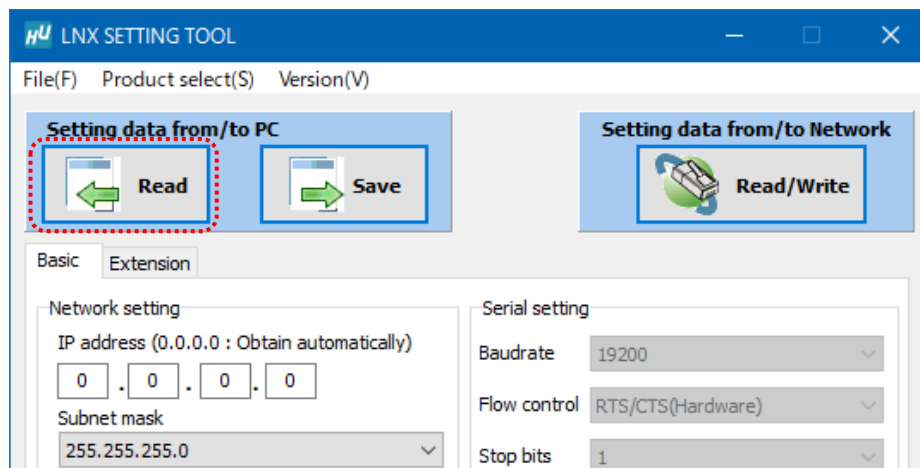
7.3. Read Setting Data

1. After confirming the power is off, insert the microSD card to the product.
2. When the product is powered on, the setting data will be reserved to the microSD card automatically. The data file name is “RD_DATA.TXT”.

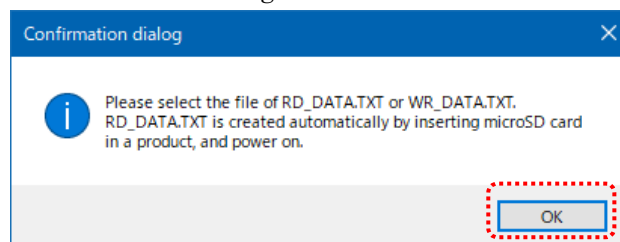
Please be careful not to detach the microSD card before BUSY LED is turned off.

* If there is the same file name in the microSD card, the data will be overwritten.

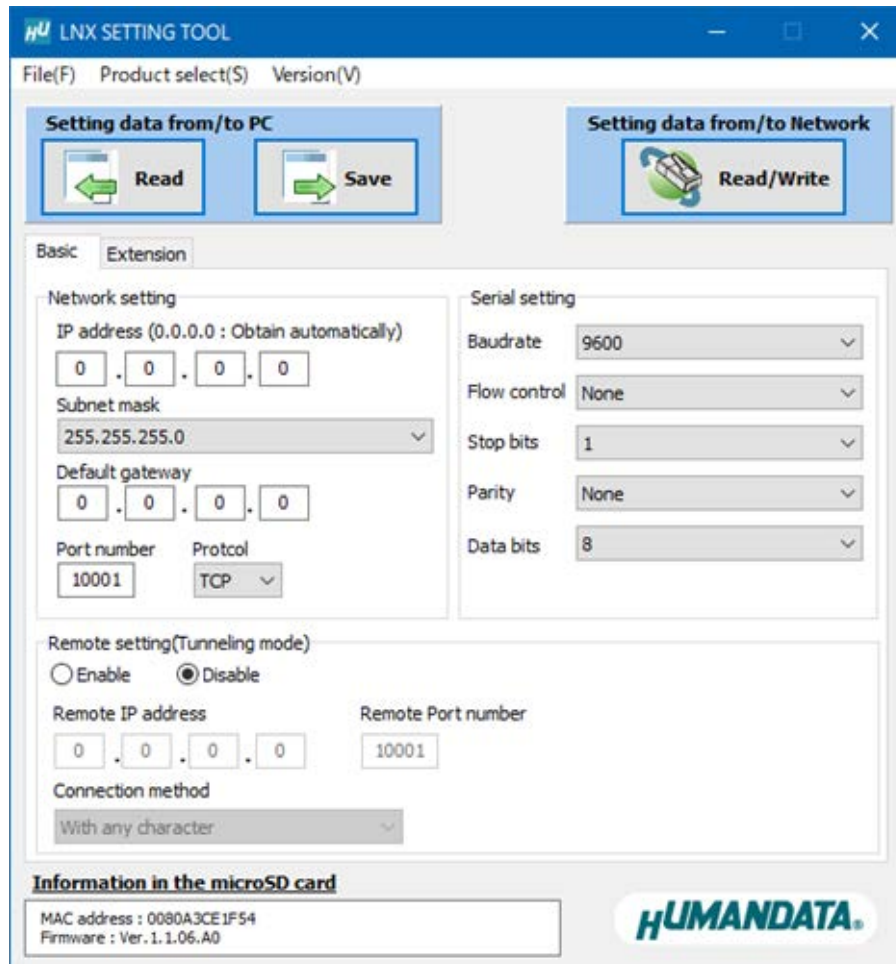
3. Insert a microSD card to PC (A USB adapter is included with the product)
4. Start the setting tool and click “Reading data”.



5. Click “OK” in the confirmation dialog.

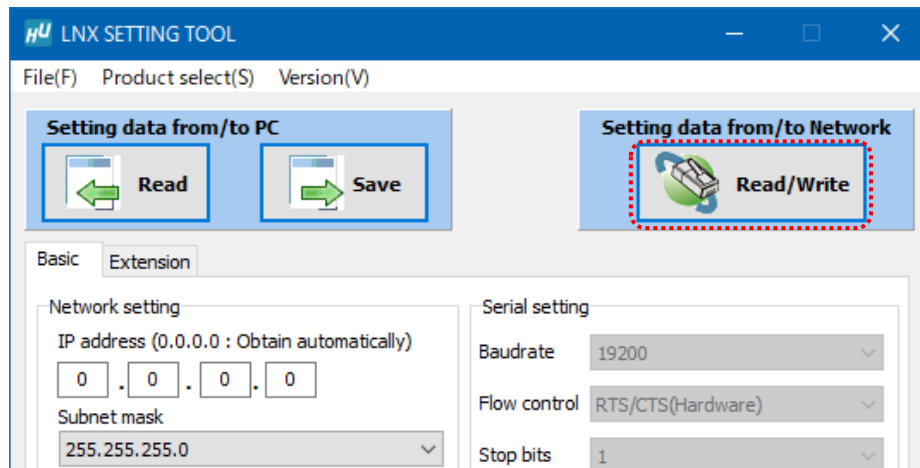


6. Open the “RD_DATA.TXT” in the microSD card.
7. Setting data is loaded.

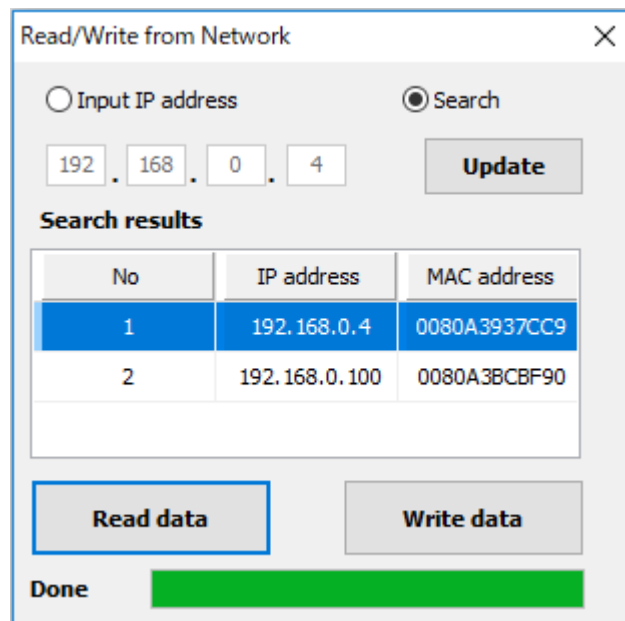


7.4. Write or Read setting data over the network

1. Enter the setting such as network or serial and click “Network”.
 - * Please confirm that microSD card is not inserted in a product.



2. Enter an IP address manually or click “Search”. When some products are found, please select a number from a list.



3. Click “Read data” or “Write data”
 - * Even if some devices will be listed in the list and occur process time out. In this case, please change the PCs’ network setting to the same network segment as the product or using microSD card.

8. Controller Command

You can control with simple single character command shown in the following table by using terminal software and keyboard. Each controller command is an ASCII text. The command is case sensitive.

| | Command | Function | Format |
|----|---------|-----------------------------------|-----------------------|
| 1 | '1' | Select LAN port 1 | 1<CR> |
| 2 | '2' | Select LAN port 2 | 2<CR> |
| 3 | '3' | Select LAN port 3 | 3<CR> |
| 4 | '4' | Select LAN port 4 | 4<CR> |
| 5 | '0' | Select no LAN port | 0<CR> |
| 6 | 'C' | Get active LAN port | C<CR> |
| 7 | 'V' | Get product version | V<CR> |
| 8 | 'P' | Set a password for port selection | P,{PRAM1},{PRAM2}<CR> |
| 9 | 'E' | Enable port selection | E,{PRAM}<CR> |
| 10 | 'D' | Disable port selection | D<CR> |

* P,E, and D command supported in product version 1.2 or later.

1. '1': Select LAN port 1

| | | |
|-----------------|-----------------|--|
| Format | | 1,<CR> |
| Function | | LAN port 1 is selected. |
| e.g. | Send | 1,<CR> |
| | Response | 1,1<CR> *When selection of LAN port 1 is completed. Password required<CR> *When port selection is disabled. |

2. '2': Select LAN port 2

| | | |
|-----------------|-----------------|--|
| Format | | 2,<CR> |
| Function | | LAN port 2 is selected. |
| e.g. | Send | 2,<CR> |
| | Response | 2,2<CR> *When selection of LAN port 2 is completed. Password required<CR> *When port selection is disabled. |

3. '3': Select LAN port 3

| | | |
|-----------------|-----------------|--|
| Format | | 3,<CR> |
| Function | | LAN port 3 is selected. |
| e.g. | Send | 3,<CR> |
| | Response | 3,3<CR> *When selection of LAN port 3 is completed. Password required<CR> *When port selection is disabled. |

4. '4': Select LAN port 4

| | | |
|-----------------|-----------------|--|
| Format | | 4,<CR> |
| Function | | LAN port 4 is selected. |
| e.g. | Send | 4,<CR> |
| | Response | 4,4<CR> *When selection of LAN port 4 is completed. Password required<CR> *When port selection is disabled. |

5. '0': Select no LAN port

| | | |
|-----------------|-----------------|---|
| Format | | 0,<CR> |
| Function | | LAN port is not selected. |
| e.g. | Send | 0,<CR> |
| | Response | 0,0<CR> *When no selection of LAN port is completed. Password required<CR> *When port selection is disabled. |

6. 'C': Get active LAN port

| | | |
|-----------------|-----------------|---------------------------------------|
| Format | | C,<CR> |
| Function | | Get the active LAN port. |
| e.g. | Send | C,<CR> |
| | Response | C,1<CR> *When LAN port 1 is selected. |

7. 'V': Get product version

| | | |
|-----------------|-----------------|---|
| Format | | 0,<CR> |
| Function | | Get the product version. |
| e.g. | Send | V,<CR> |
| | Response | LNX-204 Ver.1.2<CR> *When version is 1.2. |

8. 'P' : Set a password for port selection

| | | |
|------------------|-----------------|--|
| Format | | P,{PRAM1},{PRAM2}<CR> |
| Function | | Set a password for port selection. The default password is set to "0000". After setting a password other than "0000", enable the port selection with the E command to enable the 0 to 4 command. |
| Parameter | | PRAM1 : Enter the old password. half-width characters (up to 4 characters) PRAM2 : Enter the new password. half-width characters (up to 4 characters) |
| e.g. | Send | P,0000,1234<CR> *When changing the password from 0000 to 1234. |
| | Response | Password setting completed<CR> |
| | | * When password change is completed |
| | | Password do not match<CR> *When password do not match. |

9. 'E' : Enable port selection

| | | |
|------------------|-----------------|---|
| Format | | E,{PRAM}<CR> |
| Function | | Port selection is enabled. The default password is set to "0000". After setting a password other than "0000", E command is enabled. |
| Parameter | | PRAM : Enter the password. half-width characters (up to 4 characters) |
| e.g. | Send | E,1234<CR> *When a password is set to "1234". |
| | Response | Enable LAN port control<CR> *When port selection is enabled. |
| | | Password do not match<CR> *When password do not match. |

10. 'D' : Disable port selection

| | | |
|-----------------|-----------------|------------------------------|
| Format | | D,<CR> |
| Function | | Port selection is disabled. |
| e.g. | Send | D,<CR> |
| | Response | Disable LAN port control<CR> |

*If the product receives an undefined command, "Undefined command<CR>" will be returned.

* <CR>: Carriage Return (0x0D)

9. Virtual COM Port

You can use the software that creates Virtual COM ports on your PC. You can use the COM port to communicate to an IP address of LNX-204.

Please refer to the "LNX series virtual COM port User's Manual" that are stored on the product supplied CD for details.

10. Additional Documentation and User Support

The following documents and other supports are available at

<https://www.hdl.co.jp/en/faspc/LNX/lrx-204>

- LNX SETTING TOOL
 - Virtual COM Port
 - Outline Drawing
- ... and more.

11. Warranty and Compensation

Please refer to the following URL for the warranty.

<https://www.fa.hdl.co.jp/en/fa-warranty.html>

LAN Multiplexer 4:1

LNX-204/LNX-204e

User's Manual

Ver. 1.4 November 7, 2024

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<https://www.fa.hdl.co.jp/en> (Global)
