

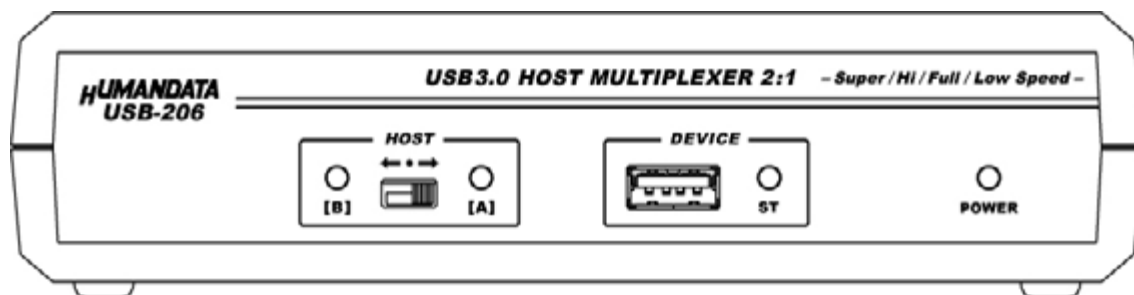
USB 3.0 Host Multiplexer 2:1



USB-206

User's Manual

Ver. 1.0





HUMANDATA LTD.

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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 |
|---------------|----------|-----------------|
| Aug. 29, 2017 | v1.0 | Initial release |

● Introduction

Thank you very much for purchasing our product.

USB-206 is a USB 3.0 SuperSpeed (5Gbps) compliant USB host 2:1 multiplexer.

You can switch 2 USB hosts by controller software. This can promote labor-saving for testing process and auto-testing system of USB devices.

* Please use the attached USB cable when you connect USB-206 to your PC.

1. Specifications

| Item | Description | Remarks |
|------------------------------|--|--|
| Model | USB-206 | |
| Power | 5VDC (Self Power) | Supplied by AC adapter |
| Current Consumption | Approx. 200 mA | when no host is connected |
| Device Supply Power | 500 mA | |
| Trip Current Value | Approx. 550 mA | |
| Support OS (host side) | not limited | |
| Support OS (controller side) | Windows 10/8.1/8/7/Vista/XP | Use CDC driver |
| Control Method | Virtual COM port | baud rate is fixed to 9600bps |
| Host Port | USB 3.0 B Connector x 2 | ESD protection |
| Device Port | USB 3.0 A Connector | ESD protection |
| Controller Port | USB 2.0 B Connector x 2 | ESD protection |
| Switch | Main Power Switch (rear side) Setting Switch (rear side) Host Changeover Switch (front side) | |
| Status LED | Main Power LED Device Status LED Host Status LED x 2 | |
| Operating Ambient Temp. | 0 to 60 °C (32 to 140 °F) | No condensation permitted (excludes AC adapter) |
| Operating Ambient Humi. | 30 to 85%RH | |
| Storage Ambient Temp. | 0 to 60 °C (32 to 140 °F) | |
| Storage Ambient Humi. | 30 to 85%RH | |
| Weight | Approx. 280 [g] | Only main body |
| Dimensions | 165 x 80.5 x 39 [mm] (6.496" x 3.169" x 1.535") | Without projections |

* There is a case that these parts to be changed to the parts of the compatibility.

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





1.1. AC adapter (Japan's specifications)

| Item | Description | Remarks |
|-------------------------------|---|---------------------------|
| Output | 5VDC 2.0A | |
| Plug | 2.1mm inner diameter | Positive Tip |
| Compatible DC Jack | 2.1mm inner diameter | |
| Operating Ambient Temperature | 0 to 40 °C | No condensation permitted |
| Operating Ambient Humidity | 30 to 85 % RH | |
| Storage Ambient Temperature | -20 to 80 °C | |
| Storage Ambient Humidity | 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 |

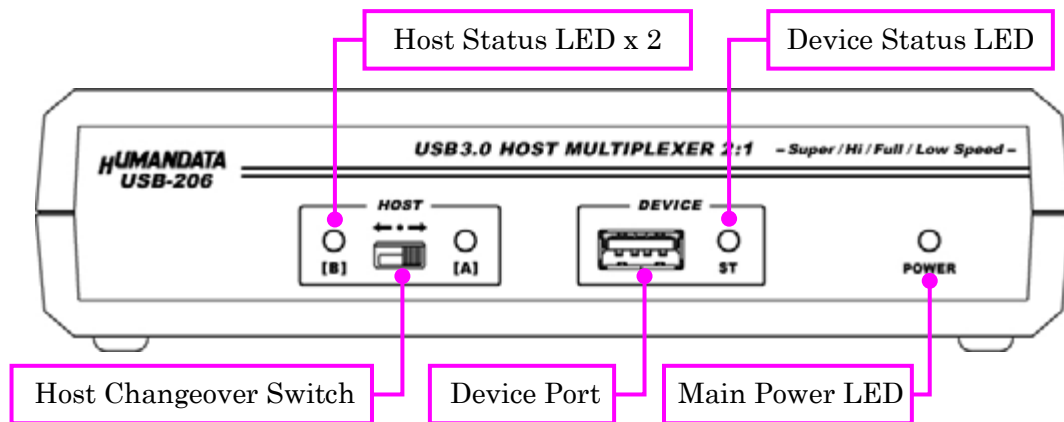
* This AC adapter is attached for use mainly in Japan. If you use in the other countries, please check the specifications above and plug shape.

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

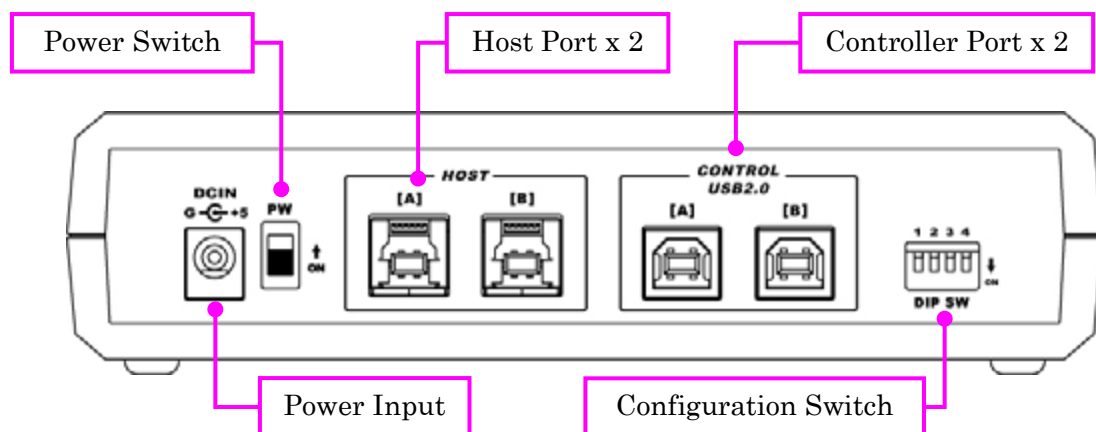
1.2. Optional Accessories

| Model Name | Image | Description |
|------------|---|---|
| ACC-027 |  | Metal bracket type A for vertical mounting USB series JAN : 4937920801096 |
| ACC-028 |  | Metal bracket type A for horizontal mounting USB series JAN : 4937920801102 |
| ACC-031 |  | Din rail attachment type B for USB series JAN : 4937920801256 |
| ACC-036 |  | Neodymium magnet set for USB series JAN : 4937920801539 |

2. Overview



Front Side



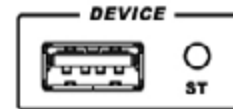
Rear Side

2.1. Main Power

USB-206 is self powered and cannot be powered by USB bus power. Please input power by attached AC adapter, then main power LED will be lighted green.

2.2. Device Power

Device power can be controlled by sending a command from the controller port. You can set it ON when the main power is ON by setting switch. When the power is ON, the LED will be lighted green.



When detecting the over trip current, the power is shut down. At that time, connection to the host PC is canceled and the host status LED is turned to Red. To restore the device power, please use command 'H'.

2.3. Host Changeover Switch

This is a 3 position switch for switching host manually. Center position is a setting for setting no host.



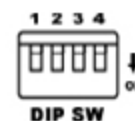
Operation of this switch does not affect controlling the device power.

2.4. Host Status LED

A host status LED lights up green when the host take a connection to the device. When the host holds a device, the light is turned to orange.

2.5. Configuration Switch

You can set a default status when the main power is on. The setting is loaded when the power is turned on or software reset is executed. Changing the setting during operation is ineffective.



| No | Function | Description |
|---------------|------------------------|--|
| 1 | Device Power Setting | OFF : Set the device power to OFF ON : Set the device power to ON |
| 2 | Host Changeover Switch | OFF : Use pin 3/4 Setting of this switch (not load host Changeover Switch setting) ON : Load Host Changeover Switch Setting (ignore pin 3/4 setting of this switch) |
| 3/4 (2bit) | Host Selection | OFF / OFF : No Host ON / OFF : Host A OFF / ON : Host B ON / ON : No Host and disable the Host Changeover Switch |

* Factory Setting : All OFF

Setting Example: (1 / 2 / 3 / 4)

ON / OFF / ON / OFF : Device power will be turned on, and host A will be connected.

ON / OFF / OFF / OFF : Device power will be turned on, but no host will be connected.

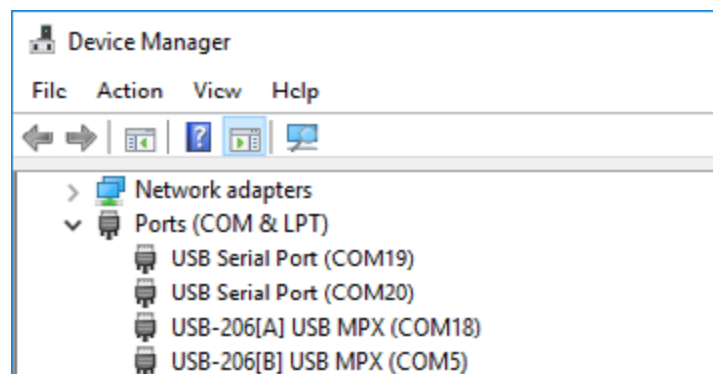
3. Control Operation

3.1. Device Driver

Before connecting USB-206 to your PC, please install a device driver by using our installer. For more details, please go to the USB-206 product web page and refer to the support documentation.

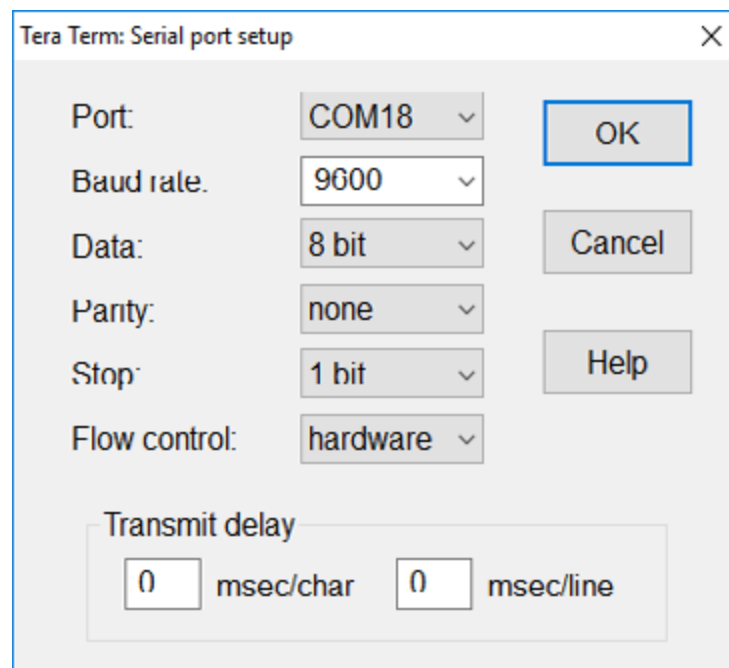
3.2. Recognition and Setting of Controller Port

When the port is recognized correctly, the device manager displays like the following.



Communication setup of COM port must be set to like the following.

When the flow control is not active, receptions of commands may be missed.



3.3. Control Commands

You can control USB-206 with simple single character command shown in the following table by using terminal software and keyboard. Each command is an ASCII text. The command is not case sensitive.

| Command | Function | Description | Response |
|-----------------|---------------------------|--|-------------------------|
| P (Port) | Get Port Number | Get connected port number | 'A' or 'B' |
| S (Status) | Get Status | Get device status | Status |
| G (Get) | Connect Device | Connect device | Status |
| L (Lock) | Occupy Connected Device | Hold connected device The other host cannot connect to the device | Status |
| U (Unlock) | Release Holding Device | Release hold device (Connection is continued) | Status |
| R (Release) | Release Device Connection | Release device connection Power status is not affected | Status |
| T (Transfer) | Switch Device | Switch the device connection to the other host Power status is not affected | Status |
| C (Cold) | Device Power OFF | Power off the device This function is valid when the host is none or itself | Status |
| H (Hot) | Device Power ON | Power on the device This function is valid when the host is none or itself | Status |
| K (Kill) | Product Reset | Reset the product Read a setting of the setting switch | Status |
| V (Version) | Get Product Version | Get the firmware version | e.g.) USB-206 FW V11 |

3.4. Command response

Status below is returned as a response to the control command.

Status is composed of a combination of alphabets. The alphabets are arranged in the priority order. The status ends with a newline (¥r¥n).

When the command is valid, the status after command execution is returned. When it is invalid, the present status with [*] added at the beginning is returned.

| Priority | Response | Function | Description |
|----------|----------|---------------------|--|
| 1 | * | Invalid Command | Send command is not valid. |
| 2 | A | Host Status | Device is connected to host A. |
| 2 | B | Host Status | Device is connected to host B. |
| 2 | X | Host Status | Device is not connected to any host. |
| 3 | L | Hold Status | The device is hold by the host. |
| 4 | C | Device Power Status | The device power is off. |
| 4 | V | Device Power Status | The device power is off because of the over current. |

Response Example

XC : No host is connected and the device power is off.

A : Host A is connected to the device and the device power is on.

BLC : Host B is holding the device and the device power is off.

XV : No host is connected because of the over current.

*A : Host A which is connected to the device sends command 'G'. But the command is invalid, because host A is already connected. And at the present, host A is still connected.

3.5. Control Example

The flow below is the example of data exchange between hosts by using USB memory.

| No | USB-206 | Host A | Host B | Remarks |
|----|---------------------------------------|-------------------------------------|--------------------------------------|---|
| 1 | Main Power ON | | | |
| 2 | Configurtation Switch All OFF | | | |
| 3 | Device Power OFF No Host Connected | | | |
| 4 | | Send: P | Send: P | Confirm port number |
| 5 | | Response: A | Response: B | |
| 6 | | Send: S | | Get device status |
| 7 | | Response: XC | | |
| 8 | | Send: H | | Power on the device |
| 9 | Device Power LED Light Green | Response: X | | |
| 10 | | Send: G | | Connect to the device |
| 11 | Host Status LED A Light Green | Response: A | | |
| 12 | | Recognize USB Memory | | |
| 13 | | Send: L | | Hold the connection to avoid connecting to the other host during writing data |
| 14 | Host Status LED A Light Orange | Response: AL | | |
| 15 | | Write Data in USB Memory | | |
| 16 | | Send: T | | Switch the device connection |
| 17 | Host Status LED B Light Green | Response: B | Recognize USB Memory | |
| 18 | | | Send: L | Hold the connection to avoid connecting to the other host during reading data |
| 19 | Host Status LED B Light Orange | | Response: BL | |
| 20 | | | Read Data From USB Memory | |
| 21 | | | Send: T | |
| 22 | Host Status LED A Light Green | Recognize USB Memory | Response: A | |

Additional Documentation and User Support

The following documents and other supports are available at

<http://www.hdl.co.jp/en/faspc/USB/usb-206>

- Device Driver
 - Outline Drawing
- ... and more.

4. Warranty and Compensation

Please refer to the following URL for the warranty.

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

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USB-206

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