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EPSON

Universal Serial Bus Interface Board

UB-U01III/U02III/U03II

Specification

STANDARD	
Rev. No.	A
Notes	

Copied Date	
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REVISION SHEET

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The table below indicates which pages in this specification have been revised. Before reading this specification, be sure you have the correct version of each page.

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Points That Must be Observed To Assure Product Safety

To assure the safe operation of this product, carefully observe the specifications as well as the notes provided below.

Seiko Epson Corporation will not bear any responsibility for any damage or injuries arising from use of this product that is not in accordance with the specifications and the notes provided below.

- 1) Do not drop conductive materials, such as a paper clip or push pin, onto the circuit board.
Short circuiting pins on the board may cause heat damage due to excess current or may melt the bonding wire.
- 2) Be sure to connect the devices with the specified cables.
Improper connection may cause fire or shock.
- 3) Never disassemble or modify this product.
Tampering with this product may result in injury, fire, or electric shock.
- 4) Be sure to set this equipment on a firm, stable, horizontal surface.
Product may break or cause injury if it falls.
- 5) Do not use in locations subject to high humidity or dust levels.
Excessive humidity and dust may cause equipment damage, fire, or shock.
- 6) Do not place heavy objects on top of this product. Never stand or lean on this product.
Equipment may fall or collapse, causing breakage and possible injury.
- 7) To ensure safety, please turn the power of this product off prior to leaving it unused for an extended period.

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Overview

1. Application

This specification applies to the UB-U01III/U02III/U03II.

2.Features

- 1)USB Full-Speed 12M bps [bps: bits per second]
- 2)Supports Plug & Play, Hot Insertion & Removal
- 3)Supports DM-D series display connection (only the UB-U01III/02III)

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1. OVERVIEW

1.1 Structure

The UB-U01III/U02III/U03II USB interface boards are installed in EPSON TM series printers and provide a USB interface function.

Each board has the following functions:

UB-U01III: USB interface function, USB hub function, DM-D connection

UB-U02III: USB interface function, DM-D connection

UB-U03II: USB interface function

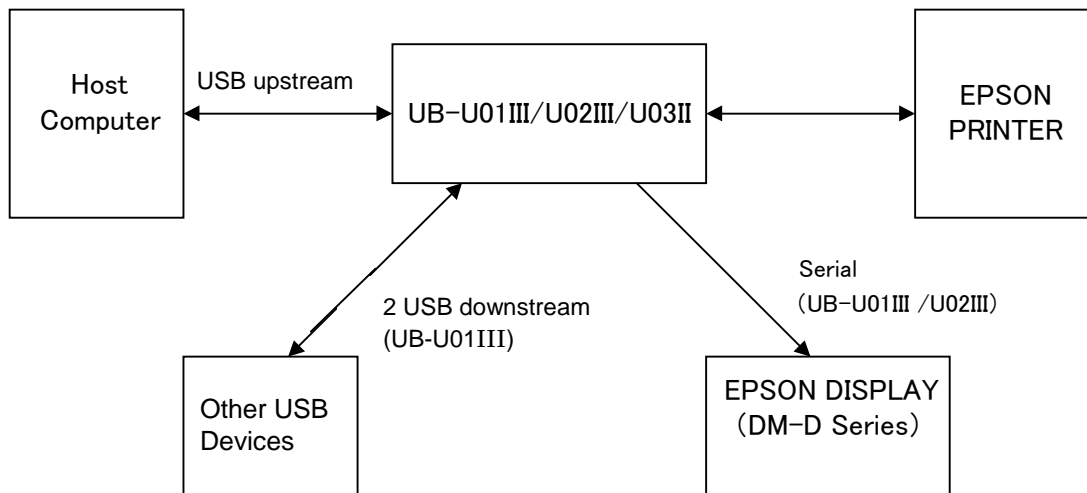


Figure 1.1 USB Interface Board Structure

1.2 TM Printer that can be Equipped with the UB-U01III/U02III/U03II

This is for TM printers designed for the replaceable universal interface board.

* For usage with OPOS or a printer driver, check whether the UB-U01III/U02III/U03II can work.

The following product does not support the UB-U01III/U02III/U03II.

- RP-U420

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2. ELECTRICAL SPECIFICATIONS

2.1 USB Communications Specifications

2.1.1 USB Function Specifications

USB specification:	Based on the USB full-speed communication specification	
Speed:	USB full-speed mode (12M bps) [bps: bits per second]	
Type:	USB bulk transfers	
Power:	USB self-powered function device	
USB bus current consumption:	UB-U01III	20 mA or less
	UB-U02III/U03II	1 mA or less
USB packet size:	USB bulk OUT (TM)	8 bytes
	USB bulk IN (TM)	64 bytes
	USB bulk OUT (DM-D)	8 bytes
	USB bulk IN (DM-D)	64 bytes

2.1.2 USB HUB Specifications (Only the UB-U01III)

USB specification:	Based on USB full-speed communication specification
Power:	USB bus-powered HUB device
Power distribution:	100mA per each down stream port.
Number of downstream ports:	2 ports
HUB controller internal current consumption:	20 mA (All power is supplied from the USB bus.)

NOTE: Other bus-powered hubs (including the UB-U01III) or high-power bus-powered functions cannot be connected directly downstream of the UB-U01III, because the UB-U01III is a bus-powered hub.

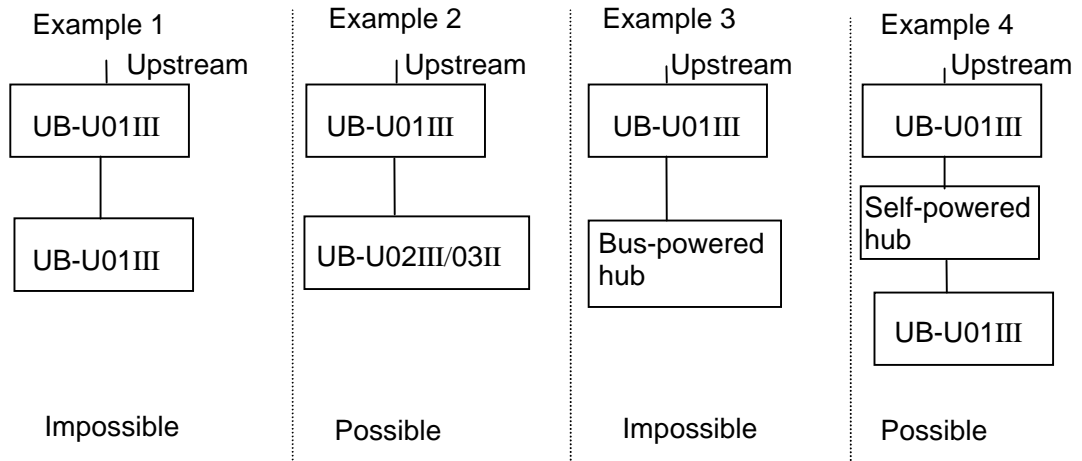


Figure 2.1 Connection Examples

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2.2 Receiving Status Information from the Printer through the USB Interface

It is possible to send information on the status of the TM printer to the host computer by using the USB bulk transfer mode when using the USB interface board.

It is not possible to send status data to the host from the printer automatically, because USB bulk transfer is controlled by the host.

The status information buffer size of the printer is more than 100 bytes.

Any status information in excess of the buffer size is lost. In order to avoid losing any of status data that is to be sent, the host needs to read the status regularly.

2.3 DM-D Port

UB-U01III/U02III boards have an RS232 port which enables them to be connected to a DM-D series display.

Speed:	19,200 bps (fixed) [bps: bits per second]
Connector:	8-pin modular connector
Power distribution:	24 VDC

- NOTES:
1. Be sure not to use a customer display other than Seiko Epson DM-D series.
 2. Be sure not to use a customer display when using a PA or PB series power supply that is attached to the TM series printer. Otherwise, the DM-D series may be damaged.
 3. When you use the UB-U01III/U02III, note that you will not be able to use the display module connector (DM-D connector) on the printer.

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3. MECHANICAL SPECIFICATIONS

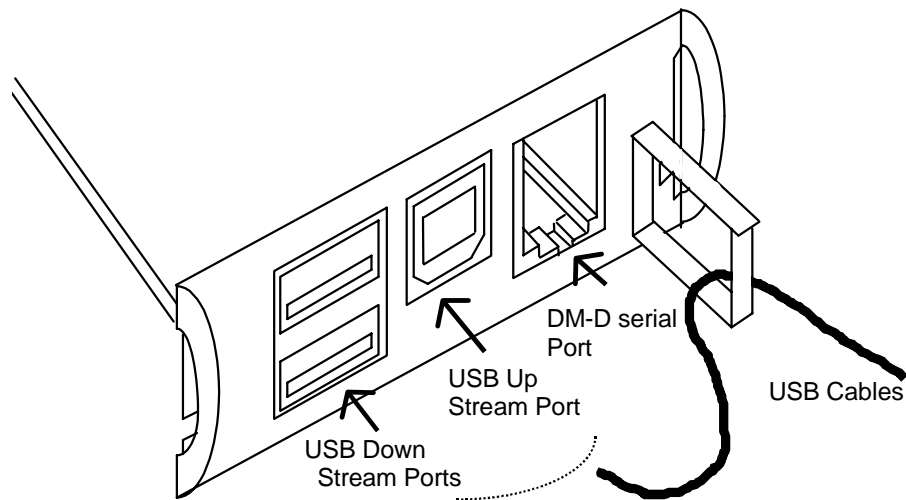


Figure 3.1 External View of UB-U01III Interface Board

3.1 Connectors

The UB-U01III/U02III/U03II boards have 3 types of connectors as follows:

	UB-U01III	UB-U02III	UB-U03II
USB upstream port connector (USB Type-B connector)	Yes	Yes	Yes
USB downstream port connector (USB Type-A connector)	Yes	No	No
RS-232 port connector for DM-D (8-pin modular connector)	Yes	Yes	No

3.2 Cable Hook

USB cables can be hung on a hook to prevent them from being pulled out (refer to Figure 3.1).

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4. ENVIRONMENTAL CONDITIONS

1) Temperature:	Operating:	0 to 50°C {32 to 122°F}
	Storage:	-10 to 50°C {14 to 122°F}
2) Humidity:	Operating	10 to 90% RH (no condensation)
	Storage	10 to 90% RH (no condensation)

5. EMI STANDARDS

1) Europe:	CE Marking Directive 89/336/EEC EN55022 class B EN55024 IEC61000-4-2 IEC61000-4-3 IEC61000-4-4 IEC61000-4-5 IEC61000-4-6 IEC61000-4-11 Note that the printers in which this board is installed do not conform to the following CE Marking: Directive 90/384/EEC • EN45501
2) North America:	EMI FCC/ICES-003 Class A
3) Japan:	EMC VCCI Class A
4) Oceania:	EMI AS/NZS 3548, CISPR22 Class B

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6. HOW TO SET UP THE TM/DM-D

6.1 Setting the TM

When using this interface board, the interface of the TM printer must be selected as “parallel” with the appropriate settings.

If a TM printer that can set the reset signal for pin 31 is used, set to “enable.”

Refer to the specification for each TM printer for these settings for details.

6.2 Setting the DM-D

When connecting the DM-D with this interface board, the setting of the DM-D must be performed as follows:

1) Communication conditions

Transmission speed: 19,200 bps [bps: bits per second]

Parity: None

Data length: 8 bits

2) If you can set “Device Selection” at default (effective only for the DM-D products that can be set), set to “Display only.”

3) If you can set the connection type (effective only for the DM-D products that can be set), set to “ignore Y-connection.”

Refer to the specification for each DM-D for these settings for details.

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7. DRIVERS

The UB-U01III/U02III/U03II can be used with the driver on the host PC.

7.1 Operation Environment

Refer to each driver's manual.

7.2 Driver Structure

EPSON provides the following drivers:

- USB driver
- Printer driver and USB port monitor
- OPOS driver for USB

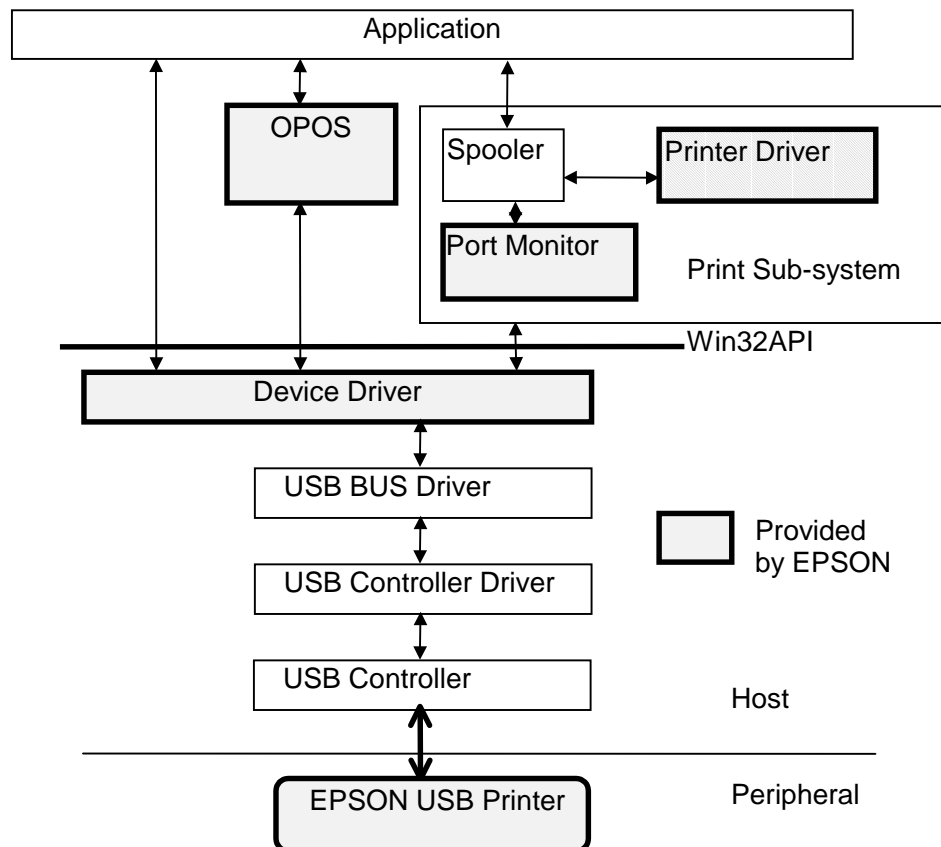


Figure 7.1 Driver Structure

The USB driver is absolutely necessary. The user can communicate by using OPOS or a printer driver in the user's application.

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