EPSON®

EXCEED YOUR VISION

UB-R05
Technical Reference Guide

Product Overview

This chapter explains features.

Setup

This chapter explains the network settings for this product.

Application Development Information

This chapter provides the information required to develop applications.

Programming Samples

This chapter provides information related to programming.

Troubleshooting

This chapter explains what to do when trouble occurs.

Product Specifications

This chapter explains product specifications.

Appendix

This chapter explains network parameters and provides a comparison of UB-R04 and UB-R05.

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Epson ESC/POS is a proprietary POS printer command system that includes patented or patent-pending commands. ESC/POS is compatible with most Epson POS printers and displays.

ESC/POS is designed to reduce the processing load on the host computer in POS environments. It comprises a set of highly functional and efficient commands and also offers the flexibility to easily make future upgrades.

For Safety

Key to Symbols

The symbols in this manual are identified by their level of importance, as defined below. Read the following carefully before handling the product.

⚠ **WARNING**	You must follow warnings carefully to avoid serious bodily injury.
⚠ **CAUTION**	Provides information that must be observed to prevent damage to the equipment or loss of data. • Possibility of sustaining physical injuries. • Possibility of causing physical damage. • Possibility of causing information loss.
CAUTION	Provides information that must be observed to avoid damage to your equipment or a malfunction. Provides important information and useful tips.
NOTE	Provides information that must be observed to prevent damage to the equipment or loss of data.

Warnings

⚠ **WARNING**	• May exert electromagnetic interference on, and cause malfunction of, cardiac pacemakers. Before using this product, check that there is no one in the vicinity using a cardiac pacemaker. • May exert electromagnetic interference on, and cause malfunction of, sensitive medical equipment. Before using this product, check that there is no sensitive medical equipment in the vicinity. • Use of this product on aircraft may be restricted in some countries. Before using this product, check that use of this product is not restricted on the aircraft. • To avoid risk of electric shock, do not set up this product or handle cables during a thunderstorm. • Shut down your equipment immediately if it produces smoke, a strange odor, or unusual noise. Continued use may lead to fire. Immediately unplug the equipment and contact qualified service personnel. • Never attempt to repair this product yourself. Improper repair work can be dangerous • Improper repair work can be dangerous. Never disassemble or modify this product. • Do not allow foreign matter to fall into the equipment. Penetration by foreign objects may lead to fire. • If water or other liquid spills into this equipment, do not continue to use it. Unplug the power cord immediately and contact qualified service personnel. Continued use may lead to fire. • Do not use aerosol sprayers containing flammable gas inside or around this product. The gas may stagnate and ignite, causing a fire.

Cautions

⚠ **CAUTION**	• Connecting an outdoor over head LAN cable directly to your product may lead to lightning damage. If you need to connect such a cable to your product, the cable must be protected against an electrical surge between the cable and your product. You should avoid connecting your product to a non-surge protected outdoor overhead LAN cable. • Do not connect cables in ways other than those mentioned in this manual. Doing so may cause product faults or a fire. • Be sure to set this equipment on a firm, stable, horizontal surface. The product may break or cause injury if it falls. • Do not install the product in a location with excessive humidity or dust. Excessive humidity and dust may cause equipment damage or fire. • To ensure safety, unplug this product before leaving it unused for an extended period.

Usage Precautions

To comply with the requirements, a distance of at least 20 cm {7.87"} must be maintained at all times between the antenna of this product and people in the vicinity.

Restriction of Use

When this product is used for applications requiring high reliability/safety such as transportation devices related to aviation, rail, marine, automotive etc.; disaster prevention devices; various safety devices etc.; or functional/precision devices etc., you should use this product only after giving consideration to including fail-safes and redundancies into your design to maintain safety and total system reliability.

Because this product was not intended for use in applications requiring extremely high reliability/safety such as aerospace equipment, main communication equipment, nuclear power control equipment, or medical equipment related to direct medical care etc., please make your own judgment on this product's suitability after a full evaluation.

Product Servicing

This product cannot be serviced at the component level. In case of a fault, replace the UB-R05 itself.

Wireless LAN Connection

Be aware of the following matters if using a wireless LAN connection.

The influence on the environment of radio wave radiation

This product is equipped with a certified Radio Frequency module for low-power data communication systems in accordance with the Radio Act. The electromagnetic energy radiated from this product is suppressed so that it is much lower than that of radio equipment like cell phones.

Under some situations and in certain environments, the use of this product is sometimes limited by the owner of the building or a representative with responsibility for the group. If you do not understand the radio device usage policy in a specific group or environment, such as an airport, ask permission before using this product.

The influence on the human body of radio wave radiation

The output power radiated from the Radio Frequency module that can be installed in this product is much lower than the radiation limit specified in the safety standard. However, it is best to avoid allowing this product to contact your body during usual operation. When using this product, be especially careful not to touch the antenna on the back.

Cautions about Interference

- This product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
- Perform adjustments so that the unit does not use the same channel as other wireless LAN devices nearby.
- Keep the following points in mind when using the Wireless LAN unit in an environment with devices that generate radio interference, such as a kitchen microwave.

    Install the printer as far away from devices that generate radio interference as possible.

    Use channels that are away from the frequency bands that may cause radio wave influence.

    Install a shielding plate between the printer and a device that generates radio interference.

    Select either 2.4 GHz or 5 GHz, whichever is free from radio wave interference.

    When setting the auto-channel of the access point, be sure to set it so it does not generate radio interference.

- If the Radio Frequency module in this product does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

    Reorient or relocate the receiving antenna for radio/TV.

    Increase the separation between this product and radio/TV.

    Connect this product to an outlet different from the outlet the TV or radio is connected to.

    Consult your dealer or an experienced radio/TV technician for help.

Cautions Regarding Wireless LAN Connections

Because not all the combinations of the product and wireless LAN devices have been checked for operation, the operation of the product in combination with all the wireless LAN devices is not guaranteed.

Cautions about Security

Important Cautions about Your Privacy Protection

The advantage of using a wireless LAN over a LAN cable is that, because information is exchanged using radio signals, you can easily connect to the network if you are within range of the radio signals. A disadvantage of this is that within a certain range, the electromagnetic signals can pass through barriers such as walls, so that if security countermeasures are not implemented in some way, problems such as the following may occur.

Communicated data can be intercepted

A third party may be able to receive wireless transmissions without authorization, and they could obtain personal information from these transmissions such as IDs, passwords, or credit card numbers, or they could intercept the contents of personal e-mail messages.

Unauthorized access to the network

A third party could access an individual or intra-company network without permission and carry out any of the following activities.

- Retrieve personal data or other secret information (information leakage)
- Pose as another user and send inappropriate data (impersonation)
- Overwrite the contents of intercepted data and resend it (falsification)
- Introduce a computer virus which could cause data loss or system crashes (damage)

Security Settings

The wireless LAN card and access point have a security settings function to deal with these problems. You can reduce the possibility these problems will occur by performing security settings before use.

CAUTION	Even with security settings, there is a possibility the security can be breached using particular methods. We recommend that you have full understanding regarding security problems and perform security settings at your own judgment and liability.

Security settings are performed immediately after purchase (Initial setting: WPA2-PSK).

Limitations

You cannot stop the transmission of radio waves. If you need to stop the transmission of radio waves, turn off the TM printer.

Notes on Setting SSID (Service Set Identifier)

For protection of security, note the following precautions when setting the SSID.

- Change the SSID from the default setting.
- Do not set texts by which the owner can be identified as the SSID.

Notes on Setting Cryptographic Key

For protection of security, note the following precautions when setting the cryptographic key.

- Avoid using words on a dictionary as practicably as possible.
- Combine meaningless alphanumeric characters and symbols.
- Use texts consisted of at least 13 characters or more or of 20 characters or more if possible.

About this Manual

Contents

Product Overview

This chapter describes the features of this product, as well as the name and function of each part.

Features

The UB-R05 is an Ethernet and wireless LAN interface board for Epson TM printers.
The features of the UB-R05 are as follows.

Ethernet

- 10Base-T, 100Base-TX Ethernet
- Full duplex/half-duplex (Supports auto negotiation)
- Supports Auto-MDIX

Wireless LAN

- Compliance with IEEE802.11a/b/g/n/ac (Wi-Fi 5) wireless communication standards
- It supports infrastructure mode.
- It also supports WPA-PSK (AES), WPA2-PSK, and WPA2-Enterprise.

Network Function

- It supports TCP/IP protocol.
- It supports DHCP and APIPA.
- It supports ENPC and SNMP.
- It supports IPv4.
- It supports TLS1.2.

Setting

- The settings utility, EpsonNet Config, is available. Please download it from the Epson Web site and use it.
- You can use your Web browser to access EpsonNet Config (Web version) to browse and set network parameters.
- You can use the push button to factory reset and print settings.

Others

- It supports the XML print function (ePOS-Print) via HTTP/HTTPS communication.
- It supports IEEE802.3az (Energy Efficient Ethernet: EEE).

Parts Name and Function
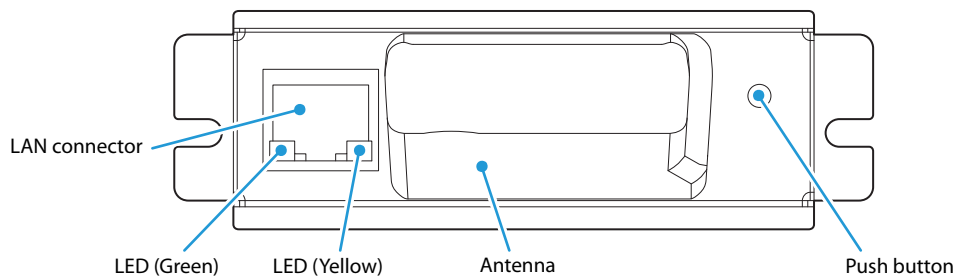
LAN connector

You can connect a LAN cable (RJ45 plug) to the LAN connector. When connecting the LAN cable, insert it all the way until you hear the click.

⚠️ **CAUTION** — Do not insert a customer display cable, drawer kick cable, or a general public circuit cable into the LAN connector.

NOTE — The LAN connector has a cap to prevent the accidental insertion of a cable. Remove the cap to connect a LAN cable. We recommend keeping the cap installed when no LAN cable is connected.

Cap
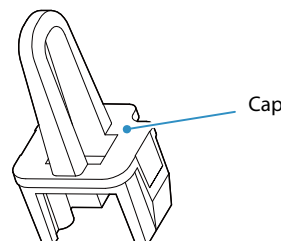
LED

The two LEDs light up in the following situations.

The green LED: when the Ethernet link is established.

The yellow LED: when transmitting data.

Push button

The push button has the following functions.

Use tweezers or a similar fine-tipped object to push the push button.

Status sheet printing

When the TM printer is ready to print (with paper loaded and the power on), press and hold the push button for 3 seconds or longer to print the network parameters status.

NOTE	If the DHCP or APIPA protocol is used to set an IP address, the assigned IP address will be printed. The IP address is not printed until it is assigned.

Factory reset function

While holding the push button, turn the printer's power on and continue to hold the push button until the factory reset start message is printed (approx. 10 seconds) to restore all settings to their factory default.

CAUTION	After turning the printer's power on, it can take about 15 to 20 seconds until the UB-R05 functions are enabled. If printing the status sheet, turn the printer on and wait for 20 seconds or longer, then press the push button. However, when starting the printer for the first time after the factory reset, startup might take about 1 minute longer than usual in order to configure the default settings.

Setup

This chapter explains the network settings that are required before using this printer.

Either a wired or wireless LAN connection can be used.

Configuring the Settings via Ethernet

Use a LAN cable to connect the printer and the computer used to configure the settings to the same network. While configuring the settings, you can check the wireless LAN settings at any time, and easily correct any mistakes that might be made. We recommend using this method.

Configuring the Settings via Wireless LAN Connection

Connect the printer and the computer used to configure the settings to wireless LAN. If you make a mistake when configuring the settings, communication might not be possible. If that happens, you will not be able to check or reset the settings.

> NOTE   If you also want to set up an access point, configure it in advance and check that it works properly.

Network Settings

There are three ways to configure the network for this product.

Method 1: Set up using EpsonNet Config

This method involves installing the network configuration tool, EpsonNet Config, on your computer for setting.
As it does not require any settings in advance to allow set up, you can easily perform set up using a computer already connected to the network.
To download EpsonNet Config, see .

Method 2: Set up using EpsonNet Config (Web version)

This method involves opening the Web application equipped in the UB-R05 from a Web browser to perform settings.
Because you specify the printer's IP address to open it, you need to set your computer to the same network segment as the printer.
With EpsonNet Config (Web version), you can set more items than with EpsonNet Config.

Method 3: Set up using arp/ping commands (for wired LAN connection only)

This method involves setting the printer's IP address in the setting computer's arp/ping commands, then using the setting tool to change the other settings.
The setting computer must be in the same segment as the printer. Also, settings can be done only when the printer's arp+ping IP setting is set to Enable.
Use EpsonNet Config or EpsonNet Config (Web version) for settings other than the IP address.

Setup Work flow

```
┌──────────────────┐   ┌──────────────────┐   ┌──────────────────┐
│     Method 1     │   │     Method 2     │   │     Method 3     │
└──────────────────┘   └──────────────────┘   └──────────────────┘
```

Printing the status sheet (check settings)

| Set up using EpsonNet Config | Change network settings on setting computer | Use arp/ping command to set printer IP address |

| | Set up using EpsonNet Config (Web version) | Other settings EpsonNet Config (Web version) |

| Finish | Finish | Finish |
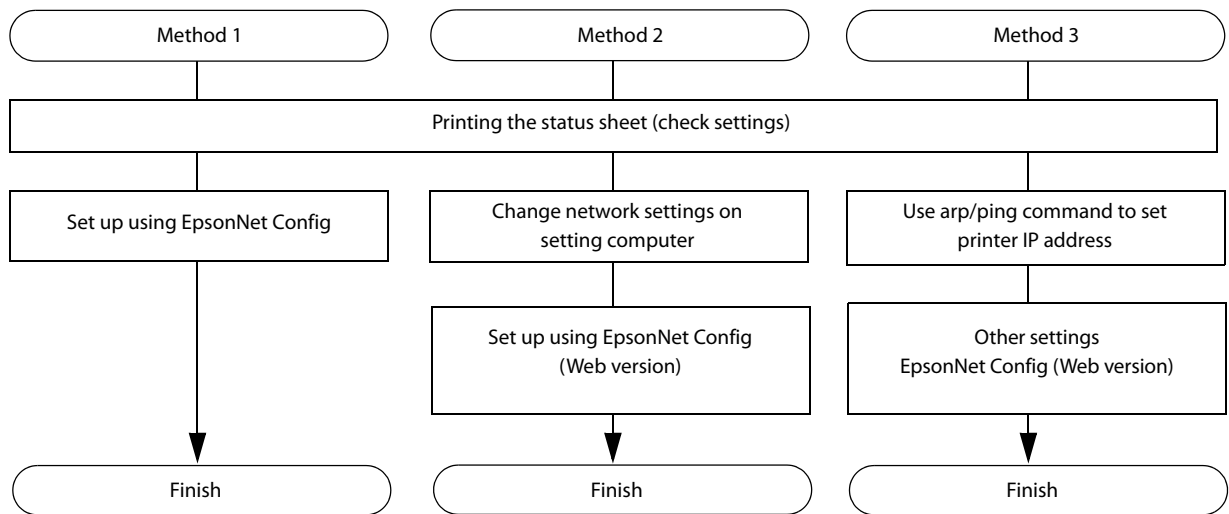
Printing the status sheet (Check Settings)

Turn on the printer equipped with the UB-R05, then after 20 seconds or longer, press and hold the push button to the right of the LAN connector for about 3 seconds to print the status sheet. Once printing starts, release the push button.

Use tweezers or a similar fine-tipped object to push the push button.

Push button
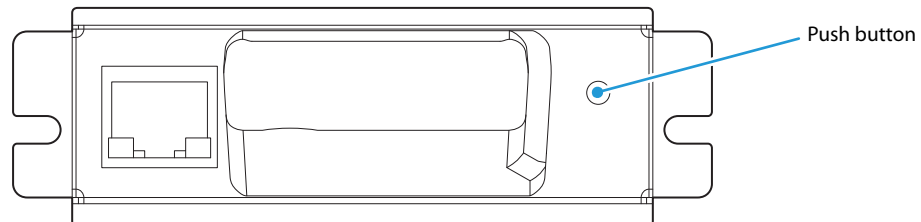
Example status sheet

```
              *** Dynamic Status Sheet ***

UB-R05
   Hard Version      :XX.XX
   Soft Version      :XX.XX(XXXX.XX.XX)

Ethernet Status
   MAC Address       :XX-XX-XX-XX-XX-XX
   Physical Layer    :Auto-negotiation
   Link Status       :Disconnect

Wi-Fi Status
   MAC Address       :XX-XX-XX-XX-XX-XX
   SSID :EPSON_Printer
   Network Mode      :Infrastructure
   Comm Standard     :802.11b/g/n
   Encryption Type   :WPA2-PSK
   Link Status       :Unknown.
   Channel           :Unknown.
   Transmission      :Unknown.
   Access Point      :Unknown.
   Signal Level      :Unknown.

TCP/IP Status
   Acquiring         :Auto
   IP Address        :(NONE)
   Subnet Mask       :(NONE)
   Default Gateway   :(NONE)

Other Status
   TimeServer        :Invalid
   Stored Date/Time  :2021/01/23 01:23:45
```

CAUTION   After turning the printer's power on, it can take about 15 to 20 seconds until the UB-R05 functions are enabled. Do not start pushing the push button during this time.

Connecting to Ethernet

This section describes how to connect a printer equipped with UB-R05 (the TM-T88VI is shown in the illustration) and the computer used to configure network settings to the same network via Ethernet.

1 **Make sure the printer and the computer used to configure the settings are turned off.**

2 **Remove the cap from the LAN connector on the UB-R05 mounted on the printer, and insert the LAN cable until you hear a click.**

> NOTE
>
> There might be multiple LAN connectors, depending on the printer you are using. If you connect the LAN cable to the LAN connector on the printer, you will be unable to configure the UB-R05 settings correctly.

LAN connector on the printer

LAN connector on the UB-R05
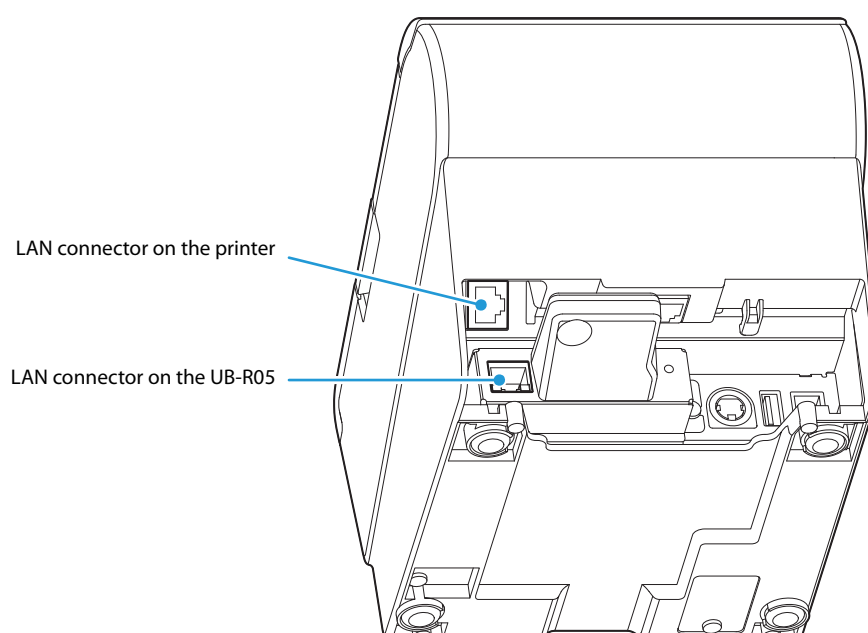
3 **Connect the power cable to the printer, and turn on the printer.**

4 **Match the settings on the computer with the network settings indicated on the status sheet.**

```
      Transmission      :Unknown.
      Access Point      :Unknown.
      Signal Level      :Unknown.

    TCP/IP Status
      Acquiring         :Auto
      IP Address        :XXX.XXX.XXX
      Subnet Mask       :XXX.XXX.XXX
      Default Gateway   :XXX.XXX.XXX

    Other Status
      TimeServer        :Invalid
```

NOTE • By factory default, the printer is set to an IP address that is assigned by the DHCP server. If multiple IP addresses are in conflict on the same network, you will be unable to perform the setup procedure. Therefore, make sure there is no conflict between IP addresses that are assigned by the DHCP server. If there is no DHCP server, a fixed IP address (192.168.192.168) will be set about 1 minute after the power is turned on. Note that these processes are executed after connection by wired or wireless LAN is established.
• If DHCP is enabled, the IP address that is assigned will be printed automatically.
• You can issue a ping command to check if the printer has been connected successfully.
(E.g.) ping 192.168.192.168
(when 192.168.192.168 is indicated on the status sheet)

5 **When connecting to the printer is complete, use EpsonNet Config or EpsonNet Config (Web version), or the arp/ping command to configure the network settings.**
For details about each of these methods to configure the network settings, see the information at the following links.
"Set up using EpsonNet Config" on page 22
"Set up using EpsonNet Config (Web version)" on page 23
"Set up using arp/ping commands (for wired LAN connection only)" on page 25

Connecting to Wireless LAN

This section describes how to connect a printer equipped with UB-R05 (the TM-T88VI is shown in the illustration) and the computer used to configure network settings to the same network via wireless LAN.

To connect to a network, use the TM printer's SimpleAP mode.

In SimpleAP mode, the printer functions as a simple access point. Therefore, you can connect to it in the same way as connecting to an access point.

NOTE	Once wireless LAN network settings are performed, the printer will not start up in SimpleAP mode. If you want to start it up in SimpleAP mode, factory reset the UB-R05 that is mounted on the printer. For details about the factory reset procedure, see "Factory Reset" on page 26.

1 **Make sure the printer and the computer used to configure the settings are turned off, and that no LAN cable is inserted into the LAN connector on the UB-R05 that is mounted on the printer.**

LAN connector on the printer

LAN connector on the UB-R05
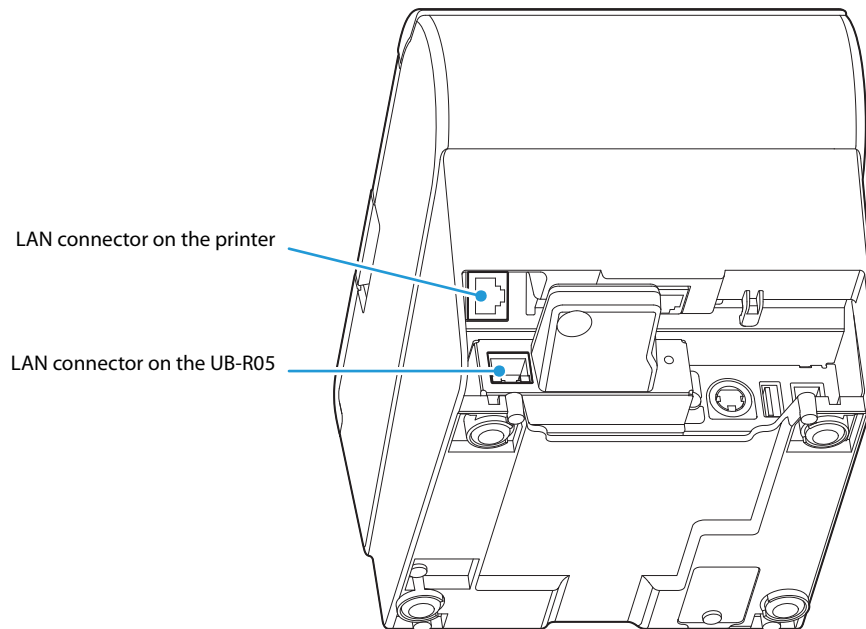
2 **Connect the power cable to the printer, and turn on the printer.**
If DHCP is enabled, the IP address that is assigned will be printed automatically.

Example IP address

```
**********************************
IP Address       : XXX.XXX.XXX.XXX
SubnetMask       : XXX.XXX.XXX.XXX
Gateway          : XXX.XXX.XXX.XXX
DHCP             : No Server -> Static
**********************************
```

3   **Activate Wireless Network Connection on the computer used to configure the settings, and select [EPSON_Printer] as the connection device on the screen that appears.**

If the window to enter a pass phrase appears, enter "12345678".
Default settings on printer are the following values.

Network mode	SimpleAP mode
SSID	EPSON_Printer
Pass phrase	12345678
IP Address	192.168.192.168

An example of Connection Screen
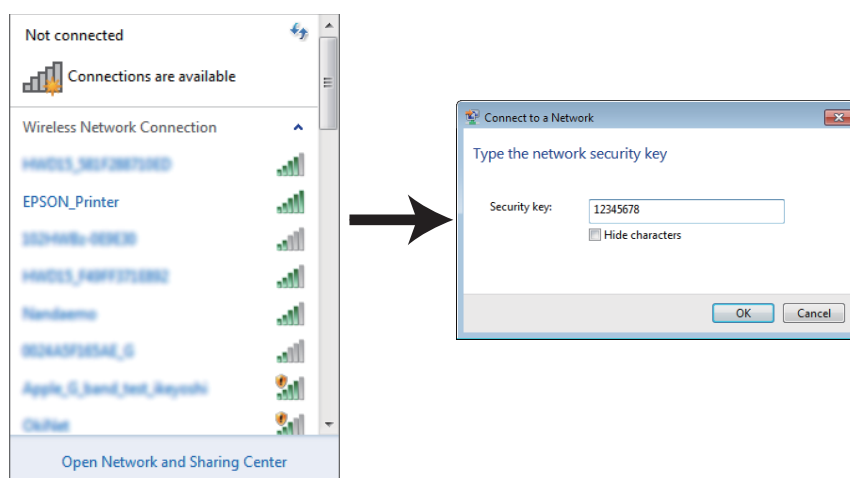
NOTE	• For the setting method for the computer for setting, see the manual for your computer. • By factory default, the printer is set to an IP address that is assigned by the DHCP server. If multiple IP addresses are in conflict on the same network, you will be unable to perform the setup procedure. Therefore, make sure there is no conflict between IP addresses that are assigned by the DHCP server. If there is no DHCP server, a fixed IP address (192.168.192.168) will be set about 1 minute after the power is turned on. Note that these processes are executed after connection by wired or wireless LAN is established. • You can issue a ping command to check if the printer has been connected successfully. (E.g.) ping 192.168.192.168 (when 192.168.192.168 is indicated on the status sheet)

4   **When connecting to the printer is complete, setup the network by using the EpsonNet Config or EpsonNet Config (Web version).**

For details about each of these methods to configure the network settings, see the information at the following links.

Set up using EpsonNet Config

Select the target printer to set up from the EpsonNet Config device list.

If the network for the printer is still set to factory defaults, the printer's MAC address will be detected and shown in the device list even if the printer and the computer do not have the same network address.

> **CAUTION**
> - By factory default, the printer is set to an IP address that is assigned by the DHCP server. If multiple IP addresses are in conflict on the same network, you will be unable to perform the setup procedure. Therefore, make sure there is no conflict between IP addresses that are assigned by the DHCP server. If there is no DHCP server, a fixed IP address (192.168.192.168) will be set about 1 minute after the power is turned on. Note that these processes are executed after connection by wired or wireless LAN is established.
> - If DHCP is enabled, the IP address that is assigned will be printed automatically.

1 **Connect the printer to the same network as the computer where you installed EpsonNet Config.**

2 **Start up EpsonNet Config.**
The tool automatically detects printers connected to the network and displays a list.
It may take up to a minute for the printer to be displayed in the list.
If it is not displayed, check that [Filter] is set to "(All)" or "Network-connected devices", then click [Refresh]. Or, select [Tools], then [Option], and check the settings of [Search Parameters].

3 **Select the target printer, then click [Configuration].**
If you cannot determine the target printer from the product name or the IP address, use the MAC address. You can check the printer's MAC address on the status sheet.

4 **Change the printer's settings based on the network setting information you received from the network administrator.**
Select an item from the menu and change the setting.

5 **Once you set the necessary items, click [Transmit].**
The changed contents are sent to the printer and the printer settings are changed.

> **NOTE**
> For details about EpsonNet Config, see the manual (operation guide) installed together with the tool or the online help.

Set up using EpsonNet Config (Web version)

Use the following method to open EpsonNet Config (Web version) to check and change settings.

CAUTION	• If performing set up using EpsonNet Config (Web version), you need to set the network settings of the device used for configuring settings to the same network segment as the printer to be connected to. • By factory default, the printer is set to an IP address that is assigned by the DHCP server. If multiple IP addresses are in conflict on the same network, you will be unable to perform the setup procedure. Therefore, make sure there is no conflict between IP addresses that are assigned by the DHCP server. If there is no DHCP server, a fixed IP address (192.168.192.168) will be set about 1 minute after the power is turned on. Note that these processes are executed after connection by wired or wireless LAN is established. • If DHCP is enabled, the IP address that is assigned will be printed automatically.

1 **Connect the setting computer and the printer to the same network.**

2 **Perform network settings on the computer so that it is in the same segment as the printer's IP address.**

Subnet mask: Same subnet mask as the printer
IP address: Same segment (same network address) as the printer, different host address

Check the values set in the printer on the status sheet.

E.g.)

	Printer	Setting computer
Subnet mask	255.255.255.0	255.255.255.0
IP address	192.168.192.168	192.168.192.2

3 **Start up your Web browser and input the printer's IP address into the address field.**
E.g.) http://192.168.192.168

NOTE	Under initial settings, when you access EpsonNet Config (Web version) from your browser, an authentication warning message may be displayed.

4 **Input your user name and password on the authentication window.**

- The user name is "epson", and the default password is the printer's serial number. You can find the serial number by performing a printer self-test, or by checking the manufacturing nameplate attached to the printer.
- You can change the password in the [Optional] setting menu, under [Password].

5 **Change the settings based on the network setting information you received from the network administrator.**

Select an item from [Configuration] and change the setting.

6 **After changing the necessary parameters, click the [Send] button.**

The changes are sent to the printer.

7 **Click the [Reset] button on the Web page displayed after sending.**

The sent contents are enabled.

Depending on the changes, such as the IP address, the connection with the setting computer may be cut and the EpsonNet Config window may not be displayed. To reconnect, you need to set the network settings of the setting computer to the same network segment as the printer for which settings were changed.

Set up using arp/ping commands (for wired LAN connection only)

You can change the printer's IP address by changing the ARP table (table of IP address and MAC addresses) managed by the OS on the setting computer.

Check that the setting computer is connected to the network in the same segment as the printer, and that the Set IP Address Using ARP + Ping for the UB-R05 is set to Enable. (The factory default is Disable.)

You can check the UB-R05 settings on the status sheet.

1 **Delete the IP address you want to set to the printer from the ARP table.**
arp -d (IP address)
E.g.) arp -d 192.168.0.10

2 **Add the printer's MAC address and the IP address you want to set to the ARP table.**
arp -s (IP address) (MAC address)
E.g.) arp -s 192.168.0.10 00-26-AB-7B-00-00

3 **Execute the ping command and enable settings.**
ping (IP address you want to set)
E.g.) ping 192.168.0.10
When a message like "Reply From 192.168.0.10: Bytes=32 Time < 10ms TTL=255" is displayed, the IP address setting is complete.

If this method is used to configure the settings, Set IP Address Using ARP + Ping is disabled.

Use EpsonNet Config or EpsonNet Config (Web version) for settings other than the IP address.

NOTE How to check Set IP Address Using ARP + Ping
For EpsonNet Config (Web version), check the value in [Configuration] - [Network] - [TCP/IP] - [IPv4 Address].

Factory Reset

If you become unable to connect to the network, you can use the following procedure to initialize settings and restore the device to factory default.

1 **Turn off the printer's power.**

2 **With the push button pressed, turn on the printer's power.**
Use tweezers or a similar fine-tipped object to push the push button.
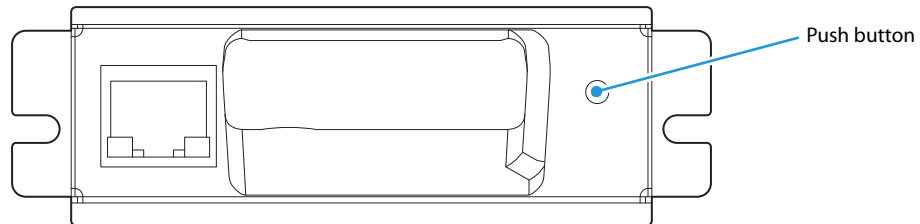
Push button

3 **Continue to hold the push button until the factory reset start message below is printed (approx. 10 seconds).**

```
Resetting to Factory Default!
Please Wait...

WARNING: DO NOT
TURN OFF POWER
```

CAUTION   Do not turn the printer's power off until the factory reset is complete.

After about 20 seconds, a message notifying the completion of the reset is printed.

```
Reset to Factory Default Finished!
```

After the completion message, a status sheet is printed.

EpsonNet Config (Web version)

This section describes the items that can be displayed and set using EpsonNet Config (Web version), the Web application equipped in the UB-R05.

Information Menu

On the Information menu, you can check the following settings. For the details of each protocol or the settings other than the Information menu, check the Configuration menu.

Basic Information

You can check the items below.

(Administrator name, installation location, interface card model number, MAC address, hardware version, software version, connected printer model name, communication standard, network mode, SSID, wireless connection channel, wireless transmission speed, MAC address of the wireless connection access point, wireless radio wave strength, printer status)

TCP/IP

You can confirm TCP/IP protocol IP address settings.

SNMP

You can confirm SNMP protocol settings.

Bonjour

You can confirm Bonjour protocol settings.

Time Setting

You can confirm SNTP protocol time server settings.

Timeout

You can confirm LPR/Port9100 protocol Timeout duration settings.

ePOS-Print

You can check settings related to ePOS-Print.

Configuration Menu

On the Configuration menu, you can check and set the following items.

Ethernet

You can check and set the communication standard.

(Auto / 10Base-T Half Duplex / 10Base-T Full Duplex / 100Base-TX Half Duplex / 100Base-TX Full Duplex)

Wireless

You can check and set the following wireless settings.

- Settings of wireless transmission standards (Auto, 802.11b/g/n, 802.11a/n/ac)
- Network mode check
- SSID name input
- Encryption code setting (WPA2-PSK / WPA2-Enterprise / WPA-PSK (AES) / None)
- WPA Pre-Shared Key setting *WPA wireless password setting
- Authentication algorithm setting (OpenSystem / Shared key / Auto)
- Power saving function settings (Disable/Enable)

  *If using "WPA2-Enterprise" in the above encryption method, the following settings are required.
    - EAP authentication setting (EAP-TLS / PEAP-TLS / PEAP-MSCHAPv2)
    - Client-signed certificate (Client-Signed Certificate1 / Client-Signed Certificate2 / Client-Signed Certificate3)
    - User ID input
    - Password input
    - Server authentication setting (Disable / Enable)
    - Server ID input
    - CA-signed certificate setting (CA Certificate1 / CA Certificate2 / CA Certificate3 / CA Certificate4 / CA Certificate5 / CA Certificate6 / CA Certificate7 / CA Certificate8 / CA Certificate9 / CA Certificate10)
    - Anonymous Name -input alias used when establishing communication with RADIUS server
    - Encryption strength setting
      (Low: AES256-SHA / DES-CBC3-SHA / AES128-SHA / RC4-SHA)
      (Medium: AES256-SHA / DES-CBC3-SHA)
      (High: AES256-SHA)

Security

This is required when using HTTPS.

SSL/TLS

You can check and set the SSL/TLS.

- Selection of the server certificate type

  (Selfsigned Certificate / CA signed Certificate1 / CA signed Certificate2 / CA signed Certificate3)

- Encryption strength setting (Medium / Low / High)

- Setting for automatic redirect from HTTP to HTTPS (Enable / Disable)

- Preparation of self-signed certificates

- Confirmation of each certificate

Authentication

This is required when using HTTPS and WPA2^{TM} Enterprise.

Certificate List

You can check and set the following items for self-signed certificates.

- Self-signed certificate preparation/settings

- CA signed certificate settings 1 to 3

- CA certificate settings 1 to 10

Certificate Import

You can check and set the following items for certificate imports.

- File format settings (PEM / DER Certification / Password Protection PKCS#12 Certificate)

  The PEM format is limited to certificate data that does not include a private key.

- File name input

- Password input

  *If you import and select an invalid certificate, you will no longer be able to start up EpsonNet Config (Web version). In that case, use EpsonNet Config to select a certificate other than the invalid one (for example, a Selfsigned Certificate), and import the correct certificate with EpsonNet Config (Web version) again.

TCP/IP

IP v4 Address

This sets the IP address when setting the manual.

- Setting for IP address acquisition method (Manual / Auto)
- IP address setting
- Subnet mask address setting
- Default gateway address setting
- APIPA setting (Enable / Disable)
- ARP+Ping setting (Enable / Disable)

DNS/DDNS

This sets the DNS server address (IPv4).

- Setting for automatic acquisition of the DNS server address (Disable / Enable)
- DNS server address setting

This sets the host name and domain name.

- Setting for automatic acquisition of the host name and domain name (Disable / Enable)
- Host name input
- Domain name input
- Setting of the function for registering the network I/F address in the DNS server (Disable / Enable)

SNMP

Community

This sets the community name used in notifications. You can set up to 32 ASCII characters.

- Read Only community name input
- Read/Write community name input

IP Trap

This sets the IP trap.

IP Trap1

- Trap setting (Disable / Enable)
- Trap address setting
- Community name input

IP Trap2

- Trap setting (Disable / Enable)
- Trap address setting
- Community name input

Bonjour

This sets Bonjour.

- Bonjour setting (Disable / Enable)
- Name input for when using Bonjour*
- Printer name setting for when using Bonjour*
- Installation location input

  *You can use upper and lower case alphabet characters, numerals and hyphens, However, only use upper and lower case alphabet characters for the initial character.

Time Setting

You can check and set the time server.

- Use of time server (Disable / Enable)
- Time server address setting
- Time setting for refresh interval (Can be set between 1 to 10,080 min) - Default is 60 min.
- Confirmation of time server status (Invalid / Success / Synchronize / Failure)
- Error setting

Timeout

This sets the timeout time for printing.

- LPR time-out setting - Default is 90 sec.
- RAW (Port9100) time-out setting - Default is 90 sec.

ePOS-Print

You can check and set ePOS-Print.

- Version confirmation
- ePOS-Print setting (Disable / Enable)
- Device ID setting
- Printer type setting (Thermal(180dpi) / Thermal(203dpi) / Impact / Impact(24pin))
- Setting for character code table type

(Page 0)

(Page 0, 2, 16)

(Page 0-5, 16-19 (GB2312))

(Page 0-5, 16-19)

(Page 0-5, 16-19, 20-21, 26)

(Page 0-5, 16-19, 20-21, 26, 30-31)

(Page 0-5, 16-19, 20-21, 26, 30-31, 11-15, 32-53)

Advanced Settings

You can check and configure port type and power saving settings.

- Ethernet Port Type settings (Auto/MDI/MDI-X)
- Energy Efficient Ethernet settings (disabled/enabled)

Optional Menu

You can check and configure the following fields on the [Optional] menu.

Administrator Information

You can configure the administrator information. You can set up to 255 ASCII characters.

- Administrator name setting
    This is different from the user name that is used during password authentication. (The user name is fixed to "epson".)

- Installation location settings

Reset

Reset the UB-R05 or restore the network settings to the default values.

Perform a reset when you want the settings you changed in EpsonNet Config (Web version) to take effect immediately.

However, if you execute [Reset] after executing [Send] on the settings pages, it is not necessary to perform a reset here.

Restore the UB-R05 network settings to the default values. This might prevent you from communicating with your web browser.

Password

Set the password for EpsonNet Config (Web version). You can set up to 20 ASCII characters (Alphanumerics and symbols).

The default password is the printer's serial number.

You can find the serial number by performing a printer self-test, or by checking the manufacturing nameplate attached to the printer.

> NOTE
> - The user name cannot be changed. It is fixed to "epson".
> - You can use the password set for the EpsonNet Config (Web version) function as the password for when using EpsonNet Config to perform settings.

MAC Address Confirmation

You can check the UB-R05's MAC address using the following procedures.

- Printing the status sheet (by either Ethernet communication or wireless LAN communication)

- Checking the label attached to the product (Ethernet communication only)

- Using a Web browser (EpsonNet Config (Web version) function, available only when using Ethernet communication or wireless LAN communication)

- A printer self-test (May not be supported by some TM printers.)

Application Development Information

This chapter explains how to control this printer, and provides the information necessary for developing applications that use this printer.

Controlling the Printer

UB-R05 supports ePOS-Print XML. Users can control the printer with ePOS-Print XML, in addition to ESC/POS which is supported by the printer.

ePOS-Print XML

ePOS-Print XML is the Epson original control command system for POS printers defined in XML. With ePOSPrint XML commands, you can print in environments where http communication is available and from OS applications. For detailed information about ePOS-Print XML, see the ePOS-Print XML User's Manual.

> **CAUTION** To use ePOS-Print XML or Epson ePOS SDK, set ePOS-Print to Enable in EpsonNet Config (Web version) beforehand.
> For details about EpsonNet Config (Web version), see "EpsonNet Config (Web version)" on page 27.

Software

The following software is provided for application development.

For details about development kits and utilities that are supported by this printer, see the Technical Reference Guides for TM printers.

Development Kit

Software	Description
Epson ePOS SDK	This is a developer kit to control applications, native applications for smart devices, and printers. This includes libraries, manuals, and sample programs.
for Android	
for iOS	
for Universal Windows apps	
for JavaScript	

Utilities

Software	Description	Operating environment
EpsonNet Config	A network setting tool for Epson network products.	Windows, Mac
UB-R05 Network Firmware Updater	A tool for updating the UB-R05 firmware.	Windows

Others

Manual	Description
ePOS-Print XML User's Manual	Describes ePOS-Print XML statements. This manual comes with sample programs.

Download

You can obtain software and manuals from the following URL.

For customers in North America, go to the following web site and follow the on-screen instructions.

→ www.epson.com/support/

For customers in other countries and regions, go to the following web site:

→ www.epson-biz.com/

Programming Samples

This chapter provides information related to programming a TM printer that is equipped with the UB-R05.

Printing to a TM printer ()

Direct printing by PORT9100 ()

Monitoring of the ASB status ()

Multiple connection requests ()

Printing to a TM printer

The UB-R05 is equipped with LPR protocol as a general printing protocol. It is easy to print by using LPR because the printing is also supported by the operating system.

The printer status cannot be acquired because LPR is one-way communication.

The UB-R05 supports direct printing via the TCP PORT9100. It is possible to control the printer directly by an application with the ESC/POS commands through writing and reading to the TCP PORT9100.
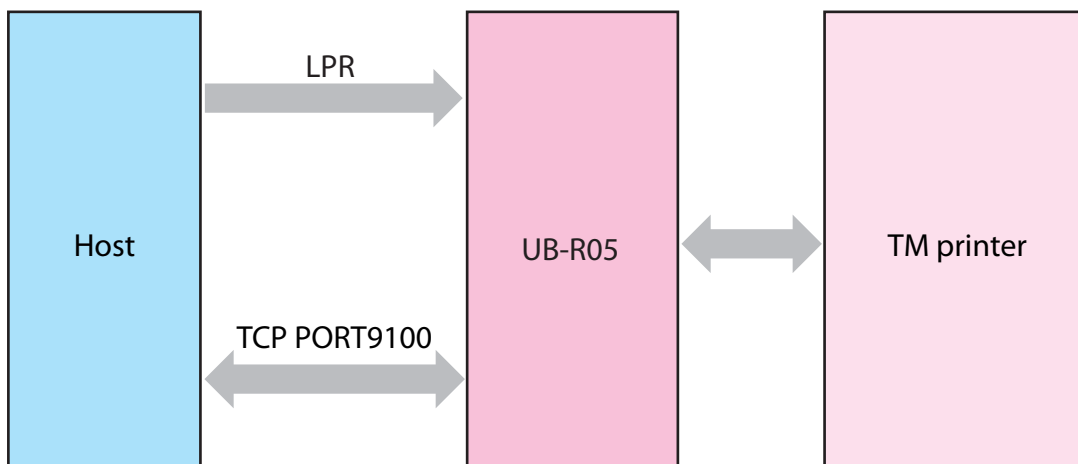
Direct printing by PORT9100

For Windows Console

The following program is a sample of printing "EPSON UB-R05" to a TM printer with the UB-R05 from the Windows shell, through the Ethernet connection.

```
/* TCP9100 programming sample for win32
 * HOW TO BUILD
 * cl wtcp.cpp wsock32.lib
 */
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <winsock.h>

int main(int argc, char* argv[])
{
        WSADATA data;
        SOCKET sock;
        struct linger Linger;
        struct sockaddr_in addr;
        char buf[64];
        int n;

        if (argc != 2) {
                printf("usage: wtcp <IP_ADDRESS>\n");
                exit(1);
        }

        /* Initialize windows socket */
        WSAStartup(0x0101, &data);

        /* Create socket */
        if ((sock = socket(AF_INET, SOCK_STREAM, 0)) == INVALID_SOCKET) {
                fprintf(stderr, "Error socket(): %d\n", WSAGetLastError());
                exit(1);
        }

        /* Set connection timeout */
        Linger.l_onoff = 1;
        Linger.l_linger = 60;
        setsockopt(sock, SOL_SOCKET, SO_LINGER, (char*)&Linger, sizeof(struct linger));

        /* initialize the parameter */
        memset(&addr, 0, sizeof(addr));
        addr.sin_family = AF_INET;
        addr.sin_port = htons(9100);
        addr.sin_addr.s_addr = inet_addr(argv[1]);

        /* connect */
        if (connect(sock, (struct sockaddr*)&addr, sizeof(addr)) < 0) {
                fprintf(stderr, "Error connect(): %d\n", WSAGetLastError());
                exit(1);
        }
        printf("connected\n");

        /* send data */
        send(sock, "EPSON UB-R05\n", 13, 0);

        /* gracefully close */
        shutdown(sock, 1);      /* SD_SEND*/
        while(1) {
                n = recv(sock, buf, 64, 0);
                if (n == SOCKET_ERROR || n == 0 ) {
                        break;
                }
        }
        shutdown(sock, 2);      /*SD_BOTH*/

        /* close socket */
        closesocket(sock);

        return 0;
}
```

For Linux

The following program is a sample of printing "EPSON UB-R05" to a TM printer with the UB-R05 from the Linux shell, through the Ethernet connection.

```
/* TCP9100 programming sample for LINUX
 * HOW TO BUILD
 * cc ltcp.c
 */
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <netdb.h>

int main(int argc, char* argv[])
{
        int sock;
        struct sockaddr_in addr;

        if (argc != 2) {
                printf("usage: ltcp <ip address>\n");
                exit(1);
        }

        /* create socket */
        sock = socket(AF_INET, SOCK_STREAM, 0);
        if (sock < 0) {
                perror("socket()");
                exit(1);
        }

        /* initialize the parameter */
        memset(&addr, 0, sizeof(addr));
        addr.sin_family = AF_INET;
        addr.sin_port = htons(9100);
        addr.sin_addr.s_addr = inet_addr(argv[1]);

        /* connect */
        if (connect(sock, (struct sockaddr*)&addr, sizeof(addr)) < 0) {
                perror("connect()");
        }
        printf("connected\n");

        /* send data */
        send(sock, "EPSON UB-R05\n", 13, 0);

        /* close socket */
        close(sock);

        return 0;
}
```

Monitoring of the ASB Status

The ASB status function of the printer is used for the UB-R05 to monitor the state of the printer. Therefore, when the transmission data from the application includes the command to nullify the ASB status function, the UB-R05 cannot control the state of the printer.

Take care not to transmit the command to nullify the ASB status function to monitor the state of the printer correctly by the UB-R05. Or retransmit the command that makes the ASB status function effective again.

Multiple connection requests

The UB-R05 permits up to 6 connection requests, regardless of the LPR/Port9100 protocol. However, only the first connection received can actually print to the TM printer, and any other connection requests will go into standby until the connection currently printing is closed.

In an environment where multiple connection requests occur, if the printing host does not close the connection and leaves it open even after printing is finished, or the connection is cut off due to some error without performing close processing, then all other connection requests will not be processed until the connection time-out occurs.

Arrange the application so that the connection is closed immediately after printing is completed.

> NOTE
>
> You can set the connection time-out using the network configuration tool (EpsonNet Config). The default is 90 sec.

Troubleshooting

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This chapter describes the measures for finding and resolving problems.

See the printer Technical Reference Guide for problems related to printing and the printer.

If this product is mounted on the TM-T88VI, also see "Limitations" on page 44.

No Communication

Cause	Recovery Procedure
Printer IP address has changed.	Specify the correct IP address. For details, see "Network Settings" on page 15.
	Set IP Address Using ARP + Ping is enabled. Disable Set IP Address Using ARP + Ping in [Configuration] - [Network] - [TCP/IP] - [IPv4 Address] of EpsonNet Config (Web version).
Printer cannot recognize UB-R05.	If the memory switch or DIP switch of the printer has the "Reset signal to pin 25" or "Reset signal to pin 31" function, set that function to "Use".
Receive buffer capacity is too small.	Set the receive buffer capacity of the printer setting to "Large".

Product Specifications

This chapter describes the specifications of the UB-R05.

Software Specifications

Supported Protocols

The UB-R05 supports the following protocols.

Protocol	Explanation
IP, ARP, ICMP, UDP, TCP	Basic transmission protocols for various functions. (They are used by the various following higher protocols.)
LPR, TCP Socket Port	Protocols for printing.
DHCP, APIPA	Protocols used to automatically set information such as the IP address.
SNMP, ENPC	Protocols used to acquire product information.
HTTP/HTTPS	• Protocols used in the Web browser performing product settings. • Protocols for printing with ePOS-Print.
DNS, DDNS, mDNS (Bonjour)	Protocols for name resolution.
SNTP	Protocols for time synchronization

Printing Protocols

The UB-R05 uses the following printing protocols.

• LPR: Transfers print data.

Port number	515
Maximum simultaneous connections	6
Number of connections that can print	1 (Other users must wait until the printing has completed.)
Timeout	Default: Approx. 90 sec. Can be set using the network configuration tool (EpsonNet Config).
Job cancellation	Not supported
Banner printing	Not supported
Print queue	Not supported

• TCP Socket Port: Transfers printing data and printer status by direct socket communications (bi-directional).

Port type	TCP communication port for direct printing
Port number	9100
Port communication direction	Bi-directional
Maximum simultaneous connections	6
Number of connections that can print	1 (Other users must wait until the printing has completed.)
Timeout	Default: Approx. 90 sec. Can be set using the network configuration tool (EpsonNet Config).
Job cancellation	Not supported

Automatic IP Address Assignment Protocols

The UB-R05 supports DHCP and APIPA, the protocols that assign an IP Address automatically. Automatic IP address assignment is performed with the protocols in the order of descending priorities shown in the table below. If automatic assignment with one protocol results in "disabled" or "failure," the subsequent protocol is used.

Protocol	Priority	Explanation
DHCP	1	Demands the assignments of the IP address, the subnet mask and the getaway address to the DHCP server and sets them.
APIPA	2	Assign only IP address from following IP addresses. 169.254.1.0 to 169.254.253.255 In this case, it is not possible to communicate on the network outside the router.
Manual assignment	3	When the automatic IP address assignment protocol is set to unused, the manually controlled address is set.

NOTE	UB-R04 and UB-R05 behave differently when the acquisition of an IP address fails. When DHCP is enabled and APIPA is disabled, they behave as described below. • UB-R04: Continues to wait until an IP address is assigned by DHCP. • UB-R05: Forces a fixed IP address (192.168.192.168). When this occurs, the subnet mask is 255.255.255.0 and the default gateway is 0.0.0.0. These settings are enabled until the printer is turned off.

Protocol for acquiring status and setting

The following protocols are used to acquire the status and set for the UB-R05.

- SNMP   The general purpose MIB management tool, OPOS/APD, uses this to acquire and set the TM printer status.

SNMP Version	SNMP v1 (RFC1157) compliant (SNMPv2 and SNMPv3 not supported.)
Protocol	UDP/IP
Server Port Number	161
Trap Sending Port Number	162
Trap Destination	Up to 2 destination IP addresses can be registered. (Initially, nothing is set.)
Supported PDU type	Get Request, Get Next Request, Get Response, Set Request, Trap
Community	Each community name can be set with 32 ASCII characters or less.

- ENPC   The network configuration tool (EpsonNet Config) and the dedicated driver software (such as OPOS/APD) use this to acquire and set the TM printer status.

Protocol	UDP/IP
UDP port number	3289
Compatible packet types	Probe, Initialize, Query, Setup, Notify

- HTTP/HTTPS   EpsonNet Config (Web version) uses HTTP/HTTPS protocol on the dedicated Web page for acquiring and changing the UB-R05's network parameters.

Server Port Number	HTTP: 80, HTTPS: 443
User name	"epson" (cannot be changed)
Password	(Default value) Product serial number Each community name can be set with 20 ASCII characters or less.*
Supported language	English
No. of possible simultaneous connections	1

*The password set for EpsonNet Config (Web version) can also be used for EpsonNet Config.

System Bootup Time

The UB-R05 requires some bootup time for initializing the system after power-on or system reset.

The network communication functions are unavailable during system bootup. The required bootup time is as follows.

When setting the IP address in the Manual mode: Approximately 15 seconds

When automatically setting the IP address with the DHCP server: Approximately 20 seconds (depending on the DHCP server's response speed)

NOTE	When starting the printer for the first time after it is shipped from the factory, or for the first time after the factory reset, startup might take about 1 minute longer than usual in order to configure the default settings.

Supported TM Printers

The UB-R05 can be used in combination with the following TM printers.

TM-H2000, TM-H6000IV, TM-L90*, TM-T70II, TM-T88V, TM-T88VI, TM-U220, TM-U288

Inquire with your dealer regarding new TM printers not listed above.

*: For TM-L90, only the 4**, 39*, 65*, and 66* models are available for use.

Environmental Specifications

Item		Specifications
Temperature / Humidity	Operating Conditions	0 to 50°C {32 to 122°F}, 10 to 90% RH non-condensing
	Storage Conditions (In shipping packaging)	-10 to 50°C {14 to 122°F}, 10 to 90% RH non-condensing

Limitations

The UB-R05 has the following limitations. For limitations on TM printers, see Technical Reference Guides for TM printers.

TM Printer Settings

- Set the receive buffer capacity of the printer setting to "Large".

Communication

- When printing a high volume of data such as graphics, the print speed may be slower.
- For cautions regarding wireless LAN communication, see "Wireless LAN Connection" on page 5.

Using Peripheral Devices

- You cannot use the TM printer's DM-D (customer display) connector. Also, be careful not to accidentally connect the LAN cable to the DM-D connector or drawer kick connector.
- You cannot connect a customer display or barcode scanner to the printer's USB connector (Type-A).

Using the UB-R05 with the TM-T88VI

- Some of the printer's functions are not available when the UB-R05's LAN connector is used. If you want access to all of the printer's functions, use the printer's LAN connector.

LAN connector on the printer

LAN connector on the UB-R05
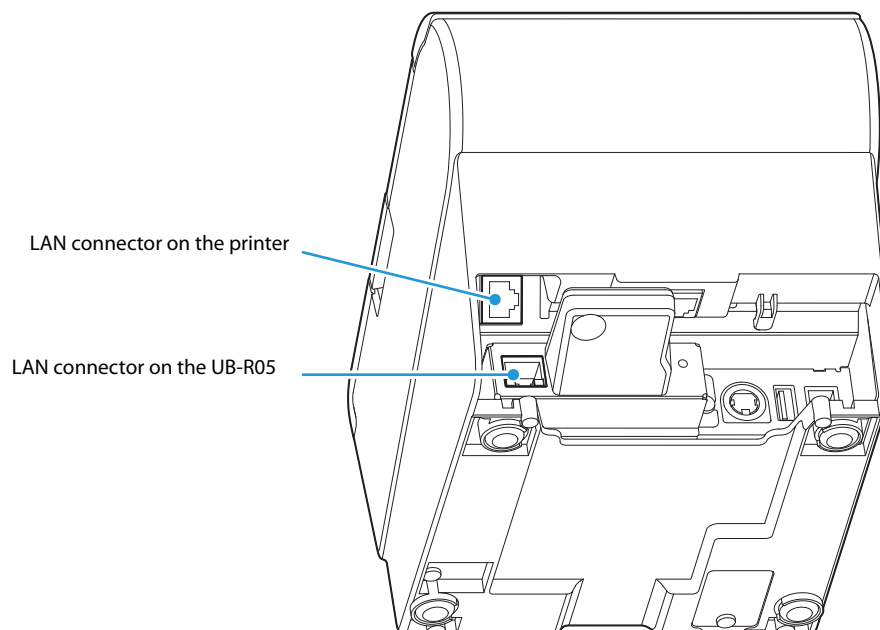
- To use the UB-R05's LAN connector when printing, select UIB fixed, AUTO, or Multiple in the interface settings for the printer.

- To use the printer's LAN connector, select either Ethernet (Wi-Fi) fixed or Multiple.

- If the printer's status sheet button or paper feed button is used to print the status sheet, the QR code information that is printed is information for the LAN connector that is mounted on the printer.
  For information about the LAN connector on the UB-R05, use the push button on the UB-R05 to print the status sheet.

- You cannot configure the network information for UB-R05 when using the following software.

  - TM-T88VI Utility
  - Epson TM Utility for iOS/Android

Open Source Software License

This product uses open source software in addition to Epson proprietary software.

For information of the open source software used in this product, see the following URL.

http://xxx.xxx.xxx.xxx/licenses.html

(xxx.xxx.xxx.xxx is the printer's IP address.)

Appendix

The following indicates the defaults for the UB-R05 network parameters, if they can be displayed and set using EpsonNet Config / EpsonNet Config (Web version), and if they are displayed on the status sheet.

Ethernet and Wireless LAN Shared Settings and Browsable Items

Articles	Parameters	Default	EpsonNet Config		EpsonNet Config (Web version)		Printing the status sheet
			Refer	Setting	Refer	Setting	
IP Address		192.168.192.168	○	○	○	○	○
Subnet Mask		255.255.255.0	○	○	○	○	○
Gateway Address		0.0.0.0	○	○	○	○	○
Acquiring the IP Address	Manual Auto	Auto	○	○	○	○	○
APIPA	Enable Disable	Disable	○	○	○	○	×
Set IP Address Using ARP + Ping	Enable Disable	Disable	○	○	○	○	×
Administrator Name	Up to 255 characters	" " (no value)	○	○	○	○	×
Location/Person	Up to 255 characters	" " (no value)	○	○	○	○	×
Password	Up to 20 characters	Product serial number	×	○	×	○	×
Standard Community Name	(Read only)	"public"	×	×	○	×	×
Community Name (read only)	Up to 32 characters	" " (no value)	○	○	○	○	×
Community Name (read/write)	Up to 32 characters	" " (no value)	○	○	○	○	×
IP Trap1	Enable Disable	Disable	×	×	○	○	×
IP Trap2	Enable Disable	Disable	×	×	○	○	×
Community Name (IP Trap #1)	Up to 32 characters	" " (no value)	×	×	○	○	×
Community Name (IP Trap #2)	Up to 32 characters	" " (no value)	×	×	○	○	×
IP Trap #1 Address	–	0.0.0.0	×	×	○	○	×
IP Trap #2 Address	–	0.0.0.0	×	×	○	○	×
Socket Timeout	1 - 300 sec 0 (no timeout)	90 sec	○	○	○	○	×

Articles	Parameters	Default	EpsonNet Config		EpsonNet Config (Web version)		Printing the status sheet
			Refer	Setting	Refer	Setting	
Time Server Status	Invalid Success Synchronize Failure	Invalid	○	○	○	○	○
Time Server Address	–	0.0.0.0	○	○	○	○	×
ePOS-print	Enable Disable	Disable	×	×	○	○	×
Printing Method	Impact Impact (24pin) Thermal (180dpi) Thermal (203dpi)	Thermal (180dpi)	×	×	○	○	×
Character Code Table	*	Page 0-5, 16-19, 20-21, 26, 30-31, 11-15, 32-53	×	×	○	○	×

* The following are the parameters that can be set for Character Code Table.

- Page 0
- Page 0, 2,16
- Page 0-5, 16-19 (GB2312)
- Page 0-5, 16-19
- Page 0-5, 16-19, 20-21, 26
- Page 0-5, 16-19, 20-21, 26, 30-31
- Page 0-5, 16-19, 20-21, 26, 30-31, 11-15, 32-53

Ethernet Settings and Browsable Items

Articles	Parameters	Default	EpsonNet Config		EpsonNet Config (Web version)		Printing the status sheet
			Refer	Setting	Refer	Setting	
arp+ping IP setting	Enable Disable	Disable	○	○	○	○	×
Communication mode setting	Auto Negotiation 10BASE-T Half 10BASE-T Full 100BASE-TX Half 100BASE-TX Full	Auto negotiation	○	○	○	○	○
MAC Address	–	For details about the MAC address, see "MAC Address Confirmation" on page 32.	○	×	○	×	○

Wireless LAN Settings and Browsable Items

Articles	Parameters	Default	EpsonNet Config		EpsonNet Config (Web version)		Printing the status sheet
			Refer	Setting	Refer	Setting	
SSID	Up to 32 characters	"EPSON_Printer"	○	○	○	○	○
WPA/WPA2 Pre-Shared Key (Pass Phrase)	8-63 ASCII characters or up to 64 hexadecimal characters	"EpsonNet"	×	○	×	○	×
MAC Address	–	For details about the MAC address, see "MAC Address Confirmation" on page 32.	○	×	○	×	○
Network Mode	Infrastructure	Infrastructure	○	×	○	×	○
Wireless Settings: Communication Standard	802.11b/g/n 802.11a/n/ac Auto	802.11b/g/n	○	○	○	○	○
Security Type	None WPA-PSK(AES) WPA2-PSK WPA2-Enterprise	WPA2-PSK	○	○	○	○	○
Authentication Algorithm	Open System Shared Key Auto	Open System	○	○	○	○	×
WLAN Power Save	Enable Disable	Disable	○	○	○	○	×

UB-R04 and UB-R05

The comparison table between the UB-R04 and the UB-R05 is shown below.

Specifications		UB-R04	UB-R05
Communication function	Ethernet standard	–	10Base-T, 100Base-TX Full duplex, Half duplex, Auto duplex
	Wireless LAN standard	IEEE 802.11a/b/g/n	IEEE 802.11a/b/g/n/ac
	Frequency	2.4 GHz/5 GHz	
	Wireless mode	Infrastructure AdHoc	Infrastructure
	Wireless mode default value	Infrastructure	
	SSID default value	EPSON_Printer	
	WEP support	Supported	Not supported
	Security default value	WPA2-PSK	
	Communication protocols	IP, ARP, ICMP, UDP, TCP	
	Protocols for name resolution	DNS, DDNS, mDNS (Bonjour)	
	Printing protocols	LPR, TCP Socket Port, HTTP	LPR, TCP Socket Port, HTTP, HTTPS
Setting function	Automatic IP address assignment protocols	DHCP, APIPA	
	Default value for IP address acquisition method	Manual	Auto
	arp/ping commands	Not supported	Supported
	Protocol for acquiring status and setting	SNMP, ENPC, HTTP, HTTPS	
	Utility for network setting	EpsonNet Config, EpsonNet Config (Web version)	
	Password-protected internal settings	Supported	
	Timeout setting (LPR, Port9100)	Approx 1 minute	90 seconds
	Default value for Wi-Fi® Power Save	Enable	Disable
	Configuration interface	USB	Ethernet
Added functions	ePOS-Print support	Supported (HTTP only)	Supported (HTTP, HTTPS)
	ePOS-Print default value	Disable	