PicoBrg Manual

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1 Please read

***When using PicoBrg, be sure to check the terms of use on the Shiomachi Software website.**

<Terms of Use URL>
https://sites.google.com/view/shiomachisoft/english-home/terms-of-use

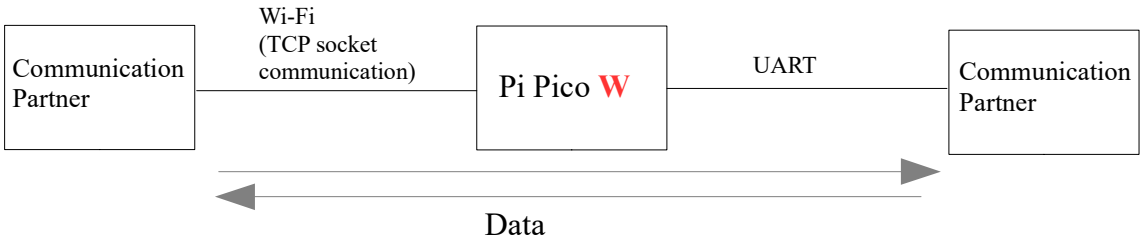
Furthermore, Shiomachi Software (the creator of PicoBrg) assumes no responsibility whatsoever for any trouble, loss, or damage arising from the use of PicoBrg or from the contents of this document.

2 Overview

We will use a Raspberry Pi Pico W.
PicoBrg is firmware that performs **Wi-Fi (TCP socket communication) <==> UART** line conversion.

-The Pico W can act as both a TCP server and a TCP client.
-You will need a wireless LAN router that supports the 2.4 GHz Wi-Fi standard "IEEE 802.11b/g/n."

<System configuration >



3 Contents

3.1 Firmware (FW)

(1) PicoBrg_*XXXXXXXX*.uf2

*XXXXXXXX is the version date.

Write to Pi Pico W.

3.2 PC App

(1) PicoJigApp_*XXXXX*フォルダ

* XXXX is the version.

This folder contains the binaries for PicoJigApp (an app that runs on a Windows PC).

PicoJigApp is used for UART settings and wireless LAN settings.

4 Setup

4.1 Write FW to Pi Pico W

Below are the steps to write the firmware to Pi Pico W.

(1) While pressing the white button on the Pi Pico W, connect the Pi Pico W to your PC with a USB cable. The RPI-RP2 drive will then be recognized.

(2) Drag PicoBrg_XXXXXXXX.uf2 into the RPI-RP2.

This completes the firmware writing process.
The firmware will start up when the Pi Pico W is turned on.

4.2 PC setup

(1) Copy the PicoJigApp_XXXXX folder to a suitable location on your PC (such as the desktop).
PicoJigApp is used for UART settings and wireless LAN settings.

For Windows, .NET Framework 4.x.x must be enabled, with .NET Framework 4.6.2 or higher.
Not compatible with .NET 5 and higher.
Enabling the .NET Framework is at your own risk.

5 LED

5.1 LED lighting

- If Pi Pico W is not connected to a wireless LAN router, the LED will flash at 500ms intervals.
- If Pi Pico W is connected to a wireless LAN router, the LED will be lit instead of flashing.

6 Pins Used

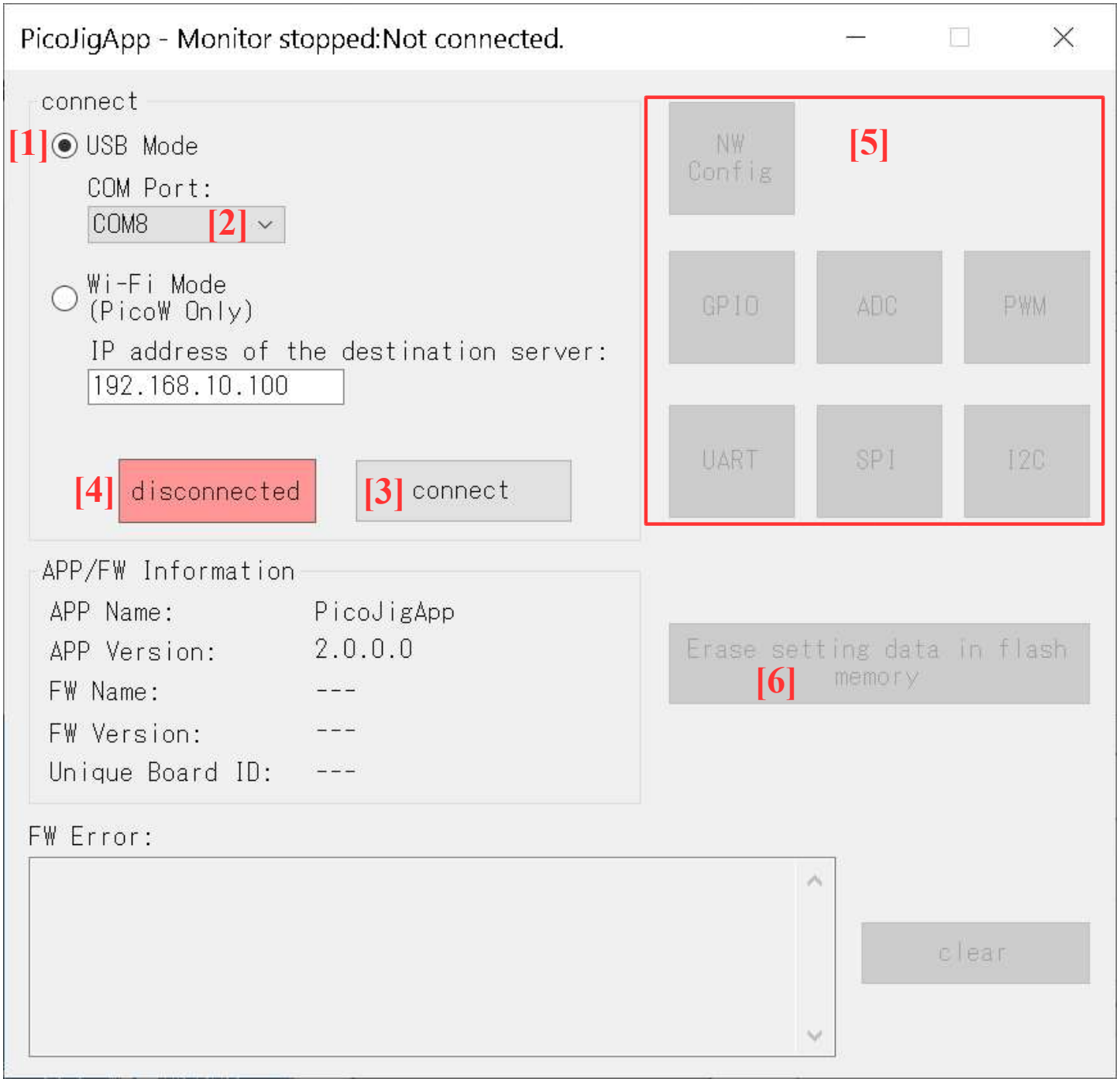
6.1 Pins used by UART

The pins on the Pi Pico used for UART are as follows:
-UART0 TX = GP0 = pin 1
-UART0 RX = GP1 = pin 2

7 Configure UART and wireless LAN settings in setting mode

7.1 Starting PicoJigApp

7.1.1 Main Screen



7.1.2 Start and Connection

(1) After connecting Pi Pico W with the USB cable, wait about 10 seconds and then double-click PicoJigApp.exe in the PicoJigApp_XXXXX folder. *The reason for waiting about 10 seconds is because it takes time for Windows to recognize Pi Pico W's virtual COM. Double-clicking PicoJigApp.exe will display the main screen from the <Main Screen> chapter.

(2) Leave [1] on the <Main screen> ON.

(3) After selecting the Pi Pico COM number in [2] on the <Main screen>, press the [3] button.

If [4] on the <Main screen> changes to "connected", the connection to Pi Pico W has been established.

If an error message box appears, try the following.
-If there are multiple COM numbers in the list in [2], change the COM number selection in [2] and then press [3].
-Check the connection of the Pi Pico USB cable, wait 10 seconds, and then restart PicoJigApp.exe.

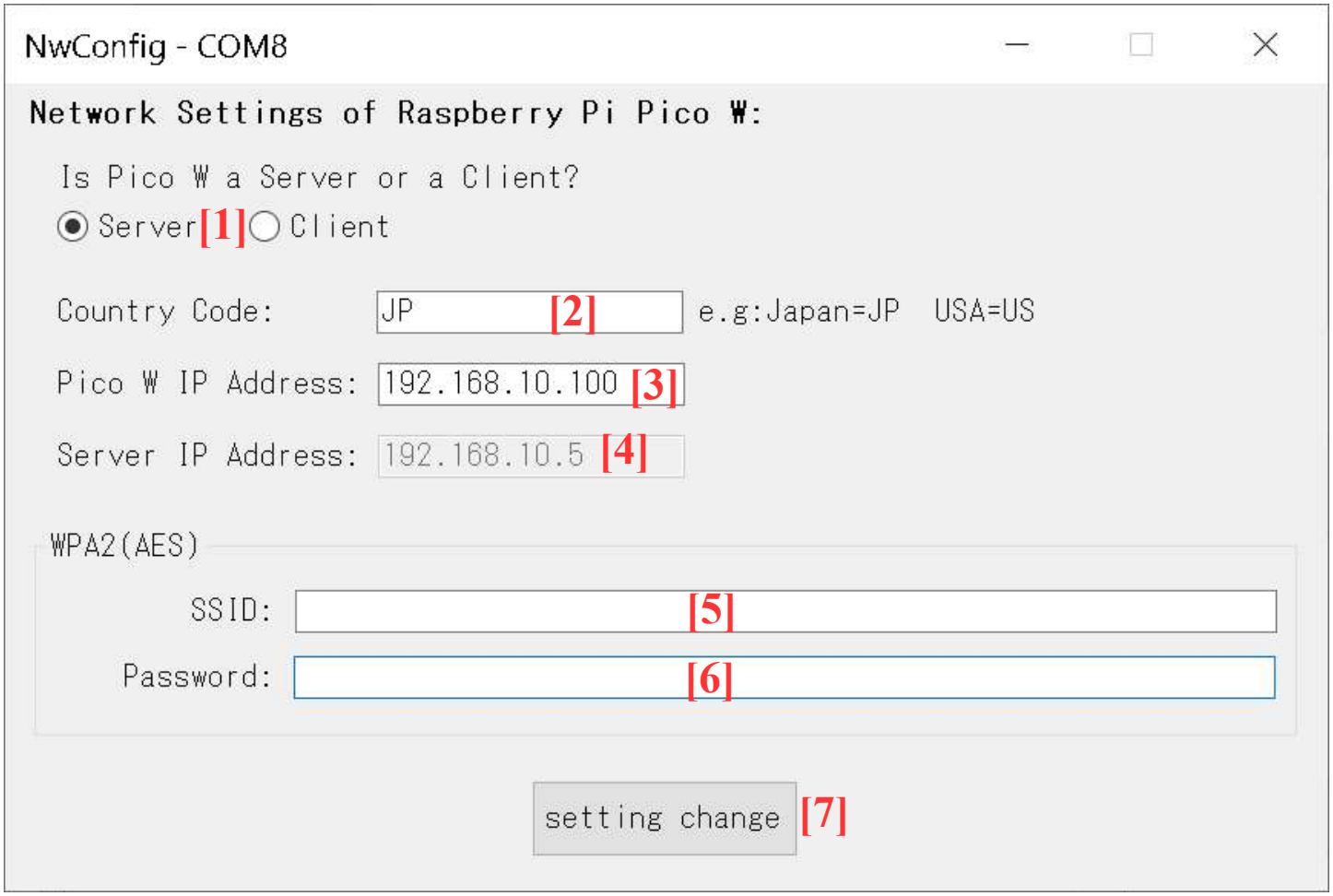
When [4] on the <Main screen> changes to "connected", the buttons in [5] (*1) and [6] on the <Main screen> will become enabled.

*1:
The UART button and NW Config button will become enabled.

7.2 Wireless LAN settings

7.2.1 Wireless LAN setting screen

The wireless LAN setting screen is displayed when you press the [NW Config] button in [5] on the <Main screen>.



(1) Use the radio button [1] to select whether Pi Pico W will be a server or a client.

(2) Enter the country code in the box [2].
<Example>
-Japan: JP
-United States: US

(3) Enter the IP address you want for your Pi Pico W in the box [3].
<Example>
If you want your Pi Pico W IP address to be 192.168.10.100:
192.168.10.100

*The socket port number is fixed at 7777.

(4) If Pi Pico W is a client, enter the server IP address in box [4].

(5) Enter the SSID of your wireless LAN router in the box [5].

*Conditions for the SSID of a wireless LAN router that can be specified:
-It must be compatible with the Wi-Fi standard "IEEE 802.11b/g/n" that uses the 2.4 GHz band. Be careful not to accidentally specify an SSID that uses the 5 GHz frequency band.
-The encryption method must be WPA2 (AES).

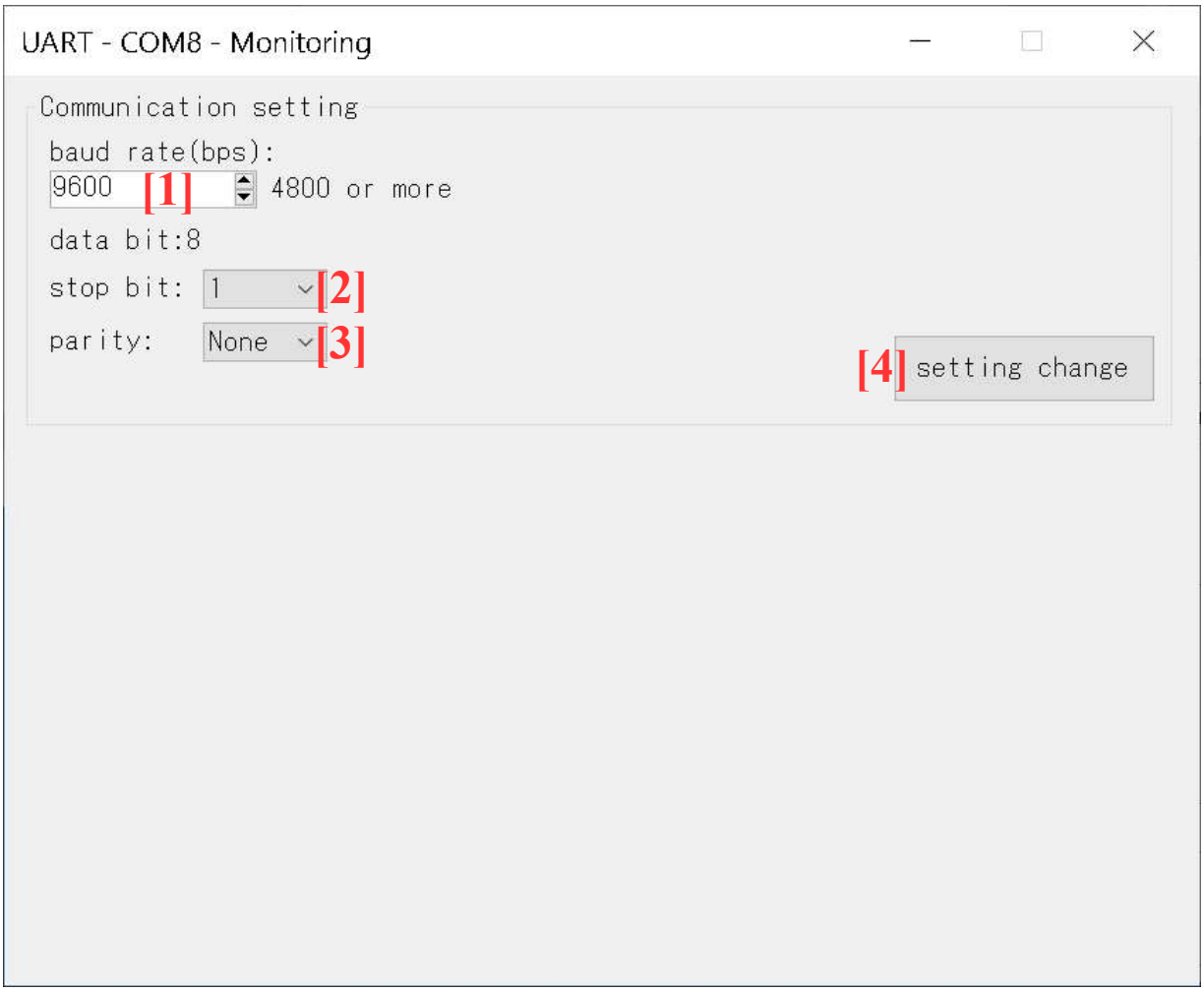
(6) Enter the password for your wireless LAN router in the box [6].

(7) Press the button [7] to configure the wireless LAN settings.

7.3 UART Settings

7.3.1 UART screen

The UART screen is displayed when you press the [UART] button in [5] on the <Main screen>.



You can change the UART settings using the following procedure.
(1) Select the baud rate in [1].

(2) Select the stop bit in [2].

(3) Select the parity in [3].

*The data bit is fixed at 8.

(4) Press the [4] button.

Pressing the [4] button will configure the UART settings.

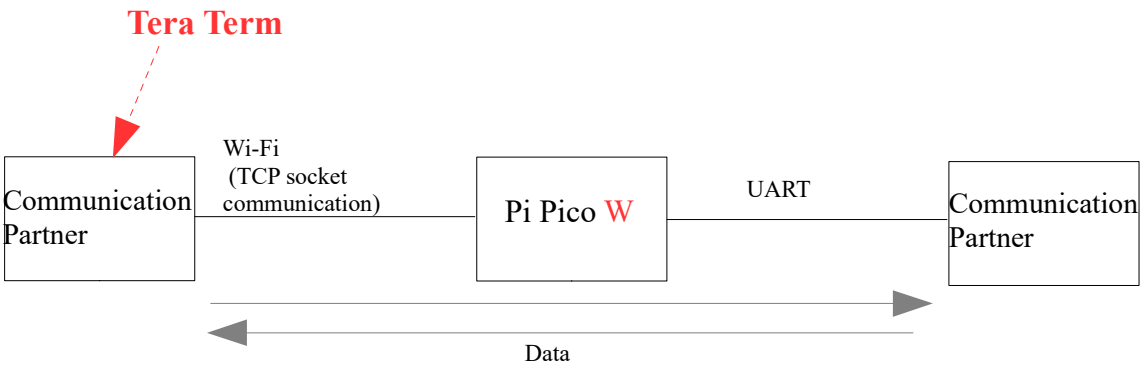
The default UART settings are as follows:
-9600bps, data bit length = 8bit (fixed), stop bit length = 1, parity = none

7.3.2 Erasing the configuration data in the Flash memory

The following setting data is saved in the end of the Pi Pico W's Flash memory.
-Wireless LAN settings
-UART settings
*If you are no longer using PicoBrg, we recommend that you erase the setting data saved in the end of the Flash memory using the [6] button on the <Main screen>.

8 When using Tera Term as the communication partner in line conversion mode

8.1 Wi-Fi<==>UART

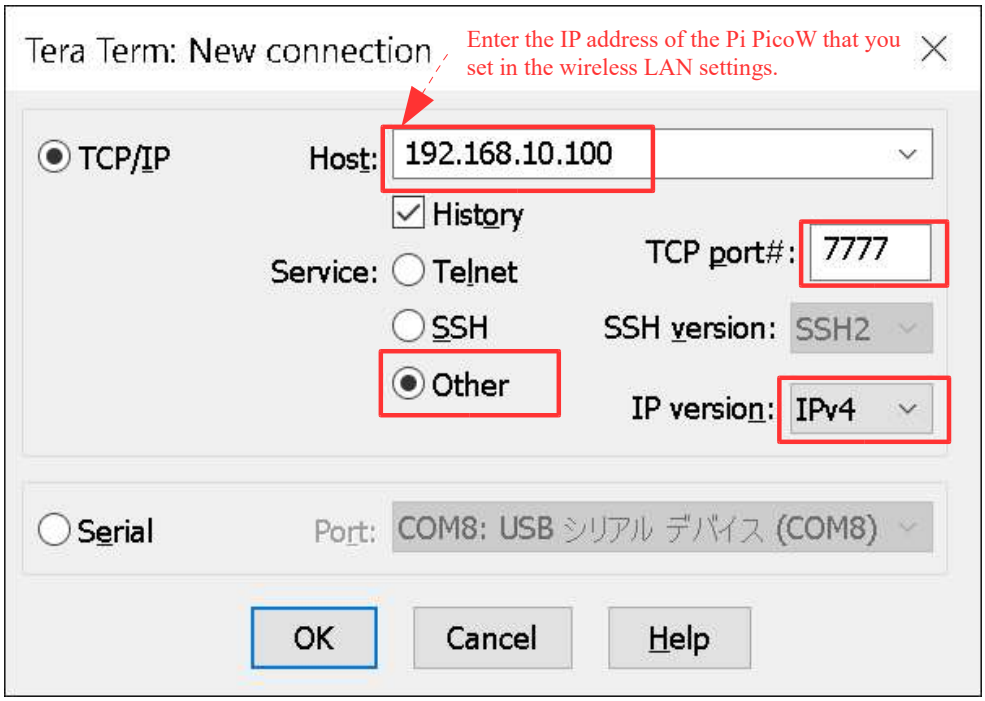


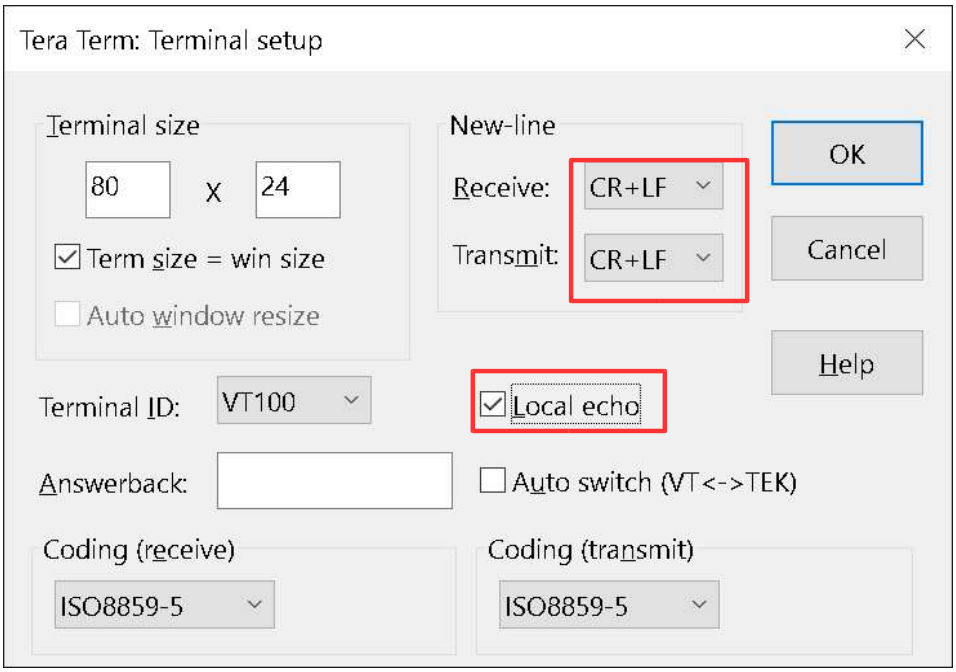
***Preparation**

(1) Please complete the Wireless LAN settings in setting mode.
Set Pi Pico W as a TCP server.
(2) Please make sure that the LED on Pi Pico W is lit and not flashing.
(Please make sure that Pi Pico W is connected to the wireless LAN router.)

*If the LED continues to flash and does not light up, please do the following.
- Check that there are no devices near Pi Pico W that may cause radio interference.
- Check that the Wireless LAN settings are correct.

***Tera Term Settings**





-Note

Only in the case of TCP, it seems that you need to press the Enter key when sending from Tera Term. (This is about the behavior on the Tera Term side.)