# 2.4 GHz Band Wireless unit

## Setting Utility
## (SWL31-UT1)

## User's Manual

Thank you for purchasing our 2.4 GHz Band Wireless unit (hereinafter called "Wireless unit").
To use the Wireless unit correctly and safely, please read this manual carefully before using it to understand sufficiently its functions and performance.

---

### Cautions

1. Do not copy this user's manual without permission.
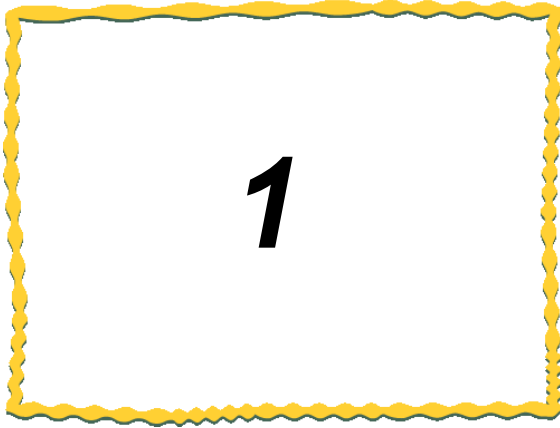2. Please note that descriptions in this manual are subject to change without notice.

---

## ▲ Mitsubishi Electric System & Service Co., Ltd.

# ◆ USAGE PRECAUTIONS

- Observe the following while parameters are being written to the Wireless unit. If not, breakdowns may occur.

  ・Do not turn off the power of the Wireless unit.

  ・Do not interrupt the communication between PC and the Wireless unit by pulling out of USB cable.

- It is recommended that you decide on a port on your PC to connect the Wireless unit if the PC has multiple USB ports. If you change the USB port to connect the Wireless unit, re-installation of the driver will be required.

- Do not connect multiple Wireless units to PC.

# ◆ Table of Contents

# 1

# 1. OVERVIEW

## 1.1. Overview

This product is a software application for setting the parameters of our 2.4 GHz Band Wireless units.

## 1.2. Disclaimer

This product is a utility program for wiring the settings of the Wireless unit.

We assume no responsibility for setting data and malfunctions in the use of this product.

## 1.3. Operating Environment

The operating environment for this product is as follows:

| Item no. | Item | Specifications | Remarks |
|---|---|---|---|
| 1 | CPU | Pentium 1.7 GHz or higher | — |
| 2 | Hard Disk Capacity | 20 Mbyte | — |
| 3 | Required Memory Capacity | 1 GB or higher (recommended) | — |
| 4 | OS | Windows 7 | — |
| 5 | Display Resolution | 1024 × 768 or higher; 60,000 colors or more recommended | — |
| 6 | Communication Interface | USB port | USB cable (USB Type A - USB Type Mini-B) |
| 7 | Others | .net Framewarks4.0* | — |

\* If it is not installed, please download it from the Microsoft website.

## 1.4. Target Model

The following two models are target models to set parameters with this product.
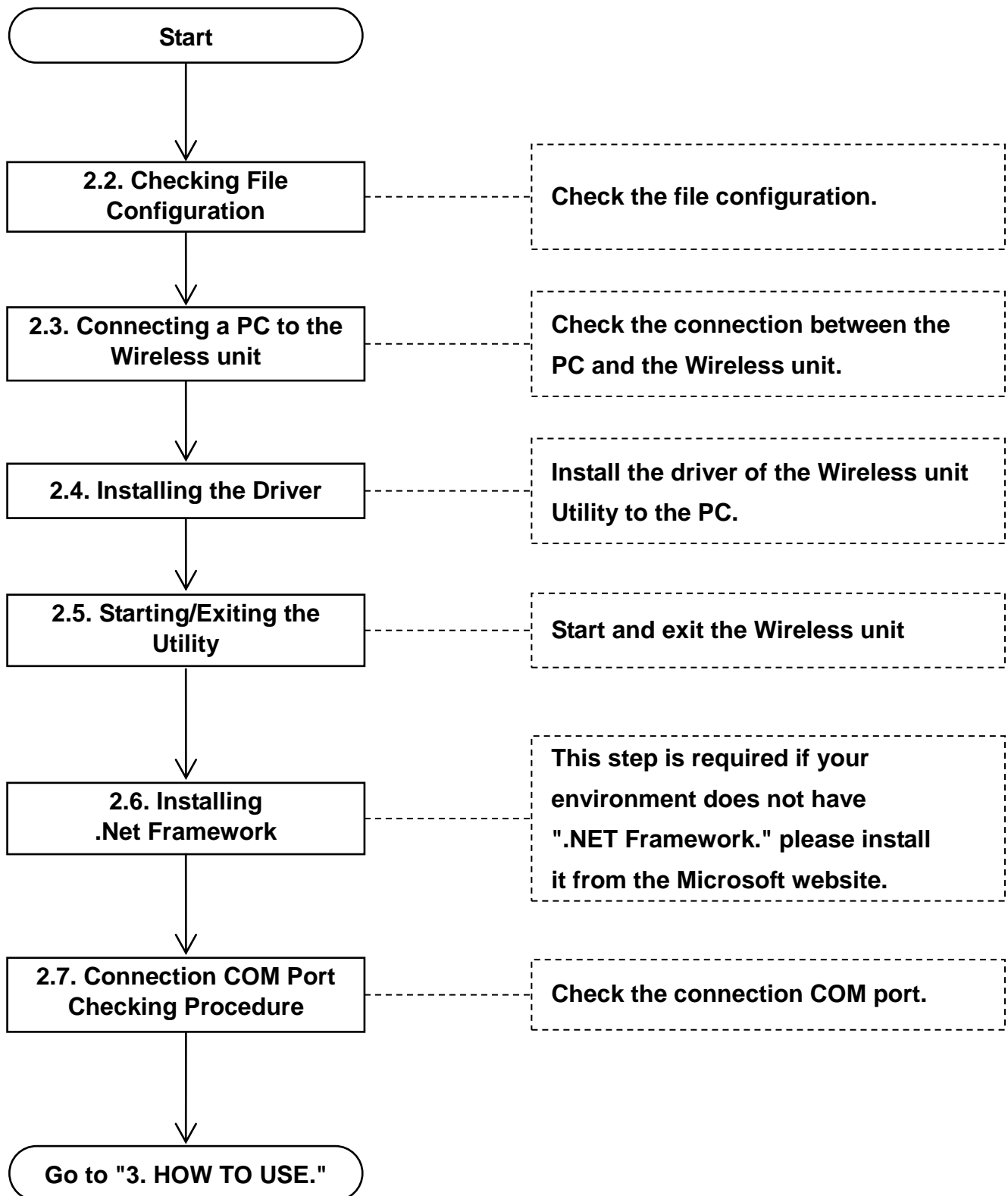
**(1) SWL31-ETMC**
**(2) SWL31-R4ML**

# 2
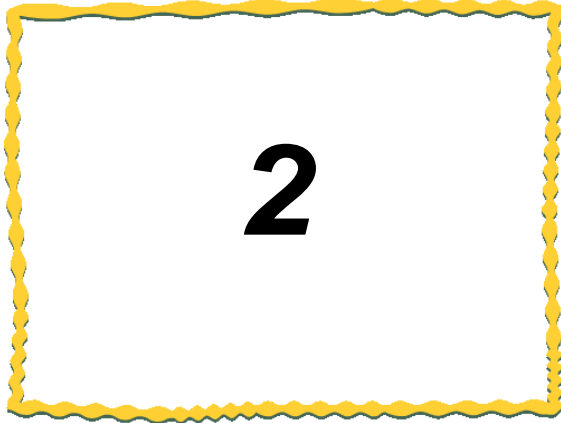
# 2. UTILITY PREPARATION

# 2.1.　Procedure

The utility preparation procedure is described below.

```
                    ┌──────────────────────────┐
                    │          Start           │
                    └──────────────────────────┘
                                 │
                                 ▼
        ┌──────────────────────────┐          ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
        │  2.2. Checking File      │ ─ ─ ─ ─ ─   Check the file configuration.
        │      Configuration       │          └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
        └──────────────────────────┘
                     │
                     ▼
        ┌──────────────────────────┐          ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
        │  2.3. Connecting a PC to │ ─ ─ ─ ─ ─   Check the connection between the
        │      the Wireless unit   │             PC and the Wireless unit.
        └──────────────────────────┘          └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
                     │
                     ▼
        ┌──────────────────────────┐          ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
        │  2.4. Installing the     │ ─ ─ ─ ─ ─   Install the driver of the Wireless unit
        │      Driver              │             Utility to the PC.
        └──────────────────────────┘          └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
                     │
                     ▼
        ┌──────────────────────────┐          ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
        │  2.5. Starting/Exiting   │ ─ ─ ─ ─ ─   Start and exit the Wireless unit
        │      the Utility         │           └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
        └──────────────────────────┘
                     │
                     ▼
        ┌──────────────────────────┐          ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
        │  2.6. Installing         │ ─ ─ ─ ─ ─   This step is required if your
        │      .Net Framework      │             environment does not have
        └──────────────────────────┘             ".NET Framework." please install
                     │                            it from the Microsoft website.
                     ▼                          └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
        ┌──────────────────────────┐          ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
        │  2.7. Connection COM Port│ ─ ─ ─ ─ ─   Check the connection COM port.
        │      Checking Procedure  │          └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
        └──────────────────────────┘
                     │
                     ▼
        ┌──────────────────────────┐
        │  Go to "3. HOW TO USE."  │
        └──────────────────────────┘
```

## 2.2.　Checking File Configuration

[For Windows 7]

| File name | Details |
|---|---|
| Download file | |
| ├ SWL31-UT1.exe | The Setting Utility program |
| \| | |
| ├Driver | A driver for PC communication |
| \| └CDC_Demo_Win7.inf | |
| \| | |
| ├Util.rci | Manufacturer setting file |
| \| | |
| └SWL31-UT1_Manual.pdf | This document |

## 2.3.　Connecting a PC to the Wireless unit

1. Connect the USB (mini-B) connector to the USB port
   on the right side of the unit and the USB (A)
   connector to the PC.
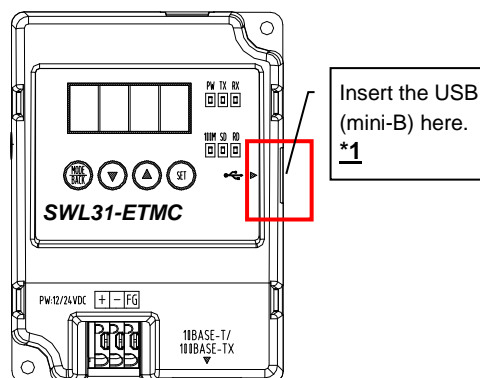
2. Turn on the power while pressing the "SET" button.
   - If the seven segment display shows "USB",
     starting-up has succeeded.
   - If anything other than "USB" is shown on the
     seven segment display, please retry again.
   - The USB Mode is activated even when you keep
     pressing the "SET" button for five seconds while
     the seven segment display shows "CH" or "E*"
     (error).



Insert the USB (mini-B) here. *1

SWL31-ETMC

**\*1.　The customer should obtain a USB cable.**

---

### !!! Caution !!!

**It is recommended that you decide on a port on your PC to connect the
Wireless unit if the PC has multiple USB ports. If you change the USB port
to connect the Wireless unit, re-installation of the driver will be required.**
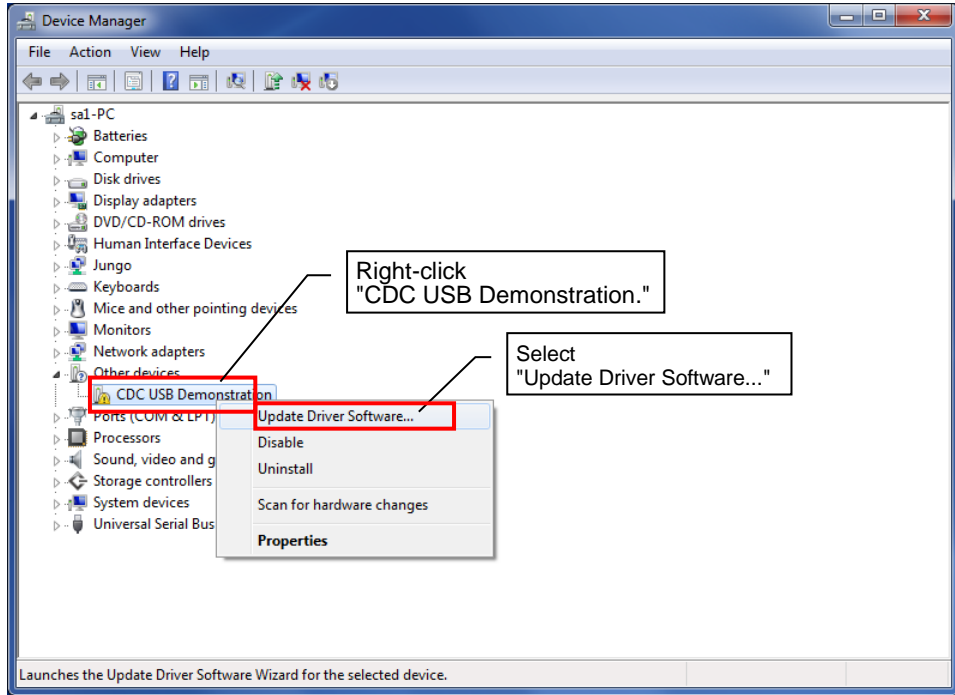
# 2.4. Installing the Driver

The driver for the Wireless unit Utility is installed to the PC.

1. Start "Device Manager" from "Start" ⇒ "Control Panel."

   (If the control panel is accessed by the category display, start "Device Manager" from "Start" ⇒ "Control Panel" ⇒ "Hardware and Sound.")
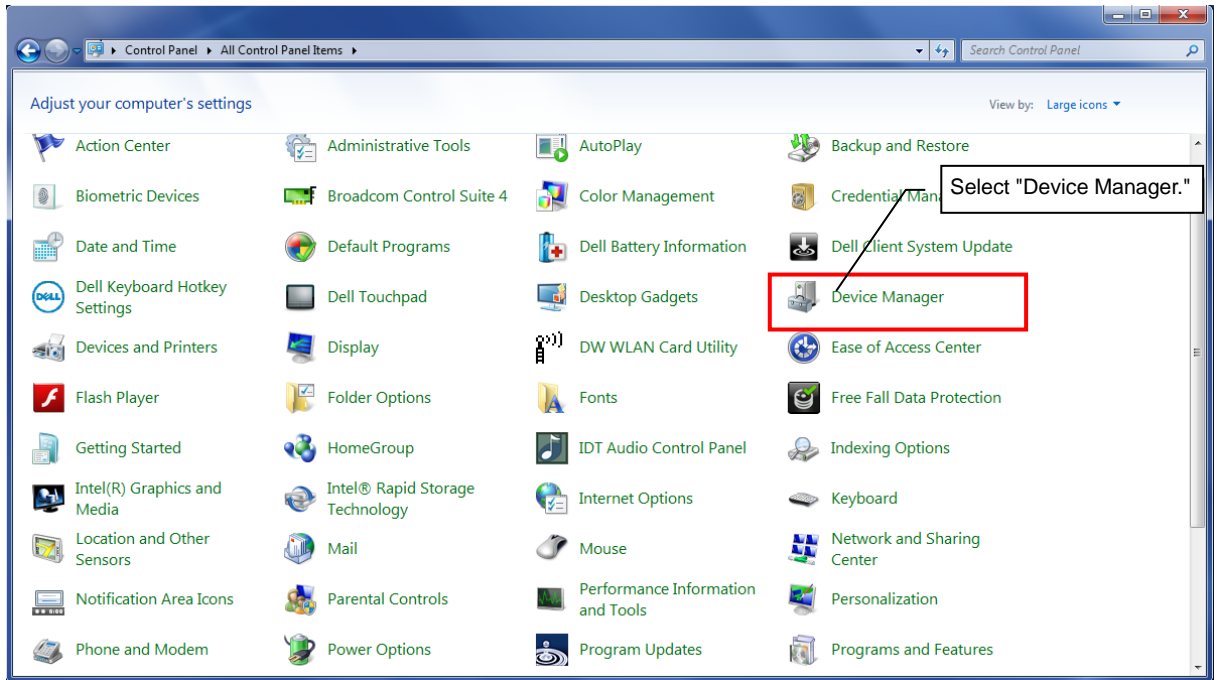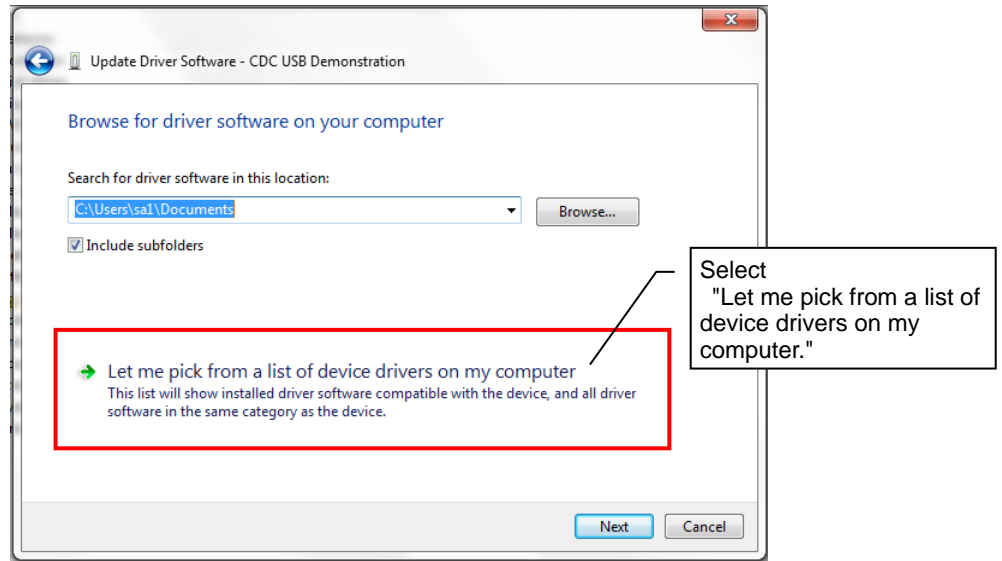
2. Right-click "CDC USB Demonstration" in "Other devices" and select "Update Driver Software..."



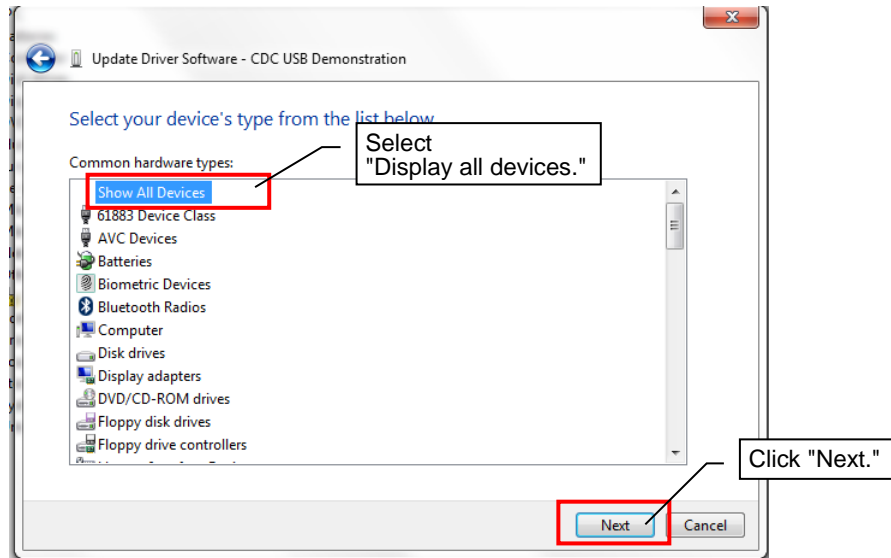3. The Update Driver Software dialog will be displayed. Select "Browse my computer for driver software."

4. Select "Let me pick from a list of device drivers on my computer."
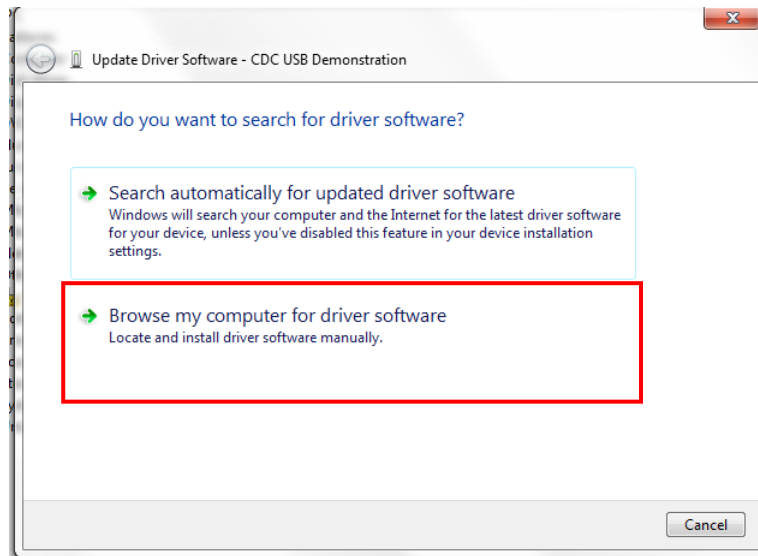


Select
 "Let me pick from a list of
device drivers on my
computer."

5. The device type selection screen will be displayed. Select "Display all devices" and click "Next."



Select
"Display all devices."

Click "Next."

6. The driver selection dialog will be displayed. Click the "Use Disk..."



Click "Use Disk..."
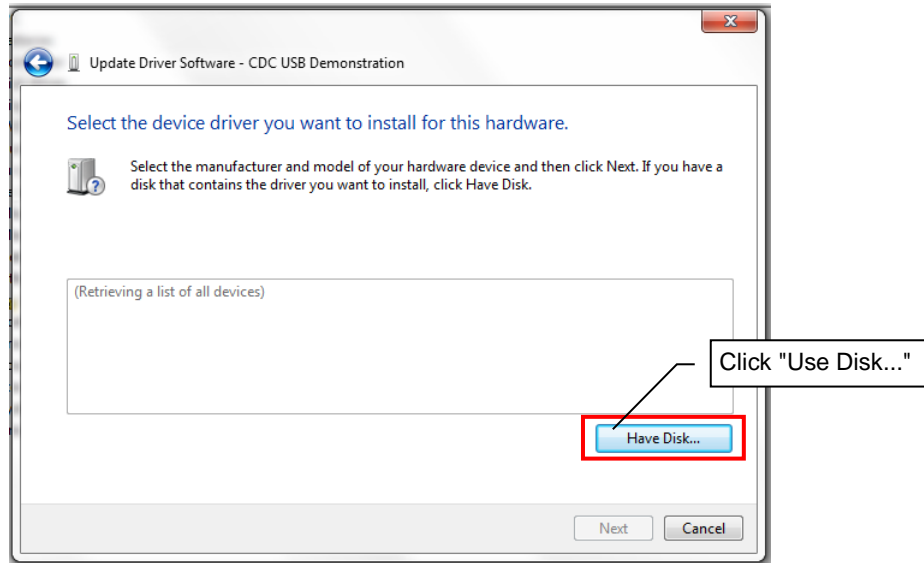
7. The reference source setting dialog will be displayed. Click the "Browse" button.



Click "Browse."
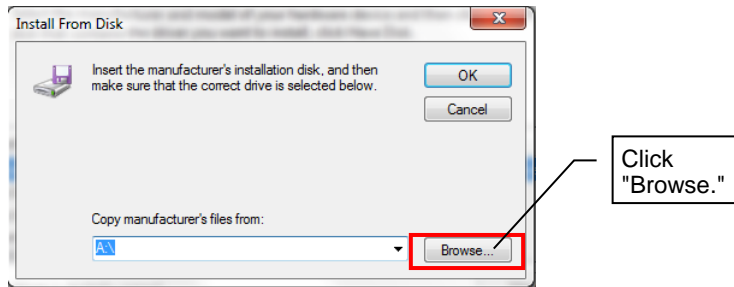
8. The file location specification dialog will be displayed. Select "CDC_Demo_Win7.inf" from "driver" in the download folder and click "Open."



Select "CDC_Demo_Win7.inf."

Click "Open."

2-7

9. Check that the correct address is displayed under "Manufacturer's file copy source" and click the "OK" button.

Check "Manufacturer's file copy source."

Click "OK."

Install From Disk

Insert the manufacturer's installation disk, and then make sure that the correct drive is selected below.

OK

Cancel

Copy manufacturer's files from:

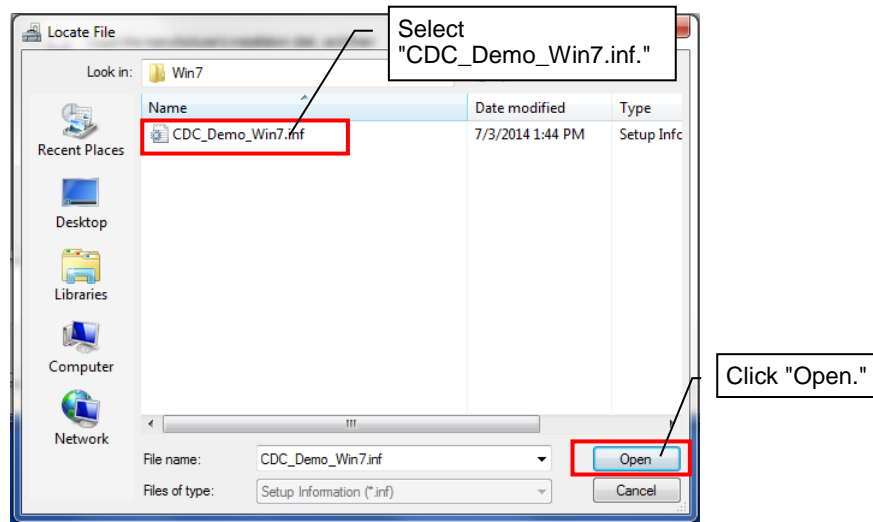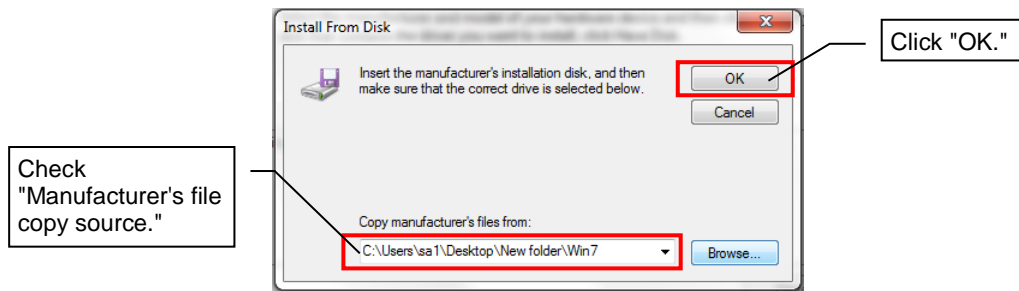C:\Users\sa1\Desktop\New folder\Win7    Browse...

10. Check that "CDC USB for Utility" is displayed under Model and click "Next."

Update Driver Software - CDC USB Demonstration

Select the device driver you want to install for this hardware.

Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.

Check that "CDC USB for Utility" is displayed.

Show compatible hardware

Model

CDC USB for Utility

⚠ This driver is not digitally signed!

Tell me why driver signing is important

Have Disk...

Click "Next."

Next    Cancel

11. The warning dialog below may be displayed. If so, click the "Install this driver software anyway." .

Click
 "Install this driver software anyway."

Windows Security

Windows can't verify the publisher of this driver software

→ Don't install this driver software
You should check your manufacturer's website for updated driver software for your device.

→ Install this driver software anyway
Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or steal information.

See details

12. The driver software installation will start.

Wait for about five minutes until the installation is complete.

Update Driver Software - CDC USB Demonstration

Installing driver software...
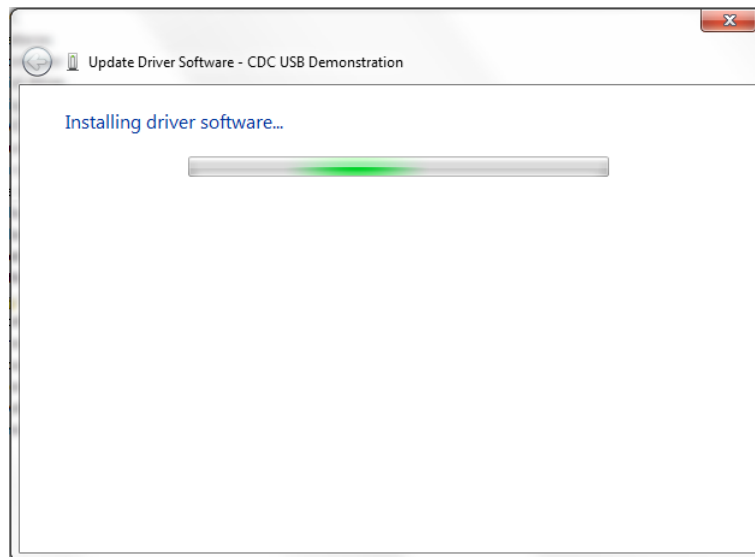
13. When the driver installation is complete normally, the screen below will be displayed.

   Click the "Close" button.



Click "Close."
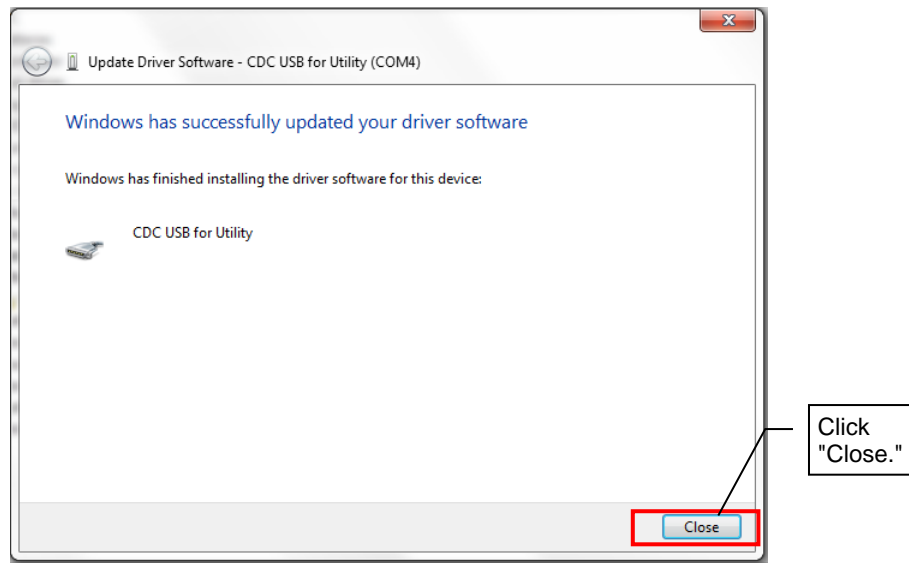
14. After the driver installation is complete, check the "Other devices" item (or "CDC USB Demonstration" within the "Other devices" item) has disappeared and "CDC USB for Utility" is displayed within "Port (COM and LPT)" under "Device Manager."

   (It is recommended that the port number for CDC USB for Utility be written down since it is used for communication checks.)



Check that "CDC USB for Utility" is displayed within the Port (COM and LPT).
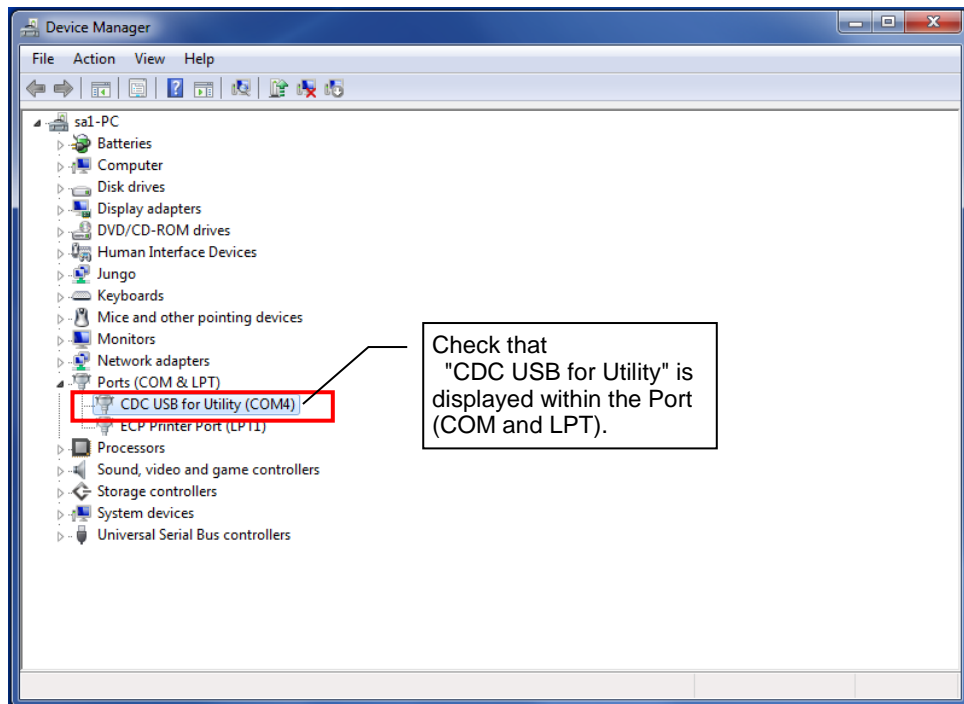
Now the driver installation has been completed.

# 2.5.　Starting/Exiting the Utility

• Starting

After the driver is installed, start the Utility.

Double-click the downloaded "SWL31-Utility.exe" in the folder to start the Utility.

• Exiting

Click the "X" button at the top right of the screen to display the dialog below.

If the current input data are to be saved, click "Yes (Y)" to save the file and exit the Utility.

If they are not to be saved, click "No (N)" to exit the Utility.
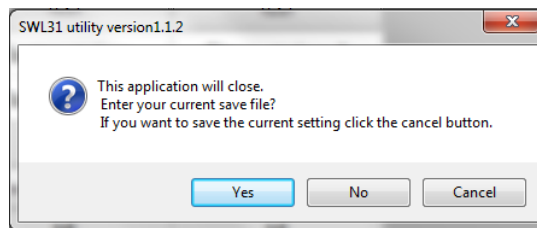


# 2.6.　Installing .Net Framework

If the dialog below is displayed (when the necessary .Net Framework is not installed), download and install .Net Framework from the Microsoft website.

# 2.7. Connection COM Port Checking Procedure

1. Start "Device Manager" from "Control Panel." ⇒ "start"

    (For the category display, start from "Device Manager" ⇒ "Control Panel" ⇒ "Hardware and Sound.")
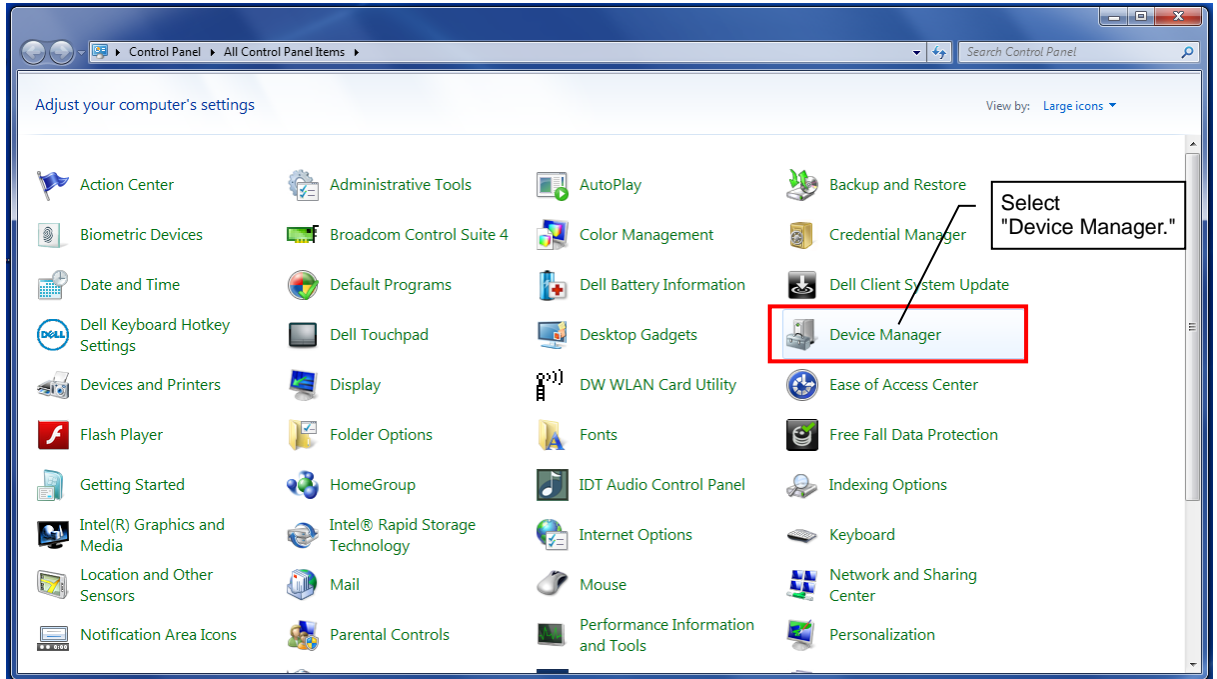


2. Check the COM number described after "CDC USB for Utility" within "Port (COM and LPT)."

# 3

# 3. HOW TO USE

# 3.1. Procedure of Utility Use

### 3.1.1. When the Unit is Newly Installed

```
┌─────────────────────┐
│    Setting Start     │
└─────────────────────┘
           │
           ▼
┌─────────────────────────┐          ┌─────────────────────────────────────────────┐
│ (1) Preparing the       │ ─ ─ ─ ─ ─│ Prepare the setting data with the Setting    │
│     Setting Data        │          │ Utility.                                      │
│          Refer to 3.2.  │          └─────────────────────────────────────────────┘
└─────────────────────────┘
           │
           ▼
┌─────────────────────────┐          ┌─────────────────────────────────────────────┐
│ (2) Connecting to the   │ ─ ─ ─ ─ ─│ Insert a USB cable into the USB connector of │
│     Wireless unit Slave │          │ the Wireless unit to connect to a PC.         │
│     Station             │          │ After the USB cable is connected, turn on the │
│     [SWL31-R4ML]        │          │ power while pressing the "SET" button.        │
│          Refer to 2.3.  │          │ * When the setting data are written to slave  │
│                         │          │   stations, the unit ID (16 digits) of each   │
│                         │          │   slave station is read automatically;        │
│                         │          │   therefore, writing the data to slave        │
│                         │          │   stations first makes writing the slave      │
│                         │          │   station ID to the master station easy.      │
└─────────────────────────┘          └─────────────────────────────────────────────┘
           │
           ▼
┌─────────────────────────┐          ┌─────────────────────────────────────────────┐
│ (3) Checking            │ ─ ─ ─ ─ ─│ Check whether writing the setting data to the │
│     Communication with  │          │ Wireless unit is available.                   │
│     the Wireless unit   │          └─────────────────────────────────────────────┘
│          Refer to 3.3.  │
└─────────────────────────┘
           │
           ▼
┌─────────────────────────┐          ┌─────────────────────────────────────────────┐
│ (4) Writing Setting     │ ─ ─ ─ ─ ─│ Write the setting data prepared with the      │
│     Data                │          │ Utility to the Wireless unit.                 │
│          Refer to 3.4.  │          └─────────────────────────────────────────────┘
└─────────────────────────┘
           │
           ▼
┌─────────────────────────┐          ┌─────────────────────────────────────────────┐
│ (5) Disconnecting the   │ ─ ─ ─ ─ ─│ Disconnect the USB cable connected to the     │
│     Wireless unit       │          │ Wireless unit.                                │
└─────────────────────────┘          └─────────────────────────────────────────────┘
           │
           ▼
┌─────────────────────────┐          ┌─────────────────────────────────────────────┐
│ (6) Writing to All      │ ─ ─ ─ ─ ─│ Write the setting data to all slave           │
│     Slave Stations      │          │ stations with steps from (2) to (5).          │
└─────────────────────────┘          └─────────────────────────────────────────────┘
           │
           ▼
┌─────────────────────────┐          ┌─────────────────────────────────────────────┐
│ (7) Writing Data to the │ ─ ─ ─ ─ ─│ Write the setting data to the master          │
│     Wireless unit       │          │ station with steps from (2) to (5).           │
│     Master Station      │          └─────────────────────────────────────────────┘
│     [SWL31-ETMC]        │
└─────────────────────────┘
           │
           ▼
┌─────────────────────────┐          ┌─────────────────────────────────────────────┐
│ (8) Saving the Setting  │ ─ ─ ─ ─ ─│ Save the setting data (csv file).             │
│     Data                │          └─────────────────────────────────────────────┘
│          Refer to 3.5.  │
└─────────────────────────┘
           │
           ▼
┌─────────────────────────┐          ┌─────────────────────────────────────────────┐
│ (9) Installation        │ ─ ─ ─ ─ ─│ Install the Wireless unit. For details, refer │
│                         │          │ to "2.4 GHz Band Wireless unit User's Manual  │
│                         │          │ (SWL31-ETMC and SWL31-R4ML)."                 │
└─────────────────────────┘          └─────────────────────────────────────────────┘
           │
           ▼
┌─────────────────────┐
│    Setting Start     │
└─────────────────────┘
```
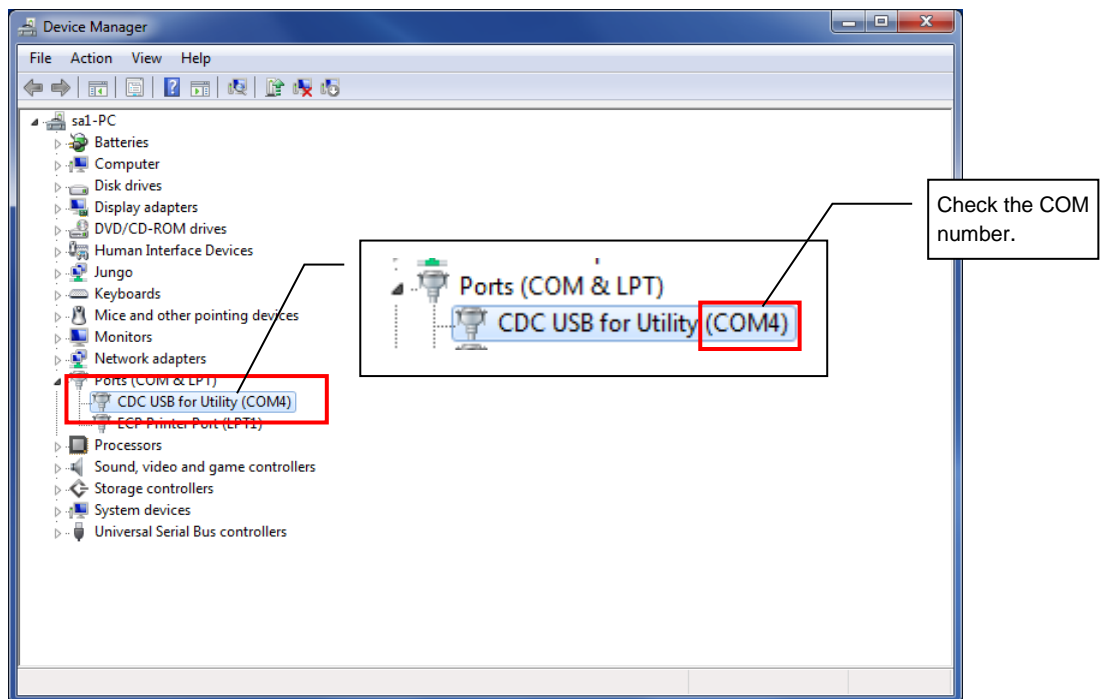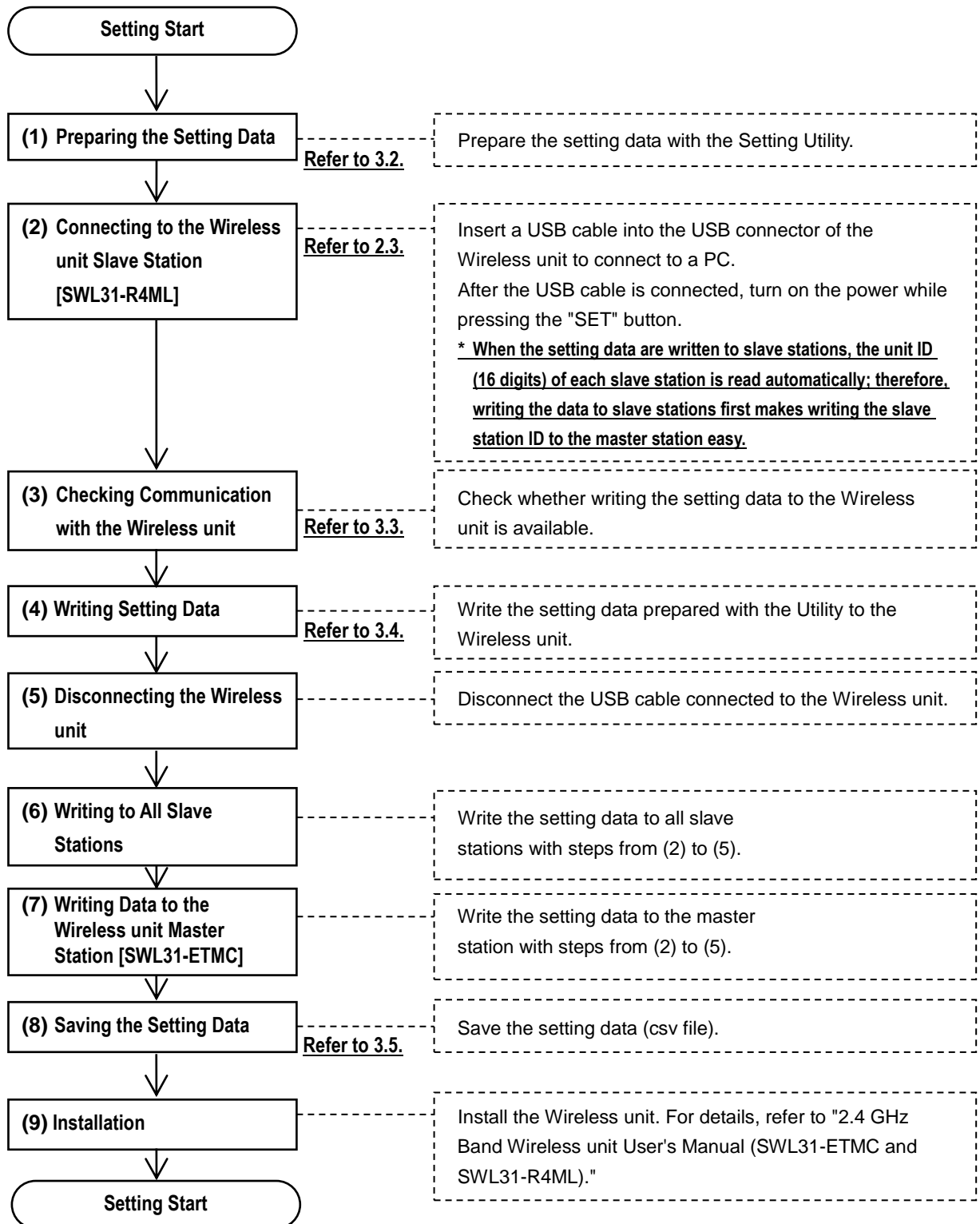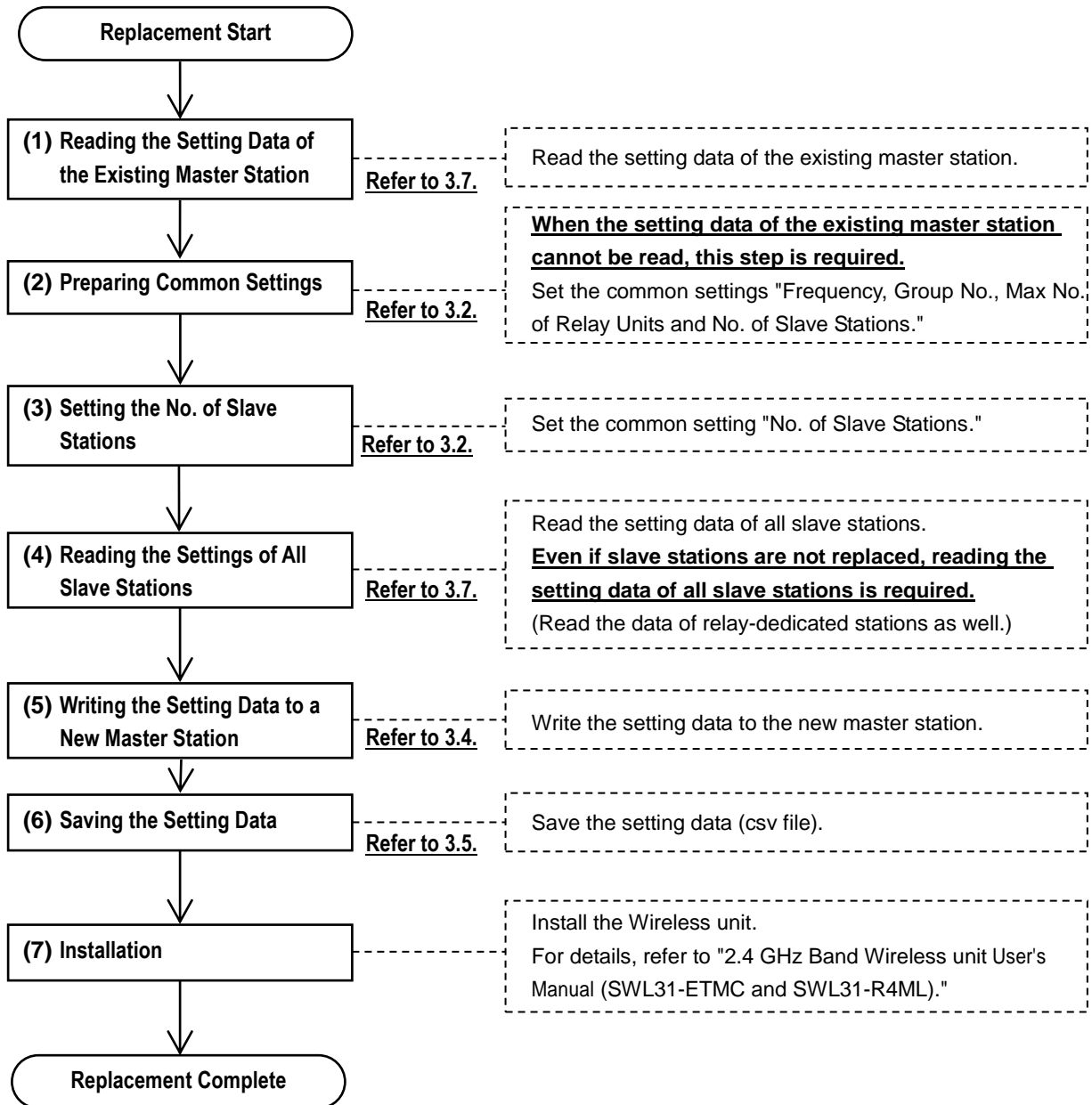
---

**!!! Caution !!!**

**It is recommended that you decide on a port on your PC to connect the Wireless unit if the PC has multiple USB ports. If you change the USB port to connect the Wireless unit, re-installation of the driver will be required.**
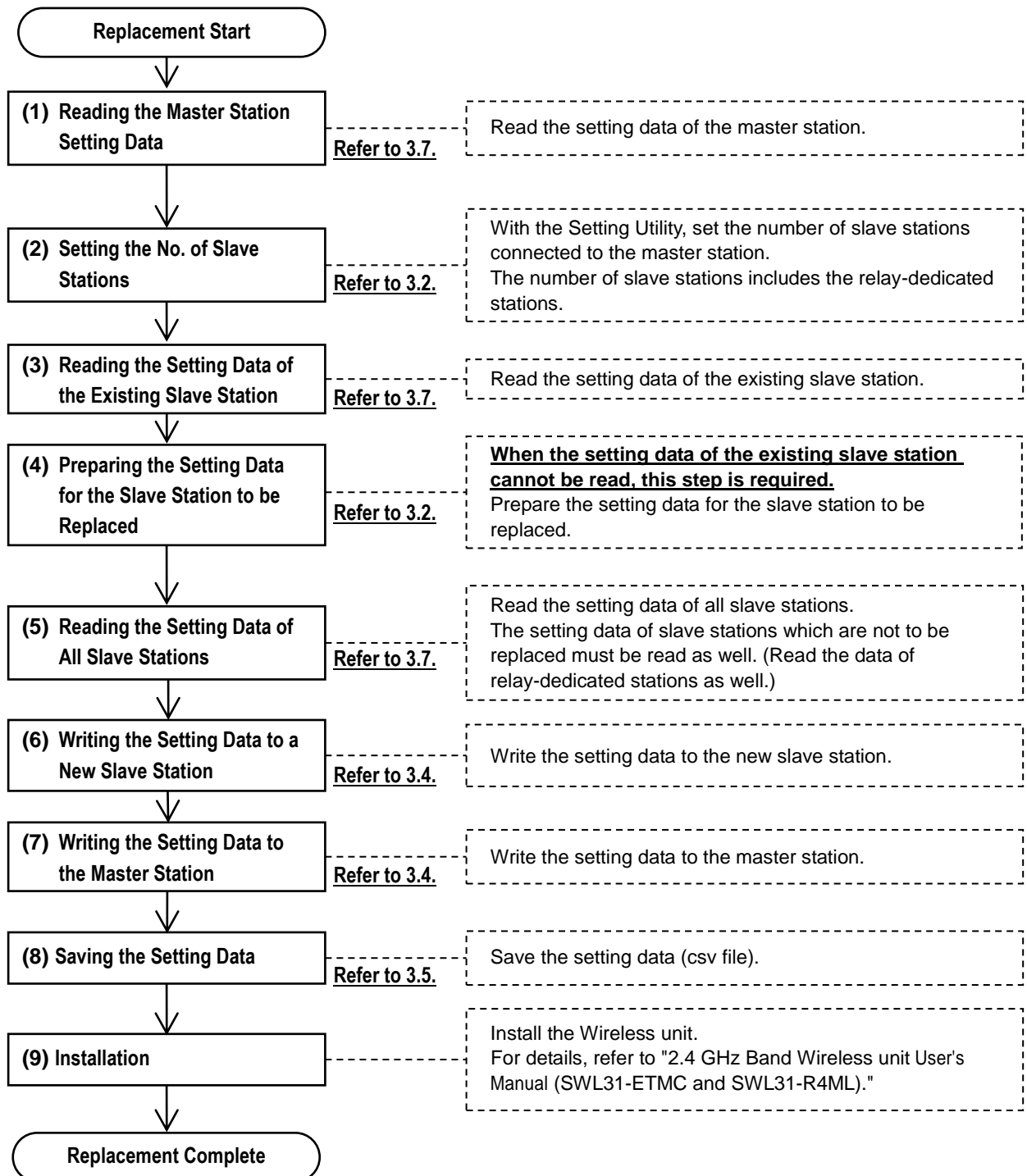
---

### 3.1.2. When the Master Station [SWL31-ETMC] is Replaced

When the master station is replaced, <u>the setting data prepared when the existing system has been installed shall be written to the new Wireless unit master station.</u>
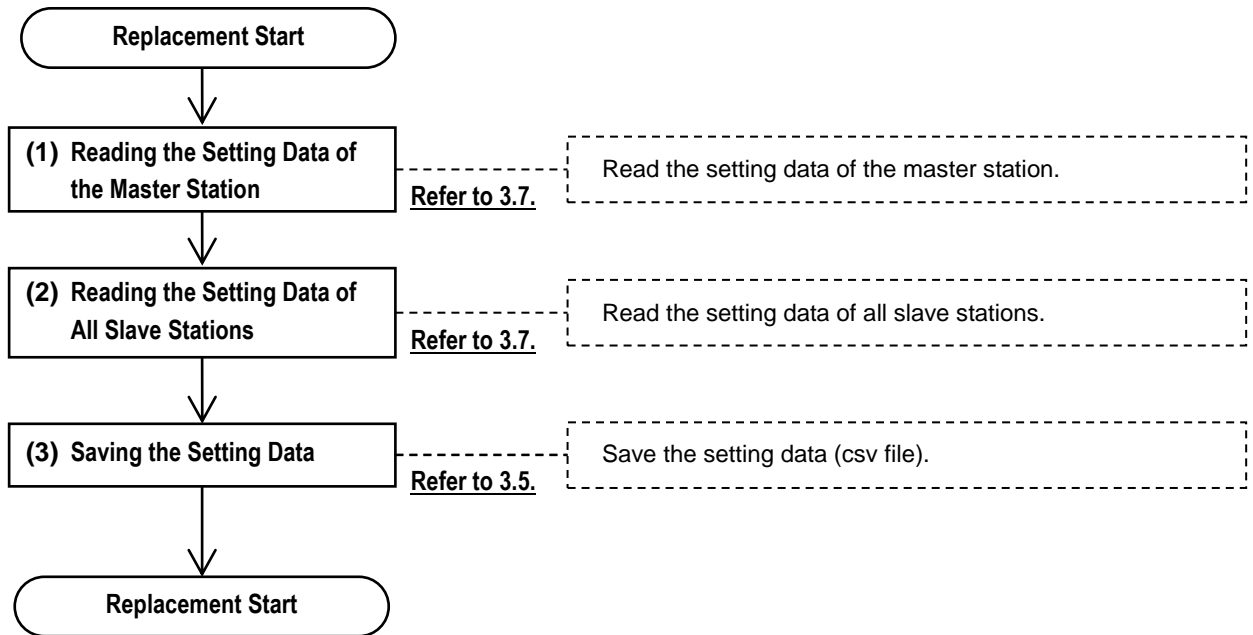
<u>If the setting data</u> for the existing system configuration <u>does not exist</u>, the unit shall be replaced according to the procedure below.

```
            ╭─────────────────────────╮
            │    Replacement Start     │
            ╰─────────────────────────╯
                        │
                        ▼
```

| Step | Description |
|---|---|
| **(1) Reading the Setting Data of the Existing Master Station**  <u>Refer to 3.7.</u> | Read the setting data of the existing master station. |
| **(2) Preparing Common Settings**  <u>Refer to 3.2.</u> | **When the setting data of the existing master station cannot be read, this step is required.**  Set the common settings "Frequency, Group No., Max No. of Relay Units and No. of Slave Stations." |
| **(3) Setting the No. of Slave Stations**  <u>Refer to 3.2.</u> | Set the common setting "No. of Slave Stations." |
| **(4) Reading the Settings of All Slave Stations**  <u>Refer to 3.7.</u> | Read the setting data of all slave stations.  **Even if slave stations are not replaced, reading the setting data of all slave stations is required.**  (Read the data of relay-dedicated stations as well.) |
| **(5) Writing the Setting Data to a New Master Station**  <u>Refer to 3.4.</u> | Write the setting data to the new master station. |
| **(6) Saving the Setting Data**  <u>Refer to 3.5.</u> | Save the setting data (csv file). |
| **(7) Installation** | Install the Wireless unit.  For details, refer to "2.4 GHz Band Wireless unit User's Manual (SWL31-ETMC and SWL31-R4ML)." |

```
            ╭─────────────────────────╮
            │   Replacement Complete   │
            ╰─────────────────────────╯
```

---

### !!! Caution !!!

○ **Do not write the setting data read from the existing master station alone to the new master station.**
**If the setting data of slave stations are not reflected, communications may be unavailable.**

### 3.1.3. When the Slave Station [SWL31-R4ML] is Replaced

When the slave station is replaced, <u>the setting data prepared when the existing system has been installed shall be written</u> to the new slave station first and then the master station.

\* When the data is written to the new slave station, the unit ID of the new slave station is read automatically.
   Overwrite the master station with the unit ID setting.


<u>If the setting data</u> for the existing system configuration <u>does not exist</u>, the unit shall be replaced according to the procedure below.

```
        ╭─────────────────────────╮
        │    Replacement Start     │
        ╰─────────────────────────╯
                    ↓
```

| Step | Refer to | Description |
|------|----------|-------------|
| **(1) Reading the Master Station Setting Data** | Refer to 3.7. | Read the setting data of the master station. |
| **(2) Setting the No. of Slave Stations** | Refer to 3.2. | With the Setting Utility, set the number of slave stations connected to the master station. The number of slave stations includes the relay-dedicated stations. |
| **(3) Reading the Setting Data of the Existing Slave Station** | Refer to 3.7. | Read the setting data of the existing slave station. |
| **(4) Preparing the Setting Data for the Slave Station to be Replaced** | Refer to 3.2. | **When the setting data of the existing slave station cannot be read, this step is required.** Prepare the setting data for the slave station to be replaced. |
| **(5) Reading the Setting Data of All Slave Stations** | Refer to 3.7. | Read the setting data of all slave stations. The setting data of slave stations which are not to be replaced must be read as well. (Read the data of relay-dedicated stations as well.) |
| **(6) Writing the Setting Data to a New Slave Station** | Refer to 3.4. | Write the setting data to the new slave station. |
| **(7) Writing the Setting Data to the Master Station** | Refer to 3.4. | Write the setting data to the master station. |
| **(8) Saving the Setting Data** | Refer to 3.5. | Save the setting data (csv file). |
| **(9) Installation** | | Install the Wireless unit. For details, refer to "2.4 GHz Band Wireless unit User's Manual (SWL31-ETMC and SWL31-R4ML)." |

```
        ╭─────────────────────────╮
        │   Replacement Complete   │
        ╰─────────────────────────╯
```

### 3.1.4. For Wireless unit Setting Data Backup

For Wireless unit setting data backup, prepare backup data according to the procedure below.

```
         ┌─────────────────────────┐
         │   Replacement Start      │
         └─────────────────────────┘
                    │
                    ▼
   ┌───────────────────────────────┐
   │ (1) Reading the Setting Data of│ - - - - - - - ┌─────────────────────────────────────────┐
   │     the Master Station         │               │ Read the setting data of the master station. │
   └───────────────────────────────┘  Refer to 3.7. └─────────────────────────────────────────┘
                    │
                    ▼
   ┌───────────────────────────────┐
   │ (2) Reading the Setting Data of│ - - - - - - - ┌─────────────────────────────────────────┐
   │     All Slave Stations         │               │ Read the setting data of all slave stations. │
   └───────────────────────────────┘  Refer to 3.7. └─────────────────────────────────────────┘
                    │
                    ▼
   ┌───────────────────────────────┐
   │ (3) Saving the Setting Data    │ - - - - - - - ┌─────────────────────────────────────────┐
   │                                │               │ Save the setting data (csv file).          │
   └───────────────────────────────┘  Refer to 3.5. └─────────────────────────────────────────┘
                    │
                    ▼
         ┌─────────────────────────┐
         │   Replacement Start      │
         └─────────────────────────┘
```

# 3.2. Preparing Setting Data with Utility

The setting data to be written to the Wireless unit is prepared.

After all common settings, master station settings and slave station settings are prepared, "3.4 Writing Setting Data to Wireless unit" shall be carried out.
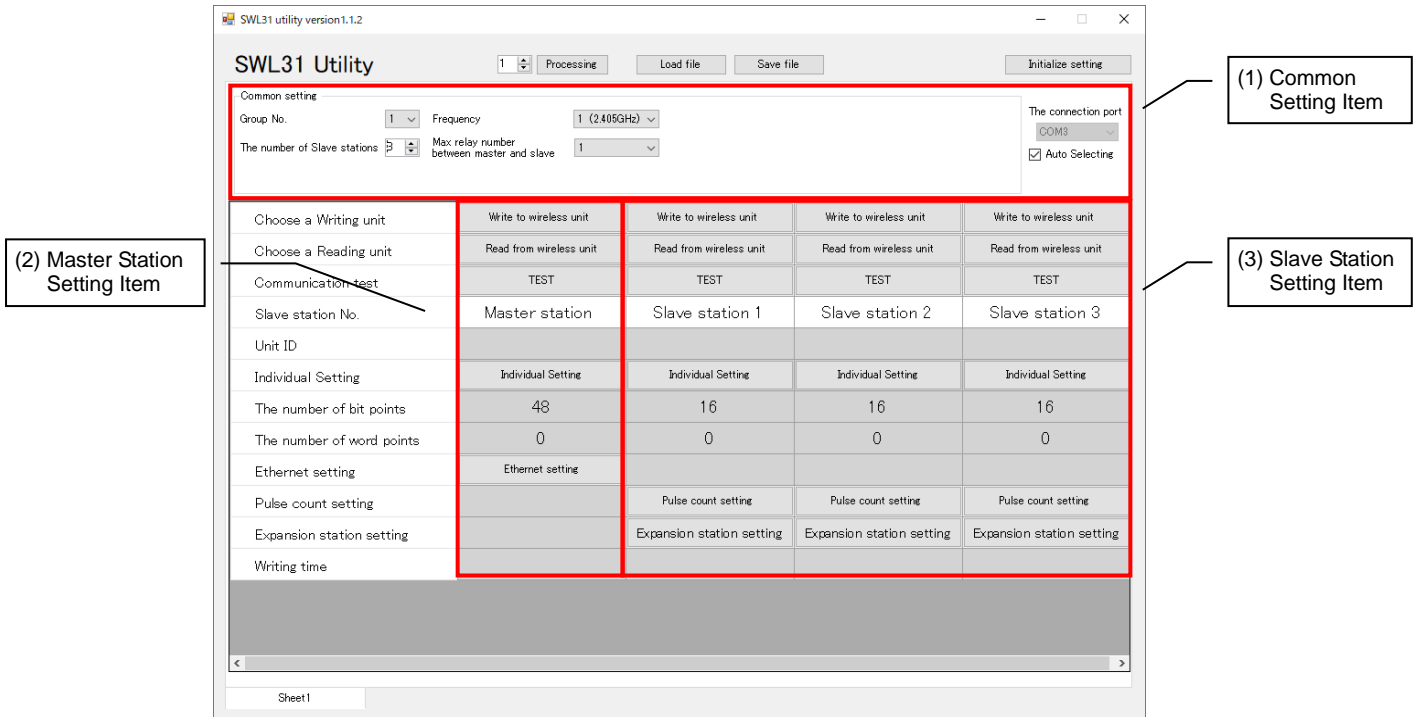


Figure 3.2 Each Setting Item

(1) Common Setting Item

Items that it shared by the master station and slave stations are set. They are Group No., Selected Frequency, No. of Slave Stations and other items.

(2) Master Station Setting Item

Master station-related settings such as Ethernet Setting are set.

(3) Slave Station Setting Item

Slave station-related settings are set. They are Expansion Connection Existence, Pulse Count and other items.

**For details of each setting, refer to "4 Utility SCREEN DETAIL."**

# 3.3. Checking Communication with the Wireless unit

Connections with the Wireless unit shall be checked with the procedure below.

1. Select the COM port to which the Wireless unit is connected under "Connection Port" at the top right of the main screen.

   * For the connection port, refer to "2.7 Connection COM Port Checking Procedure."

2. Click the "TEST" button of the communication target (master station/slave station) to check the communication.
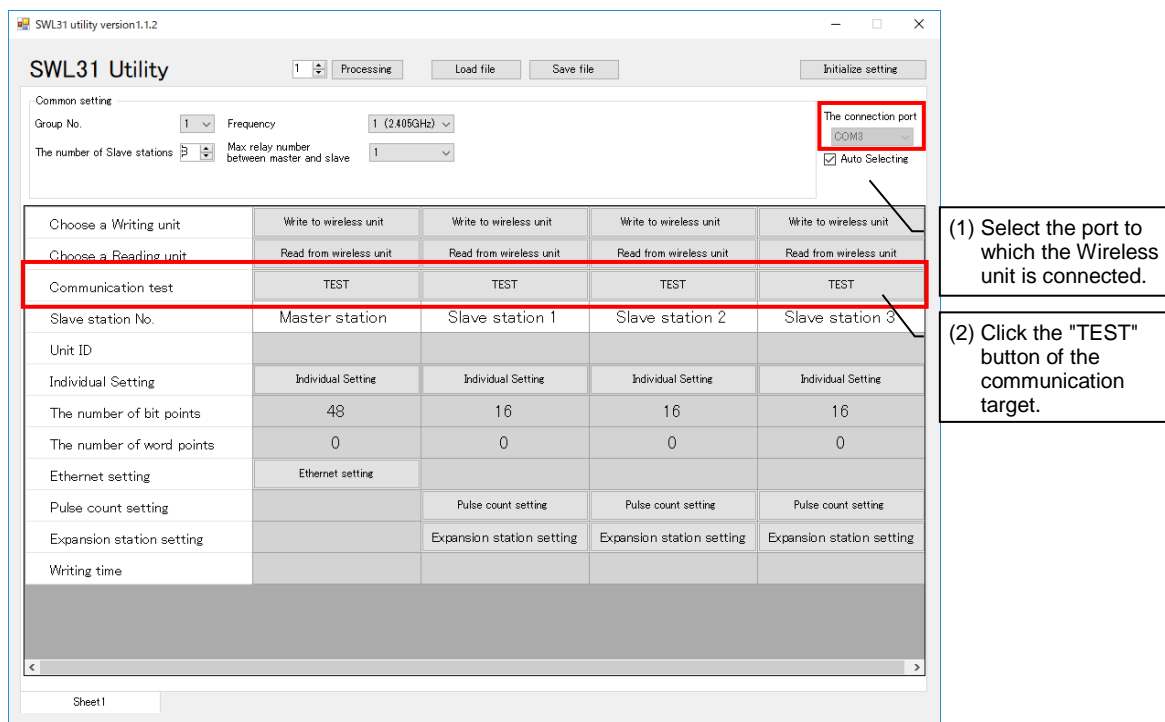


Figure 3.3-1 Checking the Connection

If the connection is normal, the dialog below will be displayed.
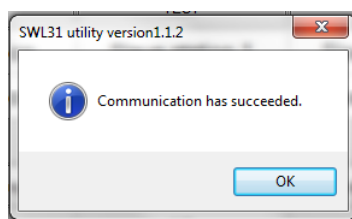


Figure 3.3-2 Normal Communication Dialog

If the connection is not normal, following dialog below will be displayed.

Check the COM port and connection target. (For COM port checking, refer to Section 2.7.)
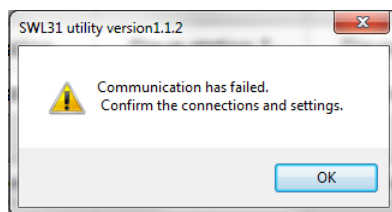


Figure 3.3-3 Abnormal Communication Dialog

# 3.4. Writing the Setting Data to the Wireless unit

After the setting data to be registered to the Wireless unit are prepared, click "Write to Wireless unit" of the slave station number which is the writing target to write the setting data.
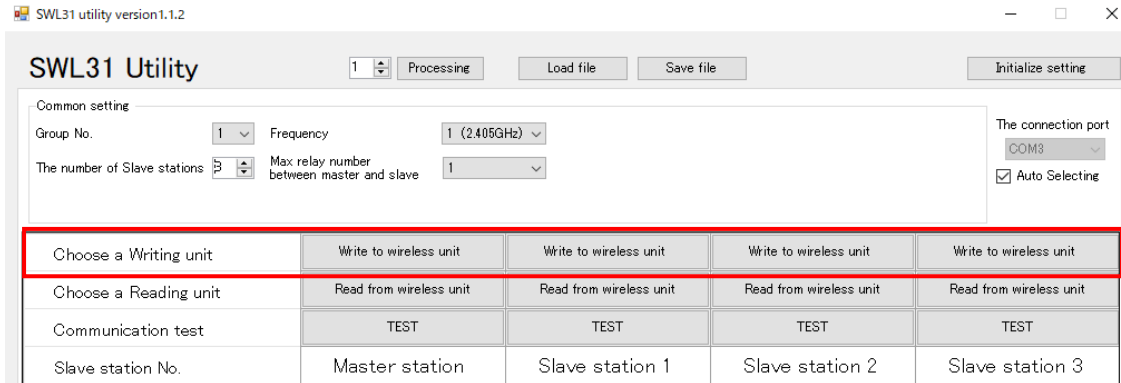
Figure 3.4-1 Writing to the Wireless unit

If the setting data are correct, the dialog below will be displayed.

Check the writing destination displayed and click the "OK" button to write the setting data.
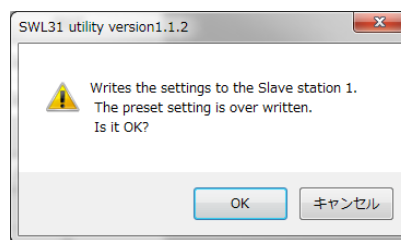
Figure 3.4-2 Writing Confirmation Dialog

If there is a slave station without a unit ID input when the setting data are written to the master station, the dialog below will be displayed.

Write the setting data to the slave station first (the unit ID is read automatically at that time), or check the parameter P102 of the slave station by operating the button of the unit and input the unit ID.

For details of button operation, refer to "2.4 GHz Band Wireless unit User's Manual (SWL31-ETMC and SWL31-R4ML)."
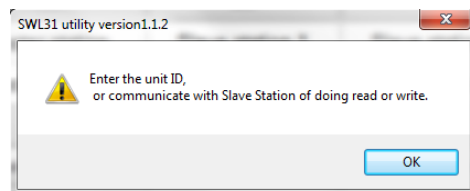
Figure 3.4-3 Unregistered Unit ID Confirmation Dialog

When writing to the Wireless unit is complete, the dialog below is displayed.
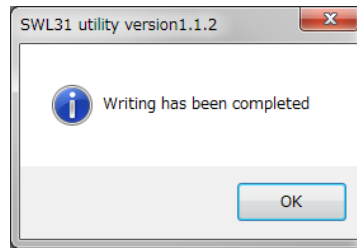


Figure 3.4-5 Writing Completion Dialog

---

**!!! Caution !!!**

**Until the dialog is displayed, be sure to comply with the items below. If not, breakdowns may occur.**

- **Do not turn off the power of the Wireless unit.**
- **Do not interrupt the communication between a PC and the Wireless unit by pulling out a USB cable or the like.**

---

# 3.5. Saving the Setting Data File

The setting data written to the Wireless unit are saved in "CSV file."

Click the "Save File" button at the top of the screen.

Click "Save File."
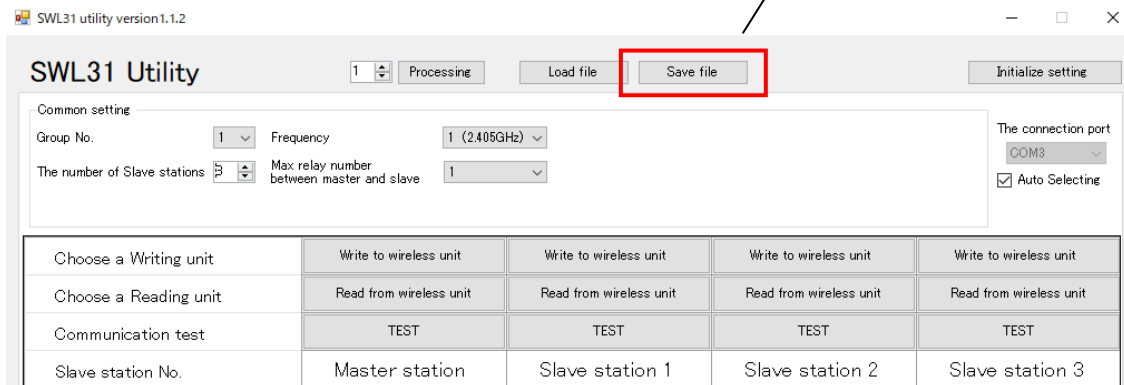


Figure 3.5-1 Writing to the Wireless unit


Clicking "Save File" displays the file saving dialog. Select the saving location and file name and click the "Save" button.
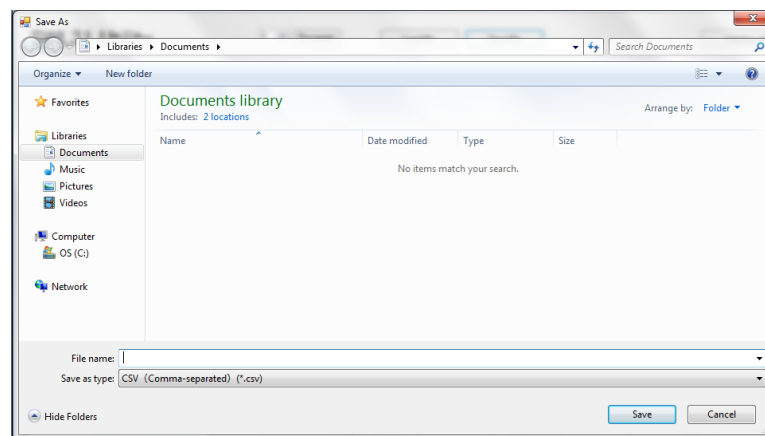


Figure 3.5-2 File Saving Dialog


**\* If the saved CSV file is edited, reading the file with the Utility will be unavailable.**

**If the setting data are to be edited, be sure to use this product for editing.**

# 3.6. Reading the Saved Setting Data File

The setting data saved in "CSV file" is read.

Click "Load File" at the top of the screen.

Click "Load File."
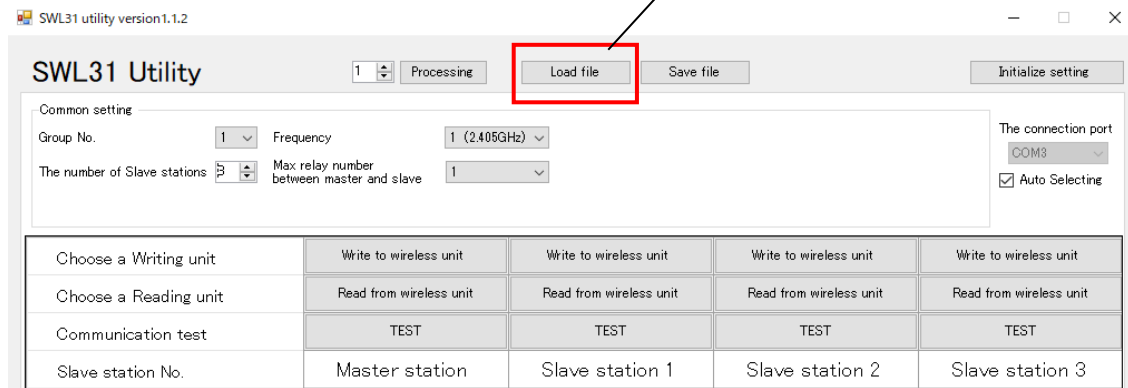


Figure 3.6-1 Reading from CSV File

Clicking "Load File" displays the file reading dialog. Select the file to be read and click the "Open" button.
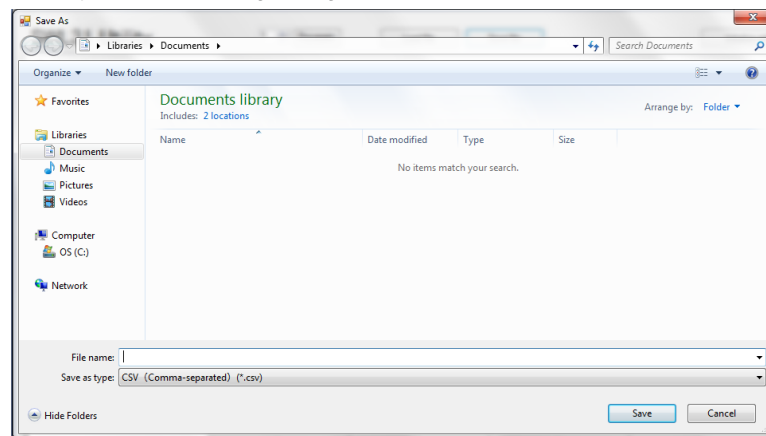


Figure 3.6-2 File Reading Dialog

* **If a CSV file that has been edited with a program other than this product is read, the dialog below will be displayed and reading will be unavailable. If the setting data are to be edited, be sure to use this product for editing.**
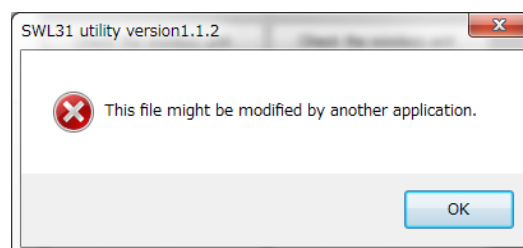


Figure 3.6-3 Read Error Dialog

# 3.7.    Reading the Setting Data from the Wireless unit

The setting data set to the Wireless unit are read on the Utility.

Click "Read from the Wireless unit" of the slave station number to be read.
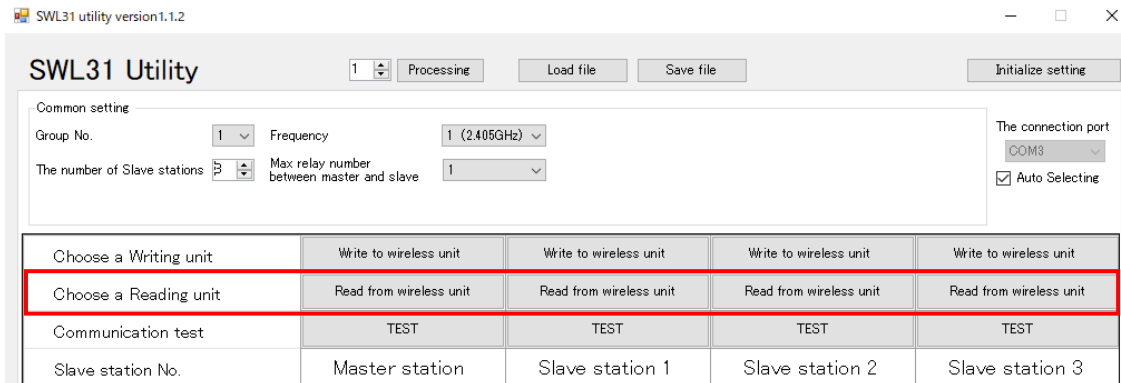


Figure 3.7-1 Reading to the Wireless unit

The following file read confirmation dialog will be displayed. Click "OK."
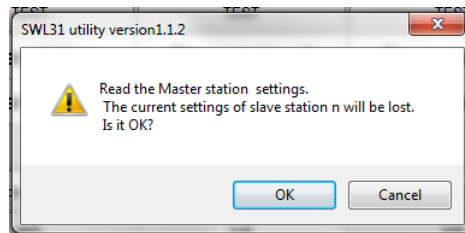


Figure 3.7-2 File Read Confirmation Dialog

┌─────────────────────────────────────────────────────────────┐
│ **!!! Caution !!!**

〇**Do not write the setting data read from the master station alone (without the setting data read from the slave stations) to the master station to be replaced.**
**If the setting data of slave stations are not reflected, radio communications may be unavailable.**
**(For details, refer to "3.1.2 When the Master Station [SWL31-ETMC] is Replaced.")**
〇**Reading the setting data overwrites the data edited with the Setting Utility.**
└─────────────────────────────────────────────────────────────┘

# 3.8. Initializing Parameters

To reset the setting data to default, click "Initialize Settings."
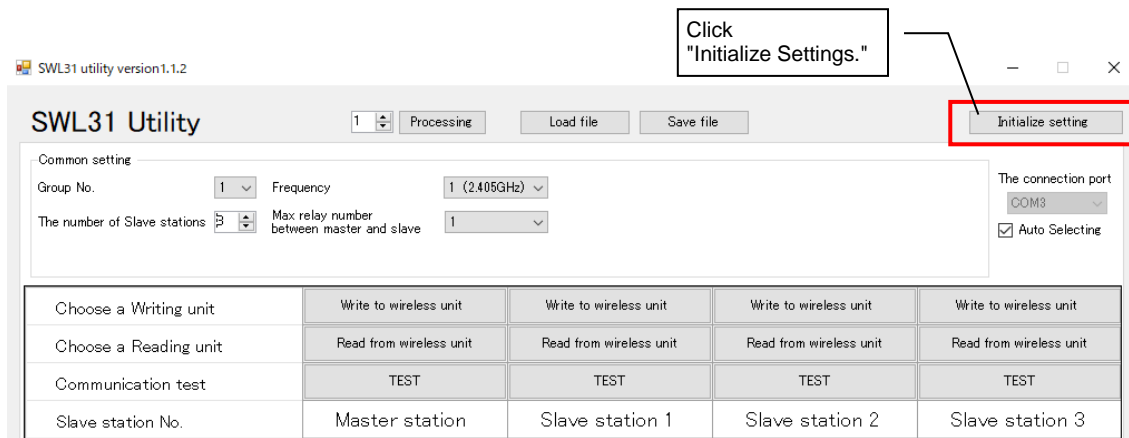


Figure 3.8-1 Reading to the Wireless unit

The initialization confirmation dialog below will be displayed. Check the details and click the "OK" button if there is no problem.
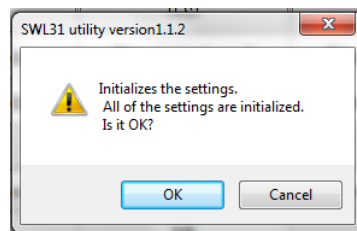


Figure 3.8-2 Initialization Confirmation Dialog

Clicking the "OK" button initializes the setting items on the sheet.

(The setting items of other tags will not be initialized.)
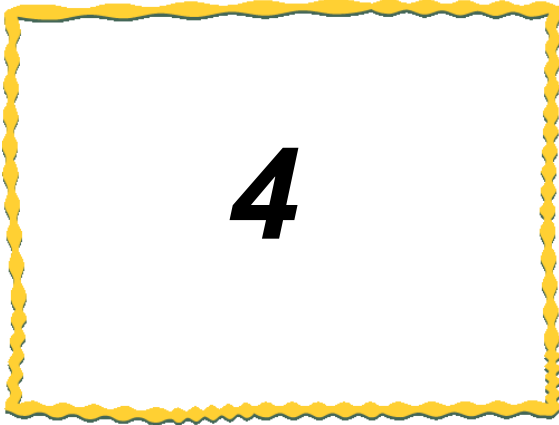
# 4. SCREEN DETAIL

# 4.1. Main Screen (Common Setting Items)

On the main screen, settings shared by the master station and slave stations and settings required by the host station are configured.

With the setting screen transfer buttons, the function setting screens are called up.
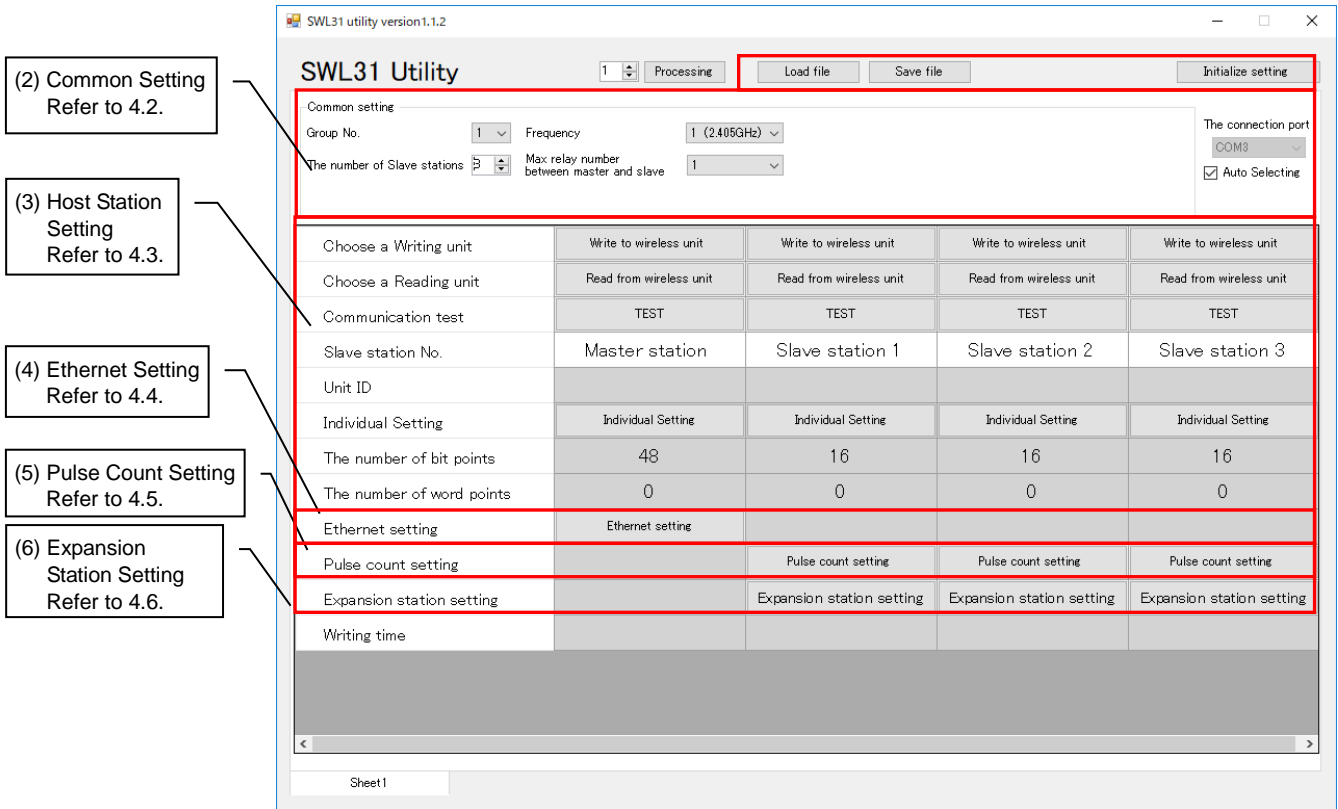


Figure 4.1-1 Main Screen

The main screen has the items below.

For details of each item, refer to the reference section of each item.

Table 4.1 Main Screen Item

| No. | Name | Details | Reference section |
|---|---|---|---|
| (1) | File Operation Button | Executes file saving/reading and Wireless unit writing/reading. | 3 |
| (2) | Common Setting | Configures settings shared by the master station and slave stations for communications. | 4.2 |
| (3) | Host Station Setting | Configures settings for operations of each unit. | 4.3 |
| (4) | Ethernet Setting | Configures the setting for the Ethernet communications. (Only the master station) | 4.4 |
| (5) | Pulse Count Setting* | Configures the setting for the pulse count function of the slave stations. (Only the slave stations) | 4.5 |
| (6) | Expansion Station Setting* | Configures the setting for the expansion units connected to the slave stations. (Only the slave stations) | 4.6 |

\* For details of each function, refer to "2.4 GHz Band Wireless unit User's Manual (SWL31-ETMC and SWL31-R4ML)."

# 4.2. Common Setting

Under the Common Setting, setting items shared by the master station and slave stations are configured for radio communications.
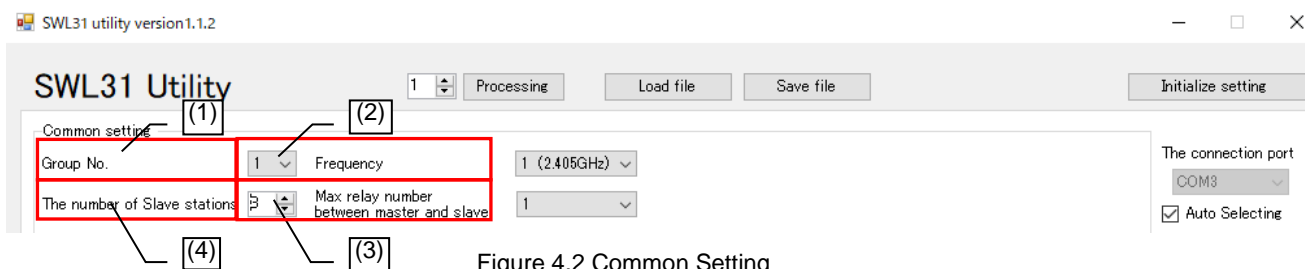


Figure 4.2 Common Setting

Table 4.2 Common Setting Item

| No. | Name | Details | Setting range |
|-----|------|---------|---------------|
| (1) | Group No. | Set the Group No. of radio communications. The Group No. shall be set when multiple systems are used within the same area. | 0 to 15 |
| (2) | Selected Frequency | Select the frequency to be used for radio communications. | 1: 2.405 GHz, 2: 2.410 GHz, 3: 2.415 GHz, 4: 2.420 GHz, 5: 2.425 GHz, 6: 2.430 GHz 7: 2.435 GHz, 8: 2.440 GHz, 9: 2.445 GHz, 10: 2.450 GHz, 11: 2.455 GHz, 12: 2.460 GHz, 13: 2.465 GHz, 14: 2.470 GHz, 15: 2.475 GHz |
| (3) | Max No. of Relay Units | Set the max no. of relay units allowed between the master station and the terminal slave station. | 0 to 3 |
| (4) | No. of Slave Stations | Set the number of slave stations (relay-dedicated stations included) which communicate with the master station. The number of slave stations displayed on the sheet depends on the No. of Slave Stations. | 1 to 40 |

\* For details of each function, refer to "2.4 GHz Band Wireless unit User's Manual (SWL31-ETMC and SWL31-R4ML)."

# 4.3. Host Station Setting

For host station settings, Unit ID, Output Power and other operations of each unit are configured.

Setting items below are to be configured when the polling communication is selected for the radio communication configuration.



Figure 4.3 Host Station Setting

Table 4.3 Host Station Setting Item

| No. | Name | Details | Setting range |
|---|---|---|---|
| (1) | Slave Station No. | The number of the unit when communications are exchanged.<br>The communication order and device assignment is executed according to the Slave Station No. | - |
| (2) | Unit ID | Set the Unit ID required when the slave stations are registered to the master station.<br>It is read automatically when the setting data are written to the slave station. | 0000 0000 0000 0000 to FFFF FFFF FFFF FFFF |
| (3) | The number of Bit Points | Master station: The total bit points of all slave stations is displayed.<br>Slave station: The total bit points used by the host station is displayed. | Cannot be set (automatic calculation). |
| (4) | The number of Word Points | Master station: The total of word points of all slave stations is displayed.<br>Slave station: The total of word points used by the host station is displayed. | Cannot be set (automatic calculation). |
| (5) | Operation | Set the operation of the slave station.<br>Set Normal Station for normal use stations, Relay Station for relay-dedicated stations and Reserve Station for stations to be added in the future. | Normal Station<br>Relay Station<br>Reserve Station |
| (6) | Wireless Timeout Time | Set the timeout time when a radio communication error occurs.<br>For 0.0, automatic calculation is applied. | 0.0 to 600.0 [sec] |
| (7) | Data during Error | Set the handling of output data when an error occurs.<br>＊The following settings are only for the master station.<br>  Bit Clear, Word Hold<br>  Bit Hold, Word Clear | Clear/Hold<br>Bit Clear, Word Hold<br>Bit Hold, Word Clear |
| (8) | The output of error terminal | Set the output signal of the error terminal when an error occurs. | LIVE Signal, a Contact, b Contact |
| (9) | Radio Output Power | Set the transmission output for radio communications. | 6.3 [mW]/4.0 [mW]/ 2.5 [mW]/1.6 [mW]/ 0.6 [mW] |
| (10) | Writing Time | Displays the time when parameters were written to the wireless unit. | yyyy/MM/dd hh:mm:ss |

# 4.4.　Ethernet Setting Screen

On the Ethernet Setting screen, Ethernet communication-related settings are configured.
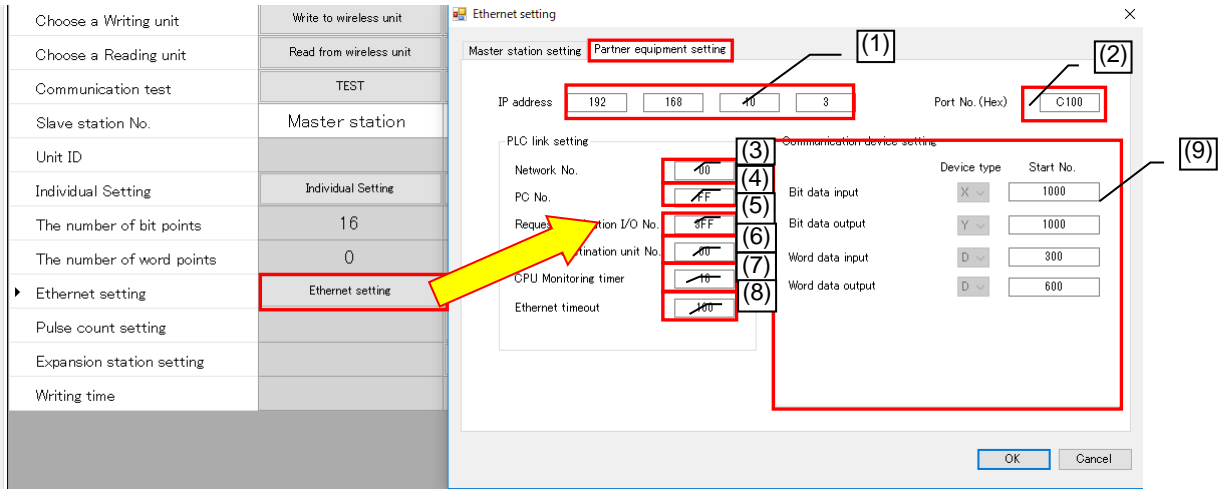
On the Ethernet Radio Master Station Setting screen, the host station Ethernet communication-related settings are configured, and on the Partner Station Setting screen, the communication partner Ethernet-related settings are configured.

## 4.4.1.　Ethernet Radio Master Station Setting Screen
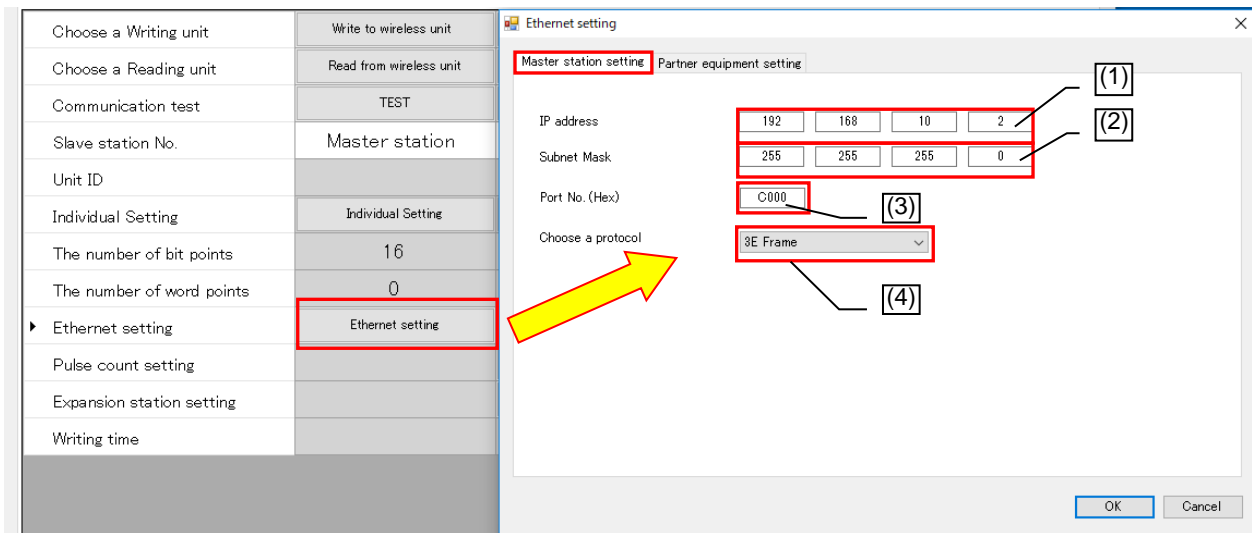


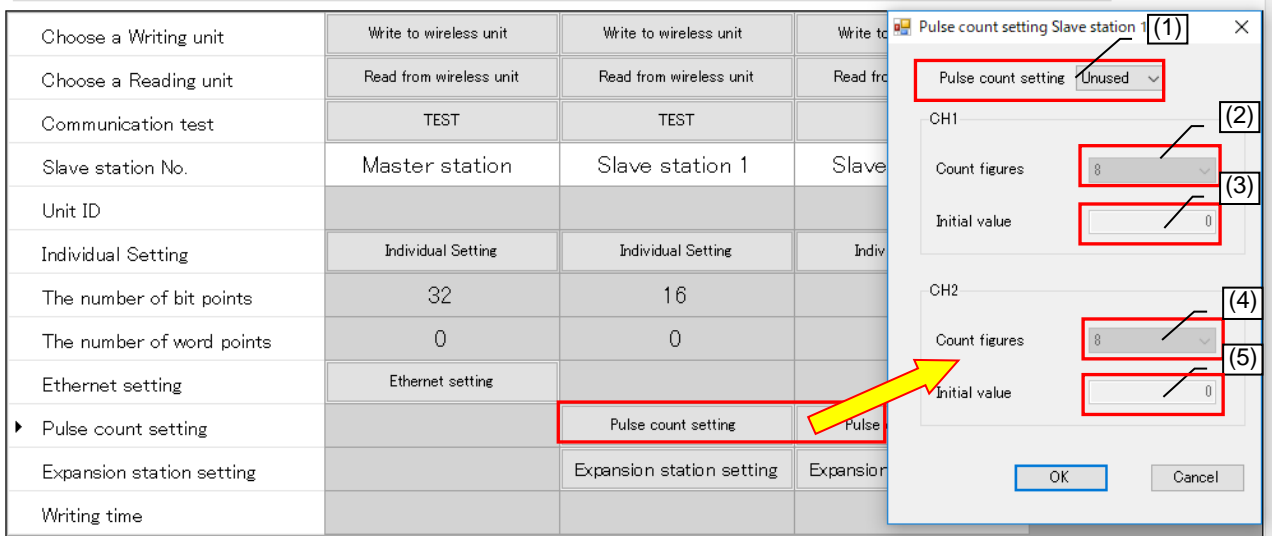| No. | Name | Details | Setting range |
|---|---|---|---|
| (1) | IP Address | Register the IP address of the Wireless unit. | 0.0.0.0 to 255.255.255.254 |
| (2) | Subnet Mask | Set the subnet mask for the IP of the Wireless unit. | 128.0.0.0 to 255.255.255.254 |
| (3) | Port No.(HEX) | Set the port number of the Wireless unit for communication with the partner Ethernet device. | 0000 to FFFF |
| (4) | Protocol Selection | Set the protocol format of MC Protocol for communication with the partner Ethernet device. Set it according to the device to be used. Q Series PLC: 3E Frame FX Series PLC: 1E Frame | 3E Frame/ 1E Frame |

### 4.4.2. Ethernet Partner Station Setting Screen



| No. | Name | Details | Setting range |
|-----|------|---------|---------------|
| (1) | IP Address | Register the IP address of the partner Ethernet device. | 0.0.0.0 to 255.255.255.254 |
| (2) | Port No.(HEX) | Set the port number of the partner station for communication with the partner Ethernet device. | 0000 to FFFF |
| (3) | Network No. | Set the number of the network system which is the last to be passed when the PLC is accessed. | 00H to FEH |
| (4) | PC No. | Set the PC number of the access station on the system with the setting number of the network unit or others.<br>(PC number: FF is valid only when the network number is 00H.) | 00H to FFH |
| (5) | Request Destination I/O Station No. | Set them according to the PLC used.<br>If the PLC CPU of the access station is as follows, refer to the manual of the CPU used. | 0000H to FFFFH |
| (6) | Request Destination Unit Station No. | • Multi-CPU system PLC SOU<br>• PLC CPU on multi-drop connection with Q Series C24 or others<br>• Duplex system CPU<br>**For cases other than the above, set the default. (Fixed)** | 00H to FFH |
| (7) | CPU Monitoring Timer | Set the time for the Ethernet unit to monitor the host station CPU. ····· **(Setting value × 250) [ms]** | 1 to 9999 |
| (8) | Ethernet Timeout | Set the communication timeout time [ms] from transmission to reception with the Ethernet device. ··················· **(Setting value × 1) [ms]** **\*1** | 100 to 9999 |
| (9) | Communication Device Setting | Settings for a device which writes the data to the Ethernet partner device via MC Protocol are configured.<br>Set the device to the Device Type and set the device No, to the Start No. of the device to be written.<br>The use range for the Wireless unit shall not overlap with the one for devices used by other systems.<br><br>For details, refer to the next page. | — |

\*1 If communications are unavailable with the Ethernet communication partner even after Ethernet timeout time [ms] x 3 passes, "EG," the error code, will be generated.

| No. | Name | Details | Setting range |
|---|---|---|---|
| (1) | Bit Input Device Type | Set the Device Type and the device Start No. to write the bit input data (an input signal from Wireless unit slave station). | [X/D] *1 (D can be set only when 1E Frame is selected.) |
| (2) | Bit Input Start No. | | 0 to 1FFF (0 to 8000 when D is set) |
| (3) | Bit Output Device Type | Set the Device Type and the device Start No. to read the bit output data (an output signal to Wireless unit slave station). | [Y/D] *1 (D can be set only when 1E Frame is selected.) |
| (4) | Bit Output Start No. | | 0 to 1FFF (0 to 8000 when D is set) |
| (5) | Word Input Device Type | Set the Device Type and the device Start No. to write the word input data (analog input data from Wireless unit slave station). | [D] |
| (6) | Word Input Start No. | | 0 to 8000 |
| (7) | Word Output Device Type | Set the Device Type and the device Start No. to read the word output data (analog output data to Wireless unit slave station). | [D] |
| (8) | Word Output Start No. | | 0 to 8000 |

**\*1  Select D when FX3 Series PLC is used.**
**Select X and Y when Q Series PLC is used.**

# 4.5. Pulse Count Setting Screen



| No. | Name | Details | Setting range |
|---|---|---|---|
| (1) | Pulse Count Setting | The number of channels which use the pulse count function is set.<br>If "Unused" is selected, the pulse count function will not be used. | Unused/1Ch/2Ch |
| (2) | Pulse Count Ch1 No. of Digit Setting | Set the number of digits to count the pulse 1Ch. | 1 to 8 |
| (3) | Pulse Count Ch1 Default Setting | Set the starting value for the pulse 1Ch count. | 0 to 99999999 (depends on the number of count digits) |
| (4) | Pulse Count Ch2 No. of Digits Setting | Set the number of digits to count the pulse 2Ch. | 1 to 8 |
| (5) | Pulse Count Ch2 Default Setting | Set the starting value for the pulse 2Ch count. | 0 to 99999999 (depends on the number of count digits) |

# 4.6. Expansion Unit Setting Screen

On the Expansion Unit Setting screen, settings related to the expansion unit connected to the slave station are configured.

## 4.6.1. Expansion Setting Screen
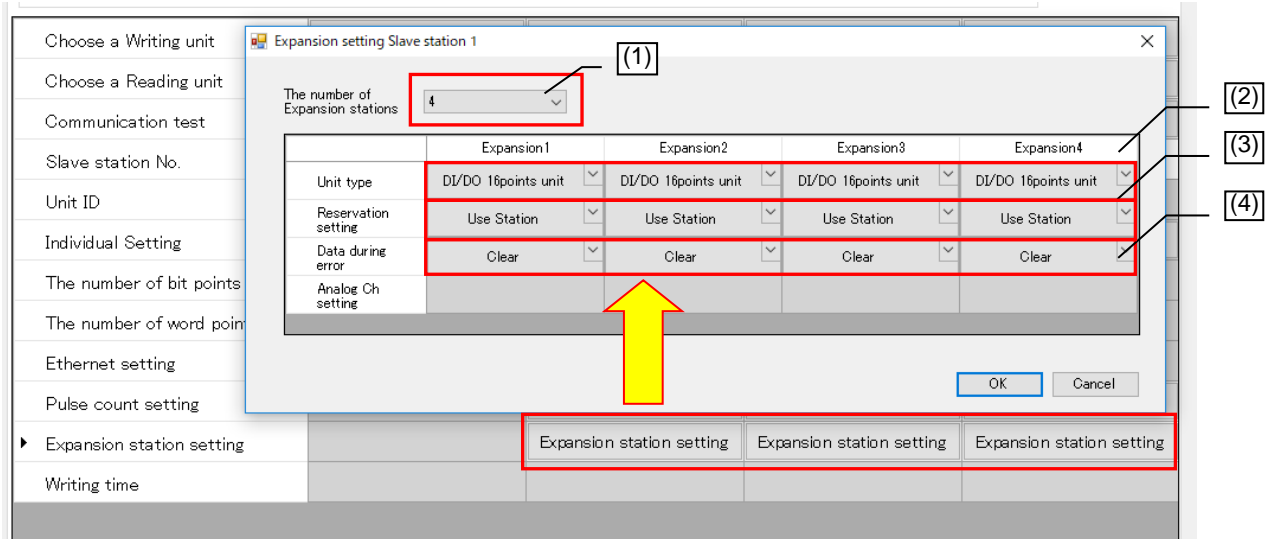


| No. | Name | Details | Setting range |
|---|---|---|---|
| (1) | No.of Expansion Stations | Set the number of expansion units (reserved stations included) to be connected to the slave station. The expansion settings of the number of units set as the No. of Expansion Stations will be displayed to be set. | 0 to 8 |
| (2) | Unit Type | Set the expansion unit type to be connected. | I/O 16-point Unit, Analog Input 4-point Unit |
| (3) | Reserve Setting | Set Use Station or Reserve Station for the expansion unit set. | Use Station, Reserve Station |
| (4) | Data on Error | Set the handling (Clear/Hold) of output data on error occurrence. | Clear/Hold Follow the Slave Station. |

### 4.6.2. Analog Ch Setting Screen

On the Analog Ch Setting screen, the analog expansion unit analog channels settings are configured.
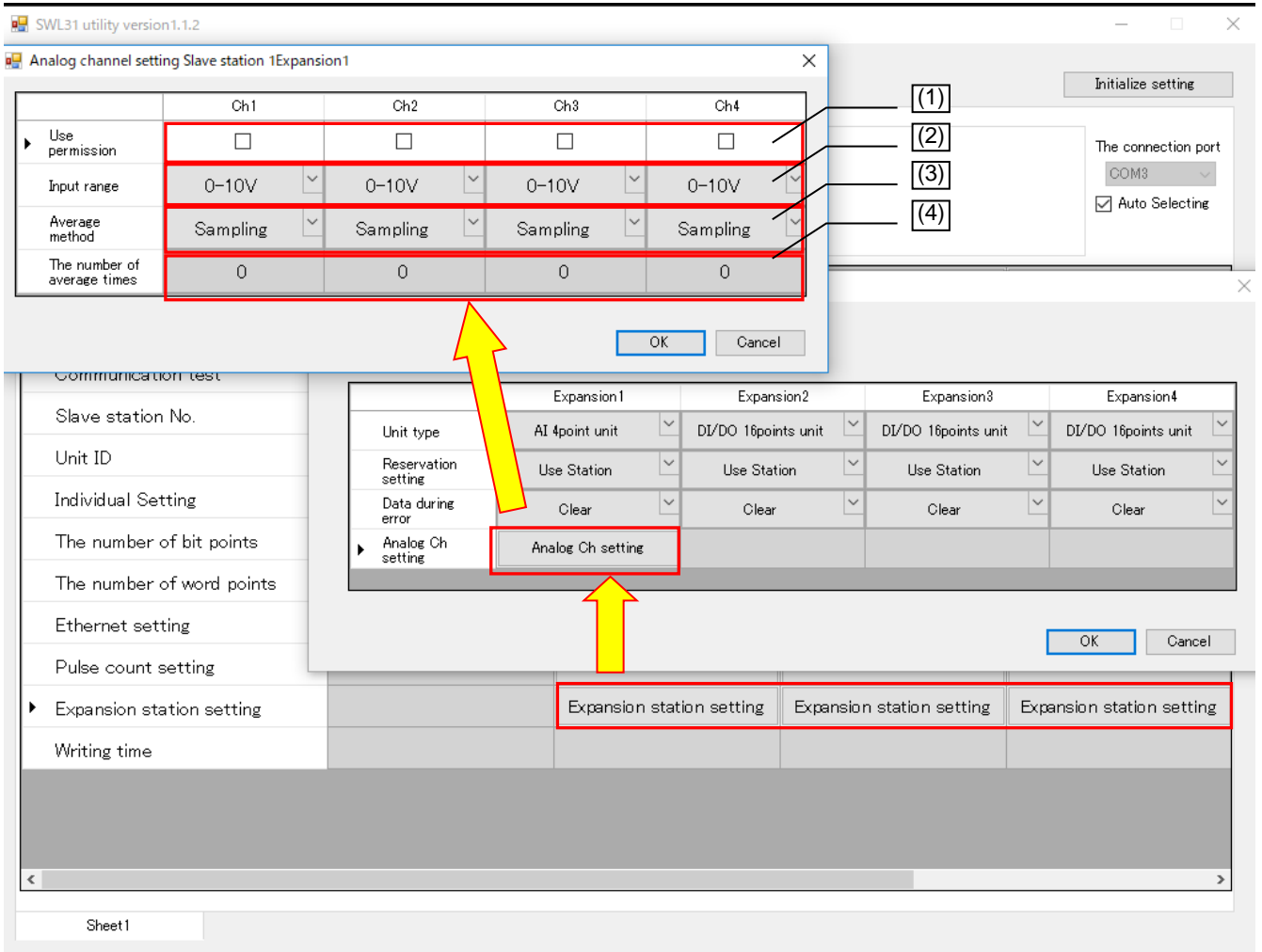


| No. | Name | Details | Setting range |
|-----|------|---------|---------------|
| (1) | Analog Ch Conversion Permission | Set if the relevant analog Ch is used. | ON, OFF |
| (2) | Input Range | Set the range of the data to be used. | 0-10V, 0-5V, 1-5V, 0-20mA, 4-20mA |
| (3) | Average Method | Set the method for average processing for data display. | Sampling, Times Average, Time Average, Moving Average |
| (4) | Average Count | Set the count/time for average. Since Sampling does not have average processing, the Average Count will be invalid. | Times Average, Moving Average 0 to 32 times, Time Average 0 to 32 x 10 ms |

<u>Changes in Product Specifications</u>

The specifications given in the catalogs, specifications, technical documents and others are subject to change without prior notice.


<u>Product Application</u>

■ Use Conditions

 In using Mitsubishi products, the usage conditions shall be that the application will not lead to a major accident even if any problem or fault should occur in our products and that backup and other measures are taken.

■ Application Exceptions

 (1) Our products have been designed and manufactured for applications in general industries and other industries. Applications in which the public could be affected significantly such as in nuclear power plants and other power plants, public transportation such as railroad and aviation. And applications in which a special quality assurance system is required such as for vehicle equipment, medical machinery, equipment for recreation and amusement, safety equipment, incineration systems, and facilities which comply with the regulations of government agencies and individual industries will be excluded from the applications.

 (2) Applications in which human life or assets could be greatly affected and for which a particularly high reliability is required in terms of safety and control systems will be excluded from the applications.

 (3) However, even with the applications above, if the user approves that it is to be limited and special quality is not required, it would be adaptable.