

## WiWi Module Unit 2 Operation Manual (v1.3)

Product Name: WiWi module      Trade name: NICT

Model name: WIWI2GOUKI

Frequency Range: 922.5MHz–927.5MHz

### Product description

This product provides synchronized signals when used in pair. Modules are synchronized through 920MHz radio signal and outputs 10MHz and 1pps (pulse per second) signal.

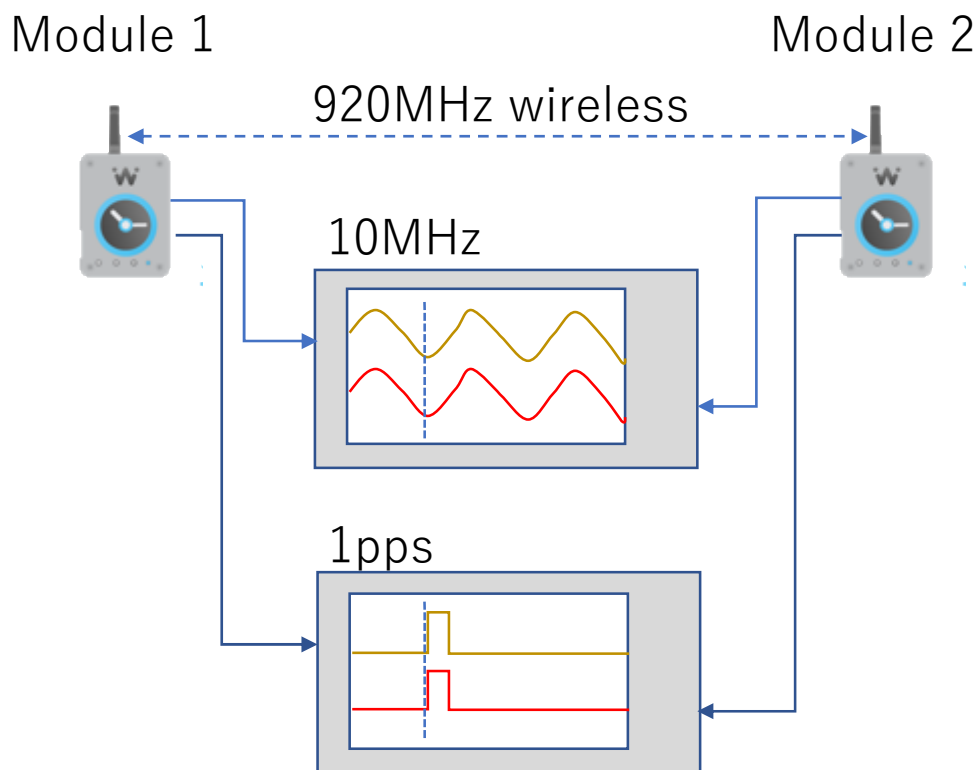
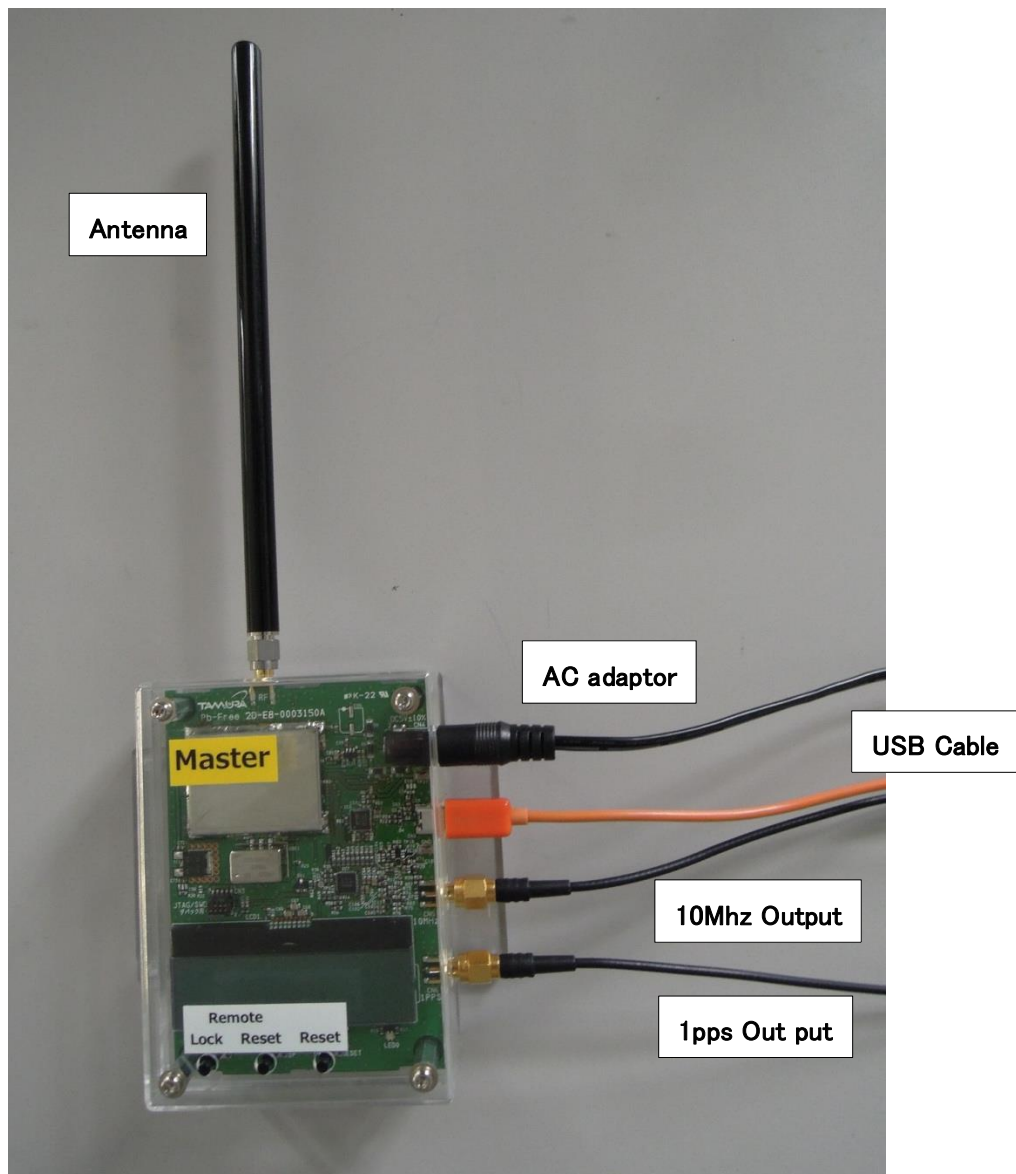


Figure 1 overview of purpose description

## Connection method



Connect the antenna and AC adapter (5V) to the WiWi module

(no USB cable connection required).

Monitor 10Mhz output and 1pps output with an oscilloscope.

## Method of operation

By performing the following operations, it is possible to observe on the oscilloscope how the 10MHz output of the slave is phase-locked to the master and the rises of 1pps are aligned with microsecond accuracy.

- 1 Complete the above connection. Next, 10MHz output and 1pps output are each monitored with an oscilloscope.

- 1.1 Compare 10MHz with master and slave, and when trigger is applied to master, slave signal flows to either right or left (frequency is different).

- 1.2 When 1pps is compared between the master and the slave, the rising position is observed to be off by more than 1 microsecond.

- 2 How to phase lock the slave module clock to the master module clock

- 2.1 Press the "Lock" button on the Slave module, or

- 2.2 Press the "remote Lock" button on the Master module.

- 2.2.1 Then 10MHz will phase lock within a few seconds, and the slave signal is observed to stop flowing.

- 2.2.2 After the 10MHz phase lock is observed, the rise of 1pps is aligned within 5 seconds with an accuracy of less than 1 microsecond.

- 2.3 Pressing the "remote Lock" button on the Master module again will result in "Unlock" or "Remote Unlock". (From here, the frequency and phase will gradually shift by freerunning stability)

### 3 How to reset

#### 3.1 Slave module reset

3.1.1 Press the "Reset" button on the Slave module, or

3.1.2 Press "Remote reset" on the Master module

#### 3.2 Reset Master module

3.2.1 Press "Reset" on the Master module

**\*About USB cable connection**

The USB cable connection is only used for troubleshooting and user does not need to use the connection.

**FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.