

MRU-F5100US User's manual

This document describes the operation of the application to perform standard operations on the MRU-F5100US (hereinafter called "MRU").

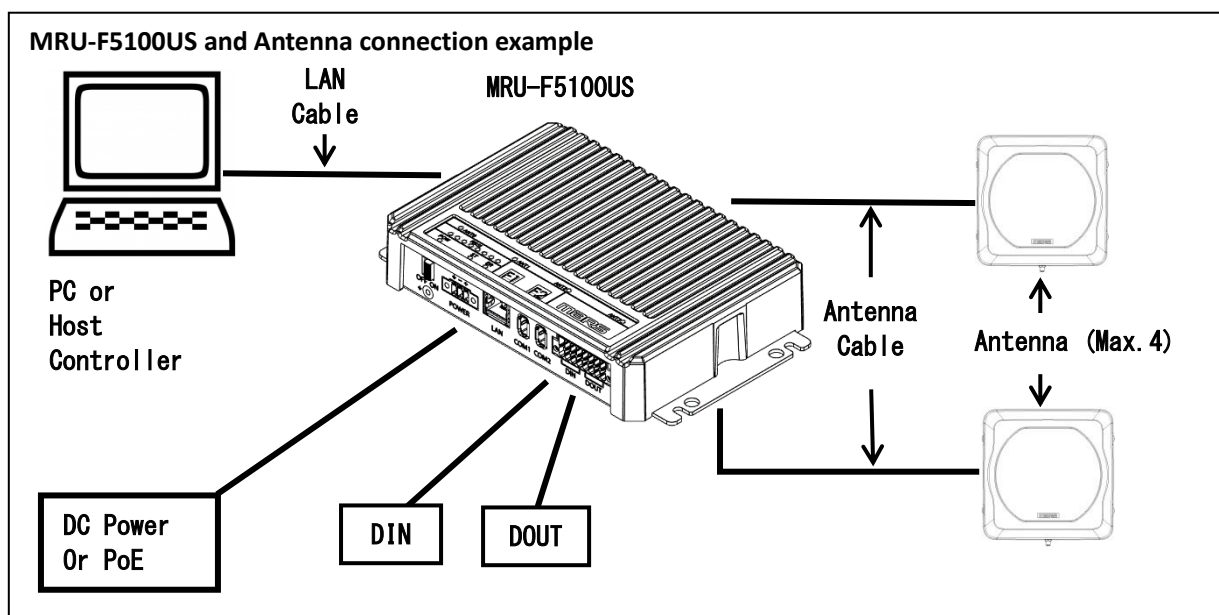
1. Preparation

1.1. Preparation (Hardware)

- PC installed Windows7 or later
- LAN cable
- MRU-F5100US
- Antennas and cables

1.2. Connection

- Connecting power source to the MRU.(DC12, DC24, PoE)
- Connect the antenna cable and antenna to the antenna port
- Connect the MRU to the PC with a LAN cable



2. Power on the MRU

Slide the power switch of the MRU to the ON side.

Wait until the buzzer sounds three times in a row.

It takes about 20 seconds to completely start up after the power is turned on.

3. Launch “FRUSample.exe”

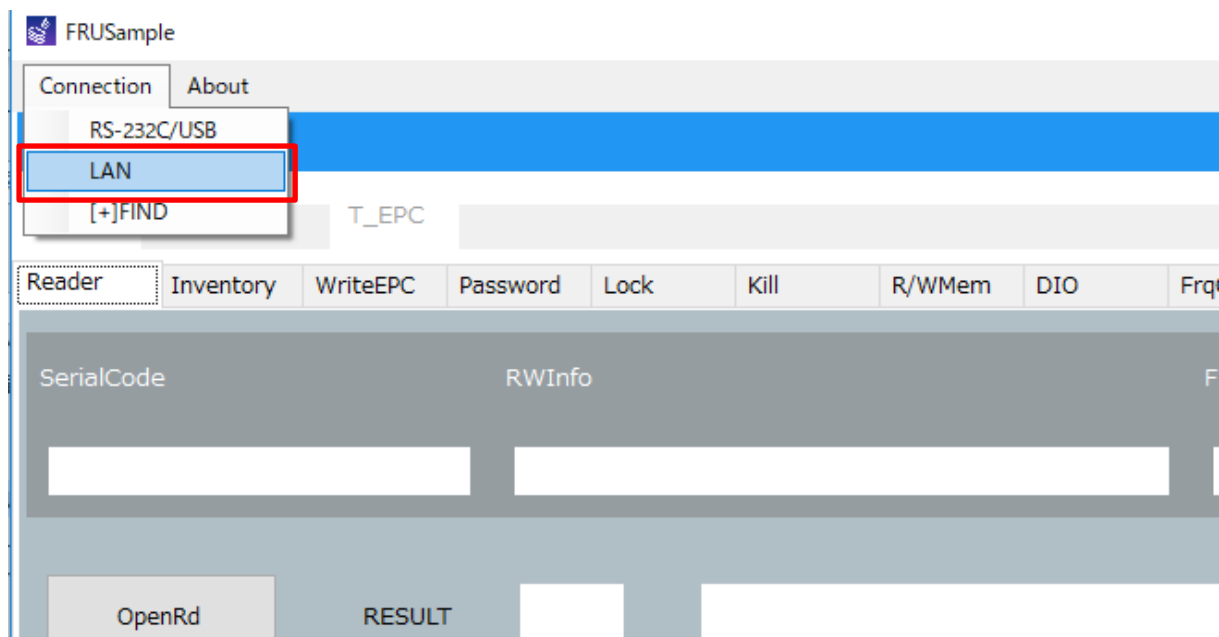
Double-click “FRUSample.exe”.

When “FRUSample.exe” starts, following screen is displayed.

The screenshot shows the FRUSample application window. At the top, there's a title bar with the application name and standard window controls. Below it is a menu bar with 'Connection' and 'About'. A blue banner displays 'Welcome !'. The main interface features two input fields for 'T_PC' and 'T_EPC', followed by a 'ClearTarget' button. A horizontal tab bar includes 'Reader' (selected), 'Inventory', 'WriteEPC', 'Password', 'Lock', 'Kill', 'R/WMem', 'DIO', 'FrqCh', 'AntConf', 'EpcMask', 'ReaderConf', and 'DIOCo'. The 'Reader' tab is active, showing a section with three input fields labeled 'SerialCode', 'RWInfo', and 'FWVersion'. Below these are three rows of controls: 'OpenRd', 'CloseRd', and 'GetRdInf'. Each row has a 'RESULT' label, a small status box, and a large text area for output. At the bottom, there are three sections labeled 'COMMAND', 'RESPONSE', and 'REPORT'.

4. Connection with MRU

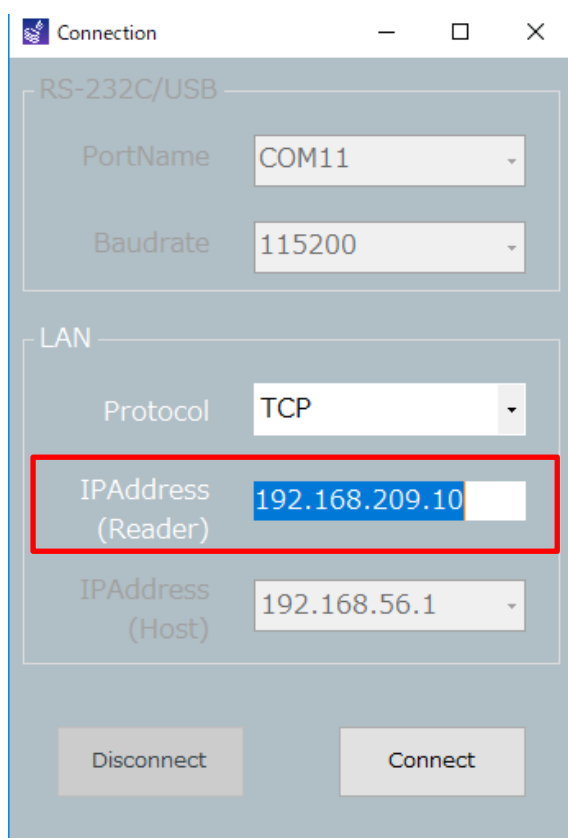
Select “Connection” – “LAN” in the menu.



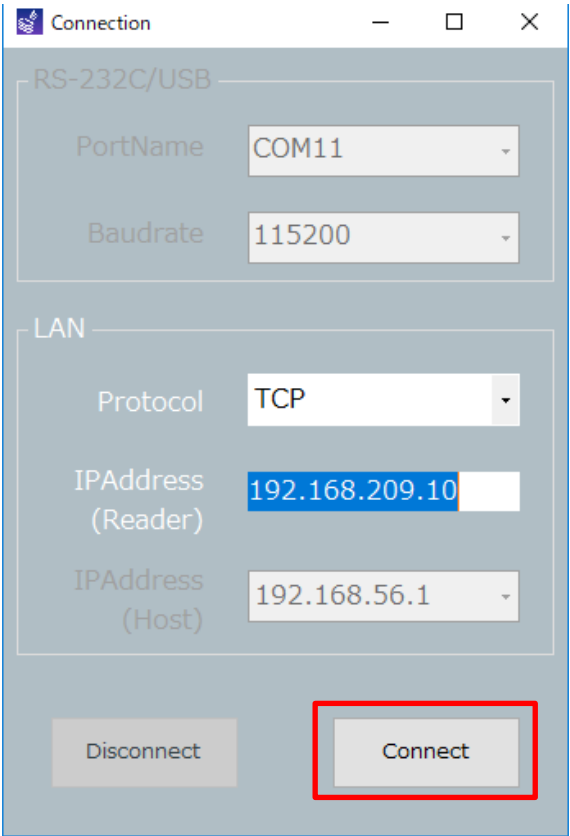
Then following screen is displayed.

And enter the IP address of the MRU in “IPAddress”.

※ When the software starts, the default IP address is displayed.



Click the “Connect” button to connect to MRU.



Connection

RS-232C/USB

PortName COM11

Baudrate 115200

LAN

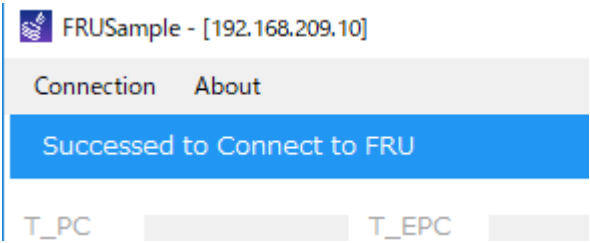
Protocol TCP

IPAddress (Reader) 192.168.209.10

IPAddress (Host) 192.168.56.1

Disconnect Connect

When the “Connect” is completed successfully, IP address is displayed in the title area and “Succesed to Connect to FRU” is displayed in the status area.



FRUSample - [192.168.209.10]

Connection About

Succesed to Connect to FRU

T_PC T_EPC

5. MRU Settings

Set the necessary settings in advance to read UHF tags with the MRU.

5.1. Start to MRU operation

Click “OpenRd” button in the “Reader” tab.

The screenshot shows the 'Reader' tab selected in a menu bar. Below the menu bar, there are three input fields labeled 'SerialCode', 'RWInfo', and 'FWVersion'. At the bottom left, the 'OpenRd' button is highlighted with a red rectangular box. To its right, the 'RESULT' label is followed by a small white box and a larger white text area.

When the operation is successfully started, “00 Normal” is displayed in the RESULT area.

This screenshot shows the same interface as the previous one, but the 'OpenRd' button is now outlined with a blue dashed border. The 'RESULT' section now displays '00' in a small white box and 'Normal' in the larger white text area. A red rectangular box highlights the entire 'RESULT' section.

5.2. Antenna settings

Set the antenna to be used in the “AntConf” tab.

- ※ Change the current MRU antenna settings.

In the operation with multiple antennas enabled, use Antenna 0 first and when either Dwell or InvCnt reaches the maximum value, it switches to the next antenna.

When all antennas are used, return to Antenna 0 and continue to read.

Ant	Act	Power	Dwell	InvCnt
Ant0	<input type="checkbox"/> Enabled	50	0	0

GetAntConf	RESULT

SetAntConf	RESULT

- Ant (Antenna Number)
 - Ant0 : Antenna 0
 - Ant1 : Antenna 1
 - Ant2 : Antenna 2
 - Ant3 : Antenna 3
- Act (Enable / Disable antenna selected by Ant)
 - Checked : Enable the antenna
 - Unchecked : Disable the antenna
- Power (The output value of antenna selected by Ant. Unit is 0.1dBm)
 - 50~300
- Dwell (The maximum read time of antenna selected by Ant. Unit is ms)
 - 0~65535
 - If InvCnt is 0, Dwell cannot be set to 0.
- InvCnt (The maximum count of readings of antenna selected by ant)
 - 0~65535
 - If Dwell is 0, InvCnt cannot be set to 0.

When you click “GetAntConf” button, it reads and displays the antenna settings set in the MRU.

If reading of the antenna settings is successful, “00 Normal” is displayed in the RESULT area.

Ant	Act	Power	Dwell	InvCnt
Ant0	<input checked="" type="checkbox"/> Enabled	300	2000	8192

GetAntConf	RESULT
	00 Normal

SetAntConf	RESULT

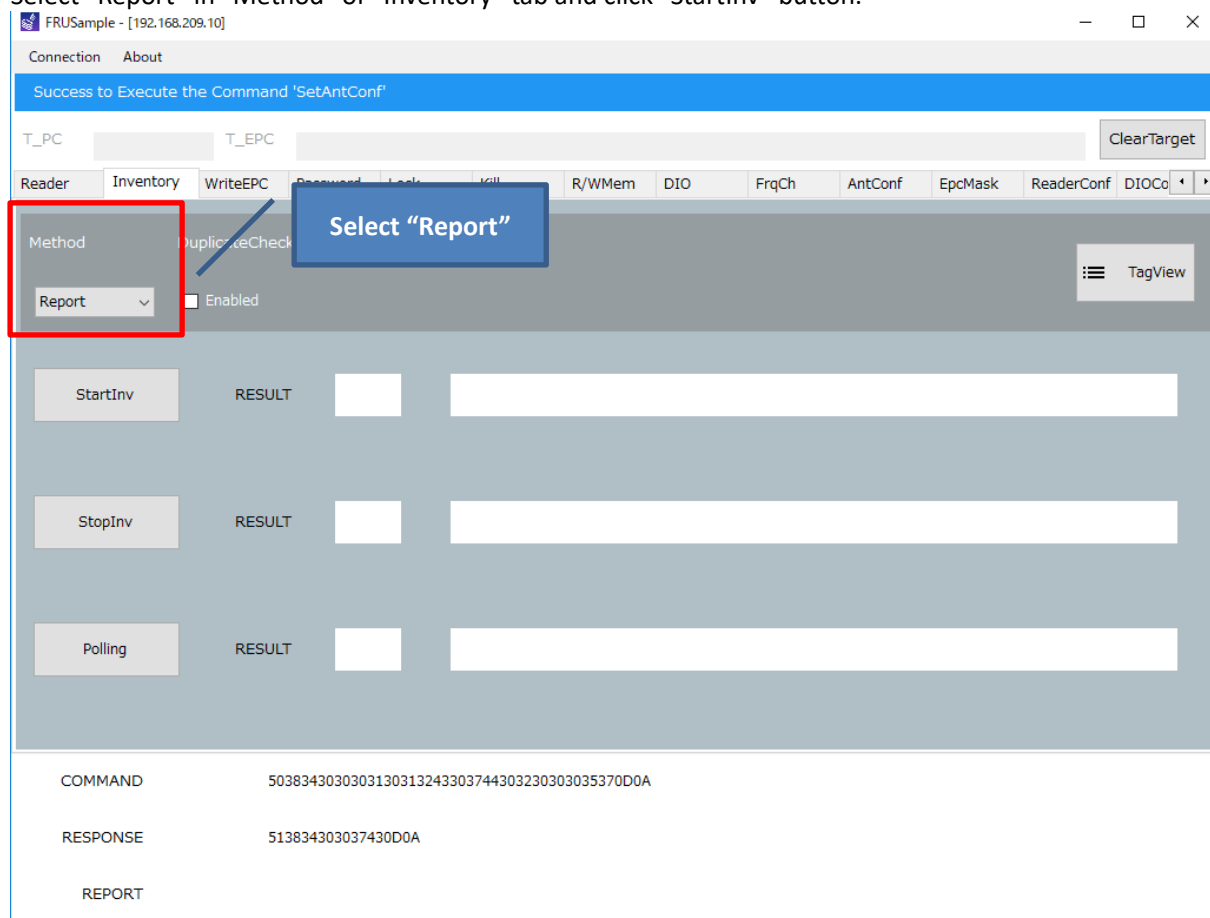
To change the antenna settings, enter the antenna settings and click the “SetAntConf” button. If the antenna settings are successfully changed, “00 Normal” is displayed in the RESULT area.

Reader	Inventory	WriteEPC	Password	Lock	Kill	R/WMem	DIO	FrqCh	AntConf	EpcMask	ReaderConf	DIOCo
Ant	Act	Power	Dwell	InvCnt								
Ant0	<input checked="" type="checkbox"/> Enabled	300	2000	8192								
GetAntConf	RESULT	00	Normal									
SetAntConf	RESULT	00	Normal									

6. Tag Reading Operation

6.1. Start reading

Select "Report" in "Method" of "Inventory" tab and click "StartInv" button.



If “StartInv” is successful, “00 Normal” is displayed in the RESULT area. While reading tags, the read tag information is displayed at the bottom of the screen.

When you click the “TagView” button, the following screen is displayed, and the read tag information is updated in real time.

The TagView window displays the following information:

- Header:** 2 Tag, buttons 0, 1, 2, 3, AutoClear checkbox, 1000 ms timer, Clear button, Save as CSV button.
- Tag 0 Data:**
 - (CRC+PC+EPC): 1B8C 7C00 12345678901234567890123456820400
 - (TSP): 1773372 (REP): 0 (RSSI): -44.4
 - Visual representation: 6 yellow bars of varying heights.
 - Select button.
- Tag 1 Data:**
 - (CRC+PC+EPC): 39BB 3000 300833B2DDD90140000000000
 - (TSP): 1771350 (REP): 0 (RSSI): -54.7
 - Visual representation: 4 yellow bars of varying heights.
 - Select button.

6.2. Stop reading

Click the “StopInv” button to stop reading tags.
If the stop is successful, “00 Normal” is displayed in the RESULT area.

The FRUSample window shows the following interface:

- Header:** FRUSample - [192.168.209.10], Connection, About buttons.
- Status Bar:** Success to Execute the Command 'StopInv'
- Fields:** T_PC, T_EPC, ClearTarget button.
- Navigation:** Reader, Inventory, WriteEPC, Password, Lock, Kill, R/WMem, DIO, FrqCh, AntConf, EpcMask, ReaderConf, DIOCo.
- Method Section:**
 - Method: DuplicateCheck
 - Report: dropdown menu
 - Enabled: checkbox
 - TagView button.
- Action Buttons:** StartInv, StopInv, Polling.
- RESULT Area:**
 - StartInv: RESULT 00 Normal
 - StopInv: RESULT 00 Normal** (highlighted with a red box)
 - Polling: RESULT [empty]

7. Stop to MRU operation

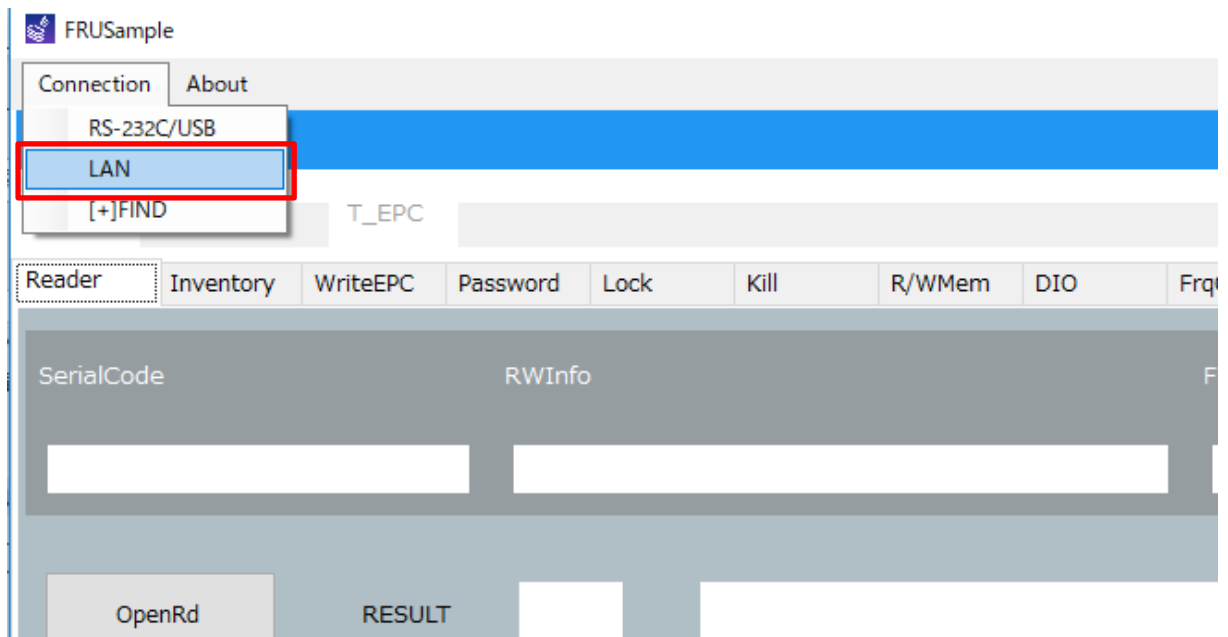
Click the “ClosedRd” button in the “Reader” tab.

If the operation of the MRU is successfully stopped, “00 Normal” is displayed in the RESULT area.

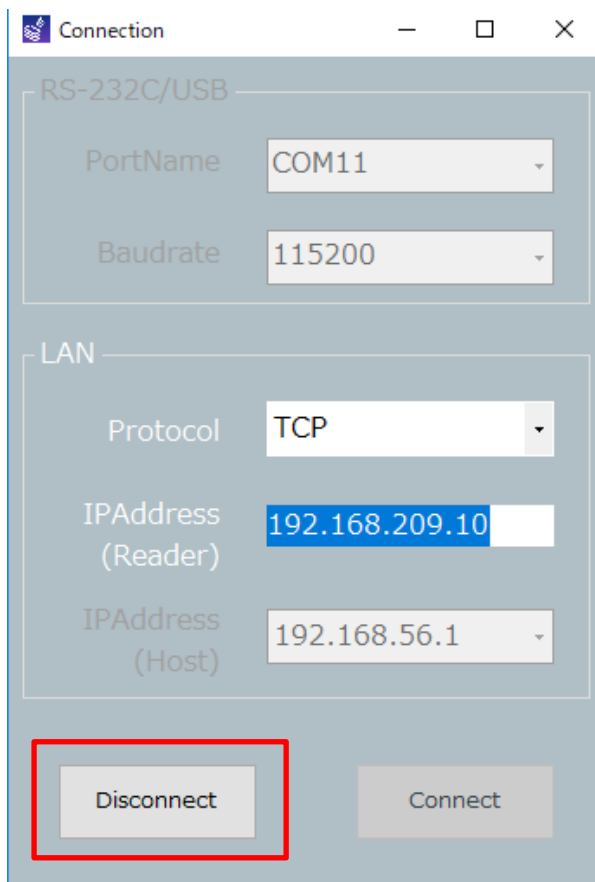
The screenshot shows the FRUSample application window with the title bar 'FRUSample - [192.168.209.10]'. The interface includes a 'Connection' tab and an 'About' button. A blue status bar at the top displays 'Success to Execute the Command 'CloseRd''. Below this, there are input fields for 'T_PC' and 'T_EPC', and a 'ClearTarget' button. A horizontal menu bar contains the following options: Reader, Inventory, WriteEPC, Password, Lock, Kill, R/WMem, DIO, FrqCh, AntConf, EpcMask, ReaderConf, and DIOCo. The 'Reader' tab is currently selected. The main content area is divided into three sections: 'SerialCode', 'RWInfo', and 'FWVersion', each with a corresponding input field. Below these, there are three rows of controls. The first row has an 'OpenRd' button, a 'RESULT' label, a text box containing '00', and a text box containing 'Normal'. The second row has a 'CloseRd' button (highlighted with a blue border), a 'RESULT' label, a text box containing '00', and a text box containing 'Normal' (this entire row is highlighted with a red border). The third row has a 'GetRdInf' button, a 'RESULT' label, an empty text box, and an empty text box.

8. Quit the application

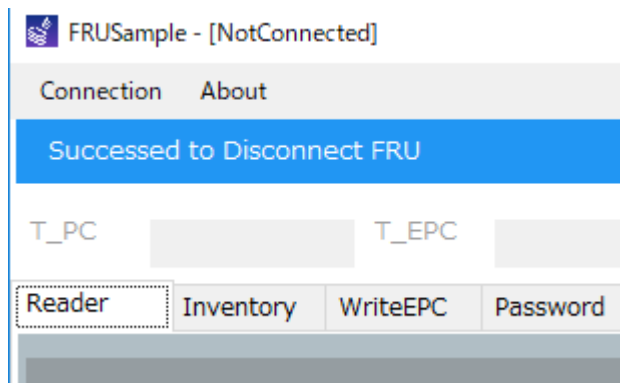
Select “Connection” – “LAN” in the menu.



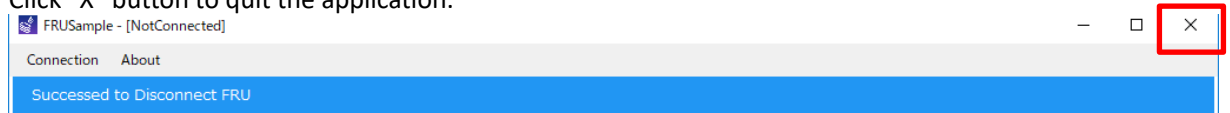
Then following screen is displayed.
And click “Disconnect” button.



When the “Disconnect” is completed successfully, “[NotConnected]” is displayed in the title area.



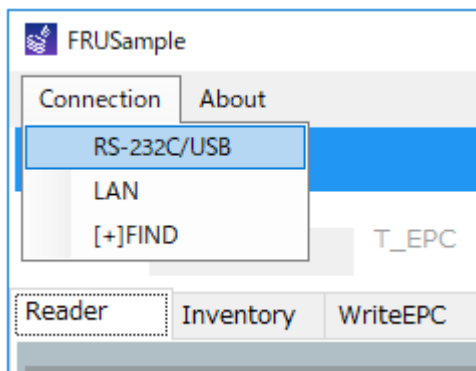
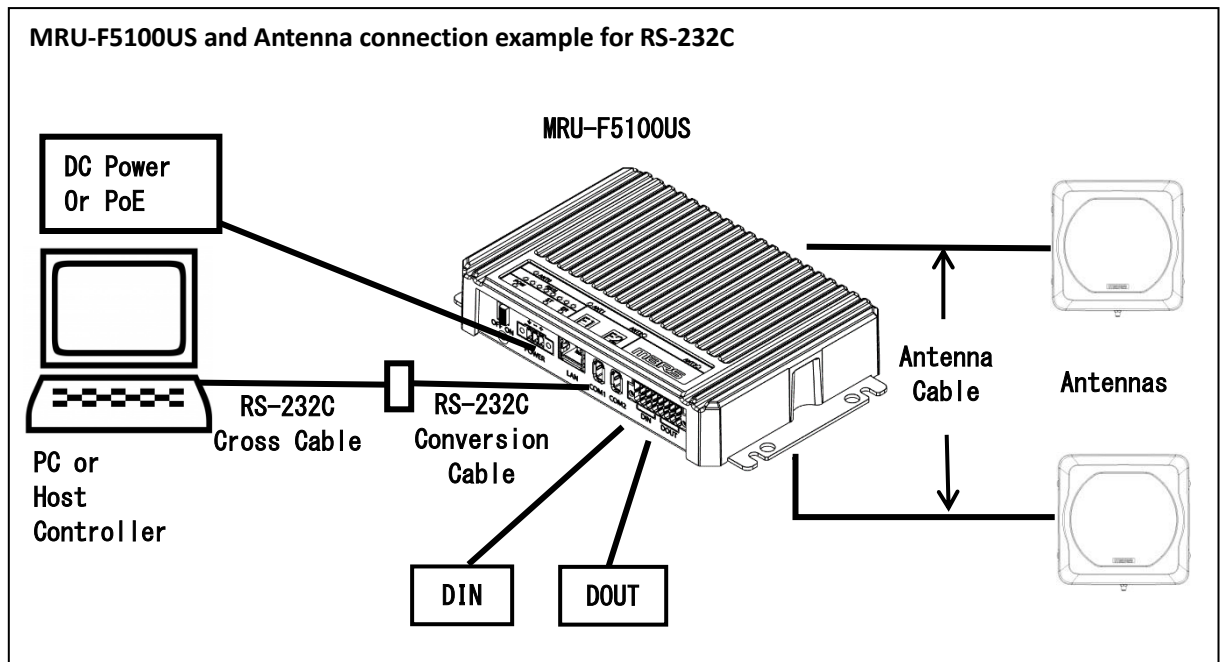
Click "X" button to quit the application.



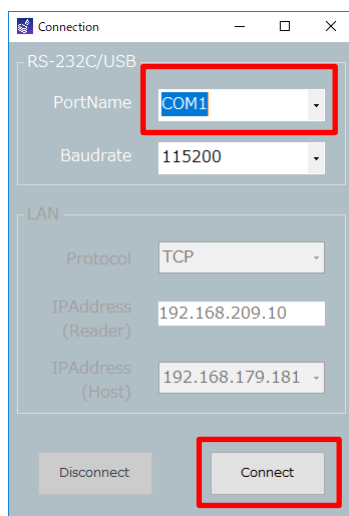
Appendix A

Connection with MRU by RS-232C

Connect PC to MRU as below.



Select "Connection" – "RS-232C/USB" in the menu.



Then following screen is displayed.
And enter the PortName of the COM port
※Baudrate default is 115200

Click the "Connect" button to connect to MRU.

Appendix B

FCC

Federal Communications Commission (FCC) Statement

15.21

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

15.105(b)

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.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1) this device may not cause harmful interference and
- 2) this device must accept any interference received, including interference that may cause undesired operation of the device.

FCC RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of **20 cm** between the radiator and your body.