

How to customize Modbus RTU communications

Monitouch HMI Technical Note TN-MH-0001b

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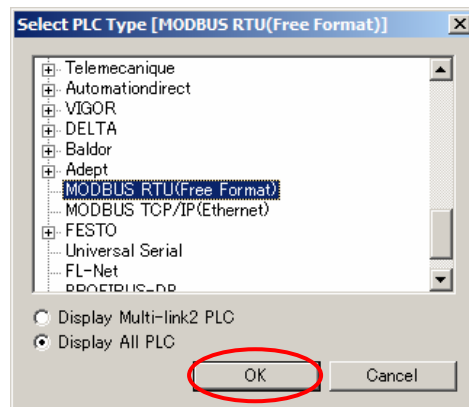
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1. Introduction

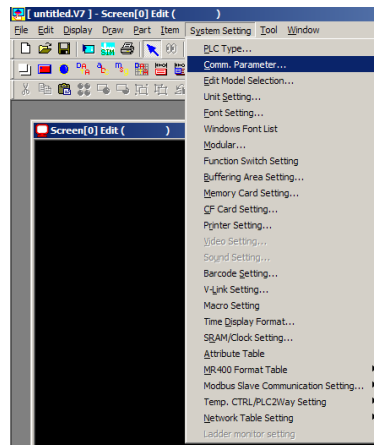
This document describes the setting on the V-SFT software to customize the Modbus RTU communication between Monitouch operator interface panels (OIPs) and various Modbus RTU slave devices. Many of Monitouch OIPs have Modbus RTU Master driver on the CN1 port (usually DB25 connector ports), and MJ1 and MJ2 ports (two Modular Jack ports).

2. CN1 Port (DB25 Connector Port)

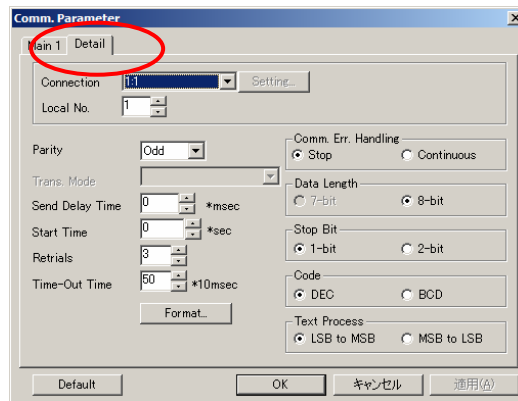
Click **System Setting**, and click **PLC Type**, the following dialogue box appears. Select **MODBUS RTU (Free Format)**, and then click **OK**.



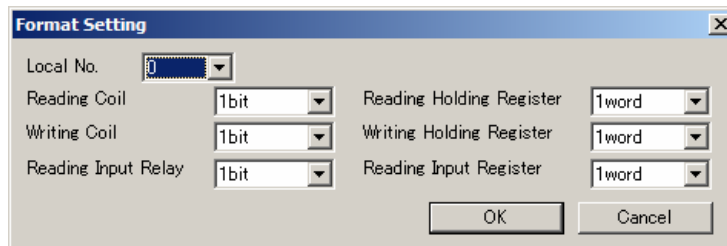
Click **System Setting** again, and click **Comm. Parameter**.



The **Comm. Parameter** dialogue appears, then click **Detail** tab.



Click **Format** pushbutton, then the following dialogue appears, and click the arrow pushbutton to adjust the number of bits/words you wish to read/write at a time

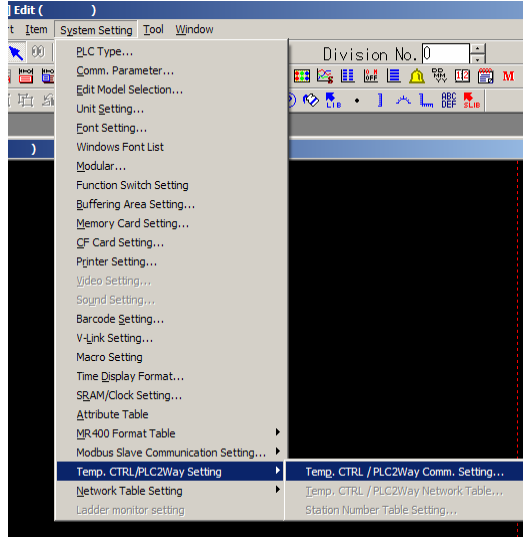


The Monitouch OIPs will read/write data from your Modbus Slave devices according to your Format Setting. They use different Modbus Function codes for the following two particular settings:

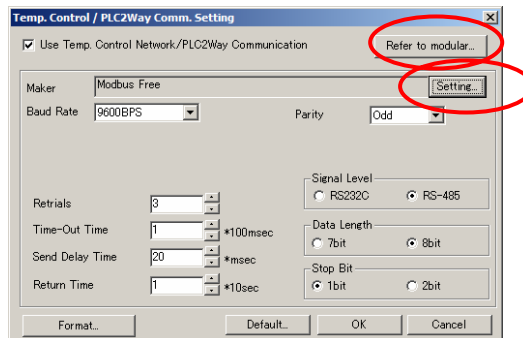
Writing Coil	1 bit:	05 (0x05) Write Single Coil
	16 bits or more:	15 (0x15) Write Multiple Coils
Writing Holding Register	1 word:	06 (0x06) Write Single Register
	2 word or more:	16 (0x16) Write Multiple Registers

3. MJ1 and MJ2 ports (two Modular Jack ports)

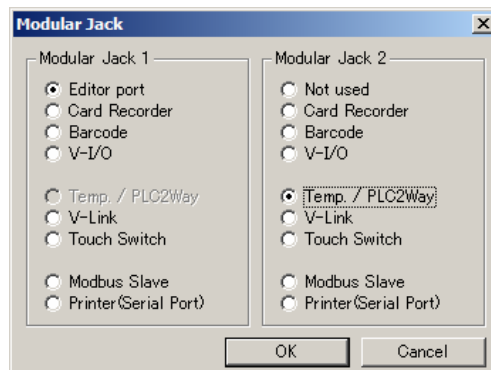
Click **System Setting**, and select **Temp. Control/PLC2Way Setting > Temp. Control/PLC2Way Setting...**, the following dialogue box appears. Select **MODBUS RTU (Free Format)**, and then click **OK**.



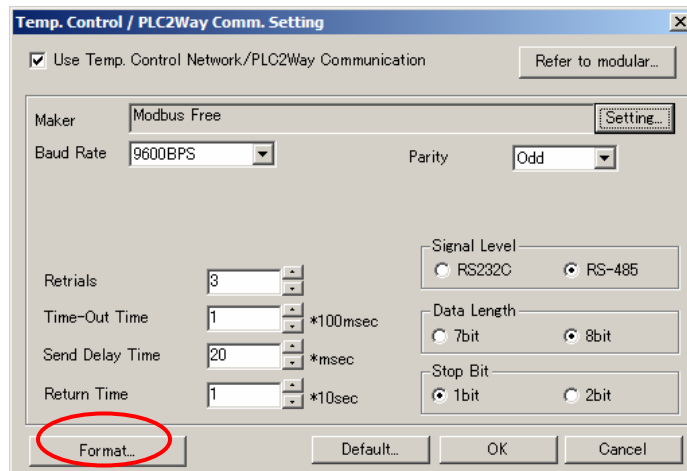
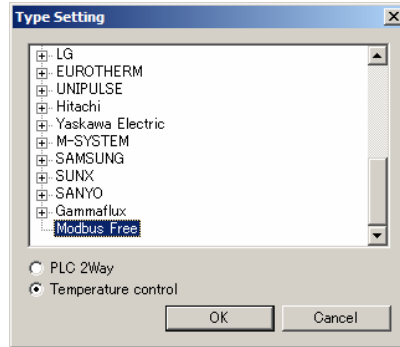
The following dialogue box appears.



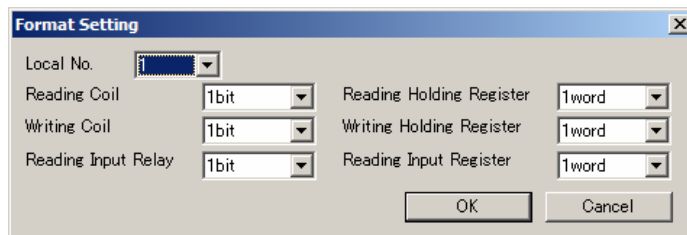
Check **Use Temp. Control Network/PLC2Way Communication**, and click **Refer to modular...**, then the following dialogue box appears. Check Temp/PLC2Way on either of **Modular Jack 1** (MJ1 port) or **Modular Jack 2** (MJ2 port), then click **OK** pushbutton. (Usually Modular Jack 2 is assigned to Modbus communication, as many people assign **Modular Jack 1** as the **Editor Port** to download screen data.)



Click Setting pushbutton to select a driver, and click **Modbus Free**, then click **OK** pushbutton



Click **Format** pushbutton, then the following dialogue appears, and click the arrow pushbutton to adjust the number of bits/words you wish to read/write at a time



The Monitouch OIPs will read/write data from your Modbus Slave devices according to your Format Setting. They use different Modbus Function codes for the following two particular settings:

Writing Coil	1 bit:	05 (0x05) Write Single Coil
	16 bits or more:	15 (0x15) Write Multiple Coils
Writing Holding Register	1 word:	06 (0x06) Write Single Register
	2 word or more:	16 (0x16) Write Multiple Registers

4. Indirect Memory Addressing

When using indirect addressing with the Modbus Free or Modbus TCP/IP driver, the memory type specification is as follows:

Memory	TYPE	Comments
0 (Output Coil)	0	
1 (Input Coil)	1	Read only
4 (Holding Register)	2	
3 (Input Register)	3	

Also note that there is an offset of -1 when addressing a Modbus input or holding register. For example:

```

Switch ON Macro Edit(Screen No[0]) Line No:8
0 ; Modbus Indirect (400001)
1 $T00100=0102H (w)
2 $T00101=0 (w)
3 ;
4 ; Internal Indirect ($u200)
5 $T00110=0000H (w)
6 $T00111=200 (w)
7 ;
8 ; Loop for 10 words
9 FOR 10
10 *$T00110=*$T00100 (w)
11 $T00101=$T00101 + 1 (w)
12 $T00111=$T00111 + 1 (w)
13 NEXT
14

```

This macro will transfer 10 words starting at 400001 into \$u200. Note that \$T101 is equal to 0, not 1 for 400001.

5. For More Information

- Manuals (Monitouch)
 - Reference Manual (Function)
 - Temperature Controller Network
 - PLC Connection Manual
- Modbus Information
 - Website <http://www.modbus.org>