MITSUBISHI QJ71MT91 Modbus TCP/IP

The QJ71MT91 is used to connect the MELSEC-Q series PLC (Q00J, Q00, Q01, Q02, Q02H, Q06H, Q12H, Q25H, Q12PH, Q25PH) to a MODBUSR /TCP
network.
http://www.modbus.org http://www.mitsubishi-automation.com/

HMI Setting:

Parameters	Recommend	Option	Notes
PLC type	MODBUS TCP/IP		
Com port	Ethernet		
HMI Station No.	0	Does not apply	
PLC Station No.	1	Does not apply	
TCP Port	502		

PLC Setting:

Communication mode	

Device address:

Bit/Word	Device Type	Format	Range	Memo
B	0x	ddddd	1-65535	Output bit
B	1x	ddddd	1-65535	Input bit (read only)
B	3x_Bit	ddddd(dd)	100-6553515	Input Register bit (read only)
B	4x_Bit	ddddd(dd)	100-6553515	Output Register bit
W	3x	ddddd	1-65535	Input Register (read only)
W	4x	ddddd	1-65535	Output Register
DW	5x	ddddd	1-65535	4x double word swap
W	6x	ddddd	1-65535	4x single word write

NOTE:
Address type “5x” are mapping to Hold Reg. The communication protocol of 5x almost same as “4x” except “5x”making double word swap.
If 4x have following information

Address	1	2	3	4	5	6	...
Data in word	0x1	0x2	0x3	0x4	0x5	0x6	

Data	0x20001	0x40003	0x60005	

For 5x, it become

Address	1	2	3	4	5	6	...
Data in word	0x2	0x1	0x4	0x3	0x6	0x5	
Data	0x10002		0x30004		0x50006		

Modbus RTU function code:

0x	0x01 Read coil	0x05 write single coil
1x	0x02 Read discrete input	N/A for write operation
3x	0x04 Read input register	N/A for write operation
4x	0x03 Read holding register	0x10 write multiple register
5x	0x03 Read holding register	0x10 write multiple register

(note: reverse word order in double word format)

3xbit is equivalent to 3x

4xbit is equivalent to 4x

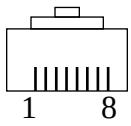
6x	0x03 Read holding register	0x06 write single register

(note: use 6x device is limited to device of one word only)

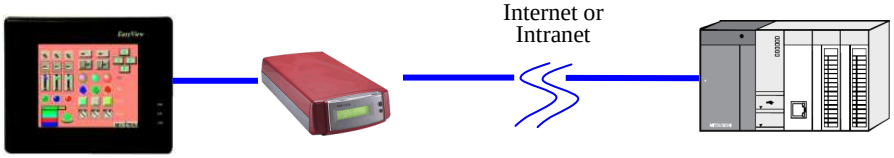
Wiring diagram:

Ethernet (to switch, hub or router):

MT8000 Ethernet RJ45		Wire color	Ethernet Hub or Switch RJ45	
1	TX+	White/Orange	1	RX+
2	TX-	Orange	2	RX-
3	RX+	White/Green	3	TX+
4	BD4+	Blue	4	BD4+
5	BD4-	White/Blue	5	BD4-
6	RX-	Green	6	TX-
7	BD3+	White/Brown	7	BD3+
8	BD3-	Brown	8	BD3-



RJ45 connector



MT8000
192.168.0.80

Router
192.168.0.1

Modbus RTU TCP/IP Device
210.68.117.224

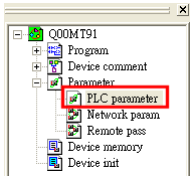
Ethernet: Direct connect (crossover cable)

MT8000 Ethernet RJ45		Wire color	Modbus TCP Device RJ45	
1	TX+	White/Orange	3	RX+
2	TX-	Orange	6	RX-
3	RX+	White/Green	1	TX+
4	BD4+	Blue	4	BD4+
5	BD4-	White/Blue	5	BD4-
6	RX-	Green	2	TX-
7	BD3+	White/Brown	7	BD3+
8	BD3-	Brown	8	BD3-

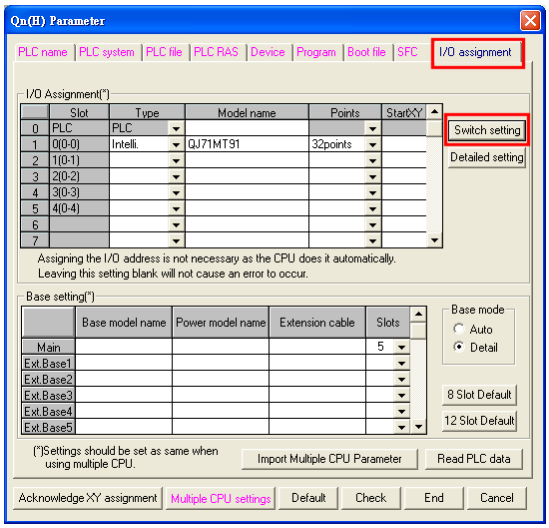
MT8000
192.168.0.80

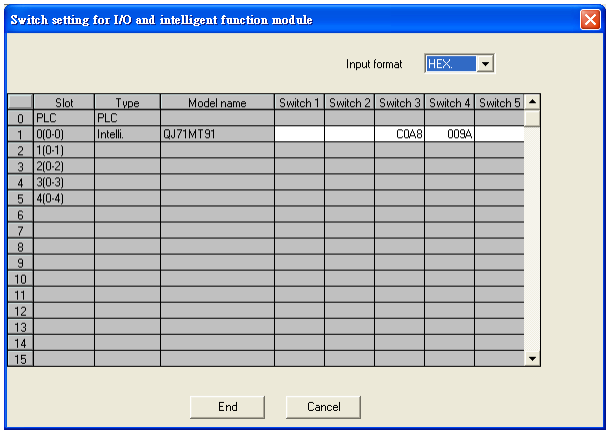
Modbus RTU TCP/IP Device
192.168.0.154

PLC Setting:



1. Click “PLC parameter”
2. Click “I/O assignment”
3. Select “Intelli.” At slot 1.
4. Click “Switch setting”



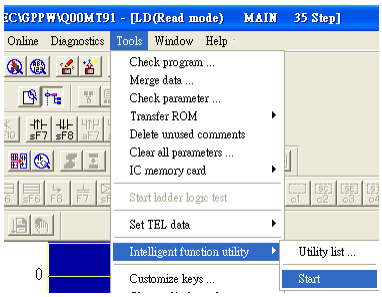


Entering the values in hexadecimal makes the setting easy. Change the input format into HEX before entering the values.

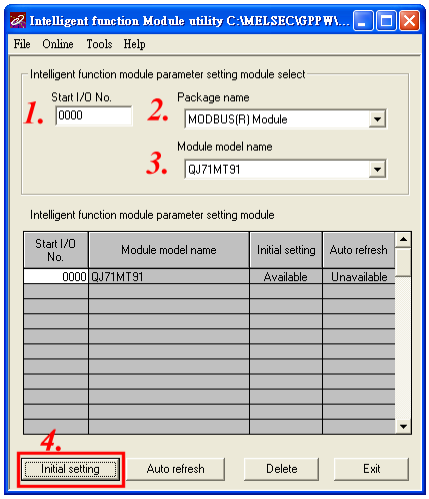
C0A8 009A = 192.168.0.154

After setting, write the data to the PLC, and power the PLC OFF, then ON or reset the PLC CPU.

Switch No.	Description	Initial Value
Switch 1	Operation mode setting	0000H
Switch 2	Communication condition setting	0000H
Switch 3	IP address setting (high order)	C001H
Switch 4	IP address setting (low order)	00FEH



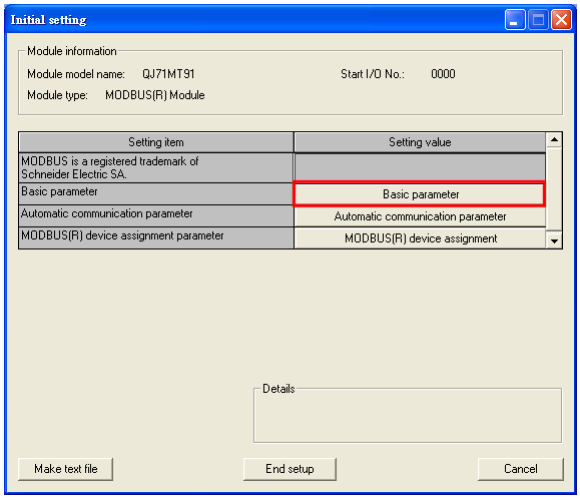
In GX Developer, click [Tools]/[Intelligent function utility]/[Start].



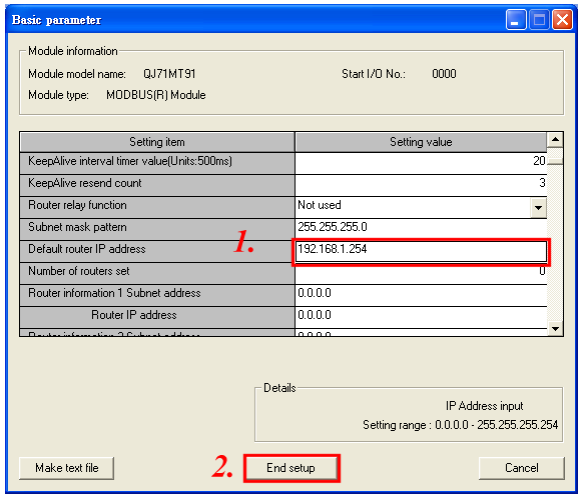
Intelligent function module parameter setting module select screen.

Enter "Start I/O No." and select "Module type" and "Module model name".

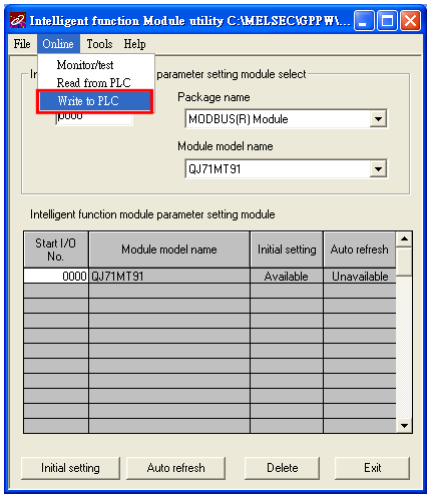
Click [Initial setting]



Click [Basic parameter]



Set Default router IP address.
Click [End] setup



Click [Online]/[Write to PLC]