Chapter 26 Example

1. How to set HMI as MODBUS device

After setting as MODBUS Server, the data of MT8000 can be read or written via MODBUS protocol.



Refer to the above illustration, it shows MT8000 is set as MODBUS Server. The HMI, PC or other devices can use MODBUS protocol to read or write the data from MT8000 via Ethernet or RS232/485 interface. Please follow the steps as below.

(1) Creating a MODBUS Server

First of all, creating a new device "MODBUS Server" in the Device table of System Parameter Settings, the PLC I/F can be set to anyone of RS232, RS485 2W, RS485 4W ,Ethernet.

Device	Mode	el Genera	1 Security	Font	Extended Memory	Printer Serve	r	
Device	e last :							
NO.		Name	Location	Device t	ype	Interface	I/F Protocol	Statio
Local	TIME	Local HMII	I nonel	IMTERSE:	TAXT9056T /220 v 2	24) Dicabla	11/4	M74
Device	e Prop	erties						
		Name : M	ODBUS Se	erver				
		C	HMI	OPLC				
	ļ			0.20				
	L	ocation : L	ocal	~	Settings			
	PI	LC type : N	ODBUS S	arver				~
			1.00 1/00	DUG OFD	UPD			1.50
		IV.	1.00, MOD	BO275EK	VER.SO			
	1	PLC I/F : R	S-232	~		Station no	.: 1	
		COM :	S-232				Settings	
		R	S-485 4 W					
		E	themet	h	and			
		Interval	of block p	ack (word:	a) : 5 💌			
		May read.	- bremmo-	size (word)	a 120			
		1400. 1000	COMMINDIA .	and (words	. 120			
		May write.	-command :	size (word:	a): 120 🗸			

If PLC I/F is set as RS232 or RS485, please fill in COM Port Settings also.

PLC type :	MODBUS Server		*
	V.1.00, MODBUS_SERVER.so		
PLC I/F :	RS-232	Station no. : 1	
COM :	COM1 (9600,E,8,1)		Settings

If PLC I/F is set as Ethernet, the IP is the same as HMI.

PLC type :	MODBUS Server		*
	V.1.00, MODBUS_SERVER.so		
PLC I/F :	Ethemet 🗸	Station no. :	1
IP :	Local,Port=8000 (=HMI Port)		Settings

For MODBUS Server and HMI use the same port no., please change the MODBUS Server port no. on Model tab of System Parameter Settings.

System Parameter Settings				
Device Model General Security Font Extended Memory Printer Server				
HMI model : MT6056T/MT8056T (320 x 234)	*			
HMI station no : 1				
Port no. : 8000 (used as MODBUS server's port no.)				

After finishing the setting, MODBUS Server will be list on Device tab.

You can send MODBUS command to read or write the data from MODBUS Server after downloading the file of XOB to HMI.

Sys	ystem Parameter Settings						
D	Device Model General Security Font Extended Memory Printer Server						
	Device list :						
	No.		Name	Location	Device type	Interface	I/F Prot
	Local HMI Local HMI		Local MT6056T/MT805		Disable	N/A	
	Local	HMI	MODBUS Ser	Local	MODBUS Server	Ethernet(IP=Local, Port=8000)	TCP/IP

(2) How to read from / write to MODBUS Server

MT8000 (the client) can read from / write to another MT8000 (the server) via MODBUS protocol.

Adding a new device in the client. If client's PLC I/F is set as Ethernet, please select "MODBUS RTU TCP/IP" as PLC type and fill in the correct IP and Port no..

Name	MODBUS TCP/IP
	○HMI
Location	Local Settings
PLC type	MODBUS TCP/IP
	V.1.40, MODBUS_TCPIP.30
PLC I/F	Ethernet PLC default station no. : 1
IP	192.168.1.111. Port=8000
IP Address S	ettings
IP Address S IP add Port	ettings ness: 102 · 168 · 1 · 111 no.: 8000
IP Address S IP add Port Ti	ettings ress: 102 · 168 · 1 · 111 no.: 8000 meout (sec): 1.0 Turn around delay (ms): 0
IP Address S IP add Port Ti Send ACK	ettings ress : 102 · 168 · 1 · 111 no. : 8000 meout (sec) : 1.0 Turn around delay (ms) : 0 delay (ms) : 0 Parameter 1 : 0 1

If the client use RS232/485 interface, the PLC type must be set as "MODBUS RTU", please make sure the communication parameter setting is correct.

Name :	MODBUS RTU		
	⊖HMI ⊙PL	с	
Location :	Local 💌	Settings	
PLC type :	MODBUS RTU		
	V.1.40, MODBUS_R	IU.so	
PLC I/F :	RS-485 2W	PLC default station n	o. : 1
COM :	COM1 (9600,E,8,1)		Settings
COM	0011	Timoret (and a	1.0
COM		limeout (sec) :	1.0
Baud rate	9600	Tum around delay (ms) :	U
Data bits	8 Bits	Send ACK delay (ms) :	0
Parity	Even 💙	Parameter 1 :	0
Stop bits	1 Bit 💌	Parameter 2 :	0
		Parameter 3 :	0

Set and click OK, a new device "MODBUS RTU" shall be listed in the Device tab.

Sy	System Parameter Settings							
Π	Device Model General Security Font Extended Memory Printer Server							
	Device list :							
	No.	. Name Loca		Device type	Interface	I/F Protoco		
	Local HMI Local HMI		Local MT6056T/MT8056T (3		Disable	N/A		
	Local PLC 1	MODBUS RTU	Local	MODBUS RTU	COM1(9600,E,8,1)	R\$485.2W		

In the setting page of each object, there is an "MODBUS RTU" in the PLC name selection list, you can then select appropriate device type and address.

Read address ——		
PLC name :	MODBUSRTU	*
Device type :	3x	*
Address :	0	
Address format :	ddddd [range : 1 ~ 65535]	

The internal memory of MT8000 is mapping to the Modbus address as below :

reading / writing	0x/1x(1~9999)	to		reading / writing LB(0~9998)
reading / writing	3x/4x/5x(1~9999)	to		reading / writing LW(0~9998)
reading / writing 3	8x/4x/5x(10000~7553	33)	to	reading / writing RW(0~65533)

2. How to use Barcode reader

Please select "Barcode" in PLC device list as follows:

Device list	odel Gene :	eral Security	Font Ex	tended Memory	Printer Serve	r	
No.	Name	Location	Device type		Interface	I/F Protocol	Statio
Device Pro	perties	ah	IN ITCODE TAIT	1056T /00000	MIN	1177	ACTA
	Name : Location :	Barcode HMI Local	●PLC	ings			
	PLC type :	Barcode V.1.20, BAR	CODE.so				~
	COM :	RS-232 COM1 (9600,	N,8,1)	PLC de	fault station no	.: 0 Settings	
	Interv Max. rea Max. wri	val of block pa ad-command s ite-command s	ack (words) : 5 ize (words) : 3 ize (words) : 3	2 V			

Click the [Settings...], barcode device settings display as below.

Barcode Device	Settings	
COM : Baud rate : Data bits : Parity :	COM 1 9600 8 Bits None	 Read byte limit 10 Use a start code Start code : 255
Stop bits :	1 Bit 💌	Terminator • CR/LF • None OK Cancel

СОМ	Barcode device can be connect to any of COM 1~ COM 3			
Baud rate	Set communication parameters accordingly			
Data bits				
Parity				
Stop bits				
Read byte limit	This function will restrict the number of byte to read. The			
	range is 10~512			
	For example:			
	If Read byte limit is set as 10, the barcode device generate			
	data "0x34 0x39 0x31 0x32 0x30 0x30 0x34 0x37 0x30			
	0x38 0x33 0x38".			
	Only the first 10 bytes is read			
	"0x34 0x39 0x31 0x32 0x30 0x30 0x34 0x37 0x30 0x38"			
Use a start code	With this function, the MT8000 will identify the start code			
	in reading the input data from bar code reader. All the data			
	include and before start code will be ignored. All the data			
	after start code will be saved in designated address.			
	For example: if the start code is 255(0xff), and original data			
	are "0xff 0x34 0x39 0x31 0x32 0x30 0x30 0x34 0x37", the			
	data saved in designated device address are "0x34 0x39			
	0x31 0x32 0x30 0x30 0x34 0x37"			
Terminator	Terminator means the end of data, when terminator is			
	detected, it's mean the end of data stream.			

[CR/LF]	0x0a or 0x0d means end of data.
[STX/ETX]	0x02 or 0x03 means end of data.
[Other]	User can set the terminator manually.
[None]	MT8000 will save all data to designated
address of barcode device.	

After setting completely, a new barcode device will be list in the device tab.

System Parameter Settings								
1	Device Model General Security Font Extended Memory Printer Server							
	Device list :							
		No.	Name	Location	Device type	Interface	I/F Protocol	Static
		Local HMI	Local HMI	Local	MT6056T/MT8056T	Disable	N/A	N/A
		Local PLC 1	Barcode	Local	Barcode	COM1(9600,N,8,1)	RS232	0

The Barcode device has two device types (Flag and Barcode).

Device type	Address type	Description
FLAG	bit	FLAG 0 indicates the status of data reading. When
		reading data is complete, the FLAG 0's states will
		be changed from OFF to ON.
BARCODE	word	BARCODE 0 Number of bytes of reading data.
		BARCODE 1~n designate bard code data save
		address.

The following display shows the configuration of barcode reader data. The data from barcode reader is "9421007480830". The BARCODE 0 and BARCODE 1~n represents number of bytes read from bardcode and the data .



Barcode corresponding address	Data
BARCODE 0	13 bytes(decimal)
	The real data in the address is $14 \text{ bytes} = 7$
	words. If the data is odd, will add a byte (0x00)
	to make it even.
BARCODE 1	3439HEX
BARCODE 2	3132HEX
BARCODE 3	3030HEX
BARCODE 4	3437HEX
BARCODE 5	3038HEX
BARCODE 6	3338HEX
BARCODE 7	0030HEX
BARCODE 8	empty

At present, the data of barcode device corresponding address as below: