Universal IR Learning Remote Module FAQ

Version 2.2

(For IR-210/IR-712A/IR-712-MTCP/IR-712P-MTCP)

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Q01 : How to solve the problem of text cut off in the utility?

A01 : This problem is only existed in Windows XP if the font size is changed to "large font" for high display resolution. Please change the font size of the OS to "standard."

Q02 : How to learn the Sharp-like IR commands of the devices successfully?

A02: There is an space time of approximate 40 ms in the Sharp's IR protocol. Please launch the utility of the IR learning remote module and go to the "IR-xxx Basic Settings" window (Menu->[Setting]->[IR-xxx Basic Settings]) to increase the "GapTime" to more than 40 ms. After that, the IR module can learn the IR commands successfully.



Space time of Sharp's protocol is about 40 ms.

IR-210 Basic Settings		X
Basic Parameters of IR-21	0	
COM Port RS-485	Parity None	▼ Get Setting
Baud Rate 9600	▼ DataBits 8	Set Temporarily
Net ID 1	 StopBits 1 	Set Permanently
GapTime 48 (r	ms) Set	t permanently OK!

Set GapTime > 40 ms to learn Sharp IR protocol.

Q03 : Why can't the utility connect to the IR learning remote module though the serial communication settings are correct?

A03 : Besides the serial communication settings of Baud rate, Parity, Data bits and Stop bits, it is necessary to consider two other factors: **Modbus Net ID** and **Serial Interface (RS-232/RS-485) which the IR learning remote module applies**. To determine the serial interface, restart the IR module and check the TR LED status in the first 3 seconds.

LED	IR-210/IR-712 Status	LED Status
	Use RS-232	Blinks 3 times after power-on
	Use RS-485	Turned on for 3 seconds after power-on
TR	Use RS-232 / RS-485	Blinks 3 times after power-on. For firmware version
		1.20 and later, RS-232 & RS-485 port can be used
		without being configured by the utility.

If the RS-232 cable **CA-0910** was connected to the IR learning remote module [,] please notice that the Rx/Tx/GND pins of the CA-0910 should be connected to the Rx/Tx/GND of the IR module's RS-232 port accordingly as shown in the following figure.



Wire connection of the CA-0910 to the IR-210

When the USB-to-RS-232/485 converter was used with PC, please also confirm if the IR utility opens the right COM port.

Q04 : How to reset IR learning module to the default serial communication settings?

A04 : Please follow the steps below to reset serial communication settings:

1. Change the wire connection to the RS-232 port of IR learning remote module.

2. Open the PC COM port connected to the IR module in the utility with arbitrary communication settings.

3. Click menu [Setting]->[Reset Basic Settings on IR-xxx] to open the reset window.



4. Click the "Reset" button within 3 seconds after restarting (i.e. power cycling) the IR module. If the reset is successful, a "Reset OK" window will pop up to show that the IR module is now changed to default serial communication settings **temporarily**, which means the settings will be restored to previous ones after cycling the power. To avoid it after power cycle, please go to the **"IR-xxx Basic Settings" window** (Menu->[Setting]->[IR-xxx Basic Settings]) to set the settings by clicking the **"Set Permanently"** button.



Table o	of IR-210	Default	Commur	nication	Settings
TUDIC C	// IIX 210	Deruduit	commu	neution	Settings

Item	Default
COM port	RS-232
Baud rate	115200 bps
Parity	None
Data bits	8
Stop bits	1
Modbus ID	1

Q05 : What is the maximum length of the IR emitter cable for the IR-210/IR-712A?

A05: It depends on the resistance and length of the cable. There is a DIY example of using IR emitter cables with 100 meters long. Four IR emitter cables can be made from an Ethernet Cat5 cable with 4 twisted pair cables. They are applied to the application of controlling 4 air conditioners in a luxurious mansion. The application diagram is as follows.



The length of the IR emitter cables (CA-IR-SH225x & CA-IR-SH225x-5) provided by ICP DAS are all 2.5 meters long. It is suggested to make the cables yourself if there is demand for a longer length. The audio cable can be applied to extend the distance. For a longer distance like 100 meters, an Ethernet cable is a suitable choice.

It is also noticed to buy the IR emitter diode (IRED) with IR wavelength 940 nm which is commonly used in the consumer electronics. Please refer to the manual (Sec. 2.4.3) for the wire connection among the IRED, the cable and the 3.5 mm audio jack plug, or as depicted in the following figures.



Q06 :How to build IR remote application with the ICP DAS's ISaGRAF PAC?

A06 :

Regarding the IR remote control with the ISaGRAF PAC, please refer to the <u>link</u>. Please also refer to the ISaGRAP FAQ-152 for more details.

Q07 :Why can't WISE-5800 controller connect to IR-712A?

A07:

Please set the parameter "Modbus commands response delay time" of the IR-712A to 3 ms (default = 1 ms) by IR-712A utility.

Steps:

IR-712A Utility's menu [Setting] => [IR-712A Basic Settings] => [MB Cmd Resp Delay Time = 3 ms] => [Set Permanently]

Q08 :How to configure the communication to the IR-210/IR-712A in the WISE-5800? A08 :

Take the IR-712A as an example.

> Communication Wire Conneciton

The WISE-5800 connects to the IR-712A by the RS-485 bus.

> Web configuration of the WISE-5800

(1) Press "1.Basic Setting" Button and "Modbus RTU Module Setting" button to show the page. Set the Baud, Mode, Address and Name for communication to the IR-712A. Then, press "Add".



(2) Add an IR-712A devices (IR-712A_1) as follows. Press "Setting" button for the IR-712A to set

up the Modbus register address.

		Modbus RTU Module List of COM2					
Basic Setting		Index	Address	Name	Polling Timeout		
	۲	1	1	IR-712A_1	300		
Name Setting	d	2	2	IR-712A_2	300		
Time Setting	-	3	-	-	-		
	-	4	-	-	-		
Communication Setting	-	5	-	-	-		
Password Setting	-	6	-	-	-		
	-	7	-	-	-		
XW-Board Setting	-	8	-	-	-		
I-7000 Module Setting	-	9	-	-	-		
	-	10	-	-	-		
Modbus RTU Module Setting		Setting Remove Move Up Move Down					
		Save					

(3) In the Attribute Setting page, set the Data Model = "Holding Register", Start Address = "1103", and Continuous Data Number = "2". Then, press "Add" button. (Note: Refer to the IR-712A manual for the Modbus register address (chapter 5))

ing	Modbus RTU	Modbus RTU Module Attribute Setting					
ng							
	Name	IR-712A_1					
ng	Address	1 ~					
Setting	Polling Timeout	300 millisecond(s) (Range: 1 ~ 10000)					
tting	Timeout Retry Interval	5 seconds (Range: 3 ~ 65535)					
tting	Data Model	Holding Register (4x) V					
	Start Address	1103					
Setting	Continuous Data Number	2					
ule Setting	Data Type	16-bit Signed Integer V					
		Add					
<							

(4) Check to table at the bottom and press "Save" button.

	Block Setting	Nickname Setting					
etting	WISE-5801 Local Address	Coil Output (0x)	Discrete Input (1x)	Input Register (3x)	Holding (4	Register x)	
ng	180				Address Number	1103 2	
ting	181				Ty 16-bit Sign	pe led Integer	
Setting	Remove All				Expand All	Collapse All	
	Cancel Save						

The WISE-5231 with built-in IR-210/IR-712A/IR-712-MTCP communication configuration is also

recommended.

Q09 : How to integrate IR-712A with TouchPAD?

A09:

The following uses TPD-433F project to explain how to develop the TouchPAD project with ladder and C language to realize the control on the IR-712A (IR-210 also applies).

A. Ladder Diagram Programming

Steps:

1.Use mouse to right-click the "Connection" item in the Workspace tab. Select "New Connection" to open the "New/Edit Connection" window and set the COM1 settings as the following figure.

💀 Frame1 - [TPD433F_IR712A	Demo.hwd]					
🎝 File Edit View HMI	Layout Ar	range F	Run	Window	Help	
Workspace Toolbox						
Cor New Connect	tion					
±					· · · · · ·	
					[
New/Edit Consection	-	-		0.000		
New/Edit Connection	· 💙					
Connection Name	COM 1					
Connection Interface	COM1			-		
Note: The interface is devices, not for downl	f or commur oading firmv	vication b	etwo	en TouchP/	AD and I/O	
Serial Connection Se	ttings	√				
Baud Rate	9600		J			
Data Bit	8	·	-			
Parity	0(None)	-			
Stop Bit	1	·	J			
	V					
	<u>о</u> к	<u>C</u> ance	el			

2. Mouse right-clicking the Tag->Device in the Workspace and select "New Device".



In the Device Information section of the Device window, set the parameters as follows:

TouchPAD is:	Modbus RTU Master
Device Series:	IR_series
Connection:	COM_1
Model Name:	IR-712A
Net ID:	Net ID of the IR-712A

Devices							
Dovice information				Tag Name	IO Type	Start Address	Defau
Device mornation				AO0	AO	0	
ouchPAD is:	Modbus RIU Master	-		AO1	AO	1	
Device Series:	IR series	-		ENABLE_AO	Virtual	0	
Connection:	COM 1			R_ACTION	Virtual	0	
Madal Name:	ID 712A	— —	Natural I	W_ACTION	Virtual	0	
woder Name:		_Ľ	Select	ERROR	Virtual	0	
Device Name:	Dev_IR_/12A_1	A	ssign	ENABLE_DEVICE	Virtual	0	
Net ID:	5					· · · · · · · · · · · · · · · · · · ·	
Timeout:	200			•			Þ
				<u>O</u> K <u>C</u> an	cel	Clear	All <u>T</u> a

3. Back to the Workspace and go to the **Tags->Device->Dev_IR_712A_1** item. Right-clicks the tag "Devf_IR_712A_1_R_Action" and set the default value to 0.

Eg Frame1 - [TPD433F_IR712ADemo.hwd]	
bile <u>E</u> dit <u>V</u> iew H <u>M</u> I Layout <u>A</u> rrange <u>R</u> un	Wind
Workspace Toolbox	
File Image: Program Image: Program<	
💽 Edit Tag	
Name Dev_IR_712A_1_R_ACTION	_
Default	
Binding	
Comment	
<u>QK</u> <u>Cancel</u>	

4. Right-click the Tags->Virtual	item and select the "New Virtual Tag" to add a v1 Tag.
	Frame1 - [TPD433F_IR712ADemo.hwd]
	🌄 Eile Edit View HMI Layout Arrange Run V
	Workspace Toolbox
	File Program TPD433F_IR712ADemo.ldx Connection Connection Competion Competing New Virtual Tag New Folder
💽 Edit Tag	
Name v1	
Default	0
Binding	
Binding	
Comment	
	. 1

5. Add a BitButton control in the display section of the TPD-433F. Set the TagName property on the button to v1.

	Inspector Libra	ries
TPD-433F + IR-712A DEMO	Enabled Font GoToFrame Height	True (Font)
 Transmit IR Cmd#2 from IR output#1 	ID Left Name	5 95 BitButton
	TagName Text Top Visible Width	92 True 286

6. Open the "Program" item in the workspace and double-click the Idx file to open the HMIWorks Ladder Designer window.

Frame1 - [TPD433F_IR712ADemo.hwd]
🛃 Eile Edit View HMI Layout Arrange Run Window Help
Workspace Toolbox
🕑 🔂 File
TPD-433F + IR-712A DEMO
COM_1
H → Device
Press F2 button to add a normally open contact.
🌄 HMIWorks Ladder Designer
<u>File E</u> dit
F2 -1E F3 1E F4 Land F5 -() F6 -1 F7 -1 F8 Land F9 -> F10
1

Double-click the normally open contact and set **v1** tag to the contact.

A HMIWorks Ladder Designer	
<u>File E</u> dit	
F2 - 3E F3 - 1 3E F4 1 = 1 F5 - ()+ F6 - [] F7 [; F8 נקד F9 → F
Select Tag	
Browse Tags	
Scope (Virtual)	
Name	Comment
v1	
<u>OK</u> <u>C</u> ancel	



Double-click the function block to open the window and select the "Assign" function in the "IR-210" class.



Set the out and in of the "Assign" function block to "Dev_IR-712A_1_AO0" and "2", where "2" means IR command number 2.





8. Please follow step 7 to add another "Assign" Function block. This time, set the out and in of the "Assign" function block to "Dev_IR-712A_1_AO1" and "1", where "1" means IR Output 1.



9. Add an empty function block at the right side of the "Assign" FB in step 8. Double-click the empty function block to open the window and select the "Assign " function in the "default" class.



Set the out and in of the Assign function block to v1 and 0 correspondingly. Save file and close the ladder designer.

🛃 HMIWorks Ladder Desig	iner				
File Edit					
F2 - E F3 - E F4	Lag F5 -()+ Fi	6 - D i l F7 : 10 F8	F3 →	F10 💬	
en	:= eno		en	:= eno	
Dev_IR_712A_1_A01 out	in 1		v1 out	in O	

10. Finally, press F9 key to compile and download project to the TouchPAD.

Frame1 - [TPD433F_IR712ADemo.hwd	President			
💽 File Edit View HMI Layout Ar	nge Run Window He	p		
Workspace Toolbox	Run	F9		
File	Render Only Download Only	F5 Ctrl+F5 Ctrl+F9	-712A DEMO	
Connection	Set up Device (To Download File (U	ouchPAD) Iser Bin)		G
⊡	Console (cmd.ex	e) F10]	
	Transr	nit IR Cmd#2	2 from IR output#1	-

B. C Language Programming

Steps:

- 1. Please refer to step 1 to 3 of "A. Ladder Diagram Programming".
- 2. Add a BitButton control in the display section of TPD-433F in the HMIWorks IDE. Double-clickthe OnClick property to add a OnClick event handler.



3. Copy the following C code to the OnClick event handler. It sends Modbus command to IR-712Aand write data to address 1103(IR command number) and 1104(IR output channel) of holding registers.

```
void BitButton7OnClick(tWidget *pWidget)
{
    HANDLE h;
    int NetID = 5; // Net ID of IR-210/IR-712A
    int addr = 1103; // address of the holding register "IR cmd number"
    int ch_count = 2; // Count of address 1103,1104 amounts to 2.
    WORD AO_value[2]; // array for the two holding registers (AO)
    AO_value[0] = 2; // IR command number => 2
    AO_value[1] = 0x01; // IR output channel => IR output 1
    h = uart_Open("COM1,9600,N,8,1"); // Open COM1 (RS-485) of TPD-433F
    // Command IR-210/IR-712A to transmit IR signal.
    mrm_WriteAO (h, NetID, addr, ch_count, AO_value);
    uart_Close(h); // Close COM1 of TPD-433F
}
```

```
💽 E:\
                                                   Frame2.h
File Edit Search
                               Goto Line 1
             Cancel
    OK
                          void BitButton70nClick(tWidget *pWidget)
BitButton70nClick
                          2 {
                             HANDLE h;
                          з
                             int NetID = 5;
                                                   // Net ID of IR-210/IR-712A
                          4
                             int addr = 1103;
                                                   // address of the holding register "IR cmd number"
                          5
                             int ch_count = 2; // Count of address 1103,1104 amounts to 2.
WORD A0_value[2]; // array for the two holding registers (A0)
                          6
                          7
                             A0_value[0] = 2;
                                                  // IR command number => 2
                          8
                             AO_value[1] = 0x01; // IR output channel => IR output 1
                         9
                             h = uart_Open("COM1,9600,N,8,1");
                         10
                             // Command IR-210/IR-712A to transmit IR signal.
                         11
                         12 mrm_WriteAO (h, NetID, addr, ch_count, AO_value);
                         13
                             uart_Close(h);
                         14 }
                         15
                         16
                       < _____
```

4. Press F9 key to compile and download the project to the TouchPAD.

Q10 : What is the maximum remote control distance of the IR modules?

A10:

Generally speaking, it can be 7~8 meters at least if using CA-IR-SH2251 with the IR learning remote modules (IR-210/712A). However, it depends on the application condition and the surroundings. There are some possible factors to inference the range of remote control distance:

- (1) The length of the IR emitter cable. The longer the IR cable is, the shorter the distance of remote control.
- (2) The sensitivity of the IR receiver of the controlled appliances.

The receive angle to the IR receiver also affects the distance. The larger the angle is, the shorter the distance of remote control.

(3) The interference from the sun light, (compact) fluorescent lamps, LCD/PDP TV, ..., etc.

There is a case which is 10 meters long for the IR-712A + CA-IR-SH2251.

Q11 : How to avoid the IR emitter cables interference by the neighboring VGA cable? A11 :

The high frequency noises from the VGA cables or other devices may interfere the signals in the IR emitter cables. It is proposed to add ferrite (magnet) cores near the head and jack plug of the IR emitter cable, as shown in the following pictures, to suppress the interference.





Q12 : How to apply the IR learning commands to multiple IR learning modules ? A12 :

IR learning commands can be saved to an IR leaning data file with file extension "ird" for backup by the IR utility. Users can download the IR leaning data file to multiple IR leaning modules by the IR utility without the IR learning process again. The configuration works on RS-232 and RS-485 interface.

After the IR learning process, save the IR learning commands to IR learning data files for backup.

IR Utility => Menu [File] => [Save IR Commands to File]

- IR utility loads the IR learning data file.
 IR Utility => Menu [File] => [Load IR Commands from File]
- Download IR learning commands to an IR learning module.
 IR Utility => Menu [Download] => [Download IR Commands to IR-xxx]
- Batch-download an IR data file to multiple IR learning modules.

IR Utility => Menu [Download] => [Batch Download IR Commands to IR-xxx] This is for multiple IR modules connected (multi-drop) to an RS-485 bus. Select the range of the Modbus Net ID and press the "Start" button in the following window to launch the process.

Batch Download	ding an IR Learning Data file	
Net ID from	1 × to 5 ×	
	Net ID = 1, 100% Success!	
	Net ID = 2, 100% Success!	
	Net ID = 3, 17% Downloading	
	Net ID = 4, 0% Waiting	
	Net ID = 5, 0% Waiting	
]
	Stop	ose

Q13 : How to copy IR commands from other IR learning data files ?

A13 :

The Copy-IR-Commands Function can avoid IR learning process again by copying the IR commands from the existing IR learning data files to the destination one.

※ Note: IR learning commands from IR-210 and IR-712A can be used interchangeably. The IR commands from IR-712-MTCP cannot be used by other modules.

Steps:

a. IR utility loads the destination IR learning data file (e.g. "BenQTV_IR-210_20150701.ird"). Or, press the "Set Device & IR Command Quantity" button to add new device and configure IR commands quantity..

IR-210 Utility - COM3 - E:\IR_Demo\IR-2	10\BenQTV_IR-210_20150701.ird	
File Download Setting Tool Help		
Open / Close COM port		
COM Part COM2	Nono Stop Bits 1	
COM Port COM3 - Panty		Olara Olara
Baud Rate 115200 Data Bits	8 • Net ID 1 •	Open Close
Test and Save Learned IR Commands		10.1
Device Name :	Command Name :	IR Lear
1_BenQ TV 🗸	1_PowerToggle	Le
	1_PowerToggle	
Run Command Save this Cmd	2_Ch+	Output
	4 Vol+	ID Carr
	5_Vol-	IR Can
Test ID Oceanies de la ID 040	6_num 0	
Test IR Commands In IR-210	7_num 1 8 num 2	
IR Command No.: 1 Output Ch	9_LCommand	mit from IR-210
Modbus/PTU mossage (with CPC16) ser	10_LCommand	
wooddus/RTO message (with CRCTO) ser	12 LCommand	
	13_LCommand	Copy
	14_LCommand	
	16 L Command	
	17_LCommand	

b. Open the copy IR commands window.Select the item in the Menu [File] => [Copy IR Cmds from File].



- c. Steps of copying IR commands. Please refer the following figure, too.
 - 1. Browse & open the source IR learning data file. (e.g. "AMDS_Code006_20150511en.ird")
- 2. Select the items of the source and current (destination) "Device Name" combobox.
- 3. Select the IR commands for copy in the source IR commands table (multi-selectable).
- 4. Select the start row in the current (destination) table (uni-selectable)
- 5. Press the "Copy" button ">>". The items from the start row in the current table will be replaced with the copied IR commands.

6. Press "Apply & Copy" button to finish copy.

R Copy I	R Commands from File					• ×
Full F	Path of the Source IR learnig da	ta file	•			1
E:\IR	_Demo\IR-210\AMDS_Code00	6_20:	150511en.ird			
D				Devie	Name (Carrant)	
Dev	ce Name (Source)			Device	e Name (Current)	
1_AN	MADUS_A/C +		2	1_Ben	Q TV 🔹	
IR Co	ommand Name			IR Cor	mmand Name	•
No	# IR Command Name	3		No#	IR Command Name	
1	PwrON-25C,FanAuto			1	PowerToggle	
2	PwrOFF-25C,FanAuto		_	2	Ch+	
3	25C,FanAuto	П	5	3	Ch-	
4	24C,FanAuto			4	Vol+	
5	LCommand		>>	5	Vol-	_
6	LCommand			6	num 0	
7	LCommand			7	num 1	
8	LCommand			0	num 2 4	
9	LCommand			9	LCommand	
10	LCommand		L	10	LCommond	
				11	LCommand	
				12	LCommand	
				13	LCommand 6	-
			Rest	ore	Apply & Close Cancel	

The following figure shows the copy result:

-ull Pa	th of the Source IR learnig dat	a tile	•				
E:\IR_C	Demo\IR-210\AMDS_Code000	5_20	150511en.ird				
Device	e Name (Source)			Device	e Name (Current)		
1_AM/	ADUS_A/C +			1_Ben	QTV	•	
IR Cor	nmand Name			IR Cor	nmand Name		
No#	IR Command Name			No#	IR Command Na	me	
1	PwrON-25C,FanAuto			1	PowerToggle		Π.
2	PwrOFF-25C,FanAuto			2	Ch+		t٢
3	25C,FanAuto			3	Ch-		t
4	24C,FanAuto			4	Vol+		T
5	LCommand		>>	5	Vol-		TI.
6	LCommand			6	num 0		T
7	LCommand		()	7	num 1		Π
8	LCommand			8	num 2		ΤI
9	LCommand			9	PwrON-25C,Fan	Auto	
10	LCommand			10	PwrOFF-25C,Fan	Auto	
				11	24C,FanAuto		
				12	LCommand		
				13	LCommand		Ļ

R-210 Utility - COM3 - E:\IR_Demo\IR-210\f	8enQTV_IR-210_20150701.ird	
Open / Close COM port		
COM Port COM3 COM Port Parity Non	e 🔻 Stop Bits 1 🔹	Open Class
Baud Rate 115200 Data Bits 8	▼ Net ID 1 ▼	Close
Test and Save Learned IR Commands		
Device Name : Co	mmand Name :	IR Learning Mod
1_BenQ TV • 9_1	PwrON-25C,FanAuto	Learn On
Run Command Save this Cmd 2_0	PowerToggle Ch+	Output Channel :
3_(4_)	Ch- /ol+	IR Carrier Freq.
5_	/ol-	int damoi rioq
Test IR Commands in IR-210	num 1	
	2	
IR Command No.: 1 Output Chiga	PwrON-25C,FanAuto	mit from IR-210
Modbus/RTU message (with CRC16) en 11	24C.FanAuto	
12	LCommand	Conv
13	LCommand Command	Clear
15	LCommand	
16	LCommand	
17	LCommand	

d. Save IR commands to the file.

Menu [File] => [Save IR Commands to File]

Q14 : Is there any IR API library?

A14 :

The IR API library supports the desktop application development on Microsoft Windows operation system. There are VC++ and C# library for programming. The IR API library supports IR-210/IR-72A/IR-712-MTCP.

Download link: http://ftp.icpdas.com.tw/pub/cd/usbcd/napdos/ir/software/library/windows/

Q15 : Is there any Modbus registers for IR learning and load/download IR data?

A15 :

Please refer to the link: <u>http://www.icpdas.com/en/download/file.php?num=5230</u>

Q16 : What's the difference between the IR cable CA-IR-SH2251 and CA-IR-SH2251-5? A16 :

1. The diameter of the IRED (InfraRed-Emitting Diode) of the CA-IR-SH2251 is 3 mm. The diameter of the IRED of the CA-IR-SH2251-5 is 5 mm.

2. The emitting case volume of the CA-IR-SH2251-5 is 3 times larger than that of CA-IR-SH2251.

3. The wireless remote control distance of the CA-IR-SH2251-5 is approximately 10% longer than the CA-IR-SH2251.

Q17 : Are there ASCII string commands to control emtting IR signal?

A17 :

Besides the Modbus protocol commands, there are DCON protocol commands (ASCII string commands) to control emitting IR signals. This function is supported after the firmware version as follows:

- IR-210: firmware version v2.00 and the later.
- IR-712A: firmware version v2.00 and the later.

IR-712-MTCP: firmware version v2.6.0 and the later.

Q18 : IR Utility has identified the IR-712(P)-MTCP device, but it's unable to establish a connection. How to resolve the issue?

A18:

Please check if your computer has multiple IP configurations. If you have multiple IP configurations set up, make sure that the IP address within the same network segment as the IR-712(P)-MTCP device is configured as the primary one. The figure below illustrates multiple IP configurations where the module can be detected the IR-712(P)-MTCP but not connected.

	進階 TCP/IP 設定	×
	IP 設定 DNS WINS	
IR Utility - v1.9.2.0 X Ele Iool About Module: IR-712(P)-MTCP v Search Modules Open Interface Module Name FW Ver IP Address Caution X Description IR-712P-MTCP 192.168.255.1 Caution X Universal IR Learning Remote Mo	IP 位址(B) IP 位址 子視路遮蓋 10.1.1.188 255.255.0.0 192.168.255.188 255.255.0.0 新增(A) 编辑(E) 預設開進(E).	移陳①
Connection Timeout!! 程定	開進 公制 新増(D) 温暖(D)	移除(<u>M</u>)
< >>	☑ 音動計量(U):	
	確定	取消

The figure below shows the correct IP configuration where the IP address within the same network segment as the IR-712(P)-MTCP device is set as the first configuration.

網際網路通訊協定第 4 版 (TCP/IPv4) - 內容	×		
-股 如果您的網路支援這項功能。您可以取得自動 動間網路条統管理員正確的 IP 設定。 ○ 自動取得 IP 位址(Q) ● 個面下利的 IP 位址(C)	勤攘派的 IP 殿定。否则,您必须	IP 股定 DNS WINS IP 位址(B) IP 位址 192.168.255.188 10.1.1.188	子規跨總置 255.255.00 255.255.00
IP 位址(): 子網路總置(U): 預設開進(D):	192 . 168 . 255 . 188 255 . 255 . 0 . 0 		HCU 제태(U) 1970(U) 公制
 自動取得 DNS 伺服器位址(g) ●使用下列的 DNS 伺服器位址(g): ●供用 DNS 伺服器(D): ■其他 DNS 伺服器(Δ): 	· · ·	th ○自動計量(U)	第②… 编辑①… 终除①)
□ 結束時確認設定(_)	////////////////////////////////////	51回計望(11):	確定 取道

Q19 : How to use the Ladder language of TouchPAD with IR-712(P)-MTCP? A19:

The following uses TPD-703 project to explain how to develop the TouchPAD project with ladder to realize the control on the IR-712-MTCP/IR-712P-MTCP.

Steps:

1.Use mouse to right-click the "Connection" item in the Workspace tab. Select "New Connection" to open the "New/Edit Connection" window and set the IP settings as the following figure.



2. Mouse right-clicking the **Tag->Device** in the Workspace and select "New Device". In the Device Information section of the Device window, set the parameters as follows:

TouchPAD is:	Modbus TCP Master
Device Series:	IR_MTCP
Connection:	TCP_0
Model Name:	IR-712-MTCP
Device Name:	(Device name of IR-712(P)-MTCP)
Net ID:	(Net ID of IR-712(P)-MTCP)



3. Right-click the **Tags->Virtual** item and select the "New Virtual Tag" to add two **Send** Tags. The one is "Send_ch1". The other is "Send_ch2".

	Edit Tag			×
HMIWorks STD v2.30.11 (Feb.03, 2023) - [Test_foriR] File Edit Layout Arrange View HMI Project Run Window Help Workspace Toolbox File File File File File File File File	Edit Tag Name Default Source Type Comment IO Type Binding	Send_ch1 int32 _	☐ Constant	(A''Z', 'a''z', '0''9', '_)
Connection Connection Connection Connection Tags Device Connection Figure 1 Connection Conne	Edit Tag Name	Send_ch2	[QK <u>Cancel</u> X
	Default Source Type Comment IO Type Binding	int32 Unknown	Constant	(A2, a2, u3, _)

4. Add two BitButton controls in the display section of the TPD-703.



5. Set the BitButton1 TagName property on the button to "Send_ch1".

HMMorks	STD v2.30.11 (Feb.03, 20	23) - [Test_for	(R)		– 🗆 ×		Select Tag	×
E File Edit	Layout Amange Vie	V HMI Bro	ject Bun Window Help		- # ×		n n le e lu el	
Workspace	Toolbox			Inspector L	xaies		Browse Lags Enter Constant Handle	÷.,
B ⊆ Pie B ⊆ Proge B ⊆ Proge B ⊂ Connec B ⊂ Tage B ⊂ Connec B ⊂ Tage B ⊂ Dev B ⊂ Dev	n ton al al al sec <u>c</u> t1 Sec <u>c</u> t2	(Transmit IR Cmd#31 from IR output #1 Transmit IR Cmd#31 from IR output #2	EI Bebutt Aux Enabled Forti GoToFrank Height ID Left Name Top Visible Width	ed		Scope (Global) Filter Clear Selection IRAme Comment IRTURCP_IR_Out1 IRTURCP_IR_Out2 IR	
December 1		Frame1		1		- 11		4
Output Error	sl				×	- 11		
Line Ty	pe F	le	Message			- 11		
						- 11		×
						11		
							QK Cancel	
TP	0-703 Virt.	al						_

Set the BitButton2 TagName property on the button to "Send_ch2".

B HMIWarks STD v2.30.11 (Feb.03, 20	23) - [Test_fortR]	- 🗆 ×	Salast Tag	×
Ele Edit Layout Arrange View	v HMI Broject Bun Window Help	- # ×	Sector	~
Workspace Toolbox		Instanting 1 houses	Browse Tags Enter Constant Handle	
🖲 🙄 File		TTI Ball-stard		
🖶 📴 Program		Cast Dispositorio	Scope (Global)	
Connection		Aux 0 Easted True	Filter	
Device		Font (Font)	Name Comment	^
8-4 Virtual		GoToFrame		
- Send_ch1		Height 140	LIR/12MICP_IR_Out1	_
-dl Send_ch2		Left 65	IR712MTCP_IR_Out2	
	Transmit IR Cmd#31 from IR output #1	Name BitButton	IR712MTCP_ERROR	
	francine in container incontaine contpart in t	TagName Send_ch2		_
		Text Transmit IR Cm	LIR/12MICP_ENABLE_DEVICE	
		Visible True	Send_ch1	
		Width 680	Send ch2	
	 Transmit IR Cmd#31 from IR output #2 			- 10
	indificient officient for information of the state of the			
-	Piane1			
Results		×		- 11
Output Errors				
Line Type F	le Message			~
			<	>
			QK Cancel	
1				
TPD, 703 Michu				

6. Open the "Program" item in the workspace and double-click the Idx file to open the HMIWorks Ladder Designer window.

B HMIWorks STD v2.30.11 (Feb.03, 2023) - [Test_forIR]

bile 🛃	<u>E</u> dit <u>L</u> ayout	<u>A</u> rrange	<u>V</u> iew	H <u>M</u> I	<u>P</u> roject	<u>R</u> un	<u>W</u> indow	<u>H</u> elp	
Worksp	ace Toolbox								
🖃 🗁 F	File		-11						
	Test_forlR.h.	vd	- 11						
	Program	_	- 11						
	Test_forIR.Id	×	- 11						
	Connection		- 11						
	TCPIP_0		- 11						
⊡… ⊘ ⊺	ags		- 11						
Ē<	Device		- 11						
6	🗄 🕼 IR712MT	CP	- 11						
	- 712 IR712	MTCP_IR_	Out1					_	
	- 72 IR712	MTCP_IR_	Out2					-	
	7 IR712	MTCP_ER	ROR						
		MTCP_EN/	ABL						
Ė	Virtual		- 11						
	🦾 🕼 ir_addr_1	103	- 11						• •
									• •

at "Canal ab 1" to	
set sena_cn1 ta	ag to the contact.
🛃 HMIWorks Ladder Designer	×
File Edit Search	
F2-1E: F3-11E F4 Ligg F5	F6 F7 I F8 F9 P10 Space [T]
	Selectrag-
	Browse Tags Enter Constant Handle
	Scope (Global) Filter Clear Selection
	Name Comment ^
	▶ IR712INTCP_IR_Out1
	IR712NTCP_IR_Out2
	Send ch1
	Send ch2
	~
	QK Cancel
1.0	

7. Press F2 button to add a normally open contact. Double-click the normally open contact and set "**Send ch1**" tag to the contact.

Press F2 button to add a normally open contact. Double-click the normally open contact and set "**Send_ch2**" tag to the contact.

File Edit Search F2 #E F3 3E F4 Lage F5 (D) F6 (D) F7 (D) F8 Lag F9 \rightarrow F10 \bigcirc Space [T] Send_ch1 1	
F2 - HE F4 Lage F5 - O+ F6 - D F7 - D F8 Lag F9 → F10 → Space []	
Select Tag - X	
Browse Tags Enter Constant Handle	
Scope (Global) Filter Clear Selection	
Name Comment	
▶ (R712)/TOP JR_Out1	
IR712MT4P_ENABLE_DEVICE	
Send ch2	

8. Press F7 button to add an empty function block. Double-click the function block to open the window and select the "**Assign**" function in the "**default**" class.



Press F7 button to add another empty function block. Double-click the function block to open the window and select the "Assign" function in the "default" class.

Send_ch1 = en	eno				
	FunctionBlock				×
	convert	Eunction Name	Display Name	Cantion	
	counter	OR4	or	or (4 items)	
	default	OR8	or	or (8 items)	
	flash	XOR	xor	exclusive or	
	math	Equal	Equal	Equal function	
	timer	Equal_And2	Equal (And)	Two equal conditions (And)	
	user_define	Equal_And4	Equal (And)	Four equal conditions (And)	
	DGW-521 VPD-130	Equal_And8	Equal (And)	Eight equal conditions (And)	
	IR-712-MTCP	Equal_Or2	Equal (Or)	Two equal conditions (Or)	
		Equal_Or4	Equal (Or)	Four equal conditions (Or)	
		Equal_Or8	Equal (Or)	Eight equal conditions (Or)	
			A 10 10	not equal	
		NE_And2	<> (And)	Two not-equal conditions (And)	
		NE And	<> (And)	Four not-equal conditions (And)	
			(Alid)	Eight hot-equal conditions (And)	
		INE Ord	<> (01)	Four not-equal conditions (Or)	
		NE Or8	(0r)	Fight not-equal conditions (Or)	
		Greater	>	greater	
		GE	>=	greater or equal	
		ess	<	less	
			<=	less or equal	
		Assign	:=	assign function	
		Assign2	:=	assign 2 items	
		Assign4	:=	assign 4 items	
		Assign8	:=	assign 8 items	
		OnChange	OnChange	OnChange function	
		InRange	InRange	Value in the range	
		OutRange	OutRange	Value out of the range	
		<			> [*]
	·				

9. Set the "in" and "out" of the "Assign" function block to "31" and "IR712MTCP_IR_Out1". Where "31" mean IR command number 31. where "IR712MTCP_IR_Out1" means IR output channel 1.

🛃 HMIWorks Ladder Designer	- 🗆 X
File Edit Search	
F2 - 3E F4 Line F5 - ()+ F6 - () F7 - () F8 Lin F9 → F10 → Space (T)	
Send_ch1 i= n	
Select Tag - X	Select Tag - X
Browse Tags Enter Constant Handle	Browse Tans Enter Constant Handle
Scope (Global)	Lower rugs
	Value 31
IR712MTCP IR Out2	
IR712MTCP ERROR	
IR712MTCP_ENABLE_DEVICE	
Send_ch1	
Send_ch2	
< · · · · · · · · · · · · · · · · · · ·	
	QK Cancel

4:1

Set the "in" and "out" of the "Assign" function block to "31" and "IR712MTCP_IR_Out2". Where "31" mean IR command number 31. where "IR712MTCP_IR_Out2" means IR output channel 2.

File Edit Search				
F2 -8E F3 - 3E F4 Land F5 -O4 F6 -0 F6 -0 F7 -0	נו און דא און דא דוס און דא דא דוס און דא דיין דא דוס און דא דוס און דא דוס און דא דוס דיין דא דו דא דו דא דו			
I Send_ch1 = en eno V712MTCP_JR_Outlout in	31			
2				
Select Tag -		×		×
Browse Tags Enter Constant Handle			Browse Tags Enter Constant Handle	
Scone Lice Lin	Clear Selection			
(Global) Filter	Clear Selection		Value 31	
Name	Comment	_ ^ _		
IR71 MTCP_IR_Out1				
► IR712MTCP_IR_Out2	J			
R/12MICP_ENABLE_DEVICE				
Send_ch1				
		~		
<	:	>	OK Canad	
<u>QK</u> <u>C</u> ancel			Ziv Zaucai	

4:3

10. Finally, press F9 key to compile and download project to the TouchPAD.

B HMIWorks STD v2.30.11 (Feb.03, 2023) - [Test_forlR]

🛃 File Edit Layout Arrange View H	нмі і	Project	Run	Window Help	
Workspace Toolbox				Run (Render> Compile> Dov	vnload) F9
E File				Build (Render> Compile)	F5
				Render	Ctrl+F5
Elest_forIR.Idx				Compile	
				Download	Ctrl+F9
ian ags				Set up Device (TouchPAD)	
				Download File (User Bin)	
IR712MTCP_IR_Out1				Console (cmd.exe)	F10
IR712MTCP_IR_Out2				Auto-Switch USB Mode	
			_		
Find Virtual					
Send_ch2					
1					

Q20 : How to use the C language of TouchPAD with IR-712(P)-MTCP? A20:

The following uses TPD-703 project to explain how to develop the TouchPAD project with C language to realize the control on the IR-712-MTCP/IR-712P-MTCP.

Steps:

1.Use mouse to right-click the "Connection" item in the Workspace tab. Select "New Connection" to open the "New/Edit Connection" window and set the IP settings as the following figure.

	New/Edit Connection X
b HMIWorks STD v2.30.11 (Feb.03, 2023) - [Test_forIR_CLang]	
🌄 File Edit Layout Arrange View HMI Project Run Window Help	Connection Name TCPIP_0 Assign Name
Workspace Toolbox	Connection Interface TCPIP -
File	Note: The interface is for communication between TouchPAD and I/O devices, not for downloading formware.
	TCP/IP Connection Settings
	Remote IP [192.168.255.1 e.g.: 10.1.0.100) Port [502 e.g.: 502]
Device	
Virtual	TouchPAD as a Server
	<u>Q</u> K <u>C</u> ancel

2. Mouse right-clicking the **Tag->Device** in the Workspace and select "New Device". In the Device Information section of the Device window, set the parameters as follows:

	· · · · · · · · · · · · · · · · · · ·
TouchPAD is:	Modbus TCP Master
Device Series:	IR_MTCP
Connection:	TCP_0
Model Name:	IR-712-MTCP
Device Name:	(Device name of IR-712(P)-MTCP)
Net ID:	(Net ID of IR-712(P)-MTCP)



4. Add two BitButton controls in the display section of the TPD-703.





Double-click the OnClick property to add a OnClick event handler.



6. Copy the following C code to the OnClick event handler. It sends Modbus command to IR-712(P)-MTCP with IR output channel 1 and write data to address 1103(IR command number) and 1104(IR output channel) of holding registers.

```
    void BitButton4OnClick(tWidget *pWidget)

2. {
      //Handle for TCP connection
3.
4.
      tHandle h ;
5.
6.
      //Modbus/TCP server information
7.
      int Modbus NetID = 1;
      int Server_IP[4] = {192,168,255,1};
8.
9.
      int Modbus_Port = 502;
10.
      //Modbus Address
11.
      int Modbus_addr = 1103;
12.
13.
      int
           ch count = 2;
                                //address 1103 & 1104
14.
      WORD AO_value[2];
15.
      DWORD timeout
                       = 200;
                                //200ms
16.
      A0 value[0] = 31;
                                //IR command Number: 31
17.
18.
      AO_value[1] = 1;
                                //IR Channel: 1
19.
20.
      //connect to Modbus/TCP server
21.
      h = mtm_Register(Modbus_NetID,
                       TCP_IPADDR(Server_IP[0],
22.
                                   Server_IP[1],
23.
24.
                                   Server_IP[2],
25.
                                   Server_IP[3]),
26.
                       Modbus_Port);
27.
28.
      //wait TCP connection
29.
      while(hmi_TCPState(h) !=3)
30.
      {
        hmi_DelayUS(10000);
                             //delay 10 ms
31.
32.
      }
33.
      //send Modbus/TCP Request to IR-712(P)-MTCP
34.
35.
      mtm WriteAO(h,
36.
                 Modbus_NetID,
37.
                 Modbus_addr,
38.
                 ch_count,
                 AO_value,
39.
40.
                 timeout);
41.
      //disconnect TCP connection
42.
43.
      mtm_Unregister(h);
44.}
```

Universal IR Learning Remote Module (IR-210/IR-712A/IR-712-MTCP/IR-712P-MTCP) FAQ v2.2

Ele Edit Search Help OK Cancel Refresh Goto Line 1 Widgets Classes APIs i void BitButton40nClick(tWidget *pWidget) * 1. GEOMETRY 2 { 3 //Handle for TCP connection * 2. FRAME 4. TCP 6 //Modbus/TCP server information * 3. NETWORK CONFIGURATION * * * * 4. TCP int Modbus/TCP server information * * 5. MODBUS TCP MASTER * int Modbus_NetID = 1; * * 6. MODBUS TCP SLAVE * int Modbus_Port = 502; * * 7. MODBUS RTU SLAVE 1 //Modbus address * * 9. UART LaRT * * *	^
QK Cancel Refresh Goto Line 1 Widgets Classes APIs 1 void BitButton4OnClick(tWidget *pWidget) * 1. GEOMETRY 2 { 3 //Handle for TCP connection * 2. FRAME 4 tHandle h ; 5 * 3. NETWORK CONFIGURATION 5 6 //Modbus/TCP server information * 5. MODBUS TCP MASTER 6 int Modbus/NetID = 1; 6 int Modbus_NetID = 1; * 6. MODBUS TCP SLAVE * int Modbus_Port = 502; 10 * 7. MODBUS RTU MASTER 10 11 //Modbus address * 9. UABT LABT 12 int Modbus estdd	^
Widgets Classes APIs * 1. GEOMETRY 2 { * 2. FRAME 2 { * 3. NETWORK CONFIGURATION 4 Handle for TCP connection * 4. TCP //Handle for TCP server information * 5. MODBUS TCP MASTER 6 //Modbus_NetID = 1; * 6. MODBUS TCP SLAVE 9 int Server_IP[4] = {192,168,255,1}; * 7. MODBUS RTU MASTER 10 //Modbus_Port = 502; * 9. UART 11 //Modbus address	^
<pre>Widgets Classes APIs i void BitButton4OnClick(tWidget *pWidget) 2 { 3 //Handle for TCP connection 4 tHandle h; 3 NETWORK CONFIGURATION 4 tHandle h; 5 6 //Modbus/TCP server information 7 int Modbus_NetID = 1; 6 int Server_IP[4] = {192,168,255,1}; 9 int Modbus_Port = 502; 10 11 //Modbus Address 12 int Modbus address 13 int Modbus address 14 int Modbus address 15 int Modbus address 16 int Modbus address 17 int Modbus address 18 int Modbus address 19 luBRT 10 int Modbus address 10 int Modbus address 11 //Modbus address 12 int Modbus address 13 int Modbus address 14 int Modbus address 15 int Modbus address 15 int Modbus address 16 int Modbus address 17 int Modbus address 18 int Modbus address 19 luBRT 10 int Modbus address 11 //Modbus address 12 int Modbus address 13 int Modbus address 14 int Modbus address 15 int Modbus address 16 int Modbus address 17 int Modbus address 18 int Modbus address 19 int Modbus address 10 int Modbus addre</pre>	^
<pre>2 { f 1. GEOMETRY 2. FRAME 2. FRAME 3. NETWORK CONFIGURATION 4. TCP 5. MODBUS TCP MASTER 6. MODBUS TCP SLAVE 7. MODBUS RTU MASTER 4. MODBUS RTU SLAVE 7. MODBUS RTU SLAVE</pre>	
<pre>% 1. GEOMETRY 3 //Handle for TCP connection % 2. FRAME 4 tHandle h; % 3. NETWORK CONFIGURATION % 4. TCP 6 //Modbus/TCP server information % 5. MODBUS TCP MASTER % 6. MODBUS TCP SLAVE 8 int Server_IP[4] = {192,168,255,1}; % 7. MODBUS RTU MASTER % 9. UART 10 //Modbus Address % 9. UART 11 //Modbus Address % 12 int Modbus Address % 12 int Modbus Address % 13 //Modbus Address % 14 //Modbus Add</pre>	
<pre># 2. FNAME</pre>	
<pre>* 5. NetWork Coverigonation * //Modbus/TCP server information * 4. TCP * //Modbus/TCP server information * 5. MODBUS TCP MASTER * int Modbus_NetID = 1; * 6. MODBUS TCP SLAVE * int Modbus_Port = 502; * 7. MODBUS RTU MASTER * int Modbus_Port = 502; * 9. UART * 12 int Modbus address * 9. UART * 12 int Modbus address * 10 * 11 //Modbus address * 11</pre>	
<pre></pre>	
<pre>int Server_IP[4] = {192,168,255,1}; int Modbus_Port = 502; int Modbus_Address 9 UART 12 int Modbus_address 13 int Modbus_address 14 int Modbus_address 15 int Modbus_address 16 int Modbus_address 17 int Modbus_address 18 int Modbus_address 19 int Modbus_address 10 int Modbus_address 10 int Modbus_address 11 int Modbus_addres</pre>	
<pre>s = 0. MODBUS RTP SLAVE</pre>	
* 7. MODBUS RTU MASTER 10 * 8. MODBUS RTU SLAVE 11 //Modbus Address 12 int Modbus addres	
1149, UAR 12 int Modbus addr = 1103	
10 pcont To $10 pcont$ $10 pcont$ $-21 (address 1102 e1 1104)$	
$\begin{array}{cccc} 10 & \text{DOW} 10 & \text{Int} & \text{Ch}_{2} & \text{Column} 21 \\ 10 & \text{Int} & \text{Ch}_{2} & \text{Column} 21 \\ 10 & \text{Ch}_{2} & \text{Ch}_{2} & \text{Ch}_{2} & \text{Ch}_{2} \\ 10 & \text{Ch}_{2} & \text{Ch}_{2} & \text{Ch}_{2} & \text{Ch}_{2} \\ 10 & \text{Ch}_{2} & \text{Ch}_{2} & \text{Ch}_{2} & \text{Ch}_{2} \\ 10 & \text{Ch}_{2} & \text{Ch}_{2} & \text{Ch}_{2} & \text{Ch}_{2} \\ 10 & \text{Ch}_{2} & \text{Ch}_{2} & \text{Ch}_{2} & \text{Ch}_{2} \\ 10 & \text{Ch}_{2} & \text{Ch}_{2} & \text{Ch}_{2} & \text{Ch}_{2} \\ 10 & \text{Ch}_{2} & \text{Ch}_{2} & \text{Ch}_{2} & \text{Ch}_{2} \\ 10 & \text{Ch}_{2} & \text{Ch}_{2} & \text{Ch}_{2} & \text{Ch}_{2} \\ 10 & \text{Ch}_{2} & \text{Ch}_{2} & \text{Ch}_{2} \\ 10 & \text{Ch}_{2} \\ 10 & \text{Ch}_{2} & $	1000
11. WIDEL 12. CLASH ADT 15 DWORD timeout = 200; //200ms	
+ 12. FLASH AFI	
13. mg/1 17 AO_value[0] = 31; //IR command Number: 31	
414. DGW-321 10 AO_value[1] = 1; //IR Channel: 1	
a 13. MISCLEANLOOS	
21 h = mmt Register (Modbus Net TD.	
TCP IPADDR(Server IP[0],	
23 Server_IP[1],	
24 Server_IP[2],	
25 Server_IP[3]),	
26 Modbus_Port);	
28 //wait TCP connection	
<pre>29 while(hmi_TCPState(h) !=3)</pre>	
30 {	
<pre>31 hmi_DelayUS(10000); //delay 10 ms</pre>	
32 }	
34 //send Modbus/TCP Request to TR-712(P)-MTCP	
35 mtm WriteAO(h,	
36 Modbus_NetID,	
37 Modbus_addr,	
30 ch_count,	
A0_value,	
42 //disconnect TCP connection	
43 mtm_Unregister(h);	
44 }	~
	2

Copy the following C code to the OnClick event handler. It sends Modbus command to IR-712(P)-MTCP with IR output channel 2 and write data to address 1103(IR command number) and 1104(IR output channel) of holding registers.

```
46.void BitButton5OnClick(tWidget *pWidget)
47.{
48.
     //Handle for TCP connection
49.
     tHandle h ;
50.
51.
     //Modbus/TCP server information
52.
     int Modbus_NetID = 1;
     int Server_IP[4] = {192,168,255,1};
53.
     int Modbus_Port = 502;
54.
55.
     //Modbus Address
56.
     int Modbus_addr = 1103;
57.
     int ch_count = 2;
58.
                               //address 1103 & 1104
     WORD AO_value[2];
59.
60.
     DWORD timeout
                      = 200; //200ms
61.
62.
     AO_value[0] = 31;
                               //IR command Number: 31
63.
     AO_value[1] = 2;
                               //IR Channel: 2
64.
      //connect to Modbus/TCP server
65.
     h = mtm_Register(Modbus_NetID,
66.
                       TCP_IPADDR(Server_IP[0],
67.
```

Universal IR Learning Remote Module (IR-210/IR-712A/IR-712-MTCP/IR-712P-MTCP) FAQ v2.2

68.	Server_IP[1],
69.	Server_IP[2],
70.	Server_IP[3]),
71.	Modbus_Port);
72.	
73.	<pre>//wait TCP connection</pre>
74.	<pre>while(hmi_TCPState(h) !=3)</pre>
75.	{
76.	hmi_DelayUS(10000); //delay 10 ms
77.	}
78.	
79.	<pre>//send Modbus/TCP Request to IR-712(P)-MTCP</pre>
80.	mtm_WriteAO(h,
81.	Modbus_NetID,
82.	Modbus_addr,
83.	ch_count,
84.	AO_value,
85.	<pre>timeout);</pre>
86.	
87.	//disconnect TCP connection
88.	<pre>mtm_Unregister(h);</pre>
89.}	

C:\ICPDAS\HMIWorks_Standard\Projects\1	est_forIR_CLang_Frame1.h	-	×
<u>F</u> ile <u>E</u> dit <u>S</u> earch <u>H</u> elp			
OK Cancel Refresh Got	b Line 1		
	p		
Widgets Classes APIs	<pre>46 void BitButton5OnClick(tWidget *pWidget)</pre>		^
■ 1. GEOMETRY			
T 2. FRAME	48 //Handle for TCP connection		
+ 3. NETWORK CONFIGURATION	50		
+ 4. TCP	51 //Modbus/TCP server information		
+ 5. MODBUS TCP MASTER	<pre>52 int Modbus_NetID = 1;</pre>		
+ 6. MODBUS TCP SLAVE	<pre>53 int Server_IP[4] = {192,168,255,1};</pre>		
T. MODBUS RTU MASTER	<pre>54 int Modbus_Port = 502;</pre>		
# 8. MODBUS RTU SLAVE	55		
+ 9. UART	57 int Modbus addr = 1103:		
# 10. DCON TO	58 int ch count = 2: //address 1103 &1 1104		
# 11. WIDGET	59 WORD AO_value[2];		
# 12. FLASH APT	<pre>60 DWORD timeout = 200; //200ms</pre>		
# 13. MOTT	61		
+ 14. DGW-521	62 AO_value[0] = 31; //IR command Number: 31		
# 15. MTSCELLANEOUS	<pre>63 AO_value[1] = 2; //IR Channel: 2 64</pre>		
	65 //connect to Modbus/TCP server		
	66 h = mtm Register(Modbus NetID,		
	67 TCP_IPADDR(Server_IP[0],		
	68 Server_IP[1],		
	69 Server_IP[2],		
	70 [Server_IP[3]),		
	Modbus_Port);		
	73 //wait TCP connection		
	<pre>74 while(hmi_TCPState(h) !=3)</pre>		
	75 {		
	<pre>76 hmi_DelayUS(10000); //delay 10 ms</pre>		
	77 }		
	78 79 //cond Madhus/TCD Request to TP 712(D) MTCD		
	mtm WriteΔO(b		
	81 Modbus NetID,		
	82 Modbus_addr,		
	83 ch_count,		
	84 AO_value,		
	<pre>85 timeout);</pre>		
	87 //disconnect TCP connection		
	88 mtm Unregister(h):		
	89 }		
			>
I			

