

Sept. 2016

**Technical Document** 

## **PLC Connection Guide**

WebAccess/HMI Designer 2.1 /WebAccess/HMI Runtime 2.1 & & General Device TCP Slave

## **Application Architecture**

#### System



### Using TCP / IP communications Macro Editor Description HMI Setting

- 1. Use WebOP Designer, select the connection properties [General Device
  - (TCP/IP Slave)]

Link Properties		×
General Paramete	er	
Link Number:		
Link Name:	Link 1	
Link Type:	Direct Link (Ethernet)	▼
Device/Server:	PanelMaster 🔹	General Device (TCP/IP Slave)
Link Port:	Ethemeti 👻	]
Record comm	nunication status in operation log	
The duration of s	showing a communication error message:	5 v second (s)
		確定 取消 說明

2. In	put the	correct IF	address.	source	port and	communication	parameter.
<u> - · · · ·</u>	par the	conceen	uuui c55,	, 50 ai cc	porcana	communication	purumeteri

Link Properties		×
General Parameter		
IP Address: 192. 168 . 1 . 100 Use Default Port Port: 33168	Source Port Use Default Port Port: 502	
Node Address: O		
Timeout Time: 0 🚖 (x 0.1 Sec.)		
Command Delay: 0 🔶 (x 0.1 Sec.)		
Retry Count: 0 🚖		
	確定	取消 說明

## 3. Edit the macro to send data to a server and receive data from the server.

Screer	1 (#1) Native Script - TPCip_client Native Script - Test	_ & X			
0	IF CON_STS == 1	A		1 > 0(0D)	
1	IF \$U100.0(B)		Command	TE P2-P2	
2	\$U150="123ABC"(UD)		command.	µ112/15	
3	\$U200=B2W(\$U150,6)		Data Type:	(UD) 32-b	oit Unsigned 🔹
4	TX=MOV(\$U200,6)				
5	ENDIF		Par P2	BXB CN	T 🔲 🕅
6	IF RXB_CNT > 0(UD)		101.12.	TVD_CI	
7	\$U500=MOV(RX,6)		Par. P3:	0	
8	\$U550= RX_CNT	(11) · · · · ·	2	Y	
9	IF \$U550 >0	Address Input Keypad	LB L	~	
10	\$U600=W2B(\$U500,\$U550)				
11	ENDIF	Link: Link 1		<b>_</b>	
12	ENDIF				
13	END_IF	Type: Dit @ Word	C Pit Of V	Vord	pands in the command bl
				voru	lands in the command of
		0 🔫 : RXB_CNT			
				ĸ	Description
		D B 4 5	6 B	s	Theorem
		F: 78	9 ES	ic l	The operands.
					E: External Variable; C: C
		F / . 0	ENT		
		[			

## Control definitions and Usage :

Control Code	Туре	Read / Write	Explain
RX	Word Device	Read	Read N data from server and save in buffer. When the N is greater than buffer size, process all data from buffer, or process N data from buffer. After the operation is complete, RX_STS: 1: Success, 2: Timeout, 3: failure.
RX_CNT	Double Word	Read	The number of character which received from RX/RX_W last time. It's unaccepted to write.
RX_STS	Word Device	Read	Status RX / RX_W after the last read. 1: Success, 2: Timeout, 3: Failure
RX_W	Word Device	Read	<ul> <li>Wait and read N character to specified buffer, process data and set "RX_STS = success" once N is equal or greater than buffer size.</li> <li>If N is greater than the number of strings acceptable buffer, attempts to receive a string from the server until the timeout.</li> <li>If the receive buffer is still less than the number of strings N, return all the strings and set the buffer RX_STS = 2 (overtime).</li> <li>If no string is read, set RX_STS = fail.</li> </ul>
RXB_CNT	Double Word	Read	The number of characters which received from buffer. The system will continue to attempt to receive a string from the server and stored in the receive buffer. While updating RXB_CNT updating and CON_STS.
TO_TIME	Word Device	Read / Write	Timeout. The system uses DEF_TO_TIME + TO_DATE as the timeout for connecting servers to receive and send strings. Time unit is 100ms.
тх	Word Device	Read / Write	Send a specified number of strings to the server and set TX_STS under the circumstances. 1: Success, 2: Timeout, 3: failure.
TX_STS	Word Device	Read	Last sending state. 1: Success, 2: Timeout, 3: failure.
TX_W	Word Device	Read / Write	<ul><li>Send a specified number string sent to the server and wait for the end or timeout.</li><li>Then set TX_STS.</li><li>1: Success, 2: Timeout, 3: failure.</li></ul>
DST_IP	Double Word	Read / Write	IP address of the server.
DST_PORT	Word Device	Read / Write	Port address of the server.

	Word Device	Read	Connection status.	
CON_STS			System continuously checks the connection status,	
			and set the following values according to the	
			situation:	
			1: Open 2: Close 3: failure.	
	Double Word	Read	The default timeout.	
			This is the default values can not be changed.	
	Bit Device	Read /	Write 1 to clear the buffer and resets all states.	
FLUSH			Writing 0 has no effect.	
		write	The return address read 0	
	Bit Device		Write a use DST_IP and DST_PORT try to open a	
		Read /	connection and set CON_STS under the	
OPEN_CON		Write	circumstances.	
			1: Open 3: failed. Writing 0 has no effect.	
	Bit Device	Read /	Write a close the current connection with the server	
CLOSE_CON		Write	and set CON_STS off.	
			The default value is 1.	
	Bit Device		Write '1 'to start the automatic connection, write 0	
			terminate automatically connect.	
AUTO_CON		Read /	When the value is '1 ', if the connection state is not'	
		Write	open ', the system will try to connect to the server and	
			set CON_STS under the circumstances.	
			When the value is '0 ', the user needs to write macros,	
			Write '1 'to OPEN_CON to connect to the server.	

#### **TCP Communication Procedure**



#### Manually connect to the server macro example

HMI 1(Client):

AUTO\_CON=0(B)// Connection to server

```
CLOSE_CON=1(B)//Close connection with server
```

```
DST_IP=0xc0a80164 (UD)// Connection target server IP: 192.168.01.100 (Hex code)
```

```
DST_PORT = 502//Connection target server port number 502 (Dec Code)
```

```
OPEN_CON=1(B) //TCP Port open
```

```
IF CON_STS == 1 //connection with server returns states
```

```
$U150="1234567890"(UD) //TCP client sent "text string" to TCP server
$U200=B2W ($U150, 10)
TX=MOV ($U200, 10)
$U500=MOV (RX_W, 6)//TCP client receivers data from TCP server
$U550 = RXB_CNT (UD)
IF $U550 > 0
$U600=W2B ($U500, $U550)//Get data to screen object
ENDIF
```

ENDIF

## **PLC Device List**

#### Word Devices:

Bit Device (Ge	eneral Device (TCP/IP Sla	ve))	_	
Bit Device	Address Range		Block Address	Comment
FLUSH OPEN_CON CLOSE_COI AUTO_CON	4		Any address Any address Any address Any address	
-		Close	)	

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