ADVANTECH
Enabling an Intelligent Planet

Technical Document

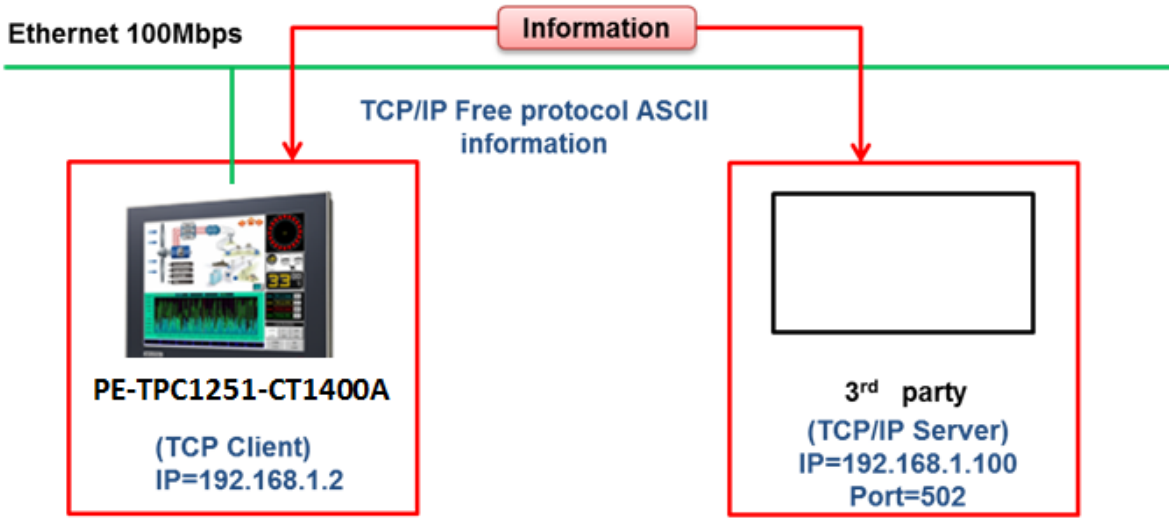
Sept. 2016

# PLC Connection Guide

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

# Application Architecture

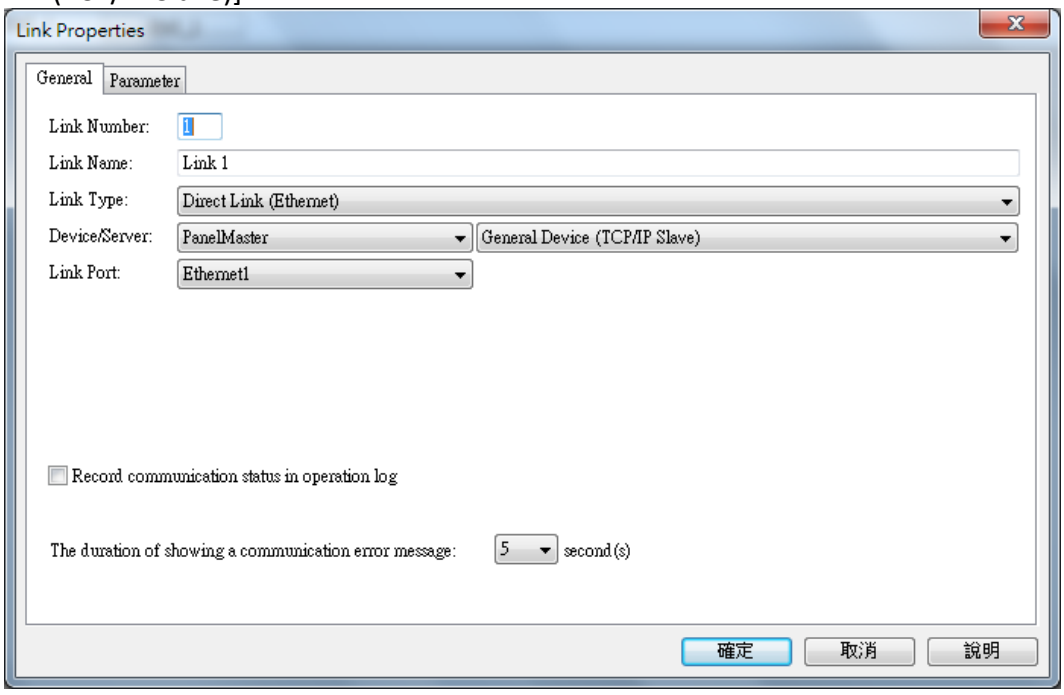
## System



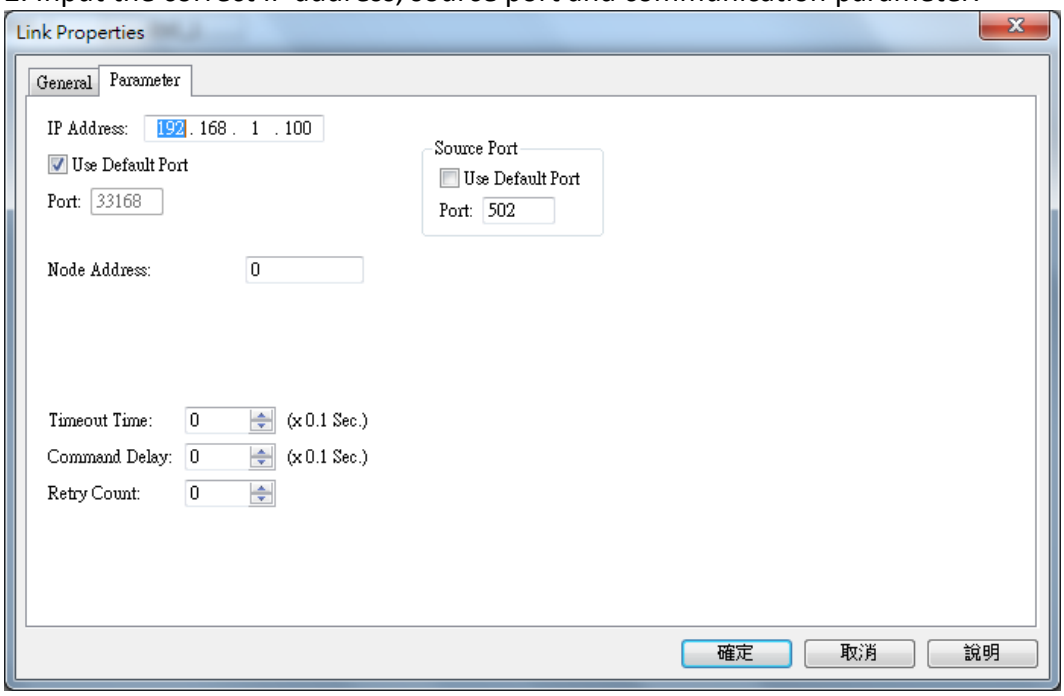

# Using TCP / IP communications Macro Editor Description

## HMI Setting

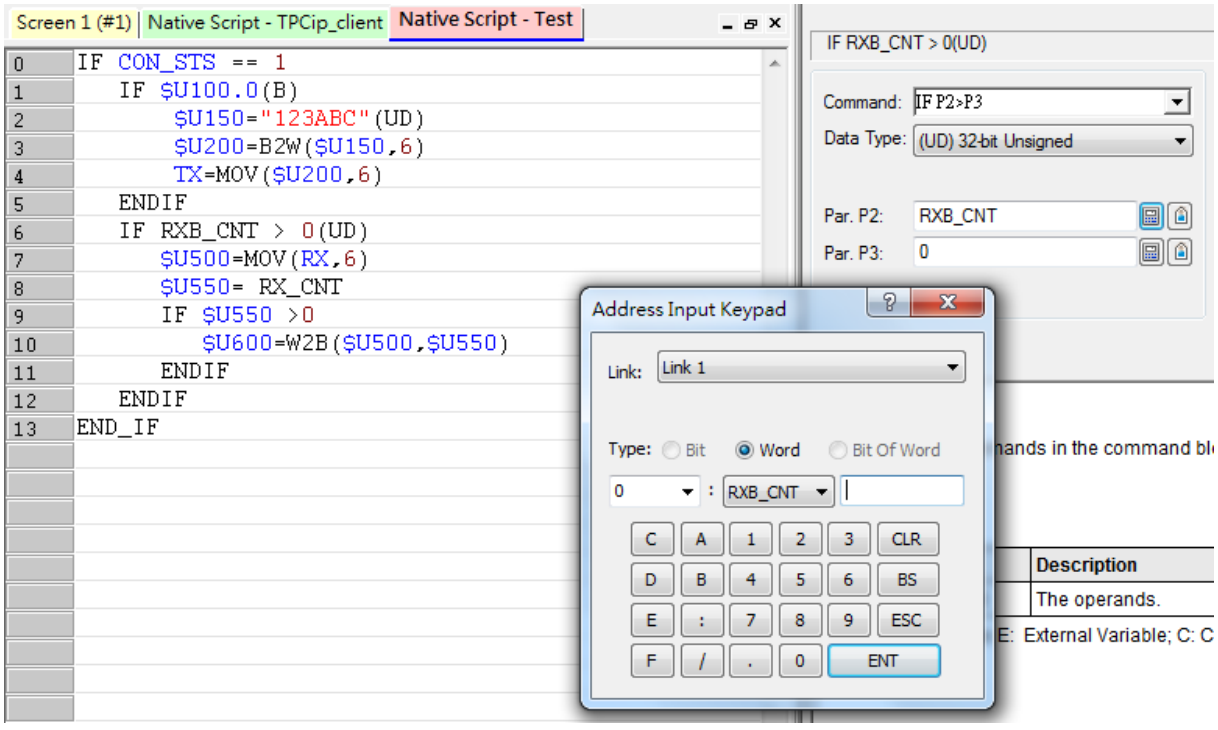
1. Use WebOP Designer, select the connection properties [General Device (TCP/IP Slave)]



2. Input the correct IP address, source port and communication parameter.




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

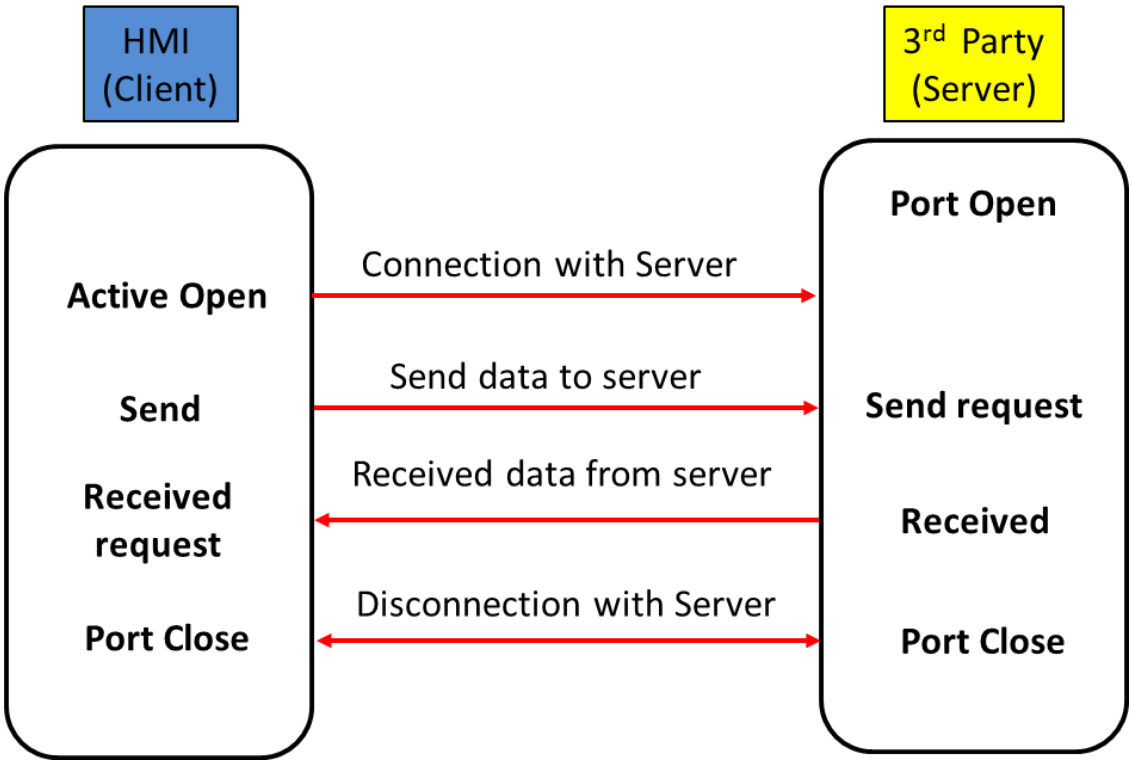


## Control definitions and Usage：

| Control Code | Type | 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.<br>After the operation is complete, RX_STS:<br>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.<br>1: Success, 2: Timeout, 3: Failure |
| RX_W | Word Device | Read | Wait and read N character to specified buffer, process data and set "RX_STS = success" once N is equal or greater than buffer size.<br>If N is greater than the number of strings acceptable buffer, attempts to receive a string from the server until the timeout.<br>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).<br>If no string is read, set RX_STS = fail. |
| 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.<br>While updating RXB_CNT updating and CON_STS. |
| TO_TIME | Word Device | Read / Write | Timeout.<br>The system uses DEF_TO_TIME + TO_DATE as the timeout for connecting servers to receive and send strings. Time unit is 100ms. |
| TX | Word Device | Read / Write | Send a specified number of strings to the server and set TX_STS under the circumstances.<br>1: Success, 2: Timeout, 3: failure. |
| TX_STS | Word Device | Read | Last sending state.<br>1: Success, 2: Timeout, 3: failure. |
| TX_W | Word Device | Read / Write | Send a specified number string sent to the server and wait for the end or timeout.<br>Then set TX_STS.<br>1: Success, 2: Timeout, 3: failure. |
| DST_IP | Double Word | Read / Write | IP address of the server. |
| DST_PORT | Word Device | Read / Write | Port address of the server. |

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

## TCP Communication Procedure



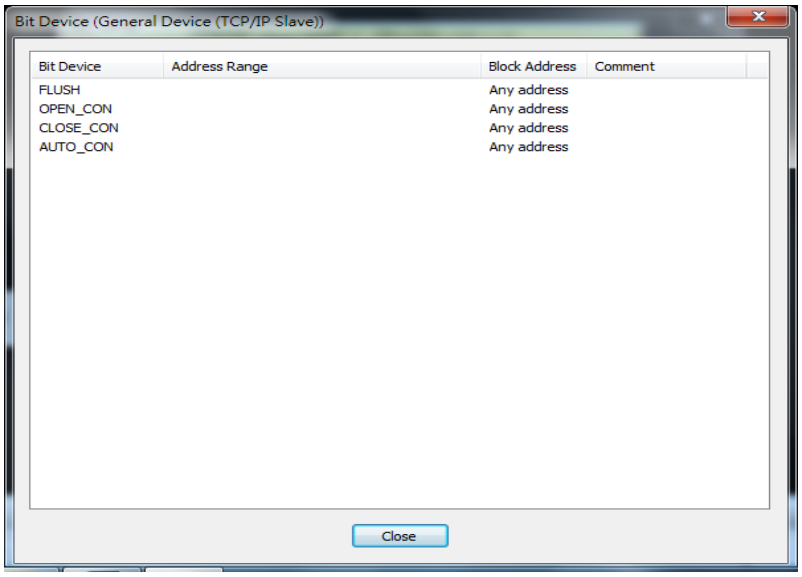

**Manually connect to the server macro example**

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:



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