
FP Web Configurator Tool version 2.2 update notes (May, 2010)

The current release of the FP Web Configurator Tool has the following new features:

• **Modbus-TCP Client timeout handling improved:**

Normally the server response timeout value on the client side should be set to a longer time than the maximum response time of the server.

For example:

* The Modbus-TCP server is built up with an FP Web-Server plus PLC (A1 setup).

* The normal response time of the Modbus-TCP server requires only a few milliseconds.

* But if the PLC of the server does not respond (baud rate or cable problem), it can take up to 3s before the server sends back a response to the client!

* Therefore the client should be set up with a server response timeout value of 4s or more.

With such timeout values the client will receive all responses (also the error response codes) from the server. Otherwise the client will disconnect the server after each delayed request if the configured timeout values are too short!

Improvements made:

The FP Web Configurator now issues a pop-up message if the server response timeout is set below 4s. And the Modbus-TCP client functions B1 and B3 of the FP Web-Server will now disconnect the remote server if no response is received within the configured response timeout.

• **Modbus-TCP B1 client PLC example program improved:**

The FPWIN Pro "Modbus-TCP-Client" example program controls the FP Web-Server (setup as a Modbus-TCP client in mode B1) to communicate with a remote Modbus-TCP server. The following improvements were made:

- Example application in ST and FBD programming language available.

- The server IP address (or URL name) can be defined with each Modbus command

- The busy/done/ready output from the function block "ModbusTCP_Send()" was repaired

- A new error code is reported if the local client FP Web-Server is not working

- The error flag and value are activated for one second (following commands delayed)

- Test input X0...X3 handling simplified for easier understanding

- Comments improved. List of error codes included.

Please note:

The PLC/PLC data exchange sample system "ModbusTCPsamplePLCsystem" was also adopted because it is based on the "Modbus-TCP-Client".

• **New PLC sample program for usage with Modbus-TCP client mode B3:**

The FPWIN Pro "Modbus-RTU-Master" example program shows the usage of the FP-X Modbus-RTU master functions.

An FP-WEB unit can be used (instead of a serial Modbus-RTU slave unit) as a converter to access a Modbus-TCP server.

A configuration file is included to set up the FP Web-Server (Modbus-TCP client mode B3) to act as a Modbus-RTU slave and redirects the communication to a Modbus-TCP server. In the PLC program a description explains when to use this solution (Modbus-TCP client mode B3) instead of the Modbus-TCP client mode B1 (see PLC example program "Modbus-TCP Client"). Also a Modbus-TCP server PC program is included for a first test.

• **"Transparent TCP/IP Client Port" with PLC communication instead of RS232C:**

The standard "Transparent Client Port" function acts as a TCP client and establishes a data connect to a server via Ethernet. All data received via the 9-pin RS232C port of the FP Web-Server is forwarded to the server. And data sent by the server is output to the 9-pin RS232C port of the FP Web-Server.

The new option makes it possible to send and receive data to and from the PLC's memory instead of the 9-pin RS232C port of the FP Web-Server. The 9-pin RS232C port of the FP Web-Server is available for modem connections. The FP Web-Server accesses the PLC via the 3-pin RS232C port by MEWTOCOL commands. For data transfer the FP Web-Server periodically reads a dedicated PLC memory area, holding control flags and data. With this the PLC can control the receiving and sending of data (data block size up to 4kB).

Under "C:\Program Files\Panasonic-EW Control\Configurator\FP-WEB2\FPWIN-Pro_Example" you can find a sample PLC program "TranspClientSPS.asc" that demonstrates how to send data to and receive data from the server. In this sample PLC program, you will also find a detailed memory area and procedure description.

- **"Transparent TCP/IP Client Port" with optional server address data tag:**

The FP Web-Server tries to detect a special tag like {I10.10.12.22}<cr> in the data stream (coming from the 9-pin RS232C or from the PLC memory). This tag is filtered out and a different server with the IP address of the special tag is connected. The following data is sent to/received from the newly connected server.

- **"Transparent TCP/IP Client Port" data tag can handle server URL names: (*)**

As described above, the Transparent Client Port function can optionally analyze the incoming data stream (from the 9-pin RS232C or PLC memory) to detect the special data tag defining the server IP address to which to connect. For the FP-WEB2 unit, a URL name can now be used instead of an IP address.

The following are valid tags: {I10.10.12.22}<cr> {Ipeweu.dyndns.org}<cr>

Notes on the DNS resolution:

For URL to IP address resolution, a DNS server is required in the network. At the time a valid tag with a URL name is received, a DNS look-up is performed to translate the URL name to the IP address for the new server. Static DNS server addresses can be defined under "Config". Alternatively the DNS servers of the ISP can be used if a dial-out connection is online. With this and the usage of DynDNS, any Internet unit with a changing IP address can be accessed.

- **Up to ten MEWTOCOL port servers (*):**

With the FP-WEB2 unit it is possible to configure up to ten MEWTOCOL port servers for PLC communication. But be aware that all ten servers use the same 3-pin RS232C serial port to communicate with the PLC! Due to the limited data bandwidth of this serial port, the response time can increase drastically. Especially if other FP-Web Server functions (email support, web page with PLC data, Java applets, Modbus and IEC60870 interfaces) are active at the same time.

- **Java Script files with PLC variable names:**

Especially for Ajax-based Java Script program files it is useful to use PLC variable names instead of absolute PLC addresses. The same .CSV file (FPWIN Pro exported global variable list) is used for variable names as for .htm files to reference PLC addresses. If the Java Script program file uses the extension .js, the special tags {'variable'}, which were replaced by the corresponding PLC address before the file was sent down to the unit are searched for.

For example:

Original JS text entry:	CSV list:	Used on JS runtime:
var PLC1 = {'Flag'};	Flag = R901D	var PLC1 = R901D;
var PLC2 = {"'Cntr'"};	cntr = DT100	var PLC2 = "DT100";
var PLC3 = {'Value'};	ValuE = DDT20	var PLC3 = DDT20;

- **Modbus-TCP Client can use a URL name to address the server (*):**

With the FP-WEB2 unit, a URL name can be defined instead of a static IP address for the default Modbus-TCP server. This is valid for:

- B1 Function: "Modbus-TCP Client for the PLC":

The Modbus-TCP server can be addressed via a configured, default URL. Optionally the PLC program can modify the default URL. An updated example PLC program is available. If the variable 'ADD' (bit 0-31 of DDT60) is set to the value 2, the 3-digit value of the variable 'HNN' (bits 8-15 of DT63) is added to the host name:

Example: Default=station.net 'ADD'=2 'HNN'=2 --> URL=station002.net

- B3 Function: "Modbus-TCP Client Gateway for Any Modbus-RTU Master":

The Modbus-TCP server can be addressed via a configured, default URL. Optionally the current RTU slave address can modify the default URL.

Example: Default=station.net RTU address=3 --> URL=station003.net

Notes on the DNS resolution:

For URL to IP address resolution, a DNS server is required in the network. At the time the Modbus-TCP client function (controlled by the PLC or a Modbus-RTU master) wants to connect to the remote Modbus-TCP server, a DNS look-up is performed to get the IP address for the configured URL. Static DNS server addresses can be defined under "Config". Alternatively the DNS servers of the ISP can be used if a dial-out connection is online. With this and the usage of DynDNS, any Internet unit with a changing IP address can be accessed.

- **Browser for default web file editor:**

Under "Web / Edit With" a default editor can be assigned for the selected file type. Administrator rights are necessary for this. New in this version is that any editor (executable program) can be browsed for locally.

- **PLC variables of the type DUT can now be addressed via a variable name:**
PLC registers can be addressed within HTML pages by a variable name. For cross-reference a .CSV file is needed in which all global variable names are listed together with their PLC addresses. The .CSV file can be generated by FPWIN Pro under menu item "Extra / Export CSV File". Be sure to use the export file type "CSV Export Global Variable List (*.csv)". Do not use "CSV Export Project (*.csv)" because this would also include the local program variable names and addresses. Global arrays can be addressed within the HTML page by their variable names plus the attached index number, separated by one underscore. For example 'name_8' or 'variable_11'.
New in this version is that also global variables of type DUT can be addressed by a variable name within the HTML page. For example, 'name.item' or 'variable.sub1'.
- **HTTPS web server with FP-WEB2 unit (*):**
Under tab 'Web' an HTTPS server can be switched on. This is possible in addition or alternatively to the standard HTTP server. The HTTPS server uses TCP port number 443. A warning is displayed if one of the TCP port servers is configured to listen on port number 443. The secure HTTPS communication is based in X.509 certificates. The default HTTPS certificates are copied into the configuration project folder. These certificates can be replaced by customer-specific certificate files. See separate documentation on how to get individual certificates and how to prevent the web browser warning message popup upon connecting the first time to the HTTPS site.
- **MEWTOCOL communication via HTTP server:**
Optionally MEWTOCOL communication with the PLC can be done via port 80 and the HTTP server. This is especially useful for Internet systems and PLC access via proxy gateways. Also enhanced web pages (Java applet, Ajax scripting) can directly communicate with the PLC. For example to read register DT200 via HTTP, 'Get' the MEWTOCOL command should look like this: "http://199.199.26.52/plc?%01_RDD0020000200**".
Please note that the '#' sign is replaced by a '_' character. The HTTP response holds the raw MEWTOCOL data such as "%01\$RD375D63". In case of access limitations or other problems, the error code "%01!94**" is returned.
To avoid security problems, PLC access can be completely disabled or reduced to read-only access.
- **Two IP addresses (*):**
An FP-WEB2 unit can be set up with two different LAN IP addresses. Both IP addresses can be accessed at the same time with identical functions. Additionally, it is possible to change the second IP address (if enabled in the security setting) via the UDP configuration interface.
- **Project documentation:**
A new "Comment" button allows you to save comments and notes for configuration. A new file "comment.txt" is generated in the project folder.
- **System restart timer:**
Optionally the FP Web-Server unit can be set up to automatically restart the unit after a specific number of hours (1 ... 500). This can perhaps increase system reliability.
- **MEWTOCOL server installation test:**
In the section on 'Ports', a new button allows the MEWTOCOL port server of the unit to be tested. Password protection is also supported.
- **Automatic browser start for selected unit:**
Use the 'Find' button to list all FP Web-Server units found. Hold down the ALT key while double-clicking the appropriate unit to open the homepage of the unit in a new browser window.
- **All found units listed in an HTML link page:**
Holding down the ALT key while clicking the 'Find' button will additionally generate an HTML page that lists all units found. The HTML link page is opened in the browser. A click on the appropriate link will open the homepage of the selected FP Web-Server unit in a new browser window.
- **Transparent TCP port server and client timing optimized:**
Packing time reduced to 5ms for baud rates above 9600 bps.
Task idle time reduced to 16ms.

- **Minor improvement and bug fixes:**

- Web file list display speed improved. Plus character key positioning.
- Possible problem with unavailable NTP server solved.
- Http GET response for XML with mime-type "text/xml".
- PHP central server logout also under error conditions.
- Preparations for RTOS update function with "ALT-Initialize".
- Maximum number of simultaneous Http connections reduced to not overload the TCP-IP buffer by multiple Ajax applications. (*)
- Modbus-TCP socket timeout, nagle and keep alive parameter handling improved. (*)
- The last email server error message is displayed via Telnet. (*)
- Handling of "Read Only" project files (example templates) improved.
- IEC60870 can also handle new PLC library with enhanced timestamp.
- IEC60870 parameter entry dialog optimized for structured addresses.
- Central PHP Internet server re-logout with each periodic test.
- New "Example16" included. Dynamic web page update with Ajax and JS.
- Handling of multiple instances optimized.
- Check after selecting a unit was optimized, also for slow networks.
- Web pages upload improved: Don't start FTP transfer if last file shows an error or if .xml file has same name as .htm file (both with PLC data).
- IEC60870 can additionally handle RS232C baud rate of 300 and 600bps.
- IEC60870 license handling changed: IEC60870 configurator is enabled after license code protected installation of the IEC60870 PLC library.
- Timeout value calculation for detection of a broken MEW multiframe com:
Timeout in seconds = PLC_TMO x 3 (was x 2). PLC_TMO see Chip.ini file.

Note (*):

This modification was made only for the FP Web-Server2 (FP-WEB2) unit.

If necessary, a warning message is displayed and the function is disabled if such a configuration is sent to an FP-WEB unit.

Thank you for using the FP Web Configurator Tool
Panasonic Electric Works Europe AG