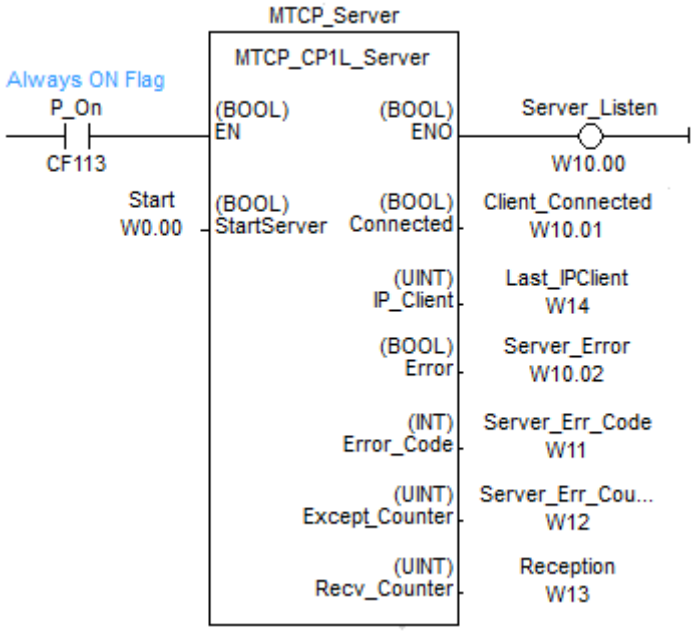
Function Block

Référence	MTCP_CP1L_Server
Révision	2.3
Auteur	JP Viskovic
Date	13/11/2013
+ Support	http://support-omron.fr/

OMRON ELECTRONICS S.A.S.
14 Rue de Lisbonne
93561 Rosny-sous-Bois cedex

N° Indigo 0 825 825 679
0 . 15€ TTC/mn

Modbus TCP Server for CP1L series

Function	Modbus TCP Server
Symbol	
File	MTCP_CP1L_Server.zip
PLC	CP1L-EL, CP1L-EM
Conditions of use	The FB Modbus TCP server provides some read/write features in accordance with the specifications defined by the Modbus organization. Restrictions : - The FB MTCP_CP1L_Server support only one client connection - Le FB MTCP_CP1L_Server is intended to facilitate data exchange not related to the control or the safety of machin. The Modbus TCP Client function block is offered 'as is' and may serve as a basis for development. Users should previously test its adequacy to the final application. **Omron could not be held responsible in case of malfunction.**
Principe	The FB MTCP_CP1L_Server is listening for a client connection as soon as the EN input is activated. TCP TIME-WAIT: When a TCP connection is closed, the socket pair is placed in a known as TIME-WAIT state, which ensures that a new connection does not use the same protocol, source IP address, destination IP address, source port and destination port, until a period of time sufficient flows to ensure that any segment that may have been incorrectly routed or delayed are not delivered unexpectedly. The duration of the interval during which the socket pair cannot be reused is specified in RFC 793 as equal to 2 MSL

(twice the maximum lifetime of a segment), or four minutes (CP1L 2mn) .
To avoid this delay, use another local port on the client side (the server is fixed on port 502).

Supported command list

Code	Function	Name in MODBUS
0x01	***** NOT SUPPORTED ******	Read Coils
0x02	***** NOT SUPPORTED ******	Read Discrete Inputs
0x03	I/O memory area (DM) Read Multiple Registers	Read Holding Registers
0x04	I/O memory area (CIO) Read Multiple Registers	Read Input Registers
0x05	I/O memory area Write Single Coil (CIO)	Write Single Coil
0x06	I/O memory area (DM) Write Single Register	Write Single Register
0x08	Echo back test	Diagnostic
0x0F	***** NOT SUPPORTED ******	Write Multiple Coils
0x10	I/O memory area (DM) Write Multiple Registers	Write Multiple Registers

The FB uses socket N°1 and TCP port 502

Memory Map

Used by the function Block

Type	range	Descriptions
Send/Receive Area	D32500-32767	store request and prepare response

Socket service flag & command switch

Type	range	Descriptions
Flag/command	A567-A572	For more details see : Socket Service from W516
Parameter Area	D32400–D32437	

PLC area accessible by the Modbus TCP request

Address	MODBUS	PDU	Corresponding CS/CJ's address
Coils	1- 65536	0 - 65535	0–65535 (CIO 0.00– 4095.15)
Input Registers	1- 6144	0 - 6143	0–6143 (CIO 0 – CIO6143)
Holding Registers	1- 32768	0 - 32767	0-32767 (D0 – D32767)

Input Variable

Name	type	Range	Description
EN	Bool	OFF, ON	Enable FB execution
StartServer	Bool	OFF, ON	ON: open socket in passive mode (listen) OFF: close the socket

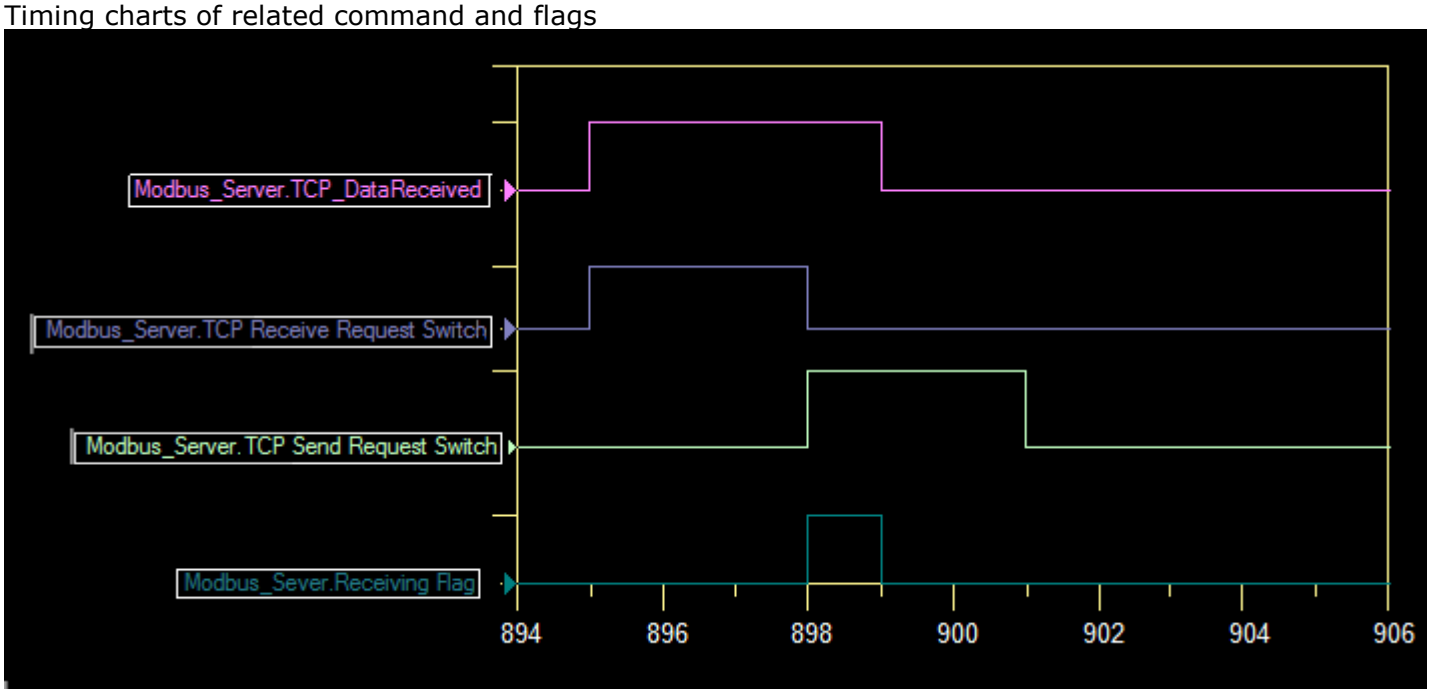
Output Variables

Name	type	Range	Description
ENO	Bool	OFF, ON	Server operational and listening for a client connection
Connected	Bool	OFF, ON	Client connected (last field of IP address)
IP_Client	UINT	0-9999	
Error_Code	Bool	OFF, ON	See code error list bellow
Except_Counter	UINT	0 - FFFF	Counter of exception error
Recv_Counter	UINT	0 - FFFF	Counter of received request (any)

Socket services Error Codes are returned prior to Modbus exception error

Modbus Error Code	Description
0001	ILLEGAL FUNCTION
0002	ILLEGAL DATA ADDRESS
0003	ILLEGAL DATA VALUE

Timing charts of related command and flags



PLC Cycle time : 1ms