

1.1.3 ModbusMaster, modbus master

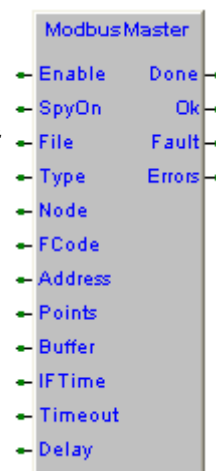
Type	Library
FB	eLLabUtyLib_C030

This function performs the management of Modbus RTU, Ascii, TCP master protocol (Selectable by **Type**). You can define the **File** I/O terminal on which to communicate. Setting the **Enable**, on the terminal I/O is sent a frame to execute the modbus function defined in the **FCode**. Once the command execution is finished the **Done** output is activated. If the command execution is successful the Ok output will be set for a program loop. By disabling **Enable** the **Done** and **Fault** output are reset, to run again the command the **Enable** input must re-enabled.

If **FCode** is a read function, the value of variables starting from **Address** for the number of variables defined by **Points**, is read from the slave system and transferred into the variables addressed by **Buffer**. The **SpyOn** input allows to spy the FB working.

If **FCode** is a write function, the value of variables addressed by **Buffer** for the number of variables defined by **Points**, is written to the slave system starting from **Address** address.

On error executing command or command execution time bigger than the defined **Timeout**, the **Fault** output will be activated for a program loop and the **Errors** counter increased.



Enable (BOOL) Command that enables Modbus command execution. To re-execute the command, disable and then re-enable this input.

SpyOn (BOOL) Active allows to spy the FB working.

File (FILEP) Stream returned from [Sysfopen](#) function.

Type (USINT) Modbus type selector. 0:RTU, 1:Ascii, 2:TCP

Node (USINT) Modbus node number on which to execute command (Range from 0 to 255).

FCode (USINT) Modbus code function to execute (Range from 0 to 255).

Code	Description
16#01	Read coil status (Max 255 coils)
16#02	Read input status (Max 255 inputs)
16#03	Read holding registers (Max 32 registers)
16#04	Read input registers (Max 32 registers)
16#06	Preset single register
16#0F	Force multiple coils (Max 255 coils)
16#10	Preset multiple registers (Max 32 registers)

Address (UINT) Address allocation of variables on slave system. According to the Modbus specifications, the address sent in the frame is (**Address-1**) (Range from 16#0001 to 16#FFFF).

Points (USINT) Number of consecutive variables on which the command operates.

Buffer (@USINT) Address of buffer of read or written data.

IFTime (UDINT)

Time between frame (μS).

If you use the serial port, this time must be related to baud rate.

Baud rate	Time
300	112000
600	56000
1200	28000
2400	14000
4800	7000
9600	3430

Baud rate	Time
19200	1720
38400	860
57600	573
76800	429
115200	286

On ethernet connection set the minimum time value.

Timeout (UINT)Maximum command execution time expressed in mS. If the command does not end in the defined time, the command is aborted and the **Fault** output is activated.**Delay** (UINT)

Pause time after the execution of the command modbus expressed in mS.

Done (BOOL)

Active at the end of command execution.

Ok (BOOL)

Active for a program loop if command correctly executed.

Fault (BOOL)

Active for a program loop if execution error.

SpyTrg (UDINT)

Trigger for the SpyDataFile FB.

SpyPtr (@USINT)

Pointer to data to be spy.

Errors (UDINT)

Error counter. Increased at every error. If it reach the maximum value, it restarts from 0.

Spy trigger

If **SpyOn** is active the [SysSpyData](#) function is executed this allows to spy the FB operations. There are various levels of triggers.

TFlags	Description
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16#00000001	Tx : Modbus command frame sent.
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16#00000002	Rx : Modbus answer frame received.
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Error codesIf an error occurs, the **Fault** output is activated and [SysGetLastError](#) can detect the error code.10007010 **File** value not defined.

10007050 Execution timeout.

10007060 Execution error.

10037080 **Type** definition error.10007100 Function code defined in **Function** is not managed.10007120 Wrong **Points** value.

10007200~2 Error transmitting the command frame.

10007500~7 Error receiving the answer frame (Wrong character, wrong length, won CRC).

Examples

Here an example of reading from a slave SlimLine. Cyclically is performed a read of 16 coils starting from address 16#01 of Modbus node 1. The value of the coils is transferred to the **RxC coils** array. After the reading will be activated the **Do01M00** logic output for a program loop.

Defining variables

	Name	Type	Address	Array	Init value	Attribute	Description
1	RxC coils	BOOL	Auto	[0..15]	16(0)	..	Rx coils data buffer
2	Errors	UDINT	Auto	No	0	..	Modbus communication errors
3	Fp	FILEP	Auto	No	0	..	File pointer
4	MdbSn	ModbusMaster	Auto	No	0	..	Modbus master FB

LD example (PTP114A620, LD_ModbusMaster)

