

Library Description



 eCOCKPIT



**WAGO-I/O-
PRO V2.3**

EAP_Modbus_01.lib

**WAGO-I/O-PRO Library for
Connecting
the EAP Modbus® Room Control
Devices**

Version 1.0.0



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Number Notation

Table 1: Number Notation

Number System	Example	Comment
Decimal	100	Normal notation
Hexadecimal	0x64	C notation
Binary	'100' '0110.0100'	In single quotes, nibble separated by a period

Font Conventions

Table 2: Font Conventions

Font Type	Explanation
<i>italic</i>	Names of paths and files are shown in italics, e.g.: <i>C:\Programs\WAGO-I/O-CHECK</i>
Menu	Menu options are shown in bold, e.g.: Save
>	A “greater than” symbol between two names denotes the selection of a menu option, e.g.: File > New
Input	Names of input or selection fields are shown in bold, e.g.: Start of measurement range
“Value”	Input or selection values are shown in quotation marks, e.g.: Enter the value “4 mA” under Start of measurement range .
[Button]	Button labels within the dialogs are shown in bold and enclosed in square brackets, e.g.: [Input]
[Key]	Key labels on the keyboard are shown in bold and enclosed in square brackets, e.g.: [F5]

Symbols

DANGER



Warning against personal injury!

Indicates a high-risk, imminently hazardous situation which, if not avoided, will result in death or serious injury.

DANGER



Do not work on components while energized!

Indicates a high-risk, imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING



Warning against personal injury!

Indicates a moderate-risk, potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION



Warning against personal injury!

Indicates a low-risk, potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTICE



Warning against damage to property!

Indicates a potentially hazardous situation which, if not avoided, may result in damage to property.

ESD



Warning against damage to property caused by electrostatic discharge!

Indicates a potentially hazardous situation which, if not avoided, may result in damage to property.

Note



Important note!

Indicates a potential malfunction, but one which will not result in damage to property if not avoided.

Information



Additional Information

Refers to additional information which is not an integral part of this documentation (e.g., the Internet).

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The use of the product described in this document is exclusively geared to specialists having qualifications in PLC programming, electrical specialists or persons instructed by electrical specialists who are also familiar with the appropriate current standards.

Moreover, the persons named here must also be familiar with all of the products cited in this document, along with the operating instructions. They must also be capable of correctly predicting any hazards which may not arise until the products are combined.

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The sample applications described in this documentation represent concepts, that is, technically feasible applications. Whether these concepts can actually be implemented depends on various general conditions. For example, different versions of the hardware or software components may require different handling than that described here. Therefore, the descriptions contained in this documentation do not form the basis for assertion of a particular product characteristic.

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Function Blocks:

1 Modbus RTU

1.1. FbEAP_MasterRTU

WAGO-I/O-PRO CAA Library Elements			
Category:		Building Technology	
Name:		FbEAP_MasterRTU	
Type:		Function <input type="checkbox"/>	Function block X <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of Library:		EAP_Modbus_01.lib	
Applicable to:		See Release Note	
Libraries used:		SerComm.lib Serial_Interface_01.lib mod_com.lib SysLibMem.lib Modb_i05.lib	
Input Parameter:		Data Type:	Comment:
bCOM_PORT		BYTE	No. of the serial interface used 1 -> Internal service interface 2 -> first connected serial interface 3 -> second connected serial interface
bPortEAP		BYTE	Master ID number Default setting = 1 Area: 1-MAX_EAPMASTER
Return value:		Data Type:	Comment:
eMBError		enumMB_ERROR	Indication of communication errors 16#00: = MB_NO_ERROR 16#01: = MB_NOT_SUPPORTED_FUNCTION 16#03: = MB_ILLEGAL_DATA 16#90: = MB_EXTENDED_SLAVE_ERROR 16#96: = MB_CRC_ERROR 16#97: = MB_ILLEGAL_NUMBER_OF_POINTS 16#98: = MB_OVERRUN 16#99: = MB_TIME_OUT
Graphical Illustration:			
<div><div>FbEAP_MasterRTU</div><div>bCOM_PORT eMBError</div><div>bPortEAP</div></div>			

Function Description:

The **“FbEAP_MasterRTU”** function block can be used to connect the EAP Modbus RTU products to the WAGO-I/O-SYSTEM. Modbus RTU communication is implemented via the serial interfaces 750-650/003-000, 750-653/003-000 or 750-652.

The number of the serial interface used is set by **“bCOM_PORT”**.

Example:

- 1 -> Internal service interface
- 2 -> first connected serial interface
- 3 -> second connected serial interface

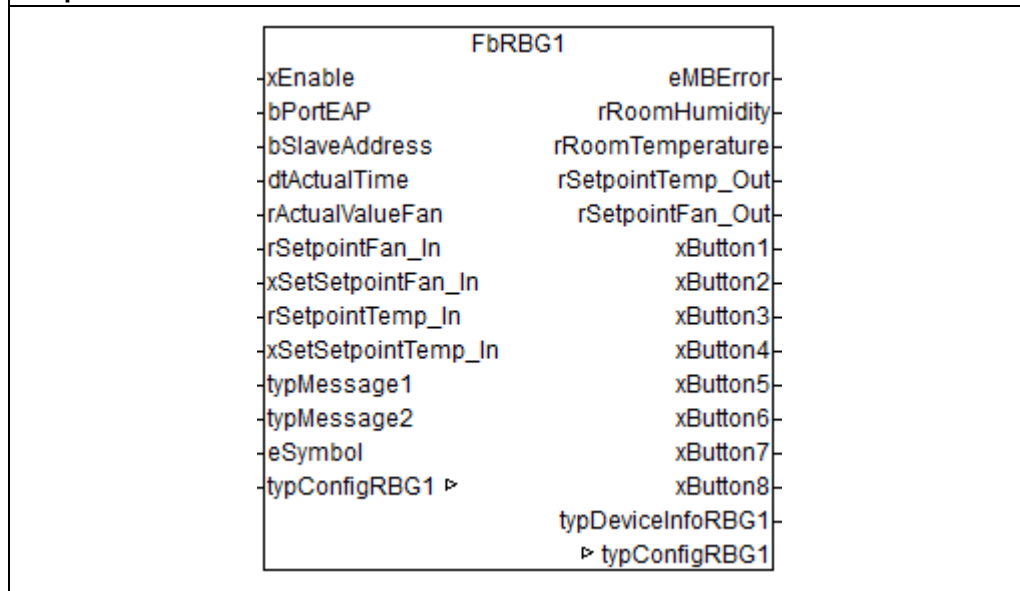
The **“bPortEAP”** input serves to synchronize this module with the other EAP RTU function blocks.

To identify an error, the current error code is displayed at the output **“eMB_Error”**. The **“enumMB”** enumeration is found in Modb_I05.lib.

1.1. FbRBG1

WAGO-I/O-PRO CAA Library Elements			
Category:		Building Technology	
Name:		FbRBG1	
Type:		Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of Library:		EAP_Modbus_01.lib	
Applicable to:		See Release Note	
Libraries used:		SerComm.lib Serial_Interface_01.lib mod_com.lib Modb_i05.lib	
Input Parameter:		Data Type:	Comment:
xEnable		BOOL	Starts cyclical polling of the connected module Default: TRUE
bPortEAP		BYTE	Master ID number Default setting = 1 Area: 1-MAX_EAPMASTER
bSlaveAddress		BYTE	Slave address of the device Default: 1
dtActualTime		DT	Current date and time for display on the RBG1
bActualValueFan		BYTE	Current fan stage for display on the RBG1
rSetpointFan_In		REAL	Fan stage setpoint correction
xSetSetpointFan_In		BOOL	Override Setpoint fan on RBG1
rSetpointTemp_In		REAL	Temperature setpoint correction
xSetSetpointTemp_In		BOOL	Override Setpoint temp on RBG1
typMessage1		typMessage RBG1	Test structure for the first line of text
.sMsgText		STRING(24)	Text 1
.wColorRBG		WORD	Background color of 0-65535 (BGR565)
typMessage2		typMessage RBG1	Test structure for the second line of text
.sMsgText		STRING(24)	Text 2
.wColorRBG		WORD	Background color of 0-65535 (BGR565)
eSymbol		eSymbol RBG1	Symbol selection for status information
Input/Output Parameter.:		Data Type:	Comment:
typConfigRBG1		typConfig RBG1	Configuration parameters

Return Value:	Data Type:	Comment:
eMError	enumMB_ERROR	Indication of communication errors 16#00: = MB_NO_ERROR 16#01: = MB_NOT_SUPPORTED_FUNCTION 16#03: = MB_ILLEGAL_DATA 16#90: = MB_EXTENDED_SLAVE_ERROR 16#96: = MB_CRC_ERROR 16#97: = MB_ILLEGAL_NUMBER_OF_POINTS 16#98: = MB_OVERRUN 16#99: = MB_TIME_OUT
rRoomHumidity	REAL	Current humidity
rRoomTemperature	REAL	Current temperature
rSetpointTemp_Out	REAL	Setpoint
rSetpointFan_Out	REAL	Fan stage setpoint
xButton1	BOOL	Button 1 state (true = pressed)
xButton2	BOOL	Button 2 state (true = pressed)
xButton3	BOOL	Button 3 state (true = pressed)
xButton4	BOOL	Button 4 state (true = pressed)
xButton5	BOOL	Button 5 state (true = pressed)
xButton6	BOOL	Button 6 state (true = pressed)
xButton7	BOOL	Button 7 state (true = pressed)
xButton8	BOOL	Button 8 state (true = pressed)
typDeviceInfoRBG1	typDevice InfoRBG1	RBG1 version information

Graphical Illustration:

Function Description:

The **FbRBG1** reads the data from the EAP room control device.

A continuous TRUE signal at the **"xEnable"** input activates the readout process, and a FALSE signal deactivates it. If the input is not enabled, the output process starts automatically.

The function block is synchronized with the communication module (FbEAP_MasterRTU) via the **"bPortEAP"** input.

The device address is specified at the **"bSlaveAddress"** input. By assigning different addresses, you can address multiple devices via one serial I/O module. This input is assigned "1" by default.

"dtActualTime" is used for displaying the date and time on the RBG1.

Displaying the current fan stage requires writing to **"bActualValueFan."**

If the inputs **"xSetSetpointFan_In"** and **"xSetSetpointTemp_In"** are TRUE, the setpoint values **"rSetpointFan_In"** and **"rSetpointTemp_In"** will override the setpoint values **"rSetpointFan_Out"** and **"rSetpointTemp_Out"** on the RBG1. For example to reset the setpoint to a basic setting.

Each of the **"typMessage1"** and **"typMessage2"** structures can be used to display its own text (24 characters) with a freely selectable background color on the RBG1.

"eSymbol" can be used to display specify a symbol that indicates the current room status.

The RBG1 configuration is stored in the **"typConfigRBG1"** structure and should therefore be declared RETAIN PERSISTENT in the program.

To identify an error, the current error code is displayed at the output **"eMB_Error"**. The **"enumMError"** enumeration is found in Modb_I05.lib.

The current room temperature and humidity values are output on the **"rRoomTemperature"** and **"rRoomHumidity"** outputs.

The setpoints for the target temperature and target fan stage that were set via the RBG1 are output on the **"rSetpointTemp_Out"** and **"rSetpointFan_Out"** outputs.

"xButton1" – **"xButton8"** indicate whether a button is pressed on the RBG1.

"typDeviceInfoRBG1" outputs the current version information of the RBG1.

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