

WAGO I/O SYSTEM 750

**Connection of an MP-Bus
Actuator to the WAGO-I/O-
SYSTEM**

Application Note

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1 Important Notes

To ensure quick installation and start-up of the units, we strongly recommend that you read and adhere to the following information and explanations.

1.1 Legal Principles

1.1.1 Copyright

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1.1.2 Personnel Qualification

The use of the product detailed in this document is geared exclusively to specialists who have qualifications in PLC programming, electrical specialists or persons instructed by electrical specialists who are also familiar with the valid standards. WAGO Kontakttechnik GmbH & Co. KG assumes no liability resulting from improper action and damage to WAGO products and third party products due to non-observance of the information contained in this document.

1.1.3 Intended Use

For each individual application, the components are supplied from the factory with a dedicated hardware and software configuration. Modifications are only permitted within the framework of the possibilities documented in this document. All other changes to the hardware and/or software and the non-conforming use of the components entail the exclusion of liability on part of WAGO Kontakttechnik GmbH & Co. KG.

Please direct any requirements pertaining to a modified and/or new hardware or software configuration directly to WAGO Kontakttechnik GmbH & Co. KG.

1.2 Scope of Validity

This application note is based on the stated hardware and software of the specific manufacturer as well as the associated documentation. This application note is therefore only valid for the described installation. New hardware and software versions may need to be handled differently.

Please note the detailed description in the specific manuals.

1.3 Symbols



ATTENTION

Marginal conditions that must always be observed to ensure smooth operation.



NOTE

Routines or advice for efficient use of a device and software optimization.

2 Description

This application note describes how a WAGO fieldbus controller builds communication to the MP-Bus actuators using the 750-643 MP-Bus Master Module.

The sample program shows not only the option of addressing the MP-Bus actuators, but also the cyclical communication with actuators already addressed.

3 Components

Supplier	Pieces	Name	Item No.
WAGO	1	Programmable fieldbus controller	750-8xx
WAGO	1	MP-Bus master module	750-643
WAGO	1	End module	750-600
WAGO	1	WAGO-I/O-PRO CAA	759-333
BELIMO	1	MP-Bus actuator	SM24A-MP

Optional:

WAGO		USB communication cable	750-923
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NOTE:

The node structure described is only an example for a possible realization of communication using an MP-Bus actuator. The modules may be expanded as required by the respective application.

4 Set-Up

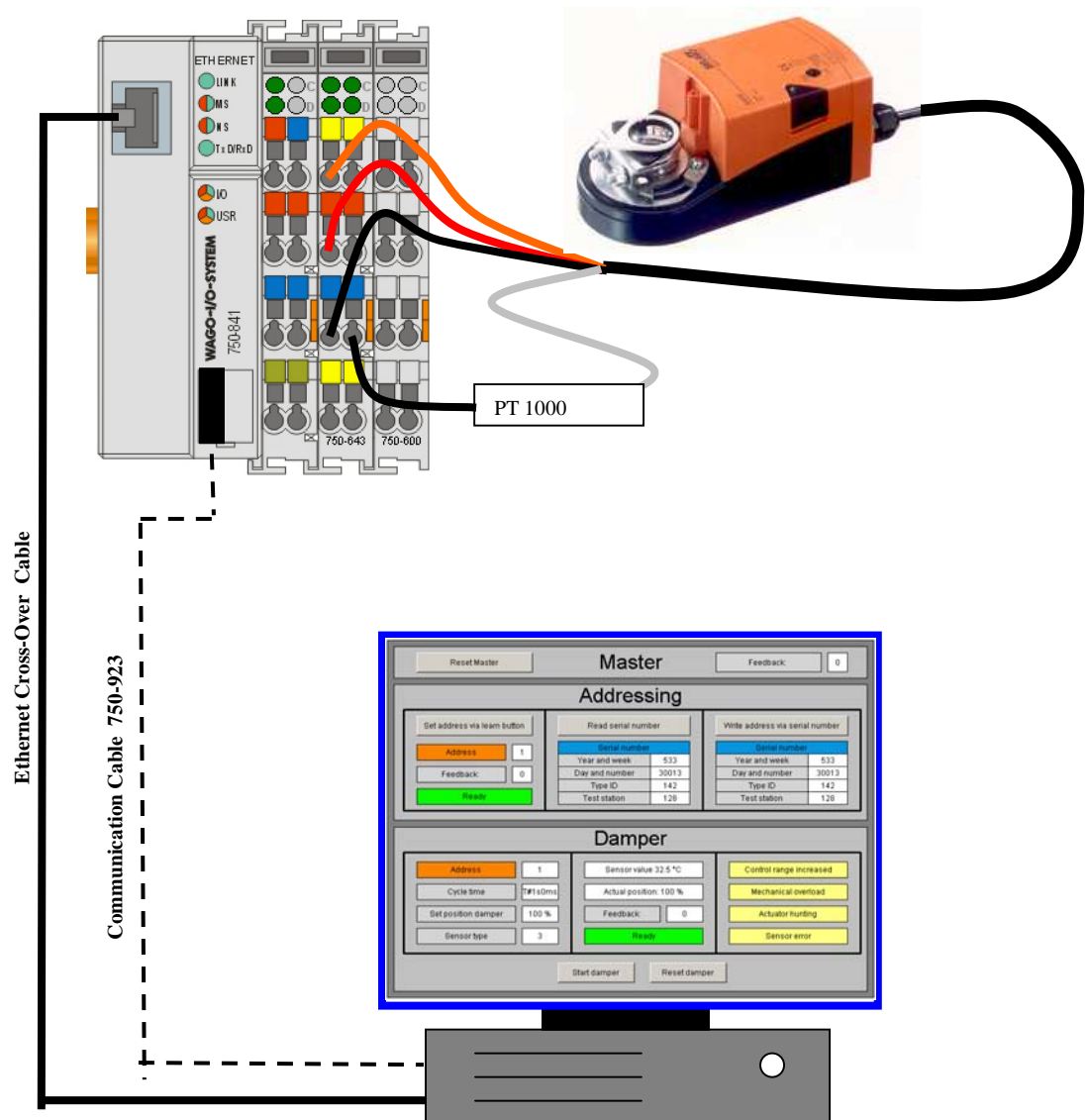


Fig. 1: Connection diagram WAGO-I/O-SYSTEM / WAGO-I/O-PRO CAA



NOTE:

For the visualization of the WAGO-I/O-PRO CAA, a connection between the PC and the WAGO fieldbus controller must be established. Depending on the fieldbus controller used, two options are available.

The first option can be used for all types of fieldbus controllers. For this, the connection is made to the service interface of the fieldbus controller using the 750-923 Communication Cable. Ethernet fieldbus controllers also offer the option to establish the connection via the Ethernet interface.

5 Control of an MP-Bus Actuator

5.1 Task

An actuator with MP-Bus interface is to be controlled with the WAGO-I/O-SYSTEM. For this, the actuator is connected to the WAGO-I/O-SYSTEM, using an MP-Bus master module (see illustration 1). A PT1000 resistor is also connected to the actuator for the additional evaluation of the channel temperature, for example. How to program the application is described briefly below.

5.2 Programming

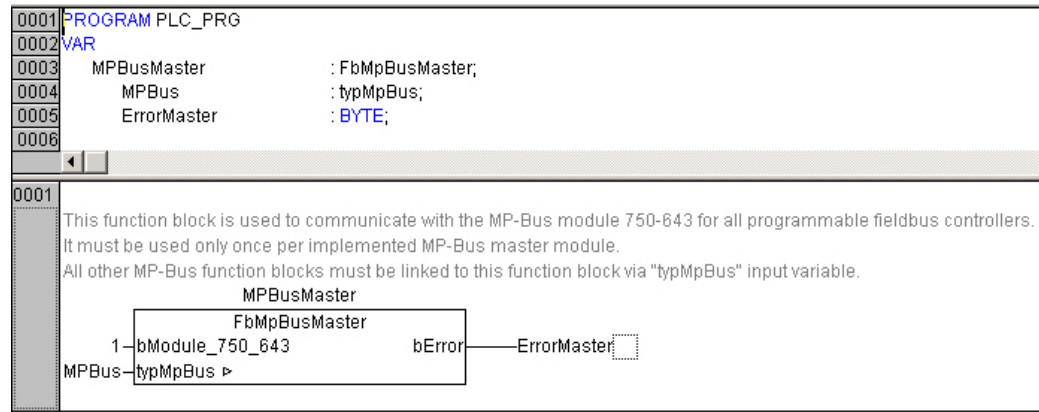


Fig. 2: Communication with MP-Bus master module

Figure 2 shows the basic structure for the programming of an MP-Bus application. Prerequisites for the communication with the MP-Bus actuator are a 750-643 MP-Bus Master Module and the **"FbMpBusMaster"** function block.

At the **FbMpBusMaster** function block, the module index of the connected MP-Bus module must be indicated at the **"bModule_750_643"** input (first MP-Bus module => 1, second MP-Bus module => 2, etc.).

The last occurred error message is displayed at the output **"bError"** as a numeric code.



ATTENTION:

For each MP-Bus master module, the **"FbMpBusMaster"** function block may be addressed only once. The assignment of the MP-Bus function blocks to the corresponding MP-Bus master function block is performed using the variable of type **"typMpBus"**.

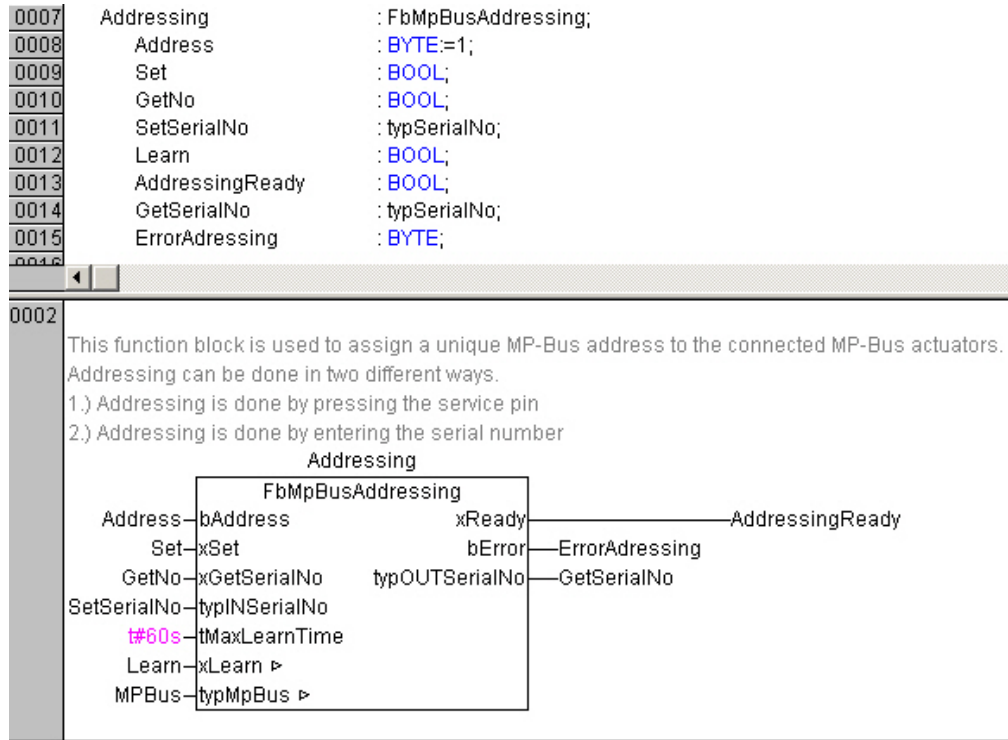


Fig. 3: Addressing MP-Bus actuators

Using the "*FbMpBusAddressing*" function block, a unique MP-Bus address can be assigned to the connected MP-Bus actuator. Addressing can be performed in two different ways:

- 1.) Addressing the MP-Bus actuator by pressing the **service pin**
- 2.) Addressing the MP-Bus actuator by entering the **serial number**

To address the MP-Bus actuator via the service pin, the "*Learn*" input must be set to TRUE, and subsequently the service pin on the MP-Bus actuator must be actuated. Then, the actuator is assigned the address of the "*Address*" variable.

When addressing the MP-Bus actuator using the serial number, the actuator serial number is entered into the "SetSerialNo" structure variable. Then, the actuator can be addressed via the "Set" input.

**NOTE:**

Addressing the MP-Bus actuator is facilitated by the visualization interface described in chapter 6.

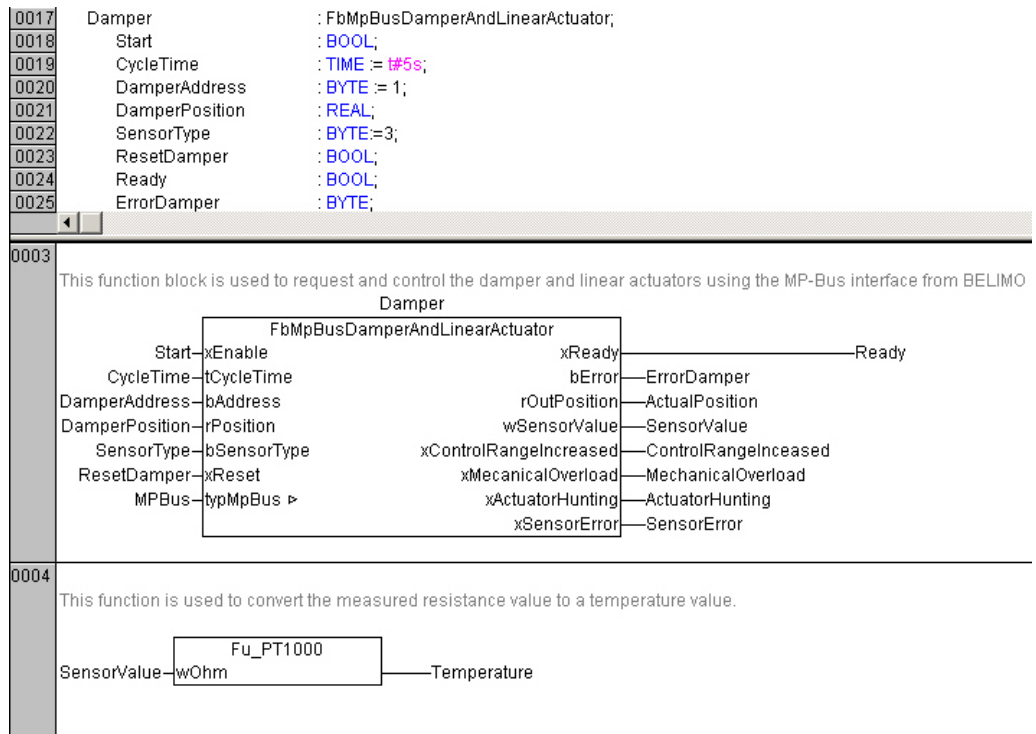


Fig. 4: Controlling dampers via MP-Bus actuator

The "Damper" instance is used for scanning and controlling the SM24A-MP rotary damper actuator.

The send and scan process is initiated via the "Start" input. Subsequently, the communication with the actuator is cyclical and depends on the "CycleTime" parameter.

The set point value of the angle of rotation of the damper actuator is preset by the "DamperPosition" input and sent to the actuator. The current actual position of the actuator is sent back by the actuator and displayed at the "ActualPosition" output.

Using the "SensorType" input, the sensor type is selected, PT1000 in our example. The resistance value measured by the actuator is then displayed at the "SensorValue" output. Via the "Fu_PT1000" function, the measured resistance value is converted to a temperature value.

6 Visualization Interface

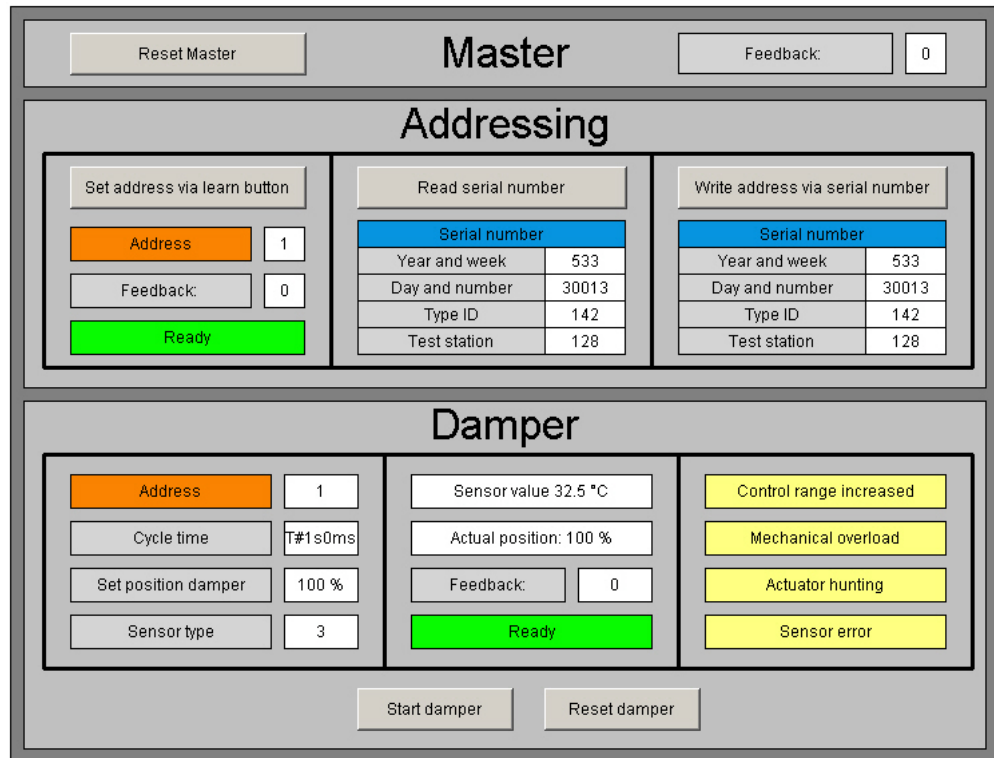


Fig. 5: Visualization interface for commissioning an MP-Bus actuator.

Addressing as well as communication with the damper drive is graphically shown in the visualization interface.

For addressing the actuator, the actuator serial number can be entered in the white fields to the right side. The visualization also offers the option to start addressing the actuator using the service pin.

The lower section of the visualization interface provides space for the parameter setting of the communication with the damper actuator. In addition, the values acquired from the damper actuator are visually represented.

7 Appendix

7.1 Required Files for WAGO-I/O-PRO CAA

Library	Description
MpBus_02.lib	Application function blocks for the MP-Bus master module
Standard.lib	Standard functions
mod_com.lib	Recognition of the module's position



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