



### *Actuator controls*

AUMATIC AC 01.1/ACExC 01.1

Profibus DP-V1

*EDD (Electronic Device Description)*

for Simatic PDM (Process Device Manager)



Reference documents:

- Manual (operation and setting) AUMATIC AC 01.1/ACExC 01.1 with Profibus DP.  
Can be downloaded from the Internet ([www.auma.com](http://www.auma.com)) or ordered directly from AUMA (addresses see page )

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## 1. Introduction

### **Process data DP-V0 Extended functions DP-V1**

The field devices used in the industrial process automation today have, aside from the compulsory main functions, a variety of more detailed application functions to adapt their performance optimally to the process requirements. In addition to this, most field devices have even more functions and methods to diagnose their own field device status. When using open, internationally standardised fieldbus systems such as Profibus DP-V1, access to these device-specific application and diagnosis functions is made through the same fieldbus cables which are also used for the process data exchange between field device and control system. Beside the cyclic process data exchange via Profibus DP-V0, an additional acyclic communication via Profibus DP-V1 can hereby be established, without additional wiring. It serves for adapting parameters of the application functions or reading out status and diagnostic data during operation.

By means of the optional acyclic Profibus DP-V1 services, the actuator controls AUMATIC offers access to

- User function parameters for adapting to process requirements
- Data within the electronic name plate for detailed device identification
- Operational data for preventive maintenance

Furthermore, the current device status may be transmitted for diagnosis purpose.

### **Access**

The device access for all connected field devices is thereby made via a central operation and monitoring station, located e.g. in the control room.

### **Simatic PDM**

In Siemens control systems Simatic PDM (Process Device Manager) is generally used as operation and monitoring software for all connected field devices. Such tools are also called EDD Interpreter as they interpret and visualise the EDD.

### **Device integration with EDD**

An EDD (Electronic Device Description) is an instrument-specific electronic description required to integrate a field device of a manufacturer into the Simatic PDM operation and monitoring software.

The **EDD** for the actuator controls AUMATIC is available for free download on the Internet, at **[www.auma.com](http://www.auma.com)**.

The EDD frees the user from having to worry about the details regarding the Profibus DP-V1 communication, but allows to use the device-specific application and diagnosis functions immediately after having installed and assigned the device address.

The present document describes the handling of the EDD on the basis of the Simatic PDM.

## 2. Prior to installation

### 2.1. AUMA scope of delivery

**Device description EDD** installation package, available on the Internet at [www.auma.com](http://www.auma.com), with the following contents:

<b>ACEDD.ddl</b>	Electronic device description
<b>ACEDD.dct</b>	Electronic text dictionary of the device description
<b>AUMATIC.bmp</b>	BMP graphics for representation of the AUMA actuator within the Simatic Step7 user interface
<b>AUMA05CD.gsd</b>	GSD file for commissioning AUMA actuators with AUMATIC actuator controls and a Profibus DP class 1 master
<b>ACEDD.devices</b>	Devices file for installing AUMA actuators with AUMATIC actuator controls in Simatic PDM
<b>hb_ac1_dp_v1_edd_de.pdf</b>	Manual AUMATIC device description EDD for Simatic PDM in German
<b>hb_ac1_dp_v1_edd_en.pdf</b>	Manual AUMATIC device description EDD for Simatic PDM in English

### 2.2. AUMATIC EDD functional overview

The AUMATIC EDD provides the following features:

- Reading and writing AUMATIC parameters.
- Reading and writing the electronic name plate for detailed identification of the AUMATIC.
- Reading and clearing the operating data for diagnosis and preventive maintenance.
- Online diagnosis regarding the current AUMATIC status.
- Trend functions for current torque, actual position, setpoint, as well as the current operation status.

### 2.3. Prerequisites for device integration with AUMATIC EDD

<b>Controls AUMATIC</b>	<p>The following software versions/functions must be installed:</p> <ul style="list-style-type: none"><li>• AUMATIC logic software Z031.922/10-xx or later, refer to AUMATIC display, diagnosis indication D6: LOGIC SW-VERSION.</li></ul> <p>If the AUMATIC EDD is operated in combination with an AUMATIC equipped with an older logic software (e.g. Z031.922/05-04 or later, or Z031.922/08-xx), the functionality available is somewhat restricted (no online transfer of status or diagnosis information, no trend function).</p> <ul style="list-style-type: none"><li>• AUMATIC Profibus DP-V1 software Z031.320/02-00 or later, refer to AUMATIC display, diagnosis indication DD: DP1 SW-VERSION (for Profibus DP redundancy additionally DH: DP2 SW-VERSION).</li><li>• The Profibus DP-V1 function has to be activated within the AUMATIC, refer to AUMATIC display, menu indication M0009: MAIN MENU &gt; CONFIGURATION &gt; SPECIAL FUNCTIONS &gt; VIEW &gt; DP-V1 SERVICES = FUNCTION ACTIVE.</li></ul>
<b>Computer</b>	<p>The following programs/hardware must be installed:</p> <ul style="list-style-type: none"><li>• Simatic PDM V6.0 (operation and monitoring software)</li><li>• Interface card, e.g. Siemens PCMCIA CP5511 or CP5512</li></ul>

## 3. Installing AUMATIC EDD software

Special installation of the EDD is not required.

The AUMATIC EDD installation package is just copied on the PC hard disk and then integrated into the device catalogue of the Simatic manager (please refer to the description below).

#### 4. Configuring (integrating) the AUMATIC into the Simatic PDM

**Note** For detailed information as well as instructions and manuals on the Simatic PDM, please refer to the Web sites of Siemens.

##### Start Simatic PDM

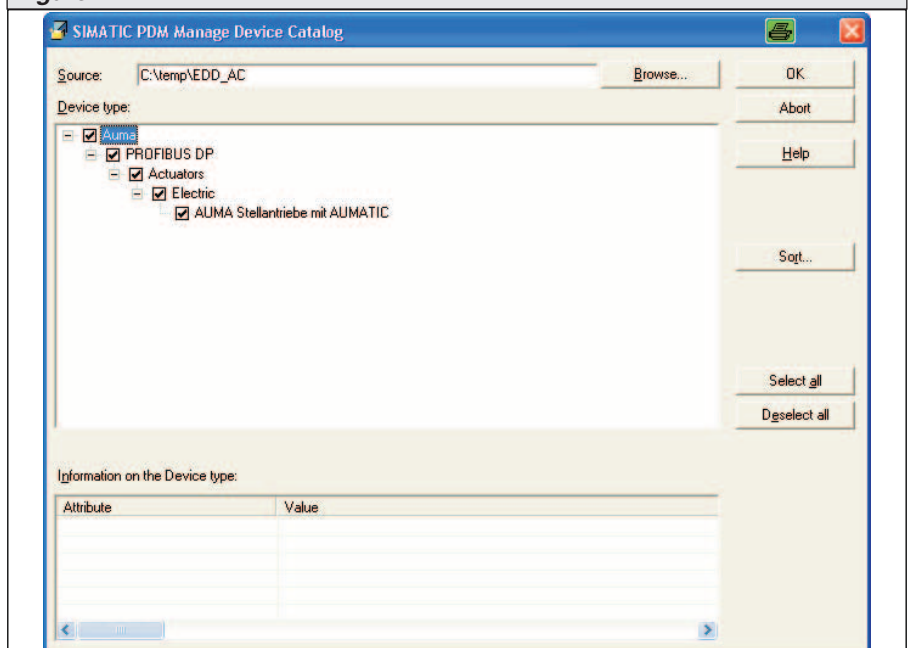
1. Starting the Simatic Manager:
  - double-click icon on the desktop, or
  - via the Windows start menu.The Simatic manager is the graphic user interface for Simatic users to manage projects.
2. Open existing project or create new project:
  - existing project via menu command **File > Open**
  - new project via **File > New**Please refer to the Online help or to the Simatic PDM manual for further descriptions and information regarding the creation of a new project.

##### Integrate new device type (AUMATIC) into the device catalogue

The device catalogue is used to import or newly assign devices. This section must only be carried out if the SIMATIC manager device catalogue does not yet contain the AUMATIC EDD.

1. Open device catalogue: **Options > Simatic PDM > Manage Device Catalog...** menu command.
2. Select the folder containing the AUMATIC EDD file: Click **Browse...** button and select ACEDD.devices file.  
The selected folder is displayed in the **Source:** field.
3. Select device(s) by checking the respective box.

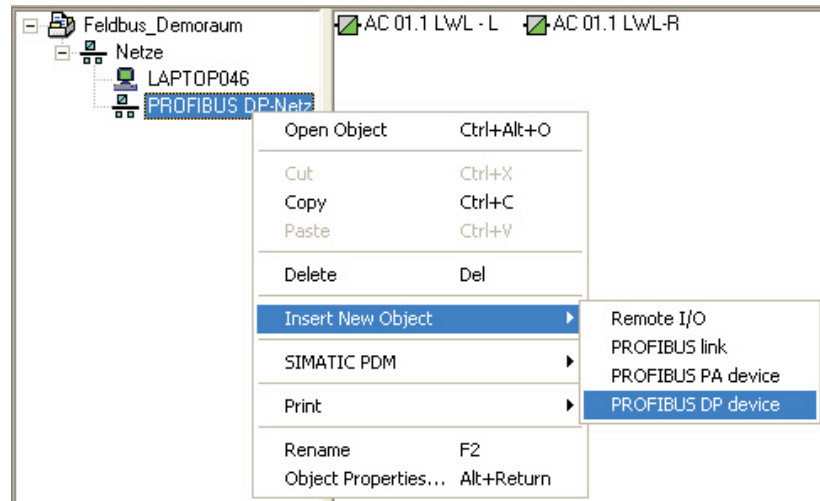
Figure 1



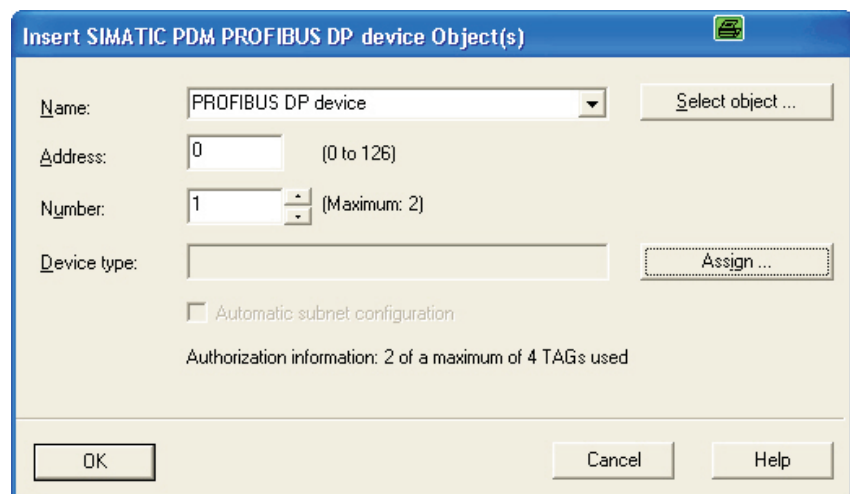
4. Select **OK** button to confirm the selection.

### Insert AUMATIC (new device) into a project

1. Mark network in the tree structure (e.g. "PROFIBUS DP-Netz") and select a device suiting the network (here **PROFIBUS DP device**) clicking **Insert New Object** with the right mouse button.



2. Enter the device address of the AUMATIC connected into the **Address** field.

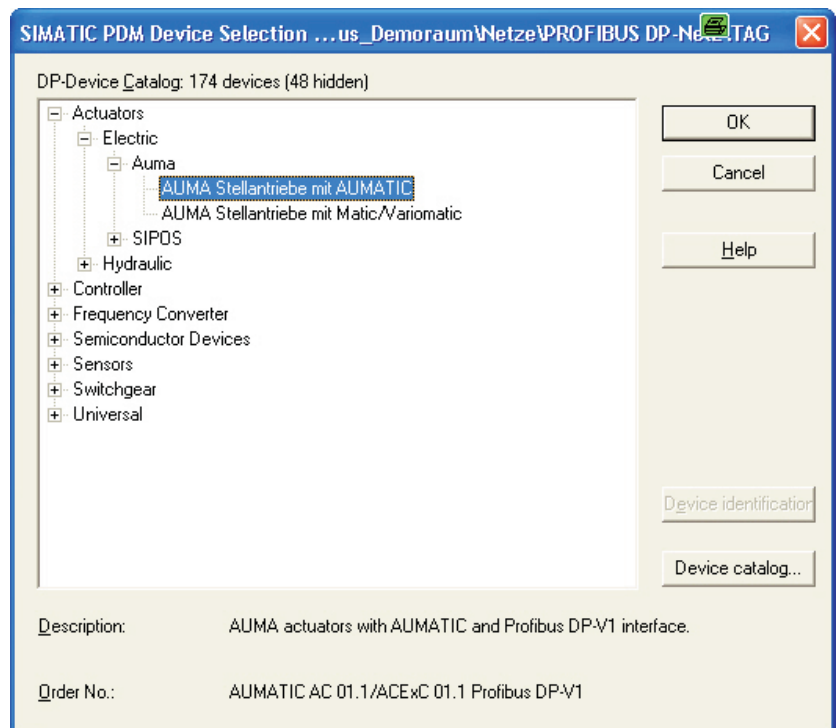


**Note** You may request the device address at the AUMATIC local controls display as follows:

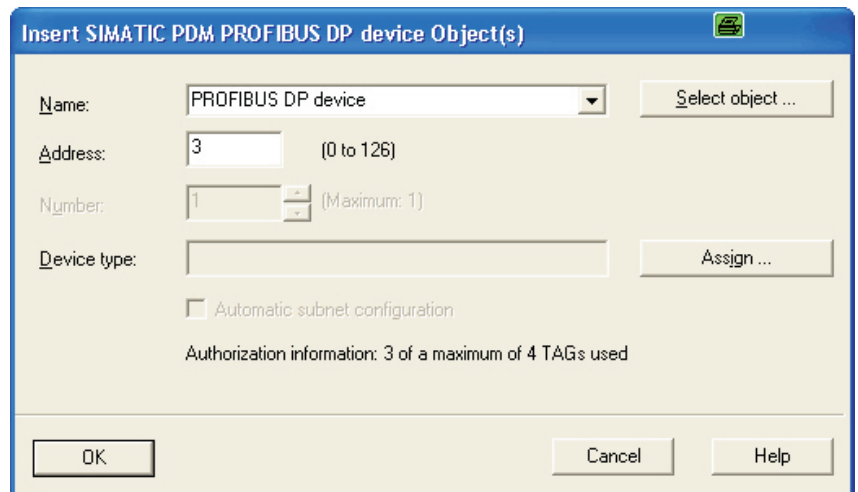
```
MAIN MENU (M0)
  SETTINGS (M1)
    PROFIBUS DP1 (M1B)
      SLAVE ADDRESS (M1B00)
```

**Note** The device address may be changed at a later date in the **Object Properties** dialogue box of the **Connection** tab.

3. Select device type from device catalogue using the **Assign...** button.



4. Confirm entry with **OK**.  
The entries made are displayed in a new window for confirmation:





5. General information on Simatic PDM operation

5.1. Starting the Simatic PDM

- Start Simatic PDM, either by:
- double-clicking the AUMATIC device icon, or
  - highlight object (AUMATIC) and select **Open Object** using the right mouse key.

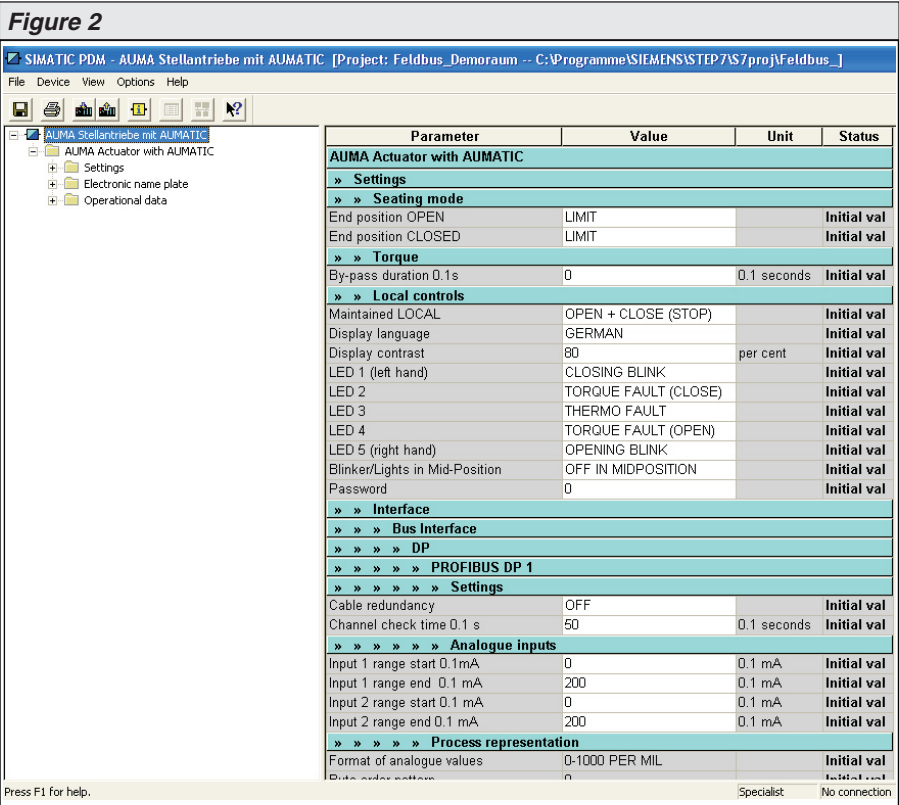
Simatic PDM distinguishes two user groups:

- Maintenance engineer

A maintenance engineer can only read the information given by the AUMATIC actuator controls.
- Specialist

A Specialist can read all data stored in the AUMATIC actuator controls like the Maintenance engineer and write most data. A password can be assigned to “specialists” via Simatic PDM.

After the Maintenance engineer/Specialist selection, the general default settings of an AUMATIC are displayed.  
Before reading data from or writing data into the AUMATIC, you have to establish a connection to the device. Please refer to “Reading data from/writing data into the AUMATIC” sub-clause.



**Note** If the device has never been used in combination with Simatic PDM, the Simatic PDM device catalogue is displayed (see above).



## 6. Functions for data communication with Simatic PDM

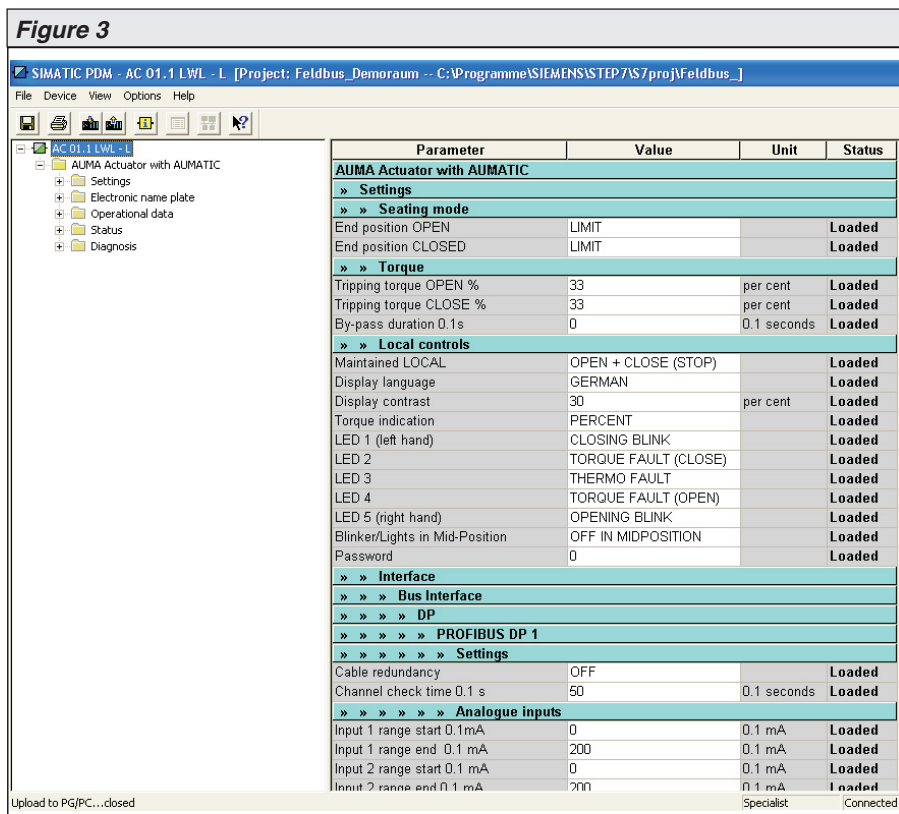
### 6.1. Reading data from/writing data into the AUMATIC

Before reading data from or writing data into the AUMATIC, you have to establish a connection to the device.

#### Read data from the AUMATIC

→ Select the **Device > Upload PG/PC** command in the menu, or click on the respective icon in the toolbar.

The data displayed on your screen change to the actual device data. The status changes from “No connection” to “Connected” in the status bar.



#### Note

Some information of the AUMATIC actuator controls are connected with optional functions and features and can only be read via Profibus DP-V1 and displayed in Simatic PDM if these functions are available in the AUMATIC actuator controls (e.g. parameters of a possibly available redundant Profibus DP or conventional interface).

Since the device description always starts with a minimal representation of the parameters, we recommend that prior to a writing process, the available configuration of the AUMATIC is read out using a single reading process via Profibus DP-V1. Thus the currently available parameter options are taken over into Simatic PDM.

If the version of the AUMATIC has changed between two reading processes (e.g. modification or update of the logic software), the AUMATIC data should be read twice when first establishing communication with Simatic PDM.

#### Write data into the AUMATIC

→ Select the **Device > Download Device** command in the menu, or click on the respective icon in the toolbar.

The data available in the device is overwritten by the modified data.

## 6.2. Changing parameter values

All parameters with a white background can be changed and transmitted to the AUMATIC afterwards.

For manually changed values the status changes from “Initial val” or “Loaded” to “Changed”.

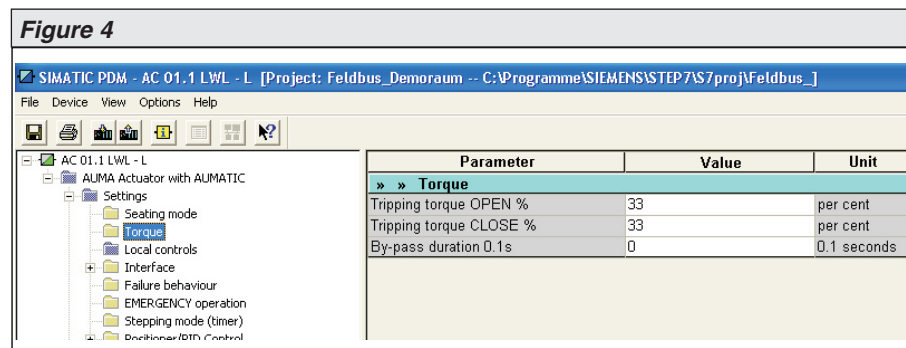
**Note** Only parameter values which are within the stated minimum and maximum values are permitted. The permissible minimum and maximum values can be displayed via the context menu (right mouse button) after a parameter has been selected. Additionally, the default values are also displayed in this context menu and a short explanation for each parameter can be found under “Help”.

## 6.3. Special features of the programming

### Parameters for setting the intermediate positions

The setting of the tripping torques in direction OPEN or direction CLOSE is only available in combination with Non-intrusive actuators (parameters Tripping torque OPEN or Tripping torque CLOSE).

Figure 4



Parameter	Value	Unit
<b>» » Torque</b>		
Tripping torque OPEN %	33	per cent
Tripping torque CLOSE %	33	per cent
By-pass duration 0.1s	0	0.1 seconds

The permissible minimum values of these parameters depend on the actuator type.

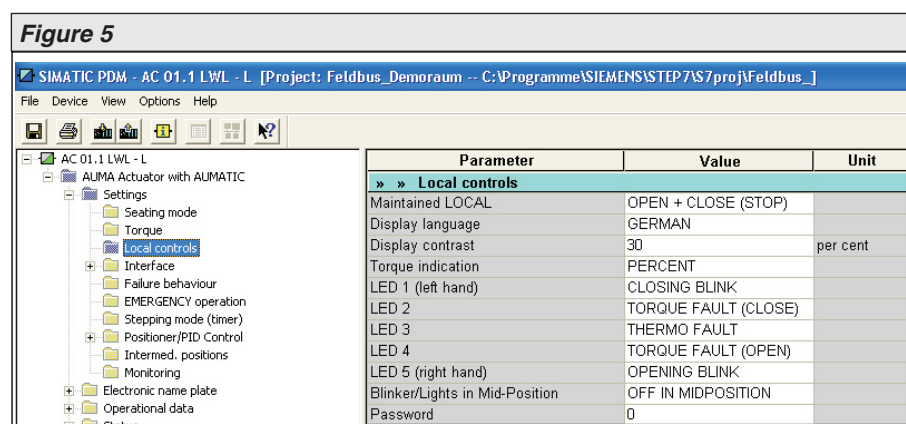
A typical AUMA actuator of the type range SA 07.1 has a tripping torque of 10 – 30 Nm (see details on the name plate). In this case, the minimum permissible tripping torque is 33 %.

Make sure that the permissible minimum values for the tripping torques are not fallen short of; otherwise the writing process is rejected and the parameter is shown with a red status text.

### Parameters for setting the torque indication

The **Local controls > Torque indication** parameter only has an effect for Non-intrusive actuators equipped with the AUMATIC logic software version Z031.922/05 or later.

Figure 5



Parameter	Value	Unit
<b>» » Local controls</b>		
Maintained LOCAL	OPEN + CLOSE (STOP)	
Display language	GERMAN	
Display contrast	30	per cent
Torque indication	PERCENT	
LED 1 (left hand)	CLOSING BLINK	
LED 2	TORQUE FAULT (CLOSE)	
LED 3	THERMO FAULT	
LED 4	TORQUE FAULT (OPEN)	
LED 5 (right hand)	OPENING BLINK	
Blinker/Lights in Mid-Position	OFF IN MIDPOSITION	
Password	0	

## 6.4. Additional functions

The **Device** selection in the toolbar enables access to further Simatic PDM functions.

### 6.4.1 Trend

**Note** This function is only available if the connection to the device is active.

This function (**Device > Trend**) opens the trend view of the dynamic device values. The following data can be logged as trend:

- 1) Torque E6 as percentage of the nominal torque value
- 2) Actual position E2 in per mil
- 3) Setpoint E1 in per mil
- 4) Status information regarding operation status as binary value.

**Further notes**

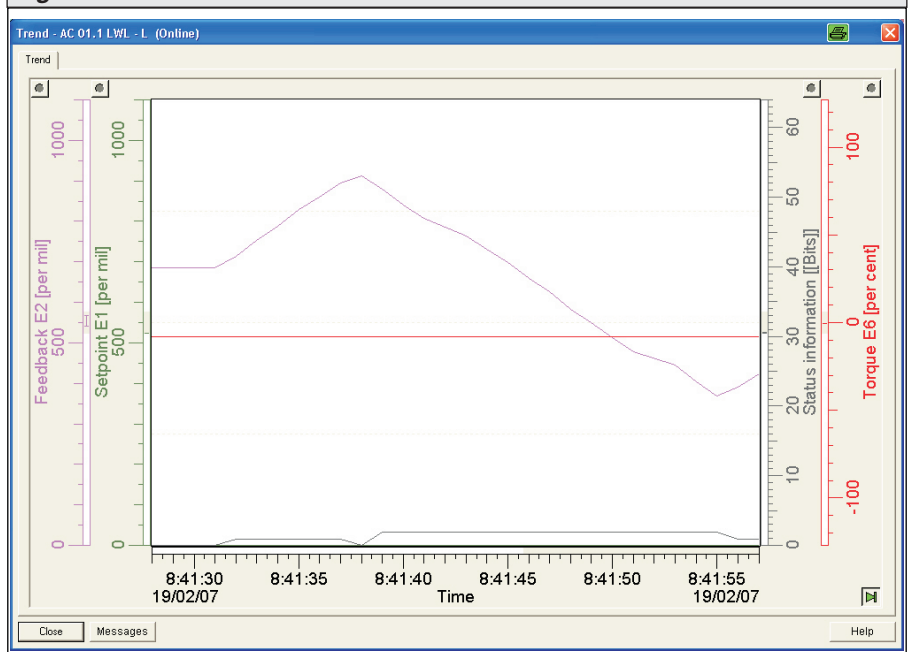
Negative torque values correspond to a torque in direction CLOSE, positive values correspond to a torque in direction OPEN. Only those torque values are displayed in the Simatic PDM which are higher than a certain actuator-specific basic load (typically approx. 40 – 50 % of the nominal actuator torque).

The status information contains binary data on the current operation status.

**Table 1**

Value	Signification
1	Actuator runs in direction OPEN
2	Actuator runs in direction CLOSE
3	Actuator is in end position OPEN
4	Actuator is in end position CLOSED
5	Actuator is in desired Setpoint E1

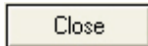
**Figure 6**



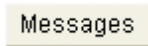


### Activating the screen refresh feature

This button is used to switch on or off the refresh feature of the trend graphs on the screen.



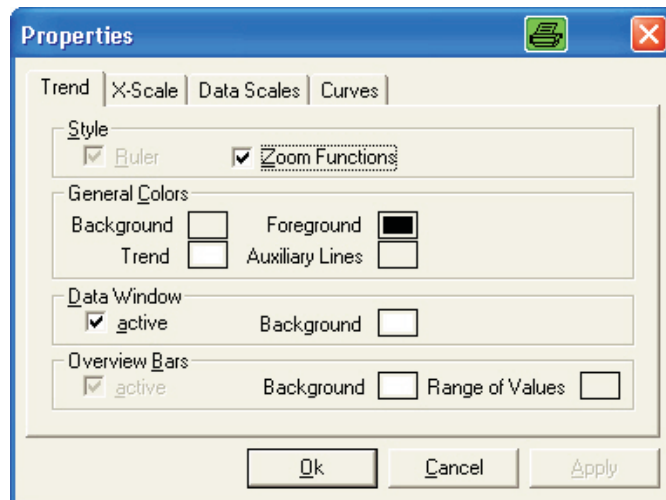
### Closing trend window



### Displaying messages on communication problems

### Setting trend properties

When double-clicking the data scale, a dialogue window for setting scaling, position, colour, and signification, etc is displayed.

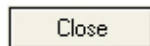
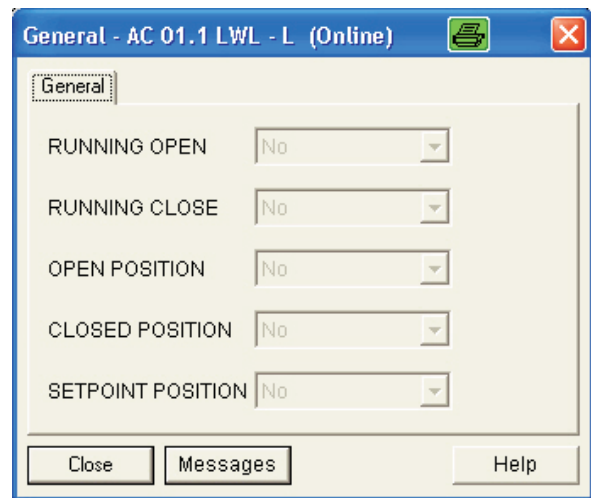


## 6.4.2 Operational data

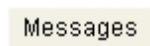
The resettable operational data can either be deleted individually within the “Operational data” parameter group or all resettable operational data can be deleted at once via a menu command in the menu bar (Simatic PDM menu bar: **Device > Reset all operational data**)

### 6.4.3 General

**Device > General** selection contains information on the current operation status.



**Closing General window**



**Displaying messages on communication problems**

## 7. Appendix A: Literature

- Specification for PROFIBUS Device Description and Device Integration, Volume 2: EDDL Specification, Release 1/2001, Version: 1.1 Order No. 2.152, [www.profibus.com](http://www.profibus.com)
- EDDL Electronic Device Description Language, Oldenbourg Verlag [publisher] ISBN 3-486-27034-6
- Siemens AG, Simatic PDM [https://pcs.khe.siemens.com/pdm\\_en](https://pcs.khe.siemens.com/pdm_en)
- Operation instructions actuator controls AUMATIC AC 01.1 Profibus DP, [www.auma.com](http://www.auma.com)

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