

DriveServer



DriveServer

This Manual is valid for the **DriveServer** as of version 1.1

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Lenze Automation GmbH

Hans-Lenze-Str. 1

D-31855 Aerzen, Germany

Telefon: ++49 (0)5154 / 82-0

Telefax: ++49 (0)5154 / 82-2800

E-Mail: Lenze@Lenze.de

Internet: www.Lenze.com

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1 About this Manual

The Manual contains information on the **Lenze DriveServer V1.1**.

The DriveServer is a software which provides easy integration of drives into open automation structures based on OPC (*OLE for Process Control*).

The DriveServer also provides the following:

- ▶ Easy exchange of subordinated fieldbus systems because of fieldbus variants.
- ▶ Access to drive parameters using unambiguous names instead of code numbers.
- ▶ Exchange of parameter data
- ▶ Use of multi-axis systems with subnetworks (in preparation)
- ▶ Simplified explanation of complex sequences
- ▶ Integration and combination of drive tools made by different manufacturers

1.1 Conventions used

This Manual uses the following conventions to distinguish between different types of information:

Type of information	Writing	Examples/notes
Variable identifier	<i>italics</i>	Set <i>bEnable</i> to TRUE...
Window range		The <i>message window</i> ... / The <i>Options</i> dialog box...
Control element	bold	The OK button... / The Copy command... / The Properties tab... / The Name input field...
Sequence of menu commands		If several commands must be used in sequence to carry out a function, then the individual commands are separated by an arrow: Select File→Open to...
Keyboard command	<bold>	Press <F1> to open the Online Help. If a command requires a combination of keys, a "+" is placed between the key symbols: With <Shift>+<ESC> you can...
Program code	Courier	<pre>IF var1 < var2 THEN a = a + 1 END IF</pre>
Keyword	Courier bold	
Hyperlink	<u>underline</u>	Hyperlinks are highlighted references which are activated by means of a mouse click.
Step-by-step instructions		Step-by-step instructions are indicated by a pictograph.

1.2 Definition of notes used

This documentation uses the following signal words and symbols to indicate danger and important information:

Safety information

Layout of the safety information:



Pictograph and signal word!

(characterise the type and severity of danger)

Note

(describes the danger and suggests how to avoid the danger)

Pictograph	Signal word	Meaning
	Danger!	Danger of personal injury through dangerous electrical voltage Indicates an impending danger that may lead to death or severe personal injury if the corresponding measures are not taken.
	Danger!	Danger of personal injury through a general source of danger Indicates an impending danger that may lead to death or severe personal injury if the corresponding measures are not taken.
	Stop!	Danger of material damage Indicates a potential danger that may lead to material damage if the corresponding measures are not taken.

Application notes

Pictograph	Signal word	Meaning
	Note!	Important note for trouble-free operation
	Tip!	Useful tip for easy handling

2 System requirements

The following minimum requirements on hardware and software must be met to use the DriveServer:

- ▶ Microsoft® Windows® 98/Me, Windows NT® 4.0 or Windows 2000/XP
- ▶ IBM® compatible PC with Intel® Pentium®-90 processor
- ▶ 64 MB RAM; 128 MB RAM with Windows 2000/XP
- ▶ 80 MB free hard disk capacity
- ▶ CD-ROM drive
- ▶ Pointer (mouse, track ball, etc.)
- ▶ Free slots/interfaces according to the requirements of the fieldbus connection module used.



Note!

These notes refer to a DriveServer system with one PC only.

- If the DriveServer is used on a local network, the system requirements apply to all PCs connected.
- The requirements for the free interfaces only refer to the PC which is to be used with fieldbus connection modules.



Tip!

When using the DriveServer in a network we recommend Windows NT, Windows 2000 or Windows XP as operating system. With Windows 98 it is not possible to start the DriveServer automatically via a DCOM connection.

2.1 Connection to the target system

The communication with the target system (controller, Drive PLC, etc.) requires a fieldbus-specific interface module for the PC and the corresponding fieldbus modules for the target systems to be connected.

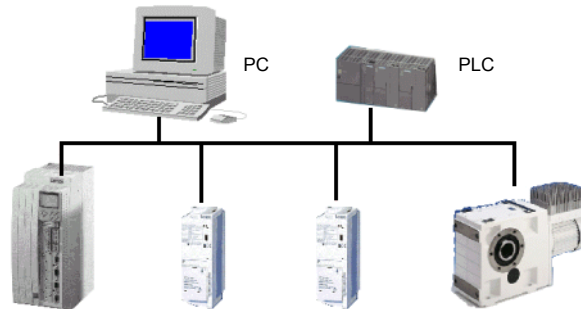
- The following table gives an overview of the transfer media which are included in the basic DriveServer package:

Bus system		Max. number of target systems		
	PC interface		Required hardware components	Required software components
System bus (CANopen)				
	Parallel interface (LPT port)	63	PC system bus adapter 2173 incl. connection cable and voltage supply adapter - for DIN keyboard connection (EMF2173IB) - for PS/2 keyboard connection (EMF2173IBV002) - for PS/2 keyboard connection with electrical isolation (EMF2173IBV003)	Bus server for system bus (included in the basic DriveServer package)
	USB (Universal Serial Bus)	63	PC system bus adapter 2177 incl. connection cable (EMF2177IB)	
LECOM				
	Serial port (COM port)	1 (RS232)	- Fieldbus module EMF 2102IB V001 or V004 - PC system cable RS232/485, 5 m (EWL0020)	Bus server for LECOM (included in the basic DriveServer package)
		31 (RS485)	- Fieldbus module EMF 2102IB V001 - PC system cable RS232/485, 5 m (EWL0020) - RS232/RS485 interface converter with automatic change of direction. ▶ See appendix: RS232/RS485 interface converter (35)	
		52 (optical fibre)	- Fieldbus module EMF 2102IB V003 - Optical fibre adapter (EMF2125IB) - Power supply for adapter (EJ0013) - Optical fibre cable (EWZ0007)	

2.1.1 Direct fieldbus connection

Since the system bus is not master/slave oriented, new participants can be added to the fieldbus system without special recognition of the central master.

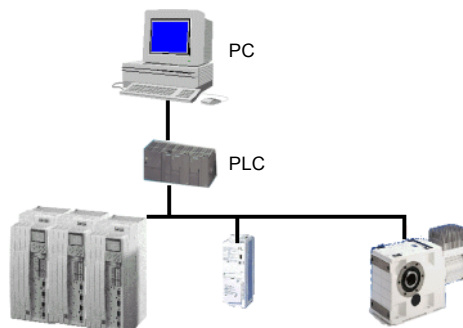
All nodes can communicate with each other. It is thus possible to connect a PC directly to the corresponding bus through a system bus interface module. All devices connected can be addressed.



2.1.2 Fieldbus connection via PLC

If the system consists of a master and several slaves, it is often difficult to connect a fieldbus interface module to the bus in parallel.

If the master is a PLC, it is possible to get to the fieldbus master via a PLC-OPC server and then address the drives. We offer a similar solution for the PROFIBUS-DP which uses a Siemens Simatic S7 PLC as master.



More information on this solution can be found in the appendix.

► [Lenze bus server S7](#) (35)

3 Software installation



How to install the DriveServer...

1. Start Windows.
2. Insert the DriveServer CD-ROM into your CD-ROM drive.
If the auto-start function of your CD-ROM drive is activated, the installation program will be started automatically and you can proceed with step 5.
3. Go to *Start menu* and select **Run...**
4. Enter the letter for your CD-ROM drive followed by ":\setup.exe" (e.g. "e:\setup.exe") and confirm the entry by clicking **OK**.
5. Follow the instructions of the installation program.



Note!

Windows NT/2000/XP

Installation under Windows NT/2000/XP requires administrators rights!

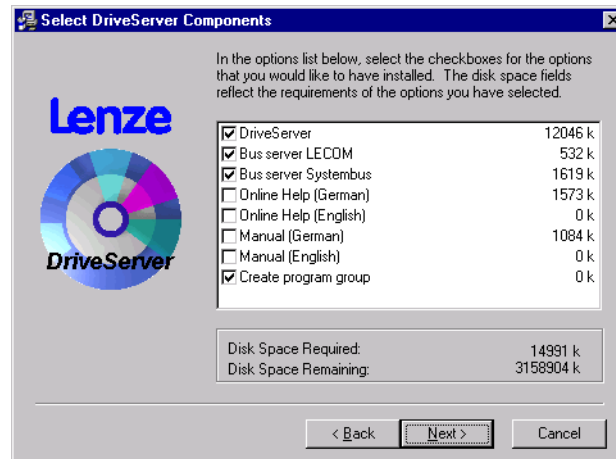
Windows 98

The DriveServer installation program checks whether the DCOM version installed is correct.

- If required, the program suggests the installation of a DCOM update.
- If the DCOM version found is not correct, the DriveServer software cannot be installed!

3.1 Component selection

The DriveServer installation program enables you to select the components you want to install on your PC.



Component	Information
DriveServer	OPC server for Lenze drives
Bus server LECOM	Drivers for the communication through LECOM
Bus server system bus	Drivers for the communication through system bus
Online Help (German/English)	Context-sensitive help for the program
Online Manuals (German/English)	Manuals for the program in <i>Portable Document Format</i> (PDF) for display in Adobe® Reader®
Creation of program groups	Creation of a program group through the Windows start menu



Note!

If you want to use fieldbuses different from LECOM or system bus to access the controller, install the appropriate OPC bus server.

- To provide a DriveServer access to drives networked via PROFIBUS-DP and controlled via Siemens SIMATIC S7-SPS, Lenze offers, e.g. the bus server S7.
 ▶ Appendix: [Lenze bus server S7](#) (35)

Please observe the instructions for the installation/commissioning of the bus server hardware/software!

4 Introduction

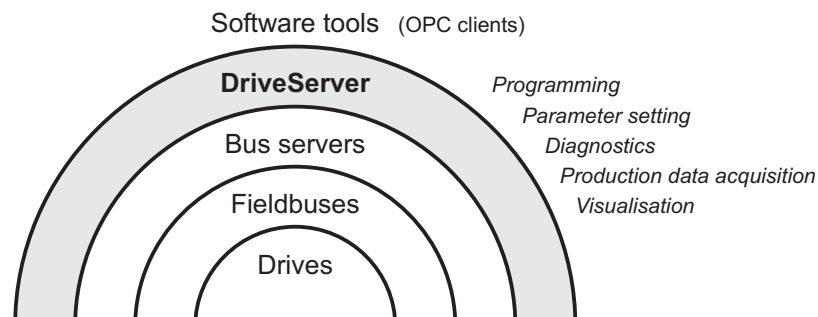
The main concept of the DriveServer can be compared with a printer driver:

The printer driver provides all special data required for a specific printer. Every Windows-conform and printable program uses a standardised interface to set up the printer. The dialog box is called "Printer features". Although the interface is standardised, the parameters can be set for a specific printer.

The DriveServer also provides a standardised interface to enable access to the drives via different fieldbus systems.

4.1 Structure of the DriveServer system

The following figure shows the basic components of the DriveServer system:



► **Drives**

In the centre you can see the drives which are addressed by several PC programs, for instance visualisation and parameter setting programs.

► **Fieldbuses**

The drives are connected through different fieldbuses, which require different drivers.

► **Bus servers**

Drivers are fieldbus-specific OPC servers with DRIVECOM DriveServer profile as offered by manufacturers of fieldbus cards. These OPC servers, called "bus servers", provide all information required for different bus systems. Since, however, they are not especially configured for drive systems, a configuration without the DriveServer would be very complicated.

► **DriveServer**

The DriveServer itself does not have any special fieldbus features. It has, however, especially been written for the Lenze drive technology and is therefore able to carry out many configuration tasks without manual support from the user.

► **Software tools**

OPC clients for communication with the DriveServer can be any software tool that has an OPC interface, e.g. visualisation, diagnostics and parameter setting programs.

4.2 More functions of the DriveServer

DCOM

Because of the use of the Windows technology DCOM, the DriveServer can overcome computer limits via Ethernet.

- ▶ The software tools used do therefore not have to be installed on the computer, but can also be included in the fieldbus module.
- ▶ In a local network, access is possible from any station connected.

LECOM/system bus

The DriveServer is delivered with the bus servers for LECOM and system bus, since these two fieldbus systems are mainly used with Lenze drives.

- ▶ An overview of more bus servers offered by Lenze and third-party manufacturers, can be obtained from the Appendix. They have been optimised for use with the DriveServer to reduce configuration tasks.

4.3 OLE for Process Control

OLE for Process Control (OPC) defines an interface based on the Microsoft Windows technologies OLE, COM and DCOM which enables data exchange between different automation units and PC programs without having any problems with drivers and interfaces.

Sometimes this tool is also called "Software plug", because programs of different manufacturers can be easily connected for communication. Especially manufactures of visualisation systems use OPC since it is then possible to do without special drivers for different units.

OPC was created in 1996 in the United States and since then has been spread in the automation industry. The user group *OPC Foundation* comprises more than 150 companies, among them is Lenze.

Basic structure

The basic structure of OPC is a client/server system. An OPC server provides data which are read out of a drive via a fieldbus system. These data can be accessed through an OPC client (e.g. parameter setting program, visualisation). Depending on the data, changes via the OPC client are also possible.

- ▶ Several OPC clients can access one or several OPC servers (n:n connection) at the same time.

Items/Groups

Usually data is exchanged via so-called OPC items which are represented by process variables and unit parameters (codes).

- ▶ The OPC items can be arranged in OPC groups according to logical or dynamical aspects. Thus, for instance, all OPC items which are to be updated cyclically, can be saved in the same OPC group. OPC items and OPC groups are always in the OPC server. The OPC clients log on the OPC server and specify the name of the OPC item they want to access.
- ▶ OPC items can also have specific properties. A property is a feature which informs the user, for instance, about the value limits or units of an OPC item.

Browse function

In addition to the Read and Write functions of OPC items, most OPC clients also support the browse function. The Browse function helps the OPC client to find all OPC items (also parameters) available on an OPC server.

- ▶ Since most OPC servers require the configuration of OPC items, it can sometimes be very costly to configure all parameters of a drive. The DriveServer, however, automatically detects the drives connected and displays all parameters available in a logic order when using the browse function. The user only has to select the parameters to be accessed from the OPC client.

COM/DCOM

Since OPC is based on the Microsoft Windows technologies COM and DCOM it is also possible to access an OPC server from several computers via a local network.

- ▶ For instance, the OPC server can be on an industrial PC in the field and the OPC client can be a PC in an office, the two can be connected via a LAN (Local Area Network), such as Ethernet.
- ▶ The standardised OPC interface also enables the data transfer from the drive into the Internet.

5 Configuration

One of the main objectives of the DriveServer is to reduce the configuration of the system to a minimum (*Plug and Drive*). Unfortunately, it is not possible to completely do without a configuration.

- ▶ This chapter describes the configuration of DCOM and the bus server for LECOM and system bus.
- ▶ If you use different bus servers, the configuration must be obtained from the corresponding Instructions.



Note!

Ensure that the drives connected to the bus have different addresses before the configuration of the bus server.

- For this, it may be necessary to individually connect the drives to the bus system and configure them accordingly.
- Alternatively, the address of a drive can be changed using the keypad.

5.1 DCOM



Note!

The settings described in this chapter should be agreed by a system's administrator (because they have an influence on the safety checks) to ensure easy commissioning of the DriveServer.

With Windows 98 it is not necessary to configure DCOM if the communication is not required between several PCs.

The OPC standard enables the user, for instance, to access DriveServer data on a local network. To protect the PC from unauthorised access, the safety standards do not allow OPC access. Before commissioning the DriveServer, these settings must be checked and changed, if required.

- ▶ The easiest is to adapt the standard parameters. They apply to all servers installed on the PC.
- ▶ Individual DCOM configuration for single servers is only required for special applications.

5.1.1 General settings for OPC server and OPC clients(s)

Windows XP



How to configure DCOM under Windows XP...

1. Go to the *Start menu* and select **Run...**
2. Enter "dcomcnfg" into the input field and click **OK** to open the *Microsoft Management Console (MMC)*.
 - Go to the tree structure on the left-hand side and select **Console root→Component services→Computer** to go to the object **My computer**.
3. Highlight the object **My computer** and select **Action→Properties** to open the dialog box *Properties of My computer*.
4. Select the tab **Standard properties**.
5. Activate **DCOM on this computer**.
6. Go to the **Standard authentication level** and set "No".
7. Go to the **Standard identification level** and set "Identify".
8. Select the tab **COM standard safety**.
9. Click the **Change standard** button to define the users for access and start authorisation for the DriveServer. The easiest way is to select "Everybody".
10. Click the **OK** button to save the settings.
11. Select **File→Exit** to exit the *Microsoft Management Console*.

Windows NT/2000



How to configure DCOM under Windows NT/2000...

1. Go to the *Start menu* and select **Run...**
2. Enter "dcomcnfg" in the input field and click **OK** to open the dialog box *DCOM properties*.
3. Select the tab **Standard properties**.
4. Activate **DCOM on this computer**.
5. Go to the **Standard authentication level** and set "No".
6. Go to the **Standard identification level** and set "Identify".
7. Select the tab **Standard safety**.

8. Click the **Change standard** button to define the users for access and start authorisation for the DriveServer. The easiest way is to select "Everybody".
9. Click **OK** to save the settings and close the dialog box.

Windows 98/Me



How to configure DCOM under Windows 98/Me...

1. Go to the *Start menu* and select **Run...**
2. Enter "dcomcnfg" in the input field and click **OK** to open the dialog box *DCOM properties*.
3. Select the tab **Standard properties**.
4. Activate **DCOM on this computer**.
5. Go to the **Standard authentication level** and set "No".
6. Go to the **Standard identification level** and set "Identify".
7. Select the tab **Standard safety**.
 - In this tab you can define the standard authorisation for access and start.
8. Activate **Remote connection**.
9. Click **OK** to save the settings and close the dialog box.



Note!

With Windows 98/ME it is not possible to start OPC servers automatically through a DCOM connection; a manual start is required.

Therefore we recommend to use Windows NT/2000/XP when connecting several PCs.

5.1.2 More settings for the OPC server

Furthermore, it is necessary to enter the users who are authorised to use all server applications.

Windows XP



How to configure the server applications under Windows XP...

1. Go to the *Start menu* and select **Run...**
2. Enter "dcomcnfg" into the input field and click **OK** to open the *Microsoft Management Console (MMC)*.
 - Go to the tree structure on the left-hand side and select **Console root→Component services→Computer** to go to the object **My computer**.
3. Go below the object **My computer** and select the folder **DCOM configuration** to display the existing DCOM applications on the right-hand side.
4. Select the application "OPCenum" or "OPC Server List Class".
5. Select the command **Action→Properties** to open the dialog box *Properties* for the application selected.
6. Select the tab **Identity**.
7. Activate the option box **Interactive user**.
 - Exception: When selecting the "OPCenum" application, activate the option box **System account (services only)** instead.
8. Click the **OK** button to save the settings.
9. Repeat steps 5 to 8 for the applications
 - "Lenze OPC LECOM server",
 - "Lenze OPC system bus server" and
 - "Lenze OPC DriveServer",if you have installed these components on your PC.
10. Select **File→Exit** to exit the *Microsoft Management Console*.

Windows 98/Me, Windows NT/2000



How to configure the server applications under Windows 98/Me, Windows NT or Windows 2000...

1. Go to the *Start menu* and select **Run...**
2. Enter "dcomcnfg" in the input field and click **OK** to open the dialog box *DCOM properties*.
3. Select the tab **Applications**.
4. Go to the list field **Applications** and select the application "OPCenum" or "OPC Server List Class".
5. Click **Properties** to open the dialog box *Properties* for the application selected.
6. Select the tab **Identity**.
7. Activate the option box **Interactive user**.
 - Exception: When selecting the "OPCenum" application under Windows NT/2000, activate the option field **System account (services only)** instead.
8. Click the **OK** button to save the settings.
9. Repeat steps 5 to 8 for the applications
 - "Lenze OPC LECOM server",
 - "Lenze OPC system bus server" and
 - "Lenze OPC DriveServer",if you have installed these components on your PC.
10. Click **OK** to save the settings and close the dialog box.

5.2 LECOM bus server

The LECOM bus server is configured with the program “LECOM configurator” and consists of the selection and configuration of the COM interface and the detection of the connected LECOM unit.



How to configure the LECOM bus server

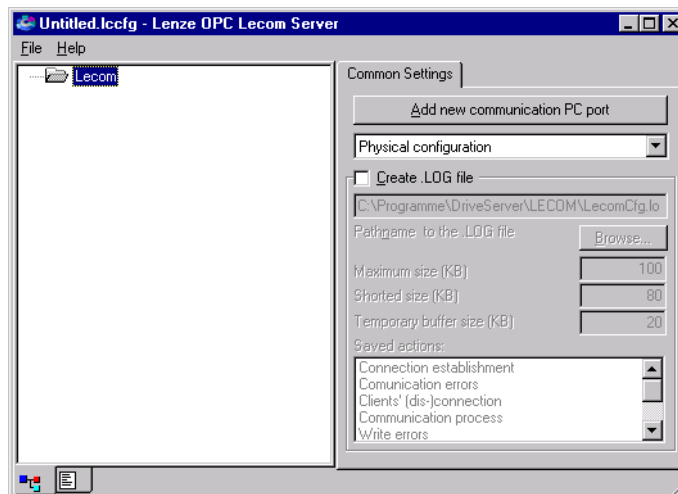
1. Go to the *Start menu* and select **Programs→Lenze→DriveServer→LECOM configurator**.
2. Confirm the info dialog box *Lenze OPC Server LECOM* by clicking **OK**.
 - The configuration saved last will be loaded automatically.
 - If you want to create a new configuration, select **File→New**.

5.2.1 User interface of the LECOM configurator

The LECOM configuration tool is subdivided into two sections

- ▶ The left side indicates the configuration entries in form of a tree, similar to directories of the Microsoft Explorer.
- ▶ The right side shows possible settings for the configuration entry selected from the tree.

If you create a new configuration, the first visible entry will be “Lecom”.



Tip!

If a plus sign appears in front of the element in the tree structure, this element includes subelements:

- A click on the plus sign opens the list of subelements. A minus sign is now displayed.
- When you click the minus sign, the list of subelements will be closed again.

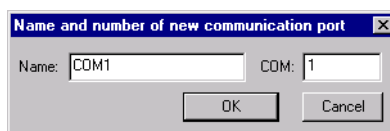
5.2.2 Selection and configuration of the COM interface

In a first step, add the serial interface to which the drives are connected, to the configuration.



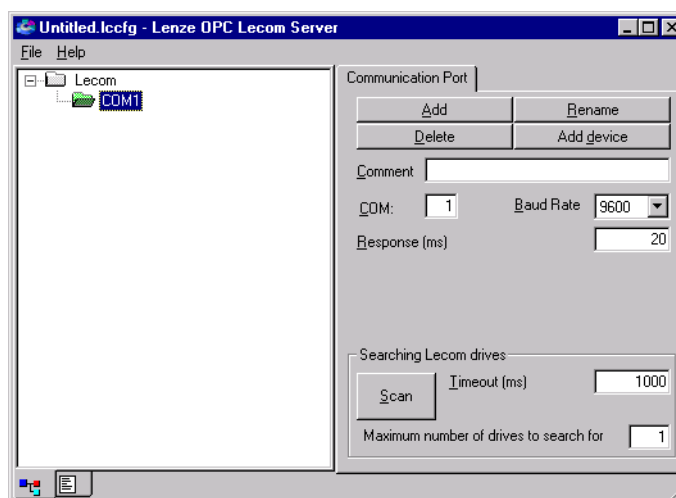
How to configure the COM interface...

1. Click **Add COM interface** to open the dialog box *Name and number of the COM interface*:



2. Enter the name (freely selectable) and the COM number of the interface used and confirm the entries by clicking **OK**.

The added communication port is indicated as configuration entry in the LECOM configuration tool.



3. Go to the list field **Baud Rate** and select the baud rate for the drives connected.
 - Lenze controllers are default set to 9600 baud.

Next configuration step:

► [Detection of the LECOM drives connected](#) (22)

5.2.3 Detection of the LECOM drives connected

In this second configuration step the LECOM drives connected to the PC are to be detected by means of the search function of the LECOM configurator.



Tip!

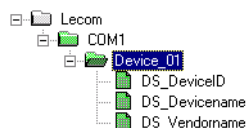
If you want to reduce the time required for automatically finding all drives connected to the bus, enter the maximum number of the devices to be found in the input field **Number of drives to be found**.



How to detect the LECOM drives connected...

1. Click **Search** to start the search.
 - The search progress is indicated in a dialog box.
 - If the number of drives entered under the input field **Number of drives to be found** have been found, a box is displayed which asks the user whether the search is to be continued or not.

The drives found are listed as configuration entry below the COM interface:



- The LECOM configuration tool automatically creates several OPC items for every drive. It is thus possible for the DriveServer to detect the drive automatically.
 - For special applications, more OPC items can be added manually. In general, however, the DriveServer creates the OPC items.
2. Select **File→Save** to save the current configuration.
 3. Select **File→Exit** to exit the LECOM configurator.

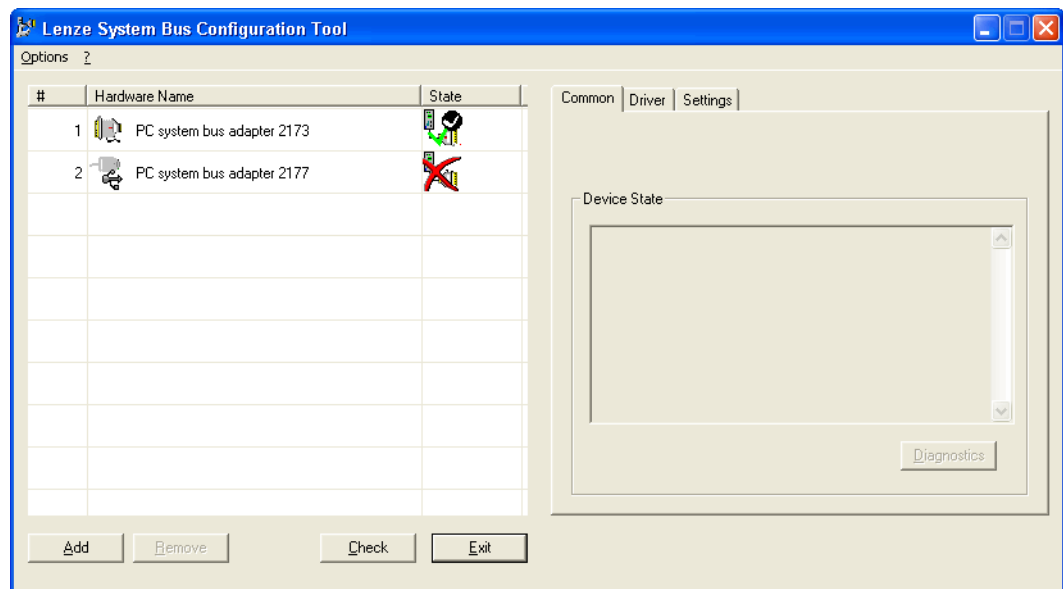
5.3 Bus server for the system bus

The bus server for the system bus is configured via the program "System bus configurator". The configuration consists of the setting of the communication parameters for the selected interface module.



Go to *Start menu* and select

Programs→Lenze→Communication→Systembus configurator to open the system bus configurator.



Tip!

Detailed information on the system bus configurator can be found in the CAN Communication Manual and the Online Help for the system bus configurator.

5.4 DriveServer

Since all fieldbus specific settings are saved directly in the corresponding bus server, the DriveServer must only get the information which bus server is to be used.

The DriveServer is configured via the program "DriveServer configurator".



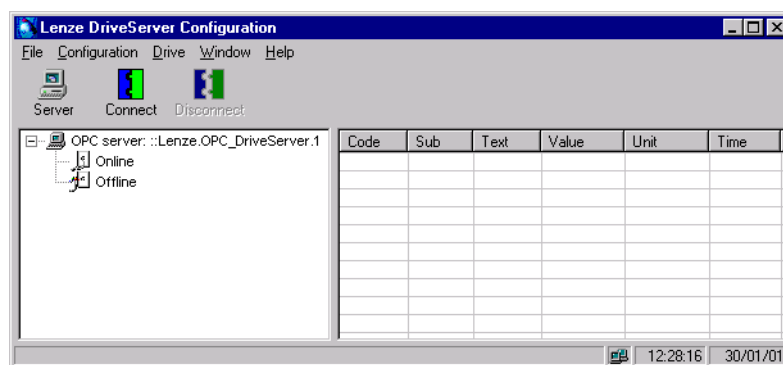
Go to *Start menu* and select

Programs→Lenze→DriveServer→DriveServer configurator to start the DriveServer configurator.

5.4.1 User interface of the DriveServer configurator

The DriveServer configuration tool is subdivided into two sections:

- ▶ The left side indicates the name area of the DriveServer in form of a tree, similar to directories of the Microsoft Explorer.
- ▶ When you select a parameter or a group of parameters in the name area, the right sides indicates the corresponding parameter data.



List of symbols used for the classification of elements used for the names:

Icon	Element/meaning
	OPC server (DriveServer) The DriveServer represents the highest level in the name area.
	Online This element includes a list of all bus servers and drives assigned to DriveServer.
	Offline Whereas the Online element shows all physically connected drives, this element also allows to configure "Offline drives" for simulation purposes. • Offline drives are also listed in the name area of the DriveServer but do not require a bus server. • How to add an offline drive: –Click the element Offline in the name area to get a list of all controllers known to the DriveServer. –Select the controller wanted and click OK to add this controller to the list of offline drives.
	Bus server Every fieldbus system requires its own bus server which then ensures communication between all drives connected.
	Drive A drive is connected to a bus server or configured as "Offline drive" (see "Offline").

Icon	Element/meaning
	Group A group is a classification of parameters for a drive. The parameters are grouped according to their functionality. This enables you to find a parameter without knowing its code number. For instance, the group "Diagnostics" includes all parameters required the diagnostics of the corresponding drive. Groups can be further classified by subgroups.
	Parameters Parameters represent the lowest level of the name.



Tip!

If a plus sign appears in front of the element in the tree structure, this element includes subelements:

- A click on the plus sign opens the list of subelements. A minus sign is now displayed.
- When you click the minus sign, the list of subelements will be closed again.

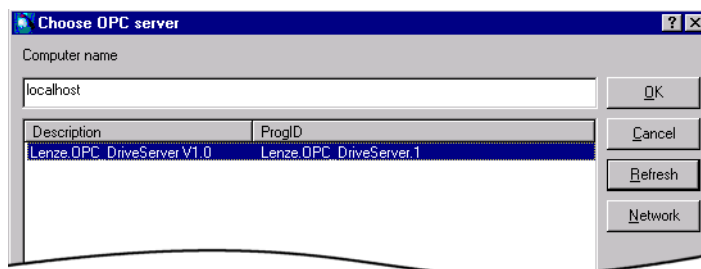
5.4.2 DriveServer selection

Since a network environment can comprise several DriveServers (OPC servers), the DriveServer to be configured is to be selected first.



How to select the DriveServer to be configured...

1. Select **File→Choose OPC server** to open the dialog box *Choose OPC server*:



2. Go to the input field **Computer name** and select a PC or go to **Network** and select a PC from the network environment, the DriveServers of which are to be shown for selection.
 - If the DriveServer configuration tool and DriveServer are installed on the same PC, the presetting for "localhost" does not have to be changed.
3. Click **Refresh** to get a list of all DriveServers available in the PC selected.
4. Select the DriveServer to be configured from the list field.
5. Click **OK** to save the selection and close the dialog field.

5.4.3 Assignment between bus server and DriveServer

The program distinguishes between "normal" OPC servers and OPC bus servers:

- ▶ OPC servers usually require a difficult and expensive configuration.
- ▶ Lenze OPC bus servers and the bus servers listed in the appendix have been optimised for the use with DriveServer and do therefore not need much configuration.



Tip!

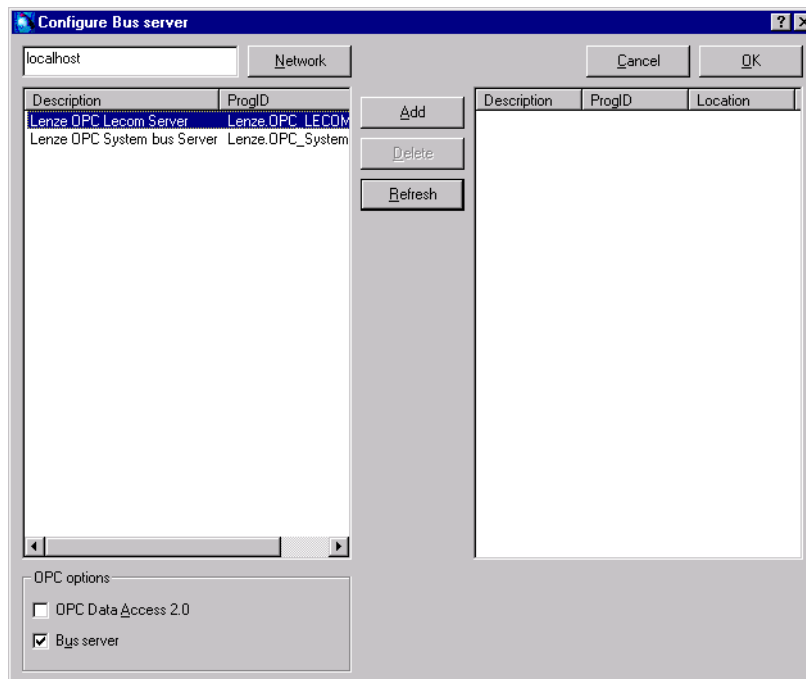
We recommend to only use OPC servers which also show bus server features!



How to assign bus servers to the DriveServer...

1. Select **File→Connect** to establish a connection to the DriveServer selected.
 - Wait until the dialog box *Please wait* disappears and the connection to the DriveServer is completed.
2. Select **Configuration→Bus server** to open the dialog box *Bus server configuration*.

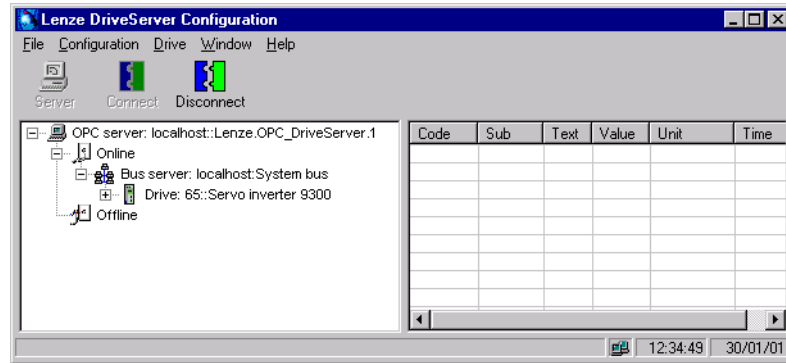
3. Click **Refresh** to get a list of all bus servers available on the PC selected in the left list field:



- In the default setting the control field **Bus server** is activated so that the list field only displays OPC servers with bus server features.
 - Click **Network** to get a list of bus servers which are installed on another PC in the network environment.
4. Assign the bus servers to the DriveServer by highlighting the corresponding bus server in the left list field and clicking **Add**.
 - The bus servers assigned to the DriveServer are listed in the right list field.
 - You can also undo the adding of a bus server by selecting it from the right list field and clicking **Delete**.
 - The description of the bus server is also used in the name area of the DriveServer. For a better overview, we recommend to change the preset description of the bus server into a shorter one or to use the fieldbus name (LECOM, CANopen, etc.) only.
For this purpose select the corresponding bus server from the right list field and click again the highlighted area to change into the editing mode.

- After the corresponding bus server has been added, click OK to save the settings and close the dialog field.

The bus servers assigned to the DriveServer and all connected drives are now listed under the **Online** element:



6. Select **File→Disconnect** to disconnect a bus server from the DriveServer selected.
7. Select **File→Exit** to exit the DriveServer configurator.

The configuration is completed and the DriveServer can be started.

► Operation (📖 29)

6 Operation

The DriveServer enables communication via several media. As OPC server it operates in the background and does therefore not feature its own user interface. This interface is provided by the OPC clients which communicate with the DriveServer.



Tip!

In general every PC program with OPC interface, e.g. a visualisation, can be used as OPC client and thus access drive parameters via the DriveServer.

Before we will give you further information on the software components, the next paragraph will inform you about how the DriveServer starts.

6.1 Starting the DriveServer

The DriveServer is started automatically when an OPC client wants to access it. Then, the DriveServer starts all bus servers and identifies the drives by means of the addresses sent from the bus servers.

Identification means that the DriveServer checks every address for Lenze controllers. If a Lenze controller is indicated in the address, the DriveServer detects the parameters of the corresponding controller. Based on this information, the name area for the DriveServer system is created, which lists all drives with its parameters in form of a tree. OPC clients can access the tree by means of the OPC browse function via two ways:

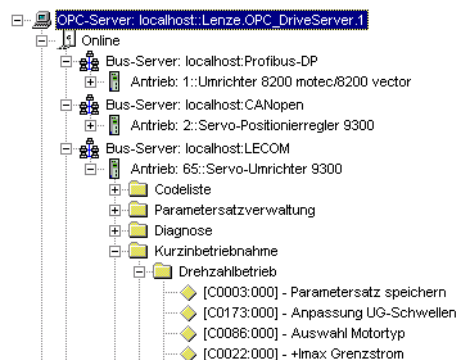
► Hierarchical

The name area corresponds to the tree structure created by the DriveServer.

► Flat

The name area consists of only one level which includes all elements.

The following illustration shows a part of the (hierarchical) tree structure for a DriveServer system with three fieldbus systems connected - PROFIBUS-DP, CANopen and LECOM:



6.2 Access via OPC clients

The DriveServer can be accessed by the following software components which serve as OPC clients and have been optimised for Lenze controllers:

- ▶ The DriveServer configurator which has already been described in the previous chapter.
 - ▶ [DriveServer](#) (📖 24)
- ▶ The parameter setting program Global Drive Control with OPC interface (as of version 4.3).
- ▶ ActiveX controls, which can be integrated into your application.

6.2.1 DriveServer configurator

You have already used the program "DriveServer configuration tool" to configure the DriveServer.

The DriveServer configurator is an OPC client which expects the DriveServer as OPC server. If your system is configured as described in chapter 5, you can access the name area of the DriveServer system via the DriveServer configurator.



How to access the name area of the DriveServer system...

1. Go to *Start menu* and select
Programs→Lenze→DriveServer→DriveServer configurator to start the DriveServer configurator.
2. Select the corresponding DriveServer from the *Tree structure* and click **Connect**.
 - The DriveServer will be started. The drives connected to the assigned bus servers are identified and listed in the name area.

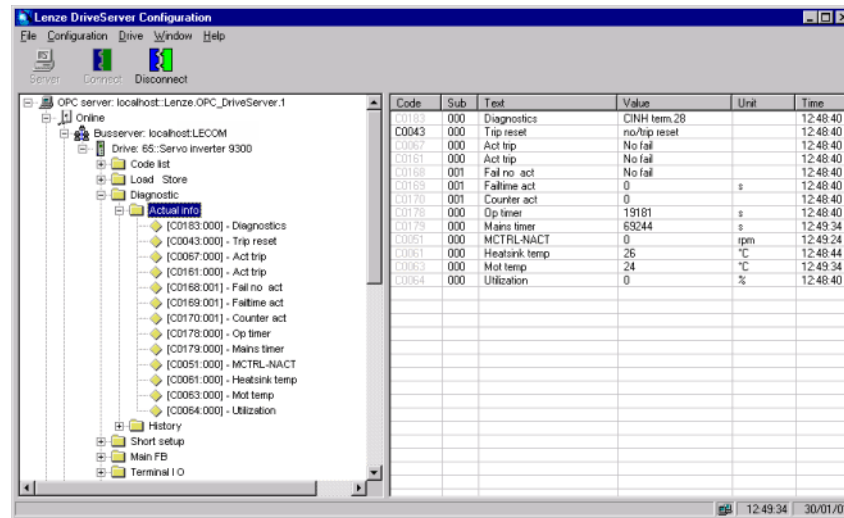


Warning!

Since you have an *Online* connection with the controller, every change of a parameter value will take immediate effect.

Only make changes when you are sure that they will not lead to any damage of machinery or persons!

The following figure shows a part of a name area for a system consisting of a "9300 Servo inverter" which is connected to the DriveServer via LECOM:



- If you select a parameter or a group of parameters from the name area, the current parameter data will be indicated on the right. With same parameters these data can be changed.
- Entries under "Code" are indicated in different colours depending on their meaning.

Colour	Meaning
Green	The parameter data have not been read from the file yet.
Light grey	The parameter data can be read only
Black	The parameter data can be read and changed. • If you double click a parameter value, a dialog box for changing the current parameter value will appear.
Red	The parameter data cannot be read from the drive (e.g. due to transfer errors).

6.2.2 Application programs with OPC interface

Every PC program which supports the OPC interface can access the name area of the DriveServer and thus the drive parameters by using the OPC browse function.

- For instance, a visualisation program can be used. The configuration of the visualisation system only requires the assignment of the display elements of the visualisation and the corresponding parameters in the name area.
- For further information please see the documentation of the program.

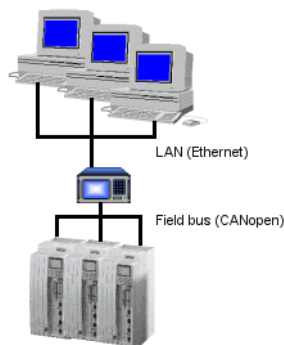
7 DriveServer architectures (examples)

In the following subchapters you will find a short description of architectures implemented with the DriveServer. Since there are so many configurations possible, the following examples can only show some typical DriveServer architectures:

- ▶ [Access via a LAN \(Local Area Network\)](#)
- ▶ [Transparent access using a PLC](#) (📖 33)
- ▶ [Access to different fieldbus systems via a LAN](#) (📖 34)

7.1 Access via a LAN (Local Area Network)

The following figure shows a system architecture which allows access to a drive network in a LAN (e.g. Ethernet).

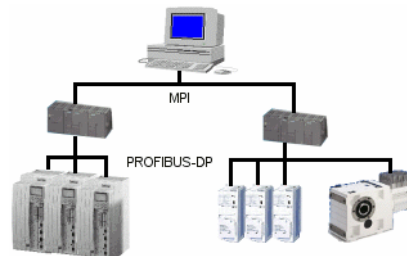


- ▶ The fieldbus (e. g. CANopen) is connected to an industrial PC.
- ▶ The corresponding bus server and the DriveServer are installed on this industrial PC.
- ▶ The industrial PC is also connected to the local Ethernet network.
- ▶ Diagnostics/parameter setting for the drives can be made via all PCs connected to the Ethernet network. The only condition is that an OPC client is installed (e. g. the parameter setting program Global Drive Control with OPC interface).

7.2 Transparent access using a PLC

Fieldbus systems with one master only are often used with a PLC. It is then not possible to have a direct connection to the fieldbus.

The following figure shows a system architecture with a Simatic S7 control made by Siemens as PLC.



- ▶ The drives are connected to the PLC via PROFIBUS-DP
- ▶ The two PLCs are interconnected via an MPI bus.
- ▶ The PC with the DriveServer is also connected to the MPI bus and uses a bus server for the PLC (Lenze S7-MPI OPC server) instead of a bus server for the fieldbus system.
- ▶ Special Lenze function modules in the S7 program allow access to the drives from the PC via a PLC as if the PLC was not connected.



Tip!

More information about the Lenze S7-MPI OPC server can be obtained from the "XXX" documentation which is part of the delivery.

DriveServer

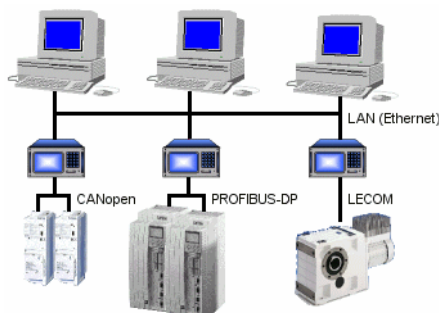
DriveServer architectures (examples)

Access to different fieldbus systems via a LAN

7.3 Access to different fieldbus systems via a LAN

Since the DriveServer can access different fieldbus systems at the same time it is possible to create a 'superimposed' master system which results in complete independence.

The following figure shows a system architecture with the three fieldbus systems: CANopen, Profibus-DP and LECOM



- ▶ Every fieldbus is connected with an industrial PC.
- ▶ The industrial PC are interconnected via a local Ethernet network.
- ▶ Also normal PCs are connected to this Ethernet network. The master system built up is completely independent of the fieldbus used.

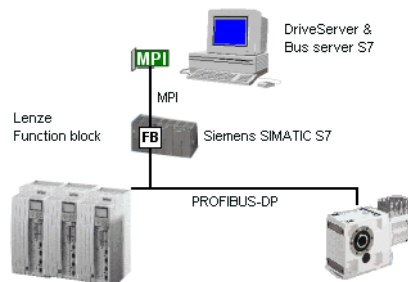
8 Appendix

8.1 Accessories

8.1.1 Lenze bus server S7

The bus server S7 is a fieldbus-specific OPC server according to DRIVECOM specification which enables the Lenze DriveServer to access drives which are connected via PROFIBUS-DP and controlled via Siemens SIMATIC S7 PLC.

The following figure shows the architecture of such a system:



- ▶ The PC with the DriveServer is connected to the PLC via a bus system (MPI, Ethernet or PROFIBUS). The DriveServer uses the bus server S7 as OPC bus server.
- ▶ The S7 program uses special Lenze function blocks via which the DriveServer can access the drives through the PLC as if the PLC was not connected.
- ▶ The drives are connected to the PROFIBUS master of the PLC via PROFIBUS-DP.

8.1.2 RS232/RS485 interface converter

The operation of a LECOM network based on RS485 an interface converter is required for the connection to the PC. It must be provided with an automatic change of direction since due to the use of two cores only half duplex operation is possible.

We recommend to use the following product:

I-7520 isolated RS232 on RS485 converter	
Supplier	Spectra Computersysteme GmbH Humboldtstraße 36 70771 Leinfelden/Echterdingen

8.2 Glossary

B

Bus server Fieldbus-specific OPC server according to the DRIVECOM specification.
 ▶ [OPC](#)
 ▶ [DRIVECOM](#)

C

CAL Abbr. for "CAN Application Layer". Communication standard (CiA DS 201-207) which provides objects, protocols and services for the event or polling-controlled transmission of CAN messages and the transmission of greater data ranges between CAN nodes. Furthermore, CAL offers effective processes for an automatic assignment of message identifiers, the initialisation and monitoring of network nodes, and the assignment of an individual identification to network nodes.

CAN Abbr. for "Controller Area Network". Serial, message-oriented and not node-oriented bus system for max. 63 nodes.

CANopen Communication profile (CiADS301, Version4.01), which has been developed in conformity with the CAL under the umbrella association of the CiA ("CAN in Automation").

CiA Abbr. for "CAN in Automation (e. V.)": International users' and manufacturers' organisation which has the target to impart knowledge on the internationally standardised CAN bus system (ISO 11898) worldwide and advance the technical development.
 ▶ Internet: <http://www.can-cia.org>

Code Parameters of Lenze devices for setting the device functions.

COM Abbr. for "Component Object Model": A software architecture developed by Microsoft® for creating programs from individually executable software components (objects) which are only connected when the program is running.

Controller Generic term for Lenze frequency inverters, servo inverters and PLCs.

D

DCOM Abbr. for "Distributed Component Object Model": COM which allows the distribution of executable objects on different PCs connected to the same local network.
 ▶ [COM](#)

DRIVECOM "DRIVECOM User Group e.V.": Association of international drive manufacturers, universities, and institutes which has the target to develop a simple integration of drives into open automation systems
 ▶ Internet: <http://www.drivecom.org>

DriveServer Lenze Software, which provides easy integration of drives into open automation structures based on OPC ("OLE for Process Control").
 ▶ [OPC](#)

H

Hyperlink Highlighted references which are activated by means of a mouse click.

L

LECOM Lenze bus system based on RS232, RS485 or LWL (optical fibre).

M**Menu bar**

Bar in the upper position of the application window below the title bar which displays the names of the menus which open when being clicked with the mouse.

MPI

Abbr. for "**M**ulti-**P**oint-**I**nterface": Bus system which is integrated for instance into Siemens PLC.

O**OLE**

Abbr. for "**O**bject **L**inking and **E**mbedding": Insertion of functional objects into other applications, e.g. a Microsoft® Excel table into a Microsoft® Word document.

OPC

Abbr. for "**O**LE for **P**rocess **C**ontrol": Defines an interface based on the Microsoft® Windows® technologies OLE, COM and DCOM which enables data exchange between different automation devices and PC programs without having any problems with drivers and interfaces.

▶ [COM](#)

▶ [DCOM](#)

P**PDF**

Abbr. for "**P**ortable **D**ocument **F**ormat", a universal file format developed by the Adobe company for exchanging electronic documents. Adobe's freely available software Adobe® Reader® serves to display and print PDF files, independent of the application and platform used.

▶ Internet: <http://www.adobe.com>

PLC

Abbr. for "**P**rogrammable **L**ogic **C**ontroller"

S**System bus (CAN)**

A Lenze bus system similar to the CANopen communication profile (CiADS301, Version4.01).

▶ [CAN](#)

T**Title bar**

Bar in the upper position of the application window which contains the program icon and the program name in the left-most position and the window icons in the right-most position.

▶ [Window icon](#)

W**Window icon**

Button in the right-most position of the title bar to change the window format or close the window.

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Your opinion is important to us

These Instructions were created to the best of our knowledge and belief to give you the best possible support for handling our product.

If you have suggestions for improvement, please e-mail us to:

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Thank you for your support.

Your Lenze documentation team