

L-force *remote maintenance*



Simple and secure – All over the world



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Lenze

L-force | Your future is our drive

Demands are increasing all the time. In future, key challenges will lie in the areas of cost efficiency, time-saving and quality improvements. Faster project planning and commissioning, improved performance and increased flexibility in production are expected. New ideas are therefore needed for the machines of the future.

Lenze has risen to this challenge and, with L-force, we can now not only offer you an innovative family of drive and automation products, but also a new, comprehensive portfolio of solutions.

Driven by innovation – New ideas for new possibilities

Always on the lookout: Our idea of innovation is working on even better solutions for our users, every day.

Driven by flexibility – High degree of scalability for individual solutions

Scalability is an important aspect of the L-force philosophy. Power, functions, software and services – you get the exact combination you need.

Driven by usability – Simple solutions even for complex applications

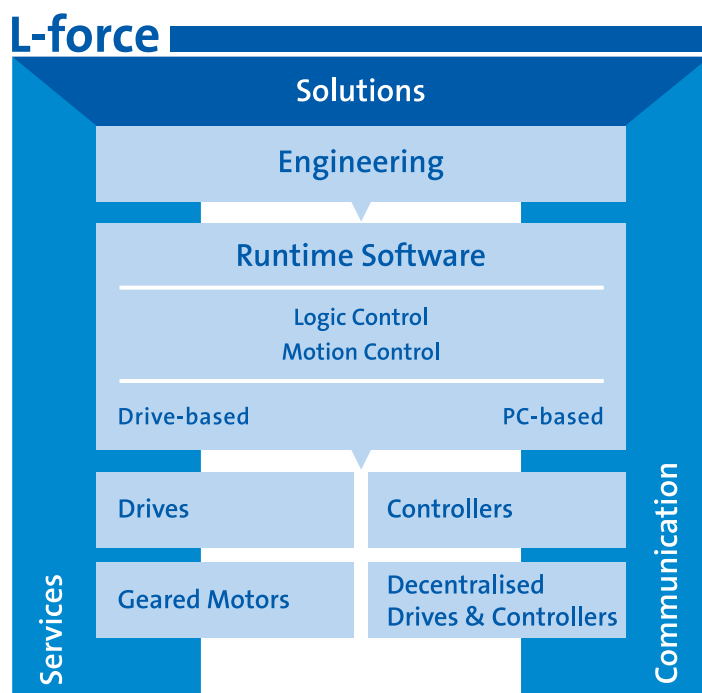
We always focus on the user. Therefore, when we developed L-force, we made sure that people with plenty of practical experience were involved, right from the start.

Driven by compatibility – Universal products and solutions

Don't waste any more time searching for suitable components and the right interfaces. With L-force, everything is compatible.

Remote maintenance creates independence

Our L-force communication products give you the freedom to break free of geographical limitations.



www.L-force.de

Remote maintenance | Far away but still on site

The competitive environment of machine and system engineering calls for solutions which optimise production costs. Modular machine and system design is becoming ever more popular, as it allows individual solutions to be developed easily and cost-effectively through the use of modular “building blocks”. In addition, the remote maintenance option is also in demand today. It offers better support than that provided by commissioning or operating personnel across almost all phases of the product life cycle, and helps to further reduce costs.

Worldwide access to drive controllers

- ▶ Improved availability thanks to preventive maintenance
- ▶ Reduced downtimes thanks to fast and specific assistance
- ▶ Reduced travel costs; frequently, the purchase costs are paid for by the savings made on a single trip.
- ▶ Possible to constantly monitor production quality

Choosing the right remote maintenance software and hardware components depends to a large extent on the field in which they are to be used. It is important to consider how much integration is required into available systems and whether or not any existing remote connections can also be employed. You tell us how your components are to be used, and we will tell you which components you need.



ModemCAN 2181



EthernetCAN 2180



OPC DriveServer

The system | Tailor-made and universal

Classic

ModemCAN 2181

A modem connection via analog telephone lines is the classic remote access solution. It is simple to install and easy to use.



Integral

EthernetCAN 2180

Vertical integration and connection to higher-level systems are the special features of this device. System bus (CAN) and Ethernet combine in a single unit.



Universal

OPC DriveServer

OPC servers are the solution for PC-based, standardised communication independent of a fieldbus, and support the connection of proprietary software.



A simple solution: Dial-up connection

Direct dial-up connections are the simplest form of remote maintenance. In such cases, making an analog telephone line available to the system is all that must be done. The technical installation is clear and simple. Access protection can be achieved relatively easily. As the process is very simple, it is rarely necessary to involve an IT department.

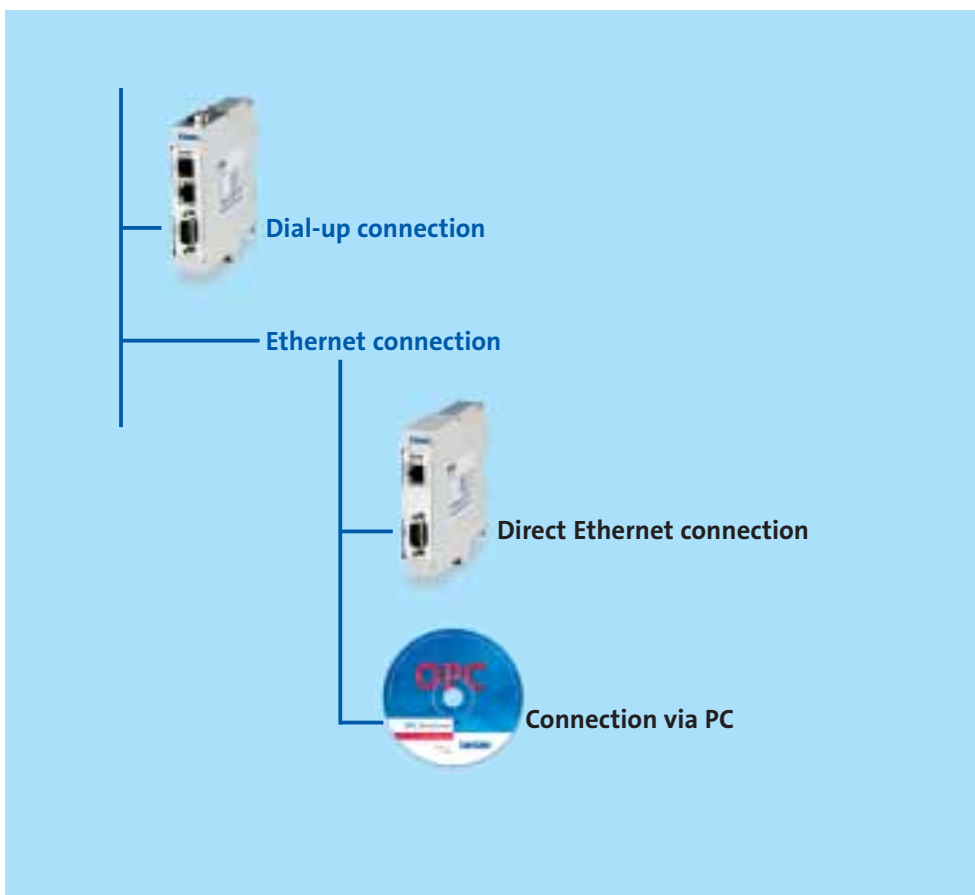
When using dial-up connections, different modems, each with a dedicated telephone line, are required for the remote maintenance of devices from different manufacturers.

This problem can be solved by connecting each of the components to be maintained remotely to a higher-level system.

A comprehensive solution: Using IT standards (Ethernet)

The advantages of direct dial-up connections are their simplicity and transparency, particularly where small-scale machine concepts are concerned. However, a comprehensive solution must be found for larger systems. In doing so, it is important to use as many standard hardware devices for infrastructure components as possible, e.g. ISDN routers and industrial PCs. Furthermore, it must be possible to use existing remote connections, such as dedicated lines or radio links.

This is achieved by firstly creating Ethernet access for all components to be maintained remotely. There exist various standard solutions for remote access to Ethernet networks, which can be selected according to safety, availability and various transmission media requirements.



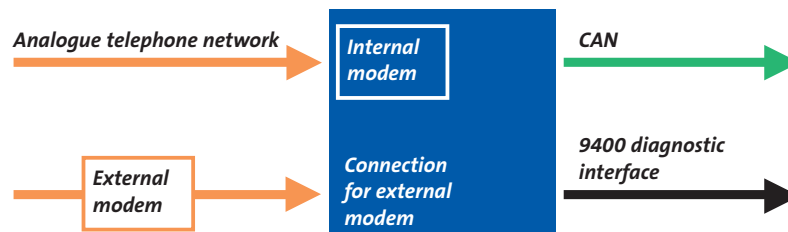
ModemCAN 2181 | Easy to use

The ModemCAN 2181 communication module enables a CAN bus to be directly connected to an analogue telephone line. It features an internal analogue modem approved for all relevant countries and telephone standards, and thus supports remote maintenance throughout the world. If the internal modem is not suitable for use in a particular country, or a GSM or ISDN modem is required, an external modem can be connected.

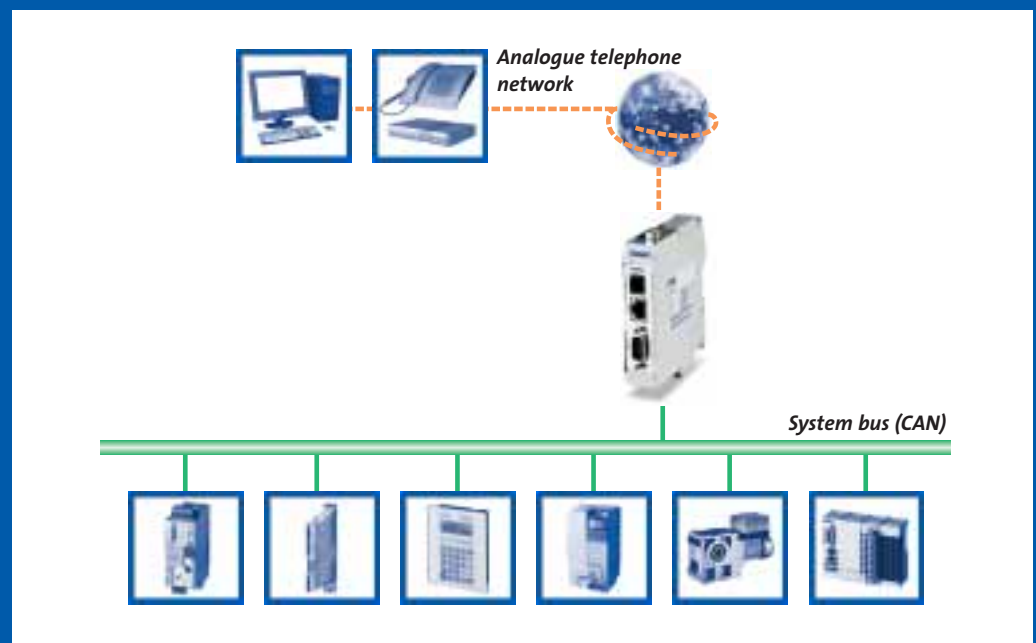
Twice as safe

ModemCAN 2181 features a password function for access protection. Furthermore, it is possible to configure the device in such a way that it calls back a configured telephone number following a successful log-on. This ensures that only certain callers can gain access to the system.

Servo drives of the series 9400 also support connection to the diagnostic interface*.



Application 1: Remote access to CAN bus devices via analogue telephone lines

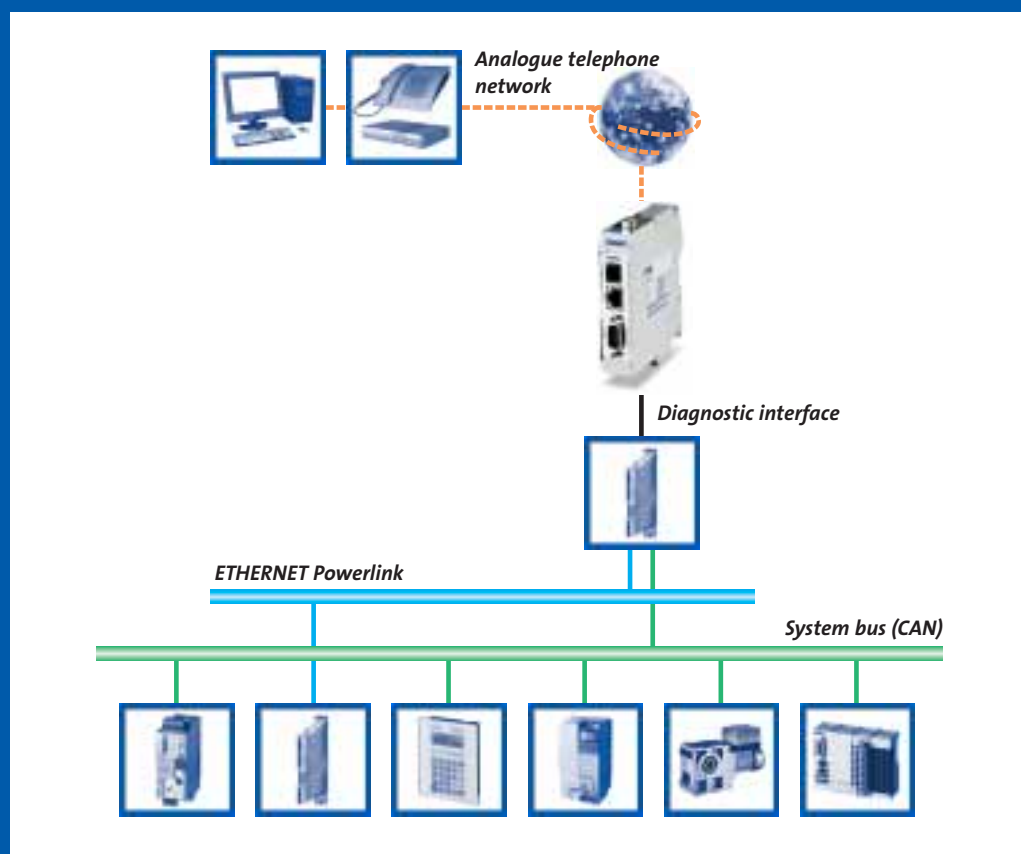


* In preparation



| ModemCAN 2181 | |
|--------------------------------|---|
| Connections | |
| CAN | System bus (CAN) or CANopen, 9-pole SUB-D |
| DIAG * | Diagnostic interface 9400, RJ69 |
| Line | Analog telephone, RJ11 |
| Ext. modem | RS232 for external modem |
| Signalling | |
| Power | Supply voltage |
| CAN | ERR-LED and RUN-LED in accordance with CiA DR303-3 |
| Modem | Activated via telephone |
| Transmission rates | |
| CAN | 20 kBit/s to 1 MBit/s |
| Modem | 300 Bit/s to 33.6 kBit/s |
| Software | |
| Configuration | Integrated into system bus configurator |
| OPC interface | DriveServer |
| Electrical data | |
| Supply voltage | DC 24 V (18 to 35 V) |
| Supported device ranges | 8200, 8200 vector, 8200 motec, 9300, Servo PLC, Drive PLC, ECS, 9400*, starttec, HMI*, I/O system |
| Order number | EMF2181B |

Application 2:
Remote access to 9400 drive controller and punch-through to lower-level devices*



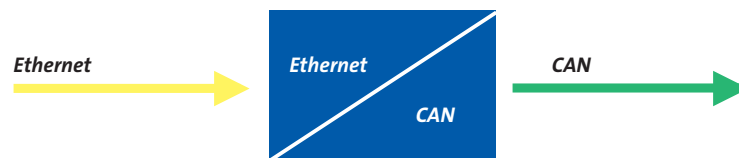
* In preparation

EthernetCAN 2180 | Connecting systems

The EthernetCAN 2180 communication module connects the system bus (CAN) to a higher-level Ethernet network. It enables fieldbus devices to be integrated into higher-level systems. This provides the option of using available networks (in-house networks) to transfer data, as well as using centralised remote maintenance access (remote access services).

Standardised safety

Whilst there are no standardised access mechanisms for fieldbuses, they are clearly defined for Ethernet. Networks are uncoupled from one another using firewalls. Defined rules for transition from one network to another are checked by routers. Authentication and encryption mechanisms are standardised, eliminating the need to learn proprietary safety mechanisms.

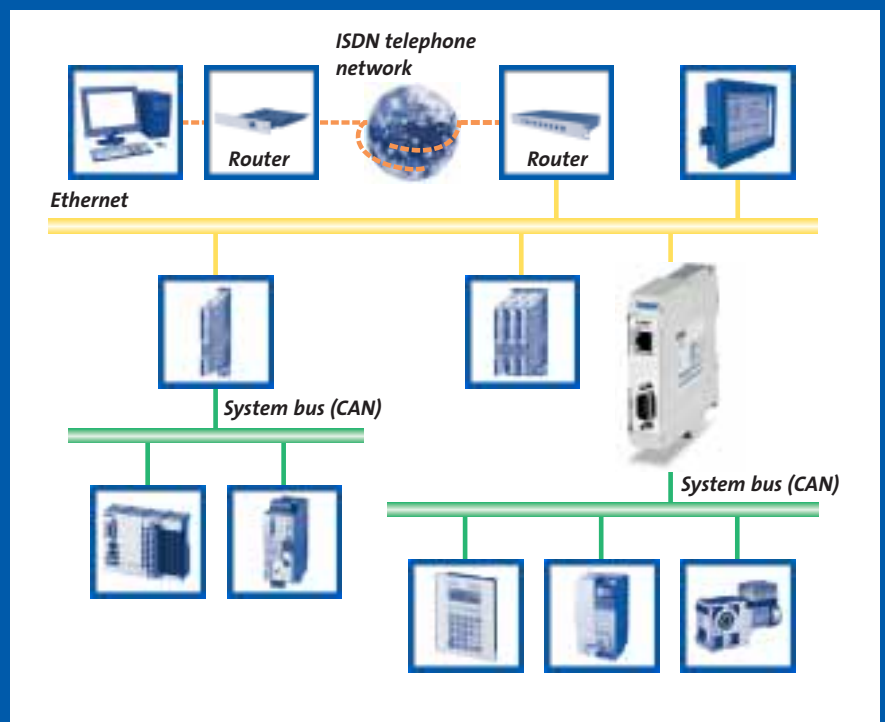


Application 1:

Remote access via ISDN with a standard ISDN router

Devices can be reached if they:

- ▶ Feature an Ethernet connection
- ▶ Are connected to Ethernet via the 9400 servo inverter
- ▶ Are connected to Ethernet via EthernetCAN





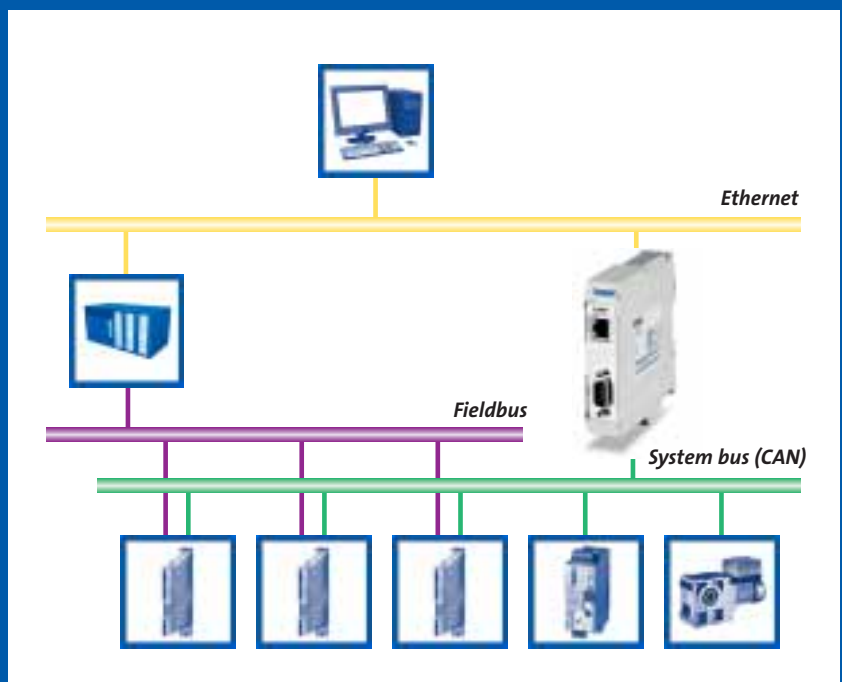
| EthernetCAN 2180 | |
|--------------------------------|---|
| Connections | |
| CAN | System bus (CAN) or CANopen, 9-pole SUB-D |
| Ethernet | Standard Ethernet |
| Signalling | |
| Power | Supply voltage |
| CAN | ERR-LED and RUN-LED in accordance with CiA DR303-3 |
| Ethernet | Link and Activity |
| Transmission rates | |
| CAN | 20 kBit/s to 1 MBit/s |
| Ethernet | 10 MBit/s / 100 MBit/s |
| Software | |
| Configuration | Integrated into system bus configurator |
| OPC interface | DriveServer |
| Electrical data | |
| Supply voltage | DC 24 V (18 to 35 V) |
| Supported device ranges | |
| | 8200, 8200 vector, 8200 motec, 9300, Servo PLC, Drive PLC, ECS, 9400*, starttec, HMI*, I/O system |
| Order number | EMF2180IB |

* in preparation

Application 2:

Device access “without using the controller”

- ▶ Standardised access: PCs only require Ethernet connections
- ▶ Simultaneous access to the controller and the drive controller
- ▶ Independent of control system and control bus
- ▶ Decentralised conversion to system bus (CAN) via EthernetCAN 2180



OPC DriveServer | The path to open automation

Remote maintenance with the OPC DriveServer

An industrial PC (IPC) enables the transition from fieldbus level to office level and thus from the fieldbus to the local area network (LAN).

Visualisation or remote parameterisation – all OPC-enabled software (e.g. Global Drive Control, L-force Engineer) enables the user to remotely access all drive controllers via the OPC DriveServer.

For remote maintenance, the IPC only requires the office network infrastructure and the OPC DriveServer. Remote maintenance really can be this simple.

“Software bus”

The OPC DriveServer creates the link to your user software and lays the foundations for communication between software and hardware. Hence, every application which supports the OPC interface can access the full functionality of the drives.

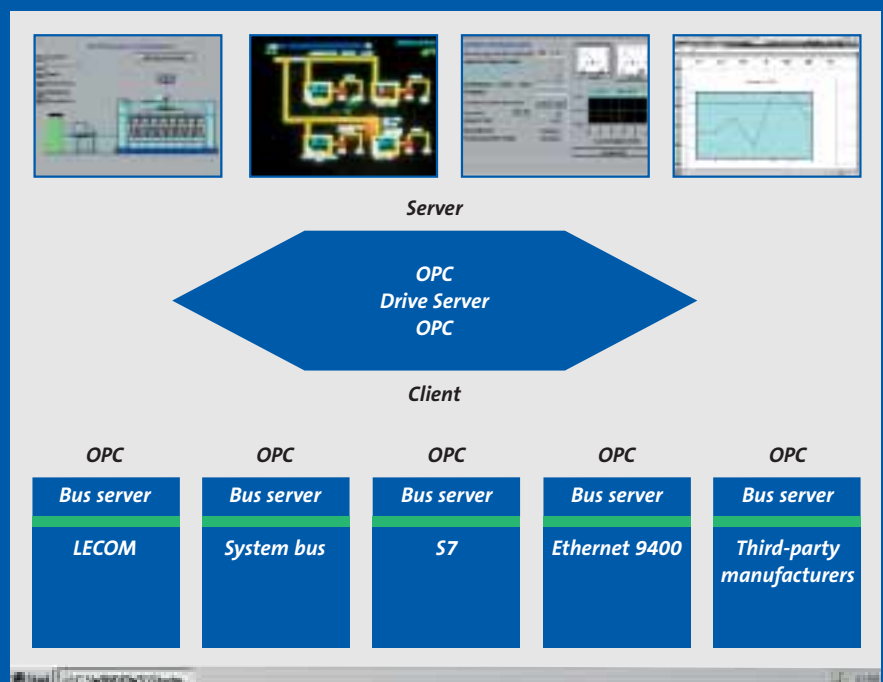


Functions

- ▶ Standardised, simple access to device parameters, direct name access
- ▶ Use of various fieldbus systems with an unmodified user interface
- ▶ Parameter set transfer
- ▶ Program download

Your options

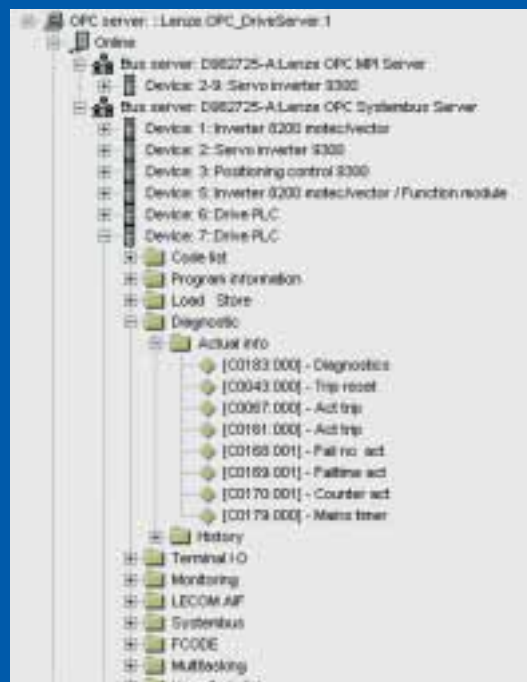
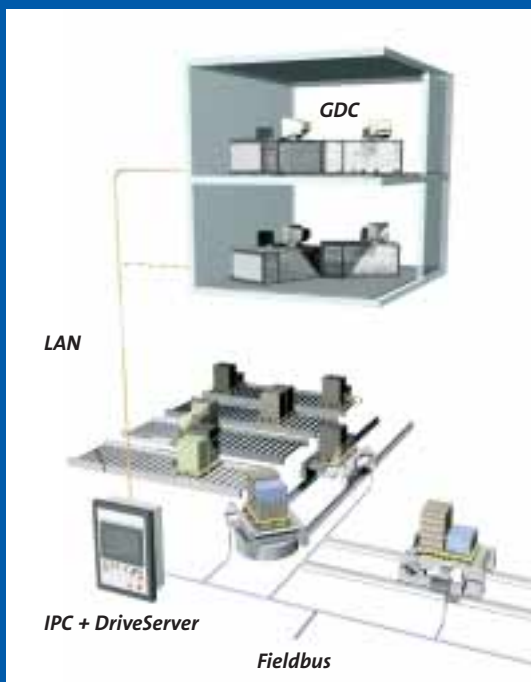
- ▶ The functionality described is provided in LANs and networks routed via remote connections.
- ▶ Access to all settings using any OPC-enabled software, with display in plain text as well
- ▶ Drives integrated into standard runtime environment (e.g. visualisation)
- ▶ Drives integrated into proprietary applications
- ▶ Cost-effective remote maintenance via an existing system with Simatic S7 and TeleService



| OPC DriveServer | |
|--|---|
| System requirements | |
| Operating system (observe the interface module requirements) | Windows 98 Windows ME Windows NT Windows 2000 Windows XP |
| | Standard PC or industrial PC |
| Bus systems | |
| LECOM | LECOM A/B/LI |
| System bus (CAN) | Interface modules: ▶ System bus adapter 2173 ▶ System bus adapter USB 2177 ▶ ModemCAN2181 ▶ EthernetCAN2180 |
| Ethernet | Ethernet 9400 (parameter channel according to ETHERNET Powerlink V2.0)* |
| Diagnostic interface | Diagnostic interface 9400* |
| Application | |
| Read/write parameters | yes |
| Parameter set transfer | yes |
| Program download | yes, (apart from LECOM) |
| Program download | yes, (apart from LECOM) |
| Supported device ranges | 8200, 8200 vector, 8200 motec, 9300, Servo PLC, Drive PLC, ECS, 9400*, starttec, HMI*, I/O system |
| Order number | ESP-DRS1 |

| OPC DriveServer S7 | |
|--|---|
| System requirements | |
| Operating system (observe the interface module requirements) | Windows 98 Windows ME Windows NT Windows 2000 Windows XP |
| | Standard PC or industrial PC |
| Bus systems | |
| S7 | S7 via MPI S7 via PROFIBUS S7 via Ethernet S7 via TeleService |
| LECOM | LECOM A/B/LI |
| System bus | Interface modules: ▶ System bus adapter 2173 ▶ System bus adapter USB 2177 ▶ ModemCAN2181 ▶ EthernetCAN2180 |
| Ethernet | Ethernet 9400 (parameter channel according to ETHERNET Powerlink V2.0)* |
| Diagnostic interface | Diagnostic interface 9400* |
| Application | |
| Read/write parameters | yes |
| Parameter set transfer | yes |
| Program download | yes, (apart from LECOM, S7) |
| Cam profile download | yes, (apart from LECOM, S7) |
| Note | Siemens "Prodave" software no longer required |
| Supported device ranges | 8200, 8200 vector, 8200 motec, 9300, Servo PLC, Drive PLC, ECS, 9400*, starttec, HMI*, I/O system |
| Order number | ESP-DRS1-S7 |

* In preparation



OPC DriveServer | Network solutions

The OPC DriveServer supports a range of differing network topologies. Five typical topologies are described in brief below.

Topology 1: Standalone workstation

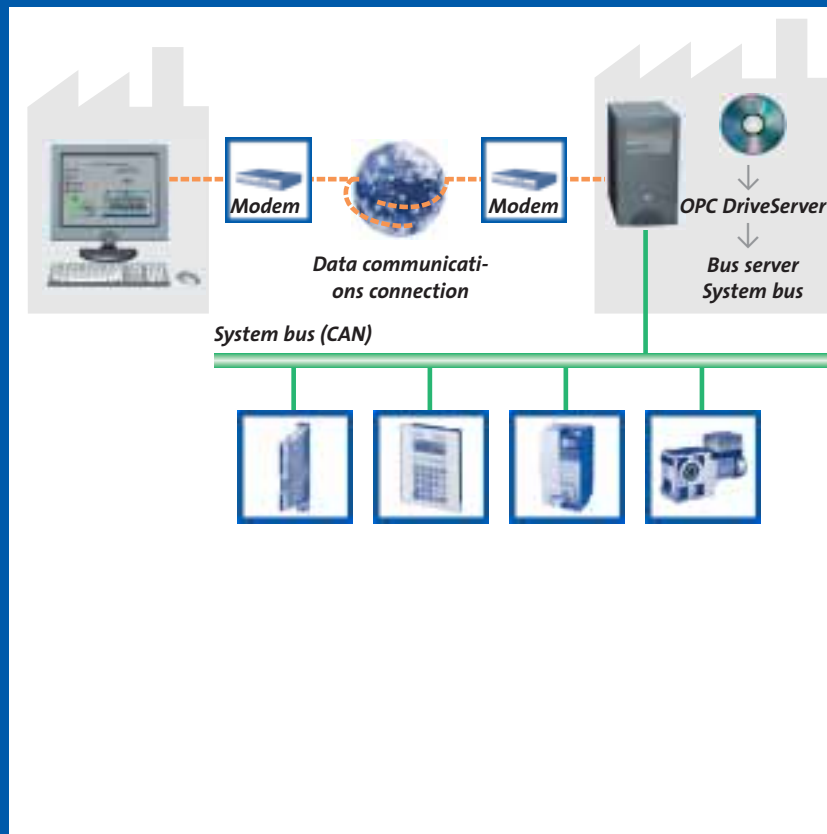
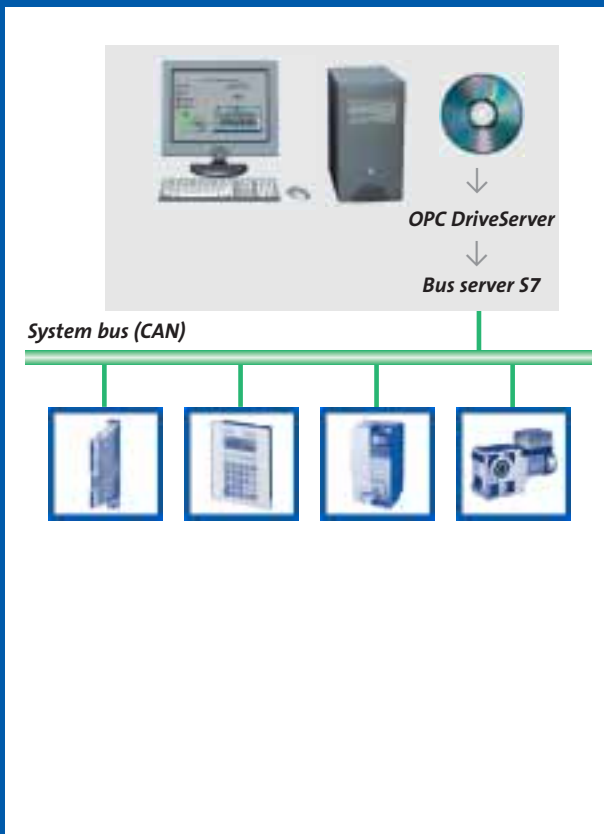
In the simplest case, the fieldbus link and operator programs are located on the same PC. All Lenze drive controllers and accessories can then be accessed.

Topology 2: LAN

The OPC DriveServer and, therefore, the drives connected to it, can be accessed from any PC within a LAN.

Topology 3: LANs, connected via dial-up connection

Network communication is also possible if the LAN has a modem or ISDN link (remote access service).



Topology 1:
Stand alone
workstation

Topology 2:
LAN

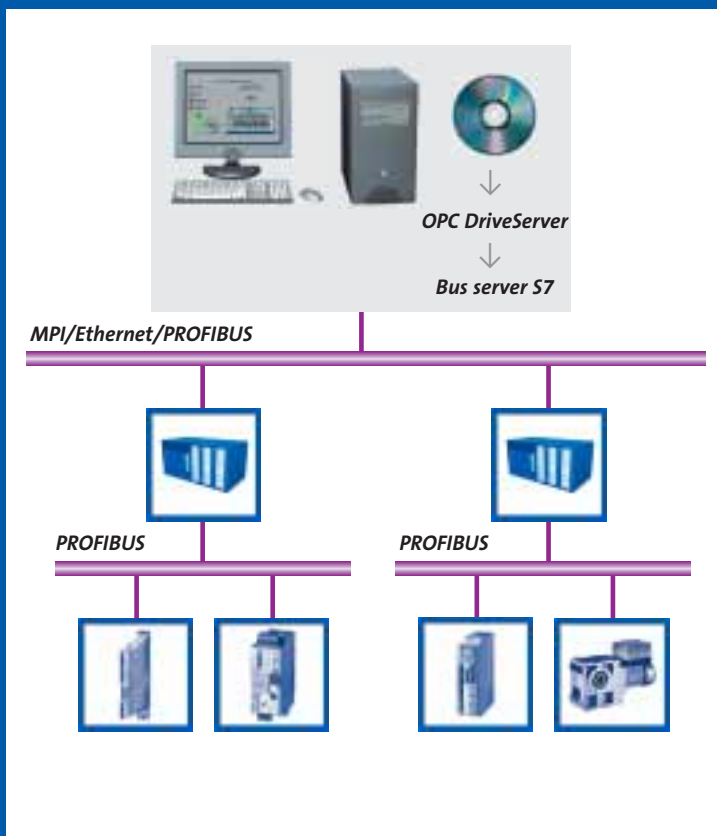
Topology 3:
LANs, connected via
dial-up connection

Topology 4: Punch-through via Simatic S7

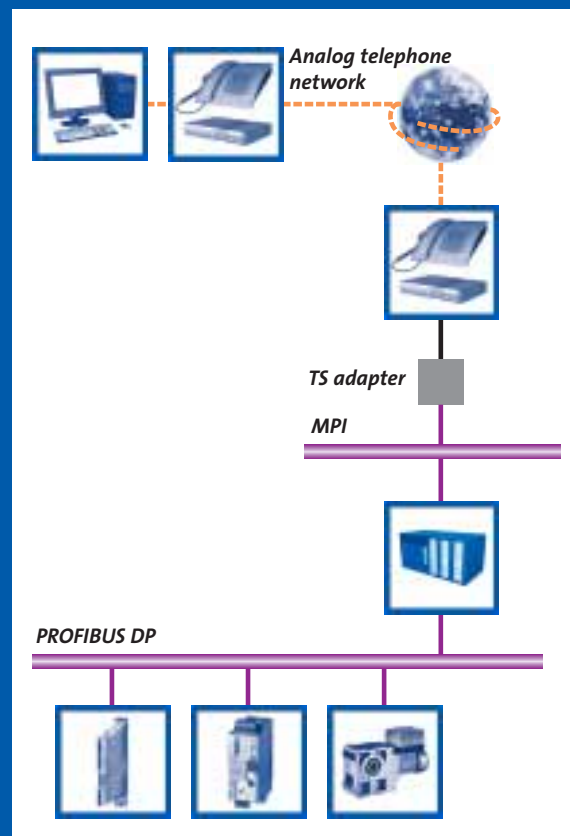
Parameterise your Lenze drives via the well-established PROFIBUS, using Siemens® S7 controllers. Use MPI, PROFIBUS or Ethernet (TCP or H1) to connect the PC/PU to the controller.

Topology 5: Using S7 TeleService

Existing remote maintenance concepts, such as S7 TeleService, can be cost-effectively equipped with the OPC DriveServer S7. This enables Lenze drive controllers to be maintained remotely. Lenze software and Step7® use the same communication path.



Topology 4:
Punch-through via
Simatic S7



Topology 5:
Using S7
TeleService

It's good to know | why we are there for you



"Our customers come first. Customer satisfaction is what motivates us. By thinking in terms of how we can add value for our customers we can increase productivity through reliability."



"The world is our marketplace. We develop and manufacture internationally. Wherever you are in the world, we are nearby."



"We will provide you with exactly what you need – perfectly co-ordinated products and solutions with the right functions for your machines and installations. That is what we mean by 'quality'."



"Take advantage of our wealth of expertise. For more than 50 years we have been gathering experience in various fields and implementing it consistently and rigorously in our products, motion functions and pre-prepared solutions for industry."



"We identify with your targets and strive towards a long-term partnership which benefits both sides. Our competent support and consultation process means that we can provide you with tailor-made solutions. We are there for you and can offer assistance in all of the key processes."

You can rely on our service. Expert advice is available 24 hours a day, 365 days a year, in more than 30 countries via our international helpline: 008000 24 Hours (008000 2446877).

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