

9300 servo inverter



Technology on-board



Lenze

A portfolio of success | flexible

With its perfectly matched range of motors and geared motors, the 9300 series of servo inverters is able to support a wide variety of solutions.

Ready-to-use applications and preconfigured technology functions make implementing the various drive tasks particularly easy.

Whether you need a simple method of speed control or are looking to run a number of drives in angular synchronism, there will be a ready-to-use solution you

can rely on for every drive. User-friendly solutions for positioning control, motion control based on cam functions or register control for printing machines are equally readily available.

If customised function expansions are the order of the day, you need look no further than the on-board freely interconnectable function block structure and programming options.

The 9300 servo inverter can be as flexible as you need it to be.

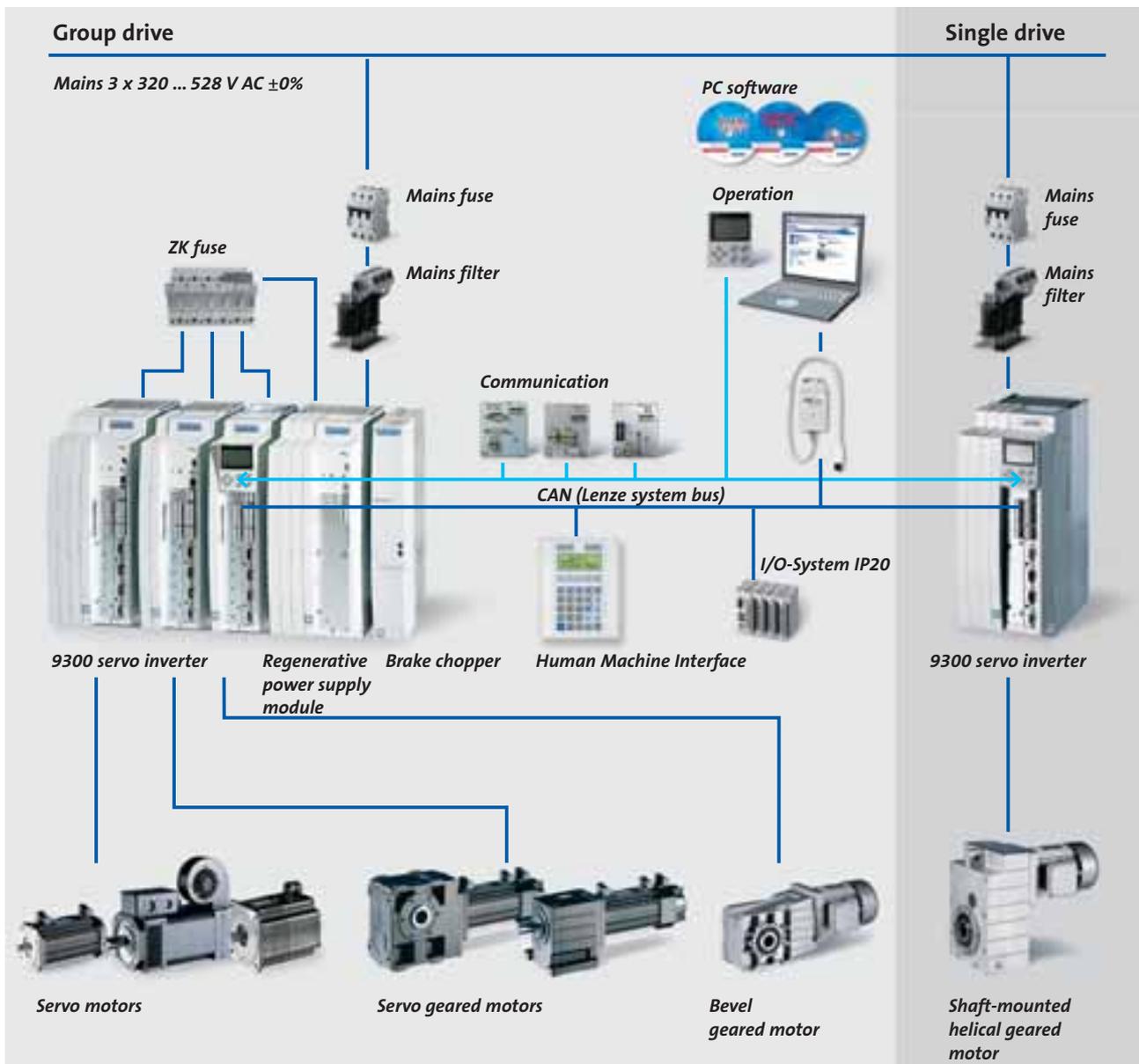


Technology functions | application-oriented

The 9300 servo inverter is available in five different designs

- ▶ Servo inverter
- ▶ Position controller
- ▶ Cam drive
- ▶ Register controller
- ▶ Servo PLC

Modern field-oriented control provides the requisite conditions for precise motion. Simple connections for resolvers or absolute encoder feedbacks using prepared system cables facilitate assembly.



9300 servo inverter | five designs

9300 servo inverter

The 9300 servo inverter is supplied with the frequently used basic functions of a servo drive on-board. The electronic gearbox is an essential technology function on this controller. As an alternative to a mechanical line shaft, digital frequency coupling can be used to run a number of drives in exact synchronism. Adjustable gearbox factors facilitate easy and flexible implementation of proportional synchronism. Feedback systems such as resolvers or sin/cos encoders ensure maximum accuracy.

Servo position control

Positioning made easy.

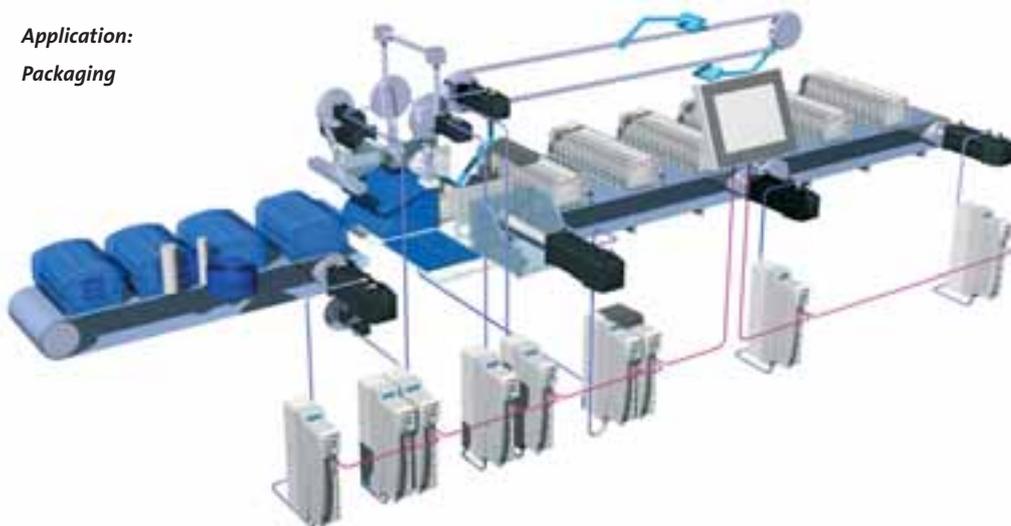
The 9300 servo position controller supports complete position control with sequence control as an on-board feature. This state-of-the-art solution makes commissioning easy; the process involves just a few input values rather than the complex programming language typical of an external positioning control. Responses from limit switches or other drives can be evaluated instantaneously. If the product's

initial position is heavily subject to tolerances, automatic material correction ensures reliable location of the target position.

Servo cam

Mechanical cams are often components of production machines. Product changeovers or modifications incur long and inconvenient set-up times. Up to eight different curve profiles can be saved on the 9300 servo cam, meaning that curves can be changed over instantaneously during production. Curve profiles can even be expanded/compressed or phase displacement implemented whilst online. A wide range of additional functions have been integrated to support the multiplicity of possible application cases for the servo cam. These include electronic camshaft controllers and mark-controlled curve start. A function supporting a constant welding time at variable cycle times has been implemented specifically for the opening and closing of welding bars.

*Application:
Packaging*



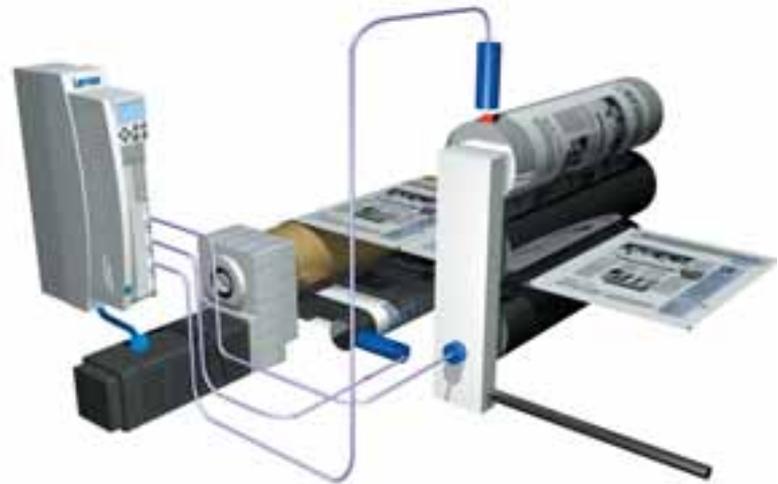
Servo register control

Many machines are designed to process webs. Overprinting, cuts, perforations, embossing marks and joins have to be positioned on the web exactly in accordance with a given print image. What makes this difficult is that settings that vary from one process to another (material properties, production parameters) mean that the print image has a tendency to move.

In addition to the fundamental requirement for an "electrical shaft", the need for higher-level high-precision alignment of the rotational motion with the print image also needs to be considered.

The register control already on-board the servo inverter continuously aligns the angular position of infeed rollers, printing cylinders, cutting rollers or other machining stations with the print image, thereby ensuring that overprinting, cuts, perforations, embossing marks, joins, etc. are always in the right place.

Drift becomes a thing of the past, despite the absence of a master control and phase shifting gearboxes.



Application:
Insetter

Servo PLC

Freely programmable, intelligent servo controllers are the key to putting together modular machine concepts in complex systems. The 9300 Servo PLC sets itself apart with maximum flexibility and integration capability. It supports free programming in the IEC 61131-3 languages. If you would like to implement ready-to-use solutions in complex drive tasks, you can rely on the technology functions of the 9300 Servo PLC 9300:

- ▶ Cam
- ▶ Winder
- ▶ Positioner

Communication with master controls takes place either directly via digital and analog interfaces or via any popular type of fieldbus.

Communication | interfaces

Industrial communication is being used in more and more sectors and therefore in an increasing number of applications. Lenze can offer easy-to-assemble fieldbus modules for the various bus systems.

Lenze supports communication via the following bus systems:

- ▶ INTERBUS
- ▶ DeviceNet
- ▶ LECOM-A/B/LI
- ▶ PROFIBUS-DP
- ▶ CAN
- ▶ AS-i
- ▶ CANopen
- ▶ EtherCAT

Communication modules

Communication modules (AIF = Application InterFace) are used in any application in which communication with a controller must take place via the fieldbus or digital and analog signals need to be read-in in parallel via the controller's I/O terminals.

These modules can be used on a range of drives, meaning that once you have learnt how to use them on one Lenze controller, you will be able to use them on others, saving an enormous amount of money as there is no need for separate training sessions.

This modular concept enables the controller to meet ever-changing requirements.



The interfaces

Designed for open communication:

- ▶ Mains supply and DC supply from above, DC buses can be connected for energy exchange
- ▶ Plain text – keypad simply plugs in
- ▶ Ease of integration into fieldbus systems via two standard interfaces:
 - Plug-in fieldbus modules
 - CAN system bus on-board
- ▶ Digital/analog inputs and outputs on-board, expansion is easy via the on-board system bus
- ▶ Support for various actual value encoders:
 - Resolvers, incremental encoders, sin/cos absolute encoders (single-turn/multi-turn)
- ▶ Digital synchronous system via digital frequency coupling for electrical shaft/electronic gearbox

Technical data | 9300 servo inverter

Type	9321	9322	9323	9324	9325	9326
Rated motor power [kW]	0.37	0.75	1.5	3.0	5.5	11.0
Rated output current [A]	1.5/1.05 ¹⁾	2.5/1.7 ¹⁾	3.9/2.6 ¹⁾	7.0/4.7 ¹⁾	13.0	23.5
Maximum current [A]	2.3/3.0 ¹⁾	3.8/5.0 ¹⁾	5.9/7.8 ¹⁾	10.5/14.0 ¹⁾	19.5	35.3
Mains voltage [V]	3 x 320...528 ± 0%					
Dimensions (height x width x depth) [mm]	350 x 78 x 250		350 x 97 x 250		350 x 135 x 250	

Type	9327	9328	9329	9330	9331	9332
Rated motor power [kW]	15.0	22.0	30.0	45.0	55.0	75.0
Rated output current [A]	32.0	47.0	59.0	89.0	110.0	145.0
Maximum current [A]	48.0	70.5	88.5	133.5	165.0	225.0
Mains voltage [V]	3 x 320...528 ± 0%					
Dimensions (height x width x depth) [mm]	350 x 250 x 250			591 x 340 x 285		680 x 440 x 285

¹⁾ Drive for accelerating duty operating mode



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."



Lenze drive and automation solutions

"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 60 years now we have been gathering experience in various fields and implementing it consistently and rigorously in our products, motion functions and pre-configured 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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