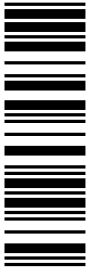


# L-force *Runtime Software*



Software Manual

## 9400



Technology application "actuator – speed"

### Overview of the technical documentation for Servo Drives 9400

#### Project planning, selecting & ordering

- ☐ 9400 Hardware Manual
- ☒ Catalogue / electronic catalogue (DSC - Drive Solution Catalogue)

#### Mounting & wiring

- ☒ MA 9400 StateLine/HighLine
- ☒ MA for communication module
- ☒ MA for extension module
- ☒ MA for safety module
- ☒ MA for accessories
- ☒ MA for remote maintenance components

#### Parameter setting

- ☒ BA keypad
- ☐ SW for Lenze »Engineer« software
- ☐ SW for controller (9400 StateLine/HighLine)
- ☐ SW for regenerative power supply module
- ☐ KHB for communication module
- ☐ SW for extension module
- ☐ SW for safety module
- ☐ SW for Lenze technology application
- ☐ SW 9400 function library

← This documentation

#### Configuring

- ☐ SW for Lenze »Engineer« software
- ☐ SW for controller (9400 HighLine)
- ☐ KHB for communication module
- ☐ SW for extension module
- ☐ SW for safety module
- ☐ SW for Lenze technology application
- ☐ SW 9400 function library

← This documentation

#### Commissioning of the drive

- ☒ Commissioning guide
- ☐ SW for controller (9400 StateLine/HighLine)
- ☐ Remote Maintenance Manual

#### Networking

- ☐ KHB for communication medium used

#### Legend:

- ☒ Printed documentation
- ☐ Online documentation (PDF/Engineer online help)

#### Abbreviations used:

- BA Operating Instructions
- KHB Communication Manual
- MA Mounting Instructions
- SW Software Manual

## Contents

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## 1 About this documentation

This documentation contains information about the technology application "Actuator - speed" for the Servo Drives 9400 series.



### Note!

This documentation supplements the mounting instructions supplied with the controller, the hardware manual and the software manual for the controller.

**The Mounting Instructions contain safety information which must be observed!**

The information in this documentation applies to:

| Technology application | Appl. ID  | Required runtime software licence |
|------------------------|-----------|-----------------------------------|
| Actuator – speed       | 100102101 | Available in every license stage  |

The technology application can be used with the following controllers:

| Product series    | Type designation | From hardware version | From software version |
|-------------------|------------------|-----------------------|-----------------------|
| 9400 Servo Drives | E94AxHExxx       | PD                    | 1.35                  |

### Target group

This documentation is directed at qualified personnel according to IEC 364.

### Document history

| Version |         |      | Description                                                        |
|---------|---------|------|--------------------------------------------------------------------|
| 1.0     | 04/2007 | TD05 | First edition                                                      |
| 1.1     | 10/2008 | TD05 | New subchapter " <a href="#">Parameterisable function blocks</a> " |

## 1.1 Conventions used

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

| Type of information       | Writing                                                                               | Examples/notes                                                                                                                                                                       |
|---------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Numbers                   |                                                                                       |                                                                                                                                                                                      |
| Decimal separator         | Point                                                                                 | The decimal point is always used.<br>Example: 1234.56                                                                                                                                |
| Text                      |                                                                                       |                                                                                                                                                                                      |
| Program name              | » «                                                                                   | The Lenze PC software »Engineer«...                                                                                                                                                  |
| Window pane               | <i>Italics</i>                                                                        | The <i>Message window</i> ... / The <i>Options</i> dialog box...                                                                                                                     |
| Control element           | <b>Bold</b>                                                                           | The <b>OK</b> button... / The <b>Copy</b> command... / The <b>Properties</b> tab... / The <b>Name</b> input field...                                                                 |
| Sequence of menu commands |                                                                                       | If the execution of a function requires several commands, the individual commands are separated by an arrow: Select <b>File</b> → <b>Open</b> to...                                  |
| Keyboard command          | < <b>Bold</b> >                                                                       | Use < <b>F1</b> > to open the Online Help.<br><br>If a command requires a combination of keys, a "+" is placed between the key symbols:<br>Use < <b>Shift</b> >+< <b>ESC</b> > to... |
| Program listings          | Courier                                                                               | <pre>IF var1 &lt; var2 THEN   a = a + 1 END IF</pre>                                                                                                                                 |
| Keyword                   | <b>Courier bold</b>                                                                   |                                                                                                                                                                                      |
| Hyperlink                 | <u>Underlined</u>                                                                     | Optically highlighted reference to another topic. It is activated with a mouse click in this online documentation.                                                                   |
| Symbols                   |                                                                                       |                                                                                                                                                                                      |
| Page reference            |  5 | Optically highlighted reference to another page. It is activated with a mouse click in this online documentation.                                                                    |
| Step-by-step instructions |    | Step-by-step instructions are indicated by a pictograph.                                                                                                                             |

## 1.2 Definition of notes used

The following signal words and symbols are used in this documentation to indicate dangers and important information:

### Safety instructions

Layout of the safety instructions:



#### **Danger!**

(characterises the type and severity of danger)

#### **Note**

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

| Pictograph | Signal word | Meaning                                                                                                                                                                                              |
|------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            | Danger!     | <b>Danger of personal injury through dangerous electrical voltage</b><br>Indicates an impending danger that may lead to death or severe personal injury if the corresponding measures are not taken. |
|            | Danger!     | <b>Danger of personal injury through a general source of danger</b><br>Indicates an impending danger that may lead to death or severe personal injury if the corresponding measures are not taken.   |
|            | Stop!       | <b>Danger of material damage</b><br>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              |
|            |             | Reference to another document             |

## 2 Brief description

The technology application "actuator – speed" enables the drive to create a speed to be defined. The speed setpoint can be complied with using a speed controller which adopts the motor torque to the prevailing load situation.

- ▶ The speed setpoint of the drive can be specified for both directions. The driven machine parts accordingly moves forwards or backwards. As an alternative to the inversion of the setpoint, the change of the direction of movement can be done via the digital input DI3.
- ▶ After the speed-controlled operation is enabled via the digital input DI2 the acceleration/deceleration of the drive to the setpoint is controlled via a ramp generator based on the current setpoint/actual speed.
- ▶ The maximum torque of the drive can also be controlled, if required.

### Basic drive functions

- ▶ A quick stop can be activated via the digital input DI1.
- ▶ A manual control is provided for the setting-up operation. It is enabled via the digital input DI6. The digital inputs DI7 and DI8 activate parameterisable setpoints for both directions of rotation.
- ▶ The basic function "limiter" enables the travel range to be monitored via limit switches.
- ▶ When a brake is available the brake control opens and closes the brake.

### Application range

- ▶ General servo drive for speed control of:
  - Conveyor drives (connected in one system)
  - Extruders
  - Test benches
  - Vibrators
  - Travelling drives
  - Presses
  - Machine tools
  - Dosing machines
- ▶ Actuator for higher-level controllers
  - Positioning drives with external position control
  - Multi-axis systems with external path control

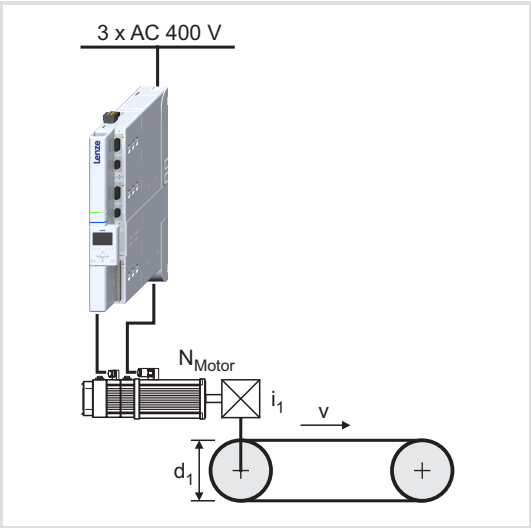
### Required license/delivery

- ▶ Available in every license stage.
- ▶ The technology application is saved at program memory location 2 in the memory module and can be selected from the »Engineer« application catalog.

3 Short setup

3.1 Application example

A conveyor drive is used as an application example for short setup:

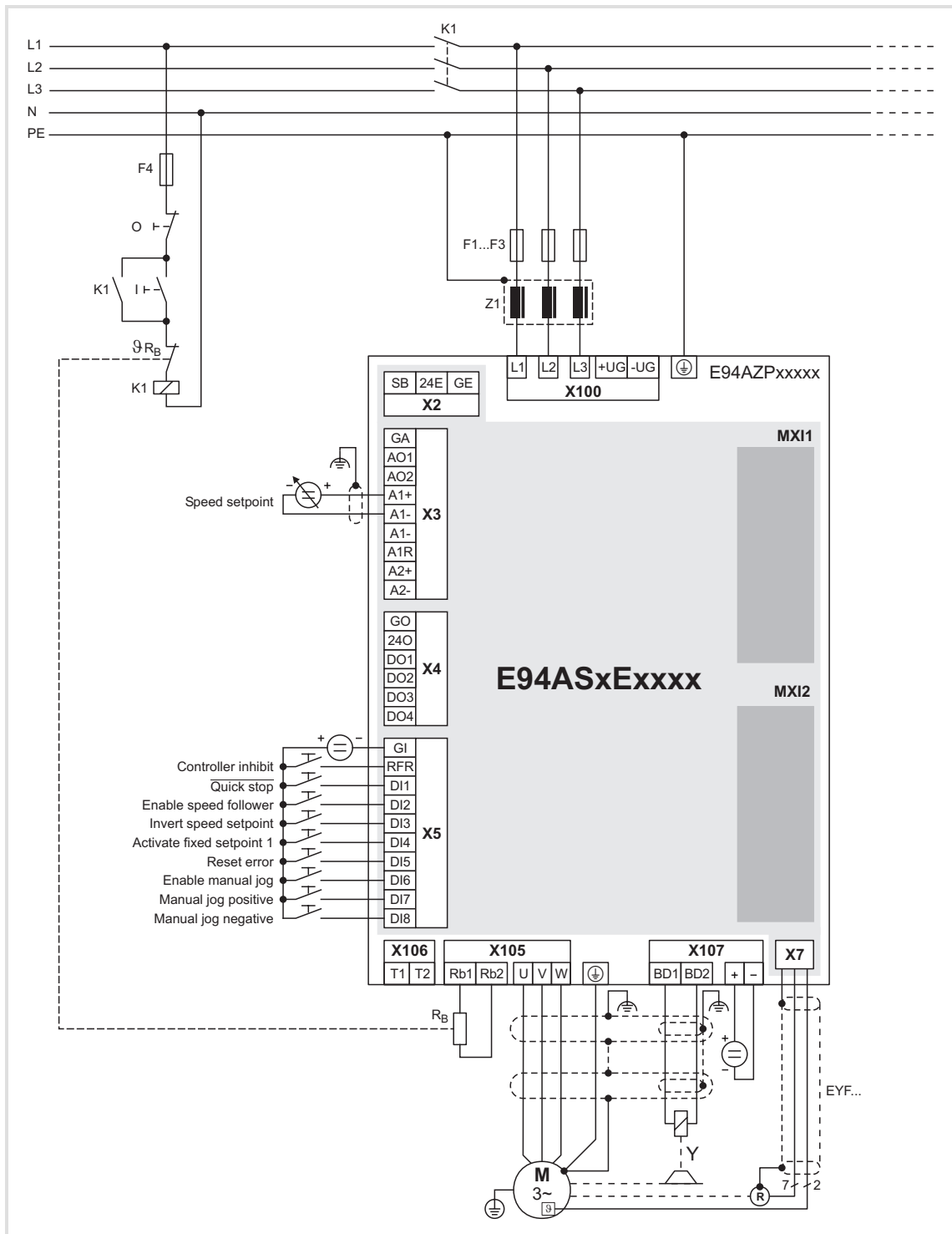


- ▶  $N_{\text{motor}} = 1680 \text{ rpm}$
- ▶  $i_1 = 12.612$
- ▶  $d_1 = 200 \text{ mm}$
- ▶  $v_{\text{max}} = 100 \text{ m/min}$

[3-1] Schematic diagram

| Component  | Technical data                              |                          |
|------------|---------------------------------------------|--------------------------|
| Controller | 9400 SingleDrive HighLine with brake module |                          |
| Motor      | MDFKA-090-22, 60                            |                          |
|            | Type:                                       | Asynchronous servo motor |
|            | Connection:                                 | Y                        |
|            | Power factor:                               | 0.8                      |
|            | Rated current:                              | 8.5 A                    |
|            | Rated frequency:                            | 60 Hz                    |
|            | Rated power:                                | 3.8 kW                   |
|            | Rated speed:                                | 1680 rpm                 |
|            | Rated voltage:                              | 390 V                    |
| Brake      | 24 V DC                                     |                          |
| Gearbox    | GKS06                                       |                          |
|            | Gearbox factor:                             | 12.612                   |

### 3.2 Connection diagram



[3-2] Connection diagram

## 9400 Technology applications | Actuator – speed

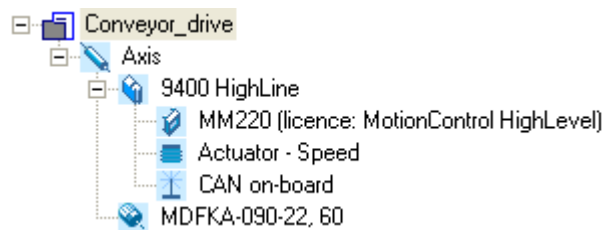
Short setup

Connection diagram

| Designation                                                                       | Component                                                                  |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| <b>E94ASxxxx</b>                                                                  | 9400 Single Drive servo axis module                                        |
| <b>E94AZPxxxx</b>                                                                 | Mounting backplane                                                         |
| <b>k1</b>                                                                         | Mains contactor                                                            |
| <b>F1 ... F4</b>                                                                  | Fuses                                                                      |
| <b>Z1</b>                                                                         | Mains filter/RFI filter (option)                                           |
|  | HF-shield termination through large-surface connection to functional earth |
| <b>EYF...</b>                                                                     | System cable for resolver feedback                                         |
| <b>R</b>                                                                          | Resolver                                                                   |
| <b>R<sub>B</sub></b>                                                              | Brake resistor                                                             |
| <b>Y</b>                                                                          | Motor holding brake (at optional motor brake control)                      |

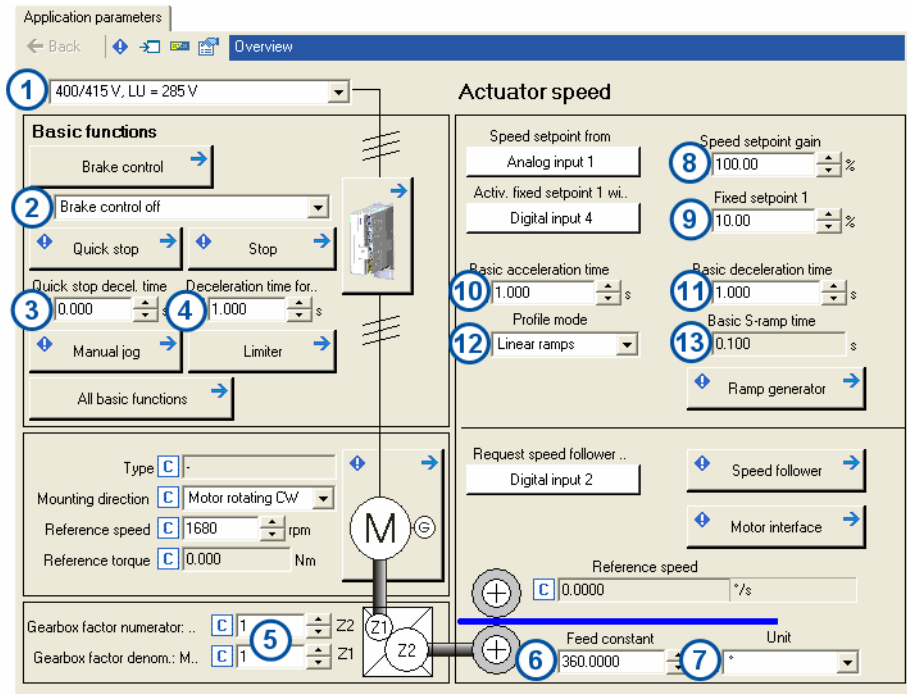
### 3.3 Step 1: Creating a project

1. Start »Engineer«.
2. Go to *Start-up wizard* and select the option "New project (empty)" and enter a name for the project in a next step.
3.  Insert the axis for the conveyor drive.
  - Add the corresponding components (controller, motor, extension module) to the axis.
  - Select the application "Actuator – Speed" for the controller.
  - Example *project view* in the »Engineer«:



#### 3.4 Step 2: Parameterising the application

For parameterising the application in the »Engineer«, use the **Application parameters** tab which will be displayed by default when selecting the controller in the *project view*:



1. Select the mains voltage (C00173).
2. If a brake is used: Activate automatic brake control via brake module (C02580 = "Autom. with brake module").
3. Select the deceleration time for quick stop (C00105), e.g. "0.1 s".
  - If digital input DI1 is set to LOW level, the drive is decelerated to standstill within the quick stop deceleration time independently of the setpoint selection.
4. Select the deceleration time for stop (C02610), e.g. "0.5 s".
  - If the speed follower is inhibited by resetting digital input DI2 to LOW level, the drive is decelerated within the deceleration time for stop.

**Note!**

The manual jog function requires the following gearbox ratio and feed constant settings.

- The manual jog function is parameterised in machine units.
- The selected gearbox ratio and the feed constant are furthermore used to calculate the reference speed of the machine "online".

5. Enter gearbox ratio as a quotient (numerator and denominator):  $i_1 = 12.612 = 12612/1000$ 
  - Numerator (C02520) = 12612
  - Denominator (C02521) = 1000
6. Set feed constant (C02524).
  - The feed constant corresponds to the motion of the machine at one revolution of the gearbox output shaft.
  - For the conveyor drive:  $V_k = d_1 \cdot \pi = 628.32 \text{ mm}$
7. Set the selection "mm" as unit (C02525).
  - This parameter is used to define the real unit of the machine for the selection of physical values (e. g. speeds, accelerations and decelerations).
8. If necessary, adapt the setpoint gain (C03002) for analog input 1.
  - The setpoint is selected via analog input 1 using the following normalisation:  
 $10 \text{ V} = 100 \% \text{ internal setpoint} = \text{reference speed of motor (C00011)}$
  - If a lower voltage is available for the setpoint selection, set the setpoint gain as follows:  $C03002 = 100 \% \cdot 10 \text{ V} / \text{max. input voltage}$
9. Select fixed setpoint 1 (C03500/1).
  - As an alternative to the analog setpoint, the fixed setpoint can be activated by setting digital input DI4 to HIGH level.
10. Select the acceleration time (C03502) for accelerating the drive, e.g. "0.5 s".
11. Select the deceleration time (C03503) for decelerating the drive, e.g. "0.5 s".
12. For low-jerk acceleration:  
 Select "S-shaped ramps" as profile mode for the ramp generator (C03010).
13. When selecting the profile mode "S-shaped ramps", select the S-ramp time (C03504).

#### 3.5 Step 3: Transferring the application to the controller



#### Note!

The transferred application is always stored in the first application memory location in the memory module of the controller.

The preinstalled technology applications on the following memory locations are still available.

1. Update devices.
  - Set the checkmark in the control field **Recreate all**.
  - Click **Create** to start the compiling process.
2. Go online and transfer the application to the controller.
  - With an online connection, the »Engineer« displays the current controller parameter settings with a yellow background colour:



#### Note!

The machine reference speed is the speed of the conveyor belt when the motor runs at reference speed (C00011) with 100 % setpoint.

- The indicated value corresponds to a speed of 83.7 m/min.
- For reaching a speed of 100 m/min with 10 V at the setpoint input, the setpoint gain can be increased to 120 % or the reference speed to 2010 rpm.

### 3.6 Step 4: Controlling the application via terminals

#### Terminal assignment

| Terminal |      | Assignment (Lenze setting)                                                                                                                                                                                                                                                                                                                                                                                                        |                                      |          |
|----------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------|
| X3       | AI1- | Speed setpoint <ul style="list-style-type: none"><li>• <math>\pm 10\text{ V} \equiv \pm 100\%</math> reference speed of motor (C00011)</li><li>▶ <a href="#">Speed setpoint conditioning</a> (📖 18)</li></ul>                                                                                                                                                                                                                     |                                      |          |
|          | AI1+ |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                      |          |
| X5       | RFR  | Controller enable                                                                                                                                                                                                                                                                                                                                                                                                                 |                                      |          |
|          | DI1  | Quick stop <ul style="list-style-type: none"><li>• If digital input DI1 is set to LOW level, the drive is decelerated to standstill within the deceleration time set for the quick stop function independent of the setpoint selection.</li><li>• If the quick stop function is deactivated, the drive is led to the selected setpoint again via the set acceleration time.</li><li>▶ <a href="#">Quick stop</a> (📖 25)</li></ul> |                                      |          |
|          | DI2  | Enable speed follower <ul style="list-style-type: none"><li>▶ <a href="#">Speed follower</a> (📖 23)</li></ul>                                                                                                                                                                                                                                                                                                                     |                                      |          |
|          | DI3  | Invert speed setpoint <ul style="list-style-type: none"><li>▶ <a href="#">Setpoint inversion</a> (📖 20)</li></ul>                                                                                                                                                                                                                                                                                                                 |                                      |          |
|          | DI4  | Activate fixed setpoint 1 as speed setpoint <ul style="list-style-type: none"><li>• Instead of the selection via the analog input 1 the fixed setpoint 1 is used as speed setpoint.</li><li>▶ <a href="#">Change-over to fixed setpoint</a> (📖 19)</li></ul>                                                                                                                                                                      |                                      |          |
|          | DI5  | Reset error <ul style="list-style-type: none"><li>• By means of a LOW-HIGH edge an existing error status can be reset if the cause of the fault is removed.</li></ul>                                                                                                                                                                                                                                                             |                                      |          |
|          | DI6  | Manual jog <ul style="list-style-type: none"><li>▶ <a href="#">Manual jog</a> (📖 24)</li></ul>                                                                                                                                                                                                                                                                                                                                    |                                      |          |
|          |      | DI7                                                                                                                                                                                                                                                                                                                                                                                                                               | DI8                                  | Function |
|          |      | LOW                                                                                                                                                                                                                                                                                                                                                                                                                               | LOW                                  | Stop     |
| HIGH     |      | LOW                                                                                                                                                                                                                                                                                                                                                                                                                               | Manual control in positive direction |          |
| LOW      |      | HIGH                                                                                                                                                                                                                                                                                                                                                                                                                              | Manual control in negative direction |          |
| HIGH     |      | HIGH                                                                                                                                                                                                                                                                                                                                                                                                                              | - (previous state remains active)    |          |

#### Procedure

1. Enable controller: Set digital input RFR to HIGH level.
2. Deactivate quick stop: Set digital input DI1 to HIGH level.
3. Enable speed follower: Set digital input DI2 to HIGH level.
4. Select speed setpoint via analog input 1.

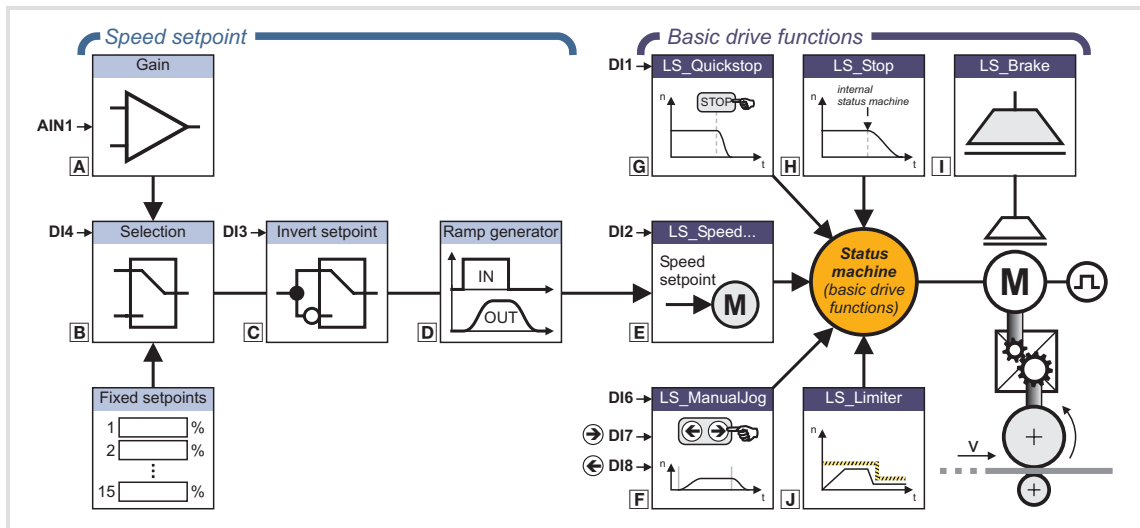


#### Tip!

As an alternative, you can activate fixed setpoint 1 by setting digital input DI4 to HIGH level.

## 4 Parameter setting & configuration

### 4.1 Basic signal flow



[4-1] Signal flow of the TA "Actuator – speed" (schematic diagram)

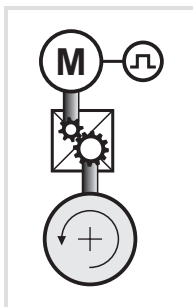
#### Speed setpoint conditioning

- Ⓐ Setpoint gain
- Ⓑ Selection of analog input/fixed setpoints
- Ⓒ Setpoint inversion
- Ⓓ Ramp generator

#### Basic drive functions

- Ⓔ Speed follower
- Ⓕ Manual jog
- Ⓖ Quick stop
- Ⓗ Stop
- Ⓘ Brake control (optional)
- ⓵ Limiter (optional)

## 4.2 Machine parameters



The machine parameters describe e.g. the motor end of the mechanics used.

The setting of the machine parameters in the »Engineer« is carried out on the **Application parameters** tab in the dialog level *Overview* → *Drive interface*.



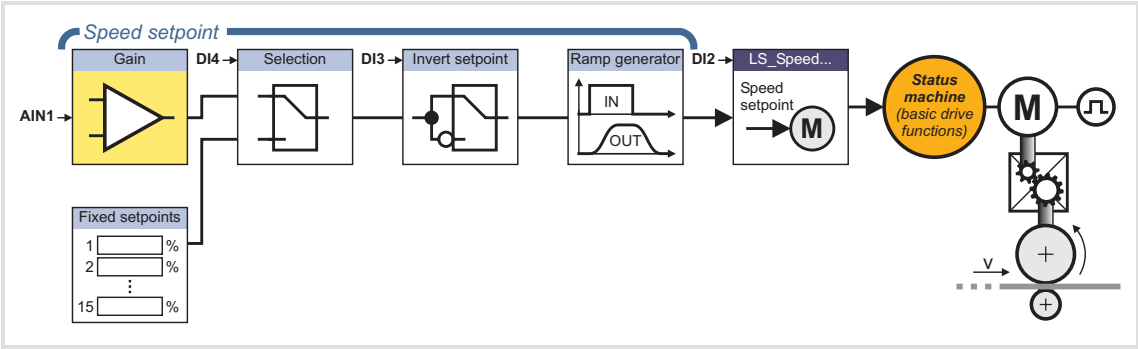
### Tip!

In the »Engineer« the most important machine parameters can be adapted to the machine on the **Application parameters** tab directly in the topmost *Overview* dialog level:

### Short overview of machine parameters

| Parameter                                        |                                  | Lenze setting     |                    |
|--------------------------------------------------|----------------------------------|-------------------|--------------------|
|                                                  |                                  | Value             | Unit               |
| C00173                                           | Mains voltage                    | 400/415           | V                  |
| C00174                                           | Undervoltage (LU) threshold      | 285               | V                  |
| C00600                                           | Resp. to DC bus overvoltage      | Trouble           |                    |
| C02520                                           | Gearbox factor numerator: Motor  | 1                 |                    |
| C02521                                           | Gearbox factor denom: Motor      | 1                 |                    |
| C02527                                           | Motor mounting direction         | Motor rotating CW |                    |
| C02570                                           | Position control structure       | Phase control     |                    |
| C02522                                           | Gearbox factor num.: Pos. enc.   | 1                 |                    |
| C02523                                           | Gearbox factor denom.: Pos. enc. | 1                 |                    |
| <b>Description of the mechanics (load, tool)</b> |                                  |                   |                    |
| C02528                                           | Traversing range                 | Unlimited         |                    |
| C02524                                           | Feed constant                    | 360.0000          | unit               |
| C02525                                           | Unit                             | °                 |                    |
| C02526                                           | User-defined unit                | °                 |                    |
| C02533                                           | Time unit                        | s                 |                    |
| C00273/1                                         | Motor moment of inertia          | Motor-dependent   | kg cm <sup>2</sup> |
| C00273/2                                         | Load moment of inertia           | 0.00              | kg cm <sup>2</sup> |

4.3 Speed setpoint conditioning



[4-2] Speed setpoint conditioning (schematic diagram)

The speed setpoint is defined in the Lenze setting via the analog input 1 and take place in both directions (bipolar) and accordingly the driven machine part moves forward or backward.

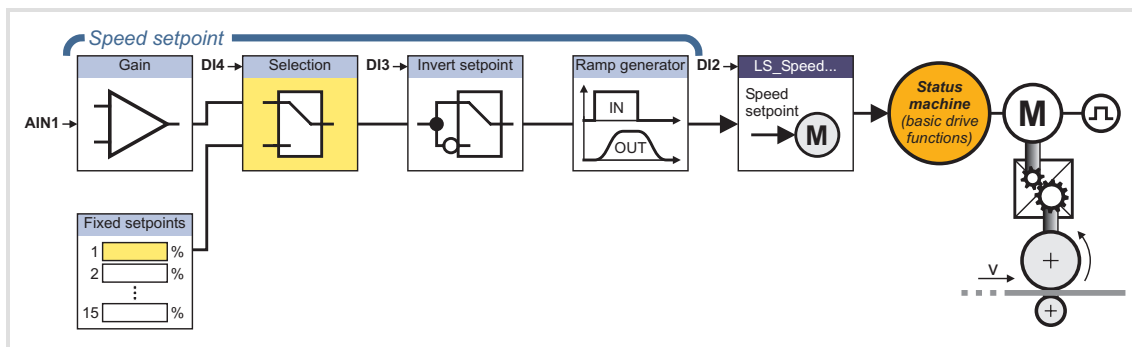
► Parameter setting: Tab **Application parameters** → dialog level *Overview*

| Parameter |               | Lenze setting |      |
|-----------|---------------|---------------|------|
|           |               | Value         | Unit |
| C03002    | Setpoint gain | 100.00        | %    |

| Setpoint inputs of the function |                  | Signal configuration<br>(Multiplexer parameters) |
|---------------------------------|------------------|--------------------------------------------------|
| Lenze setting                   | Setpoint input   |                                                  |
| AIN 1                           | → Speed setpoint | C03000                                           |

#### 4.3.1 Change-over to fixed setpoint



[4-3] Additional offset for the speed limit value (schematic diagram)

Via the digital input DI4 a change-over to a parameterisable fixed setpoint can take place.

► Parameter setting: Tab **Application parameters** → dialog level *Overview*

| Parameter |                  | Lenze setting |      |
|-----------|------------------|---------------|------|
|           |                  | Value         | Unit |
| C03500/1  | Fixed setpoint 1 | 10.00         | %    |

| Control inputs of the function |                             | Signal configuration<br>(Multiplexer parameters) |
|--------------------------------|-----------------------------|--------------------------------------------------|
| Lenze setting                  | Control input               |                                                  |
| DIGIN 4                        | → Activate fixed setpoint 1 | C03009/4                                         |

#### Use of further fixed setpoints

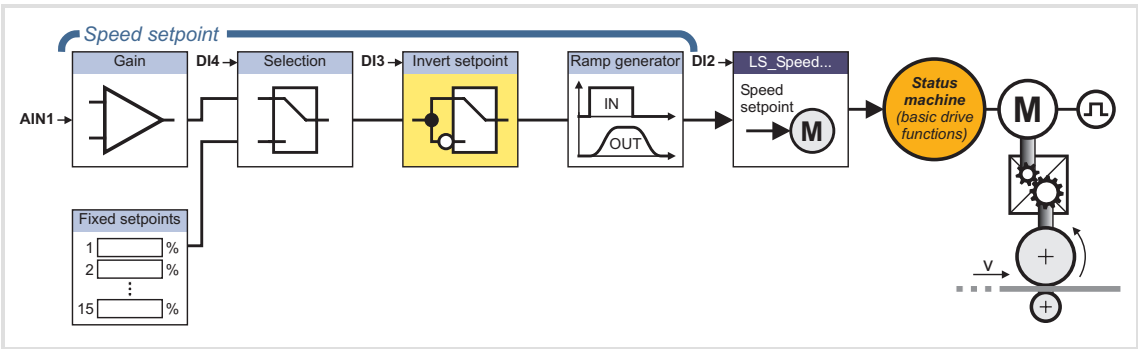
A total of 15 different fixed setpoints can be parameterised. For the selection of the fixed setpoints 2 ... 15 the selection inputs are to be assigned with the corresponding signals. The selection of the fixed setpoints is carried out in a binary coded manner.

► Parameter setting: Tab **Application parameters** → dialog level *Overview* → *Ramp generator* → *All fixed setpoints*

| Parameter  |                    | Lenze setting |      |
|------------|--------------------|---------------|------|
|            |                    | Value         | Unit |
| C03500/1   | Fixed setpoint 1   | 10.00         | %    |
| C03500/2   | Fixed setpoint 2   | 0.00          | %    |
| C03500/... | Fixed setpoint ... | ...           | ...  |
| C03500/15  | Fixed setpoint 15  | 0.00          | %    |

| Control inputs of the function |                               | Signal configuration<br>(Multiplexer parameters) |
|--------------------------------|-------------------------------|--------------------------------------------------|
| Lenze setting                  | Control input                 |                                                  |
| DIGIN 4                        | → Activate fixed setpoint 1   | C03009/4                                         |
| FALSE                          | → Activate fixed setpoint 2 a | C03009/5                                         |
| FALSE                          | → Activate fixed setpoint 4 a | C03009/6                                         |
| FALSE                          | → Activate fixed setpoint 8 a | C03009/7                                         |

4.3.2 Setpoint inversion



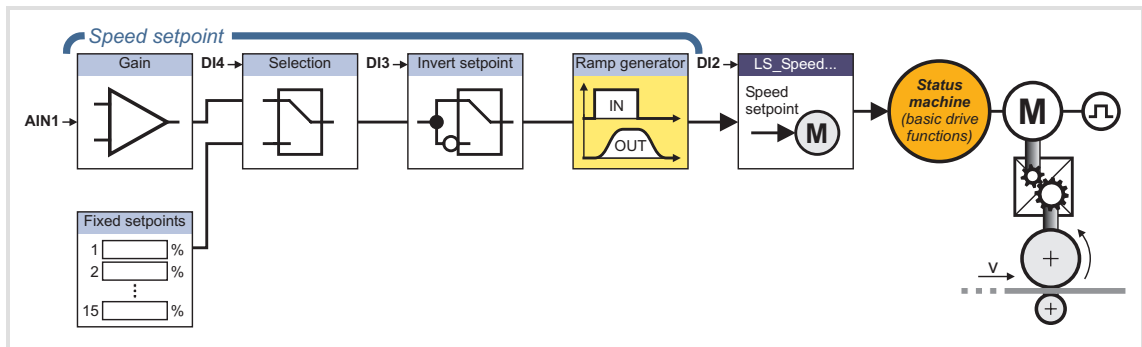
[4-4] Setpoint inversion (schematic diagram)

Via the digital input DI3 the effective direction of the (bipolar) setpoint can be inverted, if required.

► Parameter setting: Tab **Application parameters** → dialog level *Overview* → *Ramp generator*

| Control inputs of the function |                                | Signal configuration     |
|--------------------------------|--------------------------------|--------------------------|
| Lenze setting                  | Control input                  | (Multiplexer parameters) |
| DIGIN 3                        | → Invert direction of rotation | C03009/1                 |

#### 4.3.3 Speed ramp generator



[4-5] Ramp generator (schematic diagram)

In order to avoid setpoint step-changes the speed setpoint passes a ramp generator with a parameterisable acceleration/deceleration and S-ramp time before it is transmitted to the basic drive function "Speed follower".

► Parameter setting: Tab **Application parameters** → dialog level *Overview*

| Parameter |                         | Lenze setting |      |
|-----------|-------------------------|---------------|------|
|           |                         | Value         | Unit |
| C03502    | Basic acceleration time | 1.000         | s    |
| C03503    | Basic deceleration time | 1.000         | s    |
| C03504    | Basic S-ramp time       | 0.100         | s    |
| C03510    | Profile mode            | Linear ramps  |      |

#### Use of further ramp parameter sets

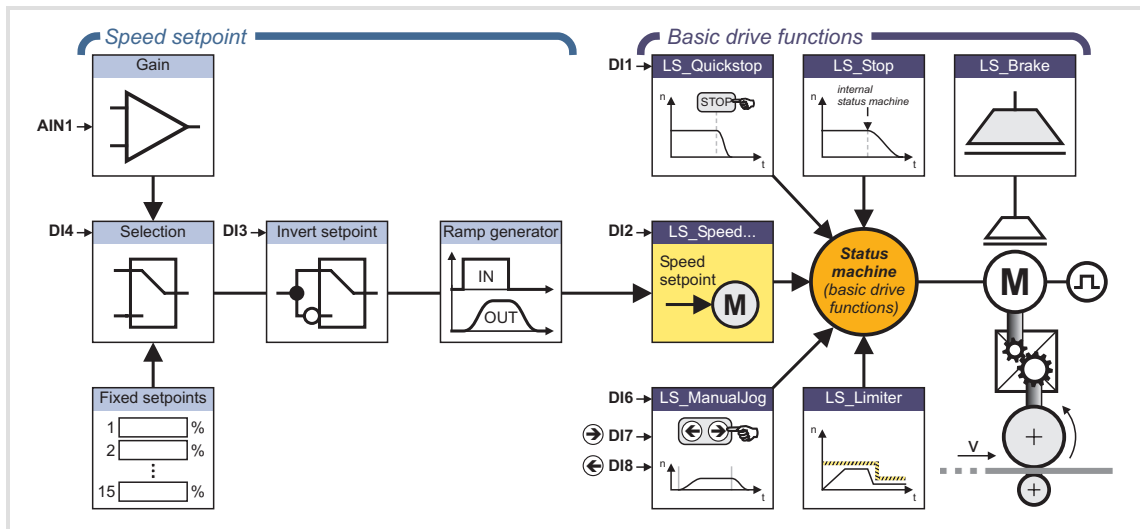
If required, 15 further ramp parameter sets can be parameterised. For the selection of the ramp parameter sets 1 ... 15 the selection inputs are to be assigned with the corresponding signals. The selection of the ramp parameter sets is carried out in a binary coded manner.

- Parameter setting: Tab **Application parameters** → dialog level *Overview* → *Ramp generator* → *All ramp parameters*

| Parameter  |                       | Lenze setting |      |
|------------|-----------------------|---------------|------|
|            |                       | Value         | Unit |
| C03512/1   | Acceleration time 1   | 0.000         | s    |
| C03512/... | Acceleration time ... | ...           | ...  |
| C03512/15  | Acceleration time 15  | 0.000         | s    |
| C03513/1   | Deceleration time 1   | 0.000         | s    |
| C03513/... | Deceleration time ... | ...           | ...  |
| C03513/15  | Deceleration time 15  | 0.000         | s    |
| C03514/1   | S-ramp time 1         | 0.000         | s    |
| C03514/... | S-ramp time           | ...           | ...  |
| C03514/15  | S-ramp time 15        | 0.000         | s    |

| Control inputs of the function |                                   | Signal configuration     |
|--------------------------------|-----------------------------------|--------------------------|
| Lenze setting                  | Control input                     | (Multiplexer parameters) |
| FALSE                          | → Activate ramp parameter set 1 a | C03009/8                 |
| FALSE                          | → Activate ramp parameter set 2   | C03009/9                 |
| FALSE                          | → Activate ramp parameter set 4   | C03009/10                |
| FALSE                          | → Activate ramp parameter set 8 a | C03009/11                |

#### 4.4 Speed follower

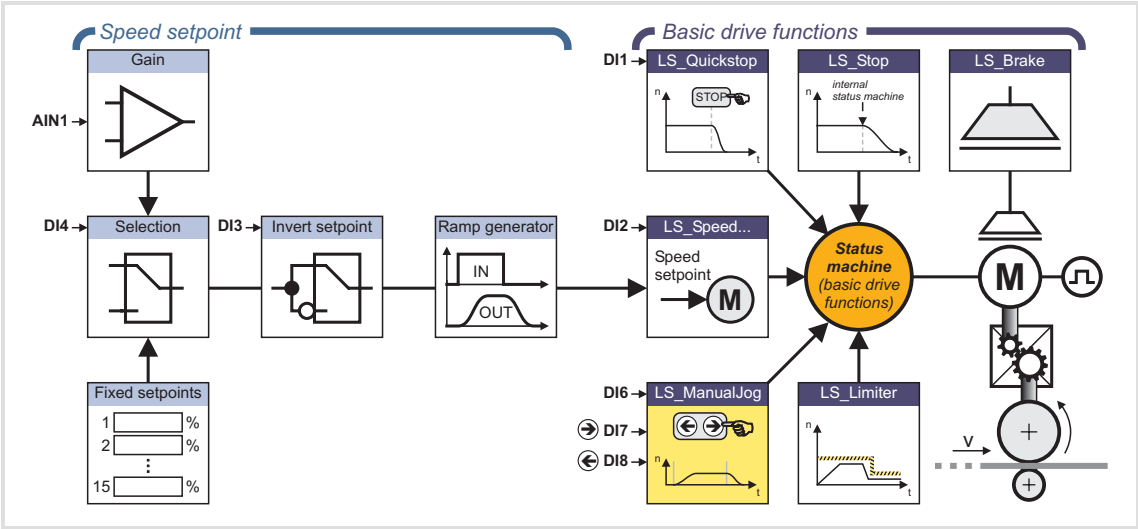


[4-6] Basic function "Speed follower" (schematic diagram)

The speed-controlled operation is requested via the digital input DI2. If no other basic function and error state are active, the speed-controlled operation is enabled.

- The acceleration/deceleration of the drive to the setpoint is controlled via a ramp generator based on the current setpoint/actual speed.
- If the enable of the speed-controlled operation is reset via the digital input DI2, the drive is decelerated to standstill via an independent profile generator of the basic function "Stop".

4.5 Manual jog



[4-7] Basic function "Manual jog" (schematic diagram)

For the setting-up operation the basic function "Manual jog" is available. It is requested via the digital input DI6. If no other basic function and error status are active, enable is carried out and the manual jog via the digital inputs DI7 and DI8 is possible.

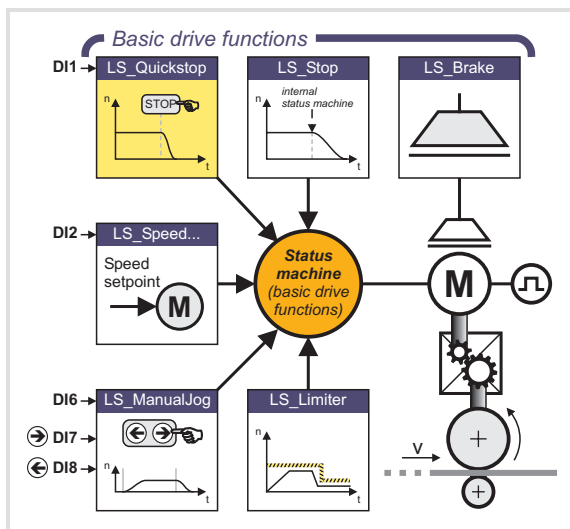
► Parameter setting: Tab **Application parameters** → dialog level *Overview* → *Manual jog*

| Parameter |                          | Lenze setting |                     |
|-----------|--------------------------|---------------|---------------------|
|           |                          | Value         | Unit                |
| C02620    | Manual jog: Speed 1      | 360.0000      | unit/s              |
| C02621    | Manual jog: Speed 2      | 720.0000      | unit/s              |
| C02622    | Manual jog: Acceleration | 360.0000      | unit/s <sup>2</sup> |
| C02623    | Manual jog: Deceleration | 1440.0000     | unit/s <sup>2</sup> |
| C02624    | Manual jog: S-ramp time  | 0.100         | s                   |

| Control inputs of the function |                                | Signal configuration<br>(Multiplexer parameters) |
|--------------------------------|--------------------------------|--------------------------------------------------|
| Lenze setting                  | Control input                  |                                                  |
| DIGIN 6                        | → Request manual jog           | C03155/1                                         |
| DIGIN 7                        | → Activate positive manual jog | C03155/2                                         |
| DIGIN 8                        | → Activate negative manual jog | C03155/3                                         |
| FALSE                          | → Activate 2. speed            | C03155/4                                         |

## 4.6

## Quick stop



[4-8] Basic function "Quick stop" (schematic diagram)

The basic function "Quick stop" brakes the drive to standstill within the deceleration time set for the quick stop function after a corresponding request independent of the setpoint selection.

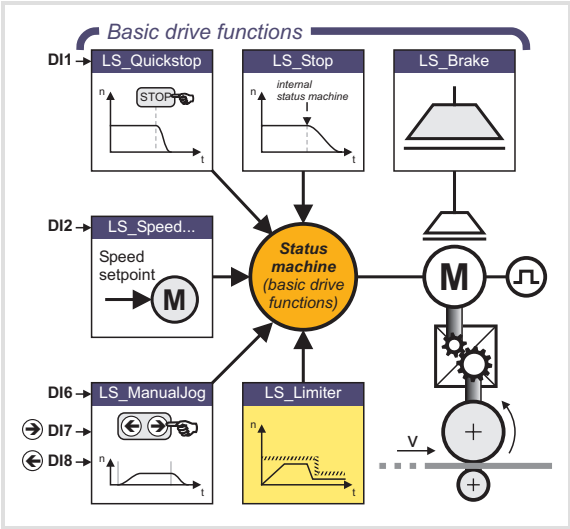
If the quick stop function is deactivated, the drive is led to the selected setpoint again via the acceleration time set in the speed ramp generator.

- The quick stop function can be activated as follows in the Lenze setting:
  - By setting the digital input DI1 to LOW level.
  - By a master control via the port *LPortControl1*:  
By setting bit 2 of the bit-coded control word 1.
- Parameter setting: Tab **Application parameters** → dialog level *Overview* → *Quick stop*

| Parameter |                                            | Lenze setting                  |      |
|-----------|--------------------------------------------|--------------------------------|------|
|           |                                            | Value                          | Unit |
| C00105    | Quick stop deceleration time               | 0.000                          | s    |
| C00106    | Quick stop S-ramp time                     | 0.00                           | %    |
| C00107    | Reference for quick stop deceleration time | Motor reference speed (C00011) |      |

| Control inputs of the function |                         | Signal configuration<br>(Multiplexer parameters) |
|--------------------------------|-------------------------|--------------------------------------------------|
| Lenze setting                  | Control input           |                                                  |
| DIGIN 1                        | → Activate quick stop 1 | C03135/1                                         |
| Control word 1 bit 02          | → Activate quick stop 2 | C03135/2                                         |
| FALSE                          | → Activate quick stop 3 | C03135/3                                         |

4.7 Limiter



[4-9] Basic function "Limiter" (schematic diagram)

The basic function "Limiter", where applicable, by means of limit switches monitors travel range limits.

In the case of homing, positioning and manual jog the basic function "Limiter" if required provides for the compliance with kinematic limit values.



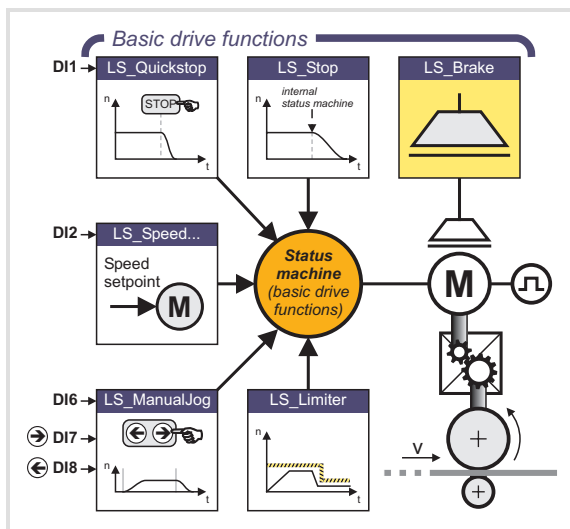
Note!

The parameterised limit values are not effective for the basic functions "speed follower", "torque follower", and "position follower"!  
For the exceeding of the limit values an error response can be set.

► Parameter setting: Tab **Application parameters** → dialog level *Overview* → *Limiter*

| Parameter                                   |                                   | Lenze setting            |                     |
|---------------------------------------------|-----------------------------------|--------------------------|---------------------|
|                                             |                                   | Value                    | Unit                |
| Only for homing, positioning and manual jog |                                   |                          |                     |
| C02702                                      | Limitations are active            | Deactivated              |                     |
| C02703                                      | Max. speed                        | 3600.0000                | unit/s              |
| C02705                                      | Max. acceleration                 | 3600.0000                | unit/s <sup>2</sup> |
| C02706                                      | Min. S-ramp time                  | 100                      | ms                  |
| C02707                                      | Permissible direction of rotation | Positive and negative    |                     |
| Control inputs of the function              |                                   | Signal configuration     |                     |
| Lenze setting                               | Control input                     | (Multiplexer parameters) |                     |
| FALSE                                       | → Positive limit switch           | C03150/1                 |                     |
| FALSE                                       | → Negative limit switch           | C03150/2                 |                     |

## 4.8 Brake control



[4-10] Basic function "Brake control" (schematic diagram)

The basic function "Brake control" serves to the wear free control and monitoring of a holding brake.

In the simplest case, an optionally available brake module is used.

Alternatively the holding brake can also be controlled and monitored via the digital inputs/outputs.

**Note!**

In the Lenze setting the brake control is switched off to reach a safe status after mains connection.

► Parameter setting: Tab **Application parameters** → dialog level *Overview* → *Brake control*

| Parameter |                                  | Lenze setting              |      |
|-----------|----------------------------------|----------------------------|------|
|           |                                  | Value                      | Unit |
| C02580    | Operating mode of brake          | Brake control off          |      |
| C02581    | Brake activation threshold       | 50                         | rpm  |
| C02582    | Brake response to pulse inhibit  | Activate brake immediately |      |
| C02583    | Status input monitoring          | Not active                 |      |
| C02585    | Brake control polarity           | Not inverted               |      |
| C02586    | Starting torque 1                | 0.00                       | Nm   |
| C02587    | Starting torque 2                | 0.00                       | Nm   |
| C02588    | Starting torque source           | Starting torque 1/2        |      |
| C02589    | Brake closing time               | 100                        | ms   |
| C02590    | Brake opening time               | 100                        | ms   |
| C02591    | Waiting time - status monitoring | 100                        | ms   |
| C02593    | Waiting time - brake activation  | 0.000                      | s    |
| C02594    | Test torque                      | 0.00                       | Nm   |
| C02595    | Permissible angle of rotation    | 5                          | °    |
| C02596    | Grinding speed                   | 100                        | rpm  |
| C02597    | Accel./decel. time - grinding    | 1.000                      | s    |
| C02598    | Grinding ON time                 | 0.5                        | s    |
| C02599    | Grinding OFF time                | 0.5                        | s    |

## 9400 Technology applications | Actuator – speed

Parameter setting & configuration

Brake control

| Control/setpoint inputs of the function |                                 | Signal configuration     |
|-----------------------------------------|---------------------------------|--------------------------|
| Lenze setting                           | Control/setpoint input          | (Multiplexer parameters) |
| FALSE                                   | → Open brake (release)          | C03165/1                 |
| FALSE                                   | → Activate starting torque 2    | C03165/2                 |
| FALSE                                   | → Keep open brake at standstill | C03165/3                 |
| FALSE                                   | → Brake status signal           | C03165/4                 |
| FALSE                                   | → Activate brake test           | C03165/5                 |
| FALSE                                   | → Grind brake                   | C03165/6                 |
| 0 %                                     | → Additional torque             | C03166                   |

## 4.9 Signal configuration

### 4.9.1 Drive and motor interface

If required, the preset signal configuration of the control and setpoint inputs of the drive and motor interface can be easily reconfigured per parameter setting of the assigned multiplexer parameters.

#### Drive interface

| Signal (Lenze setting) | Control input            | Signal configuration |
|------------------------|--------------------------|----------------------|
| FALSE                  | → Set controller inhibit | C03130/1             |
| DIGIN 5                | → Reset error 1          | C03130/2             |
| Control word 1 bit 07  | → Reset error 2          | C03130/3             |
| FALSE                  | → Reset error 3          | C03130/4             |
| FALSE                  | → Set error              | C03130/5             |
| Control word 1 bit 00  | → Switch on drive        | C03130/6             |

#### Motor interface

| Signal (Lenze setting) | Setpoint input               | Signal configuration |
|------------------------|------------------------------|----------------------|
| 100 %                  | → Upper torque limit value   | C03141/1             |
| -100 %                 | → Lower torque limit value   | C03141/2             |
| 100 %                  | → Adaptation of mass inertia | C03141/3             |

#### 4.9.2 Output ports

If required, the preset signal configuration of the output ports can be easily reconfigured per parameter setting of the assigned multiplexer parameters.

##### Output port "LPortAxisOut1"

The output port **LPortAxisOut1** is intended for the connection with a following axis.

| Signal (Lenze setting)                              | Output port                                                                                | Signal configuration |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------|----------------------|
| <b>Axis status word</b>                             |                                                                                            |                      |
| • Application-specific signals can be supplemented. |                                                                                            |                      |
| Drive ready                                         | → Axis status word bit 00                                                                  | C03120/1             |
| FALSE                                               | → Axis status word bit 01                                                                  | C03120/2             |
| Operation enabled                                   | → Axis status word bit 02                                                                  | C03120/3             |
| Error is active                                     | → Axis status word bit 03                                                                  | C03120/4             |
| FALSE                                               | → Axis status word bit 04                                                                  | C03120/5             |
| Quick stop is active                                | → Axis status word bit 05                                                                  | C03120/6             |
| Drive is ready to start                             | → Axis status word bit 06                                                                  | C03120/7             |
| Warning is active                                   | → Axis status word bit 07                                                                  | C03120/8             |
| FALSE                                               | → Axis status word bit 08                                                                  | C03120/9             |
| FALSE                                               | → Axis status word bit 09                                                                  | C03120/10            |
| FALSE                                               | → Axis status word bit 10                                                                  | C03120/11            |
| Motor control in limitation                         | → Axis status word bit 11                                                                  | C03120/12            |
| FALSE                                               | → Axis status word bit 12                                                                  | C03120/13            |
| FALSE                                               | → Axis status word bit 13                                                                  | C03120/14            |
| FALSE                                               | → Axis status word bit 14                                                                  | C03120/15            |
| FALSE                                               | → Axis status word bit 15                                                                  | C03120/16            |
| <b>Setpoints for horizontal communication</b>       |                                                                                            |                      |
| Filtered torque setpoint                            | → Axis-Port Out 1                                                                          | C03124/1             |
|                                                     | Scaling:<br>$16384 \equiv 2^{14} \equiv 100\% \text{ motor reference torque (C00057/2)}$   |                      |
| Speed setpoint                                      | → Axis-Port Out 2                                                                          | C03124/2             |
|                                                     | Scaling:<br>$1073741824 \equiv 2^{30} \equiv 100\% \text{ motor reference speed (C00011)}$ |                      |

#### Output port "LPortStatus1"

The output port **LPortStatus1** is intended for the connection with a higher-level control.

| Signal (Lenze setting)      | Output port            | Signal configuration |
|-----------------------------|------------------------|----------------------|
| <b>Status word 1</b>        |                        |                      |
| Drive ready                 | → Status word 1 bit 00 | C03121/1             |
| FALSE                       | → Status word 1 bit 01 | C03121/2             |
| Operation enabled           | → Status word 1 bit 02 | C03121/3             |
| Error is active             | → Status word 1 bit 03 | C03121/4             |
| FALSE                       | → Status word 1 bit 04 | C03121/5             |
| Quick stop is active        | → Status word 1 bit 05 | C03121/6             |
| Drive is ready to start     | → Status word 1 bit 06 | C03121/7             |
| Warning is active           | → Status word 1 bit 07 | C03121/8             |
| FALSE                       | → Status word 1 bit 08 | C03121/9             |
| FALSE                       | → Status word 1 bit 09 | C03121/10            |
| FALSE                       | → Status word 1 bit 10 | C03121/11            |
| Motor control in limitation | → Status word 1 bit 11 | C03121/12            |
| FALSE                       | → Status word 1 bit 12 | C03121/13            |
| FALSE                       | → Status word 1 bit 13 | C03121/14            |
| FALSE                       | → Status word 1 bit 14 | C03121/15            |
| FALSE                       | → Status word 1 bit 15 | C03121/16            |

#### Output port "LPortStatus2"

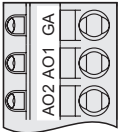
| Signal (Lenze setting) | Output port            | Signal configuration |
|------------------------|------------------------|----------------------|
| <b>Status word 2</b>   |                        |                      |
| FALSE                  | → Status word 2 bit 00 | C03122/1             |
| FALSE                  | → Status word 2 bit 01 | C03122/2             |
| FALSE                  | → Status word 2 bit 02 | C03122/3             |
| FALSE                  | → Status word 2 bit 03 | C03122/4             |
| FALSE                  | → Status word 2 bit 04 | C03122/5             |
| FALSE                  | → Status word 2 bit 05 | C03122/6             |
| FALSE                  | → Status word 2 bit 06 | C03122/7             |
| FALSE                  | → Status word 2 bit 07 | C03122/8             |
| FALSE                  | → Status word 2 bit 08 | C03122/9             |
| FALSE                  | → Status word 2 bit 09 | C03122/10            |
| FALSE                  | → Status word 2 bit 10 | C03122/11            |
| FALSE                  | → Status word 2 bit 11 | C03122/12            |
| FALSE                  | → Status word 2 bit 12 | C03122/13            |
| FALSE                  | → Status word 2 bit 13 | C03122/14            |
| FALSE                  | → Status word 2 bit 14 | C03122/15            |
| FALSE                  | → Status word 2 bit 15 | C03122/16            |

#### 4.10 Actual value and status signals

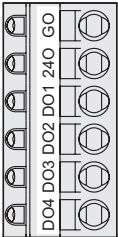
The following tables contain the Lenze assignment of the analog and digital outputs for the technology application "actuator - speed".

- The default signal configuration if required can be easily changed by parameterising the multiplexer parameters assigned.

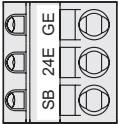
##### Analog outputs

| Terminal X3                                                                       | Signal (Lenze setting)                                                                                       | Signal configuration |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|----------------------|
|  | <b>AO1</b> Speed setpoint<br>• Scaling: $\pm 10\text{ V} \equiv$ motor reference speed (C00011)              | C03110/1             |
|                                                                                   | <b>AO2</b> Filtered torque setpoint<br>• Scaling: $\pm 10\text{ V} \equiv$ Motor reference torque (C00057/2) | C03110/2             |

##### Digital outputs

| Terminal X4                                                                        | Signal (Lenze setting)                                                                                                                                                                                                                                      | Signal configuration |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
|  | <b>DO1</b> Status "Drive ready"<br>• DC-bus voltage is available and no error has occurred.                                                                                                                                                                 | C03100/1             |
|                                                                                    | <b>DO2</b> Status "Speed follower enabled"<br>• The speed follower has been enabled via the digital input DI2.                                                                                                                                              | C03100/2             |
|                                                                                    | <b>DO3</b> Status "Speed follower in limitation"<br>• The enabled speed follower is in the limitation for more than 100 ms.<br>• The setpoint is limited to the upper or lower speed limit value (C00909/1 or C00909/2).                                    | C03100/3             |
|                                                                                    | <b>DO4</b> Status "Error active acknowledgement is required"<br>• A monitoring function with the error response "Error" or "Quick stop by trouble" has been activated and the controller is in the status "Error active" or "Quick stop by trouble active". | C03100/4             |

##### State bus

| Terminal X2                                                                         | Signal (Lenze setting)                                                                                                                                                                                                                                                   | Signal configuration |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
|  | <b>SB</b> Status "Speed follower in limitation"<br>• The enabled speed follower is in the limitation for more than 100 ms.<br>• The setpoint is limited to the upper or lower speed limit value (C00909/1 or C00909/2).<br>• The state bus is put in the "error" status. | C03100/5             |

##### Display elements

| User LED                                                                            | Signal (Lenze setting)                                                                              | Signal configuration |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------|
|  | Status "Speed follower enabled"<br>• The speed follower has been enabled via the digital input DI2. | C03100/6             |

#### 4.11 Application error messages

For the output of application-specific error messages, an FB instance *L\_DevApplErr1* of the function block **L\_DevApplErr** is available.

- Via the 8 boolean inputs up to 8 different application error messages with parameterisable module ID, error ID and error response can be activated by the application.

| Error message |                              | Error ID | Error response |
|---------------|------------------------------|----------|----------------|
| 1             | Speed follower in limitation | 8001     | Warning locked |
| 2             | -                            | 8000     | Error          |
| 3             | -                            | 8000     | Error          |
| 4             | -                            | 8000     | Error          |
| 5             | -                            | 8000     | Error          |
| 6             | -                            | 8000     | Error          |
| 7             | -                            | 8000     | Error          |
| 8             | -                            | 8000     | Error          |

- Parameter setting: Tab **All parameters**

| Parameter    |                        | Lenze setting   |
|--------------|------------------------|-----------------|
| C05900       | Module ID              | 980             |
| C05901/1...8 | Error ID 1 ... 8       | See table above |
| C05902/1...8 | Error response 1 ... 8 | See table above |

#### Reset of error message

In the Lenze setting the digital input DI5 for resetting (acknowledging) an error message is connected to the input *DI\_bResetError1* of the drive interface.

#### 4.12 Parameterisable function blocks

This subchapter lists all relevant parameterisable function blocks of the technology application and the corresponding parameters in alphabetical order.

##### 4.12.1 L\_DevApplErr1

| Is an instance of | Function                                                              |  |  |
|-------------------|-----------------------------------------------------------------------|--|--|
| L_DevApplErr      | Error handling<br>▶ <a href="#">Application error messages</a> (📖 33) |  |  |

| Parameter    | Possible settings |                       |       | Information    |
|--------------|-------------------|-----------------------|-------|----------------|
| C05900       | 980               |                       | 999   | Module ID      |
| C05901/1...8 | 0                 |                       | 65535 | Error ID       |
| C05902/1...8 |                   |                       |       | Error response |
|              | 0                 | None                  |       |                |
|              | 1                 | Fault                 |       |                |
|              | 2                 | Trouble               |       |                |
|              | 3                 | Quick stop by trouble |       |                |
|              | 4                 | Warning locked        |       |                |
|              | 5                 | Warning               |       |                |
|              | 6                 | Information           |       |                |

##### 4.12.2 L\_TbDelay1

| Is an instance of | Function                                                           |  |  |
|-------------------|--------------------------------------------------------------------|--|--|
| L_TbDelay         | Delay of the signal <i>MI_bSpeedCtrlLimited</i> for error handling |  |  |

| Parameter | Possible settings |              |        | Information                             |
|-----------|-------------------|--------------|--------|-----------------------------------------|
| C03550    |                   |              |        | Selection of the edge to be delayed     |
|           | 0                 | Rising edge  |        | Lenze setting                           |
|           | 1                 | Falling edge |        |                                         |
|           | 2                 | Both edges   |        |                                         |
| C03551    | 0.000             | s            | 60.000 | Delay time<br>• Initialisation: 0.100 s |

#### 4.12.3 SpeedRamp

| Is an instance of | Function                                                                                  |                                                                                                                                                                                                                                                                                       |          |                                                        |
|-------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------------------------------------------|
| L_SdSpeedSet      | Ramp generator for speed setpoint<br>▶ <a href="#">Speed setpoint conditioning</a> (📖 18) |                                                                                                                                                                                                                                                                                       |          |                                                        |
|                   |                                                                                           |                                                                                                                                                                                                                                                                                       |          |                                                        |
| Parameter         | Possible settings                                                                         |                                                                                                                                                                                                                                                                                       |          | Information                                            |
| C03500/1...15     | -200.00                                                                                   | %                                                                                                                                                                                                                                                                                     | 200.00   | Fixed setpoint 1...15                                  |
| C03501            | 0                                                                                         |                                                                                                                                                                                                                                                                                       | 15       | Active setpoint<br>• Read only                         |
| C03502            | 0.000                                                                                     | s                                                                                                                                                                                                                                                                                     | 1000.000 | Basic acceleration time<br>• Initialisation: 1.000 s   |
| C03503            | 0.000                                                                                     | s                                                                                                                                                                                                                                                                                     | 1000.000 | Basic deceleration time<br>• Initialisation: 1.000 s   |
| C03504            | 0.000                                                                                     | s                                                                                                                                                                                                                                                                                     | 10.000   | Basic S-ramp time<br>• Initialisation: 0.100 s         |
| C03507            |                                                                                           |                                                                                                                                                                                                                                                                                       |          | Polarity of <i>bStop</i> input                         |
|                   | 0                                                                                         | Active HIGH                                                                                                                                                                                                                                                                           |          |                                                        |
|                   | 1                                                                                         | Active LOW                                                                                                                                                                                                                                                                            |          |                                                        |
| C03508            | 0.00                                                                                      | %                                                                                                                                                                                                                                                                                     | 100.00   | Setpoint tolerance reached<br>• Initialisation: 1.00 % |
| C03512/1...15     | 0.000                                                                                     | s                                                                                                                                                                                                                                                                                     | 1000.000 | Acceleration time 1...15<br>• Initialisation: 0.000 s  |
| C03513/1...15     | 0.000                                                                                     | s                                                                                                                                                                                                                                                                                     | 1000.000 | Deceleration time 1...15<br>• Initialisation: 0.000 s  |
| C03514/1...15     | 0.000                                                                                     | s                                                                                                                                                                                                                                                                                     | 1000.000 | S-ramp time 1...15<br>• Initialisation: 0.000 s        |
| C03515            | 0                                                                                         |                                                                                                                                                                                                                                                                                       | 15       | Active ramp parameters<br>• Read only                  |
| C03520            |                                                                                           |                                                                                                                                                                                                                                                                                       |          | Profile mode<br>• Read only                            |
|                   | 0                                                                                         | Profile generation with linear ramps<br>• Referred to the reference speed (C00011).                                                                                                                                                                                                   |          |                                                        |
|                   | 1                                                                                         | Profile generation with jerk limitation (S-shaped ramps)                                                                                                                                                                                                                              |          |                                                        |
|                   | 10                                                                                        | Profile generation with linear ramps<br>• Referred to the reference speed (C00011).<br>• At an edge change at the input <i>bStop</i> referred to the current setpoint (constant time).<br>• The setpoint applied at the input <i>dnExtSpeedSetpoint_n</i> is used as the start value. |          |                                                        |
| C03521            | -200.00                                                                                   | %                                                                                                                                                                                                                                                                                     | 200.00   | Setpoint at the input<br>• Read only                   |
| C03522            | -200.00                                                                                   | %                                                                                                                                                                                                                                                                                     | 200.00   | Target setpoint<br>• Read only                         |
| C03523            | -200.00                                                                                   | %                                                                                                                                                                                                                                                                                     | 200.00   | Setpoint at the output<br>• Read only                  |

# 9400 Technology applications | Actuator – speed

Parameter setting & configuration

Parameterisable function blocks

| Parameter     | Possible settings                     |                                 |             | Information                                                                                      |
|---------------|---------------------------------------|---------------------------------|-------------|--------------------------------------------------------------------------------------------------|
| C03524        |                                       |                                 |             | Status "Target setpoint reached"<br>• Read only                                                  |
|               | 0                                     | Target setpoint not yet reached |             |                                                                                                  |
|               | 1                                     | Target setpoint reached         |             |                                                                                                  |
| C03525        | 0.000                                 | rpm                             | 50000.000   | Load reference speed<br>• Read only                                                              |
| C03526        | 0.000                                 | rpm                             | 50000.000   | Load setpoint speed<br>• Read only                                                               |
| C03527        | 0.0000                                | Unit/t                          | 214000.0000 | Reference speed<br>• Read only                                                                   |
| C03528        | -214000.0000                          | Unit/t                          | 214000.0000 | Setpoint speed<br>• Read only                                                                    |
| C03529        | Character string from <i>AxisData</i> |                                 |             | Speed unit<br>• Read only                                                                        |
| C03537        | -200.00                               | %                               | 200.00      | External setpoint<br>• Display of input signal<br><i>dnExtSpeedSetpoint_n</i> .                  |
| C03538        | -200.00                               | %                               | 200.00      | Current motor speed<br>• Display of input signal<br><i>dnActualMotorSpeed_n</i> .                |
| C03539/1      |                                       |                                 |             | Invert setpoint<br>• Display of input signal<br><i>bInvertSetpoint</i> .                         |
|               | 0                                     | Setpoint not inverted           |             |                                                                                                  |
|               | 1                                     | Setpoint inverted               |             |                                                                                                  |
| C03539/2      |                                       |                                 |             | Hold setpoint output<br>• Display of input signal<br><i>bHoldOutput</i> .                        |
|               | 0                                     | Setpoint output enabled         |             |                                                                                                  |
|               | 1                                     | Hold setpoint output            |             |                                                                                                  |
| C03539/3      |                                       |                                 |             | Activate stop<br>• Display of input signal <i>bStop</i> .                                        |
|               | 0                                     | Stop not active                 |             |                                                                                                  |
|               | 1                                     | Stop requested                  |             |                                                                                                  |
| C03539/4...7  |                                       |                                 |             | Activate fixed setpoint 1 ... 8<br>• Display of input signals <i>bJog1</i> ...<br><i>bJog8</i> . |
|               | 0                                     | Jog input not active            |             |                                                                                                  |
|               | 1                                     | Jog input active                |             |                                                                                                  |
| C03539/8...11 |                                       |                                 |             | Activate ramp parameter 1 ... 8<br>• Display of input signals <i>bTi1</i> ...<br><i>bTi8</i> .   |
|               | 0                                     | Ti input not active             |             |                                                                                                  |
|               | 1                                     | Ti input active                 |             |                                                                                                  |
| C03539/12     |                                       |                                 |             | Load external setpoint<br>• Display of input signal<br><i>bLoadExtSpeedSetpoint</i> .            |
|               | 0                                     | Loading not active              |             |                                                                                                  |
|               | 1                                     | Load external setpoint          |             |                                                                                                  |
| C03539/13     |                                       |                                 |             | Load motor speed<br>• Display of input signal<br><i>bLoadActualMotorSpeed</i> .                  |
|               | 0                                     | Loading not active              |             |                                                                                                  |
|               | 1                                     | Load motor speed                |             |                                                                                                  |



## **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:

[feedback-docu@Lenze.de](mailto:feedback-docu@Lenze.de)

Thank you for your support.

*Your Lenze documentation team*



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