KOLLMORGEN

SERVO**STAR**® 300

Quickstart Guide

Version 09.2006

Keep all manuals as a
product component during
the life span of the product.
Pass all manuals to future
users/owners of the product.

DANAHER MOTION

Preparation

The CD-ROM delivered with the servo amplifier contains all the manuals in PDF format and the setup software. Insert the CD-ROM into your PC.

Autostart function activated: A window with the start screen opens.

Autostart function deactivated: Click START (task bar), then on Run. Enter the program call: x:\autorun.exe (x = CD drive letter). Click OK. The start screen opens.

Install Setup Software

Multilanguage CD-ROM: On the start screen you find a link to the setup software:
Install Setup Software SERVOSTAR S300 Release _.__ Build __
Click it and follow the instructions from here.

North American CD-ROM: Click the product name, then select ***Install Software*** from the next screen. Follow the instructions from here.

Documents

You need Acrobat Reader to read the PDFs (installation link on every screen).

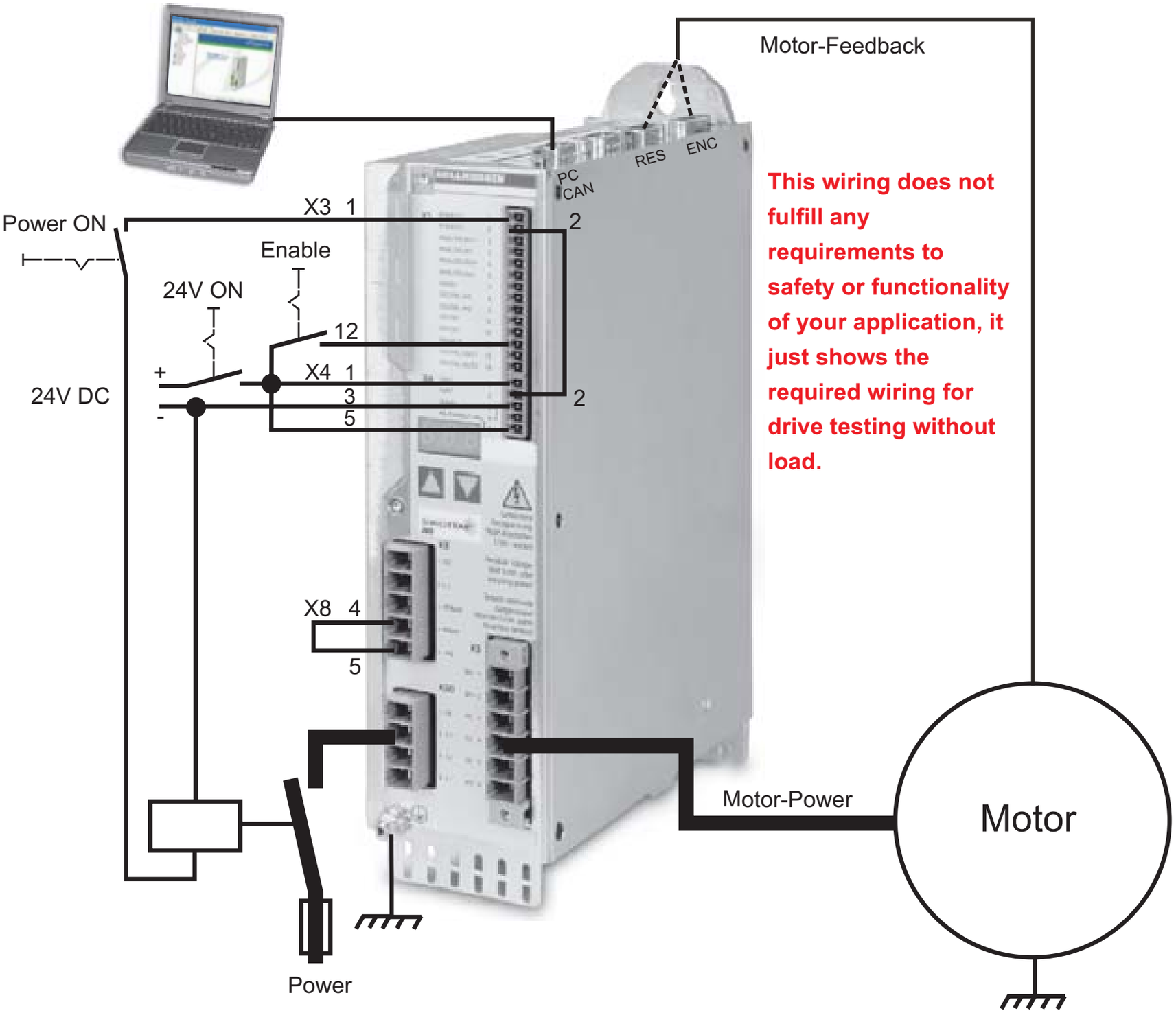
Multilanguage CD-ROM: Select the language version on the start screen of the CD-ROM. Click "Servo Drives" in the column "Technical Manuals". A table with links to all manuals appears.

North American CD-ROM: Click on any manual title automatically brings up the document.

Mechanical and Electrical Installation of the Servo Amplifier

1. Unpack servo amplifier and accessories
2. Keep the product manual ready (print if necessary), check HW-Revision
3. Keep the setup software manual ready (print if necessary)
4. **Observe safety instructions in the manuals**
5. Mount the servo amplifier as described in the product manual
6. Wire the servo amplifier as described in the product manual or apply the minimum wiring for drive test (see next page)

Minimum Wiring for Drive Operation



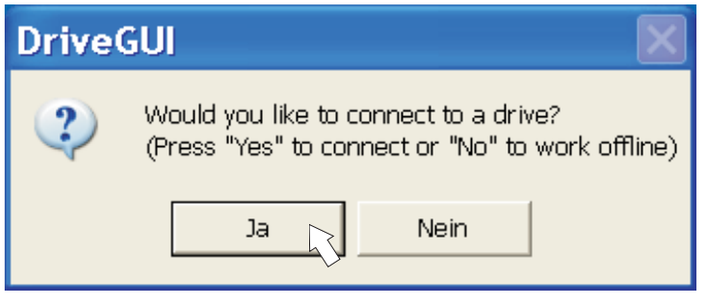
This wiring does not fulfill any requirements to safety or functionality of your application, it just shows the required wiring for drive testing without load.

Connect

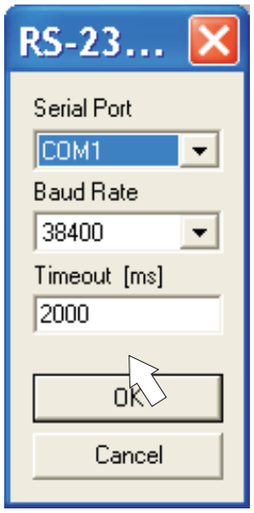
- Connect the interface cable to a serial interface on your PC and to the serial interface X6 of the servo amplifier. USB to serial converter can be used optionally.
- Switch on the 24 V logic power supply for the servo amplifier.
- Wait about 30 seconds, until the front display of the servo amplifier displays the current rating (e.g. 03 for 3 amps). If the mains power supply voltage is switched on, too, a leading P is displayed (e.g. P03 for Power, 3 amps).

If a fault code (F88) or a warning (n88) or a status message ("." or "_" or "E" or "S") appears in the display, you will find the description and hints for trouble shooting in the product manual. If there is fault, fix the problem.

Double-Click the DriveGUI.exe icon on your Windows desktop to start the software.



You can work offline or online with DriveGUI.exe.
Work ONLINE now.



If the communication is started for the first time, you have to setup the communication parameters.
Choose the communication system and the interface, where the servo amplifier is connected to.
Click OK.

The software tries to communicate with the drive and to upload the parameters. If it's not successful, you receive this error message:

Frequent causes:
- wrong interface chosen
- wrong connector chosen at the servo amplifier
- interface is used by another software
- 24 V auxiliary voltage for the servo amplifier not working
- interface cable broken or wrong wiring

Click OK to remove the error message. The software starts in the offline mode now, that requires the manual selection of the amplifier's type. Quit this selection by closing the window.
Fix the communication problem. Restart the software in Online mode.
If communication works, you see the start screen.

Make sure, that the amplifier is disabled (Input Enable connector X3 pin 12 must be 0 V or open)!

Select "**Setup Wizard**" in the navigation frame.

Important Screen Elements

Help Function

The Online-Help gives detailed information to all parameters the servo amplifier can work with.

Key F1	Starts Online Help for the actual screen page.
Menu bar Help	Starts Online Help with the first page.
	Context Help. Click the help symbol first. Then click the function for which you need help.

Tool Bar

	Save to EEPROM, required if you changed parameters.
	Reset, required if you changed important configuration parameters.
	Operation Mode, use Digital Velocity mode for drive testing.

Status Bar

The status bar shows a green Online symbol, indicating that the communication works.

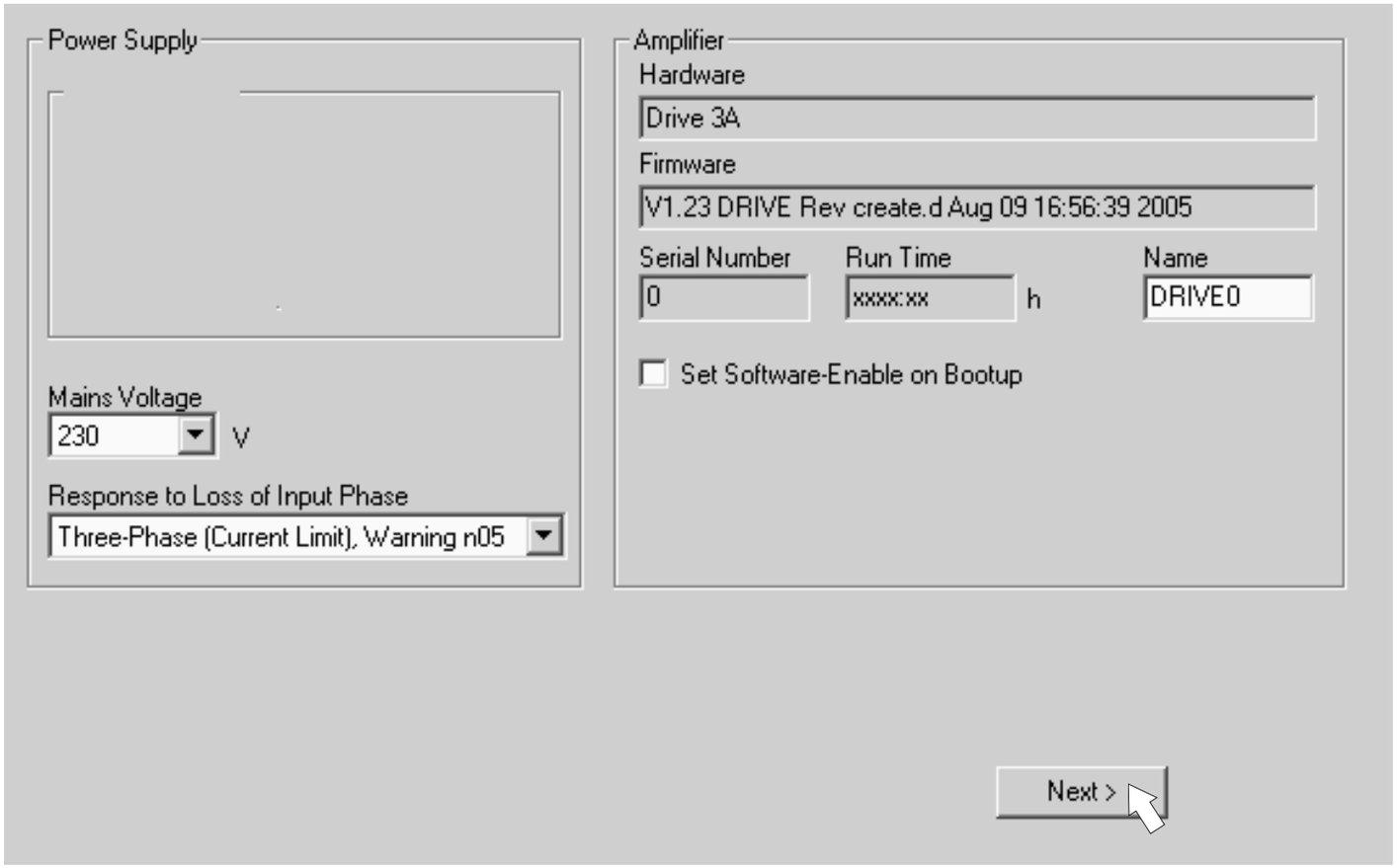
Setup Wizard

The Setup Wizard leads you through the necessary steps for configuring your servo amplifier. Depending on the selected application, only the active screen pages are necessary.

For a quick setup select the setup type "Quick Motor/Drive Setup".

Start the Wizard.

Basic Setup



Mains voltage: Select the nominal mains AC voltage

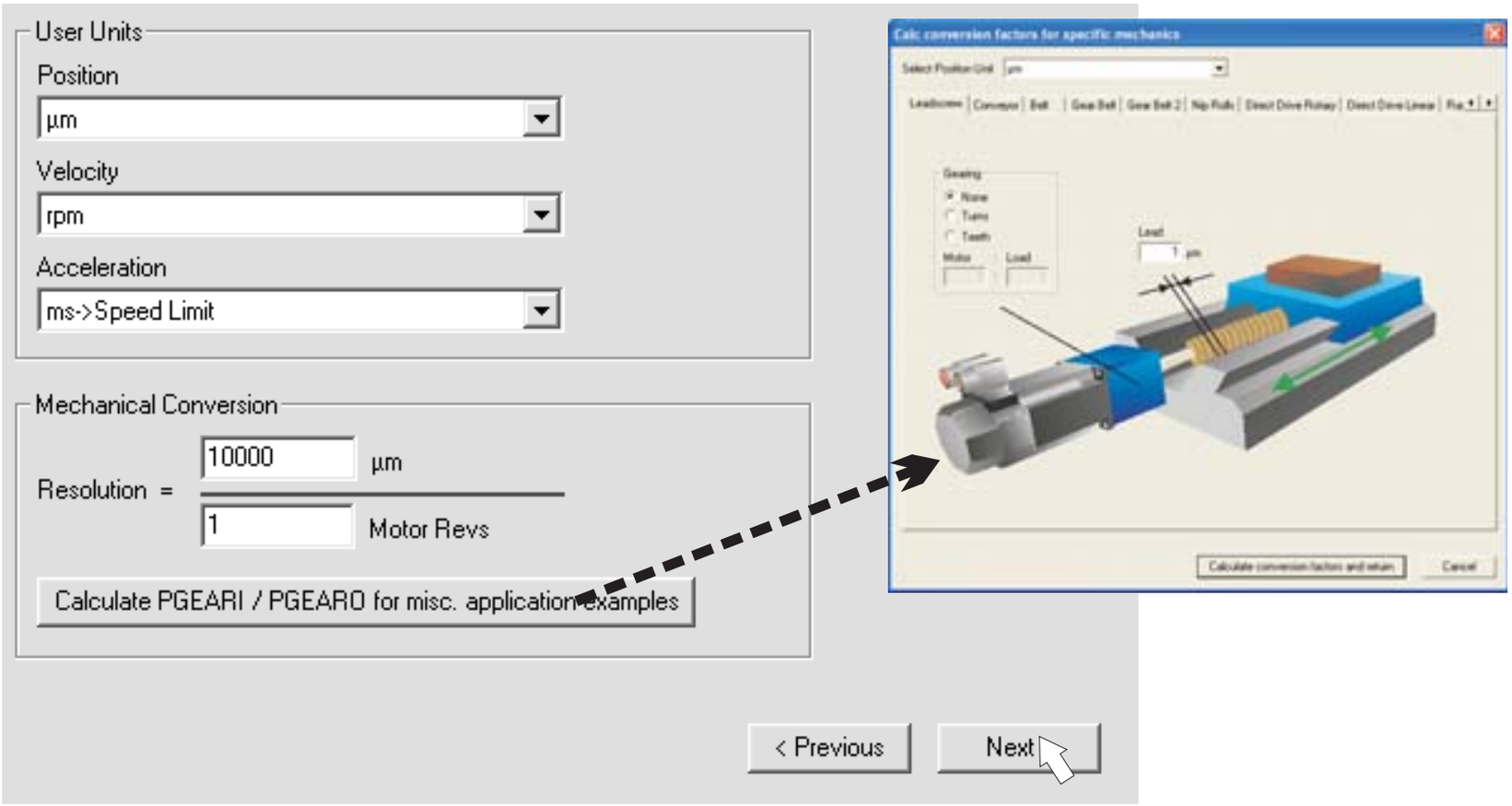
Response to Loss of Input Phase: Select Single-Phase or Three-Phase operation. With three-phase operation you can select either warning "n05" or error "F19" in case of phase loss. The setting "F19" disables the output stage, "n05" is just a message.

Name: You can enter a name for the servo amplifier (up to 8 characters). This simplifies the drive identification in the system.

Set Software Enable on Bootup: Don't select this option for the quick test.

Click NEXT.

Units/Mechanical



The user units for all input fields in the setup software can be preselected here.

Position, Velocity, Acceleration

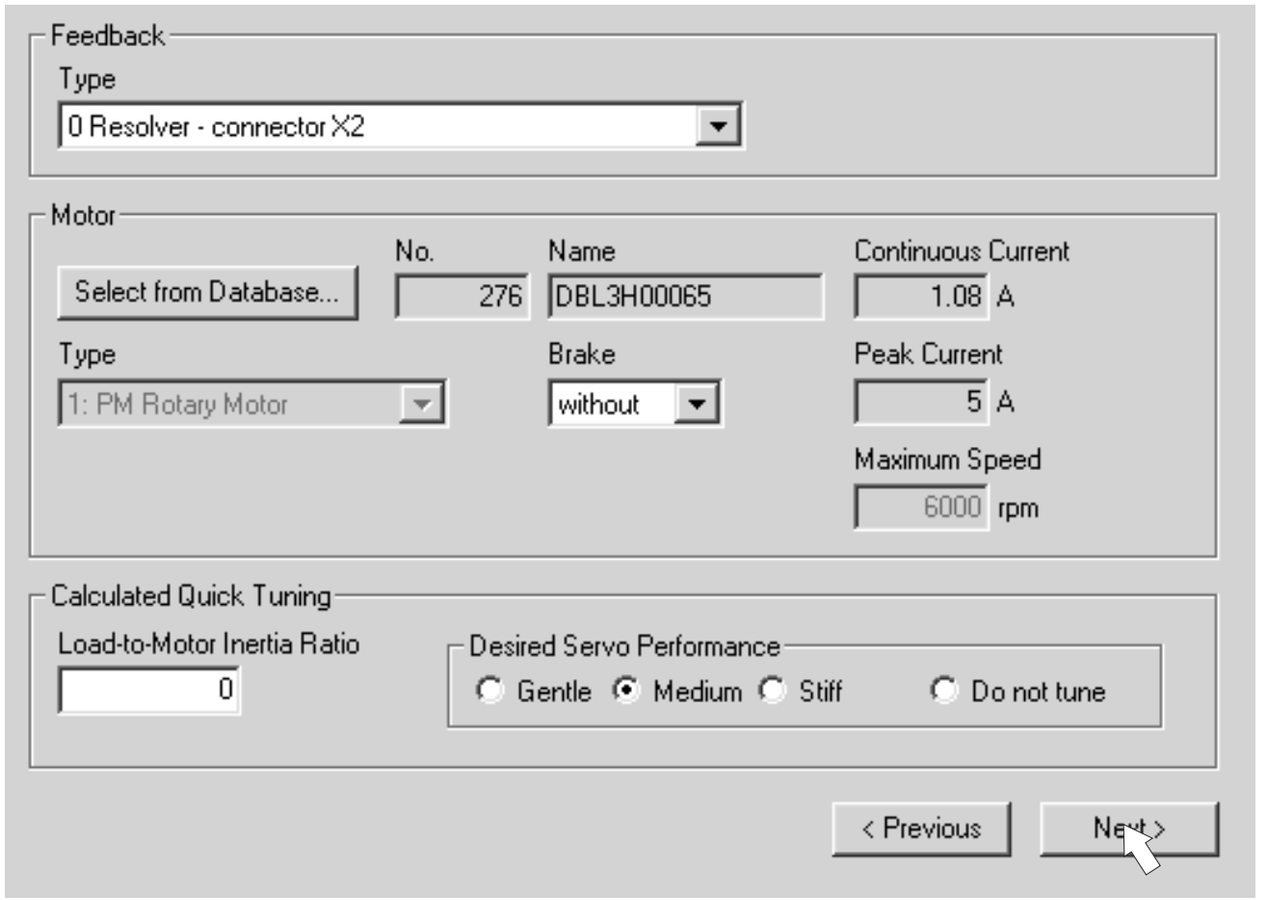
Select usable units for your application referring to the moved load.

Mechanical Conversion

The relationship between motor shaft revolution (pole pair pitch with linear motors) and motion distance of the load is specified here. Gear ratio can be calculated here as well. Detailed information can be found in the online help. Use the calculation tool based on sample applications for calculating the resolution value (press "**Calculate PGEARI/PGEARO...**" button). Select the application and enter the required values. Click "Calculate Conversion Factors..." button. Resolution is calculated now.

Click NEXT.

Motor (rotary) / Feedback - linear motor see next page



Simplified setting of the motor related parameters.

Feedback: Select the feedback type used in the motor.

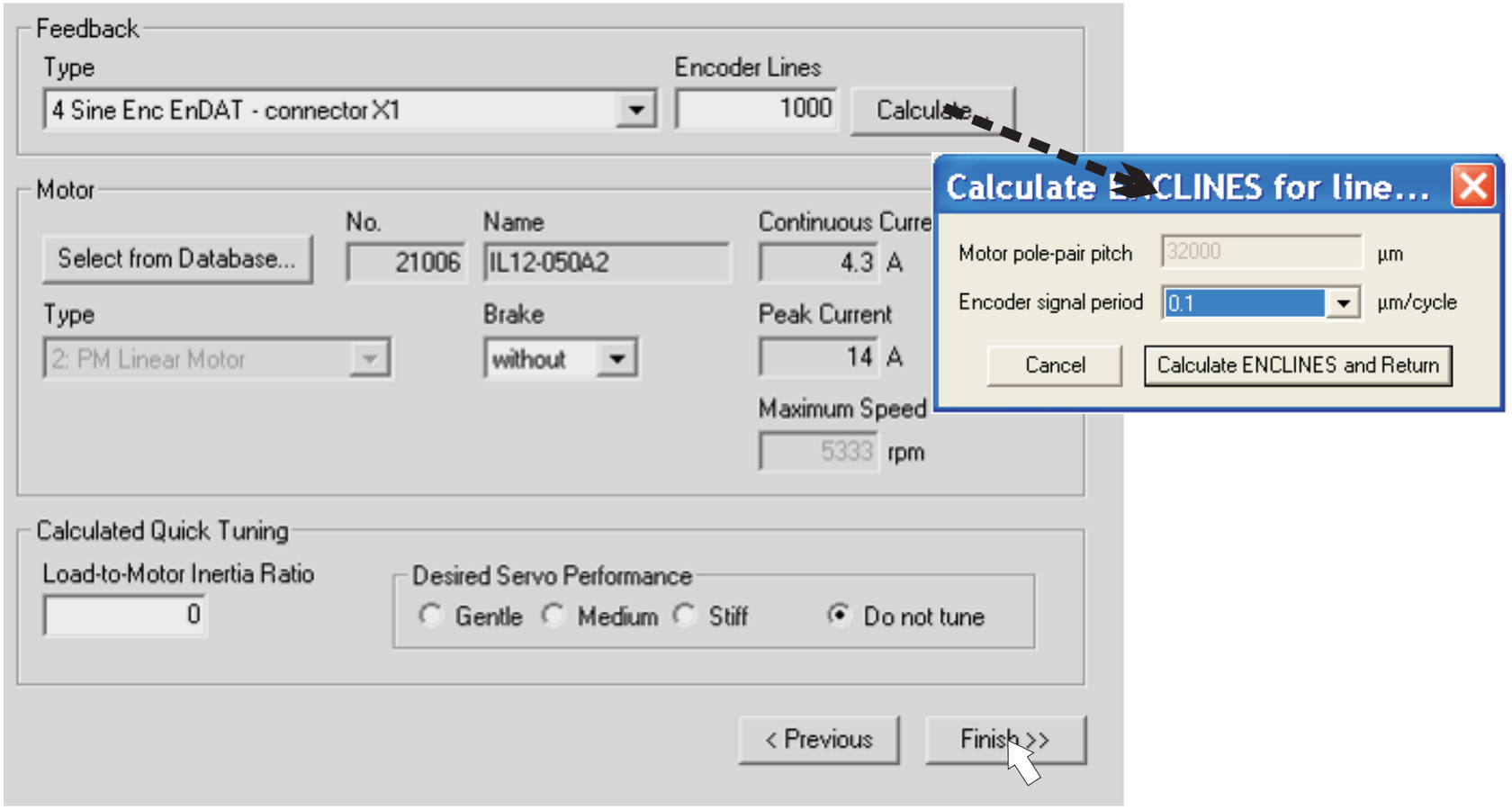
Attention: Resolver is fixed to 2 pole in the Quick Motor/Drive Setup.
Change "pole n°" on feedback screen in Complete Setup later, if required.

Motor type: Click the button "**Select from Database...**". Open the database file (mdb_ _ _.csv) and select the used motor. Special motors must be defined in the "Complete Setup".

Brake: If the amplifier shall control a brake, change the Brake parameter to "With"

Calculated quick tuning: If you know the load-to-motor inertia ratio (0 is for no load), enter this number here and select the desired servo performance. If you don't know the inertia ratio, select "Do not tune". **Click FINISH.**

Motor (linear) / Feedback - rotary motor see previous page



Simplified setting of the motor related parameters.

Feedback: Select the feedback system used.

Motor type: Click the button "**Select from Database...**". Open the database file (mdb_ _ _.csv) and select the used motor out of the list. Special motors must be defined in the "Complete Setup".

Encoder Lines (appears with Feedback Type Sine Encoder):
Click "Calculate" and fill in the Encoder signal period.

Brake: If the motor has a built-in brake, change the Brake parameter to "With"

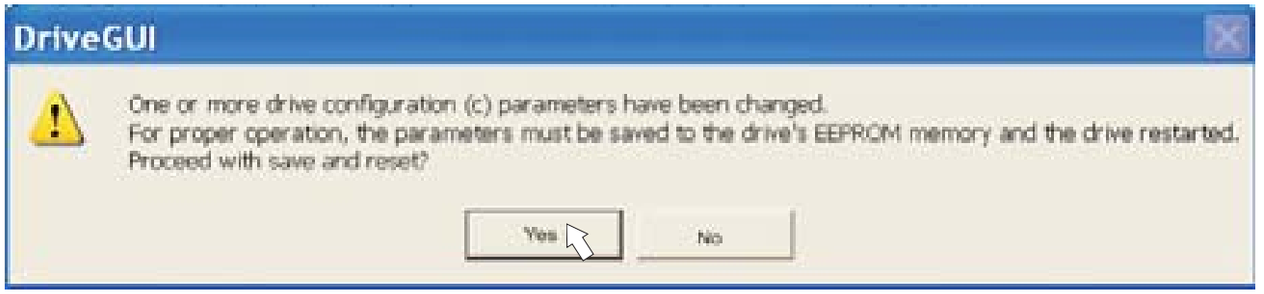
Calculated quick tuning: If you know the load-to-motor inertia ratio (0 is for no load), enter this number here and select the desired servo performance. If you don't know the inertia ratio, select "Do not tune". **Click FINISH.**

Save Parameters and Restart

You are going to finish the Setup Wizard and you have changed several basic parameters. Depending on the parameters you changed, two possible reactions will occure now:

Configuration parameters changed

A warning appears, that you have to restart the amplifier, this is called "coldstart".



Click "YES". The parameters are saved to the amplifier's EEPROM automatically and a reset command restarts the amplifier (takes a few seconds).

Other parameters changed

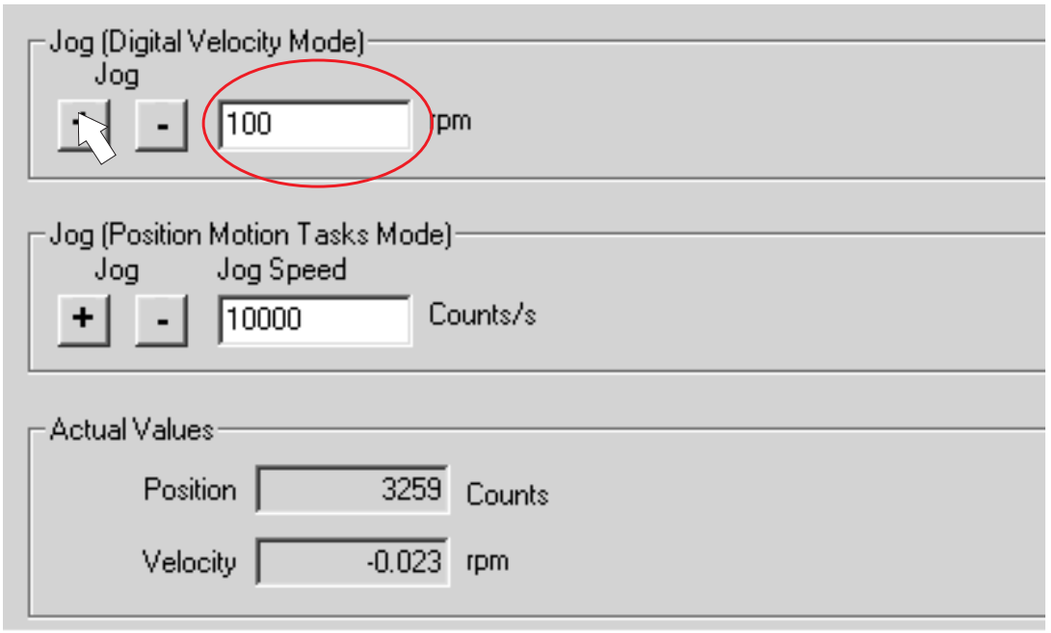
No warning appears. Save the parameters to the EEPROM of the servo amplifier manually by clicking the symbol  in the tool bar. A coldstart of the amplifier is not necessary.

Select the screen "**Motion Service**" in the navigation frame.

Motion Service (Jog Mode)

Be aware that the actual position of the load permits the subsequent moving operations. The axis could move to the hardware limit-switch or the mechanical stop. Make sure that a jerk or a fast acceleration of the load cannot cause any damage.

- Switch on the power supply for the drive.
- **AS-Enable:** Apply +24 V to the input AS-Enable [X4/5]
- **Hardware-Enable:** Apply +24 V to the input Enable [X3/12]. If AS-Enable is missed or the sequence was wrong, the front display shows -S- .
- **Software-Enable:** Click the symbol EN in the tool bar. Now, the front display shows an E and the current rating (e.g. E03 for Enable, 3amps). Click the symbol DIS to switch off the output stage (disable).



Jog (Digital Velocity Mode): You can move the drive with constant speed. Enter a safe speed.
Observe the "safe reduced speed" requirements for your application!

The drive moves with the preset speed when the + or – button is pressed. It stops when the button is released.

Actual errors and warnings are listed on the screen **Status**. A description of errors/warnings can be found in the online help.
Now you have setup and tested the basic functions of the drive successfully.

Additional Setup Screens

Observe the safety instructions in the manuals when you change parameters in the additional setup screens.

For all setup functions detailed information can be found in the Online Help system and the integrated command reference. Select "Complete Setup" in the Setup-Wizard. Now you have access to:

- **Feedback**: Adjust the used feedback unit
- **Motor**: Adjust the used motor
- **Control Loops**: Current-, Velocity- and Position-Loops can be optimized
- **Position Data**: Adjust the position control for the requirements of your application.
- **Position Registers**: up to 16 position values in the motion way can be monitored.
- **Electronic Gearing**: If the servo amplifier will follow a setpoint as a slave with a gear ratio, you can select the gearing source here and define the gear ratio.
- **Encoder Emulation**: select the encoder emulation (position output)
- **Analog I/O**: setup the analog inputs
- **Digital I/O**: setup the digital inputs and outputs
- **Status**: displays amplifiers data with history, actual faults and warnings
- **Monitor**: displays the drive data (actual values)
- **Homing**: definition and start of homing
- **Motion task**: definition and start of motion task
- **Oscilloscope**: 4 channel oscilloscope with multiple functionality
- **Bode Plot**: tool for optimizing the drive
- **Terminal**: setup the servo amplifier with ASCII commands
- **Expansion Card**: depending on the built-in expansion card a menu appears

Monitor

Select the screen "**Monitor**" from the navigation frame.
The Monitor screen shows all important actual electrical and mechanical values.

Documents

You need access to these documents (located on the product CD-ROM, you can download the latest editions from our website):

- Product Manual (Assembly, Installation, Setup)
- CANopen communication profile

Depending on the installed expansion card, you need one of these documents:

- PROFIBUS DP communication profile
- DeviceNet communication profile
- SERCOS communication profile
- EtherCat communication profile (in process)

You need Acrobat Reader to read the PDFs, an installation link is on every screen of the product CD-ROM.

Technical changes which improve the performance of the equipment may be made without prior notice!

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