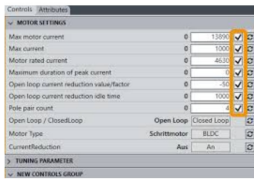


Nanotec PND3 Plug And Drive Studio



Nanotec PND3 Plug And Drive Studio User Manual

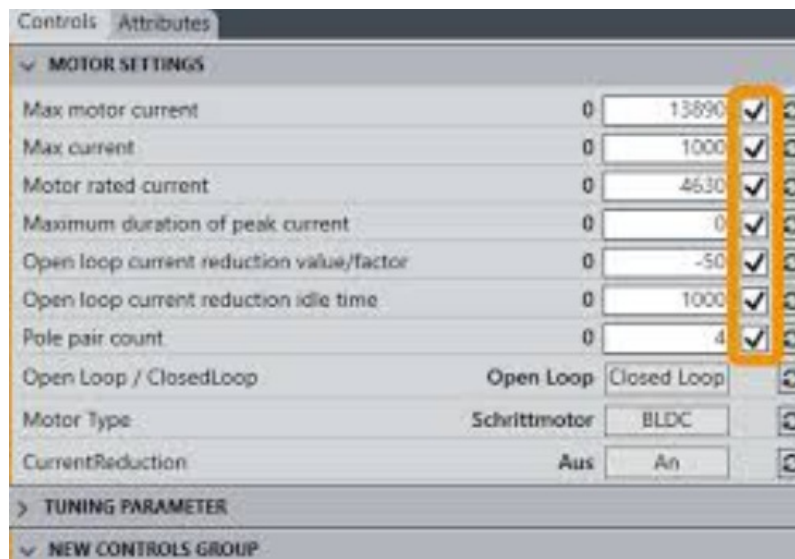
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anotec PND3 Plug And Drive Studio



User Manual PNDS3

For Plug & Drive Studio 3 Version 1.5.3

User Manual Version: 1.1.1

Document aim and conventions

Beside technical data, this document explains product use and function. For possible combinations with other Nanotec products, please ask your Nanotec sales partner. Before using the product, please note document font styles and conventions.

Underlined text marks a cross reference or hyperlink.

Example 1: Observe our safety notes.

Example 2: Download needed code templates from our website for EMEA / APAC or AMERICA.

Gray bold italics call out menu paths, buttons, tab and file names.

Example 1: Select Home > Connect controller > CANOpen.

Example 2: In the NanoJ tab, select NanoJ project and open Analog Input.cpp.

Plain italics mark Freehand entries and foreign-language expressions. They also emphasize words of critical weight. Alternatively, bracketed exclaim marks(!) give critical weight.

- Example 1: Enter Plug & Drive Studio. In addition to users (= Nutzer; usuario; utente; utilisateur; utente etc.), this document also addresses:
 - Third-party users (= Drittnutzer; tercero usuario; terceiro utente; tiers utilisateur; terzo utente etc.).
 - End users (= Endnutzer; usuario final; utente final; utilisateur final; utente finale etc.).
- **Example 2:** Protect yourself, others and your equipment. Follow our general safety notes that are generally applicable to all Nanotec products. Also follow the specific safety notes that apply to this specific product.

Courier marks code blocks or programming commands.

Example 1: Via Bash, call sudo make install to copy shared objects; then call ldconfig.

Example 2: Use the following NanoLibAccessor function to change the logging level in NanoLib:

```
//
***** C++ variant *****
void setLoggingLevel(LogLevel level);
```

The verb to co-click

Co-clicking means a mouse click by secondary key to open context menus etc.

Example 1: Co-click the file, select Rename, and rename the file.

Example 2: Co-click the file to check and select Properties.

Numerical values

Numbers appear in decimal. Hexadecimal notation ends in subscript h. Objects in the object dictionary notate in hexadecimal as <Index>:<Subindex>, non-notated subindices as 00h. Example: 1003h:05h is subindex 5 in object 1003h. And 6040h is subindex 00 in object 6040h.

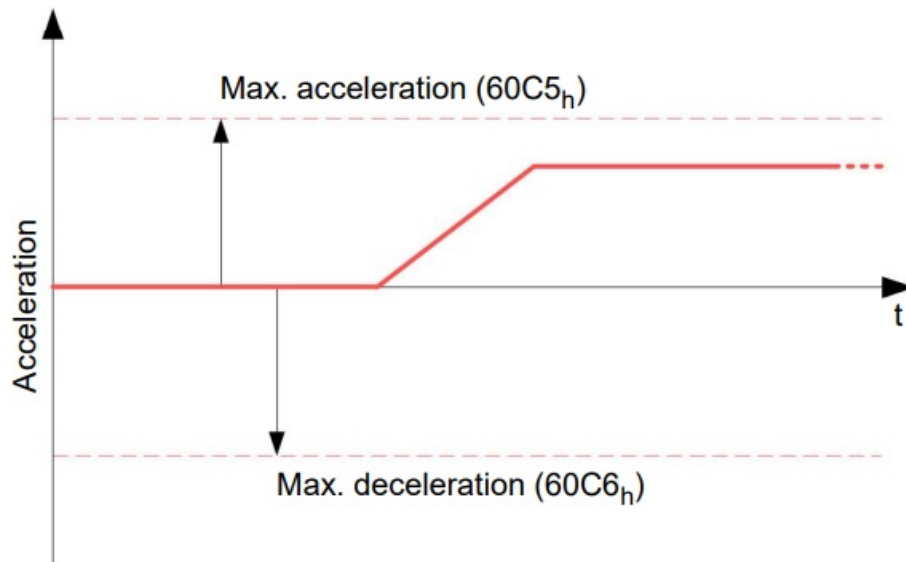
Bits

Each object bit counts up from LSB (bit number 0), such as data type UNSIGNED8:

	MSB				LSB				
Bit Nummer	7	6	5	4	3	2	1	0	
Bits	0	1	0	1	0	1	0	1	$\triangleq 55_{\text{hex}} \triangleq 85_{\text{dec}}$

Count direction (arrows)

Illustrations always count arrow-wards; both example objects 60C5h and 60C6h are thus positive.



For your safety

Before product use, please ensure that all users read, understand and follow the instructions in this document fully.

Warn and risk levels

Please note: our hazard warnings, alert symbols and signal words mark different risk levels.

CAUTION!

CAUTION warns of possible physical danger! Minor / moderate injury possible.

- Instruction against unhealthy user errors.

NOTICE

A **NOTICE** warns of wrong operation.

Material or ecological damage possible (not strictly injury).

Instruction against destructive user errors (= mere material risks).

Note: Explains or simplifies a process by additional information.

Before you start

Before product use, you need to prepare the PC and verify product intent / limits. Via online help, you can learn how to install and set up projects and how PNDS3 runs. Observe the safety notes in the manual (www.nanotec.com).

System and hardware requirements

Plug & Drive Studio 3 (PNDS3) needs 64-bit operating systems. Nanotec recommends controller firmware FIR-v2213 or newer. PNDS3 offers a special control for firmware update.

PNDS3

v1.5.2

64-bit OS requirements

- Windows 10
- NET Framework 4.8
- Display resolution 1920×1080

Fieldbus adapters / cables

- CANopen:
 - IXXAT USB-to-CAN V2
 - Nanotec ZK-USB-CAN-1
- **Modbus RTU:**
 - Nanotec ZK-USB-RS485-1 or equivalent USB-RS485 adapter
 - USB cable via virtual comport (VCP)
- **Ethernet (REST) , EtherCAT, Profinet:**
 - suitable ethernet cable
 - WinPcap 4.1.3, or Npcap installation, see Installation and adapter

Intended use and audience

NOTICE

Damage: from unskilled staff!

- Use the product only for the purpose described in this document.
- Restrict use to expert staff only.
- Follow valid OEM and system prescriptions for all equipment involved.

Plug & Drive Studio 3 (PNDS3) is a free software for easy Nanotec drive commissioning. The underlying operating system / hardware (PC) is not real-time capable. Never use PNDS3 for time-critical or synchronous multi-axis motion nor integrate it as a safety component in a product or system.

Add proper warnings and instructions for safe use / operation to each end user product with a Nanotec-produced

component. Submit any Nanotec warning directly to end users. The product addresses skilled experts in industry use cases alone. Expert means:

- Training / experience in motor and controller handling
- Understanding this document plus Nanotec drive manuals
- Knowledge of valid regulations

Delivery scope and warranty

PNDS3 comes as a *.zip folder from our download website for either EMEA / APAC or AMERICA. Duly store and unzip your download before setup. The product package contains:

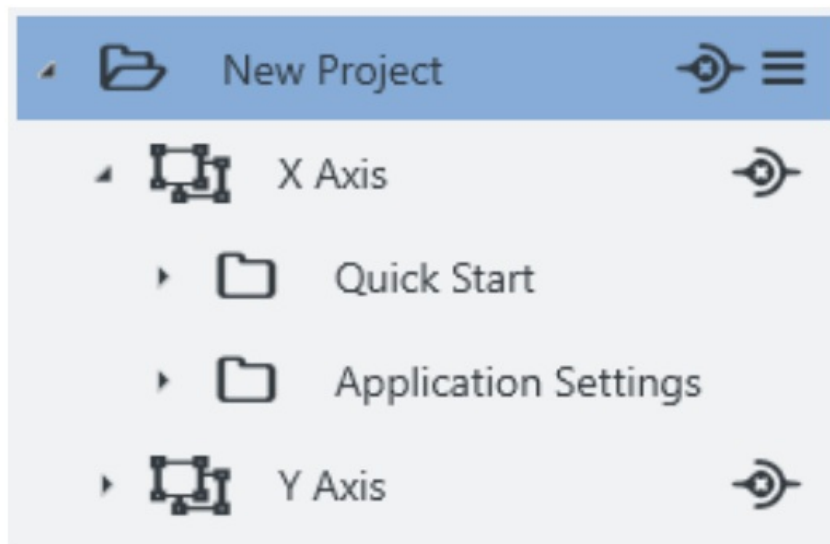
- Software as an executable file
- Current firmware release
- Project templates
- Online help file

For scope of warranty, please observe our terms and conditions for either EMEA / APAC or AMERICA. Note: Nanotec is not liable for wrong quality, handling, installation, operation, use, and maintenance of third-party equipment! Follow valid OEM instructions.

Your product

With PNDS3, you parametrize and commission Nanotec drives. Using templates for various Nanotec drives, you can add your own projects, systems and modules to the modular user interface. The software comes with a default folder structure (Project, System, Module Group, Module, etc.).

Project



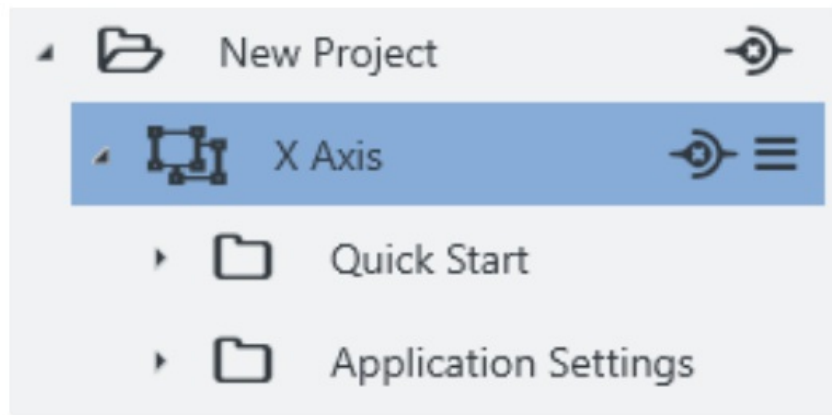
You manage all settings and device parameters in projects, save these as a file and im- / export them, say, as a template. Such a reusable Project can have multiple systems, say, the axes of a machine.

System

In a project (here: external controller), you create and store drive systems (here: X-axis). Each is im- /exportable as template.

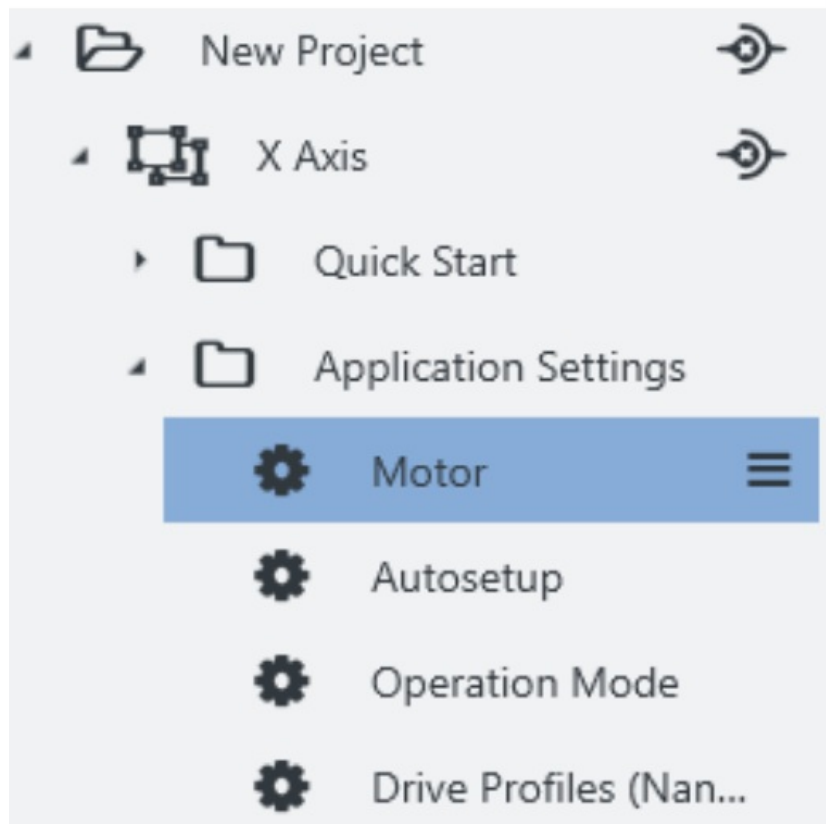
You can extend such a reusable System, of at least motor and controller, by modules or module groups for encoder, gearbox, brake, settings, parameters, etc.

By parameters, sortable / poolable into several modules or module groups, you quickly control all system elements.



Module (Group)

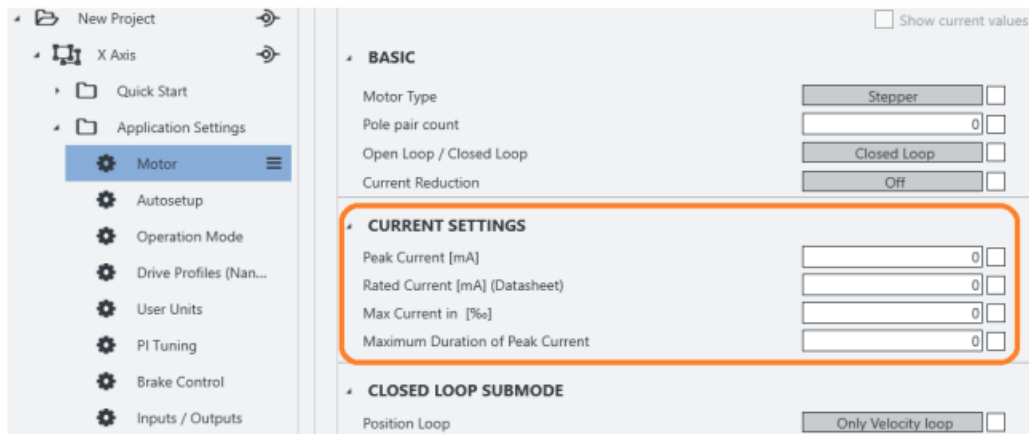
A module (group) contains parameters or controls (groups) and is im- / exportable, single or grouped, as template.



Controls Group

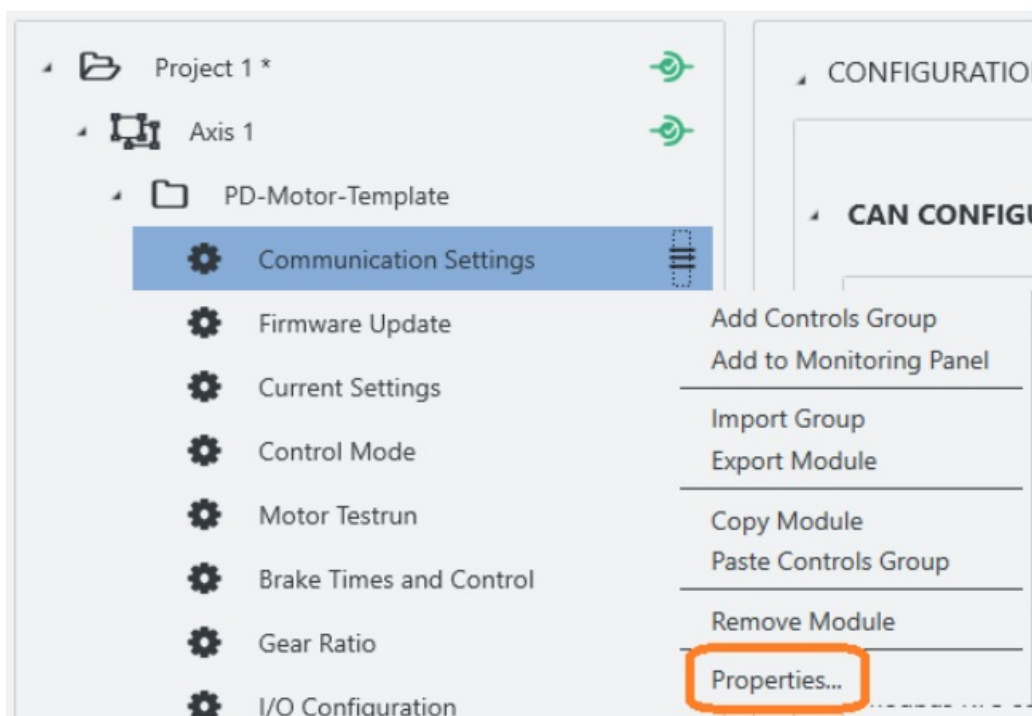
A Controls group pools single device parameters (objects from the dictionary in the controller) and / or Special controls.

You im- / export such a control group together with set values, say, as template.



Property editing

Simply co-click an element, select Properties, insert a visible name, version number, and description: This way you create your individual user interface.



Installation and adapter

Install the software, set up the adapter – and PNDS3 is ready to go. You find PNDS3 software online as a zip download.

1. Open the website Nanotec > Products > Software > Plug & Drive Studio 3.
2. Download and extract the product zip file.
3. Run the executable file PNDS3.exe.
4. Only with PNDS3 installed: Prepare your fieldbus adapter (see below).

CANopen

1. Decide: Ixxat USB-to-CAN? Or Nanotec ZK-USB-CAN-1?
2. For Ixxat USB-to-CAN: Download the driver (www.ixxat.com/); install it by hand.
3. Connect the adapter to the computer. For Nanotec ZK-USB-CAN-1: Wait for self-installation.

4. Via correct cable (see product manual): Connect the installed adapter to the controller.

USB: Nanotec Virtual COM-Port (VCP)

1. Connect the voltage supply to the controller and switch it on.
2. Via correct USB cable: Connect the PC to the controller (= "mass storage device").
3. In Explorer > Controller directory: Select cfg.txt (= pd4ccfg.txt for a PD4C).
4. Open the file via text editor (Notepad etc.).
5. Add the lines 2102|=0x100000 and 4015:01=0. Save the file.
6. Restart the controller and check if its COM port appears in the device manager.

Modbus RTU

1. For Nanotec ZK-USB-RS485-1: Connect the adapter to the computer and wait for self-installation.
2. For other equivalent adapters: Follow valid OEM instructions to install the driver.

EtherCAT

Install WinPcap 4.1.3 or Npcap and make sure the corresponding driver is activated for the designated ethernet adapter.

Profinet

1. Install Win10cap or Npcap and make sure the corresponding driver is activated for the designated ethernet adapter.
2. Configure the IP address of the drive and the ethernet adapter accordingly, as described in the drive manual.

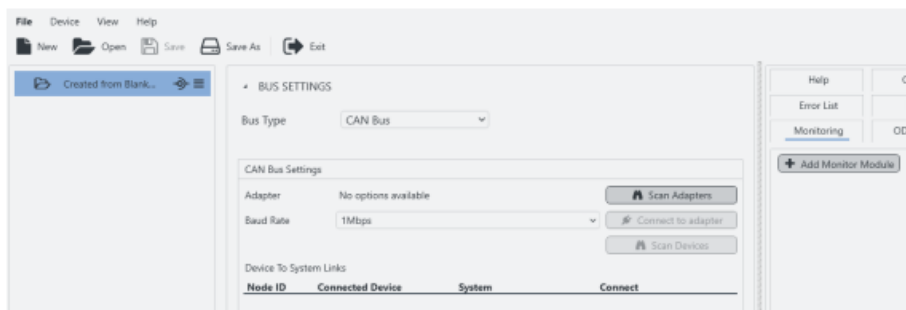
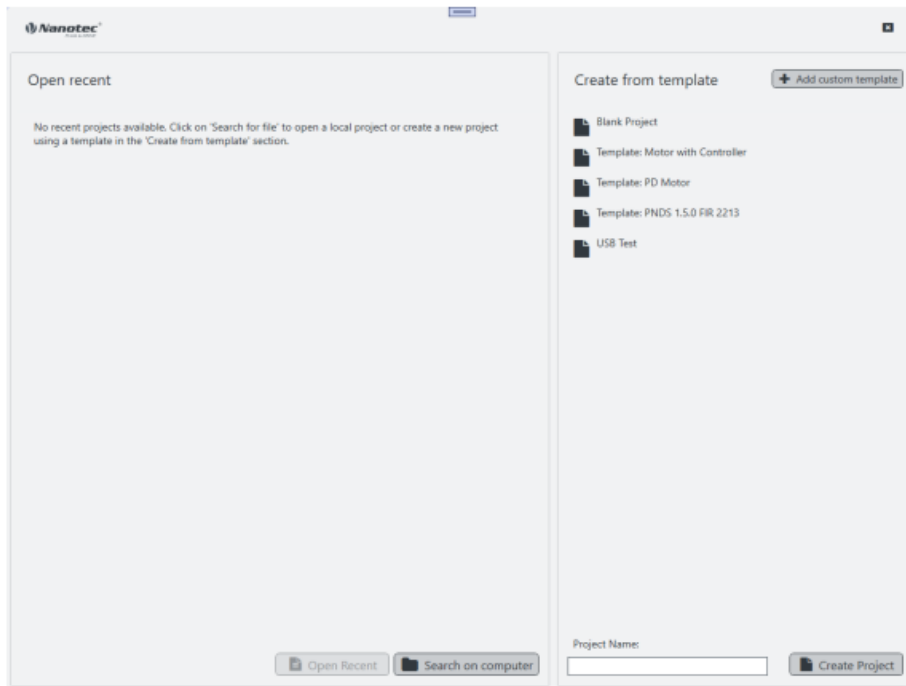
Ethernet (REST)

Configure the IP address of the drive and the ethernet adapter accordingly, as described in the drive manual.

User interface (UI)

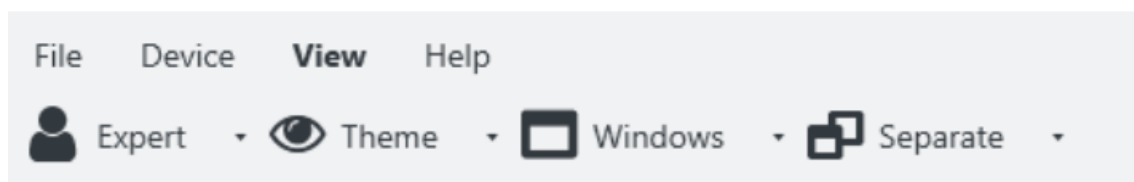
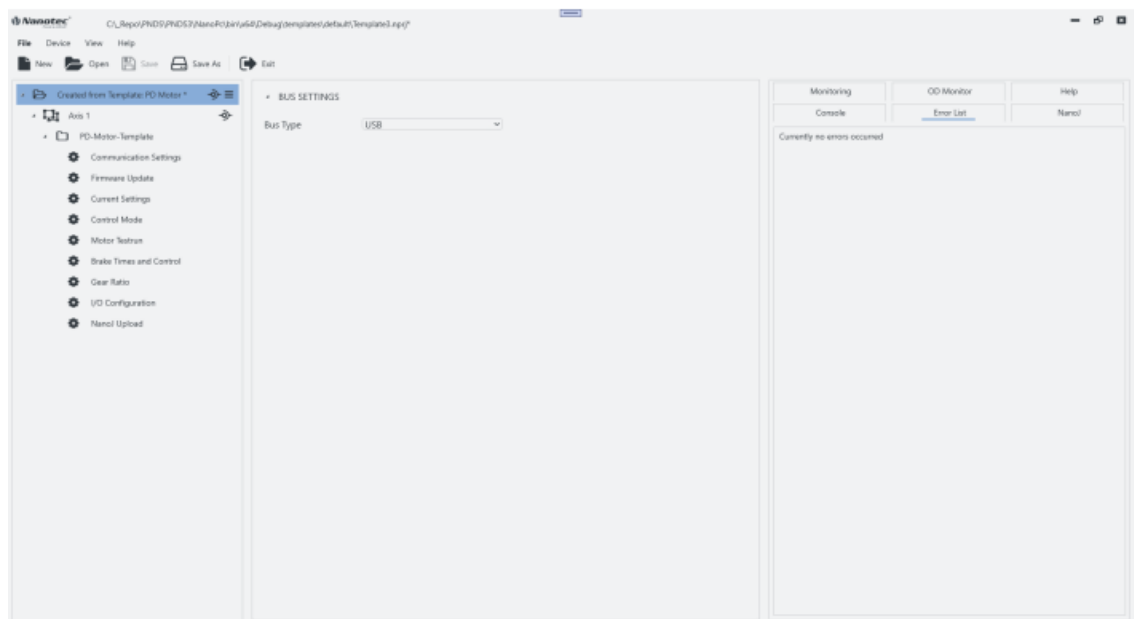
Thanks to flexible areas and windows, fitted into the main window or usable stand-alone, you can master a wide range of tasks. Before product use, please understand the UI structure.

- When PNDS3 starts for the first time, you are asked to create a new project: either a blank one or one based on a template.
- If you open a blank project, the project tree is empty at first.
- If you create a new project or load a template, the interface fills up according to your needs. This way, you design your own UI.



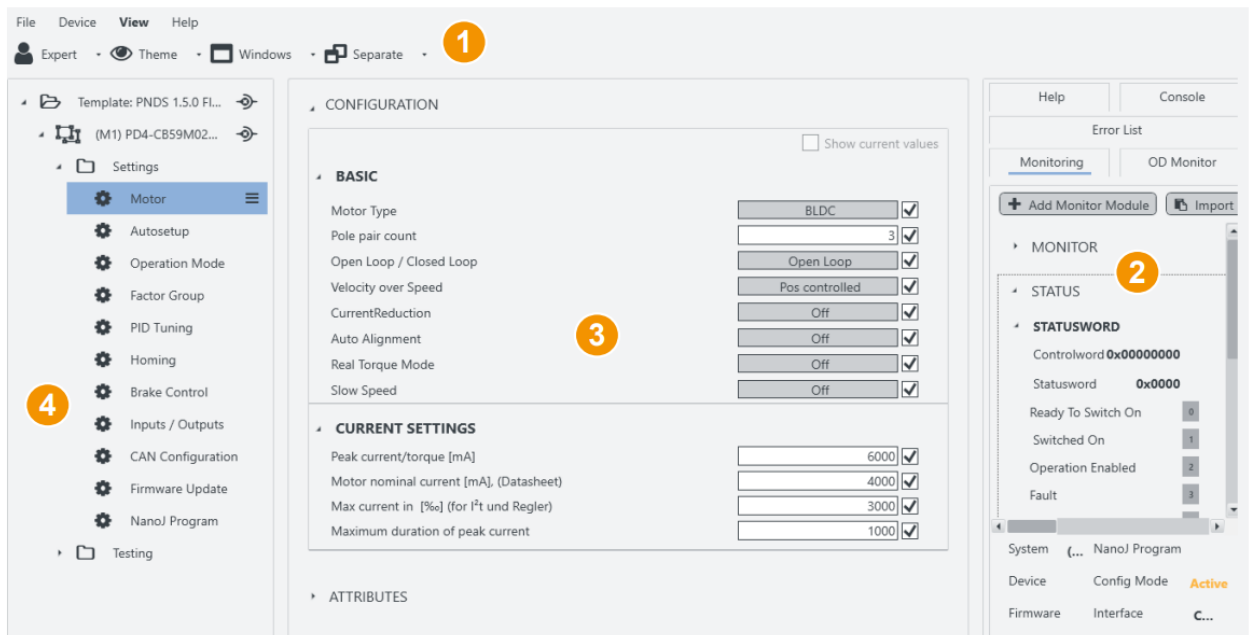
- Using the View options in the main menu you can further customize the UI by changing the theme, showing/hiding features or opening them in separate windows.

•



Header for main menu (1).

- Display wall (2) for monitoring, object directory, help etc.
- Work desk (3) for user controls etc.
 - Project (or side) bar (4) for systems etc.

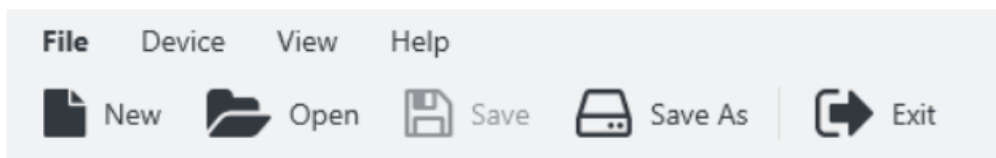


Header (1)

As a prominent layout bracket on top in the user interface, the UI header contains all basic functions and commands relevant to projects, devices and the UI view.

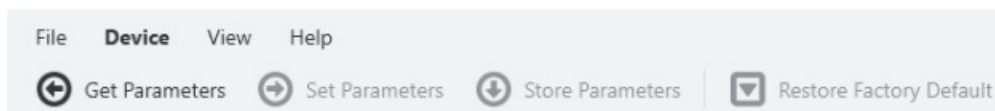
File

Leftmost above the header, you find the main menu for project files. You can load new – and save, reopen, edit existing projects.



Device

Read, write, and save device parameters. Govern NanoJ programs and fieldbus network (with CANopen).
Set Parameters: Transmits the selected parameter values to system-connected controllers.



Note: You can select parameters to be set by ticking them.

Get Parameters: Reads the values of system-connected controllers.

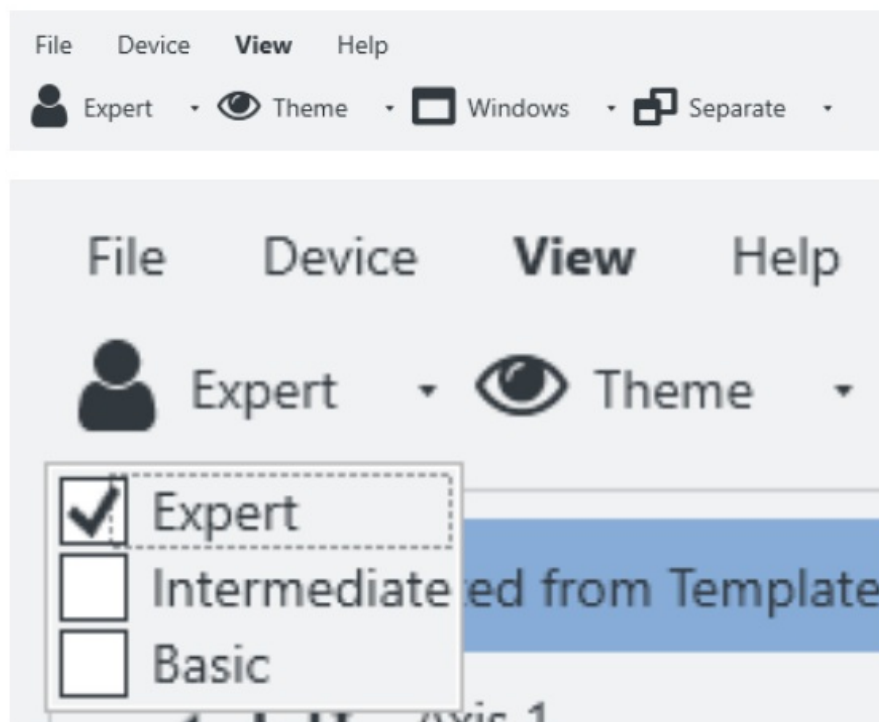
Store Parameters: Stores Set-transmitted values of system-connected controllers.

HOMING SETTINGS		
Homing method	1	<input checked="" type="checkbox"/>
Home offset	0	<input checked="" type="checkbox"/>
Speed during search for switch	33	<input checked="" type="checkbox"/>
Speed during search for zero	11	<input checked="" type="checkbox"/>
Homing acceleration	12000	<input checked="" type="checkbox"/>
Minimum current for block detection	0	<input type="checkbox"/>
Block detection time	100	<input type="checkbox"/>

View

Here you can customize the UI by changing the theme, showing/hiding features or opening them in separate windows.

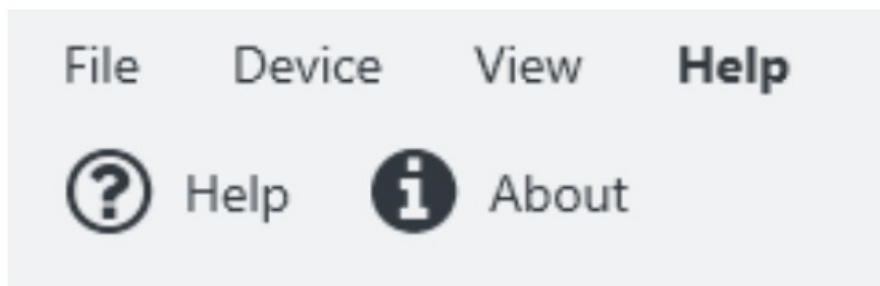
You can also set the User level, to govern user rights for the following roles:



- Expert: Project owner with all rights. May create and edit projects, rights, visibilities, etc. Governs via Properties, for each single parameter up to a complete Controls group, who may see and edit exactly what.
- Intermediate: May change device parameters, but can't edit a project.
- Basic: Similar to Intermediate, but often gets fewer editing rights from Expert.

Help

Open the online help or PNDS3 version info.

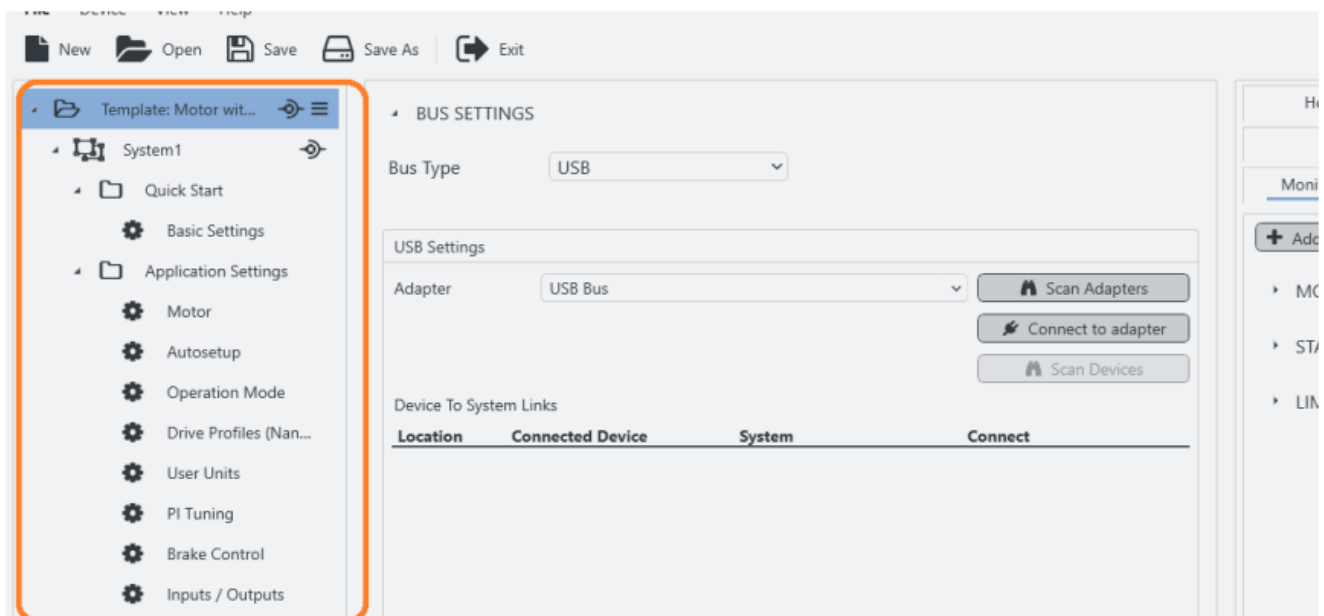


Project bar (4)

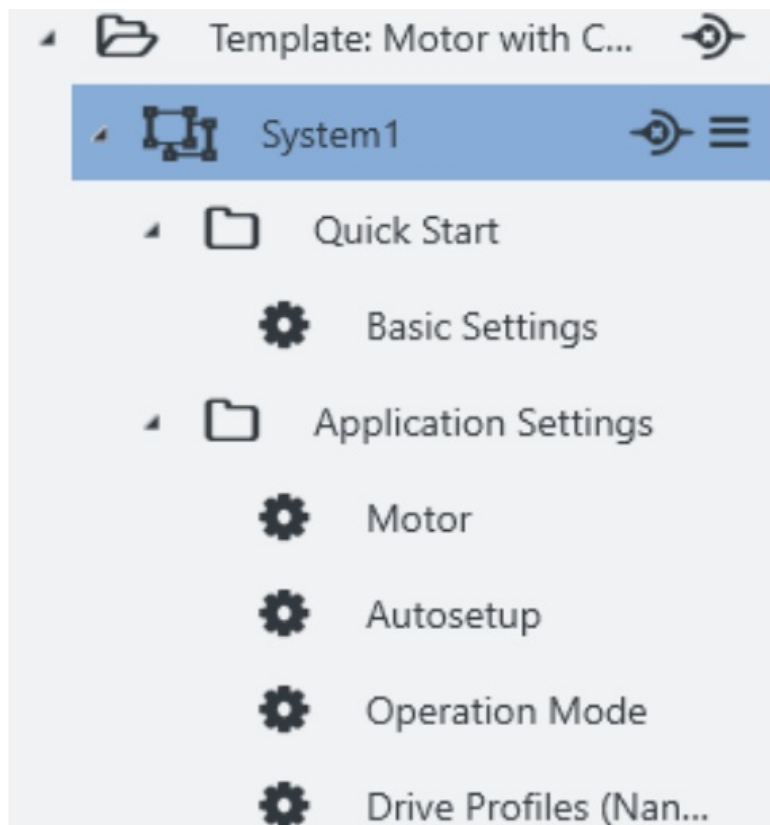
This side bar displays your loaded project as a tree list by which you create the user interface. **Note:** Depending on assembly, you can check connections and attributes of all tree list items in the work desk (3).

Tree list

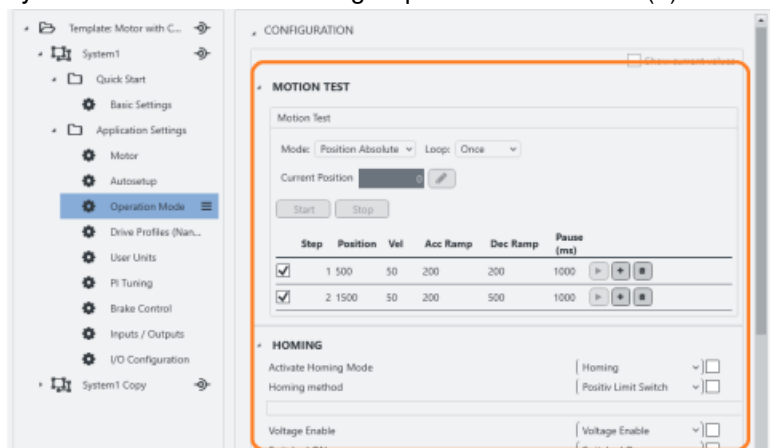
You find the project bar in the very left of the user screen.



A project (here: for an external controller) tree-lists all systems and the items therein (see also Project setup). One project and one system are minimum; further items are optional and later on define the entire UI layout. System 1 contains the module groups Quick Start with modules for the basic settings and Application Settings with further controls and parameter groups.



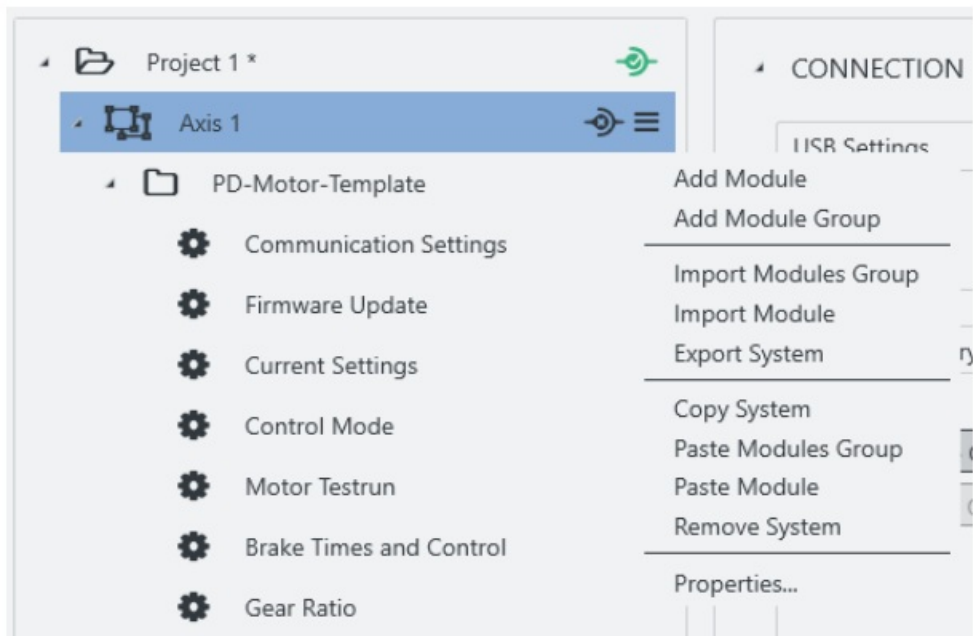
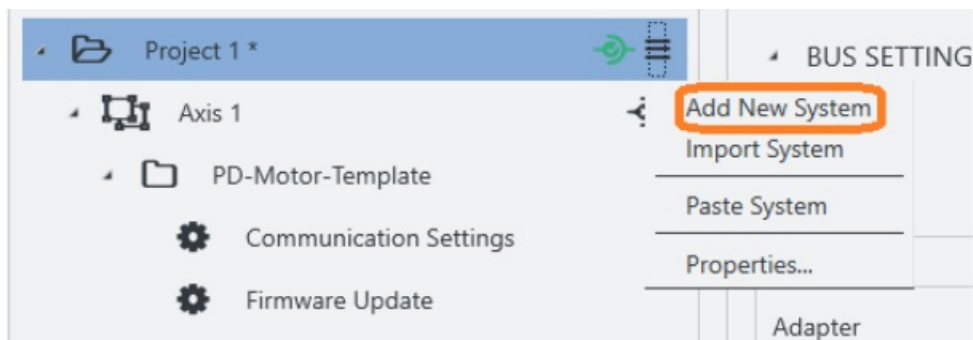
For each module, you may add one or more controls groups to the work desk (3) further to the right.



Project > System

A system represents a motor with controller, that is, one per motor in a multi-axis application.

1. To set up a system: Co-click the project.
2. In the context menu: Either create a new system via Add New System.
3. Or fetch an existing one via Import System.
4. A new node (= blue) appears in the tree list.
5. To name it: Co-click the node, select Properties. **Note:** You can edit any object via Properties.
- 6.



In the pop-up: Name the system as needed.

7. If needed: Versionize and describe the system. You can add a string for the device name and firmware version, which should be checked after connecting to a device.
8. After last entry: Set a tab stop (so that all is stored).
9. Only then: Close the pop-up.
10. Assemble the system with module groups (see below).

Nanotec
PLUG & DRIVE

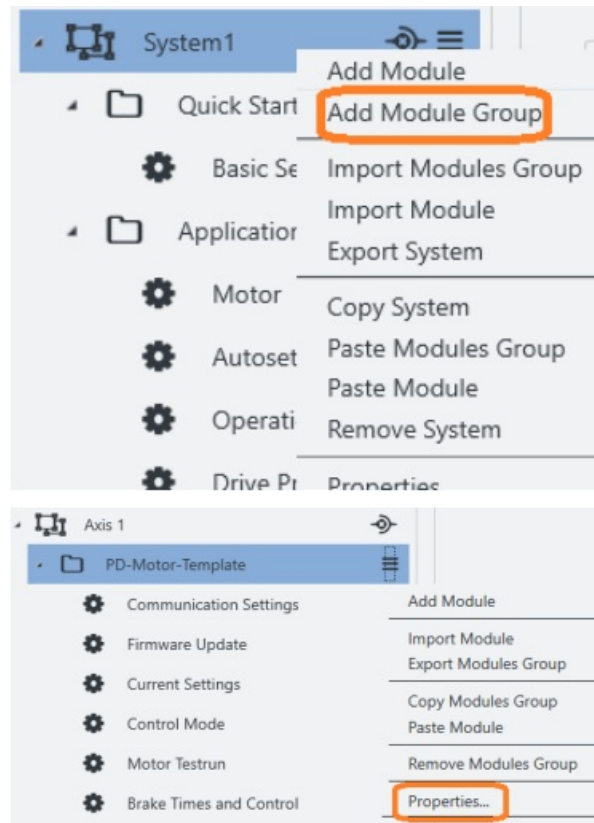
Properties for: System1

Key	Value
System name	System1
Version	
Description	System1
Check device	PD5
Check firmware	2213

Project > System > Module group

A module group bundles several motor functions (= modules). Depending on assembly, you can check its connections and attributes in the work desk (3).

1. To set up a module group: Co-click the system.
2. In the context menu: Either create a new module group via Add module group.
3. Or fetch an existing one via Import module group.
4. A new node appears in the tree list.
5. To name it: Co-click the node, select Properties. Note: You can edit any object via Properties.



6. In the pop-up: Name the module group as needed (here: Controller template).
7. If needed: Versionize and describe the module group.
8. After last entry: Set a tab stop (so that all is stored).
9. Only then: Close the pop-up.
10. Assemble the module group with modules (see below).

Nanotec
PLUG & DRIVE

Properties for: Application Settin...

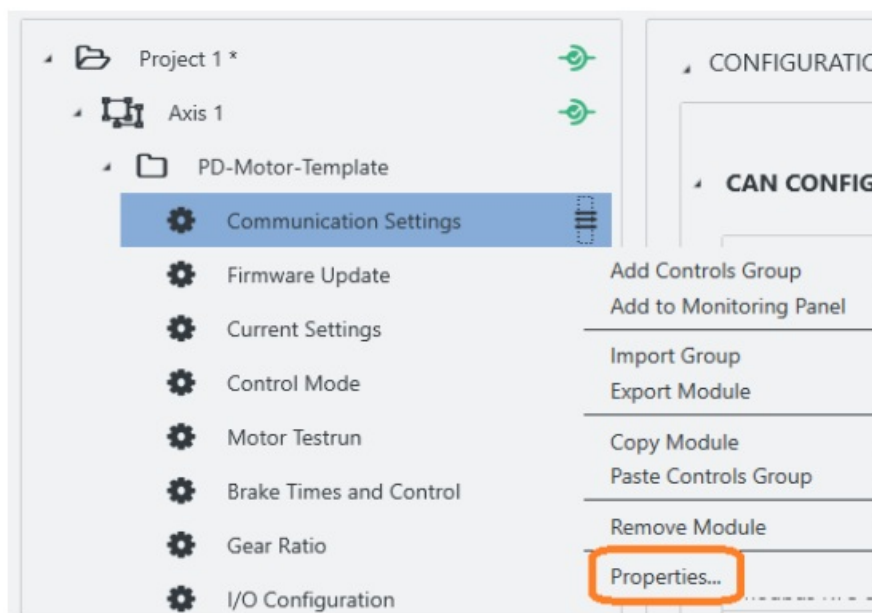
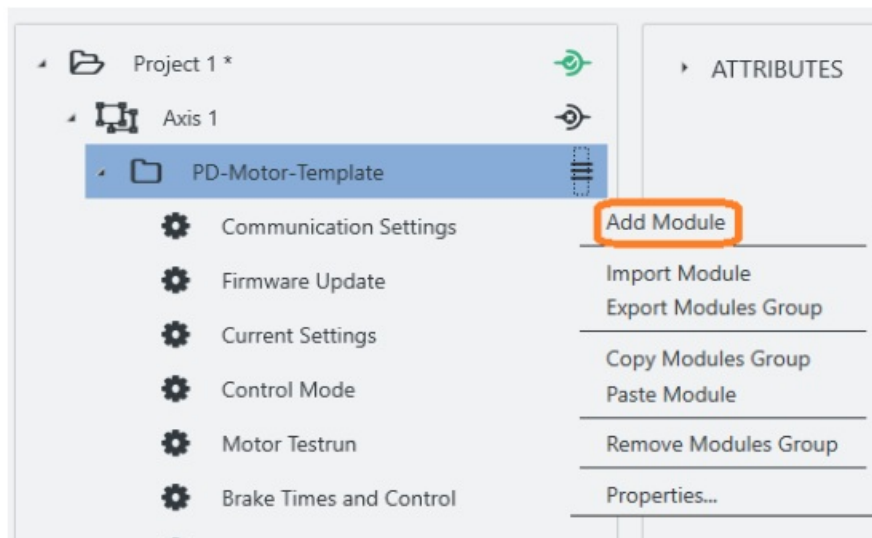
Key	Value
Module group name	Application Settings
Version	
Description	

Project > System > Module group > Module

A module allows you to add a single motor function (= parameter set etc.). Depending on assembly, you can check its connections and attributes in the work desk (3).

1. To set up a module: Co-click the module group (here: Controller template).
2. In the context menu: Either create a new module via Add Module.
3. Or fetch an existing one via Import Module.

4. A new node appears in the tree list.
5. To name it: Co-click the node, select Properties. Note: You can edit any object via Properties.



6. In the pop-up: Name the module as needed (here: Communication settings).
7. If needed: Versionize and describe the module, add it to a Monitor
8. After last entry: Set a tab stop (so that all is stored).
9. Only then: Close the pop-up.

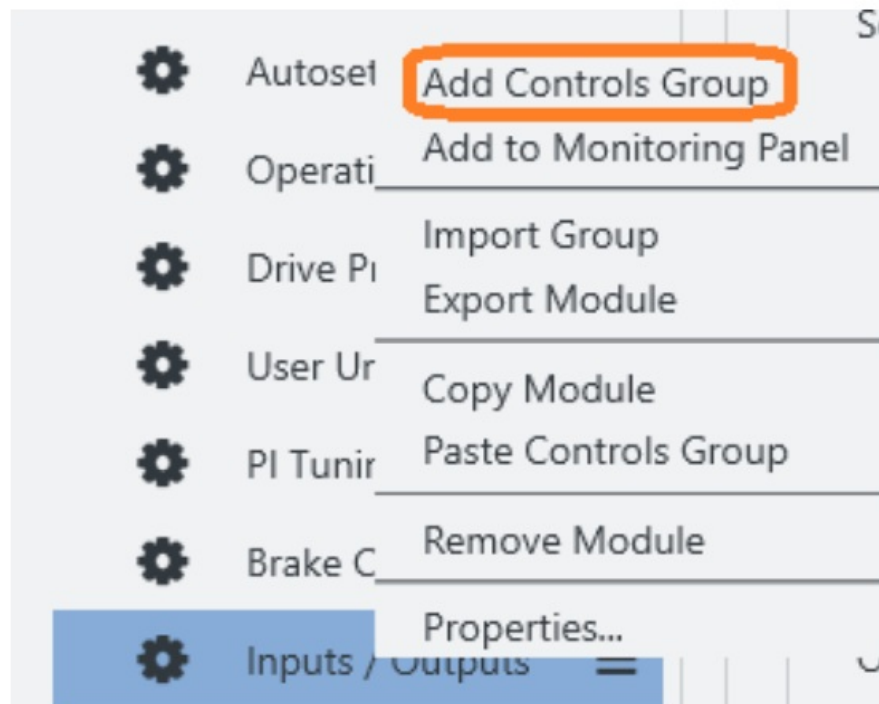
The screenshot shows a dialog box titled 'Properties for: User Units' with the Nanotec logo. It has a table with two columns: 'Key' and 'Value'. The 'Module name' row is highlighted, and the 'Value' field contains 'User Units'. Other rows include 'Version', 'Description', and 'Add to Monitor' (which has an unchecked checkbox).

Key	Value
Module name	User Units
Version	
Description	
Add to Monitor	<input type="checkbox"/>

Project > System > Module group > Module > Controls group

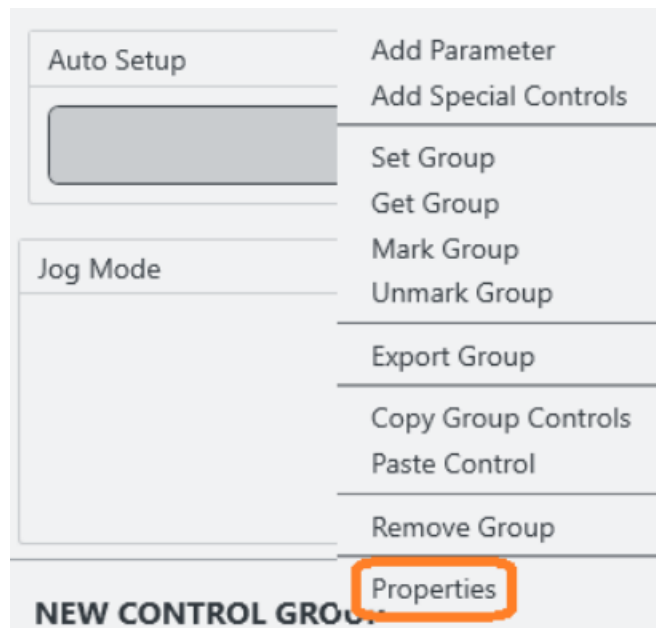
A controls group bundles individual operating elements or parameter sets.

1. To set up a controls group: Co-click the module.
2. In the context menu: Either create a new controls group via Add Controls Group.
3. Or fetch an existing one via Import Group.
- 4.



In any case, the controls group appears in the work desk (3).

5. Right there: Co-click the group and its Properties. Note: You can edit any object via Properties.



Nanotec Properties for: New control group

Key	Value
Controls group name	New control group
Version	
Description	
Visibility	Basic
Editability	Basic

6. In the pop-up: Name the controls group as needed.

7. If needed: Versionize and describe the group. Note the pull-downs for granted viewing and editing rights (here: both Basic).
8. After last entry: Set a tab stop (so that all is stored).
9. Only then: Close the pop-up.

Work desk (3)

At the work desk, in the user screen's half-left, you edit the properties / contents / controls of your project and systems. Depending on assembly, different tabs are above the worktable:

An Attributes area accompanies all items (also module groups); Bus settings, by contrast, only the project itself. The Connection settings tab, finally, is for systems only; and Configuration is only for modules. Each tab opens different aspects:

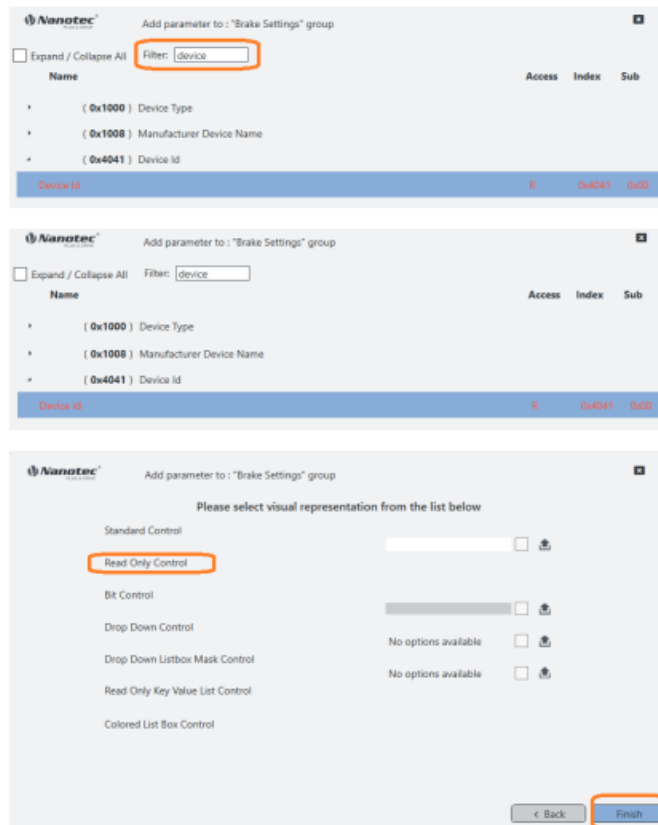
- Controls groups Operator clusters
- Parameters Operator values
- Special controls Feature operators
- Complex controls Multi-level operators

Controls group > Parameter

1. To add a parameter: Co-click the controls group and click Add Parameter.



2. In the pop-up: Enter device or 0x4041 to filter for the Device Id object.
3. You may expand objects by mouse (or tick at Expand all).
4. Click Device Id and Next (if wrong: step Back).
5. In the next pop-up: Select the visual representation and click Finish.

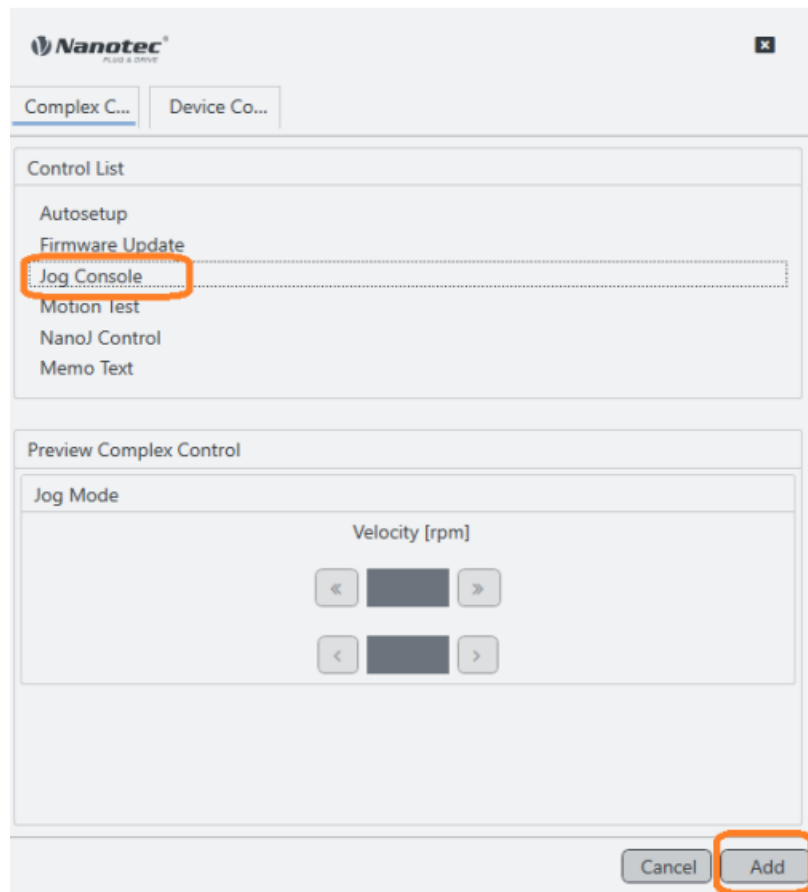


Controls group > Special controls

1. Co-click a controls group to open its context menu.
2. Select Add Special Controls to open the Complex controls list.

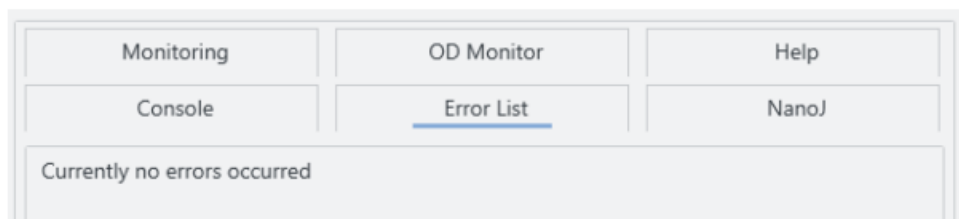


3. In the pop-up: Select the needed item.
4. To confirm: Click Add.



Display wall (2)

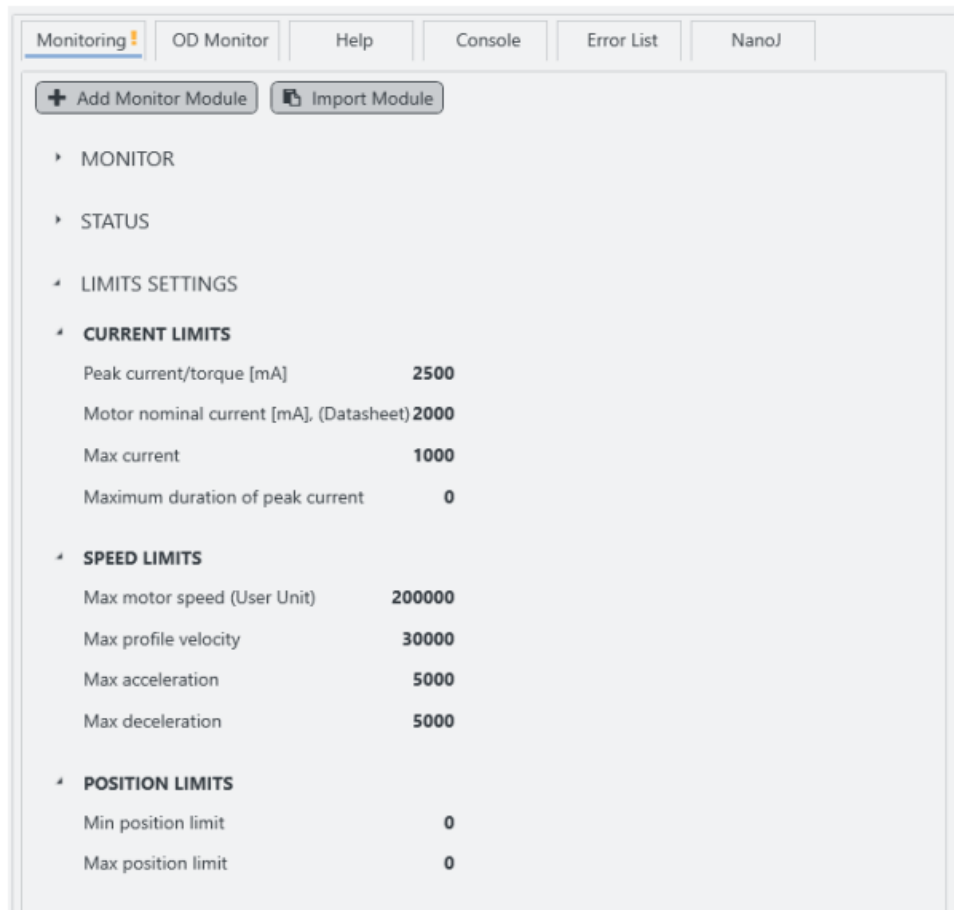
The display wall contains the monitors, error list, current OD values, help and console.



Several tabs facilitate navigation in the display wall, in the user screen's upper right.

In the Monitoring tab, you combine either single or grouped monitors to track individual system behavior in real time.

1. To set up a monitor: Co-click the tab Monitoring.
2. In the context menu: Either create a new monitor via Add Monitor Module.
3. Or fetch an existent one via Import Module.



The bottom part of the monitor display contains always the system monitor which shows the current device and connection status information.

OD Monitor: Lists all objects from the controller's dictionary, together with their current values. For updates: Click Read.

To save the list as a text file on the hard drive: Click Dump. Keep the text file with current values ready in case of support enquiries.

Monitoring ! OD Monitor Help Console Error List NanoJ					
<div> <div>Read</div> <div>Dump</div> </div>					
OD Description	Index	Sub Index	Value	Hex	Bin
BOOLEAN	0x0001	0x00			
INTEGER8	0x0002	0x00			
INTEGER16	0x0003	0x00			
INTEGER32	0x0004	0x00			
UNSIGNED8	0x0005	0x00			
UNSIGNED16	0x0006	0x00			
UNSIGNED32	0x0007	0x00			
REAL32	0x0008	0x00			
VISIBLE_STRING	0x0009	0x00			
OCTET_STRING	0x000A	0x00			
UNICODE_STRING	0x000B	0x00			
TIME_OF_DAY	0x000C	0x00			
TIME_DIFFERENCE	0x000D	0x00			
DOMAIN	0x000F	0x00			
Number of entries	0x0020	0x00			
COB-ID	0x0020	0x01			
Transmission Type	0x0020	0x02			
Inhibit Time	0x0020	0x03			
Reserved	0x0020	0x04			
Event Timer	0x0020	0x05			
SYNC start value	0x0020	0x06			
Number of entries	0x0021	0x00			
1st object to be mapped	0x0021	0x01			
2nd object to be mapped	0x0021	0x02			
3rd object to be mapped	0x0021	0x03			
4th object to be mapped	0x0021	0x04			

Help: Displays the description of the currently chosen element (OD object).

CONFIGURATION

DIGITAL INPUTS

Routing Enable

FALSE

No Reaction

Source Limit Switch negative

Inactive

Source Limit Switch positive

Inactive

Source Reference Switch

DO 1

DIGITAL OUTPUT

Output Routing enable

TRUE

Brake Output

Brake

Output 1

DO 1

ANALOGUE INPUT 1

Offset Analogue input 1

0

Numerator Analogue input 1

10000

Denominator Analogue input 1

1025

Analogue input #1 value

ATTRIBUTES

Console

Error List

NanoJ

Monitoring !

OD Monitor

Help

Auto Refresh Help

Current Object

Index: 0x3242

Sub Index: 0x03

OD_3242_03 Digital Input Routing

Parent topic: OD_3242_00 Digital Input Routing

Object description

Index

3242,

Object name

Digital Input Routing

Object Code

ARRAY

Data type

UNSIGNED8

Saveable

yes, category: application

Access

read only

PDO mapping

no

Value description

Subindex

03,

Name

Input Source #3

Data type

UNSIGNED8

Access

read / write

Monitoring !

OD Monitor

Help

Console

Error List

NanoJ

Plug & Drive Studio Console

Type 'help' for more information.

> 3202

> 1 0x0000 0001 0000 0000 0000 0000 0000 0000 0000 0001

[Motor drive submode select]

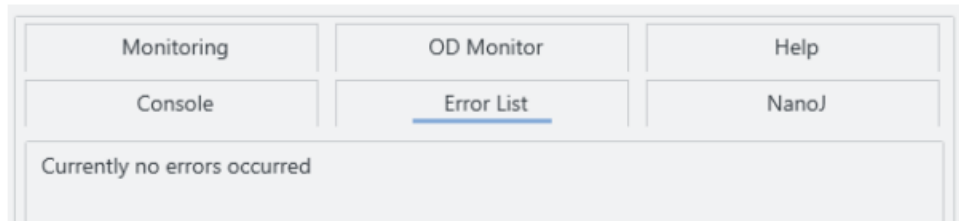
> [3200=1]

Console: Use this to quickly read/write.from/to the device's object dictionary.

Type <od index>:<od subindex> for read.

Type <od index>:<od subindex>=<value> for write.

Error List: Here you can read the actual errors.

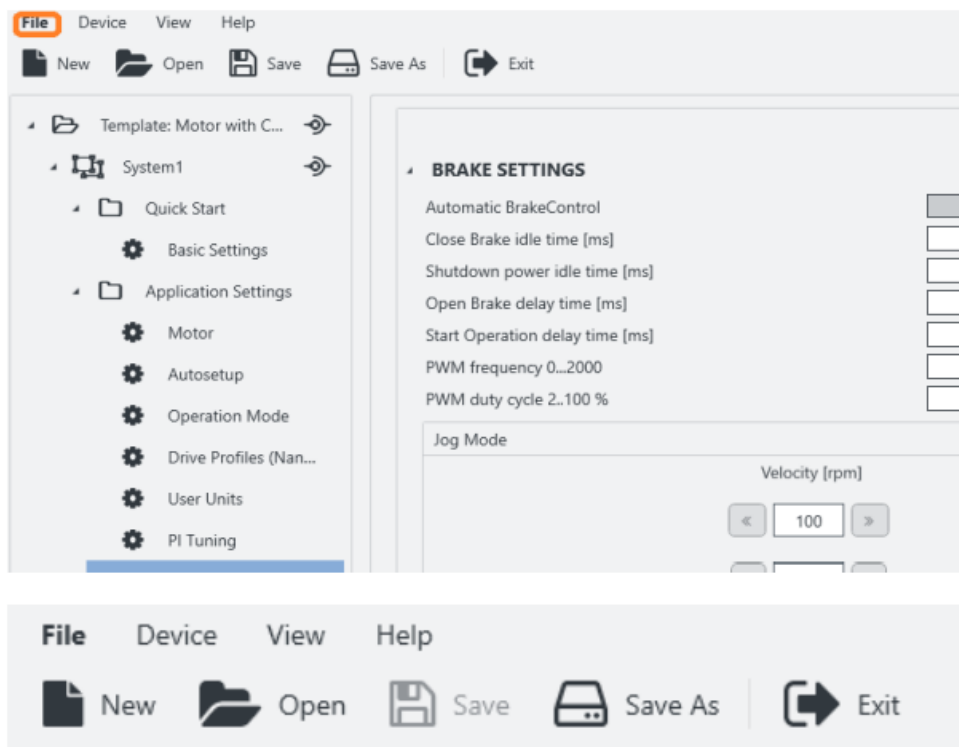


Project setup

In a project, you manage your devices, settings, connections, etc. Note: Ex works, in the software's templates folder, there is a sample project each for an external and an integrated controller. Nanotec recommends using these templates.

Load / Create a project

1. In the user screen: Visit the file menu (1)

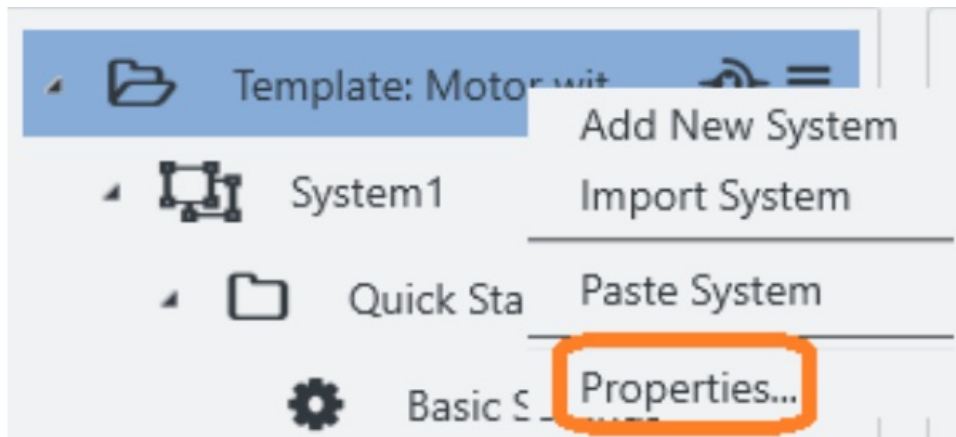


2. Preferably use Project > Open to select an existent sample project for template.
3. Or, for a new one instead: Select Project > New.
4. If a pop-up wants to store the current project: Click Yes.
 - No will close the project unstored and without backup.
 - Cancel will just close the pop-up.
5. The newly loaded selection appears in the project bar (4)

If needed: Name the project

1. Go to the Project bar (4).

2. Co-click the current project and Properties.



3. In the pop-up: Name, versionize, and describe the project. Note the pull-down for granted user rights (here: Expert).
4. After last entry: Set a tab stop (so that all is stored).
5. Only then: Close the pop-up.

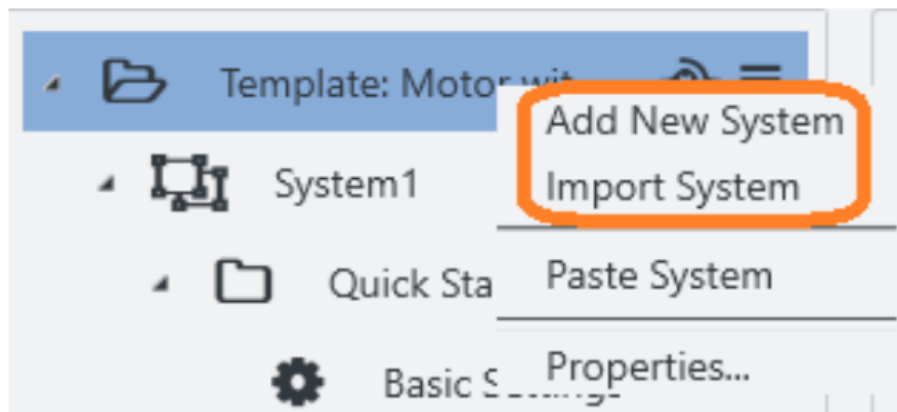
A screenshot of the 'Properties for: Proejct 1' dialog box. The dialog has a table with columns 'Key' and 'Value'. The 'Description' field is highlighted with a blue border.

Key	Value
Project name	Proejct 1
Creation date	25.07.2023 15
Version	1
Description	
User level	Expert
Protection Write Mechanics	<input type="checkbox"/>

Load / Create a system

1. In the project: Preferably use Import System to select an existent sample system for template.
2. Or, for a new one instead: Select Add new system.
3. In the pop-up: Name, versionize, describe the system as needed.
4. After last entry: Set a tab stop (so that all is stored).

5. Only then: Close the pop-up.
6. Repeat for each additional system.



Nanotec
PLUG & DRIVE

Properties for: System1

Key	Value
System name	System1
Version	
Description	System1
Check device	PD5
Check firmware	2213

Connect to adapter

1. In the project bar (4): Select your project.
2. In the work desk (3): Open the Bus settings tab.
3. In the Bus settings tab: Select the Bus type.
4. Check setup by Scan adapters. If no result: Set up an adapter and check again.
5. Select the needed adapter.

BUS SETTINGS

Bus Type: USB

USB Settings

Adapter: USB Bus

Buttons: Scan Adapters, Connect to adapter, Scan Devices

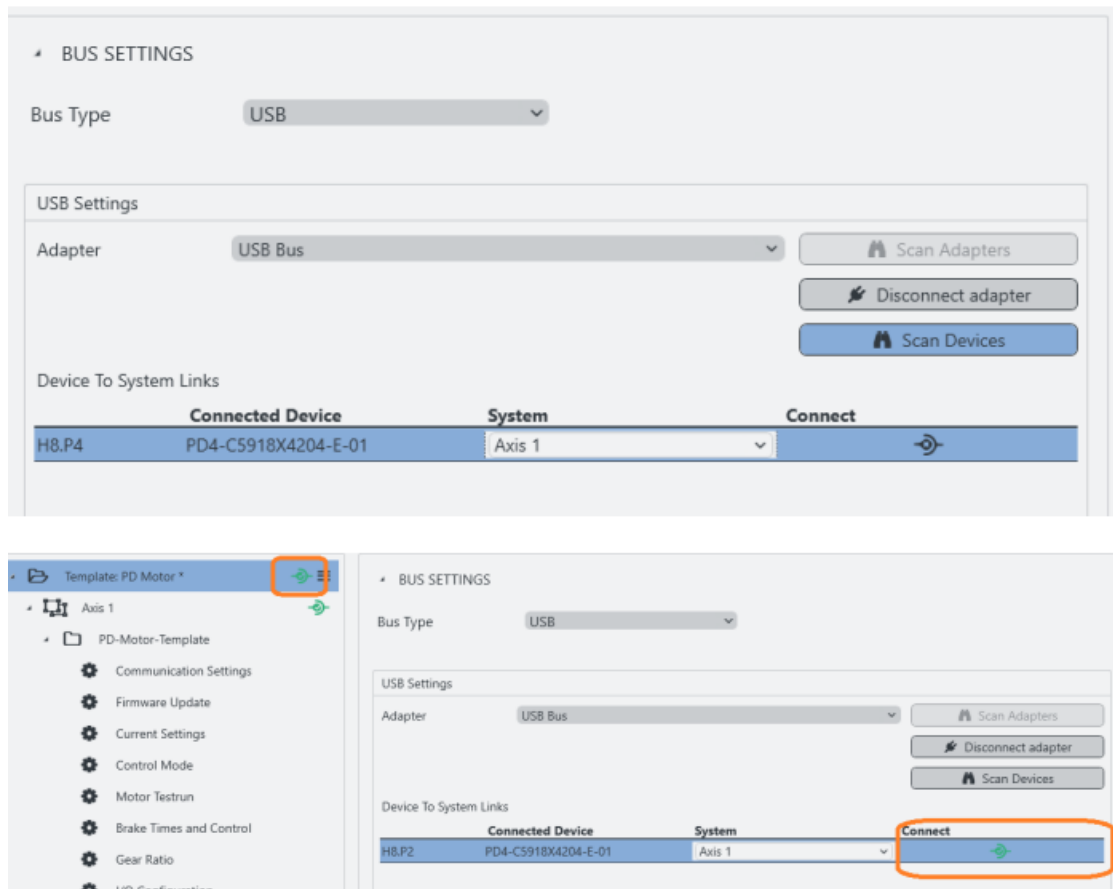
Device To System Links

Location	Connected Device	System	Connect

Connect to device

1. In the Bus settings tab: With the adapter linked, you can see all available devices.

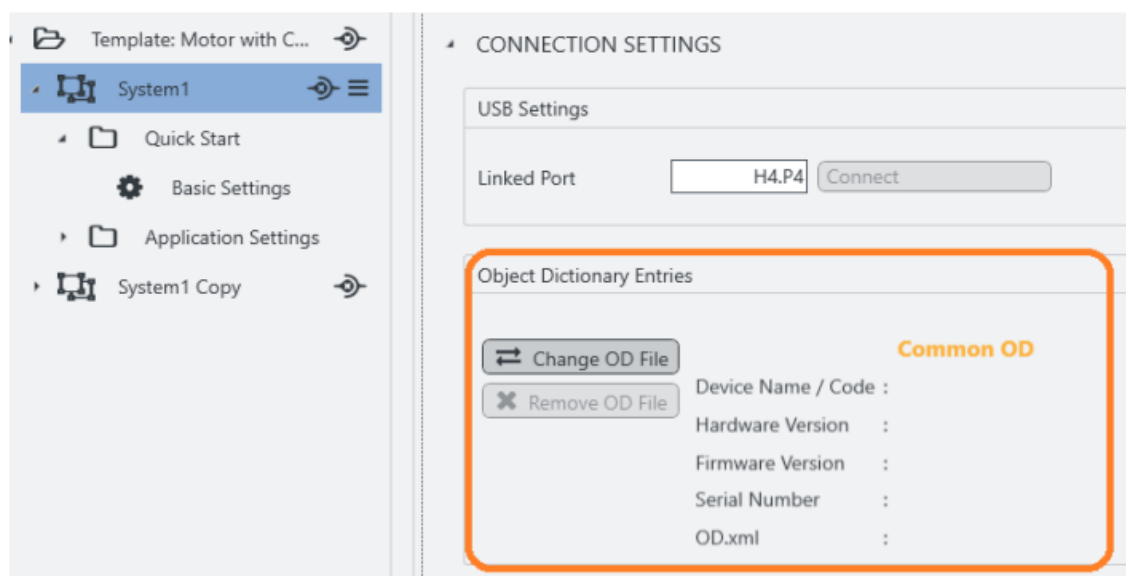
2. Click Scan devices. Check Connected device.
3. By Pulldown: Select a system to link your device to.
4. You can link / unlink the device via Connect icon (here: green).



Select the OD file

PNDS3 shows objects that match the controller firmware with correct OD file only (object dictionary). If the system is linked, a Object Dictionary Entries tab shows if the correct OD file is loaded. Otherwise, the generic file Common OD loads, by which you reach available objects of all Nanotec products.

1. Select the system.
2. Open the Object Dictionary Entries tab.



- Common OD: Reloadable via Remove OD File
- OD file of choice: Loadable via Change OD File

- Firmware-correct OD files for all Nanotec controllers: In PNDS3's Firmware folder

Wrong OD files report an error (= red).

Special controls

Via Special controls, you add Complex controls and Device communication settings to the user interface. Both help you to use advanced controller functions.

Basic principle

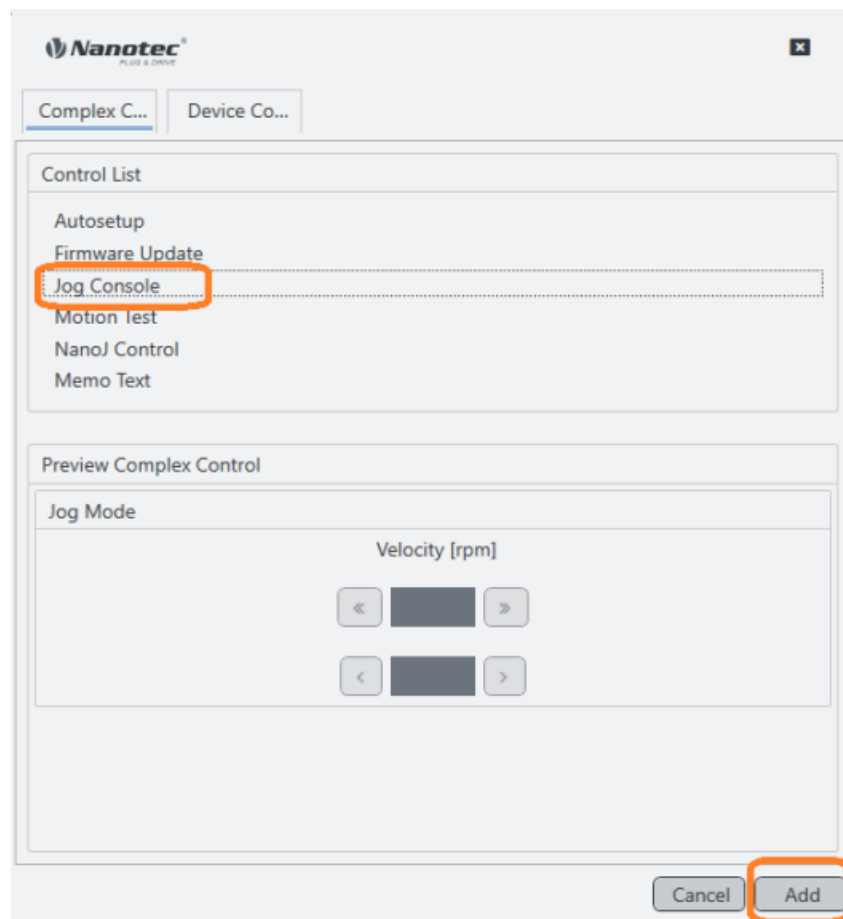
Special controls define and monitor (as macro collections) the system behavior. Depending on assembly, you can check their connections and attributes in the work desk.

1. To set up complex controls or device communication: Co-click the controls group.
2. In the context menu: Select Add Special Controls.



3. Complex controls? Device communication settings? Open the tab of choice.
4. Select the needed item and Add.

The control / setting of choice appears in the work desk.

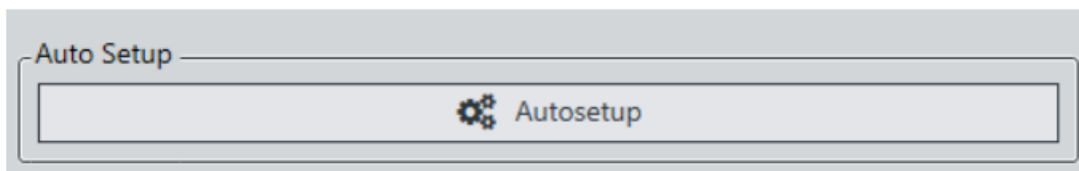


Complex controls

With the Complex controls macro collection, you create your own controller functions. Next to Autotest and Firmware update, these include Jog Console, Motion Test, NanoJ Control and Memo Text.

Autotest

Autotest detects the motor type and connected sensors (encoder / Hall sensors).



CAUTION!

Injury: from abrupt motor travel after auto-setup (= parameter loss)!

- For motors with integrated controllers: Avert auto-setup (since it comes factory-run already).
- Otherwise: Restart the motor after auto-setup (homing alone won't suffice).
- Stay clear of moving motor parts.
- Touch the motor at standstill only.

NOTICE

Motor malfunction: from auto-setup user error!

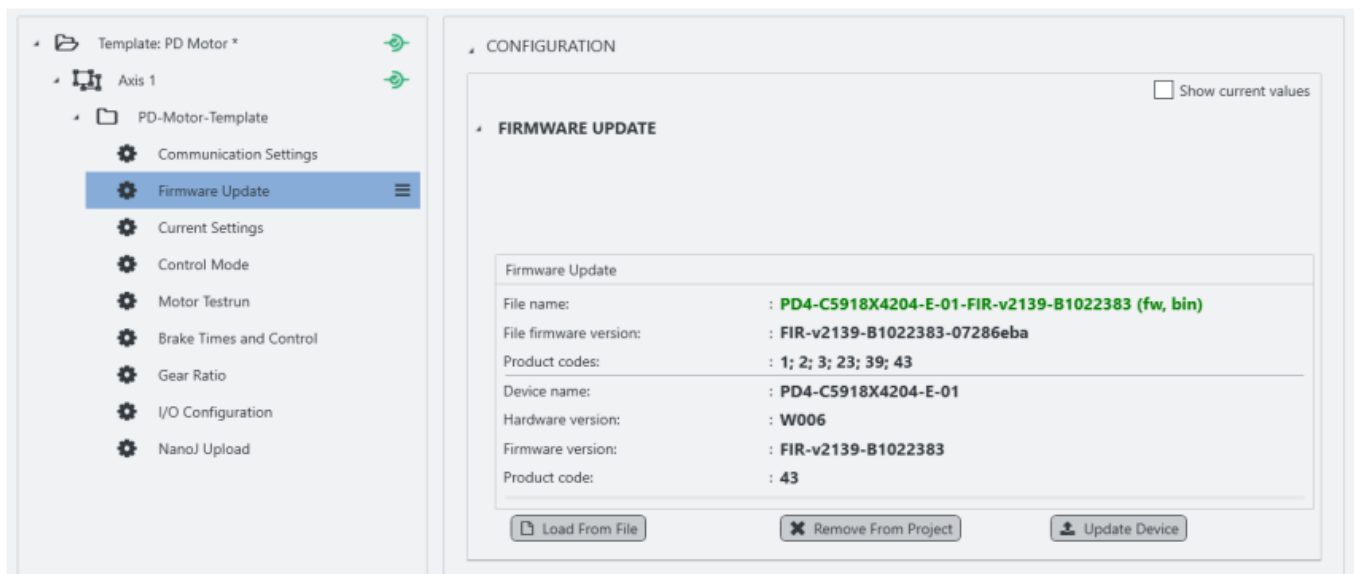
- Close possible NanoJ programs (object 2300h:00h Bit 0 = "0"; cf. 2300h NanoJ Control).
- Keep the motor load-free, and freely rotatable in any direction.
- Don't touch the motor.

As long as the motor on the controller or the feed-back sensors (encoder / Hall) remain the same: Run Autosetup only once, on initial commissioning.

Firmware update

Nanotec recommends controller firmware FIR-v2213 or newer. Please find the current version in the Firm-ware folder on the PNDS3-website.

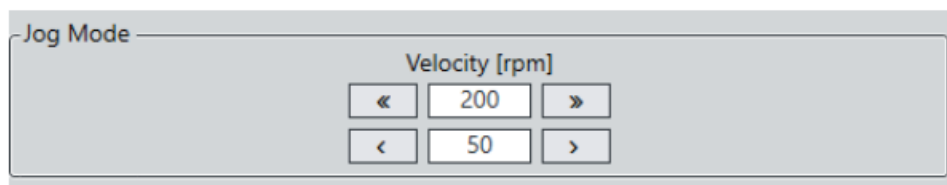
1. Open or add the Firmware update control.
2. Click Load from file.
3. Select a firmware file and click Open.
4. PNDS3 checks via product code if the chosen file fits to the product.
5. Click Update device.
6. Firmware updates itself.



Note: The chosen firmware file will be stored as part of the project the next time the latter is stored. If you don't want this to happen, click Remove from project before.

Jog Console

Via Jog Console, you test the motor in velocity mode. You can select two target speeds. The motor runs as long as you use the mouse to press the button for left / right rotation.



Special controls

Motion Test

In Motion Test, you test the motor in position / velocity / torque mode. Your options include target values, acceleration / deceleration ramps, repetition cycles, test run duration etc.

Motion Test

Mode: Position Absolute Loop: Once

Current Position 3509

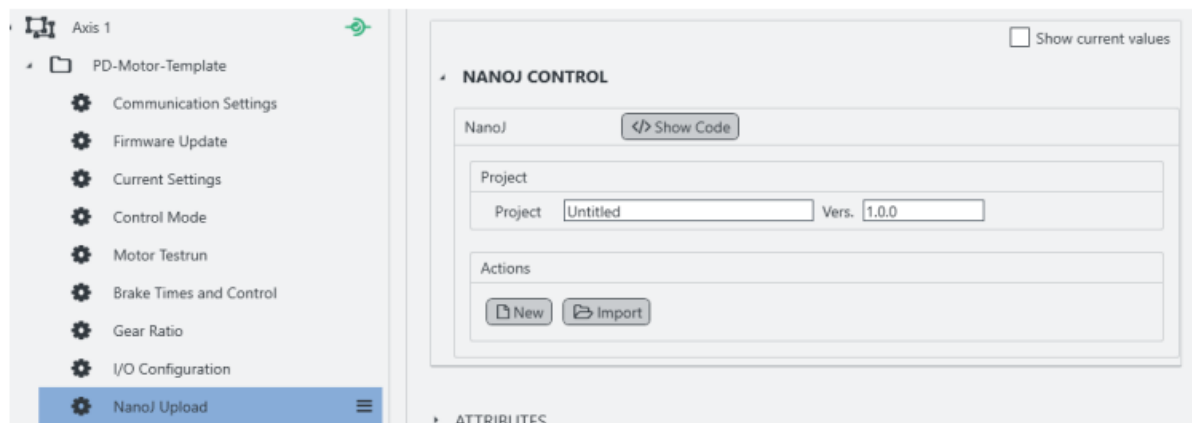
Start Stop

	Step	Position	Vel	Acc Ramp	Dec Ramp	Pause (ms)	
<input checked="" type="checkbox"/>	1	500	50	200	200	1000	
<input checked="" type="checkbox"/>	2	1500	50	200	500	1000	

NanoJ Control

In NanoJ control, you create a NanoJ new project (= New) or Import an existing one. The button Build compiles the project.

Note: The next time you store the project, the select-ed NanoJ file merges into the project. If you don't wish this to happen, click Remove before.



Memo Text

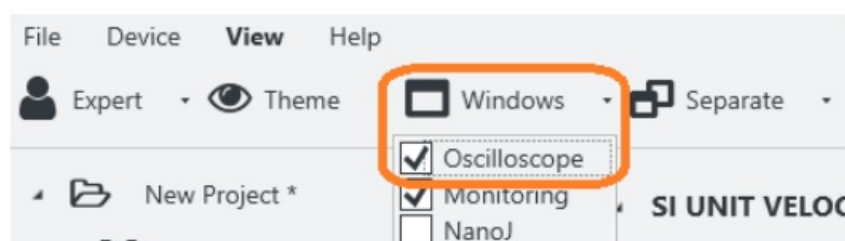
Adds a freely editable text box.

Device communication

With these controls, you parametrize the device communication. Note: Coding switches for setting the communication parameters overwrite the software settings on some devices. For details: Follow valid OEM instructions.

Oscilloscope

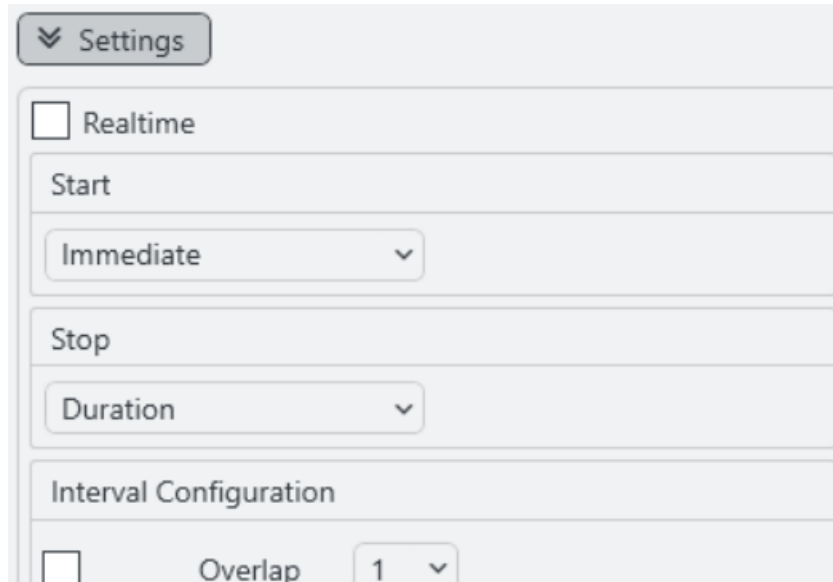
Via Oscilloscope, you monitor and control in real time the current value of device parameters from the object dictionary, say, for recording.



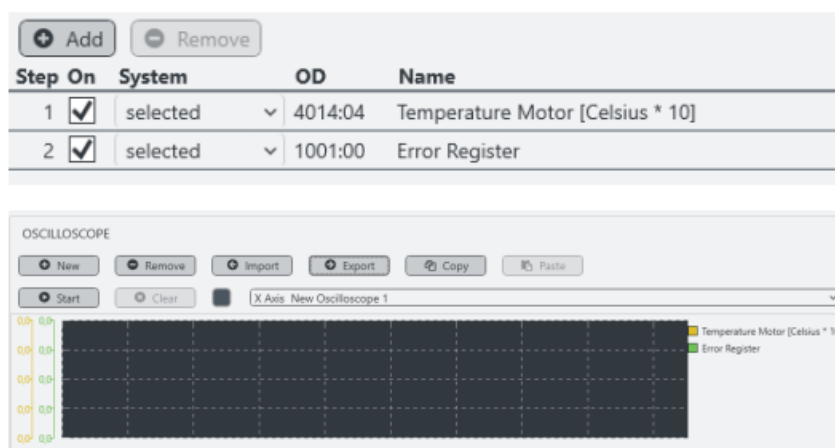
To open the oscilloscope, go to the Main Menu > Windows and select it.

Under Settings you can configure the following:

- Realtime: If chosen, the oscilloscope starts immediately and runs continuously, until the buffer is full. If not selected you can further define the conditions for start/stop.
- Start: Immediate, Condition (as soon as a parameter of choice changes), or Motion test (Motion test triggers the scope).
- Stop: Duration (of recording) or Manual.



In the right bottom corner you can add channels by selecting from the object dictionary or remove them. For recording, you open a new (or import an existing) oscilloscope in the tab above the settings and click Start.



Imprint, versions

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Nanotec Electronic GmbH & Co. KG | Kapellenstraße 6 | 85622 Feldkirchen | Germany
Tel. +49 (0)89 900 686-0 | Fax +49 (0)89 900 686-50 | info@nanotec.de | www.nanotec.com

Document Changes PNDS3

- 1.0.0 (06/2022) Edition V1.3.0
- 1.0.1 (11/2022) New software version V1.4.0, new firmware FIR-v2213 V1.4.0

- 1.1.0 (11/2023) New software version V1.5.2 V1.5.2
- 1.1.1 (12/2023) Minor corrections V1.5.3

Documents / Resources

	<p>Nanotec PNDS3 Plug And Drive Studio [pdf] User Manual</p> <p>PNDS3 Plug And Drive Studio, PNDS3, Plug And Drive Studio, And Drive Studio, Drive Studio, Studio</p>
	<p>Nanotec PNDS3 Plug and Drive Studio [pdf] User Manual</p> <p>PNDS3, PNDS3 Plug and Drive Studio, PNDS3, Plug and Drive Studio, Drive Studio, Studio</p>

References

- [Ixxat | Data communication for CAN, Ethernet and Safety](#)
- [Nanotec - Precise and Reliable Motion Control Solutions](#)
- [User Manual](#)

Manuals+. [Privacy Policy](#)

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