Przemysłowe Sieci Komputerowe

Konfiguracja napędu Nanotec C5E z interfejsem Modbus TCP Oprogramowanie Plug&Drive Studio 2

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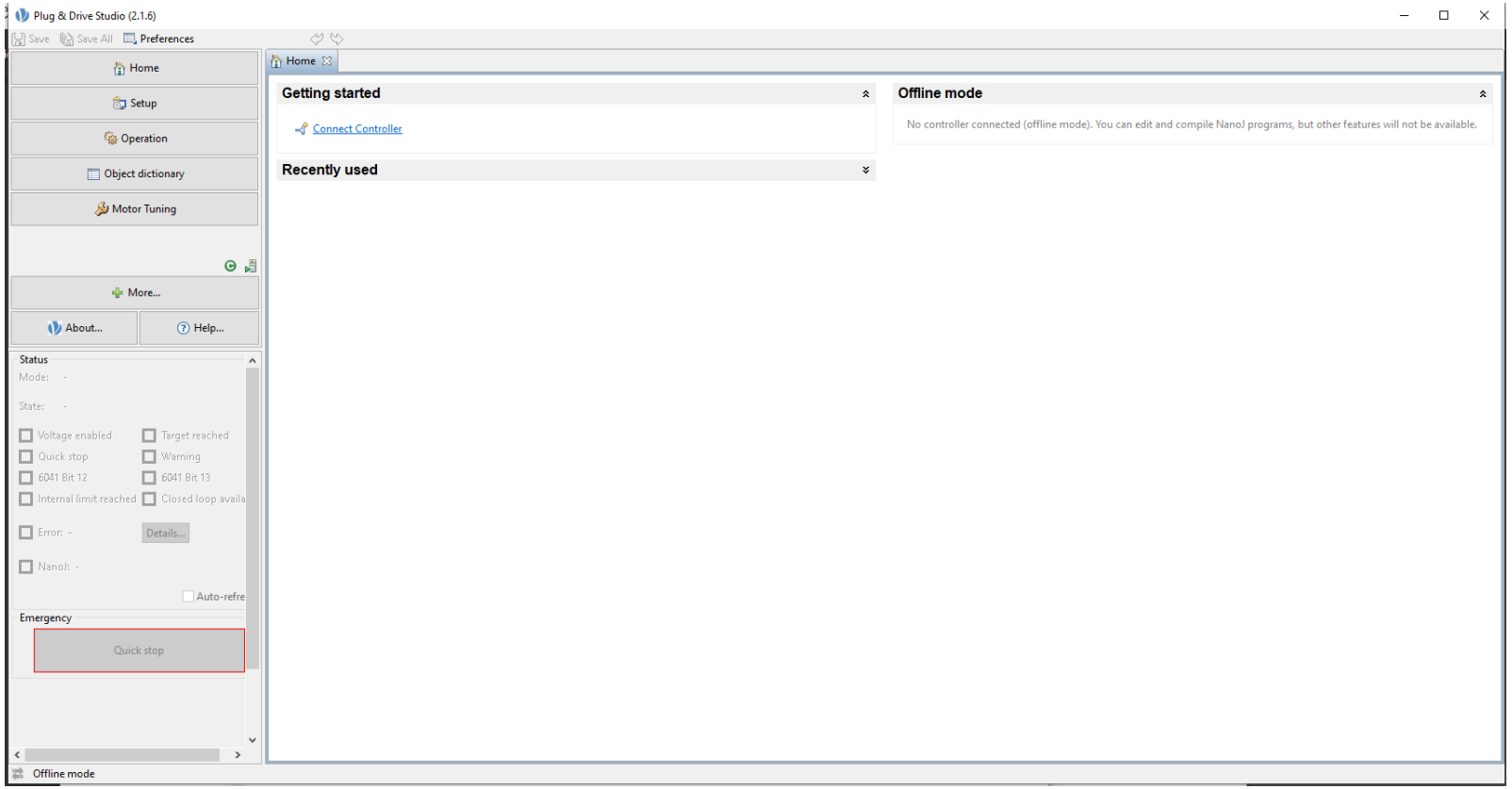
Oprogramowanie Plug&Drive Studio 2

Plug & Drive Studio to darmowe oprogramowanie do łatwego uruchamiania, konfiguracji oraz strojenia sterowników Nanotec.



Obsługiwane interfejsy i produkty

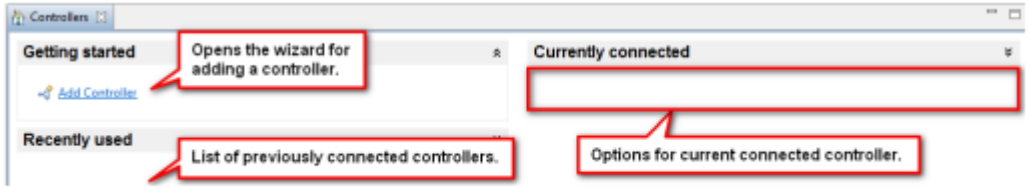
Plug & Drive Studio aktualnie obsługuje następujące interfejsy:

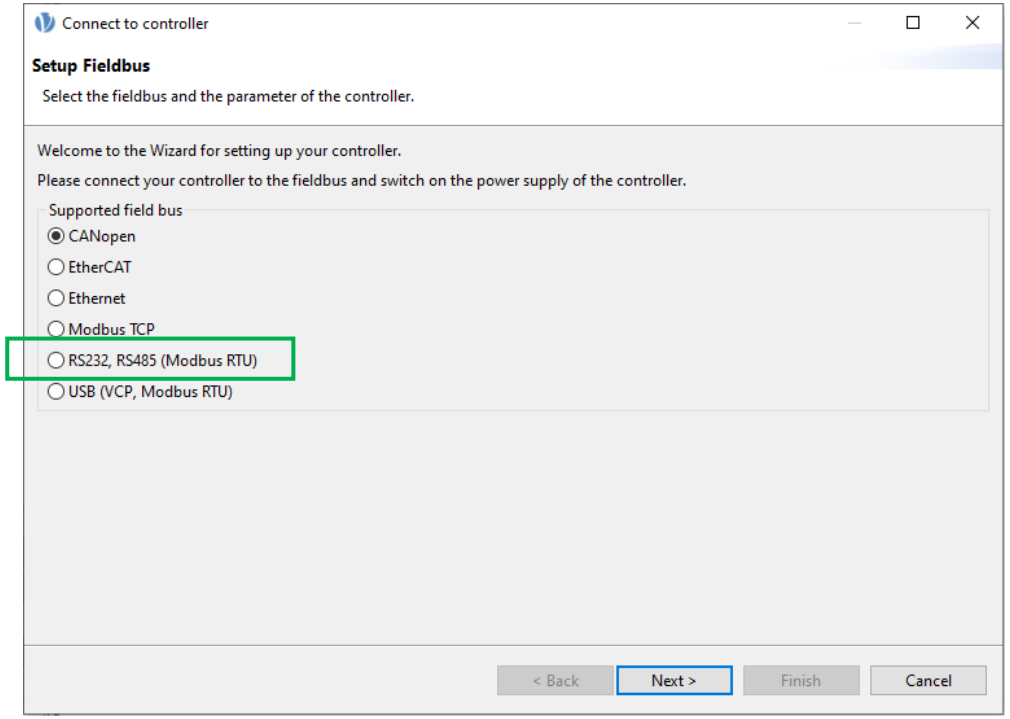
- CanOpen – obecnie obsługiwane adaptery to IXXAT i Peak.
- Ethernet TCP/IP – zalecana magistrala na wszystkich kontrolerach.
- EtherCAT - Master EtherCAT w Plug & Drive Studio nie ma możliwości pracy w czasie rzeczywistym. Używaj go tylko do konfiguracji kontrolera.
- Modbus/TCP
- USB Virtual COM Port (USB VCP)
- Modbus RTU over RS232 or RS485

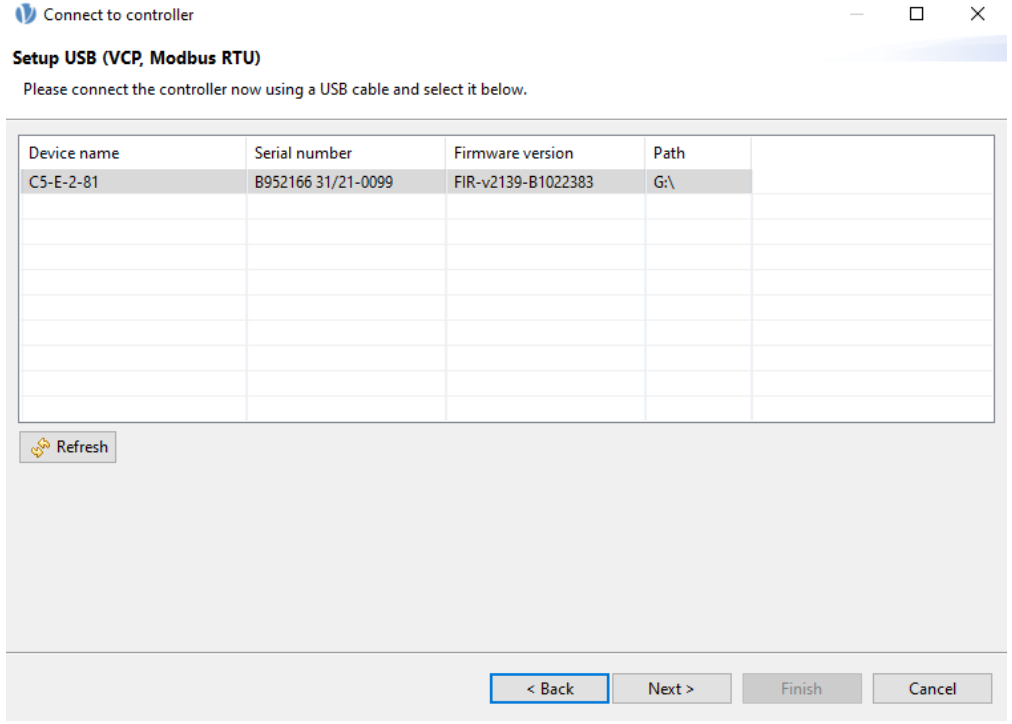
Obsługiwane interfejsy i produkty

Product name	Supported field bus
C5-01	USB virtual COM port
C5-E-x-03	USB virtual COM port, RS485
C5-E-x-09	USB virtual COM port, CANopen
C5-E-x-09A	USB virtual COM port, CANopen
C5-E-x-11	USB virtual COM port, Ethernet TCP/IP
C5-E-x-21	USB virtual COM port, EtherCAT
C5-E-x-81	USB virtual COM port, Ethernet TCP/IP or Modbus TCP
CL3-E-x-0F	USB virtual COM port, CANopen, RS232, RS485
CL4-E-x-12	USB virtual COM port, CANopen, RS485
N5-x-1	Ethernet TCP/IP (or EtherCAT)
N5-x-2	CANopen, Ethernet TCP/IP
N5-x-3	Ethernet TCP/IP
N5-x-4	Ethernet TCP/IP or Modbus TCP
N5-x-5	Ethernet TCP/IP, RS485
NP5-02	RS485
NP5-08	CANopen
NP5-20	EtherCAT
PD2-Cx-E-01	USB virtual COM port
PD2-Cx-E-08	CANopen
PD4-Cx-E-01	USB virtual COM port
PD4-Cx-E-08	CANopen
PD4-Ex-E-65-1	EtherCAT
PD4-Ex-E-65-2	CANopen
PD4-Ex-E-65-3	Ethernet TCP/IP
PD4-Ex-E-65-4	Ethernet TCP/IP or Modbus TCP
PD4-Ex-E-65-5	RS485
PD4-Ex-E-65-7	USB virtual COM port
PD4-Ex-M-65-1	EtherCAT
PD4-Ex-M-65-2	CANopen
PD6-Cx-E-09	USB virtual COM port, CANopen

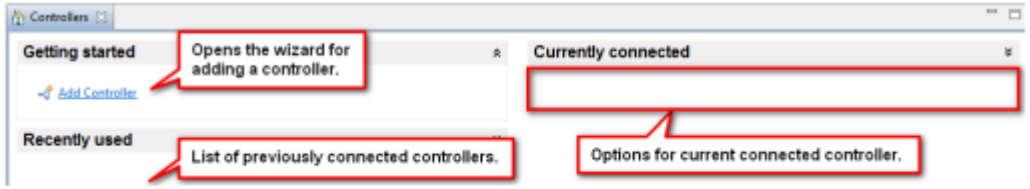
Podłączenie sterownika

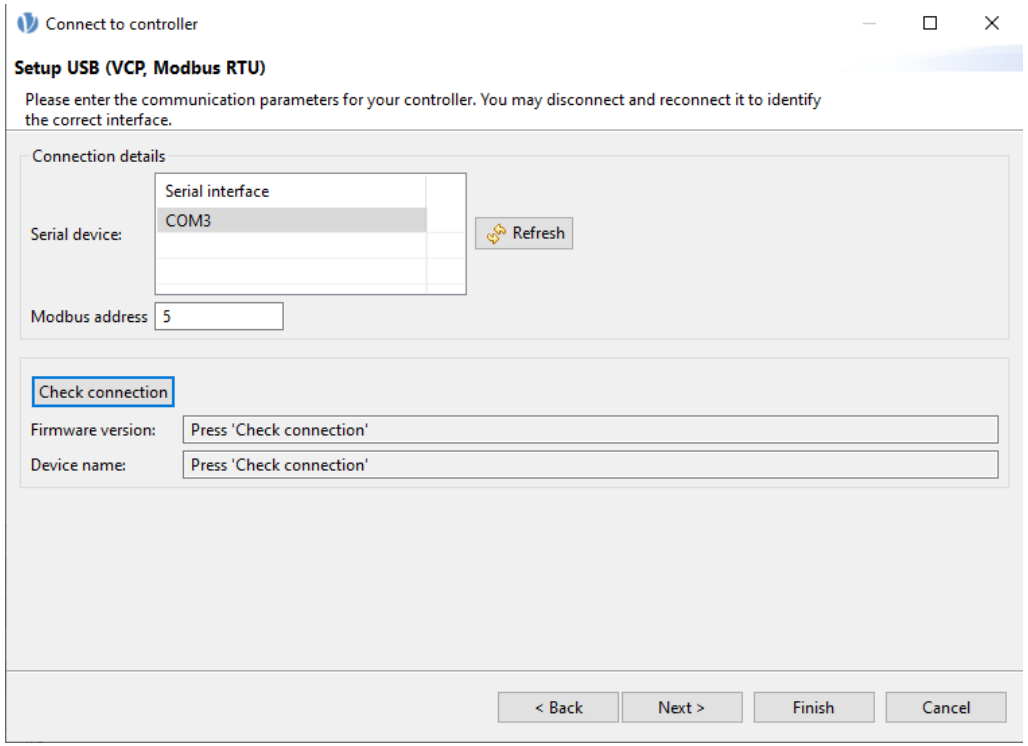


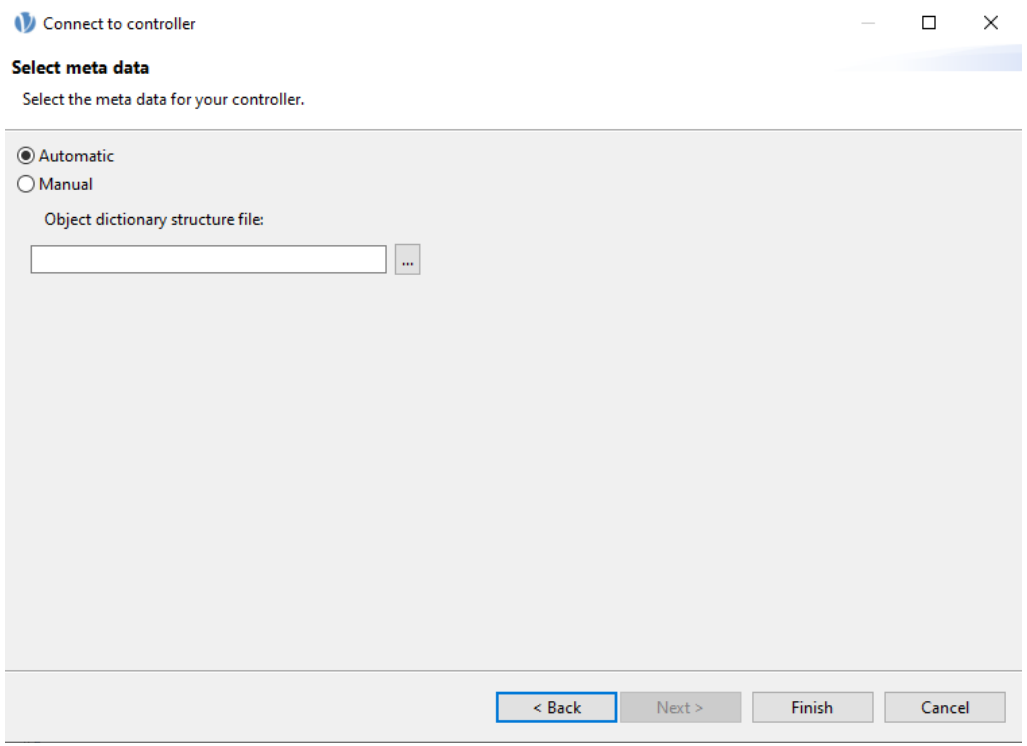




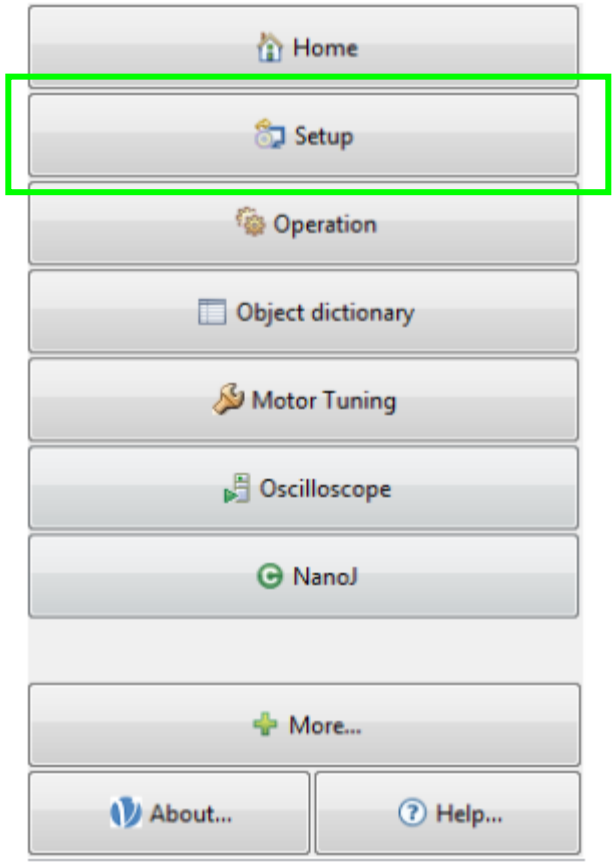
Podłączenie sterownika

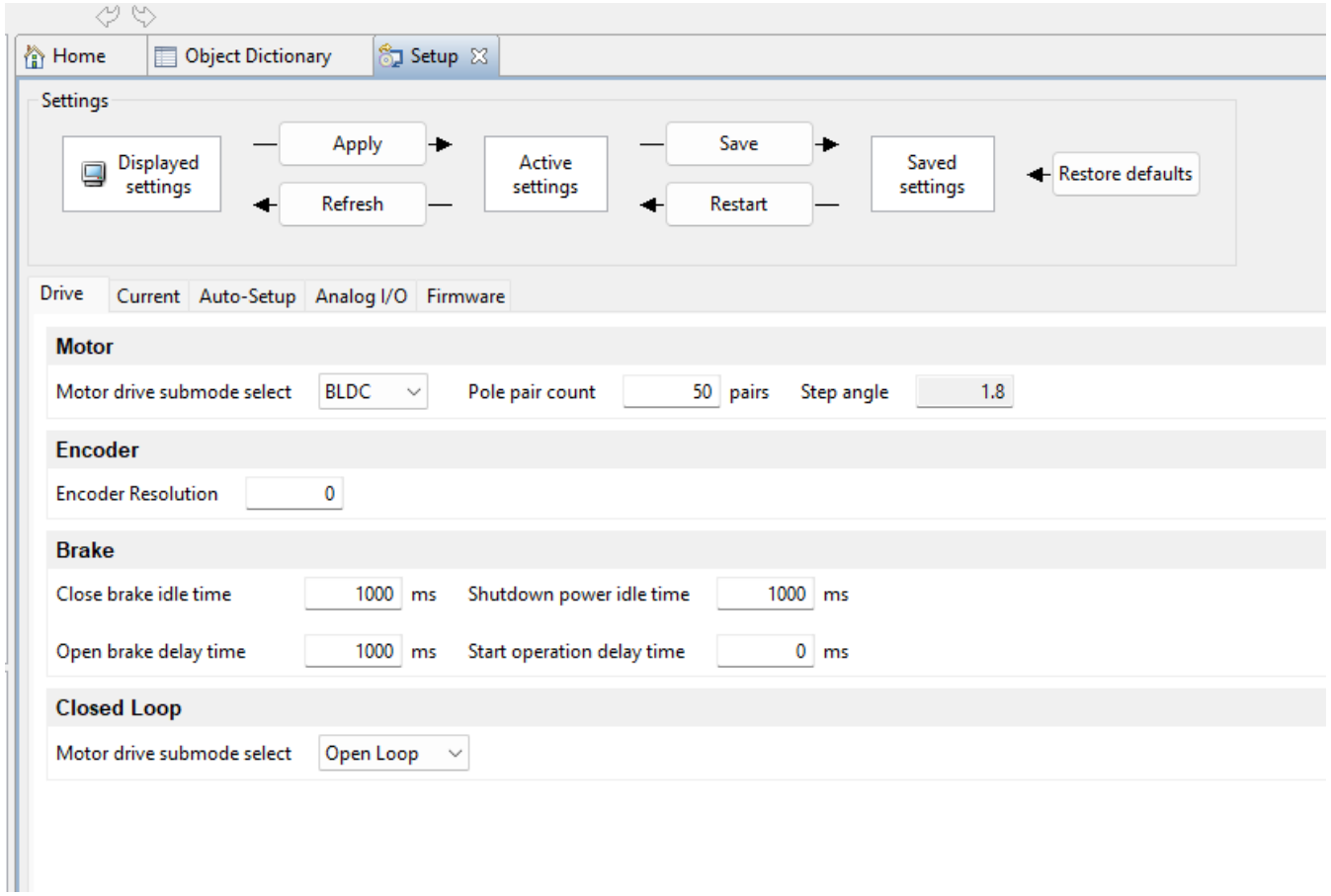




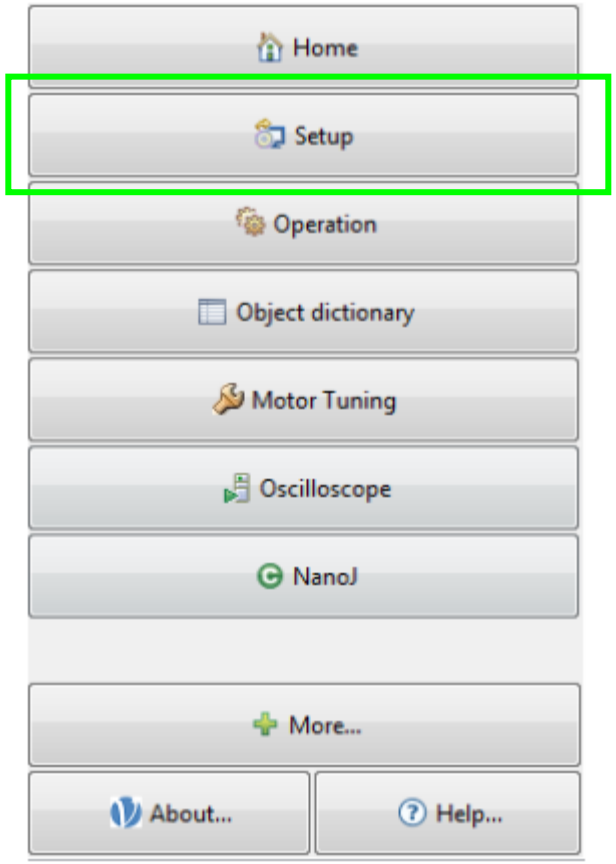


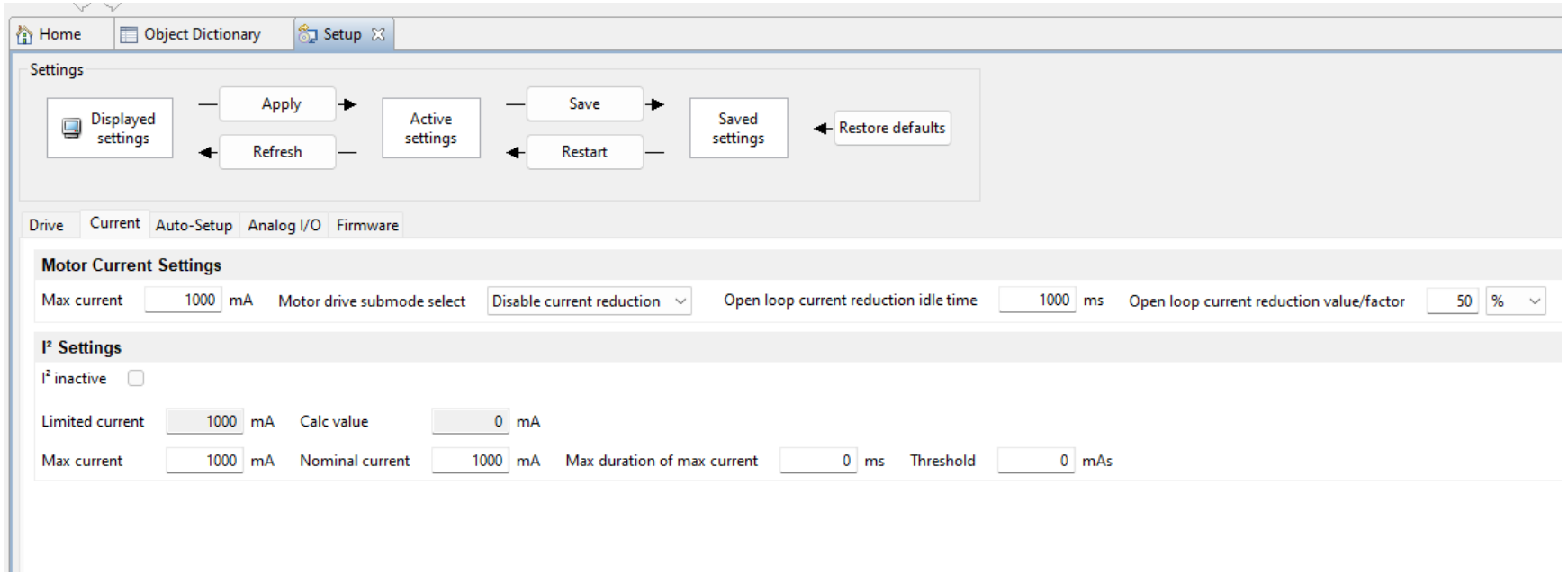
Konfiguracja napędu - Drive



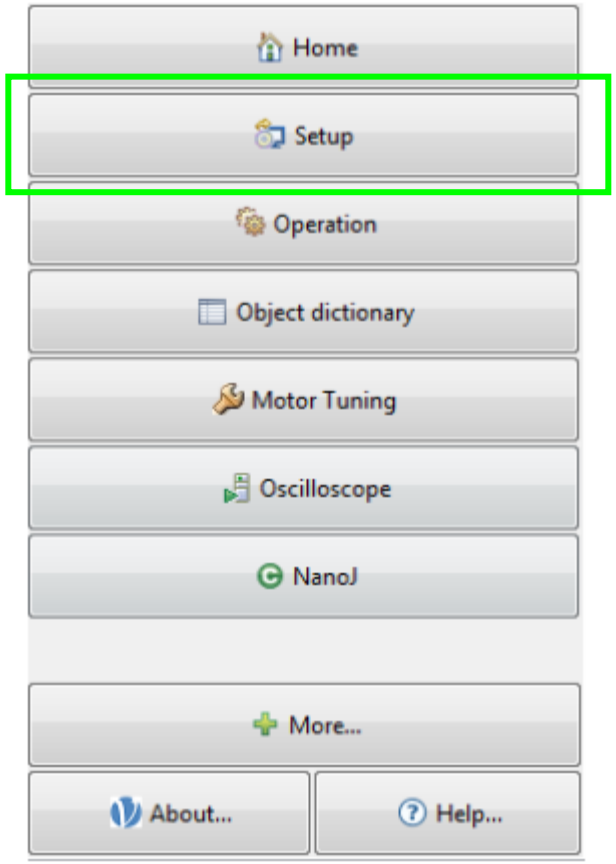


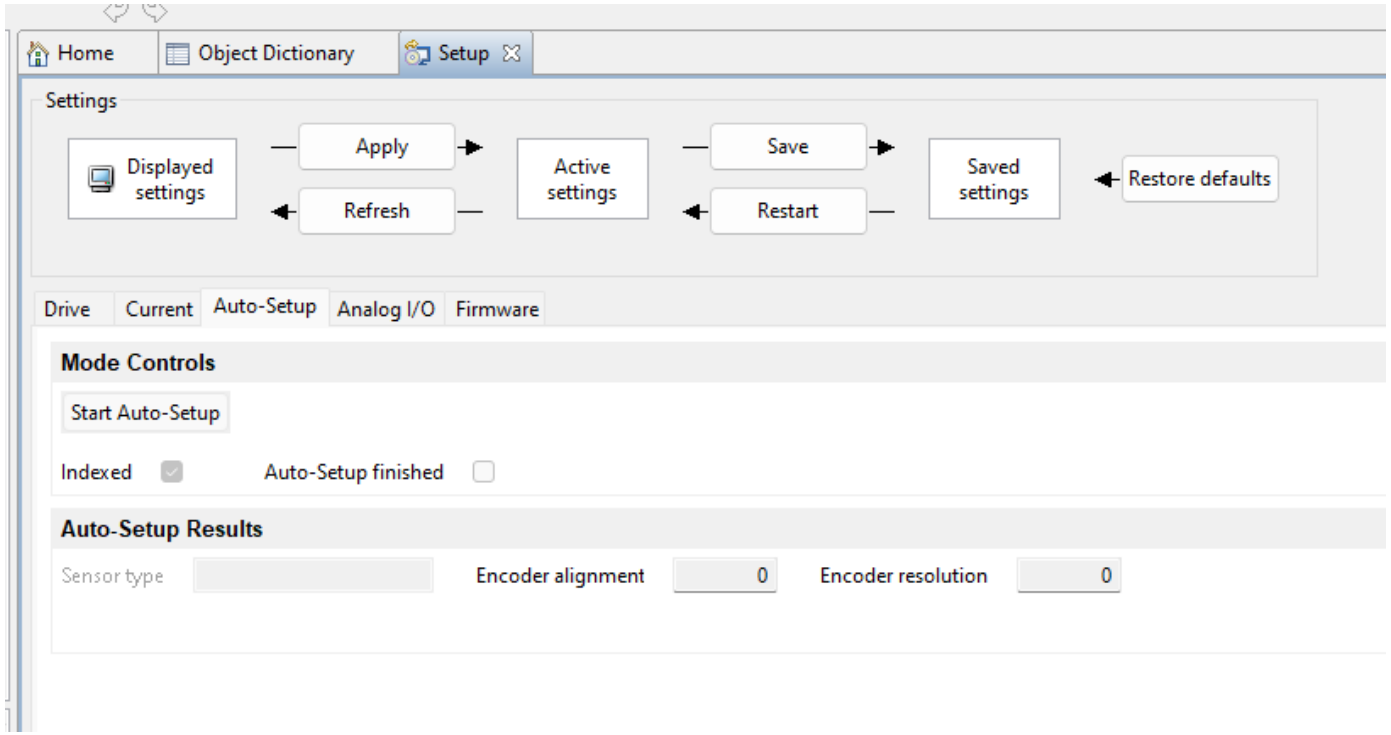
Konfiguracja napędu - Current



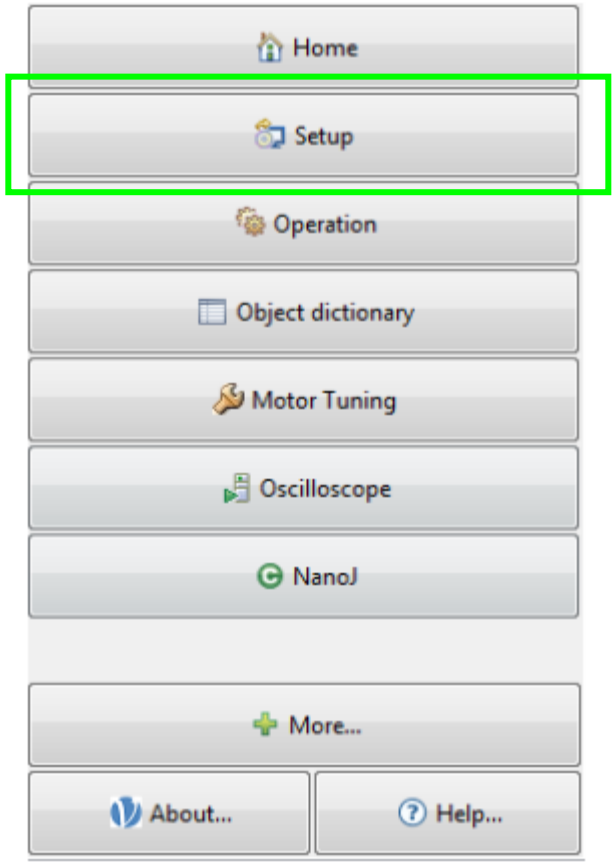


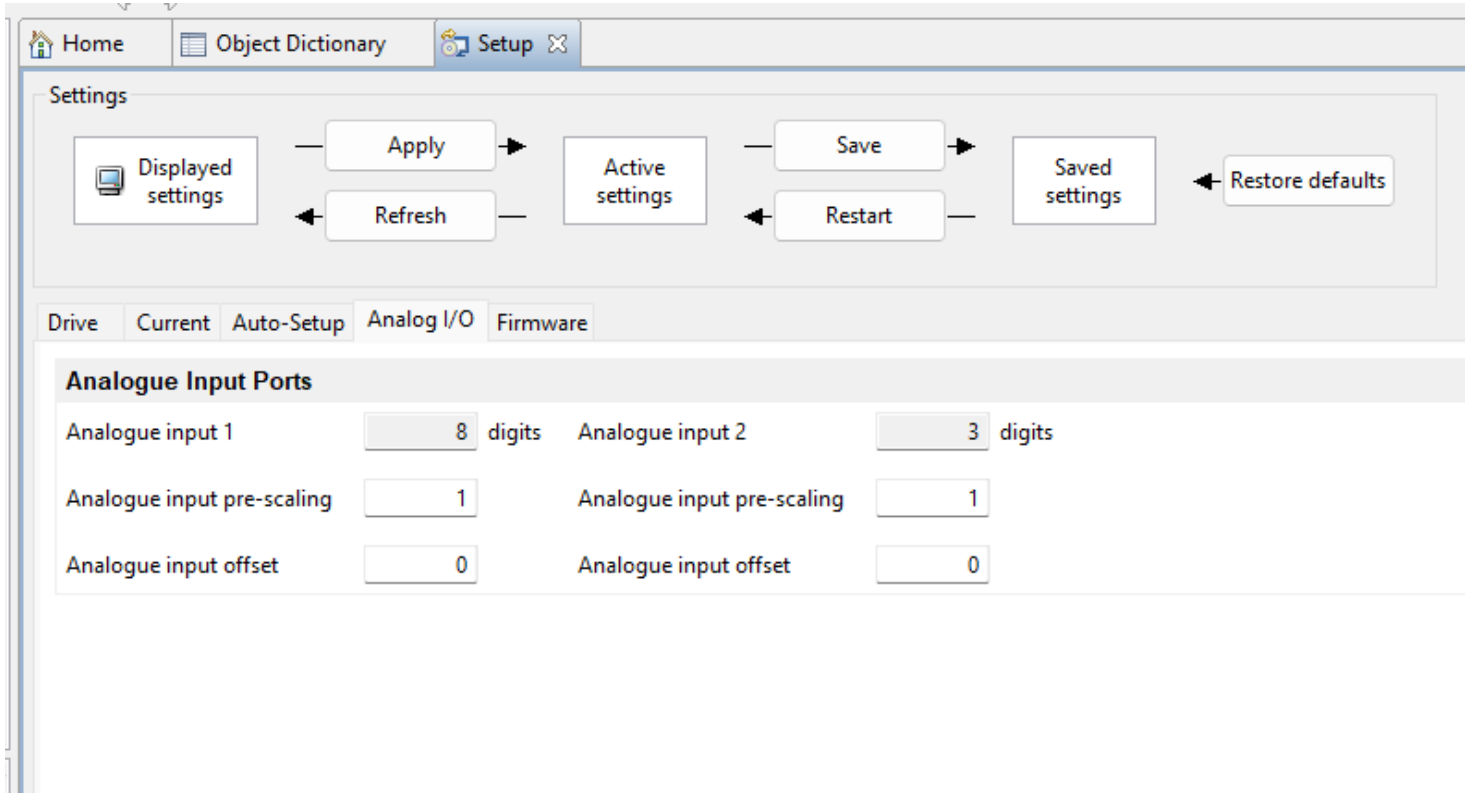
Konfiguracja napędu – Auto-Setup



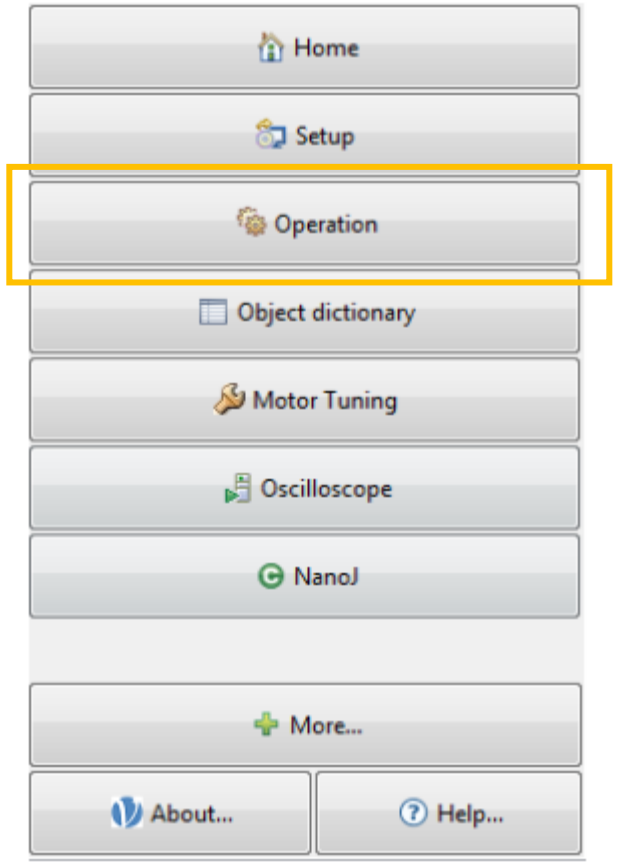


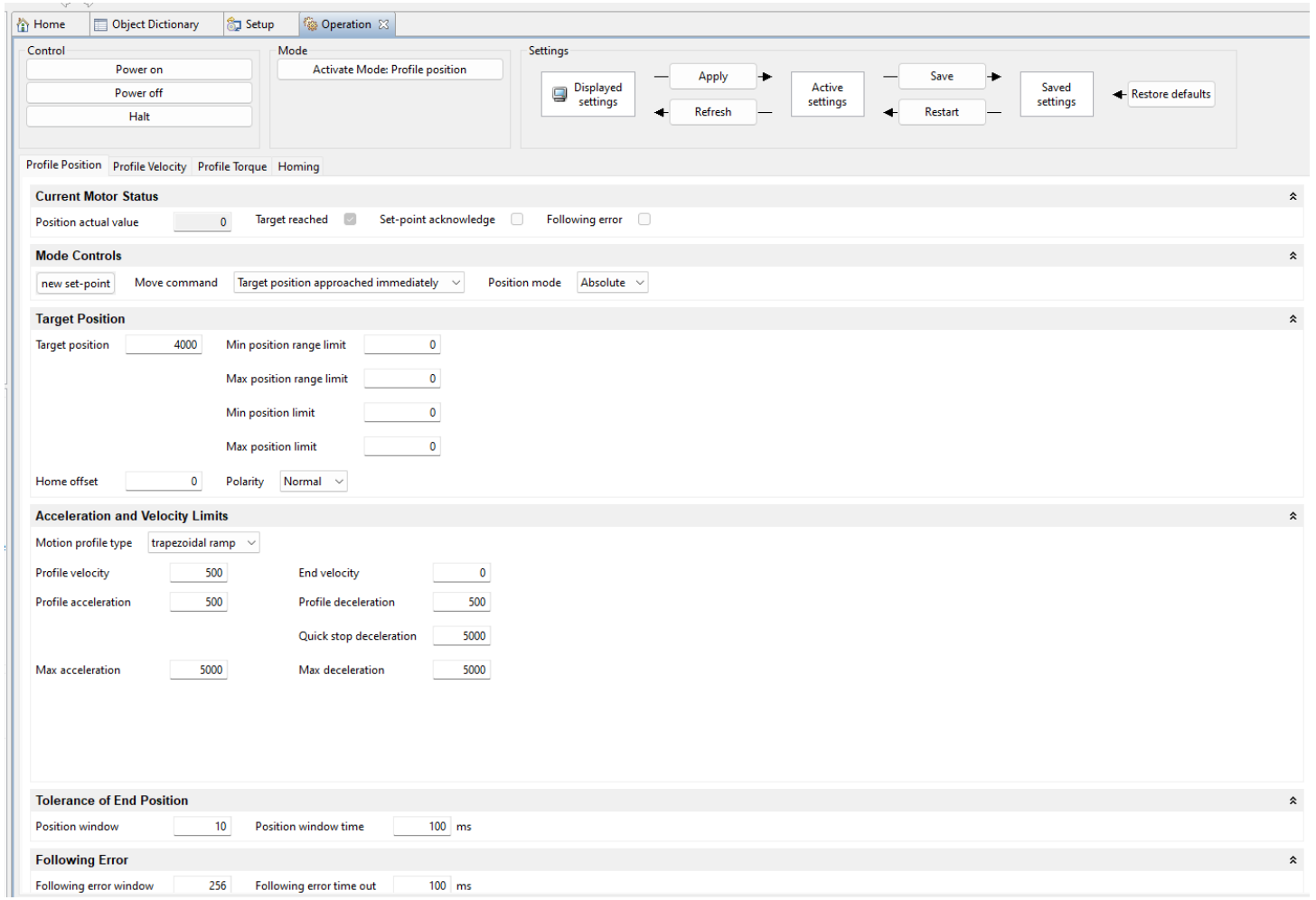
Konfiguracja napędu – Analog I/O



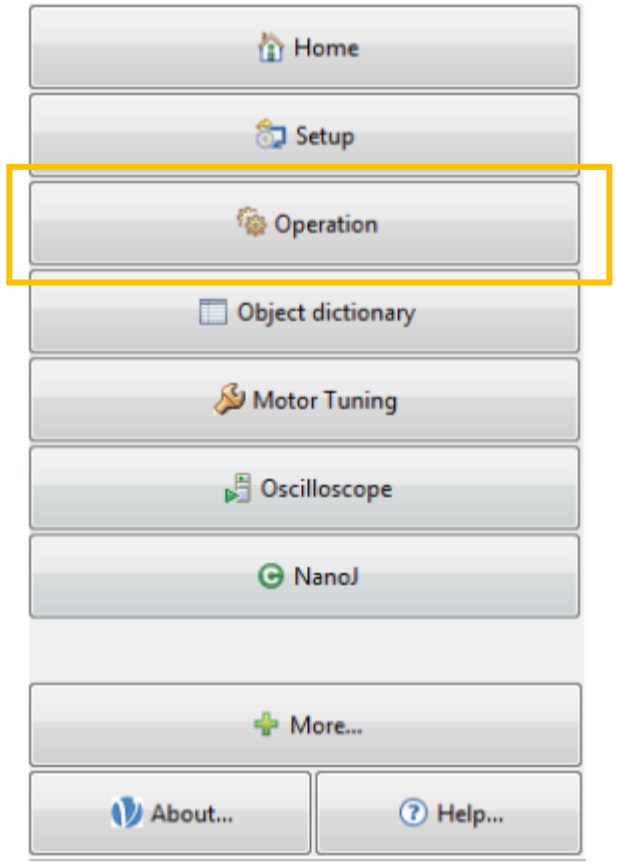


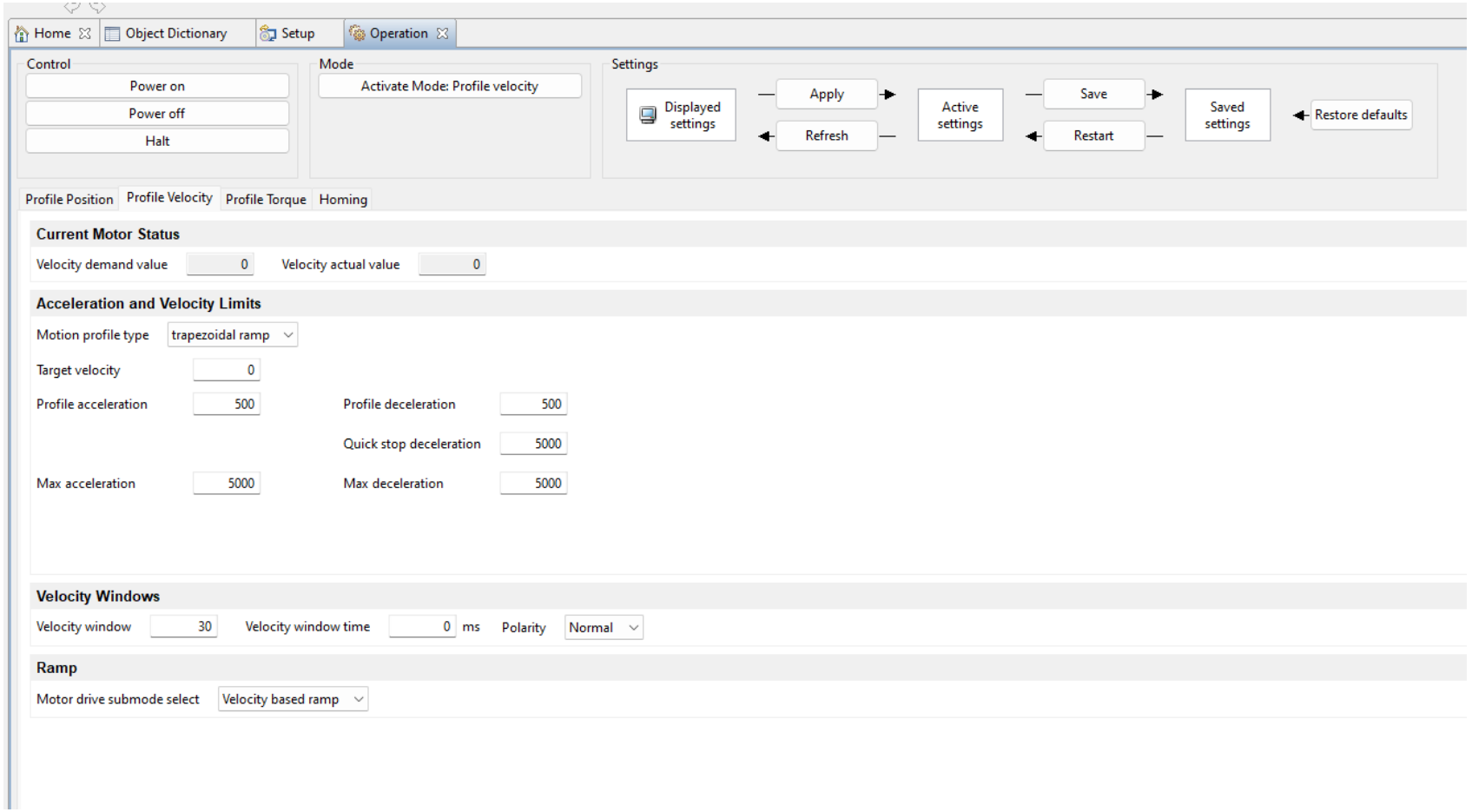
Tryby pracy napędu – Profile Position



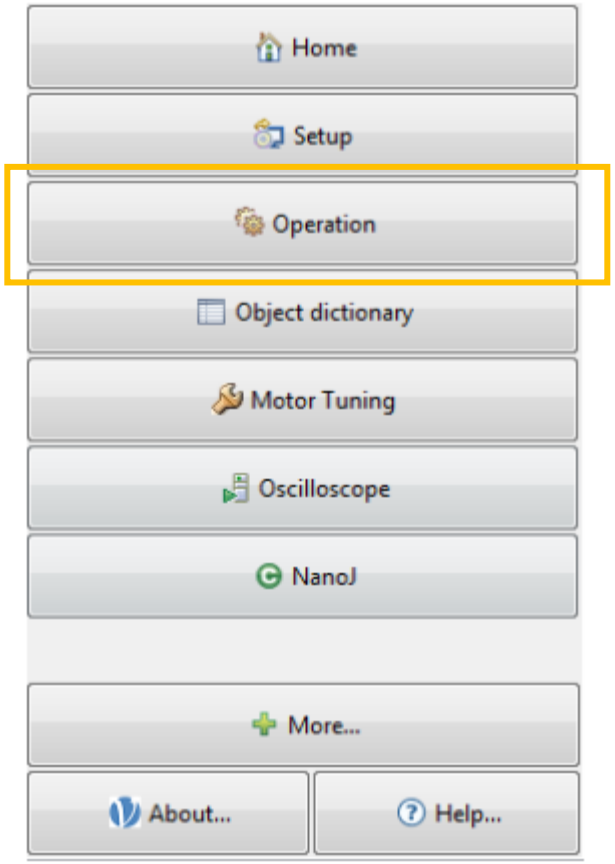


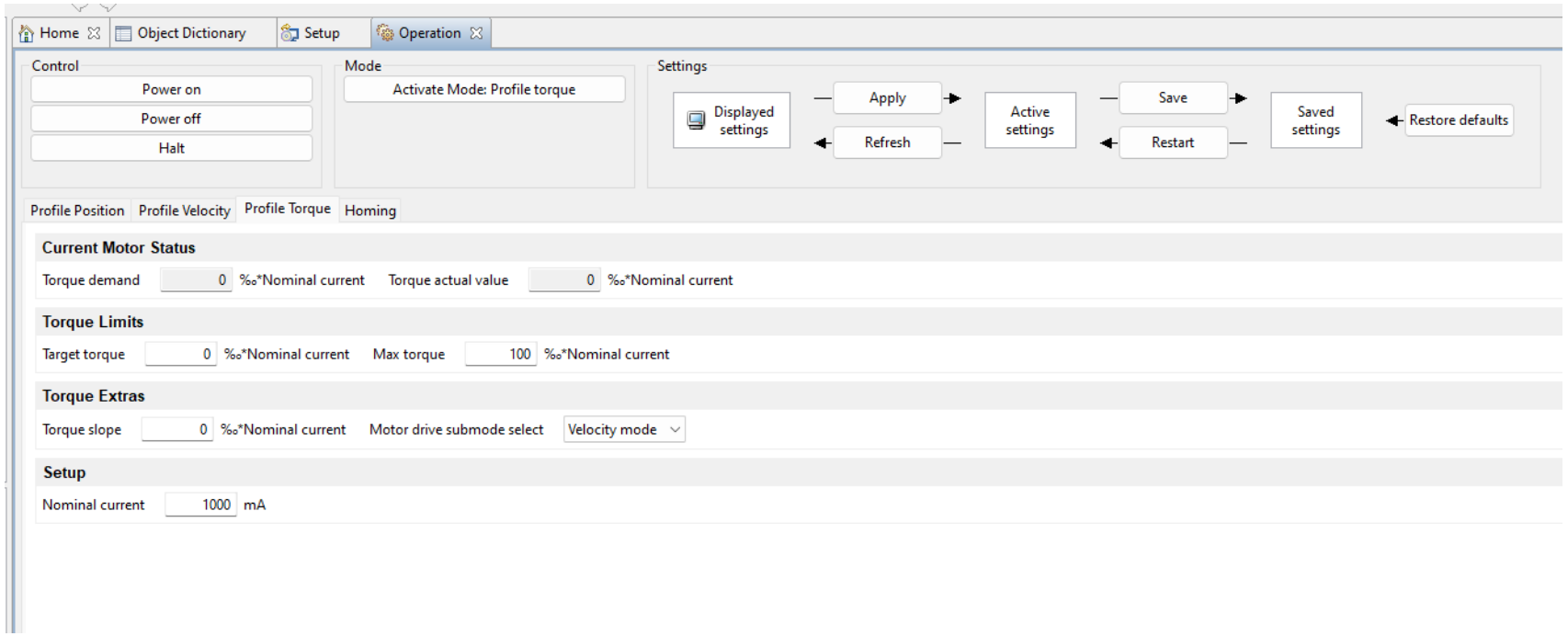
Tryby pracy napędu – Profile Velocity



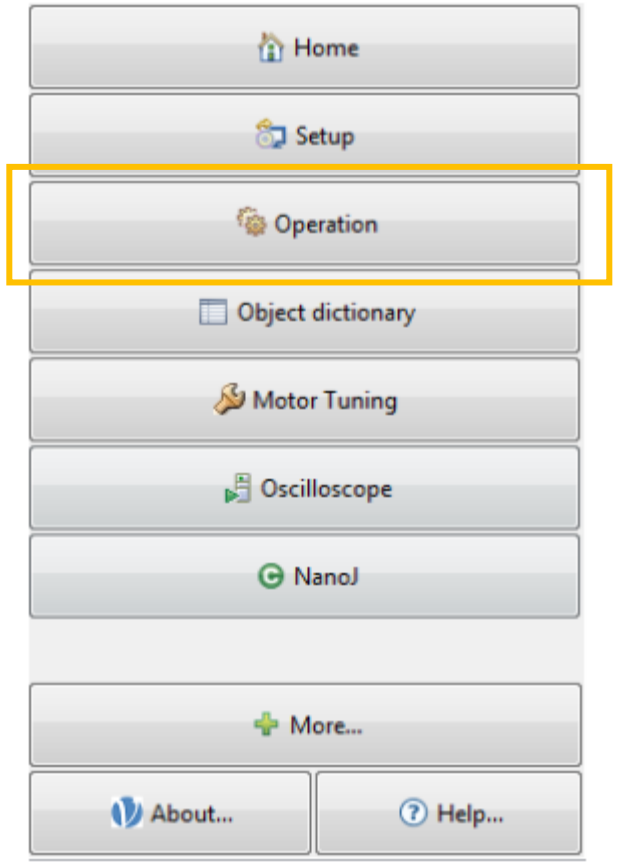


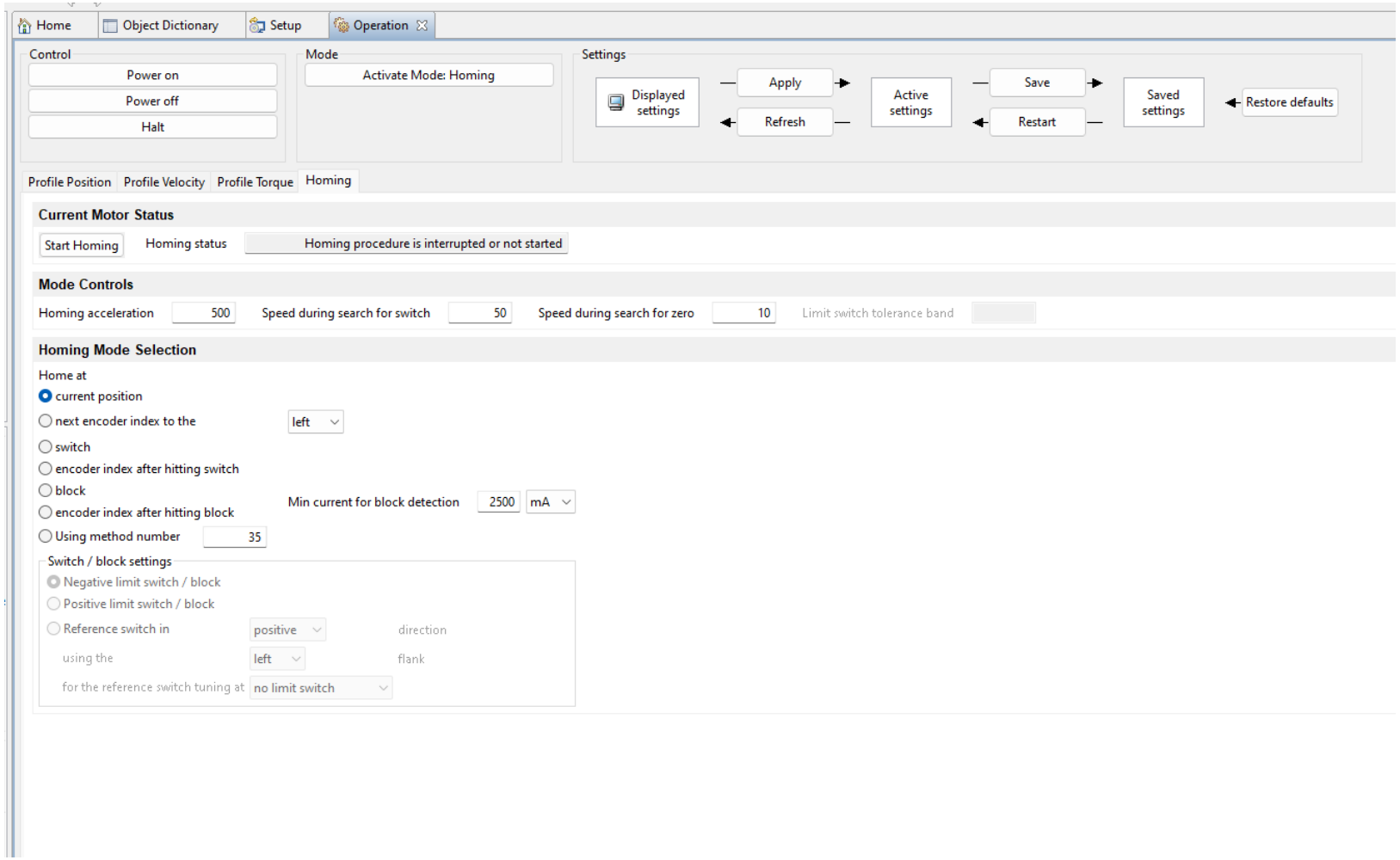
Tryby pracy napędu – Profile Torque



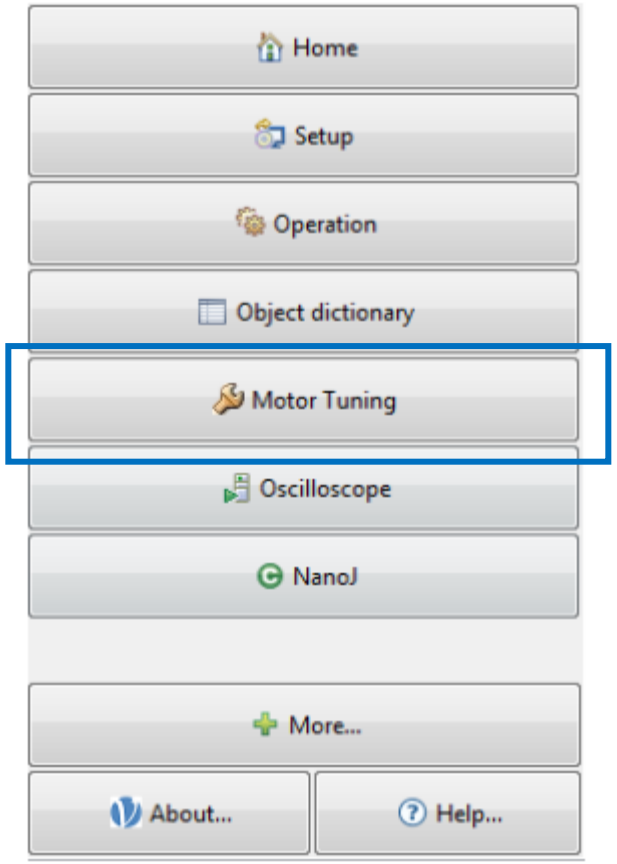


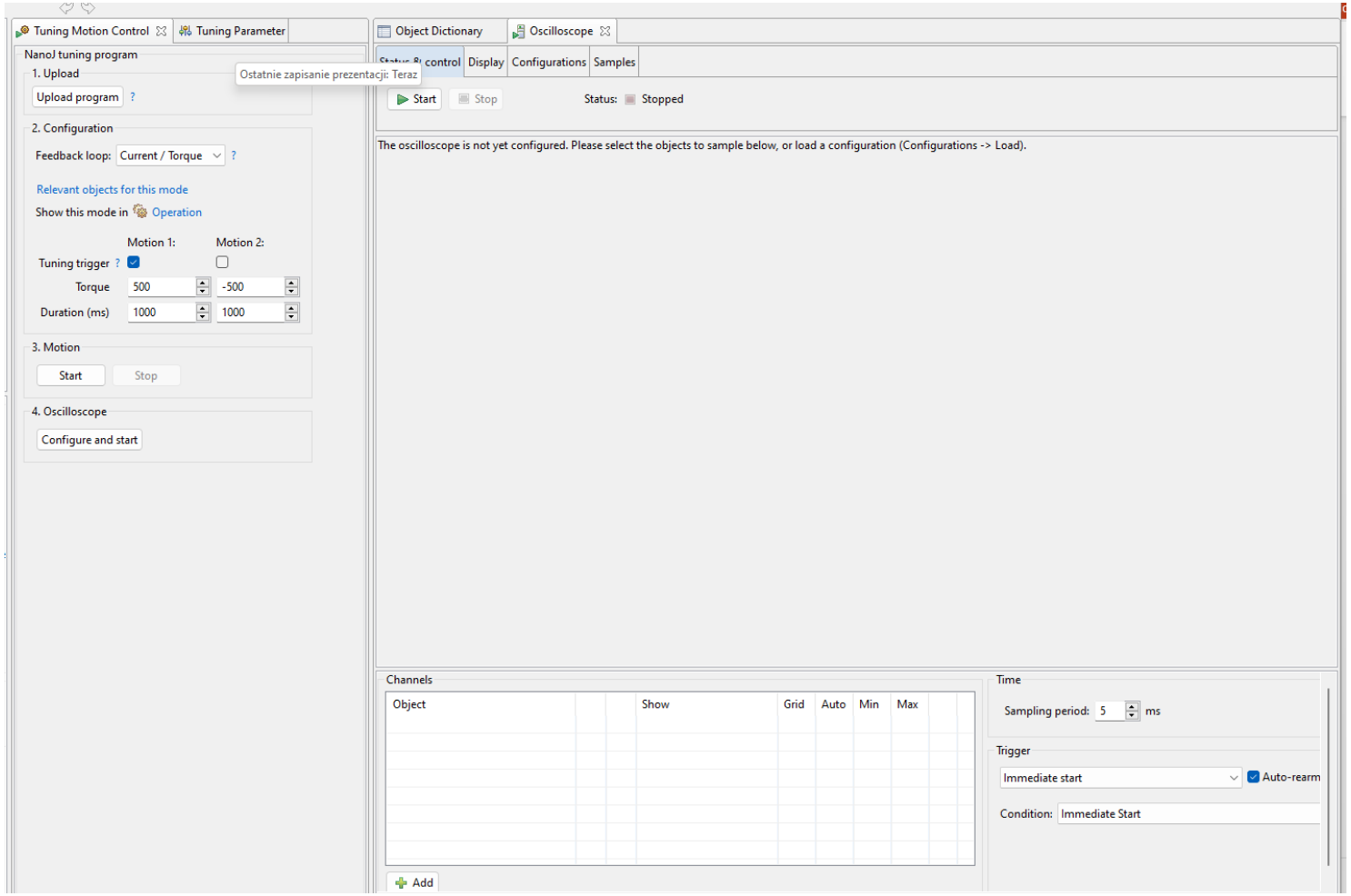
Tryby pracy napędu – Homing



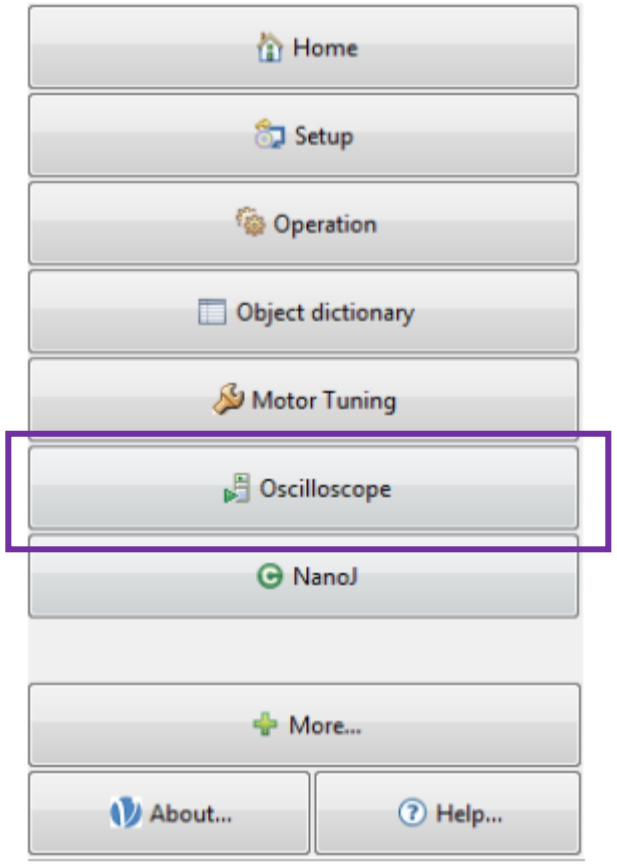


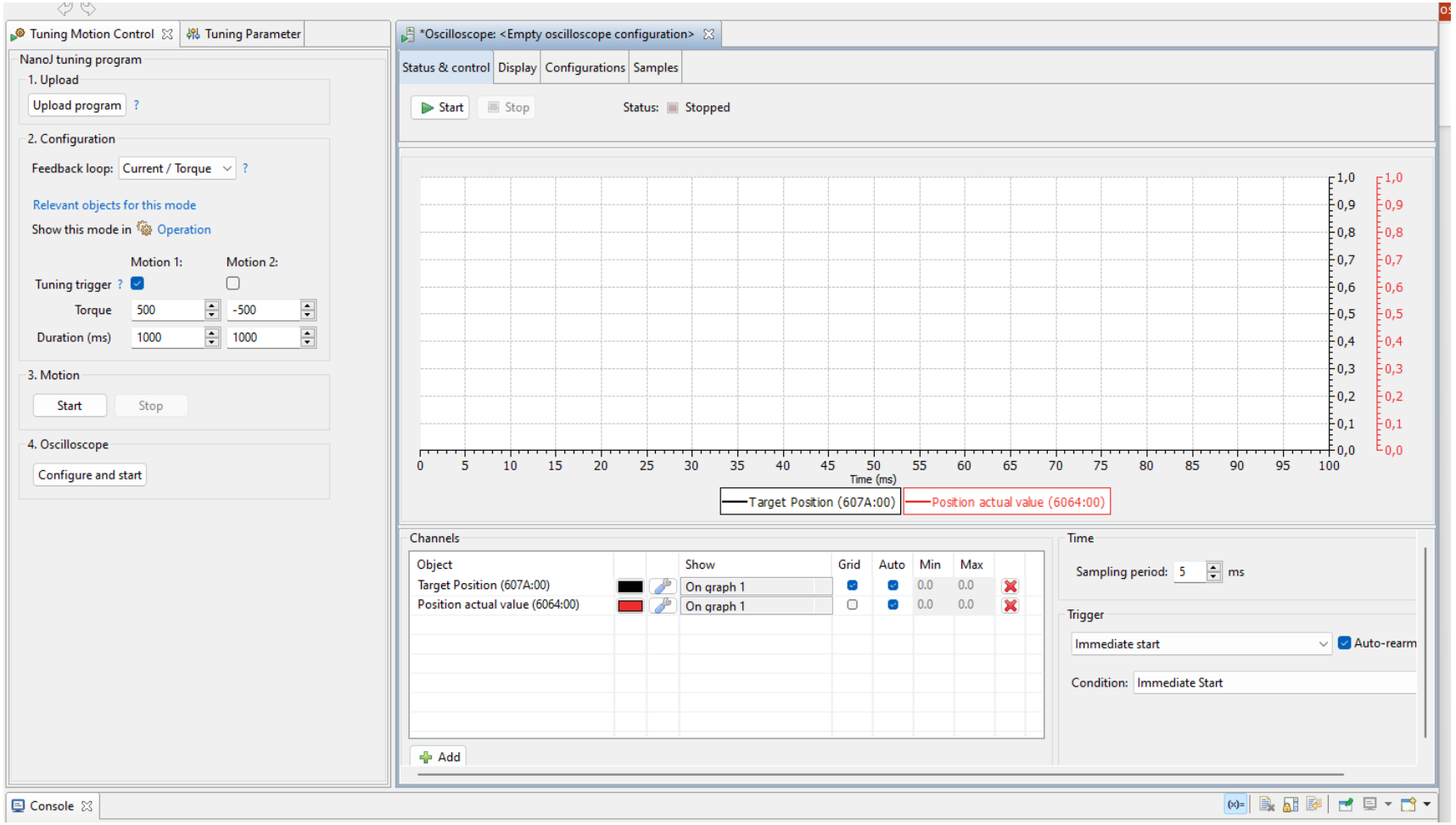
Strojenie


Home
Setup
Operation
Object dictionary
Motor Tuning
Oscilloscope
NanoJ
More...
About...
Help...

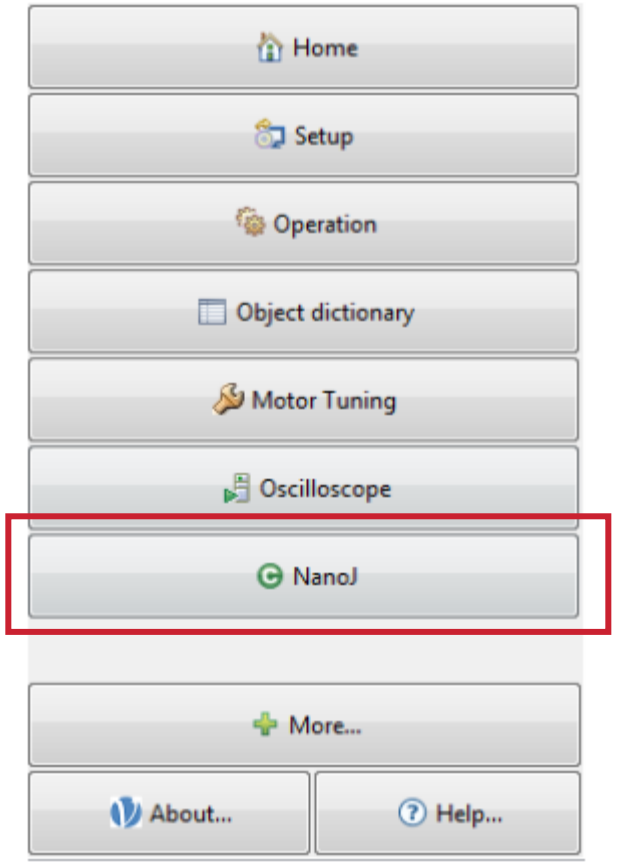

Tuning Motion Control
Tuning Parameter
NanoJ tuning program
1. Upload
Upload program
2. Configuration
Feedback loop: Current / Torque
Relevant objects for this mode
Show this mode in Operation
Motion 1:
Motion 2:
Tuning trigger
Torque 500 -500
Duration (ms) 1000 1000
3. Motion
Start
Stop
4. Oscilloscope
Configure and start
Object Dictionary
Oscilloscope
Display
Configurations
Samples
Start
Stop
Status: Stopped
The oscilloscope is not yet configured. Please select the objects to sample below, or load a configuration (Configurations -> Load).
Channels
Object
Show
Grid
Auto
Min
Max
Add
Time
Sampling period: 5 ms
Trigger
Immediate start
Auto-rearm
Condition: Immediate Start

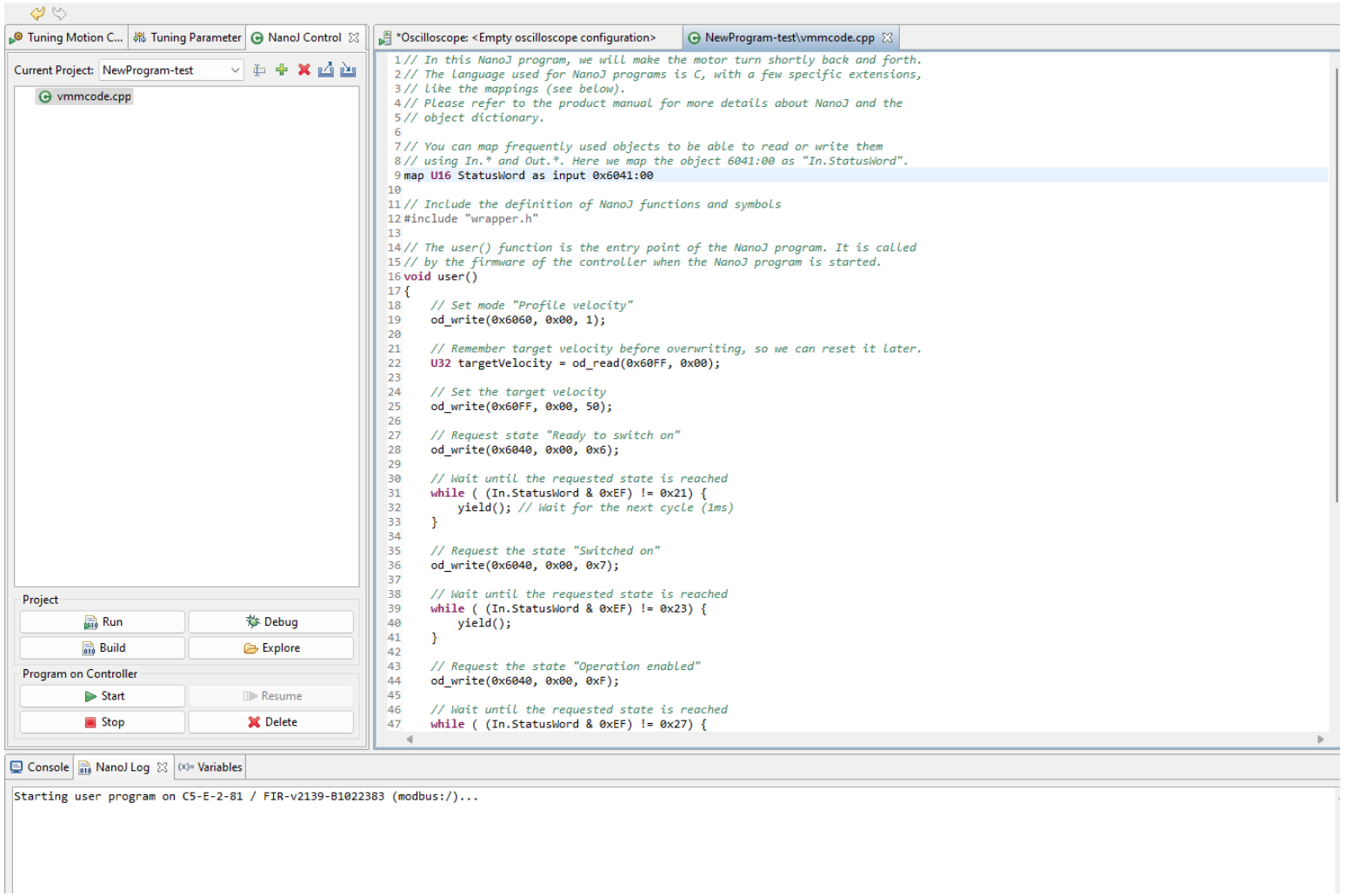
Oscyloskop


Home
Setup
Operation
Object dictionary
Motor Tuning
Oscilloscope
NanoJ
More...
About...
Help...


Tuning Motion Control
Tuning Parameter
NanoJ tuning program
1. Upload
Upload program
2. Configuration
Feedback loop: Current / Torque
Relevant objects for this mode
Show this mode in Operation
Motion 1:
Motion 2:
Tuning trigger
Torque 500 -500
Duration (ms) 1000 1000
3. Motion
Start
Stop
4. Oscilloscope
Configure and start
*Oscilloscope: <Empty oscilloscope configuration>
Status & control
Display
Configurations
Samples
Start
Stop
Status: Stopped
Time (ms)
Target Position (607A:00)
Position actual value (6064:00)
Channels
Object
Show
Grid
Auto
Min
Max
Target Position (607A:00) On graph 1 0.0 0.0
Position actual value (6064:00) On graph 1 0.0 0.0
Add
Time
Sampling period: 5 ms
Trigger
Immediate start
Auto-rearm
Condition: Immediate Start
Console

Programowanie NanoJ





Komunikacja Modbus TCP

	Name	Function code	Subfunction code
Data access (16-bit)	Read Holding Registers	03 (03_h)	
	Read Input Register	04 (04_h)	
	Write Single Register	06 (06_h)	
	Write Multiple Registers	16 (10_h)	
	Read/Write Multiple Registers	23 (17_h)	
Miscellaneous	Encapsulated Interface Transport	43 ($2B_h$)	13 ($0D_h$)
	Read complete object dictionary start	101 (65_h)	85 (55_h)
	Read complete object dictionary next	101 (65_h)	170 (AA_h)
	Read complete array or record start	102 (66_h)	85 (55_h)
	Read complete array or record next	102 (66_h)	170 (AA_h)

The configuration of the image is referred to as "mapping" and is written in the following objects:

- 3502_h for the Modbus Rx (master → slave) PDO mapping
- 3602_h for Modbus Tx (slave → master) PDO mapping

Both objects contain an array of 16 entries each. Subindex 00 specifies the number of valid entries here.

Objects 3502_h and 3602_h can be written with messages with Modbus function code $2B_h$.

Mapping is as follows:

- The PDO RX image begins at Modbus register address 6000_d (1770_h).
- The PDO TX image begins at Modbus register address 5000_d (1388_h).

Read/write access can be performed simultaneously with function code 17_h or with the 03_h, 04_h, 06_h, 10_h commands on the respective RX/TX images.

Komunikacja Modbus TCP

742	MODBUS Rx PDO Mapping - Number of entries	3502	00	read/write	UNSIGNED8	07	7	0000 0111	commu...
743	MODBUS Rx PDO Mapping - 1st object to be mapped	3502	01	read/write	UNSIGNED32	60400010	1614807056	0110 0000 0100 0000 0000 0000 0001 0000	commu...
744	MODBUS Rx PDO Mapping - 2nd object to be mapped	3502	02	read/write	UNSIGNED32	00050008	327688	0000 0000 0000 0101 0000 0000 0000 1000	commu...
745	MODBUS Rx PDO Mapping - 3rd object to be mapped	3502	03	read/write	UNSIGNED32	60600008	1616904200	0110 0000 0110 0000 0000 0000 0000 1000	commu...
746	MODBUS Rx PDO Mapping - 4th object to be mapped	3502	04	read/write	UNSIGNED32	607A0020	1618608160	0110 0000 0111 1010 0000 0000 0010 0000	commu...
747	MODBUS Rx PDO Mapping - 5th object to be mapped	3502	05	read/write	UNSIGNED32	60810020	1619066912	0110 0000 1000 0001 0000 0000 0010 0000	commu...
748	MODBUS Rx PDO Mapping - 6th object to be mapped	3502	06	read/write	UNSIGNED32	60420010	1614938128	0110 0000 0100 0010 0000 0000 0001 0000	commu...
749	MODBUS Rx PDO Mapping - 7th object to be mapped	3502	07	read/write	UNSIGNED32	60FE0120	1627259168	0110 0000 1111 1110 0000 0001 0010 0000	commu...
750	MODBUS Rx PDO Mapping - 8th object to be mapped	3502	08	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
751	MODBUS Rx PDO Mapping - 9th object to be mapped	3502	09	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
752	MODBUS Rx PDO Mapping - 10th object to be mapped	3502	0A	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
753	MODBUS Rx PDO Mapping - 11th object to be mapped	3502	0B	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
754	MODBUS Rx PDO Mapping - 12th object to be mapped	3502	0C	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
755	MODBUS Rx PDO Mapping - 13th object to be mapped	3502	0D	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
756	MODBUS Rx PDO Mapping - 14th object to be mapped	3502	0E	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
757	MODBUS Rx PDO Mapping - 15th object to be mapped	3502	0F	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
758	MODBUS Rx PDO Mapping - 16th object to be mapped	3502	10	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
759	MODBUS Tx PDO Mapping - Number of entries	3602	00	read/write	UNSIGNED8	06	6	0000 0110	commu...
760	MODBUS Tx PDO Mapping - 1st object to be mapped	3602	01	read/write	UNSIGNED32	60410010	1614872592	0110 0000 0100 0001 0000 0000 0001 0000	commu...
761	MODBUS Tx PDO Mapping - 2nd object to be mapped	3602	02	read/write	UNSIGNED32	00050008	327688	0000 0000 0000 0101 0000 0000 0000 1000	commu...
762	MODBUS Tx PDO Mapping - 3rd object to be mapped	3602	03	read/write	UNSIGNED32	60610008	1616969736	0110 0000 0110 0001 0000 0000 0000 1000	commu...
763	MODBUS Tx PDO Mapping - 4th object to be mapped	3602	04	read/write	UNSIGNED32	60640020	1617166368	0110 0000 0110 0100 0000 0000 0010 0000	commu...
764	MODBUS Tx PDO Mapping - 5th object to be mapped	3602	05	read/write	UNSIGNED32	60440010	1615069200	0110 0000 0100 0100 0000 0000 0001 0000	commu...
765	MODBUS Tx PDO Mapping - 6th object to be mapped	3602	06	read/write	UNSIGNED32	60FD0020	1627193376	0110 0000 1111 1101 0000 0000 0010 0000	commu...
766	MODBUS Tx PDO Mapping - 7th object to be mapped	3602	07	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
767	MODBUS Tx PDO Mapping - 8th object to be mapped	3602	08	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
768	MODBUS Tx PDO Mapping - 9th object to be mapped	3602	09	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
769	MODBUS Tx PDO Mapping - 10th object to be mapped	3602	0A	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
770	MODBUS Tx PDO Mapping - 11th object to be mapped	3602	0B	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
771	MODBUS Tx PDO Mapping - 12th object to be mapped	3602	0C	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
772	MODBUS Tx PDO Mapping - 13th object to be mapped	3602	0D	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
773	MODBUS Tx PDO Mapping - 14th object to be mapped	3602	0E	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
774	MODBUS Tx PDO Mapping - 15th object to be mapped	3602	0F	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
775	MODBUS Tx PDO Mapping - 16th object to be mapped	3602	10	read/write	UNSIGNED32	00000000	0	0000 0000 0000 0000 0000 0000 0000 0000	commu...
776	Deviation error option code	3700	00	read/write	INTEGER16	FFFF	-1	1111 1111 1111 1111	applicat...