NANO-D

Version Update

V 3.04 to V 3.50

Jetter

Table of Contents

1   Introduction

Version Updates - Survey			
Version	**Function**	**upgraded**	**corrected**
V 3.50	After restarting the controller, the analog inputs of JX-SIO are read out.		✓
	New supported modules at the system bus	✓	
	Valve terminal EX250 (SMC Pneumatik GmbH)		
	ecostep drives (Jenaer Antriebstechnik)		
	NX frequency converters (Vacon GmbH)		
V 2.04	Version update		✓
	Version V2.04 can be transferred to all NANO-D controllers		
V 2.03	System bus no timeout with JX2-Dummy-Slaves	✓	
	Special registers millisecond timer allows writing	✓	
	Analog inputs of basic device		✓
V 2.02	System bus LJX7-Compactbox module has been integrated Lenze frequency inverter has been integrated Festo CP-FB module with JX-SIO	✓	
	Special registers Creation time of application program Supply voltages	✓	✓
	Analog inputs of basic device Behavior after Power On		✓
V 2.01	Display instructions	✓	✓
	Special registers	✓	
	System Bus	✓	✓
	Interfaces for LCD, PC and JETWay	✓	✓
	User interfaces		✓
	User-programmable interface		✓
	Networking via JETWay	✓	✓
V 2.00	System Bus	✓	✓
	Special registers	✓	
	Display instructions	✓	
	Special functions	✓	

Important!

While the operating system is being updated, the voltage supply of the NANO-D must not be interrupted.

2   Expansions

2.1 System Bus

As of operating system version 3.50 for NANO-D, a great number of modules can be connected with the system bus directly.
The modules that have been recognized and commissioned can be read out by means of the module array in registers 2015 and 2016.

Coding of Modules		
JX2-I/O Modules		
Coding of Modules	**Designation**	**Comment**
0	JX2-OD8	8 digital outputs
1	JX2-ID8	8 digital inputs
2	JX2-IO16	8 digital inputs and 8 digital outputs
3	JX2-IA4	4 analog inputs
4	JX2-OA4	4 analog outputs
5	JX2-CNT1	Counter input
6	JX2-PRN1	Module with Centronics interface
7	JX2-SER1	Module with serial interface
9	JX-TP20	Module equipped with 20 keys; it can be used as a user interface
10	LJX7-CSL-108-ID16	16 digital inputs, IP67
11	LJX7-CSL-109-ID16-NPN	16 digital inputs (n), IP67
12	LJX7-CSL-107-OD8-2A	16 digital outputs, IP67
13	LJX7-CSL-114-OD16	8 digital outputs, IP67
14	LJX7-CSL-113-ID8-OD8	8 digital inputs and 8 digital outputs, IP67
JX-SIO and Third-Party Modules		
Coding of Modules	**Designation**	**Comment**
64	JX-SIO	System bus coupler for Smart I/O
65	CPV-Direct Valve Terminal	Festo AG & Co.
66	Terminal CPX	Festo AG & Co.
67	Valve block type 8640	Bürkert GmbH & Co. KG
68	SI unit EX12# - SCA1	SMC Pneumatik GmbH
70	Frequency converter 8200 vector	Lenze Drives Systems GmbH
71	SI unit EX250	SMC Pneumatik GmbH

Coding of Modules		
103	Milan drive	Werner Riester GmbH & Co. KG (auma)
104	Ecostep	Jenaer Antriebstechnik
105	NX frequency converter	Vacon GmbH
JX2-Slave Modules		
Coding of Modules	**Designation**	**Comment**
128	JX2-SV1	Position feedback controller, frequency converter …
129	CAN-DIMA	Position feedback controller with integrated servo amplifier
130	JX2-SM2	Module for controlling 2 stepper motor amplifiers
131	JX2-SM1D	Module with integrated power unit for controlling a stepper motor
132	JX2-PID1	Module with 4 PID controllers
133	JX2-PROFI1	Slave for Profibus-DP
135	JetMove 200 Series	Position feedback controller with integrated servo amplifier
136	JX2-ProfiM	Master for Profibus-DP
146	JetMove 600 Series	Position feedback controller with integrated servo amplifier
Dummy Modules		
Coding of Modules	**Designation**	**Comment**
252	JX-SIO dummy-module	
253	JX2-Slave dummy module	
254	JX2-I/O Dummy Module	
255	not identified	

2.1.1   Valve Terminal EX250

The valve terminals EX250 of SMC Pneumatik GmbH can be connected to the system bus. For information on how to connect the valve terminals to the system bus, please refer to the corresponding user information.

Valve Terminal EX250

Technical Data of the EX250 Valve Terminal	
Maximum number of LJX7-Compactbox modules with NANO-D The maximum number of modules is limited by the maximum allowable I/O sum of the respective controller	1
Size of I/Os	64
Supported EX250	SI units EX250 - SCA1 All solenoid valves that can be connected to the SI unit are supported

2.1.2   Milan Drives

The system bus allows for connection of Milan Drives made by Werner Riester GmbH & Co. KG. For information on how to connect Milan Drives to the system bus, please refer to the corresponding user information.

Milan Drives

Technical Data of Milan Drives	
Maximum number of Milan Drives connected with a NANO-D controller	3
Size of I/Os	1 JX2-slave module
Supported Milan Drives	MI 1.5/075
	MI 2/090
	MI 4/110

2.1.3   Ecostep Drives

The system bus allows for connection of Ecostep drives made by Jenaer Antriebstechnik. For information on how to connect Ecostep drives to the system bus, please refer to the corresponding user information.

Ecostep Drives

Technical Data of Ecostep Drives	
Maximum number of Ecostep drives connected with a NANO-D controller	3
Size of I/Os	1 JX2-slave module
Supported Ecostep drives	100-AA-000
	100-LA-000
	100-PA-000
	200-AA-000
	200-PA-000
	200-ZA-000
	200-QA-000
	216-AA-000
	216-PA-000
	216-ZA-000
	216-QA-000

2.2 Monitoring JX2-I/O Modules

The monitoring function of JX2-I/O modules can be freely configured and adjusted to the requirements of the specific controllers.

Register 2760:	Configuring the Timeout of JX2-I/O Modules
Function	**Description**
Read	Actual JX2-I/O timeout configuration
Write	New JX2-I/O timeout configuration
Value range	0 – 255
Value after reset	5

By means of configuring the JX2-I/O timeout, the maximum permitted number repeating an I/O upload to a JX2-IO module is set. The NANO-D will not report a timeout error via status register 2008, before the I/O update for a specific module has reached the configured value.

Register 2761:	Index to a JX2-I/O Timeout Monitoring Array
Function	**Description**
Read	Present index The index corresponds to the I/O module number
Write	New index
Value range	2 – 32, 70 – 79
Value after reset	2

Register 2762:	JX2-I/O Timeout Monitoring Array
Function	**Description**
Read	Actual value of the JX2-I/O timeout monitoring array Reg 2761 = 2 -> Reg 2762 : Entry for I/O module 2 Reg 2761 = 3 -> Reg 2762 : Entry for I/O module 3 Reg 2761 = 70 -> Reg 2762 : Entry for JX-SIO module 70
Write	By writing value zero into the register, the entry for the presently selected I/O module will be set to zero.
Value range	0 – 65535
Value after reset	0

If the NANO-D controller has not received a reply from a JX2-I/O or a JX-SIO module within the timeout time configured in register 2763, the value assigned to the module will be increased by one in the JX2-I/O timeout monitoring array.
By means of the JX2-I/O timeout monitoring array, the quality of the connection between the NANO-D controller and the individual expansion modules can be evaluated.

Register 2763:	JX2-I/O Monitoring Timeout
Function	**Description**
Read	Actual JX2-I/O monitoring timeout
Write	New JX2-I/O monitoring timeout
Value range	0 – 255
Value after reset	10

The maximum permitted time of the NANO-D controller waiting for a reply sent by the expansion module during I/O update can be configured via register 2763. Not before this time has expired, the entry assigned to te respective expansion module in the JX2-I/O timeout monitoring array will be incremented by one.

3   Eliminated Software Bugs

3.1 Reading Back the Analog Outputs from the JX-SIO

After switching on the NANO-D, the actual values of the digital and analog outputs at the JX-SIO will be read back once by the controller.
This way, at restarting the NANO-D, the configured error statuses at the outputs of the JX-SIO will agree with the process I/O image of the controller.
Reading back the analog outputs is now possible as of version 3.50.