System NANO
Programming Reference

Register of the N-SM1D Module

Pattern of the Register Numbers

1xxyz
x stands for the slot number of intell. modules:
2, 3, 4 (1=CPU)
y stands for the axis number.
z stands for register number 0 .. 99

Pattern of the Axis Numbers

xy
x stands for the slot number of intelli modules:
2, 3, 4 (1=CPU)
y stands for the axis number = in this case it is always 1

1x100 Status Register

Bit0 referenced?
Bit1 has AXARR position been reached?
Bit2 has the axis reached the dest. window?
Bit3 negative limit switch active?
Bit4 positive limit switch active?
Bit5 home sensor active?
Bit6 software limit switch active?
Bit7 hardware limit switch was active
Bit8 amplifier active?

1x101 command register
0 AXARR with stop ramp
1 activate amplifier
2 deactivate amplifier
3 set reference
4 clear reference
5 stop axis without stop ramp
9 automatic reference run, - > +, consider ref.
10 automatic reference run, - > -, consider ref.
11 automatic reference run, - > +, ignore ref.
12 automatic reference run, - > -, ignore ref.
13 relative positioning
14 absolute positioning (default)
15 continue interrupted positioning
16 relative positioning with start input - ON
17 relative positioning with start input - OFF
18 activate stop at reference position (default)
22 deactivate stop at reference position
23 endless positioning in positive direction
24 endless positioning in negative direction
1x102 nominal position
1x103 nominal speed
1x104 polarities of limit switches and home sensors
1x105 start ramp
1x106 stop ramp
1x107 destination window
1x108 start/stop frequency
1x109 actual axis position
1x110 present step frequency
1x114 position of the positive software limit switch
1x115 position of the negative software limit switch
1x121 scaling for the max. step frequency
1y122 motor phase current! Check before switching on!
1x123 step resolution
1x124 current lowering (time)
1x125 current lowering (current value)
1x167 relative position for positioning with start input
1x168 absolute position of the latest positioning run

1x199 software version number

Description of N-SM1D Connections

Module Power Supply

<table>
<thead>
<tr>
<th>Term. X1 (POWER LOGIC)</th>
<th>Signal</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0V</td>
<td>Gnd</td>
<td>connected to ground potential</td>
</tr>
<tr>
<td>+24V</td>
<td>24 V</td>
<td></td>
</tr>
</tbody>
</table>

Motor Connection

<table>
<thead>
<tr>
<th>Term. X2 (MOTOR)</th>
<th>Signal</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0V</td>
<td>Gnd</td>
<td>connected to ground potential</td>
</tr>
<tr>
<td>A</td>
<td>motor phase 1 (+)</td>
<td>feed line</td>
</tr>
<tr>
<td>A</td>
<td>motor phase 1 (-)</td>
<td>return line</td>
</tr>
<tr>
<td>B</td>
<td>motor phase 2 (+)</td>
<td>feed line</td>
</tr>
<tr>
<td>B</td>
<td>motor phase 2 (-)</td>
<td>return line</td>
</tr>
</tbody>
</table>

Caution!
Twist feed and return line per phase!
Only use shielded cables. Shield both cable ends extensively!

Motor Operation Voltage

<table>
<thead>
<tr>
<th>Term. X3 (DC-POWER)</th>
<th>Signal</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0V</td>
<td>Gnd</td>
<td>connected to ground potential</td>
</tr>
<tr>
<td>+70V</td>
<td></td>
<td>intermediate circuit voltage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>value: 24 to 70 V</td>
</tr>
</tbody>
</table>

Caution!
Twist feed and return line!
### Control Inputs

<table>
<thead>
<tr>
<th>Term. X4 (INPUT)</th>
<th>Signal</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 V</td>
<td>positive limit switch</td>
<td>24V DC / 2,8 kΩ</td>
</tr>
<tr>
<td>A</td>
<td>negative limit switch</td>
<td>24V DC / 2,8 kΩ</td>
</tr>
<tr>
<td>REF</td>
<td>home sensor</td>
<td>24V DC / 2,8 kΩ</td>
</tr>
</tbody>
</table>

### CAN System Bus

The NANO modules are connected via CAN system bus. The pins are occupied as follows:

- CMODE0: 1
- CANL: 2
- Gnd: 3
- CMODE1: 4
- TERM: 5
- Not Occup: 6
- CANH: 7
- Not Occup: 8
- 5 VDC: 9

9-pin sub-D male conn.  9-pin sub-D fem. conn.