

ND 7000

Digital readout for milling machines, drilling machines, and lathes with up to three axes

The ND 7000 digital readouts are suitable for use on any type of machine with up to three axes:

- Milling machines
- Lathes
- Radial drills (upon request)
- Grinding machines
- Drilling and boring machines

Integrated switching inputs and outputs permit interaction with the machine and enable the implementation of simple automated tasks.

Design
The ND 7000 digital readouts are designed for harsh shop environments. They feature a sturdy aluminum housing with touch-screen operation. With their intuitive and user-friendly interface, the ND digital readouts are particularly easy to operate. Everything you need to know for machining your workpiece is displayed on an easy to read 7-inch screen. The low-profile aluminum housing, featuring an integrated power supply unit and fanless passive cooling system, is extremely rugged and durable. Its intuitive touchscreen made of specially hardened glass can even be operated with gloves.

Functions
The ND digital readouts offer many useful functions for machining with manually operated machine tools. Self-explanatory operating elements and language-sensitive information in plain language permit context-sensitive operation. Distance-to-go mode comes to your aid during positioning tasks. With it, you can easily and reliably arrive at the next position by simply moving the axes until the display reads zero.

Of course, the ND digital readouts also offer special functions for milling and turning operations, such as:

- Hole patterns (linear, circular)
- Radius/diameter switching
- Sum display for the top slide

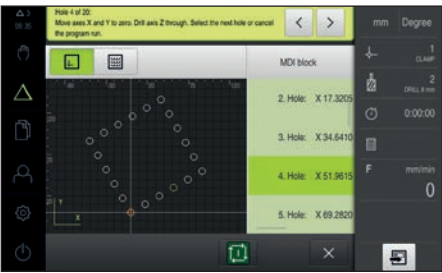


Presets can be found fast and accurately with an edge finder. The ND digital readouts support you with special probing functions.

You can individually configure the display of the ND digital readouts and save your settings in the user administration.

Data interface
A USB port allows you to import and export configuration files.

Software options
Software options allow you to adapt the capabilities of the ND 7000 digital readouts to the given requirements. These software options can be activated by entering a license key. Please contact HEIDENHAIN for more information.



	ND 7013	ND 7013 I/O
Axes	Up to 3 axes	
Encoder inputs	$\sim 1\text{ V}_{PP} \sim 11\text{ }\mu\text{A}_{PP}$ EnDat 2.2	
Display step ¹⁾	Linear axis: 1 mm to 0.00001 mm	
Display	7-inch screen for touch operation; resolution: 800 x 480 pixels for position values, dialog boxes, data entry, and graphical functions	
Functions	<ul style="list-style-type: none">• User administration and file management• 100 presets, 100 tools• Reference mark evaluation for distance-coded and single reference marks• Distance-to-go mode with nominal position input in absolute or incremental dimensions• Graphical positioning aid• Scaling factor• Program creation and execution with up to 100 machining blocks (PGM software option)	
For milling and drilling	<ul style="list-style-type: none">• Calculation of positions for hole patterns (circular, linear)• Tool radius compensation• Cutting data calculator• Probing functions for preset finding (edge, centerline, and circle)• Switching functions	
	–	Display and control the spindle speed
For turning	<ul style="list-style-type: none">• Measurement of tool dimensions• Sum display of axes in the top slide• Taper calculator• Switching functions	
	–	<ul style="list-style-type: none">• Constant cutting speed• Display and control the spindle speed
Error compensation	Linear (LEC) and segmented linear (SLEC)	
Data interface	1 x Ethernet 100 Mbit / 1 Gbit (RJ45), 1 x USB 2.0 (Type A)	
Accessories	Single-Pos/Duo-Pos/Multi-Pos stands, Multi-Pos holder, mounting frame, power cable, and adapter connector	
Power connection	AC 100 V to 240 V (±10 %); 50 Hz to 60 Hz (±5 %); ≤ 38 W	
Operating temperature	0 °C to +45 °C (storage temperature: –20 °C to +70 °C)	
Protection EN 60529	IP65; back panel: IP40	
Mounting	Single-Pos stand, Duo-Pos stand, Multi-Pos stand, Multi-Pos holder, fastening systems with a 50 mm x 50 mm hole pattern	
Mass	≈ 1.30 kg	≈ 1.50 kg

¹⁾ Depends on the signal period or line count of the connected encoder

Connectivity comparison: ND 7013 versus ND 7013 I/O

	ND 7013	ND 7013 I/O
Encoder interfaces (11 μ APB, 1 VPP, EnDat 2.2)	3	3
Digital inputs		
TTL 0 V to 5 V	4	4
High: DC 11 V to 30 V, 2.1 mA to 6.0 mA Low: DC 3 V to 2.2 V, 0.43 mA	–	24
Digital outputs		
TTL 0 V to +5 V, maximum load = 1 k Ω	1	1
DC 24 V (20.4 V to 28.8 V); max. 150 mA per channel	–	8
Relay outputs Max. switching voltage: AC/DC 30 V; max.: 0.5 A; max. 15 W; max. continuous current: 0.5 A	–	2
Analog inputs Voltage range: DC 0 V to 5 V Resistance range: 100 Ω \leq R \leq 50 k Ω	–	4
Analog outputs Voltage range: DC –10 V to +10 V Maximum load: 1 k Ω	–	4
5 V voltage outputs Voltage tolerance: \pm 5 %; maximum current: 100 mA	–	1
Touch probe connection Voltage supply: DC 5 V or DC 12 V		
Digital inputs: TTL 0 V to +5 V (low active)	4	4
Digital outputs: TTL 0 V to 5 V, maximum load = 1 k Ω	1	1



Further information:

Operating instructions
ND 7000 – Milling ID 1308766-xx
ND 7000 – Turning ID 1308767-xx
Or on the Internet under
www.heidenhain.com/service/downloads/documentation

User-controlled functions

Type	Function	ND 7013	ND 7013 I/O
Logo	Call-up of operating instructions or OEM service information	✓	✓
Spindle speed	Pre-assignment of spindle speeds (radio buttons)	–	✓
M function	Freely definable functions	–	✓
Special functions	Selection between thread cutting, direction of spindle rotation, coolant during spindle operation, or clamping of axes	–	✓
	Zeroing of the tool axis	✓	✓
Document	Display of tables (e.g., thread tables, cutting speeds)	✓	✓