ND 200 Series
– Universal Digital Readouts for One Axis

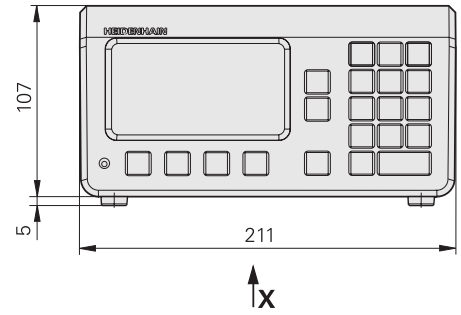
The ND 200 series offers digital readouts for one axis. Due to their performance range they are predestined for measuring and inspection stations, but are also intended for simple positioning tasks such as infeed for a circular saw, the stroke of press travel, or the position of an additional rotary table on a machine tool. The switching inputs and outputs of the ND 287 permit operation also in simple automated environments.

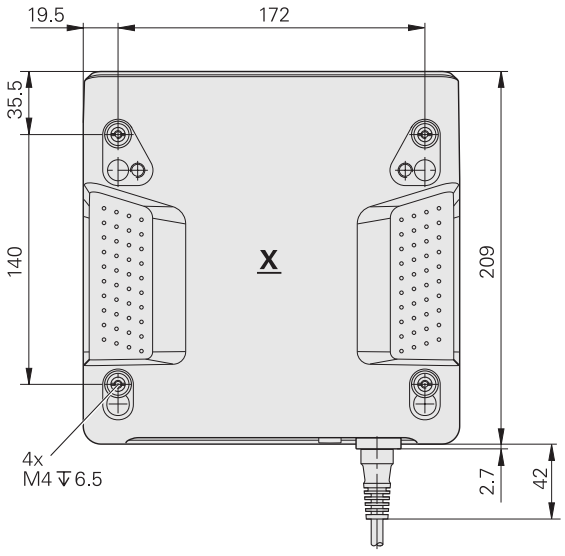
ND 287

Design
The ND 200 series features a sturdy aluminum die-cast housing. The splash-proof full-travel keyboard is built for the workshop. A large graphic TFT monitor displays the measured values, the status and the soft-key row.

Functions
The standard position display **ND 280** provides the basic functions for simple measuring tasks. The **ND 287** features numerous functions for measuring and statistical evaluation of measured values such as sorting and tolerance check mode, minimum/maximum value storage, and measurement series storage. These data make it possible to calculate mean values and standard deviations and display them in histograms or control charts. With its modular design, the ND 287 permits connection of a second encoder for sum/difference measurement or of an analog sensor, for example for temperature compensation.

Data interfaces
The ND 28x have serial interfaces for measured value transfer to a PC or printer, for input/output of parameters and compensation value lists, and for diagnostics:
- USB (UART)
- RS-232-C/V.24
- Ethernet 100BaseT (option, only with ND 287)





Dimensions in mm

Tolerancing ISO 8015
ISO 2768 - m H
< 6 mm: ±0.2 mm

	ND 280	ND 287
Encoder inputs	1 x ∿ 1 V_{PP}, ∿ 11 μA_{PP} or EnDat 2.2/22 [1]	1 x ∿ 11 μA_{PP}, ∿ 1 V_{PP} or EnDat 2.2/22 [1] Option: Second input through encoder module
Input frequency	∿ *1 V_{PP}:* ≤ 500 kHz; *11 μA_{PP}:* ≤ 100 kHz	
Subdivision factor	4096-fold	
Display step [2]	Adjustable, max. 9 digits *Linear axis:* 0.5 to 0.002 µm *Angular axis:* 0.5° to 0.00001° or 00°00'00.1"	
Analog Input	–	Option: ± 10 V through analog module
Resolution	–	5 mV
Display	Monochrome TFT screen	Color TFT screen
	Position values, dialogs and input, graphic functions and soft keys	
Status display	Operating mode, REF, datum, scaling factor, compensation, stopwatch, unit of measure, soft-key level	
Functions	• REF reference-mark evaluation for distance-coded or single reference marks • 2 datums • Distance-to-go mode • Integrated help and diagnostics • Remote operation via serial interface	
	–	• Sorting and tolerance checking • Measurement series with min./max. value storage • Saving measured values (max. 10000) • Functions for statistical process control (SPC) • Graphic depiction of distribution/histogram • Sum/difference display (with 2nd encoder module) • Thermal compensation (with analog module)
Axis-error compensation	*Linear axis:* Linear and multipoint over up to 200 points *Angle axis:* Multipoint linear with 180 compensation points (every 2°)	
Data interface	• RS-232-C/V.24 • USB (UART) port type B	
	–	Option: Ethernet 100BaseT, via Ethernet module
Switching outputs For tasks in automation	–	• Zero crossover • Trigger points 1 and 2 • Sorting signals "<" and ">" • Errors
Switching inputs For tasks in automation	–	• Zero reset, preset • Cross over reference point and ignore reference signals • Measured value output or display freeze (pulse or contact) • START MEAS. SERIES • Minimum/maximum/difference value • Gating of the two encoder inputs • Sum or difference display • Display measured value 1 or measured value 2
Main power input	100 V~ to 240 V~ (–10 % to +15 %), 50 Hz to 60 Hz (± 2 Hz); 30 W	
Operating temperature	0 °C to 45 °C	
Protection EN 60529	IP 40, front panel IP 54	
Weight	2.5 kg (approx.)	

[1] Automatic detection of interface
[2] Depends on the signal period of the connected encoder (display step ≈ signal period/4096)