



HEIDENHAIN



Evaluation Electronics

For Metrology Applications

For many metrology applications, ranging from simple measuring stations to complex inspection systems with multiple measuring points, HEIDENHAIN supports you with compatible evaluation electronics.

Their functionality is always oriented toward the specific application. Whether for an SPC inspection station, profile projector, or measuring microscope, the HEIDENHAIN **evaluation electronics for metrology applications** are the right choice for your measurement tasks.

Digital readouts from HEIDENHAIN for manually operated machine tools optimally support the operator with practical cycles for milling, drilling, and turning. You can find these digital readouts on the Internet at www.heidenhain.de or in the *Digital Readouts and Linear Encoders for Manually Operated Machine Tools* brochure.



Evaluation electronics for measurement and inspection tasks



Further information:

Comprehensive descriptions of all available interfaces as well as general electrical information are included in the *Interfaces of HEIDENHAIN Encoders* brochure (ID 1078628-xx).

For the required cables, please refer to the *Cables and Connectors* brochure (ID 1206103-xx).

You can download the operating instructions in the desired language free of charge from the HEIDENHAIN homepage.

This brochure supersedes all previous editions, which thereby become invalid. The basis for ordering from HEIDENHAIN is always the brochure edition valid when the order is made.

Standards (ISO, EN, etc.) apply only where explicitly stated in the brochure.

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Selection guide

Measurement and inspection tasks

	Screen	Axes		Functions
		Length	Angle	
ND 200 Evaluation unit for <ul style="list-style-type: none">• Measurement equipment• Adjustment and inspection equipment• SPC inspection stations• Simple infeed and positioning tasks	Monochrome	1 (adjustable)		–
	Color	Up to 2 (adjustable)		Metrological and statistical functions (sorting and tolerance checking, measurement series, SPC)
GAGE-CHEK 2000 Evaluation unit for <ul style="list-style-type: none">• Positioning equipment• Measuring fixtures• Adjustment and inspection equipment	Color touchscreen	Up to 3 (adjustable)		<ul style="list-style-type: none">• Acquisition of precise measured values, and spot-on positioning in metrology applications• 100 presets• Dial gage: comparison of the displayed value with nominal value, warning threshold, and tolerance threshold• Measurement series with minimum and maximum value recording• Difference of minimum and maximum values (range)• Manual, continuous, or touch-probe-triggered data transfer• Diameter/radius display• Relative measurement• Probing functions: edge, centerline, and circle• User administration• Configurability of each axis for length or angle display
ND 2100G GAGE-CHEK Evaluation unit for <ul style="list-style-type: none">• Multipoint inspection apparatuses• SPC inspection stations	Color	4 (adjustable)	<ul style="list-style-type: none">• Programming of up to 100 parts• Graphing of measurement results• Sorting and tolerance checking via tolerance and warning limits• Measurement series with minimum and maximum value recording• Entry of formulas and gates• Functions for statistical process control (SPC)	
		8 (adjustable)		
EIB 700 Evaluation unit for <ul style="list-style-type: none">• Measuring machines• Inspection stations• Multipoint inspection apparatuses• Mobile data acquisition	PC screen	4 (adjustable)		<ul style="list-style-type: none">• Precise position measurement; updating rate of up to 50 kHz• Programmable measured-value inputs• Internal and external measured-value triggers• Measured-value memory for typically 250 000 measured values per channel• Standard Ethernet interface connection to higher-level computer systems
IK 220 Evaluation board for installation in PC systems with a PCI interface for measuring and inspection stations	PC screen	2 (adjustable)		<ul style="list-style-type: none">• Programmable measured-value inputs• Internal and external measured-value triggers• Measured-value memory for 8192 measured values per channel

	Options/Additional functions	Model	Page
	–	ND 280	6
	Second encoder for sum/difference display, temperature compensation	ND 287	8
	–	GC 2013	10
		GC 2023	
		GC 2093	
	–	ND 2104 G	14
		ND 2108 G	
	Mounting bracket for 19-inch systems	EIB 741 EIB 742	16
	Assemblies for encoder outputs and external inputs/outputs	IK 220	18



ND 287



GAGE-CHEK 2000



ND 2100 G GAGE-CHEK



EIB 700



IK 220

ND 280

Evaluation unit for simple measuring and positioning tasks

The ND 280 evaluation unit for one axis is suitable for measuring and inspection stations, as well as simple positioning tasks. Its universal encoder input permits the connection of all incremental encoders with 11 μ APP and 1 V_{PP} signals, and absolute encoders with the EnDat 2.2 interface from HEIDENHAIN.

Design

The ND 200 series features a sturdy aluminum die-cast housing. Its splash-proof, full-travel keyboard is built to handle shopfloor conditions. For displaying the measured values, a graphics-capable screen shows the status display and soft keys.

Functions

The **ND 280** digital readout provides all of the key functions for simple measuring and positioning tasks. Expanded functionality is offered by the ND 287 evaluation unit (e.g., for metrological acquisition and statistical analysis of measured values). Thanks to its switching inputs and outputs, the ND 287 can also be deployed in simple automated environments (see p. 8).

Data interfaces

The ND 280 is equipped with serial interfaces for the transmission of measured values to a PC or printer, for the input/output of parameter lists and compensation value lists, and for diagnostics:

USB

RS-232-C/V.24



	ND 280
Axes	One
Encoder inputs	$\sim 1 V_{PP}$, $\sim 11 \mu A_{PP}$, or <i>EnDat</i> ¹⁾ : 15-pin D-sub socket (automatic interface detection)
Input frequency	$\sim 1 V_{PP}$: ≤ 500 kHz; $\sim 11 \mu A_{PP}$: ≤ 100 kHz
Subdivision factor	4096-fold
Display step ²⁾	Configurable, up to nine digits <i>Linear axis</i> : 0.5 μ m to 0.002 μ m <i>Angular axis</i> : 0.5° to 0.00001° or 00°00'00.1"
Display	Monochrome TFT screen
	Position values, dialog boxes, input fields, graphing functions, and soft keys
Status display	Operating mode, REF, preset, scaling factor, compensation, stopwatch, unit of measure, soft-key level
Functions	<ul style="list-style-type: none"> • REF reference-mark evaluation for distance-coded or single reference marks • Two presets • Distance-to-go mode • Integrated help and diagnostics • External operation via serial interface
Axis-error compensation	<i>Linear axis</i> : linear, and segmented linear via 200 compensation points <i>Angular axis</i> : segmented linear with 180 compensation points (every 2°)
Data interface	<ul style="list-style-type: none"> • RS-232-C/V.24 • USB (Type B)
Power connection	AC 100 V to 240 V (–15 % to +10 %), 48 Hz to 62 Hz; 30 W
Operating temperature	0 °C to 50 °C (storage temperature: –40 °C to 85 °C)
Protection EN 60529	IP40; front panel: IP54
Mass	≈ 2.5 kg

¹⁾ Purely serial, with no evaluation of incremental signals

²⁾ Depends on the signal period of the connected encoder (Display step \approx Signal period/4096)

ND 287

Evaluation unit for measuring and inspection stations

Thanks to its extensive functionality, the ND 287 evaluation unit for one axis is well suited for measuring and inspection stations, and can also be used for simple positioning tasks. Its universal encoder input permits the connection of all incremental encoders with 11 μ App and 1 Vpp signals, and absolute encoders with the EnDat 2.2 interface from HEIDENHAIN.

Design

The ND 287 features a sturdy aluminum die-cast housing. For displaying the measured values, a graphics-capable screen shows the status display and soft keys. Its splash-proof, full-travel keyboard is designed to handle the shop floor.

Functions

The **ND 287** provides numerous functions for the metrological acquisition of individual values, including functions such as sorting and tolerance check mode, minimum and maximum value recording, and measurement series storage. Based on these data, mean values and standard deviations can be calculated and displayed in histograms or control charts. Thanks to its modular design, the ND 287 permits the connection of a second encoder for sum/difference measurement, or the connection of an analog sensor (e.g., for temperature compensation).

Data interfaces

The ND 287 is equipped with serial interfaces for the transmission of measured values to a PC or printer, for the input/output of parameter lists and compensation value lists, and for diagnostics:

- USB
- RS-232-C/V.24
- Ethernet 100BaseT (option)

The transmission of measured values can be initiated on the ND keyboard via an external command. With RS-232-C/V.24, this is done using the software command CTRL+B or a configurable internal clock.

Sorting and tolerance checking

With the sorting and tolerance checking function of the ND 287, workpieces can be inspected for dimensional accuracy and sorted into classes. The result is shown through symbols in the color status display, with a corresponding signal applied at the switching outputs.

Display freeze

For readability, even during rapidly changing measured values, the display can be frozen with an external signal. The internal counter keeps on running.

Mathematical consideration of a second encoder

A second encoder or a sensor can be connected to the ND 287 through an optional **encoder module** or **analog module** input assembly. The data from the two encoders can be taken into account mathematically via operands. The result and the two measured values are saved. This opens up further areas of application, such as sum/difference display of two encoders or temperature compensation by means of a temperature sensor.

Recording and evaluating measurement series

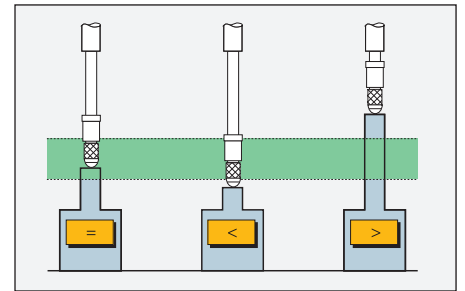
The ND 287 provides a measured-value memory for the storage of measurement series. Alternatively, during the measurement series, the minimum, maximum, or difference can be displayed. The displayed value can also be checked for tolerance conformity with the sorting function. The saved measured values are evaluated and displayed in the following ways:

- Statistical view (mean value \bar{x} , standard deviation s , and range r)
- Diagram (graph of the measured values with minimum, maximum, and mean values, as well as tolerance limits)
- Measured value overview as a table

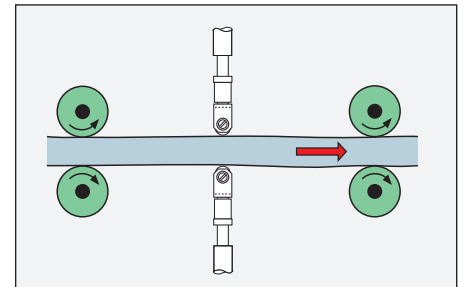
Statistical Process Control (SPC)

For SPC, the ND 287 saves up to 1000 measured values in its nonvolatile FIFO memory. Evaluation is performed with the following functions:

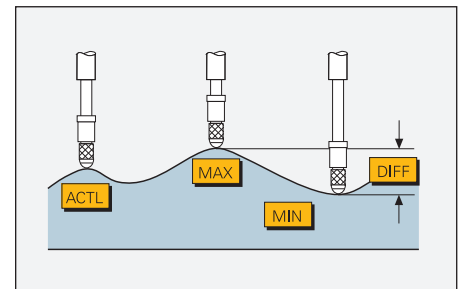
- Statistical view of the measured values in the FIFO memory
- Measured value overview as a table
- Diagram of the last 30 measured values
- Histogram in ten classes with probability density function and process capability indexes Cp and Cpk.
- Control charts for mean value \bar{x} , standard deviation s , and range r



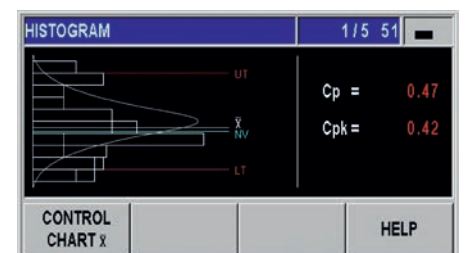
Sorting and tolerance checking



Sum measurement



Measured value acquisition



	ND 287
Axes	One; option: second input through encoder module
Encoder inputs Input frequency	$\sim 1 V_{PP}$, $\sim 11 \mu A_{PP}$, or EnDat ¹⁾ (automatic interface detection) $\sim 1 V_{PP}$: $\leq 500 \text{ kHz}$; $\sim 11 \mu A_{PP}$: $\leq 100 \text{ kHz}$
Subdivision factor	4096-fold
Display step ²⁾	Configurable, up to nine digits <i>Linear axis</i> : $0.5 \mu\text{m}$ to $0.002 \mu\text{m}$; <i>angular axis</i> : 0.5° to 0.00001° ($00^\circ 00' 00.1''$)
Analog input	Option: $\pm 10 \text{ V}$ via analog module; resolution: 5 mV
Display	Screen for position values, dialog boxes, input fields, graphing functions, and soft keys
Functions	<ul style="list-style-type: none"> • REF reference-mark evaluation for distance-coded or single reference marks • Two presets and distance-to-go mode • External operation via serial interface • Sorting and tolerance checking • Measurement series with minimum and maximum value recording • Storage of measured values (up to 10000) • Functions for statistical process control (SPC) • Graphical depiction of distribution/histogram • Sum/difference display (with second encoder module) • Thermal compensation (with analog module)
Axis-error compensation	<i>Linear axis</i> : linear, and segmented linear via 200 compensation points <i>Angular axis</i> : segmented linear with 180 compensation points (every 2°)
Data interface	RS-232-C/V.24; USB (Type B); option: Ethernet 100BaseT, via Ethernet module
Switching outputs for automation tasks	<ul style="list-style-type: none"> • Zero crossover; trigger points 1 and 2 • Sorting signals "<" and ">" • Errors
Switching inputs for automation tasks	<ul style="list-style-type: none"> • Zero reset, set displayed value • Move to reference point and ignore reference signals • Measured value output or display freeze • Start measurement series • Minimum, maximum, and difference display • Gating of the two encoder inputs • Sum or difference display • Display of measured value 1 or measured value 2
Accessories	Mounting adapter, encoder module, analog module, Ethernet module
Power connection	AC 100 V to 240 V (-15% to $+10\%$), 48 Hz to 62 Hz ; 30 W
Operating temperature	0°C to 50°C (storage temperature: -40°C to $+85^\circ \text{C}$)
Protection EN 60529	IP40; front panel: IP54
Mass	$\approx 2.5 \text{ kg}$

¹⁾ Purely serial, with no evaluation of incremental signals

²⁾ Depends on the signal period of the connected encoder (Display step \approx Signal period/4096)

GAGE-CHEK 2000

Evaluation unit for reliable 1-D measured-value acquisition

The GAGE-CHEK 2000 evaluation unit is particularly well suited for positioning tasks on positioning, measuring, adjustment, and inspection equipment, as well as for the retrofitting of measuring machines in order to collect and transmit data to a PC.

Design

Thanks to its rugged industrial design, the GAGE-CHEK 2000 is superbly suited for applications in measuring rooms and harsh production environments. Its slim aluminum housing, featuring an integrated power adapter and fanless passive cooling system, is exceptionally sturdy and resilient. The unit's straightforward touchscreen, made of specially hardened glass, supports multi-touch gesture control and permits operation with gloves.

Functions

The logical arrangement of menus and function elements provides intuitive user guidance, which supports you while using the different functions. Along with the typical functionality of an evaluation unit, such as zero resetting and preset setting, the GAGE-CHEK 2000 also offers the following practical features:

- Configurability of each axis for length or angle display
- Dial gage for a graph of the measured value
- Measurement series with minimum and maximum value recording
- Diameter/radius display
- Probing functions
- Manual, continuous, or touch-probe-triggered measured value output

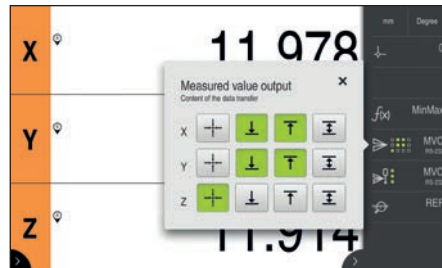
Over the data interface, you can transfer the captured measured values to a PC.

Configurable axis names

The axis names shown in the display can be changed to meet the requirements of the given application. By means of an alias assignment, you can easily change the names of the X, Y, and Z axes. The axis names may contain any combination of up to two letters and/or numbers.

Intuitive display












All of the information you need is displayed in a clean and easy-to-read format on the unit's high-resolution, 7-inch screen. Only those functions that are actually available within a given context and situation are shown. The self-explanatory operating elements provide intuitive user guidance.



Diameter/radius display

The "D/R" (diameter/radius) function can be used for radial measurements on rotationally symmetrical parts; for example, in order to switch between the displayed radius and the equivalent diameter. The axes to be given this switching capability can be configured within the function, which can be used on linear axes or on angular axes displayed as linear axes.

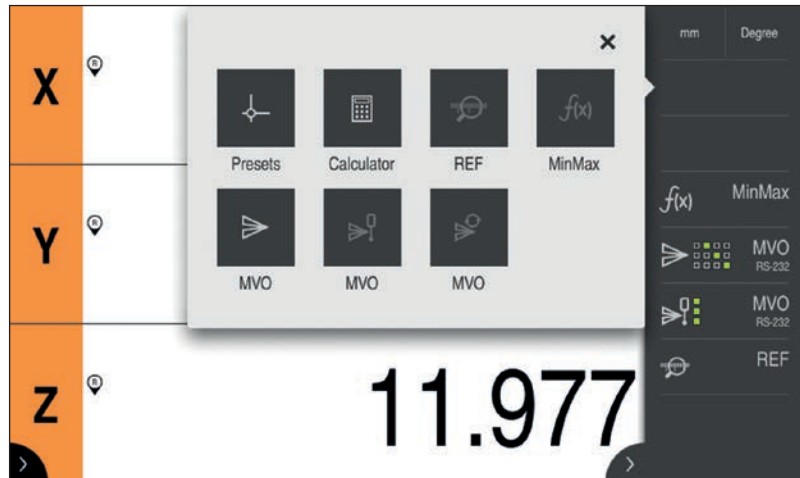


	GAGE-CHEK 2013	GAGE-CHEK 2023	GAGE-CHEK 2093
Axes	Up to three axes		
Encoder interface	 1 V _{PP} ,  11 μA _{PP} , EnDat 2.2	 TTL	One connection:  TTL Two connections:  1 V _{PP} ,  11 μA _{PP} , EnDat 2.2
Input frequency	 1 V _{PP} : ≤ 400 kHz  11 μA _{PP} : ≤ 150 kHz	≤ 5 MHz	 1 V _{PP} : ≤ 400 kHz  11 μA _{PP} : ≤ 150 kHz  TTL: ≤ 5 MHz
Subdivision factor	4096-fold (only with 1 V _{PP})		
Display step	Configurable, up to eight digits Linear axes X, Y, and Z: down to 0.00001 mm; rotary axis Q: down to 0.00001° (00° 00' 00.1")		
Display	7-inch screen (15:9) for multitouch operation; resolution: WVGA 800 x 480 pixels for dialog boxes, input fields, position values, and graphing functions		
Functions	<ul style="list-style-type: none"> • Acquisition of precise measured values, and spot-on positioning in metrology applications • 100 presets • Dial gage for a graph of the measured value • Measurement series with minimum and maximum value recording • Difference of minimum and maximum values (range) • Manual, continuous, or touch-probe-triggered data transfer • Diameter/radius display • Relative measurement • Probing functions (edge, centerline, and circle) • User administration • Configurability of each axis for length or angle display 		
Error compensation	<ul style="list-style-type: none"> • Linear (LEC) and segmented linear (SLEC) using up to 200 compensation points • Squareness calibration; matrix compensation (NLEC) using up to 99 x 99 points 		
Data interface	1x Ethernet 100 Mbit/1 Gbit (RJ45); 1x Hi-Speed USB 2.0 (Type A)		
Other connections	Foot switch for two functions		
Accessories	Multi-Pos, Duo-Pos, and Single-Pos stands, Multi-Pos holder, power cable, adapter connector, foot switch		
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	Multi-Pos, Duo-Pos, or Single-Pos stand; Multi-Pos holder; 50 mm x 50 mm mounting hole pattern		
Mass	Device with Multi-Pos stand: ≈ 2.0 kg; device with Duo-Pos stand: ≈ 1.5 kg; device with Multi-Pos holder: ≈ 1.7 kg; device alone: ≈ 1.3 kg		

Functions

Configurable function elements

The functionality of the GAGE-CHEK 2000 can be adapted to the given requirements through individually configurable function elements in the Inspector view. Along with function elements for the output of measured values, functions such as a preset table and the storage of minimum and maximum values are available as well.



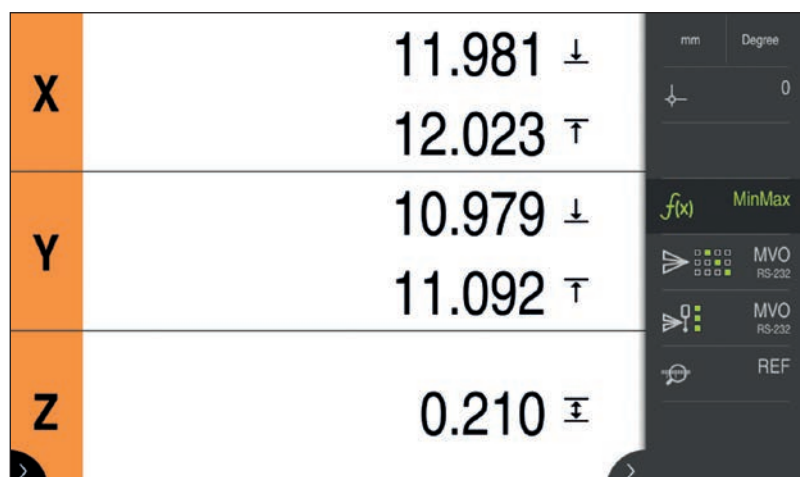
Dial gage

The dial gage function lets you make a direct comparison between the acquired measured values and the nominal value, warning limits, and tolerance limits. The measured values are shown as a graph in the form of a dial gage. For evaluation, the GAGE-CHEK 2000 supports you with a color depiction of a dial gage.



Recording minimum and maximum values (MinMax)

The GAGE-CHEK 2000 is equipped with a function for recording minimum and maximum values. This function can be configured for the axes as desired. The highest and lowest measured values of a measurement series, including their difference, are recorded and can be output over the data interface. This function is particularly advantageous during concentricity testing.



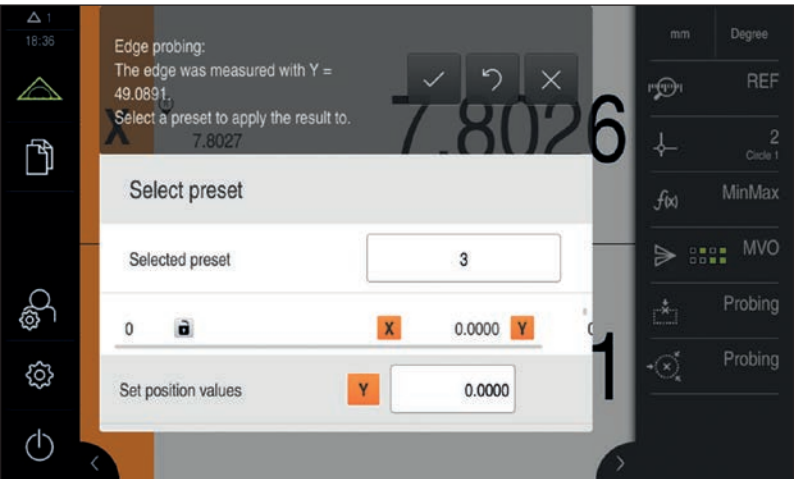
Touch-probe connection

The GAGE-CHEK 2000 is equipped with a connection for touch probes (e.g., from HEIDENHAIN or Renishaw). During probing, the evaluation unit automatically displays the current position value, taking the radius of the stylus into account.



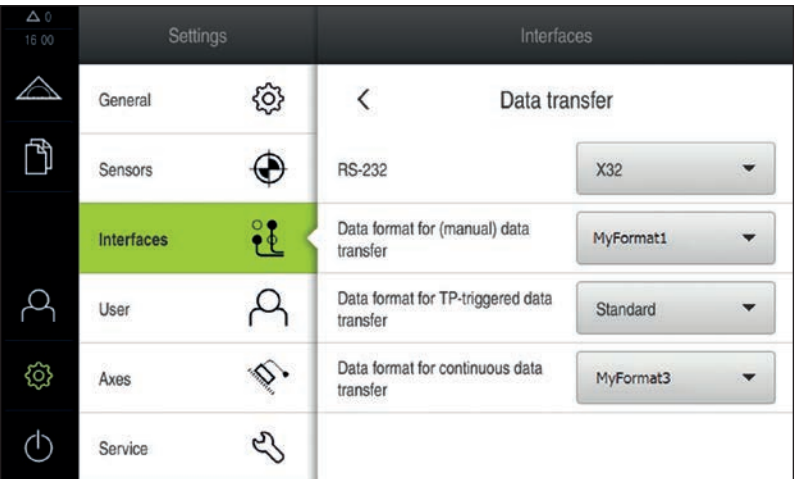
Probing functions

The probing functions support you in determining positions and presets. For these purposes, the GAGE-CHEK 2000 provides edge, centerline, and circle-center probing functions.



Configurable data formats for measured-value output

Along with providing a default format, the GAGE-CHEK 2000 also gives you the option of storing your own data formats for data transfer. Thanks to the configurability of its data formats, the GAGE-CHEK 2000 is particularly effective as a data logger on retrofitted, manually operated measuring machines. Within such applications, the GAGE-CHEK 2000 captures the measured values and relays them to a higher-level PC for processing.



ND 2100G GAGE-CHEK

Evaluation unit for multipoint inspection apparatuses

The ND 2100G GAGE-CHEK evaluation units are versatile displays for measurement and inspection tasks in manufacturing and quality assurance environments. With inputs for up to eight encoders, they are ideal for multipoint measurements ranging from simple pass/fail detection to complex SPC evaluation.

Design

The ND 2100G evaluation units feature a robust, die-cast aluminum housing and a keyboard suitable for their operational environment. A screen displays the measured values, soft keys, and other information.

Functions

The inputs can be assigned with mathematical, trigonometric, or statistical formulas and gated with each other as desired. This allows you to measure dimensions such as thickness, flatness, volume, and more. The results can be displayed as numerical values, or in a color bar graph or dial, and even archived for statistical process control (SPC). The GAGE-CHEK can be configured for simple or complex applications. Soft keys and function keys can be adapted to the given requirements. Thanks to their minimum and maximum function, the ND 2100G evaluation units capture and store the highest and lowest measured or calculated value. Warning thresholds and tolerance limits can be assigned to each displayed value. Out-of-tolerance results are indicated by a different color and an acoustic alarm. Tolerance values, SPC parameters, and custom formulas are stored for individual parts. As a result, the GAGE-CHEK can manage up to 100 parts with up to 16 visible and 16 invisible measurands. The rapid acquisition of measurement data enables the monitoring of dynamic events, such as the eccentricity of a rotating shaft.

Data interfaces

The GAGE-CHEK features various interfaces for communication with higher-level systems:

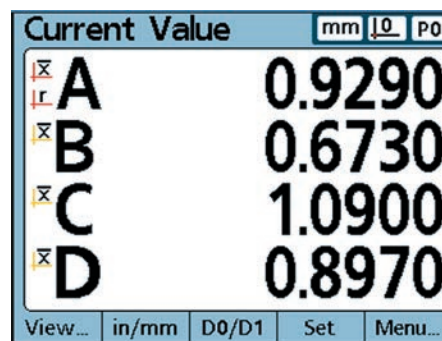
- RS-232-C/V.24 for PCs and external operation of the GAGE-CHEK
- USB

A list of possible printers is available on the Internet at www.heidenhain.de.



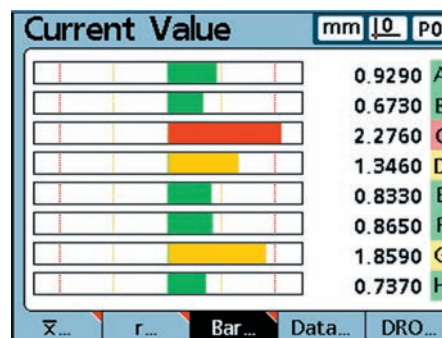
DRO view

The values are displayed in large, easy-to-read numbers. The different color assigned to out-of-tolerance values clearly alerts you to errors.



Bar graph

The values can be displayed in either a vertical or horizontal bar graph. Once defined, warning and tolerance limits are shown as well. If these limits are exceeded, the color of the bar changes from green to yellow or red, thereby alerting you to critical dimensions.



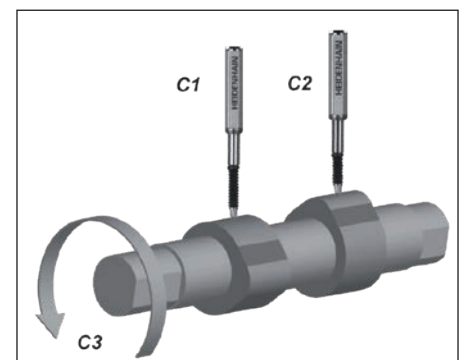
SPC and data storage

GAGE-CHEK includes statistical functions for creating mean value (\bar{X}) and range (R) control charts. Also calculated and displayed in a clear histogram are MIN, MAX, Sigma, Cp, and Cpk. Historical raw data can be saved in a table. All of the measured results and data are time- and date-stamped.

10:39:14 AM 4-29-06					mm	IO	PO
#90 0.5665							
A	B	C	D				
0.5665	0.8900	0.4045	-0.4045	A			
0.8900	1.3755	-0.2425	-0.7280				
-0.2425	1.3755	0.0810	-0.5665	B			
0.2425	-0.5665	-0.5665	0.0810				
0.5665	-0.8900	-0.8900	0.7280				
1.0520	-1.3755	-1.0520	0.7280	C			
1.0520	-1.3755	-0.8900	0.4045				
1.3900	-0.7280	-1.2135	-1.0520				
0.8900	-0.0810	-1.5370	-0.7280	D			
1.2135	-0.2425	-1.6990	-0.7280				

Formulas and gating

Discrete measured values or measuring runs can be gated with each other via mathematical formulas, trigonometric formulas, and logical conditions to create complex calculations. This lets you calculate, display, and assign tolerance limits to the circumference of a turned part, the volume of a cube, the angle between two cams, and more.



	ND 2104 G	ND 2108 G
Axes	Up to four axes	Up to eight axes
Encoder inputs* Input frequency	$\sim 1 V_{PP}$, \square TTL, or EnDat 2.2 (other interfaces upon request) $\sim 1 V_{PP}$: ≤ 275 kHz; \square TTL: ≤ 3 MHz	
Subdivision factor	10-fold (only for 1 V_{PP})	
Display step ¹⁾	Adjustable, up to seven digits <i>Linear axis</i> : 1 mm to 0.00001 mm <i>Angular axis</i> : 1° to 0.0001° (00° 00' 01")	
Display	5.7-inch screen for position values, dialog boxes, input fields, graphing functions, and soft keys	
Functions	<ul style="list-style-type: none"> • Part programming for up to 100 parts • Graphing of measurement results • Tolerance sorting using tolerance and warning limits, shown in the bar graph • Measurement series with minimum and maximum value recording • Mathematical and trigonometric formulas • Functions for statistical process control (SPC) • Graphing of measurement results and the distribution • Data memory for values and formulas • Convenient diagnostics for connected encoders (only EnDat 2.2) 	
Error compensation	Linear and segmented linear using up to 60 compensation points	
Data interface	<ul style="list-style-type: none"> • RS-232-C/V.24 • USB (Type A) 	
Switching inputs	Five TTL inputs (freely definable)	
Switching outputs	Twelve TTL outputs (freely definable)	
	Two relay outputs	
Other connections	Foot switch for two functions, keypad	
Accessories	Foot switch, external keypad, protective cover, base, mounting adapter	
Power connection	AC 100 V to 240 V (–15 % to +10 %), 47 Hz to 63 Hz; ≤ 100 W	
Operating temperature	0 °C to 45 °C (storage temperature: –20 °C to +70 °C)	
Protection EN 60529	IP40	
Mounting*	Base or mounting adapter	
Mass	<i>ND with tilting base</i> : ≈ 4.8 kg; <i>ND with mounting adapter</i> : ≈ 2 kg	

* Please select when ordering

¹⁾ Depends on the signal period of the connected encoder and on the subdivision factor

EIB 700

Evaluation units with measured-value memory



The EIB 700 evaluation units feature connections for four encoders. These units are particularly well suited for the following applications:

- Precise position measurement, especially for inspection stations and multipoint inspection apparatuses
- Portable, on-site data acquisition (e.g., for machine calibration)
- Integration into customized applications (e.g., high-precision measuring machines)

The EIB 700 series is ideal for applications requiring high-resolution encoder signals and rapid measured-value acquisition. Its Ethernet transmission also enables the use of switches or hubs for connecting more than one EIB. Wireless LAN transmission, for example, can be used as well.

Design

The EIB 700 features a benchtop housing. With a mounting bracket accessory, it can also be easily installed into a 19-inch housing. The device is suitable for the following supply voltages:
EIB 741: AC 100 V to 240 V
EIB 742: DC 24 V

Functions

For **measured-value generation**, the EIB 700 subdivides the signal periods of the incremental signals up to 4096-fold. Automatic adjustment of the sinusoidal incremental signals reduces the error within one signal period.

And thanks to its **measured-value memory**, the EIB 700 series can typically save 250 000 measured values per axis. Based on the axis, these measured values can be saved by means of either an internal or external trigger.

The **interval counter** permits position-dependent triggering in conjunction with an incremental encoder on Axis 1. For this purpose, the signals of Axis 1 are interpolated and forwarded to a position counter. Triggering pulses are generated either at a certain position or equidistantly at configurable intervals. They are continuously generated once a configurable starting position is crossed in either counting direction. The trigger pulses can be used to trigger further internal axes of the EIB or can also be output over a trigger output.

Data interface

A standard Ethernet interface using TCP/IP or UDP communication is available for **data output**, permitting direct connection to a PC, laptop, or industrial PC. The type of measured-value transmission can be selected through the operating mode (single values, as a block, or upon software request).

For **processing the measured values** on a PC, software drivers for Windows, Linux, and LabVIEW are included in delivery, as are example programs and the EIB application software. The software driver makes it easy to program customized applications, and the example programs demonstrate the potential of the EIB 700 series. The EIB application software aids with setting up and demonstrating the capabilities of the EIB 700 series. This software is provided as source code and can serve as a platform for the development of one's own applications.

Operating modes	Soft Real-Time	Recording	Streaming	Polling
Properties	Immediate transmission of the measured value upon occurrence of the triggering event	Storage of measured values in the EIB's internal measured-value memory	Buffering and block transmission of measured values	Software request originating from the customer's application
Configurable trigger sources	All internal and external sources			Via software command
Trigger rate	≤ 10 kHz (access time to position values < 100 µs)	≤ 50 kHz	≤ 50 kHz Up to 1200 000 bytes/s	Depends on the application
Typical applications	Closed Loop control	Very high recording rate Offline data analysis	High recording rate in combination with high recording depth	Semi-static measured value recording

	EIB 741 EIB 742		
Encoder inputs	15-pin D-sub connections (female) (X11 to X14), for four encoders		
Interface (switchable)	$\sim 1 V_{PP}$, $\sim 11 \mu A_{PP}$	EnDat 2.1	EnDat 2.2
Supply voltage for encoders	DC 5.12 V ± 0.15 V; max. 450 mA per channel Overcurrent protection (automatic switch-off, resettable) at 550 mA		
Input frequency	≤ 500 kHz	–	–
Subdivision factor	4096-fold	–	–
Signal adjustment	Automatic adjustment of offset, phase, and amplitude	–	–
Cable length ¹⁾	≤ 150 m	≤ 150 m	≤ 100 m
Data register for measured values	48 bits (of which only 44 bits are used)		
Interval counter	Derived from Axis 1 (only 1 V_{PP}) ⁴⁾ , Configurable interpolation factor from 1-fold to 100-fold Can be used as a trigger source or additional counting axis	–	–
Measured-value memory	Typically 250 000 position values per channel		
Measured-value trigger ²⁾	Storage of the measured values of the four axes through an external or internal trigger (selectable). External: <ul style="list-style-type: none"> • Signal via trigger input • Software command (over Ethernet) Internal: <ul style="list-style-type: none"> • Timer and interval counter • Reference pulse of the respective axis (from Axis 1 and other axes) 		
Trigger input ³⁾	9-pin D-sub connection (male); differential inputs as per RS-485 (terminating resistors can be activated)		
Trigger output ³⁾	9-pin D-sub connection (female); four differential outputs as per RS-485		
Access to measured values	Depends on the selected operating mode (see separate table)		
Software	<ul style="list-style-type: none"> • Software drivers for Windows, Linux, and LabVIEW • Example programs • EIB application software 		
Data interface ⁵⁾	Ethernet as per IEEE 802.3 (10/100/1000 Mbit/s)		
Network address	Automatic assignment through Dynamic Host Configuration Protocol (DHCP), or manual assignment		
Dimensions	≈ 213 mm x 152 mm x 42 mm		
Operating temperature	0 °C to 45 °C (storage temperature: 0 °C to +70 °C)		
Supply voltage	EIB 741: AC 100 V to 240 V (± 10 %), 50 Hz to 60 Hz (± 2 %); max. power consumption: 30 W EIB 742: DC 24 V (-15 %/+20 %), max. 2 A		

¹⁾ When using HEIDENHAIN cables; the supply voltage range of the encoder must be adhered to.

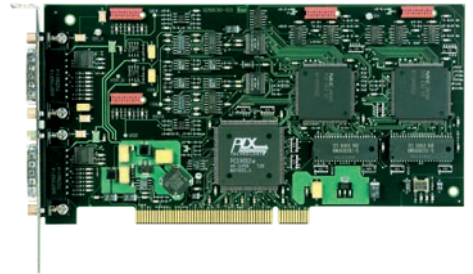
²⁾ Various trigger sources can be assigned to the individual axes.

³⁾ Can also be used as a logic input or output; ⁴⁾ Maximum input frequency for referencing: 70 kHz

⁵⁾ The quality of the data cable between the EIB and PC must be adapted to the transmission rate and cable length.

IK 220

Evaluation board as a PC solution



The IK 220 evaluation board is a PC counter card for two axes that is directly inserted into a vacant PCI slot in the computer. The IK 220 is ideal for applications in which the measured values are acquired directly in the PC.

Design

Connectable to the IK 220 are two HEIDENHAIN encoders with sinusoidal current signals ($\sim 11 \mu\text{App}$), sinusoidal voltage signals ($\sim 1 \text{ Vpp}$), or an EnDat 2.1 or SSI interface. External latch inputs/outputs and the output of encoder signals ($\sim 11 \mu\text{App}$) can be implemented by means of additional slot covers (accessory).

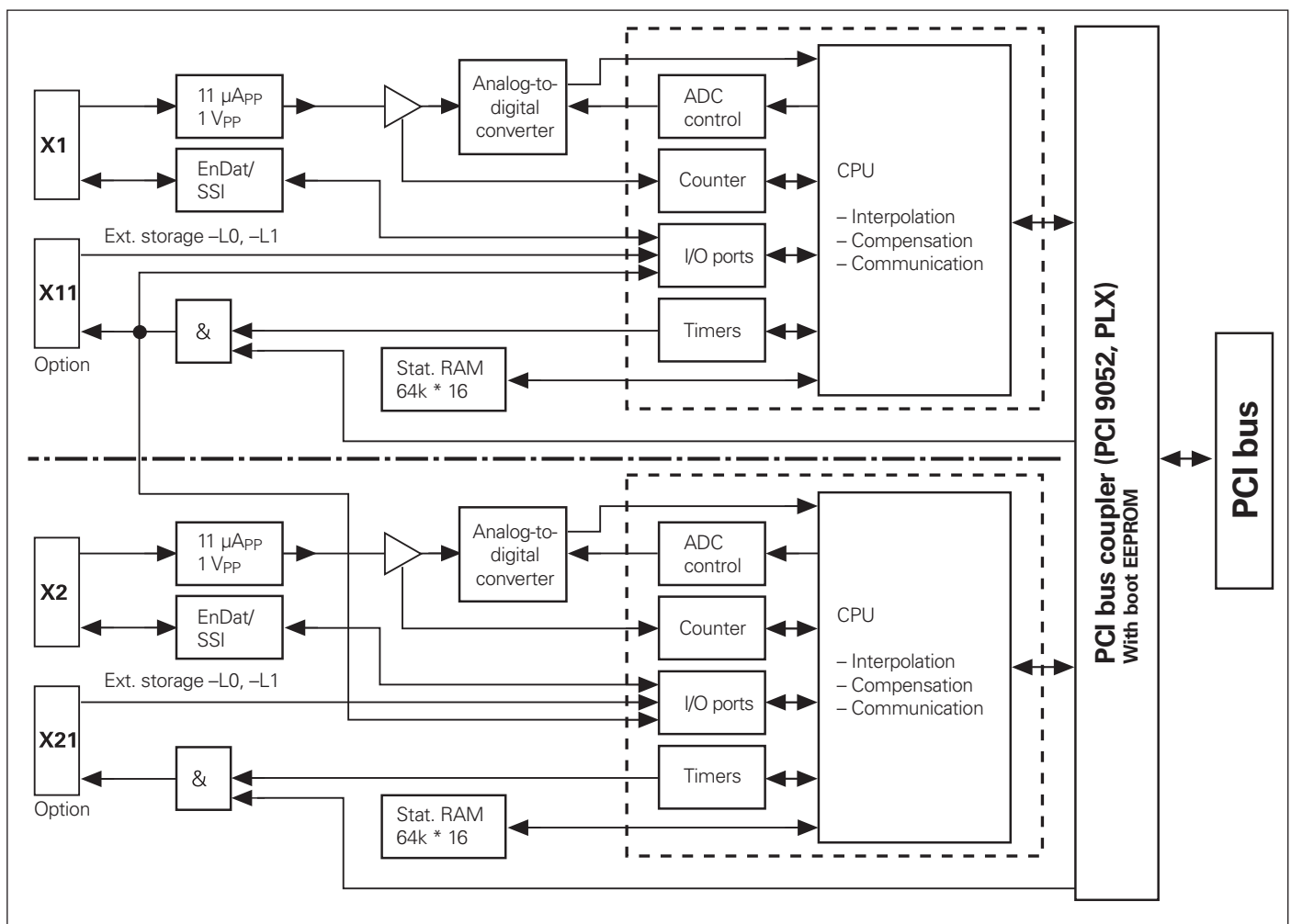
Functions




The IK 220 subdivides the signal periods of the sinusoidal encoder signals up to 4096-fold. The signals are called and stored through either external latch inputs or software.

The IK 220 features an integrated **measured value memory**. A total of up to 8192 measured values can be stored in the buffer memory and can be output as a single block.

Further processing of the measured values in the PC is performed by operator-created programs. To demonstrate the possibilities of the PC counter card, example programs and a software driver are included in delivery.

Basic circuit diagram



	IK 220			
Encoder inputs	15-pin D-sub connections (male) (X1 and X2), for two encoders			
Input signals (switchable)	 1 V _{PP}	 11 μA _{PP}	EnDat 2.1	SSI
Input frequency	≤ 500 kHz	≤ 33 kHz	–	
Cable length ¹⁾	≤ 60 m		≤ 10 m	
Adjustment of encoder signals	Adjustment of offset, phase, and amplitude by the software			
Signal subdivision	4096-fold			
Data register for measured values	48 bits; of which only 44 bits are used for the measured value			
Internal memory	For 8192 position values			
Measured-value trigger	Through the following (selectable): <ul style="list-style-type: none">• External latch signals (over separate IK assembly for external inputs/outputs)• Software command• Timers• Traversing the reference marks			
Access time to measured values	<ul style="list-style-type: none">• <i>Without adjustment, without compensation run:</i> ≤ 100 μs• <i>With adjustment, without compensation run:</i> ≤ 110 μs• <i>With adjustment, with compensation run:</i> ≤ 160 μs		Depends on the encoder	
Interface	PCI bus (plug and play) Local Bus Specification Rev. 2.1			
Software driver and demonstration program	For Windows 7 (32-bit and 64-bit) In VISUAL C++, VISUAL BASIC, and BORLAND DELPHI included in delivery Via download: Windows 10 (64-bit)			
Outputs for encoder signals	 11 μA _{PP} Via PCB connector on the IK (10-pin, female) Fitting cable assembly with PC-slot cover optionally available			
Power consumption	≈ 4 W, without encoders			
Dimensions	190 mm x 100 mm			
Operating temperature	0 °C to 55 °C (storage temperature: –30 °C to +70 °C)			

¹⁾ With HEIDENHAIN cable; larger cable lengths upon request

Mounting

Mounting the ND 200

ND 200 series

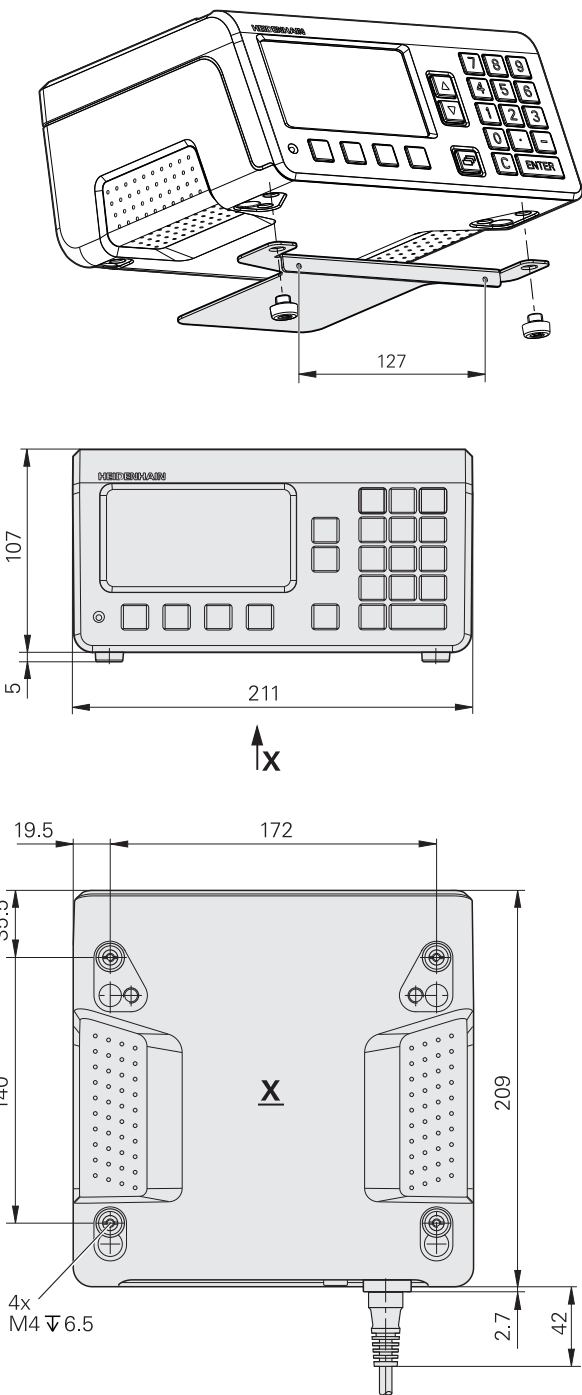
The ND 200 series digital readouts were designed as benchtop units and can be easily stacked. Recesses on the top prevent the stacked units from shifting out of place.

Through threaded holes at the bottom, the ND 28x can be fastened to a base plate with M4 screws.

Two side-by-side ND 28x readouts fit inside a 19-inch housing. For mounting inside a 19-inch housing, a mounting adapter is available as an accessory.

Accessories

Mounting adapter for 19-inch housing
ID 654020-01



Mounting the EIB 700

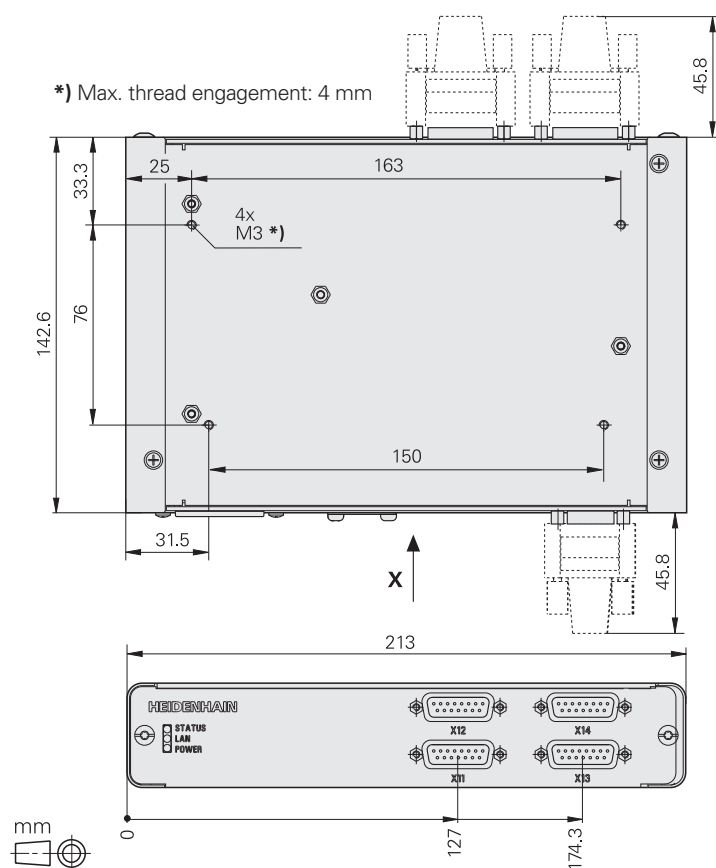
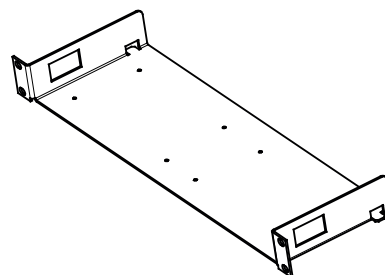
The EIB 700 series was designed as a benchtop unit. It must be installed in a well-ventilated area and at a specified operating orientation.

Through threaded holes at the bottom, the EIB 700 can be fastened to a base plate with M3 screws. Two side-by-side EIB 700 units fit next to each other in a 19-inch housing, thus occupying one height unit. A mounting bracket is available as an accessory.

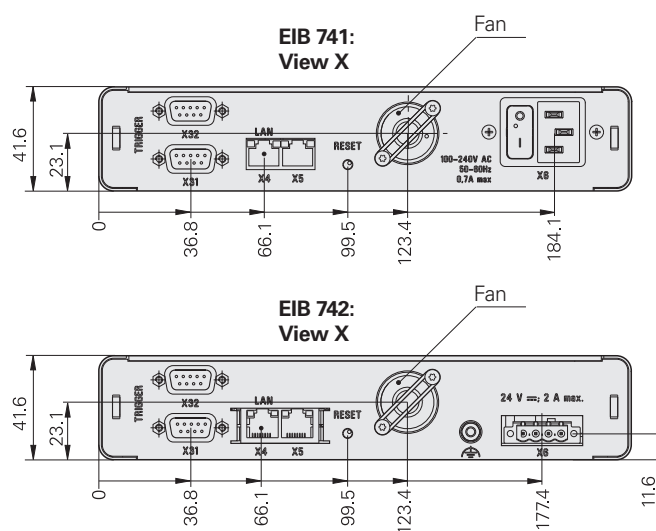
Accessories

Mounting bracket

For installation of two EIB 74x units in a 19-inch housing.
ID 671144-01



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



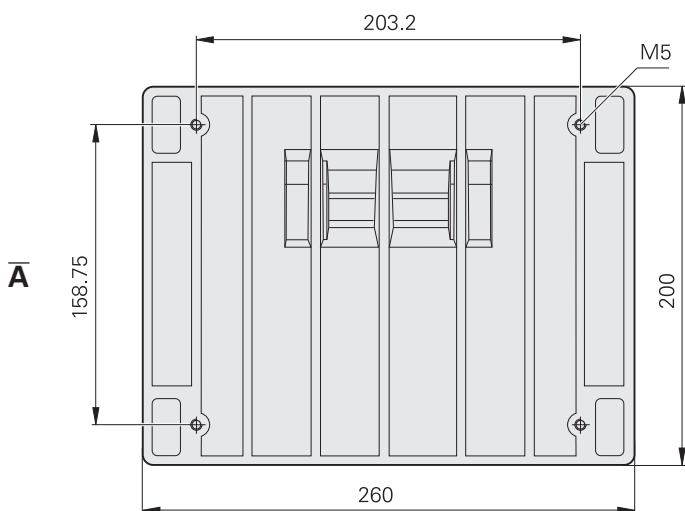
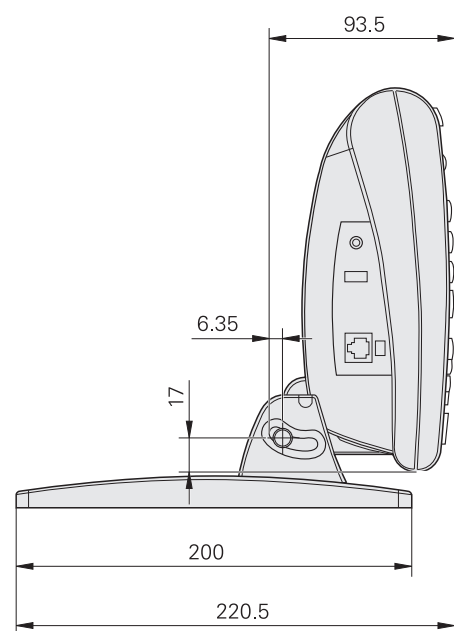
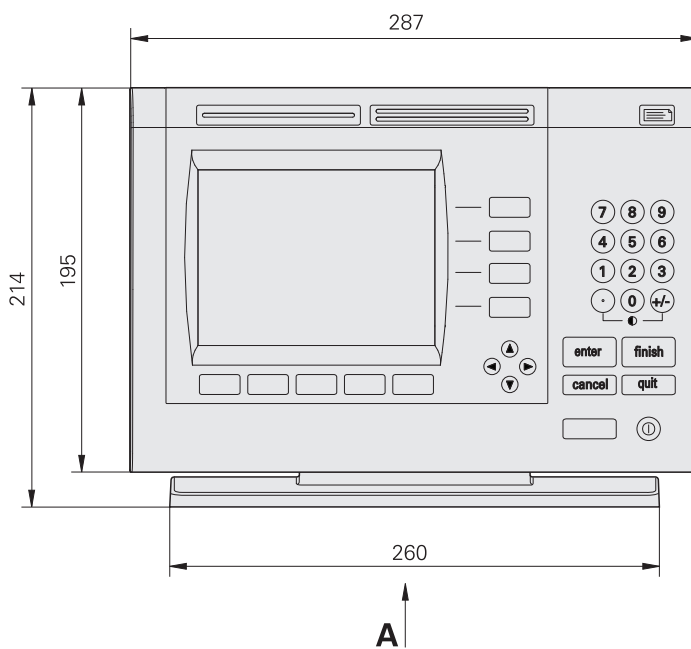
Mounting the ND 2000

The ND 2000 is shipped with either a stand or a mounting adapter (selectable).

Stand

With the stand, the readout can be used as a benchtop unit. For an optimal reading angle, the stand allows the readout to be tilted forwards and backwards by 20°. The stand can be fastened with M5 screws.

ID 382892-02



mm

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

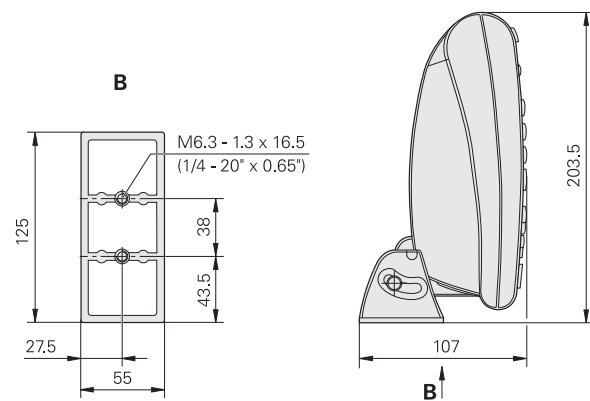
Mounting adapter

The mounting adapter allows the ND 2000 to be attached to a mounting arm or to the machine itself. It also allows the readout to be tilted.

ID 682419-01



Mounting adapter



Accessories

Protective cover

Transparent protective covers are available as accessories for protecting the keyboard and screen of the ND 2000 from contamination. They still allow for easy reading of the display and, by optimally enwrapping the front of the unit, permit unimpaired operation.

ND 21xx

ID 681051-03



Mounting the GAGE-CHEK 2000

With the Multi-Pos or Duo-Pos stand, the GAGE-CHEK 2000 evaluation units can be set up at different angles of tilt. Mounting to the machine can be accomplished with the Multi-Pos holder or with other fastening systems featuring a 50 mm x 50 mm hole pattern.

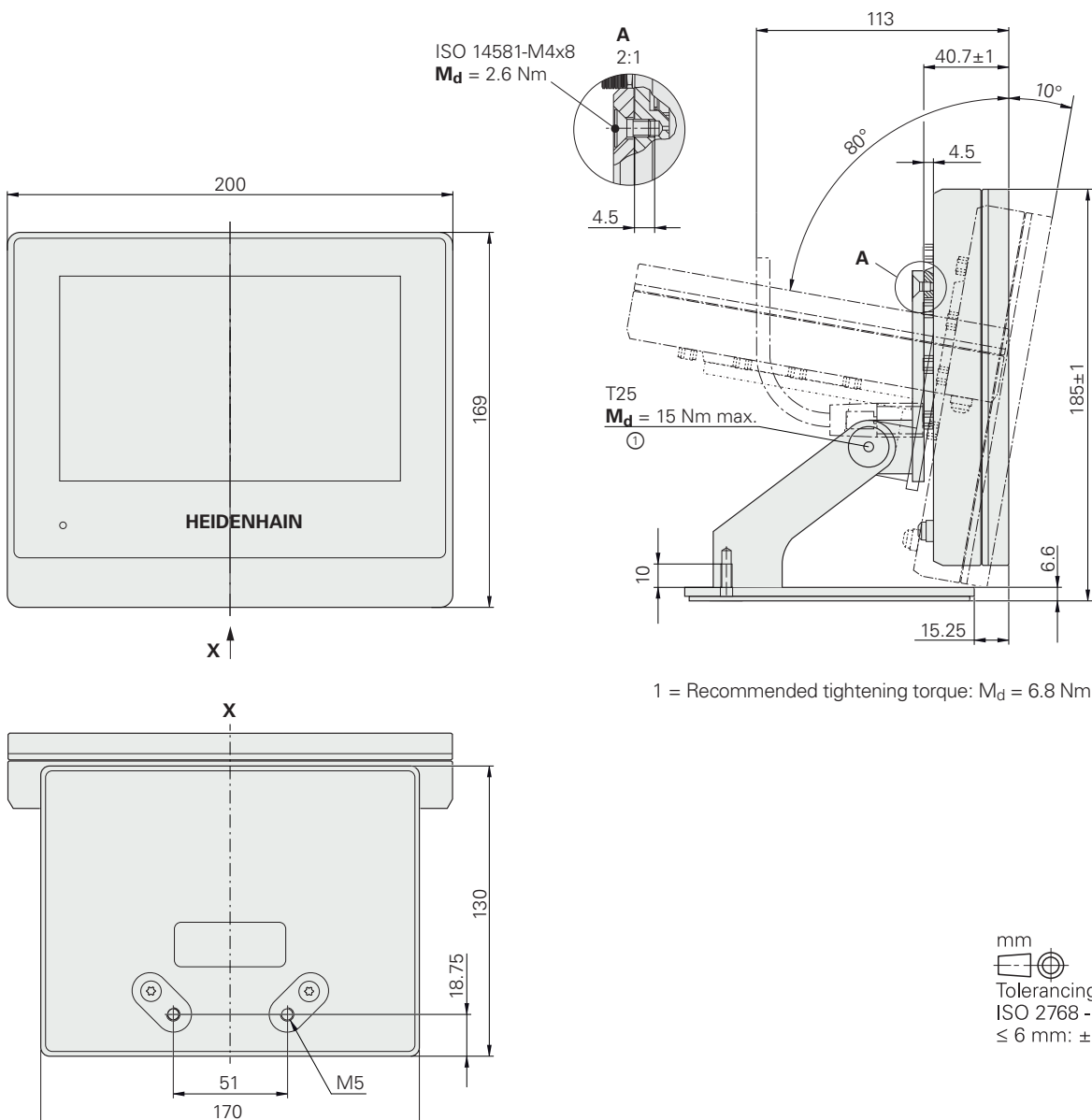
Multi-Pos stand

For setup on and fastening to a horizontal surface (90° continuous tilt range).

ID 1089230-07



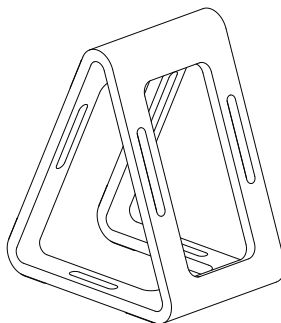
**GAGE-CHEK 2000
with Multi-Pos stand**



Duo-Pos stand

For setup on and fastening to a horizontal surface (20° or 45° tilt).

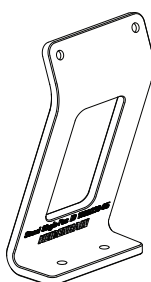
ID 1089230-06

**Single-Pos stand**

Included in delivery.

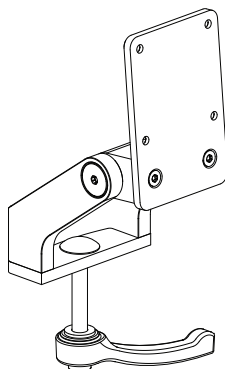
For setup on and fastening to a surface (20° tilt).

ID 1089230-05

**Multi-Pos holder**

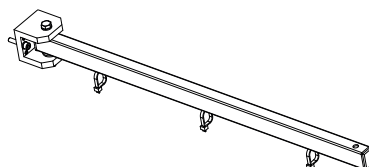
For fastening to an arm (90° continuous tilt range).

ID 1089230-08

**Mounting arm, straight**

For mounting to a machine.

ID 1089207-01



Accessories: adapter connectors

Adapter connectors for the GAGE-CHEK 2000

For pin-layout conversion from HEIDENHAIN TTL to RSF TTL and Renishaw TTL.
ID 1089210-01

For pin-layout conversion from HEIDENHAIN 11 μApp to HEIDENHAIN 11 μApp .
ID 1089213-01

For pin-layout conversion from HEIDENHAIN 1 V_{PP} to HEIDENHAIN 1 V_{PP} .
ID 1089214-01

For pin-layout conversion from HEIDENHAIN 1 V_{PP} to Mitutoyo 2 V_{PP} .
ID 1089216-01



TTL adapter connector



11 μApp , 1 V_{PP} , 2 V_{PP} adapter connector

Adapter cable for the GAGE-CHEK 2000

For pin-layout conversion from the HEIDENHAIN touch-probe interface to the Renishaw touch-probe interface.
ID 1095709-xx

Accessories: external operating elements

Although the evaluation units are easy and intuitive to operate, external control capability may be useful in certain scenarios. The following components are available for externally controlled operation:

Foot switch (accessory)

Cable length: 2.4 m

For ND with RJ45 connector, with two freely assignable keys.
ID 681041-01

For GAGE-CHEK 2000, with a 15-pin D-sub connector and two keys.
ID 681041-04



Foot switch

Keypad (accessory)

For externally controlled operation of the ND 2000 evaluation unit; features a numeric keypad with "enter" and "finish" keys; cable length: 4.5 m; with RJ45 connector.

ID 681043-01



Keypad

Interfaces

Evaluation units with an integrated display

The evaluation units are equipped with interfaces for encoders, communication, and external components.



	ND 280	ND 287	GAGE-CHEK 2000	ND 2104 G ND 2108 G
Encoders				
1 V _{PP} /11 μA _{PP}	●/●	●/●	●	●/-
TTL	—	—	●	●
EnDat 2.2. ¹⁾	●	●	●	●
Touch probe	—	—	● ²⁾	—
Sensor ±10 V	—	Option	—	—
Data				
USB	Type B	Type B	Type A	Type A
RS-232-C/V.24	●	●	● ³⁾	●
Ethernet	—	Option	●	—
Foot switch	—	—	●	●
Keypad	—	—	—	●
Switching outputs	—	6 TTL	1 TTL	12 TTL
Switching inputs	—	12 TTL	4 TTL	5 TTL

● = Included

— = Not included

¹⁾ Purely serial, with no evaluation of incremental signals

²⁾ HEIDENHAIN or Renishaw touch probe

³⁾ Possible with RS-232 adapter connection via USB port

Optional assemblies for the ND 287

Various input and output assemblies are available for this evaluation unit.

Second encoder input (option)

The ND 287 evaluation unit can be equipped with an optional second encoder input.

Encoder module

Input assembly for second encoder with a 1 V_{PP}, 11 μA_{PP}, or EnDat 2.2 interface.
ID 654017-01

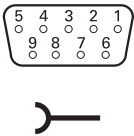
Analog input (option)

Through an optional input assembly, the ND 287 digital readout can be equipped with an additional analog input for connecting a sensor. The input voltage range is interpolated 4096-fold; for a sensor with ±10 V, the resolution is therefore 5 mV. The analog module provides DC 5 V, DC 12 V, and DC 24 V as supply voltage for the sensor.

The DC 5 V (B) and DC 12/24 V (A) supply voltages are galvanically isolated and must not be used at the same time. A 9-pin D-sub connector is required as a mating connector.

Analog module

Input assembly for the ±10 V analog sensor.
ID 654018-01



Pin	Assignment
1	−12 V (A)/85 mA
2	0 V (A)
3	0 V (A)
4	+12 V (A)/85 mA
5	Shield
6	0 V (B)
7	0 V (B)
8	Sensor (B) max. ±10 V
9	+5 V (B)/400 mA

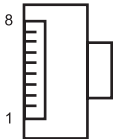
Ethernet (option)

The ND 287 evaluation unit can be provided with an optional Ethernet module.

Ethernet module

ID 654019-01

This module features an Ethernet 100BaseT interface with an RJ45 connector (8-pin, female), allowing the ND 287 to be connected directly to an internal network or, with a crossover cable, to a PC.



Pin	Assignment
1	TX+
2	TX−
3	REC+
4	Do not assign
5	Do not assign
6	REC−
7	Do not assign
8	Do not assign
Housing	External shield

Switching inputs/outputs on the ND 287

Switching inputs

The ND 287 evaluation unit features numerous inputs for external operation and outputs for switching functions. The inputs can be addressed with a pulse or a closed contact.

Exception: the switching inputs for transmitting measured values over the data interface are separate for contact and pulse.

The switching input E is active when a LOW signal U_L is applied (contact or pulse to 0 V).

Signal level

$-0.5\text{ V} \leq U_L \leq 0.9\text{ V}$ with $I_L \leq 6\text{ mA}$
 $3.9\text{ V} \leq U_H \leq 15.0\text{ V}$
 $t_{\min} \geq 30\text{ ms}$

Zero reset / set value

Via an external signal, each axis can be set to the display value zero or to a value stored in a parameter (SET).

External control of measurement series Switching the display to MIN, MAX, and DIFF

Continuously applying a LOW signal at the corresponding switching input activates the external operation of measurement series. The start of a new measurement series and the switch to the MIN/MAX/DIFF display are then externally controlled through further switching inputs.

Ignoring reference mark signals

(reference pulse lock)
When this input is active, the readout ignores all of the reference mark signals. A typical application for this is when linear measurement is performed with a rotary encoder and a lead screw.

Activating or deactivating REF mode

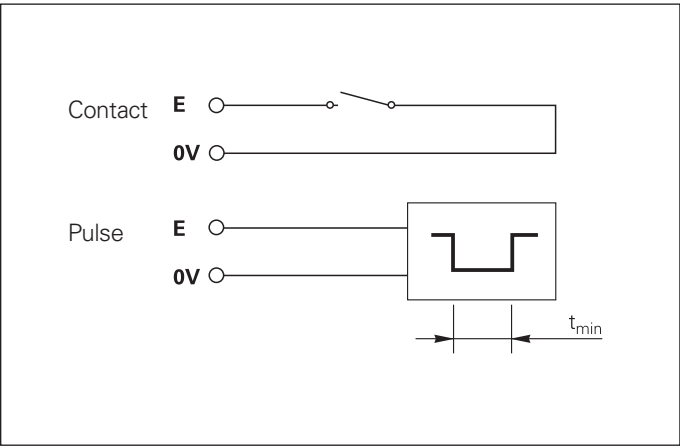
After switch-on or a power interruption, the digital readout can be externally switched to REF mode. The next signal then deactivates REF mode (switching function).

Display with axis coupling

The ND 287 can have two optional encoder inputs. Using switching inputs, you can switch the display to individual measured values, a sum, a difference, or any logical operation.

	ND 287
Twelve switching inputs	Zero reset, clear error message Set datum Ext. control of measurement series or display $X1^{1)}$ Start measurement series or display $f(X1, X2)^{1)}$ Display minimum MIN or display $X2^{1)}$ Display maximum MAX or display $X1 + X2^{1)}$ Display difference DIFF or display $X1 - X2^{1)}$ Measured value output (pulse) Measured value output (contact) Ignore reference mark signals (input X1) Ignore reference mark signals (input X2) Activate or deactivate REF mode
Six switching outputs	Display value is "0" Measured value \geq Switching limit A1 Measured value \leq Switching limit A2 Measured value $>$ Upper sorting limit Measured value $<$ Lower sorting limit Errors

¹⁾ Also selectable by parameter



Switching outputs

The ND 287 features open-collector outputs that switch to 0 V (= Active LOW).

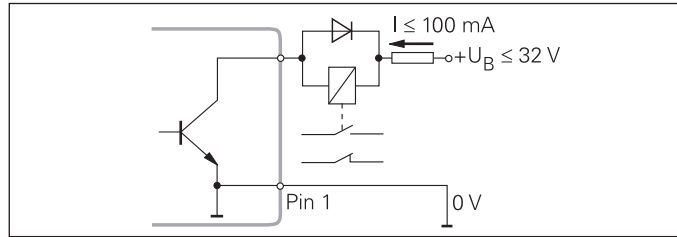
Delay until signal output:

$t_V \leq 20 \text{ ms}$

Signal level

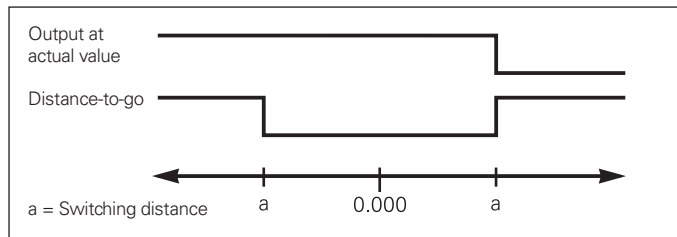
$U_L \leq 0.4 \text{ V}$ at $I_L \leq 100 \text{ mA}$

$U_H \leq 32 \text{ V}$ at $I_H \leq 10 \mu\text{A}$



Trigger points (in actual value mode)

When the measured value reaches trigger points defined via parameters, the corresponding output becomes active. Up to two trigger points can be defined.

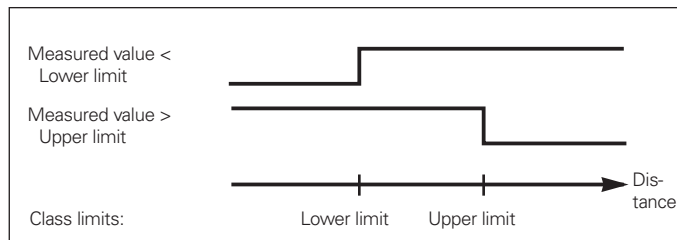


Switch-off ranges (distance-to-go mode)

In distance-to-go mode, the trigger points function as switch-off ranges, appearing equidistantly from the display value "0".

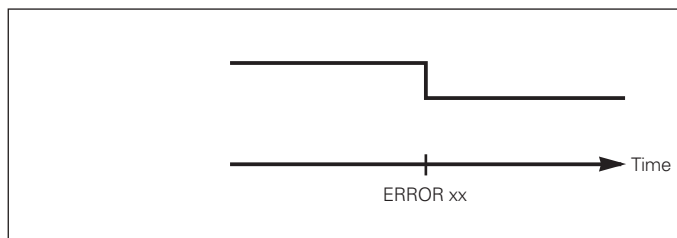
Sorting limits

When the tolerance sorting limits as defined via parameters are exceeded, the corresponding outputs become active.



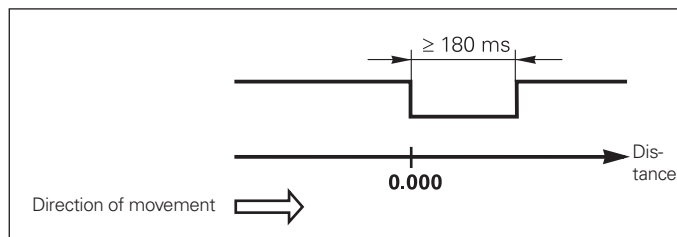
Triggering signal for an error

The ND 200 readouts constantly monitor the measuring signals, input frequency, data output, etc., displaying error messages as they arise. If errors occur that have a significant effect on a measurement or data output, the readout sets a switching output to active. This enables monitoring for automated processes.



Zero crossover

At the display value "0", the corresponding output becomes active. The minimum signal duration is 180 ms.



EIB 700 and IK 220 evaluation electronics

The EIB 700 and IK 220 evaluation electronics feature D-sub connectors for external operation and the connection of encoders.

With the IK 220, the encoder signals can be routed out over an additional slot cover and are available as 11 μ A current signals for further processing in evaluation electronics or EXE pulse-shaping electronics. An additional slot cover holds the connections for the external inputs/outputs (e.g., for storing the measured values).

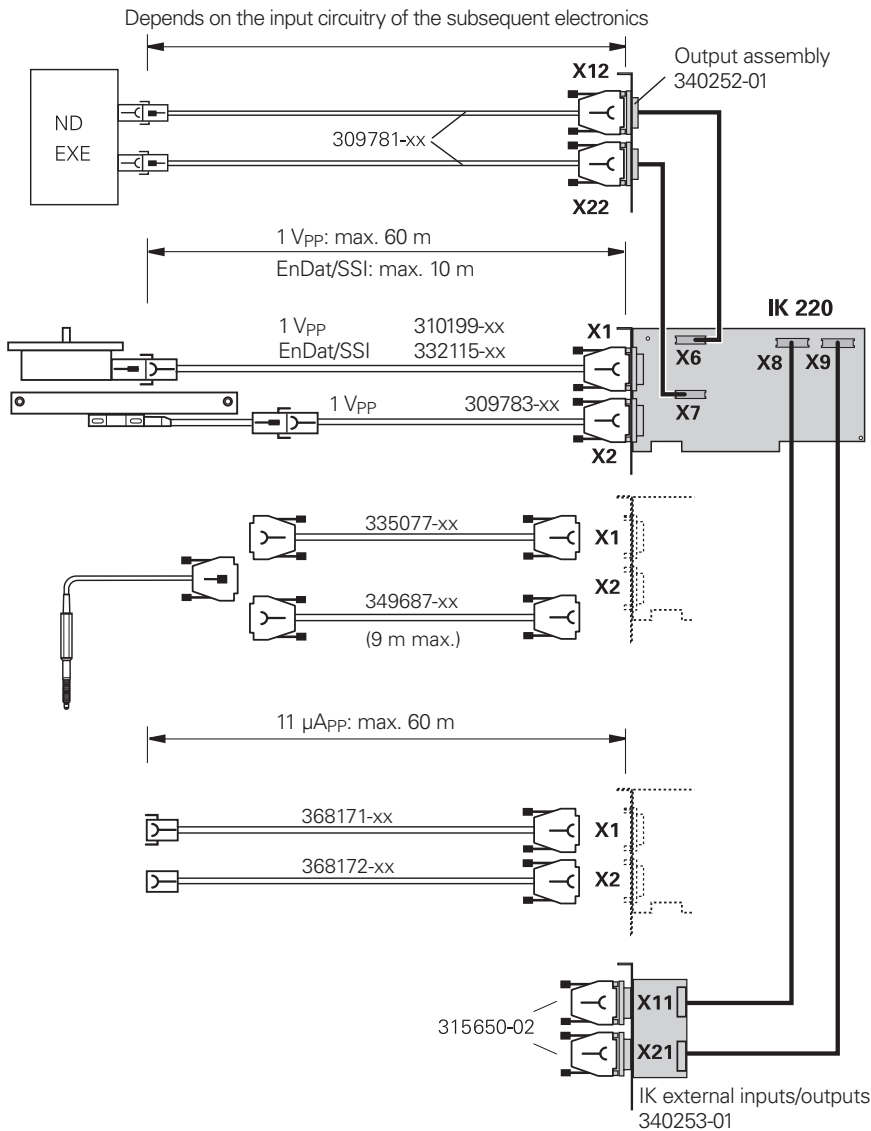
	EIB 700	IK 220
Encoder inputs		
1 V _{PP}	4 ¹⁾	2 ¹⁾
11 μ A _{PP}	4 ¹⁾	2 ¹⁾
EnDat 2.1	4 ¹⁾	2 ¹⁾
EnDat 2.2	4 ¹⁾	–
SSI	–	2 ¹⁾
Encoder outputs		
11 μ A _{PP}	–	2 (optional assembly)
Trigger input	4	2 (optional assembly)
Trigger output	4	2 (optional assembly)
Logic inputs/outputs	4/4 ²⁾	2/–

¹⁾ Selectable ²⁾ Can also be used as a trigger, or as a logic input or output

Accessories

External inputs/outputs for the IK 220
Slot cover with two 9-pin D-sub connections (male).
ID 340253-01


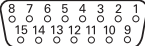

Output assembly for the IK 220
Slot cover with two 9-pin D-sub connections (male), for forwarding the encoder signals (11 μ A_{PP}) to the subsequent electronics.
ID 340252-01



Encoder inputs

The evaluation electronics are equipped with interfaces for connecting HEIDENHAIN encoders. Other interfaces are available upon request.

Pin layout for $\sim 1V_{PP}$


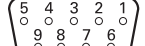

15-pin D-sub flange socket (female)											
											
	Power supply				Incremental signals						Others
	4	12	2	10	1	9	3	11	14	7	5/6/8/ 13/15
$\sim 1V_{PP}$	U_P	Sensor U_P	0V	Sensor 0V	A+	A-	B+	B-	R+	R-	/

Cable shield connected to housing; U_P = Power supply voltage

Sensor: The sense line is connected in the encoder with the corresponding power line.

Vacant pins or wires must not be used.

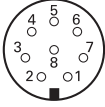

Pin layout for \square TTL

9-pin D-sub flange socket (female)									
									
	Power supply		Incremental signals						Others
	7	6	2	3	4	5	9	8	1
\square TTL	U_P	0V	U_{a1}	$\overline{U_{a1}}$	U_{a2}	$\overline{U_{a2}}$	U_{a0}	$\overline{U_{a0}}$	/

Cable shield connected to housing; U_P = Power supply voltage

Vacant pins or wires must not be used.

Pin layout of the ND 2100G with EnDat


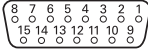





8-pin M12 flange socket								
								
	Power supply				Serial data transfer			
	8	2	5	1	3	4	7	6
	U_P	Sensor U_P	0V	Sensor 0V	DATA	DATA	CLOCK	CLOCK

Cable shield connected to housing; U_P = Power supply voltage

Sensor: The sense line is connected in the encoder with the corresponding power supply line.

Vacant pins or wires must not be used.

Pin layout of the ND 200 and GAGE-CHEK series with $\sim 1V_{PP}/\sim 11\mu A_{PP}/EnDat$

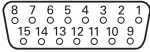

15-pin D-sub flange socket (female)															
<div><div></div><div></div></div>															
	Power supply					Incremental signals						Serial data transfer			
	4	12	2	10	6	1	9	3	11	14	7	5	13	8	15
	U _P	Sensor U _P	0V	Sensor 0V	/	A+	A–	B+	B–	R+	R–	/	/	/	/
					Internal shield	I ₁₊	I _{1–}	I ₂₊	I _{2–}	I ₀₊	I _{0–}	/	/	/	/
EnDat						/	/	/	/	/	/	/	DATA	DATA	CLOCK

Shield on housing; U_P = Power supply voltage

Sensor: The sense line is connected in the encoder with the corresponding power supply line.

Vacant pins or wires must not be used.

Pin layout of the EIB 700 series with $\sim 1V_{PP}$

15-pin D-sub flange socket (female)															
															
	Power supply					Incremental signals						Others			
	4	12	2	10	6	1	9	3	11	14	7	8	6	5/13/15	
$\sim 1V_{PP}$	U_P	Sensor U_P	0V	Sensor 0V	/	A+	A-	B+	B-	R+	R-	L1/H ¹⁾	L2/L ¹⁾	/	
$\sim 11\mu A_{PP}$					Internal shield	I ₁₊	I ₁₋	I ₂₊	I ₂₋	I ₀₊	I ₀₋	/	/	/	


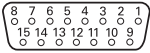



Shield on housing; U_P = Power supply voltage

Sensor: The sense line is connected in the encoder with the corresponding power supply line.

Vacant pins or wires must not be used.

¹⁾ Pins for homing or limit signals if supported by the encoder

Pin layout of the EIB 700 series with EnDat

15-pin D-sub flange socket (female)														
 														
	Power supply					Incremental signals ¹⁾				Serial data transfer				Others
	4	12	2	10	6	1	9	3	11	5	13	8	15	7/14
EnDat	U _P	Sensor U _P	0V	Sensor 0V	Internal shield	A+	A-	B+	B-	DATA	DATA	CLOCK	CLOCK	/
														


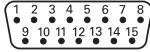



Shield on housing; **U_P** = Power supply voltage

Sensor: The sense line is connected in the encoder with the corresponding power supply line.

Vacant pins or wires must not be used.

¹⁾ For encoders with ordering designations EnDat01 and EnDat02

Pin layout of the IK 220

15-pin D-sub flange socket (male)															
 															
	Power supply					Incremental signals						Serial data transfer			
	1	9	2	11	13	3	4	6	7	10	12	5	8	14	15
11 μA _{PP}	U _P 5V	Sensor 5V	U _N 0V	Sensor 0V	Internal shield	I ₁₊	I ₁₋	I ₂₊	I ₂₋	I ₀₊	I ₀₋	/	/	/	/
1V _{PP}						A+	A-	B+	B-	R+	R-	/	/	/	/
EnDat SSI						A+	A-	B+	B-	/	/	DATA	DATA	CLOCK	CLOCK

Shield on connector housing

Vacant pins or wires must not be used.

EIB application software for the EIB 700

The EIB application software covers two applications:

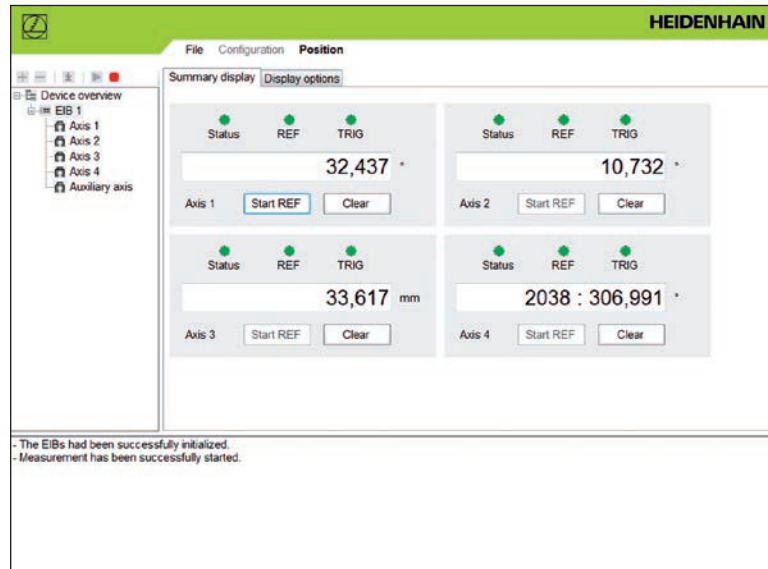
Configuring and demonstrating the EIB 700

- Easy configuration of settings required for operating the EIB 700 (e.g., input interface, data packets, operating mode, trigger settings)
- Management of one or more EIB 700 units
- Simple depiction of the positions transmitted by the EIB 700
- Saving of settings for management of different application projects

For more information, please refer to the User's Guide.

Platform for customized applications

The EIB application software is provided as source code, thereby allowing customers to rapidly implement their own applications. The application software was programmed using C++/CLI and Windows Forms in Visual Studio 2008. This programming environment is widely used in technical application programming but does not necessarily provide state-of-the-art user interfaces such as those in Windows 10. However, adaptation to other graphical interfaces can be performed by the customer.



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