ND 2100 G GAGE-CHEK
Evaluation unit for multipoint inspection apparatuses

The ND 2100 G GAGE-CHEKs are versatile metrology displays for measuring and inspection tasks in manufacturing and quality assurance. With inputs for up to eight encoders, they are predestined for multipoint measurements from simple pass/fail detection up to complex SPC evaluation.

Execution
The ND 2100 G evaluation units have a robust, die-cast aluminum enclosure and a keyboard suited to their environment. A screen displays the measured values, the soft-key row, and other information.

Functions
The inputs can be assigned and combined as desired with mathematical, trigonometric, or statistical formulas. This makes it possible to measure even complex dimensions such as thickness, flatness, volume, and more. The results are displayed numerically or graphically as a color bar graph or a dial, or archived for statistical process control (SPC). The GAGE-CHEK can be configured for basic or advanced applications. Soft keys and hot keys can be adapted as required. The minimum/maximum function of the ND 2100 G evaluation unit monitors and stores the highest and lowest measured or calculated value. Warning and tolerance limits can be assigned to each display value. Results outside of the tolerance are marked with a different color. An acoustic alarm sounds simultaneously. Tolerance values, SPC parameters, and custom formulas are stored for individual parts. GAGE-CHEK can thus 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 communicating with parent systems:
- RS-232-C/V.24 for PCs and for remote operation of the GAGE-CHEK
- USB

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

DRO view
The display values appear in large, easy-to-read numbers. Values outside the tolerance are color-coded, immediately notifying you of errors.
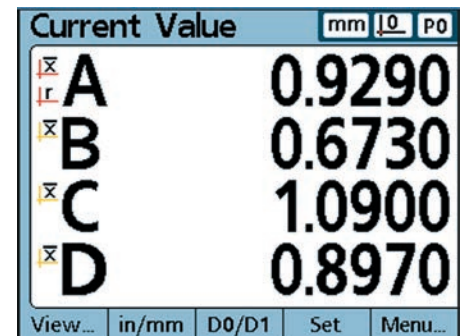

Bar diagram
You can select to have the values shown as a color-enhanced vertical or horizontal bar graph. The defined warning limits and tolerance limits provide instant feedback. If these limits are exceeded, the color of a bar changes from green to yellow or red, thereby alerting you to critical dimensions.
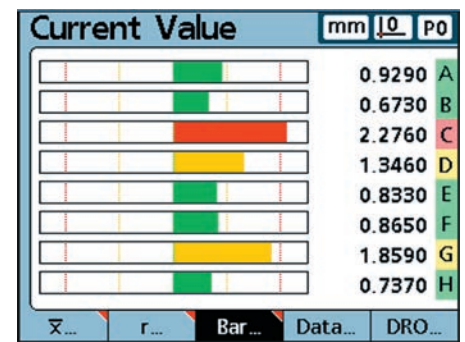

SPC and data storage
GAGE-CHEK includes integrated SPC functions such as mean value charts (X bar) and range charts (R). Min, max, sigma, cp, and cpk are also calculated, and are clearly displayed as a graph or histogram. Historical raw data can be saved in a tabular numeric display. Each dimension and all data are time- and date-stamped.
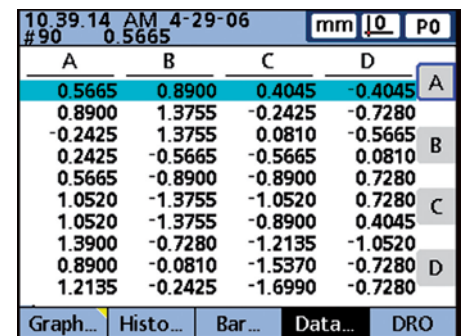
Formulas and combinations
You can use mathematical and trigonometric formulas, as well as logical conditions, to combine individual measured values or measurement sequences with each other, and so create complex calculations. This can be used, for example, to calculate and display the circumference of a turned part, the volume of a cube, or the angle between two cams, as well as to assign tolerance limits to these values.
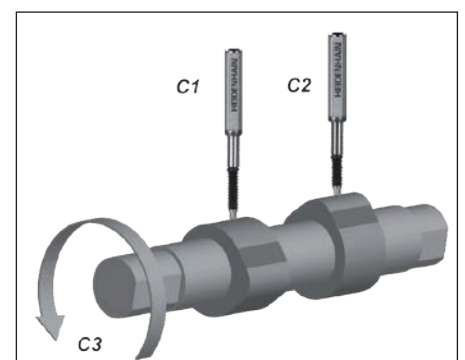
Q-PLUS LABS
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	ND 2104 G	ND 2108 G
Axes	4	8
Encoder inputs* Input frequency	$\sim$ 1 V$_{PP}$ $\sqcap\sqcup$ TTL or EnDat 2.2 (other interfaces upon request) $\sim$ *1 V$_{PP}$: ≤ 275 kHz;* $\sqcap\sqcup$ *TTL: ≤ 3 MHz*	
Subdivision factor	10-fold (only for 1 V$_{PP}$)	
Display step[1]	Adjustable, max. 7 digits *Linear axis:* 1 mm to 0.00001 mm *Angular axis:* 1° bis 0,0001° (00° 00′ 01″)	
Display	5.7-inch screen for position values, dialogs, inputs, graphics functions, and soft keys	
Functions	• Part programming for up to 100 parts • Graphical display of measurement results • Sorting and tolerance checking using tolerance and warning limits, with display as a bar graph • Measurement series with min./max. value storage • Mathematical and trigonometric formulas • Functions for statistical process control (SPC) • Graphical display of measurement results and distribution • Data storage of values and formulas • Convenient diagnostics of the connected encoders (only EnDat 2.2)	
Error compensation	Linear, and segmented linear over up to 60 points	
Data interface	• RS-232-C/V.24 • USB (type A)	
Switching inputs	5 TTL inputs (freely definable)	
Switching outputs	12 TTL outputs (freely definable)	
	2 relay outputs	
Other connections	Foot switch for two functions, keypad	
Accessories	Foot switch, remote keypad, protective cover, tilting 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*	Tilting base or mounting base	
Mass	*ND with tilting base:* ≈ 4.8 kg; *ND with mounting adapter:* ≈ 2 kg	

* Please select when ordering
[1] Depends on the signal period of the connected encoder as well as the subdivision factor