

QUADRA-CHEK 2000

Evaluation unit for reliable 2-D measurement

The QUADRA-CHEK 2000 evaluation unit is well suited for mounting on measuring machines, profile projectors, and measuring microscopes with up to three axes. You can measure two-dimensional contour features quickly, simply, and precisely using innovative measuring tools.

Design

Thanks to its industrial design, the QUADRA-CHEK 2000 is ideal for applications both in the measuring room and in a harsh production environment. Its flat aluminum housing with integrated power pack and fanless passive cooling is extremely sturdy and tolerant to negative influences. The unit's straightforward touchscreen, made of specially hardened glass, supports multi-touch gesture control and permits operation with gloves.

Functions

Predefined geometries (e.g., point, line, circle, slot, and rectangle) are available for the measurement of two-dimensional features. The "Measure Magic" function makes measurement especially easy. This function uses the acquired measuring points to automatically select the appropriate geometry. In addition to the measuring functions, you can also use functions for construction and definition—for example, in order to create relationships (distances, angles) between two or more contour features.

You can save your results in a measurement report individually formatted as a PDF or CSV file, or you can print them out from a connected printer. The measuring program can automatically record repetitive parts and then execute them again.

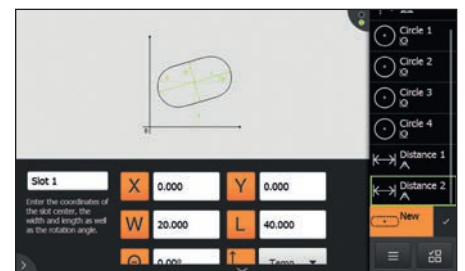


Software options

The QUADRA-CHEK 2000's range of functions can be adapted to specific requirements via software options. You can enable these software options by entering a license key. Please contact HEIDENHAIN for more information.

Intuitive display

All of the information you need is displayed in a clean and easy-to-read layout 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 controls provide intuitive user guidance.



Q-PLUS LABS
13765-E Alton Pkwy
Irvine, CA 92618
(949) 380-7758
www.qpluslabs.com



	QUADRA-CHEK 2013	QUADRA-CHEK 2023	QUADRA-CHEK 2093
Axes	3 (XYZ) or (XYQ), one of which can be enabled with a software option		
Encoder interface	$\sim 1 V_{PP} \sim 11 \mu A_{PP}$ EnDat 2.2	\square TTL	1 connection: \square TTL 2 connections: $\sim 1 V_{PP} \sim 11 \mu A_{PP}$ EnDat 2.2
Input frequency	$\sim 1 V_{PP}: \leq 400 \text{ kHz}$ $\sim 11 \mu A_{PP}: \leq 150 \text{ kHz}$	$\leq 5 \text{ MHz}$	$\sim 1 V_{PP}: \leq 400 \text{ kHz}$ $\sim 11 \mu A_{PP}: \leq 150 \text{ kHz}$ \square TTL: $\leq 5 \text{ MHz}$
Subdivision factor	4096-fold (only with 1 V _{PP})		
Display step	Adjustable, max. 8 digits Linear axes XYZ: to 0.00001 mm; angular axis Q: to 0.00001° (00° 00' 00.1")		
Display	7-inch multi-touch screen (15:9); resolution: WVGA 800 x 480 pixels for dialogs, inputs, position values, and graphics functions		
Functions	<ul style="list-style-type: none"> • Acquisition of 2-D geometry features through measurement, construction, and definition • Measuring point acquisition via crosshairs and creation of measuring programs (teach-in) • Entry of tolerances and graphic display of measurement results with user administration • Creation and output of measurement reports • Measure Magic: automatic recognition of geometries 		
Encoder input	One additional encoder input (software option AEI1)		
Edge detection	Optically (software option OED): automatic measuring point acquisition via optical edge detection		
Error compensation	<ul style="list-style-type: none"> • Linear (LEC) and segmented linear (SLEC) using up to 200 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 and Duo-Pos stands, Multi-Pos holder, power cable, calibration standard, 2-D demo part, adapter connector (HEIDENHAIN TTL pin layout to RSF and Renishaw TTL), foot switch, holder, fiber-optic cable, adapter connector (HEIDENHAIN 11 μA_{PP} pin layout conversion)		
Power connection	AC 100 V to 240 V ($\pm 10 \%$); 50 Hz to 60 Hz ($\pm 5 \%$); $\leq 38 \text{ W}$		
Operating temperature	0 °C to +45 °C (storage temperature: -20 °C to +70 °C)		
Protection EN 60529	IP65; back panel: IP40		
Mounting	Multi-Pos or Duo-Pos stand; Multi-Pos holder; mounting systems with 50 mm x 50 mm hole pattern		
Mass	Unit: $\approx 1.3 \text{ kg}$ Unit with Duo-Pos stand: 1.5 kg Unit with Multi-Pos stand: 2.0 kg Unit with Multi-Pos holder: 1.7 kg		

QUADRA-CHEK 2000

Functions

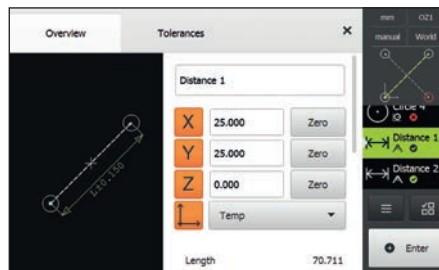
Measuring point acquisition

The QUADRA-CHEK 2000 allows you to acquire measuring points on flat 2-D contours either manually with crosshairs or automatically, depending on the option installed. A particular advantage is the unit's integrated measuring point acquisition via optical edge detection (OED software option)



Optical edge detection

The OED software option provides you with various tools for detecting edges and defining measuring points. You can acquire measuring points either manually or automatically. With optical edge detection (OED), you can traverse any edge of a contour, and the currently active tool will detect the actual measuring point on its own. This objective measuring point acquisition permits a high degree of repeatability, allowing you to work quickly and with very low measurement uncertainty.



Functional features view

The QUADRA-CHEK 2000 offers you a comprehensive graphic features view. In this view, you can use previously measured geometries to design new geometry features.

Of course, you can also enlarge or reduce this view as well as zoom into features, allowing you to keep a good overview of all the measured geometry features. The features view also makes it possible to add annotations to each feature (e.g., measurement information or informational texts).

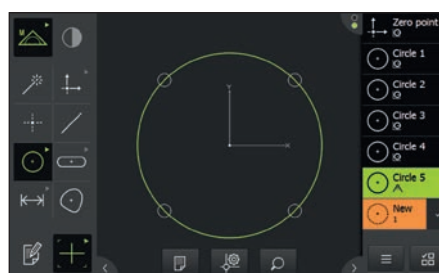


Generating geometry features

The QUADRA-CHEK 2000 gives you several possibilities for determining geometries:

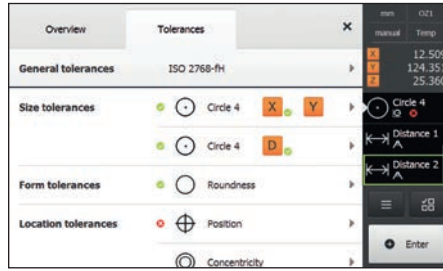
- Measuring geometry features
- Constructing features from previously measured features (e.g., distance between two circle centers; angle between lines)
- Defining unmeasurable geometry features

You can also run your created geometry features through a tolerance check.



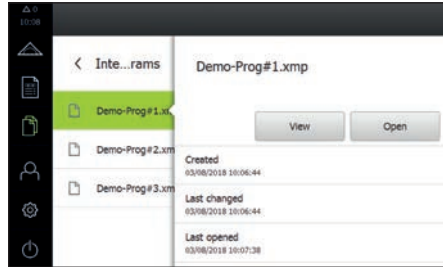
Tolerancing

With the tolerance-adapting function, you can define geometric tolerances for measured or constructed features. Dimensional, positional, and form tolerances can be specified depending on the selected feature. You can also use general tolerancing as per ISO 2768 or decimal tolerancing.



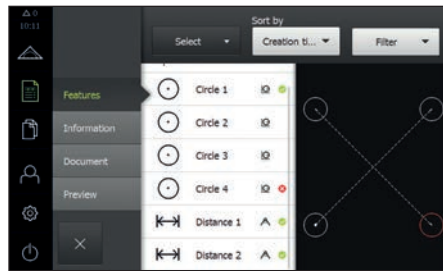
Creating a measuring program

For difficult or repetitive measuring tasks, you can automatically record all of the work steps as a measuring program. The QUADRA-CHEK 2000 learns the presets, sequence of measurements, tolerances, and data-output commands. When the program is run, the QUADRA-CHEK visually leads you to the features to be probed. The program view always provides you with an optimum overview of the process.



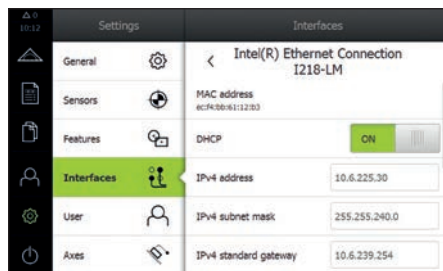
Creating measurement reports

Directly after the measurement, the integrated measurement report function lets you create a report containing the measurement and tolerance results along with other information. Using the demo software, you can also create customized report templates and import them into the unit via the file management. To make a customized template, you can either select a standard template and alter it as you see fit, or you can create entirely new templates. You can then save the created reports in the QUADRA-CHEK unit using the report file format, or as a PDF or CSV file. Alternatively, you also can print the reports from a connected printer.

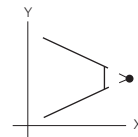


Data interfaces

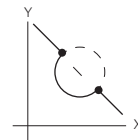
You can use the data interfaces to output measurement reports as well as to import and export settings and measuring programs. The Ethernet interface enables communication with a PC. You can also connect printers or memory media to the USB port. Network drives and printers can be connected via Ethernet as well.



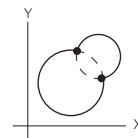
Examples of design capabilities:



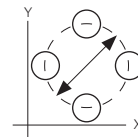
Intersection of two lines



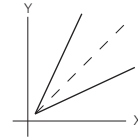
Intersection of line and circle



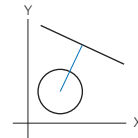
Intersection of two circles



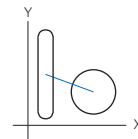
Bolt hole circle formed from three or more circles



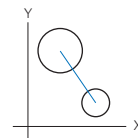
Bisector of two lines



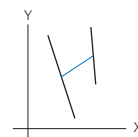
Line constructed from line and circle



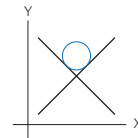
Line constructed from circle and oblong hole



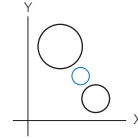
Distance constructed from two circles



Distance constructed from two lines



Circle constructed from two lines



Circle constructed from two circles