

ND 1400 QUADRA-CHEK

– the Digital Readout for Manual 3-D Measuring Machines

The ND 1400 QUADRA-CHEK digital readout supports four axes: in addition to the linear axes XYZ it features an auxiliary axis Q solely for angular display. The readout is designed specifically for manual coordinate measuring machines, and can capture two- and three-dimensional features with its measuring computer functionality.

Description

The ND 1400 digital readout is characterized by the large, color touchscreen. Its enclosure consists of robust, diecast aluminum.

Functions

The innovative operator guidance provides self-explanatory information about the various functions. It already supports you while setting up the coordinate system (ascertaining the reference plane, aligning the part and specifying the datum).

Predefined features (point, line, circle, slot, rectangle, plane, cylinder, cone, sphere) are available for measurement. The "Measure Magic" function makes measurement especially easy: it selects that feature which best matches the shape implied by the points probed. In addition, you can establish relationships (distances, angles) between all features.

You can create or automatically record measuring programs for repeated parts. The digital readout graphically takes you to the next measuring position during program run.

You can also use the ND 1400 to measure 3-D features, such as surfaces, cylinders, cones, etc. The measuring points are probed with a touch probe. If a triggering touch probe is used the values are transferred automatically. With rigid probing elements a key must be pressed.

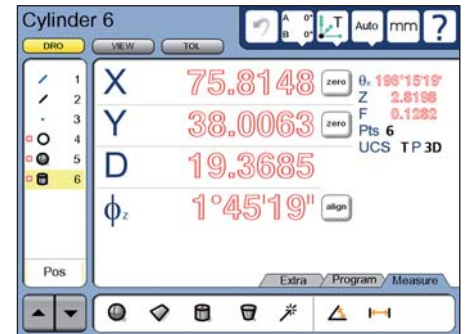
The measured features can be clearly displayed either in three dimensions or in one of the three projection planes.

Data interfaces

You use the data interfaces to output measuring points as well as to read and transmit settings, compensation values and programs. The RS-232-C/V.24 serial interface enables communication with a PC. You can connect printers or memory media to the USB port.

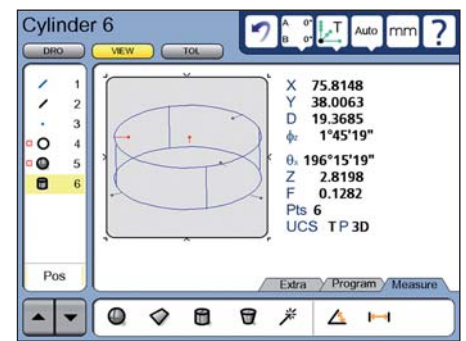
Clearly structured display

The large, color, flat-panel touchscreen enables simple operation with intuitive operator guidance, since in each mode only those functions actually available are offered for selection. The numeric keypad and the few basic function keys are located in ergonomically favorable positions.



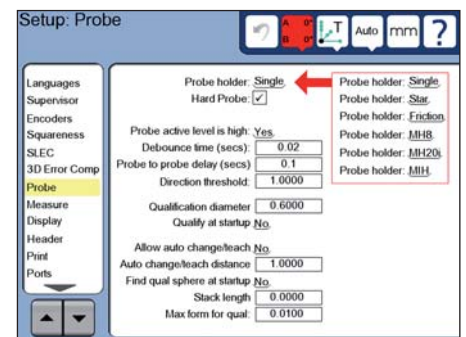
Measuring 3-D contours

In addition to the flat geometric features, such as points, lines, circles, etc., you can also use the ND 1400 to measure 3-D shapes, e.g. cylinders or cones. The screen displays the feature in three dimensions. Colored highlighting of each measuring point lets you identify form errors and any filtered measured values at a glance. The ND 1400 also permits 3-D position and form tolerances, such as flatness and parallelism.



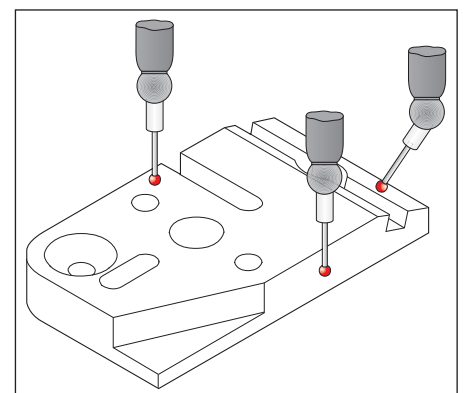
Working with the touch probe

The ND 1400 also supports you optimally while working with touch probes. You can instantaneously call commercial probing elements (normal stylus, star stylus), as well as rigid and tiltable probing heads, all of which are managed in a library, via the touchscreen. During probing the ND automatically takes the direction of probing into account, as well as the length and diameter of the stylus. Even complex parts can be rapidly measured with the five available coordinate systems.



Point measurement

The ND 1400 probes the measuring points via the touch probe of the coordinate measuring machine. A triggering 3-D touch probe is connected directly to the digital readout, and the measured value is transferred automatically. With a rigid probing element the measured value must be transferred by pressing a key. You can use the comprehensive input menu to define numerous parameters.





	ND 1404
Axes	4 (XYZQ)
Encoder inputs*	\sim 1 V _{PP} or \square TTL (other interfaces upon request)
Subdivision factor*	10-fold (only for 1 V _{PP})
Display step¹⁾	Adjustable, max. 7 digits Linear axes XYZ: 1 mm to 0.0001 mm Angular axis Q: 1° to 0.0001° (00° 00' 01")
Display	8.4" color flat-panel display (touchscreen); resolution: SVGA 800 x 600 pixels, for position values, dialogs and inputs, graphics functions and soft keys
Functions	<ul style="list-style-type: none"> • Measurement of two-dimensional and three-dimensional features (3-D) • Points measured via crosshairs or rigid probing element • Automatic point measurement via touch probe • Programming of features and parts • Measure Magic: automatic recognition of geometries • Graphic display of measurement results, either three-dimensional or in the three projection planes • Entry of tolerances • Five coordinate systems can be stored • Touch-probe management for the various stylus shapes
Error compensation	<ul style="list-style-type: none"> • Linear, and segmented linear over up to 1000 points • Squareness calibration • Matrix compensation over up to 30 x 30 points
Data interface	<ul style="list-style-type: none"> • RS-232-C/V.24 • USB (type A)
Touch-probe connection*	HEIDENHAIN touch probe or Renishaw touch probe
Other connections	Foot switch for two functions
Accessories	Mounting base, foot switch, 3-D demo part, protective cover
Main power input	100 Vac to 240 Vac (-15 % to +10 %), 43 Hz to 63 Hz
Operating temperature	0 °C to 45 °C
Protection EN 60529	IP 00, front panel IP 40
Mounting*	Tilting base or mounting base
Weight	<i>ND with tilting base:</i> approx. 4.8 kg; <i>ND with mounting base:</i> approx. 2 kg

* Please select when ordering

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

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