

NCG-2

NON-CONTACT  
MEASUREMENT  
GAUGE



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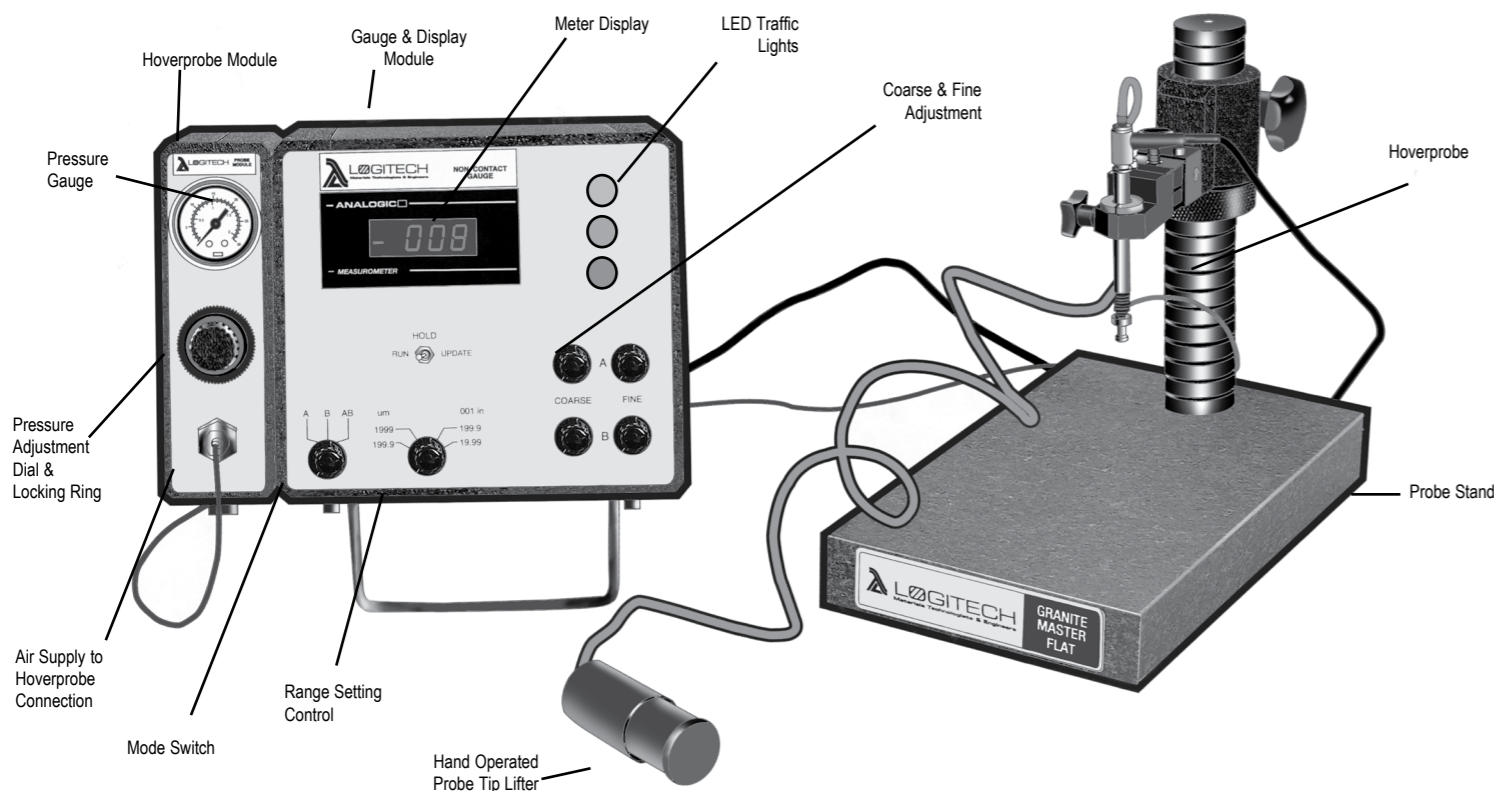
# NCG-2

## NON-CONTACT MEASUREMENT GAUGE

The Non-Contact Measurement Gauge is a compact and highly sensitive instrument, developed to facilitate precise dimensional measurement of fragile, soft or highly polished materials.

The system is simple to operate based on a non-contact pneumatic gauge head, consisting of a linear voltage differential transducer (LVDT) and a pneumatic servo. This maintains a fixed air gap between the probe and any surface to be gauged. At no time during the measurement does the probe contact the sample surface. After signal conditioning and calibration the LED shows the probe displacement (equivalent to surface relief, step heights or material thickness etc.) in microns.

The readout and all controls are conveniently packaged in a compact single unit with easy access for maintenance.



## KEY FEATURES & FUNCTIONALITY

### APPLICATION:

→ The NCG-2 is ideal for production and research environments in semiconductor, optics and electro-optics application areas where the requirement is to measure materials such as ultra-thin semiconductor wafers, soft organic crystals or high quality optical components, for which surface quality

### AIR SUPPLY:

- A 0.5 micron-in-line filter on the control box minimises contamination of the surfaces to be gauged.
- External pre-filters and drying elements for insertion into the customer's air supply can be provided (these are not required if a supply of clean, dry instruments air is available)
- Air flow at 2 bar (recommended operating pressure) is 0.2 cfm and is adjusted from the built-in pressure gauge
- This is for economical use as cylinders of high purity inert gases provide the optimum in contamination elimination.

### STABLE PROBE STAND:

- The base stand provides stable vertical support for the gauge head and a flat 280 x 160 x 40 mm granite surface work space.
- Fine adjustment of the probe height enables the probe relative to within +20 microns set of the surface.
- Now available in two sizes. Our standard base (1NCG2) which can handle wafers up to 4" and our XL base (1NCG2L) which can handle wafers up to 8".

### OPERATION:

- The probe lift drop mechanism is easy to use and hand operated.
- Once the wafer is in position, the plunger mechanism on the hand held drop control is released and the probe tip will lower towards the wafer.
- This simple mechanism ensures that multiple measurements can be made over a wafer surface both quickly and easily.
- Colour coded LEDs are used to signify whether the sample being measured is of the "mean" size or not.

### NCG-2 ACCESSORIES:

- 1ACCS-9080 – Vacuum Chuck face for use with the CG10 and NCG measurement gauges for 83mm / 105mm and 112mm glass support substrates
- 1ACCS-9090 – Vacuum Chuck face for use with the CG10L and NGL measurement gauges for 83mm / 105mm / 112mm / 160mm and 207mm glass support substrates
- 1CV31-TM - Vacuum system for use with the CG10 and NCG2 in conjunction with 1ACCS-9080 and 1ACCS-9090 vacuum chuckfaces (220-240v / 50Hz)
- 1CV32-TM - Vacuum system for use with CG10 and NCG2 in conjunction with 1ACCS-9080 and 1ACCS-9090 vacuum chuckfaces (110v / 50-60Hz)

### TEST AND MEASUREMENT SYSTEMS:

- CG10 Contact Gauge
- NCG2 Non Contact Gauge
- GI Flatness Measurement system
- LG2 Autocollimator

Image 1: NCG-2 digital display

Image 2: NCG-2 including probe, digital display, foot/hand pedal and the standard stand

## TECHNICAL SPECIFICATIONS: NCG-2

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|--|---|
| Measuring range:                                       | +/- 1.25mm (0.05")  |
| Air Supply:  | Clean instrument air or other inert gas @ 2bar<br>(Consumption is 0.2cfm)   |
| Display Resolution:                                    | 0.1 micron  |
| Probe Resolution:                                      | 2.5 micron  |
| Linearity:   | 0.25%   |
| Digital Display:                                       | 4.5 digital LED. Units - Microns  |
| Final Filtration:                                      | 0.5 microns (0.00002") Particle size in built filter<br>0-75um depending on pneumatic regulator setting                             |
| Air Gap:   | 75 microns (approx.) Readout can be electronically zero'd<br>anywhere in the range +/-20% of full scale from the<br>mechanical zero |
| Gauging Force:   | 15-20 grams (0.03-0.04lbs) of pneumatic force spread<br>over approx. 1.5mm (0.02")  |
| Weight:  | 15kg (33lbs)  |
| Dimensions (Electronic/<br>Pneumatic Control Module) : | 250x190x186mm (9.8x7.5x7.3")  |
| Dimensions (Stand) NCG2:                               | 280x160x140mm (11x6.3x1.57")  |
| Dimensions (Stand) NCG2L:                              | 450x300x92mm (15.7x11.8x3.6")   |
| Power :  | Dual voltage - 110v or 220v   |