

NC3 non-contact tool setting system

NC3 laser based non-contact tool setting system

Tool measurement and broken tool detection anywhere along the beam



System components

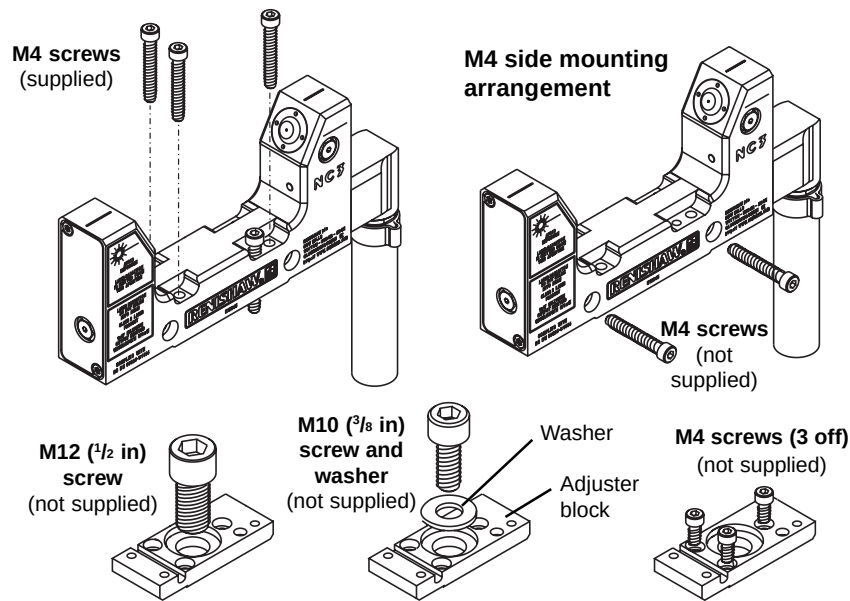
- **NC3 tool setting system**
The NC3 is a compact 2 axis non-contact tool setting system ($\pm X$ or $\pm Y$ and $\pm Z$) which is hard-wired to the NCi-4 interface.
- **NCi-4**
The NCi-4 processes signals from the NC3 and converts them into a voltage-free solid state relay (SSR) output for transmission to the CNC machine control. The NCi-4 also features a drip rejection mode which allows for any drops of coolant hitting the laser beam to be ignored, taking in only tool measurements. For further details refer to data sheet H-2000-2232.
- **PSU3 power supply**
Used when 12 V - 24 V supply is not available from the machine.
- **Software for tool setting/broken tool detection**
The NC3 is suitable for use with Renishaw non-contact tool setting cycles.

System features

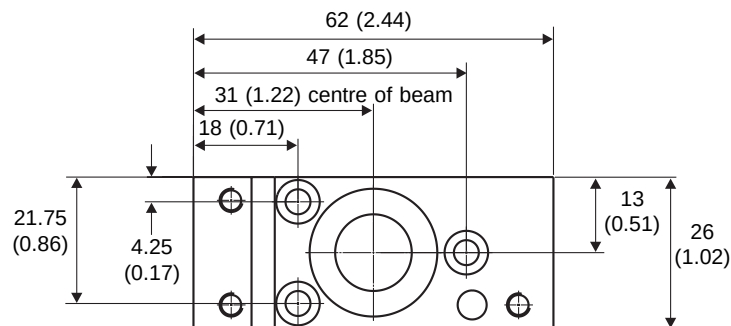
- Compact design 135 mm x 26 mm x 77 mm.
- Repeatability $\pm 0.15 \mu\text{m}$ ($\pm 6 \mu\text{in}$) 2σ .
- Measurement of tools of $\varnothing 0.2 \text{ mm}$ and larger. Broken tool detection of tools as small as $\varnothing 0.1 \text{ mm}$.
- Sealed to IPX8 with air on and designed for machine tool environment.
- Measurement anywhere along the beam.
- Proven MicroHole™ technology - no moving parts.
- Single conduit exit from product - electrical and pneumatic cables enter via single conduit.
- Measure tool length and diameter at normal spindle cutting speeds.
- Drip rejection mode - rejects random drops of coolant falling through the beam.
- Simplifies integration of dual probe systems.

NC3 non-contact tool setting system

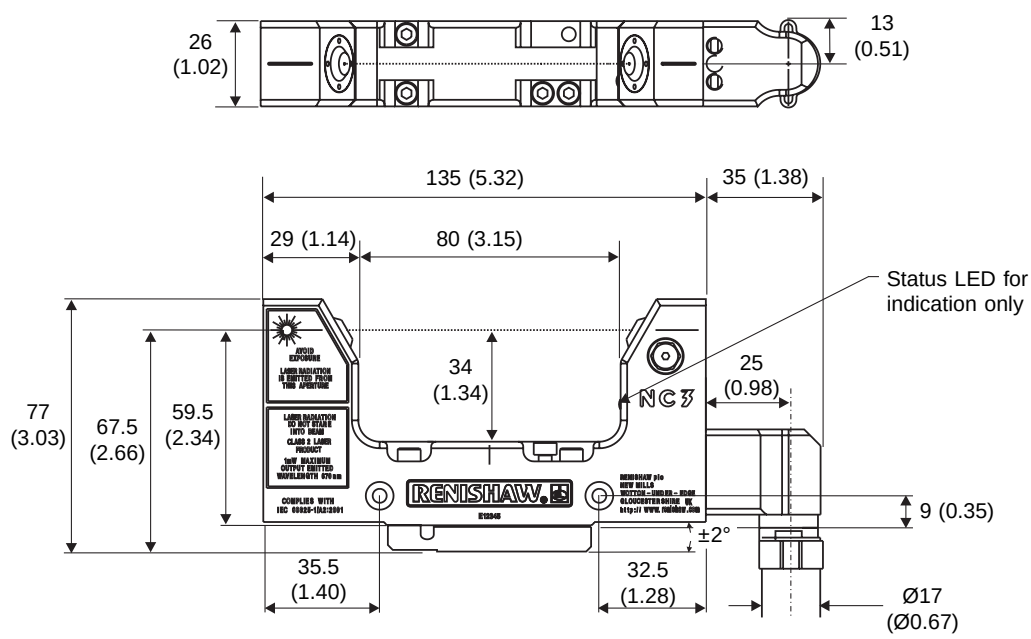
Mounting



Mounting dimensions



Technical data



Dimensions
in mm (in)

Specification

Supply protection	Resettable fuses, by removing power and fault condition
Application	High precision / high speed non-contact tool setting and tool breakage detection
Laser type	Visible red Conforms to American (21 CFR 1040.10) and International (IEC 60825-1:1993 + A1:1997 + A2:2001) laser safety standards
Laser beam alignment	Adjuster pack - supplied, options available
Length	135 mm (5.32 in) unit only, 173 mm (6.82 in) overall including conduit adapter
Temperature limits	Operating 5 °C to 50 °C Storage -10 °C to 70 °C
Amplification adjustment	Factory pre-set
Moisture protection class	IPX8 with air on
Repeatability of trigger points	±0.15 µm (6 µin) 2σ
Tool diameter measurement	0.2 mm (0.008 in) - 80 mm (3.15 in), 101.6 mm (4.00 in) off centre
Tool breakage detection	0.1 mm (0.0039 in) or larger
Electrical connection	Hard-wired
Power supply requirement	120 mA @ 12 V, 70 mA @ 24 V
Output signals	Two solid state relay (SSR) configurable outputs - Normally open or Normally closed (selectable via switch), one of which can be configured pulsed or level.
Air protection system	Ø3 mm air pipe, 1.5 bar (21.75 psi) min., 6 bar (87 psi) max., 2 bar (29 psi) recommended. ISO 8573-1: Class 5 particulates and moisture free to the air regulator unit
MicroHole™ size	0.5 mm (0.0197 in)
Power-up time	< 0.5 seconds
Laser diode life	> 3 years
Switch on/off cycles	> 1 million



Laser radiation
Do not stare into beam
1 mW maximum output
emitted wavelength 670 nm
Class 2 laser product

Parts list - Please quote the part number when ordering equipment

Type	Part number	Description
NC3 unit	A-4179-1500	NC3, laser warning sign and installation guide
NC3 kit	A-4179 -1100	NC3, NCi-4, air filter kit, conduit, tool kit, laser warning sign and installation guide
NCi-4 interface	A-5259-1000	NCi-4 interface with DIN-rail mounting, 2 terminal blocks
NC3 air assembly kit	A-4179-1600	Air regulator/filter, Ø3 mm to Ø4 mm air fitting, Ø4 mm x 25 m air pipe and Ø3 mm x 5 m air pipe
NC3 air filter service kit	P-FI01-S002	Service kit for air regulator, parts for both filter bowls
NC3 angled adjuster block	A-4179-1501	45 degree mounting bracket
Software		See data sheet part number H-2000-2289 probe software for machine tools
PSU3		PSU3 power supply unit (see data sheet part number H-2000-2200)

Renishaw plc
New Mills, Wotton-under-Edge,
Gloucestershire GL12 8JR
United Kingdom

T +44 (0)1453 524524
F +44 (0)1453 524901
E uk@renishaw.com
www.renishaw.com



**For worldwide contact details, please visit our
main website at www.renishaw.com/contact**



H - 2000 - 2066 - 04