Data sheet
H-5259-8200-01-A

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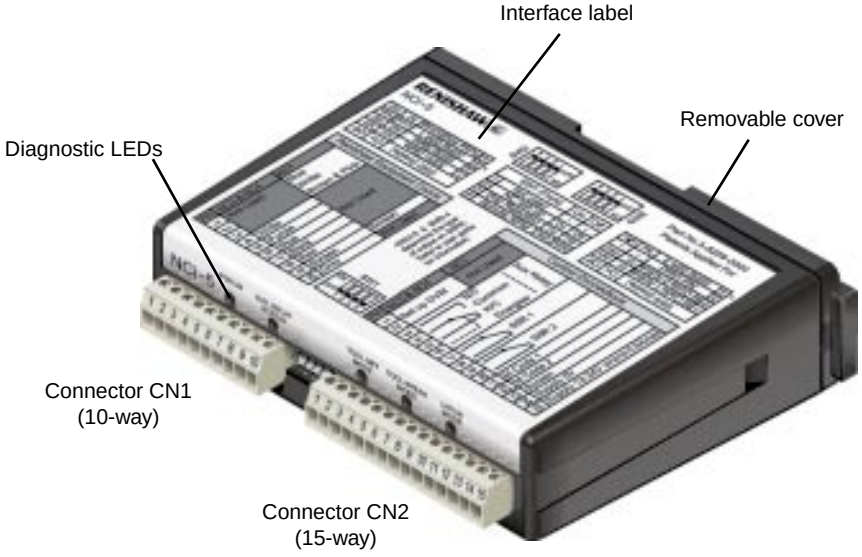
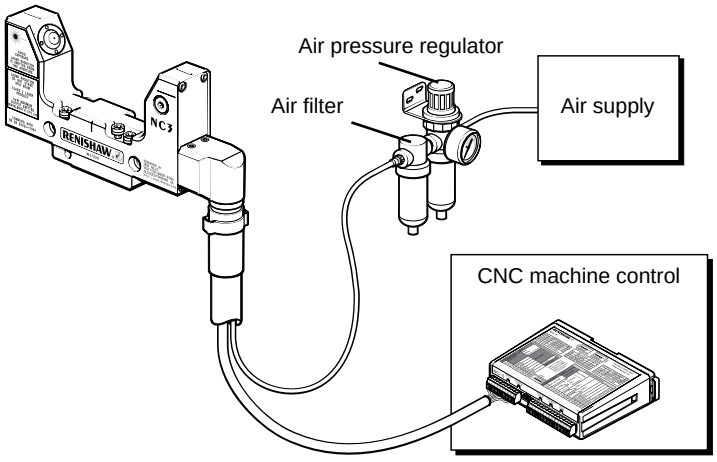
NCi-5 non-contact tool setting interface

www.renishaw.com/nci-5



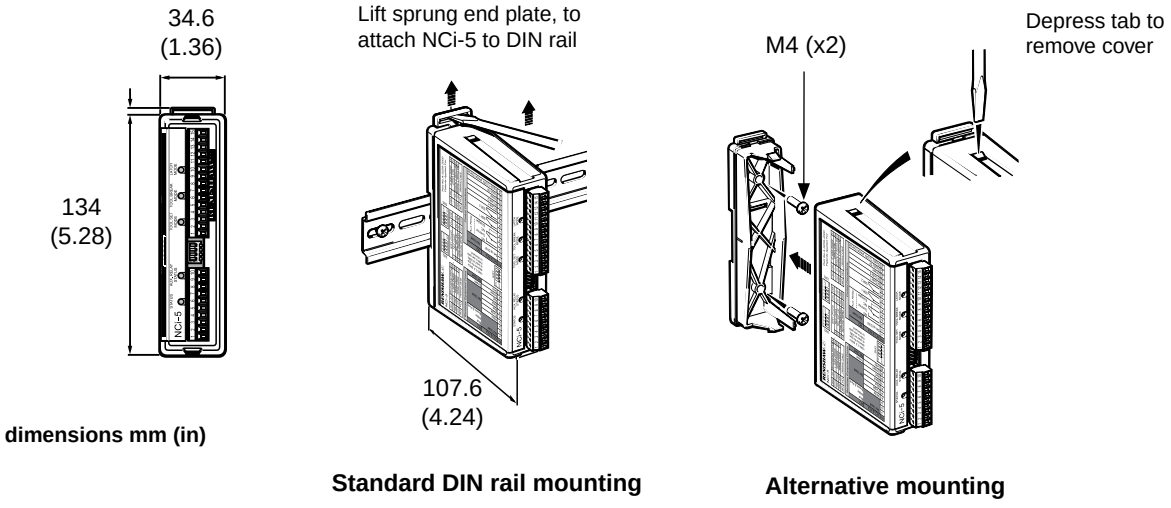
The NCi-5 interface should be installed in the CNC machine control cabinet. Where possible, site the unit away from potential sources of interference, such as transformers and motor controllers.



NCi-5 shown connected to a typical non-contact tool setting system

The NCi-5 interface is used with Renishaw's NC1, NC3 or NC4 non-contact tool setting systems. It processes signals from the non-contact unit and converts them into voltage-free solid state relay (SSR) outputs, for transmission to the CNC machine control. The NCi-5 features a drip rejection mode allowing it to filter out random drops of coolant without triggering the system.

Dimensions and mounting arrangement



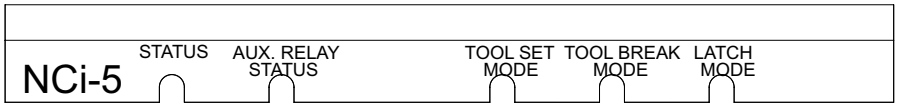
dimensions mm (in)

Standard DIN rail mounting

Alternative mounting

Diagnostic LEDs

Five LEDs are fitted on the front of the NCi-5 interface. These provide the operator with a visual indication of the system's status.



Status LED (when used with NC3 or NC4)

Following a successful set up, the Status LED indicates the status of the NC system to the operator. The colours and associated states are described in the table on the next page.

When the system is in set-up mode, the LED changes from red, to amber, to green, as the beam voltage increases.

If the LED is amber after exiting set-up mode, this indicates that set-up has not been successful and must be repeated.

Status LED (when used with NC1)

Green	The probe is untriggered
Red	The probe is triggered

When the system is in set-up mode, the LED displays red.

Aux. relay status LED

Green	Auxiliary relay energised
Not lit	Auxiliary relay not energised

Tool set mode LED

Green	Mode selected
Not lit	Mode not selected

Tool break mode LED

This is the high-speed tool breakage mode.

Green	Mode selected
Not lit	Not selected

Latch mode LED

For profile checking and cutting edge setting.

Green	Mode selected
Not lit	Not selected

Interface LEDs – status LEDs (when used with NC3 or NC4)

LED colour	Tool setting mode	High speed broken tool detection mode	Latch mode
Green-amber (flashing at 1 Hz)	The system operating voltage is too high. The system will continue to function, but for optimum performance repeat the set-up and alignment procedures.	Not applicable	The output is not latched. The system operating voltage is too high. The system will continue to function, but for optimum performance repeat the set-up and alignment procedures.
Green	The beam is clear. The probe is untriggered.	Not applicable	The beam is clear. The output is not latched.
Amber	The beam is partially blocked. ✷	The output is not latched. The beam is blocked.	The output is not latched. The beam is blocked by a rotating tool. ✷
Red	The beam is blocked. The probe is triggered.	The output is latched. The tool is broken.	The output is latched.
No light	No power to the unit		

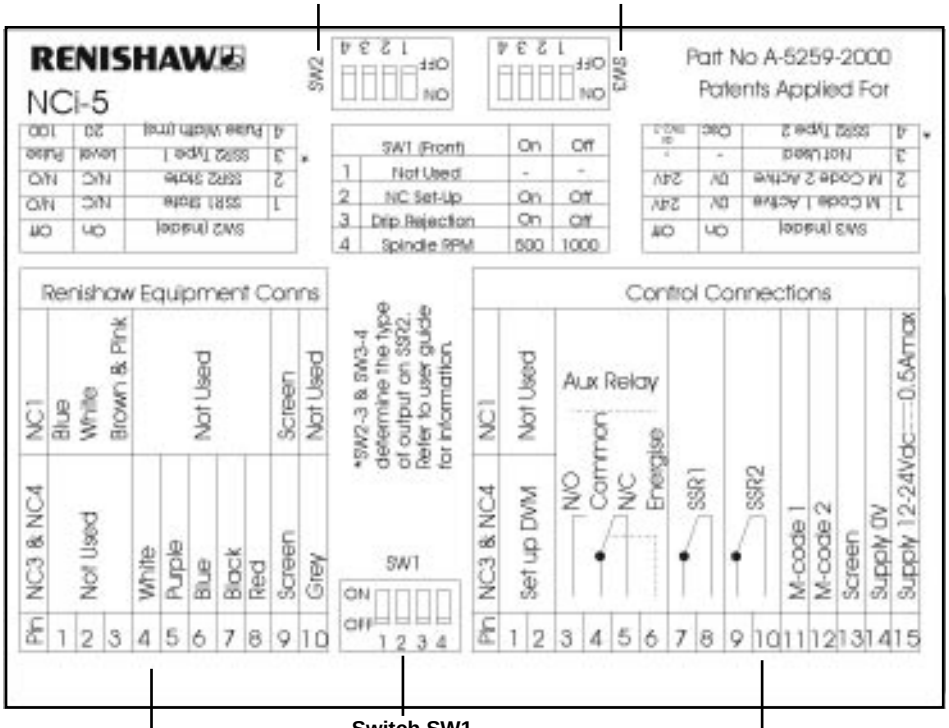
✷ If the laser beam is clear and the LED is amber, this indicates that the system will continue to function, but for optimum performance maintenance is required.

Refer to the publication *"NC4 installation and maintenance guide"*, Renishaw part number H-2000-5230, for details of the possible actions required.

Electrical connections

A full set of wiring diagrams are available in the NCi-5 installation and user's guide, H-5259-8500.

Switch settings
Remove the cover for access to switches 2 and 3.



Switch SW1

NCi-5 connector CN1
Connections to NC1, NC3 or NC4

NCi-5 connector CN2
Connections to the machine control

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Specification

Primary application	The NCi-5 processes signals from the NC1, NC3 or NC4 and converts them into a voltage-free solid state relay (SSR) output, which is transmitted to the CNC machine control.
Dimensions	Compact size 134 mm x 107.6 mm x 34.6 mm (5.28 in x 4.24 in x 1.36 in).
Supply voltage	11 Vdc to 30 Vdc.
Supply current	NC3 or NC4 connected: 120 mA @ 12 V, 70 mA @ 24 V NC1 connected: 300 mA @ 12 V, 130 mA @ 24 V
Output signal	Two voltage-free solid state relay (SSR) outputs configurable normally open or normally closed, one of which can be configured level or pulsed (pulse width can be 20 ms or 100 ms).
Auxiliary relay	Auxiliary relay for skip sharing with a spindle probe system or controlling the transmitter separately from the receiver. May alternatively be used to operate a remote LED or buzzer.
Temperature limit	Operating 5 °C to 50 °C (42 °F to 122 °F). Storage -10 °C to 70 °C (14 °F to 158 °F).
Life	Tested to >1 million on/off cycles.
Mounting	DIN rail. Alternative mounting using screws.
Supply protection	0.5 A resettable fuse. Reset by removing power and cause of fault, then re-powering.
Input/output protection	SSR outputs protected by 50 mA resettable fuses. Auxiliary relay output protected by a 200 mA resettable fuse.
Response time	The system electronics will detect when the laser beam is blocked within 9 µs.
Diagnostic LEDs	Beam status, latch mode, high speed tool breakage detection mode, auxiliary relay, tool setting mode.
Modes of operation	High speed tool breakage detection mode. Normal measurement mode. Latch mode - for profile checking and cutting edge checking. Drip rejection mode - rejects random drops of coolant falling through the beam.

Parts list – please quote the part number when ordering equipment

Type	Part no.	Description
NCi-5 interface	A-5259-2000	NCi-5 interface and box with DIN rail mounting and two terminal blocks.
NCi-5 terminal block (10-way)	P-CN25-1053	10-way socket terminal for NCi-5 interface.
NCi-5 terminal block (15-way)	P-CN25-1053	15-way socket terminal for NCi-5 interface.
Publications. These can be downloaded from our web site at www.renishaw.com.		
Installation and user's guide	H-5259-8500	NCi-5 Installation and user's guide.

For worldwide contact details, please visit our main web site at www.renishaw.com/contact

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