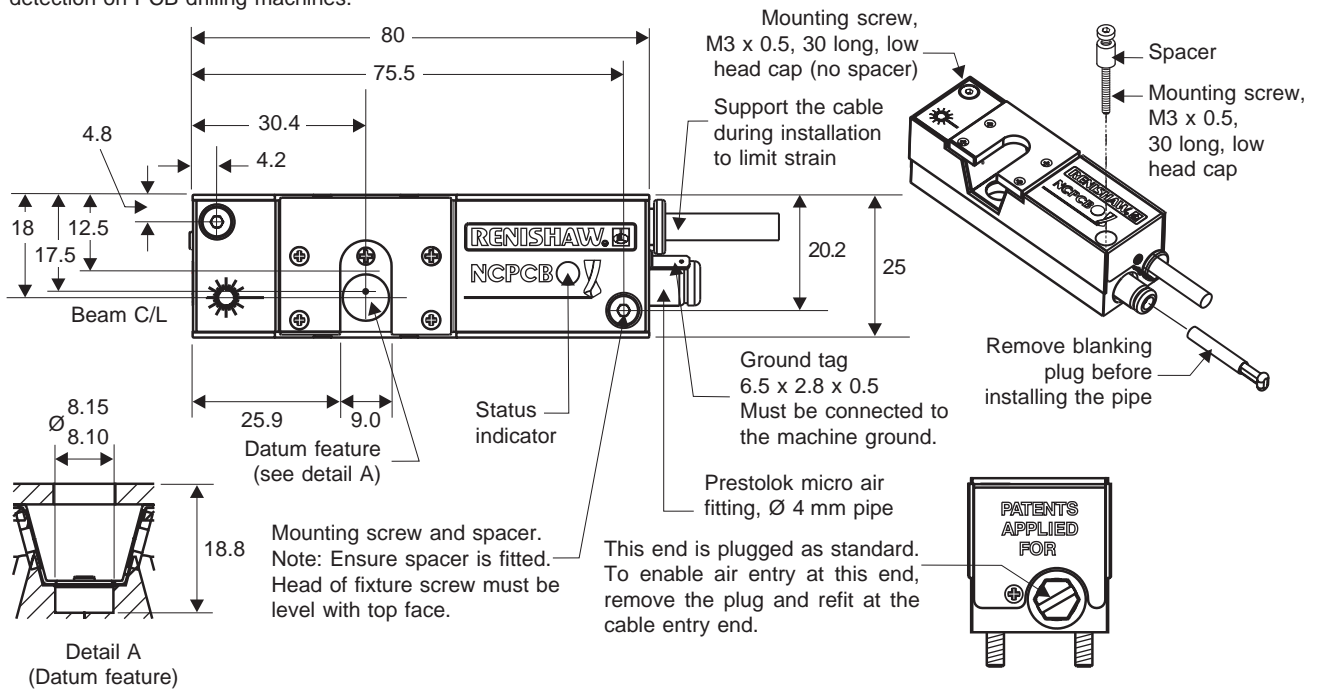


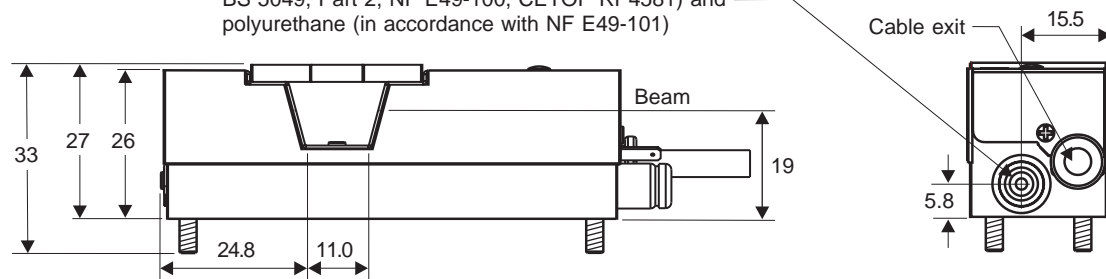
# NCPCB tool setting device

The NCPCB tool setting device is used for rapid tool setting, tool wear monitoring, runout checking, and tool breakage detection on PCB drilling machines.

It is specifically designed to work with SIEB & MEYER 44.20.020, 44.20.020A, and 44.20.0120 laser cards.



Air fitting must only be used with calibrated 4 mm polyamide tubing (in accordance with DIN 73378, BS 5049, Part 2, NF E49-100, CETOP RP4581) and polyurethane (in accordance with NF E49-101)



## Connection

Wire	Colour	Requirements
Select	Grey	5 V off, 0 V on
Reference voltage	Yellow	0 V to 5 V (2.5 V nominal), input impedance 10 kohms
Signal (output)	Green	Beam broken: 0 V sink, 12 mA Not broken: 5 V source, 12 mA HCMOS. Rise time 1 µs
Ground	White	0 V
Power	Brown	5 V ± 0.1 V, 60 mA
Shield	Black	Must be connected to machine's chassis

## Operation

Select (grey) wire	Beam condition	Signal (output) (green wire)	LED
0 V	Broken	0 V	Off
0 V	Not broken	5 V	On
5 V	Off	0 V	Off
Not connected	Off	0 V	Off

Reference voltage (yellow) wire	Effect
5 V	Increases measured Ø
↑	
2.5 V	Factory setting
↓	Reduces measured Ø
0 V	

**NOTE:** When power is applied to the unit, light from the beam will be visible. Applying 0 V to the select (grey) wire will switch on the unit, the status LED will light, and the beam intensity will increase.

## Specification

Working temperature	10 °C to 40 °C
Storage temperature	-10 °C to 70 °C
IP rating	IP50
Repeatability	0.0005 mm (20 µin) 2σ
Life	> 1 million on / off cycles
Min. tool Ø	0.10 mm (0.004 in) tool setting 0.08 mm (0.0031 in) breakage
Pneumatic supply	Via 4 mm push-fit connector, 0.5 bar (7 psi) min., 3 bar (43.5 psi) max. ISO 8573-1: Air quality of class 1.7.2
Cable	5-core plus screen cable. Each core 18/0.1 insulated. Ø4.85 (0.19 in). Length either 0.8 m (2 ft 7 in) or 2 m (6 ft)
Weight	130 g
Mounting	Mounting screws, M3 x 0.5, 30 long, low head cap (2 off) and spacer (1 off), as detailed on the previous page.

**IMPORTANT:** Do not remove the cover-securing screws as this will affect beam alignment. Removal of the screws will also invalidate the warranty.

## Air connection

A continuous supply of clean dry air ensures maintenance-free operation of the unit. Under clean and dust-free conditions the air supply may be omitted.

Purge the air lines before connecting. The air supply is connected via a 4 mm push-fit connector situated adjacent to the cable exit. The supply must be continuous, clean, and dry (to ISO 8573-1: air quality of class 1.7.2) at a minimum pressure of 0.5 bar (7 psi). The pressure can be adjusted up to 3 bar (43.5 psi) maximum for tool cleaning.

Failure to maintain air quality will result in performance degradation or product failure. If contamination is suspected, return the product for repair.



The NCPCB complies with the protection requirements of directive 89/336/EEC – electromagnetic compatibility – and has been manufactured in conformity with standards BS EN 61326:1998 (Electrical equipment for measurement, control, and laboratory use – EMC requirements).

Immunity to annex A – industrial locations.

Emissions to class A (non-domestic) limits.

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## Care of equipment

NCPCB is a precision device and must therefore be treated with care.

## Changes to Renishaw products

Renishaw plc reserves the right to improve, change or modify its products and documentation without incurring any obligations to make changes to Renishaw equipment previously sold or distributed.

## Warranty

Renishaw plc warrants its equipment for 1 year provided that it is installed exactly as defined in this document

Claims under warranty must be made from Authorised Service Centres only, which may be advised by the supplier or distributor.

## Patents

The publication of material within this document does not imply freedom from the patent rights of Renishaw plc.

Features of the NCPCB non-contact tool setting system are subject to patent applications.

## Safety

It is the responsibility of the machine supplier to ensure that the user is made aware of any hazards involved in the operation of their machine, including those mentioned in Renishaw product documentation, and to ensure that adequate guards and safety interlocks are provided. Under certain circumstances the device signal output may falsely indicate the status of the beam. Do not rely on the device signals to stop machine movement.

## Parts list

Please quote the part number when ordering equipment.

Type	Part No.	Description
NCPCB	A-4111-0001	NCPCB unit, two mounting screws, 0.8 m cable
NCPCB	A-4196-1000	NCPCB unit, two mounting screws, 2 m cable

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