

APPLICATIONS and FEATURES

- **1.** Hard Wired Tool Setting Probe for CNC Lathes and Machining Centres.
- 2. Hard Wired Inspection Probe for CNC Machining Centres.

LED's (Light Emitting Diode)

The bi-colour probe status LED is off when the MI 8-4 power is off. It is green when the probe stylus is seated, or the interface is inhibited.

The LED changes to red when the stylus is deflected on contact with a surface (probe triggered).

The four green diagnostic LEDs indicate in which axis the machine is moving.

e.g. During an X- move the X- LED will illuminate.

SPECIFICATION

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Supply voltage	15 to 30V DC maximum
Supply voltage (with ripple)	16.5 to 28.5V with 3V peak to peak ripple.
Load Current	The MI 8-4 presents a load of up to 80mA maximum. (Each XAE/ZAE output connection will add to the supply current).
Supply protection	250mA (FF) anti-surge fuse (FS1).
Probe Input	Normally Closed, open for trigger.

RENISHAW DATA SHEET



TWO PROBE OPERATION Toolsetting and Inspection

The MI 8-4 has a facility for connecting an output from a different Renishaw probe system (i.e. inspection) and then selecting which probe input (toolsetter or inspection) is routed out through the outputs. The selection of probe is controlled by a machine control input to the MI 8-4 (M Code).

When the Inspection Select input is active the inspection system input is routed through to the outputs. When inactive the probe input (toolsetter) is routed through the outputs.

The inspection system input can be driven by a normally closed relay (open for trigger) or a Totem-pole output (high for triggered).

INHIBIT, INSPECTION SELECT and MACHINE AXIS MOVING INPUTS

These inputs are Open Collector Transistor (OCT), Totem-pole, and Relay compatible.

They can be configured as active low or active high. Also, they can be terminated by pull-up or pull-down resistors.

With the Input Resistors Common (A9) connected to 0V all inputs have 2k4 pull-down resistors. With it connected to 24V, all inputs have 2k4 pull up resistors.

Switch **SW1-3** controls the polarity of the input signals.

5001-3	OFF	= Inputs Active High		
SW1-3	ON	= Inputs Active Lov		
V in low		= 4.0V max.		
V in High		= 11.0V min.		

If the inputs are not to be used then SW3-1 should be in the default state of OFF and the Input Resistors Common (A9) should be connected to 0V. This makes all inputs inactive.

PROBE STATUS XAE/ZAE OUTPUTS

Switch **SW1-1** controls the polarity of all the output signals.

SW1-1 OFF Output Triggered = High.

SW1-1 ON Output Triggered = Low.

Probe Status Output

This is an isolated totem-pole output which requires a three wire connection: signal, power and ground. It works over a 4.75 to 30V supply range and will source and sink up to 20mA.

Output Voltage High

(V supply minus 3.5V max) at 20mA. (V supply minus 2.8V max) at 10mA.

Output Voltage Low

0.6V max at 20mA. 0.4V max at 10mA.

Supply Current

10mA max at 30V. The three wires are protected against short circuit by current limiting circuitry.

TTL COMPATIBILITY

The Probe Status Output is TTL compatible with a $5V \pm 5\%$ supply voltage. If this supply voltage is not available then another voltage in the 4.75V to 30V range can be used with **SW1-4** ON.

V out high = 2.5V min at 2.5mA. V out low = 0.4V max at 10mA.

With **SW1-4** ON, the probe status output will be TTL compatible irrespective of the supply voltage.

Supply Current with **SW1-4** ON, 22mA max at 30V. 15mA max at 10V.

FANUC 'AUTOMATIC LENGTH MEASUREMENT'

The four 'Machine Axis Moving' inputs (B4, B6, B8, B10) to the MI 8-4 are Open Collector Transistor (OCT), Totem-pole and Relay compatible.

The four outputs (B5, B7, B9, B11) are Totem-pole outputs supplied by the 15V to 30V power supply (B1, B2) to the MI 8-4.

Output Voltage High

(V supply minus 4.0V max) at 20mA. (V supply minus 3.4V max) at 10mA.

Output Voltage Low

1.5V max at 20mA. 1.0V max at 10mA.

The outputs are protected against short circuit by current limiting circuitry.

MI 8-4 Installation

dimensions mm (in)

INSTALLATION

Ideally install the interface in the CNC machine control cabinet.

Take care to avoid potential sources of interference, such as three phase transformers and motor controllers.

MOUNTING

Two forms of mounting are supplied.

- 1. DIN rail mounted, compatible with all DIN EN carrier rails.
- 2. Dual Lock self adhesive fixing allows the MI 8-4 to be attached to any flat surface.

DIN RAIL MOUNTING





Precision Arms (HPA) and some TS20 Probes.

POWER SUPPLY The MI 8-4 can draw its supply from the CNC

machine 24V nominal DC supply. Alternatively a Renishaw PSU3 Power Supply Unit supplies power when a 24V supply is not available from the machine control.

ENVIRONMENT

Storage Temperature	-10° to 70°C	(14° to 158°F).
Operating Temperature	0° to 50°C	(32° to 122°F).

Parts List - Please quote the Part No. when ordering equipment

Туре	Part No.	Description	
MI 8-4	A-2157-0001	MI 8-4 Interface Unit supplied with DIN rail mount and Dual Lock pads.	
Fuse	P-FS20-1A25	250mA (FF) Anti-surge Fuse.	
PSU3	—	See Data Sheet H-2000-2200 PSU3 Power Supply Unit.	

Renishaw reserves the right to change specifications without notice.

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