RMI - radio machine interface

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RMI mounting bracket

RMP60/RMP600 inspection probe

RMI

C N C machine control
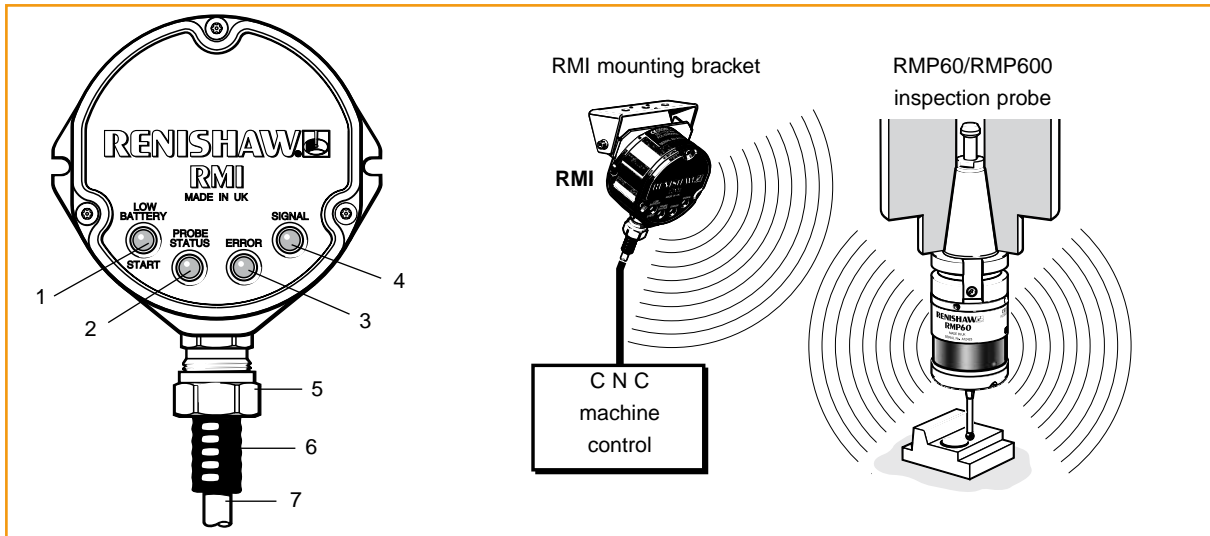
Features

- Combined receiver and transmitter enables easy installation.

- Sealed to IPX8 for machine tool environment.

- Non critical receiver positioning.

- Three probe status outputs:
    1. SSR (N.O./N.C, pulsed/level).
    2. Driven at power supply voltage (trigger high/trigger low, pulsed/level).
    3. Driven output for Fanuc High Speed Skip.

- User configurable M-code input (pulsed or level).

- Interference free channel hopping transmission.

- Radio transmission uses 2.4 GHz giving greatest potential for single worldwide frequency.

- RMI meets the radio regulations of:
    Europe: CE 0536!
    USA: FCC ID KQGRMIV2
    Japan: 004NYCA0405
    Canada: IC: 3928A-RMIV2
    Australia, China, Israel, New Zealand, Russia, Switzerland, Brazil, Taiwan, India, Thailand, Korea, Turkey, Indonesia, Malaysia and Mexico.

- Partner RMP60/RMP600 and RMI systems allow interference free multiple probe installations.

- No channel selection required.

- Configurable between side and rear exit.

- Operates on 12 Vdc to 30 Vdc.

RMI status LEDs

Visual indication of system status is provided by LEDs.

1. LOW BATTERY/START

Red	Battery is low.
Green	M code start/stop in progress.
Yellow	Battery low & M code start/stop in progress.
Off	Battery is OK (and no M code start/stop in progress).

2. PROBE STATUS

Red	Probe triggered or unknown status.
Green	Probe is seated.

3. ERROR

Red	Error (other outputs may be incorrect).
Off	No error.

4. SIGNAL

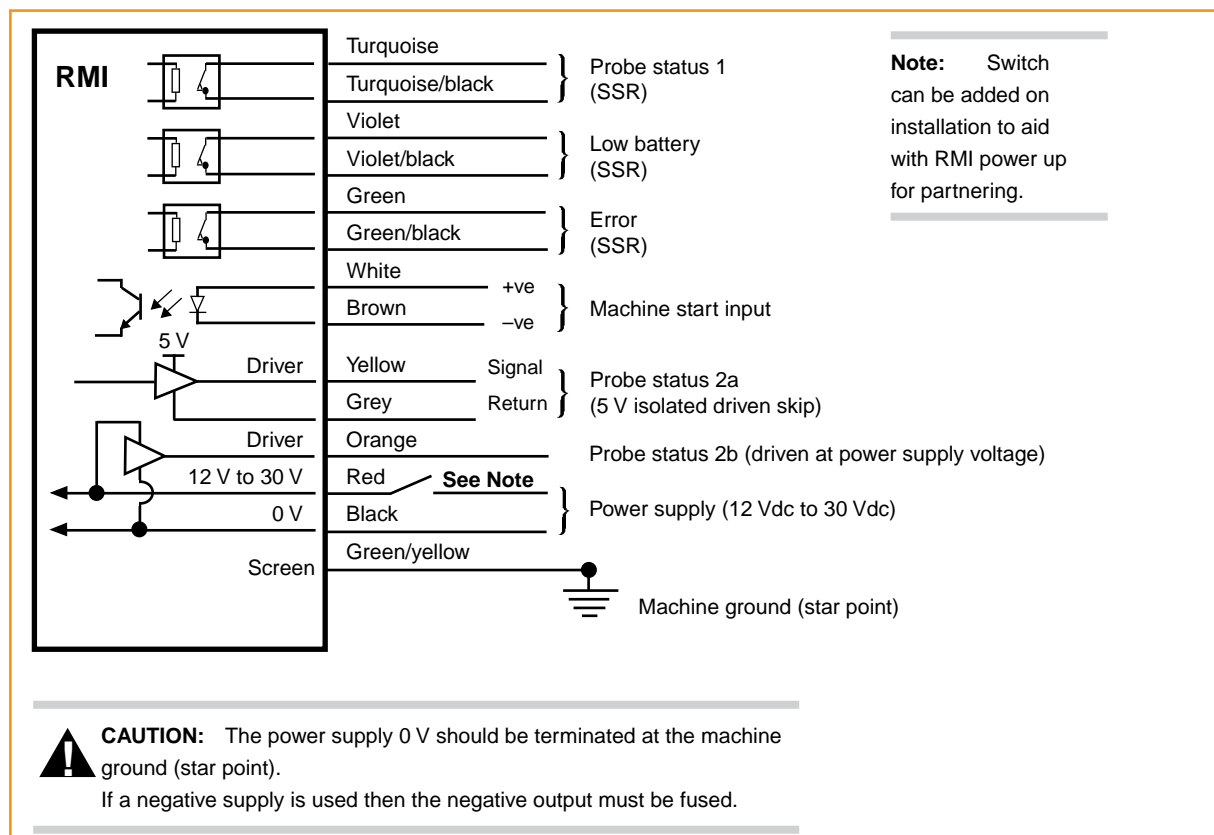|	
Green	Full signal strength.
Yellow	Medium signal strength.
Red	Low signal strength, radio link may fail.
Off	No signal detected.
Green/off	Flashing: RMI is acquisition mode, and can acquire a partner RMP.
Red/yellow	Flashing: RMI has (just) acquired a new partner RMP.

5. Sealing gland.

6. Conduit.

7. Cable.

LED operating features

1. The probe status LED will always be illuminated when power is present.
   There is no 'power present' LED.

2. All the indicators report the status of the partner RMP. If there is no partner in range, or the partner is off, then the probe status and error LEDs will be red and the other LEDs will be off.

3. When the RMI is powered, it will enter the acquire partner mode which will be indicated by the flashing green signal LED.
   After ~12 seconds, it will switch to its normal mode listening for its partner.

4. The conditions shown by the low battery, probe status and error LEDs are the same as those present on the electrical signal outputs.
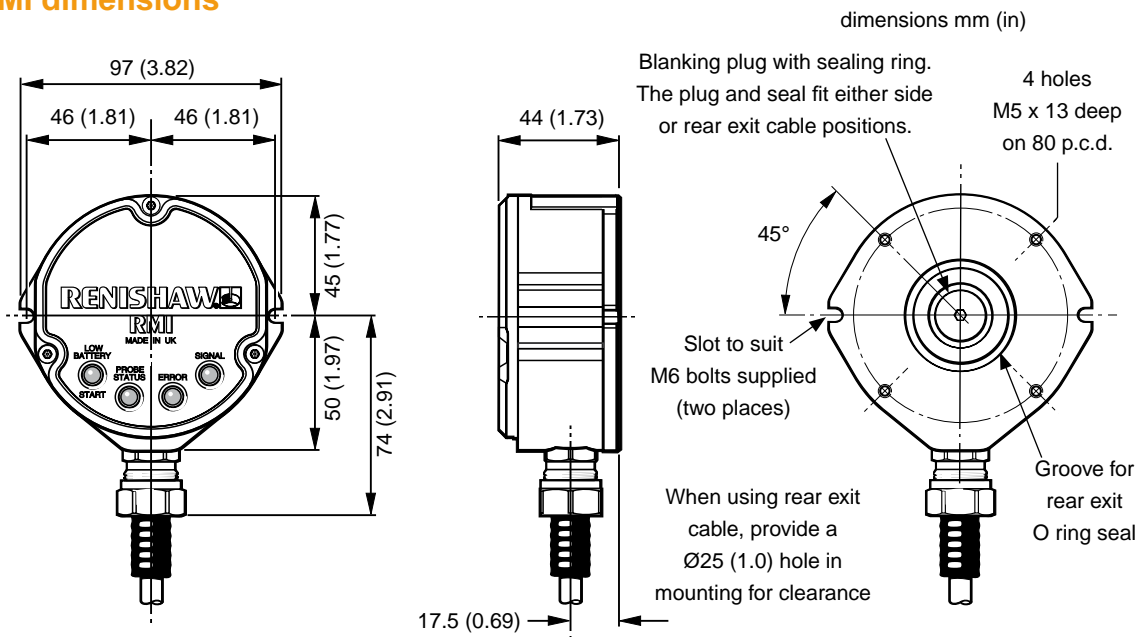
Cable installation

- Install RMI with cable exiting from lower side for good coolant run off.

- Cable entry to the RMI is sealed with a gland.

- Cable protection against physical damage should be provided by flexible conduit.

- Route the cable away from potential sources of electro magnetic interference.

- Cable specification:
  Polyurethane cable Ø7.5 mm (Ø0.29 in),
  13 core screened cable, each core 18 x 0.1 mm.
  15 m (49 ft) is standard length.

- Alternative cable lengths available up to 50 m (164 ft).

Wiring diagram (with the output groupings shown)

Note: Switch can be added on installation to aid with RMI power up for partnering.

CAUTION: The power supply 0 V should be terminated at the machine ground (star point).
If a negative supply is used then the negative output must be fused.

RMI dimensions

dimensions mm (in)

97 (3.82)

46 (1.81) 46 (1.81)

44 (1.73)

45 (1.77)

50 (1.97)

74 (2.91)

17.5 (0.69)

Blanking plug with sealing ring.
The plug and seal fit either side
or rear exit cable positions.

45°

Slot to suit
M6 bolts supplied
(two places)

When using rear exit
cable, provide a
Ø25 (1.0) hole in
mounting for clearance

4 holes
M5 x 13 deep
on 80 p.c.d.

Groove for
rear exit
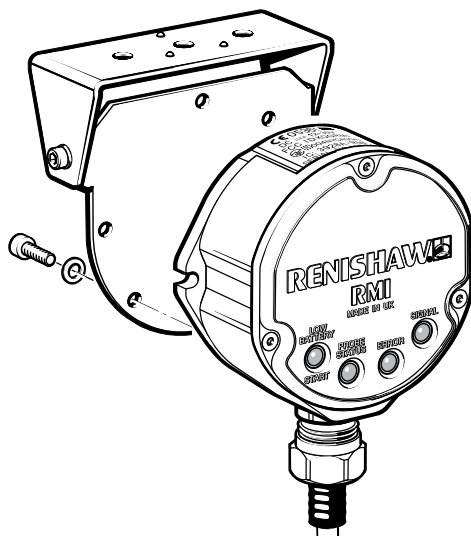O ring seal

Weight

In box = 1,980 g (69.84 oz)

RMI including 15 m (49.2 ft) of cable is 1,540 g (54.3 oz).

Mounting bracket (optional)

allows RMI directional setting

RMI optimum position setting

To assist finding the optimum position for the RMI during
system installation, signal strength received is indicated
by signal LED. Always face the RMI towards the operating
area (and tool store when using radio turn-on).

dimensions mm (in)

25
(0.98)

25
(0.98)

19 (0.75)

38 (1.50)

3 holes Ø6.4 (0.25)

3 grip protrusions

100.5 (3.95)

2.0
(0.08)

30
(1.18)

25
(0.98)

45
(1.77)

45°

45 (1.77)

90 (3.54)

6 holes
Ø5.3 (0.20)

2.0
(0.08)

Install RMI with cable exiting from lower side for
good coolant run off.

The mounting bracket cannot be used with an
RMI in rear exit configuration.

Do not apply any metallic label to the front cover,
as this will shield the antenna.
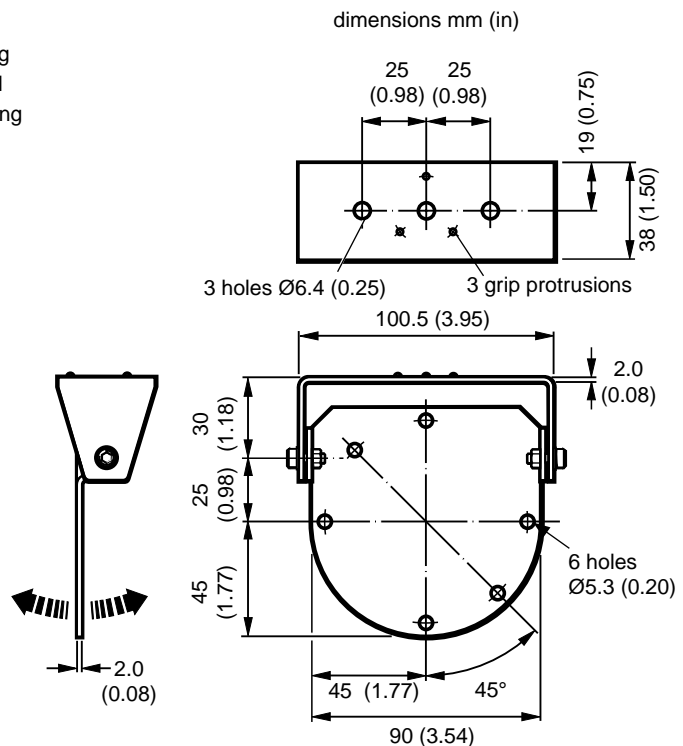
Paired holes permit RMI mounting
in alternative orientation.

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Specification

Primary application	Medium to large machining centres, 5-axis twin spindle machines and vertical turret
Transmission type	Frequency hopping spread spectrum (FHSS) radio 2.400 GHz - 2.4835 GHz 2400 MHz - 2483.5 MHz
Transmission range	Up to 15 m (49.2 ft).
Weight In box RMI including 15 metres (49.2 ft) of cable	1,980 g (69.84 oz) 1,540 g (54.30 oz)
Cable	15 m (49.2 ft.) standard length. Optional 30 m (98.4 ft) and 50 m (164 ft) cable assemblies are also available. Screened, 13 core (each core 18 x 0.1 mm).
Mounting	Mounting bracket allowing directional setting.
Sealing	IPX8

Environment

RMI	Temperature
Storage	-10 °C to 70 °C (14 °F to 158 °F)
Normal operating	5 °C to 50 °C (41 °F to 122 °F)

Parts list – please quote the part number when ordering equipment

Type	Part no.	Description
RMI	A-4113-0050	RMI, side exit, with 15 m (49.2 ft) of cable, tool kit and user's guide.
Conduit kit	A-4113-0306	Conduit kit comprising 1 m (3.28 ft) of polyurethane conduit, bulkhead connector, seal and nut (16 mm thread).
Mtg brkt	A-2033-0830	Mounting bracket.
Cover assy	A-4113-0305	Cover/antenna assembly: including cover screws and O ring.
Cover assy	A-4113-0302	Cable assembly 15 m (49.2 ft) long.
Cover assy	A-4113-0303	Cable assembly 30 m (98.4 ft) long.
Cover assy	A-4113-0304	Cable assembly 50 m (164 ft) long.
Tool kit	A-4113-0300	T10 tamperproof key, 4 mm hex key, 14 x ferrules, 4 x M5 screw, 2 x M5 nut, 4 x M5 washer, O ring (Ø34.5 x 3 mm).
Publications. These can be downloaded from our web site at www.renishaw.com		
RMI user's guide	H-2000-5220	RMI installation and user's guide
RMP60 data sheet	H-2000-2122	Data sheet: RMP60
RMP600 data sheet	H-5312-8200	Data sheet: RMP600

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