Data sheet
H-5492-8200-01-A

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OSI with OMM-2 multiple optical probe interface system

The OSI with OMM-2 is a multiple optical probe interface system. The OSI is designed to be installed within the CNC machine controller's cabinet and be used with either a single or tandem OMM-2 configuration, housed within the machine's working envelope.

The OSI with OMM-2 system operates using a 'modulated' optical transmission mode and is compatible with machine probes that also operate in 'modulated' mode.

The OSI with OMM-2 system is user configurable for operation in either single probe mode or multiple probe mode.



Features

Multiple probe system

In multiple probe mode the system is capable of operating three compatible probes sequentially.

Single or tandem OMM-2

Tandem OMM-2 is ideal for applications with either long spindle movements, or partitioned machining areas.

Modulated transmission

Effects of light interference are reduced which in some circumstances could cause false trigger signals.

Visible probe diagnostic LEDs

LEDs on OMM-2 provide a visual indication of system status and identify the active probe.

Mounting bracket

The optional mounting bracket allows directional setting of the OMM-2.

User configurable outputs

Probe status 1 SSR	NO / NC pulsed / level
Probe status 2 SSR	NO / NC pulsed / level
Error 1 SSR	NO / NC
Low battery SSR	NO / NC

Range selection

Start (Tx)	50% or 100%
Reception (RX)	50% or 100%

Both factory set to 100%

Start input (machine output)

In single probe mode the interface will operate with either a pulsed or level machine output.

In multiple probe mode, two or three probes can be operated using either two or three machine outputs. If two machine outputs (for three probes) are used, a coded turn on technique is used to turn on / turn off the selected probe. To allow for a delay between machine outputs, three user-selectable options (10 ms, 50 ms and 100 ms) are provided to allow for machine variation.

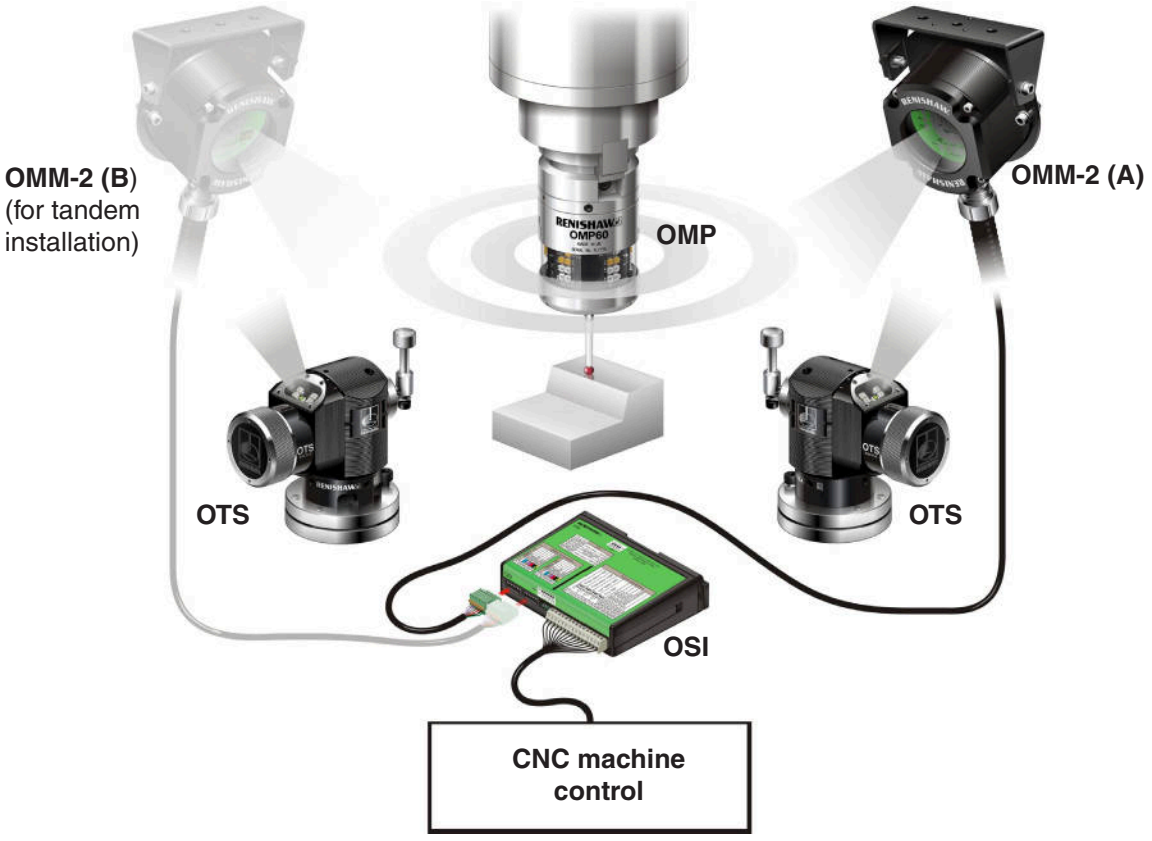
When two or three machine outputs (for two or three probes) are used, three options are available:

- Level mode: which requires a dedicated level output per probe.
- Common start mode / pulsed output.
- Common start mode / level output.

Data sheet
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The OSI with OMM-2 is compatible with machine probes operating in 'Modulated' mode

In multiple probe mode the system will sequentially interface up to three separate Renishaw optical machine probes with the machine controller. It is possible to have either a single OMM-2 or a tandem OMM-2 configuration to best suit the application.



Operating features

Switch on / off method

Single probe mode:

In pulsed mode, the following switch on / off methods may be used:

- Optical on / optical off
- Optical on / time off
- Spin
- Shank

In level mode, only the following switch on / off method may be used:

- Optical on / optical off

For Auto Start, only the following switch on / off method may be used:

- Optical on / time off

Multiple probe mode:

The following switch on / off method may be used:

- Optical on / optical off

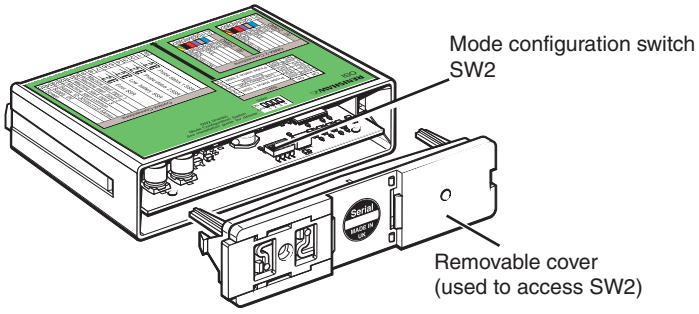
OMM-2 optimum position setting

To assist finding the optimum position for the OMM-2 during system installation, signal condition received is indicated on the red/yellow/green signal condition LED.
The OMM-2 may have to be shielded from direct light sources.

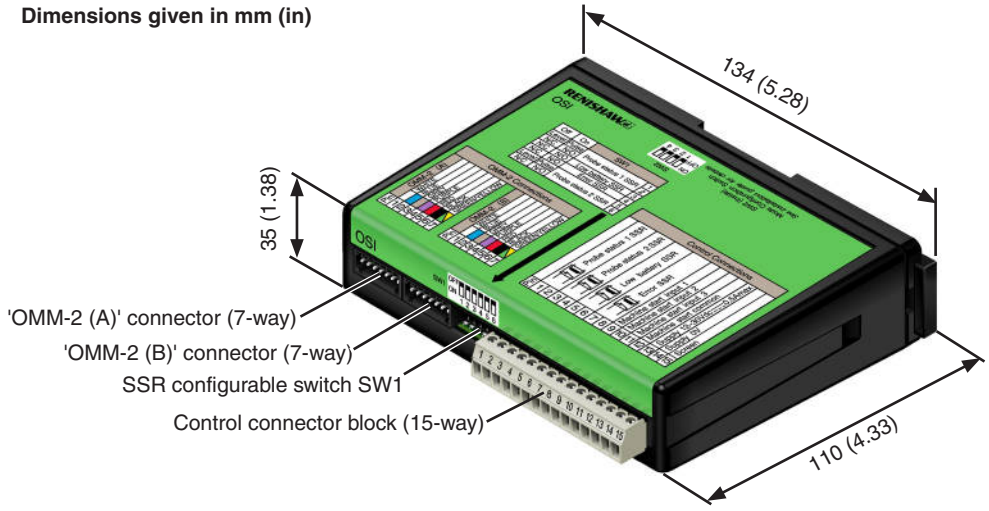
The indication of a blue, yellow or violet error condition resulting from the loss of a good probe signal will persist until the active system input (Probe 1 or Probe 2 or Probe 3) is deactivated.

WARNING:
If two systems are operating in close proximity, take care to ensure that signals transmitted from the probe on one machine, are not received by the OMM-2 on the other machine, and vice versa.

OSI components

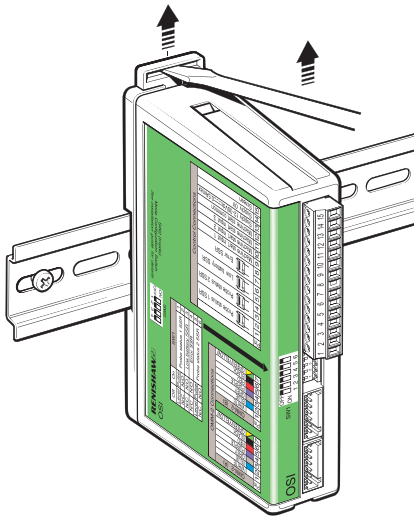


Dimensions given in mm (in)

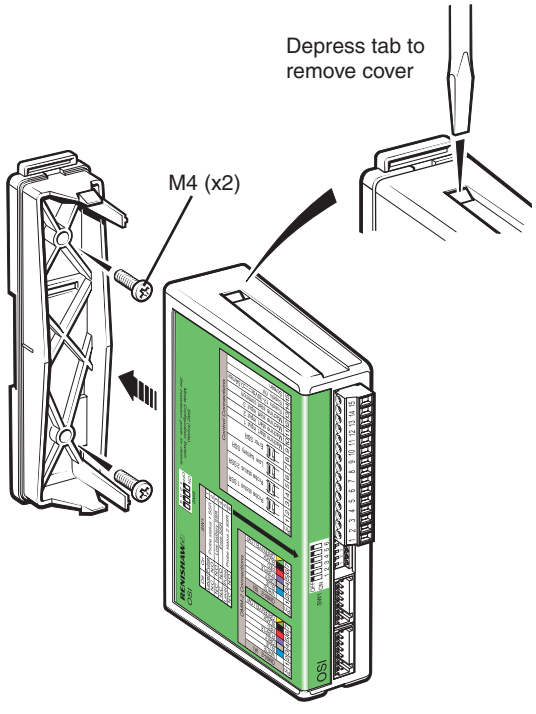


OSI mounting

NOTE: Lift spring end plate to attach OSI to DIN rail.



Standard DIN rail mounting



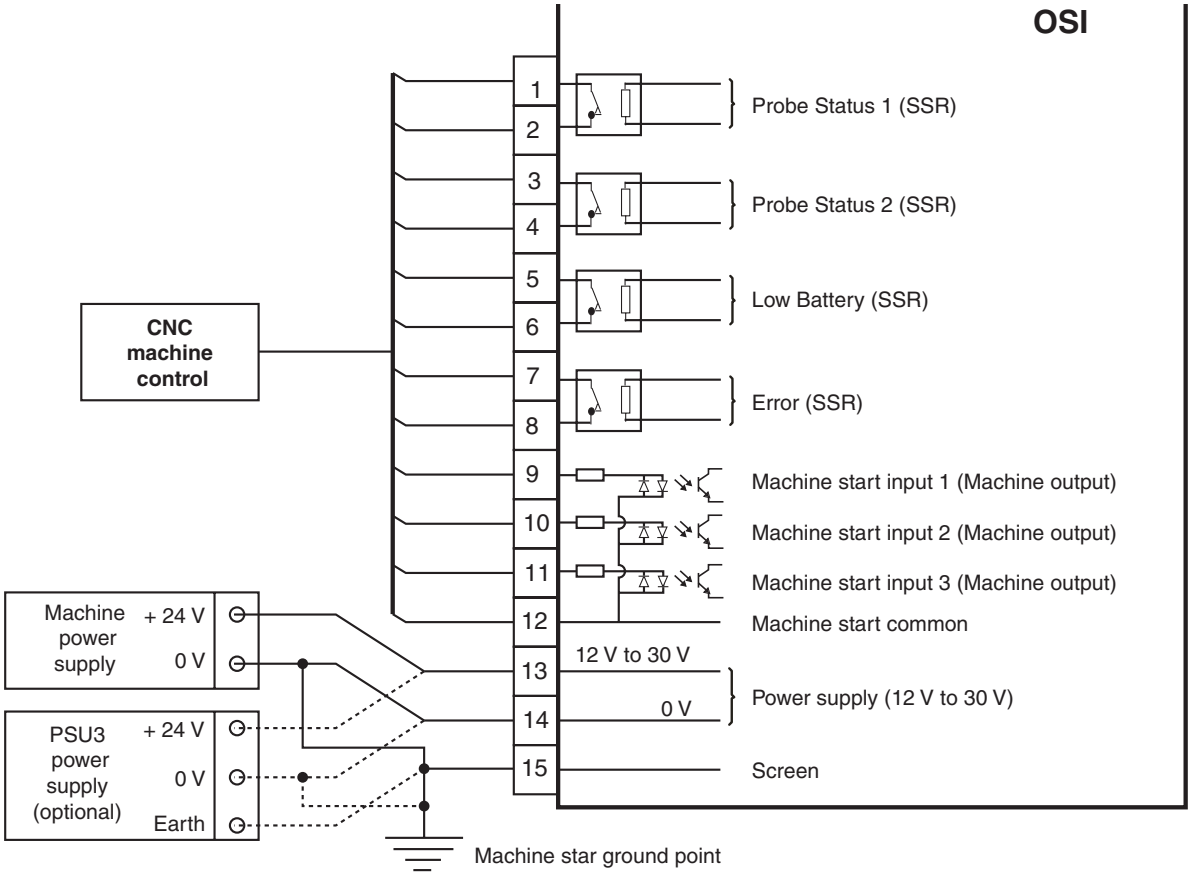
Alternative mounting

Data sheet
OSI with OMM-2 multiple optical probe interface system

OSI specification

Principal application	The OSI processes signals from the OMM-2 and converts them into voltage-free SSR output, which is then transmitted to the CNC machine controller.	
Dimensions	Width:	134 mm (5.28 in)
	Height:	35 mm (1.38 in)
	Depth:	110 mm (4.33 in)
Supply voltage	12 Vdc to 30 Vdc	
Supply current	400 mA max@12 V, 200 mA max@24 V with tandem OMM-2	
Output signal	Voltage free solid-state (SSR) output, configurable normally open or normally closed. 'On' resistance = 50 ohms max. Load voltage = 40 V max. Load current = 100 mA max.	
Mounting	DIN rail. Alternative mounting using screws.	
Input/output protection	Power input is protected by a 1.1A resettable fuse. The Low Battery, Probe Status and Error LEDs will start flashing red when an output overload has occurred. All outputs will be switched off. If this occurs, turn off the power and remove the source of the problem. Turning on the power supply will reset the OSI.	
Environment (as defined in BS EN 61010 - 1:2001)	IP rating	IP20 (BS5490, IEC 60529)
	Storage temperature	-10 °C to 70 °C (14 °F to 158 °F)
	Operating temperature	0 °C to 60 °C (32 °F to 140 °F)

Connecting the OSI with the CNC controller



CAUTION: The power supply 0V should be terminated at the machine ground / star point. If a negative supply (i.e. +ve terminal is at 0 V and -ve terminal is at - supply voltage) is used then the negative line must be fused, rated at 1 A.

OMM-2 status LEDs

A visual indication of system status is provided by LEDs.

1. **Start signal LED (yellow)**
   Flashes once when a machine input START signal is activated.

2. **Low battery LED (red)**

   Red - Battery low
   Off - Battery OK

3. **Probe status LED (green, red)**

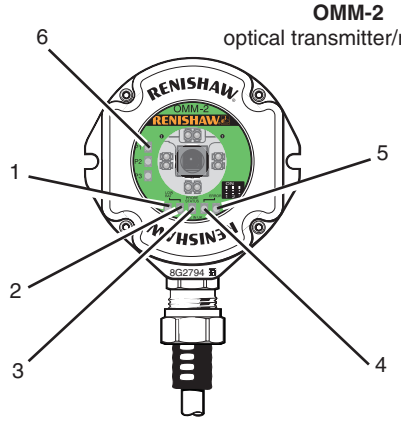
   This bi-colour LED is lit when the OMM-2 is powered.

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

4. **Error LED**
   Indicates a transmission error condition.

   Red - No probe transmitting or probe out of range.
   Blue - A modulated signal from a second probe has been received.
   Yellow - Interference or a weak probe signal has been received.
   Violet - Interference or a weak probe signal has caused the trigger instant to be delayed.

OMM-2
optical transmitter/receiver

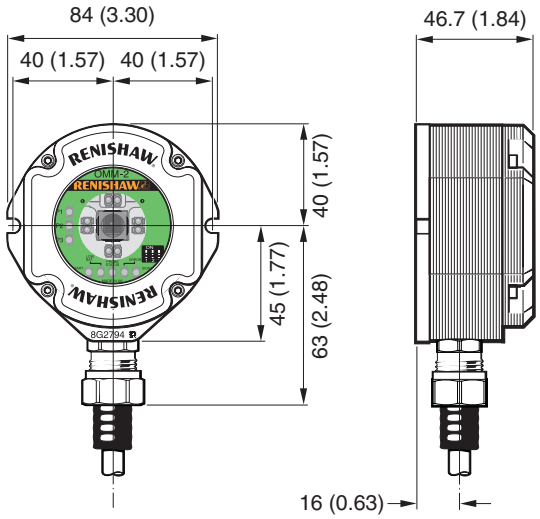


5. **Signal condition LED**

   Red - There is no signal from the probe.
   Yellow - Weak signal or interference is present.
   Green - Good signal.

6. **Active system LEDs**
   The LED is lit to show which machine input (Probe 1 or Probe 2 or Probe 3) is active, and unlit when the system inputs are inactive.

OMM-2 dimensions



Dimensions mm (in)

Cable installation

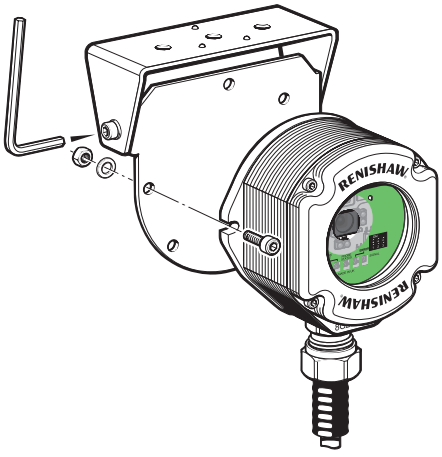
- Install OMM-2 with cable exiting from lower side for good coolant run off.
- Cable entry to the OMM-2 is sealed with a gland.
- Cable protection against physical damage should be provided by flexible conduit.
- Route the cable away from potential sources of electro-magnetic interference.
- Maintain the screen through cable joints.

Cable specification
Ø 5.8 mm (0.23 in) 6 core, screened cable, each core consisting of 18 x 0.1 mm wires.

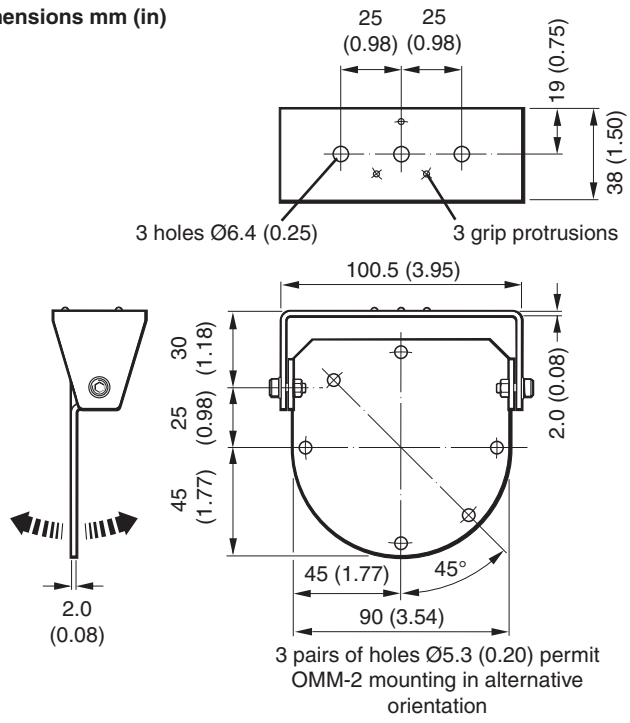
Standard cable variants
The OMM-2 standard polyurethane cables are supplied in 8 m (26 ft), 15 m (49 ft) and 25 m (82 ft) lengths.

NOTE: Maximum length of the specified cable must not exceed 50 m (164 ft).

Installing the OMM-2 to the mounting bracket (optional)



Dimensions mm (in)



OMM-2 specification

Principal application	The OMM-2 transmits control signals to the probe and receives probe data signals for onward transmission to the OSI and CNC control.	
Transmission type	Infra-red optical transmission	
Cable	The OMM-2 standard cables are 8 m (26 ft), 15 m (49 ft) or 25 m (82 ft) long. Cable specification: Ø5.8 mm (0.23 in), 6-core screened cable, each core 18 × 0.1 mm	
Mounting	A mounting bracket is available allowing directional setting.	
Weight	OMM-2 including 8 m (26 ft) of cable	700 g (25 oz)
	OMM-2 including 15 m (49 ft) of cable	1000 g (35 oz)
	OMM-2 including 25 m (82 ft) of cable	1500 g (53 oz)
Environment (as defined in BS EN 61010 - 1:2001)	IP rating	IPX8 (BS5490, IEC 60529) 1 atmosphere
	Storage temperature	-10 °C to 70 °C (14 °F to 158 °F)
	Operating temperature	0 °C to 60 °C (32 °F to 140 °F)

Parts list

Please quote the part number when ordering equipment.

Type	Part number	Description
OSI interface	A-5492-2000	OSI (Multiple Probe Mode) with DIN rail mounting, terminal block and quick start guide.
OSI interface	A-5492-2010	OSI (Single Probe Mode) with DIN rail mounting, terminal block and quick start guide.
OMM-2 kit	A-5492-0049	OMM-2 with 8 m (26 ft) cable, tool kit and quick start guide.
OMM-2 kit	A-5492-0050	OMM-2 with 15 m (49 ft) cable, tool kit and quick start guide.
OMM-2 kit	A-5492-0051	OMM-2 with 25 m (82 ft) cable, tool kit and quick start guide.
Mounting bracket	A-2037-0830	Mounting bracket.
Conduit kit	A-4113-0306	Conduit kit with 1 m (3.28 ft) of polyurethane conduit and bulkhead connector (M16 thread).
Window replacement kit	A-5191-0019	Window replacement kit comprising: window assembly with 'O' ring, 2 x stainless steel M3 x 14 mm long screws, 2 x stainless steel M3 x 5 mm long screws and 2.5 mm hexagon wrench.
Tool kit	A-5191-0300	Tool kit comprising: 2.5 mm hexagon wrench, 4 mm hexagon wrench, 14 x ferrules, 2 x M5 screws, 2 x M5 washers and 2 x M5 nuts.
OSI terminal block (15-way)	P-CN25-0009	15-way socket terminal for OSI
OMM-2 terminal block (7-way)	P-CA79-0021	7-way socket terminal for OMM-2
Publications. These can be downloaded from our web site at www.renishaw.com		
OSI	A-5492-8500	Quick start guide: for rapid setup of the OSI, includes CD with system installation guide.
OMM-2	A-5492-8550	Quick start guide: for rapid setup of the OMM-2, includes CD with system installation guide.
PSU3	H-2000-5057	Installation and user's guide: PSU3 power supply unit.

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