

# HPGA (High Precision Generic Arm)

## A highly repeatable motorised solution for tool setting and workpiece inspection with improved robustness and adaptability

The HPGA (High Precision Generic Arm) is the latest addition to Renishaw's successful family of high precision tool setting arms, for use on grinding machines and CNC lathes. The HPGA delivers improved multi-axis directional repeatability to meet the ever tighter measurement and performance demands in the market. The arm incorporates Renishaw's new SwarfStop™ seal design that significantly improves protection against sharp metallic particles in both grinding and normal machining environments.

The HPGA supports both the LP2 compact probe and the high accuracy **RENGAGE™** strain gauge probe, MP250. It uses hard-wired connections to the machine control via Renishaw's TSI 3 and HSI interfaces.

### Key benefits

#### 3-axis repeatability

The HPGA provides improved repeatability in all three major machine axes, achieved using hub and base components machined from spheroidal graphite cast iron, combined with Renishaw's high performance 3D probes.

#### Improved performance in a grinding environment

Extra protection against harsh machining environments using Renishaw's latest SwarfStop™ technology, gives improved reliability.

#### Strain gauge compatibility

The HPGA can be upgraded to strain gauge technology for improved repeatability and multi-axis directional performance. This is achieved by using Renishaw's patented **RENGAGE™** high accuracy probe, MP250.



### Innovations

#### Environmental protection

An additional metal sealing device, SwarfStop™, is positioned between the hub and base, acting as a physical barrier to prevent small metallic particles from entering the system.

#### Ease of installation

The HPGA is supplied with a plug and socket cable connector to the hub and base unit. This allows the cable to be detached easily thus simplifying installation and in the field replacement.

In addition, existing customers of the HPMA / HPPA can upgrade to the HPGA as these arms share the same mounting footprint.

#### Interchangeable arms

A wide range of arm configurations can be accepted by the HPGA hub and base unit. The mounting configurations available are: Universal Mount using a M16 thread and LPE extension bar, and Flange Mount for custom cranked arm configurations.

## Specification - HPGA

<b>Principal application</b>	Tool setting and workpiece inspection on CNC lathes and cutter grinder machines.
<b>Sense directions</b>	Probe $\pm X$ , $\pm Y$ , $+Z$
<b>Arm sweep angle</b>	90° (typical)
<b>Weight</b>	3.9 kg (typical, hub and base only)
<b>Uni-directional system repeatability</b>	3.0 $\mu\text{m}$ 2 sigma*
<b>ARO to MRO</b>	2 seconds (typical)
<b>MRO to ARO</b>	2 seconds (typical)
<b>Power supply approvals</b>	BS EN/ISO 60950-1
<b>Sealing</b>	IPX8 (static)
<b>Storage temperature</b>	-25 °C to 70 °C (-13 °F to 158 °F)
<b>Operating temperature</b>	5 °C to 55 °C (41 °F to 131 °F)
<b>Cable protection</b>	The installer is responsible for ensuring adequate protection of the HPGA cable during normal use in the machining environment.
<b>Probe §</b>	LP2 or MP250
<b>Interface</b>	TSI 3 and HSI

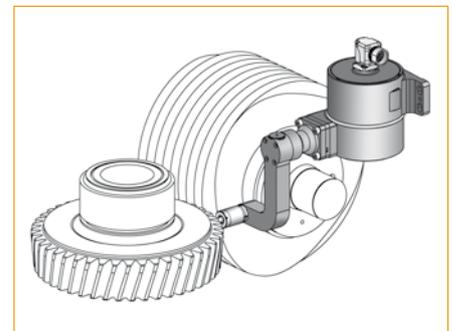
\* The system includes the hub/base, arm and probe.

Maximum 2 sigma value in any direction. Performance specification is for 10 points at 48 mm/min trigger speed using an LP2 probe with a 20 mm long stylus and a 15 mm square tip.

§ Please refer to Data Sheets H-2000-2100 (LP2) and H-5500-8200 (MP250) for more details.



HPGA hub and base



Example of a HPGA application

## Specification - TSI 3 interface

<b>Principal application</b>	Hard-wired probing systems with HPMA and HPGA
<b>Dimensions</b>	134 mm (5.28 in) x 98 mm (3.86 in) x 34.6 mm (1.36 in)
<b>Mounting</b>	DIN rail
<b>Power supply</b>	18 V to 30 V d.c.

## Specification - HSI interface

<b>Principal application</b>	Hard-wired transmission interface, which conveys and processes signals between an inspection probe and the CNC machine control
<b>Dimensions</b>	134 mm (5.28 in) x 98 mm (3.86 in) x 34.6 mm (1.36 in)
<b>Mounting</b>	DIN rail
<b>Power supply</b>	12 V to 24 V
<b>Probe compatibility</b>	LP2H, LP2, LP2DD, LP2LD and MP250



HSI interface

TSI 3 interface

## More information

For further details on the products mentioned in this flyer, please visit:

[www.renishaw.com/mtp](http://www.renishaw.com/mtp)

**For worldwide contact details please visit our main website at  
[www.renishaw.com/contact](http://www.renishaw.com/contact)**