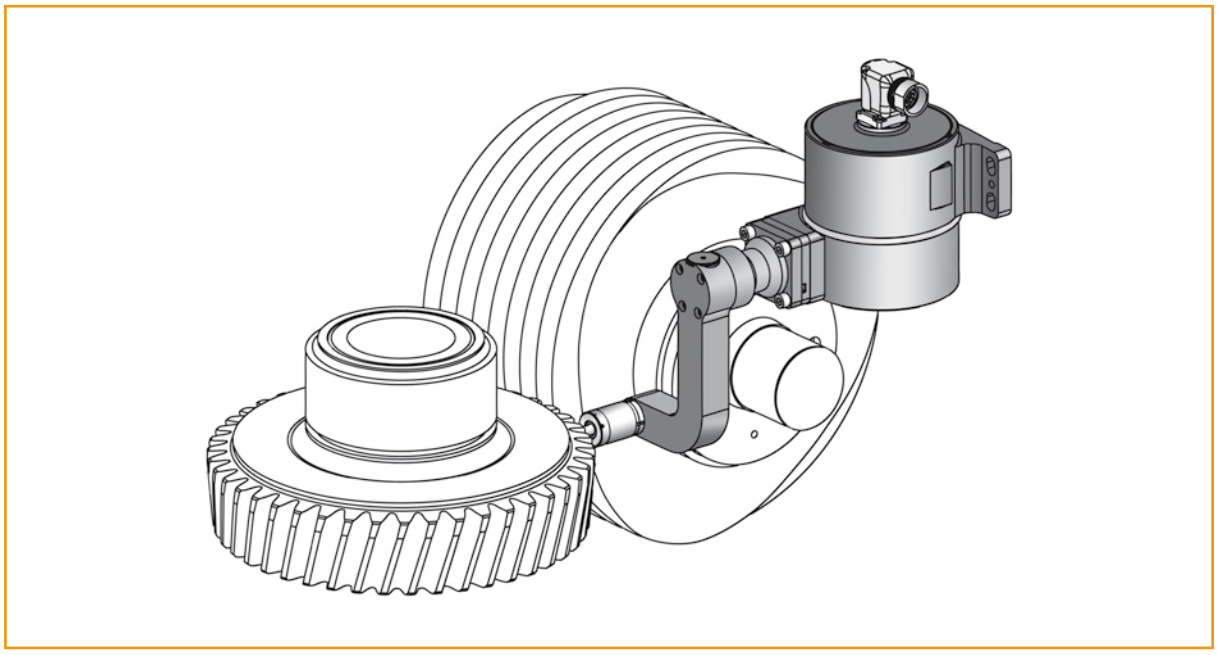
Data sheet
H-5616-8200-01-B

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HPGA high precision generic arm

www.renishaw.com/hpga



The HPGA is a motorised tool setting arm, for use on both CNC lathes and grinding machines.

The patented rotary kinematic design ensures highly repeatable stylus positioning each time the HPGA is rotated into its 'ARM READY' position.

The HPGA provides improved repeatability in all three major machine axes. With the innovative new SwarfStop™ seal design, it can withstand the harshest of environments.

⚠ **CAUTION:** The HPGA is designed specifically for use with the TSI 3 and HSI interfaces. Do not use the HPGA with any other interface.

System components

Hub and base assembly
The hub and base assembly is a fully sealed, compact design that supports a wide range of customer specific arm configurations.

The plug and socket connector on the hub and base assembly allows the user to detach the cable easily thus simplifying installation and in the field replacement.

Probe module
The hub and base accommodates either the LP2 compact probe or the RENGAGE™ high accuracy strain gauge probe, MP250.

HSI and TSI 3 interfaces
The HSI and TSI 3 are hard-wired transmission interfaces, which convey and process signals between the inspection probe and the CNC machine control.

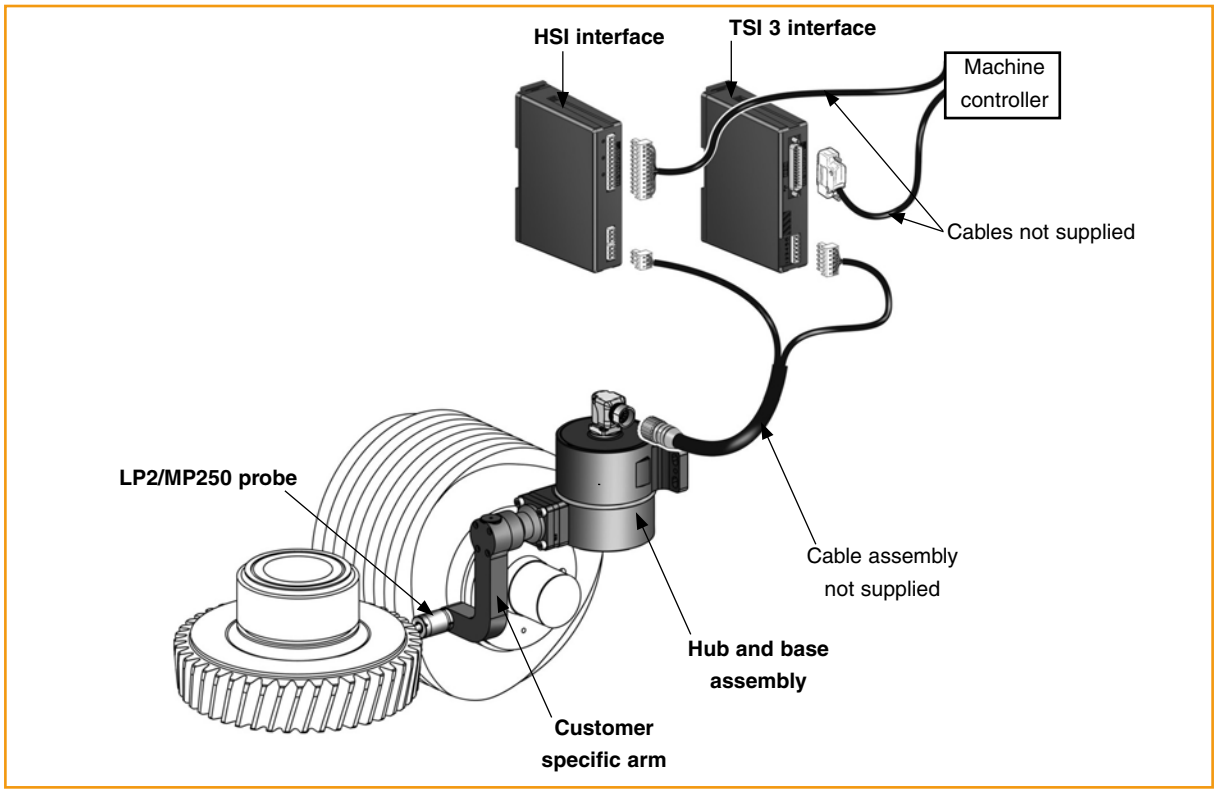
Both interfaces are DIN rail mounted and signals from the probes are split between the two interfaces.

Benefits

- Tool setting times up to 90% faster.
- The hub and base assembly is manufactured from cast iron material. The improved hardness results in improved repeatability.
- 3 µm (2σ) repeatability in all three machine axes.
- Improved reliability in both grinding and normal machining environments with new seal design.
- Strain gauge compatibility for improved repeatability and multi-axis directional performance.
- The arm to hub mechanical connection is non-permanent and thus suitable for a selection of appropriate arms during machine build.
- Sealed to IPX8 (static).

Data sheet
HPGA high precision generic arm

HPGA system



Specification

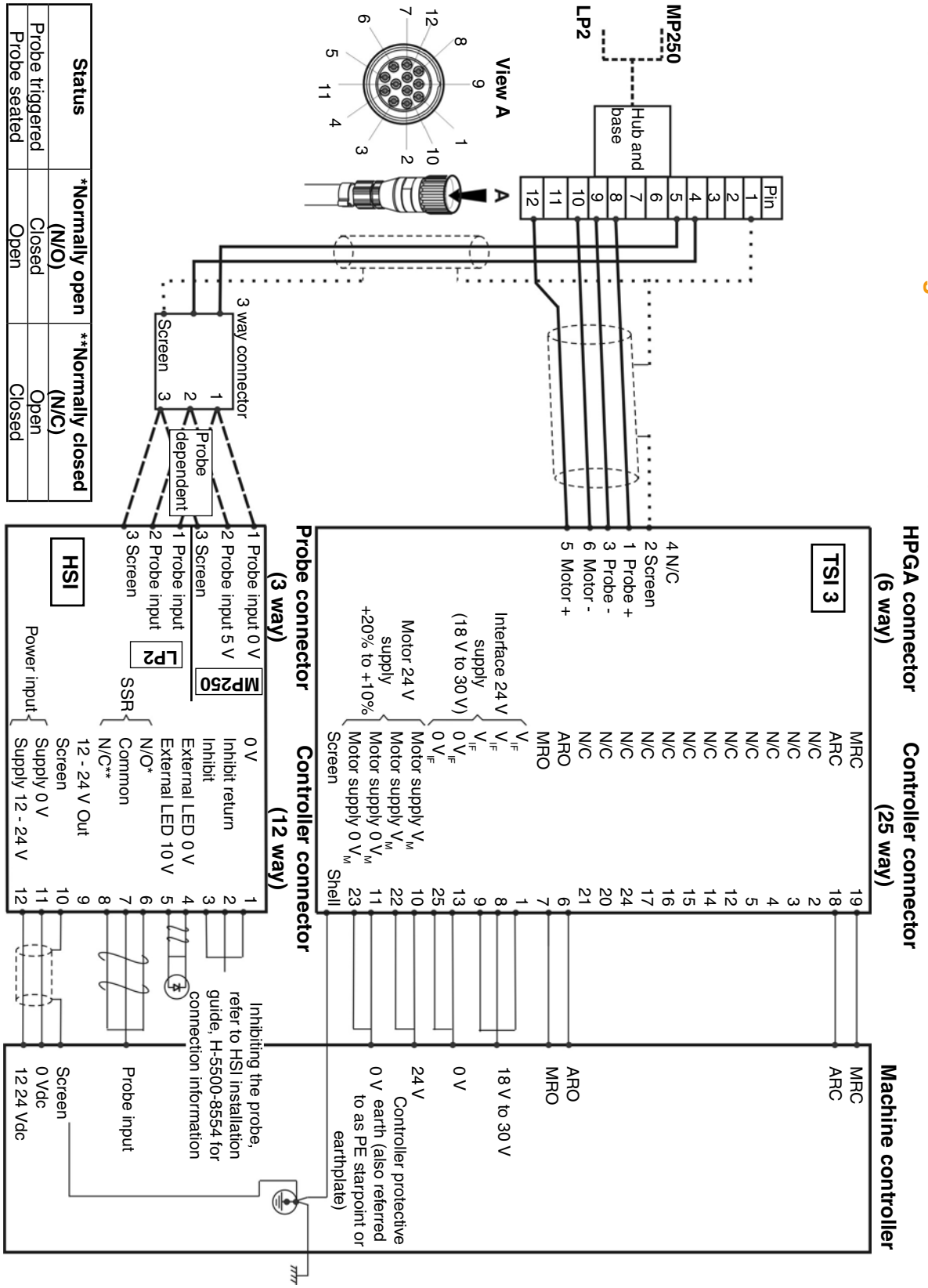
Primary application	Workpiece inspection and tool setting on cutter grinder machines and CNC lathes
Sense directions	Probe ±X, ±Y, +Z
Arm sweep angle	90° (typical)
Weight	3.9 kg (137.57 oz), typical hub and base only
Uni-directional system repeatability	3.0 µm 2 sigma*
ARO (arm ready output) to MRO (machine ready output)	2 seconds typical
MRO (machine ready output) to ARO (arm ready output)	2 seconds typical
Power supply approvals	BS EN/ISO 60950-1
Sealing	IPX8 (static)
Storage temperature	-25 °C to 70 °C (-13 °F to 158 °F)
Operating temperature	5 °C to 55 °C (41 °F to 131 °F)
Cable protection	The installer is responsible for ensuring adequate protection of the HPGA cable during normal use in the machining environment.
Probe §	LP2 or MP250
Interface	TSI 3 and HSI

* The system includes the hub and 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 installation using a TSI 3 and a HSI



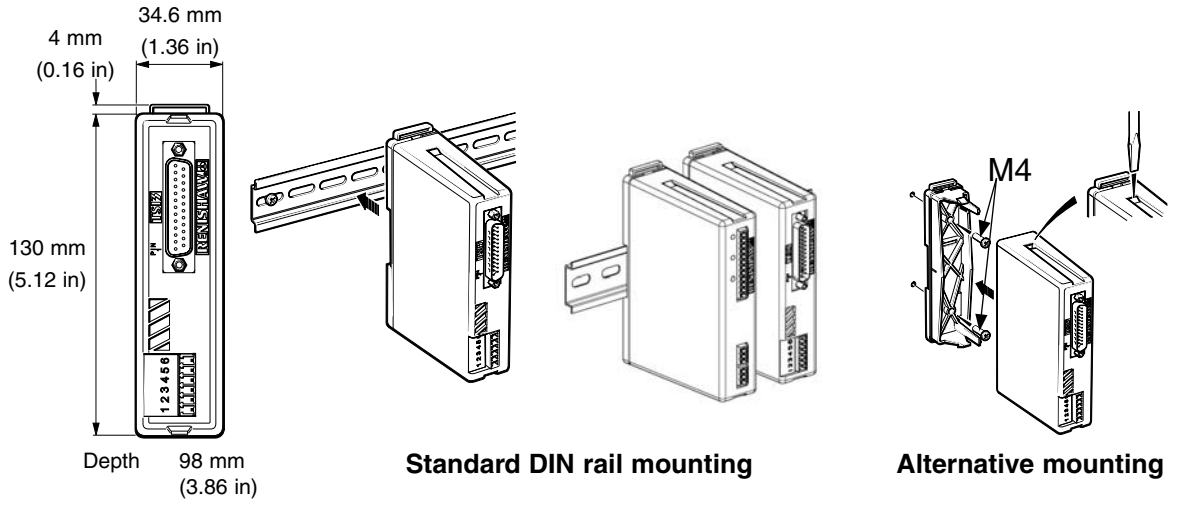
Status	*Normally open (N/O)	**Normally closed (N/C)
Probe triggered	Closed	Open
Probe seated	Open	Closed

NOTES:

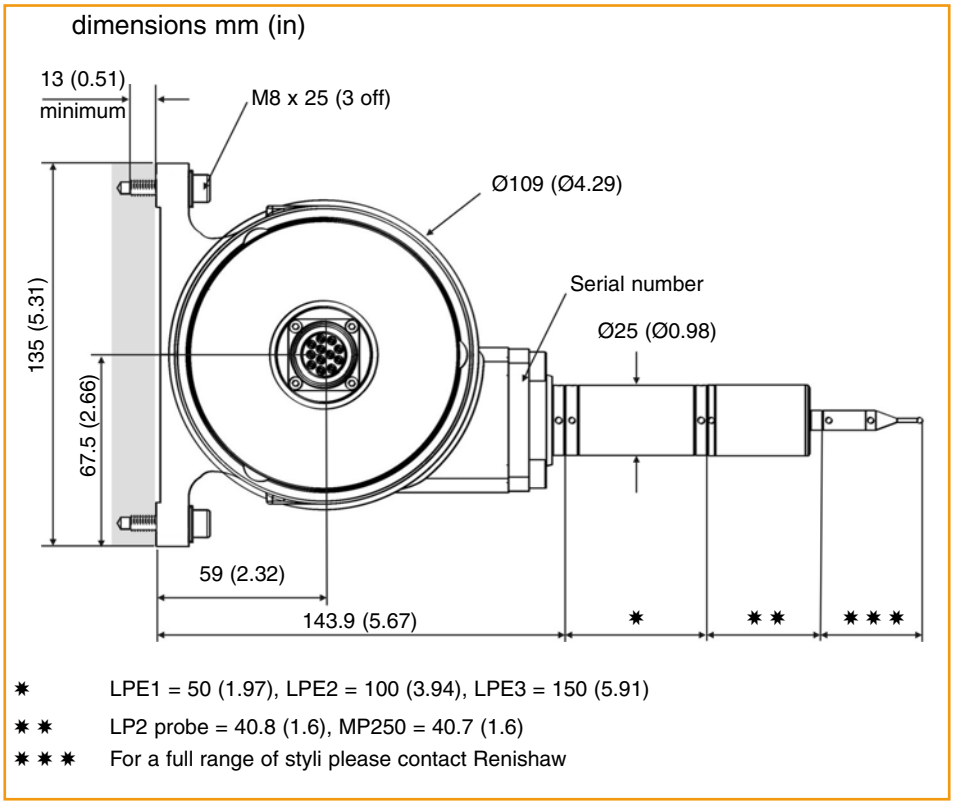
When the SSR is connected as normally open (N/O), the MP250 will remain in the non-triggered (seated) state if the power supply is interrupted or if the probe is damaged.

The TSI 3 interface will show a probe open condition whatever the status of the MP250 probe. For this reason the TSI 3 probe output must be ignored and the probe status from the HSI interface used.

TSI 3 and HSI interface units



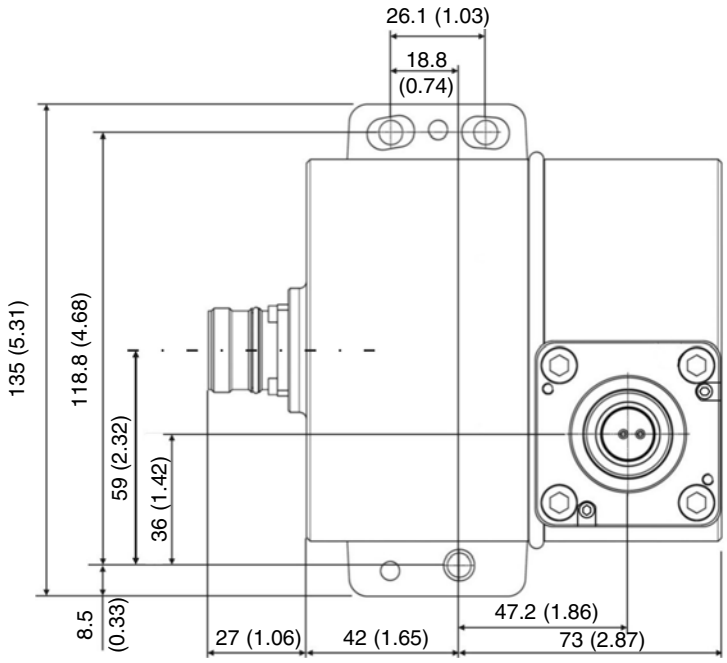
HPGA dimensions (side view)



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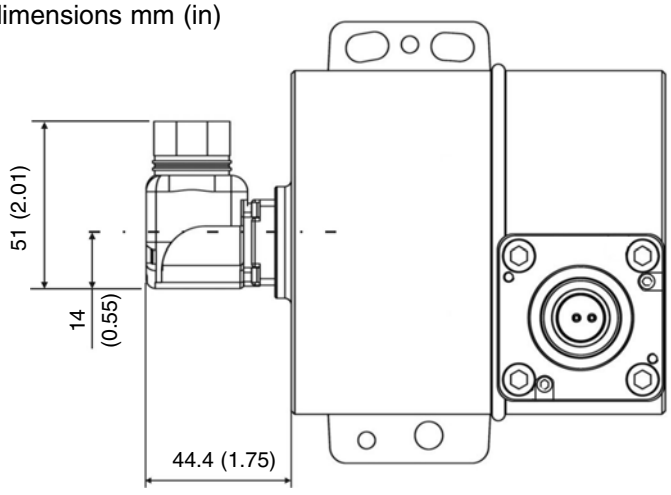
HPGA dimensions (top view) with straight connector

dimensions mm (in)



HPGA 90° connector dimensions

dimensions mm (in)



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Parts list – please quote the part number when ordering equipment

Type	Part no.	Description
HPGA kit	A-5616-0401	Hub and base assembly, TSI 3 interface, HSI interface and installation and user's guide.
HPGA 90° kit	A-5616-0451	90° hub and base assembly, TSI 3 interface, HSI interface and installation and user's guide.
HPGA hub and base assembly	A-5616-0302	Hub and base assembly, installation and user's guide and packaging.
HPGA 90° hub and base assembly	A-5616-0352	90° hub and base assembly, installation and user's guide and packaging.
HSI interface	A-5500-1000	HSI system interface with DIN rail mounting and three terminal blocks, quick-start guide and packaging.
TSI 3 interface	A-2181-0465	TSI 3 system interface with DIN rail mounting.
MP250 probe	A-5500-1600	MP250 probe with tool kit (C spanner x 2 and stylus tool) and quick-start guide.
LP2 probe	A-2063-6098	LP2 probe complete with two C spanners and TK1 tool kit.
LPE1	A-2063-7001	LPE1 extension bar - 50 mm long.
LPE2	A-2063-7002	LPE2 extension bar - 100 mm long.
LPE3	A-2063-7003	LPE3 extension bar - 150 mm long.
C spanner	A-2063-7587	C spanner.
Stylus tool	M-5000-3707	Tool for tightening/releasing styli.
Publications. These can be downloaded from our web site at www.renishaw.com		
Styli	H-1000-3200	Technical specification: Styli and accessories.
Software features	H-2000-2289	Data sheet: Probe software for machine tools - illustrated features.
Software list	H-2000-2298	Data sheet: Probe software for machine tools - list of programs.
HSI	A-5500-8550	Quick-start guide: For rapid set-up of the HSI interface, includes CD with installation guides.
MP250	A-5500-8500	Quick-start guide: For rapid set-up of the MP250 probe, includes CD with installation guides.
LP2	H-2000-5021	Installation and user's guide: LP2 probe system.

For worldwide contact details, please visit our main web site at www.renishaw.com/contact

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