



6-Axis Force Torque Sensor

High accuracy
Ultra-low temperature drift
Anti-overload Capacity: 350%

- Polishing and Grinding
- Robot Hand Guiding
- Precision Assembly
- Wind Tunnel Test



- High static overload protection
- High speed ADC sampling: 24Bit
- Data output rate: 2000Hz
- High signal-to-noise ratio
- Optimized strain gauge measurement structure
- Built-in decoupling, filtering and temperature compensation algorithm
- Low zero drift, temperature drift and crosstalk

Product Description

- HPS-FT series sensors are high-performance digital six-axis force torque sensors that accurately measure the force and torque on the three spatial coordinate axes of X, Y, and Z. The sensors adopt strain gauge structure that can withstand up to 350% overload during operation thanks to its anti-overload capability and durability.
- High-precision strain gauge and structure design help the sensors achieve higher signal-to-noise ratio and sensitivity. Besides, the built-in temperature algorithm highly reduces temperature drift caused by temperature changes.
- 6-axis force torque sensors can be mounted on industrial robots, collaborative robots, exoskeleton robots and medical rehabilitation robots. They are also widely used in flexible gripper grasping, robot joints, automatic measurement and control, wind tunnel testing and other scenarios.

6-Axis Force Torque Sensor

Hypersen

- 3D Optical Profilometer
- 3D Line Confocal Sensor
- Chromatic Confocal Sensor
- High Speed Industrial Camera
- 6-Axis Force Torque Sensor**
- Laser Tool Setter
- Laser calibration sensor
- 3D Solid-state LiDAR
- ToF Ranging Sensor

Product Advantages

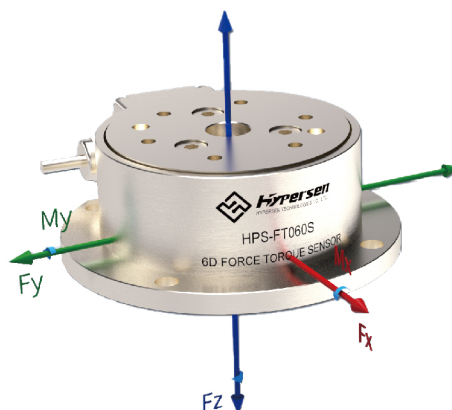
Ultra-low temperature drift

HPS-FT series 6-axis force torque sensors employ built-in temperature compensation algorithms to reduce the temperature drift greatly caused by temperature changes.



High sampling frequency: 2700Hz

The sensors feature ultra-high-speed sampling frequency (24 bit high speed ADC sampling) with the hysteresis of 0.1 (%F.S) and data output frequency at 2700Hz. Hypersen force sensors support Ethernet / EtherCAT / RS-485 / and analog interface output.



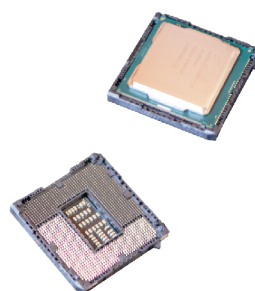
Anti-Overload Capacity: 350%

HPS-FT series 6-axis force torque sensors enjoy super anti-overload capacity by adopting excellent materials and structure, which can withstand 350% overload under normal conditions.



High linearity & Low crosstalk

High linearity of measurement results and extremely low crosstalk can be achieved through built-in high-performance embedded microprocessor, advanced embedded data processing, filtering and decoupling algorithms.



IO output for emergency stop

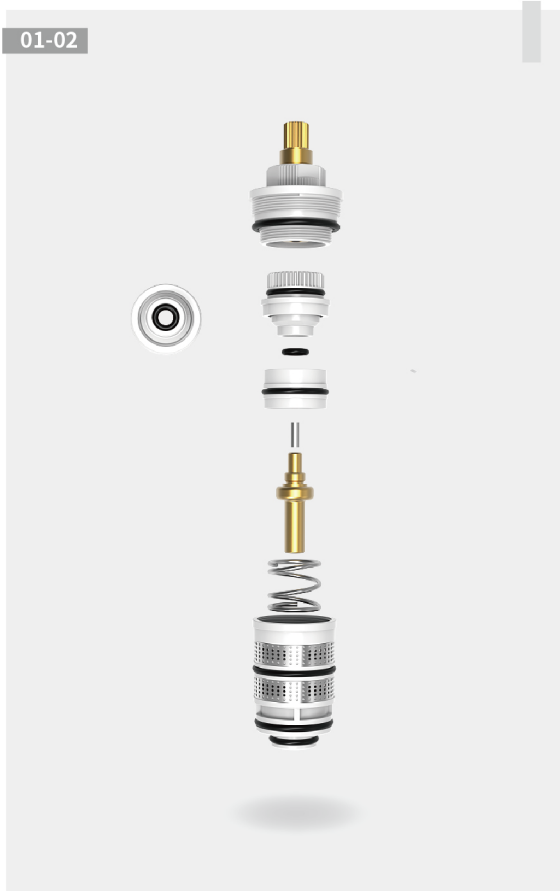
Hypersen 6-axis force torque sensor can be used with EtherCAT and Ethernet adapter. The IO of the adapter can be connected to the emergency stop IO of the robot. After setting the alarm threshold, the adapter can stop the robot within 0.5ms by IO signal to prevent damage to the sensor and workpiece when the force in a certain direction exceeds the set threshold.



Excellent performance to deal with different scenarios

Applications

Assembly Industry



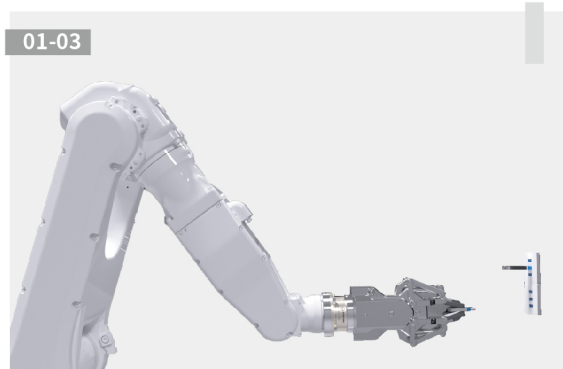
•Precision assembly



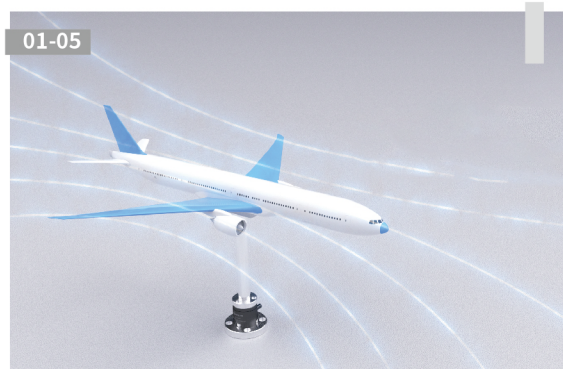
•Turning screws



•Force-controlled grasping



•Force-controlled insertion



•Wind tunnel test

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hypersen

3D Optical
Profilometer

3D Line
Confocal Sensor

Chromatic
Confocal Sensor

High Speed
Industrial Camera

**6-Axis Force
Torque Sensor**

Laser Tool Setter

Laser calibration
sensor

3D Solid-
state LiDAR

ToF Ranging
Sensor

Excellent performance to deal with different scenarios

Applications

Medical/Grinding/Depalletizing Industry

02-02



•Robot hand guiding

02-04



•Humanoid robot

02-01



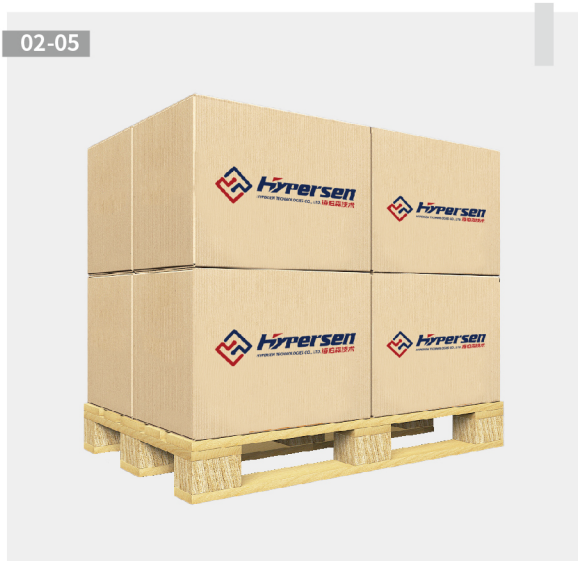
•Precision grinding

02-03







•Medical rehabilitation robot

02-05



•Palletizing & depalletizing

Technical Parameters






Model				
	HPS-FT025	HPS-FT060E	HPS-FT060S	HPS-FT120
System structure	Digital output + Adaptor	Digital output + Adaptor	Digital output + Adaptor	Digital output + Adaptor
Measuring range	±150N (Fxy)	±600N (Fxy)	±1000N (Fxy)	±3000N (Fxy)
	±200N (Fz)	±800N (Fz)	±1400N (Fz)	±4000N (Fz)
	±4Nm (Mxy)	±15Nm (Mxy)	±30Nm (Mxy)	±150Nm (Mxy)
	±4Nm (Mz)	±15Nm (Mz)	±30Nm (Mz)	±150Nm (Mz)
Resolution	0.02 (%FS) (Fxy)	0.01 (%FS) (Fxy)	0.01 (%FS) (Fxy)	0.02 (%FS) (Fxy)
	0.02 (%FS) (Fz)	0.01 (%FS) (Fz)	0.01 (%FS) (Fz)	0.02 (%FS) (Fz)
	0.025 (%FS) (Mxy)	0.01 (%FS) (Mxy)	0.01 (%FS) (Mxy)	0.01 (%FS) (Mxy)
	0.025 (%FS) (Mz)	0.01 (%FS) (Mz)	0.01 (%FS) (Mz)	0.01 (%FS) (Mz)
Non-linearity	<1 (%FS)	<1.25 (%FS)	<1.25 (%FS)	<2 (%FS)
Working temperature	-10~+55°C			
Power consumption	0.5W			
Communication interface	Ethernet.EtherCAT.RS485.Analog output			
Power supply	DC 12V-24V			
External connector type	Cold-pressed terminal			
Data output rate	2000Hz (max)			
Protection degree	IP65 (Customizable: IP67)			
Overload capacity*3	350%			
Crosstalk	<2 (%FS)			
Weight*4	≈28g	≈255g	≈502g	≈1450g
Size	23x26.2mm (diameter)	87x78 (diameter) x28.5mm	87x78 (diameter) x28.5mm	142x126 (diameter) 50mm

*All technical indicators are subject to the latest official product data sheet

*The final right of interpretation belongs to Hypersen

6-Axis Force Torque Sensor

hypersen

Model					
	HPS-FT080-5	HPS-FT080-20	HPS-FT080-40	HPS-FT080-60	HPS-FT080-80
System structure	Digital output + Adaptor	Digital output + Adaptor	Digital output + Adaptor	Digital output + Adaptor	Digital output + Adaptor
Measuring range	±150N (Fxy)	±600N (Fxy)	±1200N (Fxy)	±1800N (Fxy)	±2400N (Fxy)
	±200N (Fz)	±800N (Fz)	±1600N (Fz)	±2400N (Fz)	±3200N (Fz)
	±5Nm (Mxy)	±20Nm (Mxy)	±40Nm (Mxy)	±60Nm (Mxy)	±80Nm (Mxy)
	±5Nm (Mz)	±20Nm (Mz)	±40Nm (Mz)	±60Nm (Mz)	±80Nm (Mz)
Resolution	0.01 (%FS) (Fxy)				
	0.01 (%FS) (Fz)				
	0.01 (%FS) (Mxy)				
	0.01 (%FS) (Mz)				
Non-linearity	<0.5 (%FS)				
Working temperature	-20~+80°C				
Power consumption	1.5W				
Communication interface*1	Ethernet.EtherCAT.RS485.Analog output				
Crosstalk	<2 (%FS)				
Size	26x80(diameter) mm				
Power supply	DC 12V-24V				
External connector type	Cold-pressed terminal				
Data output rate*2	2700Hz (max)				
Protection degree	IP65 (Customizable: IP67)				
Overload capacity*3	350%				
Weight*4	≈259g	≈269g	≈478g	≈488g	≈686g

*1 The default baud rate of the RS485 interface is 115200bps. The user can modify the communication baud rate through the baud rate setting command, and then send the save user setting command. The modified value will be saved to the internal Flash memory of the amplifier and will not be lost when the power is off.

*2 To achieve the maximum output data frequency of 2700Hz, you need to use EtherCAT, Ethernet or analog output adapter for interface conversion. The maximum output data frequency using the RS485 interface is 2200HZ.

*3 Overload within the overload range will not damage the sensor, but it will cause changes in sensor parameters.

*4 Cable is not included.

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