Robotic Force & Torque Sensors Catalog

❑ KL6D-M30-B Series

Six-Axis Force Sensor

- For humanoid robots, industrial robotic arm force detection）

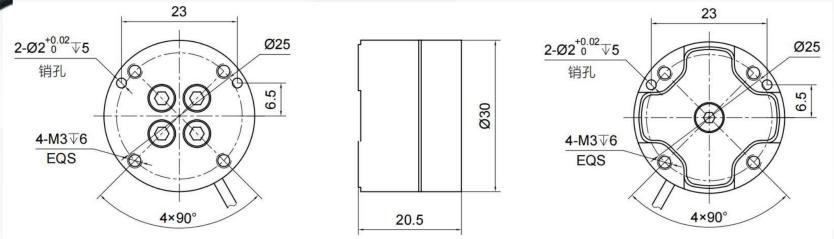
Product Overview

- Can be used for force detection in humanoid robot wrists
- High-precision resistive strain gauge principle
- High-speed sampling digital communication (external)
- High accuracy, strong anti-eccentric load capability
- Flange mounting
- Custom specifications accepted

Technical parameter

Signal	RS485	Sampling frequency	1000HZ
Nonlinerality	±0.5%F.S	Zero-point temperature influence	±0.1%F.S/10℃
Interaxial coupling	±2%F.S	Output temperature influence	±0.1%F.S/10℃
Repeatability	±0.1%F.S	Operating temperature range	-10～+40℃
Creep	±0.1%F.S	Safe load limit	150%F.S
Sealing grade	IP65	Extreme load limit	200%F.S
Material	Stainless steel	Recommended excitation voltage	5～36V DC
Insulation resistance	≥5000MΩ	Flexible cable	3m

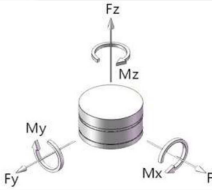
Mounting dimensions



Measuring range

	Fx	Fy	Fz	Mx	My	Mz
Measuring range（F.S）	200N	200N	300N	4N·m	4N·m	4N·m
	300N	300N	500N	8N·m	8N·m	8N·m
	400N	400N	700N	10N·m	10N·m	10N·m
	700N	700N	1000N	12N·m	12N·m	12N·m

Force diagram



❑KL6D-A57 Series

Six-Axis Force Sensor

- Force detection at the end of collaborative robot

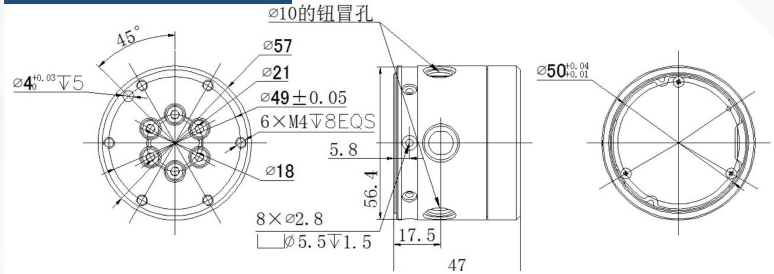
Product Overview

- Can be used for force detection in collaborative robotic arms
- High-precision resistive strain gauge principle
- High-speed sampling digital communication
- High accuracy, strong anti-eccentric load capability
- Ring-style mounting
- Custom specifications accepted

Technical parameter

Signal	RS485	Sampling frequency	1000HZ
Nonlinerality	±0.5%F.S	Zero-point temperature influence	±0.1%F.S/10℃
Interaxial coupling	±2%F.S	Output temperature influence	±0.1%F.S/10℃
Repeatability	±0.1%F.S	Operating temperature range	-10～+40℃
Creep	±0.1%F.S	Safe load limit	150%F.S
Sealing grade	IP65	Extreme load limit	200%F.S
Material	Alumnium alloy	Recommended excitation voltage	5～36V DC
Insulation resistance	≥5000MΩ	Flexible cable	3m

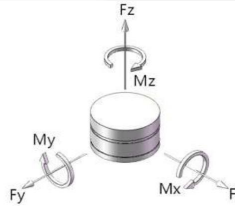
Mounting dimensions



Measuring range

	Fx	Fy	Fz	Mx	My	Mz
Measuring range (F.S)	100N	100N	100N	4N·m	4N·m	4N·m
	200N	200N	200N	8N·m	8N·m	8N·m
	400N	400N	500N	12N·m	12N·m	12N·m
	500N	500N	700N	18N·m	18N·m	18N·m

Force diagram



❑KL6D-D65-B Series

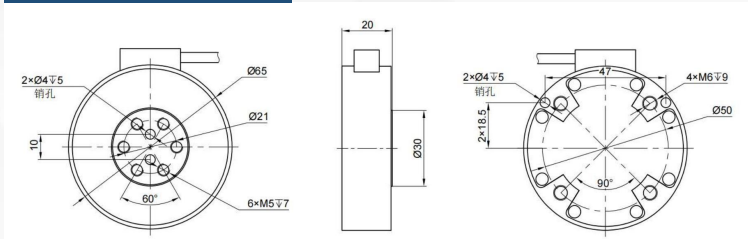
Six-Axis Force Sensor

- For humanoid robots, robotic arm force detection

Product Overview

- Can be used for force detection in Humanoid Robot Foot & Industrial Robotic Arm Force Detection
- High-precision resistive strain gauge principle
- High-speed sampling digital communication
- High accuracy, strong anti-eccentric load capability
- Flange mounting
- Custom specifications accepted

Mounting dimensions



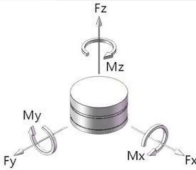
Technical parameter

Signal	RS485	Sampling frequency	1000HZ
Nonlinerality	±0.5%F.S	Zero-point temperature influence	±0.1%F.S/10°C
Interaxial coupling	±2%F.S	Output temperature influence	±0.1%F.S/10°C
Repeatability	±0.1%F.S	Operating temperature range	-10～+40°C
Creep	±0.1%F.S	Safe load limit	150%F.S
Sealing grade	IP65	Extreme load limit	200%F.S
Material	Stainless steel	Recommended excitation voltage	5～36V DC
Insulation resistance	≥5000MΩ	Flexible cable	3m

Measuring range

	F_X	F_Y	F_Z	M_X	M_Y	M_Z
Measuring range (F.S)	1000N	1000N	2000N	80N·m	80N·m	80N·m
	1500N	1500N	3000N	120N·m	120N·m	120N·m
	2000N	2000N	4000N	160N·m	160N·m	160N·m
	2500N	2500N	5000N	200N·m	200N·m	200N·m

Force diagram



❑KL6D-B75-B Series

Six-Axis Force Sensor

- Force detection at the end of collaborative robot

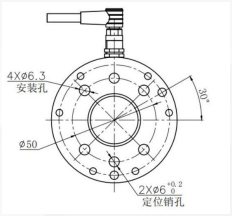
Product Overview

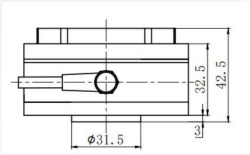
- Can be used for force detection in industrial robotic arms
- High-precision resistive strain gauge principle
- High-speed sampling digital communication
- High accuracy, strong anti-eccentric load capability
- Flange mounting
- Custom specifications accepted

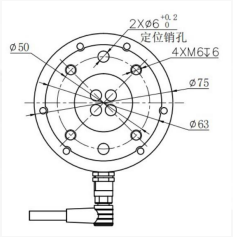
Technical parameter

Signal	RS485	Sampling frequency	1000HZ
Nonlinerality	±0.5%F.S	Zero-point temperature influence	±0.1%F.S/10°C
Interaxial coupling	±1%F.S	Output temperature influence	±0.1%F.S/10°C
Repeatability	±0.1%F.S	Operating temperature range	-10～+40°C
Creep	±0.1%F.S	Safe load limit	300%F.S
Sealing grade	IP65	Extreme load limit	500%F.S
Material	Alumnium alloy	Recommended excitation voltage	5～36V DC
Insulation resistance	≥5000MΩ	Flexible cable	3m

Mounting dimensions



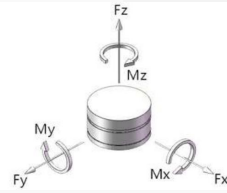




Measuring range

	Fx	Fy	Fz	Mx	My	Mz
Measuring range (F.S)	100N	100N	100N	4N·m	4N·m	4N·m
	200N	200N	200N	8N·m	8N·m	8N·m
	400N	400N	500N	12N·m	12N·m	12N·m
	500N	500N	700N	18N·m	18N·m	18N·m

Force diagram



❑KL6D-B80-B Series

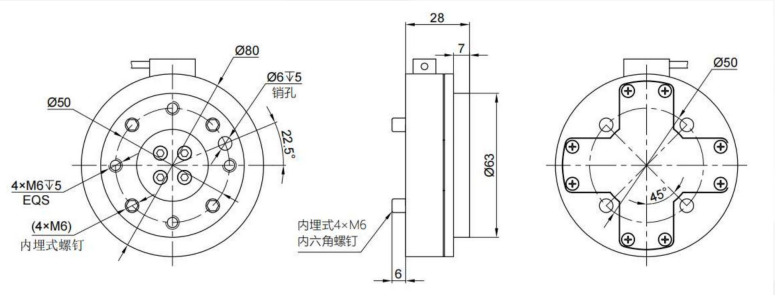
Six-Axis Force Sensor

- Force detection at the end of collaborative robot

Product Overview

- Can be used for force detection in industrial robotic arms
- High-precision resistive strain gauge principle
- High-speed sampling digital communication
- High accuracy, strong anti-eccentric load capability
- Flange mounting
- Custom specifications accepted

Mounting dimensions



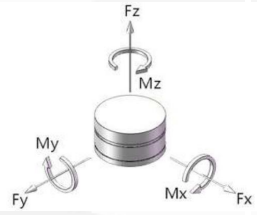
Technical parameter

Signal	RS485	Sampling frequency	1000
Nonlinerality	±0.5%F.S	Zero-point temperature influence	±0.1%F.S/10℃
Interaxial coupling	±1%F.S	Output temperature influence	±0.1%F.S/10℃
Repeatability	±0.1%F.S	Operating temperature range	-10～+40℃
Creep	±0.1%F.S	Safe load limit	300%F.S
Sealing grade	IP65	Extreme load limit	500%F.S
Material	Alumnium alloy	Recommended excitation voltage	5～36V DC
Insulation resistance	≥5000MΩ	Flexible cable	3m

Measuring range

	F_X	F_Y	F_Z	M_X	M_Y	M_Z
Measuring range（F.S）	50N	50N	50N	2N·m	2N·m	2N·m
	100N	100N	100N	4N·m	4N·m	4N·m
	200N	200N	200N	8N·m	8N·m	8N·m
	300N	300N	300N	10N·m	10N·m	10N·m

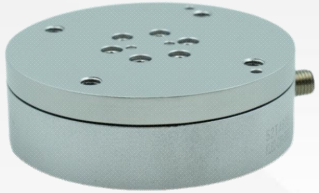
Force diagram



❑KL6D-C80-B Series

Six-Axis Force Sensor

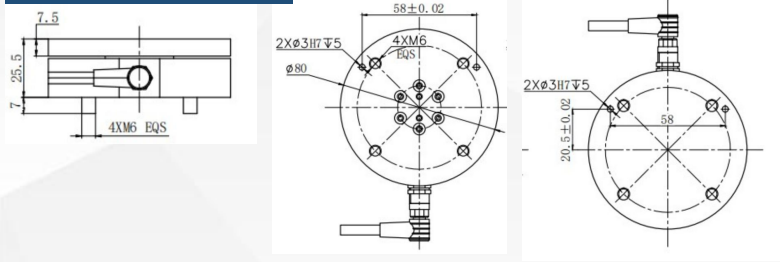
- Force detection at the end of collaborative robot



Product Overview

- Can be used for force detection in industrial robotic arms
- High-precision resistive strain gauge principle
- High-speed sampling digital communication
- High accuracy, strong anti-eccentric load capability
- Flange mounting
- Custom specifications accepted

Mounting dimensions



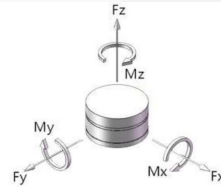
Technical parameter

Signal	RS485	Sampling frequency	1000
Nonlinerality	±0.5%F.S	Zero-point temperature influence	±0.1%F.S/10℃
Interaxial coupling	±1%F.S	Output temperature influence	±0.1%F.S/10℃
Repeatability	±0.1%F.S	Operating temperature range	-10～+40℃
Creep	±0.1%F.S	Safe load limit	300%F.S
Sealing grade	IP65	Extreme load limit	500%F.S
Material	Alumnium alloy	Recommended excitation voltage	5～36V DC
Insulation resistance	≥5000MΩ	Flexible cable	3m

Measuring range

Measuring range（F.S）	F_X	F_Y	F_Z	M_X	M_Y	M_Z
	100N	100N	200N	8N·m	8N·m	8N·m
	150N	150N	300N	10N·m	10N·m	10N·m
	250N	250N	500N	12N·m	12N·m	12N·m
	400N	400N	700N	15N·m	15N·m	15N·m

Force diagram



❑KL6D-B82-B Series

Six-Axis Force Sensor

- Force detection at the end of collaborative robot

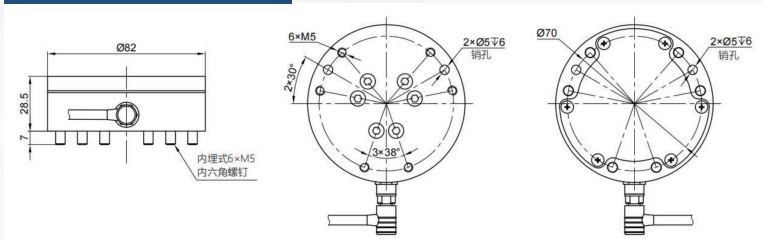
Product Overview

- Can be used for force detection in industrial robotic arms
- High-precision resistive strain gauge principle
- High accuracy, strong anti-eccentric load capability
- Flange mounting
- Custom specifications accepted

Technical parameter

Signal	RS485	Sampling frequency	1000
Nonlinerality	±0.5%F.S	Zero-point temperature influence	±0.1%F.S/10℃
Interaxial coupling	±1%F.S	Output temperature influence	±0.1%F.S/10℃
Repeatability	±0.1%F.S	Operating temperature range	-10～+40℃
Creep	±0.1%F.S	Safe load limit	300%F.S
Sealing grade	IP65	Extreme load limit	500%F.S
Material	Alumnium alloy	Recommended excitation voltage	5～36V DC
Insulation resistance	≥5000MΩ	Flexible cable	3m

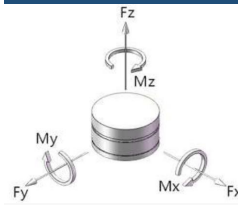
Mounting dimensions



Measuring range

	Fx	Fy	Fz	Mx	My	Mz
Measuring range（F.S）	100N	100N	100N	4N·m	4N·m	4N·m
	200N	200N	200N	8N·m	8N·m	8N·m
	400N	400N	500N	12N·m	12N·m	12N·m
	500N	500N	700N	15N·m	15N·m	15N·m

Force diagram



❑KL6D-D96 Series

Six-Axis Force Sensor

- Force detection for automation, machine tools, etc.

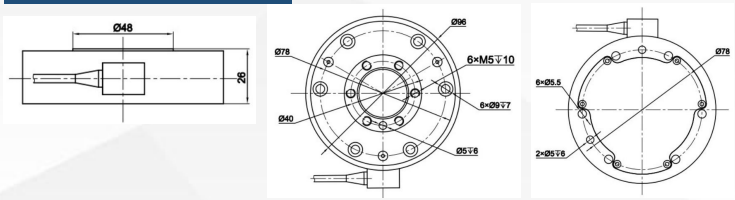
Product Overview

- Can be used for force detection in industrial robotic arms
- High-precision resistive strain gauge principle
- High accuracy, strong anti-eccentric load capability
- Flange mounting
- Custom specifications accepted

Technical parameter

Sensitivity	1.0±0.2mV/V	Zero-point balance	±1%F.S
Nonlinerality	±0.5%F.S	Zero-point temperature influence	±0.1%F.S/10℃
Interaxial coupling	±1%F.S	Output temperature influence	±0.1%F.S/10℃
Repeatability	±0.1%F.S	Operating temperature range	-10～+40℃
Creep	±0.1%F.S	Safe load limit	300%F.S
Sealing grade	IP65	Extreme load limit	500%F.S
Material	Alumnium alloy	Input resistance	400±50Ω
Insulation resistance	≥5000MΩ	Output resistance	352±3Ω
Flexible cable	3m	Recommended excitation voltage	5～10V DC

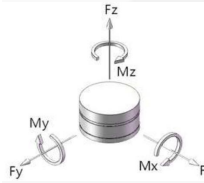
Mounting dimensions



Measuring range

	Fx	Fy	Fz	Mx	My	Mz
Measuring range（F.S）	200N	200N	400N	18N·m	18N·m	18N·m
	300N	300N	600N	24N·m	24N·m	24N·m
	500N	500N	1000N	50N·m	50N·m	50N·m
	1000N	1000N	2000N	100N·m	100N·m	100N·m

Force diagram



❑KL3F Series

Three-Axis Force Sensor

- Force detection for automation, machine tools, etc.

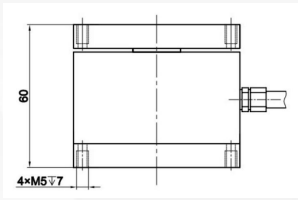
Product Overview

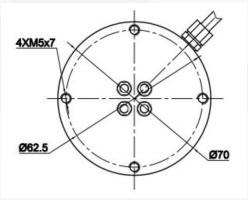
- Can be used for force detection of industrial Robotic arms
- High-precision resistive strain gauge principle
- High accuracy and strong anti-eccentric load capability
- Flange mounting
- Customized specifications accepted

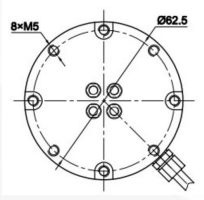
Technical parameter

Sensitivity	1.0±0.2mV/V	Zero-point balance	±1%F.S
Nonlinerality	±0.5%F.S	Zero-point temperature influence	±0.1%F.S/10℃
Interaxial coupling	±2%F.S	Output temperature influence	±0.1%F.S/10℃
Repeatability	±0.1%F.S	Operating temperature range	-10～+40℃
Creep	±0.1%F.S	Safe load limit	300%F.S
Sealing grade	IP65	Extreme load limit	500%F.S
Material	Alumnium alloy	Input resistance	400±50Ω
Insulation resistance	≥5000MΩ	Output resistance	352±3Ω
Flexible cable	3m	Recommended excitation voltage	5～10V DC

Mounting dimensions



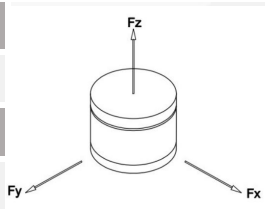




Measuring range

	F_X	F_Y	F_Z
Measuring range (F.S)	100N	100N	200N
	250N	250N	500N
	500N	500N	1000N
	750N	750N	1500N

Force diagram



❑JTS Series

Joint Torque Sensor

- For Robotic Arm Joint Torqu
  Testing, etc.

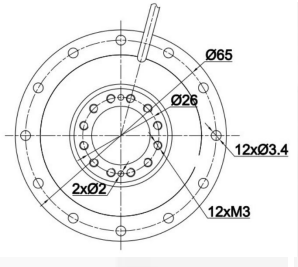
Product Overview

- Can be used for robotic arm joint torque detection
- High-precision resistive strain gauge principle
- High torsional stiffness, strong anti-overload capability
- Flange mounting
- Custom specifications accepted

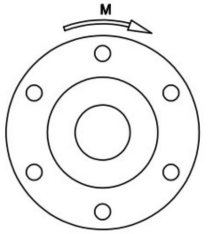
Technical parameter

Sensitivity	1.3±0.2mV/V	Zero-point balance	±2%F.S
Nonlinerality	±0.5%F.S	Zero-point temperature influence	±0.05%F.S
Repeatability	±0.1%F.S	Output temperature influence	±0.1%F.S
Creep	±0.1%F.S	Operating temperature range	-10～+40℃
Sealing grade	IP65	Safe load limit	300%F.S
Material	Alloy steel	Extreme load limit	500%F.S
Insulation resistance	≥2000MΩ	Input resistance	1050±100Ω
Flexible cable	0.1m	Output resistance	1050±10 Ω
Cable diameter	2mm	Recommended excitation voltage	5～10V DC

Mounting dimensions



Force diagram



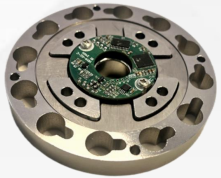
Measuring range

Measuring range（F.S）	50N·m	100N·m	150N·m	200N·m	250N·m

❑JTS06-D Series

Joint Torque Sensor

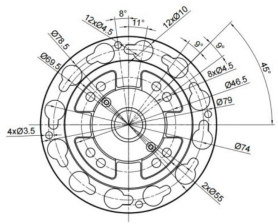
- Force detection for robotic arms, etc.



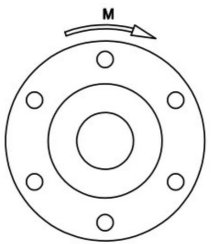
Product Overview

- Can be used for robotic arm joint torque detection
- High-precision resistive strain gauge principle
- High torsional stiffness, strong anti-overload capability
- Flange mounting
- Custom specifications accepted

Mounting dimensions



Force diagram



Measuring range

Measuring range（F.S）	80N·m	120N·m	160N·m	200N·m	240N·m

Technical parameter

Signal	RS485	Zero-point balance	±2%F.S
Nonlinerality	±0.5%F.S	Zero-point temperature influence	±0.05%F.S
Repeatability	±0.1%F.S	Output temperature influence	±0.1%F.S
Creep	±0.1%F.S	Operating temperature range	-10～+40℃
Sealing grade	IP65	Safe load limit	300%F.S
Material	Stainless steel	Extreme load limit	500%F.S
Insulation resistance	≥2000MΩ	Input resistance	1050±100Ω
Flexible cable	0.5m	Output resistance	1050±10 Ω
Cable diameter	2mm	Recommended excitation voltage	5～10V DC

❑NJ-K Series

Joint Torque Sensor

- Force detection for testing, robotic arms, etc.

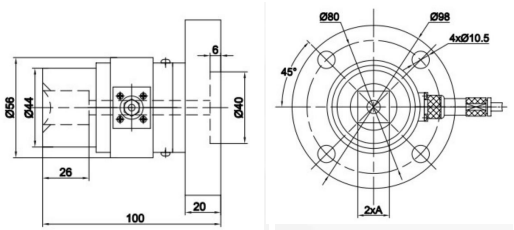
Product Overview

- Can be used for torque wrench calibration
- High-precision resistive strain gauge principle
- High torsional stiffness, strong anti-overload capability
- Flange mounting
- Custom specifications accepted

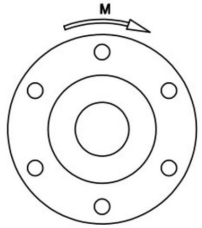
Technical parameter

Sensitivity	2.0±0.05mV/V	Zero-point balance	±2%F.S
Nonlinerality	±1%F.S	Zero-point temperature influence	±0.05%F.S/10℃
Repeatability	±0.1%F.S	Output temperature influence	±0.1%F.S/10℃
Creep	±0.05%F.S	Operating temperature range	-30～+70℃
Sealing grade	IP65	Safe load limit	300%F.S
Material	Alloy steel	Extreme load limit	500%F.S
Insulation resistance	≥5000MΩ	Input resistance	400±50Ω
Flexible cable	5m	Output resistance	352±3Ω
Cable diameter	5mm	Recommended excitation voltage	5～10V DC

Mounting dimensions



Force diagram



Measuring range

Measuring range（F.S）	50N·m	100N·m	200N·m	300N·m	500N·m	800N·m
A（mm）	6.35	9.52	12.7	12.7	19.05	19.05

❑JTSB Series

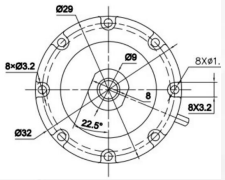
Mini Force Sensor

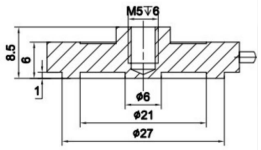
- Force detection for testing, automation, etc.

Product Overview

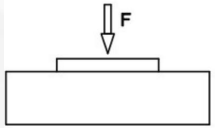
- Can be used for robot force measurement
- High-precision resistive strain gauge principle
- Low installation height, strong anti-overload capability
- Flange mounting
- Custom specifications accepted

Mounting dimensions





Force diagram



Measuring range

Force range（N）	500N	1000N	1500N	2000N

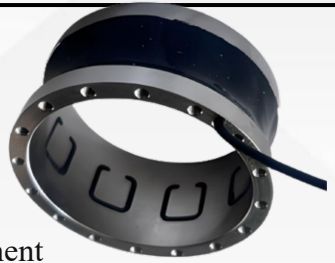
Technical parameter

Sensitivity	2.0±0.2mV/V	Zero-point balance	±1%F.S
Nonlinerality	±0.2%F.S	Zero-point temperature influence	±0.05%F.S/10℃
Repeatability	±0.1%F.S	Output temperature influence	±0.1%F.S/10℃
Creep	±0.05%F.S	Operating temperature range	-30～+70℃
Sealing grade	IP65	Safe load limit	200%F.S
Material	Stainless steel	Extreme load limit	300%F.S
Insulation resistance	≥5000MΩ	Input resistance	750±50Ω
Flexible cable	3m	Output resistance	702±3Ω
Cable diameter	2mm	Recommended excitation voltage	5～10V DC

❑JTSC Series

Joint Torque Sensor

- Force detection for robotic arms, etc.



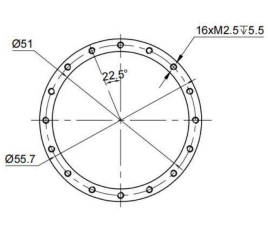
Product Overview

- Can be used for robot torque measurement
- High-precision resistive strain gauge principle
- Low installation height, strong anti-overload capability
- Flange mounting
- Custom specifications accepted

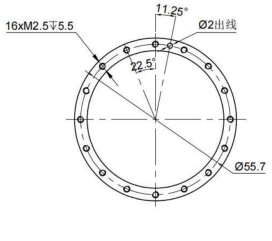
Technical parameter

Sensitivity	1.0±0.2mV/V	Zero-point balance	±2%F.S
Nonlinerality	±0.5%F.S	Zero-point temperature influence	±0.05%F.S/10℃
Repeatability	±0.1%F.S	Output temperature influence	±0.1%F.S/10℃
Creep	±0.05%F.S	Operating temperature range	-30～+70℃
Sealing grade	IP65	Safe load limit	200%F.S
Material	Stainless steel	Extreme load limit	300%F.S
Insulation resistance	≥5000MΩ	Input resistance	4050±100Ω
Flexible cable	3m	Output resistance	4000±40Ω
Cable diameter	2mm	Recommended excitation voltage	5～12V DC

Mounting dimensions



Force diagram



Measuring range

Measuring range（F.S）	80N ·m	120N ·m	160N ·m	200N·m

❑NK20 Series

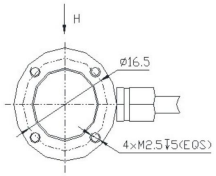
Mini Force Sensor

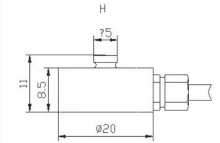
- Force detection for testing, automation, etc.

Product Overview

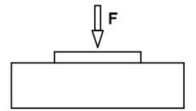
- Can be used for 3C automation force measurement, robot force measurement
- High-precision resistive strain gauge principle
- Low installation height, strong anti-overload capability
- Flange mounting
- Custom specifications accepted

Mounting dimensions





Force diagram



Measuring range

Measuring range（F.S）	200N	500N	1000N	2000N

Technical parameter

Sensitivity	1.5±0.3mV/V	Zero-point balance	±2%F.S
Nonlinerality	±0.5%F.S	Zero-point temperature influence	±0.05%F.S/10℃
Repeatability	±0.1%F.S	Output temperature influence	±0.1%F.S/10℃
Creep	±0.05%F.S	Operating temperature range	-30～+70℃
Sealing grade	IP65	Safe load limit	200%F.S
Material	Stainless steel	Extreme load limit	300%F.S
Insulation resistance	≥5000MΩ	Input resistance	1000±100Ω
Flexible cable	3m	Output resistance	1000±100 Ω
Cable diameter	3mm	Recommended excitation voltage	5～10V DC

❑MS01 Series

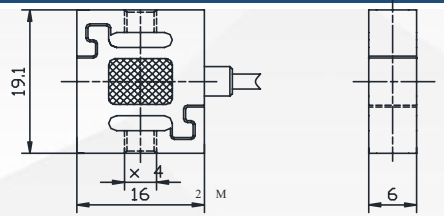
Mini Force Sensor

- Force detection for testing, automation, etc.

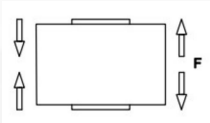
Product Overview

- Can be used for 3C automation force measurement, robot force measurement
- High-precision resistive strain gauge principle
- Compact size, high accuracy, strong anti-overload capability
- Custom specifications accepted

Mounting dimensions



Force diagram



Measuring range

Measuring range (F.S)	50N	100N	200N	500N

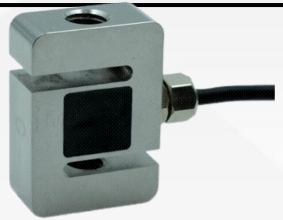
Technical parameter

Sensitivity	2.0±0.5mV/V	Zero-point balance	±2%F.S
Nonlinerality	±0.5%F.S	Zero-point temperature influence	±0.05%F.S/10℃
Repeatability	±0.1%F.S	Output temperature influence	±0.1%F.S/10℃
Creep	±0.05%F.S	Operating temperature range	-30～+70℃
Sealing grade	IP65	Safe load limit	200%F.S
Material	Stainless steel	Extreme load limit	300%F.S
Insulation resistance	≥5000MΩ	Input resistance	400±50Ω
Flexible cable	3m	Output resistance	352±3Ω
Cable diameter	2mm	Recommended excitation voltage	5～10V DC

❑MS02 Series

Mini Force Sensor

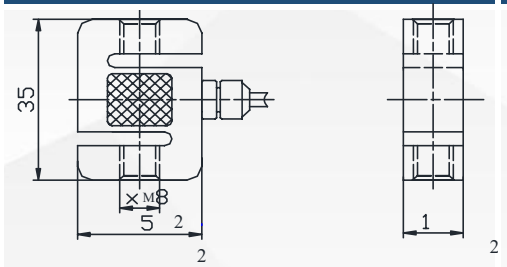
- Force detection for testing, automation, etc.



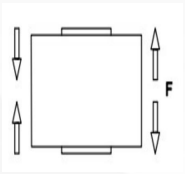
Product Overview

- Can be used for 3C automation force measurement, robot force measurement
- High-precision resistive strain gauge principle
- High accuracy, tension and compression use
- Custom specifications accepted

Mounting dimensions



Force diagram



Technical parameter

Sensitivity	2.0±0.5mV/V	Zero-point balance	±1%F.S
Nonlinerality	±0.05%F.S	Zero-point temperature influence	±0.05%F.S/10℃
Repeatability	±0.05%F.S	Output temperature influence	±0.05%F.S/10℃
Creep	±0.05%F.S	Operating temperature range	-30～+70℃
Sealing grade	IP65	Safe load limit	200%F.S
Material	Stainless steel	Extreme load limit	300%F.S
Insulation resistance	≥5000MΩ	Input resistance	380±20Ω
Flexible cable	3m	Output resistance	352±3Ω
Cable diameter	3mm	Recommended excitation voltage	5～10V DC

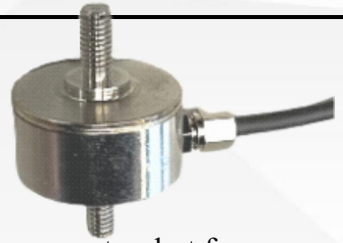
Measuring range

Measuring range（F.S）	50N	100N	200N	500N	1000N

❑MTS03 Series

Mini Force Sensor

- (Force detection for testing, automation, etc.)



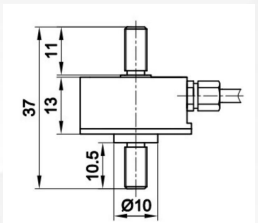
Product Overview

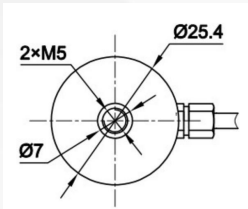
- Can be used for 3C automation force measurement, robot force measurement
- High-precision resistive strain gauge principle
- Dual-stud structure, tension and compression use
- Custom specifications accepted

Technical parameter

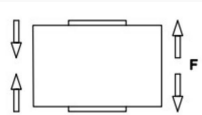
Sensitivity	2.0±0.2mV/V	Zero-point balance	±2%F.S
Nonlinerality	±0.5%F.S	Zero-point temperature influence	±0.05%F.S/10℃
Repeatability	±0.1%F.S	Output temperature influence	±0.1%F.S/10℃
Creep	±0.05%F.S	Operating temperature range	-30～+70℃
Sealing grade	IP65	Safe load limit	200%F.S
Material	Stainless steel	Extreme load limit	300%F.S
Insulation resistance	≥5000MΩ	Input resistance	700±50Ω
Flexible cable	3m	Output resistance	700±5Ω
Cable diameter	3mm	Recommended excitation voltage	5～10V DC

Mounting dimensions





Force diagram



Measuring range

Measuring range（F.S）	100N	200N	500N

❑MZS02 Series

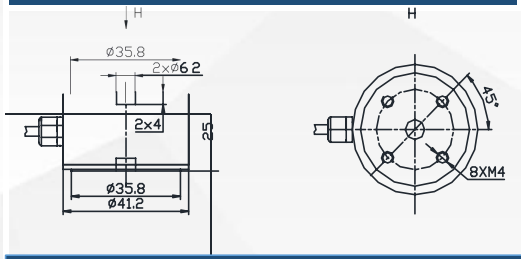
Mini Force Sensor

- Force detection for testing, automation, etc.

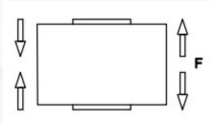
Product Overview

- Can be used for 3C automation force measurement, robot force measurement
- High-precision resistive strain gauge principle
- Low installation height, strong anti-overload capability
- Force applied on top and bottom planes
- Custom specifications accepted

Mounting dimensions



Force diagram



Measuring range

Measuring range（F.S）	500N	1000N	2000N	5000N

Technical parameter

Sensitivity	20±0.2mV/V	Zero-point balance	±1%F.S
Nonlinerality	±0.1%F.S	Zero-point temperature influence	±0.05%F.S/10℃
Repeatability	±0.1%F.S	Output temperature influence	±0.1%F.S/10℃
Creep	±0.05%F.S	Operating temperature range	-30～+70℃
Sealing grade	IP65	Safe load limit	200%F.S
Material	Stainless steel	Extreme load limit	300%F.S
Insulation resistance	≥5000MΩ	Input resistance	400±50Ω
Flexible cable	3m	Output resistance	352±3Ω
Cable diameter	3mm	Recommended excitation voltage	5～10V DC

❑FNK Series

Mini Force Sensor

- Force detection for testing, automation, etc.

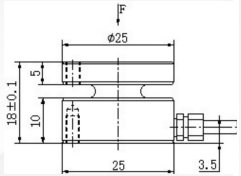
Product Overview

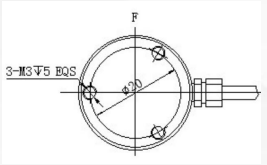
- Can be used for 3C automation force measurement, robot force measurement
- High-precision resistive strain gauge principle
- Low installation height, strong anti-overload capability
- Force applied on top and bottom planes
- Custom specifications accepted

Technical parameter

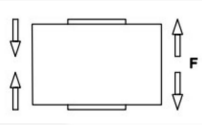
Sensitivity	1.5±0.05mV/V	Zero-point balance	±0.3%F.S
Nonlinerality	±0.5%F.S	Zero-point temperature influence	±0.3%F.S/10℃
Repeatability	±0.2%F.S	Output temperature influence	±0.3%F.S/10℃
Creep	±0.1%F.S	Operating temperature range	-30～+70℃
Sealing grade	IP65	Safe load limit	200%F.S
Material	Stainless steel	Extreme load limit	300%F.S
Insulation resistance	≥5000MΩ	Input resistance	1000±100 Ω
Flexible cable	3m	Output resistance	1000±100Ω
Cable diameter	5mm	Recommended excitation voltage	5～10V DC

Mounting dimensions





Force diagram



Measuring range

Measuring range（F.S）	50N	150N	3000N	5000N	750N	1000N

THANKS !

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