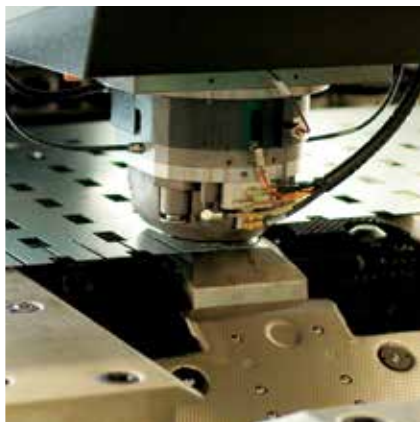


KD-2306

Multi-purpose non-contact position/displacement sensing



800-552-6267
kamansensors.com
measuring@kaman.com



KAMAN
Precision Products / Measuring

Features

- ❖ Supports both dual and single coil sensors
- ❖ Terminal I/O connections
- ❖ Auto-synchronization of multiple channels
- ❖ Analog DC and 4-20mA outputs
- ❖ Single ended, bipolar, and differential voltage outputs
- ❖ Front face coarse and fine calibration controls
- ❖ RoHS compliant and CE marked

Multi-purpose non-contact position and displacement sensing

The KD-2306 is a non-contact linear displacement measuring instrument. When paired with any of the supported sensors it becomes an easy to use, high precision static and dynamic measuring system. Applications range from lab work, to production/process automation. The DIN rail mount interface makes it ideal for integration into OEM equipment and industrial control applications. It is a cost-effective replacement for LVDTs, air gauges, dial indicators and micrometers.

A system includes a sensor and electronics. Every system comes with factory calibration complete with a NIST traceable calibration record. For customers who desire to do their own recalibration, zero, gain and linearity potentiometers are provided. The output voltage of the system is proportional to the distance between the face of the sensor and any metallic (conductive) target.

A variety of options are available including extending the sensor cable, extended range calibration, temperature compensation calibration, and sensor customization to fit the needs of the application.

Contact Kaman for assistance.



KD-2306
electronics

General Performance Specifications

The following specifications can be applied to the full range of systems using standard sensor options in the chart on page 3. Each sensor has specific performance specifications that can be better than those listed below.

Resolution	0.01%FS
Frequency response	50KHz (-3dB point) Higher frequency response available on request.
Nonlinearity	<1%FS
Thermal sensitivity	Standard 0.1%FS/°F Compensated 0.02%FS/°F
Output options	0-10 VDC (standard) 0-5 VDC ±5 VDC, 4-20 mA

KD-2306 Sensors

SENSOR	STANDARD MEASURING RANGE		TARGET MATERIAL		STATIC RESOLUTION		SINGLE (S) OR DUAL (D) COIL	SHIELDED (S) OR UNSHIELDED (U)	OPERATING FREQUENCY	STANDARD CABLE LENGTH	INTEGRAL (I) OR REMOVABLE (R) CABLE	NOTES
	inch	mm	non-fer	ferrous	μ in	μ m						

STANDARD TEMPERATURE SENSORS: -67° TO +220° F (-55° TO +105° C)

2U / 2UM	0.020	0.5	2U	2UM	4	0.1	S	U	1 MHz	6.6	I
1S / 1SM	0.040	1.0	1S	1SM	4	0.1	D	S	1 MHz	10	I
1U1	0.040	1.0	■		4	0.1	S	U	0.5 MHz	10	I
1SU / 1SUM	0.050	1.3	1SU	1SUM	5	0.1	D	U	1 MHz	10	I
2S1	0.080	2.0	■		8	0.2	S	S	0.5 MHz	10	R
2UB1	0.080	2.0	■		8	0.2	S	U	0.5 MHz	10	I
2S	0.100	2.5	■	■	10	0.3	D	S	1 MHz	10	I
3U1	0.120	3.0	■		12	0.3	S	U	0.5 MHz	10	R
4S1	0.160	4.0	■	■	16	0.4	S	S	0.5 MHz	10	R
4SB	0.160	4.0	■		16	0.4	S	S	0.5 MHz	10	I
6U1	0.240	6.0	■	■	24	0.6	S	U	0.5 MHz	10	R
6C	0.250	6.4	■	■	25	0.6	D	S	1 MHz	15	R
8C	0.500	13	■	■	50	1.3	D	S	1 MHz	15	R
15U1	0.600	15	■		60	1.5	S	U	0.5 MHz	15	R
10CU	1.000	25	■	■	100	2.5	D	U	1 MHz	15	R
30U1	1.200	30	■	■	120	3.0	S	U	0.5 MHz	15	R
12CU	2.000	50	■	■	200	5.0	D	U	1 MHz	15	R
60U1	2.400	60	■	■	240	6.0	S	U	0.5 MHz	15	R

MODERATE TEMPERATURE SENSORS: CRYOGENIC TO +400° F (+200° C), SENSOR DEPENDENT

1UEP	0.040	1.0	■	■	4	0.1	D	U	1 MHz	10	I
2SMT	0.100	2.5	■	■	10	0.3	D	S	1 MHz	10	I
6CMT	0.250	6.4	■	■	25	0.6	D	S	1 MHz	15	I
9U	0.160	4.0	■		16	0.4	S	U	1 MHz	6.6	I
12U	0.200	5.0	■	■	20	0.5	S	U	1 MHz	6.6	I
16U	0.320	8.0	■	■	32	0.8	S	U	1 MHz	6.6	I
26U	0.500	12	■	■	50	1.2	S	U	1 MHz	6.6	I
38U	0.750	20	■	■	75	2.0	S	U	1 MHz	6.6	I
51U	1.000	25	■	■	100	2.5	S	U	1 MHz	6.6	I

Notes:

1) Reference Sensors Data Sheet for dimensional information

Specifications

Operating Temperature Range

Electronics +32°F to +132°F
(0°C to +55°C)

Storage Temperature Range

Electronics -67°F to +220°F
(-55°C to +105°C)

Power Supply Requirements

Voltage +15 to +30 Vdc
Voltage regulation $\pm 1/2$ Vdc
Current 150 mA

Terminal Screw Torque

Maximum 7 lb-in

Accessories

Power Supply
Micrometer Calibration Fixture
Ceramic Calibration Spacers
(for sensor sizes above 6C)

Options

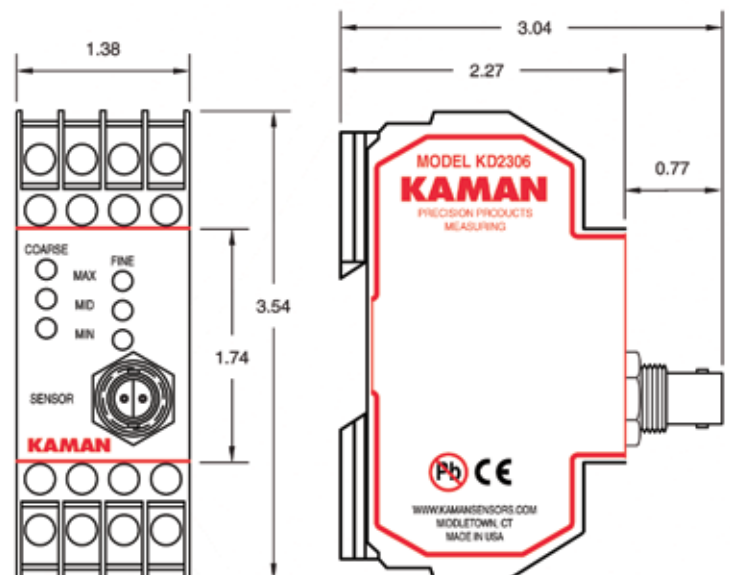
- Special calibrations
 - non standard range/target material
 - temperature compensation
 - at specific temperature and cryogenic
- Synchronization of multiple channels
- Sensor cables
 - non standard and extended length
 - in line or bulkhead splice
 - hermetic and non-hermetic bulkhead splice
- Microseal treatment for moisture resistance
- Custom sensor design

Ordering Information

Before ordering, you will need to determine which sensor model fits your application. You may also want to consider:

- sensor cable length
- optional calibration ranges
- temperature compensated calibrations and synchronization.

Contact Kaman to speak with an applications engineer for assistance.



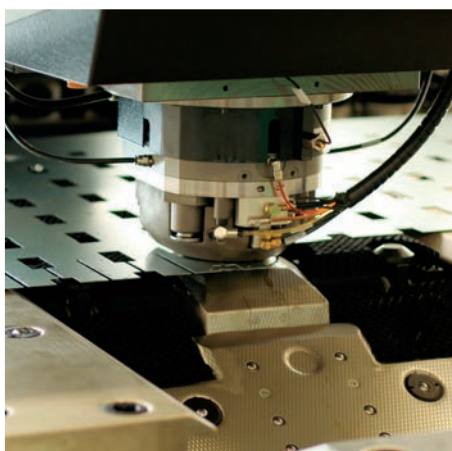
Dimensions shown are in inches

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Sensor Family Data Sheet

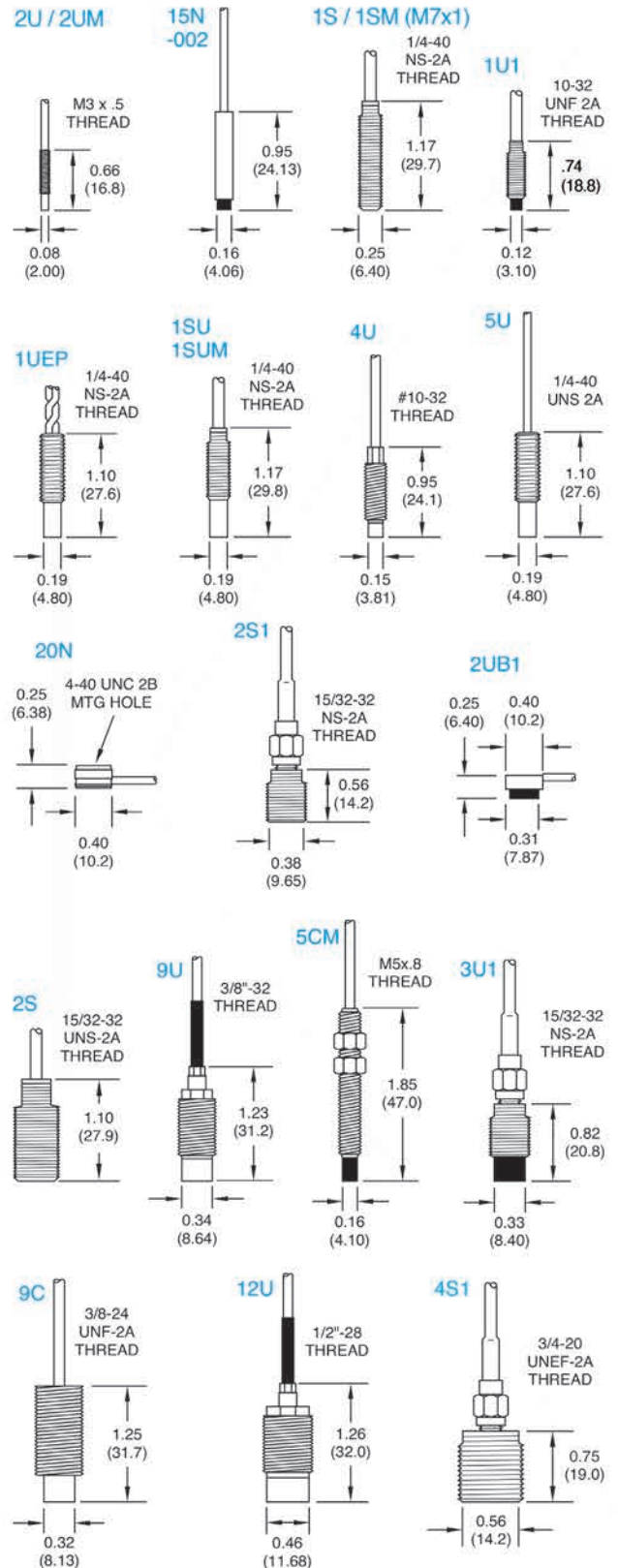
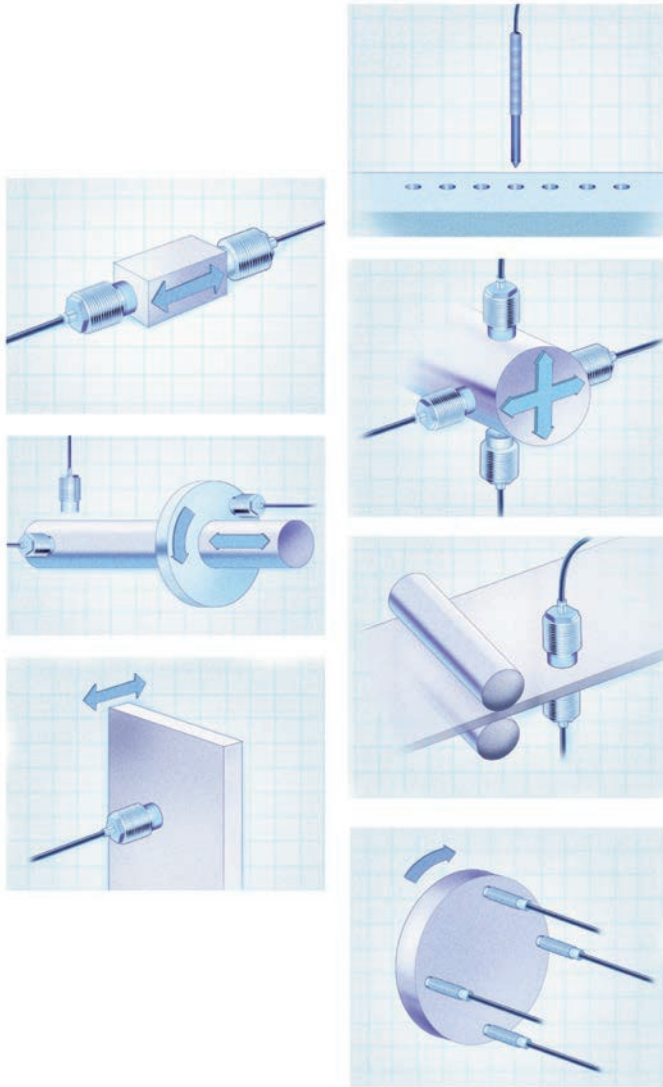
Advanced family of high-precision position sensors using Eddy Current Technology



Let us help you choose the best sensor, conditioning electronics and calibration for your application.

Sensors (shown at 50%)

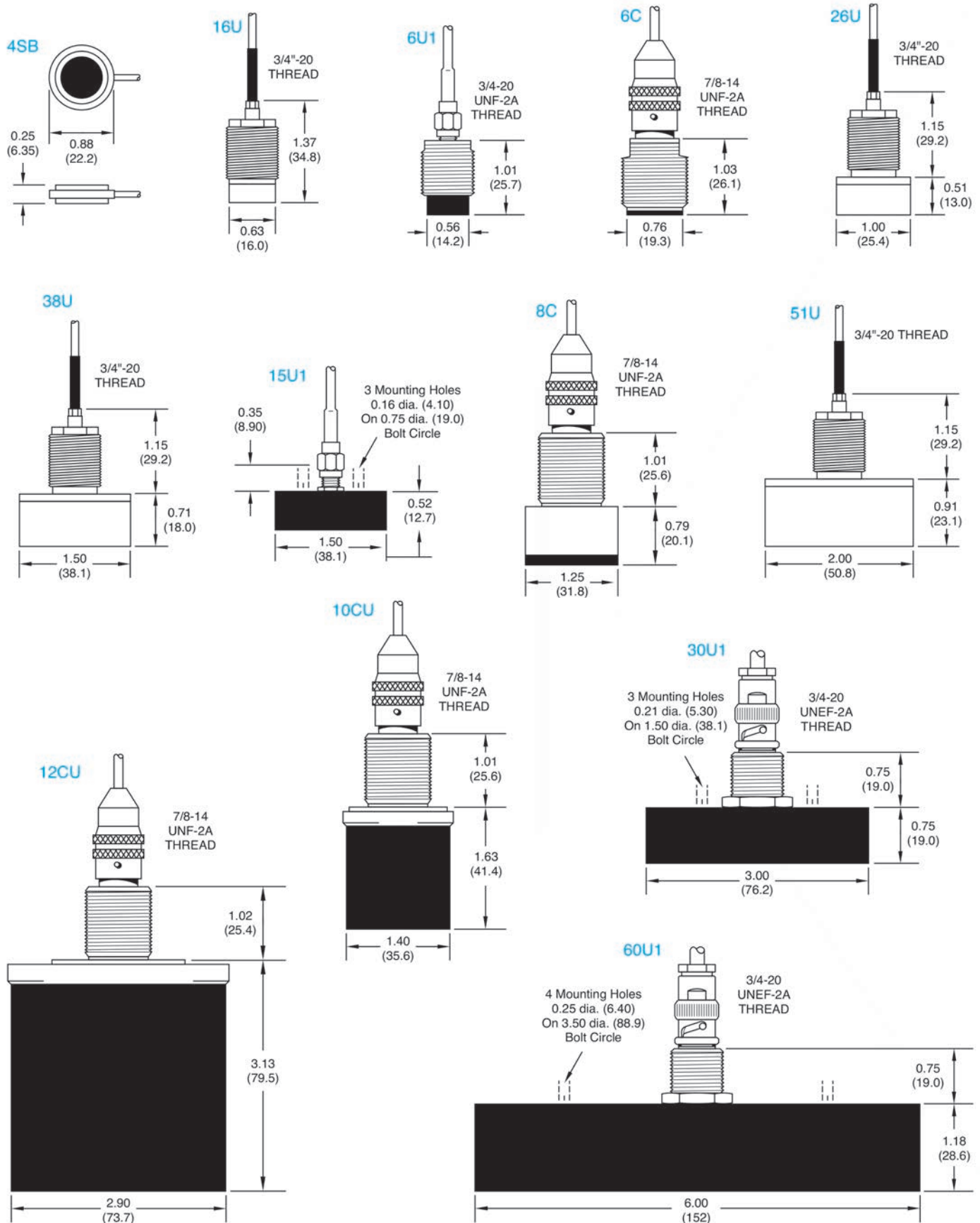
Note: All dimensions shown in inches (mm).



Support available to help solve your most challenging application and technical questions.

Sensors (shown at 50%)

Note: All dimensions shown in inches (mm).



Typical Specifications

Sensor	Sensor Range		Target Material		Static Resolution		Shielded or Unshielded S or U	Standard Cable Length (ft)	Notes	KD-2306 KDM-8206 OEM-2306	KD-2446	KD-5100 DIT-5200L KD-5400	SMT-9700	digiVIT
	mil	mm	non-mag	magnetic	μ in	μ m								
2UM	20	0.5	-	✓	4	0.1	U	6.6	1, 5, 9	✓	-	-	-	-
2U	20	0.5	✓	-	-	-	U	6.6	1, 5, 9	✓	✓	-	✓	✓
15N	35	0.9	✓	-	-	-	U	5	1, 9	-	-	✓	✓	-
1S	40	1.0	✓	-	4	0.1	S	10	1, 9	✓	-	-	-	-
1SM	40	1.0	-	✓	4	0.1	S	10	1, 5, 9	✓	-	-	-	-
1U1	40	1.0	✓	-	4	0.1	U	10	1, 9	✓	-	-	✓	-
1UEP	40	1.0	-	✓	4	0.1	U	10	2, 9	✓	-	-	-	-
1SU	50	1.3	✓	-	5	0.1	U	10	1	✓	-	-	-	-
1SUM	50	1.3	-	✓	5	0.1	U	10	1, 9	✓	-	-	-	-
4U	50	1.3	✓	-	-	-	U	6.6	1, 9	-	-	-	✓	✓
5U	50	1.3	✓	-	-	-	U	6.6	1, 5, 8, 9	✓	-	-	✓	-
20N	75	1.9	✓	-	-	-	U	5	1, 9	-	-	✓	✓	-
2S1	80	2.0	✓	✓	8	0.2	S	10	1, 10	✓	-	-	-	-
2UB1	80	2.0	✓	✓	8	0.2	U	10	1, 9	✓	-	-	-	-
2S	100	2.5	✓	✓	10	0.3	S	10	1, 5, 9	✓	-	-	-	-
9U	160	4.0	✓	-	-	-	U	6.6	2, 8, 9	✓	-	-	✓	✓
5CM	115	2.9	✓	✓	10	0.3	U	10	2, 9	-	✓	-	-	-
3U1	120	3.0	✓	-	12	0.3	U	10	1, 10	✓	-	-	✓	-
9C	150	3.8	✓	✓	-	-	U	9	2, 9	-	✓	-	-	-
12U	200	5.0	✓	✓	-	-	U	6.6	2, 8, 9	✓	✓	-	✓	✓
4S1	160	4.0	✓	✓	16	0.4	S	10	1, 10	✓	-	-	-	-
4SB	160	4.0	✓	✓	16	0.4	S	10	1, 9	✓	-	-	-	-
16U	320	8.0	✓	✓	-	-	U	6.6	2, 8, 9	✓	✓	-	✓	✓
6U1	240	6.0	✓	✓	24	0.6	U	10	1, 10	✓	-	-	✓	-
6C	250	6.4	✓	✓	25	0.6	S	15	1, 5, 10	✓	-	-	-	-
26U	500	12.0	✓	✓	-	-	U	6.6	2, 8, 9	✓	✓	-	✓	✓
38U	750	20.0	✓	✓	-	-	U	6.6	2, 8, 9	✓	✓	-	✓	✓
8C	500	12.7	✓	✓	50	1.3	S	15	1, 5, 10	✓	-	-	-	-
15U1	600	15.0	✓	✓	60	1.5	U	10	1, 10	✓	-	-	✓	-
51U	1,000	25.0	✓	✓	-	-	U	6.6	2, 8, 9	✓	✓	-	✓	✓
10CU	1,000	25.4	✓	✓	100	2.5	U	15	1, 10	✓	-	-	-	-
30U1	1,200	30.0	✓	✓	120	3.0	U	10	1, 10	✓	-	-	✓	-
12CU	2,000	50.8	✓	✓	200	5.0	U	15	1, 10	✓	-	-	-	-
60U1	2,400	60.0	✓	✓	240	6.0	U	10	1, 10	✓	-	-	✓	✓

Notes:

1. Temperature Range 1: -67°F to +220°F (-55°C to +105°C)
2. Temperature Range 2: -320°F to +400°F (-196°C to +204°C)
3. Resolution is dependent upon electronics selected. Contact Kaman where value is not shown.
4. Most sensor ranges may be extended up to 50%, but performance will vary. Contact Kaman.
5. Moderate Temperature (200°C) versions available.
6. Measuring Range can vary depending on signal conditioner.
7. Other sensors/signal conditioner combinations available.
8. IP67 type versions available on request.
9. Integral Cable
10. Removable Cable

Signal Conditioning Electronics

KD-2306

- Single channel unit for general purpose applications
- Linear analog voltage and current outputs
- DIN Rail packaging



KDM-8206

- Multi-channel measuring modules for industrial applications
- Linear analog voltage and current outputs
- 3U/7T Eurocard packaging
- Rack, and NEMA enclosures available



KD-2446

- Low cost single channel unit for general purpose applications
- Analog voltage output
- DIN Rail packaging



digiVIT

- Self-configuring single channel unit with display
- For general purpose and industrial applications
- Microprocessor controlled
- DIN Rail packaging



Ethernet Port

KD-5100

- Dual channel Differential analog unit
- Constructed to Mil quality requirements for Aerospace applications



DIT-5200L

- Dual channel Differential analog unit
- For commercial applications requiring high resolution



KD-5400

- Dual channel Differential system for high resolution commercial applications
- SPI, analog voltage, or 24 bit ADC output



SMT-9700

- High Resolution OEM analog unit perfect for higher volume
- Uniquely configured for specific applications
- 1, 2, or 3 channel configurations



See individual Data Sheets for detailed performance specifications.

Why Kaman?

Experience. Kaman Precision Products Measuring Division has over 45 years of experience with non-contact position measurement techniques. We bring you the best in advanced sensor technology and signal conditioning electronics.

Custom systems. We specialize in custom solutions to difficult problems, and we'll work with you to develop a system for your particular application.

Advanced technology. Kaman's sensors are based on eddy current technology, providing measurements that are:

- Stable and repeatable;
- Ideal for conductive materials;
- Unaffected by most contaminants;
- Resistant to harsh environments.

Specialized Sensors Systems:

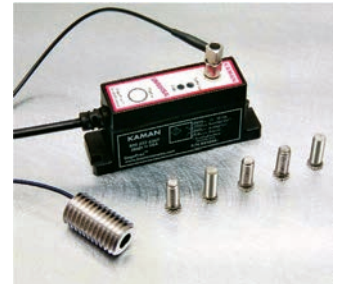
Extreme Environment

- For when no other sensor will survive and perform
- Temperatures from -320°F to +1,000°F (-196°C to +538°C)
- Pressures to 5,000 psi
- Radiation & chemically resistant sensors
- Eurocard & NEMA electronics packaging



ThreadChecker

- Checks thread presence/absence or discriminates between any two conditions
- Microprocessor controlled
- DIN Rail and panel mounting



Accessories:

Ceramic Calibration Spacers



P-3600D24 Power Supply



Micrometer Calibration Fixture



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