

SENSOR DATA SHEET

# SENSOR FAMILY

Advanced  
family of  
high-precision  
position sensors



**KAMAN**  
PRECISION PRODUCTS

# SENSOR DATA SHEET

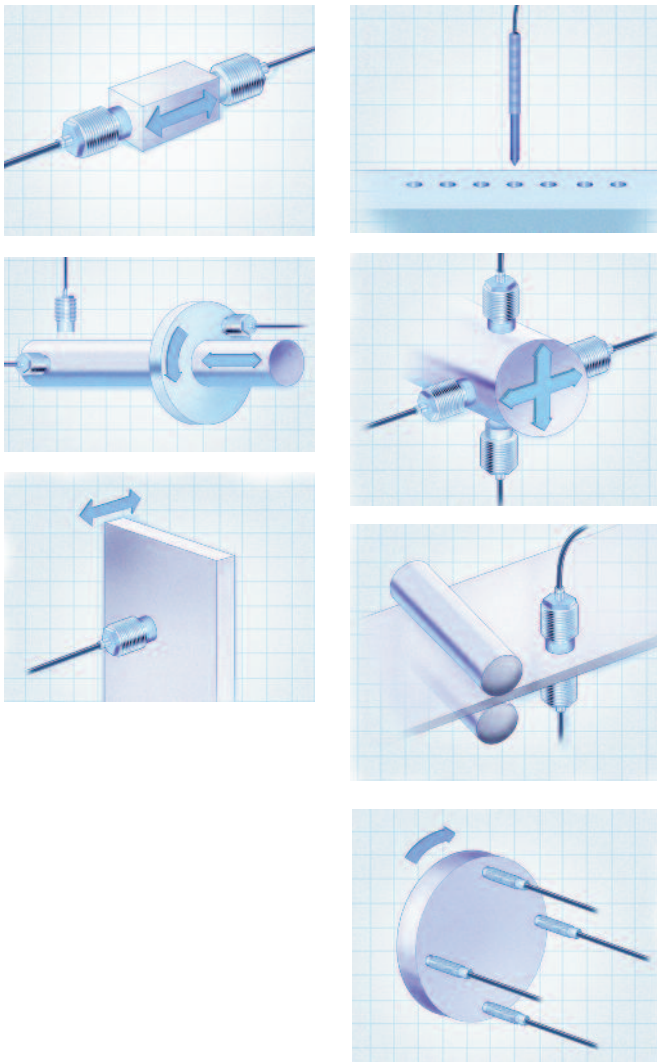
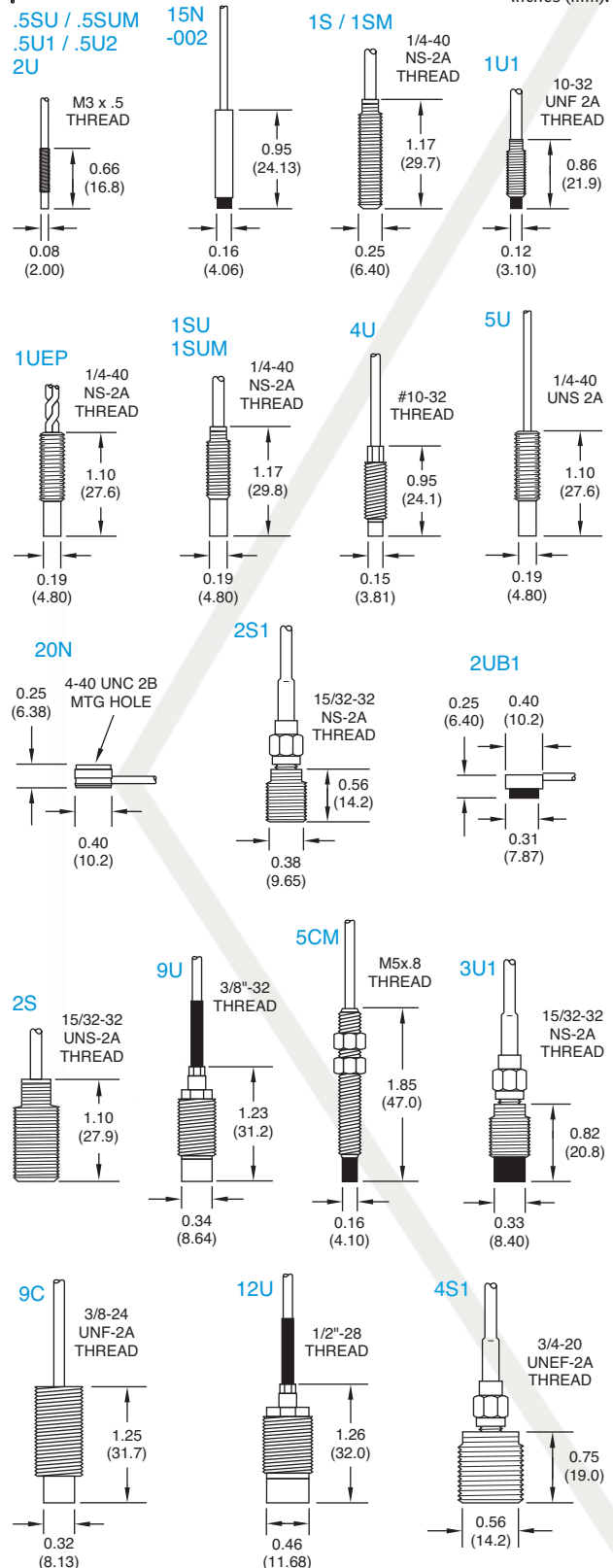
## SENSOR FAMILY

### FEATURES

- > Ranges from 0.002 to 2.50 inches
- > High speed analog and digital signal conditioning
- > Rugged stainless steel and PEEK housings
- > Dual coil and matched differential pairs minimize temperature, radiation and other environmental effects
- > Sensors and cables rated to +400°F (+204°C)

### SENSORS (shown at 50%)

Note: All dimensions shown in inches (mm).

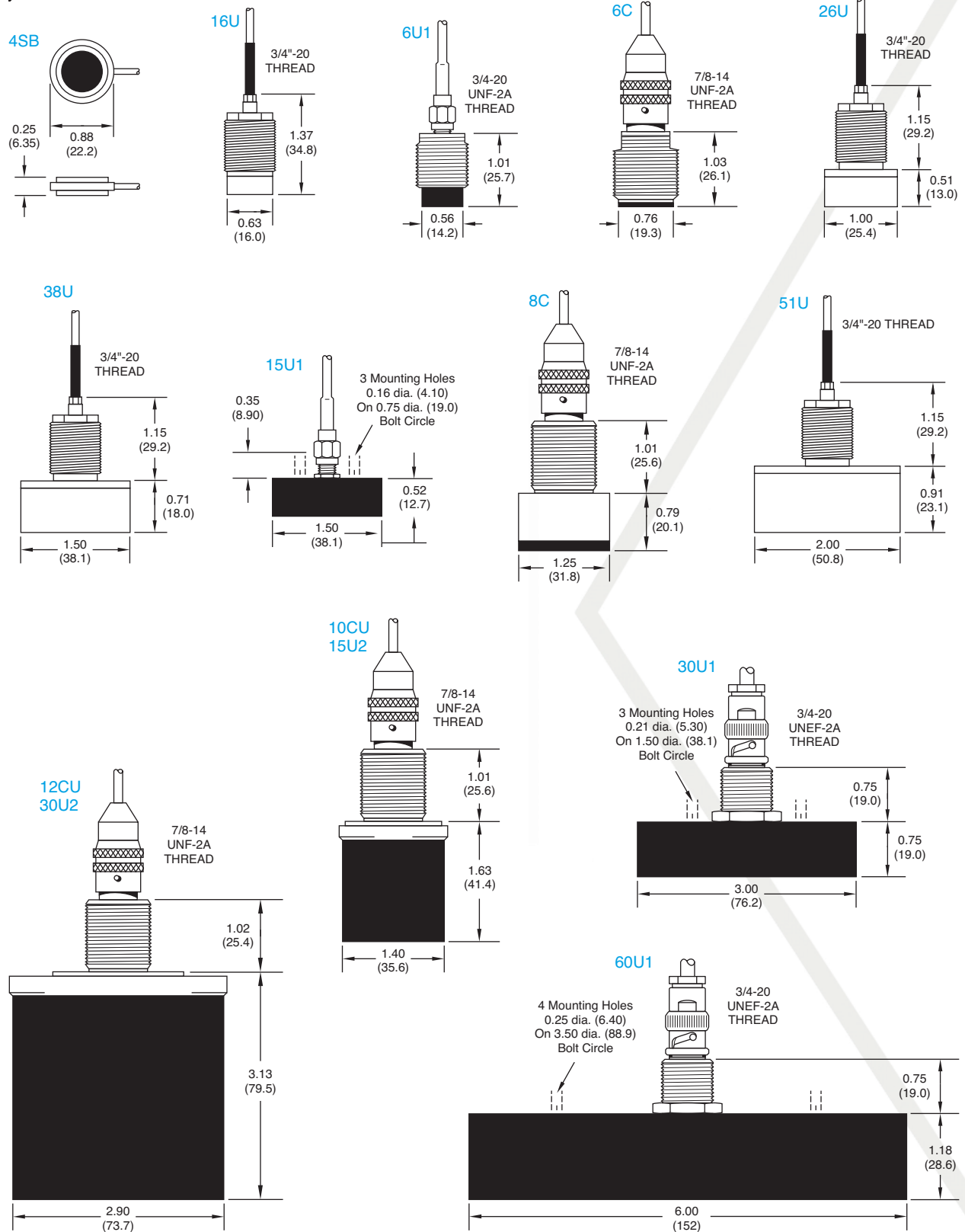


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SENSORS (shown at 50%)

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SENSOR	TYPICAL SPECIFICATIONS						ELECTRONICS						
	STANDARD RANGE		TARGET MATERIAL		STATIC RESOLUTION		TEMPERATURE RATING	KD-2306	KD-2446	KD-5100	DIT-5200	KDM-8206	SMT-9700
	mil	mm	non-mag	magnetic	μ in	μ m	see notes						
.5SU, .5U1	20	0.5	√		4	0.1	1	√				√	
.5SUM, .5U2	20	0.5		√	4	0.1	1	√				√	
2U	20	0.5	√				1		√				√
15N	35	0.9	√				1			√	√		√
1S	40	1.0	√		4	0.1	1	√					
15M	40	1.0		√	4	0.1	1	√					
1U1	40	1.0	√		4	0.1	1	√				√	√
1UEP	40	1.0		√	4	0.1	2	√				√	
1SU	50	1.3	√		5	0.12	1	√					
1SUM	50	1.3		√	5	0.12	1	√					
4U	50	1.3	√				2						√
5U	50	1.3	√				1						√
20N	75	1.9	√				1			√	√		√
2S1	80	2.0	√	√	8	0.2	1	√				√	
2UB1	80	2.0	√	√	8	0.2	1	√				√	
2S	100	2.5	√	√	10	0.25	1	√					
9U	100	2.5	√				2						√
5CM	115	2.9	√	√	10	0.25	2		√				
3U1	120	3.0	√		12	0.3	1	√				√	√
9C	150	3.8	√	√			2		√				
12U	160	4.0	√	√			2		√				√
4S1	160	4.0	√	√	16	0.4	1	√				√	
4SB	160	4.0	√	√	16	0.4	1	√				√	
16U	200	5.0	√	√			2		√				√
6U1	240	6.0	√	√	24	0.6	1	√				√	√
6C	250	6.4	√	√	25	0.62	1	√					
26U	320	8.1	√	√			2		√				√
38U	500	12.7	√	√			2		√				√
8C	500	12.7	√	√	50	1.25	1	√					
15U1	600	15.0	√	√	60	1.5	1	√				√	√
15U2	600	15.0	√	√	60	1.5	1					√	
51U	600	15.0	√	√			2		√				√
10CU	1000	25.4	√	√	100	2.5	1	√					
30U1	1200	30.0	√	√	120	3.0	1					√	√
30U2	1200	30.0	√	√	120	3.0	1					√	
12CU	2000	50.8	√	√	200	5.0	1	√				√	
60U1	2400	60.0	√	√	240	6.0	1	√				√	√

Notes: Operating Temperature:  
 Range 1: -67 to +220° F (-55 to +105° C)  
 Range 2: -452 to +400° F (-269 to +204° C)  
 Resolution is dependant upon electronics selected. Contact Kaman where value is not shown.  
 Most sensor ranges may be extended up to 50% , but performance will vary. Contact Kaman.  
 Dynamic resolution = static resolution x square root of bandwidth.

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### KD-2306

- › Economical single-channel units.
- › Long-term stability and repeatability.
- › Linearity better than  $\pm 0.50\%$  most sensors.
- › Frequency response to 50 kHz.



### KD-2446

- › Static resolution to 12  $\mu$ inches.
- › Easy to calibrate.
- › Low cost.
- › Excellent performance with highly resistive targets.
- › Compact rugged electronics and sensors.
- › Analog and switched output.
- › Frequency response to 10 kHz.



### KD-5100

- › Two precisely-matched sensors per channel give resolution to a nanometer.
- › Superior thermal and long-term stability of  $5 \times 10^{-6}$  inches/month or better.
- › Small package size: just 2 x 2.12 x 0.75 inches thick.
- › Cryogenic sensors available.
- › High sensitivity up to 10 V/mil (394 mV/ $\mu$ m).
- › Low power consumption less than 2W @  $\pm 15$  Vdc typical.
- › Frequency response to 22 kHz.



### KDM-8206

- › A modularized rack format for customized, building-block solutions.
- › Standard 3U by 7T Eurocard modules.
- › Multiple channels, rack mounted or bench-top enclosures.
- › Frequency response to 50 kHz.
- › Dual channel NEMA enclosure available.
- › Linearity  $\pm 0.50\%$ .



### SMT-9700

- › Flexible, high-resolution position/displacement sensing for OEMs.
- › 1, 2 or 3 channels
- › Nanometer to sub-nanometer resolution.
- › Easy, cost-effective performance customization.
- › CE and RoHS compliant.
- › Small package size.
- › Thirteen standard sensor options.



### DIT-5200

- › Commercial version of KD-5100 with similar performance.



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## WHY KAMAN?

**Experience.** Kaman Precision Products | Measuring has over 40 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

- › very stable and repeatable;
- › ideal for metal targets;
- › unaffected by humidity, dust, and other contaminants;
- › resistant to harsh environments.

## SPECIALIZED SENSOR SYSTEMS FROM KAMAN

### DAQ-JACK KDAQ200+

- › USB-enabled data acquisition
- › Built-in programmable bipolar DC power supply for powering analog instruments
- › Two high-resolution input channels
- › Configurable digital filtering
- › Simple user interface for application-specific programming
- › Includes PC data logging and custom setup software
- › Small 3.15 x 2.125 x 0.91" package



### THREADCHECKER

- › Checks for thread presence or absence
- › Universal electronics for any probe/ material combination
- › DIN rail mounting option
- › Push button teach with go/no-go LED
- › IP-67 rated probes and electronics
- › PUR jacketed probes and I/O cables
- › Four internal probes from 4mm to 10mm
- › Two external probes: 6mm and 8mm
- › Both switched and analog outputs



### EXTREME ENVIRONMENT SYSTEMS

- › For high pressure, low temperature, and high temperature applications
- › Offers high accuracy, high reliability, and structural integrity
- › Operating temperatures from -320°F to 1000°F (+1200°F short term)
- › Displacements systems *withstand* pressures up to 3500 or 5000 psi
- › Dual-coil sensor design effectively minimizes radiation effects
- › Hermetically sealed and laser welded
- › Unaffected by environmental contaminants