

SENSOR DATA SHEET

KD-2300

Multi-purpose
non-contact
position/displacement
sensing

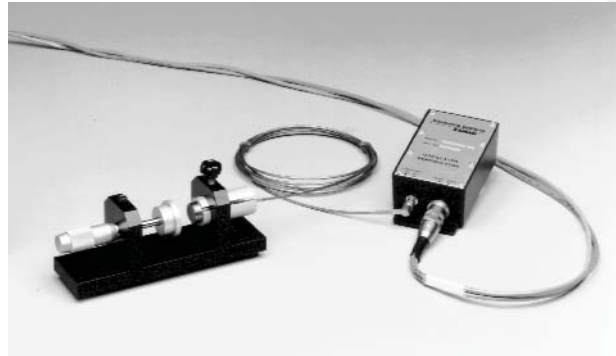


KAMAN
PRECISION PRODUCTS

KD-2300

FEATURES

- > Dual coil sensors for excellent thermal stability
- > Economical single-channel units
- > Long-term stability and repeatability
- > Measuring range from 0.020 to 2.0 inches
- > Resolution better than 0.01% of measuring range
- > Linearity better than ± 0.5 to $\pm 1\%$ measuring range
- > Frequency response to 50 kHz



KD-2300 system with optional calibration fixture

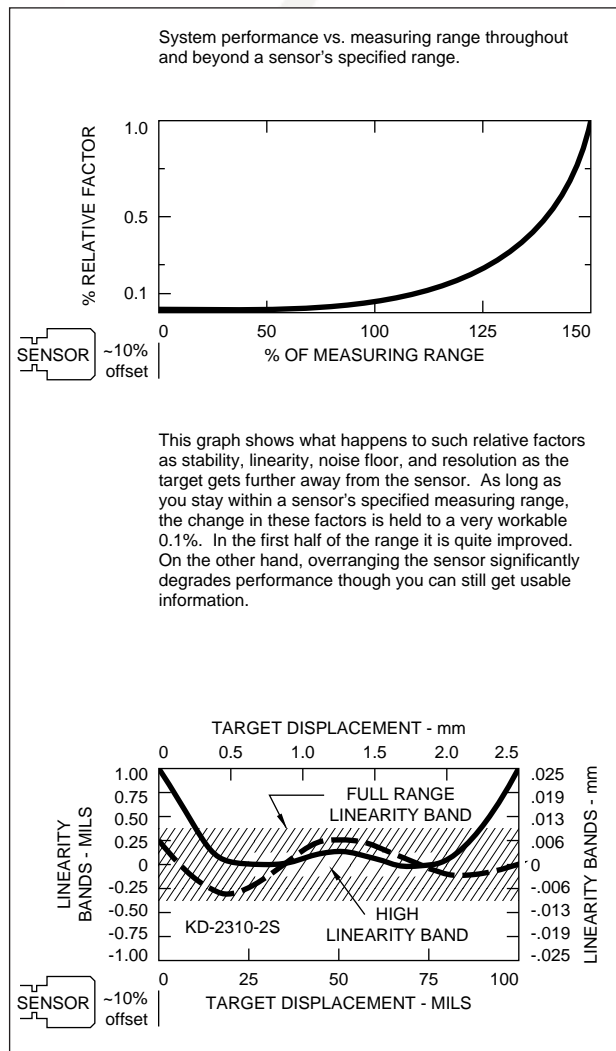
MULTI-VIT: MULTI-PURPOSE VARIABLE IMPEDANCE TRANSDUCER

Kaman Precision Products' Multi-VIT displacement measuring system, the KD-2300, is a non-contact linear displacement measuring system. This easy-to-use system makes high-precision, static and dynamic measurements for product design, fabrication, process control, and inspection of metal objects. It replaces LVDTs, air gauges, dial indicators, and micrometers.

The system includes a sensor, power and output cable, and signal conditioning electronics package. Zero, gain, and linearity adjustments are provided on the electronics package. The output voltage of the system is proportional to the distance between the face of the sensor and any metallic (conductive) target.

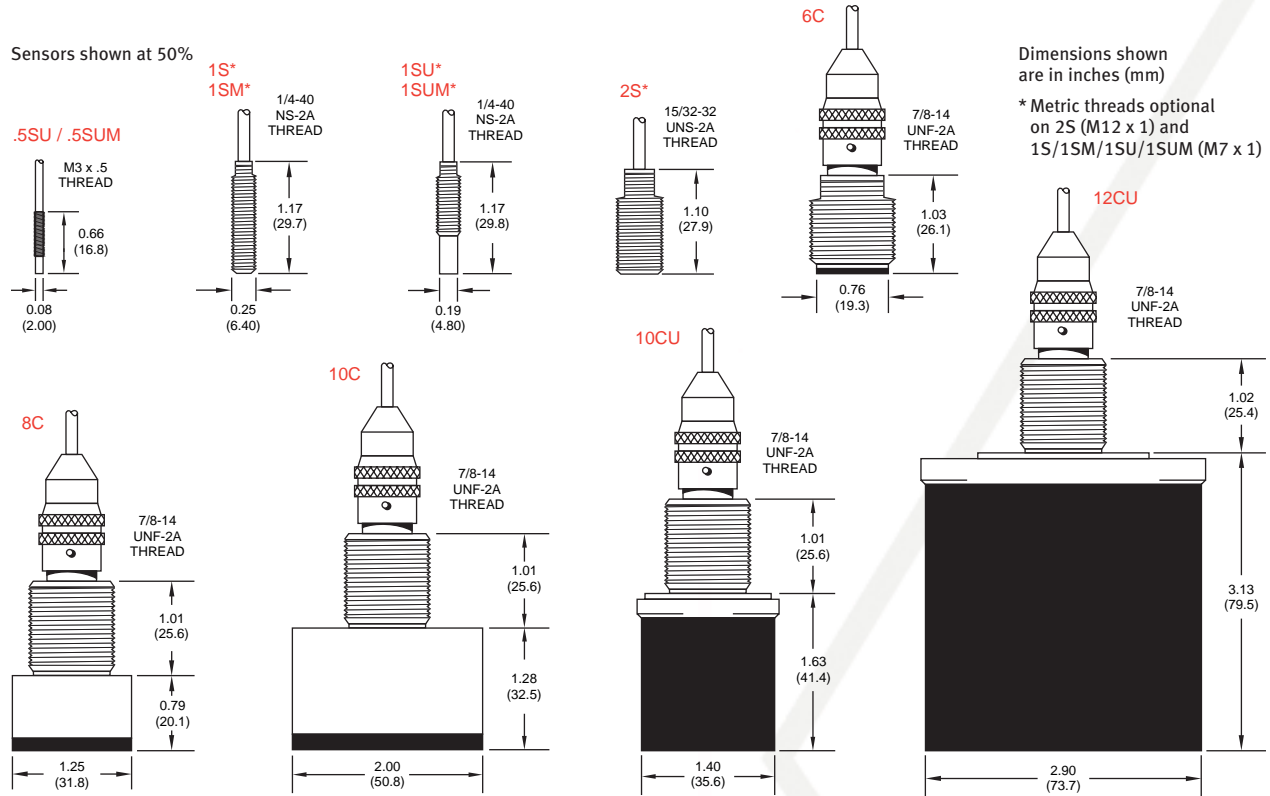
Depending upon the system, the standard sensor cable length may be increased to a maximum of 30 feet (9.15 m). If special sensor designs or improved system performance are required, contact a Kaman applications engineer for assistance.

Certain internal components in the KD-2300 family precisely match the signal conditioning electronics to a specific sensor and cable. To change the sensor size and/or cable length, a corresponding bridge card must also change. This is an easy task, requiring only a screw driver, that can be accomplished in a matter of minutes. Contact Kaman for the type of sensor/cable conversion you wish to make.



KD-2300

KD-2300 SENSORS



SENSOR TYPE		.5SU	.5SUM	1S	1SU	1SM	1SUM	2S	6C	8C	10C	10CU	12CU
Target material	non-mag	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
	magnetic	No	Yes	No	No	Yes	Yes	No	No	No	No	No	No
Measuring range (+10% nominal offset)	mil*	20	20	40	50	40	50	100	250	500	750	1000	2000
	mm	0.5	0.5	1.0	1.25	1.0	1.25	2.5	6.4	12.7	19.1	25.4	50.8
Offset	mil*	2	2	2	2	2	2	10	30	50	100	100	200
	mm	0.05	0.05	0.05	0.05	0.05	0.05	0.25	0.75	1.25	2.5	2.5	5.0
Nonlinearity (±1% of measuring range)	±mil*	0.2	0.2	0.4	0.5	0.4	0.5	1.0	2.5	5.0	7.5	10.0	20.0
	±mm	0.005	0.005	0.01	0.0125	0.01	0.0125	0.025	0.064	0.127	0.191	0.254	0.508
Static resolution - mid range Analog	mil*	0.004	0.004	0.004	0.005	0.004	0.005	0.01	0.025	0.05	0.075	0.1	0.2
	µm	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.6	1.3	1.9	2.5	5.1
Sensitivity ≤ mid range Customer adjustable	mV/mil*	50	50	20	20	20	20	10	5	2	1	1	0.5
	mV/mm	1000	1000	1000	1000	1000	1000	1000	100	100	100	100	100
Output, full range Voltage analog													
Factory setting	Vdc (eng.)	1.000	1.000	0.800	1.000	0.800	1.000	1.000	1.250	1.000	0.750	1.000	1.000
Customer adjustable	Vdc (met.)	0.500	0.500	1.000	1.250	1.000	1.250	2.500	0.640	1.270	1.910	2.540	5.080
Current Impedance	mA ohms	Maximum of 15 Less than 5											
Thermal sensitivity shift ≤ mid range (Sensor/target interface)		0.1% FSO/°F without temp. comp.; 0.02% FSO/°F with temp. comp.											
**Frequency response		Static to 50 kHz (-3dB pt.)											

* mil = 0.001 inch

** Maximum frequency response is sensitivity dependent. At maximum sensitivity, the -3 dB level is 10 kHz. At 10% of maximum sensitivity, frequency response is 50 kHz (optimum).

KD-2300

SPECIFICATIONS

OPERATING TEMPERATURE RANGE

Sensor	-67°F to +220°F (-55°C to +105°C)
Cable and connector: standard PVC or optional Teflon*	-67°F to +220°F (-55°C to +105°C)
Electronics	+32°F to +132°F (0°C to +55°C)

STORAGE TEMPERATURE RANGE

Sensor, cable and connector: standard PVC or optional Teflon*	-67°F to +220°F (-55°C to +105°C)
Electronics	-67°F to +220°F (-55°C to +105°C)

POWER SUPPLY REQUIREMENTS * *

Voltage	±12 Vdc to ±15 Vdc
Voltage regulation	±1/2 Vdc
Current	70 mA

* Standard on .5SU and .5SUM; available only on -1SM and -1SUM
** Recommend Kaman P-3410 and P-3450

ACCESSORIES

POWER SUPPLIES

Regulated ±15 Vdc with 115 VAC input; optional 230 VAC input available

Model P-3410 - single channel

115 VAC input	P/N 852531-001
230 VAC input	P/N 852531-001A

Model P-3450 - up to six channels

115 VAC input	P/N 852531-004
230 VAC input	P/N 852531-004A

MICROMETER CALIBRATION FIXTURE (THROUGH -6C SYSTEM)

Digital P/N 855578-001

CERAMIC CALIBRATION SPACERS

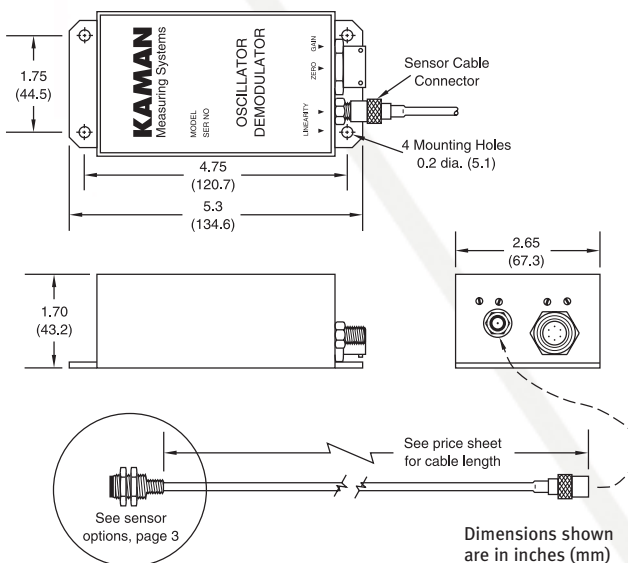
Set of seven, 0.050-inch through 1.0-inch (part number 850859-001)

OPTIONS

Sensor cable lengths shorter or longer than the standard ten feet, up to 30 feet
Temperature compensation over a +100°F (+50°C) band
System synchronization, required to prevent beat note interference or cross talk between sensors when sensors of two or more systems are mounted less than three sensor-diameters apart
Oscillator frequency change
Bridge conversion module
Moderate temperature (to +400°F or +204°C) versions of some sensors are available
Single coil sensors. A wide variety of single coil sensors are also available. Contact Kaman.

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. We will be glad to assist you with these decisions.



KD-2300 dimensions