

SENSOR DATA SHEET

KDM-8200

Modular
rack-mounted
multichannel
position sensing



KAMAN
PRECISION PRODUCTS

KDM-8200

FEATURES

- > Modularized rack format
- > Standard 3U by 7T Eurocard modules
- > Resolution to 10 microinches or better.
- > Multiple channels, rack mounted or bench-top enclosures.
- > Choice of 16 standard sensors.

A TRUE HIGH-PRECISION MEASURING SYSTEM

The KDM-8200 high-precision displacement measuring system comes in a modularized rack format to provide customized building-block solutions. The KDM-8200 rack houses standard 3U by 7T Eurocard modules and encases an included power supply that is switchable from 120 to 240 VAC, 50 to 60 Hz. It also encases an optional 21T integral display and the fundamental KDM-8200 measurement module. Each KDM-8200 module creates a separate measuring channel.

The KDM-8200 modules comes in these enclosures:

3U/84HP 19-inch rack (12.7 inches/323 mm deep) encloses up to 12 channels.

3U/63HP mid-rack (12.28 inches/312 mm deep) is a Eurocard instrument case with handle and 9-channel capacity.

3U/42HP half-rack instrument case (12.28 inches/312 mm deep) has handle and 6-channel capacity.

NEMA 12 enclosure holds up to two channels plus optional integral display and power supply.



*Left:
3U/42HP half-rack
instrument case*

*Right:
NEMA 12
enclosure*

KDM-8200 MEASUREMENT MODULE



The KDM-8200 — a 3U by 7T Eurocard module — is the fundamental measurement module of this non-contact measurement system. This module is the inductive bridge and signal conditioning circuits that produce the measurement output. This output is a linear voltage proportional to the physical displacement of the target relative to the sensor.

The KDM-8200 is used with sensors shown on pages 3 and 4.

SPECIFICATIONS

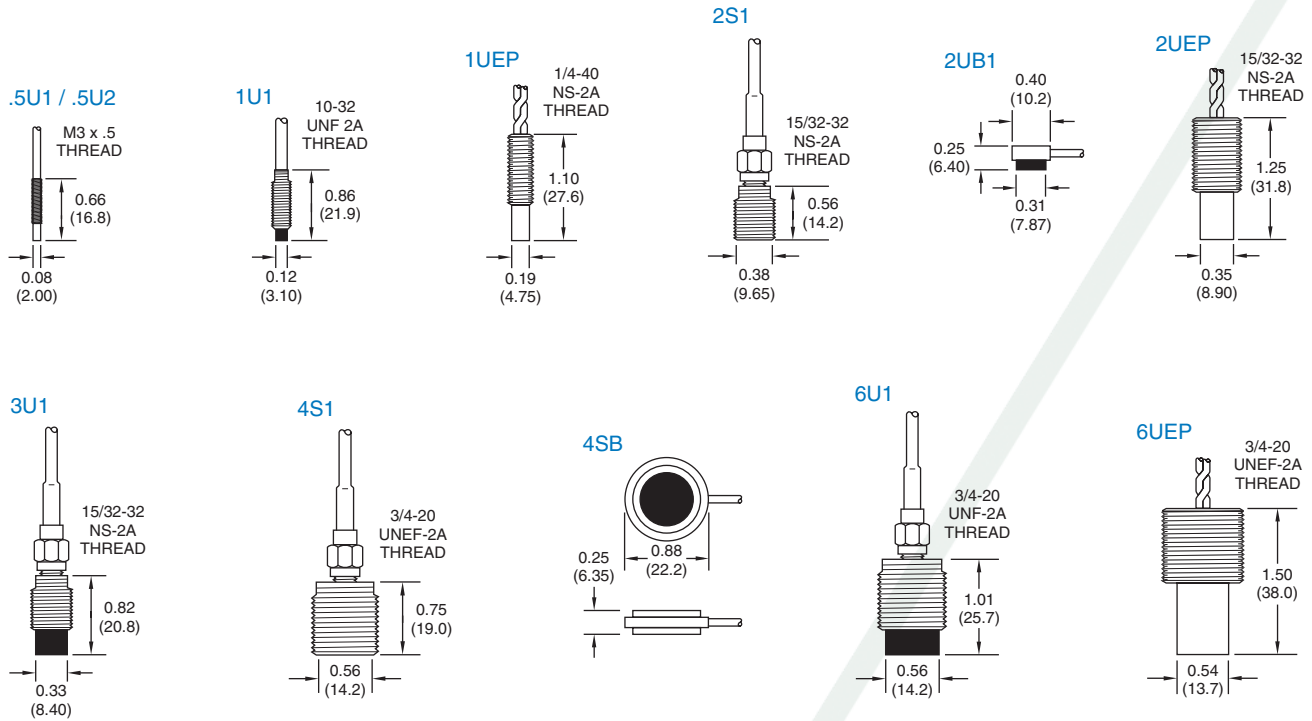
Technology	Inductive bridge
Size	One 7T slot wide
Sensors	16 standard (see specifications)
Voltage	±15 Vdc
Current	<50 mA/side
Regulation	±0.5 Vdc
Signal out	User adjustable depending on sensor selection; ±5 V maximum
Operating temperature ~	
Sensor and cable	-67°F to +220°F (-55°C to +104°C)
Electronics	+32°F to +122°F (0°C to +50°C)
Storage temperature ~	
Sensor and cable	-67°F to +220°F (-55°C to +104°C)
Electronics	13°F to +185°F (-25°C to +85°C)



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KDM-8200 SENSORS



INDIVIDUAL SENSOR PERFORMANCE SPECIFICATIONS

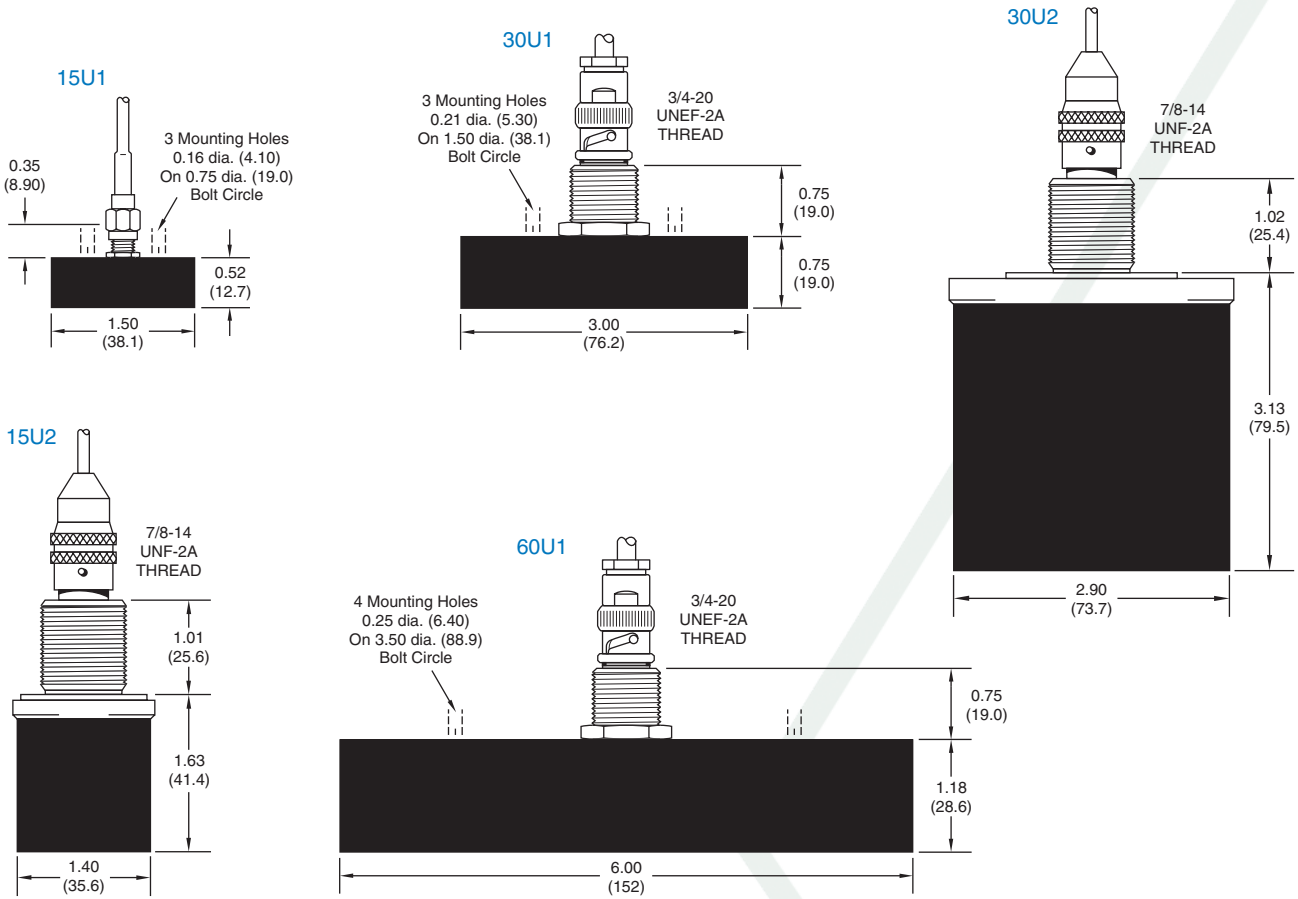
		.5U1	.5U2	1U1	1UEP	2UB1	2S1	2UEP	3U1	4S1
Non-ferrous target		yes	no	yes	*	yes	yes	*	yes	yes
Ferrous target		no	yes	no	yes	*	*	yes	*	yes
Measuring range	mil	20	20	40	40	80	80	80	120	160
	mm	0.5	0.5	1	1	2	2	2	3	4
Offset	mil	2	2	6	6	15	15	25	20	20
	mm	0.05	0.05	0.13	0.13	0.38	0.38	0.63	0.51	0.51
Resolution (≤mid range)	mil	0.004	0.004	0.004	0.004	0.008	0.008	0.008	0.012	0.016
	mm	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0003	0.0004
Nonlinearity (±0.5% measuring range)	±mil	0.1	0.1	0.2	0.2	0.4	0.4	0.4	0.6	0.8
	±mm	0.003	0.003	0.005	0.005	0.01	0.01	0.01	0.015	0.02
Factory sensitivity**	mV/mil	100	10	10	10	10	10	10	10	10
Operating temperature	°F	-67° TO +220°	-67° TO +220°	-67° TO +220°	-452° TO +400°	-67° TO +220°	-67° TO +220°	-452° TO +400°	-67° TO +220°	-67° TO +220°
Frequency response	Static to 50 kHz (-3dB pt.)									
Thermal sensitivity shift	0.1% FSO/°F without temp. compensation; 0.02% FSO/°F with temp. compensation									

* Must specify actual target material. Performance specification may change.

** Sensitivities are user-adjustable from 1 mV/mil to 100 mV/mil, unipolar or bipolar output, application dependent.

KDM-8200

KDM-8200 SENSORS



INDIVIDUAL SENSOR PERFORMANCE SPECIFICATIONS

		4SB	6UEP	6U1	15U2	15U1	30U2	30U1	60U1
Non-ferrous target		yes	yes	yes	yes	yes	yes	yes	yes
Ferrous target		*	yes	*	yes	*	yes	yes	yes
Measuring range	mil	160	240	240	600	600	1200	1200	2400
	mm	4	6	6	15	15	30	30	60
Offset	mil	30	35	35	150	150	300	300	600
	mm	0.75	0.89	0.89	3.81	3.81	7.5	7.5	15
Resolution (≤mid range) Static (unity bandwidth)	mil	0.016	0.024	0.024	0.060	0.060	0.120	0.120	0.240
	mm	0.0004	0.0006	0.0006	0.0015	0.0015	0.003	0.003	0.006
Nonlinearity (±0.5% measuring range)	±mil	0.8	1.2	1.2	3.0	3.0	6.0	6.0	12.0
	±mm	0.02	0.03	0.03	0.075	0.075	0.015	0.15	0.30
Factory sensitivity**	mV/mil	10	10	10	1	1	1	1	1
Operating temperature	°F	-67° TO +220°	-452° TO +400°	-67° TO +220°	-67° TO +220°	-67° TO +220°	-67° TO +220°	-67° TO +220°	-67° TO +220°
Frequency response	Static to 50 kHz (-3dB pt.)								
Thermal sensitivity shift	0.1% FSO/°F without temp. compensation; 0.02% FSO/°F with temp. compensation								

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