INSTRUMENT DATA SHEET

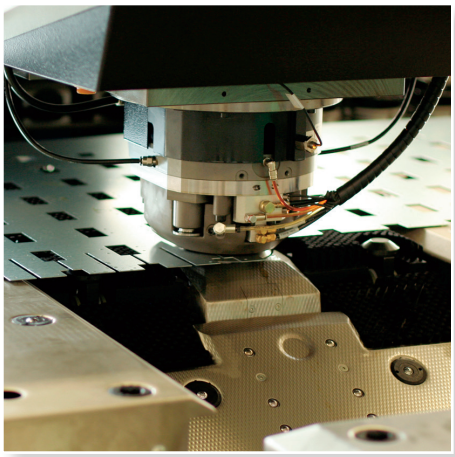


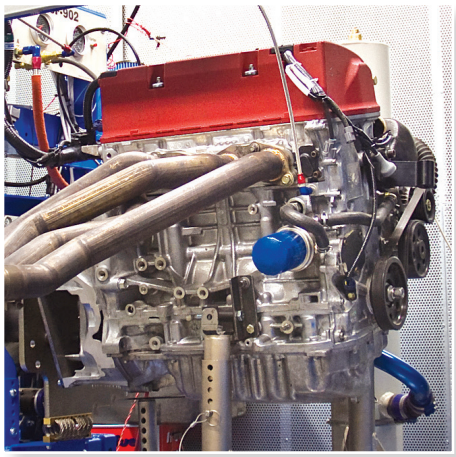

# KDM-8206

## Modular rack-mount multichannel non-contact position sensing









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KMM
PRECISION MEASURING

# KDM-8206

KMM PRECISION MEASURING

## Features

- Modularized rack format
- Standard 3U-by-7T Eurocard measuring channel
- Resolution to 10 microinches or better
- Multiple channels, 19″ rack-mounted or bench-top enclosures
- Wide range of standard and moderate temperature sensors
- Coarse and fine calibration controls
- Auto-synchronization of multiple measuring channels
- RoHS compliant
- CE-marked measuring channel

## Specifications

| | |
|---|---|
| Technology | Inductive bridge |
| Size | One 7T slot wide |
| Power supply | |
| Voltage | ±15 Vdc |
| Current | <50 mA per side |
| Regulation | ±0.5 Vdc |
| Output signal | 0-10 Vdc analog voltage stan- |
| dard | |
| | 4-20mA current |
| Resolution | 0.0 I% of FS |
| Non-linearity | < I% of FS |
| Target materials | Ferrous and non-ferrous (ferrous standard - 4130 steel, nonferrous standard - 6061 T6 aluminum, other materials optional |
| Frequency response | 50 KHz (-3db) standard<br>100 Hz to 120 KHz optional |
| Thermal sensitivity | 0.1% of FS per °F<br>0.02% of FS per °F with factory temperature compensation (0.05%FS/°F for .5U2) |
| Operating temperature measuring channel | +32°F to +132°F (0°C to +55°C) |
| Storage temperature measuring channel | -67°F to +220°F (-55°C to +105°C) |




## KDM-8206 Measuring Module

The KDM-8206 high-precision displacement measuring system is packaged in a modularized rack format for mutli-channel displacement, run-out, and position measurements. It is ideal for industrial, laboratory, and production test applications.

The 3U-by-7T Eurocard measuring module is the fundamental component of this non-contact measuring system, along with the sensors listed on *page 3*.

This module — which conditions the sensor signal — contains the inductive bridge and signal conditioning circuits that produce the measurement output, a linear voltage proportional to the physical displacement of the target relative to the sensor.

## Options

- Calibration to non-standard target material
- Calibration to non-standard sensor range
- Calibration to customer supplied target
- Calibration for non-standard output
- Cryogenic calibration
- Temperature compensation to a specific temperature
- Non-standard sensor cable length
- In-line sensor cable splice (hermetic or non-hermetic )
- Microseal sensor treatment for moisture resistance
- Custom sensor design

# KDM-8206

KMM PRECISION MEASURING

## KDM-8206 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 (FT) | INTEGRAL (I) OR REMOVABLE (R) CABLE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | inch | mm | non-fer | ferrous | µ in | µ m | | | | | |
| **STANDARD TEMPERATURE SENSORS: -67° TO +220° F (-55° TO +105° C)** | | | | | | | | | | | |
| .5U1/.5U2 | 0.020 | 0.5 | .5U1 | .5U2 | 4 | 0.1 | S | U | 1 MHz | 10 | 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 | 0.2 | S | U | 0.5 MHz | 15 | R |
| 15U2 | 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 |
| 30U2 | 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 |
| 8CMT | 0.500 | 13 | ■ | ■ | 50 | 1.3 | 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 |

Reference Sensors Data Sheet for dimensional information
* Must specify actual target material. Performance specifications may change.

# KDM-8206

KMM PRECISION MEASURING

## Rack-type enclosures

Kaman offers three types of enclosures for the KDM-8206 measuring channel.

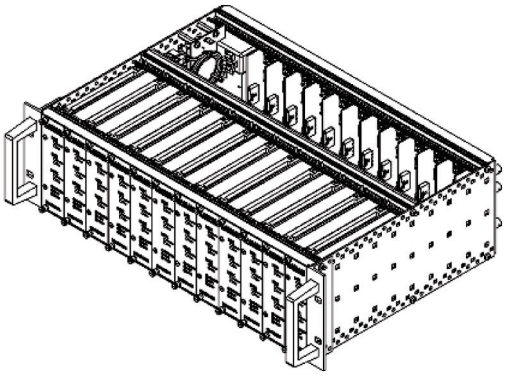
## Standard features

- 110/220 vac, 50/60 Hz input power supply
- BNC coaxial output connectors for measuring channel voltage outputs
- Two-position terminal blocks for measuring channel current outputs
- Twin BNC connectors for sensor inputs
- +15 and -15 power supply indicator LEDs

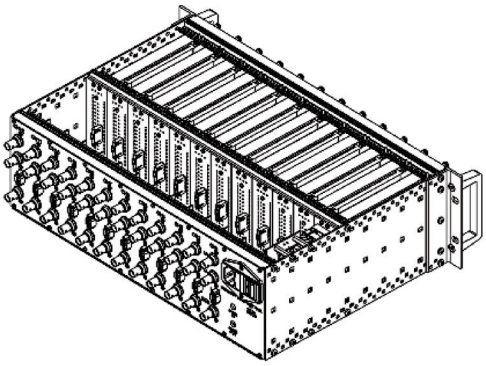
## Options

- Meter
- Rack-to-rack synchronization
- True differential output



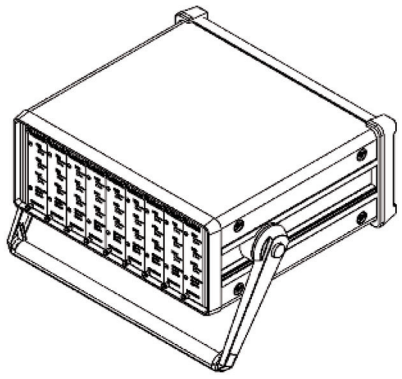


**3U/84HP 19-inch full rack - front view**
12-channel capacity, 12.7 inches/323 mm deep.

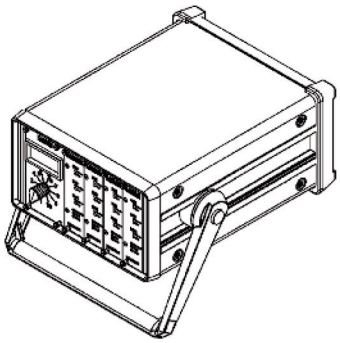


**3U/84HP 19-inch full rack - back view**
12-channel capacity, 12.7 inches/323 mm deep.





**3U/63HP mid rack**
Bench-top Eurocard instrument case with handle and 9-channel capacity, 12.3 inches/312 mm deep.



**3U/42HP half rack**
Bench-top Eurocard instrument case with handle and 6-channel capacity (12.3 inches/312 mm deep).