

KD-5600

Digital Differential Measuring System Designed for Non-Contact Linear Position Displacement Sensing Applications



The KD-5600 family of measuring systems utilizes Kaman's custom sensors, signal processing, analog to digital converter and custom calibration system to deliver a precision KD-5600 system. The system utilizes a common 9 pin connector for reading and writing data.

Kaman Sensors are designed and tuned for specific applications. The KD-5600 systems utilize two matched sensor pairs for optimum operation for each channel.

The input signals are filtered and scaled to provide optimum operation, remove common mode noise and provide a drive signal. The signal processing also provides digital filtering as part of the signal conditioning to reduce signal noise.

Analog to Digital Convert (ADC) – The maximum sampling rate is 128K with 24 Bits of resolution per channel.

Customers are supplied with a Calibration file that details system performance that includes resolution and linearity.

Kaman's KD-5600 systems sample data at 8 times the data rate. The oversampling provides higher resolution at the defined data rate. The effect of oversampling results in the signal resolution being 8X better than a system sampling at the Nyquist rate.

Features & Benefits:

- High Resolution
- True Digital
- High Bandwidth
- Phase Circuit
- No Firmware
- SPI Bus
- High Linearity
- ✓ Higher Accuracy
- ✓ Easy to use, Improved Communication & Convenience
- ✓ Adjustable up to 60KHz
- ✓ Lower Noise, Higher Resolution
- ✓ Front End System – High End Users
- ✓ High End Communication Bus for Fast Data Transfer

Applications:

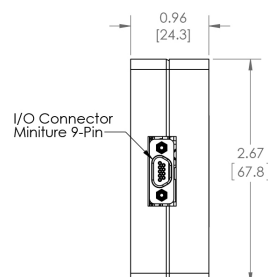
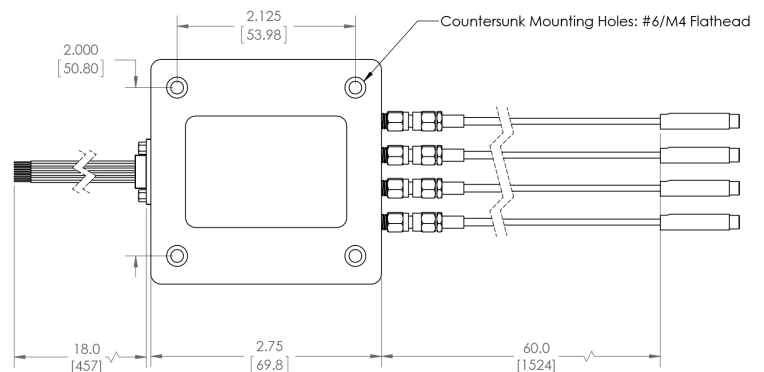
- Fast Steering Mirrors
- Magnetic Bearing Active Control
- Shaft Vibration
- Image Stabilization
- Adaptive Optics

Industries:

- Small Satellite
- Semi-Conductors
- Military/Aerospace
- High Precision Metal Working
- UAV/Drones

KD-5600 Configurations:

- **KD-5656 – Digital System** – designed to interface directly to an embedded controller with a Master SPI bus. The master can control the operation by writing commands to the system or just reading data when an interrupt is received from KD-5656. The Digital System outputs two 24 bit digital words, one for CHX and one for CHY each time the data is received. The system is calibrated and configured to optimize performance.
- **KD-5640 – ANA System** – The Analog system provides linear analog voltage. The full range output signal is 0-5 VDC with a null position of 2.5 VDC.
- **KD-5690 – FE System** – designed for FPGA interface for high speed operation with data rates as high as 128kHz, 48 bits of data, 60Khz bandwidth and no internal firmware.

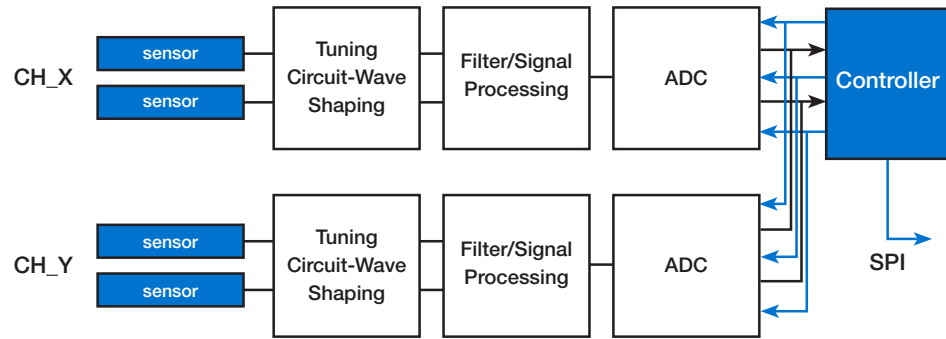


KD-5656 - Digital System

Digital Connection: Access to the digital signals is via a mini 9D connector. Place the KD-5656 System within 20 inches of the Controller for optimal signal quality. Install the Sensors at the given calibration Null and Offset. Refer to the user manual for pin connections.

INPUT/OUTPUT Signals - FE System:

- Power – 8 to 28V
- Ground
- MCLK – Sampling Speed
- DRDY – Data Read for Read
- SCLK – Serial Clock
- SDO – Serial Data Out
- SYNC – SYNC ADC reads on Power up

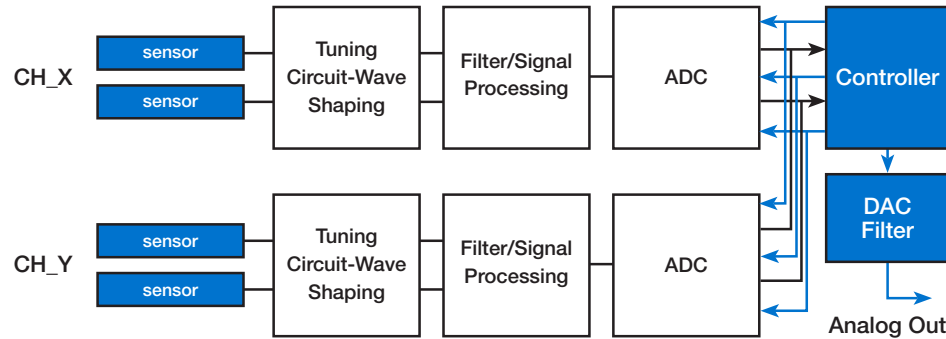


KD-5640 - ANA System

Basic Connection: Access to the Analog signals is via a mini 9D connector. The analog signals are capable of driving loads that are up to 10 feet from the KD-5640 system. It is recommended to terminate the end of the signal with a 10K resistor.

INPUT/OUTPUT Signals - FE System:

- Power – 8 to 28V
- Ground
- CLK+
- CHX-
- CHY+
- CHY-



KD-5690 - FE System

Digital Connection: Access to the digital signals is via a mini 9D connector. Place the KD-5690 System within 20 inches of the Controller for optimal signal quality. Install the sensors at the given calibration null and offset. Refer to the user manual for pin connections.

INPUT/OUTPUT Signals - FE System:

- Power – 8 to 28V
- Ground
- MCLK - Sampling Speed
- DRDY - Data Read for Read
- SCLK - Serial Clock
- SDO - Serial Data Out
- SYNC - SYNC ADC reads on power up

