Proven Solutions for Fast Steering Mirror Control

Kaman Precision Products' differential inductance transducer systems have a proven track record of outstanding performance in critical fast steering mirror applications. For more than 35 years, Kaman has been designing and manufacturing non-contact eddy current sensors for controlling the position of fast steering mirrors used in intersatellite optical communication. Kaman’s measuring systems maintain mirror position accuracy in the sub-micron range, ensuring that a reflected laser beam finds its target hundreds or even thousands of kilometers away.

Our sensors are routinely used in commercial and military imaging and communication satellites, interplanetary exploration vehicles, and laser targeting, night vision, and optics correction systems.

With the dramatic growth in large LEO satellite constellations for global internet and broadband data access, Kaman has leveraged our technology and experience to create a family of differential eddy current sensor systems ideally suited to the demands of the Commercial Space market—greatly reduced cost and dramatically higher production volume while retaining the performance and reliability for which our systems are so well known.

We invite you to contact our team to discuss your requirements and explore how Kaman can help you achieve success with your optical communication system.

Kaman Precision Products Facilities and Capabilities

Kaman Precision Products, an AS9100C-certified division of Kaman Corporation, is headquartered in Middletown, Connecticut. We develop and manufacture high-performance, precision non-contact position measuring systems; fuzing and safe & arming solutions; and ruggedized digital data storage systems and media for military and aerospace applications.

Our Measuring systems engineering and product development team, located in Colorado Springs, runs a development lab suited to small-scale custom build, a thermal test chamber, magnetic field generation equipment, automated high-precision proximity measuring instruments, and magnetic testing capabilities. This research and development center is staffed and equipped for rapid response in the design and testing of electro-optical and pyro-electro-mechanical systems. Volume production takes place at our 205,000 sq. ft. Middletown facility. Our Business Development, Sales, and Customer Service teams operate from both our Middletown and Colorado Springs locations.

Kaman Corporation [NYSE: KAMN]

Kaman was founded in 1945 by Charles H. Kaman, a visionary aeronautical engineer, businessman, inventor, and philanthropist best known for his work in rotary-wing flight. For the past 75 years, Kaman has been recognized for technical breakthroughs and innovative solutions to critical challenges.

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ISO 9001:2015

KAMAN Precision Products

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3000 EMPLOYEES
$736M 2020 AEROSPACE REVENUE
50+ COUNTIES

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The KD-5100+ dual channel differential displacement measuring system uses inductive technology to detect the position or alignment of a conductive target. Each measuring channel utilizes a matched pair of sensors on opposite legs of a balanced bridge circuit. The use of two sensors on each channel minimizes the effects of temperature variations and radiation.

The heart of the KD-5100+ is a proprietary hybrid circuit manufactured to Kaman specifications in accordance with MIL-R-58034 Class H. The complete KD-5100+ has been designed to protect layout and has been thermally tested from -55°C to +120°C.

Both sensor and electronics are designed for use in vacuum environments down to 1 Torr without significant outgassing.

The KD-5100+ features rugged construction with a calculated mean time between failures of more than 55,000 hours in a tactical environment and 238,000 hours in a space flight environment.

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The KD-5100+, DIT-5200L and KD-5600 product families utilize the following high standards, which offers opportunity for COTS up screening based on program requirements.

Available Configurations:
- KD-5690 – Front End System
- KD-5640 – Analog System
- KD-5656 – Digital System
- KD-5600 – Digital System
- KD-5680 – Analog System

Both sensor and electronics are designed for use in vacuum environments down to 1 Torr without significant outgassing.

The DIT-5200L is a commercial-based, fully analog product built to PIC-010 Class 3 standards, which offers opportunity for COTS up screening based on program requirements.

The KD-5600 product family uses Kaman’s custom sensors, signal processing, analog-to-digital converter, and custom calibration system to deliver a precision measuring system. The KD-5690 system uses a custom 8-pin connector for reading and writing data.

Kaman sensors are designed and tuned for specific applications. The KD-5680 systems can have matched sensor pairs for optimum operation of each channel.

The input signals are filtered and scaled to remove common mode noise, and provide a drive signal. Signal processing also provides digital filtering to reduce signal noise.

Available Configurations:
- KD-5690 – Front End System
- KD-5640 – Analog System
- KD-5656 – Digital System
- KD-5600 – Digital System
- KD-5680 – Analog System

Both sensor and electronics are designed for use in vacuum environments down to 1 Torr without significant outgassing.

The DIT-5200L is CE Marked when purchased in the original enclosure.

The electronics can also be supplied as a bare PCB for installation inside the user’s enclosure. Custom configurations can also be designed for OEM application requirements.

The DIT-5200L, CE Marked when purchased in the original enclosure.

The KD-5600 signal conditioning electronics is packaged in a die cast aluminum box with MCX style sensor connections. The I/O is on a 9-pin mini-D connector. The input signals are filtered and scaled to remove common mode noise, and provide a drive signal. Signal processing also provides digital filtering to reduce signal noise.

Available Configurations:
- KD-5690 – Front End System
- KD-5640 – Analog System
- KD-5656 – Digital System
- KD-5600 – Digital System
- KD-5680 – Analog System

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Our Measuring systems engineering and product development team, located in Colorado Springs, runs a development lab suited to small-scale custom build, a thermal test chamber, magnetic field generation equipment, automated high-precision pixel testing measuring instruments, and dynamic testing capabilities. This research and development center is staffed and equipped for rapid response in the design and testing of electro-optical and pyro-electro-mechanical systems.

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