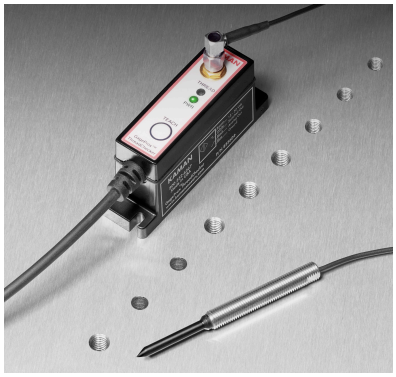
KAMAN
Precision Products / Measuring

Universal ThreadChecker™

Non-contact Thread Detection
Quick Start Manual

This apparatus, when installed and operated per the manufacturer's recommendations, conforms with the protection requirements of EC Council Directive 89/336/EEC on the approximation of the laws of the member states relating to Electromagnetic Compatibility. Refer to the Declaration of Conformity or contact Kaman Precision Products for details.



Description
The Universal ThreadChecker™ is a noncontact proximity measuring system. This low-cost, easy-to-use system detects the presence or absence of male and female threads in both ferrous and non-ferrous metals.

The ThreadChecker™ system consists of two subassemblies: sensor with 2 m integral cable, and signal conditioning electronics module with power and output cable. The ThreadChecker™ electronics uses a standard 24AWG cable for voltage input and outputs for the analog voltage and switch functions.

Refer to the ThreadChecker™ Data Sheet for product specifications and sensor selection.

Cable Connections

Wire Color	Signal
BROWN	Vin +15 to 30vdc
BLUE	GND
WHITE	SWITCHED OUTPUT
BLACK	Vout 0-10vdc

Teaching the ThreadChecker™
The Universal ThreadChecker™ is shipped as an individual electronics module and sensor and must be configured or "taught" before it can be used. This process is performed using the 'Teach' button on the front panel of the electronics. The only test set up required is a representative sample of a threaded and a non-threaded hole in the size and material of the part to be checked. The electronics is easily calibrated to any ThreadChecker™ sensor and for most hole/thread configurations as follows:

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1. Connect the sensor and power source to the electronics. Allow the system to warm up for a minimum of 5 minutes.
2. With the sensor in 'air' (i.e. not in a hole or near any conductive material), press and hold the 'Teach' button until the Thread LED blinks fast then release (more than 1 second but less than 10 seconds), the Thread LED should blink slowly.
3. Position the sensor tip in the threaded hole and momentarily press the 'Teach' button. The Status LED will blink fast.
4. Position the sensor in an unthreaded or bad hole and momentarily press the 'Teach' button. The LED should be solid red indicating no threads present. The system is now calibrated and ready for use.

This configuration will be retained in memory. If the sensor, thread size, or material are changed, the teach sequence must be performed again.

For best performance the sensor tip should be centered in the holes during the teach operation sequence and in normal operation.

Switched Output

This is an opto-coupled, solid-state relay. The system is shipped from the manufacturer with the switch in standard mode as a 'window' comparator. The switch will be closed (to ground) when it detects a thread (or "good" part), otherwise, the switch will be open.

The switch can also be set to operate in 'compatibility', or level comparator mode. In this mode, the switch is open when detecting no thread, and closed (to ground) when detecting a thread (or "good" part).

To change modes, press and hold the 'Teach' button on power up.

To invert switch operation (for either mode), press and hold the 'Teach' button for more than 10 seconds after the system has been powered on.

Front Panel LED's

There are two bi-color LED's on the front panel of the electronics. Their indications are as follows.

POWER LED

Green	System is running with no faults
Red	Sensor not recognized or is disconnected. If the sensor is connected and this condition persists after a teach sequence, the sensor may be faulty.
Red Flashing	The system has a fault. Possible sources: Calibration error with good and bad points too close together. Input voltage not within specified range. System not warmed up properly prior to calibration.
Yellow	System is being calibrated or the "Teach" button is pushed
Off	System has no power or is otherwise faulty