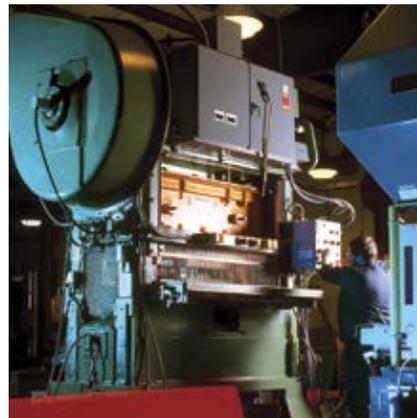


ThreadChecker™

Noncontact application-specific sensors designed to check thread presence



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Capteurs et Systèmes de mesure

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KAMAN

Precision Products / Measuring

Features

- ❖ Universal electronics for any probe/material combination
- ❖ Four internal probes from 4mm to 10mm
- ❖ Two external probes: 6mm and 8mm
- ❖ DIN rail mounting option
- ❖ CE compliant
- ❖ IP-67 rated probes and electronics
- ❖ PUR jacketed probe and I/O cables
- ❖ Go/no-go LED indicator
- ❖ Push button teach
- ❖ Both switched and analog outputs

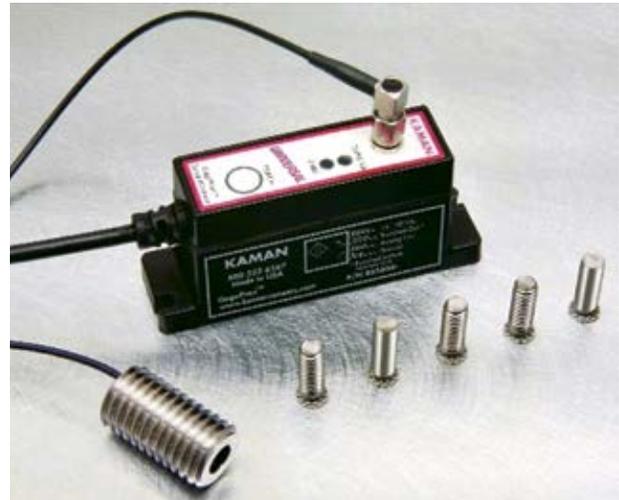
ThreadChecker Universal

Kaman's improved ThreadChecker consists of a single electronics module compatible with any probe/material combination. Designed specifically for in-die use, it provides rugged, reliable verification of thread presence or absence in nearly any electrically conductive material. With Kaman's proven eddy current technology at its core, threads can be checked regardless of part cleanliness, reducing the cost of implementation.

Principles of Operation

As an eddy current sensor, the system (probe plus electronics) detects the distance between the probe OD and the ID of the hole. In untapped holes, this indicates tap drill diameter. In tapped holes, this indicates pitch diameter of the threads.

The most popular implementation is to use the switched output wired to a PLC or other controller, programmed to alarm when no thread is detected. This alarm may stop the operation or may divert untapped parts from further processing. Alternatively, the analog voltage may be monitored. In this case, the user would program the PLC or other control device with whatever limits are suitable for the application.



Teaching ThreadChecker

1. With the probe in air, depress the teach pushbutton. The electronics will optimize settings for that particular probe.
2. Insert the probe into a threaded hole and depress the teach pushbutton. Insert the probe into an unthreaded hole and depress the teach pushbutton.
3. The electronics sets a window around the voltage value for the threaded hole for triggering the "thread" indicator.

Outputs/Indicators

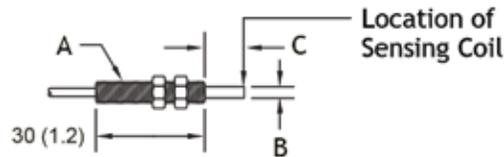
The switched output is an opto-coupled NPN solidstate relay. It comes standard in window comparator mode, but can be set up in level comparator mode, and the polarity can also be changed.

The analog output is set so that there is always a 5VDC difference between a threaded and unthreaded hole.

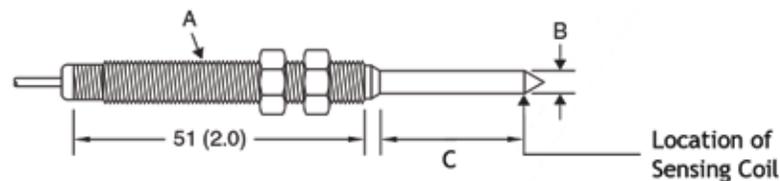
A 3-color power LED and a thread LED are used to indicate a variety of conditions related to the presence/absence of threads, and the health of the sensor system itself.

ThreadChecker Sensors

2 mm INTERNAL SENSORS

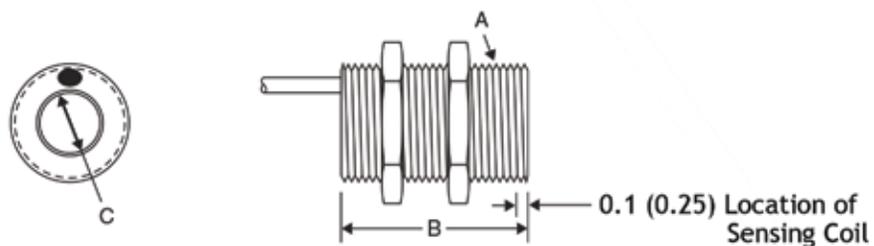


4 mm and larger INTERNAL SENSORS



Recommended for thread sizes	Part #	A	B	C
M3 - M5, #5 - #10	855641-303	M5x0.8	2.0 (0.08)	7 (0.27)
M6 - M7, #12 - 1/4"	855641-602	M8x1	4.0 (0.16)	25 (1.0)
M8 - M9, 5/16" - 3/8"	855641-802	M8x1	5.8 (0.23)	25 (1.0)
M10 - M11, 7/16" - 1/2"	855641-1002	M12x1	7.6 (0.30)	25 (1.0)
M12 - M14, 1/2" - 5/8"	855641-1202	M12x1	9.5 (0.38)	25 (1.0)

EXTERNAL SENSORS



Recommended for stud sizes	Part #	A	B	C
M4 - M6, #6 - #10	855800-605	M18x2.5	32.0 (1.25)	8.0 (0.31)
M8 - M10, #12 - 3/8"	855800-805	M24x3	38.0 (1.50)	11.9 (0.47)

General Specifications

Temperature

Operating range	0° to 70°C (32° to 158°F)
Storage range	0° to 70°C (32° to 158°F)
Compensation range	15° to 55°C (59° to 131°F)

Analog Output

Continuous load current	<50 mA
Short circuit and overload protection	Yes

Input

Supply voltage required	15 to 30 Vdc
Current limit (no load current input)	<50 mA
Reverse polarity protection	Yes
Short circuit protection	Yes

Switched Output

Type	Opto-isolated NPN
Switching speed	3 KHz
Max voltage	30 Vdc
Max current	80 mA

Ratings

Sensors	IP-67
Electronics	IP-67
CE compliant	Yes

Sensor Cable

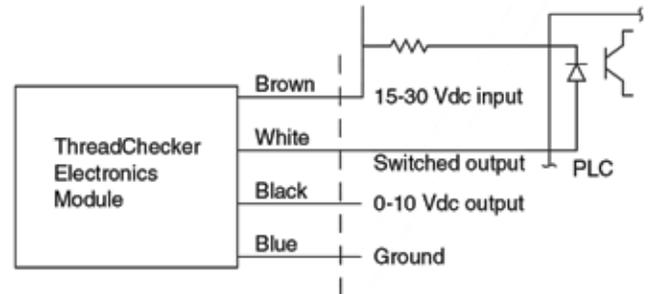
Jacket material	Polyurethane
Length	2 meters

Indicators

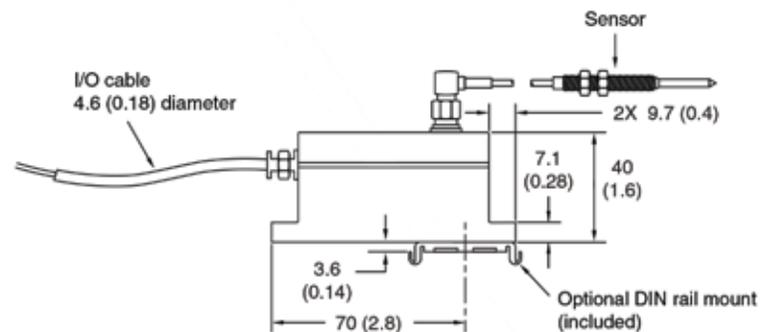
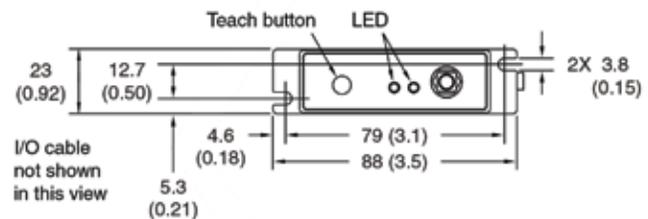
Power on	= Green LED
No sensor detected	= Red LED
Thread presence	
Off	= no hole detected
Unthreaded hole detected	= Red LED
Threaded hole detected*	= Green LED
Blinking	= Teach mode

* A typical installation would usually have the control software create a "reading window" or have another type of sensor indicate a "part present" when the switched output is interrogated. After being "taught," the switched output and thread present LED are in the same state when the sensor is not looking at a threaded hole, i.e. open air.

Connection Diagram



ELECTRONICS



Model - Universal ThreadChecker
Part # - 855840-001

Dimensions shown are in mm (inches).