ThreadChecker™

Non-contact System to Check Thread Presence

- **Thread ranges M4 to M14**
- **NPN and 0 … 10 V output**
- **Supply voltage 15 … 30 VDC**

The ThreadChecker System 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 its 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.

Outputs / Indicators

The switched output is an opto-coupled NPN solid-state 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.

More Features

- Universal electronics for any probe/material combination
- Four internal probes from 4 mm to 10 mm
- Two external probes: 6 mm and 8 mm
- 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

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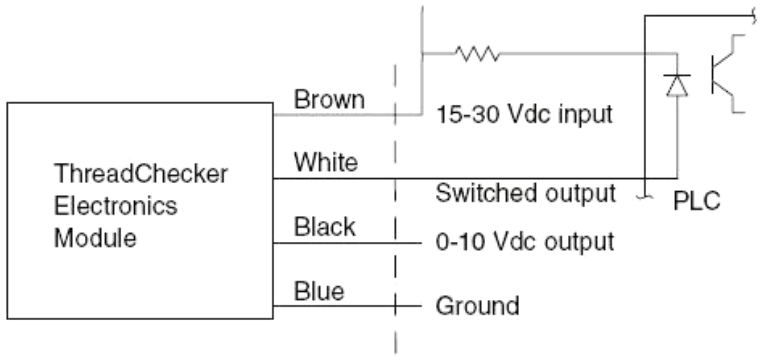
Specifications

Analog Output:	
Continuous load current	<50 mA
Short circuit and overload protection	yes
Switched Output:	
Type	Opto-isolated NPN
Switching speed	3 kHz
Max. voltage	30 VDC
Max. current	80 mA
Input:	
Supply voltage	15 … 30 VDC
Current limit (no load current input)	<50 mA
Reverse polarity protection	yes
Short circuit protection	yes
Temperature:	
Operating range	0 … 70 °C (32 ... 158 °F)
Compensated range	15 ... 55 °C (59 ... 131 °F)
Storage range	0 ... 70 °C (32 ... 158 °F)
Ratings:	
Sensors	IP67
Electronics	IP67
CE complaint	yes
Sensor Cable:	
Jacket material	Polyurethane (PU)
Length	2 m

Indicators:	**Color:**	**Status:**
Power	green	on
Unthreaded hole detected	yellow	off
Threaded hole detected	yellow	on
Teach mode	yellow	blinking

Connection



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.

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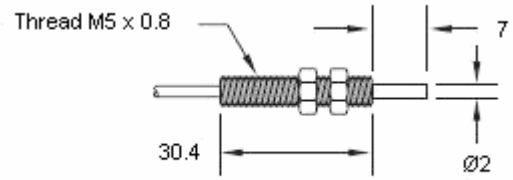
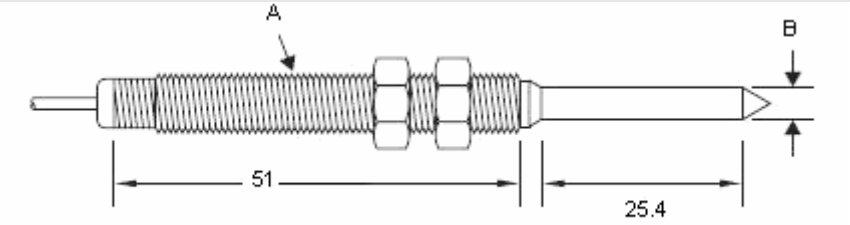
ThreadChecker™ Sensors: Dimensions and Ordering Information

2 mm Internal Sensors



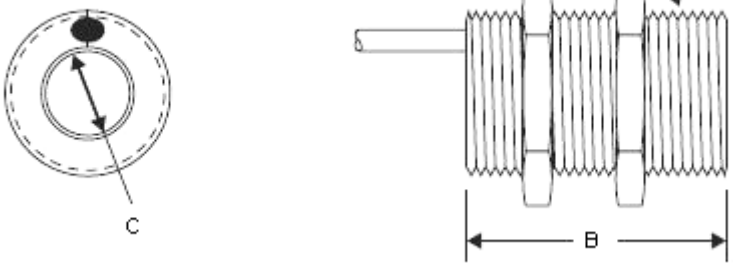
Recommended for hole / thread sizes	Model	Ordering Number
3 mm to 5 mm / M4	2 mm sensor	855641-303

4 mm, 6 mm, 8 mm and 10 mm Internal Sensors



Recommended for hole / thread sizes	Model	Ordering Number	A	B
6 mm to 7 mm / M5, M6	4 mm sensor	855641-602	M8 x 1	4.0 mm
8 mm to 9 mm / M8	6 mm sensor	855641-802	M8 x 1	5.8 mm
10 mm to 11 mm / M10	8 mm sensor	855641-1002	M12 x 1	7.6 mm
12 mm to 14 mm / M12, M14	10 mm sensor	855641-1202	M12 x 1	9.5 mm

External Sensors



Recommended for stud / male thread sizes	Model	Ordering Number	A	B	C
4 mm to 6 mm / M4, M6	6 mm sensor	855800-605	M18 x 2.5	32.0 mm	8.0 mm
8 mm to 10 mm / M8, M10	8 mm sensor	855800-805	M24 x 3	38.0 mm	11.9 mm

All dimensions are approx. values. Unless otherwise specified dimensions in mm.
These drawings are for information only and not intended for construction purpose.
Please ask for detailed drawings.

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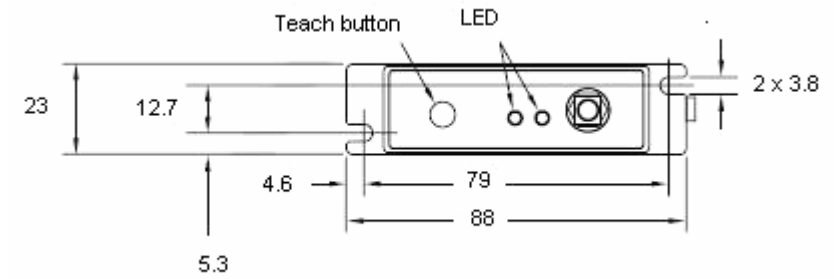
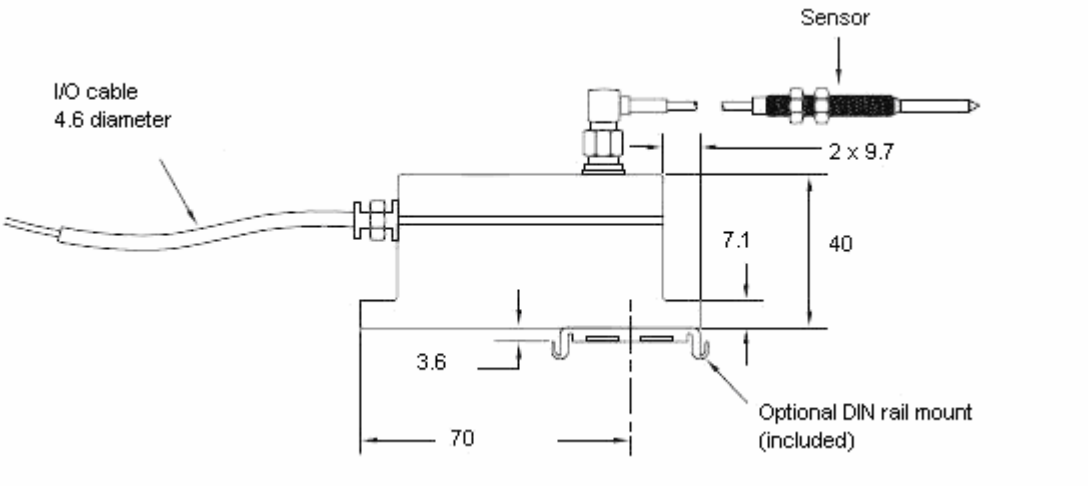
ThreadChecker™ Electronics: Dimensions and Ordering Information



I/O cable not shown in this view



Model	Ordering Number
Universal ThreadChecker Electronics	855840-001

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The ThreadChecker™ System consists of an electronic unit and one or more of above mentioned sensors.

NOTE:
Systems are not calibrated prior to shipment. Refer to users manual for set up and calibration of the system prior to use.

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