ThreadChecker
Noncontact application-specific sensors designed to check thread presence
Features

- Universal electronics for any probe/material combination
- Five internal probes from 2mm 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

![Diagram of 2 mm INTERNAL SENSORS]

4 mm and larger INTERNAL SENSORS

![Diagram of 4 mm and larger INTERNAL SENSORS]

### Recommended for thread sizes:

<table>
<thead>
<tr>
<th>Part #</th>
<th>AB</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>855641-303</td>
<td>M5x0.8</td>
<td>2.0 (0.08)</td>
<td>7 (0.27)</td>
</tr>
<tr>
<td>855641-602</td>
<td>M8x1</td>
<td>4.0 (0.16)</td>
<td>25 (1.0)</td>
</tr>
<tr>
<td>855641-802</td>
<td>M8x1</td>
<td>5.8 (0.23)</td>
<td>25 (1.0)</td>
</tr>
<tr>
<td>855641-1002</td>
<td>M12x17</td>
<td>6.6 (0.30)</td>
<td>25 (1.0)</td>
</tr>
<tr>
<td>855641-1202</td>
<td>M12x19</td>
<td>5.5 (0.38)</td>
<td>25 (1.0)</td>
</tr>
</tbody>
</table>

### Recommended for stud sizes:

<table>
<thead>
<tr>
<th>Part #</th>
<th>AB</th>
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</tr>
</thead>
<tbody>
<tr>
<td>855800-605</td>
<td>M18x2.5</td>
<td>32.0 (1.25)</td>
<td>8.0 (0.31)</td>
</tr>
<tr>
<td>855800-805</td>
<td>M24x3</td>
<td>38.0 (1.50)</td>
<td>11.9 (0.47)</td>
</tr>
</tbody>
</table>

EXTERNAL SENSORS

![Diagram of EXTERNAL SENSORS]

**Recommended for stud sizes:**

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<td>855800-805</td>
<td>M24x3</td>
<td>38.0 (1.50)</td>
<td>11.9 (0.47)</td>
</tr>
</tbody>
</table>
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 V dc
- 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.

The information provided herein is to the best of our knowledge true and accurate, it is provided for guidance only. All specifications are subject to change without prior notification.

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- Germany/Austria/Switzerland: info@althen.de
- Benelux: sales@althen.nl
- France: info@althensensors.fr
- Sweden: info@althensensors.se
- USA/Canada: info@althensensors.com
- Other countries: info@althensensors.com