Detecting Where Others Cannot

- Robust, longer range alternative to ultrasonics
- More precise and reliable alternative to traditional 24 GHz radar
- Easy set up – Simple integration
Bridging the Gap Between Ultrasonics and Radar

Robust, Longer Range Alternative to Ultrasonics

Ideal for outdoor applications
- Resistant to rain, snow, fog, steam, or sunlight
- IP67-rated

Temperature stability
- Radar (radio waves) not affected by temperature changes like Ultrasonic (sound waves)
- Consistent measurement from -40 to 65 °C

Detect near or far
- Sensing range of 150 mm to 15 m

No crosstalk
- No problem mounting multiple sensors close together

More Precise and Reliable Alternative to Traditional 24 GHz Radar

Accurate measurement
- Linearity and repeatability less than 1 cm

Senses more objects
- 122 GHz radar detects a wider range of low dielectric materials to solve more applications

Precise measurement up to 15 meters
- Sensors use two independent, adjustable sensing zones and operate at 122 GHz, which enables higher precision measurements with a narrow or wide beam patterns up to 15 meters away

Easy Set Up – Simple Integration

Flexible set-up and Configuration
- Optional PC Configuration, push buttons, IO-Link or remote teach

Direct integration with Banner lights
- No separate controller needed

Solve more applications
- Dual discrete outputs for slow and stop
- Analog and IO-Link for absolute measurement values
- Available in 15°x15° and 45°x45° beam patterns
Beam Pattern Considerations

Radar Sensors are available in narrow and wide beam patterns. Narrow beam patterns avoid false detection of objects outside of the region of interest and allow for a more precise measurement, while wide beam patterns provide coverage of larger areas and provide more robust detection of irregular surfaces and targets presented at steep angles.

Narrow Beam Applications
- Drive-through
- Overhead crane
- Loading docks

Wide Beam Applications
- Mobile equipment collision avoidance
- Vehicle detection: Train, car, boats

Provide Reliable Position Feedback
Dual Discrete outputs are available for slow and stop positions for port equipment such as reach stackers and container handlers. Analog and IO-Link outputs are also available for absolute distance measurement values for ground support equipment such as baggage handlers or de-icing vehicles.

Reliable Vehicle Detection in Challenging Environmental Conditions
Banner radar is resistant to rain, wind, and snow and has a wide operating temperature making it ideal for vehicle detection at loading docks, tolls, gates, and car washes.

Reliable Collision Avoidance
The T30R measures the distance of ground support equipment from the aircraft and signals an alert when it reaches a programmed distance to prevent collisions.

With the 45°x45° beam pattern, the T30R can detect curved surfaces, such as an airplane, more reliably since a smaller beam can be deflected by the target's curvature.

Challenging Level Management
The T30R can see through steam, dust, and debris build up on the sensor face where ultrasonics may struggle. Banner’s T30R also measures up to 15 m for larger tanks where ultrasonic range isn’t sufficient.

Pulse Pro output for direct integration with Banner lights. Direct process feedback which only requires power; no controller needed.
T30R Radar Sensor

**Specifications**

<table>
<thead>
<tr>
<th>Series</th>
<th>Beam Angle</th>
<th>Output</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>T30R</td>
<td>1515</td>
<td>KD</td>
<td>Q</td>
</tr>
<tr>
<td>1515</td>
<td>15°x15° Beam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4545</td>
<td>45°x45° Beam</td>
<td></td>
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</tr>
</tbody>
</table>

- **KD** = Dual Discrete with IO-Link
- **KI** = Discrete with IO-Link and 4-20 mA Analog
- **KU** = Discrete with IO-Link and 0-10 V Analog

- **Q** = Integral M12 Euro QD
- **QP** = 150 mm M12 Euro QD Pigtail

QD models require mating cordset

**15x15 Models**

- **Passenger Train** (Radar cross section = 6000 m²)
- **Car** (Radar cross section = 6 m²)
- **Weak Object** (Radar cross section 1 m²)

**45x45 Models**

- **Passenger Train** (Radar cross section = 6000 m²)
- **Car** (Radar cross section = 6 m²)
- **Weak Object** (Radar cross section 1 m²)

<table>
<thead>
<tr>
<th>1515</th>
<th>4545</th>
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</thead>
<tbody>
<tr>
<td>Detection Range</td>
<td>0.15 to 15 m (0.5 to 49.2 ft)</td>
</tr>
<tr>
<td>Measurement Range</td>
<td>0.3 to 15 m (1.0 to 49.2 ft)</td>
</tr>
<tr>
<td>Linearity*</td>
<td>&lt; ±4 mm</td>
</tr>
<tr>
<td>Repeatability**</td>
<td>&lt; 1 mm</td>
</tr>
<tr>
<td>Response Time</td>
<td>Analog Update Rate: 2 ms</td>
</tr>
</tbody>
</table>

* At ranges > 0.5 m, from 0.3 to 0.5 m, linearity < ±15 mm
** Repeatability < 10 mm at Excess Gain < 10x

**Accessories**

- **SMB30A**
- **SMB30SC**
- **SAFT30R-PVC**
- **SMB30MM**
- **SMB30FA**
- **SMBT30RTM**

**M12 Straight connector models listed; for right-angle, add RA to the end of the model number (example, MQDEC2-506RA)**

- **5-Pin**
  - MQDEC2-506: 2 m (6.5 ft)
  - MQDEC2-515: 5 m (15 ft)
  - MQDEC2-530: 9 m (30 ft)

- **5-Pin Double-Ended**
  - MQDEC3-506SS: 2 m (6.5 ft)
  - MQDEC3-515SS: 5 m (15 ft)
  - MQDEC3-530SS: 9 m (30 ft)

**For the most reliable detection, the target should be larger than half of the beam width.**