Q90R Radar Sensors

Powerful Detection and Measurement in Nearly Any Environment

- Highly-configurable, multidimensional sensing ability of the Q90R2 enables more intelligent object detection based on distance, radial position, and speed thresholds
- Two independent detection zones of the Q90R2 can detect and measure multiple targets
- Robust design delivers superior and consistent operation in any environment
- Versatility that outperforms optical and ultrasonic technologies in demanding conditions
- Simple Banner Measurement Sensor Software interface, IO-Link capabilities, and Pulse Pro allow simple integration and streamline troubleshooting
- IO-Link provides access to real-time process data, and allows sensor parameter adjustments and diagnostic viewing

BANNER ®

Robust Design and Versatile Performance

IP67 and IP69K environmental ratings prevent ingress of dust and liquids

Bright LED indication enables at-a-glance output status and simplified troubleshooting

Solid-state design resists higher levels of shock and vibration compared to laser scanners

Durable **aluminum housing** withstands harsh conditions

Wide operating range (150 mm - 20 m) provides superior coverage

Radar technology **ignores the effects** of ambient weather and light conditions

Reliably detect across a broad vertical and horizontal field of view

Intuitive Interface

Configure the sensor with the easy-to-use PC GUI

IO-Link®

Access real-time data, sensor parameters, and advanced diagnostics

PULSE® PRO I/O

Connect to Banner lights to provide immediate visual feedback

## Advanced Configuration and Detection with the Q90R2

The Q90R2 adds the ability to detect in multiple dimensions: distance from the sensor, angle from the face of the sensor, plus speed and amplitude. This provides additional information on the position of targets, more precision and control, and greater customization abilities.
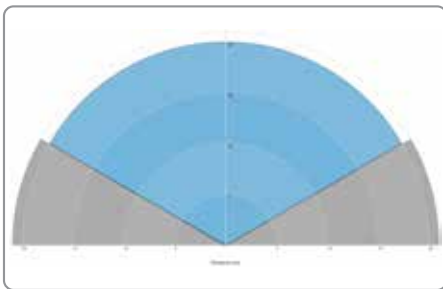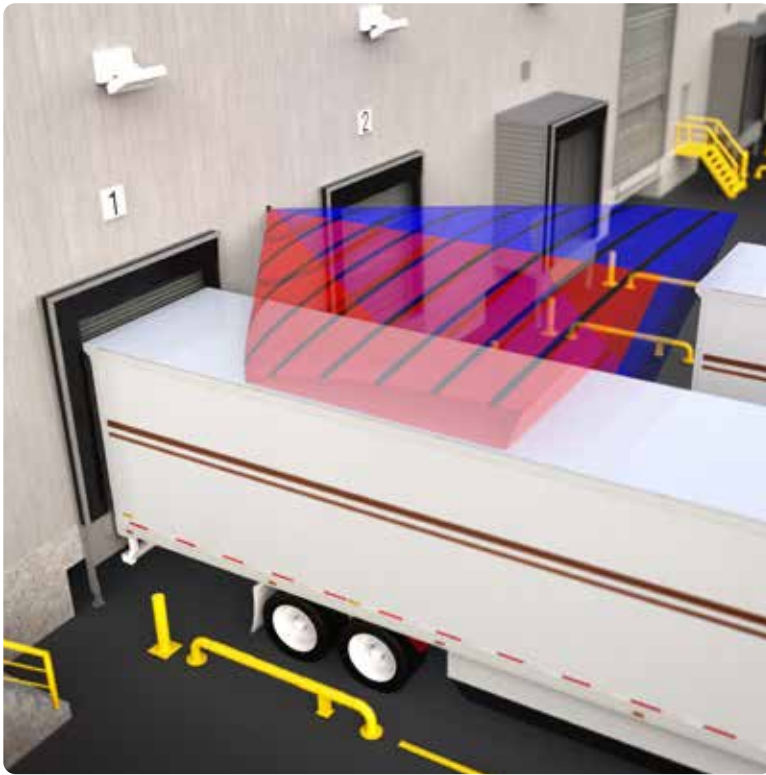
Feedback on targets includes radial distance, angular position, and target velocity, which are all useful for complex applications in difficult environments
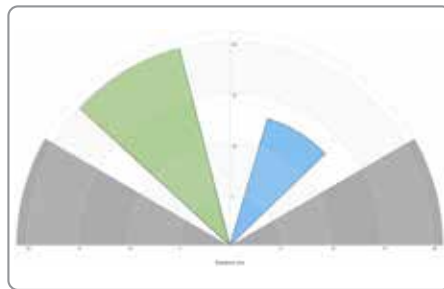
The 120 deg x 40 deg field of view is highly configurable and enables precision positioning and control
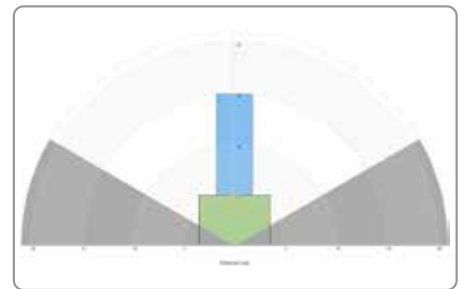
Customize advanced parameters such as window shape and target setpoints to each application

Accurate Vehicle Detection at Loading Docks

Challenge

Accurate vehicle detection at loading docks is crucial for businesses to sustain productivity, safety, and environmental standards. Inaccurate detection can lead to inefficiency and hazardous situations, and installing numerous sensors can be costly.

Solution

The Q90R's broad field of view and robust signal strength provides flexible mounting options in various orientations to accommodate customer requirements. The Q90R2 can track two different targets, effectively taking the place of two sensors and offering even more application flexibility.

Forklift Speed Control and Collision Awareness

Challenge

Forklifts used in manufacturing settings can pose a risk of damaging nearby equipment. Many obstructions in the environment may not be accurately detected by optical or ultrasonic technologies. Additionally, other sensing technologies struggle in the diverse environments where forklifts operate, particularly outdoors.

Solution

The Q90R2 has a large horizontal and vertical detection area, making it an effective solution for speed control and driver collision awareness. On a forklift, a top-mounted Q90R can detect the presence of a ceiling and send a signal to a controller that instructs the forklift to slow down. Likewise, if no ceiling is present, the forklift is allowed to speed up as it moves outdoors. Other forklift-mounted Q90R2 sensors can detect multiple objects ahead, behind, or on the sides, then communicate hazards to operators or bystanders via light or audible indicators. This keeps operations running smoothly and prevents damage to assets.

Q90R High Power, Multipurpose Radar Sensors

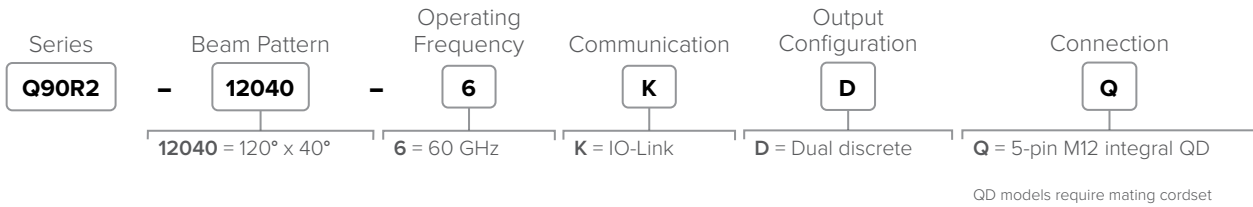**Q90R Series Radar:** 40° x 40° field of view

Series		Beam Pattern		Operating Frequency		Communication	Output Configuration		Connection
Q90R	–	4040	–	6		K	D		Q

4040 = 40° x 40°	**6** = 60 GHz	**K** = IO-Link

D = Dual discrete
I = 4-20 mA analog
U = 0-10 V analog

Q = 5-pin M12 integral QD

QD models require mating cordset
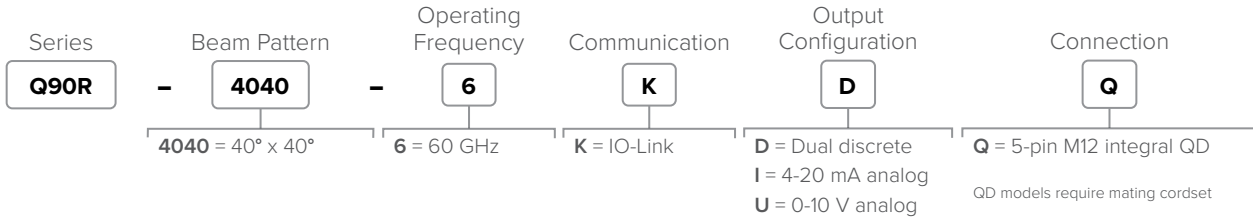
Q90R2 Series Radar: Configurable 120° x 40° field of view and multi-target detection

Series		Beam Pattern		Operating Frequency		Communication	Output Configuration		Connection
Q90R2	–	12040	–	6		K	D		Q

12040 = 120° x 40°	**6** = 60 GHz	**K** = IO-Link	**D** = Dual discrete	**Q** = 5-pin M12 integral QD

QD models require mating cordset

Specifications

84 mm
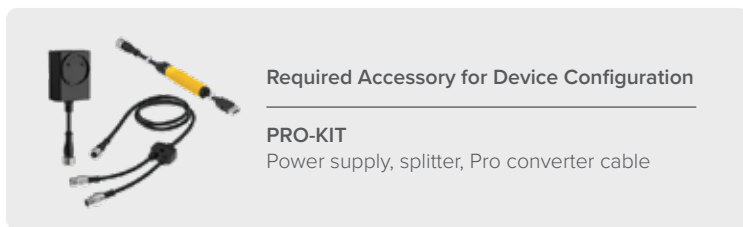89 mm
17 mm

Q90R   **Q90R2**

Supply Voltage	Q90R analog voltage: 12 to 30 V DC Q90R analog current and dual discrete: 10 to 30 V DC Q90R2: 10 to 30 V DC
Range	0.15 m to 20 m
Beam Pattern	Q90R: 40° x 40° Q90R2: 120° x 40°
Response Time	Q90R analog update rate: 15 ms Q90R discrete output response: 50 ms Q90R2: 48 ms
Telecom Approved	US, Canada(Q90R only), Europe, Australia, New Zealand
Construction	Housing: Aluminium, Window: Polycarbonate
Operating Conditions	–40 to +65 °C (–40 to +149 °F)
Environmental Rating	IP67, IP69K
Certifications	CE FC

Accessories

Required Accessory for Device Configuration

PRO-KIT
Power supply, splitter, Pro converter cable

5-Pin M12
Straight connector models listed; for right-angle models, add **A** to the end of **M12F5** (example, BC-M12F5A-22-2)

BC-M12F5-22-2
2 m (6.5')
BC-M12F5-22-5
5 m (16.4')
BC-M12F5-22-10
10 m (32.8')

SMBAMSQ90R
Adjustable mounting bracket

SMBRAQ90R
Right-angle mounting bracket

DXMR90-4K
IO-Link Master

5-Pin M12
Double-Ended Straight/Straight

BC-M12F5-M12M5-22-2
2 m (6.5 ft)
BC-M12F5-M12M5-22-5
5 m (16.4 ft)
BC-M12F5-M12M5-22-10
10 m (32.8 ft)