

# Collision Avoidance Sensing Solutions



**BANNER**<sup>®</sup>

more sensors, more solutions

# Banner Radar Sensors for Crane Collision Avoidance

Harbour cranes like STS, RTG, RMG represent an expensive investment. Banner Engineering's R-GAGE radar-based sensor series is the perfect solution for crane to crane, or crane to obstacle collision avoidance applications, and can operate in harsh weather conditions like strong winds, heavy rain, direct sunshine, hot & cold temperatures.

Radar sensors use Frequency Modulated Continuous Wave (FMCW) technology to reliably detect moving or stationary targets, including cranes, cars, trains, trucks and cargo in extreme weather conditions.

## Features:

- FMCW (true-presence) radar detects moving and stationary objects
- Sensing functions are unaffected by wind, rain, fog, light, humidity and air temperatures
- Easy configuration using DIP switches, no PC required
- Adjustable sensing field — ignores objects beyond the setpoint
- Detects vehicles at distances up to 40 m
- Includes DIP switches for sensing distance, sensitivity and output configuration
- Operates at 24 GHz in the Industrial, Scientific and Medical (ISM) telecommunication band; no special licensing required
- Delivers operating temperature range of -40° to +65° C
- Operates at 12 to 30 VDC with bipolar PNP and NPN output
- Rugged IP67 housing withstands harsh environments

## Adjustable-Field Radar-Based Sensors



**Q120RA-EU-AF**



### Long Range High Sensitivity

- Two independent adjustable sensing zones
- Narrow beam pattern (horizontal: 20°, vertical: 50°)
- Detects objects from 1 to 40 m

**QT50RAFQ**



### Standard Wide Angle

- Adjustable sensing field
- Detects objects up to 15 m
- One single detection zone
- Total beam angle 90°

**QT50RAFQ-12682EU**



### Narrow Beam

- Adjustable sensing field with detection up to 24 m
- Two independent adjustable sensing zones
- Total beam angle 20°



No PC required



Easy configuration



IP67



Extreme temperatures



Snow & Fog



Heavy Rain & Humidity



Strong Wind



Sunlight Immune

# Banner Radar Sensor Typical Applications



## STS Collision Avoidance

Radar sensors can reliably detect the presence of another crane or obstacle and activate stop or warning signals.



## Container Detection

Radar sensors detect the presence of a container and reduce the spreader dropping speed when the container is approached.



## Obstacle detection

The dual detection zones allow high speed gantry cranes to slow down or stop when approaching an obstacle or another crane.



## Gate Control

Radar sensors detect the presence of container trains while the radar sensor output activates measuring equipment such as RFID antennas, Gamma Ray Gates...



### Sensors

- Presence/Absence Detection
- Foreground & Background Suppression
- GO/NO GO Inspection
- Gating and Triggering
- Parts Counting
- Level and Distance Measurement
- Positioning
- Contrast and Colour Sensing



### Vision

- Vision Sensors with Onboard User Interface
- Pattern Recognition
- Traceability (Barcode, Datamatrix and Text Reading)
- OCR/OCV
- Complex Part Inspection
- Part Orientation
- Assembly Verification
- Colour Inspections



### Wireless I/O

- Slip Ring Replacement
- Tank Farm Monitoring
- Livestock Environmental Monitoring
- Water and Wastewater Treatment
- HVAC Remote Monitoring
- Traffic Monitoring & Control
- Remote Sensing in Process Automation
- Cable Replacement
- ATEX Approved Solutions



### Lighting & Indicators

- Bin & Part Picking
- Error/Mistake Proofing
- Pick-to-Light & Put-to-Light
- Operator Guidance
- Call for Parts
- Incorrect Pick Signal
- Remote Start/Stop Indication
- Work lights and cabinet lighting



### Machine Safety

- Safety Light Screens
- Optical Non-Contact Safety Systems
- Ergonomic Two-hand Control Devices
- Safety Modules
- Emergency Stop Devices
- Safety Interlocking
- Laser Scanners for Safety Applications

## Banner Engineering's Worldwide Presence

### Headquarters USA

**Banner Engineering Corp.**  
9714 Tenth Avenue North  
Minneapolis, Minnesota 55441  
☎ +1 763 544 3164  
Fax: +1 763 544 3213  
[sensors@bannerengineering.com](mailto:sensors@bannerengineering.com)  
[www.bannerengineering.com](http://www.bannerengineering.com)

### Europe, Middle East, Africa

**Banner Engineering Europe**  
Park Lane, Culliganlaan 2F  
1831 Diegem  
Belgium  
☎ +32 (2) 4560780  
Fax +32 (2) 4560789  
[mail@bannereurope.com](mailto:mail@bannereurope.com)  
[www.bannereurope.com](http://www.bannereurope.com)

### China

**Banner Engineering Shanghai Rep Office**  
Rm. G/H/I, 28th Flr.,  
Cross Region Plaza  
No. 899, Lingling Road,  
Shanghai 200030  
☎ +86 21 54894500  
[sensors@bannerengineering.com.cn](mailto:sensors@bannerengineering.com.cn)  
[www.bannerengineering.com.cn](http://www.bannerengineering.com.cn)

### Hong Kong

**Banner Engineering Hong Kong**  
Rm. 15C, Building B, Fortune Plaza  
No. 7060 ShenNan Rd, Shenzhen  
☎ +86 755 83022293  
[www.bannerengineering.com.cn](http://www.bannerengineering.com.cn)

### India

**Banner Engineering India - Pune (HQ)**  
Office No. 1001, 10th Floor  
Sai Capital, Opp. ICC  
Senapati Bapat Road  
Pune 411016  
☎ +91 20 66405624  
[salesindia@bannerengineering.com](mailto:salesindia@bannerengineering.com)  
[www.bannerengineering.co.in](http://www.bannerengineering.co.in)

### Japan

**Banner Engineering Japan**  
Cent-Urban Building 305  
3-23-15 Nishi-Nakajima  
Yodogawa-Ku, Osaka 532-0011  
☎ +81 6 6309 0411  
[mail@bannerengineering.co.jp](mailto:mail@bannerengineering.co.jp)  
[www.bannerengineering.co.jp](http://www.bannerengineering.co.jp)

### Mexico

**Banner Engineering de Mexico Edificio VA0**  
Av. David Alfaro Siqueiros No.103  
Col. Valle Oriente C.P.66269  
San Pedro Garza Garcia, Nuevo Leon  
☎ 52-81-8363-2714  
[mexico@bannerengineering.com](mailto:mexico@bannerengineering.com)  
[www.bannerengineering.com.mx](http://www.bannerengineering.com.mx)

### Taiwan

**Banner Engineering Int'l Incorporated Taiwan Rep. Office**  
8F-2, No. 308, Sec. 1, Neihu Rd.  
Taipei 114  
☎ +886 2 8751 9966 #15  
[info@bannerengineering.com.tw](mailto:info@bannerengineering.com.tw)  
[www.bannerengineering.com.tw](http://www.bannerengineering.com.tw)

### Banner Engineering India Pvt. Ltd.

Office No 1001, 10th Floor, Sai Capital, Opp ICC,  
Senapati Bapat Road, Pune - 411016, Maharashtra  
India  
☎ +91 20 66405624 Fax: +91 20 66405623  
[salesindia@bannerengineering.com](mailto:salesindia@bannerengineering.com)  
[www.bannerengineering.co.in](http://www.bannerengineering.co.in)

**Banner Engineering Corp.**  
9714 Tenth Avenue North  
Minneapolis, MN 55441  
USA



Banner offers a full range of sensing solutions

**BANNER ENGINEERING INDIA**  
[WWW.BANNERENGINEERING.CO.IN](http://WWW.BANNERENGINEERING.CO.IN)

