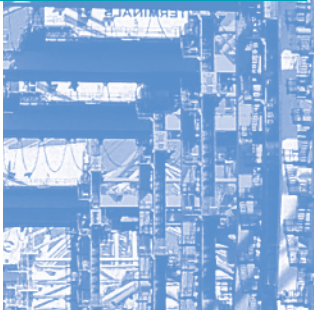


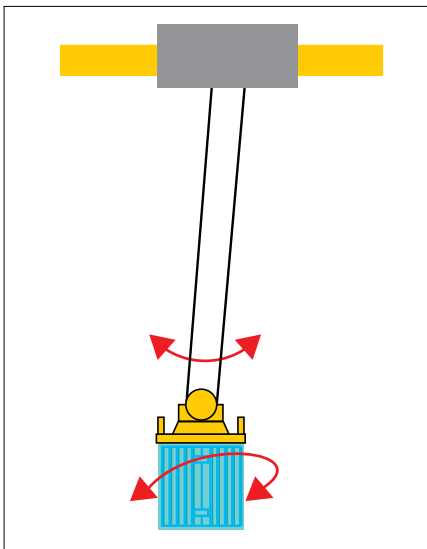


ACCURATE
ROBUST

CRANE AUTOMATION AT CONTAINER PORTS



SWAY & SKEW CONTROL



While Sway control is frequently used for Ship to Shore (STS) and yard (RTG, RMG) cranes as a driver assistance for trolleys, Skew control is necessary when terminals need full automation or remote control.

Arck Sensor provides solution measurement for Sway or Sway & Skew movements of the container on STS and yard cranes in container terminals.

These solutions will be the key factor to improve time operation and increase productivity, whatever the environmental condition. Crane Structure will also be less stressed whilst global crane cycle time to transfer a container will be significantly reduced.

Benefits and gain: decisive advantages

Arck Sensor products will:

- Increase productivity.
- Reduce containers transfer cycle times and operations.
- Increase safety for people, materials and equipment.

Accurate and Robust:

The patented sensor technology, its specific design and ruggedness are approved for severe environments; ambient light immunity.

ACCURATE ROBUST

Arck Sensor is a French company specialized in optical measurement in harsh industrial environments. Our mission is to provide the most robust and accurate sensors for container ports and heavy industries in the frame of automation and safety concerns. Since 1998, Arck Sensor has been constantly improving its technology to deliver long term solutions for major container terminals and metal industry companies, world-wide.

OUR EXPERTISE IN CONTAINER PORTS

Load Movement Measurement

- Anti-Collision for Cranes and Vehicles
- Truck or Straddle Carrier Positioning
- Container Detection Prior to Handling or Stacking
- Boom to Vessel Anti-collision

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SIRRAH®

System presentation

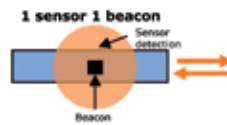
The solution is composed of SIRRAH® sensors and a smart emitted infrared LED sources (BMU Beacons) designed by Arck Sensor.

How does it works

SIRRAH® sensors enable the evaluation of view angles of beacons located on the crane's hoist.

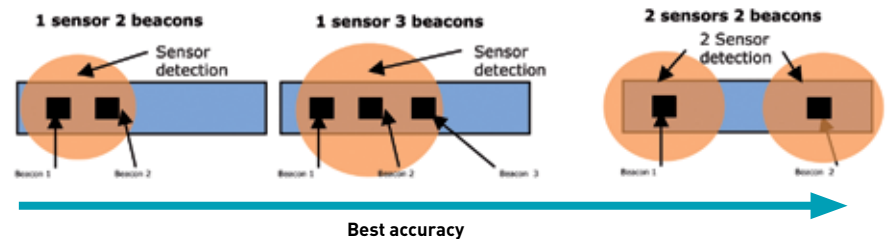
SIRRAH® pointing directly downwards, is situated in the trolley with one or more beacons located top wards on the hoist.

Sway Control:



When just sway control is necessary, only one SIRRAH® sensor coupled with one beacon are installed.

Different types of configuration for Sway & Skew measurement



Best accuracy



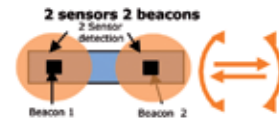
SIRRAH Sensor



BMU Beacons

SWAY & SKEW CONTROL

Sway & Skew control:



For Skew control, more accuracy is needed. Arck Sensor is able to adapt the number of SIRRAH® sensors and beacons to meet the container terminal request of precision.

The distances between beacons are optimized to reach better skew accuracy all over the working range (corresponding to the highest and lowest position of the hoist).

One sensor in the trolley with two or three beacons on the hoist is the cost effective solution.

Two sensors can be used for higher accuracy: the two beacons have to be installed at each end of the hoist. Each SIRRAH® sensor is situated exactly on the top of each beacon.

