

CRANE AUTOMATION AT CONTAINER PORTS

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TRUCK POSITIONING UNDER STS OR RTG CRANES



A driver assistance system

Arck Sensor engineered an efficient positioning system (TPS) for a truck arriving under a quay crane STS or under a RTG. The TPS will secure the right positioning of the container under the quay crane. The spreader will then pick-up and land the container without delay or human presence on the quay.

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, worldwide.

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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System presentation

The TPS solution is composed by: SIRRAH® sensors and smart emitted infrared LED sources (Beacons BMU) designed

by Arck Sensor. It enables the terminal to save time when loading or unloading a vessel.

It also allows saving operator time used to guide the truck driver under the quay crane and enhance safety.

Vessel unloading

The TPS system adjusts the chassis position under the STS: the spreader will arrive exactly on top of it, especially when unloading a 45" container.

Vessel loading

The TPS system measures where the container stands on the chassis and adjusts the chassis position under the STS: the spreader will arrive exactly on top of the container.

How does it works ?

SIRRAH® sensors are installed on a beam of the STS Crane looking down.

One beacon is installed at the top of each truck. The lit beacon is seen by the SIRRAH® sensors.







Top view of 3 positions of trucks

This sensor measures the position of this beacon and calculates the lane number, X position on the long side of the lane and Y position on the transversal side of the lane (position used for checking).

It detects the code sent by the smart beacon to compensate the container offset on the chassis.

Each SIRRAH® sensor views three lanes. Up to 3 sensors can be installed to control 9 lines including the back-reach of the boom.

They are connected to an Arck computer through a serial line RS422.

On each truck, a beacon is installed. The smart beacon sends coded light to give its position to the sensor and personal truck code number. This code is issued to give the container offset on the trailer.

System resolution is better than +/-5cm.

The distance between container and truck is measured with a distancemeter. It is fixed on the back of the truck lighting horizontally to the container.

Human-Machine Interface: Arck Sensor can provide a graphical panel to show the truck current position or three colour light for a simple driver warning.