A driver assistance system

Arck Sensor engineered efficient Positioning System (TPS) for a Straddle Carrier (SC) arriving under a quay crane STS or 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. The Arck Sensor TPS solution is insensitive to the rain, fog or sun, and gives all measurements X and Y. It positions SC on a large area: 14m x 14m, on 3 lanes and 3 SC can work simultaneously. It also measures 3 different positions to land the containers and allows the SC turning 180°.

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.
The system positions Straddle Carrier under a quay crane in the appropriate location and can make the positioning on 6 lanes between the crane legs and on 3 lanes on the back-reach. It can be used to position the carrier who will leave the container in a perfect position for an easier and fast pick-up by the spreader.

The TPS solution is composed by: SIRRAH® sensors and smart emitted infrared LED sources (Beacons BMU) designed by Arck Sensor. The working range is 45 meters or more.

Always the right position: No matter the type of container transported, it is always centered under the SC.
In addition, the final position of the landed container remains always the same as the SC position.
Depending on the type of container and the loading protocol, there are 3 different positions for the SC:
- Centered under the trolley for a single 20”, a 40” or a 45”;
- Left position for a 20” when picked up with a twin lift spreader,
- Right position for a 20” when picked up with a twin lift spreader.

How does it work?
SIRRAH® sensors are installed on a beam of the STS Crane looking down. One beacon is installed at the top of each SC. The lit beacon is seen by the SIRRAH® sensors.

System resolution is better than +/-5cm.

Human-Machine Interface: Arck Sensor provides graphical panel to show SC current position or three color light for a simple driver warning.

Each SIRRAH® sensor views three lanes. 1 or 2 or 3 sensors can be installed with the same PLC and therefore can check 3, 6 or 9 lanes.
On each SC, the smart BMU beacon sends coded light. These codes send SC Numbers, information concerning the type of containers or any information that could be requested in the future.

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Positions for single spreader as shown on the back reach and for the tandem spreader as shown under the crane.