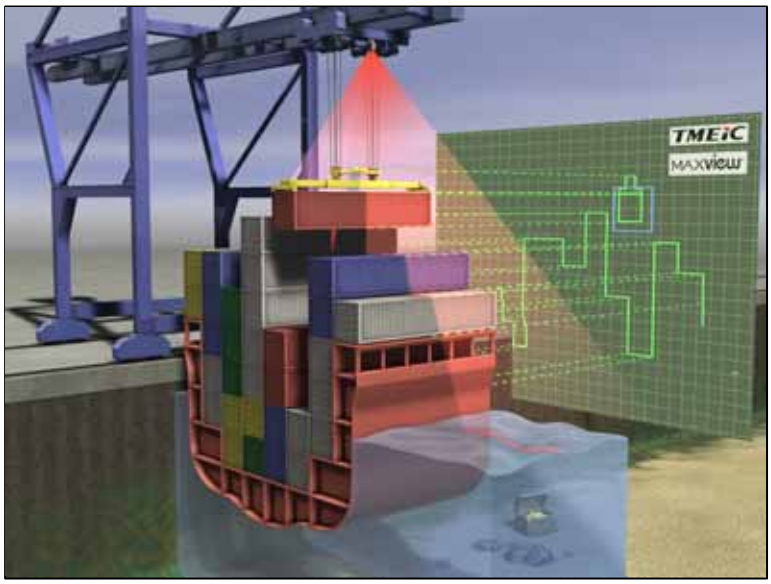
The Maxview Smart Landing® System



Laser-based ship profile and operator landing assist system

Reduce damage and operating noise, and increase your ship-to-shore crane productivity with the ***Maxview Smart Landing®*** *system.*

Benefits

Common industry experience is that up to 50% of crane maintenance costs and downtime are due to spreader repair. The **Maxview Smart Landing®** system slashes this root cause, by efficiently regulating crane speed during landings.

- **Reduced wear and tear on the spreader, head block and wire ropes** – The hoist speed is limited to a pre-set value as the spreader approaches the pick-up or drop-off point to assure smooth, soft landings.
- **Reduced operating noise level** by softer handling of containers and hatch covers.
- **Reduced container damage claims**
- **Increased Productivity,** particularly during container pick-up and drop-off in deep vessel cells. Once in the cell, the operator can lower the spreader at "full stick", while the system reduces the speed as required for an optimal, soft, landing.
- **Hatch cover detection** can be used for operational tracking, and to enforce limitations during handling.
- **"Flipper Up" confirmation at deck level** further reduces spreader damage.

Features

- **Proven Design** > The system is in service on ship-to-shore cranes today. The design is based on TMEIC's extensive experience in crane automation applications in the container handling and other heavy material handling industries.
- **Easy to install and maintain** > Simple set-up, with "hands off" operation and minimal preventative maintenance.
- **Available for Retrofits** > The system can be quickly and easily retrofitted onto existing cranes.
- **Simple Interface** to the existing crane control system via network connection, or a hard-wired discrete interface, as appropriate for the existing crane control system architecture.
- **Open System Design**, utilizing the latest open-system technologies and a minimum of proprietary components to provide a full-featured, yet simple, system that can be easily extended to meet your needs, now and in the future.
- **Flexible Design**, allowing for a high degree of customization based on the specific needs of the operation and existing crane control equipment.

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How it works

The **Maxview®** system uses a laser scanner and **Maxview®** software modules to measure and continuously update the profile of containers and other obstructions under the crane.

- The **Maxview®** laser scanner has range of over 80 meters, which provides measurement to the bottom of the deepest vessels.
- The profile is updated continuously, and without any need for additional trolley motion (including during the first move over the vessel).

- The **Maxview®** system also tracks the spreader position (hoist position and sway), and continuously compares the distance between the spreader plus load and all objects in the stored profile.
- The **Maxspeed®** crane control system uses the **Maxview Smart Landing®** system measurements to create a slowdown envelope around the spreader, and limits the hoist or trolley speed as required to prevent hard contact during operation.
- These slowdowns limit the crane speed when, and only when, hard contact is imminent. Therefore crane productivity is not reduced when **Maxview Smart Landing®** system is active.
- The **Maxview Smart Landing®** system functions are optionally selectable for:
  - hoist motion,
  - trolley motion,
  - operations over the ship,
  - operations between the crane legs, including vehicle detection in the lanes,
  - operations in the crane backreach area.

Figure 1 - Spreader in cell (view from cabin)

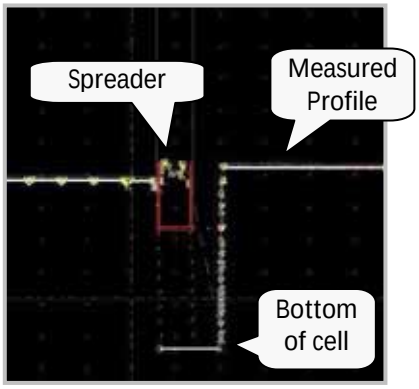

Figure 2 – Maxview® measurement of scene in Figure 1 (profile view)

- The **Maxview Smart Landing®** Crane Management System (CMS) screen is provided for the crane operator to increase his or her visual awareness of the profile of containers and objects below the crane. This CMS screen also indicates the system status.

Figure 3 - The **Maxview Smart Landing®** system in service at Port Metro Vancouver, Canada.

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