

A large container ship is docked at a port. A red gantry crane is lifting a blue container from the ship. The ship's deck is covered with stacks of blue and red containers. The sky is overcast.

RICE LAKE[®]
WEIGHING SYSTEMS

Container Weighing Solutions

800-472-6703
www.ricelake.com

THE SOLAS (SAFETY OF LIFE AT SEA) TREATY REQUIRES ALL ISO CONTAINERS TO HAVE A VERIFIABLE GROSS MASS VALUE ENTERED INTO THE SHIP'S MANIFEST PRIOR TO LOADING. THIS INTERNATIONAL TREATY AMENDMENT COMES IN THE WAKE OF SEVERAL AT-SEA DISASTERS RESULTING FROM IMPROPER CARGO SHIP LOADING.

The industry preferred and recommended method for verifying ISO container mass is to weigh the entire container (once sealed) to provide a total verified mass, with the added benefit of relevant center of gravity and container balance data. Rice Lake has a diverse variety of weighing equipment for sea ports, including Rice Lake's brand of Measurement Systems International weighing systems. This unique position in the industry allows Rice Lake to offer several products for SOLAS compliance, including:

- Twist lock sensors for crane spreaders and mobile equipment attachments
- Load pins and load sensors
- Below-the-hook crane scales
- Forklift, truck and rail scales

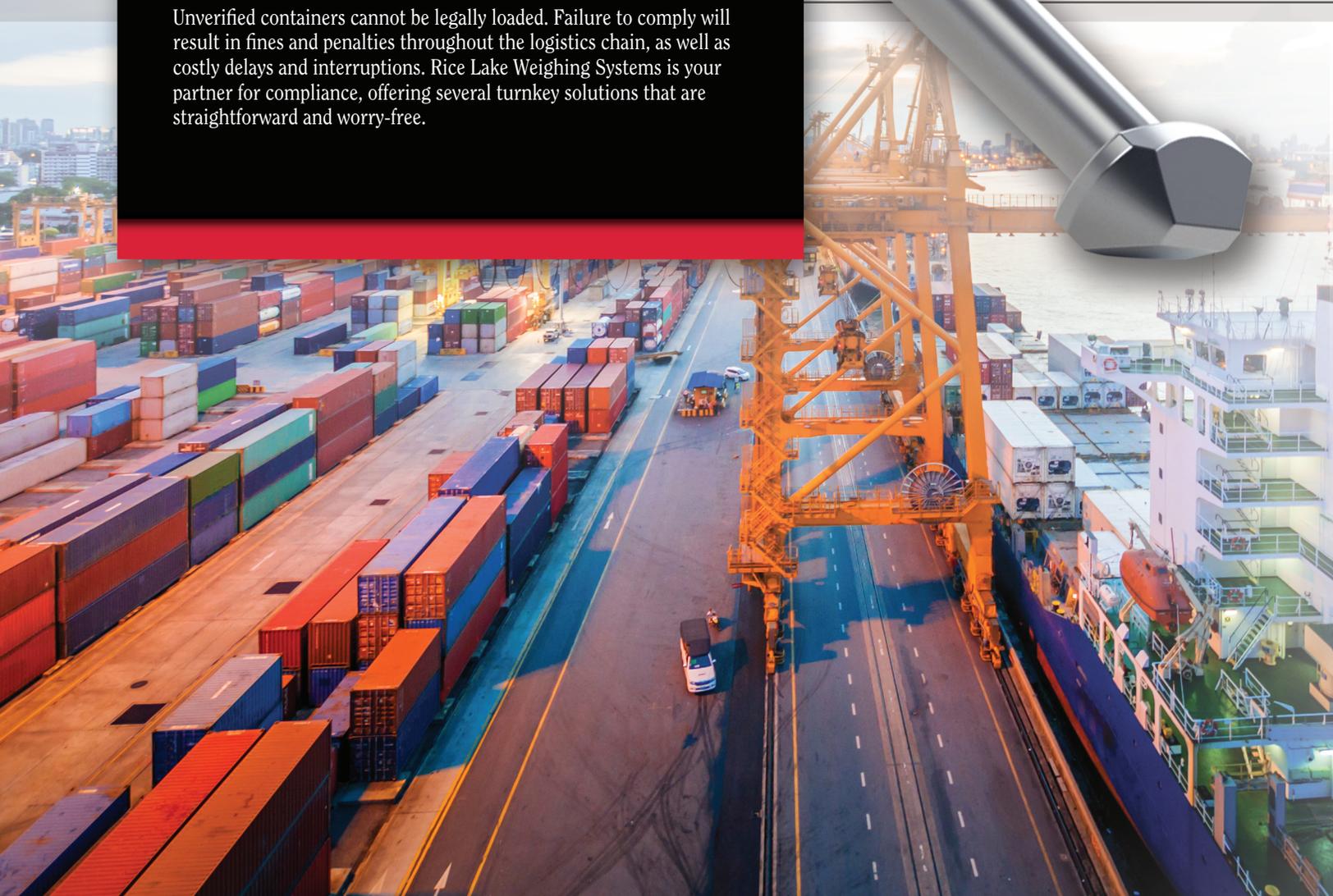
Rice Lake products can integrate into existing port handling equipment and management systems, providing minimum interruption to operations and seamless merging of data.

Unverified containers cannot be legally loaded. Failure to comply will result in fines and penalties throughout the logistics chain, as well as costly delays and interruptions. Rice Lake Weighing Systems is your partner for compliance, offering several turnkey solutions that are straightforward and worry-free.

Twist Lock Sensors

Rice Lake's Twist Lock Sensors were specifically designed and engineered to meet or exceed industry standards and SOLAS requirements. Durability and accuracy are the cornerstone foundations for this SOLAS solution. Rice Lake Twist Lock Sensors are constructed from 4340 high-tensile steel and have been heat treated and hardened to survive abusive and demanding terminal port environments.

These sensors are dimensionally identical to original equipment manufacturer (OEM) twist locks and can be seamlessly installed in the crane spreader head to replace the existing twist lock. Rice Lake's Twist Lock Sensors are equipped with an internal strain gauge to measure the sensor's elongation from the vertical tension while the crane is under load. These sensors have a superior accuracy at 1 percent or better without compromising rugged durability in either static or mobile applications.



Load Pins and Load Sensors

Load protection systems for container and cargo boom cranes are integral components of safe and efficient port operations. Rice Lake's Load Pins and Load Sensors are easily integrated into existing crane control systems, and specifically designed for your requirements. These solutions are engineered to integrate into existing equipment and provide container weight, overload and slack line data, as well as other valuable information.

Rice Lake's load monitoring solutions have a 1 percent accuracy and can be used for both static and mobile applications. These solutions are customized for your specific objectives and crane design, ensuring accurate and instantaneous load information for safe crane operation.



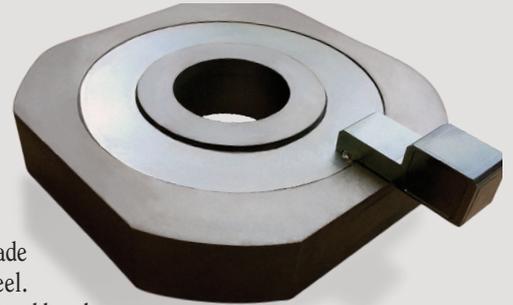
Electronics and Integrated Communications

Rice Lake's Twist Lock Sensors, Load Pins and Load Sensors can easily integrate with manifest databases and existing PLCs in the port terminal or stacking yard. Multiple RF signal types are available, including 802.15.4, 802.11, Bluetooth®, encrypted signals and others.

Integrated electronics provide operators real-time container weight and balance data to assist in stowage plans, reporting data for container ID input and logging, and existing database and management systems.

MSI-Shear Web Load Cell

When load block integration is key, a low-profile, donut-style load cell that compensates for hook rotation without losing accuracy is essential. The MSI-Shear Web Load Cell offers a 1/10 of 1 percent accuracy of rated capacity, off-axis compensation, and is made with durable, zinc-plated 4340 alloy steel. This low-profile load cell is built to withstand harsh sea port environments with an IP67 rating.



Integrated Control Components

1280 Enterprise™ Series Programmable Indicator/Controller

Seamlessly integrate the 1280 with existing crane operator control and manifest databases or port PLCs. The 1280 features a built-in web server, Ethernet TCP/IP, Wi-Fi, USB, Bluetooth® and RS-232/485.

1280 Programmable Indicator/Controller Specifications

- Display: Color touchscreen with seven-inch, 800 x 480 pixel back-lit, full-color LCD graphical display
- Eight onboard digital I/O
- 100 setpoints; 18 configurable setpoint types
- Database integration and advanced logging functions
- Graphical representation of the container and weighing process
- Approvals: NTEP CC 15-001

920i® Programmable Indicator/Controller

The 920i programmable indicator can be cab-mounted for crane operator control or wall mounted to interface load data with the system control PLC.

920i Programmable Indicator/Controller Specifications

- Display: 4.6 x 3.4 in (W x H), 320 x 240 pixel backlit LCD graphical display
- Six onboard digital I/O
- 100 configurable setpoints
- Optional fieldbus protocols: DeviceNet™, EtherNet/IP™, ControlNet™, Profibus DP™
- Approvals: NTEP CC 01-088



SOLAS Solutions for Every Application

Rice Lake Weighing Systems manufactures the toughest scales on Earth, including SURVIVOR® truck weighbridge and rail scales, MSI below-the-hook crane scales and rugged mobile platform solutions. Rice Lake has a weighing solution for any location in your port terminal or stacking yard to ensure SOLAS compliance.

FOR MORE INFORMATION ABOUT RICE LAKE'S COMPLETE OFFERING OF CONTAINER WEIGHING SOLUTIONS, VISIT WWW.RICELAKE.COM/SOLAS.

TranSend™

TranSend RF wireless weighing system components transmit load data from the load sensor to virtually any location for control interlock or PLC interface.

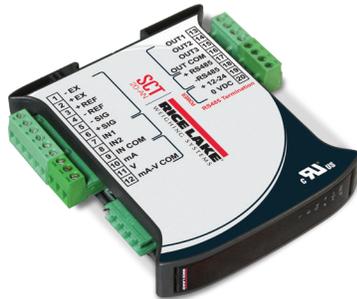


TranSend Specifications

- Accuracy: $\pm 0.05\%$
- Power input: 90-264 VAC, 5-6 VDC, 120-300 VDC
- Service counters: Counts the number of loads applied over 25% of capacity and loads applied over capacity
- Event counter: Counts the number of loads applied over a user-defined threshold.
- Outputs to setpoints and a text string
- Radio link: Direct sequence spread spectrum at 2.4 GHz, license free 802.15.4
- Data I/O: RS-232

SCT-20

The SCT-20 signal conditioning transmitter supplies a 4-20mA signal to the crane control PLC. The SCT-20 is DIN-rail mounted in an optional protective enclosure for use in harsh, sea port environments.



SCT-20 Specifications

- A/D sample rate: 300Hz (adjustable with filter settings 0-9)
- Digital I/O: Two inputs 5-24 VDC, three outputs 115 VAC/150 mA, N.O. or N.C. (dry contact)
- Display: 0.3 in (8 mm), six-digit, seven-segment LED display
- SCT converter dimensions (W x H x D): 0.98 in x 4.52 in x 4.72 in (25 mm x 115 mm x 120 mm)
- RS-485 or RS-232 serial output; supports ASCII and Modbus RTU
- Analog outputs for displayed weight of 0-20 mA, 4-20 mA, 0-10V, 0-5V or $\pm 10V$ and $\pm 5V$; selected as voltage or current; can track positive or negative weight values
- Optional fieldbus protocols: Device Net, EtherNet/IP, Profibus, Modbus/T

iQUBE²® Digital Diagnostic Junction Box

iQUBE² has the unique ability to digitally monitor and communicate load cell performance. By creating a digital signal, iQUBE² provides unparalleled speed and communication, and is far more resistant to electrostatic discharge.

iQUBE² Specifications

- NEMA Type 4X fiberglass reinforced polyester or stainless steel enclosure
- Up to 16 load cells can be connected using secondary boards
- Four digital I/O for push-button operation, host control, free running setpoints or remote cell status
- Standard communication for RS-232/485/422; option card slot for fiber optic, Ethernet TCP/IP or Ethernet TCP/IP wireless, USB or RS-232/485/422
- Approvals: NTEP CC 03-302



ScaleConnect™ Mobile Application

Rice Lake's ScaleConnect app collects data, creates combination scales and controls your Bluetooth® or Wi-Fi equipped ScaleCore equipment on Android™ mobile devices.

- Android application for tablets and smartphones
- Bluetooth® and Wi-Fi support
- Easily configure weighing equipment
- Display and track container balance and weighing data from anywhere



SALES AND TECHNICAL ASSISTANCE

RICE LAKE
WEIGHING SYSTEMS

HEADQUARTERS
230 West Coleman Street
Rice Lake, Wisconsin 54868 - USA
Tel: (715) 234 9171 | Fax: (715) 234 6967
www.ricelake.com