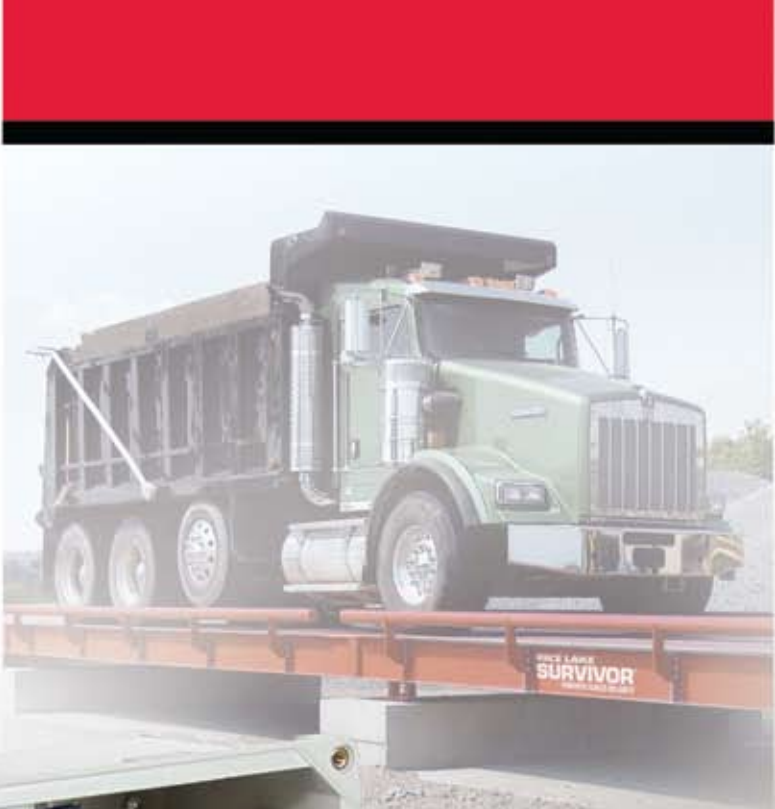


QUBE²
INTELLIGENT
JUNCTION BOX



RICE LAKE[®]
WEIGHING SYSTEMS

To be the best by every measure[®]

www.ricelake.com

Identifies and handles problems before they become problems



Designed to enhance speed and performance, iQUBE² is the next generation of intelligent junction boxes. By taking standard j-box functions to a digital level, it offers more than any junction box you've ever known. iQUBE² has the unique ability to digitally monitor and communicate load cell performance, and when necessary will even compensate for a failing load cell until repairs can be made. By creating a digital signal, iQUBE² provides unparalleled speed and communication, and is far more resistant to electrostatic discharge and transient damage from lightning strikes than a traditional scale system.

iQUBE² is ideal for systems requiring single or multiple scales with multiple cells. From floor and hopper scales to large multi-deck truck scales, iQUBE² is the required solution for any mission-critical application.

Truck and Track Scales



Accuracy translates to profits

Your scale controls either the quality or quantity of the product you are weighing. In other words, your scale accuracy is directly related to profits. Many factors can affect your scale accuracy, which can go unnoticed. iQUBE² monitors each load cell for weighing errors.

Speed enhances precision

Faster data feedback improves the weight response efficiency of the HMI indicator. Whatever batching control application you are monitoring, iQUBE² gives you real-time data for precision control. Accurate targets can be achieved in fast fill applications like asphalt, grain or chemicals where both speed and accuracy are required. Even though update speed is extremely fast, the accuracy is enhanced with an adaptive digital filter.

The benefits of iQUBE² diagnostics

iQUBE², when used with a diagnostic screen, displays and tracks cell performance, weight, dead load and current values for each load cell. The diagnostics system checks A/D, excitation, communication and load cell bridges.

iQUBE² Diagnostics

iQUBE² Tests for Return to Zero

If any load cell within a scale system does not return to zero, it could be an indication of scale binding or a damaged load cell. A cell or scale that is binding could be zeroed and appear to work, but still not weigh correctly. The iQUBE² diagnostic data will troubleshoot these situations and pinpoint any problem areas.

iQUBE² Tests for Cell Balance

Many factors influence scale linearity; however, when a scale is nonlinear, it usually isn't noticed until inventory shortages have already occurred. iQUBE² verifies linearity by monitoring load cell tolerances.

4/20/10 02:33PM		Scale #1	
Diagnostics			
NAME	DEADLOAD	CURRENT	
1-Load Cell 1	0.376	0.386	
2-Load Cell 2	0.284	0.338	
3-Load Cell 3	* ERROR *	0.286	0.507
4-Load Cell 4	0.327	0.379	
System 1		2004.656	
4 weighments over 1000 grads			
ERROR B			
Previous	Millivolts	Done	Next MORE ➔

920i screen showing the health of load cells.

Up to four systems per iQUBE²



Tank and Hopper Scales



iQUBE² Identifies Noise/Instability

Noise is the most common problem in a scale system, caused by deteriorating resistance to ground. Because of intermittency it can be difficult to isolate from environmental effects like wind or vibration. One faulty load cell can cause system instability.

iQUBE² Monitors Drift

Drift under load affects the accuracy of weighment. When a system is loaded, drift can easily be mistaken as a legitimate weight change. Drift can be caused when load cell resistance changes because of corrosion, temperature change or strain gauge damage, which produces weighing errors.

iQUBE² creates a virtual load cell to keep your scale running

The iQUBE² cell emulation feature calculates what the weight should be based on known comparisons to functional load cells. For mission-critical applications, cell emulation can keep your scale weighing even through a load cell failure.

iQUBE² features digital I/O

Each channel has a digital I/O that can be used to indicate load cell health, activate control devices or read input switch closures.

iQUBE² extra protection

Install an optional fiber optic interface board to immunize the iQUBE² from lightning damage through serial communication lines. Fiber optics is a non-conductive communication option where electrical disturbances cannot travel. (Typical communication cable is a metal conductor, a pathway for electrical transients and can pick up inductive electrical pulses caused by lightning.)

iQUBE² enclosures

Choose from fiberglass reinforced polyester or stainless steel case.

Through cell emulation, iQUBE² can keep your scale weighing even through a load cell failure.



Rice Lake Hosts and Open Protocol

Rice Lake HMI Indicator/Controllers

VIRTUi²™ is a Windows® based application that displays a virtual indicator, handles up to four scales, plus a total, and is connected to iQUBE² through RS-232, USB or Ethernet TCP/IP. VIRTUi² replaces the need for a separate indicator, and is the way to go if the application also requires a local PC.

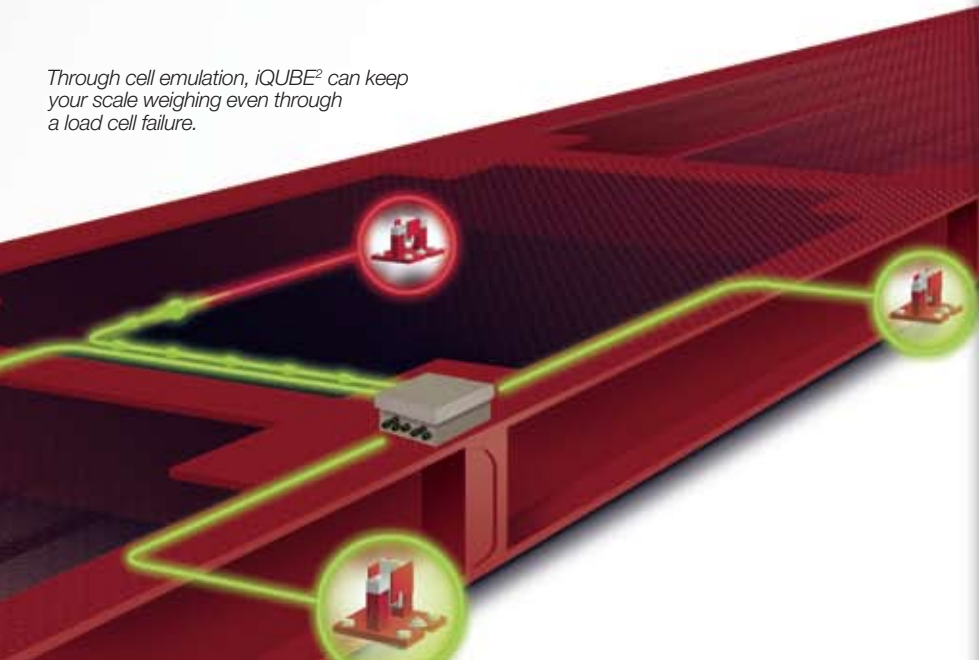
VIRTUi² is a Legal-for-Trade PC-based weight indicator that displays gross or net weight, with primary weighing functions to zero, tare or print the weight and can transfer weight data into other Windows applications. The diagnostic screen shows real-time load cell performance. If a cell failure or weighing error is detected, it sends an email and logs the error to an error report. The scale is configured and calibrated through a setup application, which can be protected through administration rights.

920i® HMI is a programmable, expandable, and cost-effective industrial weight controller with an attractive streamlined enclosure and large display screen to view real-time diagnostics. Load cell performance is conveniently displayed, and service personnel are immediately notified via email when weighing errors occur. 920i® can be configured directly through the front panel or by using the iRev™ configuration utility. Its selection of features excel in batching and data collection.

Expand the 920i with option cards including analog output, analog input, thermocouple, serial communication, pulse input, digital I/O, additional memory and protocol cards for EtherNet/IP®, DeviceNet®, ControlNet®, Remote I/O and Profibus®.

iQUBE² features an open protocol to easily interface with other hosts. Weight is transmitted in a simple string and cell status can be queried for more detailed information on each load cell.

*Windows is a registered trademark of Microsoft Corporation





QUBE²

Intelligent Junction Box



Fiber Optic Transceiver
RS-232/RS-485
Ethernet TCP/IP
Ethernet TCP/IP Wireless



Options/Accessories

- VIRTUi²™ Windows® based indicator software
- USB interface
- Ethernet TCP/IP communication interface
- Fiber optic networking
- Revolution® III scale software
- Transient protection
- Remote AC power supply
- 9-36 VDC Converter

Specifications

Enclosure:	NEMA 4X FRP 11.3in x 9.3in x 5.4in (max 2 boards) NEMA 4X FRP 13.3in x 11.3in x 5.6in (max 3 boards) NEMA 4X stainless steel 10.3in x 8.9in x 4.3in (max 2 boards)
Board Size:	4 in x 5 in
Voltage Input:	115/230 VAC power supply, 7-12 VDC power supply optional 9-36 volts DC converter
Load Cell Inputs:	4 channels (up to 16 with secondary networked boards)
Load Cell Excitation:	5 VDC, 57 mA maximum per channel
Analog Range:	-45mV/V to +55mV/V
Analog Signal Sensitivity:	0.3uV/grad, 1.0 recommended
Update Rate:	up to 500 per second for the 4 channel board up to 150 per second for (4) 4 channel boards
Temperature Range:	14 F° to 104 F° (-10 C° to 40 C°)
Ports:	Port 1 and 2
Band Rate:	9600-460,000 7 even, odd, 8 none

Approvals



Standard Features

- Enclosure includes 4-channel board with or without power supply.
- NEMA 4X Fiberglass Reinforced Polyester or Stainless Steel enclosure.
- Up to 16 load cells can be connected through secondary boards.
- Connection can be up to 4 separate platforms with a system total, or 4 separate scale systems.
- Diagnostic routines for failed cells, weighing errors and system health. Tests for zero return, cell balance (linearity), noise and drift.
- Onboard status LEDs for indication of cell health, port activity, heartbeat and digital I/O.
- Cell Emulator compensates for load cell failure until a repair can be made.
- Cal-Match® algorithm automatically trims and calibrates the scale in one pass of test weights.
- Standard communication for Port 1 RS-232/485/422. Option card slot for Fiber Optic, Ethernet TCP/IP or Ethernet TCP/IP (port 2 available) Wireless, USB or RS-232/485/422.
- Can be used as a stand alone weight-based controller with serial output.
- Four digital I/O for push-button operation, host control, free running set points, or remote cell status.

Your Rice Lake Weighing Systems distributor is:

RICE LAKE
WEIGHING SYSTEMS
To be the best by every measure®

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