

# Truck Scale Automation Systems and Software

It's a simple matter, weighing a truck. The driver pulls onto a scale, where the vehicle's weight is measured by load cells attached to the scale's metal frame. The report format is another matter, though.

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What isn't simple is translating this item of data into a coherent report format that tracks the vehicle's productivity, market area, profitability and frequency of use. Even harder is doing this without a human scale operator present. It's these automated scale systems that will be examined in this article.

## Truck Scale Basics

There are two basic types of truck scales: in-ground and onboard. In-ground scales are separate structures that are installed either below grades (to provide a weighing surface flush with adjacent ground or road surface) or on existing grades (requiring approach ramps to reach the elevated weighing platform). Onboard scales are integrated into the body of the truck itself, with weight sensors distributed throughout the truck's framework and suspension system. Each type of scale system has its uses, inherent degree of accuracy, superiorities, and drawbacks. What does the actual physical measurement of the weight are a series of load cells. Load cells act as



weight sensors in one of two ways. Either solid cells physically deform (strain, as measured by the percentage change in the cell's dimension in the direction of the applied loading) under the weight (compressive stress measured in weight per cross-section area of the sensor), or there is an increase in the interior pressure of cells filled with hydraulic fluid. The amount of strain or pressure increase depends on the type of material used by the load cell along with the applied load. Sensors the amount of deformation or pressure change and send a signal back to the scale's measuring station. This signal can be either electronic signals sent along wires (directly recorded by the measuring station) or hydrostatic signals sent along tubes (which is measured by the station itself and then recorded electronically as data). The sensors send an electronic or hydrostatic signal to a summing station. The summing station tallies the individual readings from the load cells and displays the total load weight on either a digital indicator or a hard-copy printer.

Soft Pak's Scale House Management software (NTEP/CTEP certified) allows an operator to facilitate transaction control at all of this scale sites while allowing for material tracking. This information is automatically shared between the scale house software and their "i-Pak" management modules. The automated data transfer greatly reduces the need for manual entry, reducing labor needs and increasing productivity.

The "i-Pak" Scale House Management module includes a wide variety of features that allow for easy scale transactions and integration with the module's billing and productivity systems. This includes data base management for the following: individual vehicle information; material inventory (both shipping and warehouse); scale ticket printing and recording; tracking of special wastes; multiple reporting formats; continuous updating of transactions (point of sale, work orders, etc.); drivers' logs; and route costing. The software's verification screen provides an instant and complete summary of sales totals and subtotals, dollar amounts per transaction, delivery breakdowns by type of material, direct billing amounts, intercompany billings and transactions, account summaries and grand totals. It can integrate all office management operations such as billing, dispatching, container tracking and accounts receivable. The system is compatible with Microsoft Office and can convert existing data from a previous system into Soft-Pak data.