

# CASE STUDY



## CASE STUDY: In-and-Out Railroad Scale with Remote Weigh

Cardinal Scale Manufacturing Company dealer Hawkeye State Scale (Cedar Rapids, IA) has installed a unique in-and-out railroad scale for a large grain facility. The application utilizes an in-and-out multi-platform Cardinal railroad scale involving three concurrent model LPRA low-profile railroad track scales with 26-ft, 13-ft, and 26-ft platform lengths and 200-ton capacity per scale (model 261326-80LPRA-120). The scale carries an E-80 load rating and uses stainless steel compression load cells also manufactured by Cardinal Scale.

The grain facility typically weighs 25 car sets of corn for ethanol or corn sweetener and 18 car sets of beans. The Cardinal railroad scale was purchased instead of an overhead load-out weighing system and offered significant savings for the customer.

The way the system works is an eastbound train pulls railcars onto the scale to get the Tare weight on scale platforms #3 and #2 and then Gross and Net are determined when the train pulls forward onto scales #2 and #1 with a special tare. Custom software developed by Cardinal Scale and installed in the 825 Spectrum weight indicator allows the operator to turn scales on and off as railcars come across them to prevent weighing railcars

when unnecessary. The 825 indicator's special software also incorporates a temporary Tare weight for the operator to get a target fill weight using a fill program to fill up or top off the last part of a railroad car. Then, cars are pulled forward by a trackmobile into final weighment position to receive their Gross, Tare, and Net weights.

The 825 indicator is connected via Ethernet cable to a wireless router which has a long-range radio (wireless access point) attached to it for Wi-Fi output. This allows the operator in the trackmobile to wirelessly control the railroad scale through an Apple iPad using Cardinal Scale's Remote Weigh mobile app. This system replaces their old method of two-way radio communication back and forth from the scale

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# CASE STUDY



## CASE STUDY Continued In-and-Out Railroad Scale with Remote Weigh



house and allows them to use one less person for the operation. The trackmobile operator can move the railcars and see when each car is positioned on the scale for weighing without ever leaving the cab. This efficiency allows the grain facility to reduce the amount of man power needed from five people down to four people.

Cardinal Scale's Remote Weigh mobile app turns the user's mobile phone, or iPad tablet in this case, into a remote control for the 825 indicator's basic features like remote Tare, Zero, Units, Print, and Enter, plus viewing live weight readouts. Wi-fi repeaters are used at this site in strategic locations, so as the iPad user moves away from the scale house where the 825 indicator is located, the Remote Weigh's live scale readouts can move with them inside the trackmobile.

The railroad scale is also equipped with a 7-ft-long by 4-ft-wide grain dump grating used in scale #2, the 13-ft-long platform. This allows the operator to dump grain from the loaded car and reclaim it back into the facility using it to either top off a loaded car or blend in lower-grade grain with higher-grade grain for the proper mixture.

**Cardinal Scale's LPRPRA railroad scale was selected for several reasons:**

- **Cost Effectiveness:** The entire weighing system was installed for one-quarter the cost of the previous overhead load-out system.
- **Low-Profile Scale:** The customer did not want a pit installation due to water drainage in the area.
- **In-and-Out Weighing:** The customer needed to be able to weigh both directions for the Tare weight coming in and Gross and Net weights factored on the way out.

**Cardinal Scale Products Used:**

- 261326-80LPRPRA-120 Custom Low-Profile Railroad Scale with Grain Dump Option
- Model 825 Spectrum Weight Indicator with Custom App
- SB500 Remote Display
- Remote Weigh Mobile App for iPads