

core intelligence

M O D E L  
**1310**  
INDICATOR/CONTROLLER

The ability to communicate  
in the language of  
your business

command  
any weight-based  
process

convey  
operational status  
in a meaningful form

diagnose and isolate  
potential problems



**Avery Weigh-Tronix**

## Weight display and process control with unprecedented network support

If increasing the role of automation in your company is essential to advancing in the marketplace, you are probably already exploring smarter machines and faster, more versatile networks. The task of maintaining productivity throughout a major upgrade of your information and weight-based systems is a mission ideally suited to the Model 1310 Programmable Indicator/Controller.

The Model 1310 flows with the ease of mercury from one application to another – one communication environment to the next. It possesses the power, flexibility and speed to implement the most forward thinking ideas in weight measurement and process management, while providing continued support for existing technologies.

When we say the Model 1310 speaks your language, we are talking about two critically important capabilities:

First, the ability to mesh perfectly with your industry-specific standards and operational requirements.

Second, the ability to choose from many network configurations and protocols to send and receive data.

### A Model 1310 "built" to your specifications

Weigh-Tronix distributors are the starting point. Your local distributor is a full-service resource and reliable partner. He offers extensive application experience and is trained to translate your needs into a custom-tailored program. Units of measurement, displayed terminology, operational annunciators, range of capacities, resolution, "watch dog" monitoring, input/output options and control functions – every aspect of the Model 1310's performance can be molded around your application.

### User Modifications

Working with a Weigh-Tronix distributor ensures accuracy in the initial setup. It also provides access to the most current product developments should you require a major upgrade. Simple changes, however, can be performed directly through the Model 1310's user interface. Program parameters, softkey options and similar basic settings may be accessed through the indicator's alphanumeric keypad or with an optional PS-2 keyboard.

### Networking

Communication networks are the central nervous system of modern manufacturing and processing facilities. The Model 1310 Indicator/Controller exemplifies the broad-based connectivity that has become a focal point of Weigh-Tronix's new product R&D. In a fully integrated environment, the Model 1310 allows password-protected configuration and control of weight-based systems from any computer, on-site or around the world. Additionally, it can employ multiple information systems for maximum flexibility. Capabilities include monitoring and data acquisition via a web browser (HTTP), operational updates and error reporting via e-mail (SMTP), and pure, unaltered data transmission via FTP. The Model 1310 also allows AS/400, LAN or WAN access.

Whether traveling the slower paths of earlier networks or accelerating to the limit of new high-capacity thoroughfares, the Model 1310 assures compatibility and a reliable bridge between technologies.

### Fieldbus interfaces

Device Net™, ProfiBus®,  
ControlNet™, InterBus,  
ModBus Plus

Ethernet 10/100

[ModBus TCP, TCP/IP (sockets),  
HTTP, SMTP, FTP, EtherNet/IP]



It is not an overstatement to say the Model 1310 will meet or exceed the requirements of any application. It was specifically designed to function at multiple levels to facilitate change and expansion.

At its simplest, the Model 1310 is an exceptional weight indicator that is compatible with most standard and custom-configured weighing platforms: bench and floor scales – truck, track, conveyor and monorail scales – scales for batching, counting and checkweighing. The signal conversion rate and internal resolution of the Model 1310 ensures fast, precise, repeatable measurements for both static and in-motion weighing. Accuracy is further assured with Harmonizer™ digital filtering. Harmonizer is a programmable damper that can automatically detect and cancel out specific types of interference caused by mixing operations, vibration or machine “noise.”

The Model 1310’s standard memory provides storage space for custom start-up and shutdown sequences, tare values, multiple recipes for batching applications, print formats and data logging.

Four standard bidirectional serial ports provide connectivity to many serial devices, including printers, bar code scanners, label printers and remote displays.

Stored data may be directly printed from the indicator, downloaded and reformatted by a host PC or accessed via an intranet or internet connection.

### PLC or direct process control

With optional circuitry can operate up to 64 OPTO 22 devices

#### Only the beginning

The Model 1310 is a true multi-tasking indicator. With upgrade options, it can simultaneously monitor up to eight independent scales or directly control many automated weight-based processes. Each system can be configured with its own measurement criteria, programmed routines, control devices, sensors and peripherals. Think of the economic advantage and the ease of future expansion – one indicator/controller doing the job of eight.

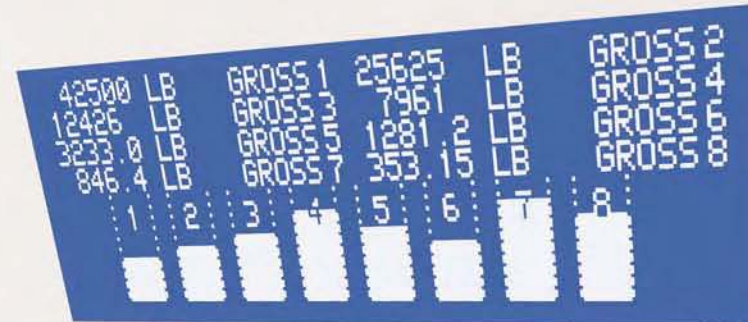
The Model 1310 may also be used in combination with PLCs. It is compatible with all major brands and supports the most recently introduced communication protocols of leading manufacturers.

What information do you need to see? How do you want that information presented? The Model 1310 can display virtually any combination of weight data, text and graphics you can imagine. The actual number of possible display configurations is well over four million. This extraordinary flexibility may sound overwhelming, but it simply means you are no longer constrained by someone else’s idea of what is important. You decide what is of value and what needs to be emphasized.

Consider just a few of the options and it becomes clear how the Model 1310 can save money, provide a clearer picture of operations and reduce read errors.

### Legal-for-trade weight display

Custom configured to your application needs



#### Multiple scale display:

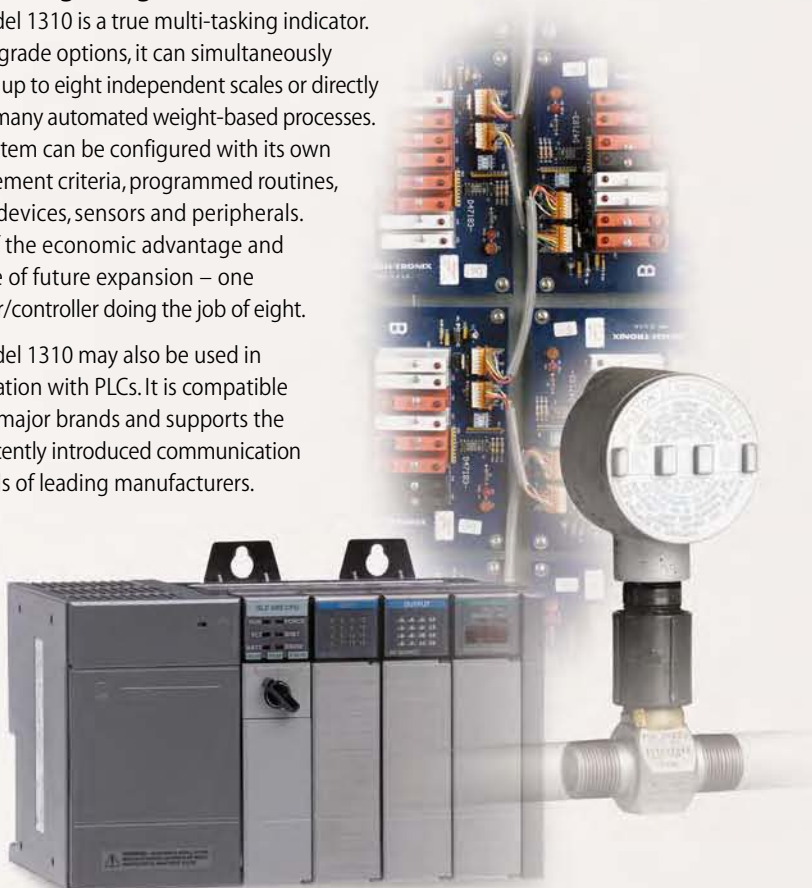
A single Model 1310 can be used to monitor up to eight different scales. The readout for each scale can be separately programmed to display the appropriate units of measurement, capacity range and level of resolution.

All scales can be displayed simultaneously or, for larger easy-to-read characters, the indicator can arrange scales in smaller groups or cycle through them in sequence.

#### Visual representation:

Graphics are ideal for displaying relative weights or for showing stages in an additive process. In a typical application, the amount of ingredients on-hand can be known at a glance by assigning vertical bar graphs to a series of storage tanks. Checkweighing operations can be enhanced with a horizontal bar graph to dynamically show over or under readings.

The Model 1310 also features a variety of unique graphics like pie graphs and needle or sweep tachometer style gauges. These display options are highly effective for tracking rapid fill operations or monitoring the addition of micro-ingredients in large volume batch processing.



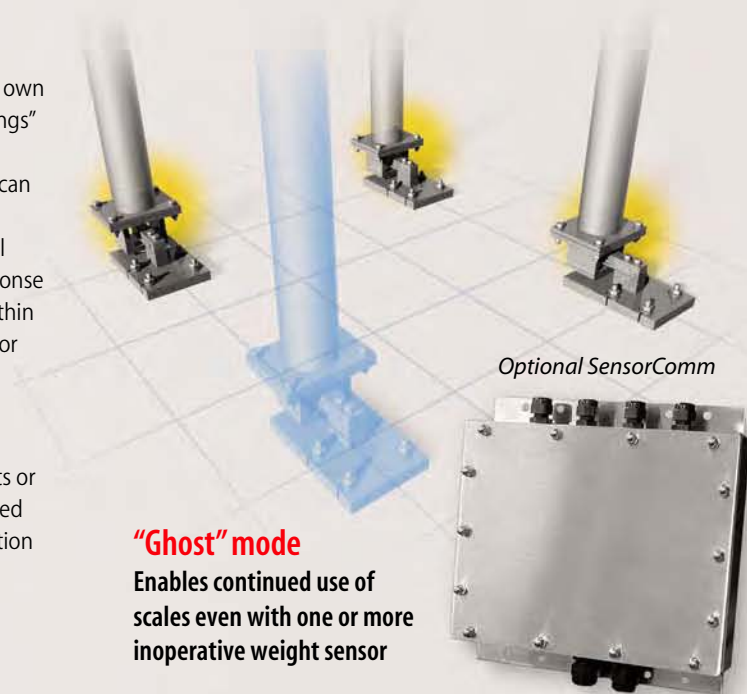
Self-diagnostics and error reporting take on increased significance in an automated environment. The built-in intelligence of the Model 1310 combined with its sophisticated networking capabilities enables the system do far more than a simple fail-safe shut down.

## What's the nature of the problem?

The Model 1310 provides comprehensive monitoring of all connected scales, sensors and control devices, as well as its own internal systems. Faults or errors initiate "Operational Warnings" that are clearly spelled out on the indicator display. If the indicator is connected to a fieldbus, details of the problem can be viewed at any access point along the network. E-mail messages can also be sent directly to designated personnel both on and off-site. Error reporting and programmed response are system specific. This means that problems occurring within one system will not interrupt the operation of other scales or processes controlled by the Model 1310.

## Is something missing?

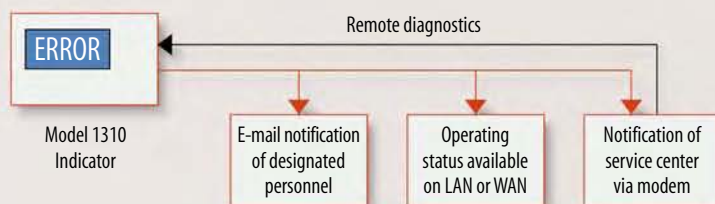
What happens when an assembly of packaged components or a multi-ingredient mixture doesn't match the final prescribed weight. The Model 1310 can compare the amount of deviation to piece or ingredient weights stored in memory to help pinpoint the missing element.



**"Ghost" mode**  
Enables continued use of scales even with one or more inoperative weight sensor

## Are the measurements correct?

Scales equipped with Weigh-Tronix SensorComm™ enable the Model 1310 to continuously monitor the signal strength from every weight sensor to ensure scales are always operating within spec. If one or even multiple sensors fail, the Model 1310 can allow continued operation in "ghost" mode. The indicator inserts a calculated value for the missing sensor(s) based on stored data. While this method of operation cannot be used in legal-for-trade applications, it does allow noncritical weight measurement for the short term. In batching and materials processing applications, the ghost mode makes it possible to complete a cycle or purge a system prior to shutdown.

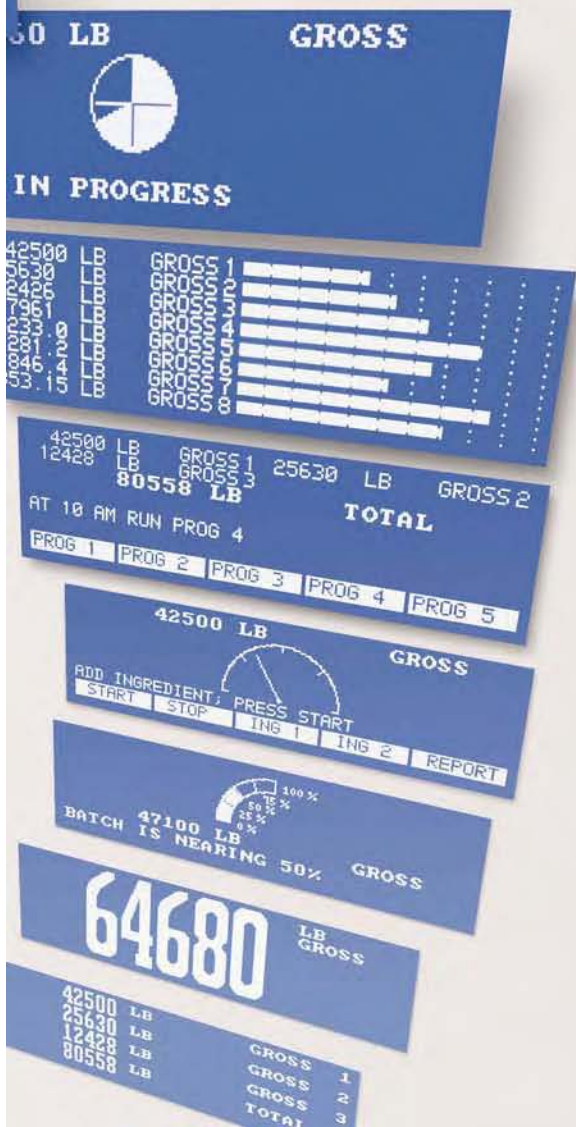


## A step ahead

In addition to notifying your internal technical support personnel, the Model 1310 can automatically report scale or indicator error conditions to your Weigh-Tronix service center via an optional modem connection. Technicians, in turn, can communicate with the indicator to evaluate problems and determine remedial action before ever stepping on-site.

Corrective action, however is not enough to protect your productivity. To prevent recurring errors, it is essential to identify the source of problems. The Model 1310 maintains downloadable system logs that contain a detailed record of overloads, underloads and traffic counts.

No other indicator, to date, has gone farther to make full automation of weight-based systems a practical reality.



**Display**

Custom-configured dot graphic display can simultaneously present data for up to eight independent weighing systems.

Bright white on blue characters provide excellent readability under all lighting conditions.

Operational annunciators highlight key display settings and functions.

**Operational keys**

Alphanumeric keypad for data entry

Dedicated keys for frequently used functions such as zero, tare, print and units

**Programmable Softkeys**

One-button activation of application-specific routines, ie. start-up/shutdown procedures and batch recipes

**Measurement Capabilities**

Displayed resolution of up to 1 part in 10,000,000

User-defined capacity range and units of measurement, including four programmable custom units

**Rugged construction**

Stainless steel, NEMA 4X enclosure with swivel mount

Designed for long service life in extreme conditions: corrosive environments, hard-use industrial applications and frequent washdown



Every  
Model 1310  
is unique –  
custom  
programmed  
for your  
application

**Standard Configuration**

In addition to the features above, the base Model 1310 Indicator/Controller includes Harmonizer™ digital filtering, battery backed time/date and 128K memory.

Input/Output:

- 4 Comm ports
- 4 Set point I/O ports
- 1 Analog scale input
- 1 PS/2 keyboard port

**Upgrades**

The Model 1310 is easily expanded to meet the requirements of any installation.

Options include:

- Fieldbus network and control interfaces
- Additional memory up to 8 MB
- Up to 7 additional scale inputs, 8 analog outputs and 16 pulse counter inputs
- Internal modem
- PC (AT) style keyboard
- SensorComm™ for enhanced diagnostics
- Traxle™ total truck and axle weighing system

*(See back for detailed specifications and available options)*

**Power input**

Universal 85-265 VAC, 50/60Hz, 75VA

**Excitation**

10 Volts DC or 10 volts AC square wave capable of driving:

- Up to thirty-two 350-ohm weight sensors
- Quartzell™ transducers

**Operational keys**

Zero, Tare, Print, Units, Select, Enter, Escape, Clear, 0-9/Alpha, Decimal Point and five softkeys labeled per selected operational routine

**Audio output**

Audio tone for key contact assurance or operational alarms

**Operational annunciators**

Displayed symbols indicate motion, center of zero, unit of measure and more.

**Display**

Dot graphic display, 5"W x 1.33"H provides images and up to eight lines of weight and/or text. 240 x 64 dots cold cathode fluorescent backlit, white on blue.

**Display characters**

1.16" to 0.145" high – application defined

**Display rate**

Selectable, from 1 in 10 seconds to 10 times per second

**A to D conversion rate**

60 times per second

**Unit of measure**

Pounds, kilograms, grams, ounces, pounds and ounces and four programmable custom units

**Capacity selections**

Up to 10,000,000 selectable

**Incremental selections**

Multiples and sub-multiples of 1, 2, 5

**Decimal locations**

88888888 pick any location relative to division size

**Displayed resolution**

Up to 1 part in 10,000,000

**Internal resolution**

1,000,000 counts analog, Quartzell™ transducer higher

**Time and date**

Battery protected real time clock is standard

**Memory**

128K (expandable to 8 MB)

**Standard input and outputs**

Com 1: RS232, RS-485/422, Quartzell™, SensorComm™

Com 2: RS232, 20 mA current loop

Com 3: RS232, RS-485/422, Quartzell™, SensorComm™

Com 4: RS232, RS-485/422, Quartzell™, SensorComm™

(One bi-directional signal per port)

Four set point I/O ports via OPTO 22 I/O modules

1 Analog scale input

PS/2 Keyboard port

**Harmonizer™ digital filtering**

Fully programmable to ignore noise and vibration

**Environment**

NTEP 14 to 104°F (-10 to 40°C), 10 to 90% relative humidity

**Enclosure**

Stainless steel wash down enclosure NEMA 4X

**Dimensions**

7.25" H x 11" W x 8.25" D (184 mm x 279 mm x 205 mm)

**Weight**

17 lb, 7.7 kg

**Agencies**

NTEP Class III/IIIL:10,000d CC# 01-033 A1

FCC Class A

## options

- Fieldbus network interfaces – Device Net™, ProfiBus®, ControlNet™, InterBus, ModBus Plus, Ethernet 10/100 [ModBus TCP, TCP/IP (sockets), HTTP, SMTP, FTP, EtherNet/IP]
- Multiple analog scale inputs, up to seven additional
- Eight fully isolated, programmable analog outputs (selectable 0-20mA, 0-24mA, 4-20mA, 0-5VDC, 0-10VDC, ±5VDC, ±10VDC)
- Remote expanded control interfaced for TTL or solid state (OPTO 22 Generation 4 I/O Modules) up to 64 points of I/O
- Internal modem
- Memory expansion – 1, 4, 5, 8 MB (battery backed SRAM)
- PC (AT) style alphanumeric keyboard
- Up to sixteen pulse counter inputs
- SensorComm™ digital j-box
- Traxle™ total truck and axle weighing

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