

BALANCES

COUNTING SCALES

BENCH SCALES

CHECKWEIGHERS

CONVEYOR SCALES

FLOOR SCALES

FORKLIFT TRUCK SCALES

TRUCK SCALES

RAILROAD SCALES

INDICATORS

SOFTWARE

JUNCTION BOXES

SIGNAL PROCESSORS

MONORAIL SCALES

PRINTERS

REMOTE DISPLAYS

Avery Weigh-Tronix Indicators



Measure. Control. Communicate.

E1310

Advanced
programmable weight indicator
and process controller

Avery Weigh-Tronix

If increasing the role of automation in your process is essential to improving your productivity, you are probably already exploring smarter machines and faster, more versatile networks. The task of maintaining effective weight data management and process control is a mission ideally suited to the E1310 Programmable Indicator/Controller.

The E1310 has all the bases covered from one application to another – one communication environment to the next. It possesses the power, flexibility and speed to implement the most advanced thinking in weight measurement, process control and effective communication. **Measure, control, communicate.**

Weight display and process control with unprecedented network connectivity

When we say the E1310 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.

It is not an overstatement to say the E1310 will meet and exceed the requirements of any application. It was specifically designed to provide a no compromise, tailored solution.

At its simplest, the E1310 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 E1310 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 E1310'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. In addition, ModBus ASCII is also available.

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

Networking

Communication networks are the central nervous system of modern manufacturing and processing facilities. The E1310 Indicator/Controller exemplifies the broad-based connectivity that has become a focal point of Avery Weigh-Tronix's new product R&D. In a fully integrated environment, the E1310 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 E1310 also allows AS/400, LAN or WAN access.

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The E1310 assures compatibility and a reliable bridge between old and new network technologies.

Fieldbus Interfaces

- DeviceNet™
- ProfiBus®
- ControlNet™
- InterBus
- Remote I/O (Blue Hose)
- LonWorks®
- ModBus Plus
- ModBus ASCII (via RS232)

- Ethernet 10/100 (multiple layers of Ethernet communications)





True multi-tasking

With upgrade options, the E1310 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.

Application specific displays

What information do you need? How do you want that information presented? The E1310 can display virtually any combination of weight data, text and graphics. The actual number of possible display configurations is well over four million. This extraordinary flexibility means you are no longer constrained by someone else's idea of what is important. You decide what is of value.

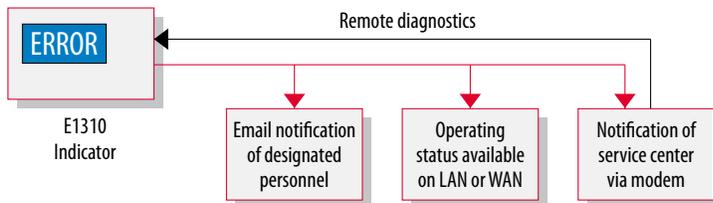
Consider just a few of the options and it becomes clear how the E1310 can save you money, provide a clearer picture of operations and reduce read errors.

- Add a horizontal bar graph to dynamically show over or under readings in checkweighing operations.
- Use vertical bar graphs to quickly show the amount of ingredients in a series of storage tanks or to show relative weights in an additive process.
- Incorporate pie graphs or a needle/sweep tachometer style gauge to easily track rapid fill operations or monitor the addition of micro-ingredients.

Diagnostics

The E1310 monitors 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 E1310.

In addition to notifying your internal personnel, the E1310 can automatically report scale or indicator error conditions to your Avery Weigh-Tronix service center via an optional modem connection. The indicator maintains downloadable system logs containing a detailed record of overloads, underloads and traffic counts.



The E1310 even helps ensure greater accuracy. If the actual weight of a package or multi-ingredient mixture does not match the prescribed weight, the E1310 can compare the amount of deviation to piece or ingredient weights stored in memory to pinpoint the missing element.

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

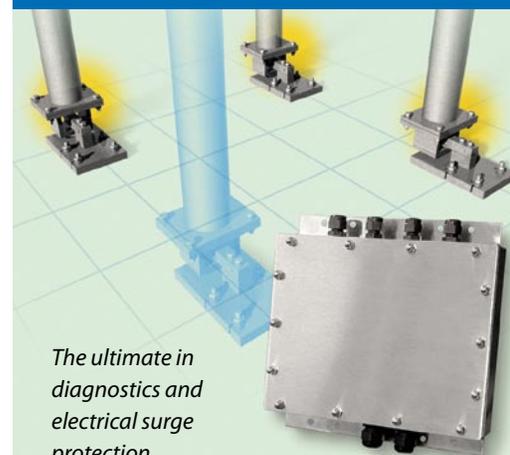


Legal-for-trade weight display

Custom configured for your application

Create virtually any combination of text and graphics.

SensorComm™ Digital Junction Boxes



The ultimate in diagnostics and electrical surge protection

"Ghost" mode

Enables continued use of scales even with one or more inoperative weight sensor(s)



“Building” an E1310 to your specifications

Avery Weigh-Tronix distributors are the starting point. Your local distributor is a full-service resource with the experience and training to translate your needs into a custom-tailored program. Units of measurement, terminology, operational annunciators, range of capacities, resolution, “watch dog” monitoring, input/output options and control functions – every aspect of the E1310’s performance can be molded around your application.

Password protected changes to program parameters, softkey options and other basic settings are easily made with the alphanumeric keypad or optional keyboard.

Standard configuration

In addition to the features listed at right, the base E1310 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 E1310 is easily expanded to meet the most demanding 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 up to 16 pulse counter inputs
- Internal modem
- PC (AT) style keyboard
- SensorComm™ for advanced loadcell diagnostics and lightning surge protection
- Traxle™ total truck and axle weighing system

Display

Custom-configured dot graphic display with bright white on blue characters provides excellent readability under all lighting conditions.

Operational annunciators highlight important 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 enclosure is designed for long service life in extreme conditions: corrosive environments, hard-use industrial applications and frequent washdown.

(See E1310 Technical Specification for complete specifications and available options)

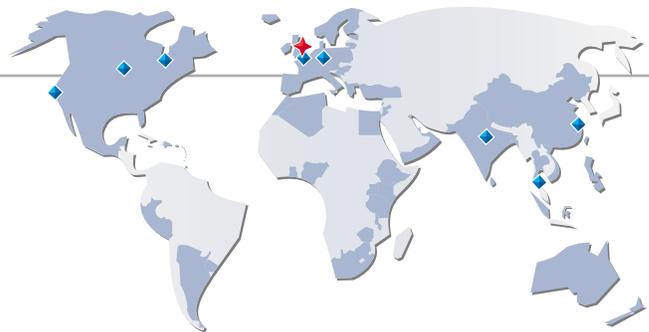
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E1310 advanced programmable weight indicator and process controller

Technical Specification

DESCRIPTION

General – hardware

- This specification describes the E1310 advanced programmable weight indicator and controller. The indicator is capable of stand alone operation or integration into a larger system via optional industrial network interface cards.
- It is a microprocessor-based high resolution industrial weighing system capable of running unique programs that precisely meet customer specific application requirements. Housed in a rugged desk top or wall mount Nema 4X stainless steel enclosure (panel mount option available) the indicator features a 1.5" high x 5" wide backlit dot graphic display capable of displaying up to 8 lines of data, each line 40 characters long.
- Other user interface features include 5 programmable soft keys that can be assigned text prompts to guide an operator through a sequence of operations controlled by the indicator.
- Up to 8 x analog weighing platforms of any type can be connected, via optional scale cards, to the indicator. For example, floor, bench, over-head track, tanks and hoppers. These can then be displayed either independently or simultaneously. Alternatively, up to 4 patented SensorComm™ intelligent digital junction boxes can be connected to provide noise-free lightning surge protection together with a host of self diagnostics.
- Applications are virtually limitless, the indicator being ideal for batching, filling, recipe formulation, parts counting, checkweighing, weighbridges, in -motion or combinations of the above.
- The indicator can control a weighing process via a comprehensive range of optional I/O modules as well as 4 onboard RS232 serial ports. Alternatively, a full range of optional industrial network interface cards are available for all popular Fieldbus protocols, as well as Ethernet 10/100, for connection to SCADA systems.
- Monitoring, data retrieval and e-mail error reporting via a web browser and internet is possible. Finally, an internal modem option is also available.

General – software tool

- Custom programming is made easy with SimPoser B, an optional pc based software tool. Included in the package is a program editor, configurator, print formatter, compiler and downloader.

Avery Weigh-Tronix

SPECIFICATIONS

User Interface

Display

Type

Dot graphic cold cathode fluorescent backlit, white characters on blue background. 1.5" high x 5" wide, 64 x 240 dot layout. Capable of displaying alpha-numeric characters as well as graphics, for example, pie/bar charts and tachometer. Typical display capabilities shown opposite.

Decimal point

Configurable to any of the 8 positions

Units of measure

kg, g, lb, oz, lb-oz plus 4 programmable custom units

Refresh rate

Programmable up to 10 times per second

Languages

Selectable operation prompts in English, French, German, Spanish and Italian

Keypad

24 Tactile/audio feedback corrosion resistant keys:

10 Alpha numeric entry

9 Dedicated function keys (Zero, Tare, Print, Units, Select, Enter, Escape, Clear and Decimal Point)

Note: These keys can also be assigned specific tasks.

5 Programmable and labelled soft keys (F keys)

Audio output

Audio tone for key press confirmation and operational alarms

Optional PC keyboard

A PS/2 or AT style PC keyboard can be connected.

Load Cell Input

Analog

Number of cells

Can support/power up to 32 x 350Ω strain gauge load cells using 4 or 6 wire connection technology. Indicator to scale separation up to 2000 ft.

Excitation

10V DC or 10V AC square wave.

Number of scale inputs

1 analog scale input is standard, expandable to 8

Digital

Up to 3 digital Quartzell™ high resolution weight sensors can be connected.

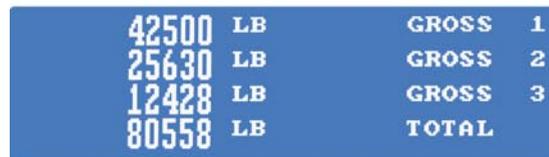
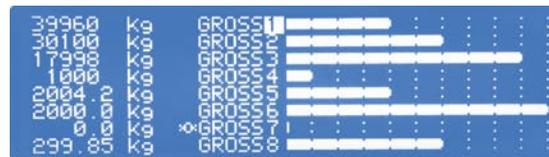
Analog to Digital Converter

Type: Delta Sigma

Rate: 60 updates per second

Resolution: 1,000,000 increments

Examples of display.



Zero

Setting

Keypad push button programmable to be effective between 1% and 100% maximum capacity

Zero band

Non-approved, +/- 100% of maximum capacity

Approved, +/- 2% of maximum capacity

Zero indication

The "→0←" symbol is turned on when the gross weight is within +/- ¼ division of the zero scale interval.

Zero tracking

Programmable to track zero, in either net or gross mode, within the zero band

Under and over range indication

Display is "dashed" out and an operator warning is displayed.

Tares

Types

3 types, each type allowing multiple/cumulative tares and each 100% subtractive and allowing negative weight display

Tare button

Semi-automatic. Cumulative taring possible. "Net" symbol is turned on.

Manually entered tare value(s)

Keyboard entered tare. Multiple pre-set tares (PT's) possible. "Net" and "PT" symbols are turned on.

Recall stored tare value(s)

Recall any number of stored tares recorded under a PLU. "Net" and "PT" symbols are turned on.

Remote taring

Tare values can also be set via SMA serial protocol as well via the industrial network cards.

Linearization/Multiplier

Linearization

Full digital 10 point linearization

Increment multiplier

Sets or subsets of 1, 2, & 5 i.e. 0.001 to 50

Filters/Damping

Type

Harmonizer™ digital filtering is fully adjustable to damp out the effects of noise and vibration.

Stages

Frequency – 6 levels of adjustment

Amplitude – 8 levels of adjustment

Threshold – Band, outside of which frequency/amplitude filtering is disabled until new band is established around new nominal weight.

Real time clock

Battery backed real time clock for time and date stamping data

Memory/Program integrity

1 megabyte standard, expandable to 8 megabyte, battery backed RAM. Data and application program password protection is selectable within SimPoser B.

Communications

4 serial, split 3 bidirectional RS232/485/422 ports for connection to serial printers, PC's, PLC's, bar code scanners, Quartzell™ load cells, SensorComm™ intelligent junction boxes etc. and 1 bidirectional RS232/20mA current loop. Modbus ASCII also available via RS232.

Optional industrial network cards, fieldbus cards and modem card also available

Electrical power input

Voltage/frequency

85 to 265V AC, 50/60Hz, single phase 75VA. Comes with 6 ft. of power cable and mains plug.

Tolerance

Voltage +10%, -15%

Frequency +/- 10%

Environmental

Dust and moisture ingress protection

Nema 4X /IP67

Corrosion protection

304 stainless steel enclosure
(7.2" high x 11" wide x 8.4" deep)

Electrical disturbance protection

Immune to electrical disturbance, including RFI as detailed in EN45501:1992

Storage temperature

-40° F to + 140° F

Operating temperature

14° F to + 104° F

Approvals

NTEP Class III/IIIL to 10,000 divisions CC# 01-033 A1

EC approval No: UK 2678 type approval certificate to 6,000 divisions (single platform only). Meets and exceeds the requirements of EN45501:1992. European Accuracy class III machines.

UL/CUL listed

FCC class A

Part numbers

E1310 indicator

Part number AWT05-500206



SimPoser B software

The SimPoser program development suite comes with an easy to use program editor, configurator, print formatter, compiler and downloader.
Part number AWT30-500013

SimPoser cable, PC to indicator, 4 ft.
Part number 47355-0010

Panel mount

Stainless steel panel mount kit
Part number 1310KT0000PM00

Analog scale inputs

Up to 2 additional scale analog input cards can be added (piggybacked inside E1310 enclosure) to provide a total of 7 additional scale inputs (a 3 scale card plus a 4 scale card). Available with or without stainless steel load cell summing junction box.

With junction box

Single scale card and junction box
Part number 52959-1018

Dual scale card and junction box
Part number 52959-1026

Three scale card and junction box
Part number 52959-1034

Four scale card and junction box
Part number 52959-1042

Five scale card and junction box
Part number 52959-1059

Six scale card and junction box
Part number 52959-1067

Seven scale card and junction box
Part number 52959-1075

Without junction box

Single scale card only
Part number 52959-2081

Dual scale card only
Part number 52959-2099

Three scale card only
Part number 52959-2107

Four scale card only
Part number 52959-2115

Digital scale inputs

Up to 3 Quartzell™ digital load cells or 4 SensorComm™ intelligent junction boxes can be connected to the onboard serial ports.

Quartzell™ digital load cells. See Quartzell™ specification sheet for more details.

Patented Nema 4X SensorComm™ digital junction box, 4 analog load cell inputs, daisy chained RS485 connection (400ft separation), featuring rapid corner balancing, self diagnostics & unique “ghosting” cell failed feature
Part number 53550-0011

As above, but fiber optic output for ultimate lightning protection. 1000 ft. separation.
Part number 53583-0012

Fiber optic to RS485 converter card for mounting in E1310 enclosure
Part number 53810-0116

Analog output cards

Up to 2 analog output cards can be added (piggybacked inside E1310 enclosure) to provide a total of 8 independent analog outputs (2 x 4 analog output cards). Each channel fully isolated, 16 bit, 0-5V DC or 0-10V DC or +/- 5V DC or +/- 10V DC or 0-20mA or 0-24mA or 4-20mA.

Single channel analog output card
Part number 52959-1158

Dual channel analog output card
Part number 52959-1166

Three channel analog output card
Part number 52959-1174

Four channel analog output card
Part number 52959-1182

I/O modules

Up to 4 input or output modules can be housed in the E1310 enclosure or up to 64 via 8 external SSCU8 carrier cards (see below).

I/O configuration is achieved using SimPoser and is held in memory.

Input modules

G4IDC5D 2.5 to 28V DC module
Part number 48552-0019

G4IDC5B 4 to 16V DC module
Part number 48552-0027

G4IDC5 10 to 32V AC/DC module
Part number 48552-0035

Continued on reverse side of this page



Output modules continued

G4IDC5G 35 to 60V AC/DC module
Part number 48552-0043

G4IAC5A 90 to 140V AC/DC module
Part number 48552-0050

G4IAC5A 180 TO 280V AC/DC module
Part number 48552-0068

Output modules

G40DC 5 to 60V DC module
Part number 48552-0076

G4ODC5A 5 to 200V DC module
Part number 48552-0084

G4OAC5 12 to 140V AC module
Part number 48552-0092

G4OAC5A 24 to 280V AC module
Part number 48552-0100

G4OAC5A5(NC) 24 to 280V AC module
Part number 48552-0118

G4ODC5R 0.5 amp, SPST, NO relay
Part number 48552-0126

G4ODC5R5 0.5 amp, SPST, NC relay
Part number 48552-0134

SSCU8 I/O module carrier cards, enclosures and cables

SSCU8 external I/O module carrier card, open style
SSCU8 carrier card can hold up to 8 I/O modules. A total of 8 SSCU8 locally located (4 ft.) carrier cards can be supported by one E1310 indicator.

Part number 47183-0018

Mild steel enclosure for SSCU8

Rugged painted mild steel Nema 4X enclosure
Part number 47192-0017

Stainless steel enclosure for SSCU8

Stainless steel Nema 4X enclosure
Part number 47192-0025

Cables

Cable, E1310 to SSCU8. Length 4 ft.
Part number 47388-0011

Industrial network cards

Capabilities include monitoring and data collection via a web browser (HTTP), operational updates and error reporting via e-mail (SMTP) and raw data transmission via FTP. Two separate industrial networks can operate at the same time. They can operate independently or transfer data between the networks.

DeviceNet™ card
Part number 52959-1190

InterBus card
Part number 52959-1208

ControlNet™ card
Part number 52959-1224

ProfiBus® card
Part number 52959-1232

ModBus Plus card
Part number 52959-1240

Ethernet10/100 card [supports Ethernet-ModBus TCP, Ethernet TCP/IP (raw socket client), Ethernet TCP/IP (raw socket server), Ethernet IT, Ethernet/IP, HTTP, SMTP, SSI and FTP]
Part number 52959-1257

Remote I/O card
Part number 52959-1273

LonWorks® card
Part number 52959-1265

Modbus ASCII (via RS232) included

Internal modem card

Internal modem for (digital and analog) telephone access
Part number 52960-1015

Pulse counter cards

Up to 16 x 0-5V TTL pulse counter inputs with input signal speeds up to 10 MHz can be accommodated via up to 2 pulse input counter cards installed in the E1310 enclosure. Ideal for conveyor speed monitoring, for example.

2 channel pulse input card
Part number 52959-1315

8 channel pulse input card
Part number 52959-1349

Memory expansion

Up to 2 memory expansion cards can be added to give a total of 8 MB additional memory.

1 MB card
Part number 52961-1014

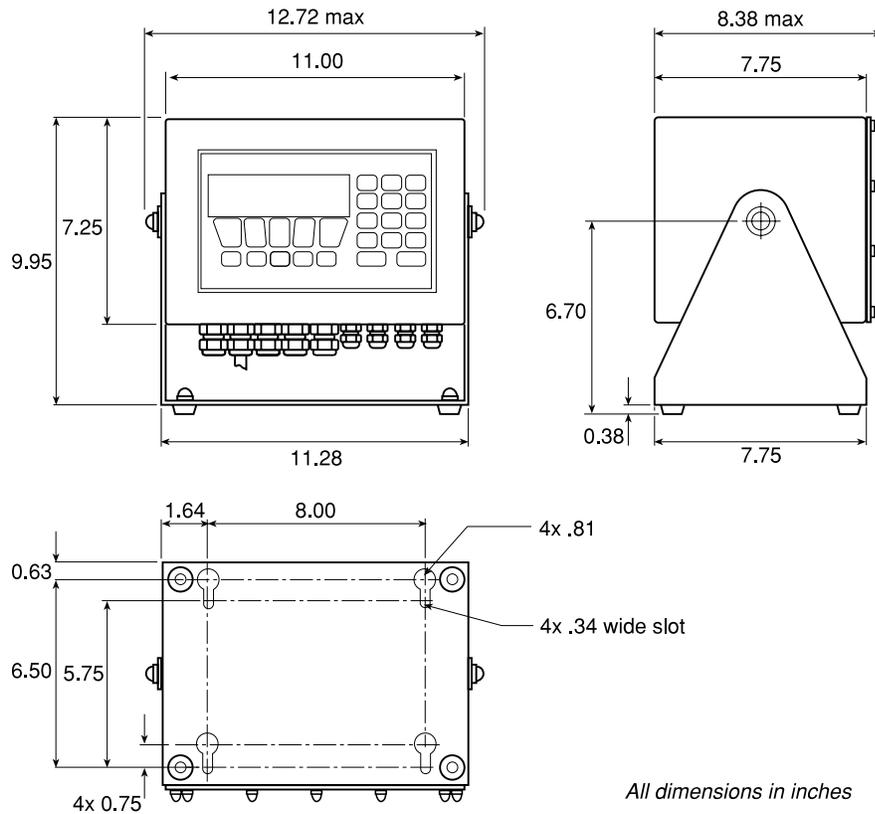
4 MB card
Part number 52961-1048

PHYSICAL SPECIFICATIONS

Technical Specification
E1310 Indicator



Dimensions



Weight

17 lbs.

Shipping

Net: 17 lbs.

Gross: 22 lbs.

Measurement: 15.7" x 13.8" x 13.0"

Harmonised Commodity Code: 842390 00 0

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