Weight Controllers Model 660

"C" programmable weight based process controllers designed to perform in diverse industrial environments and applications.

- Agriculture
- Food Processing
- Chemical
- Process Control
- Data Acquisition
- Material Handling
- Mobile Weighing
- Force Measurement

PROFIBUS
PROCESS FIELD BUS

PTO Profibus Trade Organization

DeviceNet. CONFORMANCE TESTED

Ethernet Interface Module

GSE

A member of the
Avery Weigh-Tronix Group

ISO 9001

660 Series Controllers – accuracy and control for all your weighing applications.

Standardize and Increase Your Versatility

Five display and several enclosure choices combined with robust programming languages accommodate an infinite number of applications. Selecting a controller versatile enough for all your weighing requirements can...

- Reduce personnel training
- Increase productivity
- Simplify system maintenance
- Reduce spare parts inventory
- Decrease new system development time

Reduce Costly Material Variances

No matter what the application, material variances are costly. 660 controllers provide the precision of an PTB approved instrument, the control of a PLC and the data management capability of a computer. Material control means...

- A more consistent product or service
- Increased profitability
- Accurate material inventory control
- More precise batch ingredient ratios

Communicate With Any Peripheral Device

Custom Transmit – Any weight or process parameter, ASCII control code or custom control code can be transmitted from the 4 communication ports in any format or style.

Input Interpreter – Upon receiving any control code, character or data string, a user defined function or task is executed as programmed for the application.

- Four (4) RS232 communication ports, full duplex
- 250 custom transmit and input interpreter tables

Manage Your Critical Application Data

Database modules provide a tool for managing critical process data with up to 98 columns (fields) per record. Database modules are commonly used in batching applications for recipe recall and transaction storage, in bagging and packaging systems for total throughput, number of bags and tolerance data, or in truck scales for commodity manifest systems.

- 250 individual databases
- 18 Function: recall, store, update, sort, upload, download, etc.
- 256 K, 1 M, 2 Mbyte modules
- Databases are user defined and created specifically for each application
- Data Storage Device, like WELMEC 2.5 requirements

Application Control With I/O and PDIO

128 I/O relays allow for 20 independent activation and deactivation conditions for intelligent control alternatives. PDIO (Programmable Digital Input Output) allows the 660 to process various digital input signals from quadrature encoders, flow meters and most other pulse generating devices.

Programmable frequency output can be bases on any scale parameter for vibratory feeder and other controls.

- 8 PDIO channels
- 128 I/O points, optically isolated
- Timers and counters, up/down

Program Your Operator Interface

Keypad mapping allows any key to be redefined to be more suitable for application requirements.

Five programmable display options let you display as much information as the application requires.

Versitile Display Selections

- Two (2) LCD Addressable Backlit Displays feature software contrast and backlit adjustments, 3 font sizes
- Two (2) Vacuum Flourescent Displays (VFD) operate independently or can be combined for increased flexibility.

Model 660
VFD, 6 digits, 2 x 5 matrix

Model 661
VFD, 4 line à 20 characters

Model 662 LCD
8 line à 40 characters, backlit

Model 665
VFD, 6 digits, 2 x 5 matrix und VFD, 4 x 20 character

Model 665 LCD
16 lines x 40 characters, backlit

GSE Macro

Macros empower you to customize your application with a comprehensive set of commands. All operator, process, communication and data functions can be controlled by macro commands. A Macro applies the principals of boolean logic in a sequential structure written and edited with any text editor. GSE offers a program called "GSE Com2" as a tool to write and download the macro programs.

"C" What You Can Do

GSE User C – Program your application in "C" to enhance controller operation. Our User "C" development kit expedites application development. All operator prompts, process control, communication and data management functions can be controlled using the standard "C" programming language. Compile your code, link it with our GSE library module, load it into RAM and test it with the emulator to debug your code. GSE provides the tools, you provide the code.


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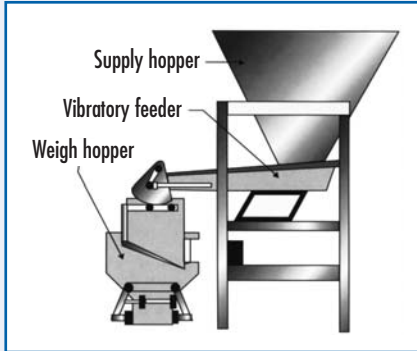
Packaging Systems

Precision control of bagging and packaging systems that require a high volume material throughput with tight tolerance specifications. The controller is programmable, so design your system for automatic, semi-automatic or manual operation.

Up to 128 I/O points give you complete control for valves, solenoids and hopper gates. A database module can be installed to collect and report process data, from total packages with +/- deviation per package to total material throughput. An SCR vibratory feeder control with zero cross detection circuitry provides precision material flow control at variable speeds.

- SCR Feeder Control, total of 7 vibratory feeders can be controlled
- Vibratory feeder speed is set by software parameters
- Product settings can be recalled to expedite product changeover
- Automatic material freee fall adjustment
- Flow rates can be monitored and controlled

Supply hopper
Vibratory feeder
Weigh hopper
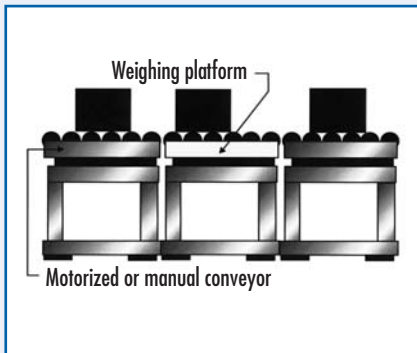
Checkweighing Systems

Weigh averaging parameters with the adjustable GSE FIR Filter and display update rate allow you to optimize the controller for your checkweighing application. Connect photo eyes, limit switches or infra-red sensors to monitor package or material movement.

Program the operator interface to display package information such as: Actual Weight, Target Weight, ACCEPT, OVER or UNDER. Design a label or report using the custom transmit tables to send package related information such as: gross, net and tare weight, time/date, part number or sequence number to a printer, remote display and computer. In addition to checkweighing, the 660 series is ideally suited for product grading applications utilzing the flexible I/O, precision timers and database features.

- Connect a variety of input devices to monitor and control product movement
- Collect and store critical package information
- Transmit package information to external devices, printer, computer, display
- Store multiple product configurations and grading parameters

Weighing platform
Motorized or manual conveyor
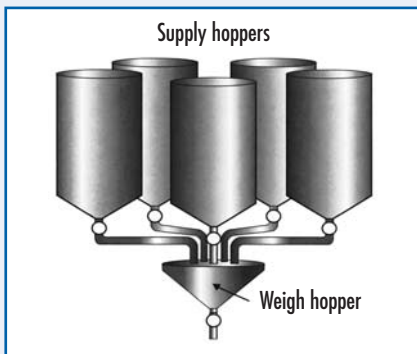
Batching and Filling Systems

All batching systems have unique requirements. To accommodate the many application variables and configurations, versatile features were added permitting you to optimize the controller to your specifications.

In single weigh hopper applications, a recipe number can recall multiple ingredient target values with associated data such as preact value and mixer time. The system could the start automatically or wait for a command from a PLC or computer. Connect an encoder(s) to the PDIO port for positioning of the scale, program the indexing sequence an OI, load recipes into the database and you have created a micro-ingredient controller. The 660 can also monitor up to 8 weighing vessels simultaneously for loss-in-weight and vessel weighing batch applications.

- 128 I/O points and 8 PDIO channels for connection to encoders and flow meters
- "Future Net" and "Gross Weight" filling routines include material in freefall
- Precision timers and counters
- Flow rate parameters
- Loss-In-Weight and Gain-In-Weight

Supply hoppers
Weigh hopper
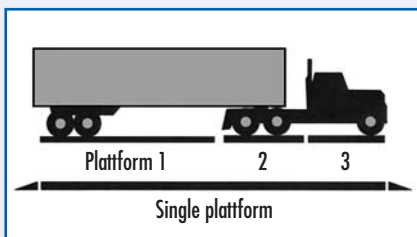
Vehicle Weighing

Basic weigh-in and weigh-out routines provide a quick and easy method to monitor product or commodity movement. With the ability to power (14) 350 ohm load cells, multi-bridge axle scales or a single truck scale platform can be connected to the controller.

Manifest systems and custom truck weighing applications can be programmed to enter, store and recall commodity codes, purchase orders, destination, driver information, source information and associated weight data. Four bi-directional communication ports interface to a variety or input and output devices including scanners, slot readers and RF tag transmitters, remote displays, printers and computers.

- Landfill and recycling
- Aggregate mining
- Inventory control

Plattform 1   2   3
Single plattform

Variable Registers are used in most applications. In the following applications, any reference to lot #, part number, material throughput, operator ID or formular number is a programmed variable register. Up to 999 variable registers can be defined as required by the application specifications.
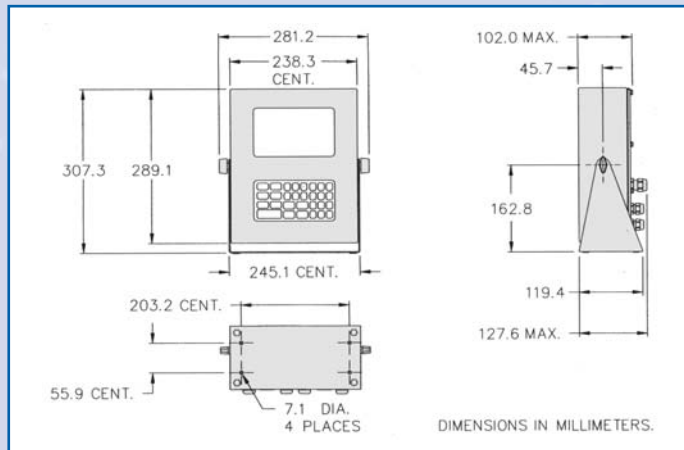
Specifications

Model 660/661/662

Enclosure   All Models, Stainless Steel, NEMA-4X-(IP66)-Design

Display   660 - VFD, 6 Digit (19 mm) with 2 x 5 Matrix
661 - VFD, 4 x 20, (8 mm)
662 - LCD, 8 x 40 Back-lit, 3 font size
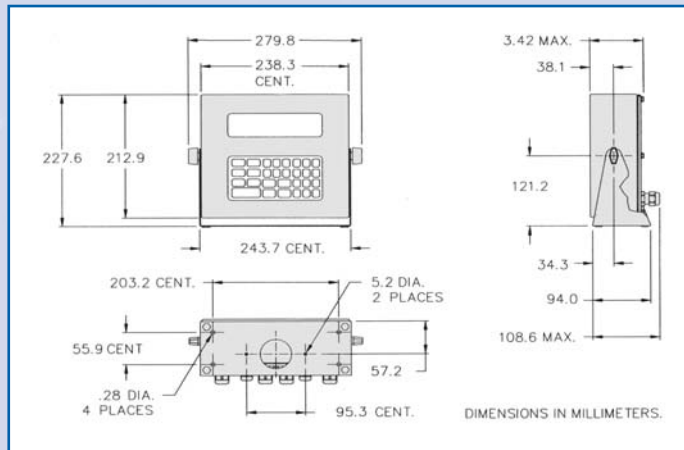
Model 665

Enclosure: Stainless Steel, NEMA-4X-(IP66)-Design

Display: 2 available display options:
– VFD, 6 digit (19 mm) w/ 2 x 5 and 4 x 20 (8 mm)
– LDC, 16 x 40 Back-lit, 3 font sizes

Weighing performance

Resolution	100,000d (± 500,000 internal)
A/D Conversion	60 Hz
Calibration	Selectable, 5 point linearization or enter loadcell mV/V F.S.
A/D Filtering	GSE FIR (Finite Input Response) Filter with selectable display rate update
Units of Measure	Programmable, user defined
Zero Adjustment	Selectable, 0.01 – 100% Full Scale
Span Adjustment	0.1 – 20mV/V
Non-Linearity	0.005%FS, Load Cell dependent
Operating Temperature	-10˚C - +40˚C
Excitation Power	14 – 350 ohm bridges
Input Signal Connections	4 or 6 conductors with sense leads
Excitation Current	400 mA, short circuit protected
Excitation Voltage	10VDC, short circuit protected
Time/Date Clock	Real-time clock
Warranty	2 Years

Electrical

Power Input	AC – 90 – 250VAC @ 50/60Hz, DC – 10 - 30/DC
Fuse	0.8A Slow-Blow
DC Output	+5VDC, +24VDC

Process control

I/O Scan Rate	16ms maximum
Number of I/O	128 combination, input and output
Maximum Voltage Ratings	3 VDC – 200 VDC @ 1A, 24VAC – 250 VAC @ 1A or 24VAC – 250VAC @ 3A
I/O Timer Resolution	10ms
PDIO Frequency	8Hz – 100KHz
PDIO Voltage	5VDC
Program Timer Res.	2ms up/down
Counter Input Freq.	PDIO 8Hz – 100KHz

Communications

Port 1	RS232 Full Duplex or optional RS485 Full/Half Duplex Multi-drop or 20mA current loop
Port 2 and 3	RS232 Full Duplex
Port 4	RS232 Full Duplex or TTL interface to 4x20 VFD
Protocols	Modbus TM, Device Net, Profibus, Ethernet
Baud Rates	150 – 115K bps

Options and Accessories

Multi-Scale Module
additional signal inputs, total of 8

Analog Output Module
16 bit signal output, 0-10VDC, 0-20mA or 4-20mA, software adj. zero/gain, total of 8

Database Module
256K, 1M, or 2M Byte

RS485 Module
isolated multi-drop w/ 251 devices max, half or full duplex up to 4000 feet, 115K bps max

I/O Relays
AC/DC @ 1-3A, optically isolated

SCR Module
max. load 1.75A RMS, 20-280VAC, 50/60Hz

GSE Reflash
download firmware revisions and compiled "C" code via RS232 or BDM port

GSE User C Development Kit
write, compile, emulate in "C"

20mA Current Loop
isolated TX-active or passive, RX-passive, 9600 bps max, 12VDC, 1000 feet

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