

Accumass BW500

High Accuracy Weighing Integrator/Controller



 **MILLTRONICS**
Mass Dynamics Division



The All In One Solution

The high accuracy Accumass BW500 integrator goes beyond the basic functionality of standard belt scale integrators. Designed for use with both **belt scales** and **weigh feeders**, it offers additional features that provide solutions for process control and communication needs. **Specialized features** include the following:



Standard

- 2 line, 40 character back lit display with 20 push button key pad user interface.
- Batching and load out control.
- On board RS-232 and RS-485 communication ports.
- Time dated print out of selected values.
- Moisture compensation.
- ECal electronic calibration.
- 5 break point linearizer.
- Multi - span calibration.

Optional

- 1 or 2 PID controllers for internal or external process variables.
- SmartLinX™ Fieldbus connectivity.
- Telemetry using commercially available modems.
- Dolphin Plus configuration and diagnostic software.

Versatile Belt Scale Operation

The BW500 may be used with any belt scale having up to four strain gauge load cells and most speed sensors that provide a dc pulse, dry contact, or open collector transistor output.

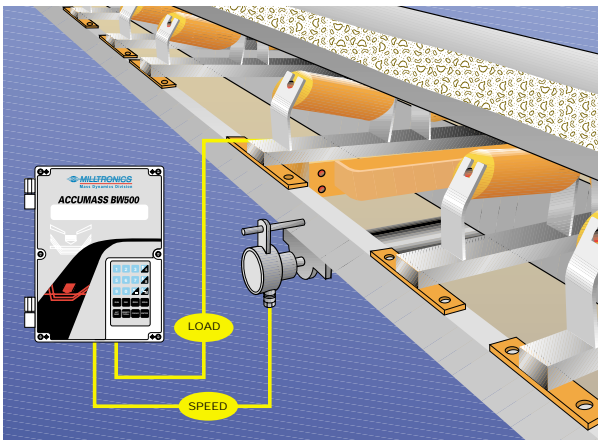
Both belt load and speed signals are processed by the BW500, which provides accurate readings of flow rate and totalized weight of bulk solids materials. This unit is compatible with all Milltronics belt scales and speed sensors. Alternatively, it may be installed as a retrofit with any single or multi-idler load cell based weigh bridge. An optional interface board makes operation with LVDT based belt scales possible.

Advanced Control Functions

Belt scale electronic devices, in the past, have offered basic integration functions along with some alarm indication and digital communication options. The advent of increasingly powerful micro-processors has now made it possible for the integrator to take on lower level control functions that have been traditionally handled by other devices, as well as support digital communications and Fieldbus connections, without compromising weighing accuracy.

At the heart of the BW500 integrator is a high speed 32 bit microprocessor that assures optimum task time sharing, and accuracy and reliability of all processing functions. Each load cell signal is applied to its individual 24 bit A/D converter ensuring efficient, high resolution signal processing. The patented load cell balance function, eliminating the matching of load cells, is done through the key pad to further enhance the ease of belt scale set-up, programming and calibration.

A further innovation called ECal offers accurate span calibration without using static test weights, or test chains.



Solutions Through

In its basic configuration, when operating with a belt scale, the BW500 integrates the load and speed signal inputs to provide rate, total, load and speed displays. It also provides an isolated analog output, 5 programmable alarm relays, 5 discrete digital inputs and 2 remote totalizer outputs.

Communications via the RS-232 or RS-485 provide a choice of Modbus ASCII, Modbus RTU and Dolphin Plus protocols. With Modbus RTU on board, the BW500 is ready for radio modem support.

Other standard features include batching and load out controls, moisture content compensation, a 5 break point load linearizer and multi-span calibration capabilities.

Add the optional Analog I/O module and the BW500 provides the functions of a single or dual PID

Weigh Feeder Control Options

Rate

The PID function of the BW500 is most commonly used for rate control on shearing weigh feeders, where belt loading is ideally constant, but can also control pre-feeding devices. The BW500 accurately controls the rate of materials being conveyed by varying the weigh feeder belt speed, or the speed of the pre-feeder. As with all applications, the rate set point can be set through the key pad or via one of the analog inputs, or via communications links.

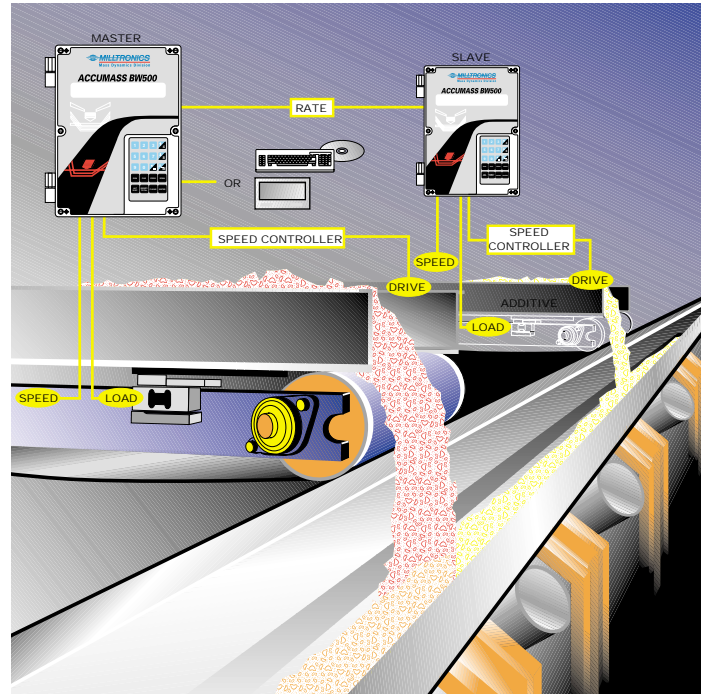
Ratio

In ratio blending systems, one weigh feeder can act as a master unit and others as slave units. The analog rate output from the master unit is applied as the set point for the slave units. The value of the set point can be modified by adjusting the ratio parameter of the various slave units.

While controlling the primary material with one of the PID controllers, an additive can be blended in at a desired ratio by using the second on-board PID controller to control the remote process variable.

Load

By varying the speed of a weigh feeder being fed by a wild flow pre-feeder, the belt load can be controlled by varying the belt speed. When more constant loading is considered most desirable for the process, "load" is selected as the process value to be maintained.



Rate and Load

For a weigh feeder with variable rate pre-feeder, the control of feed rate is achieved by varying the speed of the pre-feeder with one of the PID controllers. To further increase the weighing accuracy by ensuring a consistent load of material on the belt, the second PID controller can be applied in order to vary the belt speed of the weigh feeder.

Batch/Load-out

The BW500 has count up pre-determining totaliser functions that provide batch complete and pre-warn set points. A pre-act function can be used to provide fine tuning of the batch trip point to assure consistently accurate batch sizes in repetitive batching applications.

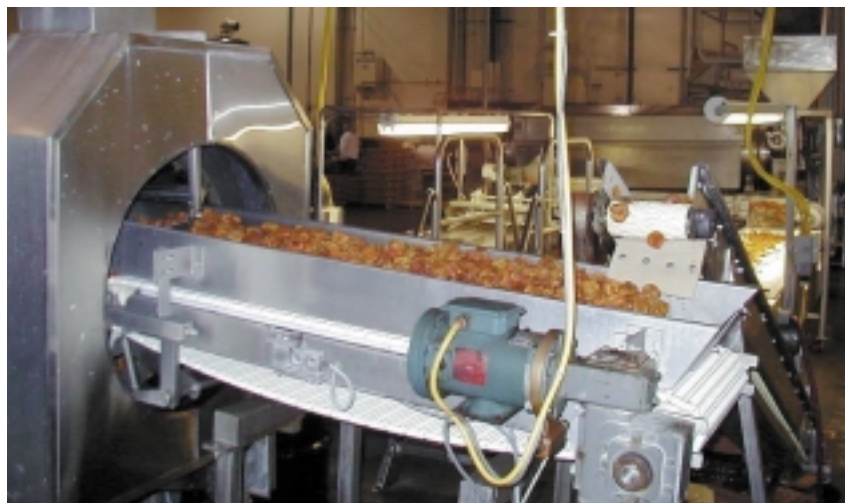
Communications

controller, especially designed for use with weigh feeders.

The addition of a SmartLinx™ module allows the BW500 to easily become part of a Fieldbus data control system.

Dynamic values, parameters and values such as PID terms, ratio factor and batch set point can be accessed or changed from a remote device.

With Dolphin Plus software, the BW500 can be configured and diagnosed remotely from a desktop PC or connected directly in the field using a laptop.



Specification

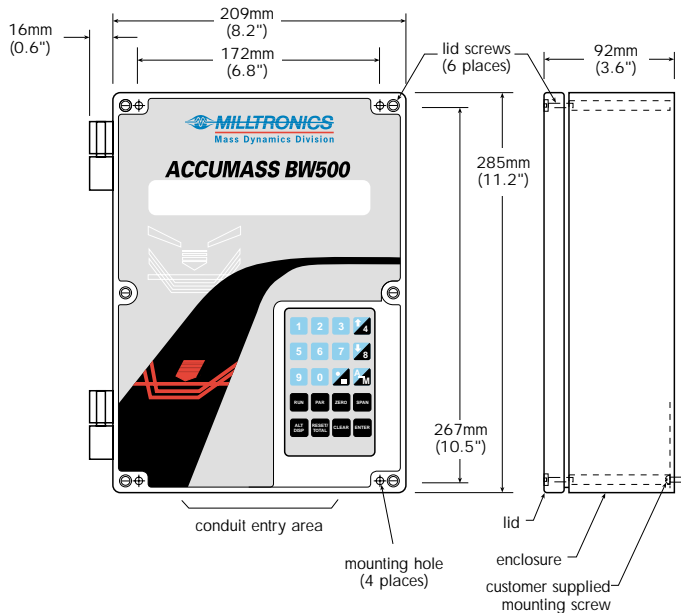
BW500

Applications	Belt scales and weigh feeders.
Accuracy	0.1% of full scale.
Resolution	0.02% of full scale.
Power	100/115/200/230 Vac \pm 15% 50/60 Hz, 31 VA.
Programming	Key pad programmable or Dolphin Plus compatible.
Display	Dual line, 40 character backlit dot matrix display; 6mm character height.
Ambient Temperature	-20° to 50°C (-5° to 122°F).
Outputs	
Excitation:	Compensated 10 Vdc for 1,2 or 4 strain gauge load cells, 150 mA max, 12 Vdc for speed sensing device, 150 mA max.
Alarm Relays:	5 form A (SPST) contact rated 5A at 250 Vac non-inductive. For the alarming of choice or rate, load, speed, diagnostics and batching.
mA Output:	Optically isolated 0-20 or 4-20 mA, scalable, 16 bit D/A conversion. Max loading: 750 Ω . For indication of a selection of rate, load or speed.
Communications:	2 - RS-232 ports, 1 - RS-485 port. Configured for Dolphin Plus or Modbus RTU or Modbus ASCII or printer. SmartLinX™ interface module optional.
Totalizer:	One open collector output for low voltage dc switching maximum 30 volts, 100 mA. One solid state output for switching of high level dc and ac voltages. Maximum 240 Vac or dc, 100 mA.

Inputs

Load Cell:	1, 2 or 4 load cell signals, -10 to 45 mV
Speed Sensor:	1 to 2,000 Hz pulses, 5 to 15 Vdc peak, open collector or dry contact closure.
Constant Speed:	Dry contact for conveyor running status when speed sensor is not utilized.
Auto-zero:	Dry contact closure for self initiated automatic zero.
Digital:	Dry contact for selection of multi-span, zero-span calibration batching mode functions.
Enclosure	Polycarbonate 20.9 cm x 28.5 cm x 9.2 cm (8.23" x 11.23" x 3.6"). NEMA 4X, IP65.
Shipping Weight	2.6 kg (5.7 lbs).
Compatible Belt Scales	All Mass Dynamics models and most single, dual, or 4 load cell competitor models. LVDT based belt scales with optional Interface board.
Compatible Speed Sensors	Mass Dynamics models MD-Series, RBSS or any competitors' device providing above specified input.
Approvals	CE* CSA (NRTL/C) Pending: FM
Options	
Dolphin Plus software SmartLinX™	Programming through Dolphin Plus Interface Connection to A-B RIO, Profibus-DP
Analog I/O Board	2 of 0-20 or 4-20 mA analog isolated inputs for remote set point. 2 of 0-20 or 4-20 mA analog isolated outputs for PID control, or choice of rate, load or speed.
LVDT Interface Board	Remotely located for interface with LVDT based belt scales.

Dimensions



*EMC performance available upon request.

Our continuous program to improve our products may result in changes to design and specification without notice.



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