Weighing and Feeding Guide

Belt Scales
Weigh Feeders
Dry Solids Flowmeters
Integrators
Process Protection
Communications Solutions

SIEMENS
Global network of innovation
You will find reliable Milltronics weighing and feeding equipment from Siemens in almost any industry that involves handling of bulk materials. With a wide range of models and features available, these instruments are effective in applications such as cement, coal, minerals, gravel, bulk chemicals, plastic pellets, pet food, cereal, fruits and vegetables, wood chips, and many more.
In today’s competitive environment, accurate, low-maintenance equipment helps your profitability. You can improve your results with reliable Milltronics® technologies from Siemens.

Whether your application is crushed stone, ore, cement, coal, food processing or chemicals, you can profit from our field-proven conveyor belt scales, level measurement systems, weigh feeders, solids flowmeters, integrators, and motion and acoustic sensors. Standard and custom models are available to suit your requirements. Our products are rugged – built for tough operating conditions in the aggregate, cement and mining industries. They are easy to install and maintain, and expert technical support is there when you need it.

This guide helps you determine the equipment and solutions that meet your needs. It provides an overview of standard models, options, and specifications.

Belt scales help maximize the use of raw materials, control inventories, and aid in the manufacturing of a consistent product. With a track record for consistent performance in harsh environments, our Milltronics conveyor belt scales are your best choice for reliable, continuous in-line weighing of dry bulk granular solids. These belt scales combine simple, drop-in installation, low maintenance (no moving parts) and repeatable accuracy for productive operation. They show minimal hysteresis and superior linearity, and ignore side loading. All load cells feature overload protection. With use of approved intrinsically safe barrier strips, all belt scales can be used in hazardous locations.

**Belt Scale Selection Guide**

**Belt Scale Selection Criteria**
- Accuracy required
- System cost
- Reliability of equipment
- Ease of installation
- Maintenance requirements
- Integrator electronics capabilities
- Service and technical support

**Keep Your System Calibrated with MWL Weight Lifter**

A MWL Weight Lifter helps you safely store and easily apply static test weights for belt scale calibration. This mechanism securely holds weights above the belt scale calibration weight arms, and enables you to lower them onto the belt scale weigh bridge for calibration purposes, then raise them again easily, all with a simple cranking motion. No more stretching, lugging or exposure to the potential dangers between the belt strands. The crank handle is easily stored for safety when not in use.

**Product**

<table>
<thead>
<tr>
<th>MUS Belt Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium-duty universal scale for process indication</td>
</tr>
</tbody>
</table>

**Typical Applications**
- Monitor fractionated stone on secondary surge belts and recirculating loads
- Retrofits
- Track daily production totals
- Control feed rates in various industries (with integrator with PID controller)

**Typical Industries**
- Aggregate
- Agricultural
- Mining

**Maximum Capacity**
- 5000 t/h (5500 stph) at max. belt speed

**Loading**
- Minimum: 15 kg/m (10 lbs/ft)
- Maximum: 250 kg/m (170 lbs/ft)

**Max. Belt Speed**
- 3.0 m/s (600 fpm)

**Particle Size (Maximum)**
- <100 mm (4")

**Maximum Belt Width**
- Fits most conveyor widths
  - Standard-duty ≤ 1000 mm (42")
  - Heavy-duty ≥ 1200 mm (48")

**Idler Diameter**
- 50 - 180 mm (2 - 7") *

**Minimum Weighspan**
- 450 mm (18")

**Accuracy**
- ±1% to 0.5%

**Turn Down**
- 3:1

**Construction**
- Painted mild steel
- Modular design

**Load Cells**
- Two parallelogram-style aluminum
- Temperature compensated
- Dimensions vary for standard and heavy-duty versions

**Standard Components**

**Features**
- Easily adapted to all types of conveyors
- Simple installation — no modification to existing equipment
- Reduction of build-up areas

**Options**
- Test weights
- MWL Milltronics Weight Lifter for calibration

**Approvals**
- CE

*Idler not included.
### MSI Belt Scale
Heavy-duty, high-accuracy single idler scale for process control

- Control in fractionated stone blending tunnels
- Monitor specific grinding mill feed rates
- Retrofits
- Track daily production rates and totals
- Run of mine/coarse and fine ore or aggregates

### MMI Belt Scale
Heavy-duty, high-accuracy multiple idler scale for critical process and load-out control

- Custody transfer
- Track mine-to-mill transfer rates
- Material load-outs on truck, barge, ship, or rail
- Monitor and track inventories
- Fast-moving belts, short idler spacing, light or uneven belt loading

### MLC Belt Scale
Low-capacity scale for high-accuracy and light belt loading

- Monitoring fertilizer, tobacco, animal feed pellets, sugar, cereal
- Existing flat belt conveyors and belt feeders
- Pre-feed control system for extruders, cookers and de-hydrators

<table>
<thead>
<tr>
<th>MSI Belt Scale</th>
<th>MMI Belt Scale</th>
<th>MLC Belt Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>5000 t/h (5500 stph) at max. belt speed</td>
<td>5000 t/h (5500 stph) at max. belt speed</td>
<td>50 t/h (55 stph)</td>
</tr>
<tr>
<td>15 kg/m (10 lbs/ft)</td>
<td>10 kg/m (6.7 lbs/ft)</td>
<td>1.5 kg/m (1 lbs/ft)</td>
</tr>
<tr>
<td>415 kg/m (280 lbs/ft)</td>
<td>415 kg/m (280 lbs/ft)</td>
<td>30 kg/m (20 lbs/ft)</td>
</tr>
<tr>
<td>4.0 m/s (800 fpm)</td>
<td>4.0 m/s (800 fpm)</td>
<td>3.5 m/s (700 fpm)</td>
</tr>
<tr>
<td>&gt;150 mm (6&quot;)</td>
<td>&gt;150 mm (6&quot;)</td>
<td>&lt;25 mm (1&quot;)</td>
</tr>
<tr>
<td>50 - 2000 mm (18 - 96&quot;) (CEMA or standard metric conveyors)</td>
<td>50 - 2000 mm (18 - 96&quot;) (CEMA or standard metric conveyor)</td>
<td>500 - 1200 mm (18 - 48&quot;)</td>
</tr>
<tr>
<td>Other sizes available upon request</td>
<td>Other sizes available upon request</td>
<td>Other sizes available upon request</td>
</tr>
<tr>
<td>50 - 180 mm (2 - 7&quot;)</td>
<td>50 - 180 mm (2 - 7&quot;)</td>
<td>50, 60, 80, or 100 mm (2, 2 3⁄8, 3 1⁄8, 4&quot;) included</td>
</tr>
<tr>
<td>300 mm (12&quot;)</td>
<td>300 mm (12&quot;)</td>
<td>300 mm (12&quot;)</td>
</tr>
<tr>
<td>±0.5% or better</td>
<td>±0.25% or better</td>
<td>±0.5%</td>
</tr>
<tr>
<td>5:1</td>
<td>5:1</td>
<td>5:1</td>
</tr>
<tr>
<td>Painted mild steel or stainless steel</td>
<td>Two or more MSI units installed in a series</td>
<td>Painted mild steel or stainless steel</td>
</tr>
<tr>
<td>Two stainless steel triple beam parallelogram</td>
<td>Stainless steel triple beam parallelogram</td>
<td>Two parallelogram-style stainless steel</td>
</tr>
<tr>
<td>Temperature compensated</td>
<td>Temperature compensated</td>
<td>Temperature compensated</td>
</tr>
<tr>
<td>Built to CEMA or metric standards</td>
<td>Built to CEMA or metric standards</td>
<td>Weighing idler</td>
</tr>
<tr>
<td>Fast reaction compared to pivoted scales for more accurate weighing with fewer idlers</td>
<td>Can be legal for trade (see approvals)</td>
<td>Test weight</td>
</tr>
<tr>
<td>Increased material time on the scale results in more accurate weighing</td>
<td>All of the MSI features</td>
<td>Compact and easy to install</td>
</tr>
<tr>
<td>All of the MSI features</td>
<td>Weighing idler included</td>
<td>Fast reaction to vertical forces, ensuring instant response to product loading</td>
</tr>
<tr>
<td>MWL Milltronics Weight Lifter for calibration</td>
<td>MWL Milltronics Weight Lifter for calibration</td>
<td>MWL Milltronics Weight Lifter for calibration</td>
</tr>
<tr>
<td>Test weights</td>
<td>Test weights</td>
<td>Test weights</td>
</tr>
<tr>
<td>Test chains</td>
<td>Test chains</td>
<td>Test chains</td>
</tr>
</tbody>
</table>

SABS, Industry Canada, CE
NTEP, Industry Canada, CE
CE
**Weigh Feeder Selection Guide**

Ultra-sensitive load cells provide precision weighing accuracies, improving blend consistencies, accountability and record keeping. They are indispensable when automated production processes require continuous in-line weighing and feeding. Depend on these heavy-duty weigh feeders to deliver fast, reliable, and uninterrupted service. The virtually maintenance-free construction promises unmatched performance. Milltronics Autoweigh Feeders come standard with belt weigh bridge, speed sensor and integrator. Flanged belting is available on all models. The height of the flange depends on model and application. Belt sizes and widths are made to measure for the required application.

<table>
<thead>
<tr>
<th><strong>Autoweigh Feeder 400 Series</strong></th>
<th><strong>Autoweigh Feeder 600 Series</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Typical Applications</strong></td>
<td>Control and monitor feed rates and blending:</td>
</tr>
<tr>
<td></td>
<td>■ Extruders in pet foods, breakfast cereals or snack foods</td>
</tr>
<tr>
<td></td>
<td>■ Fruits and nuts for processing or packaging</td>
</tr>
<tr>
<td></td>
<td>■ Cereals, seeds or minerals</td>
</tr>
<tr>
<td></td>
<td>■ Pebble lime into a slaker in water treatment</td>
</tr>
<tr>
<td></td>
<td>■ Add pigments to plastic pellets</td>
</tr>
<tr>
<td></td>
<td>Control and monitor feed rates and blending:</td>
</tr>
<tr>
<td></td>
<td>■ Wet food processing of carrots, tomatoes, onions and potatoes</td>
</tr>
<tr>
<td></td>
<td>■ Extruders in pet foods, breakfast cereals or snack foods</td>
</tr>
<tr>
<td></td>
<td>■ Minerals or powdered additives into a process</td>
</tr>
<tr>
<td></td>
<td>■ Fruits, seeds and grains along with additives</td>
</tr>
<tr>
<td></td>
<td>■ Fertilizer and salt</td>
</tr>
<tr>
<td><strong>Typical Industries</strong></td>
<td>■ Bulk chemicals</td>
</tr>
<tr>
<td></td>
<td>■ Food</td>
</tr>
<tr>
<td></td>
<td>■ Tobacco</td>
</tr>
<tr>
<td></td>
<td>■ Bulk chemicals</td>
</tr>
<tr>
<td></td>
<td>■ Food</td>
</tr>
<tr>
<td></td>
<td>■ Grain</td>
</tr>
<tr>
<td></td>
<td>■ Vegetable produce</td>
</tr>
<tr>
<td><strong>Design Rate Range</strong></td>
<td>45 - 9000 kg/hr (100 - 20,000 lbs/hr)</td>
</tr>
<tr>
<td></td>
<td>0.45 - 18 t/hr (1000 lbs/hr - 20 stph)</td>
</tr>
<tr>
<td><strong>Belt Speed</strong></td>
<td>0.005 - 0.20 m/s (1 - 40 fpm)</td>
</tr>
<tr>
<td></td>
<td>0.005 - 0.20 m/s. (1 - 40 fpm)</td>
</tr>
<tr>
<td><strong>Drive</strong></td>
<td>0.19 kW (0.25 HP)</td>
</tr>
<tr>
<td></td>
<td>0.25 kW (0.33 HP) or larger</td>
</tr>
<tr>
<td><strong>Belt Width</strong></td>
<td>230 or 300 mm (9 or 12&quot;)</td>
</tr>
<tr>
<td></td>
<td>305 - 1000 mm (12 - 36&quot;)</td>
</tr>
<tr>
<td><strong>Inlet to Discharge</strong></td>
<td>838 mm (33&quot;)</td>
</tr>
<tr>
<td></td>
<td>1321 mm (52&quot;) or more</td>
</tr>
<tr>
<td><strong>Pulley Diameter</strong></td>
<td>100 mm (4&quot;)</td>
</tr>
<tr>
<td></td>
<td>150 mm (6&quot;)</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>±0.5 - 0.25%</td>
</tr>
<tr>
<td></td>
<td>±0.5%</td>
</tr>
<tr>
<td><strong>Turn Down</strong></td>
<td>10:1 based on load</td>
</tr>
<tr>
<td></td>
<td>Up to 30:1 based on speed</td>
</tr>
<tr>
<td></td>
<td>10:1 based on load</td>
</tr>
<tr>
<td></td>
<td>up to 30:1 based on speed</td>
</tr>
<tr>
<td><strong>Construction</strong></td>
<td>■ Mild or stainless steel</td>
</tr>
<tr>
<td></td>
<td>■ Open or enclosed</td>
</tr>
<tr>
<td></td>
<td>■ Mild or stainless steel</td>
</tr>
<tr>
<td></td>
<td>■ Open or enclosed</td>
</tr>
<tr>
<td><strong>Sensing Element</strong></td>
<td>Long length platform weigh bridge Single load cell</td>
</tr>
<tr>
<td></td>
<td>Platform weigh bridge Dual load cells</td>
</tr>
<tr>
<td><strong>Features</strong></td>
<td>■ Quick belt removal without tools</td>
</tr>
<tr>
<td></td>
<td>■ Allows for high-pressure washdowns</td>
</tr>
<tr>
<td></td>
<td>■ No material build-up</td>
</tr>
<tr>
<td></td>
<td>■ Cantilevered frame for quick belt removal</td>
</tr>
<tr>
<td></td>
<td>■ Allows for high-pressure washdowns</td>
</tr>
<tr>
<td></td>
<td>■ No material build-up</td>
</tr>
<tr>
<td><strong>Options</strong></td>
<td>■ Belts for specific applications</td>
</tr>
<tr>
<td></td>
<td>■ Sanitary version</td>
</tr>
<tr>
<td></td>
<td>■ Custom units for exact application needs</td>
</tr>
<tr>
<td><strong>Approvals</strong></td>
<td>Meets USDA and FDA requirements for food processing, CE</td>
</tr>
</tbody>
</table>
### Autoweigh Feeder 800 Series
Medium-to high-capacity for macro ingredient additives

- Control feed rate or blending:
  - Cement manufacturing
  - Clinker
  - Process minerals such as kaolin clays
  - Aggregates or heavy bulk minerals
  - Steel manufacturing
  - Wood chip digesters
  - Pressed board pallets
  - Low feed rates sheering from large bins

- Industrial and process applications in feeding, blending or rationing:
  - Cement manufacturing
  - Gypsum manufacturing
  - Wallboard manufacturing
  - Fertilizer plants
  - Feed slag, coke, ground limestone and alloys at direct reduction iron processing or hot briquetted iron facilities
  - Dried pet food

- **Performance Specifications**
  - 4.5 - 72 t/hr (5 - 80 stph)
  - 0.005 - 0.20 m/s (1 - 40 fpm)
  - 0.37 kW (0.5 HP) or larger
  - 450 - 1100 mm (18 - 42")
  - ±0.5%
  - 10:1 based on load
  - 1200-Series: 3600-Series: 450 - 1800 mm (18 - 72")
  - 1575 mm (62") or more
  - 200 mm (8")
  - CE

### Autoweigh Feeder 1200/3600 Series
High-capacity, heavy-duty for macro ingredient additives

- **Performance Specifications**
  - 1200-Series: 9 - 270 t/hr (10 - 300 stph)
  - 0.05 - 0.36 m/s (10 - 70 fpm)
  - 0.75 kW (1 HP) or larger
  - 450 - 11000 mm (18 - 72")
  - ±0.5%
  - 10:1 based on load
  - 1200-Series: 2362 mm (93") or more
  - 3600-Series: 2438 mm (96") or more
  - Gate sizes: 305 mm x 406 mm (12" x 16")
  - NA
  - NA

### VG Volumetric Control Gate
Precise control in blending, batching or loading operations

- **Performance Specifications**
  - 545 - 1590 t/h (600 - 1750 stph)
  - NA
  - 0.5 kW (0.75 HP)
  - 0.005 - 0.36 m/s (1 - 70 fpm)
  - Gate sizes: 305 mm x 406 mm (12" x 16")
  - 406 mm x 558 mm (16" x 22")
  - 508 mm x 711 mm (20" x 28")
  - Custom sizes optional
  - ±3 - 5%
  - 10:1 volumetrically

- **Materials of Construction**
  - Hot dipped galvanized 7-gauge plate steel
  - Flow detector paddle or acoustic flow sensor
  - Flow detector paddle or acoustic flow sensor
  - Flow detector paddle or acoustic flow sensor

- **Other Features**
  - Less space required than belt or vibratory pan feeders
  - Motor and speed reducer mounted for easy access
  - Mechanical overload prevention
  - Custom gate sizes
  - Limit switch
  - Position sensor (potentiometer)

- CE

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**Image:**
- A picture of the Autoweigh Feeder 800 Series.
- A picture of the Autoweigh Feeder 1200/3600 Series.
- A picture of the VG Volumetric Control Gate.
Milltronics solid flowmeters enhance process control, contributing to improved quality of your end product. These heavy-duty, low-maintenance solids flowmeters provide continuous in-line weighing of dry bulk solids, free-flowing powders, or granular material. All models produce accurate, repeatable results and may be used for critical functions such as batch load-out and blending. Safe overload protection is a standard feature. They are easy and quick to install. All models are of a totally enclosed and dust-tight construction of painted mild steel. Stainless steel and hazardous area classification are also available. Each model is compatible with Milltronics Accumass® SF500 integrator for basic process control.

### Dry Solids Flowmeters Selection Guide

**Product**
- **Millflo**: Low-to-medium-capacity flowmeter for various product sizes, densities and fluidity in restricted spaces
- **E-40**: Low-to-medium-capacity flowmeters for various product sizes, densities and fluidity, particularly fine powders

#### Specialized Models
- **Aerated Gravity Conveyor**: A-40
- **Vertical Flow Compact Construction**: V-40
- **Pulverized Coal**: C-40

#### Typical Applications
- **Millflo**
  - Grains, seeds or nuts
  - Plastic pellet production
  - Pet food blending operations
  - Silica sand in glass making
- **E-40**
  - Fly ash
  - Lime dosing in gold ore processing
  - Cement in an aerated gravity conveyor (A-Series)
  - Add sugar in dessert food manufacturing
  - Gypsum flow for board forming line
  - Pulverized coal in boiler and kiln feed (C-40)

#### Typical Industries
- **Millflo**
  - Food
  - Grains
  - Milling
  - Animal feed
- **E-40**
  - Chemicals
  - Minerals
  - Cement

#### Typical Capacity
- **Millflo**: 1 - 230 t/h (1 - 250 stph) depending on inlet size
- **E-40**: 0.2 - 40 t/h (0.2 - 44 stph)

#### Maximum Particle Size
- **Millflo**: 6 - 13 mm (0.25 - 0.5") depending on inlet size
- **E-40**: 13 mm (0.5")

#### Maximum Product Temperature
- **Millflo**: 65°C (150°F)
- **E-40**: 232°C (450°F) C-Series
  - Optional: 400°C (750°F)

#### Accuracy (% of Design Rate)
- **Millflo**: ±1%
- **E-40**: ±1%

#### Turn Down
- **Millflo**: 3:1
- **E-40**: 3:1

#### Sensing Plate Construction
- **Millflo**: 304 stainless steel
- **E-40**: 304 stainless steel

#### Options
- **Millflo**: 316 stainless steel, Mirror finish
- **E-40**: 316 stainless steel

#### Coatings
- **Millflo**: Plasma A/R, Urethane
- **E-40**: Plasma A/R, Teflon®, Polyurethane, Alumina ceramic

#### Sensing Heads
- **Millflo**: ILE-37
- **E-40**: ILE-37

#### Sensing Element
- **Millflo**: Nickel plated or stainless steel parallelogram load cell
- **E-40**: Linear Variable Differential Transformer (LVDT) External to process

#### Inlet Sizes
- **Millflo**: 100 to 300 mm (4 to 12") In ANSI or DIN flanges
- **E-40**: 50 to 250 mm (2 to 10") In ANSI or DIN flanges

#### Feature
- **Millflo**: Viscous fluid damper
- **E-40**: Explosion-proof steel housing (NFPA Code 8503) contains internal explosion of 50 psi (C-40)

#### Approvals
- **Millflo**: CE
- **E-40**: CE, Optional: CSA Class I Gr C & D, Class II Gr E,F,G

*Teflon® is a registered trademark of E.I. Du Pont de Nemours and Company.

*These flowrates are based on a bulk density of 1.6.

**Turn down of 5:1 with use of integrator with linearizer function.

8
<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Applications</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-300</td>
<td>Low- to medium-capacity flowmeters for various product sizes, densities and fluidity, particularly fine powders</td>
<td>- Fly ash&lt;br&gt;- Lime dosing in gold ore processing&lt;br&gt;- Cement in an aerated gravity conveyor (A-Series)&lt;br&gt;- Add sugar in dessert food manufacturing&lt;br&gt;- Gypsum flow for board forming line</td>
<td>- Truck load-out on grains&lt;br&gt;- Fly ash load-out&lt;br&gt;- Aggregates&lt;br&gt;- Cement&lt;br&gt;- Grain&lt;br&gt;- Minerals</td>
</tr>
<tr>
<td>L-300</td>
<td>Medium-capacity flowmeter for various product sizes, densities and fluidity</td>
<td>- Load-out on grains or seeds&lt;br&gt;- Cement in an aerated gravity conveyor system (MA-Series)&lt;br&gt;- Grinding mill rejects in cement industry</td>
<td>- Load-out on grains or seeds&lt;br&gt;- Cement&lt;br&gt;- Grain&lt;br&gt;- Fine aggregates&lt;br&gt;- Cement&lt;br&gt;- Grain</td>
</tr>
<tr>
<td>M-500/M-900</td>
<td>High-capacity flowmeter for various product sizes, densities and fluidity</td>
<td>- Truck load-out on grains&lt;br&gt;- Fly ash load-out&lt;br&gt;- Aggregates&lt;br&gt;- Grain&lt;br&gt;- Cement&lt;br&gt;- Minerals</td>
<td>- Parallelogram weighing with dual stainless steel load cells&lt;br&gt;- External to process&lt;br&gt;- Viscous fluid damper&lt;br&gt;- Optional: Plasma A/R&lt;br&gt;- Teflon®&lt;br&gt;- Polyurethane&lt;br&gt;- Alumina ceramic&lt;br&gt;- Mirror finish&lt;br&gt;- 304 stainless steel</td>
</tr>
</tbody>
</table>
Integrators process sensor signals into operating data for continuous in-line weighing. They can take over basic control functions traditionally handled by other devices, like PID and batch control. Milltronics integrators provide connection to a wide variety of industry standard plant control systems. Our communications solutions enable you to communicate quickly and easily with these integrators from any remote location. Milltronics integrators are reliable, economical and easy to program and operate.

Milltronics Speed Sensors

Speed sensors operate in conjunction with a conveyor belt scale. The speed sensor provides a belt speed signal to an integrator which is used to compute the rate of material being conveyed. The easy-to-install RBSS Return Belt Speed Sensor is a cost-effective instrument for a wide variety of applications. The MD Series Speed Sensors are directly coupled to the motor, rotating tail or other belt driven pulley shaft, eliminating errors caused by belt slippage. This ensures accurate belt-travel read-out.

### Integrator Selection Guide

<table>
<thead>
<tr>
<th>Product</th>
<th>Accumass BW100</th>
<th>Accumass BW500</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economical integrator for use with belt scales</strong></td>
<td><strong>Powerful integrator for use with both belt scales and weigh feeders</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Applications and Compatibility</strong></td>
<td>▪ MLC, MUS and MSI belt scales ▪ Retrofit with other installed belt scale systems (max. 2 load cells)</td>
<td>▪ 400, 600, 8000, 12000/3600 Series Autoweigh Feeders ▪ MLC, MUS, MSI, MMI, MTS belt scales ▪ Retrofit of most other belt scale or weighfeeder systems.</td>
</tr>
<tr>
<td><strong>Display Output</strong></td>
<td>▪ Rate ▪ Totalized weight ▪ Belt loading ▪ Belt speed</td>
<td>▪ Rate ▪ Totalized weight ▪ Belt loading ▪ Belt speed ▪ PID ▪ Batching</td>
</tr>
<tr>
<td><strong>Analog Output</strong></td>
<td>▪ Optically isolated 4-20 mA, scalable ▪ Selectable for rate, load, or speed</td>
<td>▪ Optically isolated 4-20 mA, scalable ▪ Option: 2 additional analog inputs and 2 outputs programmable for PID control</td>
</tr>
<tr>
<td><strong>Remote Totalizer</strong></td>
<td>Two adjustable pulsed outputs</td>
<td>Two adjustable pulsed outputs</td>
</tr>
<tr>
<td><strong>Alarm Relay</strong></td>
<td>One programmable form “C” (SPDT) contact rated 5A at 250 Vac non-inductive</td>
<td>Five programmable form “A” (SPST) contacts rated 5A at 250 Vac non-inductive, reversible</td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td>38 x 100 mm (1.5 x 4&quot;) Graphics LCD</td>
<td>16 x 150 mm (0.65 x 6&quot;) Dual line 40 character backlit 5 x 7 dot matrix LCD</td>
</tr>
<tr>
<td><strong>Enclosure</strong></td>
<td>Kynar Flex®</td>
<td>Polycarbonate</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>270 x 138 x 74 mm (10.6 x 5.4 x 2.9&quot;)</td>
<td>209 x 285 x 92 mm (8.23 x 11.23 x 3.6&quot;)</td>
</tr>
<tr>
<td><strong>Certification</strong></td>
<td>Type 4X/NEMA 4X/IP65</td>
<td>Type 4X/NEMA 4X/IP65</td>
</tr>
<tr>
<td><strong>Ambient Temperature</strong></td>
<td>-20° to 50° C (-5° to 122° F)</td>
<td>-20° to 50° C (-5° to 122° F)</td>
</tr>
<tr>
<td><strong>Power Requirements</strong></td>
<td>100/115/200/230 Vac ±15% 50/60 Hz 15 VA. Optional 12 Vdc and 24 Vdc.</td>
<td>100/115/200/230 Vac ±15% 50/60 Hz 31VA</td>
</tr>
<tr>
<td><strong>Communications</strong></td>
<td>Dolphin Plus interface Bi-polar serial current loop</td>
<td>2 RS-232 ports, 1 RS-422/RS-485 port, Modbus RTU or ASCII Option: • SmartLinx® • Allen-Bradley® • Allen-Bradley®RIO • Profibus-DP • DeviceNet</td>
</tr>
<tr>
<td><strong>Features</strong></td>
<td>▪ Non-volatile memory safeguards against data loss ▪ Alarms for either rate, load, speed or diagnostic error ▪ Multi-point linearizer function ▪ Displays error messages and diagnostics</td>
<td>▪ Battery-backed memory safeguards against data loss ▪ Multiple alarms for rate, load, speed or diagnostic error ▪ Step-by-step programming ▪ PID control with optional analog I/O card ▪ Multi-point linearizer function ▪ Displays error messages and diagnostics ▪ Automatic zero ▪ Electronic span calibration available (reduces need for test weights or chains) ▪ Up to 8 multi-spans for application of more than one feed condition and/or material</td>
</tr>
<tr>
<td><strong>Approvals</strong></td>
<td>▪ CSA (NRTL/C), FM ▪ CE</td>
<td>▪ CSA (NRTL/C), FM ▪ CE</td>
</tr>
</tbody>
</table>

Compuscale® and SmartLinx® are registered trademarks of Siemens Milltronics Process Instruments Inc. Allen-Bradley® is a registered trademark of Rockwell Automation.
Compuscale®III
Versatile integrator for wide range of belt scales

- MMI belt scales in legal-for-trade applications
- Rate
- Totalized weight
- Belt loading
- Belt speed
- Optically isolated 4-20 mA, scalable
- One adjustable pulsed output
- Backlit 256 x 128 dot matrix graphics LCD
- Steel with polycarbonate window
- 330 x 406 x 102 mm (13 x 16 x 4")
- NEMA 4 style
- -20° to 50° C (-5° to 122° F)
- 115/230 Vac ±10%
- 50/60 Hz, 65VA
- 2 serial ports
- RS-232
- Bipolar current loop
- Powerloss memory protection
- Parameter-based programming with text prompts
- Selectable certification mode and security levels
- Multi-span capability for weighing different materials
- Linearizer to compensate for material feed variations
- Simple, automatic calibration
- CSA general purpose
- NTEP and Industry Canada when used with MMI-02 belt scale and MD-36A speed sensor
- Not CE compliant

Accumass SF500
Powerful integrator for use with solids flowmeters

- Millflo, E, A, V, C Series, L- 300, M and MA Series flowmeters
- Other 1 or 2 loadcell flowmeters
- LVDT equipped solids flowmeters, with use of optional interface board
- Rate
- Totalized weight
- PID
- Batching
- Optically isolated 4-20 mA, scalable
- Option: 2 additional analog inputs and 2 outputs programmable for PID control
- Two adjustable pulsed outputs
- Five programmable form "A" (SPST) contacts rated 5A at 250 Vac non-inductive, reversible
- Backlit 16 x 150 mm (0.65 x 6") Double line 40 character backlit 5 x 7 dot matrix LCD
- Polycarbonate
- 209 x 285 x 92 mm (8.23 x 11.23 x 3.6")
- Type 4X/NEMA 4X/IP65
- -20° to 50° C (-5° to 122° F)
- 100/115/200/230 Vac ±15%
- 50/60 Hz, 31VA
- 2 RS-232 ports, 1 RS-422/RS-485 port,
  Modbus RTU or ASCII
  Optional: • SmartLinx® • Dolphin Plus
  -Allen Bradley®RIO
  -Profibus-DP
  -DeviceNet
- Battery-backed memory safeguards against data loss
- Alarms for rate or diagnostic error
- Dual PID control with optional analog I/O card
- Multi-point linearizer function
- Displays error messages and diagnostics
- Automatic zero
- Electronic span calibration available (reduces need for test weights)
- Up to 8 multi-spans for application of more than one flow condition and/or material
- CSA (NRTL/C), FM
- CE

Kynar Flex® is a registered trademark of Elf Atochem.
Process protection devices can be an early warning system to avoid costly process interruptions and breakdowns of equipment. Non-contacting acoustic and motion sensors detect changes in motion and speed of conveying, reciprocating and rotating machinery. Acoustic sensors detect inaudible, high frequency acoustic emissions generated by friction and impact or materials in motion. Rugged construction makes them impervious to dust, dirt, build-up and moisture. They are low in maintenance, requiring no lubrication, cleaning or parts replacement. They are easy to install and provide superior cost-effective protection.

<table>
<thead>
<tr>
<th>Product</th>
<th>MFA 4p Motion Failure Alarm</th>
<th>ME100 Motion sensor/alarm probe</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Application</td>
<td>Monitors loss of motion in rotating, reciprocating and conveying equipment. Alarms for loss of motion, underspeed or overspeed.</td>
<td>Protect rotating or reciprocating equipment. Alarms for increase, decrease, or lack of motion.</td>
</tr>
<tr>
<td>Typical Applications</td>
<td>- Tail pulleys &lt;br&gt;- Driven pulleys &lt;br&gt;- Motor shaft sensing &lt;br&gt;- Screw conveyor flights &lt;br&gt;- Bucket elevators</td>
<td>- Tail pulleys &lt;br&gt;- Driven pulleys &lt;br&gt;- Motor shaft sensing &lt;br&gt;- Screw conveyor flights &lt;br&gt;- Bucket elevators</td>
</tr>
<tr>
<td>Typical Industries</td>
<td>- Aggregates &lt;br&gt;- Cement &lt;br&gt;- Mining &lt;br&gt;- Waste water</td>
<td>- Aggregates &lt;br&gt;- Cement &lt;br&gt;- Mining &lt;br&gt;- Waste water</td>
</tr>
<tr>
<td>Enclosure</td>
<td>Type 4X/NEMA 4X/IP65 polycarbonate</td>
<td>316 Stainless steel, IP65</td>
</tr>
<tr>
<td>Sensor Mounting</td>
<td>Non-contacting, secured with supplied flange</td>
<td>Non-contacting, secured with clamp</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-20° to 50° C (-4° to 122° F)</td>
<td>-20° to 65° C (-4° to 149° F)</td>
</tr>
<tr>
<td>Power Requirements</td>
<td>100/115/200/230 Vac ±10% 50/60 Hz, 15 VA.</td>
<td>24 Vdc</td>
</tr>
<tr>
<td>Features</td>
<td>- Probe/target separation up to 100 mm (4”) &lt;br&gt;- Minimum velocity of moving ferrous target: 1 cm/sec (0.4 ft/min) &lt;br&gt;- 0 - 60 second adjustable time delay</td>
<td>- Up to 100 mm (4”) gap distance between probe and ferrous targets &lt;br&gt;- Digital processing &lt;br&gt;- Minimum velocity of moving ferrous target: 1 cm/sec (0.4 ft/min) &lt;br&gt;- PLC compatible— 3- or 4-wire connection</td>
</tr>
<tr>
<td>Options</td>
<td>Probe versions: &lt;br&gt;- Standard: MSP-12 &lt;br&gt;- Explosion proof: XPP-5* &lt;br&gt;- To 2600°F (1427°C): MSP-3 and MSP-9 &lt;br&gt;- Miniature (rash conditions): MSP-1</td>
<td>ME100 HL: &lt;br&gt;- Self calibrating motion sensor alarming below or above calibration point &lt;br&gt;ME100 ZS: &lt;br&gt;- Alarming of machinery approaching zero speed</td>
</tr>
<tr>
<td>Approvals</td>
<td>CSA (US/C) &lt;br&gt; CE</td>
<td>CE</td>
</tr>
</tbody>
</table>

* Classification: Class I, Div. 1, Groups A, B, C & D; Class II, Div. 1, Group E, F & G; Class III
<table>
<thead>
<tr>
<th><strong>MillPulse 600</strong></th>
<th><strong>Zero Speed Switch</strong></th>
<th><strong>Senaco® AS100</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Motion sensor</td>
<td>Motion alarm switch for harsh conditions</td>
<td>Acoustic sensor for flow detection</td>
</tr>
<tr>
<td>Provide pulse output to PLC input when monitoring speed of rotating, reciprocating or conveying equipment</td>
<td>Detects absence or presence of rotation of rotating or reciprocating or conveying equipment</td>
<td>High frequency acoustic emissions from friction or the impact of dust, powders, granules and solids in motion. Detects flow/no flow or high/low flow</td>
</tr>
<tr>
<td>Tail pulleys</td>
<td>Tail pulleys</td>
<td>Tail pulleys</td>
</tr>
<tr>
<td>Driven pulleys</td>
<td>Driven pulleys</td>
<td>Driven pulleys</td>
</tr>
<tr>
<td>Motor shaft sensing</td>
<td>Motor shaft sensing</td>
<td>Motor shaft sensing</td>
</tr>
<tr>
<td>Screw conveyor flights</td>
<td>Screw conveyor flights</td>
<td>Screw conveyor flights</td>
</tr>
<tr>
<td>Bucket elevators</td>
<td>Bucket elevators</td>
<td>Bucket elevators</td>
</tr>
<tr>
<td>Aggregates</td>
<td>Aggregates</td>
<td>Aggregates</td>
</tr>
<tr>
<td>Cement</td>
<td>Cement</td>
<td>Cement</td>
</tr>
<tr>
<td>Mining</td>
<td>Mining</td>
<td>Mining</td>
</tr>
<tr>
<td>Phenolic/aluminum</td>
<td>Phenolic/aluminum</td>
<td>Compact 304 or 303 stainless steel IP68</td>
</tr>
<tr>
<td>Type 4X/NEMA 4X/IP65</td>
<td>Non-contacting, secured with supplied flange</td>
<td>Non-contacting, secured with supplied flange</td>
</tr>
<tr>
<td>Phenolic/aluminum</td>
<td>Sensor non-invasive: Glue or weld-on disc Bolt or weld-on tab Drill and tap</td>
<td>Sensor non-invasive: Glue or weld-on disc Bolt or weld-on tab Drill and tap</td>
</tr>
<tr>
<td>-40° to 60 °C (-40° to 140 °F)</td>
<td>-40° to 60 °C (-40° to 140 °F)</td>
<td>-40° to 80 °C (-4° to 176 °F) Extended temperature model: -40° to 125 °C (-40° to 257 °F)</td>
</tr>
<tr>
<td>Switches 18 48 Vac/dc Or 60 - 135 Vac/dc</td>
<td>Switches 18 48 Vac/dc Or 60 - 135 Vac/dc</td>
<td>Switches 18 48 Vac/dc Or 60 - 135 Vac/dc</td>
</tr>
<tr>
<td>115 or 230 Vac ±10% 50/60 Hz, 10 VA</td>
<td>115 or 230 Vac ±10% 50/60 Hz, 10 VA</td>
<td>115 or 230 Vac ±10% 50/60 Hz, 10 VA</td>
</tr>
<tr>
<td>20 - 30 Vdc 18 mA</td>
<td>20 - 30 Vdc 18 mA</td>
<td>20 - 30 Vdc 18 mA</td>
</tr>
<tr>
<td>Up to 30 mm (1.25&quot;) gap distance between probe and ferrous target Minimum velocity of moving ferrous target: 1 cm/sec. (2 fpm) PLC compatible — 2 - wire connection</td>
<td>Up to 100 mm (4&quot;) gap distance Selectable start delays One form “C” relay contact (SPDT) Minimum velocity of moving ferrous target: 1 cm/sec. (2 fpm)</td>
<td>Stable high frequency broadband filter 75-175kHz, immune to plant vibrations Output: 0.08 to 10 Vdc High or low sensitive modes Compatible with most analog PLC input or use with CU02</td>
</tr>
<tr>
<td>All aluminum body for increased RFI immunity</td>
<td>All aluminum body for increased RFI immunity</td>
<td>Extended temperature and hazardous areas</td>
</tr>
<tr>
<td>CSA general purpose Not CE compliant</td>
<td>CSA general purpose Not CE compliant</td>
<td>CE FM/CSA Class II, Div 1, Group E,F,G optional</td>
</tr>
</tbody>
</table>

**Senaco CU02 Control Unit**

The Senaco CU02 operates with a Senaco AS100 Acoustic Sensor to provide reliable continuous protection for bulk solid flow. It processes signals from the sensor, providing relay and analog outputs for interface into a process. The two relays are fully programmable and independent of each other, and can be used to operate an alarm or control device.

**Output**

- Isolated 4-20 mA, 750 Ω max.
- Alarm Relay
  - 2 programmable form “C” (SPDT) contact rated 5A at 250 Vac non-inductive, adjustable independent time delay for each relay

**Display**

- 9 mm high LCD
- 3 digits
- Multi-segment graphic symbols
- Voltage or % Rate

**Enclosure Material**

- Polycarbonate

**Enclosure Dimensions**

- 55 x 75 x 110 mm (2.2 x 3 x 4.4")

**Ambient Temperature**

- -20 to 50 ºC (-4 to 122º F)

**Power Requirements**

- 100/115/200/230 Vac ±15%
- 50/60 Hz factory set, 10VA

**Features**

- DIN rail mount or wall mount
- Up to 500 m (1500') from sensor
- Adjustable start-up time delay
- Built-in password protection to parameters

**Approvals**

- CSA (NRTL), CE
Communications Solutions Guide

With digital communications technology, you can connect field instruments into a central control system. Milltronics Accumass BW500 and Accumass SF500 come standard with a built-in Modbus RTU slave or a Modbus ASCII slave via RS-232 or RS-485. A Modbus master has access to all data from the instrument, including the operation parameters. For connecting to other communications buses SmartLinx offers several options. SmartLinx modules provide direct digital connection between the Accumass BW500 and Accumass SF500 integrators and popular industrial communications buses with true plug-and-play compatibility. The modules are fast and easy to install, and can be added at any time. SmartLinx provides all data from the instrument, including measurement and status. It allows you to change operation parameters over the bus.

<table>
<thead>
<tr>
<th>SmartLinx Module</th>
<th>Allen-Bradley Remote I/O</th>
<th>Profibus-DP</th>
<th>DeviceNet</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Features</strong></td>
<td>Accessed via standard PLC data transfer techniques</td>
<td>Accessed via standard PLC programming techniques</td>
<td>Accessed via standard PLC data transfer techniques</td>
</tr>
<tr>
<td></td>
<td>Using Block Transfer, the PLC can both read and write all appropriate data</td>
<td>Supports read-and-write access to all Milltronics instrument data and parameters</td>
<td>Using Block Transfer, the PLC can both read and write all appropriate data</td>
</tr>
<tr>
<td><strong>Interface</strong></td>
<td>RIO interface</td>
<td>RS-485 (Profibus standard)</td>
<td>DeviceNet physical layer</td>
</tr>
<tr>
<td><strong>Baud Rate</strong></td>
<td>57.6, 115.2 or 230.4 kb user selectable</td>
<td>All valid Profibus-DP rates from 9600 bps to 12 mbps, self-configured</td>
<td>125, 250, 500 kbps user selectable</td>
</tr>
<tr>
<td><strong>Address</strong></td>
<td>1 - 73</td>
<td>0 - 99</td>
<td>0 - 63</td>
</tr>
<tr>
<td><strong>Type of Connection</strong></td>
<td>Slave</td>
<td>Slave</td>
<td>Slave (group 2)</td>
</tr>
</tbody>
</table>

External Modem Kit

The External Modem Kit allows you to communicate quickly and easily with Accumass BW500 and Accumass SF500 integrators via Modbus RTU. The industrial dial-up modem is connected through an RS-232 port on the product. It contains an external industrial modem, power supply, connection cables, and a detailed instruction manual. The External Modem Kit allows quick and easy setup and communications. The instruction manual describes how to configure the modem, saving time and frustration in trying to determine the correct modem settings. The kit can be mounted using screws or a DIN rail. All components are industrial grade and can stand up to the industrial environment.

Dolphin Plus

Instrument Configuration Software for Accumass BW100, Accumass BW500 and Accumass SF500

Dolphin Plus software helps you to quickly and easily configure, monitor, tune and diagnose most Milltronics instruments either remotely from your desktop PC, or connected directly in the field using a laptop. Dolphin Plus is easy to install and easy to use. Just load the software from the CD. In minutes, you're ready to set up or modify complete parameter configurations for single or multiple instruments in the Windows® environment. After configuration, you can edit parameters on the fly, upload and download parameter sets to and from disk, and use parameter sets saved from other instruments. You can also work with echo profiles for fine-tuning without the need for special instruments.
Sanitary models are designed for industries where high pressure washdown is required. They are used in food processing, agriculture and the pharmaceutical industry. Sanitary versions of 400 and 600 Autoweigh Feeders meet USDA and FDA requirements for food processing.
Your Reliable Choice for Solids Measurement Instruments

- Conveyor belt scales
- Level measurement systems
- Weigh feeders
- Volumetric control gates
- Solids flowmeters
- Integrators
- Motion and acoustic sensors

And Much, Much More…

This publication offers only a sample of the many Milltronics products and solutions available.


For more information or a representative near you, visit our web site at:

www.siemens-milltronics.com