# Thermo Scientific Ramsey Series 17

## Belt Scale System for Conveyor Weighing of Bulk Materials

**The Thermo Scientific™ Ramsey™ Series 17 belt scale system is specifically designed for plant and process operations that run at high rates of speed or require the better-than-normal accuracy of ±0.25%. The Ramsey Series 17 system provides vital information that allows you to effectively manage and efficiently operate your business by monitoring production output and inventory or regulating product loadout.**

### Features

- **Time-proven design for challenging applications**
- **Multiple idler weigh span for greater accuracy**
- **State of the art microprocessor based electronics with four line LCD graphic display**
- **Built-in USB for information upload and download**
- **Improved communication capabilities**
- **Easy to use and calibrate**

The Thermo Scientific Ramsey Series 17 belt scale system combines the time-proven reliability of the Thermo Scientific™ Ramsey™ 10-17 weighbridge and Thermo Scientific™ Ramsey™ 60-12 belt speed sensor with the powerful and versatile advanced electronics of the Thermo Scientific™ Ramsey™ Micro-Tech 9000 series of electronic integrators.

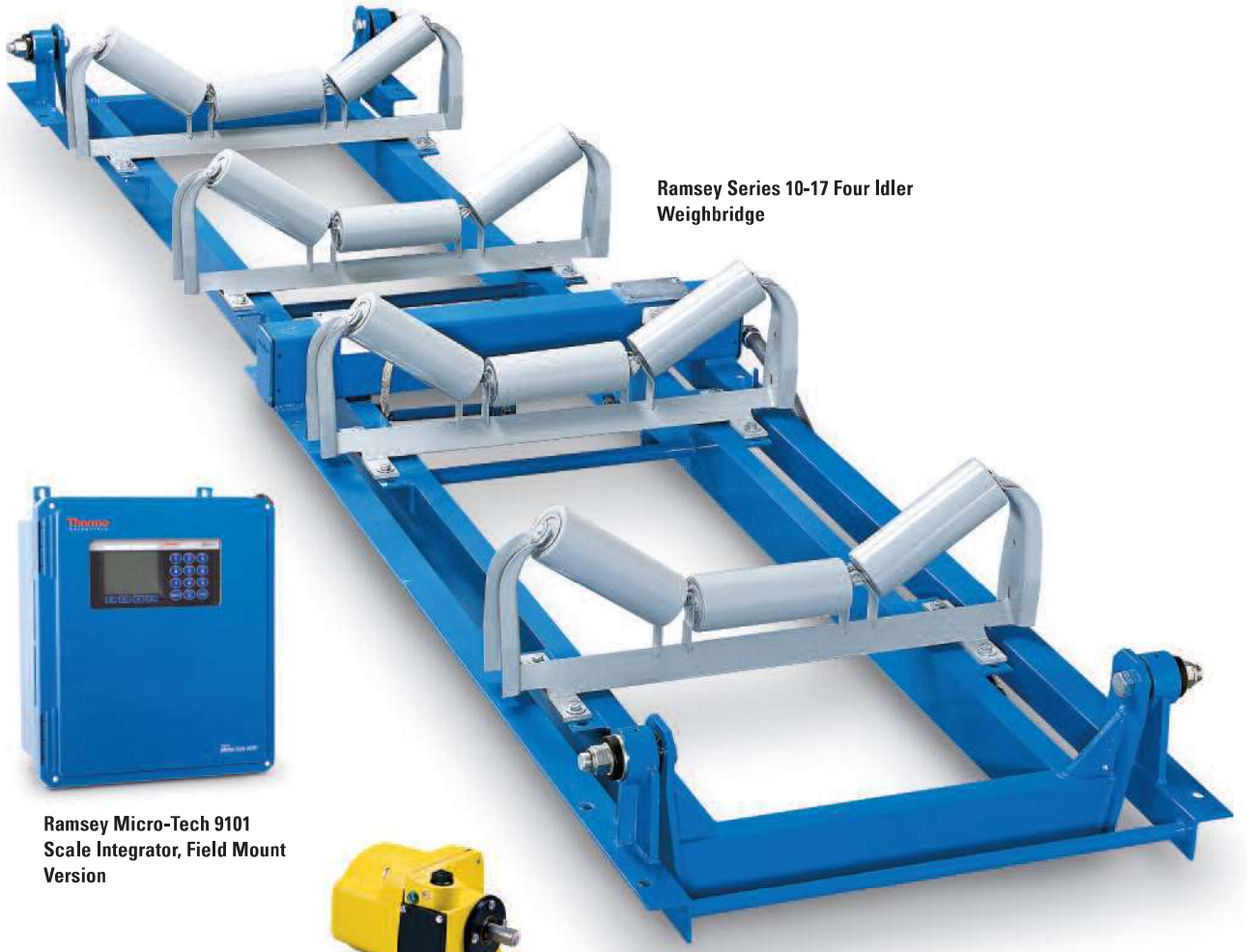
The Series 17 system's long weighbridge design allows this model to be offered as a highly accurate ±0.25% scale system. The longer weighbridge permits more scale-borne time, which minimizes alignment errors. This translates into better accuracy.

This belt scale system is available in a two- or four-idler version. For more information, refer to the separate product specification sheet on the Ramsey Micro-Tech 9000 series of electronic integrators.

### Applications

The Ramsey Series 17 belt scale system is designed for plant and process operations that run at higher rates of speed or require better-than-normal belt scale accuracy. The system can monitor production output, control product loadout, and keep track of inventory to help you effectively manage and efficiently operate your business.

Thermo SCIENTIFIC



Ramsey Series 10-17 Four Idler Weighbridge

Ramsey Micro-Tech 9101 Scale Integrator, Field Mount Version

Ramsey Belt Speed Sensor

**Ramsey Series 10-17 Weighbridge**

The Ramsey Series 10-17 scale system includes a multiple idler weighspan (four idler standard; two idler optional) to minimize belt effects and is available in a variety of belt widths and idler spacings. The 10-17 design includes two super-precision strain gauge load cells mounted in tension for greater stability and to minimize alignment errors. The frictionless, trunnion-type sealed pivots are completely impervious to vibration, moisture and material accumulations.

**Ramsey Micro-Tech 9101 Scale Integrator**

The Ramsey Micro-Tech 9101 scale integrator incorporates advanced electronic design for improved performance and serviceability. This fifth-generation electronics enables you to accurately weigh your material and monitor your process.

**Ramsey 60-12 Belt Speed Sensor**

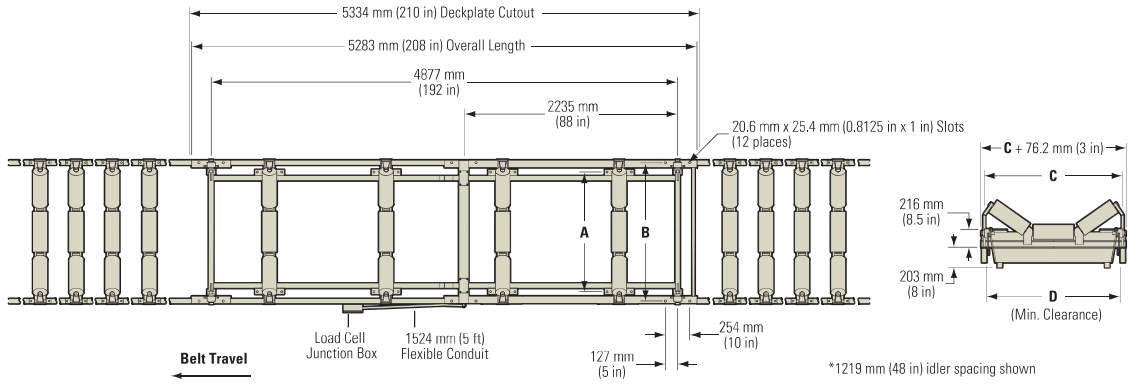
The Thermo Scientific Ramsey 60-12 digital belt speed sensor is the most reliable and accurate speed-sensing device ever developed for belt scale service. Designed with a rugged, cast-aluminum housing suitable for outdoor installations it contains an AC pulse generator that doesn't have any brushes to adjust or replace. Direct-coupling the sensor to the conveyor tail pulley, snubbing roll, or a large diameter return roller ensure an accurate belt-travel readout.

**Performance Guarantee**

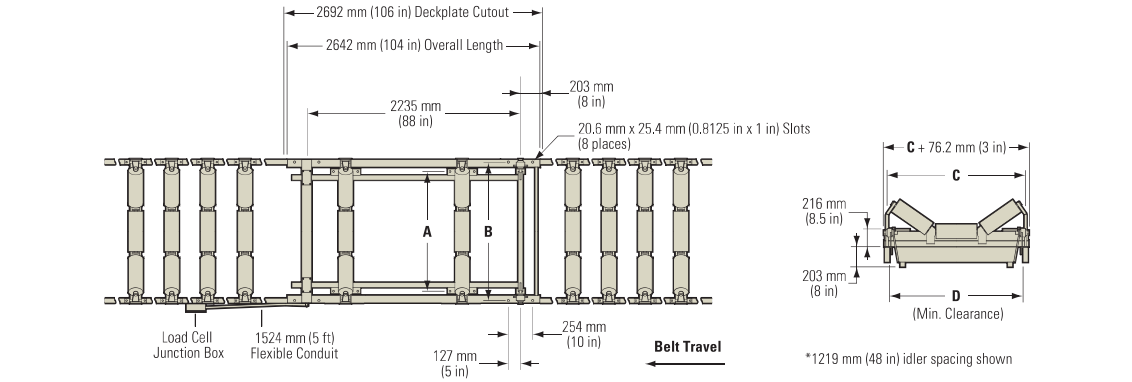
On factory-approved installations, we warrant that the Ramsey Series 17 belt scale system will weigh and totalize to a value within ±0.25% of the test value when calibrated against a known test weight, chain, or the Thermo Scientific standard electronic calibration.

The test rate must be between 25% and 100% of the scale system's calibrated capacity. Test duration is defined as at least three circuits or revolutions of the belt, at least 800 counts on the master totalizer, and at least ten minutes running time. Its warranty is subject to the scale system being installed, operated and maintained in accordance with factory instructions.

## Ramsey Series 17 Belt Scale System — Four-Idler Weighbridge Dimensions




## Ramsey Series 17 Belt Scale System — Two-Idler Weighbridge Dimensions



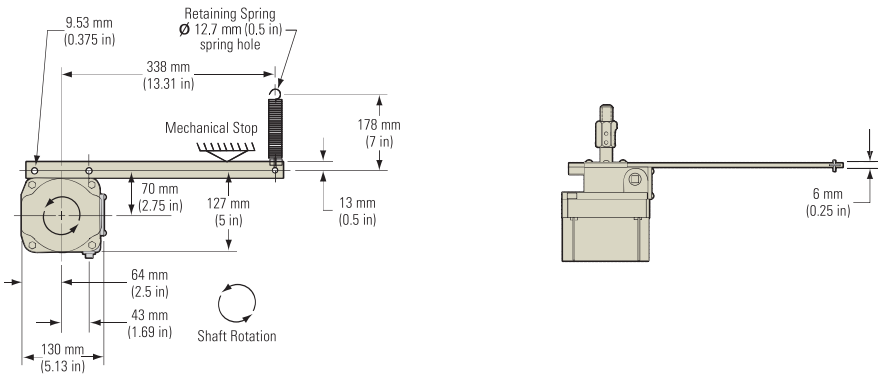

## Ramsey Series 17 Belt Scale System — Variable Belt Width Dimensions

| BELT WIDTH | LENGTH (mm) A | B | C | D | WEIGHT* (kg) TWO-IDLER | FOUR-IDLER |
|---|---|---|---|---|---|---|
| 610 mm | 641 | 838 | 902 | 756 | 197 | 288 |
| 762 mm | 794 | 991 | 1054 | 908 | 204 | 295 |
| 914 mm | 946 | 1143 | 1207 | 1060 | 210 | 301 |
| 1067 mm | 1099 | 1295 | 1359 | 1213 | 216 | 307 |
| 1219 mm | 1251 | 1448 | 1511 | 1365 | 223 | 313 |
| 1372 mm | 1403 | 4600 | 1664 | 1518 | 229 | 320 |
| 1524 mm | 1556 | 1753 | 1816 | 1970 | 235 | 326 |
| 1829 mm | 1861 | 2057 | 2121 | 1975 | 248 | 339 |
| 2134 mm | 2165 | 2362 | 2426 | 2280 | 261 | 352 |

| BELT WIDTH | LENGTH (in) A | B | C | D | WEIGHT* (lb) TWO-IDLER | FOUR-IDLER |
|---|---|---|---|---|---|---|
| 24 in | 25.25 | 33 | 35.5 | 29.75 | 435 | 635 |
| 30 in | 31.25 | 39 | 41.5 | 35.75 | 450 | 650 |
| 36 in | 37.25 | 45 | 47.5 | 41.75 | 463 | 663 |
| 42 in | 43.25 | 51 | 53.5 | 47.75 | 477 | 677 |
| 48 in | 49.25 | 57 | 59.5 | 53.75 | 491 | 691 |
| 54 in | 55.25 | 63 | 65.5 | 59.75 | 505 | 705 |
| 60 in | 61.25 | 69 | 71.5 | 65.75 | 518 | 718 |
| 72 in | 73.25 | 81 | 83.5 | 77.75 | 547 | 747 |
| 84 in | 85.25 | 93 | 95.5 | 89.75 | 575 | 775 |

**approximate weight without idlers*

## Ramsey 60-12 Speed Sensor Dimensions



# Thermo Scientific Ramsey Series 17 Belt Scale System

| | |
|---|---|
| **Ramsey 10-17 Weighbriges** | |
| Weighspan | Four-idler standard minimizes belt effects; Two-idler version optional for ±0.5% accuracy |
| Frictionless Pivots | Trunnion-type; Sealed units are completely impervious to vibration, moisture and material build-up |
| Weighbridge Construction | Rigid mechanical tube construction |
| Load Cells | Two super-precision strain gauge load cells mounted in tension for stability and reduction of misalignment errors |
| Total Deflection | Less than 0.127 mm (0.005 in) |
| Clearance Requirements | Fits any standard conveyor; No space required above belt line |
| **Load Cell** | |
| Quantity | Two in parallel |
| Enclosure | Environmentally-protected "S" type cell |
| Mounting | Tension |
| Output | 3 mV/V ±0.1% |
| Non-Linearity | < 0.03% FS |
| Non-Repeatability | 0.01% FS |
| Hysteresis | < 0.02% FS |
| Operating Temperature | -54°C to +93°C (-65°F to +200°F) |
| Temperature Sensitivity | Span 0.0014% FS/°C (0.0008% FS/°F)<br>Zero 0.0027% FS/°C (0.0015% FS/°F) |
| Overload | Safe to 150% of load cell capacity; Ultimate to 300% FS; Sideload 50% FS |
| Rating | FM approved for Class II, Div 1 & 2, Groups E, F & G; NTEP Type III, 5000 Divisions; OIML R60 |
| **Micro-Tech 9101 Belt Scale Integrator** | |
| Enclosure | Field mount, NEMA-4X fiberglass, IP66, dust and watertight, 432 mm (17 in) x 360 mm (14 in) x 167 mm (6.6 in)<br>Panel mount, chromate mid steel chassis, front panel IP65, DIN 43700, 308 mm (12 in) x 102 mm (4 in) x 202 mm (7.9 in) |
| Temperature | Operating: -20ºC to +60ºC (-4ºF to +140ºF)<br>Storage: -30ºC to +70ºC (-22ºF to +158ºF) |
| Power Requirements | Field mount 100-240 VAC, 50/60 Hz<br>Panel mount 24 VDC +10%, -15% (user supplied), 24 VDC only, optional AC module available |
| Display | 77 mm x 58 mm viewable LCD graphic display with status indicator lights for easy reading, continuous backlit for ease of viewing indoors and outdoors, available menu languages include English, German, Italian and Spanish |
| Load Cell Excitation | 5 VDC +/-10%, 90 mA |
| Outputs | Includes one solid state DC pulse output open collector for pulse output (default) or alarms |
| Communication | Standard serial interface RS-232C provides support for modem, RS-485, 2- and 4- wire multi-drop |
| Communication Protocols | Modbus RTU, Allen Bradley DF-1, Siemens |
| Ethernet | Ethernet/IP and Modbus/TCP |
| Built-in USB Port | Configuration and data storage |
| Expansion Slots (5) | Optional boards include 4-20 mA output board, input/output expansion boards, digital or analog input/output boards, Profibus or Standard communication board |
| Ratings | cCSAus, CE |
| **Ramsey 60-12 Digital Speed Sensor** | |
| Type | Digital, brushless |
| Mounting | Direct to 15.88 mm (0.625 in) diameter stub shaft on tail pulley, bend pulley or return roll |
| Housing | Weather-tight, epoxy finish, cast aluminum |
| Mounting Hardware | Supplied with coupling, restraint arm and restraint spring |
| Shipping Weight | 3.6 kg (8 lb) |