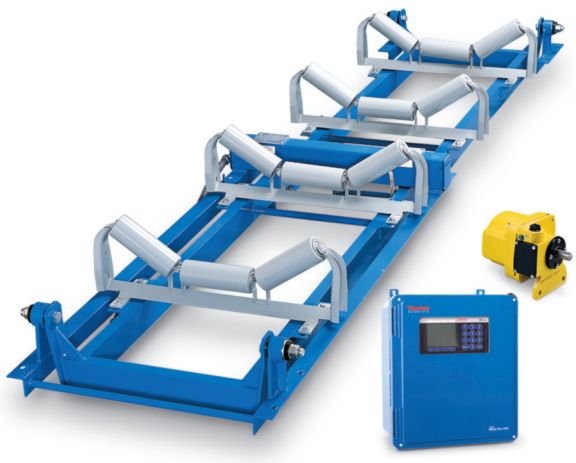
Thermo Scientific Ramsey Series 17

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 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.

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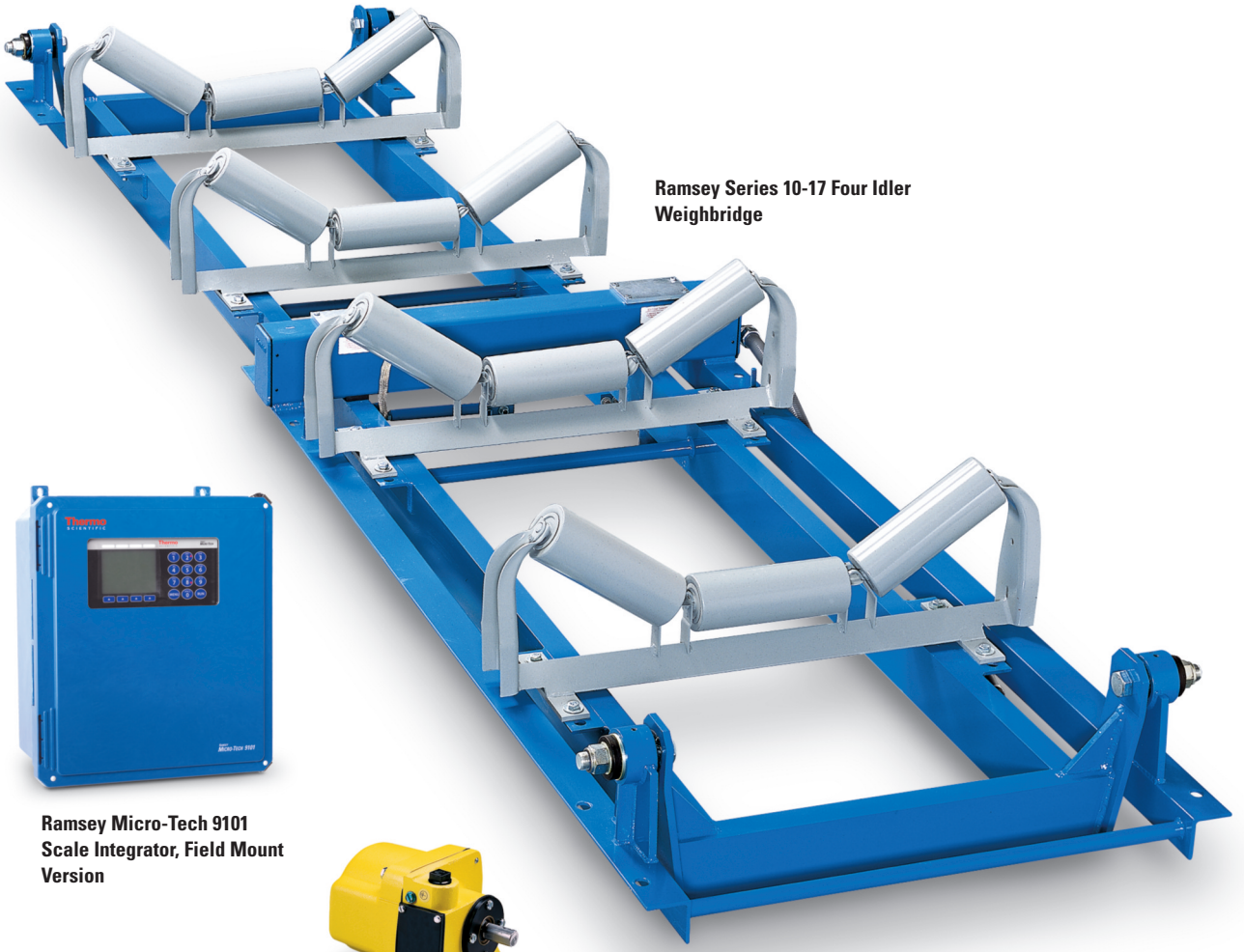


Ramsey Series 10-17 Four Idler Weighbridge

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

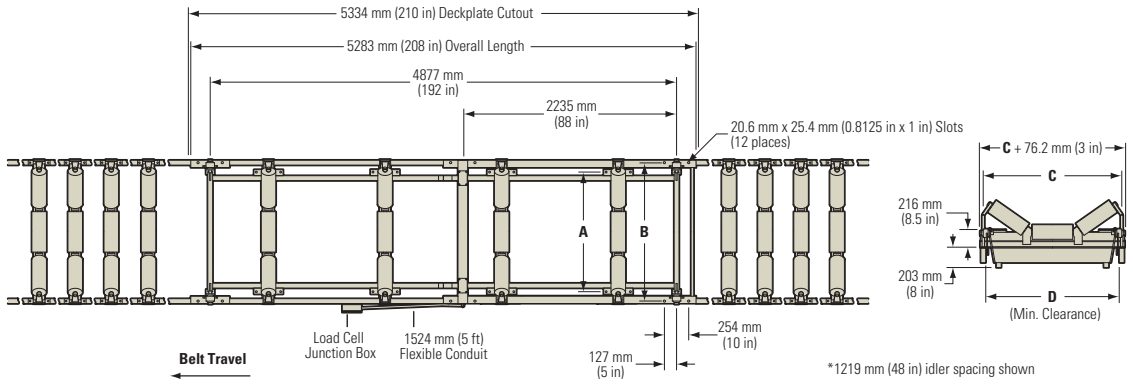
The Thermo Scientific Ramsey 60-12 digital belt speed sensor is the most reliable and accurate speed-sensing device ever developed for belt scale service. Designed with a rugged, cast-aluminum housing suitable for outdoor installations it contains an AC pulse generator that doesn't have any brushes to 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

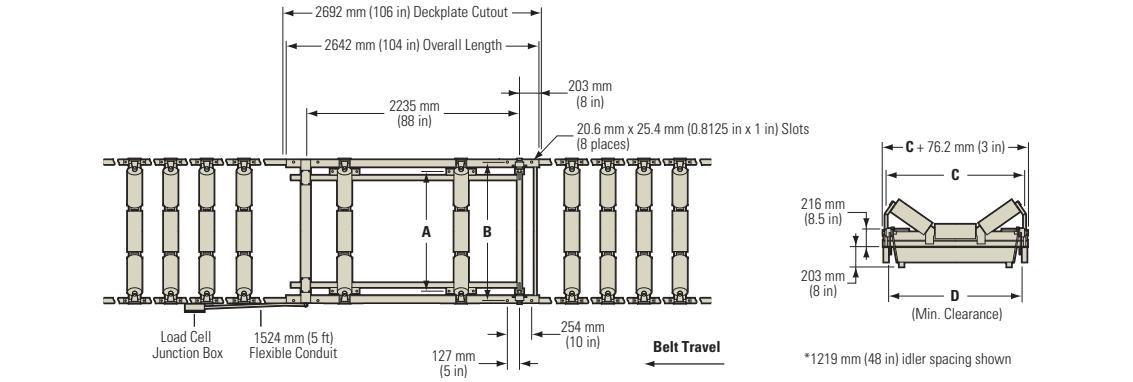
On factory-approved installations, we warrant that the Ramsey Series 17 belt scale system will weigh and totalize to a value within ±0.25% of the test value when calibrated against a known test weight, chain, or the Thermo Scientific standard electronic calibration.

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



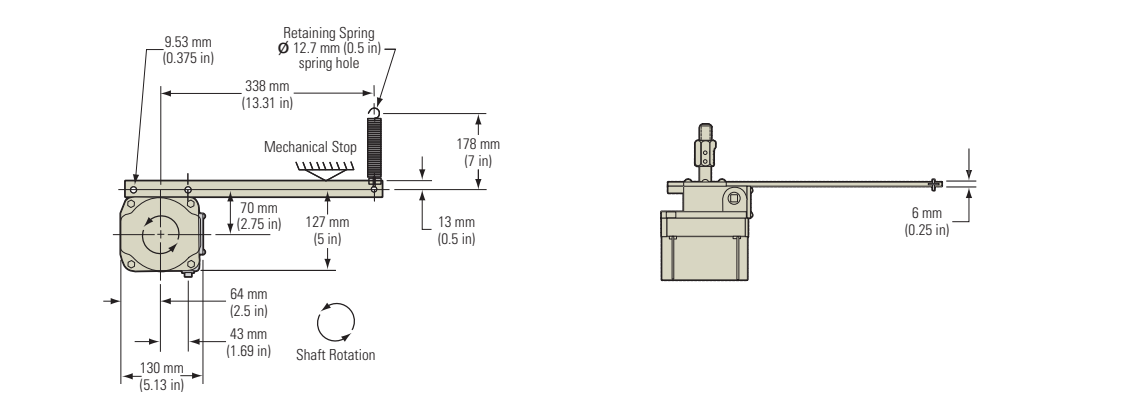
Ramsey Series 17 Belt Scale System — Variable Belt Width Dimensions

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) 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) 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) Storage: -30ºC to +70ºC (-22ºF to +158ºF)
Power Requirements	Field mount 100-240 VAC, 50/60 Hz 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)

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