

Thermo Scientific Ramsey Series 20

Belt scale system for conveyor weighing of bulk materials

For Demanding Industrial Environments

The Thermo Scientific™ Ramsey™ Series 20 belt scale system monitors feed to crushers, mills, screens and other processes with an accuracy of $\pm 0.5\%$, even in the harshest applications. The Ramsey Series 20 lets you monitor production output and inventory, or regulate product loadout, while providing vital information for the effective management and efficient operation of your business.

Applications

- Crushing plants
- Chemical plants
- Asphalt plants
- Mines
- Cement mills
- Coal preparation plants
- Paper mills
- Gypsum mills
- Sand and gravel operations
- Coal-fired power plants
- Ore beneficiation processes
- Rail loadouts

Designed for general in-plant belt conveyor weighing applications in the most demanding industrial environments, the Ramsey Series 20 belt scale system lets you control feed rates to crushers, mills, screens and other processes with incredible accuracy. It can monitor production output and inventory, or control product loadout, while providing vital information for the management and operation of your business.

The Ramsey Series 20 belt scale combines the proven reliability and versatility of the following Thermo Scientific™ products: Ramsey™ 10-20 single idler or Ramsey™ 10-22 dual idler weighbridge and the Ramsey™ 61-12N belt speed sensor with the advanced electronics of the Ramsey™ Flex integrators.

For more information, see the product specification sheet on the Ramsey Flex integrators and digitizers.

Easy Installation

Easy to install, indoors or out, on fixed or portable conveyors, the rugged construction of the Ramsey Series 20 belt scale allows for installation in the harshest applications at a variety of locations.



Ramsey Series 10-20 Weighbridge

The Ramsey Series 10-20 weighbridge has a slim profile to minimize material build-up, has no moving or wearing parts and utilizes precision strain-gauge load cell(s) applied in tension to guarantee load cell alignment and accuracy.

Rigid and rugged, the weighbridges remain permanently aligned within the conveyor frame. This one-piece, drop-in style weighbridge is completely assembled at the factory and is quickly and easily installed and aligned properly on the conveyor. It is designed to provide additional stiffening and support to minimize conveyor deflection.

Both the single and the dual-idler models offer three-point suspension and employ trunnion-type, frictionless pivots. These sealed units are impervious to vibration, moisture and product build-up.

Ramsey Flex Scale Integrator

Ramsey Flex integrator provides the intelligence to the weighing system allowing accurate production monitoring, inventory tracking and controlled product load-out. Ramsey Flex integrators convert the input from the digitizer into material flow and total conveyed mass. A single Ramsey Flex integrator can manage the inputs from two scale digitizers, i.e. two individual scales.

Integrator options:



Field mount with touchscreen HMI
for at-line interaction



Panel mount with touchscreen HMI
for centralized operation from a control room



Blind without HMI
for a cost-efficient set-up for remote access or harsh environments

Ramsey Flex integrators come standard with a web-based interface allowing you to monitor and manage your belt scale system from your network PC.

Ramsey Flex Scale Digitizer

Ramsey Flex digitizers take the output signal from the weighbridge load cells and speed sensor to the electronic integrator, providing a more robust and reliable signal than standard junction boxes.



Single Digitizer
for one load cell/load cell pair input



Quad Digitizer
for four load cell/multiple load cell input

Ramsey 61-12N Belt Speed Sensor

The Thermo Scientific™ Ramsey™ 61-12N 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. Directly coupling the sensor to the conveyor tail pulley, snubbing roll, or a large diameter return roller ensures an accurate belt-travel readout. No wheels ride on the belt, which eliminates problems related to material build-up and slippage.

Performance Guarantee

On factory-approved installations, we warrant that the Ramsey Series 20 belt scale system will weigh and totalize to a value within $\pm 0.5\%$ of the test value when calibrated against a known test weight, chain, or our standard electronic calibration.

Specifications

Ramsey 10-20 Weighbridges	
Weigh Span	One or two idler suspension; Weigh spans from 762 mm to 1829 mm (30 in to 72 in)
Weigh bridge Design	Unitized assembly consisting of pivoted weigh platform and one support beam that spans the conveyor stringer; Rugged one-piece design stiffens scale's area of conveyor
Weigh bridge Construction	Mechanical steel tubing; Conveyor sizes 457 mm to 1829 mm (18 in to 72 in) or 400 mm to 2000 mm (15.75 in to 78.74 in) belt widths as standard
Clearance Requirements	Fits any standard conveyor; no space required above belt line.
Load Cell	Environmentally protected "S" type cell(s) Operation temperature -40°C to 93°C (-40°F to 200°F)
Ramsey Flex Integrator	
Enclosures	Stainless Steel 316, 1.6 mm enclosure Weight 5 kg Field mount with HMI, Field mount blind or panel mount Optional weather shield/sunshade IP66 rating (dust and watertight)
Temperature	Operating Temperature Integrator -30 °C to 55 °C (-22°F to 131°F) Storage Temperature Integrator -30 °C to 80 °C (-22°F to 176°F)
Electronics	Arm Cortex A7 792MHz Microprocessor Internal 32 GB Storage µSD Card Load Cell Sensor 24 Bit 100Hz Sigma Delta Screen 7 Inch (17.5 cm) WSVGA 1024x600 Colour 900Nits Capacitive Touch Screen-less version for harsh environments LED indicators for maintenance (internal) Real Time Clock Battery CR1220
Power Supply	24 VDC or 110-230 VAC 50/60 Hz, 15 W Wide voltage tolerance range (+-10%) Isolation/Circuit Breaker to be provided by installer
Inputs	Two 4-20 mA isolated current inputs Two 0-5 V voltage inputs Four optically isolated 24 V @12 mA digital inputs
Outputs	Two 4-20 mA isolated current outputs Two 0-5 V voltage outputs Four optically isolated 24 V @100 mA digital push pull outputs Two serial ports (RS232/RS485)
Bus Interfaces	MODBUS RTU, MODBUS TCP, ETHERNET I/P, PROFINET, PROFIBUS Supports Dual CANbus for Digitizers 10-1000m cable
Regulatory Marks	cCSAus, CE, ROHS

Ramsey Flex Digitizer	
Enclosures	Stainless steel 316, 1.6 mm enclosure Weight 2 kg Rear Mount IP66 (dust and watertight)
Temperature	Operating Temperature Digitizer -40 °C to 70 °C (-40 °F to 158 °F) Storage Temperature Digitizer -40 °C to 80 °C (-40 °F to 176 °F)
Power Supply	Via the integrator CANbus cable
Inputs	Load Cell Sensor 24 Bit 100 Hz Sigma Delta 100 measurements per second Single Digitizer has one load cell input Quad Digitizer has four load cell inputs Speed sensor / Opto pulse sensor input
Bus Interfaces	CANbus
Regulatory Marks	cCSAus, CE, ROHS

Ramsey 61-12N-64P Speed Sensor	
Type	Digital, brushless, 3-wire, 64 pulses per shaft revolution
Mounting	Direct to 15.88 mm (0.625 in) diameter stub shaft on tail pulley, bend pulley, or return roll Requires 3 conductor cable. See manual for details.
Speed	0-350 RPM
Housing	Weather-tight, epoxy finish, cast aluminium Supplied with coupling, restraint arm and restraint spring
Operating Temperature	-40 °C to 80 °C (-40 °F to 176 °F)
Weight	3.6 kg (8 lb)
Regulatory Marks	cCSAus, CE, ROHS

Find out more at thermofisher.com/bulkweighing