

# Thermo Scientific Ramsey Series 30

## Belt scale system for conveyor weighing of bulk materials

### Economy and Reliability

The Thermo Scientific™ Ramsey™ Series 10-30 belt scale system is ideally suited for applications in processes involving either non-critical or lower value materials. It provides basic rate and totalization functions which can be used for process control and/or production output monitoring. It is specifically designed for operations where economy and ease of installation are important considerations.

The Series 30 combines the proven reliability of the Thermo Scientific™ Ramsey 10-30 weighbridge and Thermo Scientific™ Ramsey™ 61-12 speed sensor with the Thermo Scientific™ Ramsey™ Flex integrator and digitizer.

### Standard System Accuracy

The 10-30 belt scale system will weigh and totalize to a value within  $\pm 1\%$  of test value when calibrated against a known test weight, chain or standard electronic calibration. The test rate must be between 33% and 100% of the scale systems calibrated capacity. Test duration is defined as at least three circuits or revolutions of the belt, at least 1,000 counts on the master totalizer and at least ten minutes running time.

### Operation

The Ramsey 10-30 scale system consists of three major elements: the single-idler 10-30 weighbridge, the belt speed sensor and the electronics. The weighbridge assembly is the primary weight sensor. Unitized and designed to drop into the conveyor's stringers, it supports the weigh idler and generates an electrical output proportional to the load on the conveyor belt.



## Thermo Scientific™ Ramsey™ Weighbridge Model 10-30

The 10-30 model is a low deflection, rigid and rugged weighbridge. It's available in single or dual load cell versions and includes the following features:

- Unitized, one-piece construction for easy drop-in installation
- Pivotless full-floating platform scale design
- Precision, hermetically sealed, strain gauge load cell(s)
- End clearance eliminates material jamming and build-up
- Accepts standard conveyor idler and fits any standard conveyor

## Thermo Scientific™ Ramsey™ 61-12 Speed Sensor

The Ramsey 61-12 digital belt speed sensor is the most reliable and accurate speed-sensing device ever developed for belt scale service. Direct coupling the sensor to the conveyor tail pulley, snubbing roll, or the large diameter lagged return roller assures an accurate belt-travel read-out. Each pulse represents a unit of belt travel with the frequency of the pulse stream proportional to the belt speed. This speed sensor does not touch the belt eliminating problems related to material build up and slippage.

## Thermo Scientific™ Ramsey™ Flex Scale Integrator

The 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

## Specifications

Ramsey 10-30 Scale	
<b>Weigh Bridge Design</b>	Unitized, one-piece construction, pivotless, full-floating platform design
<b>Single Load Cell Version</b>	Designed for widths 381 to 914 mm (15 to 36 in) Net load 15.8 to 227 kg (35 to 500 lb)
<b>Dual Load Cell Version</b>	Designed for widths 635 to 1524 mm (25 to 60 in) Net load 29.5 to 907 kg (65 to 2000 lb)
<b>Load Cell</b>	Plat form type strain gauge with special span compensation, mounted in compression
<b>Load Cell Repeatability</b>	Within 0.1% of rated output
Ramsey Flex Integrator	
<b>Enclosures</b>	Stainless Steel 316, 1.6mm enclosure Weight 5 kg Field mount with HMI, Field mount blind or panel mount Optional weather shield/sunshade IP66 rating (dust and watertight)
<b>Temperature</b>	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)
<b>Electronics</b>	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
<b>Power Supply</b>	24 VDC or 110-230VAC 50/60 Hz, 15 W Wide voltage tolerance range (+-10%) Isolation/Circuit Breaker to be provided by installer
<b>Inputs</b>	Two 4-20mA isolated current inputs Two 0-5V voltage inputs Four optically isolated 24V @12mA digital inputs
<b>Outputs</b>	Two 4-20mA isolated current outputs Two 0-5V voltage outputs Four optically isolated 24V @100mA digital push pull outputs Two serial ports (RS232/RS485)
<b>Bus Interfaces</b>	MODBUS RTU, MODBUS TCP, ETHERNET I/P, PROFINET, PROFIBUS Supports Dual CANbus for Digitizers 10-1000m cable
<b>Regulatory Marks</b>	cCSAus, CE, ROHS

Ramsey Flex Digitizer	
<b>Enclosures</b>	Stainless steel 316, 1.6 mm enclosure Weight 2 kg Rear Mount IP66 (dust and watertight)
<b>Temperature</b>	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)
<b>Power Supply</b>	Via the integrator CANbus cable
<b>Inputs</b>	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
<b>Bus Interfaces</b>	CANbus
<b>Regulatory Marks</b>	cCSAus, CE, ROHS

Ramsey 61-12N-64P Speed Sensor	
<b>Type</b>	Digital, brushless, 3-wire, 64 pulses per shaft revolution
<b>Mounting</b>	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.
<b>Speed</b>	0-350 RPM
<b>Housing</b>	Weather-tight, epoxy finish, cast aluminium Supplied with coupling, restraint arm and restraint spring
<b>Operating Temperature</b>	-40 °C to 80 °C (-40 °F to 176 °F)
<b>Weight</b>	3.6 kg (8 lb)
<b>Regulatory Marks</b>	cCSAus, CE, ROHS

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