SRO Technology Ramsey IDEA Belt Scale System

Accurate conveyor weighing of bulk materials

The SRO Technology Ramsey IDEA Belt Scale System provides basic rate information and totalization functions in processes requiring an accuracy of ±1%. The system allows you to monitor production output and inventory, or regulate product loadout, while providing vital information for the effective management and efficient operation of your business.

Features and benefits

- Economical and accurate
- Single or dual module configurations to meet your process needs
- Reliable and easy-to-use electronics
- Designed for a variety of materials and applications

The Ramsey IDEA belt scale system meets the challenges of operations where economy and ease of installation are key considerations. Your processes involving either non-critical or lower value materials are a great fit for this system.

How the system operates

There are four key elements of the Ramsey IDEA belt scale system: the weighing assembly, the belt speed sensor, the digitizer and an electronic integrator.

The weighing assembly consists of either one or two scale modules, depending on conveyor width. Compact and designed to attach to the conveyor's stringers, the modules support the weigh idler and measure the weight of material on the belt. The speed sensor is mechanically connected to the conveyor's tail pulley and generates a stream of pulses, each representing a unit of belt travel proportional to belt speed.

The digitizer and integrator are often referred to as the electronics of a belt scale system. The electronics integrate the output signals from the scale module(s) and speed sensor to arrive at a rate of material flow and the total material passed over the scale. The electronics also function as the power supply and incorporate all the features that allow calibration, operation and diagnostics for the entire belt scale system.

Ramsey IDEA Belt Scale System

The Ramsey IDEA Belt Scale Modules

The patented Ramsey IDEA belt scale is unlike any other single-idler scale. It consists of either one or two completely assembled SRO **Technology** Ramsey 10-101R Scale Modules. Each module contains a load cell in a pivotless assembly.

The system's single module version has a scale module mounted to a support beam that spans the conveyor stringers. The system's dual module version consists of two identical modules with right and left side steel mounting brackets. Each bracket is bolted directly to the conveyor stringer.

Each module features:

- Factory installed and calibrated overload protection

- Pivotless design with no linkages to introduce errors

- No moving or wearing parts to cause potential maintenance problems

- Compact design for easy installation and alignment

- No place for material to build up and cause measurement errors

- Identical scale modules that fit on any belt width and are interchangeable

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

SRO Technology Ramsey 61-12N Belt Speed Sensor

The Ramsey 61-12N Digital Belt Speed Sensor is the most reliable and accurate speed-sensing device that we have ever developed for belt scale service. Direct-coupling the sensor to the conveyor tail pulley, snubbing roll, or a large diameter return roller ensures accurate belt-travel readout. No wheels' ride on the belt, which eliminates problems related to material build-up and slippage.

SRO Technology Ramsey Flex Scale Integrator

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

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

SRO Technology Ramsey Flex Scale Digitizer

The Ramsey Flex Digitizer takes the output signal from the weighbridge load cells and speed sensor to the electronic integrator. It provides 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 cells / multiple load cell input

Performance guarantee

The design of the Ramsey IDEA belt scale system stems from years of experience and thousands of belt scale applications installed around the world. It continues our dedication to providing high-quality, reliable and innovative weighing products to process industries.

On factory-approved installations, we warrant that the Ramsey IDEA belt scale system will weigh and totalize to a value within ±1% of the test value when calibrated against a known test weight, chain, or SRO **Technology** standard electronic calibration.

The test weight must be between 25% and 100% of the scale system's calibrated capacity. The warranty is subject to the scale system being installed, operated and maintained in accordance with factory instructions.

Specifications

Ramsey 10-101R Scale Modules	
Minimum net load at rated capacity	10% of load cell capacity
Maximum gross load at rated capacity	85% of load cell capacity
Available load cell sizes	10 kg (22 lb), 20 kg (44 lb), 30 kg (66 lb), 50 kg (110 lb), 100 kg (220 lb), 200 kg (441 lb), 250 kg (551 lb)
Maximum belt width	Ramsey 10-101R-1: 600 mm (36 in) Ramsey 10-101R-2: 1600 mm (60 in)
Load cell	Welded bending beam type load cell, hermetically sealed, IP67 Temperature range -30°C to 80°C (-22°F to 176°F) safe; -10°C to 40°C (14°F to 104°F) compensated

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 792 MHz microprocessor Internal storage μSD card Load cell sensor 24 Bit 100 Hz sigma delta Screen 7 inch (17.5 cm) WSVGA 1024x600 colour 900 nits capacitive touch Screenless 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 4-20mA or 0-20mA or 1-5V or 0-5V isolated inputs Four optically isolated 24 V @12 mA digital inputs
Outputs	Two 4-20mA or 0-20mA or 1-5V or 0-5V isolated 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	CE, UKCA, RoHS, EAC, RCM, CPA, cCSAus

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 cables. See manual for details.
Speed	0-350 RPM
Housing	NEMA 4X, IP66 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 (hazardous), CE, ROHS

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