

Accurate Conveyor Weighing of Bulk Materials

Thermo Ramsey



IDEA Belt Scale System

Thermo Ramsey's IDEA Belt Scale System ...

Economy, Ease of Installation, and THERMO RAMSEY Reliability.

It's an IDEA that's time has come.

Introduction

The IDEA Belt Scale continues Thermo Ramsey's longstanding tradition of providing high quality, reliable and innovative weighing products to the process industries. Its patented design is the result of Thermo Ramsey's experience in thousands of belt scale applications around the world.

The IDEA scale is specifically designed for operations where economy and ease of installation are important considerations. It 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 control and/or production output monitoring.

Standard System Accuracy

The IDEA 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 Thermo Ramsey's standard electronic calibration. The test rate must be between 33% 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 400 counts on the master totalizer and at least six minutes running time. Warranty subject to scale system being installed, operated and maintained in accordance with factory instructions.



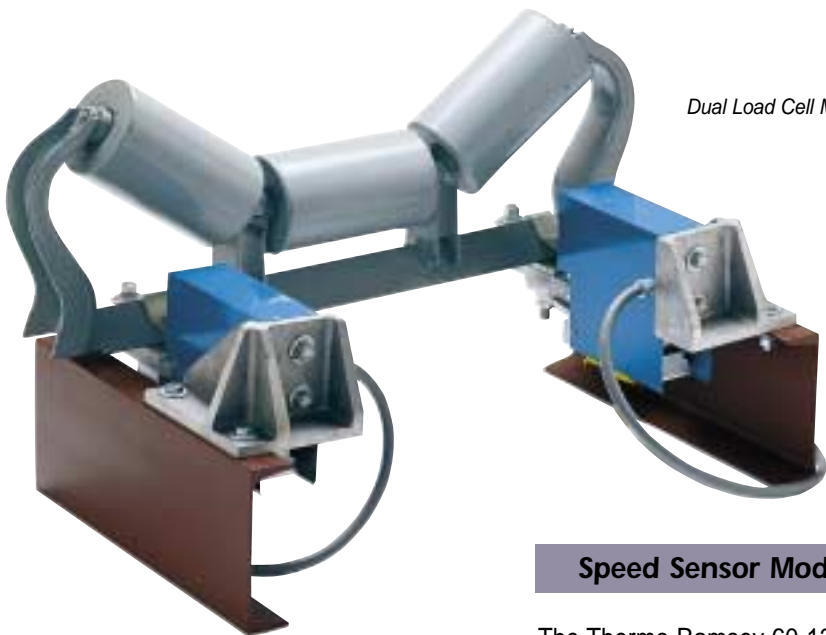
Operation

The IDEA belt scale system consists of three major elements: the weighing assembly, the belt speed sensor, and the Mini 11-101 Integrator.

The weighing assembly consists of either one or two modules, depending on conveyor width. Compact and designed to drop into the conveyor's stringers, the module(s) 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 or a large diameter idler, generating a stream of pulses. Each pulse represents a unit of belt travel. The frequency of the pulse stream is proportional to belt speed.

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



Dual Load Cell Model

Scale Module Model 10-101R

The patented IDEA scale is unlike any other single-idler scale. It consists of either one or two completely assembled scale modules. Each module contains a

load cell in a pivotless assembly with factory installed and calibrated overload protection.

Single Module Version - For use on conveyors with belt widths up to 36". The scale module mounts to a support beam that spans the conveyor stringers.

Dual Module Version - For use on conveyors with belt widths up to 60". The weighing assembly consists of two identical modules with right and left side steel mounting brackets. Each bracket mounts directly to the conveyor stringer with two bolts.

Each module features:

- Pivotless design with no linkages to introduce errors.
- Factory installed and calibrated overload protection.
- Compact design for easy installation and alignment.
- No moving parts, eliminating potential maintenance problems.
- No areas for material build-up that can cause measurement errors.
- Scale modules are identical and can be used on any belt width and easily moved from conveyor to conveyor.

Speed Sensor Module 60-12

The Thermo Ramsey 60-12 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 return roller assures an accurate belt-travel

readout. No wheels ride on the belt, eliminating problems related to material build-up and slippage.

- Rugged, cast-aluminum housing suitable for outdoor installation.
- Digital pulse generator - no brushes to adjust or replace.



Mini 11-101 Integrator

The Mini is a simple, low-cost, micro-processor-based integrator. It is easy to operate and has a simple, straightforward calibration procedure. The Mini provides basic information on Rate and Total and also has indicating LED's for Ready, Alarm Fail, Span Cal, Zero Cal, and Run.

The Mini comes standard with a 4-20 mA output and has an optional serial output for connection to a printer.

MicroTech 2001/2101

The IDEA scale is also available with the MicroTech 2000 Series Integrators. These integrators have expanded features and options to address more complex requirements.



Speed Sensor Model 60-12

SPECIFICATIONS

SCALE MODULE

Minimum Net Load @ Rated Capacity: 15% of Load
Cell Capacity

Maximum Gross Load @ Rated Capacity: 80% of Load
Cell Capacity

Available Load Cell Sizes: 20kg, 50Kg, 100Kg, 200Kg,
250Kg, 500Kg.

Maximum Belt Width: 10-101R-1: 36"

Maximum Belt Width: 10-101R-2: 60"

LOAD CELL

Load Cell: Welded bending beam type load cell

Load Cell Output: 2.0 mV/V, $\pm .1 \%$

Excitation: 10 VDC or VAC

Load Cell Rating: 3000d, meets OIML R60 & NIST HB-44

Temperature Range: Safe: -30 to +80 degrees C
Compensated: -10 to +40 degrees C

Overload: 150% of Rated Capacity

Input Impedance: 380 ohms ± 10

Output Impedance: 350 ohms ± 3

Environmental Protection: Hermetically Sealed, IP67

Load Cell Construction: Stainless Steel

Cable: 6 Conductor, Shielded, 22 AWG

SPEED SENSOR MODEL 60-12

Type: Digital, Brushless

Mounting: Direct to 5/8" diameter stub shaft on tail pulley,
bend pulley, or lagged return roll

Housing: Weather-tight

MINI 11-101 INTEGRATOR

Enclosure Field Mount

Dimensions:

Height: 11.81 in (300 mm)

Width: 9.84 in (250 mm)

Depth: 6.30 in (160 mm)

Material: Polyester

Weight: 8.8 lbs. (4 kg)

Protection: IP 65 (NEMA 4)

Environmental

Operating Temperature: Field mount version 14° to 122°F
(-10° to +50°C)

Storage Temperature: -4° to 158°F (-20° to +70°C)

Humidity (operating & stocking): <90% (without
condensation)

Power Requirements

Voltage: Standard - 110 or 220 VAC selectable, +10%-15%

Frequency: 50-60 Hz

Power: 15 VA

Protection: Fuse (internal)

Inputs and Outputs

Analog Inputs: Millivolt signal from load cell

Digital Inputs:

Quantity: 3

Type: Static, for dry contact or open collector

Insulation: Optical, 2500 Vrms (UL E67349)

Voltage: 14 VDC internal source

Current: 6 mA

Digital Outputs:

Quantity: 4

Type: Relay, Dry contact, N.O.

Insulation: Galvanic, 10000 M-ohm

Voltage: max 240 VAC, 48 VDC

Current: max 0.5 A

Analog Outputs:

Quantity: 1

Type: Selectable: 0-20 mA, 4-20 mA, 20-0 mA, 20-4 mA

Max Load: 500 ohm

Resolution: 12 bit (4096 divisions)

Linearity: 0.1 %

Insulation: Galvanic, 1500 Vrms

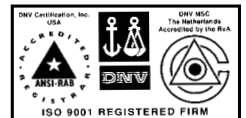
Communication Ports

Quantity: 1

Port #1: RS 232C (for printer use only)

Thermo Ramsey

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Certificate No.
99-HOU-AQ-8174

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