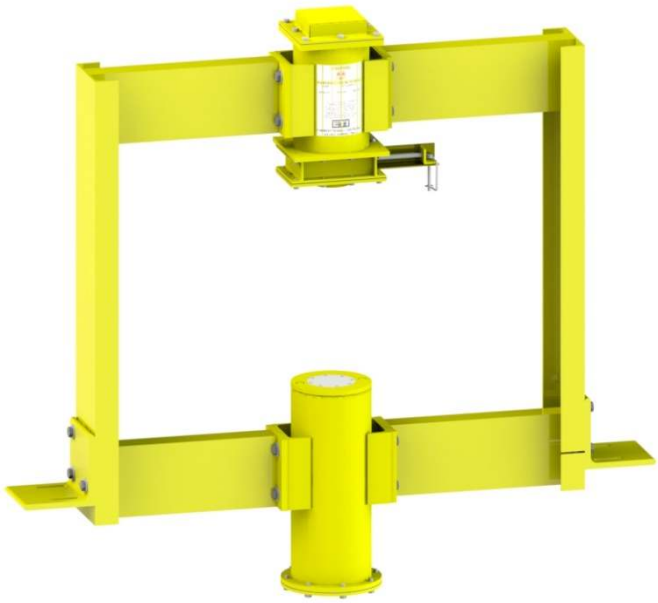
Energy Technologies Inc.

Model 500 Nuclear Belt Scale /Density Meter



The Model 500 Nuclear Belt Scale /Density Meter is a nuclear-based instrument which measures the weight or density of bulk material as it travels on a conveyor belt. The device contains no moving parts and does not come into contact with the material.

The measuring portion of the device which consists of a source and detector assembly, is mounted across a conveyor belt on the existing belt structure. It uses a single gamma source to irradiate the material as it passes on the belt, and a detector to measure the gamma attenuation caused by the material. The detector is connected to an electronics enclosure housing an industrial computer which processes the detector signals and provides the results to the operator, plant information system, and other equipment requiring weight inputs.

The instrument generates weight measurements every three seconds and sums the readings to produce values every minute. These values are made available to plant control systems through direct access to the system database or through analog outputs provided with the system.

- **Stand-alone operation**
  The Model 500 can be installed as a single unit, providing accurate weight measurements to other equipment and plant control systems.

- **PGNA Analyzer Integration**
  The Model 500 can be integrated with a PGNA Analyzer to provide the accurate weight readings required for elemental analysis. In its patented PGNAA configuration, this negates the need to maintain consistent belt-loading and belt speed. The device measures the weight of the material inside the analyzer at the time of analysis vs. the traditional method of providing values from mechanical devices at some other point in the process. This method of weight measurement and reporting provides highly accurate weight values for use in elemental weight/percent calculations.

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For more information on any of our products or services please visit us on the web at www.energytechinc.com.

SERVICES

ETI offers an flexible service contracts for all analyzer customers. Coverage includes radiation safety surveys, leak testing, calibration of all electronics and nucleonics, cleaning, and routine software/hardware maintenance

Technical Support
Installation and Setup
Maintenance
Application Support
Hardware Support
Guaranteed Warranty

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Design Features

Rugged Belt Mounted Analyzer
- Assembly is dustproof and waterproof
- Assembly bolts onto existing belt structure without modification
- Minimizes installation time and cost

Source Holder/Detector
- Gamma source is housed in a single shield
- Gamma rays are collimated into a fan beam to maximize material interrogation zone (approximately 160 times that of other units)

Auto-Standardization
- Automatic software compensation for electronic drift, source decay, and temperature variations performed every three seconds
- Ensures system precision and accuracy

Detector Temperature Control
- Eliminates drift due to ambient temperature variations
- Ensures system precision and accuracy

Advanced Data Acquisition and Control
- Intuitive and easy to use operator interface
- Graphical Displays
- Automatic Report Generation
- Automated Calibration
- Manual and Automatic control of process control devices (sort gate, feeder, etc.)
- Analog outputs for connection to other process equipment
- Digital outputs for alarms or process controls

Technical Specifications

Performance	
Accuracy	+/- 0.5. %
Response Time	3 seconds (typ)
Operational Material	
Material Top Size	0-6 in (0-152 mm) (typ), may accommodate 12 in (254 mm)
Material Depth	1-14 in (25-356 mm) depending on material density
System Inputs	
Belt Running	A pair of voltage free contacts indicating that the belt is running
System Outputs	
Analog	Four (4) isolated 0-20mA or 4-20 mA analog outputs
Digital	Four (4) 24 VDC digital outputs Four (4) 24 VDC digital inputs
Environmental Conditions	
Operating Temperature	Analyzer: -30˚-150˚F (-34-66˚C) Enclosure: 40˚-120˚F (5-40˚C)
Humidity	Analyzer: 0-100% Enclosure: 0-90%, non-condensing
Environment	Class II, Div.1 group F (G optionally available). All units are protected against dust and moisture (NEMA 4).
Electrical Requirements	
Power Requirement	120/240 VAC, 50/60 Hz, 3 KVA
Radiation Levels	
Surface	1.0 mREM/hr maximum radiation dose rate at all points on the surface of the equipment except in the direct beam.
Vicinity	Less than 0.1 mREM/hr maximum radiation rate at all points outside 3 ft. of the source housing.
Shipping Weight	
Weight	750 lbs (340 kg)
Options	Remote Readout / High-speed Gate / Belt Speed Switch