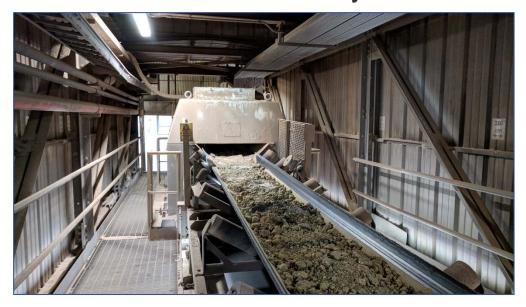


Energy Technologies Inc.

Cement

Model 730 FSEA Full Stream Elemental Analyzer



The ETI Model 730 Full Stream Analyzer is an Online Bulk Material Analyzer using prompt-gamma neutron activation analysis (PGNAA) and a Single-Gamma Density Gauge to determine the elemental composition of material as it passes through the device's analysis zone on a conveyor belt.

The FSEA uses no-contact non-destructive PGNAA technology to measure the elemental content of 100% of the material in real time while it is in motion on the conveyor. The device provides analytical data to operators and plant control systems on a minute-by-minute basis.

The analyzer's real-time measurement and reporting allows plant operators to react to and correct chemistry problems, enables quarry managers to build consistent stockpiles of material, and can generate reports on material quality for batches, stockpiles, or particular time periods.

Typically installed after the quarry crusher and before the Raw Mill, the FSEA allows operators to maintain tight control over cement chemistry before the raw material reaches the kiln. Analyzer data is used by automated plant systems to control additive feeders, thereby maintaining proper chemistry. The analyzer is critical in controlling the quality and consistency of the clinker product.

The FSEA calculates the phase composition proportions of Alite (C_3S), Belite (C_2S), Tricalcium Aluminate (C_3A), and Tetracalcium Aluminoferrite (C_4AF). It provides C_3C_3 , Loss On Ignition (LOI), Lime Saturation Factor (LSF), Silica Ratio (SR), and Alumina Ratio (AR) values, and it directly measures and reports the analytes listed below.

- SiO₂
- K₂O
- Al₂O₃
- Na₂O
- Fe₂O₃
- TiO₂
- CaO
- 1102
- MgO
- MnO₂
- SO₃
- H₂OCI

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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

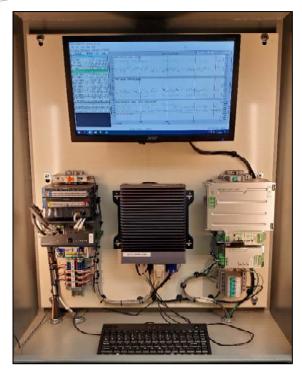
Installation and Setup
Maintenance
Application Support
Hardware Support

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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 and Neutron sources are housed in a protective 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 alarm or sort control

Technical Specifications

Performance	
Accuracy	0.3-1.0 wt. % (typ) for washed or raw materials
Response Time	60 seconds (typ)
Operational Material	
Material Top Size	24-60 in (600-1525 mm) (typ), inclination same as belt limitation
Material Depth	4-16 in (100-406 mm) depending on material density
System Inputs	, , ,
Belt Running	A pair of voltage free contacts indicating that the belt is running
System Outputs	
Analog	Eight (8) isolated 0-20mA or 4-20 mA analog outputs
Digital	Four (4) 24 VDC digital outputs
2.9	Four (4) 24 VDC digital inputs
Environmental Conditions	. ou. (1) = 1 1 2 0 alg.tat in part
Operating Temperature	Analyzer: -22°-122°F (-30-50°C)
oporating remperature	Enclosure: 40°-120°F (5-40°C)
Humidity	Analyzer: 0-100%
Training	Enclosure: 0-90%, non-condensing
Environment	Class II, Div.1 group F (G optionally available). All units are protected
LITATION TO THE TOTAL THE TOTAL TO THE TOTAL THE TOTAL TO THE TOTAL TH	against dust and moisture (NEMA 4).
Electrical Requirements	against dust and moistare (NEMA +).
Power Requirement	120/240 VAC, 50/60 Hz, 3 KVA
Radiation Levels	120/240 VAO, 30/00 HZ, 3 KVA
Surface	1.0 mREM/hr maximum radiation dose rate at all points on the surface
Surface	
Vicinity	of the equipment except in the direct beam.
Vicinity	Less than 0.1 mREM/hr maximum radiation rate at all points outside 3 ft.
Chinning Waight	of the source housing.
Shipping Weight	14 200 lba (6 500 kg)
Weight	14,300 lbs (6,500 kg)