

 **GAMMA**SCAN

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DUO

Coal calorific value analyser

The world's most advanced analysis of ash, moisture and calorific value, delivering higher yields, increased returns, and lower costs for your operation

- World-best analyser innovation
- Simple, intuitive calibration
- Lowest cost of operation in the market
- Maximise output, minimise downtime and costs
- Shore up site and resource sustainability

Cutting-edge technology for improved yield and productivity for your operation

The GammaScan and GammaScanDUO bring together world-best innovation and the smartest technology to deliver the most advanced coal ash analyser, and combined coal ash and moisture analysers, in the world today.

FEATURES AND BENEFITS

GammaScanDuo™ provides instantaneous, continuous, on-belt ash, moisture and CV data for real-time control.

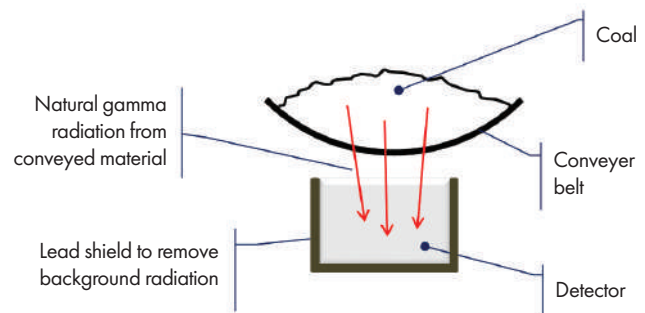
- **Rapid return on investment** through reduced laboratory analysis, and optimisation of plant operation in real time
- **No lead over-shield required!**
- Suited for **all coal types**
- **No maximum bed depth**
- **Rugged** - designed for harsh environments - mine, washplant, powerplant
- Non-contact technique - **no wear components**
- Low ongoing maintenance
- **SAFE: no radioactive sources used;** uses the natural radioactivity of the coal
- **3G interface** for comprehensive remote diagnostics by RTI engineers, independent of client IT infrastructure

WORKING PRINCIPLE

The GammaScanDuo™ analyser is an on-line “natural gamma and low level microwave” CV (calorific value) measurement system which is easily installed on conveyor belts. The system does not contain any nucleonic sources and therefore does not require a radiation licence for its use.

The GammaScanDuo™ measures moisture and the low levels of naturally occurring gamma radiation in the coal being transported on a conveyor. This radiation mainly arises from elements like U, K, and Th which are naturally present in coal. The amount of these elements present has been shown to correlate well with the amount of the main ash forming elements (Si, Fe, Al, Ca) and so the gamma count rate correlates to ash content.

By combining the ash measurement with moisture, tonnage and the DAFV (dry ash free value) of the coal CV can accurately be determined.



Easy menu driven touchscreen HMI for all setup, calibration, and results

- No laptop connection required
- Very easy setup virtually eliminates “set up error” - a major reason for poor performance in other analysers
- All standard communications protocols supported. *Seamless, hassle-free plant integration.*

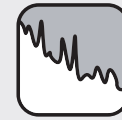


This means cleaner, more sustainable and cost-effective outcomes for your operations.



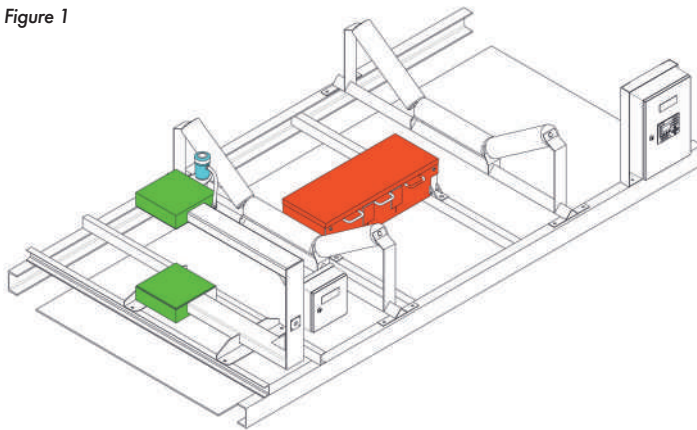
The **GammaScanDuo™** incorporates a large scintillation detector, which is mounted between conveyor idlers directly under the centre line of the belt (See Figure 1). This detector is shielded from background radiation by a lead lining within the detector assembly, and with the New Generation GammaScan there is no need for the costly lead over-shield.

The New Generation GammaScan uses an advanced algorithm which takes into account site environmental conditions, including cosmic radiation and sky shine, thus eliminating the need for an over-shield. The analyser also includes microwave antenna and an ultrasonic bed depth sensor supported by a c-frame which is normally located between the idlers adjacent to the gamma detector.



Advanced **Dura-G®** technology allows significant improvement in performance, simplified calibration and eliminates the need for the over belt lead shield.

Figure 1



Measurements of ash, moisture and tonnage combine to derive coal CV

- a large gamma ray detector measures the amount of ash.
- a microwave signal measures the amount of moisture.
- an ultrasonic level sensor calculates tonnage. Alternatively an input from a weightometer can be used.

GammaScanDuo™ provides accurate real-time information for continuous quality monitoring and allows control-room operators to optimise the plants process.



Zero radiation - **GammaScanDuo™** does not require a radioactive source





GAMMASCAN



GAMMASCAN DUO

SPECIFICATIONS

Operational

Principle of Operation	Natural Gamma - microwave transmission.
Radioactive Sources	None.
Conveyor width	From 1200mm upwards, no maximum limit. (Belts less than 1200mm accommodated depending on application).
Belt Speed	No limit.
Bed Depth Range	Minimum belt loading to achieve acceptable results is 110 kg/meter.
Ash Range	0 – 100%.
Moisture Range	0-65%.

Environmental

Humidity	5% - 95% RH non condensing.
Operating temperature	-20 - 55°C.
IP Protection Rating	IP66 stainless steel. Optional sunshade for control cabinet.

Control and Communications

At-Instrument Control	Touchscreen HMI, no laptop connection required. HMI provides access to all functions via a simple menu structure. Includes diagnostics, setup, calibration, instantaneous ash, moisture and CV readout, trend data in graphical and tabular format.
Outputs (Standard)	4-20mA instantaneous ash/moisture/CV (user defined). 4-20mA tons-weighted ash/moisture/CV (user defined). High and low ash/moisture/CV alarm relay, output via serial communications only. GammaScan can be supplied with any standard communication protocol such as ethernet, Modbus, and others.
Inputs (Standard)	Conveyer running (digital). Material available (digital). Tons weighted reset (digital). Tons per hour (analogue).
Remote 3G Diagnostics and data access	3G modem supplied standard. Access is via a secure web page and allows complete diagnostics by RTI engineers.

Utility Requirements

Power	110-240 VAC 50/60Hz single phase, 300W
Communications Cabling	Standard cabling depending on choice of protocol (no specialised cabling required)

Performance

Ash	typically ± 1.0% (1SD) application dependant
Moisture Range	typically ± 1.0% (1SD) application dependant
Calorific Value	typically ± 1.5% (1SD) application dependant

LOCATIONS

AMERICAS | ASIA | EUROPE | OCEANIA | AFRICA | MIDDLE EAST

GLOBAL HEADQUARTERS

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