



Continuous real-time analysis of ash, moisture and calorific value in coal.

- ▶ Real-time data means REAL control
- ▶ Reliable, accurate data
- ▶ Low cost of ownership
- ▶ Reduced analysis costs

GammaScanDuo® brings a rapid return on investment.

GammaScanDuo™ Online Coal CV Analyser

a division of



GammaScanDuo™ data gives greater control and drives decisions

Laboratory analysis only provides either a “snapshot” or an “average” of coal quality, it does not show the actual variations...

... and by the time the laboratory results are available, thousands of tons of material have already been conveyed.

GammaScanDuo™ provides real time data that can then immediately drive decisions at the mine, in the washplant, and at the power plant.

Is GammaScanDuo™ the best choice for my application?

RTI manufacture a range of Online Analysers to cover all operational needs, including the **AshScan®** Online Analyser, **AshScan®** Duo Ash + Moisture Analyser, and the **AllScan®** Elemental Analyser. The right choice depends on your application, so contact us now to discuss your Ash Analysis needs.



Zero Radiation -
GammaScanDuo™
does not require a
radioactive source



*GammaScanDuo™
provides
instantaneous,
continuous,
on-belt Ash, Moisture
and CV data for
real-time control*

Features and Benefits.

GammaScanDuo™ provides instantaneous, continuous, on-belt CV-in-coal data for real-time process control.

- ▶ **Rapid Return on Investment** through reduced laboratory analysis, and optimisation of plant operation in real time
- ▶ 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
- ▶ 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*



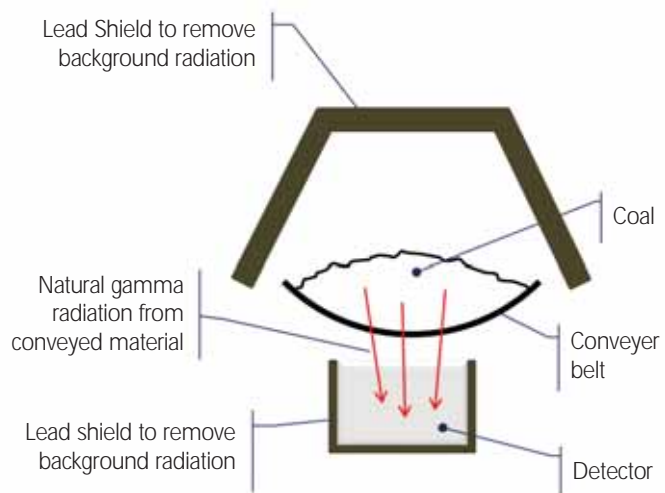
GammaScanDuo™'s many practical design features make it by far the simplest Online Coal Ash, Moisture and CV to install, calibrate and operate.

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.

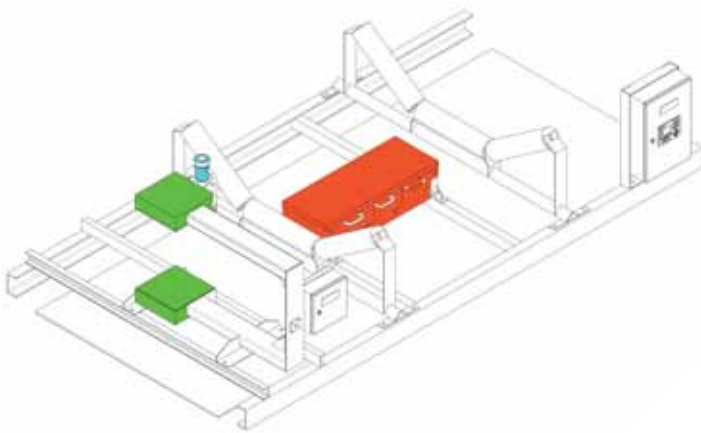
The **GammaScanDuo™** measures moisture and the low levels of naturally occurring gamma radiation in the coal being transported on a conveyor. This radiation mainly arises from elements like U, K, and Th which are naturally present in coal. The amount of these elements present has been shown to correlate 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.



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

• Figure 1

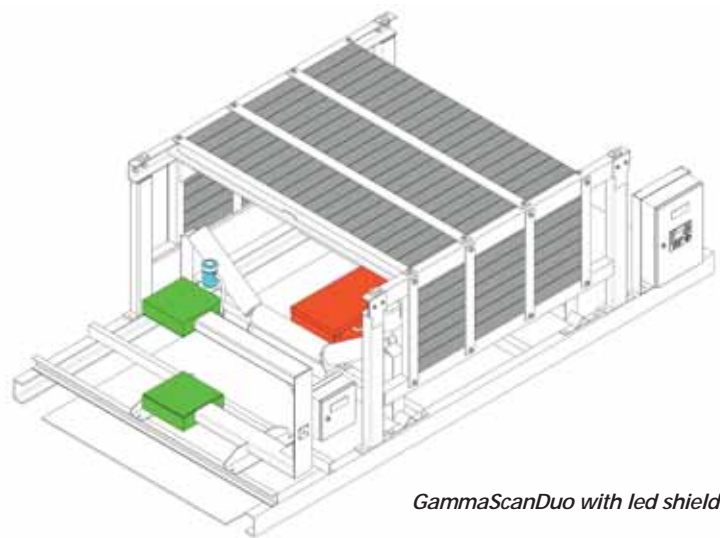


Measurements of ash, moisture and tonnage combine to derive coal CV

- 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.

The detector is shielded from background radiation by a lead lining within the detector assembly, as well as an over belt lead shield

• Figure 2



GammaScanDuo with lead shielding

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, as well as an over belt lead shield (see Figure 2). 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.



Ease of Operation.

- ▶ 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



Specifications.



Operational

Principle of Operation	Natural Gamma - Microwave Transmission
Radioactive Sources	None
Conveyer Width	From 1200mm upwards, no Maximum limit. (Belts less than 1200mm accommodated depending on application)
Belt Speed	No Limit
Bed Depth Range	> 50mm. No maximum bed depth
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 (user defined) 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) Optional Tons pulse input (digital)
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, 800W
Communications Cabling	Standard cabling depending on choice of protocol (no specialised cabling required)

Performance

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



Realtime

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*solutions
for today
and tomorrow*



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