



Continuous real-time analysis of all coal, not just a sample.

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

GammaScan<sup>®</sup> brings a rapid return on investment.

## GammaScan<sup>®</sup> Online Coal Ash Analyser

a division of



## GammaScan® 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.

**GammaScan®** provides real time data that can then immediately drive decisions (such as bypass or wash coal) and directly save money.

## Is GammaScan® the best choice for my application?

RTI manufacture a range of Ash Analysers to cover all operational needs, including the **AshScan®** Ash 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.



*GammaScan on Coarse Reject Belt*





*GammaScan®  
provides  
instantaneous,  
continuous,  
on-belt  
Ash-in-coal data  
for real-time  
control of plant  
operations.*

## Features and Benefits.

GammaScan® provides instantaneous, continuous, on-belt Ash-in-coal data for real-time control of plant operations.

- ▶ **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;** ideal for ROM and TLO
- ▶ **Rugged** - unit sits entirely beneath the belt, no damage from overburden
- ▶ 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. *RTI engineers can remotely calibrate the GammaScan® for you*
- ▶ 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*



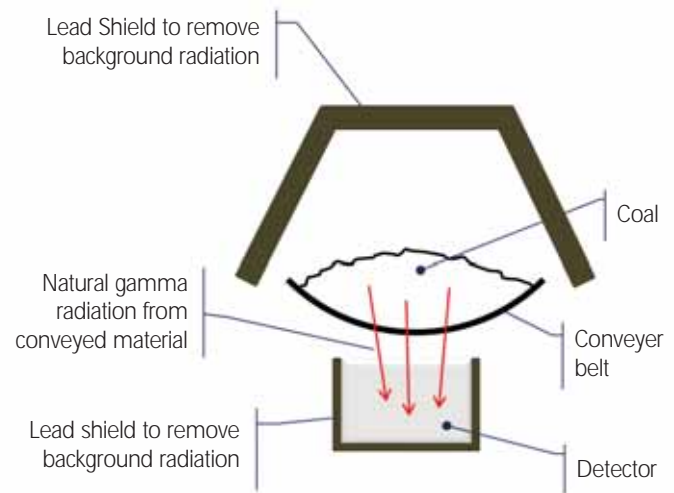
GammaScan on Train Load Out Belt

**GammaScan®'s** many practical design features make it by far the simplest Online Ash Analyser to install, calibrate and operate.

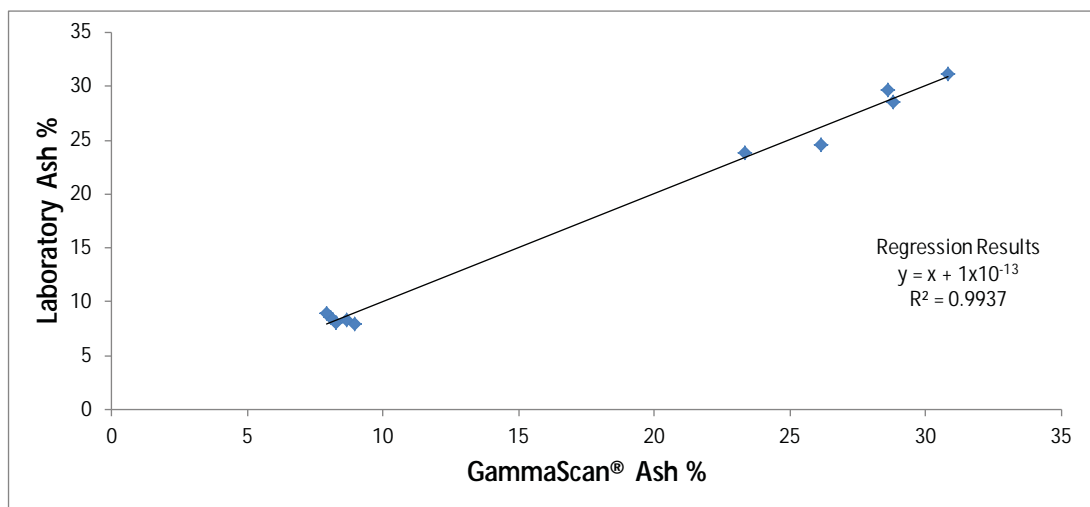
## Working Principle.

The **GammaScan**<sup>®</sup> Analyser is an on-line "natural gamma" ash monitoring system which is easily installed directly under conveyor belts. The system does not contain any nucleonic sources and therefore does not require a radiation licence for its use.

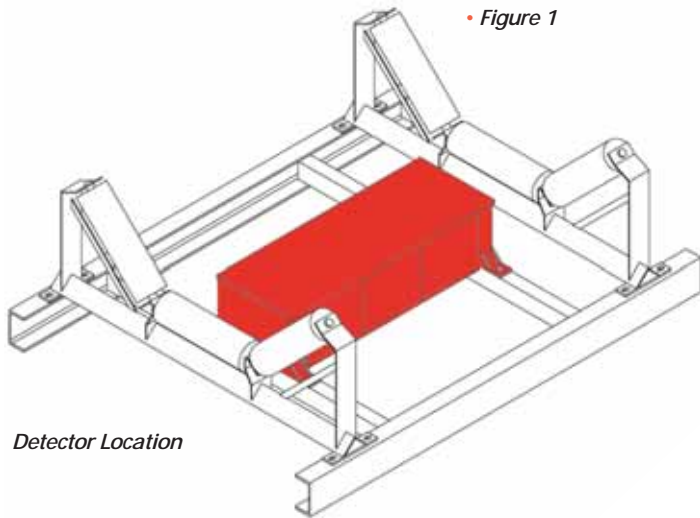
The **GammaScan**<sup>®</sup> measures the low levels of naturally occurring gamma radiation in the coal being transported on a conveyor. This radiation mainly arises from elements like U, K, and Th which are naturally present in coal. The amount of these elements present has been shown to correlate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



*GammaScan*<sup>®</sup> provides accurate real-time information for continuous quality monitoring and allows control-room operators to optimise the plants process.



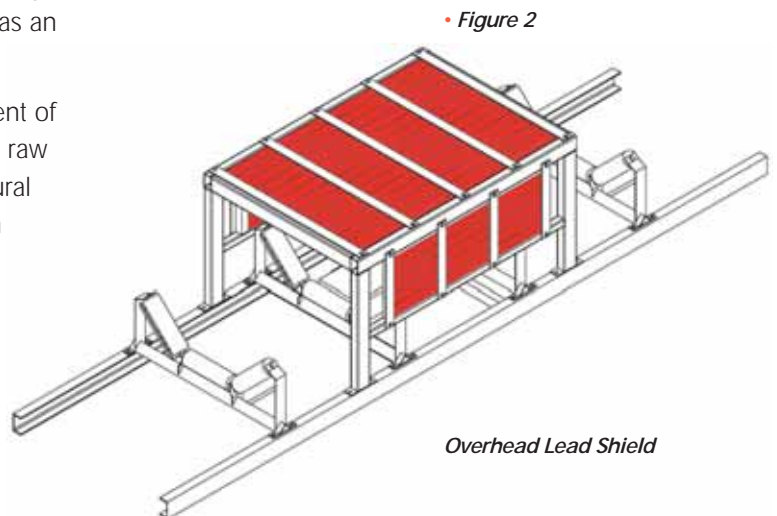




The detector is shielded from background radiation by a lead lining within the detector assembly, as well as an over belt lead shield

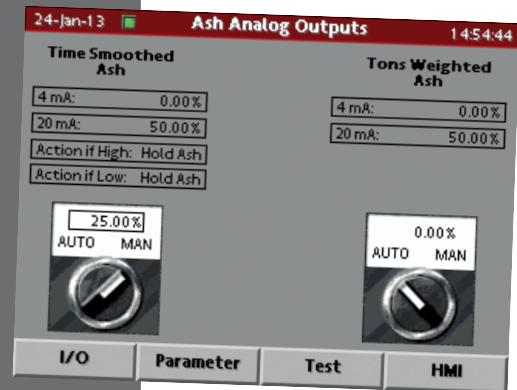
The **GammaScan®** incorporates a large scintillation detector, which is mounted between conveyor idlers directly under the centre line of the belt (See Figure 1). This detector is shielded from background radiation by a lead lining within the detector assembly, as well as an over belt lead shield (see Figure 2).

This technology is ideally suited to the measurement of ash in applications with thick coal beds such as on raw coal conveyors and plant feed conveyors. The natural gamma technology is the only technology that can measure bed depths that are very thick.



## 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"   |
| 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        | Best suited to > 200mm. No maximum bed depth  |
| Ash Range              | 0 – 100%  |
| Weight                 | Detector assembly typically 650kg<br>Overshield weight typically 2t – 4t, depending on belt width   |
| Measurement Time       | Continuous instantaneous readout of rolling average over "x" seconds, where "x" is typically 60, but adjustable up/down for higher precision or faster response, respectively |

### Expected Precision

(Note: precision is not affected by steel cord belts)

|     |   |
|-----|---|
| Ash | typically $\pm 1.0\%$ (1SD) dependant on range. |
|-----|---|

### Environmental

|                       |   |
|-----------------------|---|
| Humidity              | 5% – 95% RH non condensing                                  |
| Operating Temperature | 0 – 45°C  |
| IP Protection Rating  | IP66 Stainless steel. Optional Sunshade for Control Cabinet |

### Control and Communications

|                                       |   |
|---------------------------------------|---|
| At-Instrument Control                 | Touchscreen HMI, no laptop connection required.<br>HMI provides access to all functions via a simple menu structure. Includes diagnostics, setup, calibration, instantaneous Ash readout, Ash trend data in graphical and tabular format. |
| Outputs (Standard)                    | 4-20mA Instantaneous Ash<br>4-20mA Tons-weighted Ash<br>High and Low Ash Alarm Relay<br>GammaScan can be supplied with any standard communication protocol such as Ethernet, Modbus, and others   |
| Inputs (Standard)                     | Conveyer Running (digital)<br>Material available (digital)<br>Tons weighted reset (digital)<br>Tons per hour (analogue)<br>Optional Tons pulse input (digital)  |
| Remote 3G Diagnostics and data access | 3G modem supplied standard.<br>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<br>(no specialised cabling required) |



Realtime

Group Limited

*solutions  
for today  
and tomorrow*



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