

# CIFA 350

## Carbon In Fly Ash Analyser



### CIFA 350 Applications

Real time measurement of unburnt Carbon in fly ash provides active process control in coal burning power stations. The CIFA 350 with online measurement of unburnt carbon in fly ash permits:

- Reduced carbon dioxide emissions per unit of electricity due to more efficient boiler operation.
- Immediate adjustment in boiler operation when variation in unburnt carbon in fly ash occurs.
- Improved boiler efficiency, especially when feed coal quality is variable.
- Improved fly ash quality – lower unburnt carbon is beneficial for end users of fly ash, such as the cement industry.

### CIFA 350 Advantages

The Scantech CIFA 350 offers a number of technical advantages over other methods of measuring unburnt carbon in fly ash. The measurement method uses patented microwave resonant cavity technique. The electronics and fly ash handling system have been designed to provide the following advantages:

- New microwave technology allows a very precise and stable measurement of the microwave cavity resonance. This allows a density compensated unburnt carbon measurement to be made. Density compensation allows improved accuracy for low unburnt carbon fly ash. It also allows improved accuracy where multiple coal types are fed to the boiler.
- An effective method of vibrating the sample tube eliminates build up and blockage in the sample tube.
- A powerful purge air heating system ensures that the purge air is heated to above 100 degrees Centigrade at all times. This ensures that moisture condensation can never occur in the fly ash pathway.
- A sampling valve and collection canister can be fitted to collect fly ash sample for laboratory analysis when required. When not required it can be removed for safe keeping.
- A single sampling valve and canister can be shared amongst several CIFA 350 analysers if simultaneous sampling is not required.
- Control of the CIFA 350 analysers is centralised in a control cabinet which can be located up to 1km away in a control room or switch room.
- Up to 16 CIFA 350 analysers can be connected to a single control cabinet.
- Low maintenance requirement. Routine maintenance is limited to replacement of the sample tube and pinch valve tube. This can be accomplished in less than 30 minutes. Typical life of these components is three to six months.

# CIFA 350

## CIFA 350 Operation

The CIFA 350 provides on-line analysis of carbon in fly ash. A stream of hot gas containing fly ash is sampled from the boiler duct by an isokinetic sampling system (such as the Cegrit™ sampler). The fly ash is separated from the hot gas by a cyclone. The fly ash falls vertically down a tube into the CIFA measurement module. When the required quantity of fly ash has been collected the sample is analysed and is then purged back into the duct by a stream of preheated compressed air. Collection of the next sample then begins.

## CIFA 350 Plant Interface

The Analyser Control Module utilises industrial grade hardware and user friendly software. Options include:

- Various plant interface types;
- Remote connection.

## Scantech's Analysers

Scantech provides the recycling, energy, mining, coal, steel and cement sectors with analysers for a wide range of applications and environments. Scantech can deliver online solutions that suit your process, reduce your operating costs and minimise Health, Safety and Environmental risks for your operations. Whether you need to monitor moisture, ash, sulphur, mineral or energy content we have the right application for your needs and budget. Real time analysis during the various

The complete analysis cycle typically takes 3 to 5 minutes. At the conclusion of analysis a new percent carbon result is produced. An optional sampling valve allows the sample of fly ash to be saved in a sample canister rather than ejected back into the duct. The saved sample may be sent for laboratory analysis to check the calibration of the CIFA 350. Calculation of results and interfacing to the plant is provided from the CIFA 350 control cabinet which is located in a control room or switch room.

In addition, a hard-wired interface is available where control signals are supplied by contact closures and results are provided on 4–20 mA current loops.

phases of production provides operators with significant opportunities for plant optimisation and quality control. Over the past three decades, Scantech analysers have become a standard process control tool in the resources and recycling sectors. Scantech analysers are a fundamental component of companies' digital technology strategies utilising real time measurement systems to enable core processes to become fully integrated, autonomous, remote and automated.



Scantech Products have  
Patented Technology &  
Registered Trademarks

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## Scantech Products

- **GEOSCAN-M On-belt Elemental Analyser for Minerals**
- **IRONSCAN 1500 On-belt Natural Gamma Iron Ore Analyser**
- **MINERALSCAN 1500 On-belt Natural Gamma Minerals Analyser**
- **CM100 On-belt Conductive Material Moisture Analyser**
  
- **GEOSCAN-R On-belt Elemental Analyser for Recycling**
- **TBM 280 Through Bale Moisture Monitor**
  
- **BALZSCAN 9500X On-belt Elemental Analyser for Alternative Fuels**
- **BALZSCAN 2100 On-belt Ash Analyser for Alternative Fuels**
- **TBM 280 BaleScan Through Bale Moisture Monitor for Alternative Fuels**
  
- **GEOSCAN-C On-belt Elemental Analyser for Cement**
- **BLENDSCAN Process Control for the Cement Industry**
- **TBM 260 ReadMoist Through Bin Moisture Analyser for Concrete**
  
- **GEOSCAN-S On-belt Elemental Analyser for Steel**
- **CM 100-S On-belt Conductive Material Moisture Analyser**
  
- **COALSCAN 9500X On-belt Elemental Analyser for Coal**
- **COALSCAN 1500 On-belt Natural Gamma Ash Analyser**
- **COALSCAN 2100 On-belt Ash Analyser**
- **CIFA 350 Carbon in Fly Ash Analyser**
  
- **TBM 210/220/230/240 Through Belt Moisture Analysers**
- **TBM 260 Through Bin Moisture Analyser**
- **SIZESCAN Particle Size Distribution Analyser**