

# IMA FCA

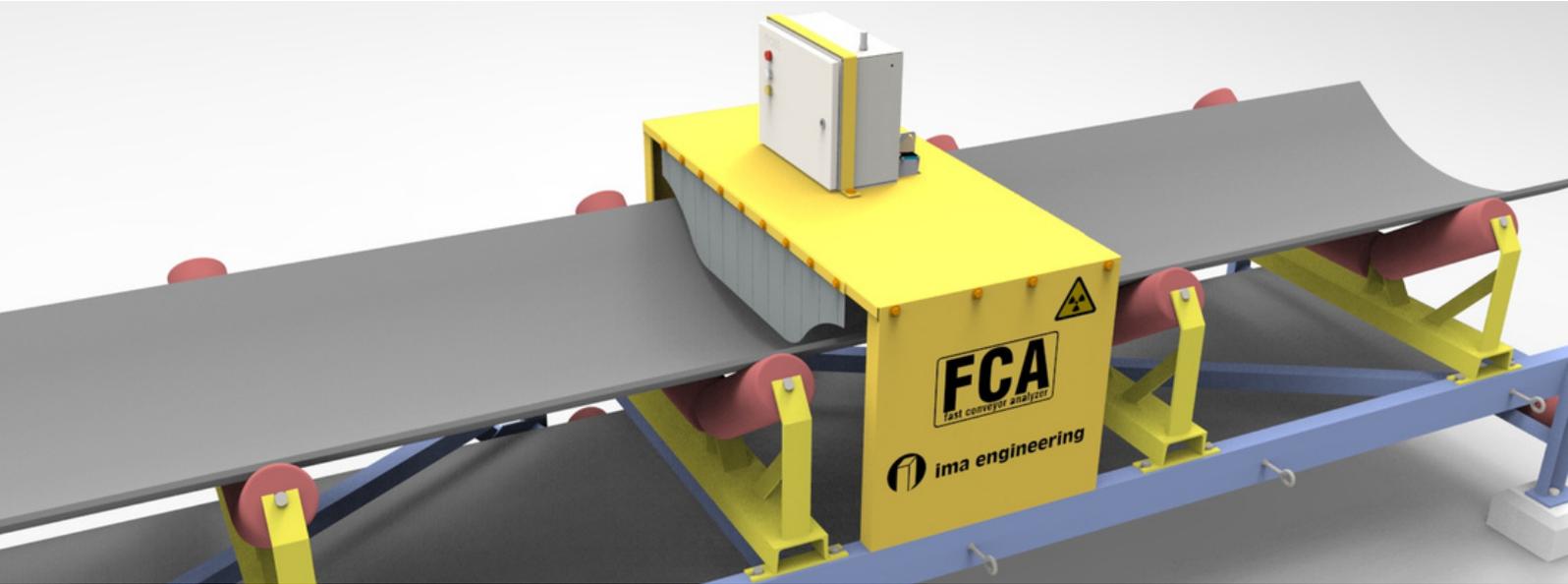
Fast Conveyor Analyzer

For on-line ore analysis



# IMA Fast Conveyor Analyzer (FCA)

The IMA FCA Sensor provides real-time data of ore grade, from any conveyor belt, using continuous XRF non-contact elemental analysis. No need to take the samples to the lab. Keep Ore Grade to the mill consistent, no matter how complicated ore bodies are.



## BENEFITS

### FCA brings the real ore grades data

- Average grade at every 10-second intervals. Results are giving in desired and practical time averages depending on the application.
- Analyzing several elements simultaneously
- Ore analysis can be pinpointed to grade location in the Muck pile.
- FCA data combined with crusher, and lump size data analyzing mill throughput.
- FCA data combined with IMACON slurry analysis

### React to the grade, in real-time

- By feeding forward advanced information of ore quality before it enters further processing and concentrator.
- By feeding back information on ore quality for mining Grade Control, Reconciliation, and QA/QC (Quality Assurance and Quality Control)
- Controlling Loading from Muck pile based on the instant analysis of truckloads (with ID) from crusher
- To increase the mill head grade and recovery by separating ore and waste rock, and different qualities of ore, and separating acid-forming waste rock from sterile waste by Bulk Ore Sorting

# Ore grades vary much more than is commonly understood



Example of ore grade variation after primary crusher using 30 second analysis time

**Ease of installation:** above any belt conveyor, regardless of the conveyor width, or speed limitations. Simple installation rack on top of the conveyor. No belt cuts, nor other conveyor modifications. The installation time on the belt requires 2-4 hours of belt stoppage.

**Ease of calibration:** The FCA is initially calibrated off the belt at the site for each ore type by using a total 20-30 pcs of each 10-20kg "as is" ore samples of low, medium, and high grade. *No labor-intensive and time-consuming belt-cut samples are needed.* Initial calibration takes one day with QA/QC off belt calibration checks twice a year.

**Radiation safety:** There are no radioactive sources in the FCA. This is an XRF analyzer and it only needs permission to operate like any laboratory XRF unit. The radiation level is below 1 micro Sievert, so it is safe to work around it.





**Ease of service and remote support:** The FCA is not in contact with the analyzed material and has no wearing parts. It requires periodical checkups and service 2-4 times per year. The FCA has a real-time remote 24/7 online secure connection with the mine control center and with IMA Remote Services. The FCA has an inbuilt reference sample, and when measuring it FCA will calibrate itself against any drift or decay of the XRF instrument.

**Sensitivity of analyzed material:** FCA has no limitations for the material size and material size distribution. In the typical primary crusher application, the ore size on the conveyor belt is 0-400mm and the bed thickness on the belt varies constantly. Ore bed thickness variation or empty belt situation on conveyor does not affect the analysis results. FCA gives results as the grade of dry material, and it needs no moisture compensation of the ore.

## The combination of IMA's FCA and IMACON Slurry analyzers takes your on-line ore sampling and analysis to the next level

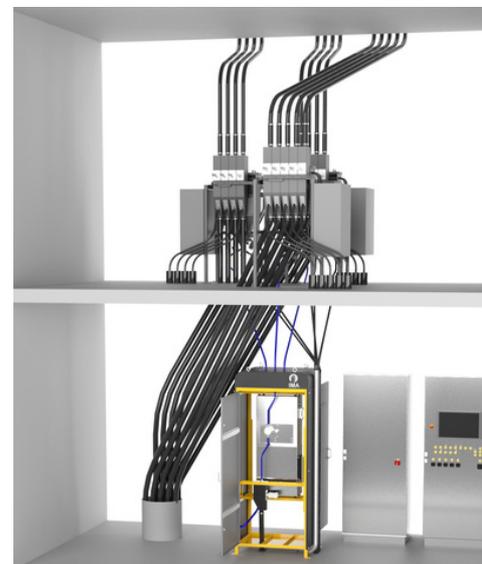
- The FCA delivers early and timely data on the ore quality - i.e. what will be processed in a few hours - to adjust your mill and concentrator feed and processing parameters with optimum results.
- IMACON slurry analyzing system sends data to your flotation control loops further optimizing the concentrator recovery process.

IMA FCA: Probe, calibration rack and Probe Electronics Set

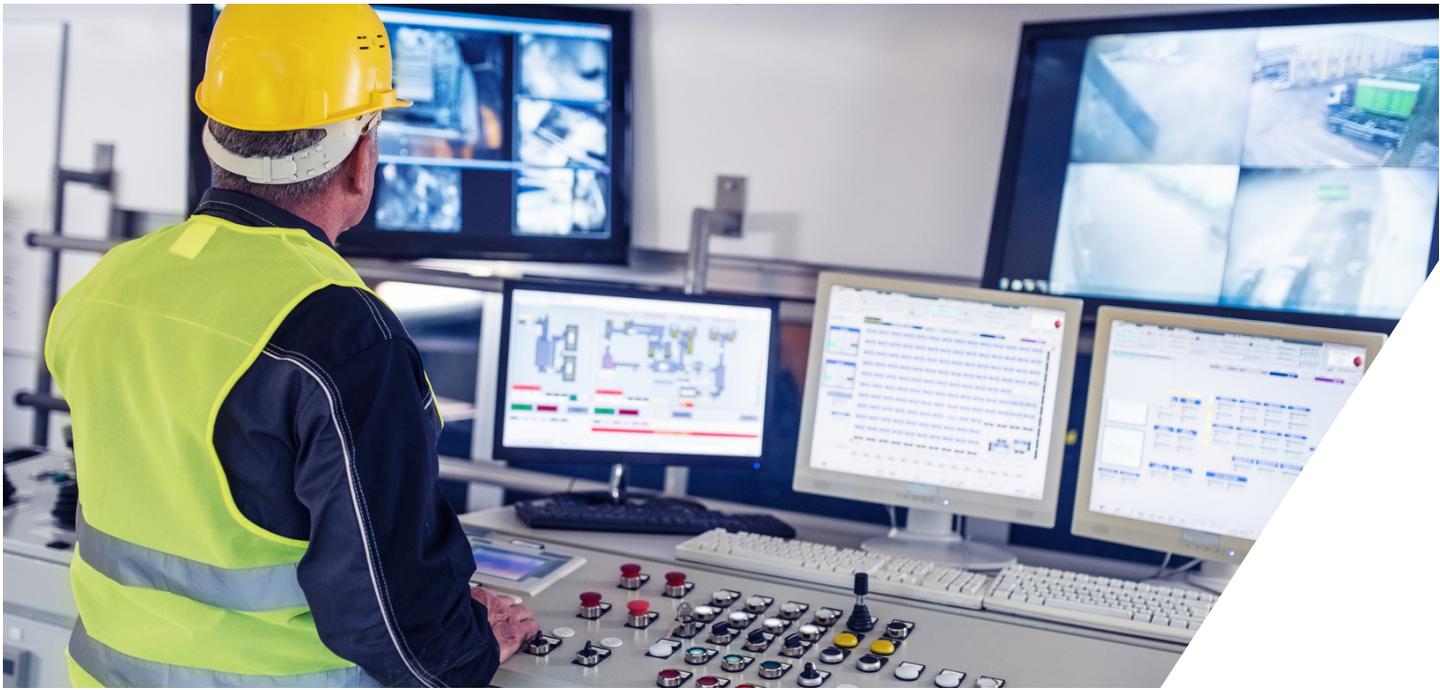


The FCA - IMACON combination improves ore characterization based on a timely and more accurate data of ore grade and recovery, improving concentrator recovery, and helping to identify improvement areas in the mine-to-mill process.

The combination delivers feedback on mining quality while acting as a tool in reconciliation and in QA/QC of the total mining and concentrator optimization.



IMACON system: Multiplexer, Probe, Probe Electronics Set, and Process Management Station.



## FCA Applications

- **Bulk Ore Sorting** from conveyor after primary crushing: separating ore and waste rock, Low Grade and High-Grade ore, deleterious elements, Potentially Acid Generating and Non-Acid Generating waste rock
- **Mill feed homogenization:** stabilizing feed for improved recovery
- **Increasing mill head grade:** separating waste rock from mill feed
- **Mill throughput optimizing:** FCA data combined with crusher, with mill feed size distribution and milling circuit data
- **Ore loading control:** providing immediate feedback of ore grade to loaders
- **Recovery process optimization:** feed forward data of ore quality to concentrators hours before it arrives to the concentrator
- **Flotation and recovery optimization:** In combination with the slurry on-stream analyzers
- **Mine Grade Control:** providing real time accurate data of mining quality
- **Mine to Mill Ore tracking:** FCA combined with RFID Tag system
- **Heap leaching optimization:** analyzing ore grade on leach pad feed and reclaim conveyors, analyzing acid consuming minerals
- **Reducing ore losses and waste rock dilution in mining:** FCA and combined sensor data from the next bench
- **Mine to Mill reconciliation and QA/QC:** FCA data vs. data from the concentrator
- **Measuring quality of mineral concentrates:** FCA sensor analyzing concentrates

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