

# iPulse200™

High resolution industrial elemental analysis

iPulse®



**progression, inc.** is a world leader in the development and implementation of process Laser Induced Breakdown Spectroscopy (LIBS) and Nuclear Magnetic Resonance (NMR) technologies for use in the mining, petrochemicals, and polymer industries.

iPulse, the latest **progression** process control technology, is a compact versatile tool based on LIBS that provides on-line, real-time elemental analysis of minerals, ores, slurries and aerosols. LIBS is a simple, rapid, and highly advanced optical

technique that measures the elemental composition of a sample by performing a spectroscopic analysis of a laser induced plasma plume. iPulse requires minimal operator training, is effectively non-destructive, and can be mounted directly above a conveyor belt or in a process or effluent stream line, negating the need for manual or automated sampling.

Unlike other elemental techniques, iPulse has no nuclear source. Detection limits for most elements are less than 100 ppm.

## Benefits

- On-line process configurations
- Simultaneous multi-element analysis in real-time
- Improved plant efficiency
- Increased mineral recoveries

## Advantages

- No sample preparation
- High repetition rates
- Small sample size
- High spatial resolution
- Minimal operator training
- No nuclear source required
- Works on solids, liquids, and gases

## Selected Applications

- Phosphate rock mining
- Chemical processing
- Polymer analysis
- Coal analysis
- Trace element detection in water
- Zinc and lead mining
- Aerosol monitoring
- Copper production
- Precious metals



# Specification

## Laser

### Laser Type

Nd:YAG

Wavelength: 1064 nm

Repetition frequency: 1 – 20 Hz

Pulse energy: 50 – 200 mJ

19" Rackmount control system included

### Power Requirement

110 – 240 VAC, 50 or 60 Hz, single phase

### Elements Measured

Multi-element detection with limits less than 100 ppm in most cases

## Field Cabinet

### Hazardous Area Option

Class 1, Division 2, Group C and D, Zone 2, Group IIB, T4

Designed for use in -20°C (-4°F) to +40°C (104°F)

Consult factory for higher temperatures.

Cabinet is NEMA4 (IP66).

### Dimensions

Cabinet: 32" W x 24" D x 66" H (81 x 61 x 168 cm)

### Weight

Approximately 1000 lbs (454 kg)

### PLC

Provided for safety interlocks and focusing height adjustment as required

## Control Computer System

### Location

In cabinet

### Area Rating

Non-hazardous

### DCS Link

Will be linked through the control computer system

### Hardware

High-end Windows® compatible PC

### Software

**progression's** proprietary A/Ztec® operating software (Windows based) pcAnywhere™ modem communication software Soft-PLC operating software

### Connections

Direct phone line to modem needed

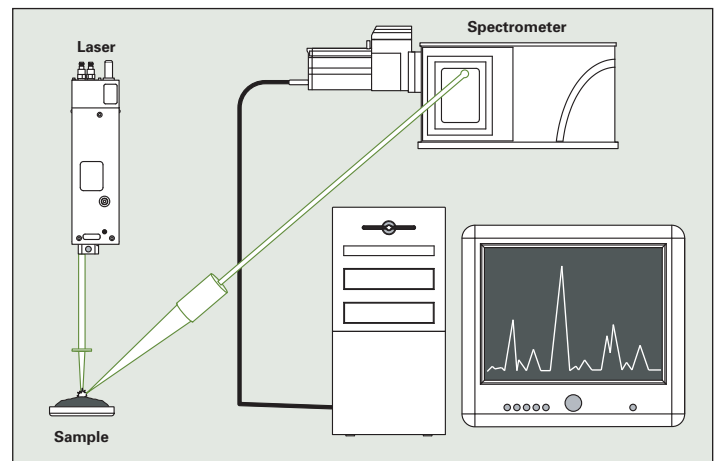
Communication connections between control computer system and field cabinet

Fiberoptic cable (4 fibers) to field cabinet (wire connection optional)

Purge safety alarm contact to DCS (optional)

## Documentation

Two complete sets of the following documents are issued at shipment of system: operation and software manual, as-built drawings, P&ID drawings.



*Plasma is formed by focusing optical pulses from the laser onto the sample. An image of the resulting plasma is analyzed by a CCD camera and spectrograph. This spectra is then processed into useable data.*



**Analyze with integrity.™**

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