

# iPulse200

## High resolution industrial elemental analysis

iPulse®



*Each sampling system is customized to the application. This version shows an overbelt laser and optical cabinet.*

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 is a compact versatile tool based on LIBS that provides on-line, real-time elemental analysis of minerals, ores and slurries. 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 nuclear source required
- No sample preparation
- Small sample size
- High spatial resolution
- Minimal operator training
- Analyses of solids, liquids, or gases

### Selected Applications

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



# Specification

## Laser

### Laser Type

Nd:YAG  
Wavelength: 1064 nm  
Repetition frequency: 1 – 15 Hz  
Pulse energy: 50 – 400 mJ  
19" Rackmount control system included  
110 – 240 VAC, 50 or 60 Hz, single phase

### Power Requirement

### Field Cabinet

### 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

Various options available

### Hardware

High-end Windows® compatible PC

### Software

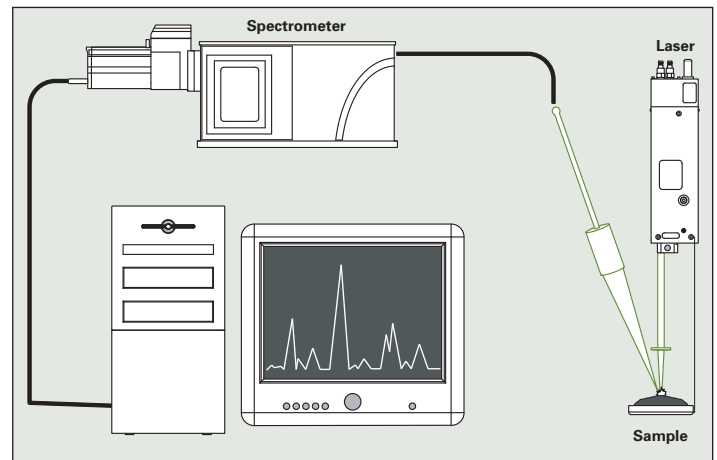
Progression's proprietary A/Ztec® operating software  
(Windows based) pcAnywhere™ modem communication software  
PLC operating software

### 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

Operation manual, software manual, drawing packages and test reports



*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.™**

progression, inc.  
15 Foundation Avenue  
Haverhill, MA 01835 USA  
phone +1 978 556 9555  
fax +1 978 556 9551

[www.progression-systems.com](http://www.progression-systems.com)