

## LumaSpection™ mobile Infrared Camera System for Boiler Tube and Furnace Inspection

### BoilerSpection-IM™

- Pinpoint issues before they grow into problems
- Prevent problems that result in shorter life cycles and unplanned outages
- Inspect buildup of ash and slag
- Tune combustion and manage fuel switching
- Safely monitor at full load
- One person operation
- Industry leading image quality
- Wireless digital video recording (DVR)
- Robust optics can be used without cooling for most inspections



This LumaSpection™ system is a result of years of field experience and customer input culminating in an advanced, easy-to-use mobile imaging solution for furnaces and boilers.

With a real-time inspection tool, plant operators can quickly and accurately identify process abnormalities before they grow into problems that can lead to unplanned outages. Operators can survey the furnace to identify tube leaks, guide cleaning maneuvers, and tune the combustion.

It is also a critical tool to analyze and verify the effects of process and equipment

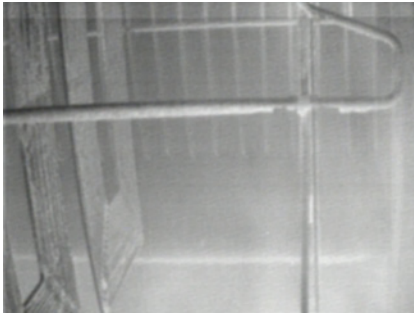
changes. For example, to measure the effect of burner adjustments or fuel changes on the overall combustion and slagging of the system.

Derived from military technology, LumaSense fabricates the industry leading mid-wave infrared detector which enables superior image quality. The entire system is designed and built in the USA.

The BoilerSpection-IM system is a comprehensive solution that includes all the components required for a user to be recording images in only minutes. The system includes battery, monitors, DVRs, and convenient storage case.

Thousands of LumaSense industrial-grade infrared imaging solutions are deployed around the globe to monitor critical processes and assets in power generation, refineries, steel, paper and glass plants. Our products are supported by experienced field service and application engineering team.

## Application



*Inspecting for slag and clinkers on superheat pendants*



*Characterize shape and length of burner fuel mixing*



*BoilerSpection-IM in use with wireless display*



*Application of the BoilerSpection-IM*



*Superheat pendants in 700MW power boiler burning PRB coal*



*Coal stream from wall fired burner*

## LumaServ™

The mission of the LumaSense services organization is to keep you focused on your business by delivering world-class customer support. This means keeping your assets reliable and functioning, and providing you with the knowledge and expertise required to solve complex problems quickly.

Our LumaServ™ offerings are divided into four main categories:

### Asset Assurance

LumaSense knows how critical our products are to your business. We offer a wide range of services including calibration, preventative maintenance, repair, extended warranties, and spare parts to keep your assets accurate and reliable for the long-term.

### System Services

We realize that your LumaSense solution is essential to your process. LumaSense offers tailored service packages to meet your specific support needs. Our system level services offer comprehensive support for your entire system.

### Field Services

Our Field Service Engineers are dedicated to providing expert, on-site support every step of the way. Services include: application and project engineering, project management, installation and commissioning, on-site repair and calibration, and maintenance agreements.

### Training and Consulting

LumaSense offers both classroom and on-site training and certification courses. In addition, we offer a range of specialty services, such as IR scanning and consultations!

## Technical Data

Spectral Wavelength ~3.9  $\mu\text{m}$  narrow bandpass filter

Image Resolution 320 x 240

Detector Type Uncooled VOx microbolometer

Display(s) On board  
Wireless

Lens 1.65" (42 mm) outer diameter  
Lengths 18" (457 mm) and  
24" (610 mm)  
Straight or Angled viewing

Recording

FOV

DVR to SD memory card

Straight: Standard 50° HFOV or  
Wide 75° HFOV

45° Angle: Standard 50° HFOV

90° Angle: Standard 50° HFOV

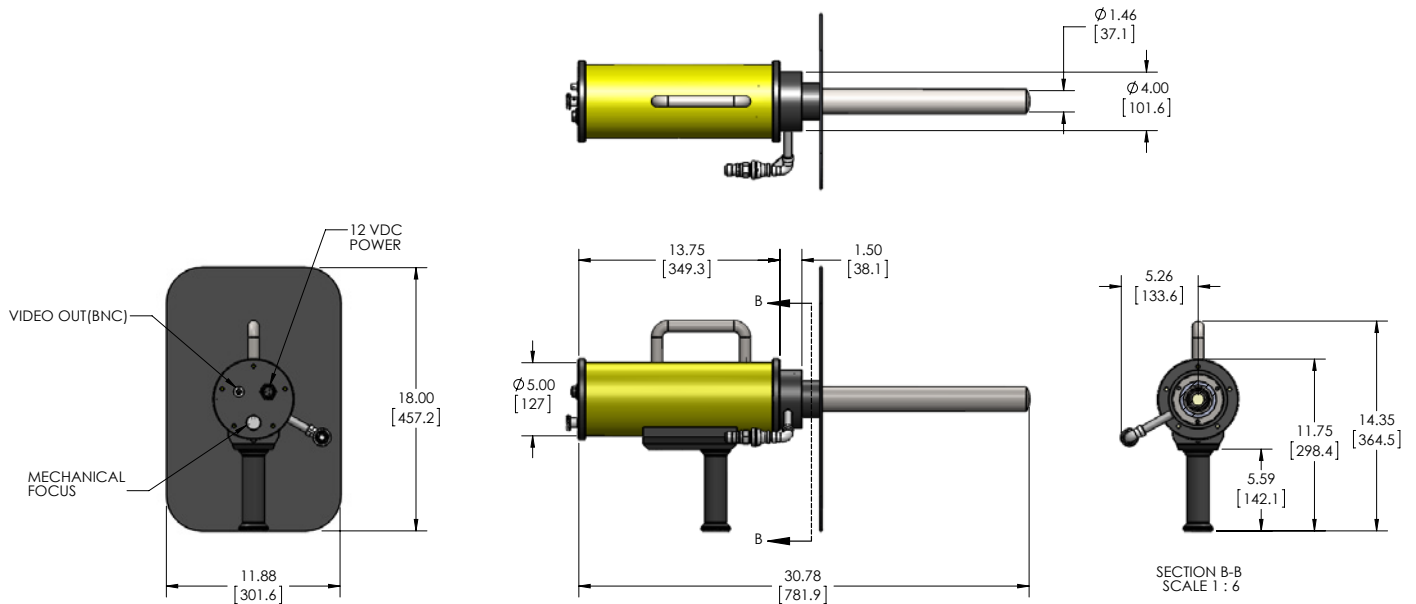
Power

Battery (over 24-hr life)

Camera weight

< 20 lbs

## Dimensions



## Base System Components

- BoilerSpection-IM camera with selected lens
- Adjustable radiation shield
- Onboard display with DVR capture to memory card
- Battery backpack
- User manual
- Storage case with space for up to two lenses



## Ordering and Configuration Details

### Available Options

- Wireless display with DVR capture to SD memory card
- Interchangeable optics with different angles and field of views
- On-site service and training
- Air filtration system and air hoses for continuous operation in a furnace
- Travel Case

### Service Offerings

- Installation and commissioning
- Preventative maintenance
- Training
- Extended warranty

### Available Documentation

- User manual
- Mechanical drawings

## Reference Numbers

012 0046 21	BoilerSpection-IM system with 18" (46 cm) straight lens, standard 50° HFOV
012 0046 61	BoilerSpection-IM system with 18" (46 cm) straight lens, wide 75° HFOV
012 0046 22	BoilerSpection-IM system with 24" (61 cm) straight lens, standard 50° HFOV
012 0046 62	BoilerSpection-IM system with 24" (61 cm) straight lens, wide 75° HFOV
012 0046 51	BoilerSpection-IM system with 24" (61 cm) angled 45° lens, standard 50° HFOV
012 0046 53	BoilerSpection-IM system with 24" (61 cm) angled 90° lens, standard 50° HFOV

## Accessories

812 0046 21	Additional or Spare Lens, 18" (46 cm) straight standard 50° HFOV
812 0046 61	Additional or Spare Lens, 18" (46 cm) straight, wide 75° HFOV
812 0046 22	Additional or Spare Lens, 24" (61 cm) straight, standard 50° HFOV
812 0046 62	Additional or Spare Lens, 24" (61 cm) straight, wide 75° HFOV
812 0046 51	Additional or Spare Lens, 24" (61 cm) angled 45° tip, standard 50° HFOV
812 0046 53	Additional or Spare Lens, 24" (61 cm) angled 90° lens tip, standard 50° HFOV
912 0048 01	Optional handheld wireless display with DVR and pistol grip
912 0047 01	Optional air filtration and hose kit for BS-IM (includes storage case)
97 2038	Travel Case (holds up to two lenses)
90 2424	Replacement radiation shield
90 2425	Replacement or spare battery backpack and charger
57 0036	Replacement or spare onboard display
97 2037	Replacement storage case

## LumaSense Technologies

## Temperature and Gas Sensing Solutions



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