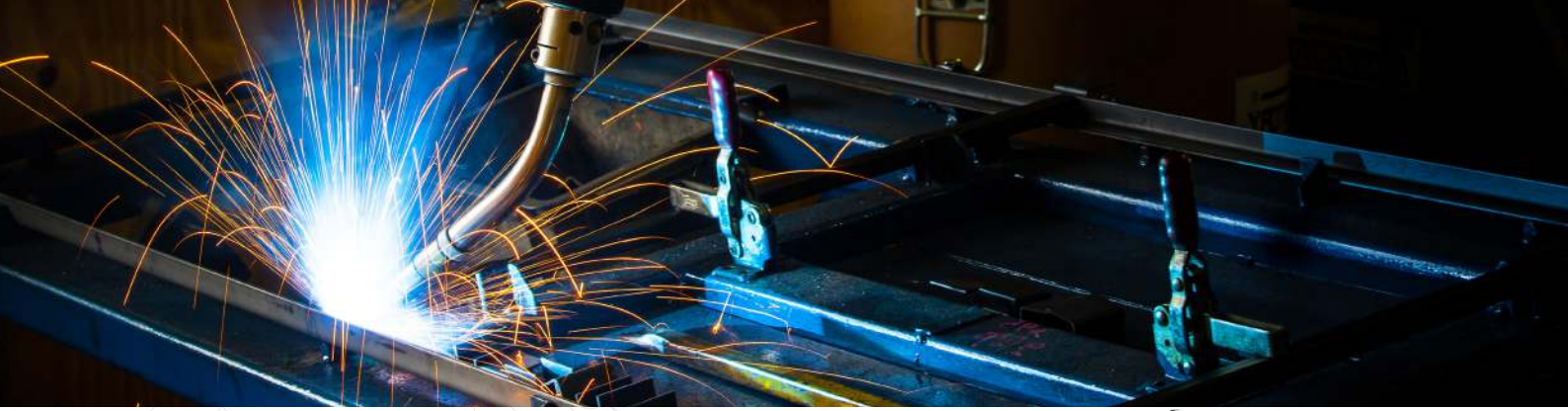




A P P L I C A T I O N S



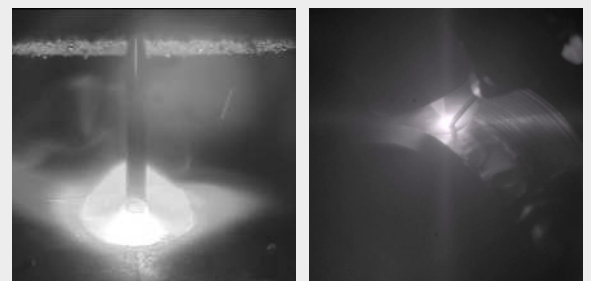
WELDING INDUSTRY

High Dynamic Range cameras and sensors for the Welding Industry: Discover what you can't see!

Achieving better goods quality and yield through vision has now become widely used for manufacturing industries. The welding markets are now massively adopting cameras for inspecting parts or monitoring processes. Characterized by extremely high illumination with strong contrast, smoke and dust, and various of process (TIG, MIG – MAG, YAG,...) imaging welding has always been a challenge. With long set-up efforts including neutral density filter use, trade off on exposure time, people have been able to visualize processes but they are still lacking of important details due to the low Dynamic Range of existing cameras.



The NIT MAGIC CAMERAS solves this lack of efficiency and robustness by offering high-quality images of the welding torch, without any saturation and disturbing circle of light. Filters are not necessary anymore and thanks to the native High Dynamic Range of the product – up to 140 dB – the welding arc as well as the bevels can be seen in the same time in one single image. All the relevant parameters can be monitored without any image processing.



MC1003-1VC/B

| | |
|------------------|------------------------------|
| Image resolution | 1280 x 1024- 2/3" |
| Mode | Rolling/Global Shutter |
| Trigger | IN/OUT mode (LVTTTL) |
| Dynamic Range | 120dB |
| Frame rate (max) | 42 Hz |
| Interface | USB 3.0 |
| Size | 49 x 49 x 33 mm ³ |

MC1003-1GC/B

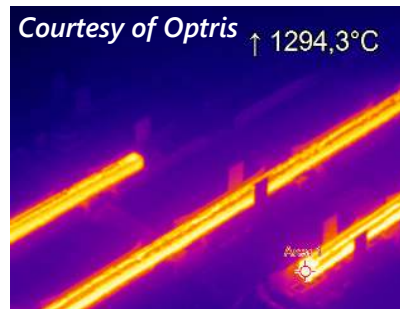
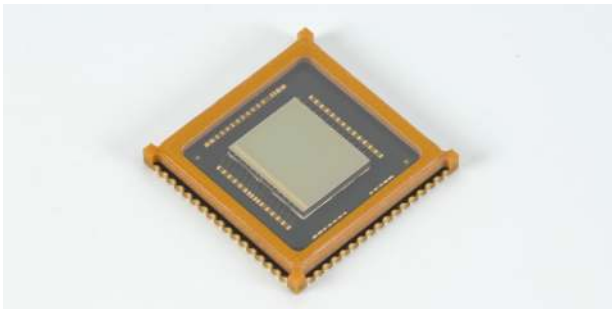
| | |
|------------------|---|
| Image resolution | 1280 x 1024- 2/3" |
| Mode | Rolling/Global Shutter |
| Trigger | IN/OUT mode (LVTTTL) |
| Dynamic Range | 120dB |
| Frame rate (max) | 28Hz (RGB)/ 43Hz(RAW) / 58Hz(8 bits Black&White) |
| Interface | GigE |
| Size | 49 x 49 x 42 mm ³ |

Welding process
compatibility

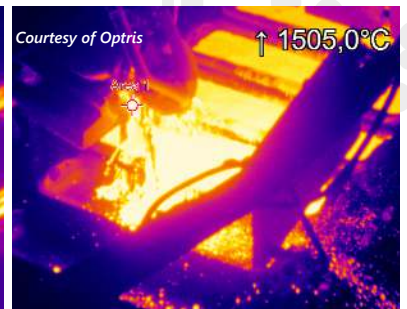
TIG/MIG/MAG/GTAW/GMAW/YAG



THERMOGRAPHY



Thermographic image of steel slabs captured with PTIM



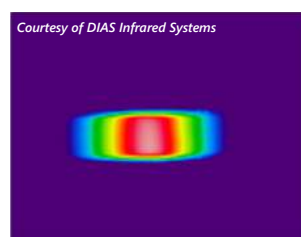
Non-contact measurement of casting temperature with PTIM

The industrial sector is the most demanding sector for Thermography in order to monitor processes and increase production quality with high accuracy and high speed. Potential defects can be detected and erroneous operations can be stopped rapidly thanks to inspection. To make these controls and inspections efficient, the set of parameters to be monitored should be selected carefully according to the specificity of each process.

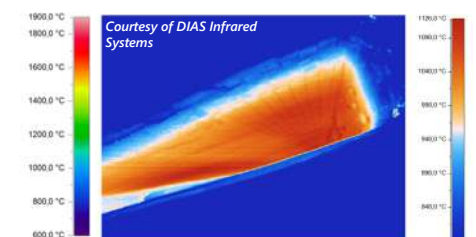
To succeed in providing reliable products at the end of the production line, the temperature has to be monitored all along the process, leading often to a large temperature span. In several industries such as steel, glass, ceramic or cement industries, that involves temperatures between 300°C and 1500°C, making the dynamic range of the sensor very critical.

New Imaging Technologies (NIT) has developed a complete portfolio of InGaAs sensors and CMOS sensors with High Dynamic Range. The logarithmic pixel structure providing High Dynamic Range exceeding 120dB is capable to map an entire scene with a temperature span from 300°C to 3000°C (i.e: with SWIR sensors) simultaneously. In the glass industry, one single camera enables to check continually molten glass drops at almost 1000°C and glass in containers maintained at nearly 300°C without any operation on the camera.

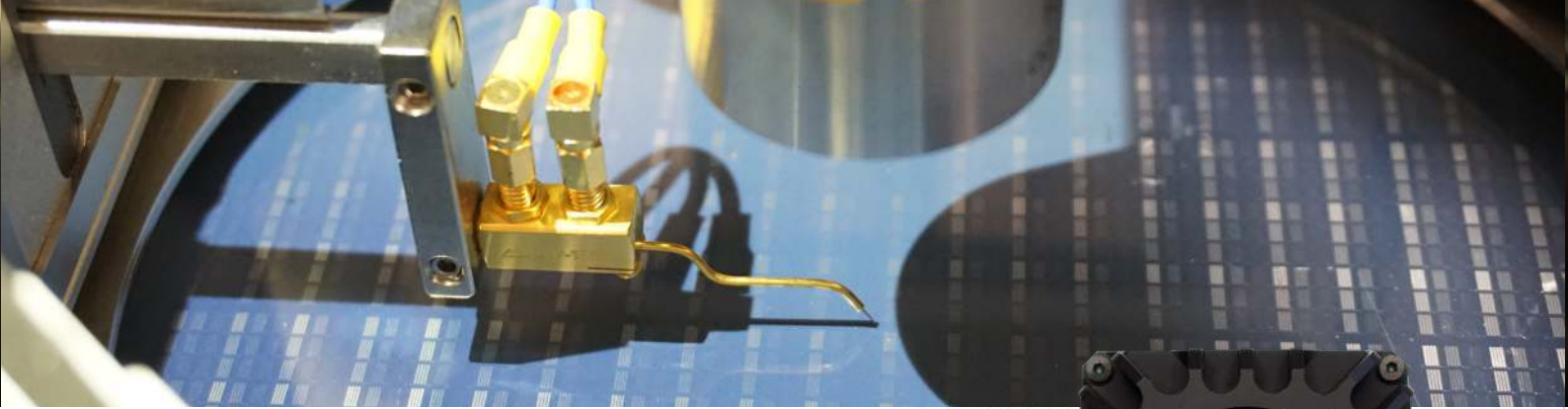
| | CMOS | InGaAs |
|---------------------------|---|---------------------------|
| Sensor | NSC1104 | NSC1401 |
| Resolution | 768 x 576 | 320 x 256 |
| Optical format | 1/1.2" | 1/1.6" |
| Pixel Size | 15 x 15 μm^2 | 25 x 25 μm^2 |
| Spectral range | 400nm – 1000 μm | 900nm – 1.7 μm |
| Frame rate | >100fps | >200fps |
| Dynamic Range | 140dB | 120dB |
| Average Detect.Temp. Span | 650°C-2000°C | 250°C-3000°C |
| Trigger | IN/OUT mode (LVTTTL) IN/OUT mode (LVTTTL) | |



Thermographic characterization of fiberglass



Non-contact temperature measurement in combustion chambers



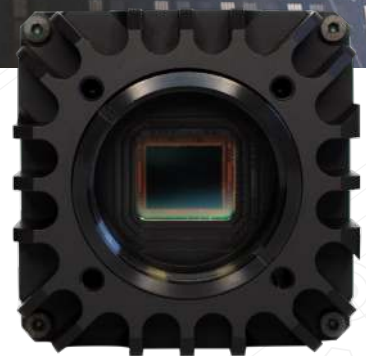
SEMICONDUCTOR INSPECTION

Reveal the heart of your material

Inspection has become one of the key process in the semiconductor industry: Detecting defective items along the production line helps to improve yields and the overall productivity of one of the biggest industry.

For the past years, the SWIR band has been recognized as one of the best wavelength regions for semiconductor inspection. Whether it is for detecting cracks and defect on a wafer or solar cell panels, or for achieving a failure analysis of integrated circuits, InGaAs wavelength (900m-1700nm) imaging device are suited for seeing through inside silicon.

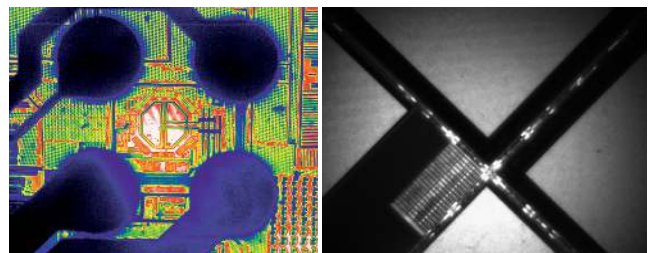
However, the SWIR imaging devices must present an attractive performance/price ratio to ease the final integration into the production lines.



Among the WiDy family, the WiDy SenS offers the highest sensitivity in SWIR band, makes it suitable for Semiconductor inspection.

Thanks to a small pixel pitch of 15 μ m, the WiDy SenS camera can easily be used in a microscope inspection machine for small defect detections.

The WiDy SenS cameras come with a 46x46x57mm³ form factor and represents a cost-effective solution for an integration into a semiconductor production line.



| | WiDy SenS | WiDy SWIR |
|------------------|---|--|
| Image resolution | 640x 512 15x15 μ m ² pixel | 640x512 15x15 μ m ² pixel (VGA) /320x256 25x25 μ m ² (QVGA) |
| Readout Noise | <50e- | <200e- (VGA)/ <300 e-(QVGA) |
| Interface | USB 3.0/CameraLink/GigE* | USB3.0/CameraLink/Analog/GigE |
| Size | 46 x 46 x 57mm ³ | 49 x 49 x 42 mm ³ |
| Advantages | High Sensitivity & HDR | HDR & Compact |
| Trigger | IN/OUT mode (LVTTTL) | IN/OUT mode (LVTTTL) |

*coming soon



SECURITY SURVEILLANCE



Gated imaging provides the ability to image a specific depth slice of a scene. Applications are multiple, including observations through obscurants (severe weather conditions), estimation of distance and localization of obstacles. Imaging devices must be fast enough to cope with the reflected light.

The performance of a SWIR camera to operate in gated mode is mainly defined by its ability to have the most defined slice of reflected light. This leads to very short exposure times (30 cm covered in 1 ns by light). A traditional InGaAs sensor will be adequate for exposure times greater than 10 μ s with a slow rise, limiting the use in active imaging.

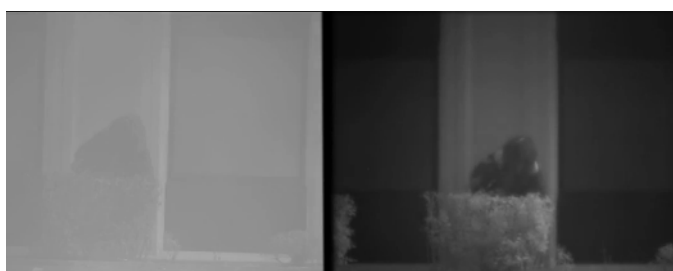
NIT WiDy SenS offer at the same time precision with the shortest effective exposure time, the shortest rise time and highest dynamic range, enabling to cover a broad number of situations in the field, and any applications, including yours ...



WiDy SenS

| | |
|--------------------------------|---|
| Resolution | 640x512 |
| Pixel size | 15 μ m x 15 μ m |
| SWIR | 900-1700nm |
| Frame rate | >220 fps full frame |
| Readout Noise | <50e- (Linear mode) < 125e- (Gated mode with High gain) |
| Dynamic | 120dB |
| Gated mode | Optional |
| FWHM @ T _{min} =100ns | 55ns (low gain) 75ns (High gain) |
| Rising time | 40ns |
| Interface | USB /CameraLink /GigE* |
| Size | 46 x 46 x 57mm ³ |
| Trigger | IN/OUT mode (LVTTTL) |

*coming soon





About New Imaging Technologies

New Imaging Technologies is a French company pioneer in Wide Dynamic Range solutions. With over 15 years of academic research and our patented **MAGIC™** pixel technology, we master all the steps from the sensor design to complete camera engineering.

Our core team clusters experienced CMOS designers, all recognized experts in their fields, with a multi-disciplinary group of optical, mechanical and electronic engineers.

With sales partners in over 20 countries we address most efficiently any customer requests around the globe.

NIT offers a complete portfolio of cameras and detectors embracing Visible, Intensified (I-CMOS) and SWIR technology. NIT serves various markets such as machine vision, instrumentation, night vision, biometrics...

NIT also proposes flexible solutions and custom designs to best fit your specific requirements.

For more information on our products, please visit our website:

www.new-imaging-technologies.com

or contact us directly at:

info@new-imaging-technologies.com



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