

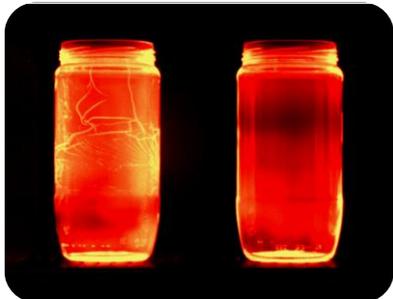


Hot Glass Inspection

Achieving better goods quality and yield through automated vision has now become widely used for process control in many industries. Inspecting glass materials early in fabrication when manufactured objects are still hot is offering many benefits starting by a lower cost of rework if defaults are detected. The control of temperature uniformity during forming and cooling, the detection of defects (cracks, breakage, tamper, contaminant, chips) is essential to ensure quality, reproducibility and manufacturing efficiency. The hot glass inspection addresses numerous demanding markets (food packaging & beverages, pharmaceutical, building, ...) in various forms such as bottle, packaging, tube. Generally characterized by high speed cadence, the hot glass inspection requires global shutter imagers.



Short Wave InfraRed (SWIR) cameras based upon InGaAs imagers work in a reflective imaging mode (like visible) and at the same time in detection mode of infrared radiation emitted by hot objects (>250°C). With a spectral response from 900-1700nm, they are particularly well adapted for hot glass inspection. Indeed, glass being transparent in this band, user can image through glass with details in the bulk and on both faces at the same time. SWIR cameras allows also non contact relative or absolute (if radiometrically calibrated) temperature measurement above 250°C up to 1800°C.





Why WiDy SWIR for Hot Glass Inspection?



- Wide Dynamic Range >140 dB in all images (no double or multi-exposure) for better contrast view without saturation
- Plug and play, TEClass, USB2.0 or Camlink camera with small form factor and low power consumption
- Available in 320x256 25µm or 640x512 15 µm global shutter (snapshot)
- High frame rate with up to 100fps in VGA, 200fps in QVGA in camlink
- WiDyVISION software with advance image processing compatible with Windows and Linux (sdk provided for OEM proprietary software development)

| WiDy SWIR 320U-S | | WiDy SWIR 320M-S | | WiDy SWIR 640U-S | | WiDy SWIR 640M-S | |
|--|--|---------------------------------------|--|--|--|--|--|
| InGaAs 320 x 256 25µm Snapshot Sensor response 0.9 to 1.7 µm 1/1.6 inch Optical format | | | | InGaAs 640 x 512 15µm snapshot sensor Response 0.9 to 1.7 µm 2/3 inch optical format | | | |
| 14bits USB2.0 output Up to 200 Hz | | 14 bits Camlink Output Up to 200Hz | | 14bits USB2.0 output Up to 50 Hz | | 14 bits Camlink Output Up to 100 Hz | |
| Integration time 100µs to 200ms | | | | Integration time 100µs to 25ms | | | |
| IN/OUT LVTTTL Mode | | | | IN/OUT LVTTTL Mode | | | |
| Power consumption <1.5 W | | | | Power consumption <1.5 W | | | |
| Operating range -40 to 70°C | | | | Operating range -40 to 70°C | | | |
| Size 48.6 x 48.6 x 32.6 mm | | | | Size 48.6 x 48.6 x 32.6 mm | | | |
| Weight < 125 g | | | | Weight < 125 g | | | |
| WiDyVISION HMI | | WiDyVISION Camlink HMI | | WiDyVISION HMI | | WiDyVISION Camlink HMI | |

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