



MINING

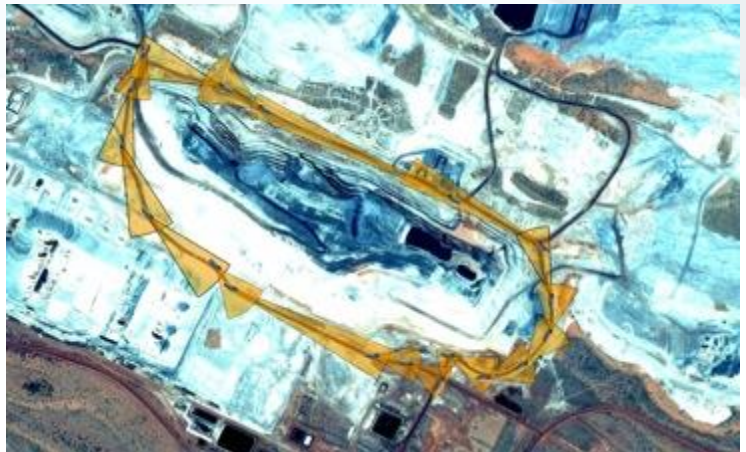
Analytics for Thermal Imaging Cameras

Ngaro Sentinel / Perimeter Surveillance

Advanced system for perimeter surveillance and intrusion detection on restricted access areas.

Detection Alarms

- Intrusion
- Prowling
- Dropped / removed object
- Frontier crossing
- Stopped vehicle
- Vehicle driving against traffic
- Invasion
- Fence climbing



Simulation of camera setup. This is not a real installation.

Key Differentiators

- **3-D Radiation analysis of objects on scene. Beyond video analytics.** We use specific algorithms for thermal imaging, no algorithms adapted from CCTV)
- **Increases detection range. Minimum target size: 1,5 pixels.**
 - 35-50% savings on number of thermal cameras using other thermal video analytics
 - 75-90% saving on number of CCTV cameras using CCTV video analytics
- **Minimum False alarm rate (2-5% rate over total alarms registered).**
- **Alarm positioning on real UTM coordinates, on real-time and with-out camera triangulation required; just one camera needed**
- **Certified with principal camera manufactures.** Axis, Flir, Opgal, Raytheon, Pelco, Nec, DRS
- **Integrated with principal VMS on the market**
- **Generic Camera Mode. Communicates with every camera on the market, without integration required**
- **Domotion.** Automatic domo/s camera positioning for video verifying.
- **Configuration & performance based on meters, not on pixels**
- **Easy & Intuitive configuration**
- **Software license**

Ngaro Traffic

Advanced system for intrusion detection & control on tunnels.

Detection Alarms

- Intrusion
- Prowling
- Dropped / removed object
- Frontier crossing
- Stopped vehicle
- Invasion
- Wrong direction vehicle



Key Differences

- **3-D Radiation analysis of objects on scene. Beyond video analytics.** We use specific algorithms for thermal imaging, no algorithms adapted from CCTV)
- **Increases detection range. Minimum target size: 1,5 pixels.**
 - 35-50% savings on number of thermal cameras using other thermal video analytics
 - 75-90% saving on number of CCTV cameras using CCTV video analytics
- **Minimum False alarm rate (2-5% rate over total alarms registered).**
- **3-D tunnel design/modeling.**
- **Alarm positioning on real UTM coordinates, on real-time and with-out camera triangulation required; just one camera needed**
- **Optimizes detection on extreme vision conditions (smoke and dust)**
- **Certified with principal camera manufactures.** Axis, Flir, Opgal, Raytheon, Pelco, Nec, DRS
- **Integrated with principal VMS on the market**
- **Generic Camera Mode. Communicates with every camera on the market, without integration required**
- **Domotion.** Automatic domo/s camera positioning for video verifying.
- **Configuration & performance based on meters, not on pixels**
- **Easy & Intuitive configuration**
- **Software license**

Ngaro Watchman

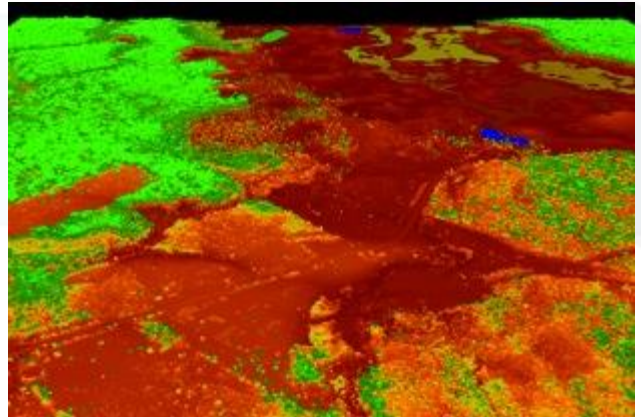
Intelligent fire detection solution for critical scenarios or high ecological value areas.

Detection Alarms:

- Fire

Applies to:

- Flammable mineral Storage
- Flammable material storage



Key Differences

- **3-D Radiation analysis of objects on scene. Beyond video analytics.** We use specific algorithms for thermal imaging, no algorithms adapted from CCTV)
- **Increases detection range. Minimum target size: 1,5 pixels.**
 - 35-50% savings on number of thermal cameras using other thermal video analytics
- Detects fire of size **1-sqm 5km away.**
- **8.000 hectares perimeter coverage** with just one camera
- **Minimum False alarm.**
- **Alarm positioning on real UTM coordinates, on real-time and with-out camera triangulation required; just one camera needed**
- **Certified with principal camera manufactures.** Axis, Flir, Opgal, Raytheon, Pelco, Nec, DRS
- **Integrated with principal VMS on the market**
- **Generic Camera Mode. Communicates with every camera on the market, without integration required**
- **Domotion.** Automatic domo/s camera positioning for video verifying.
- **Configuration & performance based on meters, not on pixels**
- **Easy & Intuitive configuration**
- **Software license**
- **Multiple fire detection alarms**

Analytics for Thermographic Cameras

Ngaro Thermal analysis applications are tools which integrate in just one license mechanisms to analyze, treat, generate and manage thermal events on real time.

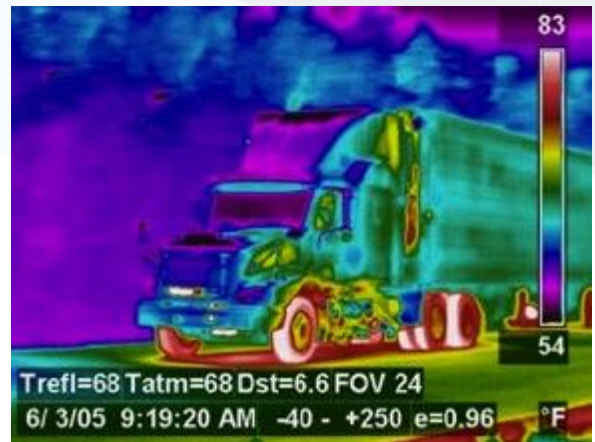
Ngaro Engine Monitoring

Detects

- **Monitoring of over-heated vehicles & parts.**
- **Monitoring of over heated parts on machinery & equipment.**

Applies to

- Vehicles
- Machinery
 - Conveyor Belts
 - Elevators
 - Vehicle Brakes



Key Differences

- **Critical real-time reporting and logging** Real-time reporting of temperature variation events for rapid commissioning and testing.
- Available on **fixed or Portable set-ups**
- **Generates Summary Event Report (SER)** for post-event diagnostics. Available in XML, Excel, PDF formats
- **Heat emission and distance configuration** available by mask configurator
- **Image adjustments** by enhance or lineal temperature
- **Temperature Color palette editor**
- Intuitive **mask design editor**
- **Simultaneous temperature and time-frame analysis.**
- **Boolean logic functions** programing available for alarm triggering
- **Off-line evaluation available.** (picture: RAW thermometric, video: RAW Thermometric, Ngaro Thermometric compressed)
- **Image or video capture** responding to alarms
- **Digital output** support available (PLC & ADAM)
- **Digital input** support (PLC)
- **Communications and Integration.** Integrates with existing VMS and Ngaro Beholder (Ngaro VMS)

Analytics for Thermographic Cameras

Ngaro Transformer Monitoring

Detects

- **Transformer thermal and through-fault monitoring.**
- Temperature oscillation, hotspot, insulation aging acceleration factor, and loss of life.

Applies to

- Transformer Monitoring
- Key electrical conductors



Key Differences

- **Critical real-time reporting and logging** Real-time reporting of temperature variation events for rapid commissioning and testing.
- Available on **fixed or Portable set-ups**
- **Generates Summary Event Report (SER)** for post-event diagnostics. Available in XML, Excel, PDF formats
- **Heat emission and distance configuration** available by mask configurator
- **Image adjustments** by enhance or lineal temperature
- **Temperature Color palette editor**
- Intuitive **mask design editor**
- **Simultaneous temperature and time-frame analysis.**
- **Boolean logic functions** programing available for alarm triggering
- **Off-line evaluation available.** (picture: RAW thermometric, video: RAW Thermometric, Ngaro Thermometric compressed)
- **Image or video capture** responding to alarms
- **Digital output** support available (PLC & ADAM)
- **Digital input** support (PLC)
- **Communications and Integration.** Integrates with existing VMS and Ngaro Beholder (Ngaro VMS)

Analytics for Thermographic Cameras

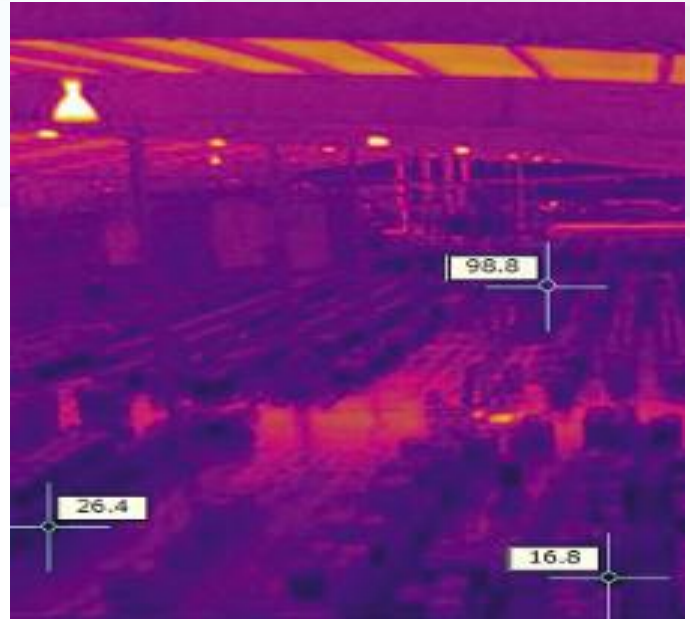
Ngaro Ammunition.

Detects

- Temperature oscillation
- Hotspots.

Applies to

- Ammunition Dumps
- Chemical storage
- Pyrotechnics



Key Differences

- **Critical real-time reporting and logging** Real-time reporting of temperature variation events for rapid commissioning and testing.
- Available on **fixed or Portable set-ups**
- **Generates Summary Event Report (SER)** for post-event diagnostics. Available in XML, Excel, PDF formats
- **Heat emission and distance configuration** available by mask configurator
- **Image adjustments** by enhance or lineal temperature
- **Temperature Color palette editor**
- Intuitive **mask design editor**
- **Simultaneous temperature and time-frame analysis.**
- **Boolean logic functions** programing available for alarm triggering
- **Off-line evaluation available.** (picture: RAW thermometric, video: RAW Thermometric, Ngaro Thermometric compressed)
- **Image or video capture** responding to alarms
- **Digital output** support available (PLC & ADAM)
- **Digital input** support (PLC)
- **Communications and Integration.** Integrates with existing VMS and Ngaro Beholder (Ngaro VMS)

Technical Details

All our licenses are OEM format (Software) which could be installed on any equipment which covers the following requirements:

Up to 8 cameras: Intel Core i5 dual core with 4GB RAM; Windows XP or superior; recommended: Graphic card with OpenGL 2.0; Ethernet port

Up to 16 cameras: Intel Core i7 dual core with 8GB RAM; Windows XP or superior; recommended: Graphic card with OpenGL 2.0; Ethernet port

Complementary Tools

Ngaro Domotion Automatic management & positioning of dome/s camera/s for video verifying. Includes algorithms to automatically position the camera with better view and capable to establish priorities among domes to follow the target with one or several cameras simultaneously.

Ngaro® Beholder Ngaro® VMS allows the operator to monitor and manage the information provided by Ngaro Analytics or third party VMS.

ngaro® Desktop

Alarms status and operative verification module compatible with Ngaro® systems



ngaro® GIS

Module to monitor the status and operation of the surveillance system over digital cartography



ngaro® Viewer

Application for simultaneous display of thermal and CCTV video streams with OSD overlay of alarms



Compatible Cameras



Compatible VMS

