

IRSX-I

Self-Contained Thermal Imaging Systems

- Stand-Alone, Industrial Grade Solution for Thermal Imaging
- High Resolution, Highest Performance and Exceptional Flexibility from a Thermal Machine Vision System
- Simplified Overall System Design
- Comprehensive Interfaces for Communication & Control
- Easy to Deploy and Maintain

Stand-Alone Thermal Imaging

IRSX-I cameras are self-contained, industrial-grade thermal imaging systems. These all-in-one solutions combine a high-res calibrated thermal camera, a powerful imaging processor and various industrial interfaces in a rugged industrial housing small enough to fit into the tightest of space.

High resolution, highest performance and exceptional flexibility from a Thermal Machine Vision System

The IRSX-I series comprises a wide range of models offering different resolutions as well as a variety of fields of view with fixed as well as with interchangeable lenses. You will always find a camera configuration that will perfectly match your application requirements. With their built-in image processing unit based on a programmable high power processor, the cameras give you a reliable, repeatable performance even for the most challenging applications. Initiated by your process control the camera can switch between a multitude of inspection jobs, giving you the flexibility to keep your production line running even with varying products. With their highly accurate template matching functions the cameras overcome the problem of varying part positions, eliminating the need for costly fixturing.

Simplify the overall system design

No more need for a computer running a dedicated thermal imaging software, interfacing devices etc.: IRSX-I gives you the complete solution, massively reducing system complexity, installation effort and costs while significantly increasing system stability. With its industrial IP67 full-metal housing the camera can be installed on the factory floor without any need for an additional protective enclosure. Once taught for the inspection task, the camera will do the full job, communicating directly with your process control.

Comprehensive Interfaces for Communication & Control

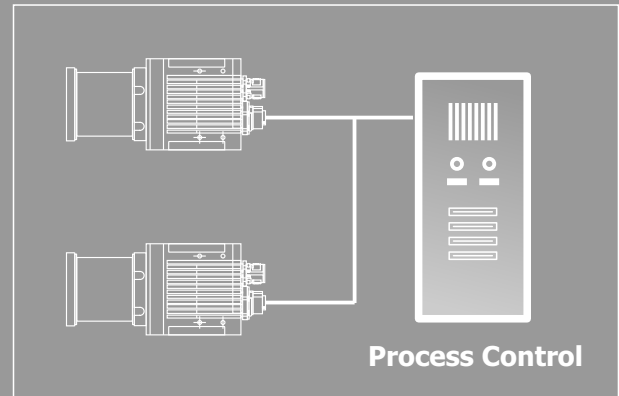
IRSX-I cameras feature various industrial interfaces to assure a seamless reliable and direct communications link to your factory automation devices. This includes Modbus-TCP, GenICam, Ethernet/IP and digital inputs/outputs for alarming and control as well as an encoder interface e.g. for part-tracking on variable speed lines. Images can be stored in different formats via FTP.

Easy to deploy and maintain

IRSX-I cameras come with the powerful, easy to use configuration-software IRControl. With the intuitive graphical environment of this software tool, developing solutions for thermal imaging applications has never been easier and more efficient. Design even complex application-solutions in shortest time without any programming effort, use the extensive functionality of IRControl for testing and deploy it to the camera.

Wide range of Accessories

In order to adapt the cameras to challenging environmental conditions or to deal with different installation requirements, a wide selection of accessories is available for the IRSX-I cameras.

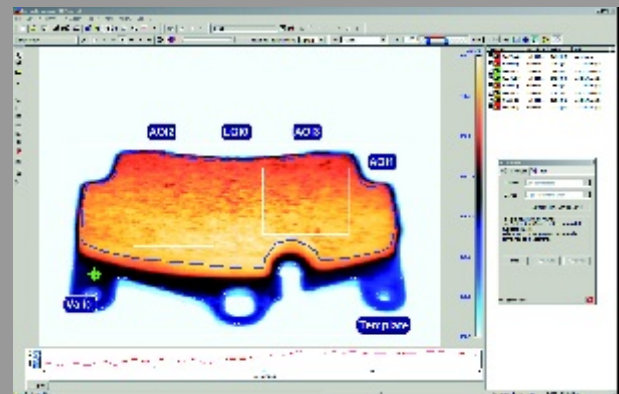


IRSX-I cameras communicate directly with the process control: No need for a computer with imaging software



IRSX-I cameras with accessories

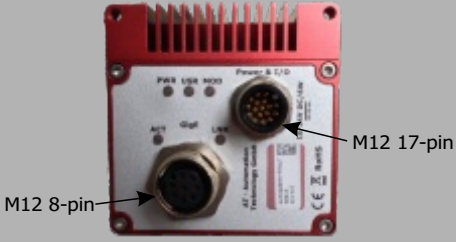
Top: Camera with fixed installed lens and air purge
Bottom: Camera with interchangeable lens and lens protection cap



Gui of the software IRControl:

Design of application solutions, testing and deployment has never been easier

IRSX-I - Technical Specifications

| Model | IRS128-I | | IRS336-I | | IRS640-I | |
|--|---|-----------|-------------------------|-----------|-------------------------|------------------|
| Detector Resolution | 168 x 128 | | 336 x 256 | | 640 x 512 | |
| Detector Type | Focal Plane Array (FPA), uncooled Microbolometer | | | | | |
| Spectral Range | 7.5 to 13 μ m | | | | | |
| Pixel Size | 34 x 34 μ m | | 17 x 17 μ m | | 17 x 17 μ m | |
| Frame Rate | 9 Hz | 60 Hz (*) | 9 Hz | 60 Hz (*) | 9 Hz | 50 200 Hz (**) |
| Measurement | | | | | | |
| Object Temperature Range | Range 1: -40°C – 150°C Range 2: -40°C – 550°C | | | | | |
| High Temperature Range (with ND Filter) | Range 1: 200°C – 1200°C Range 2: 600°C – 2000°C (**) | | | | | |
| Accuracy | $\pm 2^\circ\text{C}$ ($\pm 3.6^\circ\text{F}$) or $\pm 2\%$ of reading (+10 to +100°C @ +10 to +35°C amb) | | | | | |
| NETD | <50 mK (f/1.0, Range 1) | | | | | |
| Fixed Lenses | | | | | | |
| | Field of View H° x V° | | | | | |
| 7.5 mm | 42° x 32° | | 42° x 32° | | 72° x 60° - | |
| 9 mm | 35° x 27° | | 35° x 27° | | 62° x 52° - | |
| 13 mm | 25° x 19° | | 25° x 19° | | 45° x 37° - | |
| 19 mm | 17° x 13° | | 17° x 13° | | 32° x 26° - | |
| Interchangeable Lenses | | | | | | |
| | Field of View H° x V° | | | | | |
| 6 mm | 51° x 40° | | 51° x 40° | | 84.5° x 72° | |
| 10 mm | 32° x 25° | | 32° x 25° | | 57° x 47° | |
| 12 mm | 26° x 21° | | 26° x 21° | | 49° x 40° | |
| 18 mm | 18° x 14° | | 18° x 14° | | 33.6° x 27° | |
| 25 mm | 13° x 10° | | 13° x 10° | | 24.5° x 20° | |
| 60 mm | 5.5° x 4° | | 5.5° x 4° | | 10° x 8° | |
| 100 mm | 3.3° x 2.5° | | 3.3° x 2.5° | | 6.2° x 5° | |
| Zoom 35 mm - 105 mm (***) | 3.1° - 9.3° x 2.3° - 7° | | 3.1° - 9.3° x 2.3° - 7° | | 6° - 17.7° x 4.7° - 14° | |
| Detector Resolution | 168 x 128 | | 336 x 256 | | 640 x 512 | |
| Image Processing | | | | | | |
| Configuration / Testing / Deployment | With software IRControl (delivered with the camera) | | | | | |
| Areas of Interest | Spot, Line, Polyline, Elliptical Line, Rectangular Area, Elliptical Area, Polygon Area | | | | | |
| Temperature Evaluation | Min, Max, Mean, Range, Variance, Standard Deviation | | | | | |
| Comparison Functions | Equal, Less, Greater, In Range, Out of Range | | | | | |
| Interfaces | | | | | | |
| Gigabit-Ethernet, GigE-Vision with GenICam |  | | | | | |
| Ethernet Video Streaming, GigE-Vision compliant | | | | | | |
| Modbus-TCP (for control and transfer of measured data) | | | | | | |
| FTP (for upload / download of the configuration files for the inspection tasks and of image files) | | | | | | |
| Digital I/O, 24V, Protection: opto-isolated | | | | | | |
| External Trigger Input, 24V, Protection: opto-isolated | | | | | | |
| Encoder Input: Differential, Inverted, Single Ended | | | | | | |
| Connectors | | | | | | |
| Gigabit-Ethernet | M12 8-pin, female | | | | | |
| External Power, I/O, Encoder | M12 17-pin, male | | | | | |
| Power | | | | | | |
| Input Voltage | 10 - 24 VDC | | | | | |
| Power Consumption | < 6 W | | | | | |

(*) Subject to dual use export regulations (for frame rates > 9 Hz)

(**) Up to 200 Hz with windowing

(***) Available on request

(****) Available only in combination with protective enclosure; see paragraph **Accessories - Protective Enclosures** on last page

IRSX-I - Technical Specifications

Environmental

| | |
|-----------------------|---|
| Protection Class | IP 67 (IEC 60529) |
| Operating Temp. Range | -40° to +60°C (non condensing) |
| Storage Temp. Range | -50° to +80°C (IEC 68-2-1 and IEC 68-2-2) |
| Humidity | 0 to 95% relative humidity (IEC 60068-2-30) |
| Bump | 200g (IEC 60068-2-29) |
| Vibration | 4.3g (IEC 60068-2-6) |
| ROHS | Compliant |

Mechanical

| | |
|------------|---|
| Dimensions | 55 x 55 x 61.5 mm (w/o lens, w/o connectors), 55 x 55 x 77 mm (w/o lens, w/ connectors) |
| Weight | 270 g (w/o lens) |

Scope of Delivery

Camera, mounting adaptor, focus tool (only for cameras with fixed lenses), configuration software IRControl, user documentation on pen-drive

Accessories

Adjustable mounting bracket

Mounting adaptor, with metric and imperial drilled holes and through-holes

Lens protection cap with GE window, Ø55; for cameras with interchangeable lenses

Air barrier for lens protection cap; for cameras with interchangeable lenses

Air barrier for cameras with fixed lenses

Terminal panel, for rail mounting

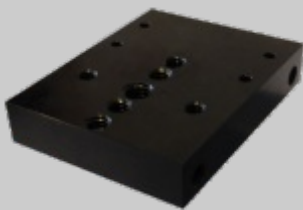
Power supply with M12 connector, input voltage 100...230 VAC

IO cable with M12 connector; length 3, 5, 10m

Ethernet cable with M12 connector; length 3, 5, 10m

Protective enclosures: IRCamSafe series from Automation Technology, including weatherproof enclosures, stainless-steel enclosures for harsh industrial environment (cooled or non-cooled versions available), Ex-proof enclosures for hazardous areas

Mounting adaptor
Part-No. 102 903 402



Sun shroud
Part-No. 102 903 409



Adjustable mounting bracket
Part-No.: 102 903 410



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