

ThermoVision® A20M

RESEARCHER



The ThermoVision® A20M offers an affordable and accurate temperature measurement solution for research and development, design validation or virtually any product or process monitoring application where fast, reliable and economical thermal evaluation is important.

Featuring an ultra-compact, rugged IR imaging camera complete with the latest connectivity interfaces and packaged with Researcher™ software, the fully-integrated A20M system provides an immediate, precise visual understanding of thermal performance.



- Affordable, fully-integrated thermal measurement solution
- Maintenance-free, uncooled microbolometer detector
- Precision non-contact temperature measurement
- Rugged and compact
- FireWire (IEEE 1394) high speed radiometric image and data transfer
- Longwave imaging performance
- Real-time (60Hz) 14-bit digital output
- Integrated Researcher™ software
- LabVIEW Toolkit and C++ Visual Basic support

QUICKLY FIND FAULTS

Identify thermal faults before they result in costly design flaws. Detect subtle temperature variations that can signal significant component or design problems. See the thermal impact of your engineering designs instantly and avoid the tedium of contact measurement and its associated data collection.

INSTANT NON-CONTACT TEMPERATURE MEASUREMENT

The A20M was designed from the beginning — at the detector level — to deliver accurate, repeatable temperature measurements. Each thermal image includes 19,000 picture elements that can be accessed independently to measure temperature. These calibrated measurements can then be used as criterion to evaluate designs or control production processes.

OUTSTANDING IMAGING AND HIGH THERMAL SENSITIVITY

Advanced, uncooled microbolometer FPA detector technology delivers crisp, high-resolution longwave images that allow you to see variances as small as 0.12° C. Real-time image acquisition at standard video rates (60Hz) allows you to see rapid, thermally transient events.

ULTRA-COMPACT, RUGGED AND LIGHTWEIGHT

Compact and extremely lightweight (< 1.7 lbs.), this portable yet powerful research device fits easily on your bench or can be carried to other test or hard-to-get at locations for fast, mobile data acquisition and analysis in the field, on the manufacturing floor or in the lab. Fully configured I/O functionality allows the A20M to be integrated quickly and easily with your control systems.

EXTENSIVE CONNECTIVITY OPTIONS

Extensive input/output functionality makes the A20M adaptable to both stand-alone and integrated configurations. Ideal for R&D, testing and process monitoring, the A20M features robust FireWire (IEEE 1394) digital output for fast image and data transfer of real-time, fully radiometric 14-bit images to a PC.

PLUG AND PLAY

Simply connect the camera to a standard TV and produce high quality, real-time radiometric thermal images that accurately show heat patterns and thermal anomalies.

Extremely easy-to-operate, the user-intuitive A20M helps you clearly understand the thermal characteristics of products and processes and delivers the critical information needed to cost-effectively solve design problems and improve reliability.

POWERFUL SOFTWARE FOR IN-DEPTH ANALYSIS AND DIGITAL RECORDING

Coupled with ThermoCAM Researcher software, the most flexible, powerful digital storage, measurement and analysis package available, the A20M allows detailed real-time digital analysis of over 19,000 individual temperature measurement points. Researcher collects data directly from the A20M at a rate of 60 frames per second through a robust FireWire IEEE 1394 connection, ideal for analysis of dynamic objects and high speed thermal events. Researcher displays real-time graphics and thermal statistics, satisfying virtually all data collection, post-analysis and research needs.

MULTIPLE PROGRAMMING OPTIONS

The A20M calibrated measurement output can be easily leveraged to control a process when coupled with LabVIEW and FLIR's LabVIEW Developers toolkit; this kit allows programmers to easily access numerous measurement functions that can then be used to turn the A20M into a powerful machine vision tool with a minimal investment in machine vision software development.

Or, work in your own programming environment with the ThermoVision System Developers Kit (SDK) based on Active X and Visual Basic C++. The SDK provides full access to camera measurements and includes source code examples that will dramatically reduce the time it takes to program a custom solution.



IMAGING PERFORMANCE

Field of view/min focus distance	25° x 19° / 0.3 m
Spatial resolution (IFOV)	2.7 mrad
Thermal sensitivity @ 50/60Hz	0.12°C at 30 °C
Focusing	Manual, external motor focus optional
Detector type	Focal Plane Array (FPA), Uncooled microbolometer
Spectral range	7.5 to 13 µm

IMAGE PRESENTATION

FireWire output	IEEE-1394 8/16-bit monochrome and 8-bit color
Video output	RS170 EIA/NTSC or CCIR/PAL composite video

MEASUREMENT

Temperature ranges	-20°C to +250°C (-4°F to +482°F) Range 1 +120°C to +900°C (+248°F to +1652°F) Range 2 Up to +1200 °C (+2192°F), optional ± 2°C or ± 2%
Accuracy (% of reading)	± 2°C or ± 2%
Measurement modes	Spot, Line, Area, Isotherm, Difference
Automatic emissivity correction	Variable from 0.1 to 1.0
Individual emissivity settings	Select for individual measurement functions
Measurement corrections	Reflected ambient, distance, relative humidity, external optics. Automatic, based on user input
Lens recognition and measurement corrections	Automatic

LENSES (OPTIONAL)

Field of view/minimum focus distance	12° Telescope (12° X 9"/1.2m) 45° Wide angle (45° x 34"/0.1m)
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POWER SOURCE

AC operation Voltage	AC adapter 110/220 VAC, 50/60Hz 12/24 V nominal, <6W
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ENVIRONMENTAL

Operating temperature range	-15°C to +50°C (5°F to 122°F)
Storage temperature range	-40°C to +70°C (-40°F to 158°F)
Humidity	Operating and storage 10% to 95%, non-condensing
Encapsulation	IP 40 (Determined by connector type)
Shock	Operational: 25G, IEC 68-2-29
Vibration	Operational: 2G, IEC 68-2-6

PHYSICAL CHARACTERISTICS

Weight	0.8 kg (1.7 lbs)
Size	157mm x 75mm x 80mm (6.2" x 2.9" x 3.1")
Tripod mounting	1/4" - 20

INTERFACES

RS-232 (DB-9)	Camera Control
BNC	C-Video (NTSC/PAL)
2.5mm DC Power Jack	12/24V nominal
2-Pin Screw Terminal	12/24V nominal
6-Pin Screw Terminal (Upper)	Digital I/O, 3 Output/1 Input, 1 Input/Output selectable. Function is user-configurable.*
6-Pin Screw Terminal (Lower)	Analog I/O, 2 Output /1 Input Function is user configurable.*
6-Pin IEEE-1394 (FireWire)	Digital image output (8 and 16 bit), Camera Control, power input (12/24V, <6W)
8-Button Membrane Keyboard	Camera Control

*See Configuration Table below.

USER CONFIGURATION TABLE

Type	Function	Remark
Digital Input	TTL level • Shutter disable • Store image • Batch enable	Isolation and relay function in external module
Digital Output	TTL level • Spot/Line/Area threshold ALARM • Internal temperature sensor ALARM • V-sync	Isolation and relay function in external module
Analog Output	• Spot/Line/Area out 0-5V • Internal temperature sensor out 0-5V	Scaled to Tlow - High Isolation in external module
Analog Input	• External temperature sensor in 0-5V	Scaled to Tlow - High Isolation in external module

THERMOVISION® A20M RESEARCH SYSTEM INCLUDES:

- IR camera
- Researcher® software
- Carrying case
- Lens cap
- Manual
- Power supply including cable
- FireWire cable
- Configuration CD



The Global Leader in Infrared Cameras