



THERMAL IMAGING TEMPERATURE SENSOR

FLIR A35/A65™

The FLIR Ax5-Series of thermal imaging temperature sensors offers comprehensive visual temperature monitoring for process control and quality assurance applications as well as condition monitoring and fire prevention. The A35 and A65 integrate seamlessly into existing systems and are the only thermal imaging temperature sensors on the market to provide temperature linear output through GenICam™ compliant software.

www.flir.com/automation

VISUALIZE HEAT

These non-contact temperature sensors are enhanced with thermal imaging

- Detect temperature differences as small as 50 mK
- Choose the right field of view for your measurement area, from wide (90°) to narrow (6.2°)
- Measures accurately in conditions up to 140°F (60°C)

COMMUNICATE DATA SEAMLESSLY

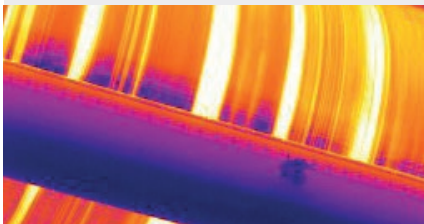
Stream temperature linear output through GenICam™ compliant software

- Integrate easily with Cognex, National Instruments, and other top machine vision systems
- Stream thermal images at up to 60 Hz directly to your system, for instant data analysis
- Synchronize cameras for stereoscopic applications

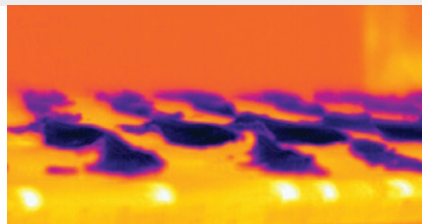
DESIGNED TO FIT YOUR APPLICATIONS

Get more out of your data with advanced analysis tools

- Compact size makes for easy installation in electrical cabinets and other small spaces.
- Offering the stability of a GigE Vision lockable connector, and the flexibility of Power over Ethernet (PoE)
- Ideal for any environment, the cameras' robust design can withstand harsh conditions



Monitoring drying stage in paper production.



Providing quality control on a food production line.



Detecting liquid levels in visually opaque bottles.

TECHNICAL SPECIFICATIONS

| Image and Optical Data | A35 | A65 |
|--|--|---------------------------------|
| IR Resolution | 320 x 256 | 640 x 512 |
| Thermal Sensitivity/NETD | <0.05°C @ 30°C (86°F) / 50 mK | |
| Image Frequency | 60 Hz | 30 Hz |
| Focus | Fixed | |
| Detector Data | | |
| Detector Type | Uncooled VOx microbolometer | |
| Spectral Range | 7.5 – 13 μm | |
| Detector Pitch | 17 μm | 17 μm |
| Detector Time Constant | 12 ms (typical) | |
| Measurement | | |
| Object Temperature Range | -25°C to 100°C (-13°F to 212°F) -40°C to 550°C (-40°F to 1022°F) | |
| Accuracy | ±5°C (±9°F) or 5% of reading | |
| Ethernet | | |
| Ethernet Type | Gigabit Ethernet, control and image | |
| Ethernet Standard, Connector | IEEE 802.3, RJ-45 | |
| Ethernet Communication | GigE Vision ver. 1.2, Client API GeniCam compliant | |
| Ethernet Image Streaming | 8-bit monochrome @ 60 Hz | 8-bit monochrome @ 30 Hz |
| Bit Rate | 14-bit 320 x 256 @ 60 Hz | 14-bit 640 x 512 pixels @ 30 Hz |
| | Signal linear/DDE; Automatic/Manual; Flip H&V | |
| | Signal linear/DDE; Temperature linear GigE Vision & GeniCam compatible | |
| Ethernet Power | Power over Ethernet, PoE IEEE 802.3af class 0 power | |
| Ethernet Protocols | TCP, UDP, ICMP, IGMP, DHCP, GigE Vision | |
| Digital Input/Output | | |
| Digital Input | 1x opto-isolated, "0" <1.2 VDC, "1" = 2–25 VDC | |
| Digital Output | 1x opto-isolated, 2–40 VDC, max. 185 mA | |
| Digital I/O, Isolation Voltage | 500 VRMS | |
| Digital I/O, Supply Voltage | 2 – 40 VDC, max 200 mA | |
| Digital I/O, Connector Type | 12-pole M12 connector (shared with digital synchronization and external power) | |
| Synchronization In | Frame Synch In to control camera 1x, non-isolated | |
| Synchronization In Type | LVC Buffer @ 3.3 V, "0" <0.8 V, "1" >2.0 V | |
| Synchronization Out | Frame Synch Out to control another FLIR Ax5 unit 1x, non-isolated | |
| Synchronization Out Type | LVC Buffer @ 3.3 V, "0" = 24 MA max, "1" = –24 mA max | |
| Digital Synchronization Connector Type | 2-pole M12 connector (shared with Digital I/O and External power) | |
| Power System | | |
| External Power Operation | A35 | A65 |
| External Power Connector Type | 12-pole M12 connector (shared with Digital I/O and Digital Synchronization) | |
| Voltage | Allowed range 10 – 30 VDC | |

| Environmental Data | |
|----------------------------------|---|
| Operating Temperature Range | –15°C to 60°C (5°F to 140°F) |
| Storage Temperature Range | –40°C to 70°C (–40°F to 158°F) |
| Humidity (Operating and Storage) | IEC 60068-2-30/24 h 95% relative humidity 25°C to 40°C (77°F to 104°F) |
| EMC | EN 61000-6-2 (Immunity), EN 61000-6-3 (Emission), FCC 47 CFR Part 15 Class B (Emission) |
| Encapsulation/Bump/Vibration | IP 40 (IEC 60529), 25 g (IEC 60068-2-27), 2 g (IEC60068-2-6), MIL-STD810G |

| Physical Data | |
|-------------------------|--|
| Camera Size (L x W x H) | 7.5, 9, and 13 mm lenses: 104.1 × 49.6 × 46.6 mm (4.1 × 1.9 × 1.8 in) 25 mm lens: 107.8 × 49.6 × 46.6 mm (4.2 × 1.9 × 1.8 in) |
| | A35 w/ 50 mm lens: 141.1 × 58.4 × 58.4 mm (5.7 × 2.3 × 2.3 in) |
| | A65 w/ 50 mm lens: 144.1 × 58.4 × 58.4 mm (5.7 × 2.3 × 2.3 in) |
| | A65 w/ 100 mm lens: 196.4 × 82.0 × 82.0 mm (7.7 × 3.2 × 3.2 in) |
| Tripod Mounting | UNC ¼"-20 (three sides) |
| Base Mounting | 4 × M3 thread mounting holes (bottom) |
| Housing Material | Magnesium and aluminum |

| Packaging | |
|-----------|---|
| Contents | Thermal imaging camera with lens, base support, printed documentation (some models include focus adjustment tool) |

| Part Number | Camera |
|-------------|---------------------------------------|
| 73309-0102 | FLIR A35 f=9 mm with SC kit |
| 83225-0101 | FLIR A35 FOV 13 (60 Hz) |
| 83213-0102 | FLIR A35 FOV 25 (60 Hz) |
| 83207-0102 | FLIR A35 FOV 45 (60 Hz) |
| 83250-0101 | FLIR A35 FOV 6.5 (60 Hz) |
| 83209-0102 | FLIR A35 FOV 69 (30 Hz) |
| 73413-0102 | FLIR A65 f=13 mm with SC kit (30 Hz) |
| 73513-0102 | FLIR A65 f=13 mm with SC kit (7.5 Hz) |
| 75050-0101 | FLIR A65 FOV 12.4 (30 Hz) |
| 75025-0101 | FLIR A65 FOV 25 (30 Hz) |
| 75013-0101 | FLIR A65 FOV 45 (30 Hz) |
| 75010-0101 | FLIR A65 FOV 6.2 (30 Hz) |
| 75007-0101 | FLIR A65 FOV 90 (30 Hz) |

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