

# *INSPECT & MONITOR*

*24/7 SOLUTIONS FOR ELECTRICAL CABINETS*

IR Windows & AX8 Thermal Imaging Temperature Sensor



*FLIR Solutions*

## *FLIR HAS A CABINET MONITORING SOLUTION FOR YOU*

If your cabinet-monitoring routine requires piling on layers of safety gear for frequent manual scans, it's time for a change. FLIR has exactly what you need for continuous monitoring of live electric components, as well as more in-depth periodic scans—without ever opening the cabinet doors. You'll cut inspection time, guard against unplanned outages, avoid service interruptions, and prevent equipment failure.

*Introducing FLIR IR Windows and the AX8 thermal imaging temperature sensor.*



## *ROUTINE INSPECTIONS OR CONTINUOUS MONITORING?*

IR Windows and the AX8 thermal sensor are your ideal solutions for finding faults in electrical cabinets. If you choose an IR Window, you get an easy and affordable option that reduces the cost and time required to do an inspection. Plus, it adds a barrier between you and energized equipment to protect you from arc flash accidents. If you choose the AX8, you'll benefit from continuous monitoring of critical electrical infrastructure. The sensor also helps you to conveniently monitor components that are difficult to see through an IR Window or camera.

### **IR WINDOW KEY BENEFITS**

- Reduces the need to open cabinets for inspections
- May reduce the need for layers of heavy protective gear\*
- Easy to install
- Shortens inspection time
- Cuts the cost of inspections

### **AX8 KEY BENEFITS**

- Continuous temperature monitoring 24/7
- Live video streaming for remote monitoring
- Easy integration
- Small and compact
- Easy to install

\*Personal protective equipment (PPE) may still be required as determined by your plant safety personnel.

# IR WINDOWS

Anodized Aluminum or Stainless Steel Windows with PIRma-Lock™

## FOR SAFER, MORE EFFICIENT ELECTRICAL IR INSPECTIONS

You put your life at risk every time you inspect live electric components—but you don't have to. FLIR's IRW-Series inspection windows add a protective barrier between you and energized equipment. There's no need to pile on the layers of protection needed to open up the electrical cabinet. You'll perform inspections more efficiently and reduce the threat of arc flash injury, all while staying in compliance with NFPA 70E requirements.

FLIR IRW-Series windows feature a permanent hinged cover that flips open easily, so there's nothing to drop, mix up, or lose. Choose the standard anti-corrosion anodized aluminum frame, or if there are mixed-metal concerns, opt for durable stainless steel. This will help prevent galvanic corrosion from contact between the stainless steel cabinet and window frame.

## KEY BENEFITS

- Uses standard US punch tools for hole knockouts
- Automatically grounds metal components
- PIRma-Lock ring nut locks window tight inside the panel
- Simple flip-open hatch secured with thumb screw releases
- Permanently-hinged cover prevents dropping, mix-ups, and loss
- Inside label for permanent identification
- Transmits short-, mid-, and longwave IR images
- Works with all thermal and visual inspection cameras
- Allows laser pointers and illumination to shine through
- Saves time and labor by eliminating the need to remove panel covers
- Can reduce or eliminate need for cumbersome PPE
- Stainless steel option resists corrosion by preventing contact between dissimilar metals
- Durable for harsh environments and the outdoors



Anodized aluminum  
IR inspection windows



Stainless steel IR inspection windows

## EASY INSTALLATION



Step 1: One hole to cut



Step 2: Easy placement



Step 3: Single PIRma-Lock™ ring nut



### FLIR IR WINDOW FIELD OF VIEW

$FOV = D \times A$

Where FOV is the field of view

D is the cabinet depth measured from the window to the target

A is the multiplication factor from the following table:

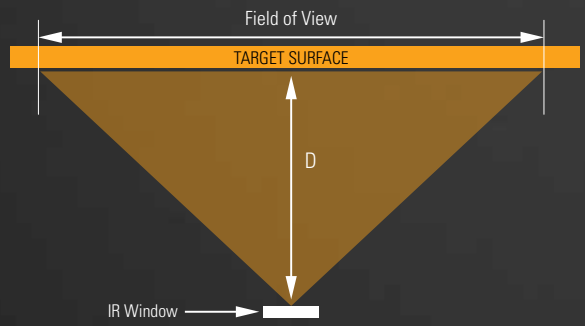
IRW-Series Model	IRW-2C or IRW-2S	IRW-3C or IRW-3S	IRW-4C or IRW-4S
Tilting any FLIR camera lens	2.4	2.7	3.2

### EXAMPLE:

Using a 3" (IRW-3C) window  
with a lens 12" from the target:

$FOV = 12" \times 2.7$

$FOV = 32.4"$



### SPECIFICATIONS

Model	IRW-2C/2S	IRW-3C/3S	IRW-4C/4S
Size	2" Window	3" Window	4" Window
NEMA Environment Type	Type 4/12 (outdoor/indoor)	Type 4/12 (outdoor/indoor)	Type 4/12 (outdoor/indoor)
Voltage Range	Any	Any	Any
Automatically Grounded	Yes	Yes	Yes
Maximum Operating Temperature	260°C/500°F	260°C/500°F	260°C/500°F
Body Material – IRW-xC Type	Anodized aluminum	Anodized aluminum	Anodized aluminum
Body Material – IRW-xS Type	AISI grade 316 stainless steel	AISI grade 316 stainless steel	AISI grade 316 stainless steel
Gasket Material	Silicone	Silicone	Silicone
Hardware Material	Steel	Steel	Steel

#### Size Specifications

Overall Height	85.5 mm (3.36")	107.4 mm (4.22")	136.5 mm (5.37")
Overall Width	73 mm (2.87")	99 mm (3.89")	127 mm (5.01")
Overall Thickness	25.5 mm (1.00")	26.86 mm (1.05")	29.25 mm (1.15")
Required Actual Hole Diameter (Nominal)	60.3 mm (2-3/8")	88.9 mm (3-1/2")	114.3 mm (4-1/2")
Greenlee Punch	76BB	739BB	742BB
Recommended Max Panel Thickness	3.2 mm (1/8")	3.2 mm (1/8")	3.2 mm (1/8")

#### Optic Specifications

Optic Diameter	50 mm (1.97")	75 mm (2.95")	95 mm (3.74")
Viewing Aperture Diameter	45 mm (1.77")	69 mm (2.71")	89 mm (3.50")
Viewing Aperture Area	1590 mm <sup>2</sup> (2.46 in <sup>2</sup> )	3739 mm <sup>2</sup> (5.79 in <sup>2</sup> )	6221 mm <sup>2</sup> (9.64 in <sup>2</sup> )
Optic Maximum Temperature	1355.6°C (2474°F)	1355.6°C (2474°F)	1355.6°C (2474°F)

#### Ratings and Testing

UL Component Recognition (UL 50V)	Yes	Yes	Yes
UL 50 / NEMA Environment Rating	Type 4/12	Type 4/12	Type 4/12
Arc Flash Testing, IEC 62271-200 (KEMA)*	5 kV, 63 kA for 30 cycles at 60 Hz	5 kV, 63 kA for 30 cycles at 60 Hz	5 kV, 63 kA for 30 cycles at 60 Hz
IP Rating, IEC 60529 (TUV)*	IP67	IP67	IP67
Vibration Testing, IEC 60068-2-6 (TUV)*	100 m/s <sup>2</sup> vibration withstand	100 m/s <sup>2</sup> vibration withstand	100 m/s <sup>2</sup> vibration withstand
Humidity Testing, IEC 60068-2-3 (TUV)*	Extreme humidity withstand	Extreme humidity withstand	Extreme humidity withstand
Mechanical Testing, ANSI/IEEE C37.20.2 section A3.6 (TUV)*	Impact and load resistant cover	Impact and load resistant cover	Impact and load resistant cover
Maximum Pullout Strength	657 kg (1450 lbs)	1655 kg (3650 lbs)	1678 kg (3700 lbs)
CSA Certification, C22.2 No. 14 or 508	Yes	Yes	Yes

\*Test results valid for IRW-2C, IRW-3C, and IRW-4C only.

# FLIR AX8™

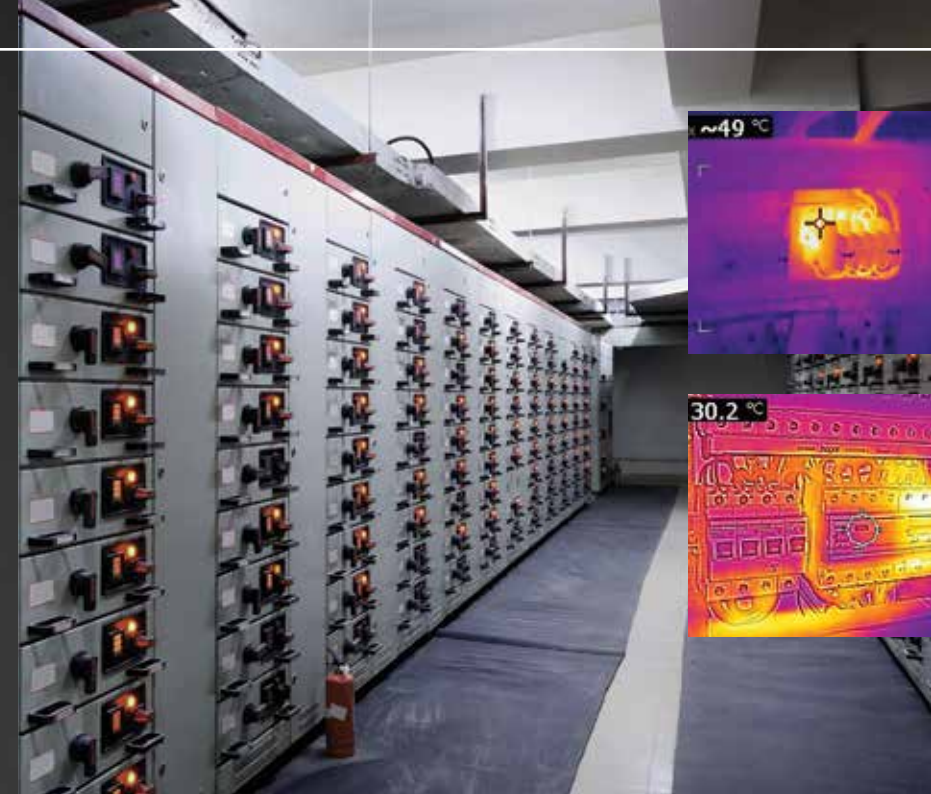
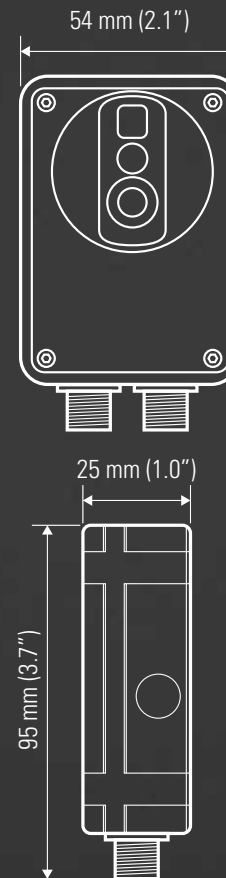
Keep Infrared Eyes On 24/7

## FOR CONTINUOUS CABINET MONITORING

The FLIR AX8 is a temperature sensor with thermal imaging capabilities, combining thermal and visual cameras into a compact, affordable package. The sensor provides continuous temperature monitoring and alarming capabilities, helping you guard against unplanned outages, service interruptions, and equipment failure. Measuring only 54 x 25 x 95 mm, the AX8 is easy to install in tight spaces. You can view thermal imagery, visible light imagery, or the two combined with FLIR's proprietary MSX® multispectral dynamic imaging. MSX provides image detail from the visible camera embossed onto the thermal image, giving you excellent image clarity, the ability to read labels, and better contextual awareness. Plus, the AX8 provides automated alarming when pre-set temperature thresholds are exceeded, as well as temperature trend analysis. You'll get the benefits of 24/7 condition monitoring and hot spot detection without the need for periodic manual scans.

## KEY BENEFITS

- Compact and easy to install
- Live video of every installation
- Automated alarming when pre-set temperature thresholds are exceeded
- Operates on the most common industrial protocols for ease of integration
- Ethernet/IP and Modbus TCP compliant so results are easily shared to a PLC
- Digital inputs/outputs are available for alarms and control of external equipment
- An image masking function allows you to select only the relevant part of the image for your analysis
- Sharper image detail, the ability to read labels, and better contextual awareness with MSX



# FLIR AX8™ (actual size)



## SPECIFICATIONS

Measurement	AX8
IR Resolution	80 × 60 pixels
Object Temperature Range	-10°C to 150°C (14°F to 302°F)
Accuracy	±2°C (±3.6°F) or ±2% of reading (10°C to 100°C @ 10°C to 35°C ambient)

Measurement Analysis	
Spotmeter	6
Area	6 boxes with max./min./average
Automatic Hot/Cold Detection	Max/Min temp. value and position shown within box
Emissivity Correction	Variable from 0.01 to 1.0
Reflected Apparent Temperature Correction	Automatic, based on input of reflected temperature
External Optics/Windows Correction	Automatic, based on input of optics/window transmission and temperature
Measurement Corrections	Global object parameters

Alarm	
Alarm Functions	Automatic alarms on any selected measurement function. A maximum of 5 alarms can be set
Alarm Output	Digital Out, store image, file sending (ftp), email (SMTP), notification

Set-Up	
Web Interface	Yes

Storage of Images	
Storage Media	Built-in memory for image storage
Image Storage Mode	IR, visual, MSX

Ethernet	
Ethernet, Connector Type	M12 8-pin X-coded
Ethernet, Video Streaming	Yes
Ethernet, Power	Power over Ethernet, PoE IEEE 802.3af class 0
Ethernet, Protocols	Ethernet/IP, Modbus TCP, TCP, UDP, SNMP, RTSP, RTP, HTTP, ICMP, IGMP, sftp, SMTP, SMB (CIFS), DHCP, MDNS (Bonjour)

Specifications subject to change without notice. Be sure to visit [www.flir.com/ax8](http://www.flir.com/ax8) for the latest product information and updates.

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