

# Alpine Components

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## C-Range Infrared Window

Increase the safety  
& speed of electrical  
thermography

If you are concerned about Arc-Flash but wish to continue with your infrared thermography program infrared windows are the answer. These Arc-Resistant, outdoor certified, infrared windows allow thermal, ultraviolet, visual and fusion technologies to be used without exposing personnel to live equipment.

All infrared windows from Hawk IR International use the unique Quadraband™ multispectral optic, allowing inspection with any camera for total flexibility both now and in the future.

- Engineered and tested to withstand electric-arcs up to 50kA for a huge 30 cycles.
- Certified by UL & CSA for Type 3/12 (Outdoor) environments in North America and Canada, the C-Range windows are tested to withstand the long term aging effects of UV exposure.
- Certified by SIRA Certification IP65 (Outdoor) environments in Europe.
- The CLIRVU® coating – exclusive to Hawk IR Windows - seals the optic prior to assembly to protect against moisture degradation.
- Own a Fluke Camera? The Quadraband™ optic is IR-Fusion® compatible allowing the thermographer to see potential problems both ways.
- Got more than one window per panel? Each C-Range window is delivered with an identification plate attached for unique, on-site numbering for rapid location confirmation and faster repairs.
- Each infrared window comes complete with a security access key, installation instructions and self-adhesive drilling template.



Do you have an infrared camera with IR fusion capability? Do you simply want to take a digital photograph of a problem to help with a repair? Using pre-shot digital pictures of switchgear attached to outdoor panels is never a long term, robust solution.

With C-Range Quadraband™ optics you can use the same IR Window to confirm a disconnect position, clarify a phase color in a multicable feeder or even visually detect discoloration as further confirmation of a problem.

**INFRARED  
EVOLVED**

## Detailed specifications

	FLK-050-CL / CLKT	FLK-075-CL / CLKT	FLK-100-CL / CLKT
<b>Optic Data</b>			
<b>Crystal Insert Diameter</b>	50 mm (1.97 in)	75 mm (2.96 in)	100 mm (3.94 in)
<b>Viewing Aperture Diameter</b>	43 mm (1.7 in)	68 mm (2.7 in)	89 mm (3.5 in)
<b>Viewing Aperture Area</b>	1452 mm <sup>2</sup> (2.25 sq in)	3632 mm <sup>2</sup> (5.63 sq in)	6322 mm <sup>2</sup> (9.79 sq in)
<b>Thickness</b>	2 mm (0.08 in)	2 mm (0.08 in)	4 mm (0.16 in)
<b>CLIRVU Coating</b>	Yes		
<b>Shortwave IR Capable</b>	Yes		
<b>Midwave IR Capable</b>	Yes		
<b>Longwave IR Capable</b>	Yes		
<b>Ultraviolet (UV) Capable</b>	Yes		
<b>Visual Capable</b>	Yes		
<b>Fusion Capable</b>	Yes		

### Why is available area important?

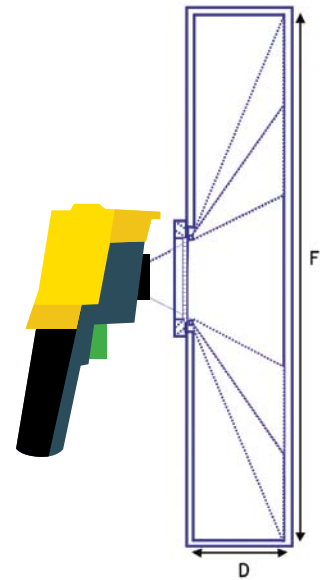
Understanding the difference between "Optic Diameter" and "Available Area" gives the thermographer a measure of how much infrared energy is passing through the window. The more energy, the better the reading. Using a crystal IR Window means that the entire area is available for infrared transmission for optimum repeatability and results. While a mesh grid

may have a larger "Optic Diameter" the grid itself blocks the IR signal, meaning that the amount of radiation available to the camera is significantly reduced and the signal may be irregular. It is a generally accepted fact that due to interference by mesh grids, transmission correction and hence measurement is not possible,

<b>Underwriters Laboratories (UL) Recognized</b>	<b>YES</b>
UL50 Environmental	Type 3/12
UL746C	N/A (Polymer Free)
UL94	N/A (Polymer Free)
<b>Canadian Standards Association (CSA) Approval</b>	<b>YES</b>
Environmental	Type 3/12
<b>KEMA (Arc-Testing)</b>	
ANSI C37.20.7	50 kA for 30 cycles @60 Hz
EEMACS 14-1 Type-B	40 kA for 30 cycles @60 Hz
<b>ASTA (Arc-Testing)</b>	
IEC 62271	20 kA for 5 cycles @50 Hz
<b>TUV</b>	
Cyclic Humidity Withstand	YES
Vibration Withstand	YES
<b>NEMKO</b>	
Resistance of insulating materials to 100°C	YES
Resistance of insulating material to ball pressure (Brinell)	YES
Glow-wire test 650 °C	YES
<b>Lloyds Register</b>	
Up to 11kV Marine Switchgear, Indoor or Outdoor	YES

## General specifications

<b>Maximum Temperature</b>	Gaskets: 250 °C (482 °F)
	Body: 659 °C (1219 °F)
	Optic: 1400 °C (2552 °F)
<b>Gaskets</b>	Low Smoke & Fume (LSF) compliant silicone
<b>IP Rating</b>	IP65
<b>NEMA Rating</b>	Type 3/12 (UL & CSA Third Party Certified)
<b>Vibration Rating</b>	IEC60068-2-6
<b>Humidity Rating</b>	IEC60068-2-3
<b>Pull-out strength</b>	Up to 630 kg (1388 lb)
<b>Warranty</b>	Lifetime replacement against manufacturing defects



Basic Field of View (FOV) calculation,  $F = 6 \times D$

## Ordering information

Crystal Insert Size	50 mm (2 in)	75 mm (3 in)	100 mm (4 in)
	FLK-050-CL	FLK-075-CL	FLK-100-CL
<b>Standard Aluminium Cover</b>	-	-	-
<b>Kwik-Twist Aluminium Cover</b>	KT	KT	KT

### Included with product

IR Windows are supplied complete, assembled and ready for installation. In addition to the IR Window each carton contains: Installation CD, self-adhesive drilling template, security access key, warranty statement.

Example part number for 4 – inch C-Range with kwik-twist aluminium cover = FLK-100-CLKT