



**1. Product Name**

■ CAP-ENV-US Series Infrared and Visual Inspection Window with built-in ultrasound inspection access

**2. Manufacturer**

IRISS Inc.  
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**3. Product Description**

**CAP-ENV-US Series Infrared and Visual Inspection Windows**

The CAP-ENV-US Series has the largest visually clear infrared (IR) transmissive viewing window area. The exclusive patented, industrial-grade, reinforced Poly-View System™ polymer can be used by any make or model of infrared and ultraviolet camera, this unit also has a unique built in environmentally sealed ultrasound inspection and partial discharge port.

**Basic Use**

The essential element for electrical safety is to protect personnel by ensuring that all equipment is in an electrically safe condition before any maintenance tasks are commenced. The CAP-ENV-US Series are primarily used as viewing windows that allow essential maintenance tasks such as infrared, ultraviolet and visual inspections of electrical equipment to be completed



whilst the energized equipment remains closed and in a safe condition ensuring workers are never exposed to the dangers of arc flash or electrocution.

The CAP-ENV-US unit however also has the added ability of allowing for ultrasound inspections to be completed through a unique built in ultrasound access port. This allows all ranges of ultrasound inspection equipment to check for corona, partial discharge, tracking or arcing of electrical components using the same access point and giving complete and safe access for inspection of critical electrical distribution assets.

**Materials and Finishes**

The window housing and covers are constructed using 304 stainless steel with 316 stainless steel hardware. Custom materials are also available on request. Gasket material is HT-800 closed cell, medium density silicone.

Infrared lens material is a reinforced visual, UV and IR transmissive polymer complying with UL and CSA requirements for infrared inspection windows.



**Benefits**

- Durable
- Fixed and stable transmission (FAST)
- Can be used both indoors and outdoors
- IR window construction materials and colors can be customized to clients specification
- The larger rectangular viewing area provides an unparalleled field of view when compared to traditional round IR windows.
- The exclusive industrial-grade, reinforced Poly-View System polymer allows any model of IR and UV camera to monitor completely undisturbed energized components inside electrical equipment
- The CAP-ENV-US offers locking covers for areas of high traffic and protection from impacts, flying debris moisture and dust
- Water and dust ingress complies with IEC IP67 and NEMA 250 Type 6

**Product Limitations**

Not recommended for use in temperatures less than -40 degrees F (-40 degrees C) or greater than 617 degrees F (325 degrees C). for temperatures outside of these requirement speak with IRISS directly.

**Dimensions**

See Table 1.

**4. Technical Data**

**Applicable Standards**

**American Bureau of Shipping [ABS] Approved**

- Certificate No. 11-HS807296-PDA

**ASTM International (ASTM)**

- **ASTM F2281-2004(2012)** Standard Specification for Stainless Steel and Nickel Alloy Bolts, Hex Cap Screws and Studs, for Heat Resistance and High Temperature Applications

**Canadian Standards Association (CSA)**

- **CSA-C22.2 No. 14-13** Industrial Control Equipment – 12th Ed.
- **CSA-C22.2 No. 94-M91** Special Purpose Enclosures – 4th Ed.
- **CSA-C22.2 No. 94.1-07** Enclosures for Electrical Equipment
- **CSA-C22.2 No. 94.2-07** Enclosures for Electrical Equipment

**Det Norske Veritas (DNV) GL**

- **P261.1E** Maritime, Vessel and Offshore Applications Approved

**Institute of Electrical and Electronics Engineers (IEEE)**

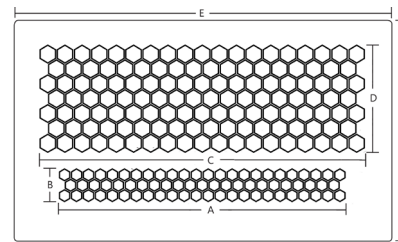
- **IEEE C37.20.2.a.3.6** mandatory impact and load test requirements for visual viewing panes for Metal-Clad and Station Type Cubicle Switchgear

**International Electrochemical Commission (IEC, IP Code)**

- **IP67/NEMA 6** Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment

**Table 1—CAP-ENV-US Dimensions**

Model	Ultrasound Area	IR Window Area	Overall Dimensions
<b>CAP-ENV-US-4</b>	A = 9.4 cm (3.7") B = 1.5 cm (0.6")	C = 9.7 cm (3.8") D = 5.6 cm (2.2")	E = 15.24 cm (6") F = 15.24 cm (6")
<b>CAP-ENV-US-6</b>	A = 7.6 cm (3") B = 2.3 cm (0.9")	C = 9.1 cm (3.6") D = 9.7 cm (3.8")	E = 16 cm (6.3") F = 21.8 cm (8.6")
<b>CAP-ENV-US-12</b>	A = 20.3 cm (8") B = 2.3 cm (0.9")	C = 23.1 cm (9.1") D = 7.6 cm (3")	E = 30.5 cm (12") F = 20.6 cm (8.1")
<b>CAP-ENV-US-24</b>	A = 51 cm (20.1") B = 2.3 cm (0.9")	C = 55.1 cm (21.7") D = 7.6 cm (3")	E = 61 cm (24") F = 21.8 cm (8.6")



- **IP22/IP2X** Minimum requirements for the design of electrical accessories for indoor use
- **ANSI/IEC 60529-2004 (R2011)** Degrees of Protection Provided by Enclosures (IP Code 65)

**International Standards Organization (ISO)**

- ISO 9001:2008 Certificate No. 74 300 3797

**Lloyd's of London**

- **Certificate No. 05/00026**

**National Electrical Manufacturers Association (NEMA)**

- Type 1
- Type 3: Viewport may be marked raintight
- Type 3R: Viewport may be marked rainproof
- Type 2, 5, 12, 12K and 13: Viewport may be marked driptight or dusttight.

Ratings above are when installed on a flat surface of a suitably rated enclosure.

**Underwriter's Laboratories (UL) and Canadian Underwriters Laboratories (cUL)**

- **UL 50V** Infrared Viewports
- **UL 50E** Enclosures for Electrical Equipment, Environmental Considerations
- **UL 746C** Polymeric Materials - Use in Electrical Equipment Evaluations
- **UL 1558** Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
- **UL 508A/ANSI UL 508A** Industrial Control Panels
- **UL 94-2013** Tests for Flammability of Plastic Materials for Parts in Devices and Appliances
- **UL 746A-2012** Polymeric Materials - Short Term Property Evaluations

**Arc Containment Tested**

- IEC 62271-200 Arc Flash Spectest 1.1 Second Duration
- IEC 60262271-200: 63kA, 15kV for 30 cycles at 60Hz
- IEC 60298 Appendix A: 63kA, 15kV for 30 cycles at 60Hz
- IEE C37.20.7 Type 2B: 63kA, 15kV for 30 cycles at 60Hz

**Environmental Considerations**

IRISS Inc. uses recycled aluminum in the production of CAP-ENV-US Series frames.

IRISS Inc. uses recycled packaging materials for all IRISS product lines.

**5. Installation**

- Install CAP-ENV-US Series visual inspection window in accordance with the *CAP Series Installation Guide*
- Once an installation location has been selected, apply the supplied cutting template to the side of the panel where the window is to be fitted
- Using a center punch, mark all the fixing holes
- Use a  $\frac{9}{32}$  inch (7 mm) drill bit to drill the center punched holes and if using a nibbler, drill a pilot hole along line
- Cut appropriate sized hole to meet project requirements and CAP-ENV-US model being installed
- De-burr cut edges and peel away the remaining portion of the cutting template
- Treat all bare metal with a protective anti-corrosion coating before installing the CAP-ENV-US unit
- Place the body of the CAP-ENV-US in the panel hole and secure with  $\frac{7}{16}$  inch nuts
- Tighten nuts in accordance with the *CAP Series Installation Guide*

**Delivery, Storage and Handling**

Deliver CAP-ENV-US Series infrared visual inspection window and accessories in manufacturer's original packaging with project identification information clearly shown. Instruction for storage and handling will be provided upon shipment.

**6. Availability and Cost****Availability**

Standard stock sizes and materials are generally available within five days. Custom products are delivered within 10–15 business days. Contact IRISS Inc. directly for delivery times for products using custom materials or sizes.

**Cost**

Contact IRISS Inc. directly for material cost.

**7. Warranty**

Unconditional lifetime warranty for the period of the installation applies not only to the workmanship of the window housing but also applies to the durability and stability of the optic in the proposed environment.

**8. Maintenance**

Regular cleaning to ensure glazed area is clear. Little maintenance is required if the door is kept closed.

**9. Technical Services**

As well as offering the CAP-ENV-US Series in standard stock materials, IRISS Inc. will construct view windows or ports with custom materials to meet clients' needs.

**10. Filing Systems**

- CMD
- Additional product information is available from the manufacturer upon request ↪