



## What Can I See Through an Infrared Viewing Pane?

An infrared window allows you to inspect live energized components and connections inside of an electrical cabinet without having to remove covers to do so.

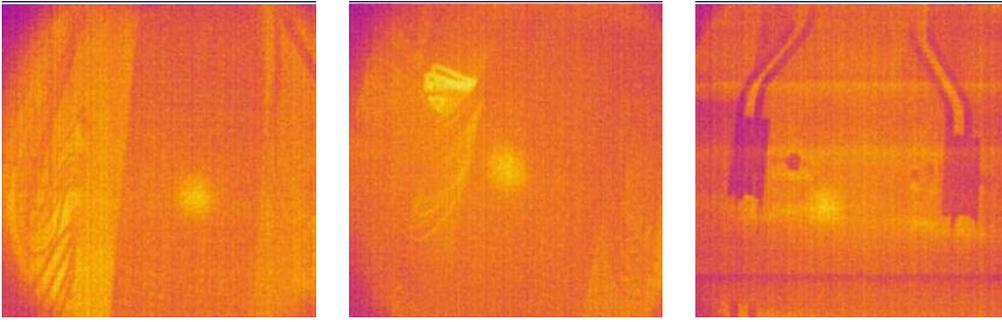
As with traditional thermographic inspections, i.e. inspections completed without IR Windows, we can see temperature differences very clearly. However, when trying to survey components that do not have any faults, very little load, and are at the same temperature, you will see very little if anything at all! (which is the case 99% of the time with thermographic inspections without IR windows).

You must have the confidence in your infrared window, they are designed to allow infrared energy to transmit through them at a known transmission rate; therefore, if there is even a slight temperature difference you will be able to see that with your IR camera, and be able to record images for the IR inspection trend analysis program.

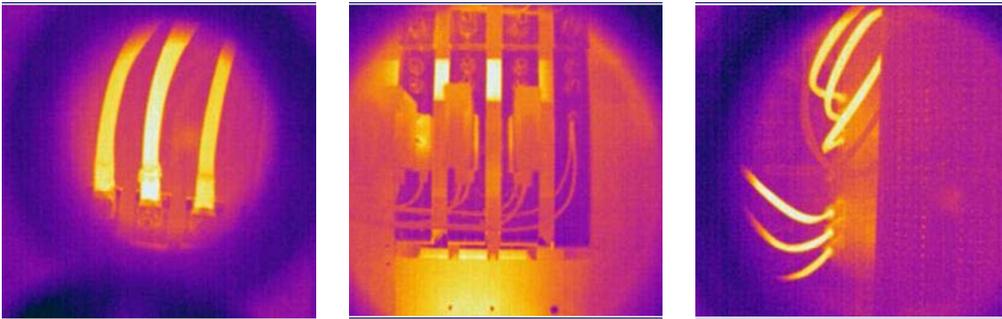
You need to be aware of several essential points when using IR windows, they are:

- The transmission rate of the window you are using.
- The emissivity of the targets you are looking at.
- How many targets you are looking for through the IR window
- The focus range of the IR camera you are using (some lower priced cameras have a focus range of 20 inches!!)
- The Infrared wavelength your camera operates within.

## Images taken through IR windows showing no apparent faults



## Images taken through IR windows showing issues due to load imbalance and poor connections are evident.



## Using IRISS IR Viewing Panes for LIVE IR Inspections Avoids 99.9% of the Triggers of Arc Flash

### How do I Use Infrared Windows?

An important thing to remember when installing IR windows is to identify the window with a unique number; this will be invaluable, especially Infrared Windows when you have multiple windows on electrical panels. It is also advisable to identify the type and wavelength of the Infrared Window Material.

It is essential to record the transmission rate of the IR window viewing optics and also the emissivity of the component or components that you are measuring through the IR window as you will not be able to do this easily once the window is fitted. Take the time to record all the parameters required to ensure that the thermographer using the IR window has all the required data at hand at the time that the inspection is taking place. This will ensure that the results gathered will be far more accurate.

### Tip

The most effective way of standardizing emissivity is to prepare all components that are to be inspected so they have the same emissivity with electrical tape, paint, IR-ID Labels, etc... thus all components being inspected will have the emissivity readings.

It should be noted that there may be multiple targets through the IR window, these need to be recorded on the ID label. The most common method of locating the targets required is by using the clock face method, i.e. Bus Bar connections at 4 O'clock, etc. This data can all be placed on labels, (supplied with your IRISS Infrared window) examples of which are shown below.



### Note

When adjusting for emissivity and transmission some cameras will not have the ability to adjust the external optics transmission, therefore thermographers can use the emissivity setting on the camera to offset for transmission and emissivity losses, the formula for this is to multiply the target components emissivity by the IR transmission of your IR Window. If you are using this technique you can use the labels to record the emissivity setting for the camera when using the specific viewing pane or viewing grill.



Figure 2

**IRISS VP100 INSTRUCTIONS FOR USE**  
**CAUTION: THIS DEVICE IS COMPLETE WITHOUT THE COVER LID.**  
Undo both protective cover locking screws two complete turns.  
Slide antechamber cover down and rotate cover anti-clockwise.  
Take thermographic image (remember to record data from IR window.  
Location, Transmission rate, etc.)  
Rotate cover clockwise against the upper locking screw and slide upwards to locate cover.  
Fully tighten all four locking screws. (Max 0.2 Nm)

Location: IR0013  
IR Window No: IR0012-02  
Lens Material: Polycarbonate  
Transmission: 0.975 IR 0143  
Note: Load side bus connections for distribution panel bus duct disconnected. "A" phase left, "B" phase middle, "C" phase right.