



Does an IR Camera Work With Your Infrared Windows?

Someone comes in to your facility with an infrared (IR) camera to make measurements through an IR window. How do you know their camera will work with your IR window?

Step 1: Determine the type of IR Camera you are using.

There are 2 types of IR Cameras:

- Mid Wave covering 3 to 5 microns and used mainly by police or military
- Long Wave covering 8 to 12 microns – most commonly used in industrial settings

Note: 5 to 8 micron range is not used for IR surveys.

Step 2: Determine the type of IR window material.

The most common IR materials used in industrial settings you will run into are:

- Calcium Fluoride
- IR Polymer (Note: transparent and opaque polymer are both available.)
- Sapphire

Step 3: Determine the transmission range of the material.

- Calcium Fluoride – .13 to 10 microns
- IR Polymer – about .1 to about 14 microns
- Sapphire – .17 to 5.5 microns

Conclusions:

1. Long wave cameras cannot collect IR data using a sapphire window. Sapphire does not transmit beyond 5.5 microns and long wave cameras operate beginning at 8 microns.
2. Any brand long wave camera can collect data from a calcium fluoride crystal window. The calcium fluoride range ends at about 10 microns and the long wave cameras operate beginning at 8 microns.
3. Any brand long wave camera can collect data through an IR polymer window. IR polymers transmit at about .1 to 14 microns and long wave cameras cover 8 to 12 microns.
4. IR windows are not camera or brand specific. You must know the material properties you are trying to see through as well as the operating range of your camera.
5. IR cameras are not IR window brand specific. Know the material properties and the operating range of your camera.
6. Long wave cameras can collect IR data from both calcium fluoride windows as well as IR polymer windows.