

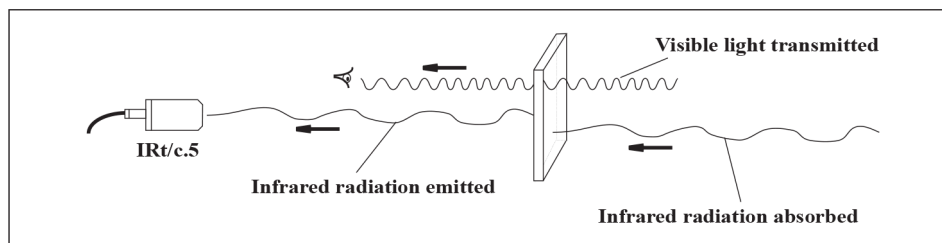
GLASS MONITORING

Glass processing, whether of sheets, bottles, or other forms, usually involves temperature as a primary control variable. Since glass is impossible to measure by contact means, plants must use either ambient temperature as an indirect approximation, or an infrared device to measure the glass directly. An often asked question is whether infrared devices can measure glass correctly, since to the eye the glass is transparent.

The answer lies in the physics of glass and the well known “greenhouse effect.” The short wave radiation of visible light that we can see (~ 0.3 - 0.8 microns) can pass through glass essentially unaffected. The much longer infrared wavelengths that are normally measured for temperature

assessment (~ 5 - 20 microns) cannot pass through the glass, and are absorbed. As a consequence of the inability of glass to transmit the long wavelengths of infrared, the glass will emit those wavelengths created by its temperature, and thus can be measured with an IRt/c. At much higher temperatures the infrared wavelengths become shorter, and some transmission occurs.

If the glass is within the temperature range of the IRt/c, the sensor will measure its temperature accurately – just as if the IRt/c were looking at an opaque material surface. Follow the normal installation and calibration procedures. The glass will have emissivity in the range of 0.9 and above, and therefore will provide good results.



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