National Aeronautics and Space Administration

INSTRUMENTATION TECHNOLOGY

Hand-held Hydrogen Flame Imager
US Patent # 5,726,632

This instrument is a hand-held fire imaging system that allows the operator to visually determine the existence, size and location of a hydrogen fire flame.

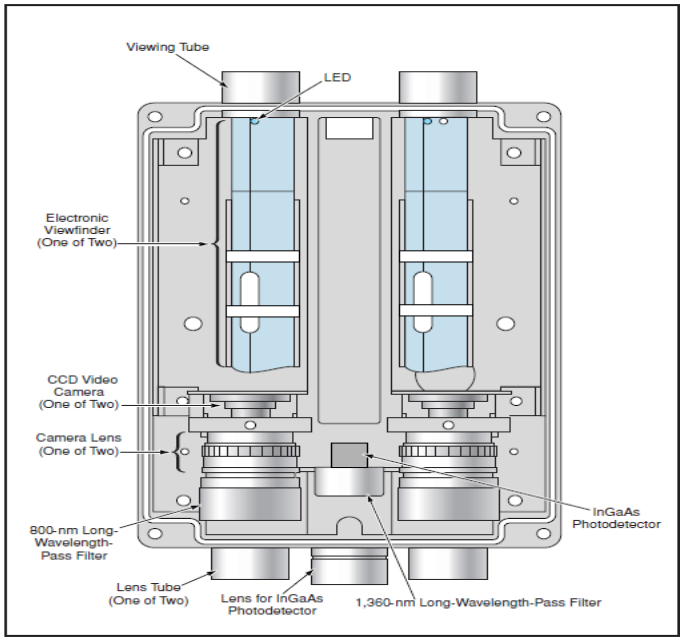
The imager consists of two low-light, black and white, silicon charge-coupled-device (CCD) cameras, that operate simultaneously. The CCD cameras are packaged in a housing like binoculars, and operate at infrared wavelengths to detect hydrogen fire flames or other flames that are nearly impossible to see with the naked eye.

The “cloudy” CCD camera has a long-wavelength pass filter which blocks enough background light to make the hydrogen flame appear bright against the background.

The “sunny” CCD camera has a long-wavelength-pass filter that blocks the solar background in the presence of full sunshine so that a hydrogen flame looks brighter than the solar background. A switch enables the operator to select the camera depending on current light conditions.

When a flame is detected, an audible alarm sounds and visible flash by light-emitting diodes (LEDs) is seen inside the viewfinders.

A 12 volt battery located within the housing provides power to the components. A video output port is located on the housing which allows a video monitor or a video recorder to be connected to the flame imager so the signal can be remotely viewed or recorded.



Both cameras and their viewfinders can be used simultaneously for binocular viewing.

Benefits

Safety: Useable in emergency situations or hazardous conditions. Protects personnel and facilities.

Compact Size: Packaged like binoculars with a re-chargeable battery.

Versatile: Designed for operation in Class I, Division II, Group B hazardous environments.

Monitoring: View a hydrogen, alcohol, typical hydrocarbon, or an embers flame, 1in. by 8 in. long, at up to 75 feet, in full sunlight.

For More Information

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