

UV Flame Detector SharpEye™ 20/20U & 20/20UB



Features

- Explosion-proof
- Typical 3 second response
- 4-20mA output (source)
- Multiple detection levels
- 90°/90° cone of vision
- Adjustable time delay
- FM, CSA and ATEX Approved

Description

The SharpEye 20/20-U & 20/20-UB detectors state-of-the-art design, combines industry performance requirements and up-to-date electronic microprocessor technology. The UV sensor band pass has been carefully selected to ensure the greatest degree of spectral matching to the radiant energy emissions of fire.

The microprocessor design allows for unique field programming by easy dip switch and makes these detectors easily adaptable to all environments, applications and requirements. Multiple detection levels allow for pre-alarm and alarm response. In addition, both detectors now offer programmable time delay of up to 30 seconds.

The SharpEye UV detector incorporates a special logic circuit which helps prevent false alarms caused by solar radiation. The UV sensor is sensitive to radiation over the range of 0.185-0.260 micron. This combination of sensor detection logic will sense, analyze and distinguish between a fire event and a false alarm stimulus. It is important to note that this detector must not be exposed to UV radiation sources such as: electrical arcs, sparks and welding, etc.

In addition to the basic alarm evaluation circuit, the 20/20-UB incorporates the added feature of Built-in-Test (BIT)* which enables the detector to continuously perform (at predetermined time intervals) automatic full-featured test of the detector's internal electronic circuits, UV sensors and cleanliness of the lens.

Both U & UB are self-contained optical flame detectors and function as a stand-alone unit, directly connected to external devices, such as alarm systems or automatic fire extinguishing systems. The same

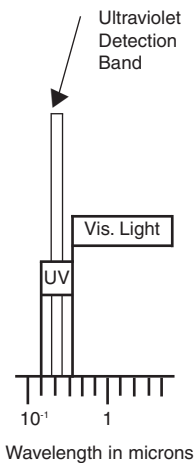
detector can form part of a more complex system where a plurality of detectors and other devices are integrated through a dedicated control unit. SharpEye detectors offer LED indicators located inside the detector's front window.

SharpEye 20/20-UB and 20/20-U detectors utilize only Mil-spec electronic components and materials. The detectors input circuit is protected against reversed polarity voltage transients, surges and spikes as per MIL-STD-1275. The MTBF (Mean Time Between Failures) is calculated to be 100,000 hours or (11+ years). This outstanding performance permits a 3-year manufacturer's warranty on the entire detector, not just the sensors.

* = only on UB model

General Specifications

Spectral response:



Detection range:

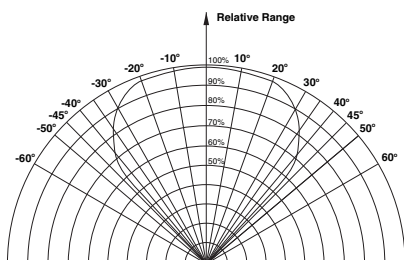
(highest sensitivity setting)

- 1 sq. ft. gasoline at 50 ft. (15m)
- 1 sq. ft. diesel oil at 37 ft. (11m)
- 1 sq. ft. alcohol fire at 37.5 ft. (11m)
- 1 sq. ft. n-heptane fire at 50 ft. (15m)
- 1 sq. ft. JP5 Fire at 37 ft. (11m)
- 1 sq. ft. kerosene fire at 37 ft. (11m)

Response time: Typical 3 seconds.

Time delay: Adjustable time delay up to 30 seconds

Field of view: 90° Horizontal, 90° Vertical



Electrical:

Operating Voltage: 18-32 VDC
 Power Consumption:
 Maximum 80 mA in stand-by
 120 mA in Alarm

Electrical interface: Standard 4-wire connection with cascading capability. Complete electrical interface protection against reversed polarity voltage, surges & spikes according to MIL-STD-1275.

Electrical connection:

Standard - two 3/4 14NPT conduits
 Option - two M25 x 1.5 conduits

Dry contacts relays:

Alarm: 2 Amps at 30 VDC
 0.5 Amps at 250 VAC
 Accessory: 5 Amps at 30 VDC
 5 Amps at 250 VAC
 Fault: 5 Amps at 30 VDC
 5 Amps at 250 VAC

4-20mA current output (source):

Fault: 0mA +0.5mA
 Normal: 4mA ±5%
 Warning: 16mA ±5%
 Alarm: 20mA ±5%

Environmental standards:

Designed to MIL-STD-810C
 High Temp. - Method 501.1 Proc. II
 Low temp. - Method 502.1 Proc. I
 Humidity - Method 507.1 Proc. IV
 Salt Fog - Method 509.1 Proc. I
 Vibration - Method 514.2 Proc. VIII
 Mechanical Shock - Method 516.1 Proc. I
 Water & Dust - IP66 & 67 per En60529
 NEMA 250 6P

Temperature range:

Operating:
 -40°C (-40°F) to 70°C (160°F)

Operating option:

-40°C (-40°F) to 85°C (185°F)

Storage: -55°C (-65°F) to 85°C (185°F)

Explosion-proof enclosures:

FM approved for use in
 Hazardous (classified) Locations
 Class I Div. 1 Groups B, C & D
 Class II Div. 1 Groups E, F, & G

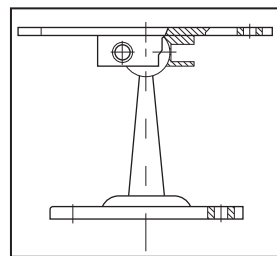


Illustration of a swivel mount

CENELEC approved:

EExd IIB + H₂ T5 (70°) T4 (85°)
 Per En 50014 & 50018
 EExde IIB + H₂ T5 (70°)
 Per En 50014, 50018, & 50019

ATEX approved:

EX II 2G, SIRA 00ATEX 1162 & 1160

Physical Design

The standard detector housing is a heavy-duty copper-free (less than 1%) aluminum. The housing is finished in white epoxy enamel and is also available in 316 Stainless Steel** upon request. The view window is protected by a performance-engineered honey-comb wire mesh guard. Both the viewing window and back cover are each sealed with special "O" rings to prevent intrusion of dust, salt spray, and foam/water fire fighting agents. The circuit boards are conformably coated and shock-mounted to minimize damage from mechanical vibration and impact. The detector offers complete protection from reversed polarity, voltage transients, surges and spikes as per MIL-STD-1275. The detector is explosion-proof and designed per MIL-STD-810-C. Dimensions - base: 13.2cm x 13.2cm or (5.2"x5.2"); height: 12cm or (4.7"); weight: 3.7kg or (8.1 lb.) aluminum enclosure; Stainless Steel enclosure 6.5kg or (14.3 lb.).

Applications

The 20/20-U & UB ultraviolet optical flame detectors are designed as general-purpose flame detectors for high speed applications. UV detectors have a wide range of applications in both industrial and commercial applications where the threat of accidental fire may involve hydrocarbon fuels such as gasoline, hydraulic fluid, paint, solvents, aviation fuel, acetylene, metal fires, pyro-technic fires, hydrazine and hyperbolic fuel fires.

** carries an additional charge