AUTOMATIC oi

Unitized UV/IR Flame Detector
U7652

DESCRIPTION

The U7652 Unitized UV/IR Flame Detector provides reliable fire protection in applications where the use of either ultraviolet (UV) or infrared (IR) detectors alone could result in false alarms.

When used alone, both UV and IR detectors can respond to environmental UV/IR radiation besides flame. The microprocessor based U7652 combines both a UV and a single frequency IR sensor in a single detector and requires simultaneous response of both sensors to actuate the fire alarm relay. These two solar blind detecting elements monitor different portions of the radiation spectrum and have virtually no common sources of false alarms. This enables the detector to ignore radiation sources that affect UV only or IR only detectors and still be able to respond to a real fire while potential false alarm sources such as arc welding, x-rays, or hot vibrating objects are present.

The U7652 is equipped with the patented Optical Integrity (**oi**) feature. The **oi** test is performed on both the UV and IR sensors to check the cleanliness of the detector optics as well as the functioning of the sensors and internal electronics.

All U7652 Unitized UV/IR Flame detectors are furnished with a fire and a fault relay.

OPTIONS

Auxiliary Relay. A third (auxiliary) relay is field-programmable for response to either "UV radiation only" or to "any UV or IR radiation." This makes it ideally suited for applications that, in addition to flame detection, require detection of radiation that could indicate a problem or a potential false alarm source.

4 to 20 ma Output. A 4 to 20 ma dc output signal indicates specific system status conditions.

FEATURES

• Detector and controller housed in a single unit.

• Responds to a 1 x 1 foot gasoline fire at 50 feet, and a 3 x 3 foot JP-4/5/8 fire at 150 feet.

• Responds to fire even when false alarm sources are present.

• Relay outputs for fire and fault signals.

• Optional 4 to 20 ma output available.

• Optional auxiliary relay responds to either "UV radiation only" or to "any UV or IR radiation."

• Optional Data Logger records up to 510 detector status events for downloading to a PC.

• Selectable latching or non-latching alarm output.

• Selectable 0.5 or 3 second response time.

• LEDs indicate normal operation, fire, fault, UV only and IR only conditions.

• Selectable automatic and/or manually initiated **oi** test.

• Microprocessor controlled.

• Fire and fault algorithms ensure reliability.

• Watchdog timer monitors the operation of the program.

• Modular design allows easy sensor module replacement.

• Suitable for Style D (Class A) wiring.

• RFI/EMI hardened – meets MIL STD 461, 462 and 463.

• Solar blind and immune to most commonly encountered false alarm sources.

• Explosion-proof/flame-proof enclosure FM, CSA, CENELEC and Russian certified.

SPECIFICATIONS

Operating Voltage
24 volts dc nominal, 18 volts dc minimum to 32 volts dc maximum.

Maximum Ripple
Ripple should not exceed 5 volts peak to peak. The sum of dc plus ripple must be ≥18 vdc and ≤32 vdc.

Operating Power
2.0 watts nominal, 5.0 watts maximum.

Spectral Sensitivity Range
UV: 0.185 to 0.245 micron.
IR: 4.45 microns.

Sensitivity
Detects a 1 foot by 1 foot gasoline fire at 50 feet, a 2 foot by 2 foot JP4, 5 or 8 fire at 100 feet, and a 3 foot by 3 foot JP4, 5, or 8 fire at 150 feet.

Response Time
Response time is a function of fuel type, fire size, distance and orientation of the fire. The detector is field programmable for a 0.5 or 3 second response time when exposed to a saturating fire signal.

Relay Contact Rating
One Fire and one Fault relay, each rated 5 amperes (resistive) at 30 vdc. The optional Auxiliary relay in the U7652C is rated 1 ampere at 30 vdc.
The Fire relay has SPDT (NO/NC) contacts.
The Fault relay has SPST (NO) contacts, with normally energized coil.
The Fire and Auxiliary relays are field programmable for latching or non-latching operation.

Enclosure Material
Copper-free aluminum (red) or 316 stainless steel, with stainless steel mounting bracket.

Ingress Protection
NEMA/Type 4X (Indoor and outdoor use).
IP66.

Temperature Rating
Operating: −40°F to +167°F (−40°C to +75°C).
Storage: −40°F to +185°F (−40°C to +85°C).

Humidity Range
0 to 95% RH. Can withstand 100% condensing humidity for short periods of time.

Vibration
Meets MIL STD 810C, method 514.2, procedure X, curve AW (6 to 200 Hz, 1.5 g).

RFI/EMI Hardened
Meets RFI and EMI immunity requirements for MIL STD 461, 462 and 463.

Wiring
Accepts 16 to 22 AWG. As with any electronic device, shielded cable provides increased RFI and EMI immunity.

Shipping Weight (Approximate)
Aluminum: 6.0 pounds (2.7 kg)
Stainless steel: 14.0 pounts (6.3 kg).

Certifications

FM & CSA: Class I, Div. 1, Groups B, C & D; Class I, Div. 2, Groups A, B, C & D (T4A). Class II/III, Div. 1, Groups E, F, & G; Class II/III, Div. 2, Groups F & G (T4A). NEMA/Type 4X

ULC: Explosion-proof for Class I, Div. 1, Groups C & D. Dust ignition-proof for Class II, Div. 1, Groups E, F, & G.
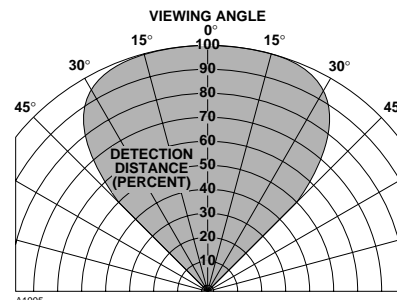
CENELEC: Standard temperature version:
EEx d IIB +H_2 T6 (T_{amb} = −40°C to +75°C).
EEx d IIB +H_2 T5 (T_{amb} = −40°C to +90°C).
Extended temperature version:
EEx d IIB +H_2 T6 (T_{amb} = −55°C to +75°C).
EEx d IIB +H_2 T5 (T_{amb} = −55°C to +90°C).
EEx d IIB +H_2 T4 (T_{amb} = −55°C to +125°C).
IP66.

Gosstandart: (Russia) 1ExdIIBT6X (T_{amb}=−40°C to +75°C). Performance verified from −55°C to +75°C. IP66.

CE: Conforms to all relevant European norms.

Dimensions
W = 3.38 inches (8.58 cm)
H = 7.81 inches (19.8 cm)
L = 7.11 inches (18.1 cm).

Cone of Vision
90 degrees with the highest sensitivity along the central axis.

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Specifications subject to change without notice.