FLAME
DETECTOR
SOLUTION

November, 2020

Flame Detector

With over 30 years of experience and expertise in comprehensive fire safety and protection equipment, we design, develop and manufacture flame detection solutions to meet your fire safety needs. Our flame detector line-up, P and F series deliver independent third-party certified performance per FM 3260 and EN54-10 standards for a wide range of applications and industries. In addition to the recognized performance, our products successfully meet safety requirements for hazardous industrial applications by complying with the ATEX Directive and IECEx standards. We are fully committed to taking our technical capability to the next level to meet fire safety needs in the market place.

KEY FEATURES

· **High Reliability and Performance**
 tested and certified per FM 3260 and CPR/EN54-10, rigorous standards recognized worldwide.

· **Explosion Proof to meet safety requirements in hazardous environments.**
 IECEx marking : Ex db IIC T6 Gb   (-40 °C ≤ Ta ≤ +75 °C)
 ATEX : II 2 G Ex db IIC T6 Gb, IP 66/ 67

· **Compact, Lightweight and Ease of Installation**
· **High Immunity to False Alarms**
· **Suitable for Indoor and Outdoor Areas**
· **Wide Field of View**
· **Fast Response to Fire**

APPLICATION - SPECIFIC SOLUTION

We provide flame detectors for a wide range of industrial and commercial applications. F series flame detector (CS-UIE-C20F / CS-TIE-C30F) is highly recommended to detect fires in wet-benches and semi-conductor equipments.

Appilcation	P Series	F series
Semi-conductor Facilities	√	√
OELD Manufacturing Facilities	√	√
TFT-LCD Line	√	√
Automotive Battery Line	√	√
Automotive Manufacturing Line	√	√
Industrial Fires	√	-
Cultural Heritage Made of Wood	√	-
Oil & Gas Industires	√	-
Airport	√	-
Aircraft Hangars	√	-
Military Base	√	-
Indoor Gyms	√	-
Multi-Story Car Parks	√	-

PERFORMANCE - DETECTION RANGE

Our product line-up is approved to FM3260 and EN54-10 to respond to a multitude of fuel sources.
Fire size reference : [1] 1ft X 1ft, [2] 20" (0.5M) Plume Fire, [3] 1 inch hole, [4] 8 inch diameter

Fuel Source	CS-UIE-C20P UV/IR	CS-TIE-C30P IR3	CS-UIE-C20F UV/IR	CS-TIE-C30F IR3
Heptane [1]	36m (118ft)	60m (197ft)	15m (49ft)	15m (49ft)
Gasoline [1]	36m (118ft)	60m (197ft)		
Jet A [1]	25m (82ft)	42m (138ft)		
JP 4 [1]	25m (82ft)	42m (138ft)		
Diesel [1]	25m (82ft)	42m (138ft)		
Kerosene [1]	25m (82ft)	42m (138ft)		
Alcohol [1]	25m (82ft)	36m (118ft)		
Paper [1]	9m (30ft)	27m (89ft)		
Propane (LPG) [2]	9m (30ft)	27m (89ft)		
Methane [2]	9m (30ft)	21m (69ft)		
Methane [3]			1m (3ft)	1m (3ft)
Polypropylene [4]			2m (7ft)	2m (7ft)

Flame Detector **P Series**

With fully certified performance to FM and CE standards, P flame detector series provide longer detection range and wider applications than F series. P series offer the best protection in any given circumstance.

	CS-UIE-C20P	CS-TIE-C30P
Type	UV/IR	IR3
Spectral Sensitivity	UV wavelengh range 185 ~ 260 nm IR 4.64 microns	3.95 ~ 5.30 microns
Detection Range	36m	60m
Response TIme	10 seconds	10 seconds
Field of View	Horizontal : 100°, Vertical : 100°	Horizontal : 90°, Vertical : 90°
Temperature Range	Operating : -40°F ~ 167°F (-40°C ~ 75°C) Storage : -40°F ~ 176°F (-40°C ~ 80°C)	Operating : -40°F ~ 167°F (-40°C ~ 75°C) Storage : -40°F ~ 176°F (-40°C ~ 80°C)
Humidity	Relative humidity of up to 93% ± 2% for operational temperature range	
Enclosure Material	Stainless Steel (316L) or Aluminum (AL6061)	
Weight (main body)	Stainless Steel : 3.0kg / Aluminum : 0.49kg	
Dimensions	Cylinder 61.5(H)mm x 75(Ø) mm	
Operating Voltage	19.2 Vdc ~ 28.8 Vdc	
Power Consumption	On standby : 30mA / On Alarm : 75mA	
Wiring	15 to 24AWG	
Relay	Alarm relay (SPST) / Fault relay (SPST) / 4-20mA / RS-485	

Flame Detector **F Series**

We provide flame detectors for a wide range of application in industrial and commercial area. F series flame detector (CS-UIE-C20F / CS-TIE-C30F) is highly recommended to detect fires in wet-benches and semi-conductor equipments.

	CS-UIE-C20F	CS-TIE-C30F
Type	UV/IR	IR3
Spectral Sensitivity	UV wavelengh range 185 ~ 260 nm IR 4.64 microns	3.95 ~ 5.30 microns
Detection Range	15m	15m
Response TIme	10 seconds	10 seconds
Field of View	Horizontal : 100°, Vertical : 100°	Horizontal : 90°, Vertical : 90°
Temperature Range	Operating : -40°F ~ 140°F (-20°C ~ 60°C) Storage : -22°F ~ 176°F (-30°C ~ 80°C)	Operating : -40°F ~ 140°F (-20°C ~ 60°C) Storage : -22°F ~ 176°F (-30°C ~ 80°C)
Humidity	Relative humidity of up to 93% ± 2% for operational temperature range	
Enclosure Material	Stainless Steel (316L) or Aluminum (AL6061)	
Weight (main body)	Stainless Steel : 3.0kg / Aluminum : 0.49kg	
Dimensions	Cylinder 61.5(H)mm x 75(Ø) mm	
Operating Voltage	20.4 Vdc ~ 26.4 Vdc	
Power Consumption	On standby : 30mA / On Alarm : 40mA	
Wiring	(20AWG X 8C) X 2m	
Relay	Alarm relay (SPST) / Fault relay (SPST)	

CS-UIE-C20P

DESCRIPTION

The UV/IR flame detector responds to UV radiation wavelengths of 185 to 260 nanometers and IR radiation in the 4.64-micron range. By responding only to this narrow bands of the spectral range, the combined UV/IR flame detector distinguishes between flames and non-flame sources.

FEATURES

· Programmed to increase immunity against false alarm sources
· Integrated monitoring (optional)
· Real-time monitoring of product status with RS485 communication
· Event log with time and date
· High reliability through certifications
· Lead wire-integrated type - Easy installation
· Accurate detection of fire
· Using dual-type detection circuits using ultraviolet/infrared wave
· High Speed Response to fire
· Using highly sensitive ultraviolet/infrared sensors
· FM 3260 / EN 54-10 (2809-CPR-E0012)
· IECEx / ATEX / Dust Explosive

ELECTRICAL SPECIFICATIONS

Operating Voltage	19.2Vdc ~ 28.8Vdc
Power Consumption	On stand-by : 30㎃ Alarm : 75㎃
Wiring	15 to 24AWG
Electrical Interface	Relay dry contact: N0 Fault dry contact: NC

OUTPUT SIGNALS

Relays	Alarm relay (SPST) Fault relay (SPST) 4-20mA RS-485

GENERAL SPECIFICATIONS

Detection Range -Sensitivity Setting 1ft x 1ft pan fire *20"(0.5M) Plume Fire	Fuel	ft/m	Fuel	ft/m
	Heptane	118 / 36	Diesel	82 / 25
	Gasoline	118 / 36	Kerosene	82 / 25
	JetA	82 / 25	Alcohol	82 / 25
	JP4	82 / 25	Paper	30 / 9
	*Propane(LPG)	30 / 9	*Methane	30 / 9
Field of View	Horizontal 100°, Vertical 100°			
Response Time	Normally 10 Seconds (Maximum 30 Seconds)			
Temperature Range	Operating: -40℉~167℉(-40℃~75℃) Storage:-40℉~176℉(-40℃~80℃)			
Humidity	Relative humidity of up to 93% ± 2% for the operational temperature range			

MECHANICAL SPECIFICATIONS

Enclosure	Stainless Steel (316L) Aluminum (AL6061)
Dimensions	Cylinder 61.5(H)mm x 75(Ø) mm
Weight (Approx.)	Stainless 316L: 3.0kg (6.61lbs) Aluminum: 0.49kg (1.08lbs)
Water and Dust Tight	IP67, NEMA 4X

HAZARDOUS AREA ZONES

· IECEx Ex db IIC T6 Gb (-40℃ ≤ Ta ≤ +75℃)
· ATEX Ex db IIC T6 Gb, (IP66/67)
· Ex tb IIIC T6 Db (ZONE 21) IP66/67 T85°

APPLICATIONS

· Industrial Fires
· Oil & Gas Industries
· Airport
· Military Base
· Cultural Heritage Made of Wood
· Indoor Gyms
· Multi-Story Car Parks

CERTIFICATION & APPROVAL

· IECEx
· ATEX
· Dust Explosive
· FM 3260
· EN54-10
· SIL2 (Pending)

ORDERING GUIDE

Accessories

Cable Length

☐ 2M (standard)
☐ Require customization (M)

Cable Gland

☐ For Stainless Steel Enclosure
☐ For Aluminum Enclosure

Bracket

1. ☐ Aluminum (160mm)
2. ☐ Stainless Steel long leg (134mm)
☐ Stainless Steel short leg (83mm)

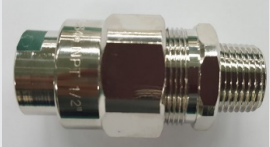| Cable Gland	
For Stainless Steel Enclosure	For Aluminum Enclosure
A2FRC-20b (1/2" NPT) IP67 (Stainless Steel)	16C (1/2") (Brass)

IR3 Flame Detector

CS-TIE-C30P

DESCRIPTION

The CS-TIE-C30P has three IR sensors and these detect three specific wavelength bands within the IR spectral range of a fire. Due to its variety of detection ranges, their immunity to false alarms to minimize malfunctions and increase reliability have been greatly improved.

FEATURES

· Alarm and warning function in case of abnormal temperature and voltage (optional)
· Highly immune to false alarms
· Various fire output signals (optional)
· Lead wire-integrated type -Easy installation
· Compact in size therefore can be installed in small space – Mainly used for cultural heritage made of wood, indoor gyms, multi-story car parks, High Speed Response to fire
· FM 3260 / EN 54-10 (2809-CPR-E0012)
· IECEx / ATEX / Dust Explosive

ELECTRICAL SPECIFICATIONS

Operating Voltage	19.2Vdc ~ 28.8Vdc
Power Consumption	On stand-by : 30㎃ Alarm : 75㎃
Wiring	15 to 24AWG
Electrical Interface	Relay dry contact: N0 Fault dry contact: NC

OUTPUT SIGNALS

Relays	Alarm relay (SPST) Fault relay (SPST) 4-20mA RS-485

GENERAL SPECIFICATIONS

Detection Range -Sensitivity Setting 1ft x 1ft pan fire *20"(0.5M) Plume Fire	Fuel	ft/m	Fuel	ft/m
	Heptane	197 / 60	Kerosene	138 / 42
	Gasoline	197 / 60	Alcohol	118 / 36
	JetA	138 / 42	*Methane	89 / 27
	JP4	138 / 42	*Propane	89 / 27
	Diesel	138 / 42	Paper	69 / 21
Field of View	Horizontal 90°, Vertical 90°			
Response Time	Normally 10 Seconds (Maximum 30 Seconds)			
Temperature Range	Operating: -40℉~167℉(-40℃~75℃) Storage:-40℉~176℉(-40℃~80℃)			
Humidity	Relative humidity of up to 93% ± 2% for the operational temperature range			

MECHANICAL SPECIFICATIONS

Enclosure	Stainless Steel (316L) Aluminum (AL6061)
Dimensions	Cylinder 61.5(H)mm x 75(Ø) mm
Weight (Approx.)	Stainless 316L: 3.0kg (6.61lbs) Aluminum: 0.49kg (1.08lbs)
Water and Dust Tight	IP67, NEMA 4X

HAZARDOUS AREA ZONES

· IECEx Ex db IIC T6 Gb (-40℃ ≤ Ta ≤ +75℃)
· ATEX Ex db IIC T6 Gb, (IP66/67)
· Ex tb IIIC T6 Db (ZONE 21) IP66/67 T85°

APPLICATIONS

· Industrial Fires   · Cultural Heritage Made
· Oil & Gas Industries   of Wood
· Airport   · Indoor Gyms
· Military Base   · Multi-Story Car Parks

CERTIFICATION & APPROVAL

· Dust Explosive   · FM 3260
· IECEx   · EN54-10
· ATEX   · SIL2 (Pending)
· Nepsi

ORDERING GUIDE

Accessories

Cable Length

☐ 2M (standard)
☐ Require customization (M)

Bracket

1. ☐ Aluminum   2. ☐ Stainless Steel
   (160mm)   long leg (134mm)
                  ☐ Stainless Steel
                   short leg (83mm)

Cable Gland

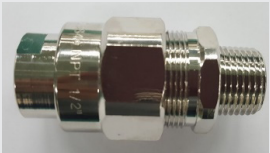☐ For Stainless Steel Enclosure
☐ For Aluminum Enclosure

Cable Gland	
For Stainless Steel Enclosure	For Aluminum Enclosure
A2FRC-20b (1/2" NPT) IP67 (Stainless Steel)	16C (1/2") (Brass)

UV/IR Flame Detector

CS-UIE-C20F

DESCRIPTION

The UV/IR flame detector responds to UV radiation wavelengths of 185 to 260 nanometers and IR radiation in the 4.64-micron range. By responding only to this narrow bands of the spectral range, the combined UV/IR flame detector distinguishes between flames and non-flame sources.

OUTPUT SIGNALS

Relays	Alarm relay (SPST) Fault relay (SPST)

APPLICATIONS

· Semiconductor equipment and manufacturing process
· OLED manufacturing
· TFT-LCD manufacturing process
· Automobiles battery manufacturing process
· Automobiles manufacturing process

HAZARDOUS AREA ZONES

· IECEx Ex db IIC T6 Gb (-40℃ ≤ Ta ≤ +75℃)
· ATEX Ex db IIC T6 Gb, (IP66/67)
· Ex tb IIIC T6 Db (ZONE 21) IP66/67 T85°

CERTIFICATION & APPROVAL

· IECEx
· ATEX
· Dust Explosive
· FM 3260

FEATURES

· High immunity to false alarms
· CE (EMI, EMC), IECEx
· FM 3260 Approved
· Compact size
· Explosion proof
· Easy installation
· Fast detection
· Detecting fires in Wet-benches and Semiconductor equipment
· FM 3260
· IECEx / ATEX / Dust Explosive

GENERAL SPECIFICATIONS

Detection Range	Field of View	Horizontal 90° Vertical 90°
	Distance	N-heptane 15m Polypropylene / Methane
Response Time		Normally 10 Seconds
Maximum Response Time		30 Seconds
Temperature Range		Operating: -4°F ~ 140°F (-20℃ ~ 60℃) Storage : -22°F~ 176°F (-30℃ ~ 80℃)
Humidity		Relative humidity of up to 93%±2% for the operational temperature range

ELECTRICAL SPECIFICATIONS

Operating Voltage	20.4Vdc and 26.4Vdc
Power Consumption	Stand by : Max.30mA Alarm : Max.40mA
Wiring	(20AWG x 8C) x 2m
Electrical Interface	Relay dry contact: N0 Fault dry contact: NC

MECHANICAL SPECIFICATIONS

Enclosure	Aluminum (AL6061)
Dimensions	Cylinder 61.5(H)mm x 75(Ø) mm
Weight (Approx.)	Flame Detector(without cable, bracket, cable gland) 0.50kg(500g)
Water and Dust Tight	IP67, NEMA 4X

ORDERING GUIDE

Accessories

Cable Length

☐ 2M (standard)
☐ Require customization (M)

Bracket

1. ☐ Aluminum (160mm)
2. ☐ Stainless Steel long leg (134mm)
   ☐ Stainless Steel short leg (83mm)

Cable Gland

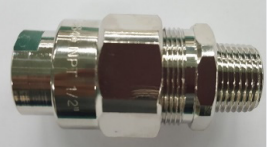☐ For Stainless Steel Enclosure
☐ For Aluminum Enclosure

Cable Gland	
For Stainless Steel Enclosure	For Aluminum Enclosure
A2FRC-20b (1/2" NPT) IP67 (Stainless Steel)	16C (1/2") (Brass)

CS-TIE-C30F

DESCRIPTION

The CS-TIE-C30F has three IR sensors and these detect three specific wavelength bands within the IR spectral range of a fire. Due to its variety of detection ranges, their immunity to false alarms to minimize malfunctions and increase reliability have been greatly improved.

OUTPUT SIGNALS

| Relays | Alarm relay (SPST) |
| | Fault relay (SPST) |

APPLICATIONS

- Semiconductor equipment and manufacturing process
- OLED manufacturing
- TFT-LCD manufacturing process
- Automobiles battery manufacturing process
- Automobiles manufacturing process

HAZARDOUS AREA ZONES

- IECEx Ex db IIC T6 Gb (-40℃ ≤ Ta ≤ +75℃)
- ATEX Ex db IIC T6 Gb, (IP66/67)
- Ex tb IIIC T6 Db (ZONE 21) IP66/67 T85°

CERTIFICATION & APPROVAL

- IECEx
- ATEX
- Dust Explosive
- FM 3260

FEATURES

- High immunity to false alarms
- CE (EMI, EMC), IECEx
- FM 3260 Approved
- Compact size
- Explosion proof
- Easy installation
- Fast detection
- Detecting fires in Wet-benches and Semiconductor equipment
- FM 3260
- IECEx / ATEX / Dust Explosive

GENERAL SPECIFICATIONS

Detection Range	Field of View	Horizontal 90° Vertical 90°
	Distance	N-heptane 15m Polypropylene / Methane
Response Time		Normally 10 Seconds
Maximum Response Time		30 Seconds
Temperature Range		Operating: -4°F ~ 140°F (-20℃ ~ 60℃) Storage : -22°F~ 176°F (-30℃ ~ 80℃)
Humidity		Relative humidity of up to 93%±2% for the operational temperature range

ELECTRICAL SPECIFICATIONS

Operating Voltage	20.4Vdc and 26.4Vdc
Power Consumption	Stand by : Max.30mA Alarm : Max.40mA
Wiring	(20AWG x 8C) x 2m
Electrical Interface	Relay dry contact: N0 Fault dry contact: NC

MECHANICAL SPECIFICATIONS

Enclosure	Aluminum (AL6061)
Dimensions	Cylinder 61.5(H)mm x 75(Ø) mm
Weight (Approx.)	Flame Detector(without cable, bracket, cable gland) 0.50kg(500g)
Water and Dust Tight	IP67, NEMA 4X

ORDERING GUIDE

Accessories

Cable Length

☐ 2M (standard)
☐ Require customization (M)

Cable Gland

☐ For Stainless Steel Enclosure
☐ For Aluminum Enclosure

Bracket

1. ☐ Aluminum (160mm)
2. ☐ Stainless Steel long leg (134mm)
☐ Stainless Steel short leg (83mm)

| Cable Gland | |
For Stainless Steel Enclosure	For Aluminum Enclosure
A2FRC-20b (1/2" NPT) IP67 (Stainless Steel)	16C (1/2") (Brass)