SIEMENS

Sinteso™/ Cerberus™ PRO

Infrared Flame detector

FDF242-EX

Addressable flame detector for the FDnet-Ex/C-NET-Ex detector line in explosive atmospheres zones 0, 1, 2

- Three pyroelectric sensors in the infrared spectrum for reliable fire detection
- Robust design for challenging ambient conditions
- Accurate differentiation of deceptive phenomena
- Meets the requirements of the highest fire sensitivity class 1 in accordance with EN 54-10
- Parameters are set on Siemens fire control panel
- For indoor and outdoor applications

Properties

Properties

- Easy mounting and installation
- Supports cloud-based evaluation of alarms and danger levels
- High immunity to deceptive phenomena thanks to intelligent algorithm and outstanding sensory
- Digital signal processing facilitates fast and accurate fire detection
- Robust aluminum housing for harsh industrial applications, providing protection against electromagnetic interference, moisture, and corrosion
- Integrated alarm indicator
- Connection for one external alarm indicator
- Very low current consumption
- Passed VdS sulphur dioxide (SO_2) corrosion test (endurance test)

Functions

The flame detector with three pyroelectric sensors uses the principle of infrared detection for effective fire detection. Each of the three pyroelectric sensors has been designed to analyze a specific wavelength in the infrared spectrum.

The detector facilitates continuous monitoring of the detection range by analyzing and digitally evaluating the infrared ray. Its intelligent algorithm supports fast and accurate differentiation between deceptive phenomena and real fires.

The internal electronics are monitored continuously to ensure reliable functioning. In the event of a fault, a message is sent to the fire control panel immediately.

The FDF242-EX can be used in zones 0, 1, and 2.

Fields of application

- Automotive industry: Paint shops, production lines, engine test beds
- Charging points for electric vehicles
- Liquefied natural gas (LNG) and liquefied synthetic gas (LSG) systems
- Large-scale industrial warehouses
- Power stations
- Chemical production facilities and chemical storage facilities
- Transformer stations and generator rooms
- Printing plants
- Fuel stores and pump stations
- Timber stores
- Engine test beds
- Arc welding facilities
- Ferries and cargo ships
- Ship engine rooms
- Hangars for military and civilian aircraft
- Underground rail tunnels
- Food and beverage production facilities

Detection of combustibles

The flame detector is suitable for detecting gas and liquid fires from hydrocarbon, oil and alcohol fuels and solid combustibles such as wood (class A) or any other fire source that emits CO_2 during combustion.

Reliable detection of flames from the following combustibles is assured:

Acetylenes	n-heptane	Gasoline	Kerosene
Isopropanol	Diesel	Ethanol	Methanol
Xylene	Toluene	Methane	Propane
Ethane	Ethylene	Butane	Jet A
Fire class A			

Testing

The functions of the flame detector are checked with the test lamp. The flame detector is set to test mode for the purpose of the checks.

Type overview

Type	Designation	Order number	Weight [kg]
FDF242-EX	Infrared flame detector	S54330-F6-A1	1.0
Accessories			
DBZ1190-AA	Micro terminal 0.28…0.5 mm^2	BPZ:4677080001	0.001
DBZ1190-AB	Connection terminal 0.5…2.5 mm^2	BPZ:4942340001	0.001
FDAI92-EX	Alarm indicator, surface-mounted	S54370-F4-A1	0.060
FDAI93-EX	Alarm indicator, flush-mounted	S54370-F6-A1	0.022
FDFM242	Mounting bracket	S54330-B11-A1	0.446
FDFMA242	Mounting joint	S54330-B10-A1	0.753
FDFA242	Adapter plate For predecessor products, alignment of mounting holes	S54330-B12-A1	0.268
FDFC242	Rain hood	S54330-B13-A1	0.425
3415MZ0-EX	Flame detector test lamp (Ex)	S54330-Z11-A1	0.2

Product documentation

Document ID	Title
008331	List of compatibility (for 'Sinteso™' product line)
A6V10229261	List of compatibility (for 'Cerberus™ PRO' product line)
A6V10324618	Planning, Mounting/Installation, Commissioning, Maintenance of fire detection installations with addressed detector lines in potentially explosive atmospheres
A6V10349349	Data sheet Line adapter (Ex) FDCL221-Ex
A6V13450666	Technical manual Infrared Flame detector FDF242-EX

Related documents such as the environmental declarations, declarations of conformity, etc., can be downloaded from the following Internet address:

www.siemens.com/bt/download

Notes

Installation

Installation in explosive atmospheres must be carried out in accordance with EN 60079-14 and all other applicable international and country-specific standards and regulations.

The line adapter (Ex) FDCL221-Ex.is used to separate areas not at risk from explosive atmospheres.

Disposal

This symbol or any other national label indicate that the product, its packaging, and, where applicable, any batteries may not be disposed of as domestic waste. Delete all personal data and dispose of the item(s) at separate collection and recycling facilities in accordance with local and national legislation.
For additional details, refer to Siemens information on disposal.

Technical data

FDF242-EX	
Electrical specifications	
Operating current max.	1 mA
Operating current (quiescent)	750 µA
Communication	FDnet-Ex/C-NET-Ex
System compatibility	FS20, FS720
Detection	
Performance classes according to EN 54-10	Class 1: High sensitivity, range up to 25 m Class 2: Normal sensitivity, range up to 17 m
Field of view	Horizontal: 90° (±45°) Vertical: 90° (±45°)
Cable connection	
Connection cable	UTP or STP cable (including for the connection of one external alarm indicator) Polyamide cable gland M20 × 1.5 / 7…13 mm
Terminals	Push-in connector
Conductor cross section	0.2…1.5 mm^2
External alarm indicator	1 external alarm indicator can be connected via an additional terminal
Ambient conditions	
Dimensions (W x H x D)	120 × 122 × 83 mm
Operating temperature	-40…+70°C
Storage temperature	-50…+70°C
Air humidity	≤96% rel. Short-term moisture condensation permitted
Protection category	IP66, IP67
Material	Housing: Aluminum Glass window: Sapphire
Color	Housing: RAL 9003 signal white Front cover: Black
Internal indicator	LED: red, green, yellow
Standards, approvals	

FDF242-EX	
Ex classification IECEx Directive ATEX 2014/34/EU	Ex ia IIC T4 Ga, Ta = -40…70 °C II 1G Ex ia IIC T4 Ga, Ta = -40…70 °C
Standards for explosion-hazard areas	IEC 60079-0, IEC 60079-11
Standards for fire detectors	EN 54-10
Ex approvals ● EC-type examination certificate ● IECEx	 DNV 24 ATEX 57096X IECEx DNV 24.0055X
Approvals ● VdS	 G224027

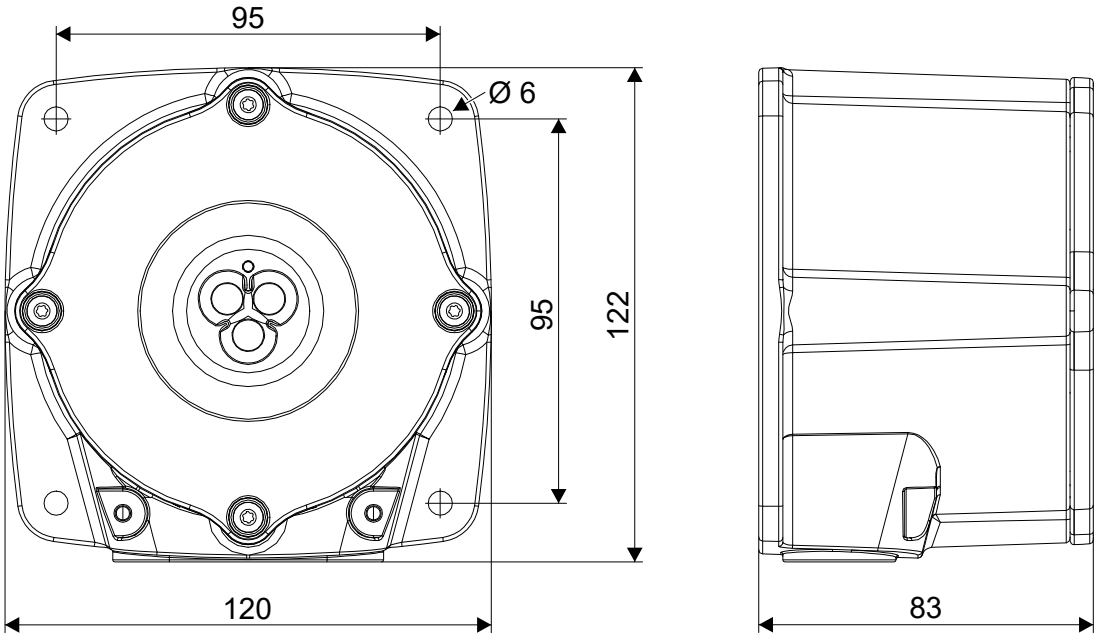
If the device is operated below -20 °C, the line voltage must be ≥ DC 16 V.

Connection data

Maximum values:

Ex-related connection data, intrinsically safe	Input voltage U_i	28 V
	Input current I_i	100 mA
	Input power P_i	700 mW
	Internal inductance L_i	Negligible
	Internal capacitance C_i	0.5 nF
Line to external alarm indicator	Output voltage U_0	14.1 V
	Output current I_0	14 mA
	Output power P_0	48 mW
	External inductance L_0	150 mH
	External capacitance C_0	707 nF
	Only for connecting passive, external alarm indicator with negligibly low inductance and capacitance level.	

Dimensional drawings



Accessories

Mounting bracket FDFM242

- For fixing the flame detector at an angle of 45°
- Material: aluminum
- Additional paint coat protects against environmental influences.
- Color: RAL 9003 signal white

Mounting joint FDFMA242

- Alignment range: horizontal ±50°, vertical ±45°
- For secure fixing of the flame detector, even in locations that are subject to vibration
- Material: stainless steel

Adapter plate FDFA242

- For replacing predecessor products, alignment of mounting holes
- Material: aluminum
- Additional paint coat protects against environmental influences.
- Color: RAL 9003 signal white

Rain hood FDFC242

- For protecting the flame detector in outdoor applications
- Material: aluminum
- Additional paint coat protects against environmental influences, non-reflective.
- Color: RAL 9003 signal white
- Does not restrict the detector’s field of view.

Test lamp 3415MZ0-EX	
	• For a function check of the flame detector • Ignition protection category EX i 'Intrinsic safety' • Certified ATEX zone-0

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