



ENERGY TAJHIZ MELAL

تجهیزات انرژی، تأسیسات و اتوماسیون صنایع

کاتالوگ محصولات



BFI Automation

درباره شرکت BFI Automation

BFI Automation GmbH یک شرکت آلمانی پیشرو در زمینه سامانه های پایش و کنترل شعله (Flame Monitoring) در فرایندهای احتراق صنعتی است که بیش از نیم قرن تجربه و نوآوری در حوزه ایمنی احتراق دارد. این برند که با نام تجاری @Flamonitec شناخته می شود، با بیش از 20 اختراع ثبت شده و حضور در بیش از 20 کشور، به عنوان مرجع فلیم اسکرها، سیستم های ارزیابی شعله، کنترل های حفاظتی و راهکارهای حسگری برای صنایع حساس شناخته شده است. محصولات BFI Automation برای کاربرد در نیروگاه ها، توربین های گازی، صنایع شیمیایی و پتروشیمی، کوره های صنعتی و سیستم های بخار طراحی شده اند و با تمرکز بر ایمنی SIL3، قابلیت اطمینان بالا و تطابق با استانداردهای جهانی، عملکرد پایدار و دقیق در سخت ترین شرایط را تضمین می کنند.

این محصولات با فناوری های پیشرفته مانند فلیم اسکرها، الکترونیک کامل، سنسورهای فیبر نوری مقاوم در برابر دما و لرزش، و کنترل های compact با قابلیت شبکه به صنایع کمک می کنند تا پایش شعله، افزایش ایمنی، کاهش خطرات عملیاتی و بهینه سازی مصرف انرژی را به بالاترین سطح برسانند.

مرجع تجهیزات انرژی، تأسیسات و اتوماسیون صنایع

انرژی تجهیز ملل، فروشگاه تخصصی تأمین تجهیزات انرژی، تأسیسات و احتراق است. از مشعل و کنترلر تا شیرآلات کنترلی و سیستم های هوشمند موتورخانه، هر آنچه برای راه اندازی، نگهداری و بهینه سازی سیستم های انرژی نیاز دارید، در یک مجموعه مهندسی شده در دسترس شماست.

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Product Information

FLAME SCANNER

COMPACT VERSION 2000X

2000 (UV/UV1/UVA/UVB/UVF/UVSI/UVSIC/IR/IR1/IR1 HE/IR2/IR3/IR4)

(L/EX/LEX)



- compact design
- failsafe design
- suitable for continuous operation
- ready for operation contact
- use at ambient temperatures* from -55 °C to +85 °C (optional fiber optic insert up to 300/600 °C)
- visualization of the operating status on the device by LED
- approved according to international standards
- adjustable via software
- SIL 3-certified

1 | Design

The Flame Scanner Compact Version CFC2000X is a complete, optical flame monitor for single and multi-burner systems. Its compact design integrates the flame relay and analog output and provides the binary signal „Flame ON/OFF“ as well as the analog signal „0/4 mA to 20 mA“ directly. It is suitable for continuous operation due to its fail-safe design and electronic self-monitoring. Up to four separately adjustable parameter levels enable reliable flame monitoring even with the highest requirements. The individual parameters are set with the Software and an IR communication cable, which is possible during operation.

The flame radiation is detected via a sensor and evaluated electronically. The small angle of view offers significant advantages, especially for sight tubes with small diameters and extraneous light discrimination.

Due to the specified ambient temperature range* from -55 °C to +85 °C, the Compact Flame Controller CFC2000L can be used for many industrial applications.

The Fibre Optic Cable extends the operating temperature range at the burner to +300 °C without cooling. Fibre optic lances with cooling achieve a temperature resistance of up to +600 °C and are designed for use inside the burner.

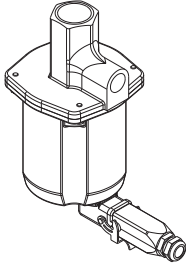
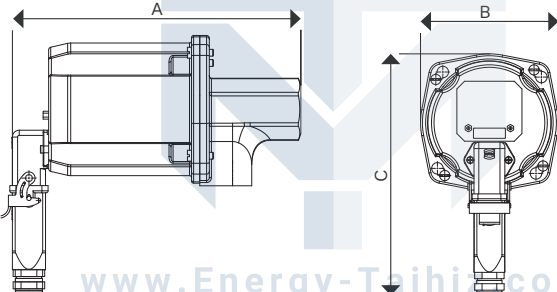
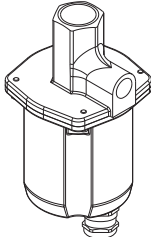
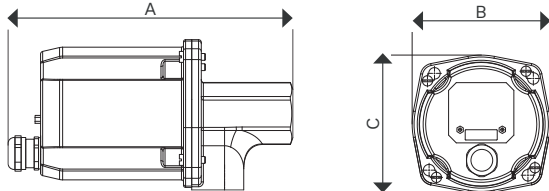
* for the specified temperature ranges heaters may be necessary.

2 | Customer benefits and usage

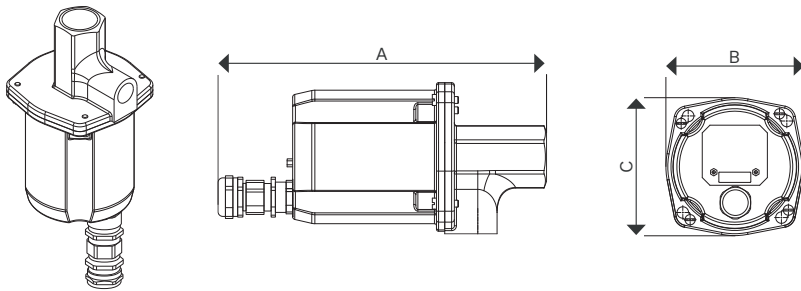
- ideally suited for use in single or multi-burner applications
- software-based evaluation of flame signals provides safe flame monitoring for complex combustions
- compact design reduces installation efforts and spare parts storage
- usable for all industrial combustions
- suitable for all types of fuel
- large dynamic range of the sensors enables flame monitoring of very small and very large radiation intensities

3 | Housing versions

The Flame Scanner Compact Version 2000X is available in different housings for ATEX Zone 1 and 2.

 			ATEX Zone 2	
			Standard housing	
			Length A:	235 mm
			Width B:	108 mm
			Height C:	190 mm
			Weight:	1.5 kg
			Type:	2000X
 			Standard housing with Cable gland	
			Length A:	ca. 210 mm
			Width B:	108 mm
			Height C:	108 mm
			Weight:	1.5 kg
			Type:	2000X

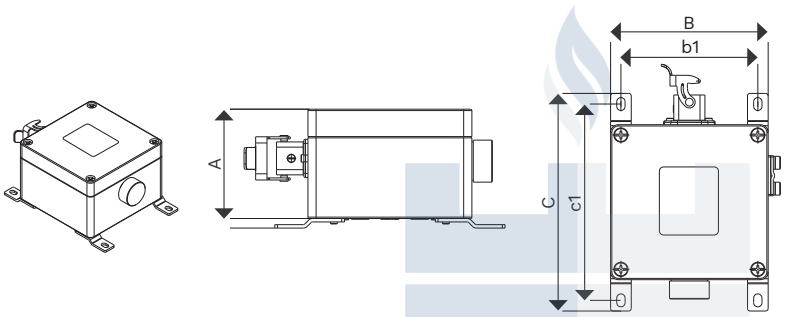
3 | Housing versions



Standard housing with

Conduit gland

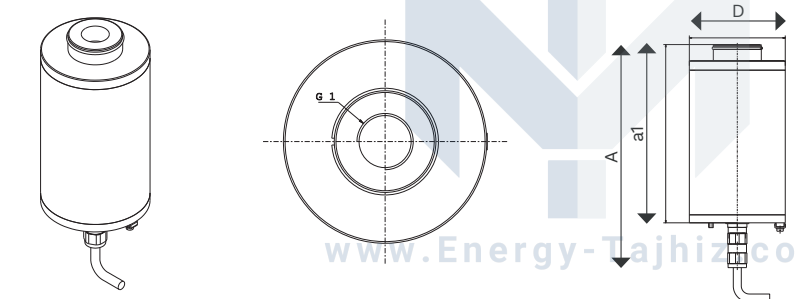
Length A:	247 mm
Width B:	108 mm
Height C:	108 mm
Weight:	1.5 kg
Type:	2000X



ATEX **Zone 2**

OE-Converter housing

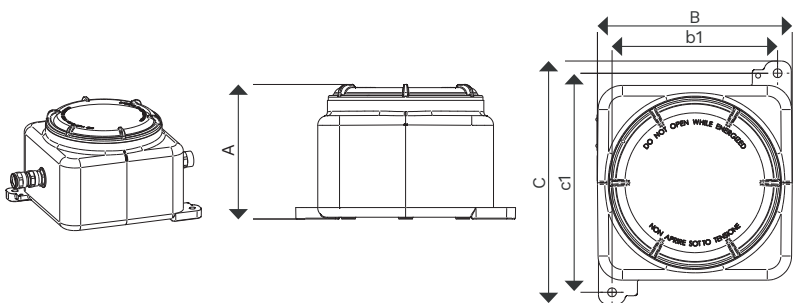
Length A:	80 mm
Width B/b1:	122/106 mm
Height C/c1:	168.5/152mm
Weight:	1.5 kg
Type:	2000X(L)



ATEX **Zone 1**

Ex-d-housing

Length A/a1:	286/223mm
Ø D:	120 mm
Weight:	3.5 kg
Type:	2000X(EX)

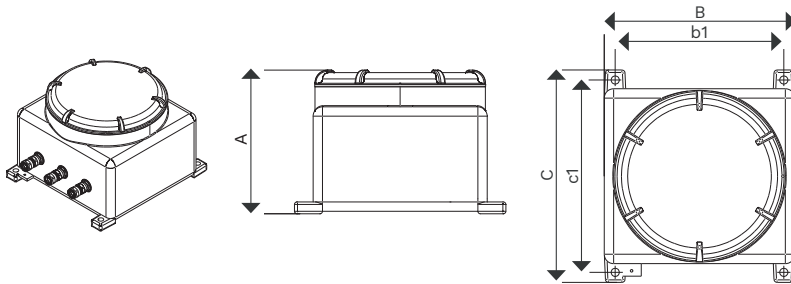


ATEX **Zone 1**

Ex-d-housing (GUB01)

Length A:	153 mm
Width B/b1:	200/170 mm
Height C/c1:	250/225 mm
Weight:	5 kg
Type:	2000X(LEX)

3 | Housing versions



ATEX Zone 1

Ex-d-housing (GUB03)

Length A: 231 mm

Width B/b1: 305/270 mm

Height C/c1: 336/308 mm

Weight: 15 kg

Type: 2000X(LEX)



4 | Technical data

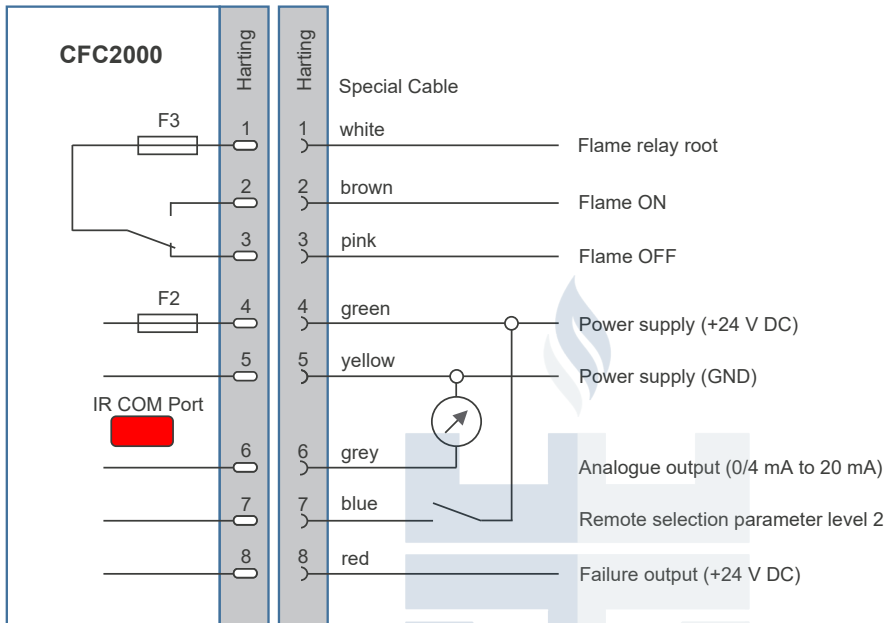
Spectral sensitivity UV UV1 IR / IR4 IR1 / IR1 hE / IR3 IR2	280 nm to 420 nm 190 nm to 550 nm 300 nm to 1050 nm 1050 nm to 2700 nm 300 nm to 2700 nm
Angle of view Standard/Ex-d-housing OE-Converter housing/Ex-d-housing (GUB)	1°, 2° or 2,7° 2,7° by sensor head
Self checking	fully electronic, once per second
Power supply	24 V DC SELV
Current consumption Including heating	max. 200 mA max. 700 mA
Prefuse	max. 1 A, slow
Design	in accord. with protection class III SELV
Current output	0/4...20 mA, Ra < 250 Ω current window variable by software
Fault output	24 V DC, short circuit-proof
Range changeover	external selection via 24 V DC signal
Flame relay	1 changeover contact, potential-free wire breakage detection optional VDE 0110, Class A max. 48 V switching voltage max. 1 A switching current (fused with 0,5 A) max. 30 W switching power
Ready for operation (optional) Flame relay	1 NO contact, potential-free max. 48 V switching voltage max. 1 A switching current (fused with 0,5 A) max. 30 W switching power
Ready for operation relay	1 NO contact, potential-free max. 48 V switching voltage max. 1 A switching current max. 30 W switching power
Switching thresholds	programmable by software
Safety switch-off time	0,4 ... 5 s, set at factory to 1 s
Ambient temperature OE-housing (IECEX) (IR, IR2, IR3, UV, UV1) Ex-d-housing (incl. heating, IECEX) Ex-d-housing (GUB) Standard-housing (IR, IR1, IR1 hE, IR2, IR3)	-20 °C to +70 °C -20 °C to +70 °C -20 °C to +70 °C -40 °C to +85 °C

4 | Technical data

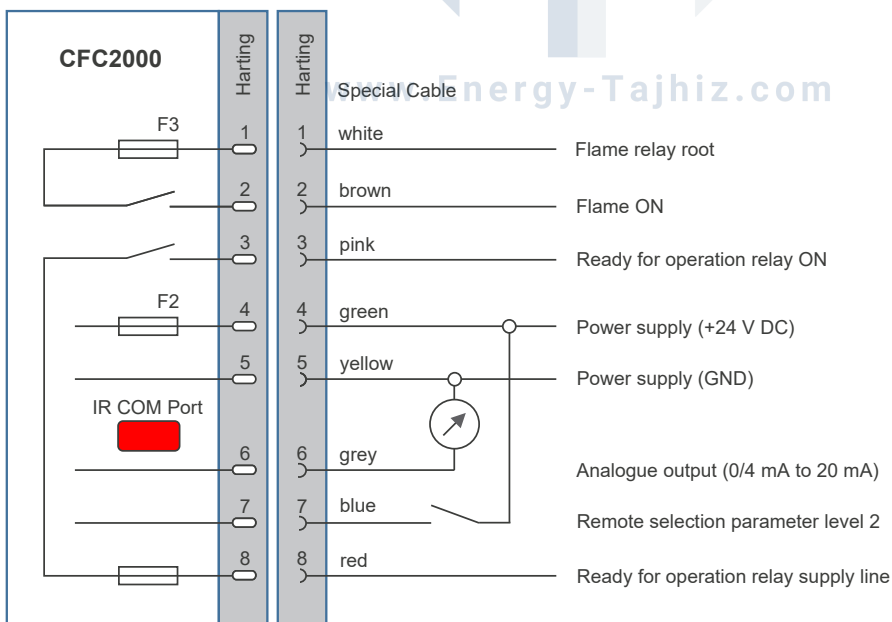
Standard-housing (UV, UV1) OE-housing (EAC) (UV, UV1) OE-housing (EAC) (IR, IR2, IR3)	-55 °C to +85 °C -55 °C to +75 °C -20 °C to +70 °C
Electrical connection Standard/OE-Converter housing Ex-d-housing Ex-d-housing (GUB)	dustproof plug-type connector permanently connected cable terminal blocks
Type of protection OE-Converter-/Ex-d-housing/ Ex-d-housing (GUB) Standard housing	IP 66 IP 65
Sight port connection Standard/Ex-d-housing OE-Converter-/Ex-d-housing (GUB)	1" female thread depending on SKL
Purge air Connection Volume Pressure	½" female thread 10 m³/h 0,02 bar over combustion chamber internal pressure
CE	CE0063
CSA	2171345
CSA Class I, Div 2	2357645
IECEX Zone 1 Ex-d-housing Ex-d-housing (GUB) Zone 2 Standard/OE-housing	IECEX EPS 14.0042X IECEX INE 13.0069X IECEX TUR 15.0029X
ATEX Zone 1 Ex-d-housing Ex-d-housing (GUB) Zone 2 Standard/OE-housing	EPS 14 ATEX 1 696 X INERIS 13ATEX0021X TÜV 15 ATEX 7682 X
EAC Zone 1 Ex-d-housing Ex-d-housing (GUB) Zone 2 Standard/OE-housing EAC Standard/OE-housing EAC Ex	EA3C RU-DE.BH02.B.00177/19 TC RU C-IT.BH02.B.00689/18 EA3C N RU Д-DE.PA03.B.02640/22 RU C-DE.АД07.B.04547/22
SIL 3	968/EL 566.04/21

5 | Connection diagram

Connection of CFC without special configuration:



Connection of CFC with ready for operation contact:





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