

Technical Data Flame Monitoring Device F120I



Fig. 1 F120I

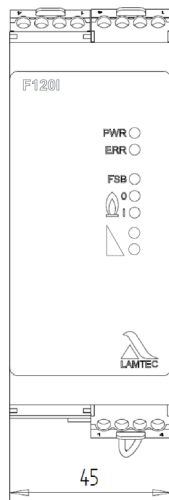
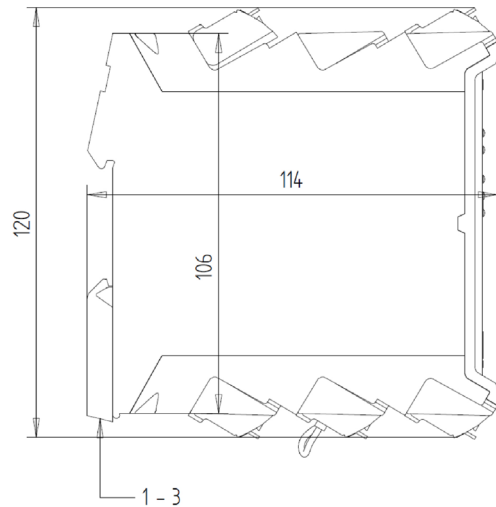


Fig. 2 Dimensions F120I



Housing material: Plastic

The right to make technical changes is reserved!

Input Parameters	
Auxiliary power/device supply	
Power supply ¹	Factory setting 230 VAC +10 % -15 % or 120 VAC +10 % -20 %
Mains frequency ¹	47 Hz ... 63 Hz
Power consumption	≤ 7,5 VA
Internal device fusing	32 m AT for 230 V devices 64 m AT for 120 V devices
Ionisation input	
Ionisation voltage ^{1,4}	390 V
Ionisation voltage current	Flame ON from 2 µADC ± 10 %, theoretical max. approx. 70 µADC
Single-electrode operation ⁴	Spark igniter type max. 5 kV, 15 mA loss of voltage at ION input, against grounding approx. 100 V
Connection cable for ionisation electrode	possible length: normally max. 100 m, in special cases max. 300 m (under favourable conditions) (Note! The possible cable length depends on the attenuation properties of the cable used in connection with the depends on the high resistance of the individual flame. For a stable flame detection the minimum sensor current should not be undercut!)

¹ The product may not be transported, stored or operated outside the specified range. If it is, any guarantees with regard to safety-related functions lose their validity.

⁴ Danger! - Please note the chapter 'Safety during commissioning' in the operating instructions

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Digital Outputs	
Output “flame signal”¹	Relay contact
Contact	Safety-oriented, floating contact
Contact type	NO, for “flame ON”, the contact is closed
Protection class	Safe disconnection (SKII)
Switching voltage/switching current	230 VAC/250 mA, 120 VAC/250 mA, 24 VDC/100 mA
Contact fuse (soldered)	0,5 AT
Min. switching current ²	2 mA
Safety time (FFDT) response time in the event of the flame failure	$t_{VOff} \leq 1 \text{ s}$ (Jumper 1 s) $t_{VOff} \leq 3 \text{ s}$ (Jumper 3 s) $t_{VOff} \leq 5 \text{ s}$ (Jumper 3 s at 5 s variant)
Switch-on time ³ (flame detection)	$t_{VOn} \leq 0,7 \text{ s}$ (Jumper 1 s) ² $t_{VOn} \leq 1,5 \text{ s}$ (Jumper 3 s) ² $t_{VOn} \leq 3,0 \text{ s}$ (Jumper 3 s at 5 s variant) ²
Switching the flame relay without load	when restart > 30 s A load-free switching of a flame relay in accordance with DIN EN 60730-2-5 is performed if, after the flame signal has dropped, the ionisation current returns after > 30 s.
Output “Flame ON”	electronically, digital (status signal)
Contact	Open Drain, switch NO
Electrical safety by	PELV (SK III)
Reference potential	Device GND (connection at X14/3)
Switching voltage	max: 24 VDC +20 %
Fuse, internal	20 mA self-resetting, at +70 °C +158 °F
Output “Stand-by”	electronically, digital (status signal)
Contact	Open Drain, switch NO
Electrical safety by	PELV (SK III)
Reference potential	Device GND (connection at X14/3)
Switching voltage	max: 24 VDC
Fuse, internal	20 mA self-resetting, at +70 °C +158 °F

¹ In the case of AC voltage with longer cable lengths, the possible influence of capacitive coupling on the flame signal must be noted

² Note: Gold-plated relay contacts

The maximum firing rate for external firing-rate (recurring current peaks during switching) is max. 100 mA. If this is exceeded, even briefly (current peaks), the specified minimum value of 2 mA can no longer be guaranteed. Provide external spark quenching.

³ The condition for ensuring the defined switch-on time is that the ionisation current corresponds to at least the 3-fold switch-on threshold

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Analogue outputs	
Output current loop "ionisation current"	electronically, analogue
Current	4 ... 20 mA
Electrical safety by	PELV (SK III)
Load	max. 250 Ω
Basic error	≤10 % via measuring range
Upper limit ionisation current	scalable, 20 mA 100 % \triangleq Jumper: 10 µA/20 µA/30 µA
Connection cable	connection cable ≥ 10 m must be shielded and referenced to FPE / earth potential
Output "ionisation current"	measuring shunt conducts ionisation mains potential
Translation ratio of measurement voltage to ionisation current	100 mV (DC) = 1 µA (DC)
Measurement voltage	max. 7 VDC
Voltage against grounding potential	approx. 400 VAC, in single-electrode operation for a short time 800 VAC
Basic error	≤ 2 %
Electrical safety	carries mains potential up to approx. 800V
Min. impedance of the connected measuring device	1 MΩ floating
Connection cable	< 1 m 3.3 ft
Other outputs	
Output „VCC“ (not with variant F120I)	Power supply for external use
Voltage	> 7 VDC / 60 mA, max. 14 VDC / idle
Current	max. 66 mA, self-resetting, at +70 °C +158 °F
Electrical safety by	PELV (SK III)
Output „FSB“ not with variants F120I	Flamescanner System Bus
Bus type, baud rate	CAN, 500 kB
Termination resistor	120 Ω, configurable with jumper
Cable length Bus	≤ 80 m 262.47 ft
Grounding	to device GND
Technical capacity	
Connection cross section	flexible 0,25 ... 2,5 mm ² rapid 0,20 ... 2,5 mm ²
Mode of operation	Continuous operation
Operating altitude above sea level	≤ 3.500 m NHN
Security integrity level	DIN EN 61508 part 2 - SIL 3
Overvoltage category	DIN EN 60730-1, ÜK III
Susceptibility to interference	DIN EN 298
Emitted interference	DIN EN 55022, class B

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Environmental conditions

Protection class	DIN EN 60529, F120I/F120I FSB - IP20
Ambient temperature ¹	-20 °C ... +70 °C -4 ... +158 °F
Relative humidity	3K5, 5 % ... 95 % according to DIN EN 60721-3-3
Vibration	according to LR - in preparation

Storage-/transport conditions

Storage	closed premises
Ambient temperature ¹	-40 °C ... +80 °C -40 ... +176 °F
Relative humidity	according to DIN EN 60721-3-3: <ul style="list-style-type: none">• Transport 2K3, bis 95 %• Storage 1K3, 5 % ... 95 %
Weight	approx. 0.5 kg 1.1 lb

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NOTICE

The limits of the technical data must be strictly adhered to.

Order Information

Description/Type	Order no.
Ionisation flame monitoring F120I, SIL3, 230 VAC, continuous operation, without Flamescanner System Bus	659G2001
Ionisation flame monitoring F120I, SIL3, 120 VAC, continuous operation, without Flamescanner System Bus	659G2002

The information in this publication is subject to technical changes.



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