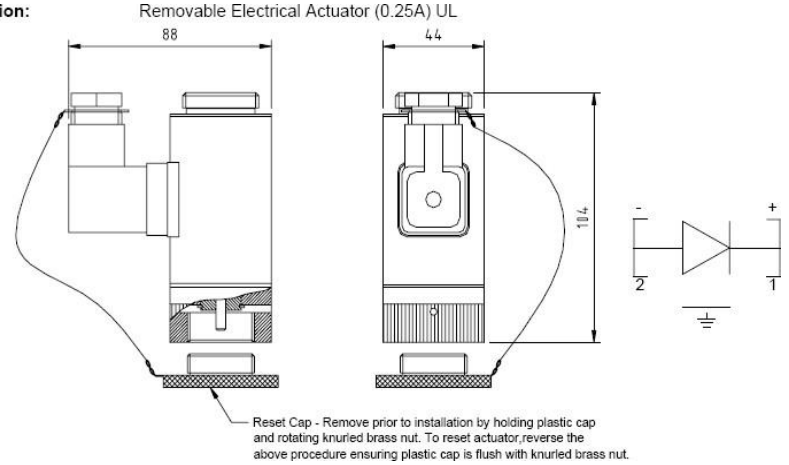
DATA SHEET & SAFETY MANUAL i.a.w IEC 61508-2
Fire Suppression Actuator (FSA) Type EA45 Variants

Description: Removable Electrical Actuator (0.25A) UL



Key Features

- Fitted with reset tool cap.
- Compact, reliable unit.
- Demountable.
- UL Recognised and SIL 2 rated.
- Optional Active Detection i.a.w NFPA2001

Specification

Performance

Manual actuation force	50 Newton's
Actuation type	Latching
Life span	Depends on application and environment
Testing	100% electrical actuation check
Approval	Recognised to UL508, UL864, LPCB
Certiflcation	EN12094-4
	Tested in accordance with UL864
Operating force	66.4N @ 1mm from unactivated
	60.7N @ 2mm from unactivated
	55.0N @ 3mm from unactivated
	49.3N @ 4mm from unactivated
Reset method	Manual via reset tool supplied

Electrical

Nominal voltage	24 Volts D.C.
Minimum actuation voltage	65% of nominal voltage i.e. 15.6 VDC
Minimum current	0.2A
Nominal current	0.25 A
Maximum current	0.33 A
Maximum monitoring current	25 mA
Electrical connection	DIN 43 650-A/ISO 440 3 pin (3 pin PG 9.5mm Hirschmann DIN plug connecter.
Back EMF protection	Suppression diode
Minimum duration of trigger signal	1 second

Environmental and Physical

Operating temperature range	-20 °C to +55 °C
Maximum humidity	80 to 90% RH, non condensing
Body material	Mild steel, Electroless Nickel plated
Actuation pin	Stainless Steel
Base nut	Brass CZ121
Retaining clip	Beryllium Copper
Actuation type	Latching
Nominal pin travel	4.4mm
Connection	1" BSPP (Brass End Fitting)
Weight	0.95 kg
IP rating	Tested to IP54

Dimensions

Body	45mm dia
Overall length x overall width	104mm x 90 mm

Ordering Information

Contact Barnbrook sales to confirm specification.

DSEA45 0217

Design authority and manufacture by Barnbrook Systems Limited

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Quality Approvals
BS EN ISO 9001:2000
EASA PART 21 SUBPART G
UK.21G.2069
EASA Part 145
UK.145.01008
BCAR A8-8
CAA DA1/9289/90
Q 11271

• Location on System

Connected to the top of the container discharge valve (between valve and manual actuator) or pilot cylinder valve (Between valve and manual actuator).

• Installation Instructions

Mechanical Installation: Install the electrical actuator onto the discharge valve hand tight only. Ensure the unit is reset in the non fire position (height from end of pin to base 4.8 to 5.2mm) before fitting.

Electrical Installation: The electrical actuator is supplied with a DIN plug. Connect positive supply from control panel to terminal 1, negative supply to terminal 2. Nominal supply is 24V DC, maximum monitoring current 25mA.

• Operating Instructions

The electrical actuator will operate after receiving a 24V DC nominal voltage signal from the panel. The Electrical Actuator will latch in the fire position after the signal terminates. The electrical actuator will require to be manually reset by removing the unit from the valve and inserting (screwing in) the reset tool.

• Works Instructions

This is a purchased item and as such does not fall under any works instructions used in the manufacturing.

• Maintenance Instructions

Remove actuator from valve assembly. Apply 24V DC and obverse correct functionality (energised pin position 0.3mm to 0.5mm from base of actuator). Terminate supply voltage and reset electrical actuator by fitting (screwing in) plastic reset tool into base. Once reset, remove reset tool and reinstall on valve assembly. In case of faults or suspected faults contact the Macron customer services to organize replacement.

• System Operating Conditions (temp range)

FM-200® 0ºC (20.2bar) to 50ºC (33.4bar).
Sapphire TM -20ºC (20.2bar) to 50ºC (28.6bar).
Sapphire TM -20ºC (34.3bar) to 50ºC (47.8bar).
Nitrogen -20ºC (43.2bar) to 50ºC (55.1bar).

• Functional Description

The electrical actuator is activated by a voltage signal from the control panel. The voltage signal de-energises the permanent magnet, allowing the spring to push and latch the actuator pin into the fire position. The Electrical Actuator can be reset using the supplied reset tool once the voltage signal is terminated.

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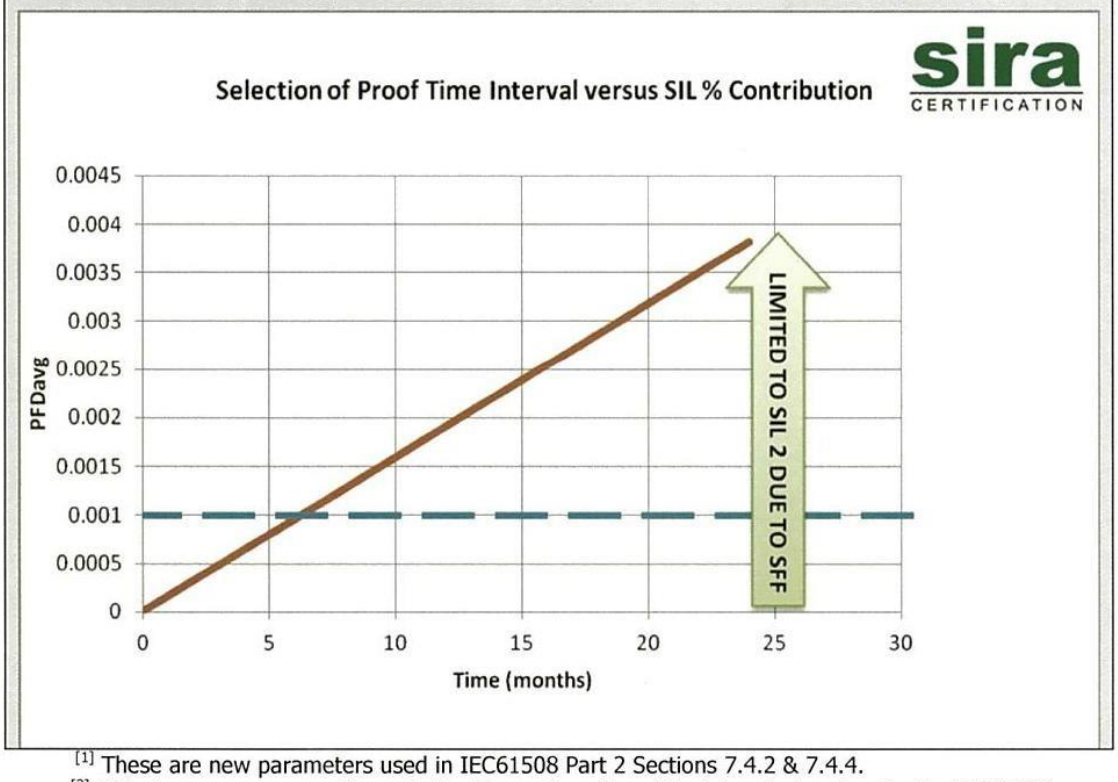
Fire Suppression Actuator (FSA) Type EA45 Variants

Product description and scope of certification

EA45 & EA45BR ACTUATOR			
Safety Function: *'Failure to De-Energies the permanent magnet and push the latch to the firing position'*			
Architectural constraints:	Type A HFT=0 SFF =77%	Proof Test Interval =8760Hrs[4] MTTR = 8 Hrs[4]	*SIL2*
Random hardware failures:	λ_{DD} = 0 λ_{DU} = 4.35E-07	λ_{SD} = 3.74E-07 λ_{SU} = 1.13E-06	
Probability of failure on demand:	PFD_{AVG}=1.91E-03 (Low Demand Mode)		*SIL2*
Hardware safety integrity compliance[1]	Route 1_H		
Systematic safety integrity compliance[1]	Route 1_S		
Systematic Capability[2]	SC 2		
Overall SIL-capability achieved[3]	SIL 2 (Low Demand)		



[1] These are new parameters used in IEC61508 Part 2 Sections 7.4.2 & 7.4.4.
[2] This is a new measurable scale for the systematic safety integrity level; refer to IEC61508 Part 4 Section 3.5.9.
[3] This is determined by the lowest SIL indicated by each of the parameters given above.
[4] These figures are used only for demonstration purposes.

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