ELECTRICAL SAFETY SOLUTIONS

Pyro Safety Switches

Prevention in milliseconds to avoid short-circuits, fire ignition and battery draining.

Pyro Safety Switch PSS-1

Autoliv's industry-standard Pyro Safety Switches comply with the high-quality requirements of the vehicle industry. Our Pyro Safety Switches offer a range of technical specifications, including different voltages, short circuit resistance and maximum current.

- Maximum continuous current 300 A
- Non-reversible device
- Suitable for voltage levels up to 400 VDC
- High peak current carrying capability up to 2 000 A
- Material Flammability: HB

Product specifications

Maximum switching capacity	150J with Cpk 120J
Systems configurations tested (Other request contact us)	400 V / 200 A / 5 µH 150 V / 2 000 A / 60 µH 110 V / 8 500 A / 3,5µH

Current carrying capacity

Customer cooling system must guarantee the temperature at terminals' connection point does not exceed +125°C.

Customers applications examples (Load cable 50mm²)	85°C 300 A DC 105°C 250 A DC 125°C 200 A DC
Maximum pulse current	25 000 A / 5 ms 2 000 A / 10 s

Busbar

Raw-material (base)	CuSn 0,15
Plating material	(lead-free) Sn/Ni
Cross-section	32 mm²
Busbar resistance (at RT)	
before ops.	≤ 0,1 m Ω
after ops	≥ 10 M Ω / 500 V
Operating time	With Cpk 1,67 < 3ms Typical 0,8 ms

Triggering conditions

Triggering conditions	acc. to AK-LV 16 & USCAR
Ohmic resistance	≥1,7 Ω and ≤ 2,5 Ω
Current pulse	1,75 A / 0,5 ms Or 1,20 A / 2,0 ms
Pulse slope	> 8 mA / µs
No-triggering current	≤ 0,4 A ≤ 5,0 A / ≤ 4 µs
Diagnostic current	< 100 mA

Temperatures

Operating	-40°C... + 105°C
Environmental	-40°C... + 105°C
Storage	-40°C... + 65°C

Validations

Vibration resistance	ISO 16 750 – 3
Mech. Shock resistance	ISO 16 750 – 3
Temperature cycle resistance	ISO 16 750 – 4
Chemical loads resistance	ISO 16 750 – 5
HV-LV resistance before/after ops.	≥1 GΩ / 500 V

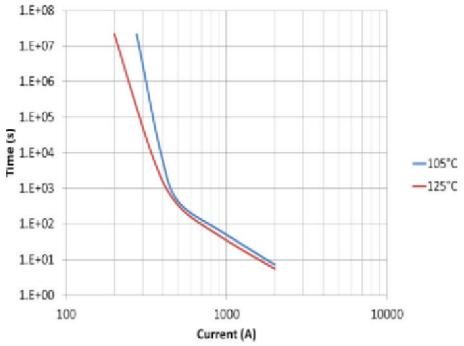
Terminal type

HV	M6 or M8
Triggering	AK-1 AK-2 ABX-3
Weight	≤ 60 g

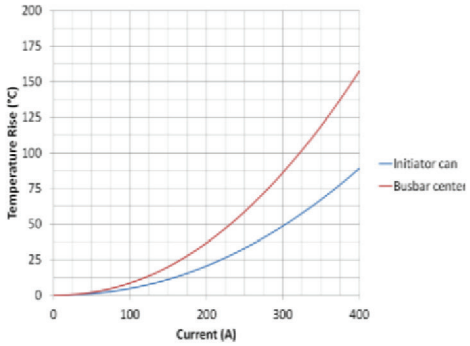
Technical Data and Dimensions

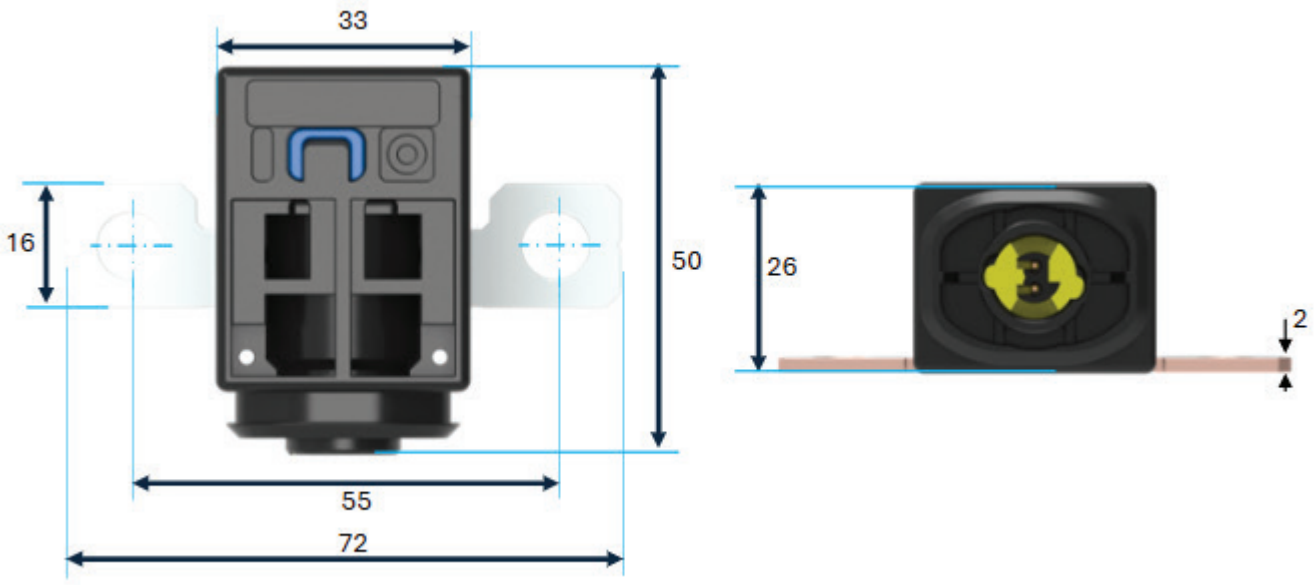
Performance & Dimensions

Derating curve



Temperature rise curve





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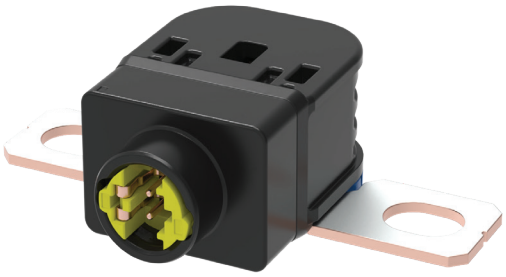
ELECTRICAL SAFETY SOLUTIONS

Pyro Safety Switches

Prevention in milliseconds to avoid short-circuits, fire ignition and battery draining.

Pyro Safety Switch PSS-2

Autoliv's industry-standard Pyro Safety Switches comply with the high-quality requirements of the vehicle industry. Our Pyro Safety Switches offer a range of technical specifications, including different voltages, short circuit resistance and maximum current.



- Maximum continuous current 300 A
- Non-reversible device
- Suitable for voltage levels up to 70 VDC
- High peak current carrying capability up to 2 000 A
- Material Flammability : HB

Product specifications

Maximum Switching capacity	Typical 150J with Cpk 120J
Systems configurations tested (Other request contact us)	70 V / 1400 A / ≤ 60 µH 32 V / 2 000 A / 60 µH

Current carrying capacity

Customer cooling system must guarantee the temperature at terminals' connection point does not exceed +125°C.

Customers applications examples (Load cable 50mm²)	125°C 200 A DC 105°C 250 A DC 85°C 300 A DC
Maximum pulse current	2 000 A / 10 s

Busbar

Raw-material (base)	CuSn 0,15
Plating material	(lead-free) Sn/Ni
Cross-section	22 mm²
Busbar resistance (at RT)	
before ops.	≤ 0,1 mΩ
after ops.	≥ 10 MΩ / 500 V
Operating time	With Cpk 1,67 < 3 ms Typical 0,8 ms

Triggering conditions

	acc. to AK-LV 16 & USCAR
Ohmic resistance	≥1,7 Ω and ≤ 2,5 Ω
Current pulse	1,75 A / 0,5 ms Or 1,20 A / 2,0 ms
Pulse slope	> 8 mA / µs
No-triggering current	≤ 0,4 A ≤ 5,0 A / ≤ 4 µs
Diagnostic current	< 100 mA

Temperatures

Operating	-40°C... + 105°C
Environmental	-40°C... + 105°C
Storage	-40°C... + 65°C

Validations

Vibration resistance	ISO 16 750 – 3
Mech. Shock resistance	ISO 16 750 – 3
Temperature cycle resistance	ISO 16 750 – 4
Chemical loads resistance	ISO 16 750 – 5
HV-LV resistance before/after ops.	≥1 GΩ / 500 V

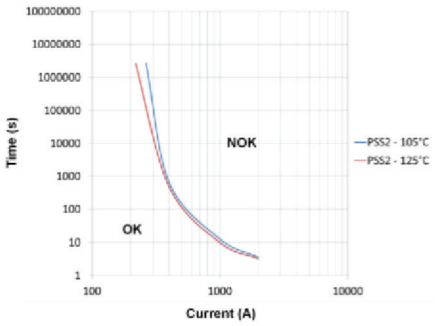
Terminal type

HV	M8 or w/o holes
Triggering	AK-1 AK-2 ABX-3
Weight	≤ 40 g

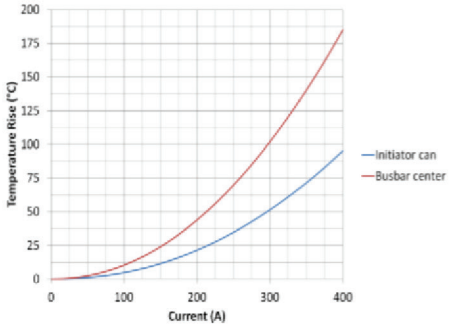
Technical Data and Dimensions

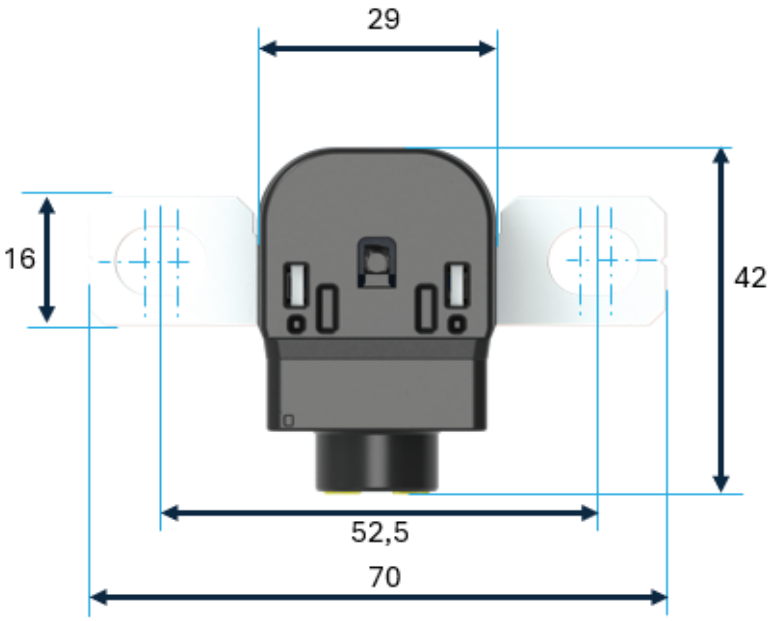
Performance & Dimensions

Derating curve



Temperature rise curve





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ELECTRICAL SAFETY SOLUTIONS

Pyro Safety Switches

Prevention in milliseconds to avoid short-circuits, fire ignition and battery draining.

Pyro Safety Switch PSS-3

Autoliv's industry-standard Pyro Safety Switches comply with the high-quality requirements of the vehicle industry. Our Pyro Safety Switches offer a range of technical specifications, including different voltages, short circuit resistance and maximum current.

- Maximum continuous current 300A
- Non-reversible device
- High peak current carrying capability up to 25 000 A
- Material Flammability : HB
- Second Circuit power off simultaneously : max 5A / 48V

Product specifications

Maximum switching capacity	Typical 150 J With Cpk 120 J
Systems Configurations tested (Other request, Contact us)	150 V / 2 000 A / 60 µH 200 V / 2 000 A / Ohmic load

Current carrying capacity

Customer cooling system must guarantee the temperature at terminals' connection point does not exceed +125°C

Customer applicartion example (Load cable 50 mm²)	85°C 300 A 105°C 250 A 125°C 200 A
Maximum pulse current	25 000 A / 5 ms 2 000 A / 10 s

Busbar

Raw-material (base)	CuSn 0,15
Plating material (lead-free)	Sn/Ni
Cross-section	32 mm²
Busbar resistence (at RT)	
before ops.	≤ 0,1 mΩ
after ops	≥ 10 MΩ / 500 V
HV-LV resistance before/after ops	≥ 1 GΩ / 500 V
Operating time	With Cpk 1,67 < 3 ms Typical 0,8 ms

Second Circuit

Contact raw material	Cu Alloy
Contact Plating	AgNi
Wire cross section	0,2mm²

Triggering conditions	acc. to AK-LV 16 & USCAR
Ohmic resistance	≥1,7 Ω and ≤ 2,5 Ω
Current pulse	1,75 A / 0,5 ms Or 1,20 A / 2,0 ms
Pulse slope	> 8 mA / µs
No-triggering current	≤ 0,4 A Or ≤ 5,0 A / ≤ 4 µs
Diagnostic current	< 100 mA

Temperature

Operating	-40°C... + 105°C
Environmental	-40°C... + 105°C
Storage	-40°C... + 65°C

Validations

Vibration resistance	ISO 16 750 – 3
Mech. Shock resistance	ISO 16 750 – 3
Temperature cycle resistance	ISO 16 750 – 4
Chemical loads resistance	ISO 16 750 – 5

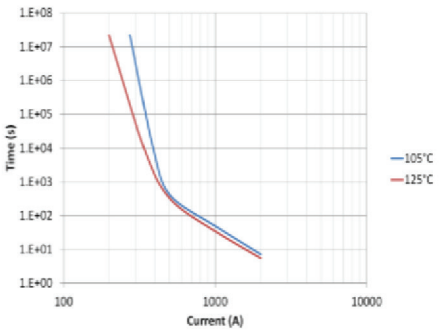
Terminal type

HV	M8
Second circuit	Nano MQS
Triggering	AK-1
Weight	≤65 g

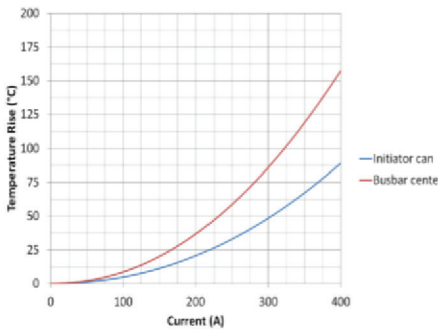
Technical Data and Dimensions

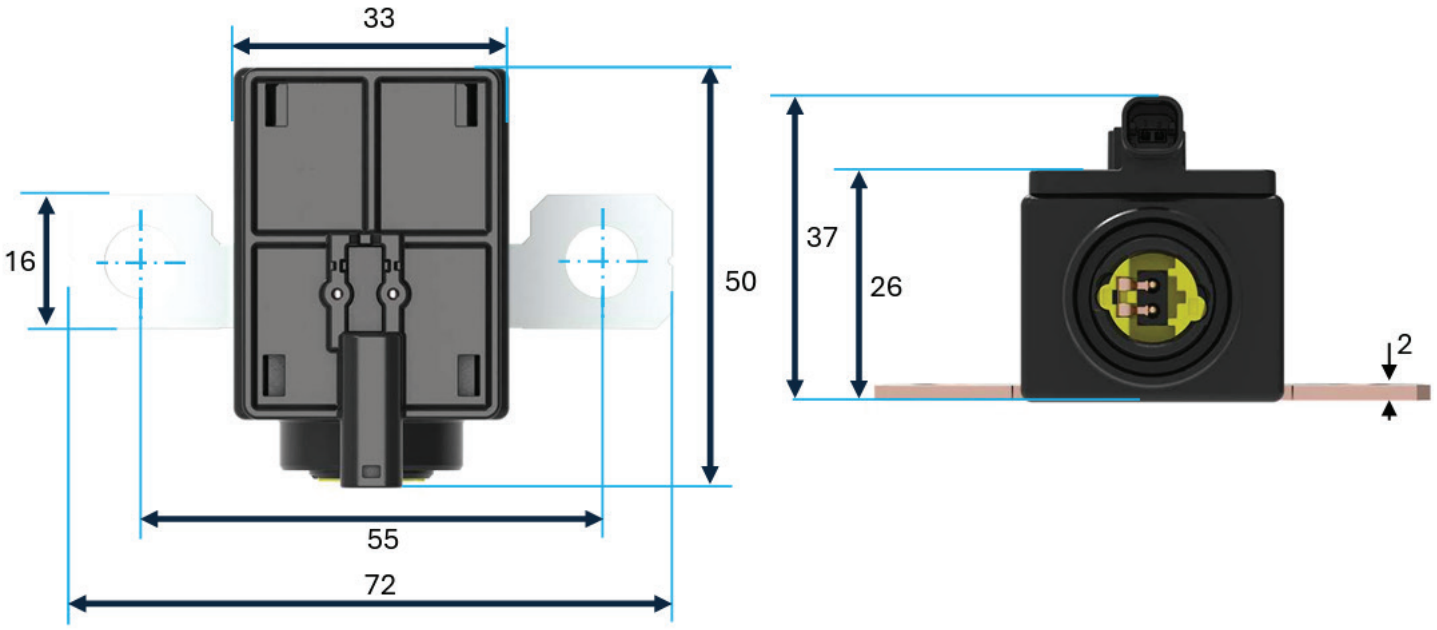
Performance & Dimensions

Derating curve



Temperature rise curve





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ELECTRICAL SAFETY SOLUTIONS

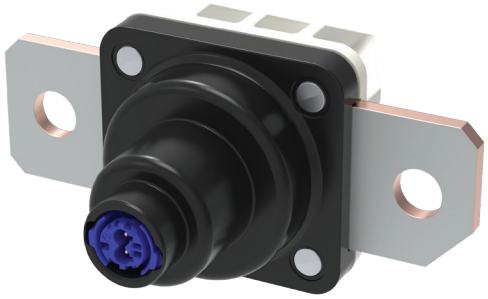
Pyro Safety Switches

Prevention in milliseconds to avoid short-circuits, fire ignition and battery draining.

Pyro Safety Switch PSS-4 500V 1800J

Autoliv's industry-standard Pyro Safety Switches comply with the high-quality requirements of the vehicle industry. Our Pyro Safety Switches offer a range of technical specifications, including different voltages, short circuit resistance and maximum current.

- Maximum continuous current 500 A
- Non-reversible device
- Suitable for voltage levels up to 600 VDC
- High peak current carrying capability up to 25 000 A
- No ionizing gases / No particles exhaust
- Material Flammability : HB (V0 as option)



Product specifications

Maximum switching capacity	Typical 2000J With Cpk 1800J
Systems configurations tested	475 V / 13 300 A / 20 µH 475 V / 23 500 A / 2,3 µH 2 PSS-4 in series: 1000 V / 25 000 A / ≤ 5 µH
(Other request, Contact us)	

Current carrying capacity

Customer cooling system must guarantee the temperature at terminals' connection point does not exceed +125°C

Customers applications examples (Load cable 70 mm²)	105°C Max, 350 A DC 85°C Max, 420 A DC 50°C Max, 500 A DC
Maximum pulse current	25 000 A / 5 ms

Busbar

Raw-material (base)	CuSn 0,15
Plating material (lead-free)	Sn/Ni
Cross-section	60 mm² or 78 mm²
Busbar resistance (at RT)	
before ops.	≤ 0,05 mΩ
after ops	≥ 1 MΩ / 500 V
Optional	≥ 50 MΩ / 500 V
Operating time (450 V / 8kA / 15 µH) (530 V / 24kA / 3 µH)	With Cpk 1,67 < 2 ms Typical 0,8 ms

Triggering conditions acc. to AK-LV 16 & USCAR

Ohmic resistance	≥ 1,7 Ω and ≤ 2,5 Ω
Current pulse	1,75 A / 0,5 ms Or 1,20 A / 2,0 ms
Pulse slope	> 8 mA / µs
No-triggering current	≤ 0,4 A ≤ 5,0 A / ≤ 4 µs
Diagnostic current	< 100 mA

Temperatures

Operating	-40°C... + 105°C
Environmental	-40°C... + 105°C
Storage	-40°C... + 65°C

Validations

Vibration resistance	AK-LV 124
Mech. Shock resistence	AK-LV 124
Temperature cycle resistence	AK-LV 124
Chemical loads resistance	AK-LV 124
HV-LV resistance before/after ops.	≥ 1 GΩ / 500 V

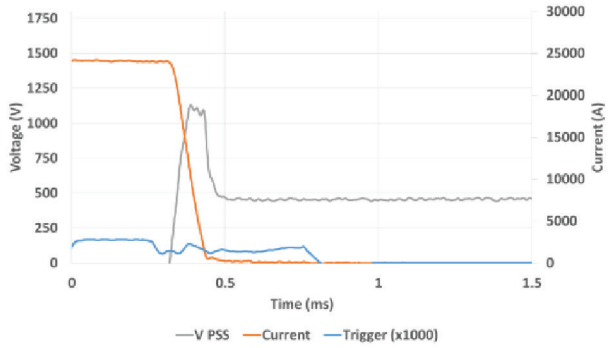
Terminal type

HV	M6 or M8
Triggering	ABX-5 or AK-2
Weight	≤ 145 g

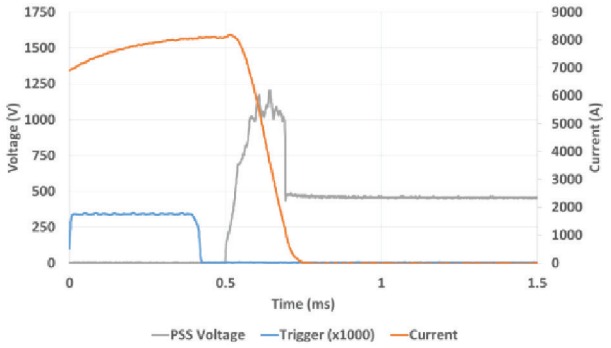
Technical Data and Dimensions

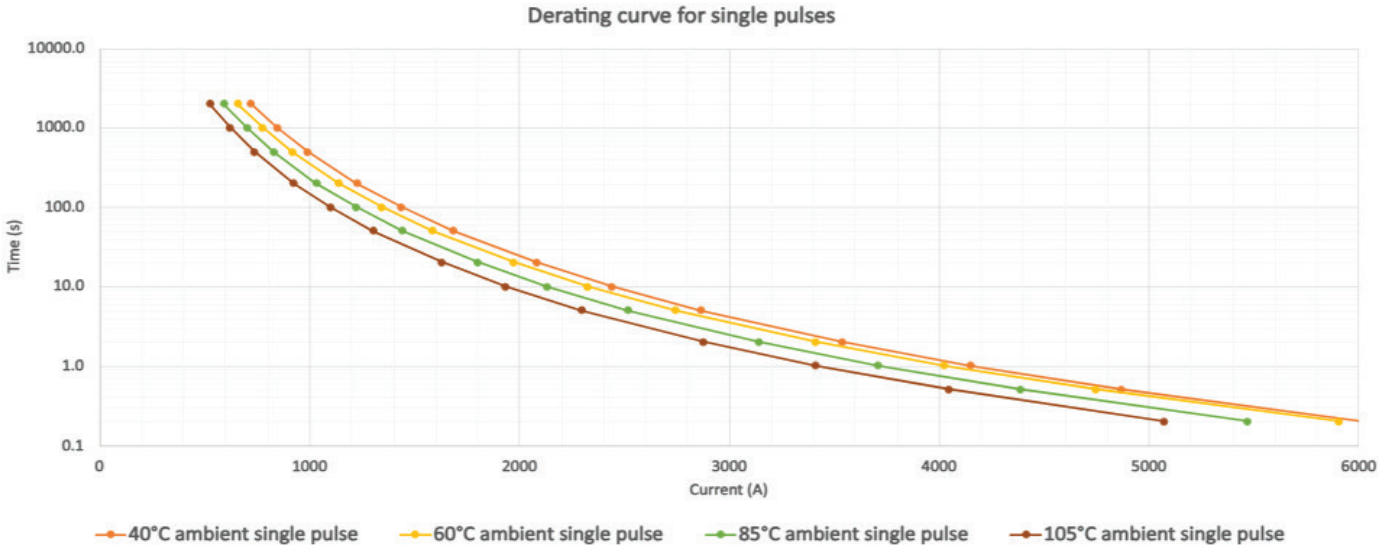
Performance & Dimensions

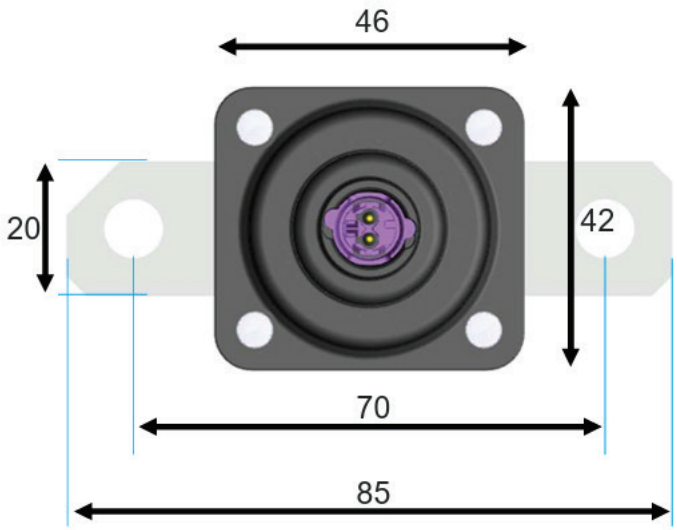
24 000 A / 532 V / 3.1 µH

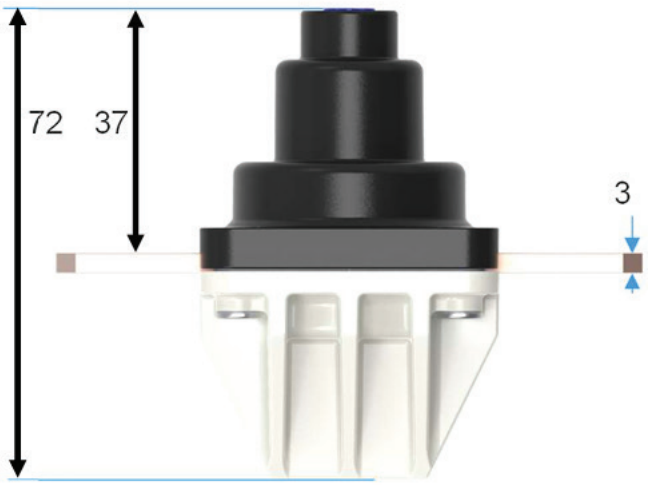


8000 A / 450 V / 15 µH









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ELECTRICAL SAFETY SOLUTIONS

Pyro Safety Switches

Prevention in milliseconds to avoid short-circuits, fire ignition and battery draining.

Pyro Safety Switch PSS-4 500V 1000J

Autoliv's industry-standard Pyro Safety Switches comply with the high-quality requirements of the vehicle industry. Our Pyro Safety Switches offer a range of technical specifications, including different voltages, short circuit resistance and maximum current.

- Maximum continuous current 500 A
- Non-reversible device
- Suitable for voltage levels up to 600 VDC
- High peak current carrying capability up to 25 000 A
- No ionizing gases / No particles exhaust
- Material Flammability : V0

Product specifications

Maximum switching capacity	Typical 1200J with Cpk 1000J
Systems configurations tested	490 V / 10 000 A / 20 µH 475 V / 12 000 A / 15 µH
(Other request, Contact us)	

Current carrying capacity

Customer cooling system must guarantee the temperature at terminals' connection point does not exceed +125°C

Customers applications examples (Load cable 70 mm² min)	105°C Max, 350 A DC 85°C Max, 420 A DC 50°C Max, 500 A DC
Maximum pulse current	25 000 A / 5 ms

Busbar

Raw-material (base)	CuSn 0,15
Plating material (lead-free)	Sn/Ni
Cross-section	60 mm² or 78 mm²
Busbar resistance (at RT)	
before ops.	≤ 0,05 mΩ
after ops	≥ 50 MΩ / 500 V

Operation time

Operating time	With Cpk 1,67 < 2 ms
450 V / 10kA / 20 µH	Typical 0.8 ms

Triggering conditions acc. to AK-LV 16 & USCAR

Ohmic resistance	≥1,7 Ω and ≤ 2,5 Ω
Current pulse	1,75 A / 0,5 ms Or 1,20 A / 2,0 ms
Pulse slope	> 8 mA / µs
No-triggering current	≤ 0,4 A Or ≤ 5,0 A / ≤ 4 µs
Diagnostic current:	< 100 mA

Temperatures

Operating	-40°C... + 105°C
Environmental	-40°C... + 105°C
Storage	-40°C... + 65°C

Validations

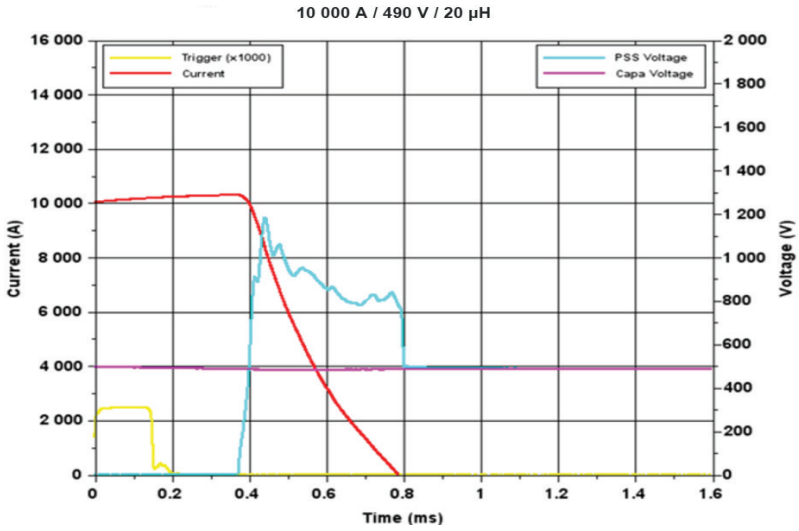
Vibration resistance	AK-LV 124
Mech. Shock resistance	AK-LV 124
Temperature cycle resistance	AK-LV 124
Chemical loads resistance	AK-LV 124
HV-LV resistance before/after ops.	≥ 1 GΩ / 500 V

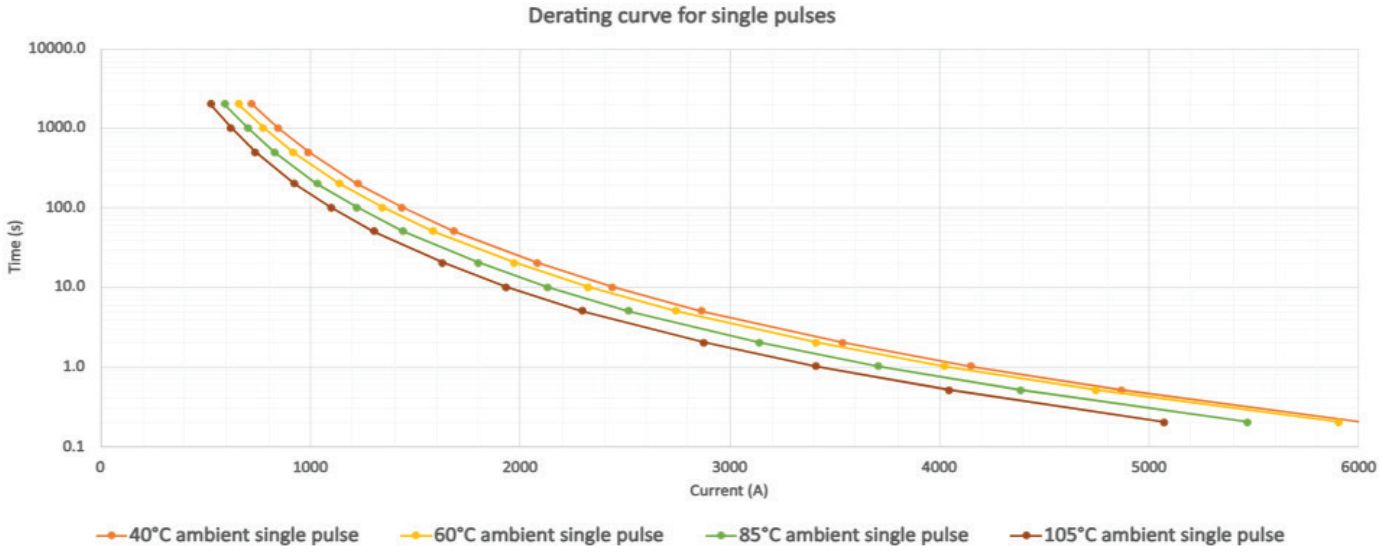
Terminal type

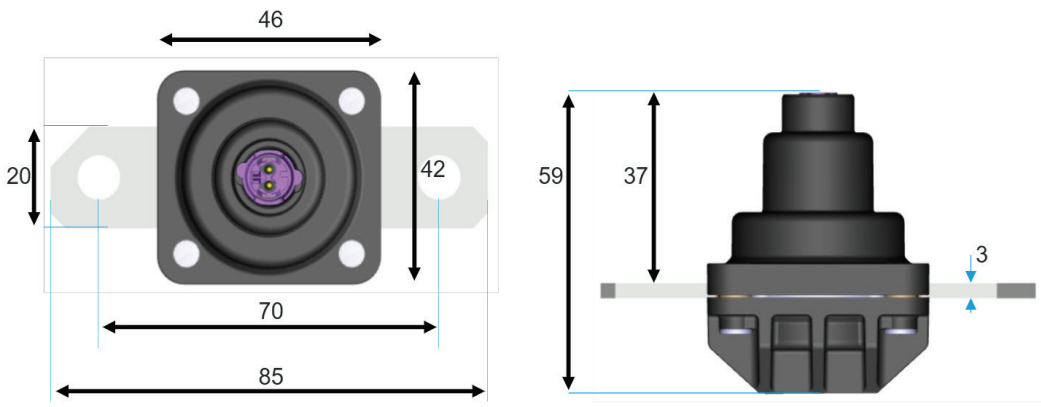
HV	M6 or M8
triggering	ABX-5 or AK-2
Weight	≤ 125 g

Technical Data and Dimensions

Performance & Dimensions







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ELECTRICAL SAFETY SOLUTIONS

Pyro Safety Switches

Prevention in milliseconds to avoid short-circuits, fire ignition and battery draining.

Pyro Safety Switch PSS-4 1000V 1200J

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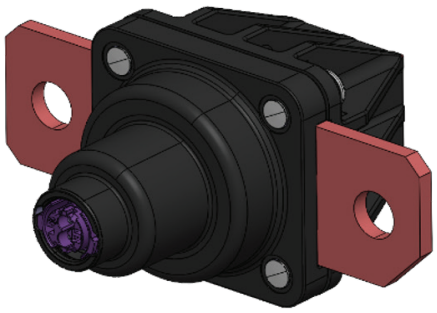


- Maximum continuous current 500 A
- Non-reversible device
- Suitable for voltage levels up to 1000 VDC
- High peak current carrying capability up to 25 000 A
- No ionizing gases / No particles exhaust
- Material Flammability : V0

Product specifications

Maximum switching capacity	Typical 1600J with Cpk 1200J
Systems configurations tested	900 V / 10 000 A / 20 µH 940 V / 16 000 A / 1.5 µH
(Other request, Contact us)	

Current carrying capacity

Customer cooling system must guarantee the temperature at terminals' connection point does not exceed +125°C

Customers applications	105°C Max, 350 A DC
example	85°C Max, 420 A DC
(Load cable 70 mm² min)	50°C Max, 500 A DC
Maximum pulse current	25 000 A / 5 ms

Busbar

Raw-material (base)	CuSn 0,15
Plating material (lead-free)	Sn/Ni
Cross-section nominal	60 mm²
Busbar resistance (at RT)	
before ops.	≤ 0,05 mΩ
after ops	≥ 50 MΩ / 500 V

Operation time

Operating time	With Cpk 1,67 < 1,5 ms
(900V/10kA/20µH)	Typical 0,8 ms

Triggering conditions	acc. to AK-LV 16 & USCAR
Ohmic resistance	≥1,7 Ω and ≤ 2,5 Ω
Current pulse	1,75 A / 0,5 ms
	Or 1,20 A / 2,0 ms
Pulse slope	> 8 mA / µs
No-triggering current	≤ 0,4 A Or ≤ 5,0 A / ≤ 4 µs
Diagnostic current	< 100 mA

Temperature

Operating temperature	-40°C... + 105°C
Environmental temperature	-40°C... + 105°C
Storage temperature	-40°C... + 65°C

Validations

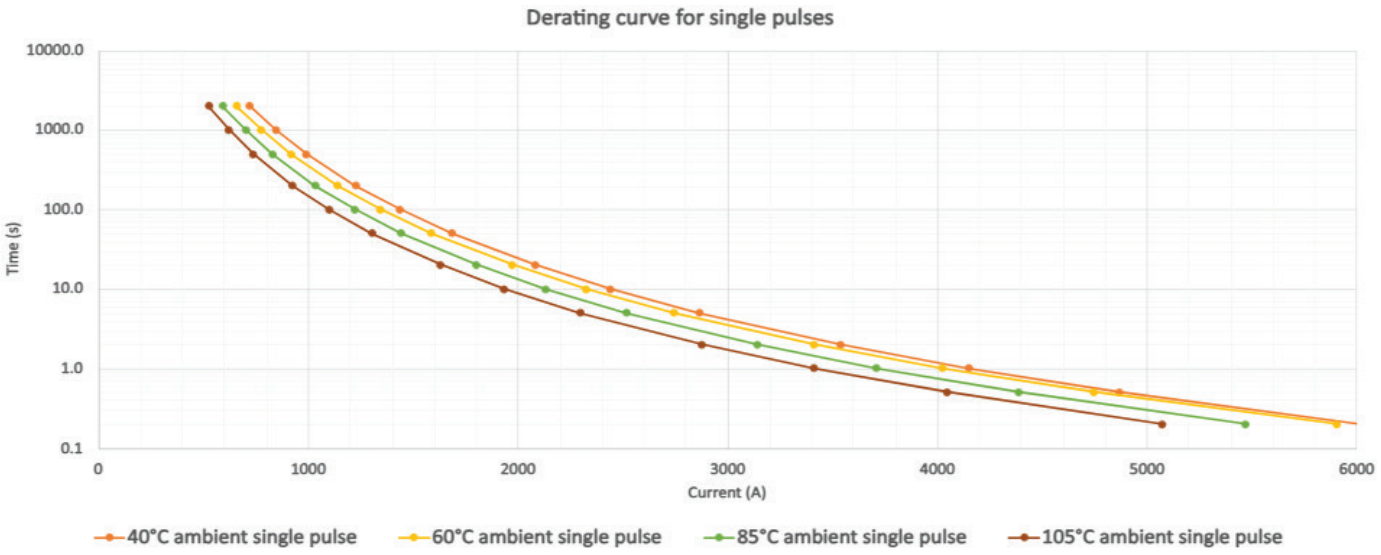
Vibration resistance	AK-LV 124
Mech. Shock resistance	AK-LV 124
Temperature cycle resistance	AK-LV 124
Chemical loads resistance	AK-LV 124
HV-LV resistance	
before/after ops.	≥ 1 GΩ / 500 V

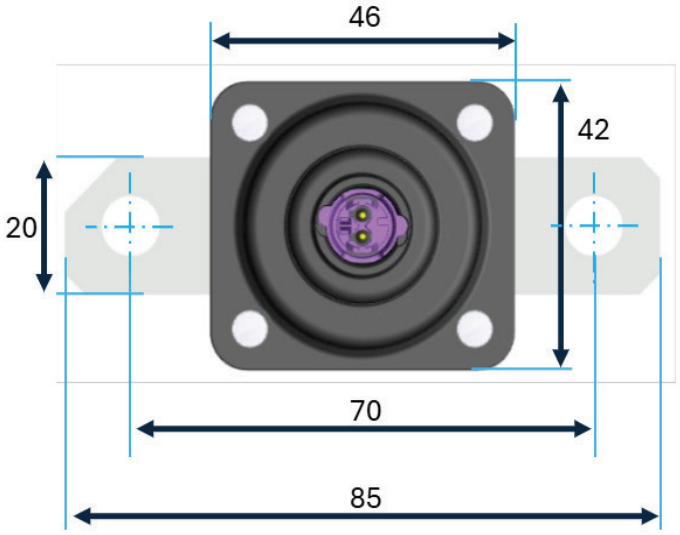
Terminal type

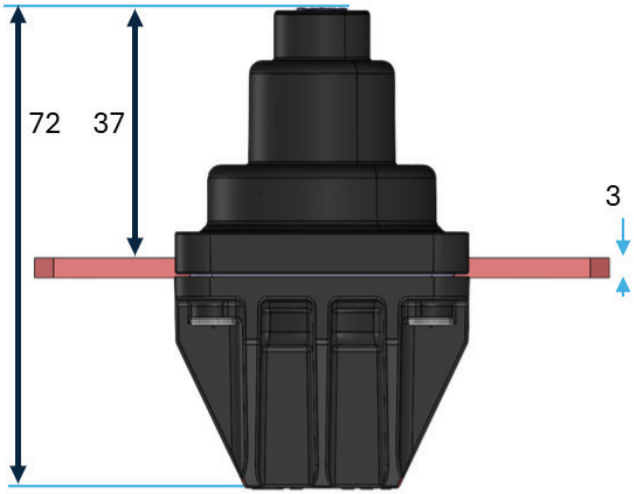
HV	M6 or M8
Triggering	ABX-5 or AK-2
Weight	≤ 145 g

Technical Data and Dimensions

Performance & Dimensions







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ELECTRICAL SAFETY SOLUTIONS

Pyro Safety Switches

Prevention in milliseconds to avoid short-circuits, fire ignition and battery draining.

Pyro Safety Switch PSS-5 1000V 2500J

Autoliv's industry-standard Pyro Safety Switches comply with the high-quality requirements of the vehicle industry. Our Pyro Safety Switches offer a range of technical specifications, including different voltages, short circuit resistance and maximum current.

- Maximum continuous current 500 A
- Non-reversible device
- Suitable for voltage levels up to 1000 VDC
- High peak current carrying capability up to 25 000 A
- No ionizing gases / No particles exhaust
- Material Flammability : V0

Product specifications

Maximum Switching capacity	Typical 3500J With Cpk 2500J
Systems Configurations tested	920 V / 16 000 A / 16 µH 900 V / 15 000 A / 25 µH 900 V / 16 800 A / 25 µH
(Other request, contact us)	

Current carrying capacity

Customer cooling system must guarantee the temperature at terminals' connection point does not exceed +125°C

Customers applications examples (Load cable 70 mm²)	105°C Max ,350 A DC 85°C Max, 420 A DC 50°C Max, 500 A DC
Maximum pulse current	25 000 A / 5 ms

Busbar

Raw-material (base)	CuSn 0,15
Plating material (lead-free)	Sn/Ni
Cross-section	60 mm²
Busbar resistance (at RT)	
before ops.	≤ 0,055 mΩ
after ops	≥ 50 MΩ / 500 V
Operating time (920V / 16kA/ 16 µH)	With Cpk 1,67< 2 ms Typical 1,0 ms

Triggering conditions acc. to AK-LV 16 & USCAR

Ohmic resistance	≥1,7 Ω and ≤ 2,5 Ω
Current pulse	1,75 A / 0,5 ms Or 1,20 A / 2,0 ms
Pulse slope	> 8 mA / µs
No-triggering current	≤ 0,4 A Or ≤ 5,0 A / ≤ 4 µs
Diagnostic current	< 100 mA

Temperatures

Operating	-40°C... + 105°C
Environmental	-40°C... + 105°C
Storage	-40°C... + 65°C

Validations

Vibration resistance	AK-LV 124
Mech. Shock resistance	AK-LV 124
Temperature cycle resistance	AK-LV 124
Chemical loads resistance	AK-LV 124
HV-VL resistance before/after ops.	≥ 1 GΩ / 500 V

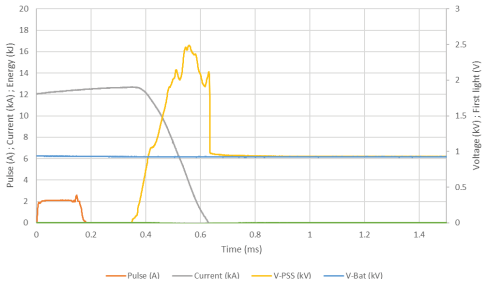
Terminal type

HV	M6 or M8
Triggering	ABX-5 or AK-2
Weight	≤ 320 g

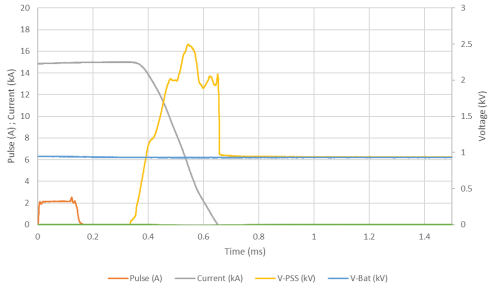
Technical Data and Dimensions

Performance & Dimensions

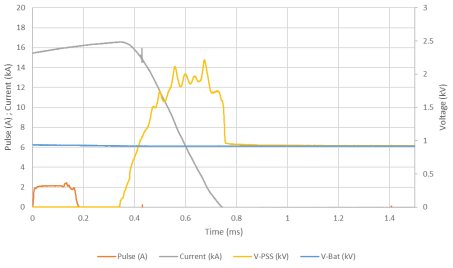
12,5 kA / 900 V / 26 µH

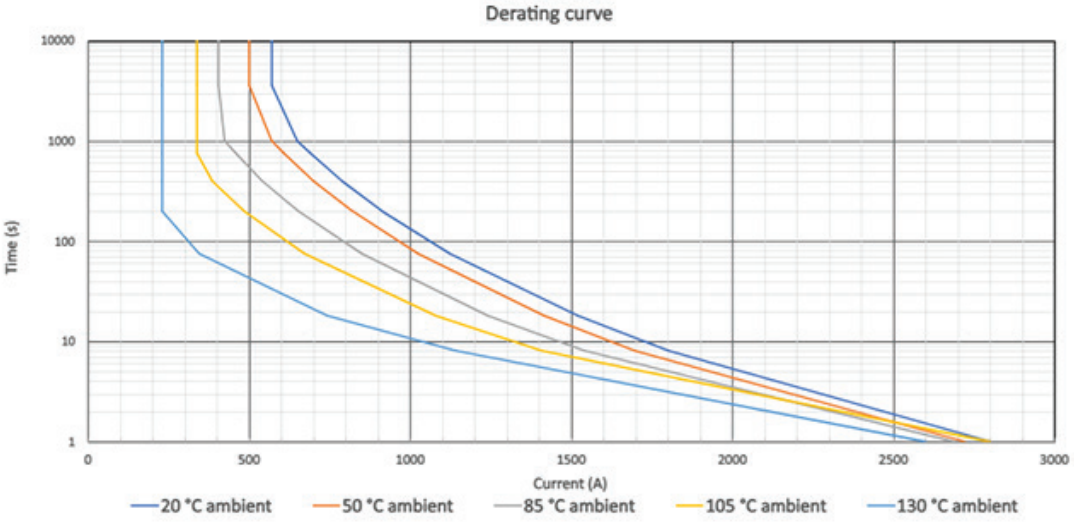


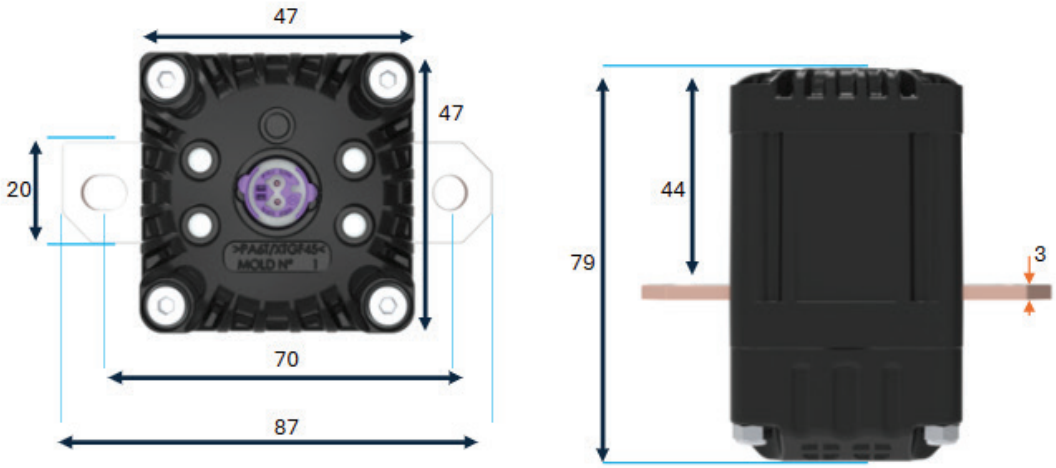
15 kA / 900 V / 26 µH



16,5 kA / 900 V / 26 µH







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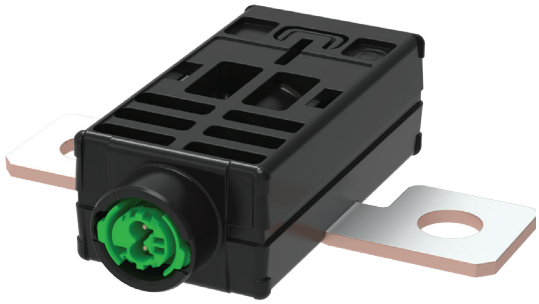
ELECTRICAL SAFETY SOLUTIONS

Pyro Safety Switches

Prevention in milliseconds to avoid short-circuits, fire ignition and battery draining.

Pyro Safety Switch PSS-6

Autoliv's industry-standard Pyro Safety Switches comply with the high-quality requirements of the vehicle industry. Our Pyro Safety Switches offer a range of technical specifications, including different functions, like switch-off, or switch-on upon demand.



- Safe crowbar connection based on proven airbag technology
- Non-reversible device
- Suitable for voltage levels up to 550 Vr.m.s.
- Stable and reliable contact
- No ionizing gases / No particles exhaust

Product specifications

Maximum current profile	5 kA / 5 ms + 600 A / 60 s
Systems configurations tested	100 A / 1 year 2 kA /4s
(Other request, Contact us)	
Voltage (IEC 60664-1)	Max Creepage pollution degree 2 – 550 V r.m.s.

Busbar

Raw material (base)	CuSn 0,15
Plating material (lead-free)	Ni/Ag
Cross-section	38 mm²
Busbar resistance (at RT)	
before ops.	≥ 10 MΩ / 500 V
after ops.	≤ 0,3 mΩ
Operating time	With Cpk 1,67 < 1 ms Typical 0,5 ms

Typical applications

The closing device "crowbars" or short-circuits the two Fuel Cell terminals in less than a millisecond. This consumes Hydrogen contained in the Fuel Cell and makes it safe. It can be used as a relay to activate any electrical system, to bypass faulty modules, or discharge capacitors from DC-DC converters.

Triggering conditions

	acc. to AK-LV 16 & USCAR
Ohmic resistence	≥1,7 Ω and ≤ 2,5 Ω
Current pulse	1,75 A / 0,5 ms Or 1,20 A / 2,0 ms
Pulse slope	> 8 mA / µs
No-triggering current	≤ 0,4 A Or ≤ 5,0 A / ≤ 4 µs
Diagnostic current	< 100 mA

Temperature

Operating	-40°C... + 105°C
Environmental	-40°C... + 105°C
Storage	-40°C... + 65°C

Validations

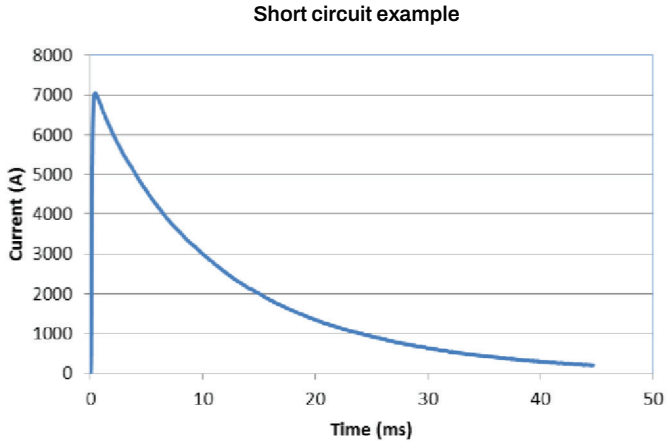
Vibration resistance	AK LV 124
Mech. Shock resistance	AK LV 124
Temperature cycle resistance	AK LV 124
Chemical loads resistance	AK LV 124
HV-LV resistance before/after ops.	≥ 1 GΩ / 500 V

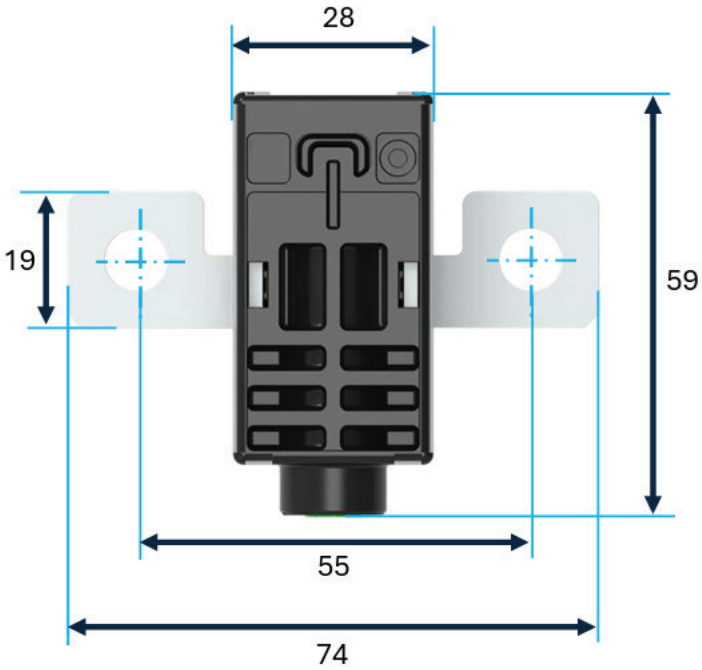
Terminal type

HV	M6 or M8
Triggering	ABX-5
Weight	≤ 80 g

Technical Data and Dimensions

Performance & Dimensions





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