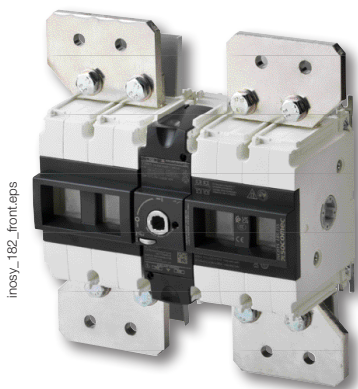


INOSYS ESS

Load Break Switches for DC & ESS applications
from 800 to 1200 A, up to 1500 VDC



Function

INOSYS ESS LBS is a range of load break switches that can be manually controlled. These switches can be operated manually using the handle to disconnect all or part of the electrical installation. They ensure on-load opening / closing and safe disconnection of any direct current low voltage electrical circuit up to 1500 VDC. They can also be used for emergency power switching applications. They have been specifically designed to withstand high short circuit conditions in ESS applications.

Advantages

High short circuit withstand for DC and ESS applications

INOSYS ESS LBS load break switches have been specifically designed to withstand high short circuit conditions in ESS applications. Tested in both fused and nonfused applications to ensure maximum safety in all fault conditions.

High-performance power switching in a compact frame

INOSYS ESS LBS load break switches incorporate patented technology that provides a breaking capacity of 750 VDC per pole, providing 1500 VDC in just 2 poles, and significantly limiting power dissipation. All in an exceptionally compact device.

Safe & reliable operation

- Direct position indication on the bar and visible contact with containment of the electrical arc.
- The opening and closing of the switch is fully independent from the speed of operation, ensuring safe operation under all conditions.
- High temperature withstand: no derating up to 131° F (55 °C), functional from -40 to +122 °F (-40 to +50 °C).

Designed for harsh environments

- Vibration testing (from 13.2 to 100 Hz at 0.7 g).
- Shock testing (15 g during three cycles).
- Humid temperature testing (2 cycles, 131°F/55°C with 95% humidity level).
- Salt mist testing (3 cycles with humidity storage, 104°F/40°C, 93% humidity after each cycle).

Easy to install

- Wiring: as the switch is non-polarized all types of wiring and connections are possible.
- Easy access without tools to integrate auxiliary contacts (located within the switch footprint).
- Mechanism can be centred or left aligned (in the factory) to accommodate installation requirements.

Modular solution for flexible configuration

- Single or dual polarity switching.
- The same switch can be used for installation with either grounded or floating networks by choosing the wiring configuration.

General characteristics

- High short circuit withstand for ESS applications.
- Range from 800A to 1200A.
- Up to 1500 VDC.
- High-performance switching in a compact design.
- Easy integration.
- Reinforced safety with visible contact indication.
- Efficient with low power-loss.

The solution for

- > Energy Storage Inverter
- > Battery Energy Storage Inverter

Strong points

- > High short circuit withstand for ESS applications
- > High-performance power switching in a compact frame
- > Safe & reliable operation
- > Designed for harsh environments
- > Easy to install
- > Modular solution for flexible configuration

Conformity to standards

- > UL 98B
Guide WHVA
File E346418



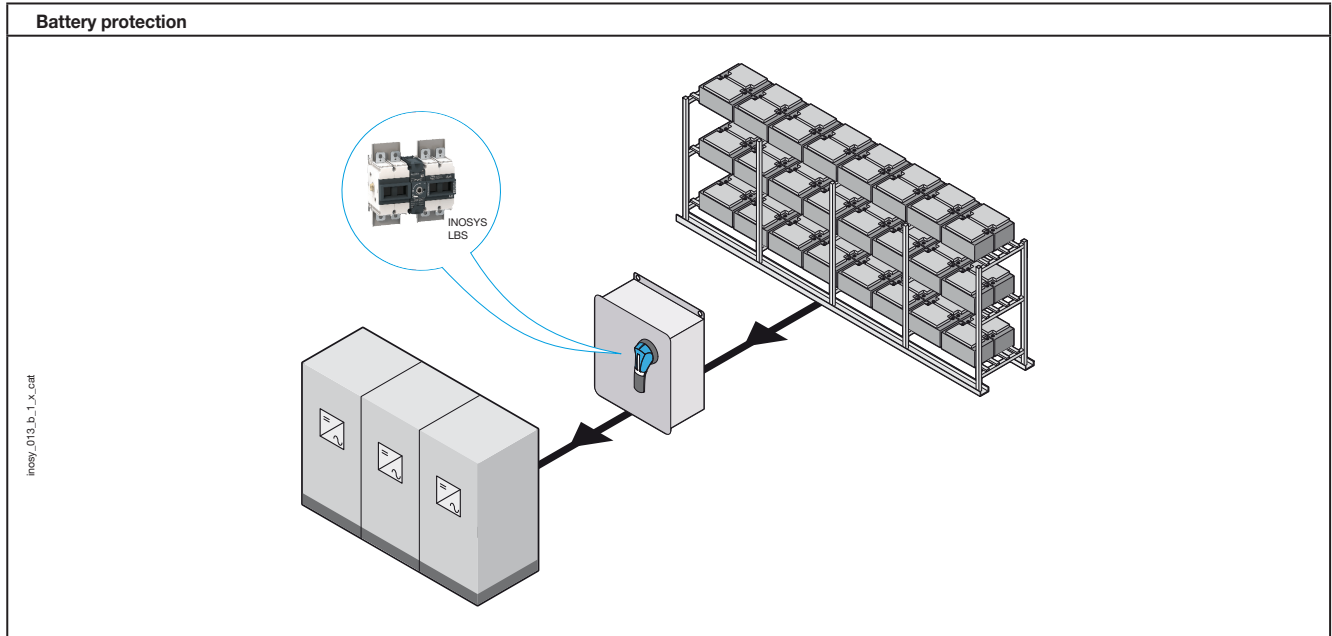
- > IEC 60947-3,
DC-21B & DC-PV2



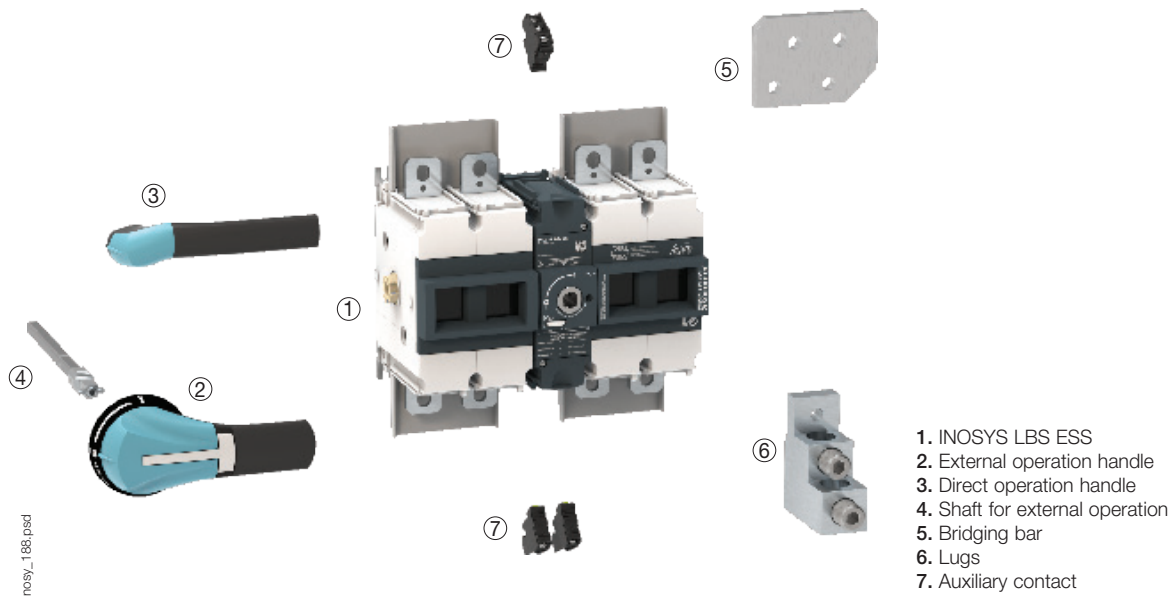
- > CCC



Typical applications: local safe disconnection for ESS applications



Overview



References

1500 VDC - high rating

Rating (A)	Frame size	No. of poles per circuit	Switch body ⁽¹⁾	External operation	Aux. Contact	Bridging bar ⁽²⁾
800 A	F3	4P (2P // 2P)	87E2 2081	Shaft 12.6 in / 320 mm 1400 1032 Handle type S2L Black 3R, 12 - 4, 4X 14AD 2111	NO/NC 8499 0001	8409 1600
1000 A			87E2 2100			
1200 A			87E2 2120			

(1) The switches are supplied without accessories.

(2) For isolated networks.

Accessories

Direct operation handle

Frame size	Handle type	Handle colour	Reference
F3	E3	Black	8499 5032



E3 handle

access_400_a_1_cat

Door interlocked external operation handle

Use

Door interlocked external operation handles include an escutcheon and are padlockable. External handles must be utilized with an extension shaft.

Example

As the handle is interlocked in the "ON" position the operator must safely disconnect and isolate the circuit prior to accessing the panel for maintenance procedures.

Opening the door when the switch is in the "ON" position can only be done by defeating the interlocking function with the use of a dedicated tool (authorized personnel only). The interlocking function is restored when the door is re-closed.



S2 type handle

access_150_eps

Frame size	Handle type	Handle colour	Degree of protection	Front operation	Lateral operation
				Reference	Reference ⁽²⁾
F3	S2L ⁽¹⁾	Black	3R,12	14AF 2111	
F3	S2L ⁽¹⁾	Black	4,4X	14AD 2111	14AJ 2111
F3	S2L ⁽¹⁾	Red	4,4X	14AE 2111	

(1) S2L handles have an extended grip; please refer to the dimensions section.

(2) only compatible with left mechanism version.

Shaft for external handle

Frame size	Handle type	Length (in/mm)	Reference
F2 - F3	S2, S2L	7.87/200	1400 1020
F2 - F3	S2, S2L	12.6/320	1400 1032
F2 - F3	S2, S2L	15.75/400	1400 1040

Other lengths: please consult us.



access_401_a_1_cat

Shaft for S2 and S2L type handle

Isolation plate

Use

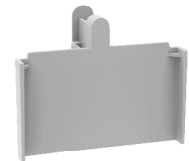
This isolation plate ensure safety for the customer.

Characteristics

Products are supplied from factory with isolation plates. For replacement purposes, quantity to order should be 2 kits.

Description	Quantity to order	Reference
Isolation plate	2	8499 1000 ⁽¹⁾

(1) Kit includes 2 identical isolation plates



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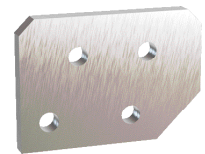
Bridging bar

Use

The bridging bars enable the poles to be connected in parallel, allowing the following configurations for 1500 VDC.

1500 VDC - 1 circuit

Frame Size	Rating (A)	No. of poles	Quantity to be ordered	Reference
F3	800 ... 1200	4P (2P // 2P)	2	8409 1600



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INOSYS **LBS ESS**

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Accessories (continued)

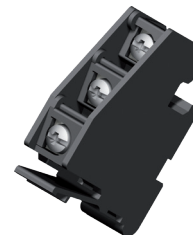
Auxiliary contact

Use

The function of the auxiliary contact depends on where it is mounted on the mechanism.

Characteristics

Changeover type: NO/NC,
IP2X with front operation
(cover tap screwed).
10,000 operations.
Maximum 3 per switch.

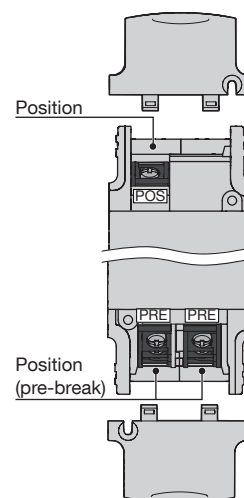


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Frame size	Connection type	Type	Reference
F2 - F3	Screw	NO/NC standard	8499 0001
F2 - F3	Screw	NO/NC standard	8499 0002
F2 - F3	Screw	NC > 600 V	8499 0002

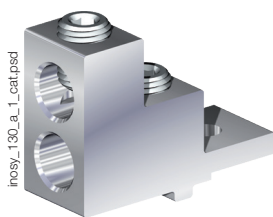
Characteristics

Auxiliary contact type	Min. current (A)	I _{th} (A)	Electrical characteristics per UL 60947-5-1
Standard	12.5 mA / 24 V	10	A300 - R300 - Q150
Low level	1 mA / 4 V	10	A300 - R300 - Q150
> 600 V	10 mA / 24 V	10	A600

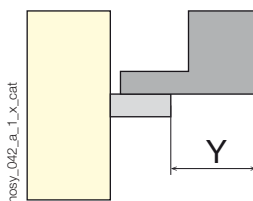


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Terminal lugs



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Frame size	Number and size (min. - max.) of cables	Type of cable	Openings per lug	Quantity per reference	Dimension "Y" (mm/in)	Reference ⁽¹⁾
F3	2 conductors (#2 - 600 KCMIL)	Cu / Al	2	2	69.7 / 2.74	3954 2060
F3		Cu / Al		3		3954 3060
F3		Cu / Al		4		3954 4060

Characteristics

Characteristics according to UL 98B

Rated current I _n		800	1000	1200
		(A)	(A)	(A)
Short circuit capacity				
Prospective short-circuit current (kA rms DC) (kA rms)	UL 98B	10	10	10
Mechanical characteristics				
Durability (number of operating cycles)		8000	8000	8000
Power dissipation per pole (W/pole)		14	21	31
Short circuit capacity (ESS range)				
Rated conditional short-circuit current I _q (kA rms) ⁽¹⁾	IEC 60947-3, GB/T 14048.3	120kA at (I/r) 0.5ms. 80kA at 3ms.	120kA at (I/r) 0.5ms. 80kA at 3ms.	120kA at (I/r) 0.5ms. 80kA at 3ms.
Connection				
Rigid Cu cable cross-section (mm ²)		4 x 400	4 x 400	4 x 600
Maximum Cu busbar width (mm)		10 x 100	10 x 100	-
Tightening torque min (Nm)		35	35	35
Tightening torque max (Nm)		42	42	42

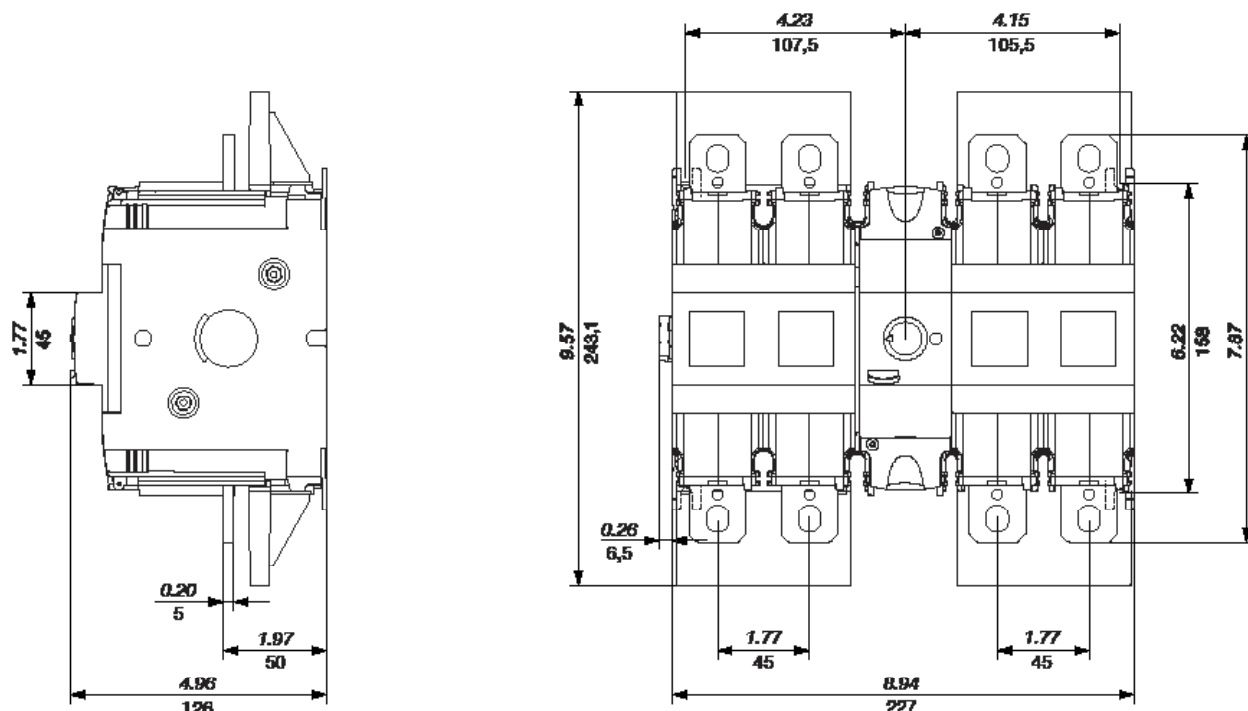
(1) Tested with fuses. For more information please contact us.

INOSYS ESS

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Dimensions (in/mm)

INOSYS LBS ESS



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Dimensions for external handles (in/mm)

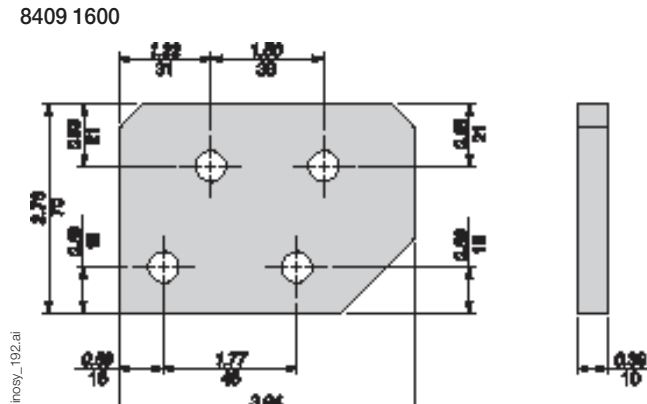
F3 frame size

Handle type	Front operation Direction of operation	Door drilling
S2L type 		

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Bridging bars (in/mm)

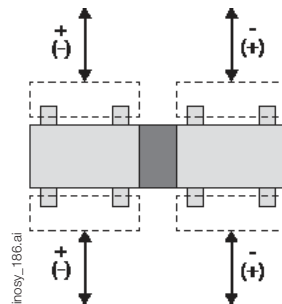
F3



Wiring configuration

1 circuit - 1500 VDC

F3 - 2 P // 2P



Mounting orientation

F3

Only one mounting operation allowed

