

NEW

IMO

SIM

NEW Mini Solar Isolator



Keeping **Solar Safe**

SIM Mini Solar Isolators



Mini TRUE DC Isolators for PV Systems

- Based on market-leading SI series design
- Compact smaller size
- Improved switching capacity
- Extended mounting options
- Guaranteed arc suppression (3ms typical)
- Operator independent switching mechanism
- Knife-edge contacts



UL508i



PENDING

The next evolution in DC isolation

When IMO first launched its SI Series DC isolator in 2009, little did it know that the SI would soon become the safety component of choice for many of the largest solar inverter manufacturers and installers around the world. Today, with nearly 4 million installations and zero reported electrical failures, the SI Series has proved itself more than capable of handling the most demanding DC switching applications.

The NEW SIM represents the next evolution in DC isolation offering all the benefits of its big brother in a compact, high reliability package. With a 35% reduction in cubic volume, reduced front plate “real-estate”, increased ratings and extended mounting options, the SIM is packed with features. Yet it retains the high reliability technology of the current SI Series including knife edge contacts, high speed operator independent switching mechanism and full arc control with guaranteed suppression time.

The NEW SIM represents the next step in meeting the global demand for high reliability, compact and competitive DC safety switching solutions.

Safety as standard

In solar installations, the DC isolator is like a vehicle air-bag. It is rarely called upon but, when required, carries a huge responsibility. So it's good to know that the IMO SI is safeguarding millions of solar installations around the world, without a single reported electrical failure.

Not surprising considering the product carries all the most important approvals including UL508i. In fact the IMO SI range of solar isolators have been tested by some of the most rigorous examiners and OEM manufacturers in the world, passing with flying colours every time.

Smaller... and better

When buying IMO you can be assured of the level of quality and reliability of our products. The SIM is no exception, and just because we have managed to squeeze everything that went into our market-leading SI range into the new SIM's compact body, we haven't compromised on reliability. In fact, we have increased the overall ratings and extended the mounting options.



SI16-DBL-2

35% reduction in cubic volume



SIM16-DBL-4



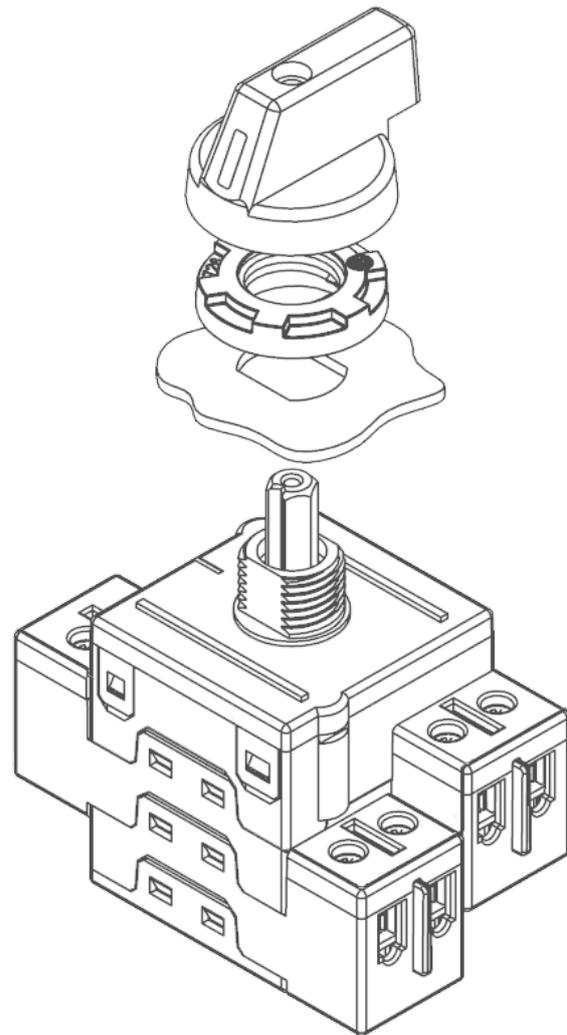


The OEM's choice

The SI range of isolators was specifically developed for arduous DC disconnect applications and SI isolators are used by many of the largest Solar Inverter manufacturers in the world.

The new SIM range features the same independent trigger ratchet switching mechanism delivering arc extinguishing times of <math><5\text{ms}</math> (3ms typical). Specially designed internal arc cooling chambers control temperature rise and increase safety while knife edge contacts increase reliability and prolong electrical life.

All this along with a 35% reduction in size makes the SIM Series the ideal next generation choice for OEMs globally.



Utilisation Categories

Utilisation Categories as are covered in the European Standards EN 60947-1 & EN60947-3 and define an equipment's intended application. The list of both AC and DC categories for low-voltage switchgear and controlgear are stated in EN 60947-1 Annex A along with the relevant product standards.

Manufacturers of both switchgear and controlgear should include in their technical product data all the operational ratings for the utilisation categories for which a product is designed and as such this should remove the confusion for users and designers in their selection of the correct product.

If we consider PV installations where there are requirements for switchgear being used on the DC side then the system falls typically within two categories below (for which the relevant standard is EN 60947-3)

DC-21 Switching of resistive loads, including moderate overloads

DC-22 Switching of mixed resistive and inductive loads, including moderate overloads

DC-PV1 Switching of single PV string(s) without reverse and overcurrents

DC-PV2 Switching of several PV strings with reverse and overcurrents

Compliance to the EN60947-3 utilisation categories involves the products completing a number of tests, these include the "Making and Breaking Capacity" (section 7.2.4.1/D7.2.4.1) and "Operational Performance" (section 7.2.4.2/D7.2.4.2). Verification of the operational making and breaking capacities are stated by reference to the rated operational voltage and rated operational current according to Table 3 and Table D7 (see extracts below).

Test Conditions for Making & Breaking Capacities

Utilisation categories	Rated operational categories	Making			Breaking			Number of operating cycles
		I/I_e	U/U_e	L/R ms	I_c/I_e	U_r/U_e	L/R ms	
DC-21A - DC-21B	All values	1.5	1.05	1	1.5	1.05	1	5
DC-22B	All values	4	1.05	2.5	4	1.05	2.5	5
DC-PV1	All values	1.5	1.05	1	1.5	1.05	1	5
DC-PV2	All values	4	1.05	1	4	1.05	1	5

Test Conditions for Number of On Load Operating Cycles

Utilisation categories	Number of operating cycles per hour	Number of operating cycles					
		A categories			B categories		
		Without current	With current	Total	Without current	With current	Total
DC-21A/B & DC-22B	120	8,500	1,500	10,000	1,700	300	2,000
DC-PV1 & DC-PV2	120	9,700	300	10,000	-	-	-

Utilisation categories	Rated operational categories	Making			Breaking		
		I/I_e	U/U_e	L/R ms	I_c/I_e	U_r/U_e	L/R ms
DC-21A - DC-21B	All Values	1	1	1	1	1	1
DC-22B	All Values	1	1	2	1	1	2
DC-PV1	All Values	1	1	1	1	1	1
DC-PV2	All Values	1	1	1	1	1	1

I =making current I_c =breaking current I_e =rated operational current
 U =applied voltage U_e =rated operational voltage U_r =operational frequency or d.c recovery voltage

Ordering Variations

Lever Handle Models

Panel Mount (4-screw) 64 x 64 Escutcheon Plate Lever Handle, IP66, NEMA 3R	Single Hole Mount (22.5mm) 48 x 48 Escutcheon Plate Lever Handle, IP66, NEMA 4X	Base Mount (door coupling) 64 x 64 Escutcheon Plate Lever Handle, IP66, NEMA 4X	Modular Switch Lever Handle, IP40, NEMA 1
SI**PM64*	SI**SHM*	SI**BMD64*	SI**DB*

Lever Handle Models with Lockable OFF

Panel Mount (4-screw) 64 x 64 Escutcheon Plate Lockable Lever Handle, IP66, NEMA 3R	Single Hole Mount (22.5mm) 48 x 48 Escutcheon Plate Lockable Lever Handle, IP66, NEMA 4X	Base Mount (door coupling) 64 x 64 Escutcheon Plate Lockable Lever Handle, IP66, NEMA 4X	Modular Switch Lockable Lever Handle, IP40, NEMA 1
SI**PML64*	SI**SHML*	SI**BMDCL64*	SI**DBL*

Rotary Handle Models with Lockable OFF

Panel Mount (4-screw) 64 x 64 Lockable Rotary Handle, IP66, NEMA 4X	Base Mount (door coupling) 64 x 64 Lockable Rotary Handle, IP66, NEMA 4X	Enclosed Version Lockable Rotary Handle, IP67, NEMA 4X
SI**PM64R*	SI**BMD64R*	SI**PEL64R*

NOTE:

For description of each mounting mechanism please refer to pages 27 - 30.

IP ratings are for front panel and enclosed.

Part Number Configuration

SI		16	-	PM64R	-	2	Number of Poles (see Switching Configurations on p.5)
Series	SI DC Solar Isolator	SI					
Switch Rating	16 Amp	16					2 2-Pole
	25 Amp	25					2H 2-Pole 4 Parallel Poles
	32 Amp	32					4 4-Pole
	38 Amp	38					4S 2-Pole 4 Poles in Series (Input Top, Output bottom)
	40 Amp	40					4T 2-Pole 4 Poles in Series (Input & Output bottom)
	55 Amp	55					4B 2-Pole 4 Poles in Series (Input & Output top)
Mounting Type	Panel Mount (4-screw), 64 x 64 Escutcheon Plate, Lever Handle			PM64			6 6-Pole
	Panel Mount (4-screw), 64 x 64 Escutcheon Plate, Lockable Lever Handle			PML64			3H 2-Pole 6 Parallel Poles
	Panel Mount (4-screw), 64 x 64 Lockable Rotary Handle			PM64R			8 8-Pole
	Single Hole (22.5mm) Mount, 48 x 48 Escutcheon Plate, Lever Handle			SHM			4H 2-Pole 8 Parallel Poles
	Single Hole (22.5mm) Mount, 48 x 48 Escutcheon Plate, Lockable Lever Handle			SHML			
	Base Mount (DIN Rail), 64 x 64 Escutcheon Plate, Lever Handle			BMD64	Base Mount (DIN Rail), 64 x 64 Lockable Rotary Handle		
	Base Mount (DIN Rail), 64 x 64 Escutcheon Plate, Lockable Lever Handle			BMDCL64	Modular Switch, Lever Handle		BMD64R
					Modular Switch, Lockable Lever Handle		DB
					Enclosed Version, Lockable Rotary Handle		DBL
							PEL64R

Switching Configurations

Type	2-pole	2-pole 4 parallel poles	4-pole	2-pole 4 poles in series Input on top Output bottom	2-pole 4 poles in series Input and Output bottom	2-pole 4 poles in series Input and Output on top
SI16	2	2H	4	4S	4T	4B
SI25	2	2H	4	4S	4T	4B
SI32	2	2H	4	4S	4T	4B
SI38	2	2H	4	4S	4T	4B
SI40	2	2H	4	4S	4T	4B
SI55	2	2H	4	4S	4T	4B
Contacts Wiring Diagram						
Switching example						

Type	6-pole	2-pole 6 parallel poles	8-pole	2-pole 8 parallel poles
SI16	6	3H	8	4H
SI25	6	3H	8	4H
SI32	6	3H	8	4H
SI38	6	3H	8	4H
SI40	-	-	-	-
SI55	-	-	-	-
Contacts Wiring Diagram				
Switching example				

Approvals

Country	RoHS 	USA, UL508i 	US, Canada, UL508 	Europe CE 	CCC China 	IEC CB Europe
SI16	✓	✓	✓	✓	✓	✓
SI25	✓	✓	✓	✓	✓	✓
SI32	✓	✓	✓	✓	✓	✓
SI38	✓	Pending	Pending	✓	✓	✓
SI40	✓	✓	✓	✓	Pending	Pending
SI55	✓	✓	✓	✓	Pending	Pending

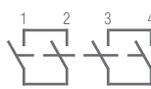
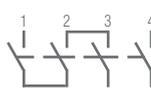
Insulated Jumper for series and parallel switching of contacts

Type	Jumper	Pack	Weight
SI16, SI25, SI32, SI38	SIV-B1	100	6.6g/pc.
SI40, SI55	SIV-B2	100	9.64g/pc.



Technical Data

Data according to IEC 60947-3, VDE 0660, GB14048.3

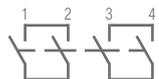
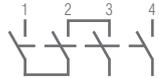
Main Contacts		Type	SIM16	SIM25	SIM32		
Rated thermal current I_{the}		A	16	25	32		
Rated insulation voltage $U_i^{1)}$		V	1000	1000	1000		
Rated insulation voltage $U_i^{2)}$		V	1500	1500	1500		
Distance of contacts (per pole)		mm	8	8	8		
DC21A	Rated operational current I_e 1 pole 1 	300V	A	16	23	TBC	
		400V	A	12	14	TBC	
		500V	A	9	11	TBC	
		600V	A	6	8	TBC	
		700V	A	4.5	6	TBC	
		800V	A	3	4	TBC	
		900V	A	2.5	3	TBC	
		1000V	A	1.5	2	TBC	
		2 poles in series 2 	500V	A	16	25	TBC
			600V	A	16	25	TBC
	700V		A	16	23	TBC	
	800V		A	16	20	TBC	
	900V		A	13	16	TBC	
	1000V		A	9	11	TBC	
	1200V		A	6	8	TBC	
	1500V		A	3	4	TBC	
	2 poles in series + 2 poles parallel 2H 		500V	A	29	45	TBC
			600V	A	29	45	TBC
		700V	A	16	23	TBC	
		800V	A	16	20	TBC	
900V		A	13	16	TBC		
1000V		A	9	11	TBC		
1200V		A	6	8	TBC		
1500V		A	3	4	TBC		
4 poles in series 4S/4T/4B 	500V	A	16	25	TBC		
	600V	A	16	25	TBC		
	700V	A	16	25	TBC		
	800V	A	16	25	TBC		
	900V	A	16	25	TBC		
	1000V	A	16	25	TBC		
	1200V	A	16	25	TBC		
	1500V	A	16	20	TBC		
Rated operational current I_e AC21B 2, 4 2H U_e max. 440V U_e max. 440V	A	A	16	25	TBC		
	A	A	29	45	TBC		
Rated conditional short circuit current Max. fuse size		kA_{eff} A (gG)	5 40	5 63	TBC TBC		
Mechanical life		$x10^3$	10	10	TBC		
Rated short-time withstand current (1s)	I_{cw}	2, 4	A	800	900	TBC	
		2H, 4S, 4T, 4B	A	1300	1500	TBC	
Short circuit making capacity	I_{cm}	2, 4	A	800	900	TBC	
		2H, 4S, 4T, 4B	A	1300	1500	TBC	
Maximum cable cross sections (inc. jumper SIVM-B1)							
solid stranded		mm ²	1.5 - 10	4 - 10	4 - 10		
flexible		mm ²	1.5 - 6	4 - 6	4 - 6		
flexible (+ multicore cable end)		mm ²	1.5 - 6	4 - 6	4 - 6		
Size of terminal screw			M3.5 Pz1	M3.5 Pz1	M3.5 Pz1		
Tightening torque		Nm	1.4	1.4	1.4		
2 cables per clamp without jumper SIVM-B1 solid or stranded		mm ²	2 x 0.5mm ² to 2x6mm ²				
Maximum ambient temperature Operation		open	°C				
		enclosed	-40 to +65				
Storage			-40 to +45				
			-50 to +90				
Contact Resistance per pole		mΩ	1.75				

1) Suitable at overvoltage category I to III, pollution degree 3 (standard-industry): $U_{imp} = 8kV$.

2) Suitable at overvoltage category I to III, pollution degree 2 (min.IP55): $U_{imp} = 8kV$.

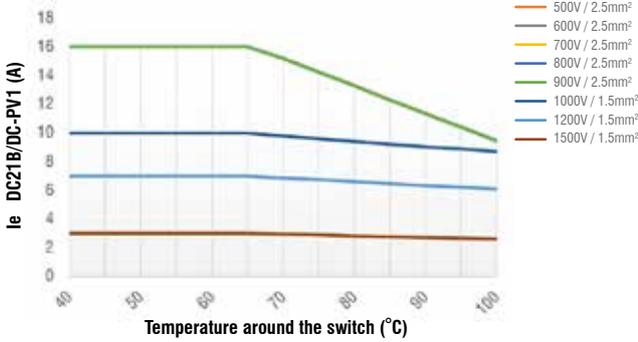
Technical Data continued

Data according to UL508i  File E362605, Category no.: NMSJ and UL508  File E146487, Category no.: NRNT2, NRNT8

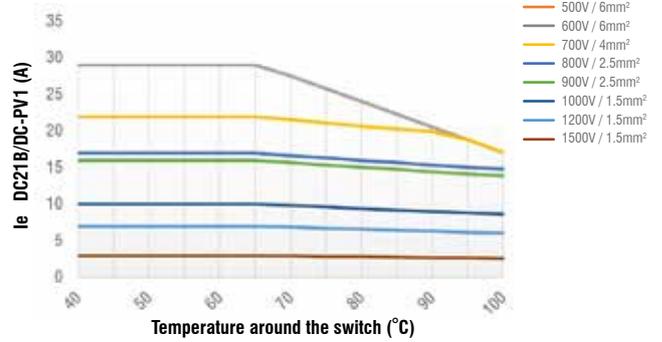
Main Contacts	Type	SIM16	SIM25	SIM32	
Ampere-Rating "General Use" 1 pole 1 	DC				
	350V A	4	5	TBC	
	500V A	4	5	TBC	
	600V A	4	5	TBC	
	700V A	-	-	-	
	800V A	-	-	-	
	900V A	-	-	-	
	1000V A	-	-	-	
	2 poles in series 2 	350V A	16	25	TBC
		500V A	16	25	TBC
600V A		16	25	TBC	
700V A		-	-	-	
800V A		-	-	-	
900V A		-	-	-	
1000V A		-	-	-	
+ 2 poles parallel 2H 		350V A	29	45	TBC
		400V A			
		500V A	29	38	TBC
	600V A	21	27	TBC	
	700V A	-	-	-	
	800V A	-	-	-	
	900V A	-	-	-	
	1000V A	-	-	-	
	4 poles in series 4S / 4T / 4B 	350V A	16	25	TBC
		500V A	16	25	TBC
600V A		16	25	TBC	
700V A		-	-	-	
800V A		-	-	-	
900V A		-	-	-	
1000V A		-	-	-	
Fuse size (RK5) Industrial Control Switch 5kA / 600V		A	40	60	80
Maximum cable cross sections (including jumper SIMV-B1)		solid	16 - 10	16 - 10	16 - 10
		stranded	20 - 6	20 - 6	20 - 6
	Size of terminal screw	M3.5 Pz1	M3.5 Pz1	M3.5 Pz1	
	Tightening torque	12.4	12.4	12.4	

Derating Curves for SIM16

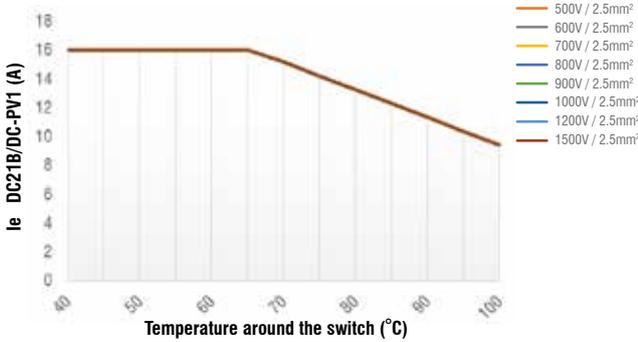
Switch SIM16 2 poles all types except PEL64R



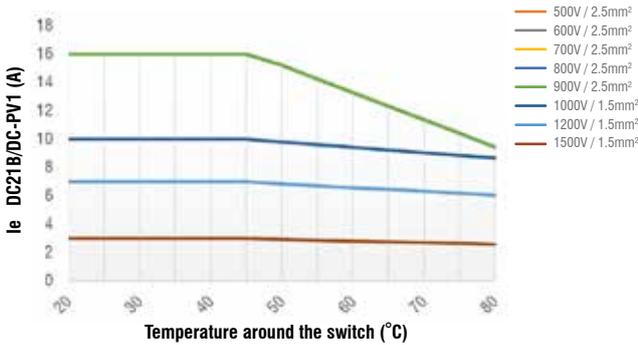
Switch SIM16 2H all types except PEL64R



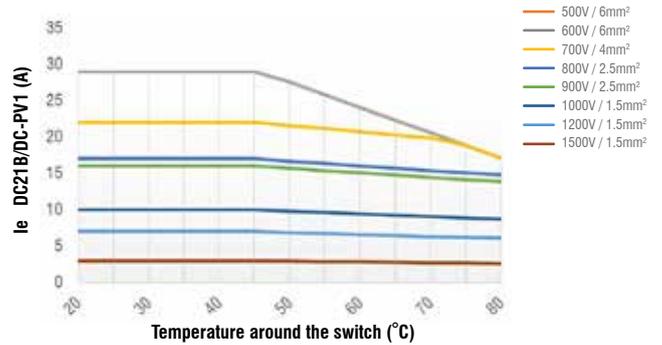
Switch SIM16 4S/T/B all types except PEL64R



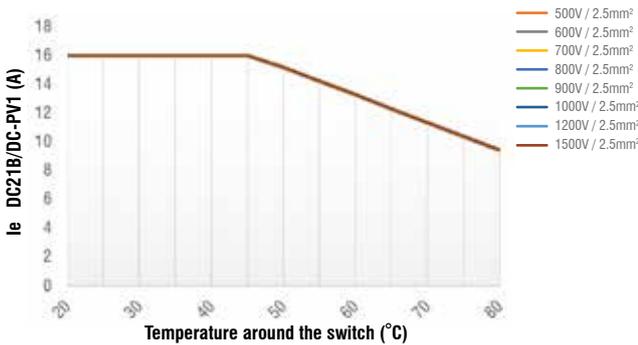
Switch SIM16 2 poles PEL64R type



Switch SIM16 2H PEL64R type

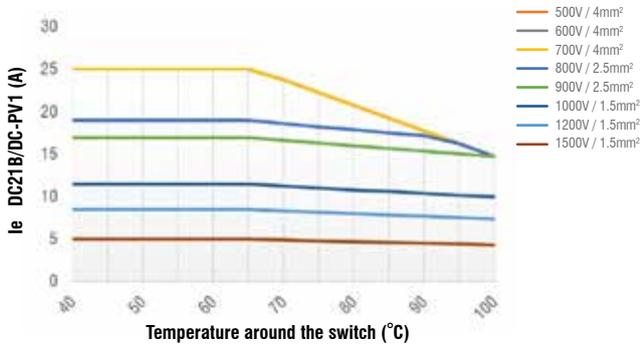


Switch SIM16 4S/T/B PEL64R type

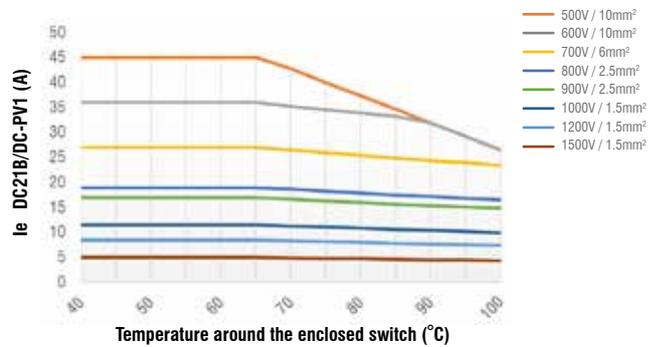


Derating Curves for SIM25

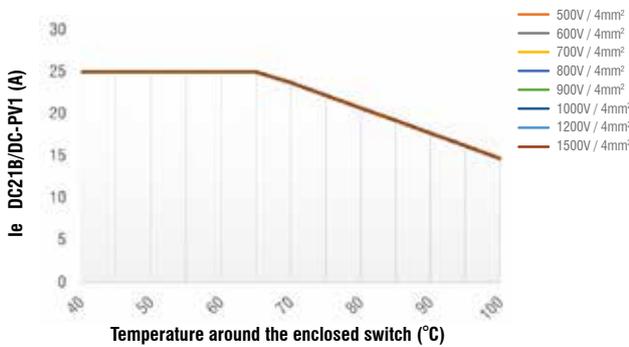
Switch SIM25 2 poles all types except PEL64R



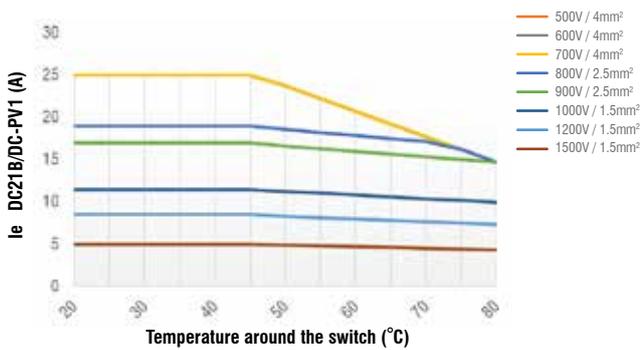
Switch SIM25 2H all types except PEL64R



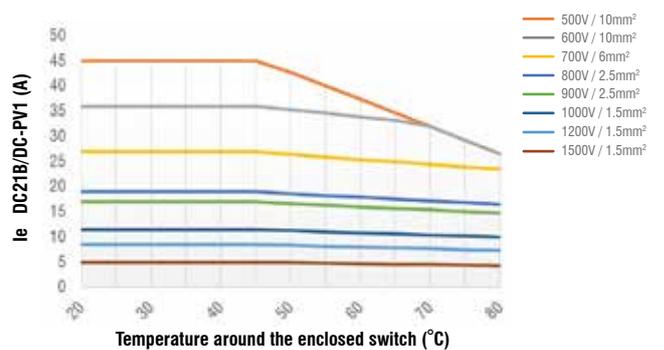
Switch SIM25 4S/T/B all types except PEL64R



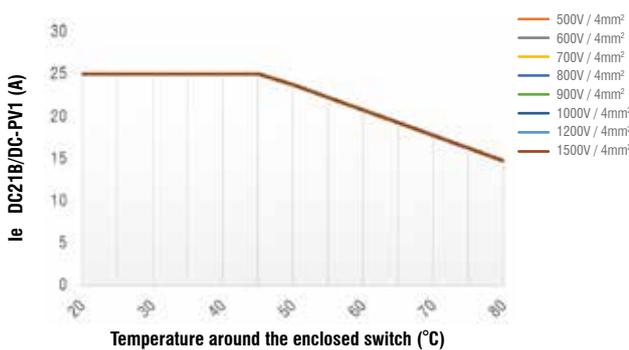
Switch SIM25 2 poles PEL64R type



Switch SIM25 2H PEL64R type



Switch SIM25 4S/T/B PEL64R type

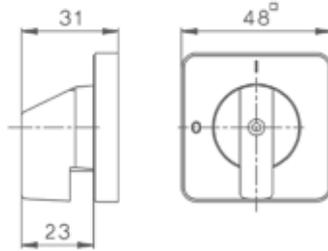


Handle Options

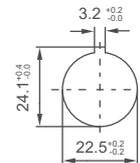
48 x 48 Lever Handle



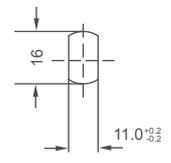
IP66 - NEMA 4X



Mounting Hole(s)



SHM Version

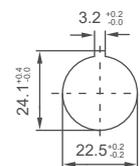
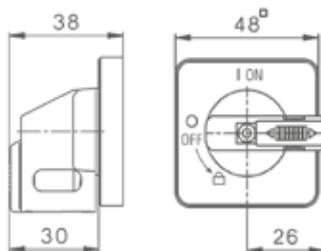


SHMS Version
(No escutcheon plate)

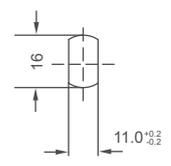
48 x 48 Lever Handle with Lockable OFF



IP66 - NEMA 4X



SHML Version

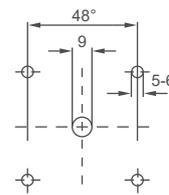
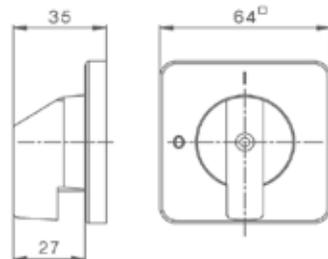


SHMSL Version
(No escutcheon plate)

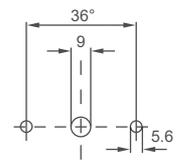
64 x 64 Lever Handle



IP66 - NEMA 3R



PM Version

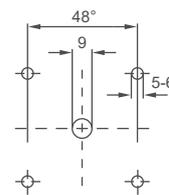
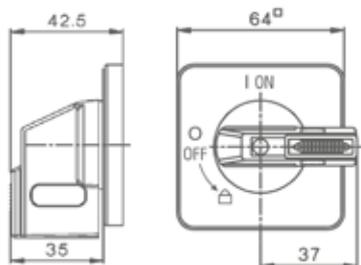


PMT Version

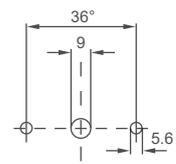
64 x 64 Lever Handle with Lockable OFF



IP66 - NEMA 3R



PM Version

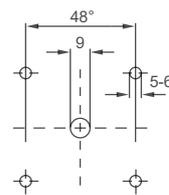
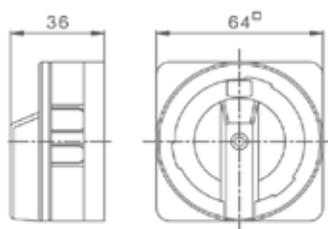


PMT Version

64 x 64 Rotary Handle with Lockable OFF



IP66 - NEMA 4X
(PEL64R version - IP67)



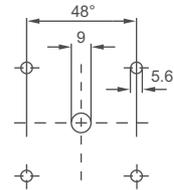
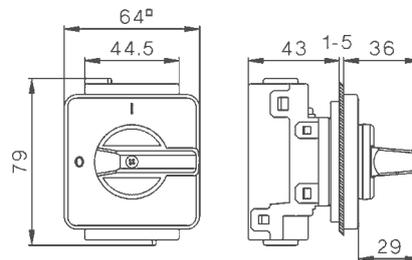
PM Version

Note: BMDC Version only requires central hole

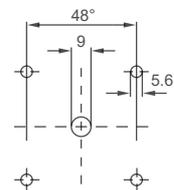
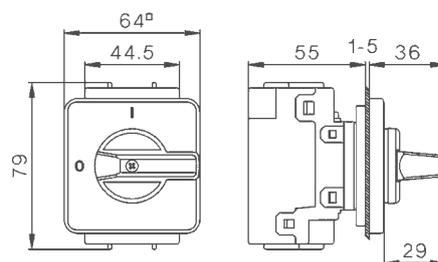
Dimensions (mm)

Mounting Hole

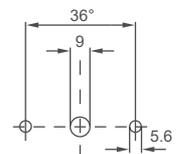
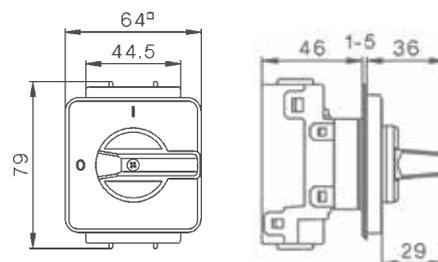
SIM-PM64-2**
Panel Mounting
64x64 Escutcheon Plate - 2 Pole



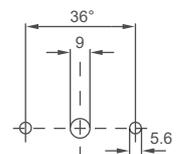
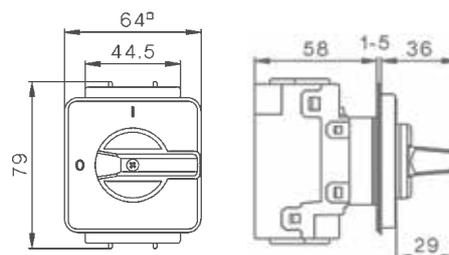
SIM-PM64-4 / SIM**-PM64-2H**
Panel Mounting
64x64 Escutcheon Plate - 4 Pole



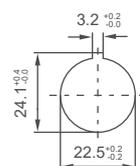
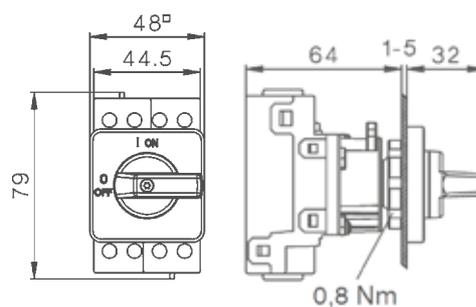
SIM-PMT64-2**
Panel Mounting
64x64 Escutcheon Plate - 2 Pole



SIM-PMT64-4 / SIM**-PMT64-2H**
Panel Mounting
64x64 Escutcheon Plate - 4 Pole



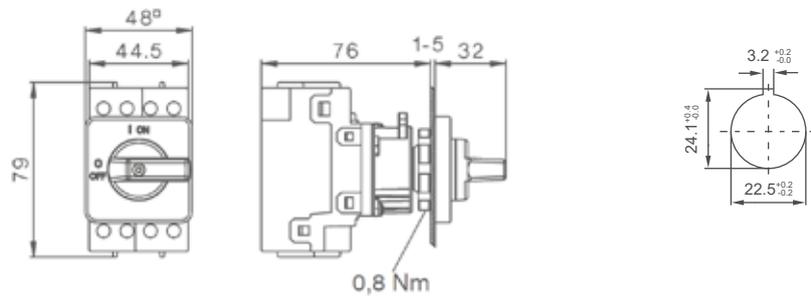
SIM-SHM-2**
Single Hole Mounting
Ø 22.5mm - 2 Pole



Mounting Hole

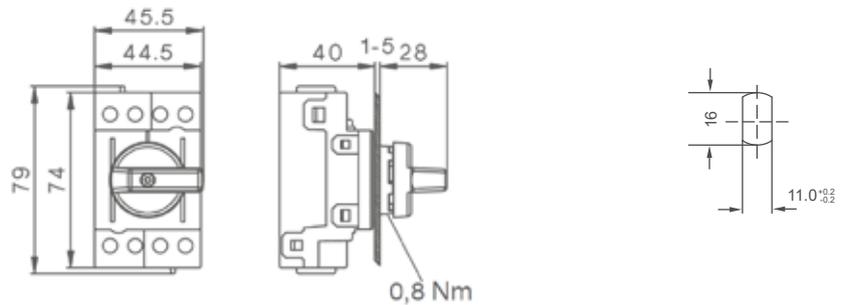
SIM**-SHM-4 / SIM**-SHM-2H

Single Hole Mounting
 \varnothing 22.5mm - 4 Pole



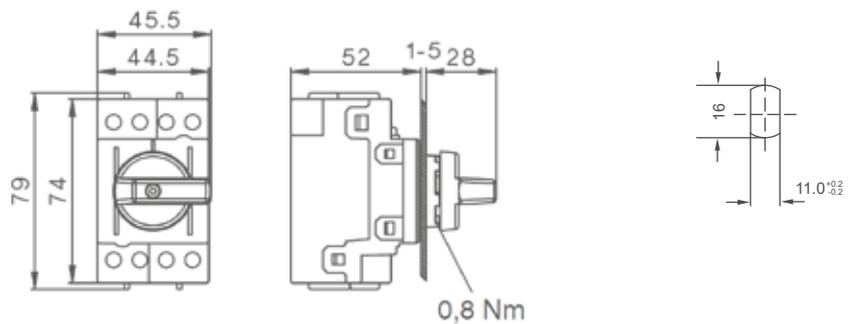
SIM**-SHMS-2

Single Hole Mounting
 \varnothing 16mm - 2 Pole



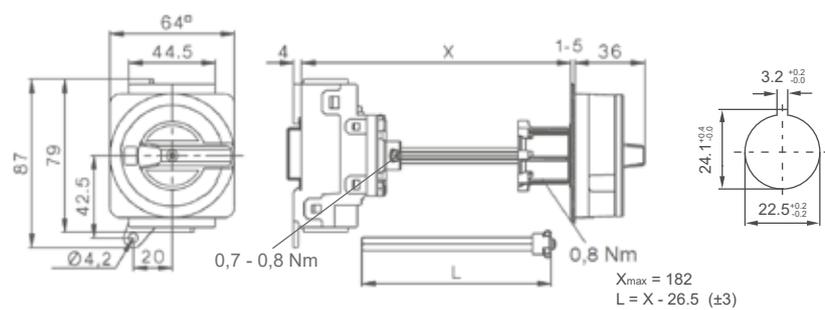
SIM**-SHMS-4 / SIM**-SHMS-2H

Single Hole Mounting
 \varnothing 16mm - 4 Pole



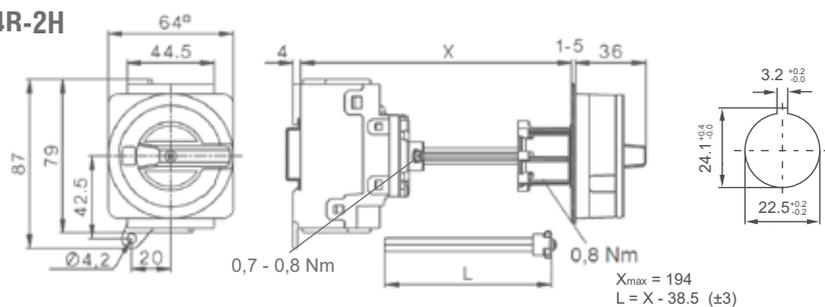
SIM**-BMDC64R-2

Base Mounting with door coupling
 64x64 Escutcheon Plate - 2 Pole

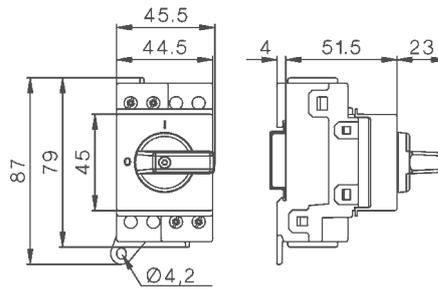


SIM**-BMDC64R-4 / SIM**-BMDC64R-2H

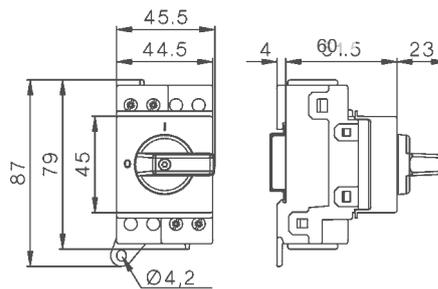
Base Mounting with door coupling
 64x64 Escutcheon Plate - 4 Pole



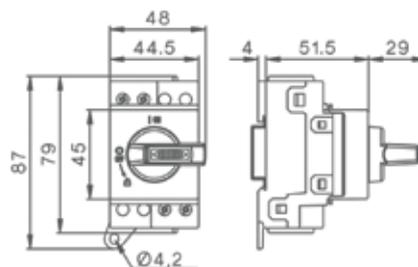
SIM-DB-2**
 Modular Switch
 2 Pole



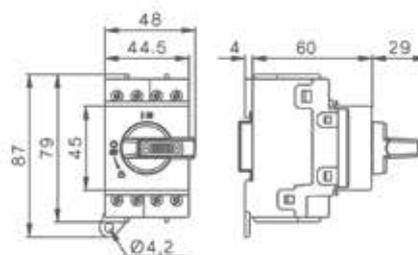
SIM-DB-4 / SIM**-DB-2H**
 Modular Switch
 4 Pole



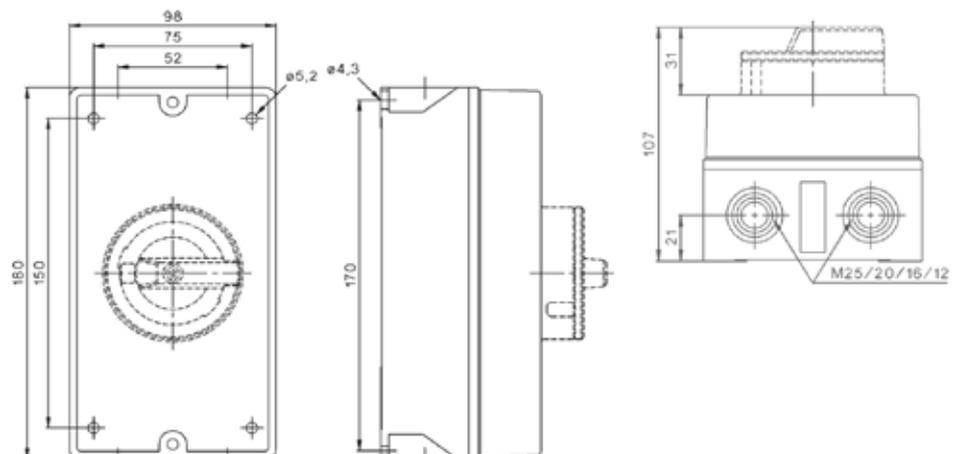
SIM-DBL-2**
 Lockable Modular Switch
 2 Pole



SIM-DBL-4 / SIM**-DBL-2H**
 Lockable Modular Switch
 4 Pole



SIM-PEL64R-***
 Plastic Enclosure



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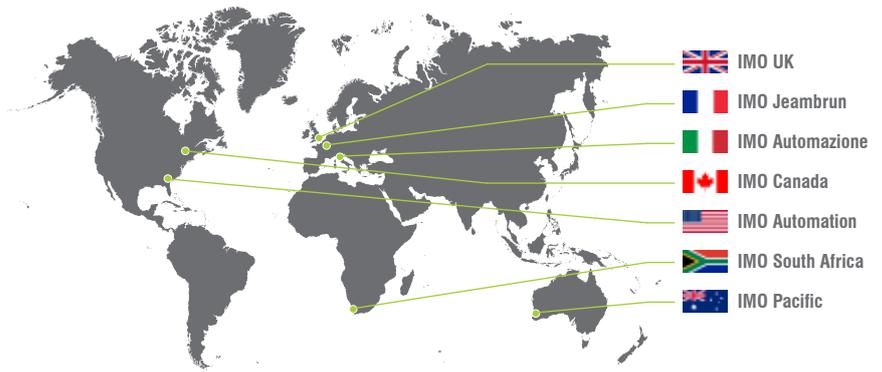
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