IMO

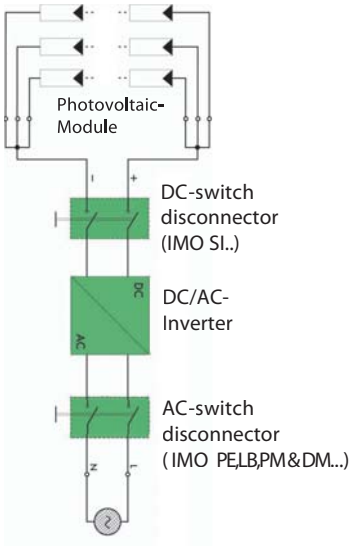
The World's Finest

Solar Isolator Range - Enclosed

Bright solutions

Enclosed Solar Isolator for Photovoltaic Applications

The IMO "SI" Solar Isolator range has been specifically developed as a "True DC" switch rather than a modified AC switch, to disconnect the DC/AC inverter from the photovoltaic panels as illustrated. All photovoltaic installations have to be equipped with DC isolators in accordance with IEC 60364-7-712.



Key Features

- Available in 2 or 4 pole versions;
- Operator independent trigger ratchet switching; mechanism for high speed switching (5mS max);
- Knife edge self cleaning contact mechanism;
- Long arc cooling chambers;
- Maximum torque 1Nm for easy operation;

G83/1 Compliant
We recommend installers label equipment
"Danger - Contains live parts during daytime".

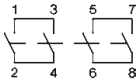
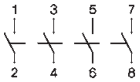
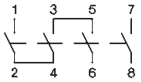
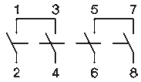
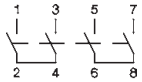
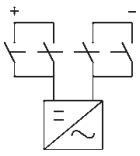
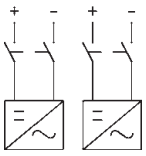
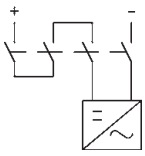
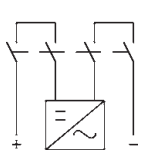
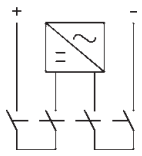
Rotary Actuator Version

..PE64R..

Emergency Stop Rotary Actuator Version

..ES-PE..

Switching configurations

Type	2-pole (SI12 & SI20 also)	2+2-pole 2 poles in series +2 poles parallel	4-pole	4-pole with jumpers Input on top Output bottom	4-pole with jumpers Input and Output bottom	4-pole with jumpers 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
Contacts Wiring diagram						
Switching example						

Technical data for DC, according to IEC 60947-3, VDE0660

		DC21B 450V	500V	600V	700V	800V	900V	1000V	DC22B 500V	600V	800V	1000V
SI12 ..	2 poles in series	16A	12A	12A	12A	10A	9A	6A	5A	4A	1A	0.5A
	4 poles in series	16A	12A	12A	12A	12A	12A	12A	12A	12A	8A	6A
SI16 ..	2 poles in series	-	16A	16A	16A	16A	13A	9A	7A	5.5A	2A	1A
	2 poles in series + 2 parallel	-	29A	29A	16A	16A	13A	9A	-	-	-	-
	4 poles in series	-	16A	16A	16A	16A	16A	16A	16A	16A	11.5A	8A
SI20 ..	2 poles in series	25A	20A	20A	20A	18A	14A	10A	7.5A	5.75A	2.25A	1.25A
	4 poles in series	25A	20A	20A	20A	20A	20A	20A	20A	20A	11.75A	8.5A
SI25 ..	2 poles in series	-	25A	25A	23A	20A	16A	11A	8A	6A	2.5A	1.5A
	2 poles in series + 2 parallel	-	45A	45A	23A	20A	16A	11A	-	-	-	-
	4 poles in series	-	25A	25A	25A	25A	25A	25A	25A	25A	12A	9A
SI32 ..	2 poles in series	-	32A	32A	27A	23A	20A	13A	9A	6.5A	3A	2A
	2 poles in series + 2 parallel	-	58A	50A	27A	23A	20A	13A	-	-	-	-
	4 poles in series	-	32A	32A	32A	32A	32A	32A	32A	27.5A	12.5A	10A

DC21B Switching of DC-resistive loads including moderate overloads. Time constant L/R ≤1ms
DC22B Switching of DC-resistive and inductive loads including moderate overloads. Time constant L/R ≤2,5ms (e. g: shunt-motors)

Rotary Actuator Switch Lockable Off in Plastic Enclosure, IP65, cULus Typ 1

padlock device 64R

DC21B 600V DC	DC21B 1000V DC	Poles in series	Number of Strings	Type	Pack pcs	Weigth kg/pcs.
12A	6A	2	1	SI12 PE64R 2	1	0,39
16A	9A	2	1	SI16 PE64R 2	1	0,39
20A	10A	2	1	SI20 PE64R 2	1	0,39
25A	11A	2	1	SI25 PE64R 2	1	0,39
32A	13A	2	1	SI32 PE64R 2	1	0,39
29A	9A	2	1	SI16 PE64R 2H	1	0,45
45A	11A	2	1	SI25 PE64R 2H	1	0,45
50A	13A	2	1	SI32 PE64R 2H	1	0,45
12A	6A	2	2	SI12 PE64R 4	1	0,42
16A	9A	2	2	SI16 PE64R 4	1	0,42
20A	10A	2	2	SI20 PE64R 4	1	0,42
25A	11A	2	2	SI25 PE64R 4	1	0,42
32A	13A	2	2	SI32 PE64R 4	1	0,42
16A	16A	4	1	SI16 PE64R 4S	1	0,43
25A	25A	4	1	SI25 PE64R 4S	1	0,43
32A	32A	4	1	SI32 PE64R 4S	1	0,43
16A	16A	4	1	SI16 PE64R 4T	1	0,43
25A	25A	4	1	SI25 PE64R 4T	1	0,43
32A	32A	4	1	SI32 PE64R 4T	1	0,43
16A	16A	4	1	SI16 PE64R 4B	1	0,43
25A	25A	4	1	SI25 PE64R 4B	1	0,43
32A	32A	4	1	SI32 PE64R 4B	1	0,43

Emergency Stop Rotary Actuator Switch Lockable Off in Plastic Enclosure IP65, cULus Typ 1

padlock device 64R

DC21B 600V DC	DC21B 1000V DC	Poles in series	Number of Strings	Type	Pack pcs	Weigth kg/pcs.
12A	6A	2	1	SI12 ES-PE 2	1	0,39
16A	9A	2	1	SI16 ES-PE 2	1	0,39
20A	10A	2	1	SI20 ES-PE 2	1	0,39
25A	11A	2	1	SI25 ES-PE 2	1	0,39
32A	13A	2	1	SI32 ES-PE 2	1	0,39
29A	9A	2	1	SI16 ES-PE 2H	1	0,45
45A	11A	2	1	SI25 ES-PE 2H	1	0,45
50A	13A	2	1	SI32 ES-PE 2H	1	0,45
12A	6A	2	2	SI12 ES-PE 4	1	0,42
16A	9A	2	2	SI16 ES-PE 4	1	0,42
20A	10A	2	2	SI20 ES-PE 4	1	0,42
25A	11A	2	2	SI25 ES-PE 4	1	0,42
32A	13A	2	2	SI32 ES-PE 4	1	0,42
16A	16A	4	1	SI16 ES-PE 4S	1	0,43
25A	25A	4	1	SI25 ES-PE 4S	1	0,43
32A	32A	4	1	SI32 ES-PE 4S	1	0,43
16A	16A	4	1	SI16 ES-PE 4T	1	0,43
25A	25A	4	1	SI25 ES-PE 4T	1	0,43
32A	32A	4	1	SI32 ES-PE 4T	1	0,43
16A	16A	4	1	SI16 ES-PE 4B	1	0,43
25A	25A	4	1	SI25 ES-PE 4B	1	0,43
32A	32A	4	1	SI32 ES-PE 4B	1	0,43

Technical Data

Data according to IEC 60947-3, VDE 0660

Main contacts			Type	SI12	SI16	SI20	SI25	SI32
Rated thermal current I_{the}			A	12	16	20	25	32
Rated insulation voltage U_i [1]			V	1000	1000	1000	1000	1000
Disconnection property performed up to			V	1000V	1000V	1000V	1000V	1000V
Contact distance (per pole)			mm	8	8	8	8	8
Rated operational current I_e		500V	A	6	9	10	11	13
DC21B	1 pole	600V	A	4	6	7	8	10
L/R = 1ms	1	800V	A	2	3	3,5	4	5
		1000V	A	1	1,5	1,75	2	2,5
	2 pole in series	500V	A	12	16	20	25	32
	1 2	600V	A	12	16	20	25	32
		700V	A	12	16	20	23	27
		800V	A	10	16	18	20	23
		900V	A	9	13	14	16	20
		1000V	A	6	9	10	11	13
	2 poles in series	500V	A	-	29	-	45	58
	+ 2 poles parallel	600V	A	-	29	-	45	50
	1 2 / 3 4	700V	A	-	16	-	23	27
		800V	A	-	16	-	20	23
		900V	A	-	13	-	16	20
		1000V	A	-	9	-	11	13
	3 poles in series	500V	A	12	16	20	25	32
	1 2 3	1000V	A	12	16	20	25	32
	4 poles in series	500V	A	12	16	20	25	32
	1 2 3 4	600V	A	12	16	20	25	32
		700V	A	12	16	20	25	32
		800V	A	12	16	20	25	32
		900V	A	12	16	20	25	32
		1000V	A	12	16	20	25	32
Rated operational current I_e		500V	A	0,75	1	1,15	1,25	1,5
DC22B	1 pole	600V	A	0,3	0,5	0,6	0,75	1
L/R = 2,5ms	1	800V	A	0,25	0,3	0,35	0,4	0,5
		1000V	A	0.5	0,15	0.15	0,2	0,25
	2 poles in series	500V	A	5	7	7,5	8	9
	1 2	600V	A	4	5,5	5,75	6	6,5
		800V	A	1	2	2,25	2,5	3
		1000V	A	0,5	1	1,25	1,5	2
	3 poles in series	500V	A	12	16	20	25	27
	1 2 3	600V	A	12	16	20	23	25
		800V	A	5	6,5	6,75	7	7,5
		1000V	A	4,5	5,5	5,75	6	6,5
	4 poles in series	500V	A	12	16	20	25	32
	1 2 3 4	600V	A	12	16	20	25	27,5
		800V	A	8	11,5	11.75	12	12,5
		1000V	A	6	8	8,5	9	10
Rated conditional short-circuit current			kA_{eff}	5	5	5	5	5
Max. fuse size		gL (gG)	A	32	40	50	63	80
Mechanical life			$x10^3$	10		10		10
Rated short-time withstand current (1s)		I_{CW} 2, 4 / 2+2H	A	800 / 1300		900 / 1500		1000 / 1700
Short circuit making capacity		I_{CM} 2, 4 / 2+2H	A	800 / 1300		900 / 1500		1000 / 1700
Maximum cable cross sections		(incl. jumper SIV-B1)						
solid or stranded			mm^2	4 - 16				
flexible			mm^2	4 - 10				
flexible (+ multicore cable end)			mm^2	4 - 10				
Size of terminal screw				M4 Pz2				
Tightening torque			Nm	1,2 - 1,8				
Maximum ambient temperature								
Operation		open	°C	-40 to +65				
		enclosed	°C	-40 to +45				
Storage			°C	-50 to +90				
Power loss per switch at $I_{e\ max.}$ DC21B								
2			W		2		5	8
2+2H			W		3,5		8,5	14
4			W		4		10	16

1) Suitable at 1000V for: earthed-neutral systems, overvoltage category I to III, pollution degree 3 (standard-industry): Uimp = 8kV.
Data for other conditions on request.

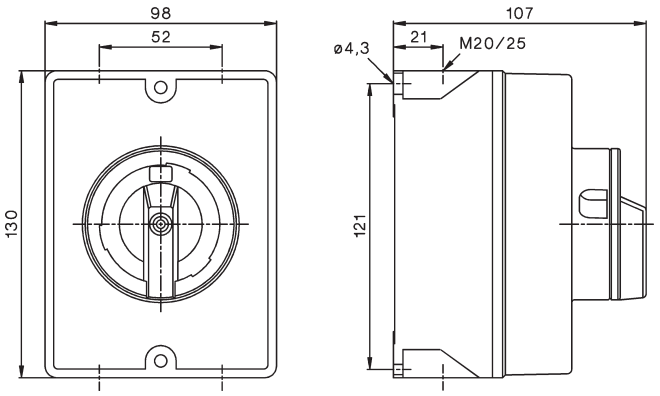
Technical Data (continued)

Data acc. to UL508 c UL us File E146487, Category no.: NRNT2, NRNT8

Type				SI12	SI16	SI20	SI25	SI32
Ampere-Rating "General use"								
1 pole	350V	A		3.5	4	4.5	5	6
	500V	A		3.5	4	4.5	5	6
	600V	A		3.5	4	4.5	5	6
2 poles in series	350V	A		12	16	18	20	25
	500V	A		12	16	18	20	25
	600V	A		12	16	18	20	25
2 poles in series	350V	A		24	29	38	45	58
+ 2 poles parallel	500V	A		24	29	36	38	40
	600V	A		12	21	22	23	25
3 poles in series	350V	A		-	16	-	25	32
	500V	A		-	16	-	25	32
	600V	A		-	16	-	25	32
4 poles in series	350V	A		12	16	20	25	32
	500V	A		12	16	20	25	32
	600V	A		12	16	20	25	32
Fuse size (RK5) Industrial Control Switch								
5kA / 600V			A	32	40	50	60	80
Maximum cable cross sections (incl. jumper SIV-B1)								
solid or stranded			AWG			12 -10		
flexible			AWG			12 -6		
flexible (+ multicore cable end)			AWG			12 -6		
Size of terminal screw						M4 Pz2		
Tightening torque			lb.inch			11 - 16		
Rated operational current I_e								
AC21B A2, A4		U_e max. 440V	A	12	16	20	25	32
A2+2		U_e max. 440V	A	-	29	-	45	58

Dimensions:

SI12PE/ES-PE, SI16 PE/ES-PE, SI20PE/ES-PE SI25 PE/ES-PE, SI32 PE/ES-PE



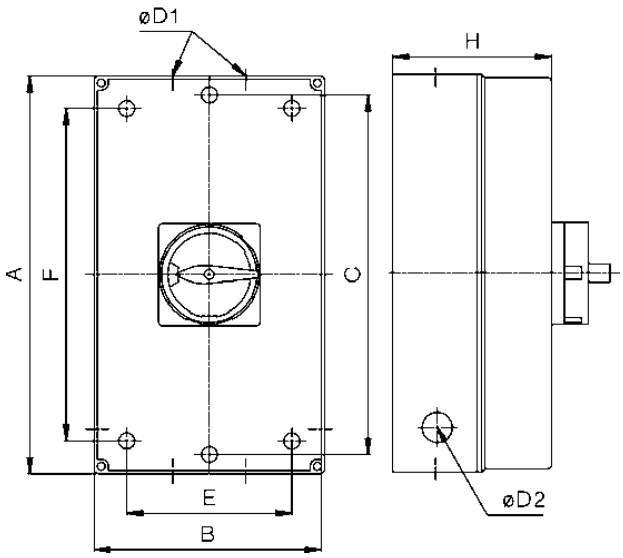
PE69-30...20-40

PE69-30...63-125

Rotary Actuator AC Switch in Plastic Enclosure IP65, cULus Typ 1

Type		AC21/Amps
PE69-3020	3 poles	20A
PE69-3025	3 Poles	25A
PE69-3032	3 Poles	32A
PE69-3040	3 Poles	40A
PE69-3063	3 Poles	63A
PE69-3080	3 Poles	80A
PE69-3125	3 Poles	125A

Dimensions



Maintenance and Safety Switches PE69(S)..PF..

Type	pole	A	B	C	D1	D2	E	F	H
PE69..20 PFH.. A., PE69..40 PFH.. A	3	130	98	121	2x25,5/20,5	-	75	100	77
PE69..63 PFH.. - PE69..125 PFH.. A.	3	200	120	-	40,5/32,5 +16,5	-	95	165	86
PE69..160 PF..	3	300	200	-	2x50,5	25,5	172	272	172

Technical Data

Data according to IEC 947-3, IEC 947-5-1, VDE 0660, EN 60947-3, EN 60947-5-1

Type				PE69..20	PE69..25	PE69..32	PE69..40	PE69..63	PE69..80	PE69..85	PE69..100	PE69..125
Main contacts												
Rated thermal current I_{th} open			A	20	25	32	40	63	80	85	100	125
Rated thermal current I_{the} enclosed			A	20	25	32	40	63	80	85	100	110
Rated insulation voltage U_i [1]			V	690	690	690	690	690	690	1000 [5]	1000 [5]	1000 [5]
Rated operational current I_e AC21A			A	20	25	32	40	63	80	85	100	125
Making capacity I_{eff}		3x380-440V	A	160	190	220	300	370	440	600	725	850
Breaking capacity		3x220-240V	A	160	180	200	250	330	380	480	580	680
		3x380-440V	A	160	180	200	250	330	380	480	580	680
		3x660-690V	A	80	110	140	170	190	220	250	330	420
Disconnection property performed up to			V	690	690	690	690	690	690	1000	1000	1000
Motor Switch	AC3	3x400V	A	12	16	23	30	37	37	45	60	72
Motor Switch	AC3	3x220-240V	kW	3	4	5,5	7,5	11	11	15	18,5	22
Direct switching of single motors		3x380-440V	kW	5,5	7,5	11	15	18,5	18,5	22	30	37
		3x660-690V	kW	5,5	7,5	11	15	18,5	18,5	18,5	22	30
Main Switch	AC23	3x400V	A	16	20	25	32	45	45	60	72	85
Motor Switch,	AC23A,	3x220-240V	kW	4	5,5	7,5	9	15	15	18,5	22	30
Main Switch,	AC23B	3x380-440V	kW	7,5	10	12,5	16	22	22	30	37	45
Safety Switch		3x660-690V	kW	5,5	7,5	11	15	18,5	18,5	22	30	37
Rated conditional short-circuit current			kA_{eff}	10	10	10	10	10	10	10	10	10
Max. fuse size		gL (gG)	A	25	35	40	50	63	80	100	100	125
Mechanical life			$x10^3$	200	200	200	200	100	100	100	100	100
Rated short-time withstand current (1sec. current)			A	250	300	400	500	600	850	1000	1200	1500
Maximum cable cross sections												
solid			mm^2	10	10	10	10	25	25	50	50	50
			AWG	8	8	8	8	4	4	0	0	0
flexible (+ multicore cable end)			mm^2	6	6	6	6	16	16	35	35	35
			AWG	10	10	10	10	6	6	2	2	2
Size of terminal screw				M3,5	M3,5	M3,5	M3,5	M5	M5	M6	M6	M6
Tightening torque			Nm	0,8-1,7	0,8-1,7	0,8-1,7	0,8-1,7	2-4	2-4	3,5-4,5	3,5-4,5	3,5-4,5
			lb.inch	7-15	7-15	7-15	7-15	18-35	18-35	31-40	31-40	31-40
Auxiliary contacts												
Rated insulation voltage U_i [1]			V	690	690	690	690	690	690	690	690	690
Rated thermal current I_{th} , I_{the}			A	10	10	10	10	10	10	10	10	10
Switching capacity	AC15	220-240V	A	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
	AC15	380-440V	A	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5
Rated conditional short-circuit current			kA_{eff}	3	3	3	3	3	3	3	3	3
Max. short circuit protection		gL (gG)	A	10	10	10	10	10	10	10	10	10
Maximum cable cross sections												
solid			mm^2	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
			AWG	12	12	12	12	12	12	12	12	12
flexible (+ multicore cable end)			mm^2	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
			AWG	14	14	14	14	14	14	14	14	14

Data according to UL und cUL

Type				PE69..20	PE69..25	PE69..32	PE69..40	PE69..63	PE69..80	PE69..85	PE69..100	PE69..125
Rated voltage			V	600	600	600	600	600	600	600	600	600
Ampere-Rating "General use"			A	20	25	32	40	63	80	85	100	125
DOL-Rating 3-phase		110-120V	HP	1	1,5	2	2	3	5	7.5	10	15
		220-240V	HP	3	5	5	5	10	10	20	25	30
		440-480V	HP	7,5	10	10	10	20	20	40	50	60
		550-600V	HP	10	10	15	15	25	25	50	60	60
DOL-Rating 1-phase		110-120V	HP	1	1	1	1	2	2	3	5	7.5
		200-208V	HP	1	2	2	2	3	3	7,5	10	10
		220-240V	HP	2	2	3	3	5	5	10	15	15
Fuse size (RK5)	Manual Motor Controller		A	40	50	50	70	90	110	200	250	300
5kA / 600V	Motor Disconnect		A	40	50	50	50	70	70	-	-	-

1) suitable for: earthed-neutral systems, overvoltage category I to III, pollution degree 3 (standard-industry): Uimp = 6kV. Data for other conditions on request
2) the values after the slash are valid for switches 6-pole or more
3) Suitable for no load applications(AC20A) above 690V
4)Fuse RK1 / 10kA / 600V
5) Uimp = 8kV

IMO

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