SD1 Series

General Purpose AC Variable Speed Inverter Drives

Technical Datasheet

1 Phase 110/120V 50/60Hz ***0.4~1.1kW*** *(0.5~1.4HP)*

1 Phase 200/240V 50/60Hz ***0.4~2.2kW*** *(0.5~3HP)*

NEW *1 Phase 230V 50/60Hz* ***0.2~3.7kW*** *(0.27~5.5HP) 1 Phase Output*

3 Phase 200/240V 50/60Hz ***0.4~7.5kW*** *(0.5~10HP)*

3 Phase 380/440V 50/60Hz ***0.75~110kW*** *(1~150HP)*

- IP20
- Torque Vector Control
- STO (safe torque off)
- Up to 150% Starting Torque
- Front Mounted RJ45 Socket (<2.2kW)
- Din Rail Mountable (<2.2kW)
- Fixed Keypad with Potentiometer (<2.2kW)
- Detachable Keypad (≥4kW)

- HDI Input (pulse)
- 2 Analogue Inputs
- 1/2 Analogue Outputs
- 2 Output Relays (>2.2kW)
- Transistor Output
- 4/5 Digital Inputs
- PNP/NPN Selectable

- In Built Modbus RTU / RS485
- PID Control as standard
- Internal DC Reactor (≥18.5kW)
- DC Injection Braking
- Internal Brake Chopper (≤37kW)
- Motor Auto-tune (static & dynamic)

- Internal C3 Filter (≥4kW), C3 Filter Option (<2.2kW)
- C1 & C2 Filter Options (entire range)
- Safety Circuit (SIL2/SIL3 - model dependant)
- CE, RoHS & Reach Compliant
- TUV Approved
- UL / cUL Approval on selected models
- 2 Year Warranty

RCM (AUS/NZ)

Options & Ordering Codes

SD1 - 2.5A - 11

Output Power kW (HP)	
0.4kW (0.5HP)	2.5A
0.75kW (1HP)	4.2A
1.1kW (1.4HP)	5.8A

Input 110-120V Single Phase Output 230VAC Three Phase

SD1 - 2.5A - 21

Output Power kW (HP)	
0.4kW (0.5HP)	2.5A
0.75kW (1HP)	4.2A
1.5kW (2HP)	7.5A
2.2kW (3HP)	10A

Input 200-240V Single Phase

NEW

SD1 - 4.2A - 21 - 1

Output Power kW (HP)*	
0.2kW (0.27HP)	4.2A
0.4kW (0.5HP)	7.2A
0.75kW (1HP)	10.2A
1.5kW (2HP)	14A
2.2kW (3HP)	25A
3.7kW (5.5HP)	35A

Input 230V Single Phase

Output 230V Single Phase

SD1 - 2.5A - 23

Output Power kW (HP)	
0.4kW (0.5HP)	2.5A
0.75kW (1HP)	4.2A
1.5kW (2HP)	7.5A
2.2kW (3HP)	10A
4kW (5.5HP)	16A
5.5kW (7.5HP)	20A
7.5kW (10HP)	30A

Input 200-240V Three Phase

SD1 - 2.5A - 43

Output Power kW (HP)			
0.75kW (1HP)	2.5A	22kW (30HP)	45A
1.5kW (2HP)	4.2A	30kW (40HP)	60A
2.2kW (3HP)	5.5A	37kW (50HP)	75A
4kW (5.5HP)	9.5A	45kW (60HP)	92A
5.5kW (7.5HP)	14A	55kW (75HP)	115A
7.5kW (10HP)	18.5	75kW (100HP)	150A
11kW (15HP)	25A	90kW (125HP)	180A
15kW (20HP)	32A	110kW (150HP)	215A
18.5kW (25HP)	38A		

Input 380-400V Three Phase

* Please see p.3 for recommended max. motor ratings.

Errors and omissions excepted. Subject to change without notice. © 2024 IMO Precision Controls Ltd

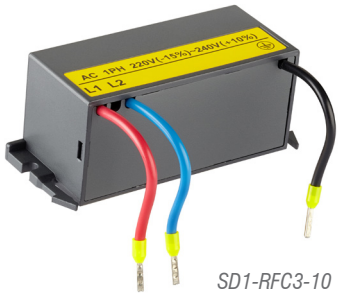
SD1 Series
General Purpose AC Variable Speed Inverter Drives

IMO

Technical Datasheet

Options & Ordering Codes - Filters & Accessories

	Model	C3 Filter	Current	C2 Filter	Current
Single Phase 110V	SD1-2.5A-11	SD1-RFC3-10	10A	SD1-RFC2-10	10A
	SD1-4.2A-11	SD1-RFC3-10	10A	SD1-RFC2-25	25A
	SD1-5.8A-11	SD1-RFC3-10	10A	SD1-RFC2-25	25A
Single Phase 220V	SD1-2.5A-21	SD1-RFC3-10	10A	SD1-RFC2-10	10A
	SD1-4.2A-21	SD1-RFC3-10	10A	SD1-RFC2-10	10A
	SD1-7.5A-21	SD1-RFC3-10	10A	SD1-RFC2-16	16A
	SD1-10A-21	SD1-RFC3-10	10A	SD1-RFC2-16	16A



SD1-RFC3-10

NEW

Single Phase Input Single Phase Output 230V	SD1-4.2A-21-1	SD1-RFC3-10	10A	SD1-RFC2-10	10A
	SD1-7.2A-21-1	SD1-RFC3-10	10A	SD1-RFC2-10	10A
	SD1-10.2A-21-1	SD1-RFC3-10	10A	SD1-RFC2-25	25A
	SD1-14A-21-1	SD1-RFC3-10	10A	SD1-RFC2-25	25A
	SD1-25A-21-1	Internal	-	SD1-RFC2-45	45A
	SD1-35A-21-1	Internal	-	SD1-RFC2-65	65A

Three Phase 220V	SD1-2.5A-23	SD1-RFC3-7	7A	SD1-RFC2-6	6A
	SD1-4.2A-23	SD1-RFC3-7	7A	SD1-RFC2-6	6A
	SD1-7.5A-23	Internal	-	SD1-RFC2-16	16A
	SD1-10A-23	Internal	-	SD1-RFC2-16	16A
	SD1-16A-23	Internal	-	SD1-RFC2-32	32A
	SD1-20A-23	Internal	-	SD1-RFC2-32	32A
	SD1-30A-23	Internal	-	SD1-RFC2-45	45A
Three Phase 380V	SD1-2.5A-43	SD1-RFC3-7	7A	SD1-RFC2-6	6A
	SD1-4.2A-43	SD1-RFC3-7	7A	SD1-RFC2-6	6A
	SD1-5.5A-43	SD1-RFC3-7	7A	SD1-RFC2-6	6A
	SD1-9.5A-43	Internal	-	SD1-RFC2-16	16A
	SD1-14A-43	Internal	-	SD1-RFC2-16	16A
	SD1-18.5A-43	Internal	-	SD1-RFC2-32	32A
	SD1-25A-43	Internal	-	SD1-RFC2-32	32A
	SD1-32A-43	Internal	-	SD1-RFC2-45	45A
	SD1-38A-43	Internal	-	SD1-RFC2-45	45A
	SD1-45A-43	Internal	-	SD1-RFC2-65	65A
	SD1-60A-43	Internal	-	SD1-RFC2-65	65A
	SD1-75A-43	Internal	-	SD1-RFC2-100	100A
	SD1-92A-43	Internal	-	SD1-RF52-100	100A
	SD1-115A-43	Internal	-	SD1-RFC2-150	150A
	SD1-150A-43	Internal	-	SD1-RFC2-150	150A
	SD1-180A-43	Internal	-	SD1-RFC2-240	240A
	SD1-215A-43	Internal	-	SD1-RFC2-240	240A

Model	Description
SD1-KP	Remote Keypad
SD1-KP-CPY	Remote Keypad with Copy Function
SD1-KP-MB	Remote Keypad Mounting Bracket

Errors and omissions excepted. Subject to change without notice. © 2024 IMO Precision Controls Ltd

SD1 Series
General Purpose AC Variable Speed Inverter Drives

IMO

Technical Datasheet

Technical Specifications

Function Description		Specification
Power Input	Input Voltage (V)	AC 1PH 110V (-15%) to 120V (+10%) AC 1PH 200V (-15%) to 240V (+10%) AC 1PH 200V (-15%) to 240V (+10%) 1PH Output AC 3PH 200V (-15%) to 240V (+10%) AC 3PH 380V (-15%) to 460V (+10%)
	Input Current (A)	Refer to the rated value
	Input Frequency (Hz)	50Hz/60Hz, allowable range: 47 to 63Hz
Power Output	Output Voltage (V)	0 to Input voltage (SD1-XXA-11 - AC 3ph 230VAC)
	Output Current (A)	Refer to the rated value
	Output Power (kW)	Refer to the rated value
	Output Frequency (Hz)	0 to 400Hz
Technical Control Performance	Control Mode	SVPWM control, SVC
	Motor Type	Asynchronous motor, Permanent magnet motor (optional)
	Speed Regulation Ratio	Asynchronous motor 1:100 (SVC)
	Speed Control Precision	±0.2% (SVC)
	Speed Fluctuation	±0.3% (SVC)
	Torque Response	<20ms (SVC)
	Torque Control Precision	10% (SVC)
	Starting Torque	0.5Hz / 150% (SVC)
	Overload Capacity	150% of rated current: 1 minute; 180% of rated current: 10 seconds; 200% of rated current: 1 second
Running Control Performance	Frequency Setup Mode	Digital, analog, pulse frequency, multi-step speed running, simple PLC, PID, Modbus communication. Shift between the set combination and set channel
	Auto-Adjustment of the Voltage	Automatic voltage regulation. Compensates for supply voltage transients
	Fault Protection Function	Provides comprehensive fault protection functions: Overcurrent; Overvoltage; Undervoltage; Overheating; Phase Loss; Overload etc.
	Speed Tracking Restart	Provides smooth ramping during start up
Peripheral Interface	Analog Input	1 (AI2) 0-10V / 0-20mA and 1 (AI3) -10V to +10V
	Analog Output	2 (AO1, AO2) 0-10V / 0-20mA
	Digital Input	4 standard inputs (max. frequency: 1kHz) 1 high speed inpput (max. frequency: 50kHz)
	Digital Output	1 Y1 terminal output
	Relay Output	2 programmable relay outputs RO1A NO, RO1B NC, RO1C common terminal RO2A NO, RO2B NC, RO2C common terminal Contact capacity: 3A/250VAC
Other	Mounting Method	Wall & DIN rail mounting
	Ambient Operating Temperature	-10°C to +50°C (derating 1% for every additional 1°C when above 40°C)
	DC Reactor	Standard internal DC reactor for inverters (≥18.5kW)
	Installation Mode	Wall and rail installation of inverters (1PH/200V,3PH/380V, ≤2.2kW and 3PH/200V, ≤0.75kW) Wall and flange installation of inverters (3PH/380V, ≥4kW and 3PH/200V, ≥1.5kW
	Braking Unit	Standard for inverters ≤37kW, optional for inverters of 45 to110kW
	Protection Level	IP20 Note: Plastic cased inverter should be installed in a metal distribution cabinet, which conforms to IP20 (top surface conforms to IP3X)
	Cooling	Fan cooling
	Braking Unit	Built-in
	EMC Filter	Internal C3 filters for inverters 3PH/380V, ≥4kW and 3PH/200V, ≥1.5kW. Optional external filters to meet the requirement of IEC61800-3 C2, IEC61800-3 C3 For drives >4kW, if internal C3 filter is required, fit supplied jumper link to EMC/J10 observing all safety precautions
	Safety	All SD1 inverters comply to safety standards and are marked accordingly. STO function to SIL level 2/3

Errors and omissions excepted. Subject to change without notice. © 2024 IMO Precision Controls Ltd

SD1 Series

General Purpose AC Variable Speed Inverter Drives

IMO

Technical Datasheet

Technical Specifications

	Model	Output Power		Input Current (A)	Output Current (A)	MCCB (A)	Cables (mm²)	UL Approval
Single Phase 110V Three Phase 230V O/P	SD1-2.5A-11	0.4kW	0.5HP	8.1	2.5	20	4.0	YES
	SD1-4.2A-11	0.75kW	1.0HP	15.1	4.2	20	4.0	YES
	SD1-5.8A-11	1.1kW	1.4HP	20.0	5.8	30	4.0	YES
Single Phase 220V	SD1-2.5A-21	0.4kW	0.5HP	6.5	2.5	10.0	1.5	YES
	SD1-4.2A-21	0.75kW	1.0HP	9.3	4.2	16.0	1.5	YES
	SD1-7.5A-21	1.5kW	2.0HP	15.7	7.5	25.0	2.5	YES
	SD1-10A-21	2.2kW	3.0HP	24.0	10.0	40.0	2.5	YES
Three Phase 220V	SD1-2.5A-23	0.4kW	0.5HP	3.7	2.5	6.0	1.5	YES
	SD1-4.2A-23	0.75kW	1.0HP	5.0	4.2	10.0	1.5	YES
	SD1-7.5A-23	1.5kW	2.0HP	7.7	7.5	16.0	2.5	YES
	SD1-10A-23	2.2kW	3.0HP	11.0	10.0	25.0	2.5	YES
	SD1-16A-23	4kW	5.5HP	17.0	16.0	32.0	2.5	-
	SD1-20A-23	5.5kW	7.5HP	21.0	20.0	32.0	4	-
	SD1-30A-23	7.5kW	10HP	31.0	30.0	63.0	6	-
Three Phase 380V	SD1-2.5A-43	0.75kW	1.0HP	3.4	2.5	6.0	1.5	YES
	SD1-4.2A-43	1.5kW	2.0HP	5.0	4.2	10.0	1.5	YES
	SD1-5.5A-43	2.2kW	3.0HP	5.8	5.5	10.0	1.5	YES
	SD1-9.5A-43	4kW	5.5HP	13.5	9.5	25.0	2.5	YES
	SD1-14A-43	5.5kW	7.5HP	19.5	14.0	32.0	2.5	YES
	SD1-18.5A-43	7.5kW	10HP	25.0	18.5	40.0	4	YES
	SD1-25A-43	11kW	15HP	32.0	25.0	63.0	6	YES
	SD1-32A-43	15kW	20HP	40.0	32.0	63.0	6	-
	SD1-38A-43	18.5kW	25HP	47.0	38.0	100.0	10	-
	SD1-45A-43	22kW	30HP	51.0	45.0	100.0	16	-
	SD1-60A-43	30kW	40HP	70.0	60.0	125.0	25	-
	SD1-75A-43	37kW	50HP	80.0	75.0	160.0	25	-
	SD1-92A-43	45kW	60HP	98.0	92.0	200.0	35	-
	SD1-115A-43	55kW	75HP	128.0	115.0	200.0	50	-
	SD1-150A-43	75kW	100HP	139.0	150.0	250.0	70	-
	SD1-180A-43	90kW	125HP	168.0	180.0	315.0	95	-
	SD1-215A-43	110kW	150HP	201.0	215.0	350.0	120	-

NEW

	Model	Output Power		Input Current (A)	Output Current (A)	MCCB (A)	Cables (mm²)
Single Phase Input Single Phase Output 230V	SD1-4.2A-21-1	0.2kW	0.27HP	6.5	4.2	10.0	1.5
	SD1-7.2A-21-1	0.4kW	0.5HP	9.3	7.2	16.0	1.5
	SD1-10.2A-21-1	0.75kW	1.0HP	15.7	10.2	25.0	2.5
	SD1-14A-21-1	1.5kW	2.0HP	24.0	14.0	40.0	2.5
	SD1-25A-21-1	2.2kW	3HP	38.0	25.0	63.0	6.0
	SD1-35A-21-1	3.7kW	5.5HP	52.0	35.0	100.0	16.0

Errors and omissions excepted. Subject to change without notice. © 2024 IMO Precision Controls Ltd

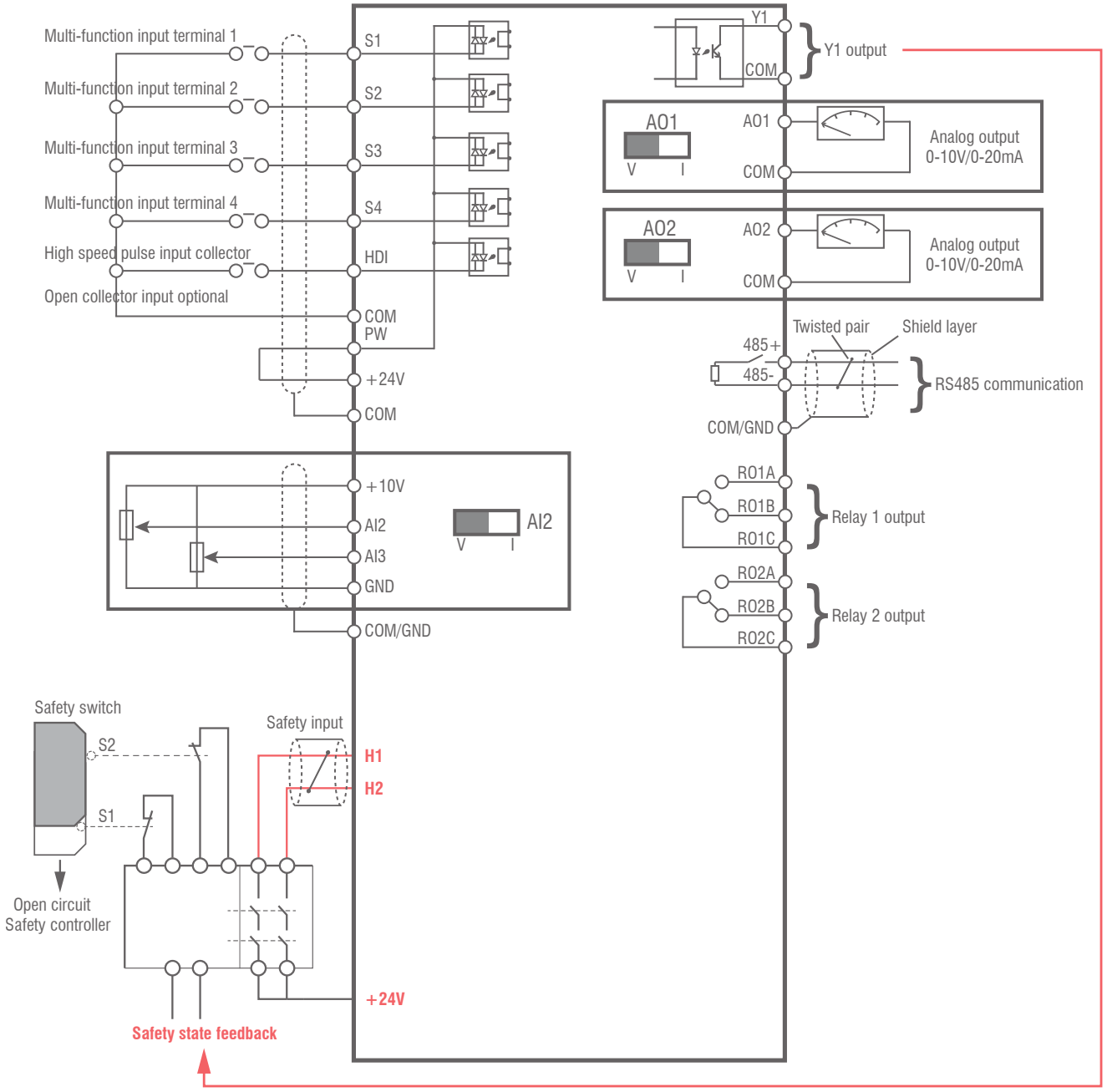
SD1 Series

General Purpose AC Variable Speed Inverter Drives

IMO

Technical Datasheet

Power & Control Connections



NOTE: This is a typical circuit which, depending on the rating is subject to change. Please check the user manual for more details.

Errors and omissions excepted. Subject to change without notice. © 2024 IMO Precision Controls Ltd

SD1 Series

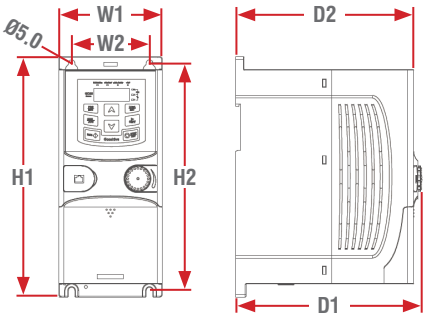
General Purpose AC Variable Speed Inverter Drives

IMO

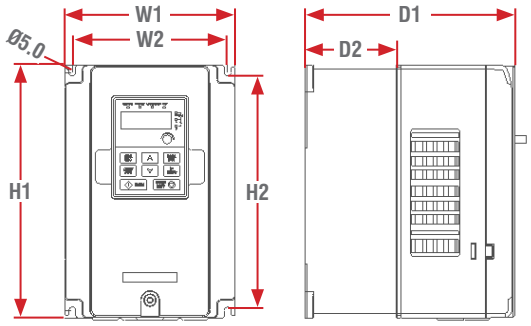
Technical Datasheet

Dimensions (mm)

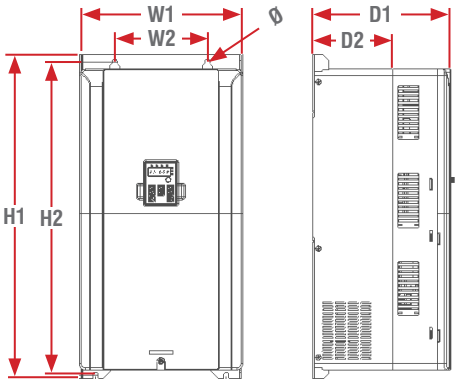
	Model	W1	W2	H1	H2	D1	D2
Single Phase 110V	SD1-2.5A-11	80	60	185	175	140.5	137.3
	SD1-4.2A-11	80	60	185	175	140.5	137.3
	SD1-5.8A-11	80	60	185	175	140.5	137.3
Single Phase 220V	SD1-2.5A-21	80	60	160	150	123.5	120.3
	SD1-4.2A-21	80	60	160	150	123.5	120.3
	SD1-7.5A-21	80	60	185	175	140.5	137.3
	SD1-10A-21	80	60	185	175	140.5	137.3
NEW							
Single Phase Input Single Phase Output 230V	SD1-4.2A-21-1	80	60	160	150	123.5	120.3
	SD1-7.2A-21-1	80	60	185	175	140.5	137.3
	SD1-10.2A-21-1	80	60	185	175	140.5	137.3
	SD1-14A-21-1	170	151	320	303.5	196.3	113
	SD1-25A-21-1	170	151	320	303.5	196.3	113
	SD1-35A-21-1	200	185	340.6	328.6	184.3	104.5
Three Phase 220V	SD1-2.5A-23	80	60	185	175	140.5	137.3
	SD1-4.2A-23	80	60	185	175	140.5	137.3
	SD1-7.5A-23	146	131	256	243.5	167	84.5
	SD1-10A-23	146	131	256	243.5	167	84.5
	SD1-16A-23	146	131	256	243.5	167	84.5
	SD1-20A-23	170	151	320	303.5	196.3	113
	SD1-30A-23	170	151	320	303.5	196.3	113
Three Phase 380V	SD1-2.5A-43	80	60	185	175	140.5	137.3
	SD1-4.2A-43	80	60	185	175	140.5	137.3
	SD1-5.5A-43	80	60	185	175	140.5	137.3
	SD1-9.5A-43	146	131	256	243.5	167	84.5
	SD1-14A-43	146	131	256	243.5	167	84.5
	SD1-18.5A-43	170	151	320	303.5	196.3	113
	SD1-25A-43	170	151	320	303.5	196.3	113
	SD1-32A-43	170	151	320	303.5	196.3	113
	SD1-38A-43	200	185	340.6	328.6	184.3	104.5
	SD1-45A-43	200	185	340.6	328.6	184.3	104.5
	SD1-60A-43	250	230	400	380	202	123.5
	SD1-75A-43	250	230	400	380	202	123.5
	SD1-92A-43	282	160	560	542	238	138
	SD1-115A-43	282	160	560	542	238	138
	SD1-150A-43	282	160	560	542	238	138
	SD1-180A-43	338	200	554	535	329.2	—
	SD1-215A-43	338	200	554	535	329.2	—



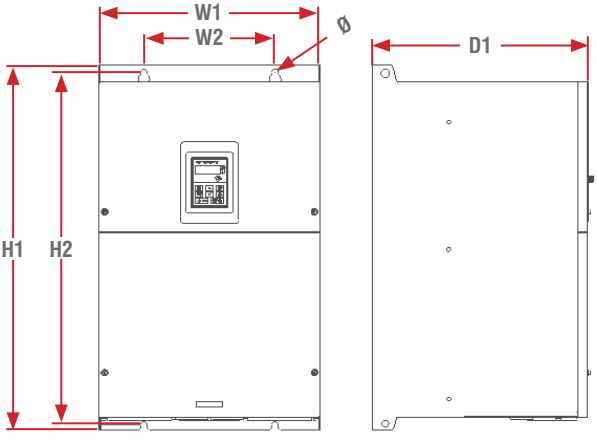
Wall mounting dimensions of 1PH 110V & 230V 0.4 to 2.2kW SD1 Inverter (unit: mm)



Wall mounting dimensions of 3PH 380V 0.4 to 37kW & 3PH 220V 1.5 to 7.5kW SD1 Inverter (unit: mm)



Wall mounting dimensions of 3PH 45 to 75kW SD1 Inverter (unit: mm)



Wall mounting dimensions of 3PH 380V 90 to 110kW SD1 Inverter (unit: mm)

Errors and omissions excepted. Subject to change without notice. © 2024 IMO Precision Controls Ltd