

Variable Frequency Drives



Important Note:

VFD products are only available through authorized distribution channels. To locate an authorized distributor, please contact a Siemens Building Technologies representative at: **1.888.593.7876**.



Water Efficiency



Energy & Atmosphere



Indoor Environmental Quality



SED2 Variable Frequency Drives Family.

Description

The SED2 Variable Frequency Drives are designed specifically for HVAC applications. The SED2 supports a wide variety of digital and analog I/O for diverse control capability. Built-in PID features control pumps and fans, and an integral system protocol can interface P1/N2 networks. Using the SED2 multi-level parameter access, operators can quickly pinpoint relevant data.

Options

- LON Interface
- Modbus RTU Interface
- BACnet MS/TP Interface
- Advanced Operator Panel (AOP) Module
- EasyComm Drive Software
- PC Kit

Features

- Built-in SBT P1 and JCI N2 (Metasys®) building automation system protocols for easy network integration
- LON, Modbus RTU and BACnet MS/TP Interfaces optional
- Low harmonics design reduces noises and interference eliminates need for filters/reactors in most installations
- Built-in PID for fast and accurate pressure control
- Pump staging for open loop, constant pressure, and constant flow-type applications
- Multi-level program access
- Belt failure detection with or without an external sensor
- Service mode for applications requiring continuous, uninterruptible operation
- Accepts a wide variety of digital and analog I/Otypes, including direct Siemens Ni 1000 RTD sensor level inputs
- One common interface throughout all power ranges
- Optional Advanced Operator Panel for uploading/downloading parameters
- Full form C relay contacts for digital outputs

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Variable Frequency Drives

Variable Frequency Drives Specifications

Input Voltage and Power Ranges (3 phase)

208V and 230V to 240V, 3 ac±10%	1/2 hp to 60 hp
380V to 480V, 3 ac ±10%	1/2 hp to 125 hp
500V to 600V, 3 ac ±10%	1 hp to 125 hp

Input Frequency.....47 Hz to 63 Hz

Output Frequency.....0 Hz to 150 Hz

Power Factor.....≥0.9

VFD degree of efficiency.....96% to 97%

Switch-on Current.....Less than nominal input current

Auxiliary Supply 24V.....Galvanically separated, unregulated
auxiliary supply (18V to 32V) 100 mA

Overload Capacity.....110% for 60 seconds

Control Method.....Linear, parabolic and programmable V/f;
and flux current control low-power mode

PWM Frequency.....2k Hz to 16k Hz (adjustable in 2k Hz increments)

Fixed Frequencies.....15 programmable

Skip Frequency Bands.....4 programmable

Setpoint Resolution.....0.01 Hz digital
0.01 Hz serial
10 bit analog

Digital Inputs (Sink/Source).....6: fully programmable and
scalable isolated digital inputs, switchable

Analog Inputs.....2: 0 to 10 Vdc, 0/4 to 20 mA,
can also be configured as digital inputs
or Ni 1000 input

Relay Outputs.....2: configurable 30 Vdc/5A (resistive),
250 Vac/2A (inductive)

Analog Outputs.....2: programmable (0/4 mA to 20 mA,
or 0 Vdc to 10 Vdc)

Serial Interface.....RS-485 transmission rate:
Up to 38.4k Baud Protocols: USS, P1 and N2

Protection Level.....IP20
NEMA Type 1 with protective shield and gland plate installed
IP54/NEMA Type 12

Temperature Ranges.....Operating: 14°F to 104°F (–10°C to 40°C)
Storage: –40°F to 158°F (–40°C to 70°C)

Humidity.....95% rh, non-condensing

Operational Altitudes.....Up to 3280 ft (1000m)
above sea level without derating

Protection Features.....Under-voltage, Over-voltage, Overload,
Ground fault, Short circuit, Stall prevention,
Locked motor, Motor overtemperature I² t PTC,
Over-temperature, Parameter PIN protection.

Standards.....UL, cUL, CE, C-tick

CE Conformity.....Conformity with EC Low Voltage Directive 73/23/EEC

Options.....LON Interface, Modbus RTU Interface,
BACnet MS/TP Interface, Advanced Operator Panel
(AOP) Module, EasyComm Drive Software, PC Kit

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Variable Frequency Drives

Variable Frequency Drives Product Ordering

Your Product Number																			
Example Product Number		S	E	D	2	-	0	.	7	5	/	2	2	X					
Model																			
SED2- VFD only																			
kW rating																			
0.37, 0.55																			
[See Note 1 for these selections]																			
0.75, 1.1, 1.5, 2.2, 3, 4, 5.5, 7.5, 11,		(Uses 2 to 4 spaces plus a divider "/")																	
15, 18.5, 22, 30, 37, 45, 55, 75, 90																			
[See Note 2 for these selections]																			
Voltage																			
2 200 to 240V																			
3 380 to 480V																			
4 500 to 600V																			
NEMA rating																			
2 (IP 20)																			
1 NEMA Type 1																			
5 NEMA Type 12 (IP 54) [See Note 2]																			
Filter																			
X Factory Required Designator																			

Notes:

1. Available only with Voltage Codes 2 and 3.
2. Available only with Voltage Codes 3 and 4.

Example Shown:

SED2-0.75/22X =

SED2 VFD only, 0.75 kW (1 hp), 200 to 240V, open type IP20.

Variable Frequency Drives Output Ratings

Voltage (±10%)	Product No.			Output Rating		Output Current Max (amps)	Frame Size
	IP20	NEMA Type 1	IP54/NEMA Type 12	HP	kW		
208V and 230V to 240V (3-Phase)	SED2-0.37/22X	SED2-0.37/21X	—	0.5	0.37	2.3	A
	SED2-0.55/22X	SED2-0.55/21X	—	0.75	0.55	3.0	A
	SED2-0.75/22X	SED2-0.75/21X	—	1.0	0.75	3.9	A
	SED2-1.1/22X	SED2-1.1/21X	—	1.5	1.1	5.5	B
	SED2-1.5/22X	SED2-1.5/21X	—	2.0	1.5	7.4	B
	SED2-2.2/22X	SED2-2.2/21X	—	3.0	2.2	10.4	B
	SED2-3/22X	SED2-3/21X	—	4.0	3.0	13.6	C
	SED2-4/22X	SED2-4/21X	—	5.0	4.0	17.5	C
	SED2-5.5/22X	SED2-5.5/21X	—	7.5	5.5	22.0	C
	SED2-7.5/22X	SED2-7.5/21X	—	10.0	7.5	28.0	C
	SED2-11/22X	SED2-11/21X	—	15.0	11.0	42.0	D
	SED2-15/22X	SED2-15/21X	—	20.0	15.0	54.0	D
	SED2-18.5/22X	SED2-18.5/21X	—	25.0	18.5	68.0	D
	SED2-22/22X	SED2-22/21X	—	30.0	22.0	80.0	E
	SED2-30/22X	SED2-30/21X	—	40.0	30.0	104.0	E
	SED2-37/22X	SED2-37/21X	—	50.0	37.0	130.0	F
	SED2-45/22X	SED2-45/21X	—	60.0	45.0	154.0	F
380V to 480V (3-Phase)	SED2-0.37/32X	SED2-0.37/31X	—	0.5	0.37	1.2	A
	SED2-0.55/32X	SED2-0.55/31X	—	0.75	0.55	1.6	A
	SED2-0.75/32X	SED2-0.75/31X	—	1.0	0.75	2.1	A
	SED2-1.1/32X	SED2-1.1/31X	SED2-1.1/35X	1.5	1.1	3.0	A *
	SED2-1.5/32X	SED2-1.5/31X	SED2-1.5/35X	2.0	1.5	4.0	A *
	SED2-2.2/32X	SED2-2.2/31X	SED2-2.2/35X	3.0	2.2	5.9	B
	SED2-3/32X	SED2-3/31X	SED2-3/35X	4.0	3.0	7.7	B
	SED2-4/32X	SED2-4/31X	SED2-4/35X	5.0	4.0	10.2	B
	SED2-5.5/32X	SED2-5.5/31X	SED2-5.5/35X	7.5	5.5	13.2	C
	SED2-7.5/32X	SED2-7.5/31X	SED2-7.5/35X	10.0	7.5	18.4	C
	SED2-11/32X	SED2-11/31X	SED2-11/35X	15.0	11.0	26.0	C
	SED2-15/32X	SED2-15/31X	SED2-15/35X	20.0	15.0	32.0	C
	SED2-18.5/32X	SED2-18.5/31X	SED2-18.5/35X	25.0	18.5	38.0	D
	SED2-22/32X	SED2-22/31X	SED2-22/35X	30.0	22.0	45.0	D
	SED2-30/32X	SED2-30/31X	SED2-30/35X	40.0	30.0	62.0	D
	SED2-37/32X	SED2-37/31X	SED2-37/35X	50.0	37.0	75.0	E
	SED2-45/32X	SED2-45/31X	SED2-45/35X	60.0	45.0	90.0	E
	SED2-55/32X	SED2-55/31X	SED2-55/35X	75.0	55.0	110.0	F
	SED2-75/32X	SED2-75/31X	SED2-75/35X	100.0	75.0	145.0	F
	SED2-90/32X	SED2-90/31X	SED2-90/35X	125.0	90.0	178.0	F
500V to 600V (3-Phase)	SED2-0.75/42X	SED2-0.75/41X	—	1.0	0.75	1.4	C
	SED2-1.1/42X	SED2-1.1/41X	SED2-1.1/45X	1.5	1.1	2.1	C
	SED2-1.5/42X	SED2-1.5/41X	SED2-1.5/45X	2.0	1.5	2.7	C
	SED2-2.2/42X	SED2-2.2/41X	SED2-2.2/45X	3.0	2.2	3.9	C
	SED2-3/42X	SED2-3/41X	SED2-3/45X	4.0	3.0	5.4	C
	SED2-4/42X	SED2-4/41X	SED2-4/45X	5.0	4.0	6.1	C
	SED2-5.5/42X	SED2-5.5/41X	SED2-5.5/45X	7.5	5.5	9.0	C
	SED2-7.5/42X	SED2-7.5/41X	SED2-7.5/45X	10.0	7.5	11.0	C
	SED2-11/42X	SED2-11/41X	SED2-11/45X	15.0	11.0	17.0	C
	SED2-15/42X	SED2-15/41X	SED2-15/45X	20.0	15.0	22.0	C
	SED2-18.5/42X	SED2-18.5/41X	SED2-18.5/45X	25.0	18.5	27.0	D
	SED2-22/42X	SED2-22/41X	SED2-22/45X	30.0	22.0	32.0	D
	SED2-30/42X	SED2-30/41X	SED2-30/45X	40.0	30.0	41.0	D
	SED2-37/42X	SED2-37/41X	SED2-37/45X	50.0	37.0	52.0	E
	SED2-45/42X	SED2-45/41X	SED2-45/45X	60.0	45.0	62.0	E
	SED2-55/42X	SED2-55/41X	SED2-55/45X	75.0	55.0	77.0	F
	SED2-75/42X	SED2-75/41X	SED2-75/45X	100.0	75.0	99.0	F
	SED2-90/42X	SED2-90/41X	SED2-90/45X	125.0	90.0	125.0	F

*IP54/NEMA Type 12 drives start at Frame Size B.

Variable Frequency Drives Frame Sizes

SED2 IP20 and NEMA Type 1 Frame Sizes and Power Ranges

VFD0163R1	HP	.5	.75	1	1.5	2	3	4	5	7.5	10	15	20	25	30	40	50	60	75	100	125
	kW	.37	.5	.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90
	240V	A			B			C				D			E		F		N/A		
	480V	A					B			C				D			E		F		
	575V	N/A		C										D			E		F		

SED2 IP54 and NEMA Type 12 Frame Sizes and Power Ranges

VFD0164R1	HP	.5	.75	1	1.5	2	3	4	5	7.5	10	15	20	25	30	40	50	60	75	100	125
	kW	.37	.5	.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90
	480V	N/A			B					C				D			E		F		
	575V	N/A		C																	

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Variable Frequency Drives Dimensions and Weights

IP20 SED2 VFDs

Frame Size	Height		Width		Depth		Weight Lb. (kg)	
A	6.8	(173)	2.9	(73)	5.9	(149)	2.9	(1.3)
B	8.0	(202)	5.9	(149)	6.8	(172)	7.5	(3.4)
C	9.6	(245)	7.3	(185)	7.7	(195)	12	(5.5)
D	20.5	(520)	10.8	(275)	9.6	(245)	35	(16)
E	25.6	(650)	10.8	(275)	9.6	(245)	44	(20)
F	33.5	(850)	13	(350)	12.6	(320)	116	(53)

NEMA Type 1 SED2 VFDs Assembled with Protective Shield and Gland Plate

Frame Size	Height		Width		Depth		Weight Lb. (kg)	
A	9.1	(231)	2.9	(73)	5.9	(149)	3.2	(1.5)
B	11.8	(300)	5.9	(149)	6.8	(172)	8.3	(3.8)
C	13.8	(351)	7.3	(185)	7.7	(195)	13.6	(6.2)
D	24.6	(625)	10.8	(275)	9.6	(245)	37.5	(17)
E	29.7	(754)	10.8	(275)	9.6	(245)	46.4	(21)
F	54.5	(1384)	16.0	(406)	14.0	(356)	200	(91)

IP54/NEMA Type 12 SED2 VFDs

Frame Size	Height		Width		Depth		Weight Lb. (kg)	
B	15.2	(385)	10.6	(270)	10.6	(268)	10	(22)
C	23.9	(606)	13.8	(350)	11.2	(284)	42	(19)
D	27.0	(685)	14.2	(360)	13.9	(353)	77	(35)
E	34.8	(885)	14.2	(360)	17.8	(453)	105	(48)
F	45.3	(1150)	17.7	(450)	18.6	(473)	178	(81)

Tables expressed in inches (mm).