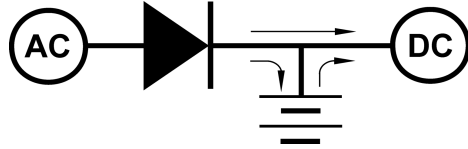


Station DC power reliability ensures a high station availability of mission-critical safety devices, controls, alarms, switchgear, instrumentation, inverters and railroad auxiliary DC power. **StatiVolt Rectifiers** are designed and built for decades of robust, industrial duty and field serviceability. Over 50 years of their sales and applications to batteries and critical DC loads is testimony to their reliability.



Features

Reliability by Design

- Robust industrial duty
- Full-wave silicon diode rectifier
- Electronic + magnetic V regulation
- Failsafe, soft-switching, low noise
- Natural convection cooled

Regulated DC Power

- Constant Vdc charging & supply
- Minimal noise & ripple voltage
- Remote sensing built-in

Protection

- Input & output circuit breakers
- Inherent surge rejection
- Transformer isolation
- Output current limiting
- Failsafe output V control

Versatile Functions & Options

- Input Power Factor Correction
- Extra Wide AC Input V Range
- Soft Walk-In Startup
- Charge Functions & Options
- Digital PLC Alarm Monitor
- Digital Multi-Function Power Meter
- Alarm / Annunciation Options
- Distribution Breakers
- Special Utility Options
- Tropical / Marine / Fungus Proofing

Warranty & Service

- 3 year full warranty
- 20 years parts & service available
- 30 year design life

DC Volts	DC Amps	AC Input	Eff %	Cabinet Style
24	15-150	1Ø	75	W, B
48	15-150	1Ø	83	W, B
72	15-25	1Ø	83	W, B
125	15-75	1Ø	85	W, B
250	15-25	1Ø	85	W, B
24	50-500	3Ø	80	B, F
48	75-600	3Ø	90	B, F
72	100	3Ø	90	F
125	50-1200	3Ø	90	B, F
250	50-200	3Ø	90	F

DC Power System Solutions

- Simple, parallel rectifier operation
- Rectifier(s) + Battery+ Distribution
- Batteries are IEEE 485 sized
- Integrated or separate charger / batteries
- Battery breaker / disconnect included
- Complete, single vendor DC solutions



Contents

Specifications	2
1 Phase Cabinets	3
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Model Numbers, Options	5



Rectifier Specs

Power Conversion Design

- Transformer input (60 or 50 Hz)
- Full-wave, silicon diode rectifier
2 pulse I, V (1Ø)
6 pulse I, V (3Ø, 3-125 kW)
- Soft switching, low noise

Output Control

- Closed loop, negative feedback control
- Analog electronics based
- High speed electronic V sensing
- FET based voltage-to-current control
- Failsafe, magnetic shunt regulation

Steady-State V Regulation

- ±0.5% (full load, ±10% AC V)
- ±1% (10-100% load, constant AC V)

Output V Range

- Nominal V +20% for float / equalize V

Dynamic V Response

- ±5% for 50% step-loads (battery load)
- Recovery in 3-6 cycles (50-100 ms)

Output Ripple Voltage

- ≤ 1% rms (on resistive load)
- ≤ 0.5 % rms (on typical battery)

Parallel Rectifier Operation

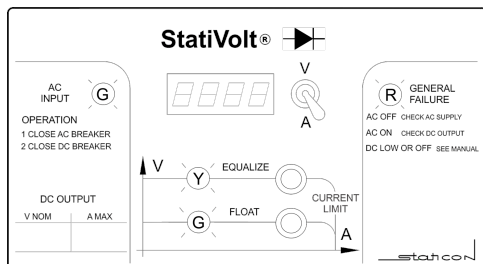
- Load sharing within 10% unit IDC

Charge Functions & Options

- Choose from 4 charge functions
- Choose from 3 charge options

Annunciation & Meters

- Standard annunciation & meters:
 - AC Normal green LED
 - General Fail red LED, contacts
 - Float / Equal green / yellow LEDs
 - V+A Meter digital, 2% accuracy
- Choose from 9 alarm, 2 meter options
- Contacts are form 'C contacts rated:
 - 0.6 A @ 125 V_{AC}
 - 2 A @ 28 V_{DC}



Control Label

Typical Full Load Efficiencies (%)

DC Amps	AC	24 V	48 V	125 V	250 V
15	1Ø	75	81	83	84
25	1Ø	77	82	84	85
50	1Ø	79	84	86	87
75	1Ø	80	85	86	87
100-150	1Ø	80	85	85	87
50	3Ø	80	90	90	90
75	3Ø	80	90	90	90
100-1200	3Ø	80	90	90	

Protection

- AC breaker rated I ≈ 1.5 x full load IAC
- DC breaker rated I ≈ full load IDC
- Input transformer, electrical isolation
- I²t breaker coordinated diode stacks
- Failsafe I limit set at 120% of rated IDC
- Optional charge I limit to 20 A / 100 AH

Surge Tolerance

- Inherent, inductive surge tolerance is 4 kV (1Ø) & 6 kV (3Ø) peak for 8 ms
- Withstands ANSI / IEEE C62.41 (IEC 6080-4) standard surge V waveforms

Electromagnetic Interference

- Conducted / radiated EMI within CSA C108.8 & FCC Part 15 Class B limits

Input power Factor

- Input PF ≈ 0.80
- Input PF ≥ 0.90 optional capacitors

Input Harmonic Distortion

- Full load V THD is < 3%, I THD is ≤ 15% (3Ø, 6 pulse), 45% (1Ø, 2 pulse)

Audible Noise

- 55-65 dBA (at 1 m, rating dependent)

Cabinets

- NEMA type 1, IEC 60529 IP 20
- Front accessible, side / top cable entry
- 14 / 10 gage steel panels / mounts
- Powder coated, baked enamel finish

Environmental Requirements

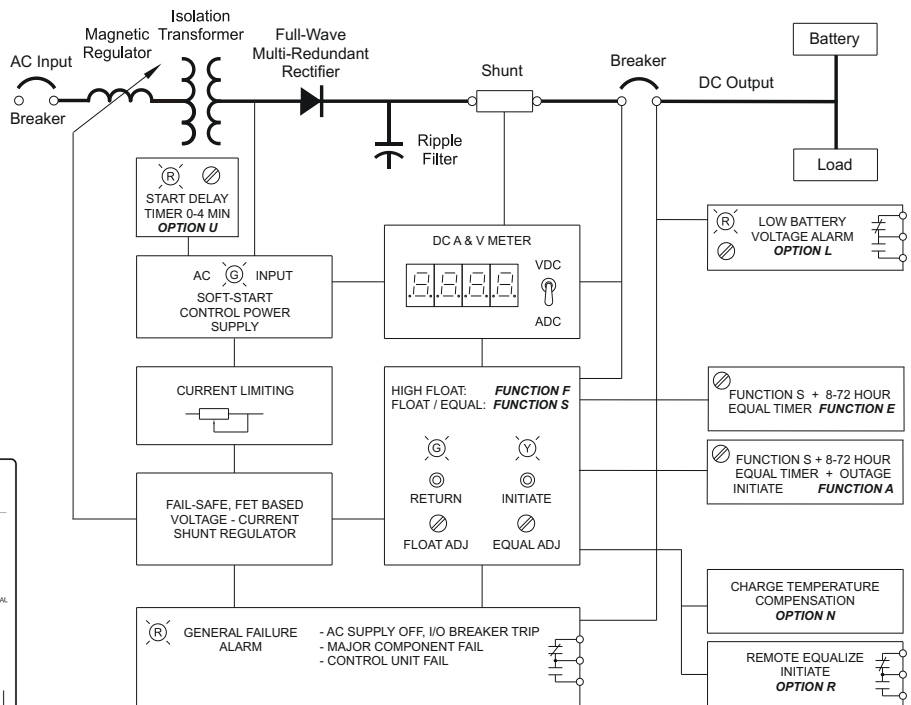
- Natural convection cooled, RH < 95%
- -20°C to +40°C continuous operation

Reliability

- MTBF is 300 k hrs (1Ø), 200 k hrs (3Ø)
- MTTR is 1 hour (spares on / near site)

Design & Test Standards

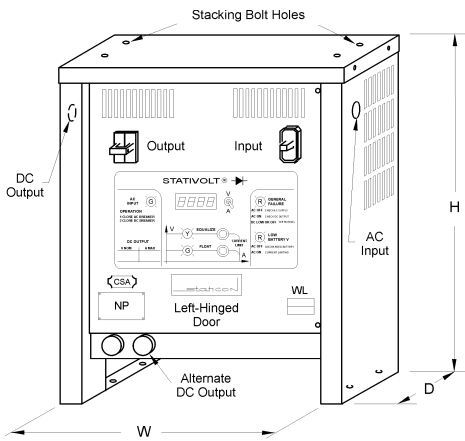
- CSA SPE-1000 inspected & approved
- Built to CSA C22.2 No. 107.2
- Built to NEMA PE5
- Magnetics designed for Class H, 180°C



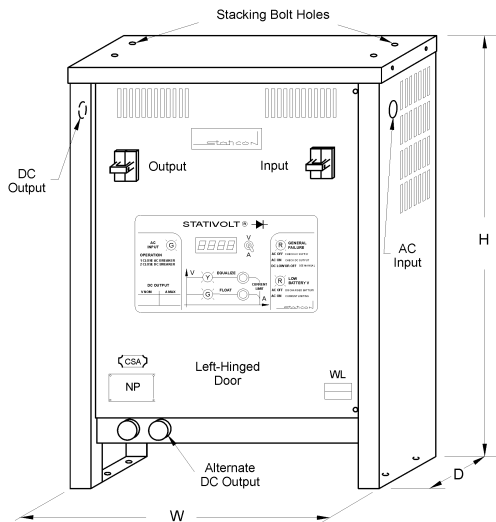
Single-Line Diagram with Control Functions



Rectifier Cabinets (1 Phase AC Input)



Wall / Bench Mount Cabinet (W) Stackable



Bench / Floor Mount Cabinet (B) Stackable

Nominal DC V	Input A	Style	Dimensions H	Dimensions W	Dimensions mm (in) D	Weight kg (lb)	
24	15	1Ø	W	610 (24)	508 (20)	457 (18)	50 (110)
24	25	1Ø	W	610 (24)	508 (20)	457 (18)	60 (132)
24	50	1Ø	W	610 (24)	508 (20)	457 (18)	70 (154)
24	75	1Ø	W	610 (24)	508 (20)	457 (18)	80 (176)
24	100	1Ø	B	762 (30)	559 (22)	508 (20)	110 (243)
24	150	1Ø	B	762 (30)	559 (22)	508 (20)	160 (353)
48	15	1Ø	W	610 (24)	508 (20)	457 (18)	70 (154)
48	25	1Ø	W	610 (24)	508 (20)	457 (18)	80 (176)
48	50	1Ø	W	610 (24)	508 (20)	457 (18)	105 (232)
48	75	1Ø	B	762 (30)	559 (22)	508 (20)	130 (287)
48	100	1Ø	B	762 (30)	559 (22)	508 (20)	140 (309)
48	150	1Ø	B	762 (30)	559 (22)	508 (20)	210 (463)
72	15	1Ø	W	610 (24)	508 (20)	457 (18)	80 (176)
72	25	1Ø	B	762 (30)	559 (22)	508 (20)	100 (220)
125	15	1Ø	W	610 (24)	508 (20)	457 (18)	90 (198)
125	25	1Ø	B	762 (30)	559 (22)	508 (20)	120 (265)
125	50	1Ø	B	762 (30)	559 (22)	508 (20)	155 (342)
125	75	1Ø	B	762 (30)	559 (22)	508 (20)	232 (512)
250	15	1Ø	B	762 (30)	559 (22)	508 (20)	125 (276)
250	25	1Ø	B	762 (30)	559 (22)	508 (20)	155 (342)

Cabinet Options

- NEMA 2 / IEC 60529 IP22 drip shield.
- Zinc rich powder coat paint primer.
- Epoxy powder coat / baked paint .

Notes

- Actual sizes may vary from these standards per certain options / custom features.
- All dimensions in **mm (inches)**.
- Drawings are not to scale.

Standard Steel Cabinets

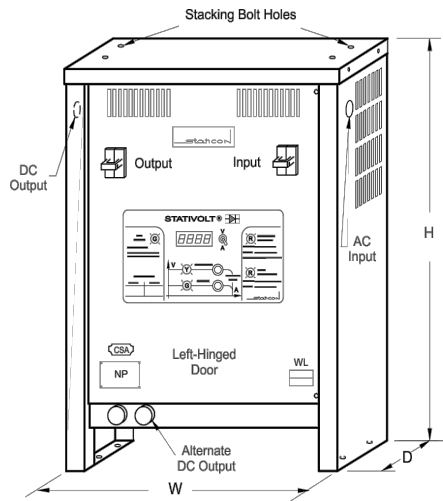
- NEMA type 1. Front access.
- 14 gage steel sides. Structural mounts.
- ASA 61 grey, powder coated enamel.

Installation

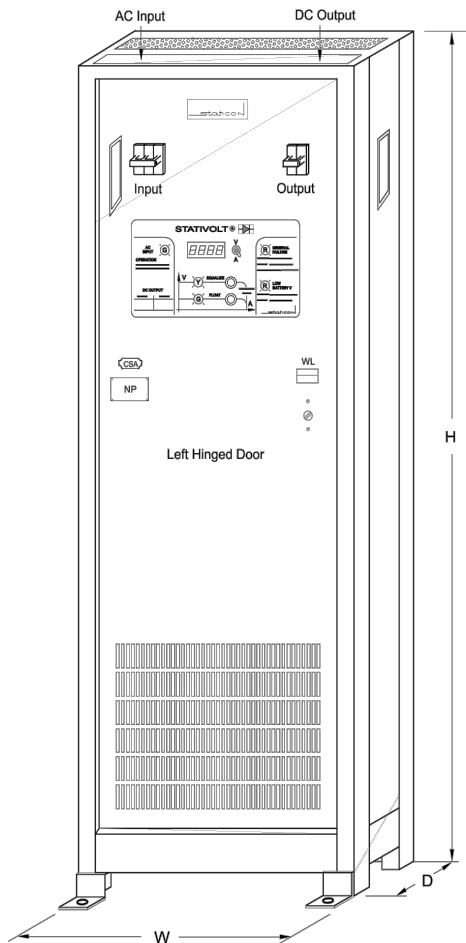
- Top / side cable entry.
- Required Ventilation Clearance:
- W Cabs: 102 (4) side / rear.
- B Cabs: 152 (6) side / rear.



Rectifier Cabinets (3 Phase AC Input)



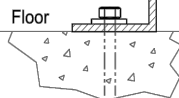
**Bench / Floor Mount (B)
Stackable**



Floor Mount (F)

Floor Anchor Angle

- 76 (3) W
- 51 (2) H
- 51 (2) D
- 6.4 (1/4) thick



Nominal DC V	Input A	Style	Dimensions H	mm (in) W	mm (in) D	Weight kg (lb)	
24	50	3Ø	B	762 (30)	559 (22)	508 (20)	60 (132)
24	75	3Ø	B	762 (30)	559 (22)	508 (20)	90 (198)
24	100	3Ø	B	762 (30)	559 (22)	508 (20)	115 (255)
24	150	3Ø	B	762 (30)	559 (22)	508 (20)	175 (386)
24	200	3Ø	F	1600 (63)	610 (24)	610 (24)	250 (551)
24	300	3Ø	F	1600 (63)	610 (24)	610 (24)	300 (661)
24	400	3Ø	F	1600 (63)	610 (24)	610 (24)	350 (772)
24	500	3Ø	F	1905 (75)	762 (30)	762 (30)	400 (882)
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48	75	3Ø	B	762 (30)	559 (22)	508 (20)	155 (342)
48	100	3Ø	B	762 (30)	559 (22)	508 (20)	180 (397)
48	150	3Ø	F	1600 (63)	610 (24)	610 (24)	270 (595)
48	200	3Ø	F	1600 (63)	610 (24)	610 (24)	330 (728)
48	300	3Ø	F	1600 (63)	610 (24)	610 (24)	440 (970)
48	400	3Ø	F	1905 (75)	762 (30)	762 (30)	475 (1047)
48	500	3Ø	F	1905 (75)	762 (30)	762 (30)	500 (1102)
48	600	3Ø	F	1905 (75)	762 (30)	762 (30)	560 (1235)
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72	100	3Ø	F	1600 (63)	610 (24)	610 (24)	300 (661)
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125	50	3Ø	B	762 (30)	559 (22)	508 (20)	215 (474)
125	75	3Ø	B	762 (30)	559 (22)	508 (20)	250 (551)
125	100	3Ø	F	1600 (63)	610 (24)	610 (24)	380 (838)
125	150	3Ø	F	1600 (63)	610 (24)	610 (24)	450 (992)
125	200	3Ø	F	1905 (75)	762 (30)	762 (30)	520 (1146)
125	250	3Ø	F	1905 (75)	762 (30)	763 (30)	590 (1298)
125	300	3Ø	F	1905 (75)	762 (30)	762 (30)	660 (1455)
125	400	3Ø	F	1905 (75)	762 (30)	762 (30)	770 (1698)
125	500	3Ø	F	1905 (75)	762 (30)	762 (30)	950 (2094)
125	800	3Ø	F	2057 (81)	914 (36)	914 (36)	950 (2094)
125	1200	3Ø	F	2057 (81)	1219 (48)	1067 (42)	1100 (2420)
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250	50	3Ø	F	1600 (63)	610 (24)	610 (24)	300 (661)
250	75	3Ø	F	1600 (63)	610 (24)	610 (24)	330 (728)
250	100	3Ø	F	1600 (63)	610 (24)	610 (24)	520 (1146)
250	150	3Ø	F	1905 (75)	762 (30)	762 (30)	630 (1389)
250	200	3Ø	F	1905 (75)	762 (30)	762 (30)	730 (1609)

Notes

Sizes may vary for certain options.
All dimensions in **mm (inches)**.
Drawings are not to scale.

Installation

Top / side cable entry.
Required Ventilation Clearance:
B Cabs: 152 (6) side / rear.
F Cabs: 152 (6) rear / top.

Standard Steel Cabinets

NEMA type 1. Front access.
14 gage sides. Structural mounts.
ASA 61 grey, powder coat enamel.

Cabinet Options

NEMA 2 / IEC IP22 drip shield.
Zinc rich powder coat primer.
Epoxy powder coat & baked.



Model Numbers

_ CT 48 B 75 E 56 76 B E _	AC Voltage	Phase	Code
	110-120-127	1	A
	208-240	1	B
	220-230-240	1	UX
	480	1	G
	600	1	H
	208	3	E
	380-400-415	3	LX
	480	3	F
	600	3	K
	60 Hz: no suffix		
	50 Hz: add suffix X to code		

Options

AC Input Options

Input PF correction to ≥ 0.90	P
AC input / start delay timer, 0 - 4 minutes adjustable	U
Soft walk-in, 12 cycle start-up	consult Station

Battery Charging Functions

High float or single voltage for VRLA batteries or battery eliminator	F
PB initiate equalize, PB return to float	S
PB initiate 8-72 hour equalize timer, auto / PB return to float	E
PB / AC outage initiate (0-15 minute adj. initiate time) 8-72 hour equal timer, auto / PB return to float	A
PB / 30 day initiate, 8-72 hour equalize timer, auto / PB return to float	M

DC Output & Battery Charging Options

Standard ripple filter: ≤ 1% ripple voltage	B
Enhanced noise filter: ≤ 40 mV rms 1Ø, 2.5 mV rms 3Ø	C
Charge voltage temperature compensation	N
Charge current limiting to 20 A / 100 Battery AH	Cl
Remote equalize initiate via 1 set of form 'C' contacts	R

Annunciation Options

AC input V & A meters, analog, 2% accuracy	Mac
Battery charge / discharge DC ammeter, analog, 2% accuracy	Q
AC input failure alarm, 1 red LED, 1 set NO-NC contacts	O
Low DC / battery voltage alarm, 1 red LED, 1 set NO-NC contacts, V adjustable	L
High DC voltage alarm, 1 red LED, 1 set NO-NC contacts, V adjustable (not required)	H
High DC voltage shutdown, 1 red LED, 1 set NO-NC contacts, V adjustable (not required)	Hs
Ground leakage alarm, 2 red LEDs, 1 set NO-NC contacts, 1-5 mA adjustable	G
Common alarm, 1 set NO-NC contacts (no individual alarm contacts)	Ca
Equalize charge annunciation, 1 set of form 'C' contacts (yellow LED is standard)	J
Alarm memory module, 5 alarm red LEDs, LED test PB, 4 alarm reset PBs (6 s delay)	Am
Audible alarm (used with common alarm)	Aa
Digital monitoring PLC (RS485 or Ethernet output)	Plc
Digital multifunction DC power meter (RS485, Modbus RTU output)	Dmc

DC System / Battery Options

Distribution / protection circuit breakers, fuses or switches	consult Station	D
DC UPS system (battery mounted / integrated with the charger)	consult Station	B

Utility Options

Keyed door locks	K
Auxiliary contacts for any input, output or built-in distribution breakers	Ac
High interrupting-ampere capacity input / output circuit breakers	I
Zinc Rich powder coat paint primer for enhanced cabinet corrosion protection	Z
Top drip shield per NEMA 2 / IEC 60529 IP22 requirements	N2
Tropical / humidity / marine / fungus proofing, acrylic sprayed components and wires	T

