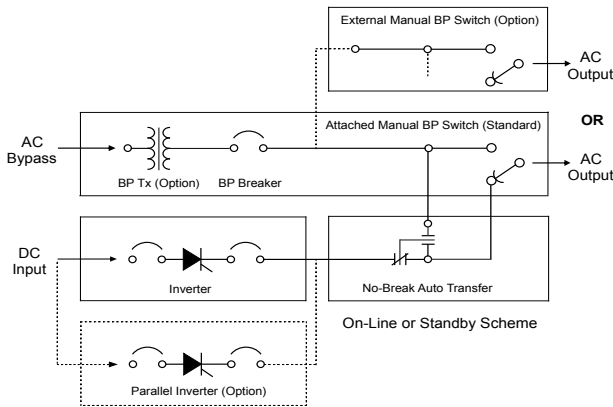




Clean, sine-wave AC power ensures a high availability of mission-critical safety devices, controls, alarms, switchgear, instrumentation, and computers. StatiVolt Inverters & DC-AC UPS are designed and built for decades of robust, industrial duty and field serviceability. Time-proven for 40 years.



AC kVA 1 phase	Vac 1 phase	Input Vdc
1.2	120	24, 48, 120
3.0	120, 220	48, 120
5.0	120, 220	120, 240
7.5	120	120, 240
10.0	120, 240	120, 240
15.0	120	120
20.0	120	120, 240
25.0	120	120, 240
30.0	120, 230	120
40.0	120	120
60.0	120	120

Features

Reliability by Design

- Pure sine-wave AC power
- Low frequency, soft-switching
- Fast (≤ 10 ms) source transfer
- Very overload capable
- Natural convection cooled
- 30 year design life

Low DC Input Voltage

- 24, 48, 125, 250 V DC nominal
- Battery-only start-up capability

Protection

- In, out, bypass circuit breakers
- Fail-safe output current limiting
- Transformer isolation
- Fail-safe output V control
- Inherent surge rejection

Power & Utility Options

- DC Input Telecom Filter
- DC Input Low V Shutdown
- Dual AC Output Voltages
- Bypass Transformer
- External manual bypass switch
- Special Utility Options

Warranty & Service

- 3 year full warranty
- 2 year optional extended warranty
- Fully field serviceable
- 20 year parts availability

Contents

Inverter Specifications	2
Transfer & Switch Specs	3
Lateral System Cabinets	4
Vertical System Cabinets	5
Model Numbers & Options	6

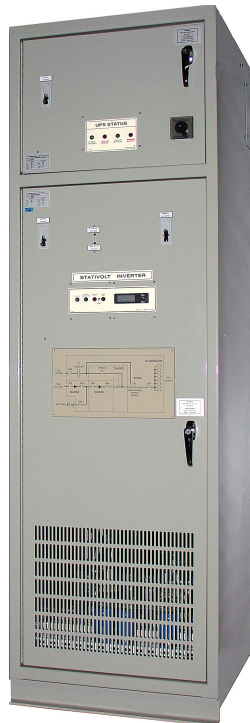
Remote Monitoring Options

- Monitoring for customer SCADA or computer
- Inverter UPS alarm & breaker status
- Inverter DC input or AC output real-time V & I
- Ethernet, RS485 or DNP3 protocols
- MODBUS compatible Ethernet
- PLC based monitoring solutions

Maintenance - Repair - Replacement

Inverter systems in lateral configuration can be removed / replaced from / to the system leaving the transfer & bypass sections intact and energized to provide load power continuity.

Inverter systems in vertical configuration can similarly be removed / replaced when an optional, wall-mount, external bypass (option Me) switch is purchased.



Vertical System



Lateral System





Inverter Specs

Power Conversion Design

- SCR chopper, commutation transformer
- Tuned ferro-resonant output
- Pure sine-wave AC power

Output Control

- Fail-safe, closed loop control
- Magnetic shunt regulation
- True oscillator output frequency

Steady-State Vac & F Regulation

- ±1%, V_{dc} nom to 117% V_{dc} nom, full load
- -5%, at 88% of V_{dc} nom, full load
- 60 ± 0.1 Hz frequency, 1 Hz / s slew rate

Overload Capacity

- 125% for 30 min, 150% for 1 min
- 200% for 2 s, load inrush or fault

Annunciation & Meters

- Standard annunciation (each phase):
 - V+A AC Meter digital, 2% accuracy
 - AC On/reen LED
 - Normal Reg. green LED
 - Low AC V / OL red LED, dry contacts
 - High AC V red LED, dry contacts
 - DC Low V red LED, dry contacts
 - DC Off / Fault red LED, dry contacts
- Contacts are form 'C' contacts rated:
 - 0.6A @ 120 Vac and 2A @ 30 Vdc

Typical Full Load Efficiencies (%)

AC kVA 1ph	Nominal DC Voltage		
	48	120	240
1.2 - 3	75	85	NA
5 - 15	NA	85	90
20 - 60	NA	85	90

Protection

- DC breaker rated I ≈ 1.5 x full load IDC
- AC breaker rated I ≈ 1.3 x full load IAC
- Transformer electrical isolation
- I² t breaker coordinated SCRs & diodes
- I limiting set to start at ≈ 150% of full load at ≥ nominal DC input voltage

DC Input Reflected Ripple Voltage

- ≤ 1% rms (without battery)
- ≤ 0.5% rms (on typical battery)
- Noise filter option (< 32 dBmC noise)

Output AC V Range

- ± 10% of nominal (± 5% regulator adjust, ± 5% transformer tap adjust)

Dynamic AC V Response

- ±5% for 50% resistive step-loads
- ±10% for 100% resistive step-loads
- Recovery < 17 ms (50% step-load)

Parallel Inverter Operation

- Load sharing within 10% of unit IAC

Audible Noise

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

Output Distortion & Noise

- THD is < 6% (phase-neutral)
- 120 dB common mode noise rejection
- 60 dB transverse mode attenuation

Surge Tolerance

- Inherent I / O surge protection

Electromagnetic Interference

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

Wiring

- Stranded 16 AWG control wires
- Plastic sleeve-type wire markers
- Wire (≤ 10 AWG) connection ferrules

Cabinets

- NEMA type 1, IEC 60529 IP 20
- Front accessible, side / top cable entry
- 14 / 10 gage steel panels / mounts
- Powder-coated, baked enamel finishes
- Door handles with key locks

Environmental Requirements

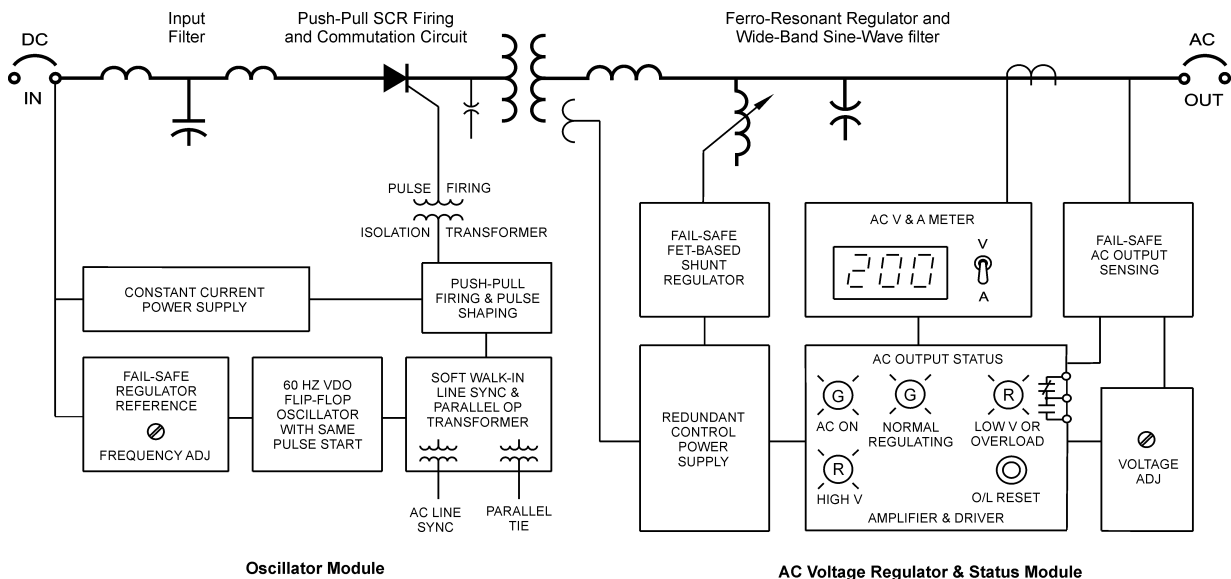
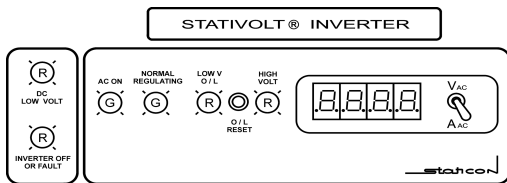
- Natural convection cooled: top, side, rear clearances required for air flow.
- -20°C to +40°C continuous operation
- RH < 95% non-condensing

Reliability

- MTBF is 120,000 h
- MTTR is 1 hour (spares on / near site)

Design & Test Standards

- CSA SPE-1000 inspected & approved
- Built to CSA C22.2 No. 107.1
- Magnetics designed for Class H, 180°C
- Breakers are CSA22.2 No.5 & UL489 cert.



Single-Line Diagram with Control Functions





No-Break Auto Transfer Specs (On-Line or Standby)

Transfer Design (Robust Fast Break)

- On-Line: DC / inverter fail: ≤ 12 ms
- Standby: AC source / fail: ≤ 12 ms
- V sensing, transistor-based logic
- Fast contactor-based transfer
- 30 year design life

Protection

- Bypass AC breaker, 120% of inverter A
- 8 kV contactor impulse withstand V
- Isolated and / or fused electronics

Transfer Logic

- Voltage sensing initiated, DC powered
- Transistor-based switch
- Rated @ 500 V, 12 A
- Energizes coil @ 10 Vdc 180 mA
- Auto re-transfer, 60 s delayed return
- Internal PB transfer test switch

Contactor(s)

- Type AEG LS-K
- 4 Poles (2 NO, 2 NC), 110 A / pole
- Rated @ 690 Vac
- 2 parallel contactors used for high Current 1ph and all 3ph UPS's

Meters

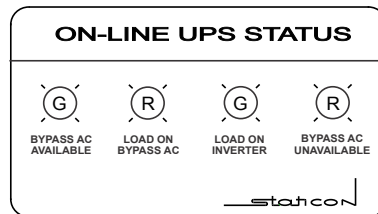
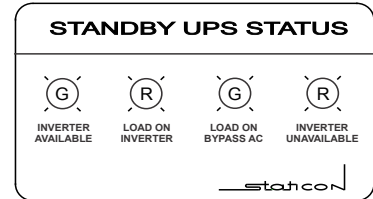
- 1Φ Load AC V&A digital, 2% accuracy
- 3Φ Load AC V&A analog, 2% accuracy
- Optional
 - AC Frequency analog, 2% accuracy
 - DC V&A digital, 1% accuracy
 - switch selectable

Annunciation

- **On-Line Transfer Annunciation**
 - Bypass Avail. grn LED
 - Load on Bypass red LED, dry contacts
 - Load on Inverter grn LED, dry contacts
 - Bypass Unavail. Red LED
- Set of dry (NO+NC) contacts rated: 0.6A @ 120 Vac and 2A @ 20 Vdc

Standby Transfer Annunciation

- Inverter Avail. grn LED
- Load on Inverter red LED, dry contacts
- Load on Bypass grn LED, dry contacts
- Inverter Unavail. Red LED
- Set of dry (NO+NC) contacts rated: 0.6A @ 120Vac and 2A @20Vdc



Wiring

- Stranded 16 AWG control wires
- Plastic sleeve-type wire markers
- Wire (≤ 10 AWG) connection ferrules

Environmental Requirements

- -20°C to +40°C continuous operation
- RH < 95% non-condensing

Reliability

- MTBF is 560 k hrs
- MTTR is 1 hour (spares on / near site)

Design & Test Standards

- CSA SPE-1000 inspected & approved
- IEC 60947, UL 508 certified contactors
- CSA C22.2 No. 14 certified contactors

Manual Maintenance Bypass Switch Specs

Manual Switch Design

- Rotary cam switch, 2 positions
- Robust make-before-break ≤ 12 ms
- Isolates inverter UPS for maintenance
- Provision for padlocking in one position
- Type Kraus & Naimer C125 & C315®
- 2, 3 & 4 pole switches, pad-lockable
- c/w silver plated contacts

Operational Ratings

- C125 rated @ 600 Vac, 150 A / pole
- C315 rated @ 600 Vac, 240 A / pole

Protection

- 6 kV switch impulse withstand V
- 2000 A for 1 s switch withstand Amps
- Rated 5 kA short circuit current

Annunciation

- Load on Inverter NO dry contacts
- Load on Bypass NC dry contacts
- Set of NO+NC (form C) contacts rated: 0.6A @ 120 Vac and 2A @ 30 Vdc

Housing

- In UPS cabinet, externally operable
- Separate section above inverter
- External (separate cabinet) option

Wiring

- Stranded 16 AWG control wires
- Plastic sleeve-type wire markers
- Wire (≤ 10 AWG) connection ferrules

Environmental Requirements

- -20°C to +40°C continuous operation
- RH < 95% non-condensing

Reliability

- Electrical life (B10d): 15 k cycles (K&N)
- Per IEEE Std 493-2007, Annex Q, #188
- MTTF is 4.2 M hrs
- MDT is 1.1 hrs (mean down time)

Design & Test Standards

- CSA SPE-1000 inspected & approved
- CSA C22.2 No.14 certified switches
- IEC 60947, UL 508 certified switches



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Inverter UPS Cabinets (Lateral Systems)

Bypass Transformer

The optional bypass transformer is housed in the transfer section of any inverter UPS.

Dual Redundant Systems

Parallel, floor mount, inverter systems (2 parallel inverters combined with one transfer) are 2x the inverter width and weight as shown in the table.

1 Phase Output kVA	Cabinet Style	H	Dimensions mm (in)			Weight kg (lbs)
			W _I	W _T	D	
3	FL	1143 (45)	610 (24)	483 (19)	610 (24)	105 (231)
5	FL	1143 (45)	610 (24)	483 (19)	610 (24)	240 (529)
7.5	FL	1600 (63)	610 (24)	483 (19)	610 (24)	310 (683)
10	FL	1600 (63)	762 (30)	483 (19)	762 (30)	350 (772)
15	FL	1600 (63)	762 (30)	483 (19)	762 (30)	480 (1058)
20	FL	1600 (63)	762 (30)	483 (19)	762 (30)	670 (1477)
25	FL	2057 (81)	914 (36)	483 (19)	914 (36)	840 (1852)
30	FL	2057 (81)	914 (36)	483 (19)	914 (36)	1150 (2921)
40	FL	2057 (81)	1067 (42)		1067 (42)	1280 (2821)
60	FL	2057 (81)	1067 (42)		1067 (42)	1850 (4079)

W_I inverter section width
W_T transfer section width

Construction

CSA / NEMA 1 cabinets. Front access.
14 / 10 gage steel panels / mounting channels.
Standard finish is ASA 61 grey, baked enamel.

CSA / NEMA 2 cabinets with drip shields (option **N2**) are an extra 152 mm (6 in) higher to allow for proper convection cooling under the drip shield.
Top cable entry via removable gland plates.

Required Ventilation Clearance:
152 (6) space all sides.
305 (12) rear/top space.

Maintenance - Repair - Replacement

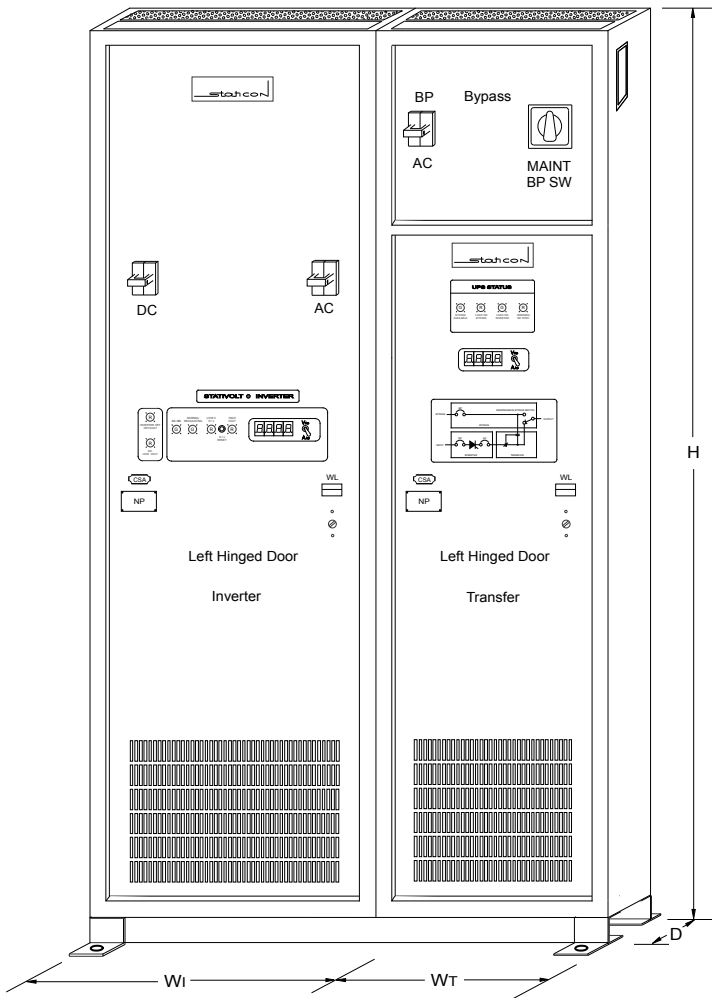
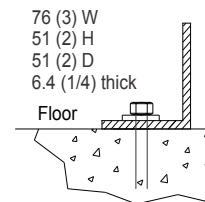
Inverter systems in lateral configuration can be removed / replaced from / to the system leaving the transfer & bypass sections intact and energized to provide load power continuity.

Notes

Actual systems may vary from these cabinet standards according to job-specific options or custom requirements.

All dimensions in **mm (inches)**.
Drawings are not to scale.

Floor Anchor Detail



Lateral System



Inverter UPS Cabinets (Vertical Systems)

Bypass Transformer

The optional bypass transformer is housed in the transfer section of any inverter UPS.

Dual Redundant Systems

Parallel, floor mount, inverter systems (2 parallel inverters combined with one transfer) are 2x the inverter width and weight as shown in the table.

1 Phase Output kVA	Cabinet Style	Dimensions mm (in)				Weight kg (lbs)
		Hi	H _T	W	D	
1.2	RV *	1143 (45)	457 (18)	610 (24)	610 (24)	105 (231)
3	FV, RV *	1143 (45)	457 (18)	610 (24)	610 (24)	105 (231)
5	FV	1143 (45)	457 (18)	610 (24)	610 (24)	240 (529)
7.5	FV	2057 (63)	457 (18)	762 (30)	762 (30)	310 (683)
10	FV	2057 (63)	457 (18)	762 (30)	762 (30)	350 (772)
15	FV	2057 (63)	457 (18)	762 (30)	762 (30)	480 (1058)
20	FV	2057 (63)	457 (18)	762 (30)	762 (30)	670 (1477)
25	FV	2057 (63)	457 (18)	914 (36)	914 (36)	840 (1852)

* Small inverter UPS can be housed in 23 inch W rack mount cabinets 622 (24.5) Hi + 222 (8.75) H_T

Hi inverter section height
H_T transfer section height

Construction

CSA / NEMA 1 cabinets. Front access.
14 / 10 gage steel panels / mounting channels.
Standard finish is ASA 61 grey, baked enamel.

CSA / NEMA 2 cabinets with drip shields (option **N2**) are an extra 152 mm (6 in) higher to allow for proper convection cooling under the drip shield.
Top cable entry via removable gland plates.

Required Ventilation Clearance:
152 (6) space all sides.
305 (12) rear/top space.

Maintenance - Repair – Replacement

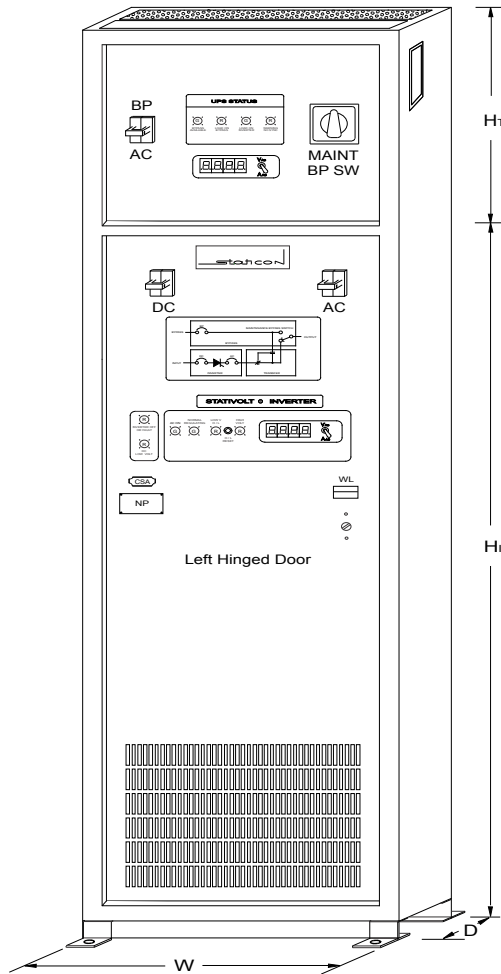
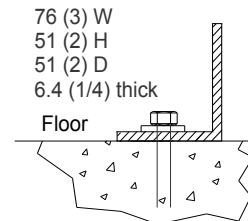
Inverter systems in vertical configuration can be removed / replaced when an optional, wall-mount, external bypass switch (option **Me**) is purchased to provide load power continuity.

Notes

Actual systems may vary from these cabinet standards according to job-specific options or custom requirements.

All dimensions in **mm (inches)**.
Drawings are not to scale.

Floor Anchor Detail



Vertical System



