



DATE: _____ LOCATION: _____

TYPE: _____ PROJECT: _____

CATALOG #: _____

Trident TRV/TRF Series

THREE-PHASE CENTRAL LIGHTING INVERTER 3.5 KVA - 125 KVA



FEATURES

- Uninterruptible, "no break" design transfers the load instantaneously when normal power is interrupted
- 100% load compatible with any lighting source, including HID
- Double conversion technology protects against a wide range of input power disturbances
- Handles deep power line "sags" without transferring to battery power
- Overload and short-circuit protection
- Smallest overall system width in the industry
- Intuitive graphic user interface includes indicators and alarms
- Maintenance-free batteries pre-mounted and wired for lower installation costs



OSHPD IBC



FACTORY START-UP

Required to be ordered with all Trident Series inverters

SPECIFICATIONS

APPLICATION

- The Trident Series offers quiet reliable operation for commercial office applications yet is rugged enough for manufacturing environments
- The ability to support three-phase AC power improves load efficiency, allows output load balancing and easy building electrical system integration
- Precisely controlled system output is suitable for any lighting or critical life safety load up to the full rated output capacity
- Technical support is available from a nationwide network of factory-trained technicians

OPERATION

- AC output provides full lumen output for emergency lighting loads in commercial or industrial applications
- Uninterruptible "no break" transfer provides seamless switching from normal to emergency AC power
- "Double conversion" design completely isolates the line from the load, eliminating the impact of line disturbances and providing more precise output load regulation
- Internal maintenance bypass switch is standard
- 60 Hz operation (50Hz upon request)
- Sizes available: 3.5 through 125 kVA
- Meets required recharge time per UL standards
- 90 minute emergency operation supplied standard

OPERATION (CONTD.)

- Optional internal SNMP/Web Card allows inverter management across a LAN using any of the main network communication protocols - TCP/IP, HTTP and network interface (SNMP).
- Optional environmental sensor module senses temperature, humidity and smoke and displays it via SNMP.

CONSTRUCTION

- Intuitive graphic user interface includes indicators and audible alarms to provide system status
- Electronics and battery cabinets constructed of heavy duty steel, with a black powder coat painted finish
- All cabinets are equipped with casters or leveling feet
- Systems arrive with maintenance-free batteries pre-mounted and wired
- Retractable, front access battery trays provided for easy maintenance
- Top cable entry standard on TRF 50 and 60 kVA units.
- Bottom cable entry standard on all TRV units and TRF 65kVA-125kVA units with optional top cable entry. See DIMENSIONS section.
- Seismic rating is standard on 65-125kVA models; available with optional mounting accessories on 3.5-60kVA models
- System widths as low as 49"
- Form C contact closure points standard on all models
- Manually operated internal maintenance bypass switch included standard

CERTIFICATIONS/COMPLIANCES

- UL Listed to Standard 924 (Emergency Lighting)
- TRV: UL 1778 Listed (Uninterruptible Power Systems)
- NFPA 101 (Life Safety Code)
- NFPA 111 (Stored Emergency Power Supply Systems - SEPSS)
- NFPA 70 (National Electrical Code)
- IBC (OSHPD Seismic Certified) OSHPD seismic approval on greater than or equal to 65kVA, bracing on less than 65kVA
- IFC Compliant Option (F) provides string-level battery monitoring; Certified by UL to detect and preclude thermal runaway
- NEMA 3R available upon request; consult factory

WARRANTY

- Unit: 2 year
- Batteries: 10 Years (1 year full, 9 year pro-rata)
Start-up must be performed by an Authorized Service Center within 6 months of shipment to maintain battery warranty.

Batteries must be connected to an energized charging circuit within 90 days from date of shipment or warranty is void.

KEY DATA	
Wattage Range	3.5kW - 112kW
Overload	125% for 10 min. / 150% for 1 min.
Input/Output (VAC)	208/208VAC, 480/480VAC or 480/208VAC



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ORDERING GUIDE

Example: TRV-208-3-40-208-AFH

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Trident Series	Input Voltage (VAC)	Input Conductor	Capacity	Output Voltage (VAC)	Configuration Options ⁶	Battery Monitoring Option	Power Distribution Option
TRV Trident 3-phase inverters up to 40kVA	208 208VAC ¹	3 3 Wire	3.5 3.5 kVA/3.5 kW	208 208 VAC	A SNMP/Web Card B SNMP/Web Card & Environmental Sensor C Top Entry Cabinet ⁷ D SNMP/ Web Card & Top Entry Cabinet E SNMP/ Web Card, Environmental Sensor & Top Entry Cabinet	F IFC Compliant Battery Monitoring	H Single Pole Power Distribution ⁸ J 2-pole Power Distribution ⁸ K 3-pole Power Distribution ⁸
	480 480VAC	4 4 Wire ²	5 5 kVA/5 kW	480 480 VAC ³			
			7.5 7.5 kVA/7.5 kW				
			10 10 kVA/10 kW				
			15 15 kVA/15 kW				
			20 20 kVA/20 kW				
			30 30 kVA/30 kW				
			40 40 kVA/40 kW				
			50 50 kVA/45 kW				
			60 60 kVA/54 kW				
TRF Trident 3-phase inverters >40kVA			65 65 kVA/58 kW				
			80 80 kVA/72 kW				
			100 100 kVA/90 kW				
			125 125 kVA/112 kW				

Factory Start-Ups (Required) ^{4,5}	
FST-1	Factory Start-Up 3.5-30kVA
FST-2	Factory Start-Up 40-80kVA
FST-3	Factory Start-Up >80kVA
Accessories	
TRV-RSP-1	Remote Status Panel 3.5-60kVA
TRF-RSP-2	Remote Status Panel 65-125kVA
TRV-SFK-1	Seismic Mounting 3.5-40kVA
TRF-SFK-2	Seismic Mounting 50-60kVA

Notes:

- 1 Only available with 208 VAC output voltage. Custom options are available, consult factory.
- 2 Available with 480 VAC output voltage (all capacities), and with 208 VAC input voltage on 3.5kVA through 65kVA capacities
- 3 Only available with 480 VAC input voltage
- 4 Start-up must be performed by an Authorized Service Center within 6 months of shipment to maintain battery warranty
- 5 Batteries must be connected to an energized charging circuit within 90 days from date of shipment or warranty is void
- 6 Alternate run times and 50Hz models available on request; consult factory
- 7 Top Entry Cabinet option (C) is not required for the following units that come standard with top entry: TRF 50 and 60 kVA units. See DIMENSIONS section for width and depth by model.
- 8 Power distribution available on 3.5-40kVA range; includes unmonitored 20A output breakers, standard per below:
H = (12) 1-pole; J = (6) 2-pole; K = (4) 3 pole
Custom configurations are available, consult factory

SPECIFICATIONS

INPUT

Voltage: 208 or 480VAC, 3-wire or 4-wire plus ground
Voltage Range: +15%, -20% (up to 60kVA), -10% (>60kVA)
Frequency Range: 60Hz., +/- 5Hz.
Current Distortion: < 1% (up to 60kVA), <3% (>60kVA) maximum reflected THD at full load
Current Limit: 115 - 120% (109% for 125kVA) of nominal AC input current maximum
Power Factor Range: 0.99 at full load.

OUTPUT

Voltage: 208/120, 480/277VAC, 3-wire or 4-wire plus ground
Static Voltage Regulation: ±2.0% for up to 60kVA, ±1% for >60kVA
Voltage Transient Response (Linear Loads): ± 2% for up to 60kVA, ±1% for >60kVA
Voltage Transient Response (Non-Linear Loads): ±5% for up to 60kVA, ±3% for >60kVA
Phasing Balance: 120° ±1° for balanced and unbalanced load
Frequency Stability (without by-pass line synchronization): ±0.02% for up to 60kVA, ±0.05% for >60kVA
Load Power Factor Range: 0.9 leading to 0.5 lagging without derating (may not exceed kVA rating)
Overload: 125% of full load for 10 minutes; 150% for one minute

GENERAL

Operating Temperature Range:
 Electrical Cabinet: 0°C to 40°C (32°F to 104°F)
 Battery Cabinet: 20°C to 30°C (68°F to 86°F)
Relative Humidity: 0-95% non-condensing
Operating Altitude: Up to 1000m without derating; derate capacity 1% per 100m from 1000m to 2000m for up to 60kVA systems and from 1000m to 4000m for >60kVA systems
Acoustical Noise: Less than 75 dBA for up to 60kVA, less than 68 dBA for >60kVA



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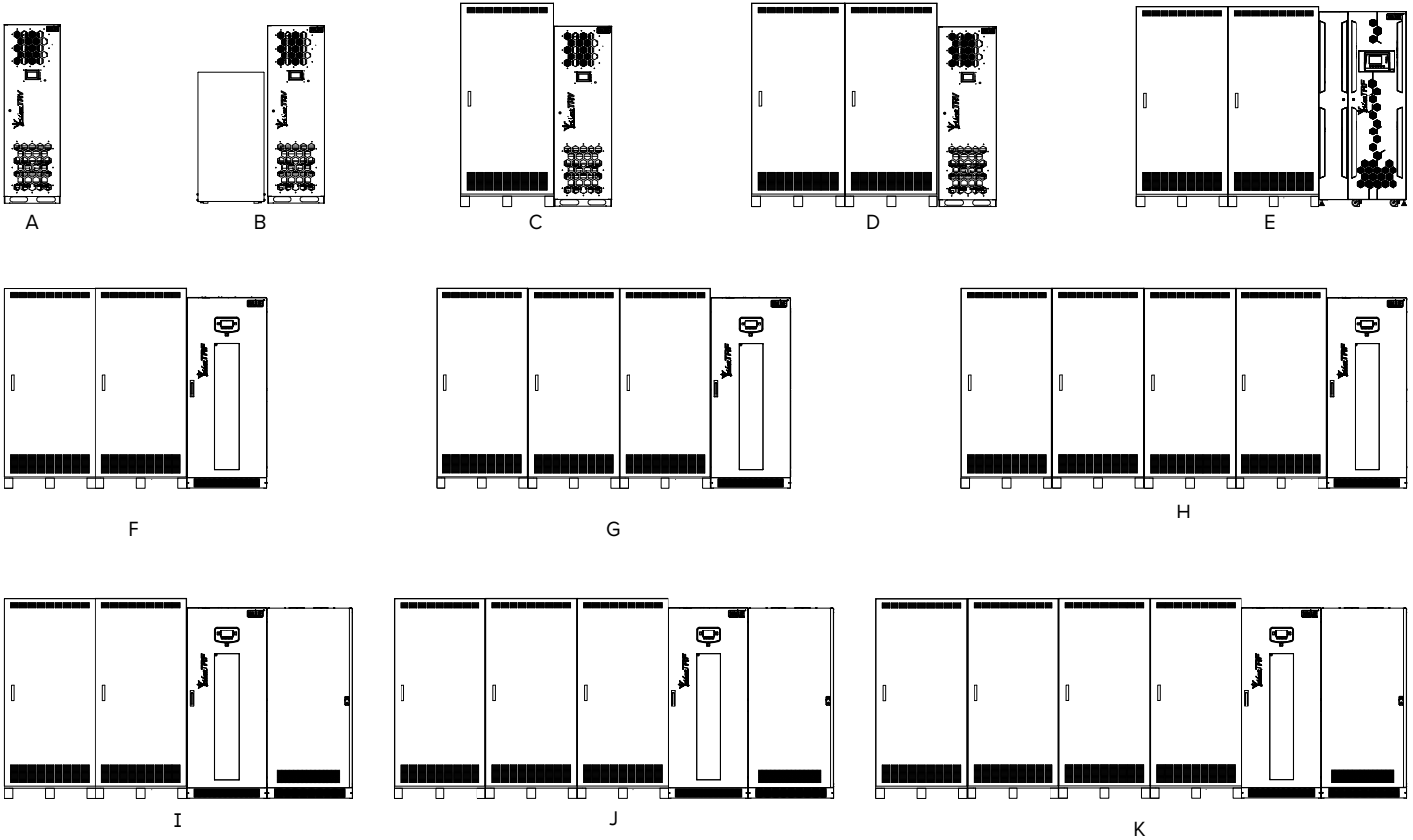
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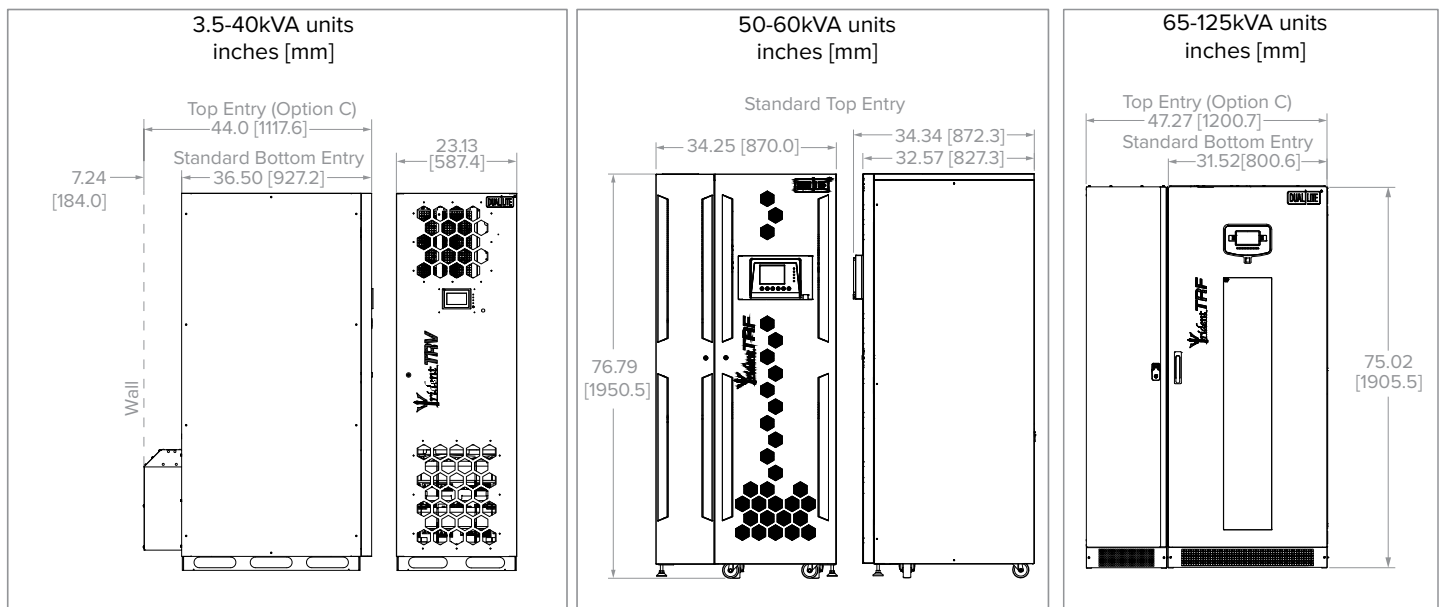
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CABINET CONFIGURATION



TOP ENTRY CABINET CONFIGURATION





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NOTES FOR SITE PLANNING DATA:

1. Input and bypass cables must be run in separate conduit from output cables.
2. Minimum-sized grounding conductors to be per NEC 250-122. Parity-sized ground conductors are recommended. Neutral conductors to be sized for full capacity per NEC 310-15(B)(4) References are per NEC 2008.
3. Wiring requirements:
AC Input: 3-phase, 3-wire plus ground or 3-phase, 4-wire plus ground
AC Output: 3-phase, 3-wire plus ground or 3-phase, 4-wire plus ground
4. All wiring is to be in accordance with national and local electrical codes.
5. Minimum cabinet access clearance: 3 ft. (0.9m) front, ; 18" (457mm) overhead for up to 65kVA systems and 24" (610mm) overhead for >65kVA systems; 8" (203mm) rear for up to 65kVA systems and 24"(610mm) rear for >65kVA systems.
6. Top or bottom cable entry through removable access plates. Punch plate to suit conduit size then replace.
7. Control wiring and power wiring must be run in separate conduit.
8. Dimensions are system dimensions including UPS, battery cabinets and transformer cabinets (if any); Transformer cabinets are front access
9. See DIMENSIONS section to determine any footprint increases due top entry. Consult factory for Power Distribution drawings. Weights are system weights including UPS, battery cabinets and transformer cabinets (if any); Transformer cabinets are front access.
10. Heat dissipation includes UPS , battery and transformer cabinet.
11. Recommended AC input external overcurrent protection is based on 80% rated devices and maximum input current limit settings.

ADDITIONAL NOTES:

- If site configuration includes a back-up emergency generator, it is recommended that the engine generator set be properly sized and equipped for a UPS application. Generator options would typically include an isochronous governor (generator frequency regulation) and a UPS compatible regulator (generator voltage regulation). Consult generator manufacturer for required generator options and sizing.