Submittal Number: 263213-1 Rev. 0

Project:	**117106.**
Project Name:	**Wichita KS COW Standby Power Generation**

To:	**From:**
Wendy Lindenman	Loren Schroeder
Professional Engineering Consultants, P.A.	UCI
303 S Topeka	1930 S Hoover, Suite 100 PO Box 9592
Wichita, KS 67202	Wichita, KS 67277-0592

Submittal Item	Status	Submitted Date	Copies	Date Due
1 : Portable 200 KW Genset	New	05/1/2017	1	05/5/2017

Comments:

CONTRACTOR'S REVIEW: This submittal has been reviewed for general compliance with the plans and specifications.

By: Loren Schroeder
Loren Schroeder, UCI

Date: 5/1/2017

SUBMITTAL REVIEW

☒ **APPROVED**

☐ **APPROVED AS NOTED**
If checked above, fabrication MAY be undertaken. Approval does not authorize changes to Contract Sum unless stated in a Change Order.

If checked below, fabrication MAY NOT be undertaken. Resubmit corrected copies for final approval. Correction shall be limited to items marked.

☐ **REVISE AND RESUBMIT**

☐ **REJECTED**

5/10

Approval is only for general conformance with the design concept of the project. Contractor at all times remains responsible for compliance with the Contract Documents. Deviations are not approved unless Contractor has in writing called Engineer's attention to such deviation at the time of submission and Engineer has in writing approved the specific deviation. No acceptance by Engineer relieves Contractor from responsibility for errors or omissions in Compliance Submittals.

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

BY Rick Whitehill DATE 05/08/2017

ATLAS ELECTRIC, L.L.C .
ELECTRICAL SUBMITTALS
__X__ APPROVED
_____ APPROVED AS NOTED
_____ RESUBMIT AS NOTED

BY Jeff Keys
DATE 05/01/2017

Electrical Submittals

City of Wichita
Standby power generation
Webb rd. pump station & ASR

General Contractor
UCI

Engineer
PEC

Electrical Contractor
Atlas Electric LLC

Electrical
Portable Generator and Tap boxes

1607 N. Wabash, 67214 • Wichita, KS
(316) 858-1560 • Fax (316) 858-1564

Central Power Systems & Services

Provider of:

MTU Onsite Energy

Engineering Data and Proposal
This proposal has been prepared specifically for:

Atlas Electric L.L.C.
In Regards to the
City of Wichita Portable Generators
Quantity of Two

It contains all the necessary literature, drawings and component information for the following equipment:

(2) Doosan G240 WCU-T4F
188kW, 236kVa
480V, 3 Phase
1800 RPM, 60Hz
Doosan Portable Power Mobile Generator
Includes 5 Sets of Feeder Cables (50 ft.) & Color Coordinated Cam Lock Ends Each

DOOSAN

G240WCU-3A-T4F

Diesel Rental Generator

Serial Code: F33

Key Features

- Designed and manufactured in an ISO9001-certified facility in Statesville, North Carolina, USA.
- Heavy duty mobile generator system designed for prime power operation in rental, construction and special events applications.
- Generator is CSA certified for electrical equipment per C22.2, No. 14.

Voltage Configuration	Frequency (Hz)	Power Factor	Prime Power Rating		
			kVA	kW	Current (A)
600/346V - 3Ø WYE	60	0.8	N/A	N/A	N/A
480/277V - 3Ø WYE	60	0.8	236	188	283
240/139V - 3Ø WYE	60	0.8	236	188	567
240/120V - 3Ø DELTA	60	0.8	N/A	N/A	N/A
208/120V - 3Ø WYE	60	0.8	219	175	608
240/120V - 1Ø ZIG ZAG	60	1.0	136	136	567
400/230V - 3Ø WYE	50	0.8	200	160	289

* Note: Not all listed voltages are available on standard product. Some voltages may require selection of optional features.

Skidbase and Enclosure

- Package foundation is a heavy duty, oilfield-ready skidbase equipped with four-point tie downs.
- The skidbase is a fully bunded, Environmental Containment design, sized to contain at least 110% of total oil and fuel volume, to prevent any leakage of hazardous fluids from the package.
- Ducted air intakes ensure near-zero water ingression into the containment area, even during operation in the heaviest rain conditions.
- The enclosure is constructed from corrosion-resistant galvanealed steel and coated with a 13 stage powder paint process for long life even in harsh environments.
- The enclosure panels are fitted with sound-absorbing acoustical material to help reduce noise for quiet operation in noise sensitive applications such as concerts, events and nighttime construction.
- Wide opening access doors are side hinged, providing easy access to service and maintenance points and are equipped with recessed, pad-lockable handles and safety latches to hold doors open during servicing.
- Package is equipped with a center-point lifting eye for safe, well-balanced hoisting, designed with a 5 x safety factor for the weight of a fully fueled unit with running gear.

Diesel Engine

- Heavy-duty Cummins diesel engine is emissions certified to EPA Tier 4-final standards and provides the optimum mix of performance and fuel economy.
- The Diesel Oxidation Catalyst (DOC) and Selective Catalyst Reduction (SCR) aftertreatment system meet the stringent NOx and particulate limits without the use of a Diesel Particulate Filter (DPF).
- Dual frequency capability allows operation at 50 hertz or 60 hertz with the flip of a switch.
- Electronically controlled engine provides isochronous frequency control and advanced diagnostic monitoring and protection.
- The engine generator assembly is mounted on fail-safe vibration isolators.
- Coolant and oil drains are piped to bulkhead fittings mounted on the enclosure and all filters and maintenance points are easily accessed for safe and easy servicing.
- Engines are globally supported by the engine OEM and Doosan Portable Power.

DualBox Cooling System

- Doosan’s industry-exclusive DualBox design provides an innovative solution to ensure optimum package cooling for virtually any ambient condition by independently controlling engine compartment temperature and cooling system performance.
- The engine compartment temperature is controlled by a pair of electric, variable speed cooling fans that are programmed to limit airflow in low ambient conditions to prevent freezeup of vital engine components while also ensuring the proper cooling of the package in high temperature / high load conditions.
- The cooling system compartment is isolated from the engine compartment to ensure the most efficient system performance as cooler airflow from outside the package is directed through the cooling system instead of using hotter air from the engine compartment.
- The engine driven cooling fan features a radial design which provides a significant performance advantage with respect to increased heat transfer, reduced noise level, and reduced fuel consumption.
- The DualBox solution maximizes performance to achieve the lowest noise levels, minimum water ingression and independent control of engine compartment temperature and cooling system to achieve optimum performance.
- Doosan generators provide performance at the full prime power rating at ambient temperatures up to 104ºF (40ºC) without derating.

Alternator

- Leroy Somer alternators feature brushless excitation providing industry leading motor starting kVA and 300% overload capability.
- R450 automatic voltage regulator provides precision control of voltage level and fast response to load changes.
- Class H insulation with upgraded environmental coating for ultimate resistance to high temperature and humidity.
- Three position Voltage Selector Switch (VSS) to easily configure the units for operation at most common voltages.

Control System

- A complete array of operator-preferred analog gauges provide at-a-glance monitoring of vital engine and generator parameters.
- Solid state engine control module provides convenient, microprocessor-controlled startup at the push of a button and protects the generator system from an array of faults while providing the operator with indication of any faults on the LED display.

- Standard Run / Idle selector switch allows operators to start and warm up the generator at low engine speed to prevent excess engine wear when operating in cold climates.
- Engine Diagnostic Trouble Codes (DTCs) are displayed on the LCD screen, providing operators and technicians with a numeric and text explanation of the fault code, minimizing the need for expensive hand-held code scanners.
- Standard remote Auto Start / Stop capability via two wire, closed contact logic, allows for connection to automatic transfer switchgear and other remote starting devices.
- Industry-leading Voltage Selector Switch (VSS) protection feature prevents switching the VSS while generator is operating.
- Pad-lockable battery disconnect switch is mounted inside the enclosure.

Power Connections

- All controls and connection points are grouped at the rear of the unit for safety and operator convenience.
- Power cables are connected at an oversized five lug (L1 L2 L3 N PE) terminal board capable of accepting bare end cable or terminated cables.
- Convenience receptacle panel includes individual branch circuit breakers.
- Optional camlock panel includes two panel mounted sets of 400A female connectors to further expand connection capabilities.

Fuel and DEF System

- Single fuel tank sized for 24 hour runtime at full load is mounted within the skid base, providing double wall protection.
- Fuel tank mounted low in frame and centered to ensure balanced lifting and low center of gravity.
- The fuel filler is located within the containment basin, minimizing possible spillage.
- Standard primary fuel / water separator and fine micron secondary fuel filter keep contaminates out of the system and increase reliability.
- The containment system features a three-inch drain plug for easy cleaning, and the fuel tank is equipped with a drain plug mounted behind the containment plug for easy cleaning.
- Leak-proof fuel vents eliminate the potential for fuel purge during out-of-level conditions during transport and load / unload.
- Low fuel shutdown ensures the engine will not lose prime if it runs out of fuel.
- Diesel Exhaust Fluid (DEF) tank sized for a minimum of 24 hour runtime.

Running Gear

- Integrated running gear system mounts directly to generator skidbase providing an industry-best low center of gravity for safe, stable towing, on-road or off-road.
- Tandem axle torsion suspension with E-Z-Lube hub assemblies and electric brakes or optional hydraulic surge brakes.
- All models feature high quality, grommet-mount lighting and meet Federal Motor Vehicle Safety Standards for lighting and conspicuity.
- Trailer-to-vehicle connector is a 7-pole “SAE J560 plug with a high quality, jacketed wiring harness.
- All units are equipped with a 3-inch pintle eye or optional 2-5/16” ball hitch, heavy duty safety chains and a high quality, heavy-duty jack stand.

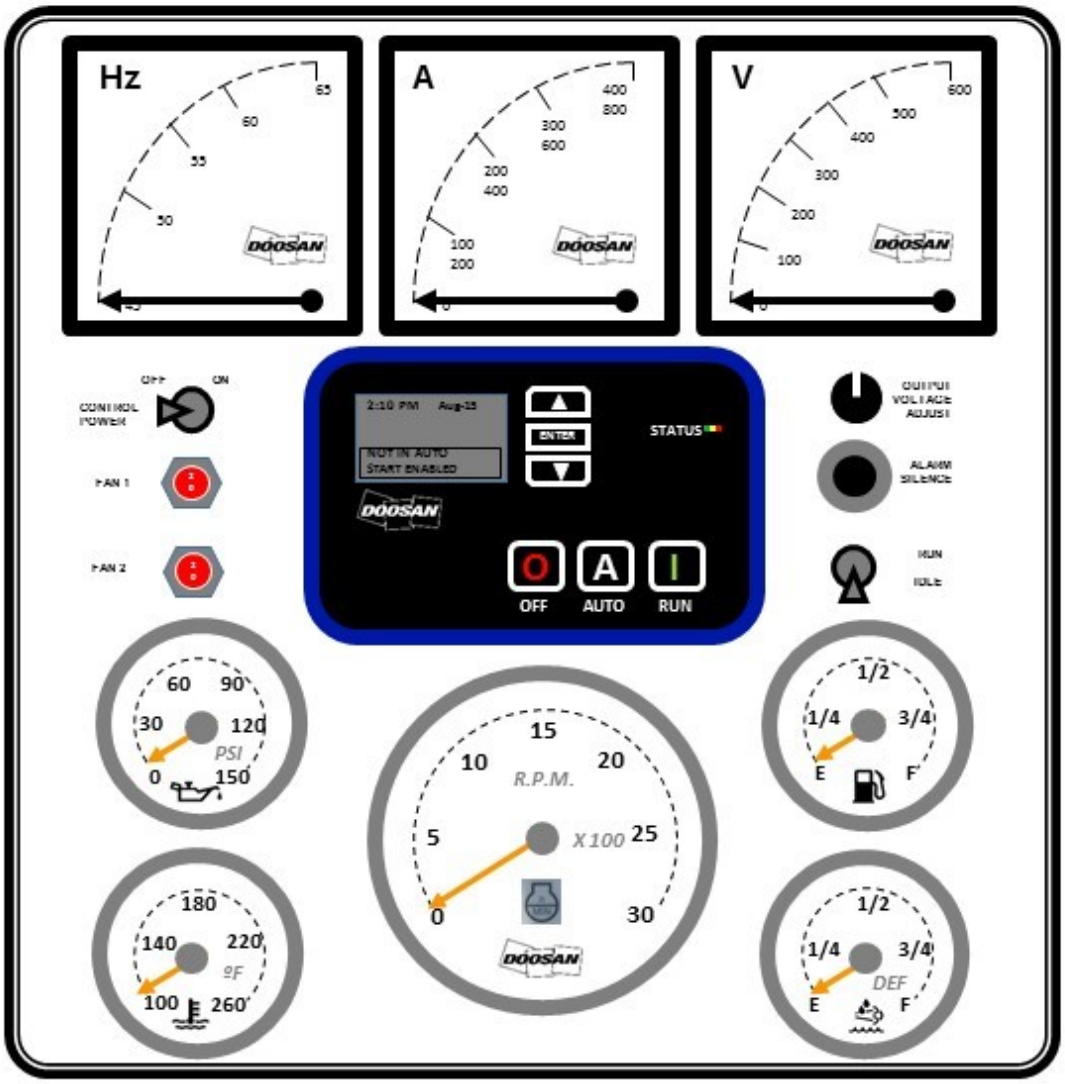
Options

- Doosan models can be equipped with a broad array of optional equipment to meet the need of specific applications. Common selections include:
  - Cold start options including engine coolant heater, battery pad warmers, and heated crankcase breather systems
  - Three-way fuel valve for connection to a remote fuel tank
  - Battery charger
  - Running gear options including rear stabilizer jacks, drawbar-mounted tool box and spare tire.

Warranty

- All models are covered by a comprehensive limited warranty:
  - Package: 1 year / 2000 hours
  - Cummins Engine: 1 year / unlimited hours or 2 years / 2000 hours
  - Leroy SomerAlternator: 2 years / 4000 hours

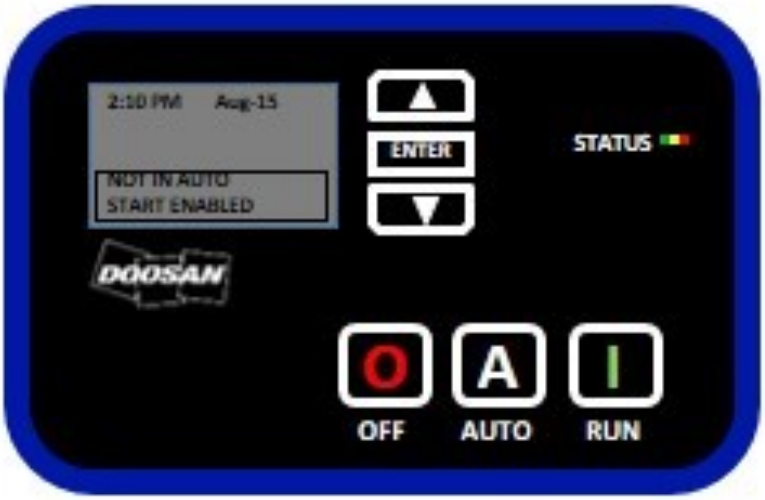
Operator Panel



Operator Panel Features

1. Tachometer: 0-3000 RPM scale
2. Oil Pressure: 0-150 PSI scale
3. Coolant Temperature: 100º-260ºF scale
4. Fuel Level: E-1/4-1/2-3/4-F scale
5. Diesel Exhaust Fluid (DEF) Level: E-1/4-1/2-3/4-F scale
6. Control Power On / Off Switch
7. Engine Compartment Cooling Fan Circuit Breakers
8. Alarm Silence Button (optional)
9. Voltage Adjustment Control
10. Run / Idle Control Switch
11. TG410 Controller
12. Frequency-meter: 45-65 Hz scale
13. AC Ammeter: Dual scale: 0-400A @ 480V / 0-800A @ 208V
14. AC Voltmeter: 0-600 V scale

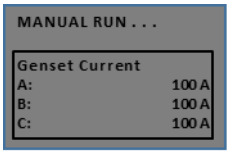
TG410 Automatic Start Stop Controller

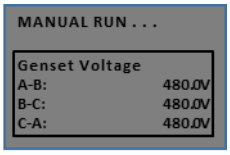


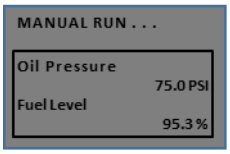
TG410 Genset Controller Features

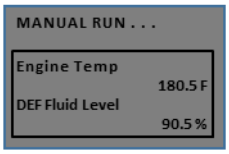
Functionality

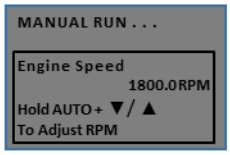
- Automatic shutdowns and warnings
- Manual and remote autostart
- Engine speed adjustment
- Aftertreatment conditioning controls and status Icons
  Auto / Force / Inhibit
- SAE J1939 electronic engine communication
- Engine Fault Code Annunciation
  SPN / FMI / OC
- 150 Event Fault Log
- Isolated RS 485 Modbus communication capable
- NFPA 110 Level 1 capable
- Maintenance counter
- Autostart on low battery capable
- Exerciser clock
- Automatic, inverse time delay overcurrent protection

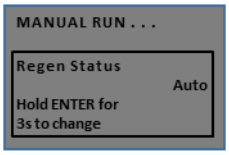


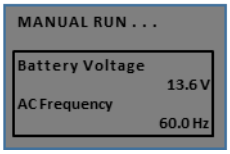


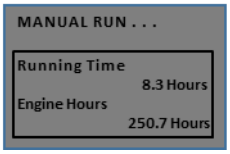












Form Factor

- 6-Button control
- 6-Line LCD Display with user adjustable contrast and temperature compensation from -4ºF (-20ºC) to 158ºF (70ºC)
- 1 Multicolor (Red/Yellow/Green) Status LED
- Front Gasket Seal for water ingress prevention to IP65 protection
- Conformal coated circuit board for protection against moisture and contaminants
- Rugged polycarbonate enclosure designed to survive extreme applications and abuse
- Controller functions in ambient conditions ranging from -40ºF/C to 158ºF (70ºC)
- Meets or exceeds SAE J1113-11 with respect to electrical transients
- Meets or exceeds SAE J1455 with respect to vibration, thermal shock and cycling
- Meets or exceeds MIL-STD-461E with respect to electromagnetic compatibility
- Maximum 600V AC, true RMS sensing, +/- 1% full scale accuracy
- Current sensing, +/- 2% full scale accuracy

Engine Data		
Engine Manufacturer	Cummins	
Model Number	QSB7-G9	
Prime Output @ 1800 RPM	282 bhp	210 kWm
Standby Output @ 1800 RPM	314 bhp	234 kWm
Prime Output @ 1500 RPM	248 bhp	185 kWm
Standby Output @ 1500 RPM	274 bhp	204 kWm
Engine Type	Four Cycle, Inline	
Engine Control	ECU	
Emissions Certification	EPA Tier 4 Final	
Number of Cylinders	6	
Aspiration	Turbocharged / Intercooled / cEGR	
Aftertreatment Technology	Diesel Oxidation Catalyst (DOC) / Selective Catalyst Reduction (SCR)	
Bore × Stroke	4.21 x 4.88 in	107 x 124 mm
Displacement	409 in^3	6.7 L
Compression Ratio	17.3:1	
Governor Type	Isochronous	
Speed Regulation Accuracy	+ / - 0.25% Steady State	
Single Step Load Acceptance	100%	
Cooling System	50% Glycol / 50% Water	
Charging Alternator Output	70A	
DC System Voltage	24 V	
Battery Size / Output	2 × Group 31 / 1000CCA	

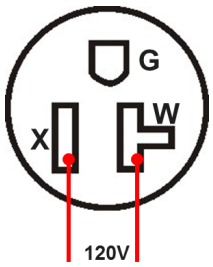
Fluid Capacities	Gal	L
Engine Crankcase Lubricant Capacity	4.5	17
Cooling System Capacity	10	37.9
Usable Fuel Cell Capacity	368	1393
Usable DEF Tank Capacity	24	91

60Hz Fuel Consumption	Gal / h	L / h	Runtime
@ 25% Load	4.1	16.0	89.5
@ 50% Load	7.2	27.0	51
@ 75% Load	10.3	39.0	35.5
@ 100% Load	13.5	51.0	27
DEF Runtime		>24	

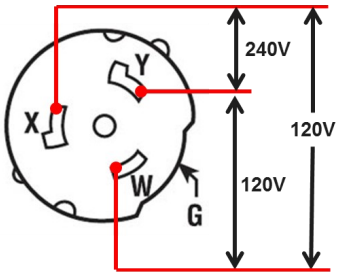
Reference Conditions		
Rated Ambient Temperature	-20ºF—104ºF	-29ºC—40ºC
Minimum Starting Temperature (Standard)	0ºF	-18ºC
Minimum Starting Temperature (w/ Cold Start Opt)	-20ºF	-29ºC
Maximum Altitude		

Alternator Data		
Alternator Manufacturer	Leroy Somer	
Alternator Model	LSA 46.2 M5 C6	
Alternator Type	Four Pole Revolving Field	
Number of Leads	12	
Insulation Class	H	
Winding Pitch	2/3	
Voltage Connection Method	Three Position Voltage Selector Switch	
Excitation Method	Brushless w/ AREP	
Voltage Regulator Model	R450	
Voltage Regulation Accuracy	+/-0.5%	
Maximum Unbalance Load	25%	
Total Harmonic Distortion (THD)	<2.5% @ 0% Load	
Telephone Influence Factor (TIF)	<50	
Motor Starting Capability	**480V**	**600V**
SkVA @ 20% Voltage Dip	325	N/A
SkVA @ 25% Voltage Dip	425	N/A
SkVA @ 30% Voltage Dip	550	N/A
SkVA @ 35% Voltage Dip	700	N/A

Power Connections	
Main Circuit Breaker Thermal Trip Rating	700 A
Overcurrent Trip Setpoint (240V-1Ø)	573 A
Overcurrent Trip Setpoint (208V-3Ø & 240V-3Ø)	675 A
Overcurrent Trip Setpoint (240V-3Ø Delta)	N/A
Overcurrent Trip Setpoint (480V-3Ø)	314 A
Overcurrent Trip Setpoint (600V-3Ø)	N/A
20A—125V GFCI Duplex (NEMA 5-20R) Receptacles	2
50A—125/250V Temp Power (CS6369) Receptacles	3
400A-600V Camlock Connectors (Optional)	2 Sets
Terminal Board Maximum Cable Size (Bare Wire)	4 × AWG 2—600MCM
Terminal Board Maximum Cable Lug Size	1/2 in (12.7 mm)



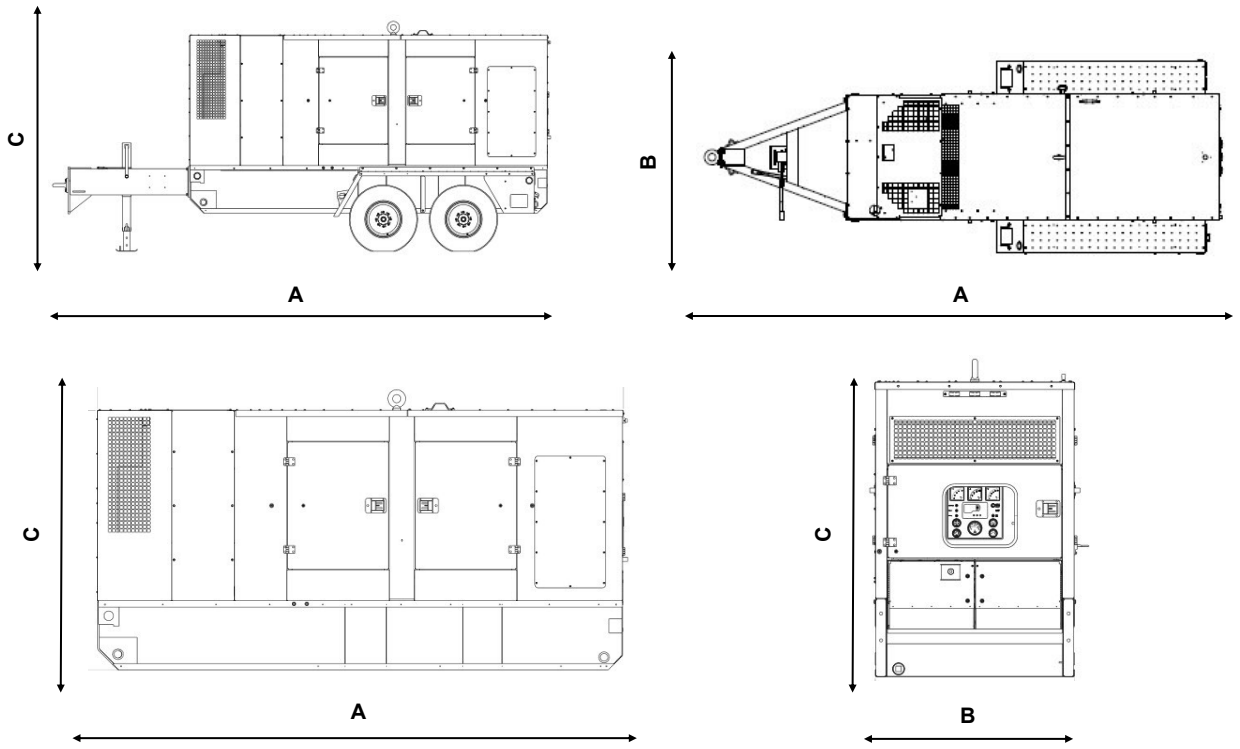
NEMA 5-20R Receptacle



CS6369 Receptacle

Running Gear	To 49CFR571 requirements	
Gross Vehicle Weight Rating (GVWR)	12766 lb	5791 kg
Gross Axle Weight Rating (GAWR)	13668 lb	6200 kg
Configuration	Tandem Axle	
Suspension	Torsion	
Standard Brake System Configuration	Electric	
Optional Brake System Configuration	Hydraulic Surge	
Tires	ST235/80R16, Radial	
Wheels	16” × 6”, 8 lug on 6.5” bolt circle	
Track Width	71.5 in	1815 mm
Lighting and Reflectors	Meets Federal/Canada Motor Vehicle Safety Standard 571.108	
Electrical Connection to Towing Vehicle	7-Pole Round SAE J560 Connector	
Standard Trailer Coupling	3” (78 mm) Pintle Eye	
Optional Trailer Coupling	2-5/16-Inch Ball Coupler	
Hitch Height	4-Position Adjustment 20.5 in—34 in	
Safety Chains	2 × 3/8” with slip hooks and safety latches	
Jack Stand Configuration	Fixed Mount, 10000 lb Capacity	

Package Data	With Running Gear		Skidmount	
Length (A)	224 in	5689 mm	161 in	4090 mm
Width (B)	83.2 in	2114 mm	53.7 in	1365 mm
Height (C)	102.9 in	2615 mm	85.9 in	2181 mm
Weight (Shipping)	8690 lb	3950 kg	lb	kg
Weight (Ready to Run)	11377 lb	5172 kg	lb	kg
Sound Level @ 23ft (7m), 100% Load	**69 dB(A)**			

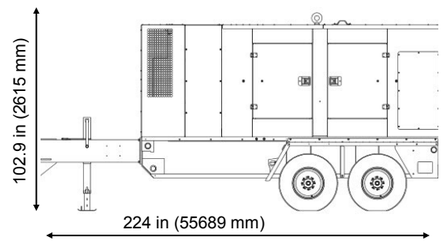


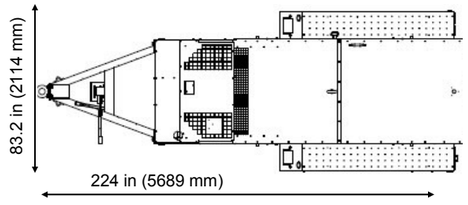
Doosan Portable Power
1293 Glenway Drive
Statesville, NC 28625

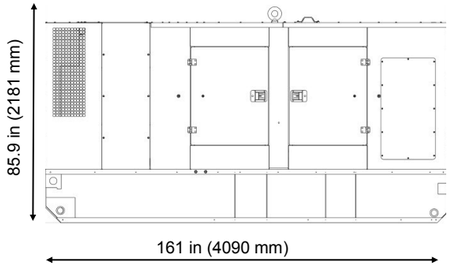
(800) 633-5206
DoosanPortablePower.com

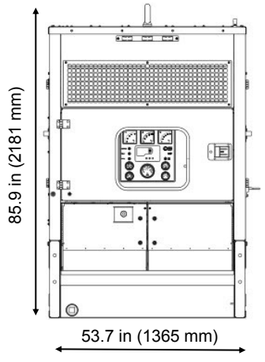
G240WCU-3A-T4F Mobile Generators

Running Gear	To 49CFR571 requirements	
Configuration	Tandem Axle	
Suspension	Torsion Bar	
Standard Brake System Configuration	Electric	
Tires	ST235/80R16E	
Wheels	8 Lug - 16” x 6”	
Lighting and Reflectors	Federal/Canada Motor Vehicle Safety Standard 108	
Electrical Connection to Towing Vehicle	Round 7-way SAE J560 (commercial semi-trailer)	
Standard Coupling Connection	3” (78 mm) Pintle Eye	
Hitch Height		
Safety Chains	2 × 3/8” (10 mm) Chains with slip hooks and safety latches	
Jack Stand Configuration	10,000 lb (4536 kg) capacity, side wind with sand shoe, fixed mount	
Weights & Dimensions (w/ Running Gear)		
Length	224”	5689 mm
Width	83.2”	2114 mm
Height	102.9”	2615 mm
Weight (Shipping)	8,555 lbs	3,880 kg
Weight (Ready to Run)	11,132 lbs	5,049 kg
Weights & Dimensions (Less Running Gear)		
Length	161”	4090 mm
Width	53.7”	1365 mm
Height	85.9”	2181 mm
Weight (Shipping)	7,197 lbs	3,264 kg
Weight (Ready to Run)	9,774 lbs	4,433 kg
Sound Level @ 23ft (7m), 100% Load	68 dB(A)	









Due to continuous product improvement, specifications subject to change without notice.

Doosan Infracore Portable Power
1293 Glenway Drive
Statesville, NC 28625

(800) 633-5206
DoosanPortablePower.com

G240WCU-3A-T4F

Mobile Generators

Key Features

- Designed and manufactured in Statesville, North Carolina, USA.
- Heavy duty mobile generator system designed for prime power operation in rental, construction and special events applications.
- Generator is CSA certified for electrical equipment per C22.2, No. 14.

Skidbase and Enclosure

- Package foundation is a heavy duty, oilfield-ready skidbase
- 110% Environmental Containment design prevents any leakage of fuel or oil from the package while ensuring near zero water ingression into the containment area, even during operation in the heaviest rain conditions.
- Innovative enclosure design separates the powertrain and the cooling system into separate compartments to achieve super quiet operation and full power output at high ambient temperatures without de-rating.
- The enclosure is coated with a 13 stage paint process including E-coat primer for superior corrosion resistance and a high gloss powder paint for long life.
- Wide opening access doors are side hinged, providing easy access and are equipped with recessed, pad-lockable handles and safety latches to hold doors open during servicing.
- Package is equipped with a center-point lifting eye for safe, well-balanced hoisting, designed with a 5 x safety factor for the weight of a fully fueled unit with running gear.

Engine and Cooling System

- Heavy-duty Cummins diesel engine is emissions certified to EPA Tier 4 Final and CARB requirements and provides optimum mix of performance and fuel economy.
- Dual frequency capability allows operation at 50 hertz or 60 hertz with the flip of a switch.
- Electronically controlled engine provides isochronous frequency control and advanced diagnostic monitoring and protection.
- Oversized cooling system and high efficiency radial cooling fan improves fuel economy, reduces sound level and achieves high ambient temperature (minimum 40ºC/104ºF) operation without de-rating.
- The engine generator assembly is mounted on fail-safe vibration isolators.
- Coolant and oil drains are piped to bulkhead fittings mounted on the enclosure and all filters and maintenance points are easily accessed for safe and easy servicing.
- Engines are globally supported by the engine OEM and Doosan Portable Power.

Generator

Voltage / Frequency	P.F.	Armature Connection	Prime Power Rating			Standby Power Rating		
			Amps	kW	kVA	Amps	kW	kVA
600V-3Ø-60Hz	0.8	Series Wye	N/A	N/A	N/A	N/A	N/A	N/A
480V-3Ø-60Hz	0.8	Series Wye	286	190	238	314	209	261
240V-3Ø-60Hz	0.8	Parallel Wye	571	190	238	628	209	261
208V-3Ø-60Hz	0.8	Parallel Wye	608	175	219	669	193	241
240V-1Ø-60Hz	1.0	4 Wire	243	175	175	268	193	193
		Zig-Zag	454	109	109	500	120	120
120V-1Ø-60Hz	1.0	4 Wire	486	175	175	536	193	193
		Zig-Zag	454 × 2	109	109	500 × 2	120	120
400V-3Ø-50Hz	0.8	Series Wye	274	152	190	302	167	209

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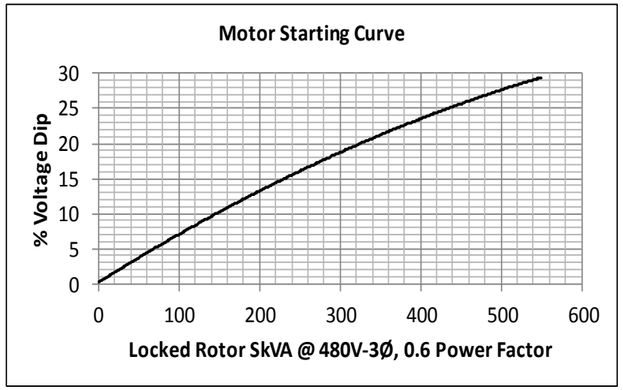
Doosan Infracore
Portable Power

- Leroy Somer alternators feature AREP brushless excitation providing industry leading motor starting kVA and 300% overload capability.
- R450M automatic voltage regulator provides precision control of voltage level and fast response to load changes.
- Class H insulation with upgraded environmental coating for ultimate resistance to high temperature and humidity.
- Three position Voltage Selector Switch (VSS) to easily configure the units for operation at most common voltages.



Control System

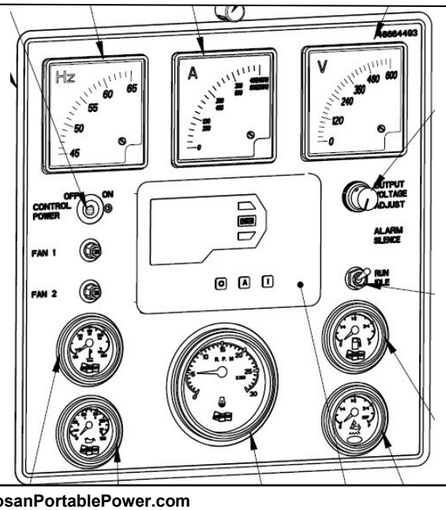
- A complete array of operator-preferred analog gauges provide at-a-glance monitoring of vital engine and generator parameters.
- Solid state engine control module provides convenient, microprocessor-controlled startup at the push of a button and protects the generator system from an array of faults while providing the operator with indication of any faults on the LED display.
- Standard Run / Idle selector switch allows operators to start and warm up the generator at low engine speed to prevent excess engine wear when operating in cold climates.
- Engine Diagnostic Trouble Codes (DTCs) are displayed on the LCD screen, providing operators and technicians with a numeric and text explanation of the fault code, minimizing the need for expensive hand-held code scanners.
- Standard remote Auto Start / Stop capability via two wire, closed contact logic, allows for connection to automatic transfer switchgear and other remote starting devices.
- Industry exclusive Voltage Selector Switch (VSS) protection feature prevents switching the VSS while generator is operating.
- Pad-lockable battery disconnect switch is mounted inside the enclosure.

Power Connections

- All controls and connection points are grouped at the rear of the unit for safety and operator convenience.
- Power cables are connected at an oversized five lug (L1 L2 L3 N PE) terminal board capable of accepting bare end cable or terminated cables.
- Convenience receptacle panel includes individual branch circuit breakers.
- Optional camlock panel includes two panel mounted sets of 400A female connectors to further expand connection capabilities.

Fuel System

- Single fuel tank sized for 24 hour runtime at full load is mounted within the skid base, providing double wall protection.
- Fuel tank mounted low in frame and centered to ensure balanced lifting and low center of gravity.
- The fuel filler is located within the containment basin, minimizing possible spillage.
- Standard primary fuel / water separator and fine micron secondary fuel filter keep contaminates out of the system and increase reliability.
- The containment system features a three-inch drain plug for easy cleaning, and the fuel tank is equipped with a drain plug mounted behind the containment plug for easy cleaning.
- Leak-proof fuel vents eliminate the potential for fuel purge during out-of-level conditions during transport and load / unload.
- Low fuel shutdown ensures the engine will not lose prime if it runs out of fuel.



Control Panel Features

1. Tachometer: 0-3000 RPM scale
2. Oil Pressure: 0-150 PSI scale
3. Coolant Temperature: 100º-260ºF scale
4. Diesel Exhaust Fluid (DEF) Level: E-1/4-1/2-3/4-F scale
5. Fuel Level: E-1/4-1/2-3/4-F scale
6. Panel Lamp
7. Hourmeter 0-99999.9 scale
8. Alarm Silence Button (optional)
9. Run / Idle Control Switch
10. TG410 Controller
11. Frequency-meter: 45-65 Hz scale
12. AC Ammeter: Dual scale: 0-400 A @ 480V / 0-800A @ 208V
13. AC Voltmeter: 0-600 V scale
14. Voltage Adjustment Control
15. Control Panel Power Switch

Running Gear

- Integrated running gear system mounts directly to generator skidbase providing an industry-best low center of gravity for safe, stable towing, on-road or off-road.
- Tandem axle torsion suspension with E-Z-Lube hub assemblies and electric brakes.
- All models feature high quality, grommet-mount lighting and meet Federal Motor Vehicle Safety Standards for lighting and conspicuity.
- Trailer-to-vehicle connector is a 7-pole round (SAE J560) plug with a high quality, jacketed wiring harness.
- All units are equipped with a 3-inch pintle eye, wheel chocks and a high quality, heavy-duty jack stand.

Warranty

- All models are covered by a comprehensive limited warranty:
  - Package: 1 year / 2000 hours
  - Cummins Engine: 1 year / unlimited hours
  - Leroy Somer Alternator: 2 years / 4000 hours

Engine Data		
Engine Manufacturer	Cummins	
Model Number	QSB7-G9	
Prime Output @ 1800 RPM	282 HP	210 kWm
Standby Output @ 1800 RPM	314 HP	234 kWm
Prime Output @ 1500 RPM	248 HP	185 kWm
Standby Output @ 1500 RPM	274 HP	204 kWm
Engine Type	Four Cycle, Inline	
Engine Control	ECU	
Emissions Certification	EPA Tier 4F/ EU Stage 3A	
Number of Cylinders	6	
Aspiration	Turbocharged / Charge Air Cooled	
Bore × Stroke	4.21 × 4.88 in	107 × 124 mm
Displacement	409 in^3	6.7 L
Compression Ratio	17.3 : 1	
Governor Type	Electronic / Isochronous	
Speed Regulation Accuracy	+ / - 0.25% Steady State	
Single Step Load Acceptance	100%	
Cooling System	50% Glycol / 50% Water	
Charging Alternator Output		
DC System Voltage	24 V	
Battery Output	1000 CCA	

Fluid Capacities	Gal	L
Oil Sump Capacity	4.5	17
Cooling System Capacity	10	38
Usable Fuel Cell Capacity	368	1,394
DEF Tank Capacity	25	94.6

60Hz Fuel Consumption	Gal / h	L / h	Runtime
@ 25% Load	4.1	15.5	89.8
@ 50% Load	7.2	27.3	51.1
@ 75% Load	10.3	39.0	35.7
@ 100% Load	13.5	51.1	27.3

Alternator Data	
Alternator Manufacturer	Leroy Somer
Alternator Model	LSA 462 M5
Alternator Type	Four Pole Revolving Field
Number of Leads	12
Insulation Class	H
Frequency	50 Hz or 60 Hz
Available Voltages—3Ø	208 / 240 / 400 / 416 / 480 V
Available Voltages—1Ø	120 / 139 / 230 / 240 / 277 V
Voltage Connection Method	Voltage Selector Switch
Excitation Method	Brushless with AREP
Voltage Regulator Model	R450M
Voltage Regulation Accuracy	+ / - 0.5% Steady State
Total Harmonic Distortion (THD)	<5% at No Load
Telephone Influence Factor (TIF)	<50

Power Connections	Qty
Main Circuit Breaker Thermal Trip Rating (208V)	700 A
Overcurrent Relay Thermal Trip Rating (480V)	330 A
20A—125V GFCI Duplex (NEMA 5-20R)	2
50A—125/250V Temp Power (CS6369)	3
400A-600V Camlock Connectors (Optional)	2 per Phase
Terminal Board Maximum Cable Size (Bare Wire)	600MCM × 4 per Phase
Terminal Board Maximum Cable Size (Lugged)	1000 MCM

Reference Conditions		
Rated Ambient Temperature	-20ºF—105ºF	-29ºC—40ºC
Minimum Starting Temperature (Standard)		0ºF (-18ºC)
Minimum Starting Temperature (w/ Cold Start Opt)		-20ºF (-29ºC)

Central Power Systems & Services

Provider of:

MTU Onsite Energy

Engineering Data and Proposal
This proposal has been prepared specifically for:

Atlas Electric L.L.C.
In Regards to the
City of Wichita Generator Docking Stations
Tap Boxes

It contains all the necessary literature, drawings and component information for the following equipment:

(13) PSI Generator Tap Boxes
At 480V 3 Phase Rated 400 Amps
Color Coordinated Female Cam Locks

GENERATOR TAP BOX SPECIFICATION

I. General

A Scope

A.1- This specification defines the requirements for Generator Tap Boxes assembled by PSI Control Solutions.
A.2- Generator Tap Boxes provided by PSI Control Solutions shall be completely assembled by a certified ISO facility. PSI Control Solutions is ISO9001 certified. Number-C0098005-IS1.

B Purpose

B.1- The purpose of the Generator Tap Box when installed properly is to provide an easy means to quickly connect a temporary generator to a site due to utility or other power source failure.
B.2- The Generator Tap Box shall be installed on the building exterior and be hardwired to the main switchboard or transfer switch.

C Quality

C.1- Generator Tap Boxes shall be completely assembled and undergo a functional test procedure prior to shipment from PSI Control Solutions. This test shall be documented and included with the Generator Tap Box.
C.2- All Generator Tap Boxes shall be built in accordance with the National Electric Code.
C.3- Generator Tap Boxes that require a UL label shall be built in accordance with UL508A.

D Warranty

D.1- PSI Control Solutions warrants the products manufactured by it and delivered hereunder will be free from defects in material and workmanship for a period of twelve (12) months after date of shipment.

II. Product Requirements

A General

A.1- All components shall be new and free of defects.

B Electrical Ratings

B.1-Generator Tap Boxes shall be rated for single phase 100-240VAC and three phase 208-600VAC.
B.2-Generator Tap Boxes shall be available in an ampacity range of 400-4000A.
B.3-Generator Tap Boxes shall be available in both three and four wire configurations.

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C Enclosure

C.1- Enclosure shall be NEMA Type 3R, wall-mount with welded mounting tabs or free-standing with mounting feet.
C.2- Enclosure material shall be galvanized steel with RAL7035 light-gray finish or Type 316 stainless-steel.
C.3- Enclosure shall have both a hinged front access door with padlockable wing knob latch, and hinged bottom access door for cable entry. Bottom access door shall have rubber bumpers to limit range of motion.
C.4- Enclosure shall have two louvered side vents for additional airflow.
C.5- Enclosure shall have a ten-gauge interior angled shelf with welded support brackets and cutouts for interchangeable cam-plates.
C.6- Enclosure shall have removable cover secured with slotted hex head screws.
C.7- Enclosure bottom access door is mechanically interlocked with front door and cannot be opened unless front door is opened.

D Cam-Plates

D.1- Cam-plates shall be ten-gauge galvanized steel with RAL7035 light-gray finish or Type 316 stainless-steel.
D.2- Cam-plates shall be interchangeable with hole-cutouts for E1016 Cam-Lok receptacles.
D.3- For single phase or three-wire applications, a blank cam-plate shall be installed in the empty cutout.

E Cam-Lok Receptacles

E1- Cam-Lok receptacles shall be insulated single pole, Cooper E1016 series, male or female with a single hole busbar connection.
E.2- Cam-Lok receptacles shall be color coded for each phase depending upon system voltage.

Phase Conductors
208-240VAC-Black, Red, Blue
480VAC-Brown, Orange, Yellow
575/600VAC-Black, Black, Black
Neutral Conductor-White
Ground Conductor-Green

E.3- Ground Cam-Lok receptacles shall be bonded to the enclosure.

F Busbar

F.1-Busbar shall be tin-plated copper with mounting holes for mechanical lugs or boltholes for compression lugs.
F.2-Busbar shall be sized at 1000A/sq. in.

G Lugs

G.1- Lugs for permanent conductors shall be aluminum, dual rated, with a mechanical screw.

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G.2- Lugs shall accept a wire-range of (1) #2-750 MCM.

III. Execution

A Installation

A.1- The Generator Tap Box shall be installed correctly according to the provided manual and in an appropriate location.
A.2- Wall-mounted Generator Tap Boxes shall be installed on a building exterior or equivalent.
A.3- Free-standing Generator Tap Boxes shall be installed on a flat, level surface.
A.4- Installation shall be in accordance with all applicable codes and standards.

B Cable-Entry

B.1- Enclosure penetrations for cable entry shall be used with appropriate components to maintain the NEMA 3R rating.

C Use

C.1-When the Generator Tap Box is properly installed and ready to accept a portable generator, the installer should follow operational instructions specified in the manual provided.

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GENERATOR TAP BOX OPERATING INSTRUCTIONS

WARNING

USER SHOULD READ THROUGH INSTALLATION MANUAL BEFORE OPERATING TO AVOID INJURY OR EQUIPMENT DAMAGE.

1. Insure Generator Tap Box is installed & wired properly per Installation Manual.
2. Insure the portable generator is not energized.
3. Open bottom generator cable access door.
4. The 1200 Amp 4-Wire Generator Tap Box will have three (3) wires per phase (L1, L2, L3, N) and one ground.
5. Securely install the color coded MALE generator cord ends into the Generator Tap Box FEMALE receptacles:
    a. L1 – Brown Receptacle
    b. L2 – Orange Receptacle
    c. L3 – Yellow Receptacle
    d. N – White Receptacle
    e. G – Green Receptacle
6. Once **all** the receptacles are securely installed the Generator Tap Box is ready to use.

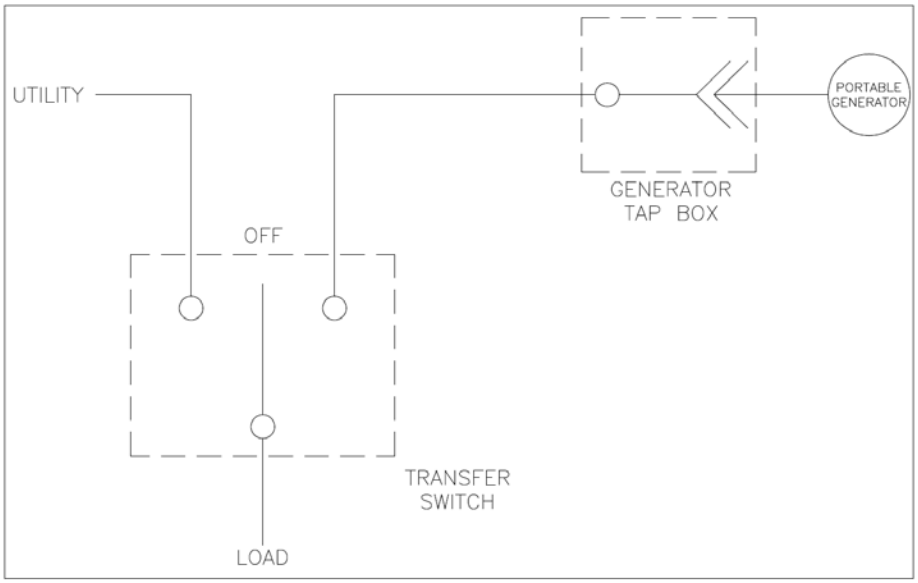

Figure 1
Typical Generator Tap Box Application

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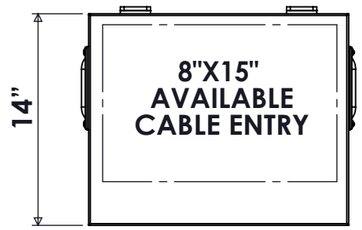
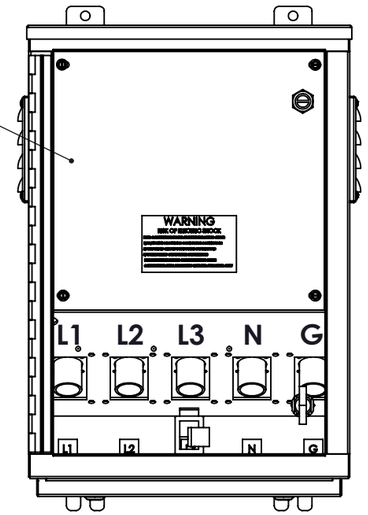
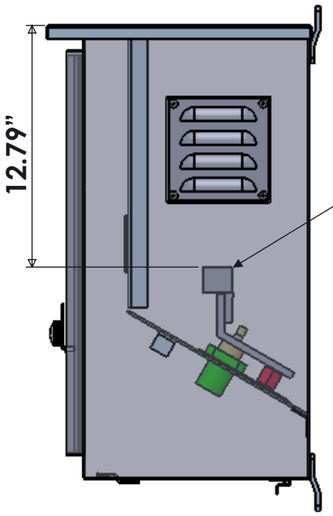


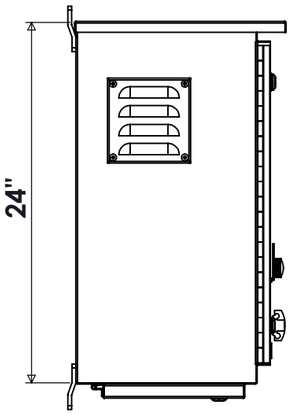
TOP VIEW



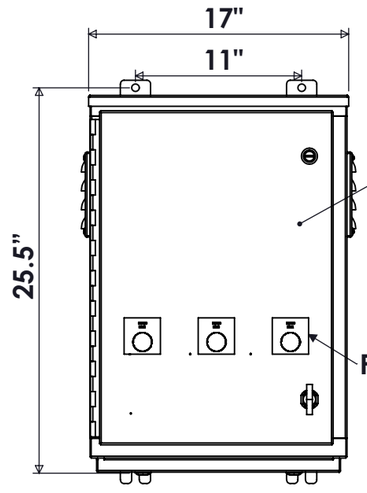
FRONT VIEW
DOOR REMOVED



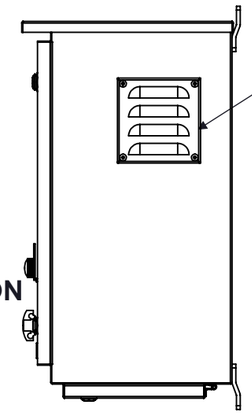
SIDE VIEW
INTERIOR



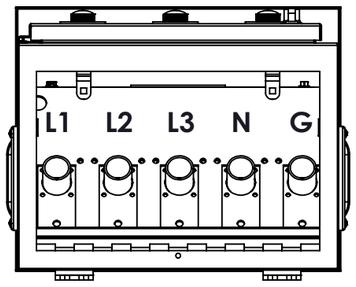
SIDE VIEW



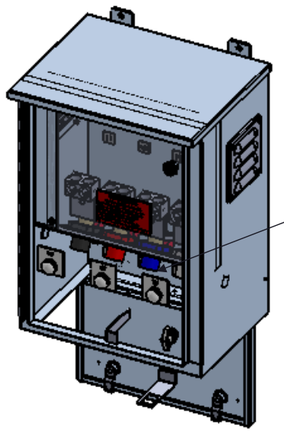
FRONT VIEW



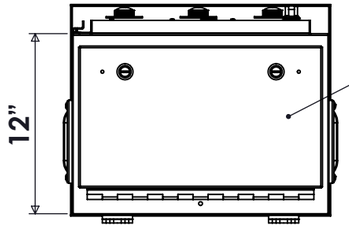
SIDE VIEW



BOTTOM VIEW
DOOR REMOVED



TRIMETRIC VIEW
INTERIOR



BOTTOM VIEW

RECEPTACLE COLOR SCHEME

	L1	L2	L3	N	GND
240V	BLK	RED	BLU	WHT	GRN
480V	BRN	ORG	YEL	WHT	GRN
600V	BLK	BLK	BLK	WHT	GRN

NOTES

1. ENCLOSURE RATED NEMA 3R
2. 3Φ, 4-WIRE SHOWN. ALTERNATE CONFIGURATIONS AVAILABLE
3. MAX VOLTAGE- 600VAC
4. DOOR INTERLOCK- BOTTOM DOOR CAN NOT OPEN UNLESS MAIN DOOR IS OPENED FIRST.

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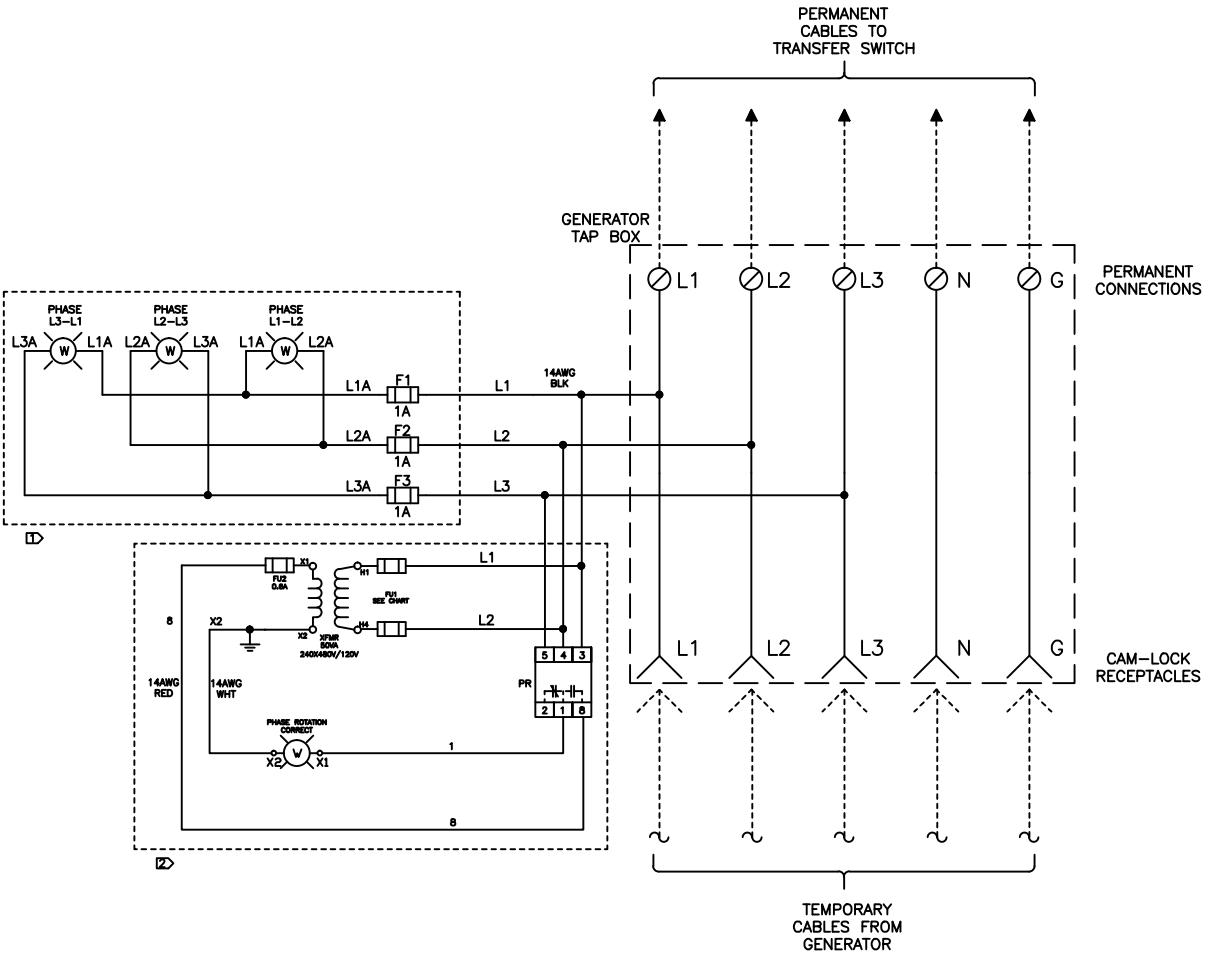
400A, NEMA 3R GENERATOR TAP BOX

REV	DESCRIPTION	DATE	
0	ORIGINAL RELEASE	10/15/15	DRAWN S.RICHARDSON
			CHECKED
			SUP. NO
			SUP. BY NO
			PANEL NO
			BUL. NO
			GROUP NO
			ORDER NO

DRAWING TYPE
DIMENSIONAL

DRAWING NUMBER
PL400GTB3RBM

SHEET 1 OF 1



NOTES

1. ADDITIONAL OPTION FOR UL CERTIFICATION
2. PHASE REVERSAL PROTECTION OPTION

AMP.	CAM–LOCK QTY
400	1
800	2
1200	3
1600	4
2000	5
2400	6
2800	7
3200	8
4000	10

FUSE SIZING FU1

VAC	A
208/240	0.6A
480	0.3A

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GENERATOR TAP BOX

REV	DESCRIPTION	DATE
A	ORIGINAL RELEASE	10/2/14
B		
C		
D		
E		
F		
G		

DRAWN S.RICHARDSON
CHECKED J.RAY
SUP. NO.
SUP. BY NO.
PANEL NO.
BUL. NO.
GROUP NO.
ORDER NO.
ENGR. APP.
SUPR. APP.

ES11GTB5

COMPUTER GENERATED TRACING