

## CAT Class: Diesel Generator 140kW/175kVA



Machine Model: **QAS 175 FD T4F PRS**

### Configuration:

- QAS 175 FD T4F PRS : Base Machine
- Fuel Autonomy : 29.1 Hrs.
- AREP+ Excitation System : Standard
- Class H Alternator : Standard
- Digital AVR : Standard
- DEIF Qc4004 Controller + TDU Display : Standard
- Paralleling cubicle : Standard
- 4-Position Voltage Selector Switch : Standard
- Emergency stop : Standard
- DOT approved dual axle trailer with electric brakes : Standard for ES
- Convenience receptacles (120V&240V) : Standard for ES (2\* 120V & 3\* 240V)
- Block heater : Standard for ES
- Battery Charger : Standard for ES
- External Fuel Tank Connections : Standard for ES
- External DEF Transfer System : Standard for ES
- 110% Fluid Containment Frame : Standard for ES
- Battery cut off switch : Standard for ES
- Camlocks : Standard for ES
- Internal Lights : Standard for ES
- Rental Ready Package : Standard for ES
  - ES Brand Labels
  - ES Specification Fire Extinguisher
  - ES MC4+ Telematics
  - ES Specification solar trickle charger

## CAT Class: Diesel Generator 190kW/235kVA



Machine Model: **QAS 235 FD T4F PRS**

Configuration:

- QAS 235 FD T4F PRS : Base Machine
- Fuel Autonomy : 19.2 Hrs.
- AREP+ Excitation System : Standard
- Class H Alternator : Standard
- Digital AVR : Standard
- DEIF Qc4004 Controller + TDU Display : Standard
- Paralleling cubicle : Standard
- 4-Position Voltage Selector Switch : Standard
- Emergency stop : Standard
- DOT approved dual axle trailer with electric brakes : Standard for ES
- Convenience receptacles (120V&240V) : Standard for ES (2\* 120V & 3\* 240V)
- Block heater : Standard for ES
- Battery Charger : Standard for ES
- External Fuel Tank Connections : Standard for ES
- External DEF Transfer System : Standard for ES
- 110% Fluid Containment Frame : Standard for ES
- Battery cut off switch : Standard for ES
- Camlocks : Standard for ES
- Internal Lights : Standard for ES
- Rental Ready Package : Standard for ES
  - ES Brand Labels
  - ES Specification Fire Extinguisher
  - ES MC4+ Telematics
  - ES Specification solar trickle charger



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## Standard Scope of Supply

**United MHC's QAS 175-235 FD T4F** generators are prime power, multi-voltage, sound attenuated, mobile generators. They are powered by an FPT T4 Final liquid-cooled, six-cylinder diesel engine.

The units consist of an alternator, diesel engine, cooling system, electrical distribution and control systems - all enclosed within a sound attenuated enclosure.

Special attention has been given to the overall product quality, user friendliness, ease of serviceability, and economical operation to ensure best in class total cost of ownership.

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## Available Models

QAS 175 FD  
QAS 235 FD

Multiple voltage – 175 kVA prime power – FD engine  
Multiple voltage – 234 kVA prime power – FD engine

## Standard Features

- Compact, sound attenuated, corrosion resistant, with single point lifting and 110% fluid containment
- Dual axle trailer as standard
- Heavy Duty alternator with AREP+ excitation and reinforced winding protection (system 2)
- Single side service with long run filters and 500-hour service intervals
- FPT N67TEVP01/02 engine models with DOC+SCRoF+CUC aftertreatment
- Battery Charger (24V, 12A)
- External Fuel Tank connections (3-way valve) located inside the enclosure
- External DEF Transfer System located outside the enclosure
- Identical enclosures and maintenance points between models
- Emergency Stop
- Remote signal Start / Stop

## Benefits

- Extremely durable and environmentally sensitive, designed to be used for everything from the oil field to special event power
- Versatility, giving you the flexibility to match your machine to the correct application
- Start-up power for the most demanding sites with 300% overload starting capabilities and
- Heavy duty oil, air and fuel filters extend the maintenance interval to 500 hours for reduced total cost of ownership
- Proven engine platform with high reliability and durability
- On board charger to ensure the battery is always ready for service
- Flexibility to work with an external and larger fuel tank for extended autonomy
- Electric DEF pump automatically controlled by Qc4004 controller for optimal external transfer system
- Reduces stock of service kits and inventory of parts with rental ROI kept in mind
- External, recessed emergency stop for increased safety
- Allows connection as a critical back-up unit via a 2-wire dry contact connection in the distribution panel



### Technical Data<sup>1</sup>

Generator	Units	QAS 175 FD		QAS 235 FD	
Frequency	Hz	50	60	50	60
Rated Prime Power @ 400V/50Hz & 480V/60Hz 3Ø	kW / kVA	126/158	140/175	164/205	187/234
Rated Standby Power @ 400V/50Hz & 480V/60Hz 3Ø	kW / kVA	133/166	154/193	181/226	206/258
3Ø Power Factor		0.8	0.8	0.8	0.8
3Ø Voltage @ 480V 60Hz (Series Star w/Neutral)	V	-	480Y/277	-	480Y/277
Amp Capacity @ 480V 60Hz	A	-	210	-	281
3Ø Voltage @ 240-208V 60Hz (Parallel Star w/	V	-	240Y/120 – 208Y/120	-	240Y/120 – 208Y/120
Rated Prime Power @ 240V 3Ø	kW / kVA	-	140/175	-	187/234
Amp Capacity @ 240V 3Ø	A	-	421	-	562
Rated Prime Power @ 208V 3Ø	kW / kVA	-	130/163	-	172/215
Amp Capacity @ 208V 3Ø	A	-	451	-	597
Rated Prime Power 1Ø	kW / kVA	-	76/76	-	100/100
1Ø Power Factor		-	1.0	-	1.0
1Ø Voltage @ 120-240V 60Hz (Zig-Zag)	V	-	240/120	-	240/120
Amp Capacity @ 240V	A	-	317	-	417
Amp Capacity @ 120V	A	-	2 x 317	-	2 x 417
3Ø Voltage @ 400V 50Hz (Series Star w/Neutral)	V	400Y/231	-	400Y/231	-
Amp Capacity @ 400V 50Hz	A	227	-	296	-
Performance Class (acc. ISO 8528-5:1993)		G2	G2	G2	G2
Single Step Load G2 Acceptance (0-PRP) @60Hz 480V	kW (%)	74 kW (53%)		75 kW (40%)	
Single Step Load Capability @60Hz 480V	kW (%)	140 kW (100%)		187 kW (100%)	
Sound Pressure Level @ 23'(7 m) @ 75% Load <sup>2</sup>	dB(A)	69		69	
Alternator (4 Pole, 12 Wire)	Leroy Somer	TAL 044J		TAL 044M	
Excitation system		AREP+		AREP+	
AVR - Automatic Voltage Regulator model		D350		D350	
AVR's AC voltage regulation accuracy	%	±0.25%		±0.25%	
Insulation		Class H		Class H	
Main Breaker – Rated Current In	A	600		600	
Power Distribution – Terminal Board		5 Wire (L1, L2, L3, N, Ground)		5 Wire (L1, L2, L3, N, Ground)	
Terminal Board Connections		Bare Wire Terminals		Bare Wire Terminals	
Maximum Terminal Cable Size		350MCM		350MCM	
Convenience Receptacles <sup>3</sup>		N/A	(2) NEMA 5-20R (3) 125/250V 50A CS6369	N/A	(2) NEMA 5-20R (3) 125/250V 50A CS6369

Engine	Units	QAS 175 FD		QAS 235 FD	
Model	FPT	N67TEVP02		N67TEVP01	
US EPA Tier		Tier 4 Final		Tier 4 Final	
Displacement	L	6.7		6.7	
Cylinders	#	6		6	
Rated Net Engine Power Output	HP (kW)	189 (141)		243 (181)	
Rated Speed	RPM	1800		1800	
Engine Control		ECU		ECU	
Aspiration		Turbocharged w/ Intercooler		Turbocharged w/ Intercooler	
Engine oil capacity <sup>4</sup>	US Gal (L)	9.51 (36)		9.51 (36)	
Engine coolant capacity	US Gal (L)	15.32 (58)		15.32 (58)	
Maximum Ambient Temperature (@ Sea Level) <sup>5</sup>	°F (°C)	129.2 (54)		129.2 (54)	
Min. Starting Temp (w/o heater)	°F (°C)	5 (-15)		5 (-15)	
Minimum Starting Temperature (with heater) <sup>6</sup>	°F (°C)	-13 (-25)		-13 (-25)	
Electrical System (Negative Ground)	V	24		24	
Engine Alternator Output	A	90		90	
Battery Capacity (Cold Cranking Amps)	A	850		850	

Fuel System	Units	QAS 175 FD		QAS 235 FD		
Fuel Consumption @ 25% load	50Hz / 60Hz	US Gal/hr (L/hr)	1.2 (4.5)	1.4 (5.2)	1.2 (4.5)	1.4 (5.2)
Fuel Consumption @ 50% load	50Hz / 60Hz	US Gal/hr (L/hr)	4.0 (15.0)	4.8 (18.0)	5.3 (19.9)	6.3 (24.0)
Fuel Consumption @ 75% load	50Hz / 60Hz	US Gal/hr (L/hr)	6.0 (22.7)	7.0 (26.4)	7.7 (29.1)	9.1 (34.4)
Fuel Consumption @ 100% load	50Hz / 60Hz	US Gal/hr (L/hr)	7.8 (29.7)	9.1 (34.4)	10.7 (40.3)	12.2 (46.3)
Fuel Type		Ultra-Low Sulfur Diesel ONLY <sup>7</sup>		Ultra-Low Sulfur Diesel ONLY <sup>7</sup>		
Fuel Tank Capacity	US Gal (L)	194 (735)		194 (735)		
Fuel Autonomy @ 75% load and 90% of fuel capacity	Hr	33.9	29.1	22.8	19.2	
DEF Tank Capacity	US Gal (L)	11 (41.6)		11 (41.6)		

<sup>1</sup> All ratings are at a reference condition of 0' altitude and 20°C (72°F)

<sup>2</sup> Measured in accordance with ISO 2151 under free field conditions @ 23ft distance

<sup>3</sup> Please see receptacle voltage configuration in Power Distribution section on page #7

<sup>4</sup> Engine oil to meet CJ-4 (low ash oil)

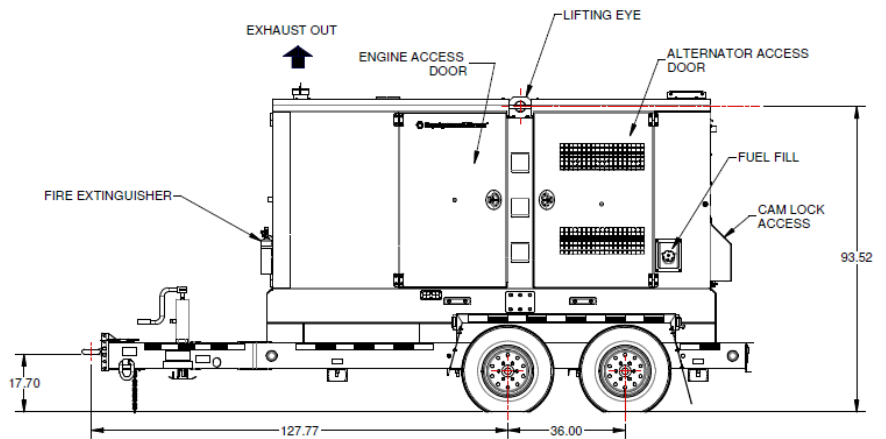
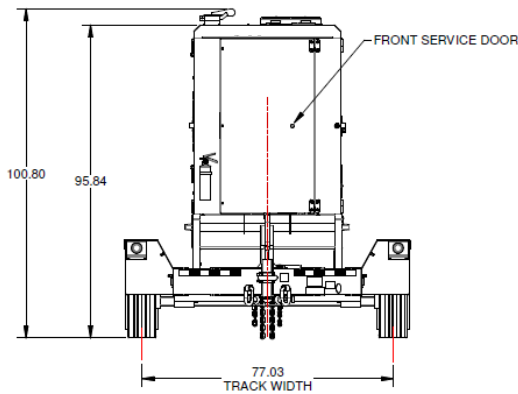
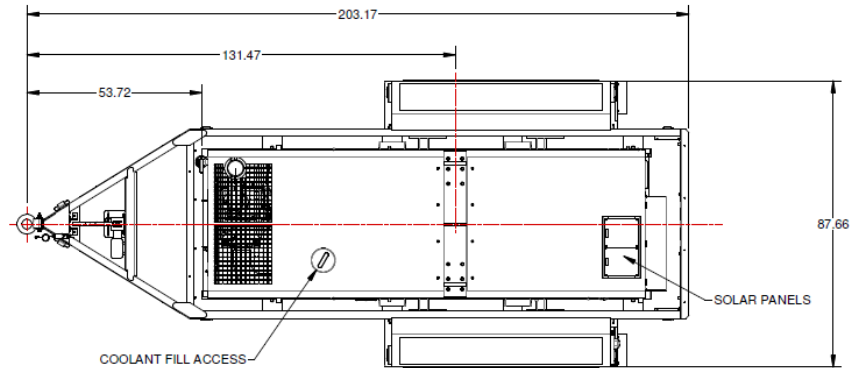
<sup>5</sup> Please see "Derate Table" for altitude and temperature calculations on page #6

<sup>6</sup> Coolant Heater (120V) is a standard feature.

<sup>7</sup> Engine and emissions require the use of Ultra Low Sulfur Diesel in accordance to ASTM-D975 Grade No.1-D S15 & No.2-D S15

## Dimensions

### Trailer Mounted



### Weight - Wet (ready to operate)

Trailer Mounted

### Units

lbs (Kg)

### QAS 175 FD

8658 (3927)

### QAS 235 FD

9001 (4083)

### Dimensions

Trailer Mounted (L x W x H)

Inches

203.2 x 87.7 x 100.8






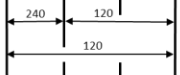


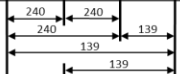


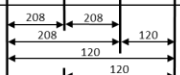


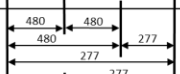


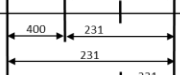


## Power Distribution

The main power is connected from the alternator through a 4-position voltage selector switch to the main power cubicle. The cubicle incorporates all power distribution, controls, sensing and protection devices.

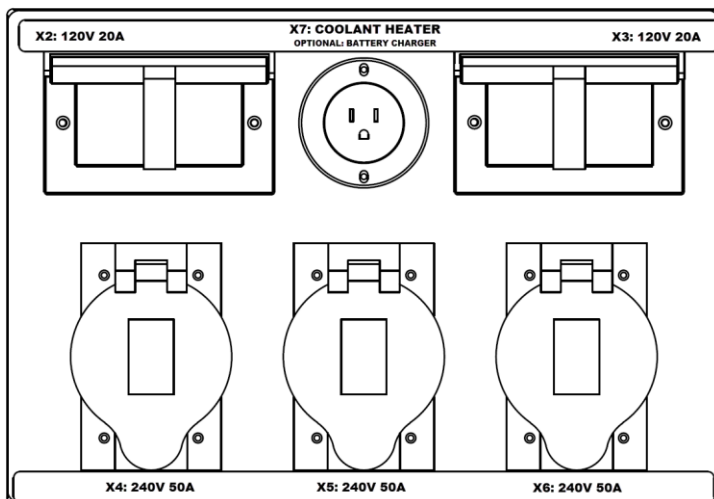
- ✓ 4-position Voltage Selector Switch (VSS)
- ✓ Current transformer x 3 (1 each leg)
- ✓ Single main breaker w/shunt trip
- ✓ Individual breakers for each receptacle
- ✓ Convenience receptacles located on outside of unit for easy access
- ✓ Terminal board for hard wiring
- ✓ Cam-Lock external quick connect
- ✓ External emergency stop switch (recessed)
- ✓ Neutral bonded to Ground with a removable bonding link accessible in the control cubicle

Please refer to the chart below for power distribution and voltages. NOTE: All voltages below are subject to change, depending on set point of "Fine Voltage Adjustment" potentiometer and Voltage Selector Switch.

		120V Receptacle NEMA 5-20R	125/250V Receptacle CS6369	Terminal Board
				
	 240/120V 1Ø 60Hz	120V	240/120V	
	 240/139V 3Ø 60Hz	139V	240/139V	
	 240/139V 3Ø 60Hz	120V	208/120V	
	 480/277V 3Ø 60Hz	139V	240/139V	
	 400/231V 3Ø 50Hz	N/A	N/A	

All voltages are adjustable with the "Fine Voltage Adjustment" potentiometer located on the control panel. Therefore, voltage may be different than what is shown in the above table. All voltages should be verified before connection to the unit.

## Convenience Receptacles



Receptacle	Type
X2, X3	120V - NEMA 5-20R GFCI (outlets)
X4, X5, X6	125/250V - CS6369 (outlets)
X7	120V - NEMA 5-15P (shore power inlet for coolant heater and battery charger)

## Controller – Standard

The QAS 175 and QAS 235 FD T4F are also available with a Qc4004 controller and Qd0701 capacitive touch screen display. This is a fully diagnostic ECU controller with large 7" diagonal (800 x 480 pixel) touch screen display that is intuitive and easy to operate with all functions conveniently at your fingertips. The controller also manages the engine ECU operating system, and a number of safety warnings and shutdowns on various parameters.

Additionally, our Power Management System (PMS) enables the optimization of fuel consumption and expands the generator lifetime. PMS manages the quantity of generators running in parallel with load demand, starting and stopping units in line with increases or decreases in load. This ensures the demand on each generator remains at a level which optimizes fuel consumption. This also eliminates the need for generators to run with low load levels, which can cause engine damage and shorten the life expectancy of the equipment.

### Qc4004 Controller Benefits:

#### Modular Plant Capacity

- ✓ The Qc4004 controller allows up to 32 generators to be coupled in parallel to fit the power requirement of any application.

#### Remote communication capability

- ✓ The Qc4004 supports serial communication protocols including Modbus (RS-485, USB, and TCP/IP) and Profibus allowing you to supervise and control your genset/plant remotely.

#### User friendly rental interface

- ✓ Rental companies will benefit from the standardized user interfaces. The controller has been designed with ease of operation in mind, and rental companies can easily set and lock parameters to ensure full protection of their equipment.

### Available Modes:

- ✓ **Island mode** - Power plant with synchronizing generators or a stand-alone generator. Also applicable in critical power plants.
- ✓ **Automatic Mains Failure** - Critical power/emergency standby plants, black start generator.
- ✓ **Fixed power** - Power plant with fixed kW set point (including building load).
- ✓ **Peak shaving** - Power plant where generator supplies peak load demand paralleled to the mains.
- ✓ **Load takeover** - Plant mode where the load is moved from mains to generator, for example peak demand periods or periods with risk of power outages.
- ✓ **Mains power export** - Power plant with fixed kW set point (excluding building load).
- ✓ **Remote maintenance** - Used when the generator must supply the load while a distribution transformer is disconnected for service.

\* All modes are configurable, and it is possible to change the plant mode on the fly both in single and in power management applications.







## Engine

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### FPT - Fiat Powertrain Technologies

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FPT Tier 4 Final, turbo charged, intercooled, six-cylinder, liquid-cooled diesel engine provides ample power to operate the generator continuously at full-load.

Meets all US EPA, CARB and Environment Canada exhaust legislations with Tier 4 Final compliance. The engine utilizes an aftertreatment with a **Diesel Oxidation Catalyst (DOC)**, **Diesel Exhaust Fluid (DEF)** injection, a **Selective Catalytic Reduction on Filter (SCRoF)** and a **Clean-up Catalyst (CUC)** to meet final Tier 4 emissions. All functionality of the engine is controlled automatically on the controller.

The engine has the capability to start the generator at 14°F (-10°C) with standard glow-plug aid. A 120V 1800W coolant heater is standard and allows machine starting from -13°F (-25°C).

The 194 Gal (735L) fuel tank is sufficiently sized to operate the unit at full-load condition for long run times (see the *Technical Data* table for specifications).

The engine operates on a 24V negative ground electrical system with a charging alternator and lockable battery cutoff switch.

The cooling system is suitably designed for continuous operation in ambient conditions up to 122°F (50°C), with canopy door closed.

### Fuel System

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A large 194 US Gal (735L) fuel tank provides safe diesel storage while eliminating tank corrosion contaminants from being introduced to your fuel system. With integrated fuel water separator and filter, the system is designed to help maintain clean and trouble-free diesel supply to the engine for reliable trouble-free operation.

- ✓ Pad-lockable diesel fill cap
- ✓ Fuel / Water separator
- ✓ Inline priming pump (w/ filter)
- ✓ Fuel pre-filter
- ✓ Fuel supply pump (w/strainer)
- ✓ Fuel level sensor
- ✓ Low fuel shut down feature (programmable level)
- ✓ External fuel connections w/3-way valve and quick disconnects

### Scheduled maintenance

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Standard equipped with filters sized and designed to allow 500-hour service intervals under normal operating conditions. Extended time between services reduces down time and total cost of ownership of the unit over its lifetime.

#### 500 Hour Service Interval:

- ✓ Oil filter
- ✓ Fuel filter
- ✓ Fuel / water separator

#### 1000 Hour Service Interval:

- ✓ Air filter
- ✓ Oil filter
- ✓ Fuel filter
- ✓ Fuel / water separator

NOTE: Site specific operating conditions such as; poor fuel quality and low load profile may require more frequent service intervals.

### Enclosure & Frame

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The generator enclosure is designed for extreme applications to provide superior performance and reliability.

The enclosure is fabricated from zinc rich primer steel which is powder coated for corrosion resistance and tested for 1000 hours. The enclosure and frame are fully sealed from the radiator to the back of the unit, providing a true 110% containment of all fluids.

- ✓ Carbon steel, zinc rich primed, powder coated enclosure
- ✓ Heavy duty steel base frame
- ✓ 110% fluid containment
- ✓ Superior level of rain ingress protection and design features
- ✓ Pad-lockable doors and fuel cap
- ✓ Engine fluid plumbed to exterior of frame for ease of service
- ✓ Central lifting point
- ✓ Sound dampening material and design to allow quiet operation at 69 dB(A)



## Undercarriage

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The QAS 175 and QAS 235 FD T4F are available with undercarriage trailer, providing utmost flexibility in installation, site handling or towing.

Trailer mounted:

- ✓ Dual axle trailer
- ✓ Electric brakes
- ✓ DOT/Federal MVSS 49CFR571 approved light package
- ✓ Adjustable height pintle hitch (3" lunette)
- ✓ 15" Rims w/ ST225/75R15 Tires for trailer use
- ✓ Heavy Duty torsion axle
- ✓ 3/8" Safety chains with clevis slip hook and safety latch
- ✓ Screw jack leveling, with pad foot, 3,000 lbs static capacity
- ✓ Single point lifting structure
- ✓ D-Ring Tie down points x4

## Manufacturing & Environmental Standards

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The **QAS 175** and **QAS 235 FD T4F** are manufactured following stringent ISO 9001 Quality Management requirements, and by a fully implemented Environmental Management & Occupational Health and Safety Systems fulfilling ISO 14001 & ISO 45001 requirements.



Attention has been given to ensure minimum negative impact to the environment.

The **QAS 175** and **QAS 235 FD T4F** meet all current US EPA, CARB and Environment Canada exhaust and noise emission directives.



## Supplied Documentation

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The unit is delivered with documentation regarding:

- Hard copies of the United MHC Operators Safety and Instruction Manual, Atlas Copco Parts Book, FPT Engine Manual and Parts book, in English as well as electronic copies available on request.
- Warranty Registration card for engine and United MHC Generators (Units must be registered upon receipt).

## Warranty Coverage

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As per United MHC Program Agreement