

# QAS 410 SD T4F

## Mobile Generator



### Standard Scope of Supply

The Atlas Copco **QAS 410 SD T4F** generator is a prime power, multi-voltage, sound attenuated, mobile generator. It is powered by a Scania 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.

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.

### Available Models

QAS 410 SD

410kVA prime power (328 kW) – Scania engine

### Standard Features

### Benefits

- 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 marine grade protection
- Single side service with long run filters and 500-hour service intervals
- Scania DC13 085A T4F engine with DOC+SCR+DEF+ASC aftertreatment
- Voltage selector switch (3 positions)
- Camlock panel (3 rows, 400A each)
- Battery Charger (24V, 12A) and Solar Charger (7W)
- External Fuel Tank connections (3-way valve) located inside the enclosure + extra RACOR single fuel filter
- Internal Lights
- Emergency Stop
- Remote signal Start / Stop
- 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
- 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
- Simple voltage change within seconds
- Plug-and-play quick fitting connections that offer protection and convenience for 3Ph output
- On board chargers to ensure the battery is always ready for service
- Flexibility to work with an external and larger fuel tank for extended autonomy. Extra single fuel filter with water separator for optimal fuel quality at the engine intake
- Safety and convenience when servicing the unit
- 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 410 SD	
Rated Prime Power 3Ø @ 480V 60hz	kW / kVA	328/410	
3Ø Power Factor		0.8	
3Ø Voltage In 480V Switch Position (Series Star w/ Neutral)	V	480Y/277	
Amp Capacity @ 480V / 60Hz	A	497	
3Ø Voltage In 240-208V Switch Position (Parallel Star w/ Neutral)	V	240Y/120 – 208Y/120	
Rated Prime Power 3Ø @ 240V 60hz	kW / kVA	328/410	
Amp Capacity @ 240V / 60Hz	A	992	
Rated Prime Power 3Ø @ 208V 60hz	kW / kVA	297/371	
Amp Capacity @ 208V / 60Hz	A	1030	
3Ø Voltage In 400V 50Hz Switch Position (Series Star w/ Neutral)	V	400Y/231	
Rated Prime Power 3Ø @ 400V 50hz	kW / kVA	292/365	
Amp Capacity @ 400V / 50Hz	A	527	
1Ø Power Factor		1.0	
1Ø Voltage In 120-240V Switch Position (Zig-Zag)	V	240/120	
Rated Prime Power 1Ø @ 120-240V 60hz	kW / kVA	231/231	
Amp Capacity @ 240V / 60Hz	A	963	
Amp Capacity @ 120V / 60Hz	A	2 x 963	
Performance class (acc. ISO 8528-5:1993)		G2	
Single Step Load Acceptance (0-PRP) @50/60Hz	kW (%)	111 (38%)	131 (40%)
Alternator (4 Pole, 12 Wire)	Leroy Somer	LSA 46.3 L11	
Excitation		AREP	
Automatic Voltage Regulator (± 0.25%)		DVC550	
Insulation		Class H	
Frequency	Hz	50 / 60	
Main Breaker – Rated Current In	A	1000	
Power Distribution – Terminal Board		5 Wire (L1, L2, L3, N, Ground)	
Terminal Board Connections		Bare Wire Terminals	
Maximum Terminal Cable Size		350MCM	
Convenience Receptacles <sup>2</sup>		(2) NEMA 5-20R & (3) 125/250V 50A CS6369	
Engine	Units	QAS 410 SD	
Model		Scania DC13 085A	
US EPA Family		MY9XL12.7DAA	
US EPA Tier		Tier 4 Final	
Displacement	l	12.7	
Cylinders	#	6	
Continuous Engine Power Output (@ 1800 RPM)	HP (kW)	437 (326)	
Gross Engine Power Output (@ 1800 RPM)	HP (kW)	470 (351)	
Rated Speed	RPM	1800	
Engine Control		ECU	
Aspiration		Turbocharged	
Engine oil capacity <sup>3</sup>	Gal (l)	11.9 (45)	
Engine coolant capacity	Gal (l)	12.2 (46)	
Maximum Ambient Temperature (@ Sea Level) <sup>4</sup>	°F (°C)	119 (48.2)	
Minimum Starting Temperature (Without block heater on)	°F (°C)	4 (-15)	
Minimum Starting Temperature (With block heater on)	°F (°C)	-13 (-25)	
Electrical System (Negative Ground)	V	24	
Engine Alternator Output	A	100	
Battery Capacity (Cold Cranking Amps)	A	680	
Sound Pressure Level @ 23'(7 m) @ 75% Load <sup>5</sup>	dB(A)	TBD	
Fuel and DEF Systems	Units	QAS 410 SD	
Fuel Consumption @ 50% load	Gal/h (l/h)	11.67 (44.18)	
Fuel Consumption @ 75% load	Gal/h (l/h)	16.96 (64.18)	
Fuel Consumption @ 100% load	Gal/h (l/h)	22.60 (85.58)	
Fuel Type		Ultra-Low Sulfur Diesel ONLY <sup>6</sup>	
Fuel Tank Capacity	Gal (l)	412 (1560)	
Fuel Autonomy @ 75% load	Hr	24.3	
DEF Tank Capacity	Gal (l)	16.6 (63 L)	
DEF Autonomy @ 100% load and 95% of DEF capacity	Hr	13.7	

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

<sup>2</sup> Please see receptacle voltage configuration in Power Distribution section on page #5

<sup>3</sup> Engine oil to meet CI-4 (low ash oil)

<sup>4</sup> Please see "Derate Table" for altitude and temperature calculations on page#4

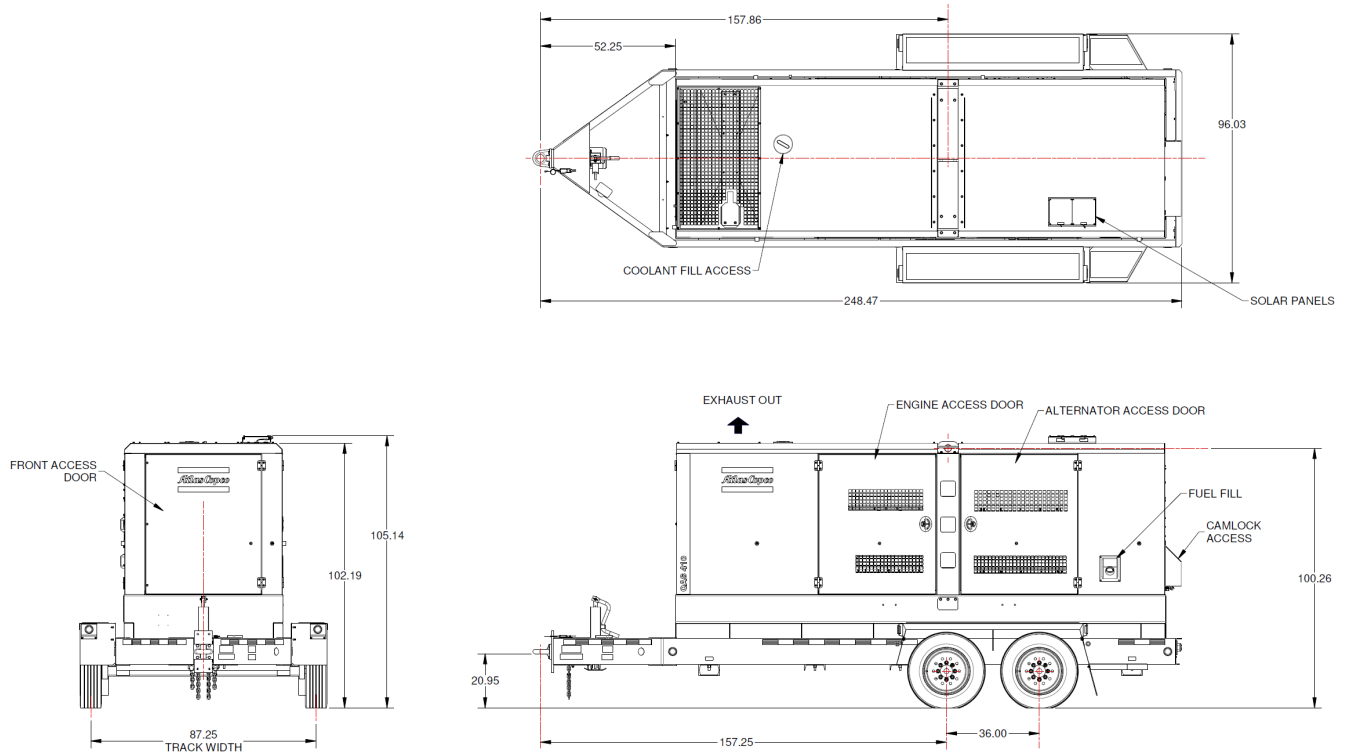
<sup>5</sup> Measured in accordance with ISO 2151 under free field conditions @ 23'(7m) distance

<sup>6</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

# QAS 410 SD T4F

## Dimensions

### Trailer Mounted



### Weight

Trailer Mounted – Wet (ready to operate)  
 Trailer Mounted – Dry

### Units

lbs (Kg)  
 lbs (Kg)

### QAS 410 SD

15,864 (7,211)  
 12,872 (5,851)

### Dimensions

Trailer Mounted (L x W x H)

Inches

248.5 x 96 x 105.1

## Principle Data

### Alternator

The Leroy Somer LSA alternators are designed for heavy duty continuous applications, with marine winding protection and Leroy Somer's AREP excitation system.

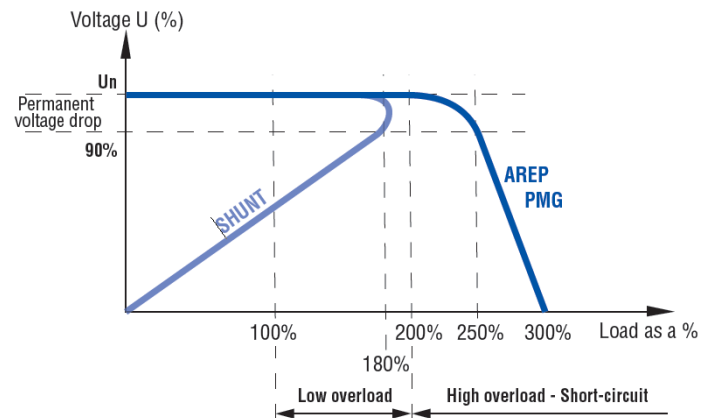
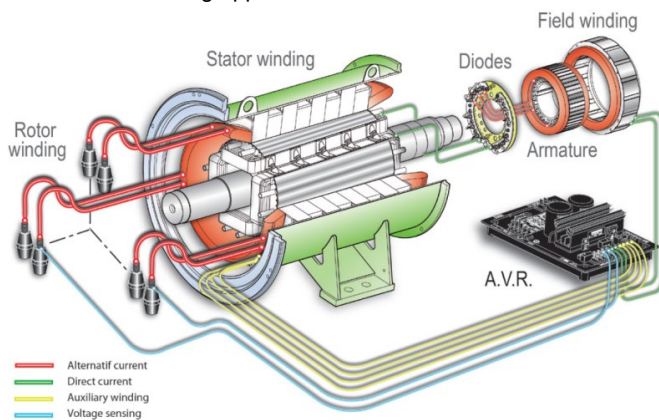
- AREP Excitation for superior motor starting capabilities
- Marine grade (relative humidity >95%) protection
- External multi-voltage selector switch (3-position)
- 4 pole brushless design with single bearing, Class H insulation and IP23 rating
- Voltage regulation +/- 0.25%
- Full Load acceptance of prime power rating

The AREP system uses 2 independent auxiliary windings located in the main stator to send supply voltage to the AVR:

- The voltage delivered by the first auxiliary winding H1 is proportional to the alternator output voltage (shunt characteristic).
- The voltage delivered by the second auxiliary winding H3 is proportional to the current drawn by the alternator and is a function of the applied load (compound characteristic – booster effect).
- The resulting phase-to-phase voltage supplies power to the AVR.

This power supply to the AVR power circuit is independent of the voltage sensing measured on the alternator output terminals. Therefore, the excitation current delivered by the AVR to the alternator exciter is independent of any voltage distortions (harmonics) due to the load.

The AREP system gives the alternator a high overload capacity (load impact or starting electric motors) and a short-circuit capability (300% - 10 s) in order to provide discriminating protection: the alternator with AREP excitation is shorter than the one with PMG excitation. It is particularly suitable for demanding applications.



### Performance @ Altitude and High Ambient Conditions

When using at altitude and high ambient conditions the engine and alternator will de-rate as per chart below.

QAS 410	Temperature °C (°F)										
	0 (32)	5 (41)	10 (50)	15 (59)	20 (68)	25 (77)	30 (86)	35 (95)	40 (104)	45 (113)	50 (122)
Height m (Feet)											
0	100	100	100	100	100	100	100	100	100	97	95
500 (1640)	100	100	100	100	100	100	100	100	100	97	95
1000 (3280)	100	100	100	100	100	100	100	100	100	97	95
1500 (4921)	97	97	97	97	97	97	97	97	97	94	92
2000 (6561)	94	94	94	94	94	94	94	94	94	91	89
2500 (8202)	91	91	91	91	91	91	91	91	91	88	86
3000 (9842)	88	88	88	88	88	88	88	88	88	85	83

## Power Distribution

The main power is connected from the alternator through a 3-position voltage selector switch to the main power cubicle. The cubicle incorporates all power distribution, controls, sensing and protection devices.

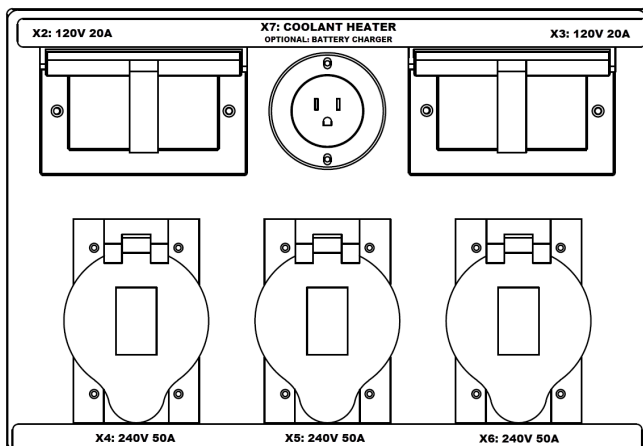
- ✓ 3-position Voltage Selector Switch (VSS)
- ✓ Current transformer x 3 (1 each leg)
- ✓ Single main breaker w/shunt trip
- ✓ Individual breakers for each receptacle
- ✓ Convenience receptacles located on outside of unit for easy access
- ✓ Terminal board for hard wiring
- ✓ Cam-Lock external quick connect (available as option)
- ✓ 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
Fine Voltage Adjustment *	Voltage Selector Switch Position			
	 240/139V 3Ø 60Hz	139V*	240/139V*	240, 240, 139, 139
	 208/120V 3Ø 60Hz	120V*	208/120V*	208, 208, 120, 120
	 480/277V 3Ø 60Hz	139V	240/139V	480, 480, 277, 277
	 400/231V 3Ø 50Hz	N/A	N/A	400, 400, 231, 231

\*All voltages are adjustable with the "Fine Voltage Adjustment" potentiometer located on the control panel. Therefore, voltage may be different then 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

The QAS 410 is comes with a Qc4004 MkII 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 shut downs 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 MkII controller allows up to 32 generators to be coupled in parallel to fit the power requirement of any application.

#### Remote communication capability

- ✓ The Qc4004 MkII 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

### Scania

Scania 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 a **Diesel Oxidation Catalyst** (DOC), a **Selective Catalytic Reduction** (SCR), **Diesel Exhaust Fluid** (DEF) and **Ammonia Slip Catalyst** (ASC) to meet final Tier 4 emissions. All functionality of the engine is monitored automatically on the controller.

The engine has the capability to start the generator at 4°F (-15°C) with standard glow-plug aid. Cold start capability with a block heater available for machine starting at down to -13°F (-25°C).

The 412 Gal (1,560 L) fuel tank is sufficiently sized to operate the unit at full-load condition for long run times (see *Technical Data* 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 119°F (48.2°C), with canopy door closed.

### Fuel System

A large 412 US Gal (1,560 L) 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-connections

### Scheduled maintenance

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: | • 1000 Hour Service Interval: |
| ✓ Oil filter                 | ✓ Air filter                  |
| ✓ Fuel filter                | ✓ Oil filter                  |
| ✓ Fuel / water separator     | ✓ 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

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

The enclosure is made of carbon steel which is zinc rich primed, powder coated for corrosion resistance and salt spray tested. 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 primer, 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

## Undercarriage

The QAS 410's trailer provides utmost flexibility in installation, site handling or towing.

Trailer mounted:

- ✓ Double axle trailer
- ✓ Available with electric brakes
- ✓ DOT/Federal approved light package
- ✓ Adjustable height pintle hitch (3" lunette)
- ✓ 17.5" Rims with 215/75R LR H Tires for trailer use
- ✓ Heavy Duty torsion axles
- ✓ 3/8" Safety chains with clevis slip hook and safety latch
- ✓ Screw jack leveling, with pad foot
- ✓ Single point lifting structure
- ✓ D-Ring tie down points x4

## Manufacturing & Environmental Standards

The **QAS 410 SD** 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 410 SD T4F** meets all current US EPA, CARB and Environment Canada exhaust and noise emission directives.



## Supplied Documentation

The unit is delivered with documentation regarding:

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

## Warranty Coverage

**Atlas Copco Generator:** Warrantied to be free from defects with regard to material and workmanship for the period of eighteen (18) months from date of shipment from the factory, or twelve (12) months from date of initial startup, whichever occurs first, without limitation of running hours.

**Scania Engine:** Scania Diesel engines are warrantied to be free from defects with regard to materials and workmanship for the period of twelve (12) months without limitations in running hours, or twenty-four (24) months prior to the accumulation of 4,000 hours from the date of invoicing from Atlas Copco.

**Leroy Somer Alternator:** Warrantied to be free from defects with regard to material and workmanship for the period of twenty-seven (27) months from date of shipment from the factory, or twenty four (24) months from date of initial startup or 10,000 hours, whichever occurs first.