



# Power Generator

## FD 410 S-C

Article: 36215

Code: F.0410.SA-C4900T999-02

### Main Features

- Digital voltage regulation  $\pm 0,25\%$
- Three phase voltage control
- Low disturbance level THD  $< 1,5\%$
- Alternator short circuit capacity  $270\% I_n$  (optional  $300\%$ )
- Class H insulation
- Protection index IP23
- Performance class G3 (acc. ISO 8528-5)
- Ready to load just after start
- AMF and MRS functionality and protection
- Autonomy 14,8 h with 75 % load

### General Data

<b>Maximum power ESP</b>	450,0 kVA / 360,0 kW
<b>Nominal power PRP</b>	410,0 kVA / 328,0 kW
<b>Nominal Current PRP</b>	592,0 A
<b>Frequency</b>	50 Hz
<b>Voltage</b>	400 V
<b>Emission standard</b>	fuel optimized
<b>Fuel</b>	Diesel (EN 590)
<b>Fuel tank capacity</b>	990 l
<b>Fuel consumption @ 50% / 75% 100% /110% PRP</b>	41,1 / 59,9 / 78,8 / 87,8 l/h
<b>Autonomy @ 75% / 100% load</b>	14,8 / 11,3 h
<b>Weight without fuel</b>	3960 kg
<b>Dimensions L x W x H</b>	4900 x 1530 x 2500 mm
<b>Guaranteed noise power <math>L_{wa}</math></b>	98 dBA
<b>Acoustic pressure @7m<math>L_{pa}</math></b>	68,5 $\pm$ 1 dBA

### Main Components & Equipment

- Scania DC13 072A 02-12 engine
- Leroy Sommer TAL 0473 A alternator
- Brushless alternator
- Digital AVR
- ComAp IL-AMF25 Controller
- Schneider NSX type generator circuit breaker
- GCB shunt release coil
- Linear automatic battery charger
- Engine heater
- Electronic speed governor
- Fuel system unit injectors, PDE
- Welded frame with 990 l fuel tank, spill containment and noise insulation
- Two fuel inlets
- Four lifting eyes
- Extended forklift skids for easy attachment to the ground

For details see page 3

### Definitions

#### Nominal Power PRP:

Prime power available in variable load application in accordance with ISO 8528, 10% overload capacity is available for a period of 1 hour within a 12-hour period of operation. Average power consumption should not exceed 70% PRP for each 24-hour period of operation.

#### Maximum power ESP:

Emergency standby power rating is applicable for supplying emergency power for the duration of a utility power interruption. No overload allowed, limited to 200h of operation per year. Max mean load factor of 70% of rated power over 24-hour period of operation.

### Norms and Directives

- Machinery directive 2006/42/EC
- Low voltage directive 2014/35/EU
- EMC directive 2014/30/EU
- Noise directive 2000/14/EC
- ISO 8528-1/2018, ISO 8528-5/2018
- ISO 8528-13:2016
- IEC 60204-1

### Contact data

#### FOGO Sp. z o.o.

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### Engine

<b>Manufacturer</b>	Scania
<b>Type</b>	DC13 072A 02-12
<b>Made in</b>	Sweden
<b>Engine power</b>	355,0 kW
<b>Emission standard</b>	fuel optimized
<b>Rotation per minute</b>	1500 rpm
<b>Engine governor</b>	electronic
<b>Governor class</b>	G3 (ISO 8528-5)
<b>Displacement</b>	12,7 l
<b>No of cylinder</b>	6
<b>Fuel system</b>	unit injectors, PDE
<b>Electrical system</b>	24 V
<b>Cooling system capacity</b>	38,0 l
<b>Oil pan capacity</b>	36,0 l
<b>Fuel type</b>	Diesel (EN 590)

### Alternator

<b>Manufacturer</b>	Leroy Sommer
<b>Type</b>	TAL 0473 A
<b>Made in</b>	Czech Republic
<b>Nominal Voltage</b>	400 V
<b>Nominal power factor (cos φ)</b>	0,8
<b>Ambient temperature, altitude</b>	40 °C, 1000 m a.s.l.
<b>Nominal Power</b>	410,0 kVA
<b>Protection index</b>	IP 23
<b>No of bearing</b>	Single bearing
<b>Coupling</b>	Direct
<b>Technology</b>	Brushless
<b>Short circuit maintaining capacity</b>	270% 10s
<b>Efficiency</b>	93,2 %
<b>Insulation class</b>	H
<b>Total harmonic content THD</b>	<1,5 %
<b>Reactance Xd"</b>	17,2 %
<b>Voltage regulator type</b>	AVR, digital
<b>Voltage measurement</b>	3 phase
<b>Voltage accuracy</b>	+/- 0,25 %
<b>AVR supply system</b>	AREP+
<b>AVR supply optional</b>	PMG

### Controller

- Controller type: ComAp IntelliLite AMF 25
- Support of Dual AMF/MRS applications
- Direct communication with EFI engines
- Total remote monitoring and control
- Intuitive operator interface, adjustable Main Screen
- Real time clock
- Comprehensive history log with up to 350 events
- 3 phase true RMS current and voltage measurement
- Both mains and generator voltage detection
- Active/Reactive Power and Power Factor per phase measurement
- Run Hours counter with source selector
- 3 maintenance timers (counting even under zero)
- Multipurpose flexible timers (also for rental)
- Battery voltage measurement
- Complete engine and alternator protection
- CAN modules support
- USB port on-board
- 2 slots for plug-in modules
- Plug-in module concept for more capabilities (RS232, RS485, Ethernet, GPRS, 4G/LTE, Modbus, SNMP, emails, SMS, I/Os)
- Cloud-based monitoring and control via WebSupervisor (optional module required)
- Geofencing and tracking via WebSupervisor (optional module required)
- Control and monitoring over SMS (GSM module required)
- 3 levels of password protection
- In-built PLC, complemented with a monitoring/debugging tool, for additional functionality, if required
- Spare inputs and outputs available by default: binary input – 2, binary output – 1, analogue input – 3,
- A version for low temperature is also available





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### Standard equipment

- Scania DC13 072A 02-12 engine
- Electronic engine speed governor
- Oil low pressure switch
- Oil pressure sensor
- Engine high temperature switch
- Engine high temperature sensor
- Engine preheating with thermostat
- Engine oil Titan Cargo 15W40
- Fuel filter with water separator
- Coolant Fuchs Maintain Fricofin LL-50
- Coolant inlet outside, on the top of the canopy
- Starting batteries 2x180Ah
- Linear automatic battery charger
- Leroy Sommer TAL 0473 A alternator
- Digital AVR
- GCB Schneider NSX 630 3P + Mic.2.3
- GCB shunt release coil
- ComAp IL-AMF25 controller
- Acoustic alarm
- Emergency stop button
- Silenced canopy, RAL 7024
- Fuel tank integrated with a frame and spill containment
- Two fuel inlets inside the canopy
- Fuel level indicator
- Engine and alternator anti vibration mounts
- Exhaust silencer with compensator
- Fork lift supports and lifting eyes

### Optional equipment

- Battery disconnecter
- 4P Schneider NSX Micrologic 2.3 GCB
- Power Lock type power output
- Transfer switch controlled by generator controller
- Transfer switch with ATS controller
- ATS accessories for outdoor application
- GPRS communication card
- Ethernet card
- RS 485, RS 232 card
- Remote display
- Fuel inlet outside of the canopy with lock
- Generator spill containment level detector
- External, double wall fuel tank 1 000 – 10 000 l
- Fuel tank filling pump and shut-off valve

### Maintenance guidelines

<b>Fuel filters replacement</b>	500 h / 1 year
<b>Oil replacement</b>	After first 100h, then every 500 h / 1 year
<b>Oil filters replacement</b>	After first 100h, then every 500 h / 1 year
<b>Coolant replacement</b>	1000 h / 2 years
<b>Air filter replacement</b>	500 h
<b>Battery replacement</b>	2 years
<b>Electrical installation</b>	According to local requirements, at least once per year

### Installation guidelines

<b>Power terminal</b>	GCB terminal
<b>Recommended cable for up to 30m power cable way</b>	Flexible 2x5x150 mm <sup>2</sup>
<b>Recommended cable for do 30m generator heater supply</b>	Flexible 3x2,5 mm <sup>2</sup>
<b>Exhaust pipe min diameter (max. 7 m, 4 bends)</b>	133 mm
<b>Exhaust pipe min diameter (max. 15 m, 4 bends)</b>	

\*For additional cable connection with FOGO ATS see ATS wiring diagram

### Warranty

<b>Continuous operation generators</b>	12 months up to 1000 working hours
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