

# GENERATING SET GE 85 FR-5

The images are for reference



## DEFINITION

Valid declared powers up to the followings environmental conditions: temperature 25°C, altitude 100 meters above sea level

**LTP power: stand-by power:** Maximum available power for use with variable loads for a yearly number of hours limited at 500 h. No overload is admitted.

**PRP power:** continue power with variable loads. Maximum power for use with variable loads for a yearly illimited nubers of hours.

**COP power:** continuous power with constant load. Maximum power for use with constant loads for a yearly unlimited numbers of hours.

## POWER RATINGS

* Stand-By three-phase power	92 kVA (73.6 kW)/ 400V / 132.8A
* PRP three-phase power	85 kVA (68 kW)/ 400V / 122.7A
* COP power	74 kVA (59.2kW)/ 400V / 106.8A
Frequency	50 Hz
Cos φ	0.8

\* Output powers according to ISO 8528-1

## FEATURES

- Engine compliant with STAGE 5 and EPA TIER 4B (Final)
- Electronic engine speed regulation
- Exhaust gas post-treatment consisting of DOC + DPF + SCR
- Fuel pre-filter and filter with water-in-fuel indicator
- Oversized steel base to protect the hood
- Drag slide integrated in the base
- Anti-rollover side pockets for handling with forklifts
- Central lifting hook with scratch protection plate
- Rounded edges to allow rainwater to run off
- Sealed base able to contain any losses of liquids present in the engine, avoiding environmental pollution
- Large capacity steel tank
- Adblue tank (urea solution)
- External access for cleaning and emptying the tank
- Large access doors to allow easy maintenance (replacement of air, oil, fuel filters)
- Access door for radiator cleaning and inspection
- Door with viewing window for the control panel
- External access for filling the radiator
- External plug for water drainage
- Oil extraction pump
- 3-way valve for fuel transfer from external tank with quick filling couplings housed in a special niche (OPTIONAL)
- Low level of noise emissions
- Fuel level sensor
- Crankcase leak detection sensor
- Battery disconnect switch
- Emergency button
- Power cable connection terminal block
- Electrical distribution panel with three-phase and single-phase output sockets
- Four-pole general magnetothermic switch
- Electronic differential relay adjustable in current and tripping time as standard with the electrical distribution board
- Insulation monitor (as an alternative to the electronic differential relay)
- Primary brand brushless alternator with three-phase sensing "AVR" electronic voltage regulation
- Alternator windings protected with marine impregnatio



## ENGINE 1500 RPM

4 STROKE, DIRECT INJECTION, TURBOCHARGED	
Model	FPT F36ETVP03.A85
* Stand-By net power	81.6 kW (111 hp)
* PRP net power	81.6 kW (111 hp)
* COP net power	63.5 kW (86.4 hp)
Cylinders / Displacement	4 / 3.6 lit. (3600 cm <sup>3</sup> )
Bore / Stroke	102 / 110 (mm)
Compression ratio	18.5 : 1
BMEP (Brake Mean Effective Pressure : LTP - PRP)	1890 kPa (18.9 bar)
Speed governor type	Electronic
FUEL CONSUMPTION	
110 % (Stand-by power)	/
100 % to PRP	13.9 lt./h
75 % to PRP	10.8 lt./h
50 % to PRP	7.8 lt./h
ADBLUE TANK CAPACITY	
110 % (Stand-by power)	0,88 lt./h (4,2 % fuel)
100 % to PRP	0,77 lt./h (5,0 % fuel)
75 % to PRP	0,71 lt./h (6,7 % fuel)
50 % to PRP	0,38 lt./h (4,2 % fuel)
COOLING SYSTEM	
Total system cap. - only engine	10.5 lt – 5 lt.
Fan air flow	60 m <sup>3</sup> /min.

LUBRICATION SYSTEM	
Total oil system capacity	9 lit.
Oil capacity in sump	8 lt, ÷ 6 lt.
Oil consumption at full load	0.04%
EXHAUST SYSTEM	
Maximum exhaust gas flow	6.1 kg/mim.
Max. exhaust gas temp.	760 °C
Maximum back pressure	2.2 kPa (22 mbar)
External diameter exhaust pipe	/
ELECTRICAL SYSTEM	
Starter motor power	4.2 kW
Battery charging alternator cap.	120 A
Cold start	- 15 °C
With cold start aid	/
AIR FILTER	
Combustion air flow	5.83 kg/min
HEAT REJECTED AT FULL LOAD	
To exhaust system	57 kW
To water and oil	50.2 kW
Radiated to room	11.7 kW
To charge cooler	15.1 kW
DERATING	
Ambient temperature	2% per 5°C > 40°C
Altitude above sea level	3% per 500m > 1000m < 3000m 6% per 500m > 3000m

\* Output powers according to ISO 3046-1

## ALTERNATOR

SYNCHRONOUS, THREE-PHASE, SELF-EXCITED, BRUSHLESS	
Continuous power	85 kVA
Stand-by power	96 kVA
Three phase voltage	380-440 Vac
Frequency	50 Hz
Cos φ	0.8
Model A.V.R.	HVR-30 (3ph. sensing)
Voltage regulation acc.	± 1.0 %
Sustained short circuit current	2.5 In
Transient dip (100% load)	< 10 %
Recovery time	< 0.3 sec
Efficiency at 100% load	90.3 % (400V - Cosφ 0.8)
Insulation	Class H
Connection - Terminals	Star (With N) - N°12
Electromagnetic compatibility ( R.F.I. suppr.)	EN 55011
Waveform distortion - THD	< 3 %
Telephone interference - THF	< 2 %

REACTANCES (85 kVA - 400V)	
Direct axis synchronous - Xd	300 %
Direct axis transient - X'd	19 %
Subdirect axis transient - X''d	9.5 %
Quadrature axis synchronous - Xq	202 %
Quadr. axis subtransient - X''q	/
Negative sequence - X2	/
Zero sequence - X0	/
TIME CONSTANTS	
Transient - T'd	0.021 sec
Subtransient - T''d	0.011sec
Open circuit - T'do	0.258 sec
Armature - Ta	/
Short-circuit ratio Kcc	0.45
IP protection degree	IP 23
Cooling air flow	0.3 m <sup>3</sup> /sec.
Coupling   Bearing	Direct SAE 3 -11 ½ - N°1

## GENERAL SPECIFICATIONS

Fuel tank capacity	450 lt.
Running time (75% to PRP)	31 h
Starter battery	12 Vdc -100Ah / 800A CCA(EN)
IP protection degree	IP 44

* Acoustic power LwA (pressure LpA)	91 dB(A) (66 dB(A) @ 7m)
Performance class (ISO 8528)	G3

\* Acoustic power according to European Directive 2000/14/CE

# CONTROL PANEL

## DIGITAL CONTROL PANEL

- InteliLite4 AMF9 controller
- Power switch
- Siren
- Emergency stop button
- Forced regeneration button
- 1500-1800 rpm selector for forced regeneration
- 4-pole magnetothermal switch
- Electronic differential relay
- Power terminal block
- Earth terminal (PE)
- Output sockets: 1x 400V 125A 3P+N+T CEE IP67
  - 1x 400V 63A 3P+N+E CEE IP67
  - 1x 400V 32A 3P+N+T CEE IP67
  - 1x 400V 16A 3P+N+E CEE IP67
  - 1x 230V 16A 2P+E CEE IP67
  - 1x 230V 16A 2P+E SCHUKO
- Circuit breaker (for 125A socket)
- Differential-magnetothermal switch for 400V 63A socket
- Differential-magnetothermal switch for 400V 32A socket
- Differential-magnetothermal switch for 400V 16A socket
- 2x Differential-magnetothermal switch for 230V 16A socket



INTELLILITE4 AMF9 CONTROLLER CHARACTERISTICS	
Operating mode	<ul style="list-style-type: none"> <li>• OFF - MAN. - AUTO - TEST</li> </ul>
Display - Pulsanti-LEDs	<ul style="list-style-type: none"> <li>• Backlit display, LCD 132x64 pixels</li> <li>• Buttons / Buttons: START - STOP - RESET ALARMS / FAULT RESET</li> <li>• LEDs: Generator / GCB ON status - Grid status</li> </ul>
Generator Measures	<ul style="list-style-type: none"> <li>• Voltage : L1-L2 / L2-L3 / L3-L1 - N-L1/N-L2/N-L3</li> <li>• Current : I1 - I2 - I3</li> <li>• Frequency Hz</li> <li>• Powers : kVA - kW - kVAR (totali e per fase)</li> <li>• Energy : kVAh - kWh - kVARh</li> <li>• Cos φ (medium and per phase)</li> </ul>
Engine Measures	<ul style="list-style-type: none"> <li>• Water temperature</li> <li>• Oil pressure</li> <li>• Fuel level</li> <li>• Rpm meter</li> <li>• Battery voltage</li> <li>• Maintenance</li> <li>• Hours meter</li> <li>• Starts number</li> </ul>
Generator Protections	<ul style="list-style-type: none"> <li>• Overload</li> <li>• Overcurrent</li> <li>• Short circuit</li> <li>• Over-Undervoltage</li> <li>• Over-Underfrequency</li> <li>• Voltage asymmetry</li> <li>• Unbalanced current</li> <li>• Phase sequence</li> </ul>
Engine Protections	<ul style="list-style-type: none"> <li>• Overspeed</li> <li>• High water temperature warning</li> <li>• Low oil pressure warning</li> <li>• Low fuel level warning</li> <li>• Over-Under battery voltage</li> <li>• Battery charge alternator failure</li> <li>• Start failure</li> <li>• Stop failure</li> <li>• Emergency stop</li> <li>• Low water level shutdown (option)</li> </ul>

AMF functions (Automatic control panel only)	<ul style="list-style-type: none"> <li>• Measure mains voltage : L1-L2 / L2-L3 / L3-L1 - N-L1/N-L2/N-L3</li> <li>• Measure mains frequency</li> <li>• Three phase detection</li> <li>• Over-Under mains voltage</li> <li>• Over-Under mains frequency</li> <li>• Voltage asymmetry</li> <li>• Phase sequence</li> <li>• Dual mutual stand-by application</li> </ul>
Features	<ul style="list-style-type: none"> <li>• Event history, 150 stored events</li> <li>• 3 programmable test timers</li> <li>• Programming from panel or from PC</li> <li>• 3 selectable languages (other languages available)</li> <li>• Direct connection to engines with ECU (Stage V, Tier 4 Final) via Can Bus J1939</li> <li>• External Start and Stop</li> <li>• Programmable inputs and outputs</li> <li>• Alternative configurations (50 / 60Hz)</li> <li>• IP 65 protection</li> <li>• Operating temperature: -20 ° C - + 70 ° C</li> </ul>
Communication	<ul style="list-style-type: none"> <li>• USB port</li> <li>• RS232- RS485 (optional)</li> <li>• Modbus RTU / TCP (optional)</li> <li>• GSM modem. Commands alarms, events via SMS (optional)</li> <li>• Internet connection with Ethernet (optional)</li> <li>• Online control and monitoring on web pages (embedded web server) (optional)</li> <li>• SNMP (optional)</li> <li>• GPS / 4G modem (optional) (geographical tracking via WebSupervisor)</li> <li>• Internal PLC support</li> </ul>





# CONTROL PANEL

GE 85 FR-5

## CONTROL PANEL DGVV-"B"

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- Power switch
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- Emergency stop button
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- 1500-1800 rpm selector for forced regeneration
- 4-pole magnetothermal switch
- Insulation monitor
- Power terminal block
- Equipotential earth terminal
- Output sockets: 1x 400V 125A 3P+N+T CEE IP67  
1x 400V 63A 3P+N+E CEE IP67  
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1x 400V 16A 3P+N+E CEE IP67  
2x 230V 16A 2P+E SCHUKO
- Circuit breaker (for 125A socket)
- Circuit breaker for 400V 63A socket
- Differential switch for 400V 63A socket - Type B
- Differential-magnetothermal switch for 400V 32A socket - Type B
- Differential-magnetothermal switch for 400V 16A socket - Type B
- 2x Circuit breaker for 230V 16A Schuko socket - Type B



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# WEIGHT - DIMENSIONS AND ACCESSORIES

GE 85 FR-5



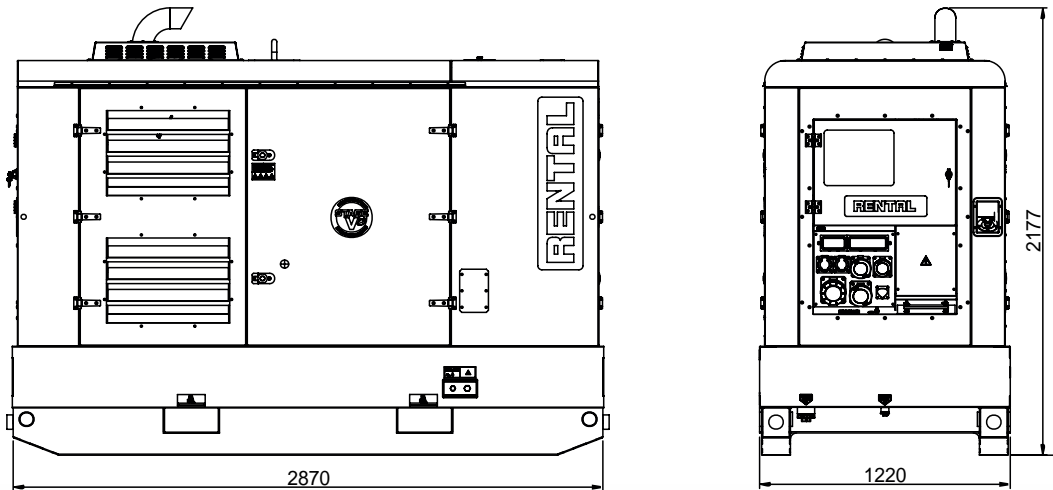
### DRY WEIGHT MACHINE:

- 1900 Kg

Generating set pictured may include optional accessories.



### DIMENSIONS DRAW



## VERSIONS IN ADDITION TO THE STANDARD FEATURES

	HEATER	3WAY	DGUV
3-way valve		✓	
Engine water heater	✓		
Isometer			✓

### ACCESSORIES ON REQUEST

- Internet / Ethernet plug-in module with Web Server
- GPS / 4G modem with antenna
- Plug-in module with double RS232 and RS485 ports
- Report card 15 alarms / states (configurable)
- Remote control panel (ATS) PAC-I 70 (100A)
- MT25 grounding

### AVAILABLE VERSIONS

CP2T50G1	STANDARD
CP2T50G1A	HEATER
CP2T50G1H	3WAY
CP2T50G1AH	3WAY + HEATER
CP2T50U1	DGUV
CP2T50U1A	DGUV + HEATER
CP2T50U1H	DGUV + 3WAY
CP2T50U1AH	DGUV + 3WAY + HEATER

### GENERAL INFORMATION

#### COMPLIANCE GENERATING SETS WITH EC DIRECTIVES AND STANDARDS

- 2006/42 / EC (Machines Directive)
- 2014/35 / EU (Low Voltage Directive)
- 2014/30 / EU (EMC Directive)
- 2000/14 / EC (Directive Acoustic Emission for machines for use outdoors)
- ISO 8528 (Reciprocating internal combustion engine driven alternating current generating sets)



ISO 9001:2008 - Cert. 0192

#### WARRANTY

All devices are covered by the manufacturer's warranty.

Non-contractual document. Specification subject to change without notice.

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