



**Generating Set  
Diesel**

# GE.VO.150/135.BF+011

## Standard Equipment and features

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### Exhaust

- Exhaust collectors protection
- Silenced muffler -15 dBA

### Fuel supply

- Daily fuel tank with inspection hatch to allow cleaning
- Low fuel level shutdown automatic system
- Fuel gauge

### Handling

- Anti-turning forklift pockets

### Base Frame

- Anti pollution Bunded base with external draining point
- Anti vibrating mounting pads

### Engine

- Engine heater 230 V
- High coolant temperature and low oil pressure shutdown system
- Oil pressure & antifreeze temperature gauge
- External oil drain points
- Engine liquids (oil and antifreeze)
- Tropicalized radiator
- Rotating components protection guards

### Alternator

- AVR Automatic Voltage Regulator

### Protection & connection Panel

- Magneto-thermal protection on alternator (adjustable only on variant +10 & +11)
- Emergency stop button
- Power cable outlet from side
- Earth leakage point
- Machine electric wiring IP 44
- Startup battery (pre-charged)

### Documentation

- CE conformity declaration - User and maintenance manuals
- Test report (factory tested GS at full load conditions ) and Electrical Drawings

### Normatives

- All ELCOS Generating sets are compliant to CE Marking
- 2004/108/CE Electromagnetic compatibility
- 2000/14/CE Noise Emission for outdoor use
- Factory-designed systems built at Elcos ISO 9001:2008



Data and technical specifications are subject to change in order to update or improve the products.

**Generating Set**

|                                       |            |            |
|---------------------------------------|------------|------------|
| Speed                                 | <b>rpm</b> | 1500       |
| Frequency                             | <b>Hz</b>  | 50         |
| PRP Prime power                       | <b>kVA</b> | <b>135</b> |
| Prime power (cosfi 0,8)               | <b>KW</b>  | 108        |
| LTP Limited-time running power        | <b>kVA</b> | 150        |
| Limited time running pow. (cosfi 0,8) | <b>KW</b>  | 120        |
| Voltage standard                      | <b>V</b>   | 400/230    |
| Current PRP (cosfi 0,8)               | <b>A</b>   | 195.1      |

**Noise level****Fuel consumption**

|                              |             |        |
|------------------------------|-------------|--------|
| Fuel type                    | <b>Type</b> | Diesel |
| Fuel tank capacity           | <b>lt</b>   | 250    |
| Autonomy at 3/4 load         | <b>h</b>    | 12     |
| Fuel consumption at 4/4 load | <b>l/h</b>  | 28.4   |
| Fuel consumption at 3/4 load | <b>l/h</b>  | 20.9   |
| Fuel consumption at 2/4 load | <b>l/h</b>  | 14.1   |

**General Features**

|                       |             |       |
|-----------------------|-------------|-------|
| Battery capacity      | <b>Ah</b>   | 1x120 |
| Voltage               | <b>Vdc</b>  | 12    |
| Exhaust tube diameter | <b>mm</b>   | 80    |
| Exhaust temperature   | <b>°C</b>   | 507   |
| Exhaust gas flow      | <b>l/s</b>  | 353   |
| Combustion air flow   | <b>l/s</b>  | 125.8 |
| Cooling Fan air flow  | <b>m3/s</b> | 3     |

**Dimensions / weight**

|                                                  |           |             |
|--------------------------------------------------|-----------|-------------|
| Dimensions (L x w x h)                           | <b>cm</b> | 240x110x170 |
| Weight inclusive of liquids (oil and antifreeze) | <b>kg</b> | 1380        |

**COP**

It is the power that the generating set is capable to supply, in continuous operation, for an unlimited number of hours per year at the reference environmental conditions. This is valid as long as the engine undergoes a scheduled maintenance, as specified by the manufacturer. The generating set is able to provide power equal to 100% of the nominal load. COP power is typically 30% lower than the LTP one. No overload capability is allowed for this rating.

**PRP**

Applicable for supplying power in lieu of commercially purchased power. Prime power is the maximum power available at a variable load for an unlimited number of hours. A 10% overload capability is available for limited time. (Equivalent to Prime Power in accordance with ISO8528 and Overload Power in accordance with ISO3046, AS2789, DIN6271, and BS5514). This rating is not applicable to all generator set models.

**LTP**

Applicable for supplying emergency power for the duration of normal power interruption. No sustained overload capability is available for this rating. This rating is applicable to installations served by a reliable normal utility source. This rating is only applicable to variable loads with an average load factor of 80 percent of the standby rating for a maximum of 200 hours of operation per year and a maximum of 25 hours per year at 100% of its standby rating. The standby rating is only applicable to emergency and standby applications where the generator set serves as the back up to the normal utility source. No sustained utility parallel operation is permitted with this rating. (Equivalent to Fuel Stop Power in accordance with ISO3046, AS2789, DIN6271 and BS5514). Nominally Rated.

**Engine**

|                           |      |                                |
|---------------------------|------|--------------------------------|
| Factory                   |      | Volvo                          |
| Emissions                 |      | Stage 2                        |
| Model                     |      | TAD 532 GE                     |
| Speed governor            |      | CAN-BUS                        |
| Cooling system            | Type | liquid (water + 50% Paraflu11) |
| Speed                     | rpm  | 1500                           |
| Nominal power             | CV   | 156,2                          |
| Gross engine power        | KWm  | 114                            |
| Cycle                     | Type | diesel 4 stroke                |
| Injection                 | Type | direct                         |
| Aspiration                | Type | Turbo                          |
| Numbers of cylinders      | N°   | 4L                             |
| Bore x stroke             | mm   | 108 x 130                      |
| Total displacement        | lt   | 4.76                           |
| Engine oil features       |      | 15W40-API CG4-ACEA E3-E5       |
| Engine oil consumption    | %    | 0,5% fuel consumption          |
| Total oil capacity        | lt   | 13                             |
| Coolant liquid capacity   | lt   | 20.2                           |
| Classification ISO 8528-5 |      | G3                             |

**Alternator**

|                              |     |                     |
|------------------------------|-----|---------------------|
| Factory *                    |     | Marelli             |
| Model                        |     | MJB225LA4           |
| Prime power 3F+N 400V (480V) | kVA | 132                 |
| Prime power 1F+N 230V (240V) | kVA | 52.8                |
| Voltage regulator            |     | +/-0.5%             |
| Poles                        | N°  | 4                   |
| Phases                       | N°  | 3+N                 |
| Standard windings connection |     | star serie          |
| Stator/rotor impregnation    |     | H (ext. temp. 40°C) |
| Efficiency pf=0,8 4/4        | %   | 91.8                |
| Couple engine                |     | elastic disk        |
| Short circuit current        |     | >=300% (3In)        |
| Degree of protection         |     | IP 23               |
| Cooling system               |     | autoventilate       |
| Maxium overspeed             | RPM | 2250                |
| Waveform distortion          | %   | < 2                 |
| Exciter                      |     | diode bridge        |

\* Availability will vary according to the warehouse stock. However, in any case a primary brand will be used.

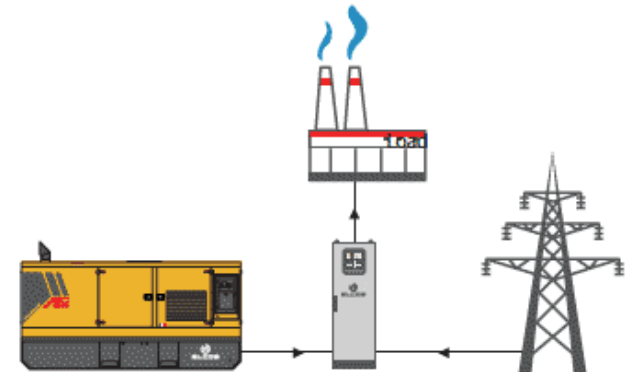
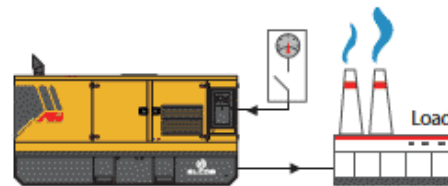
**Standard operating environmental conditions**

|                          |
|--------------------------|
| Ambient temperature 25°C |
| Relative Humidity 30%    |
| Max altitude 1000mt      |

**Control Systems on board**

**Variant +11 (QPE-C-VSC (50 - 3000 OF))  
Automatic panel without switching on board**

The QPE-C panel represents the evolution of the panels for the control and management of the generating set, with its microprocessor logic it is able to meet any user-requested features. In fact, the dual operation mode MANUAL or AUTOMATIC guarantees to every type of functionality protection, analysis and control of the generating set in order to make the management easy and efficient. Variant +011 has separate switching inside a wall or floor ATS panel. Protection degree of control panel IP44 (optional IP55 with cover plate).



# Control module

mc4

## Description

Elcos's control panel QPE-C gives you the industry leading control solution for your power needs.

The QPE-C control panel used MC4 control module for single genset applications.

The module incorporates a number of advanced features to meet the most demanding on-site applications.

The MC4 is an Auto mains (Utility) failure control module, It offers a cost effective way of monitoring and communicating with your genset and includes the additional capability of being able to monitor a mains supply.

It includes a USB port and an RS485 port for Mod BUS Communication.

## Applications

- ♦ Emergency when the mains failure occurs
- ♦ Self-production
- ♦ Fire fighting
- ♦ Construction site
- ♦ Rent



## FEATURES

### → Controls

- Manual start up and stop
- Automatic start up and stop from AMF
- Start up and stop through contact
- Fuel pump control
- Lock
- Reset
- Programmable automatic test
- Emergency stop button
- Main counter command closed
- G.s. counter command closed

### → Engine Measures

- Engine RPM\*
- Engine oil pressure BAR
- Engine oil temperature\*
- Engine oil level\*
- Cooling system pressure\*
- Cooling system temperature°C
- Coolant level %
- Fuel consumption\*
- Fuel level %
- Total operating hours
- Partial operating hours (resettable)
- Hours to maintenance
- Battery charger voltage
- Start up counter

### → Communication Interfaces

- CAN-BUS communication
- 16-relay module (optional)
- GSM remote management modem (optional)
- Remote management software (optional)
- Remote panel (optional)
- Converter485/USB (optional)
- Converter485/LAN (optional)
- USB port for saving parameters and firmware updates
- RS485 serial output

### → Equipment

- Microprocessor logic
- Backlit refractive display
- 16-event alarm history list
- Multi-language management
- Troubleshooting with suggestions

### → Alternator Measures

- Genset voltage three-phase
- Genset star voltage RN.SN.TN.
- Genset three-phase current
- Genset frequency
- Genset apparent power KVA
- Genset actual power KW
- Genset reactive power KW<sub>r</sub>
- Genset KWh
- Genset power factor cosφ

### → Main Measures

- Mains voltage RST
- Mains frequency

### → Signals/Protections

- Failed to start
- Failed to stop
- Low oil level\*
- Low oil pressure
- Minimum oil pressure (pre-alarm)
- Low cooling liquid level
- Very high cooling liquid level
- High temperature (pre-alarm)
- Generator battery charger
- No fuel
- Low fuel level (pre-alarm)
- Start up
- Stop
- Fuel pump running
- Battery connected
- Battery charging
- Battery undervoltage
- Battery overvoltage
- Genset overvoltage
- Genset undervoltage
- Genset overload
- Genset short circuit
- Genset maximum frequency
- Genset minimum frequency
- Genset connected
- Genset contactor closed
- Circuit breaker protection
- Mains connected
- Mains overvoltage
- Mains undervoltage
- Mains contactor closed
- Emergency button pressed



## Optional

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### Canopy - Soundproofing

- Soundproof canopy-container 55 dB(A) at 7mt
- Air intake / outlet noise attenuators for room -25dB(A)

### Exhaust

- Exhaust flexible joint
- External residential muffler -35 dbA
- Exhaust flex tube
- (FAP) Antiparticulate - Exhaust catalyst

### Fuel supply

- Diesel connections
- Automatic fuel refilling system
- Tank connections 3 way valve

### Engine

- Oil change pump
- Battery DC circuit breaker
- -40 C° Engine liquids
- Super hot Engine heater 230 V
- Automatic refilling oil system
- 1000 working hours spare parts kit

### Alternator

- Parallel arranged AVR

### Protection & connection Panel

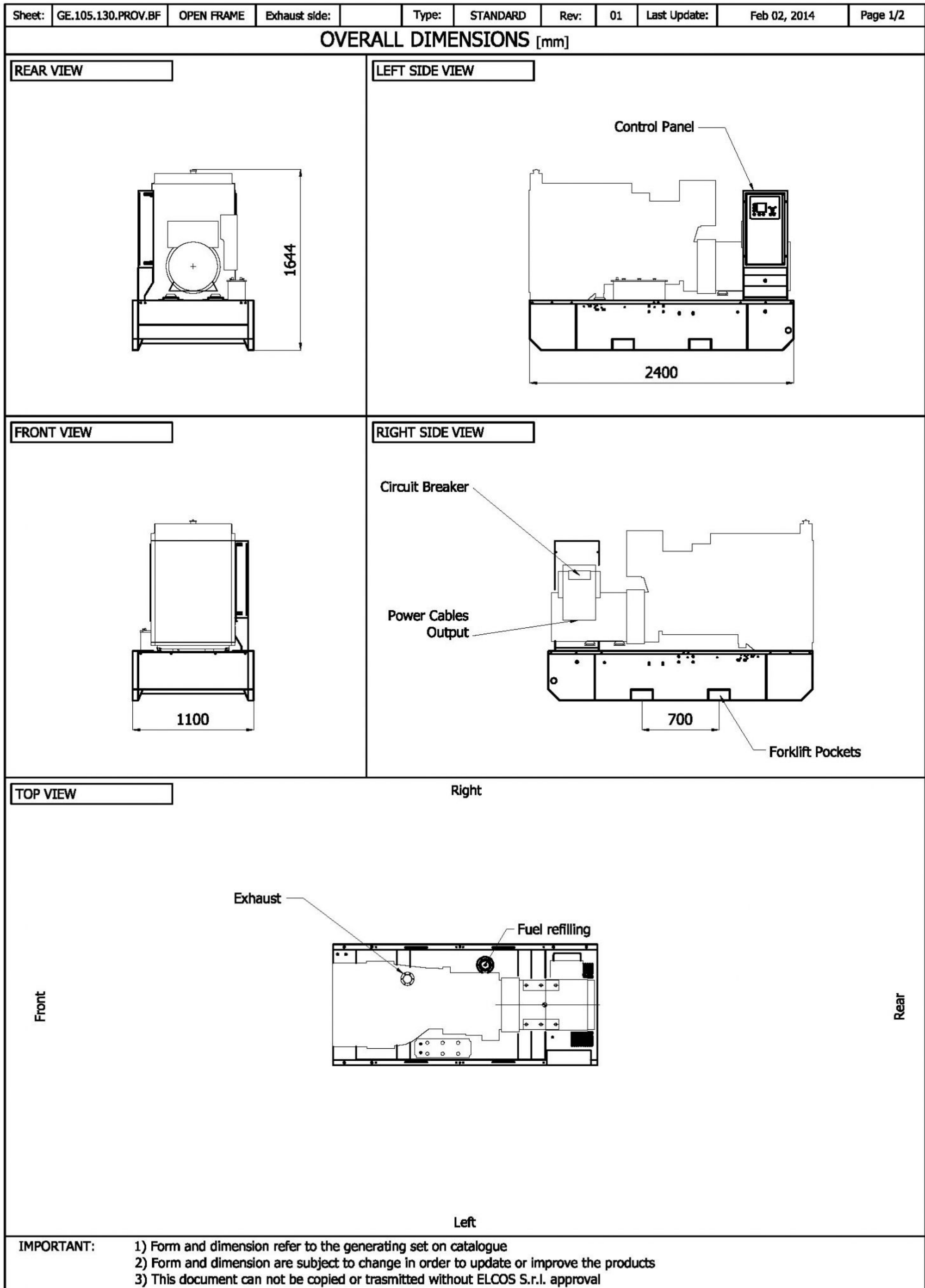
- Differential protection (adjustable only on variant +10 & +11)
- Tamper proof panel

### Panel

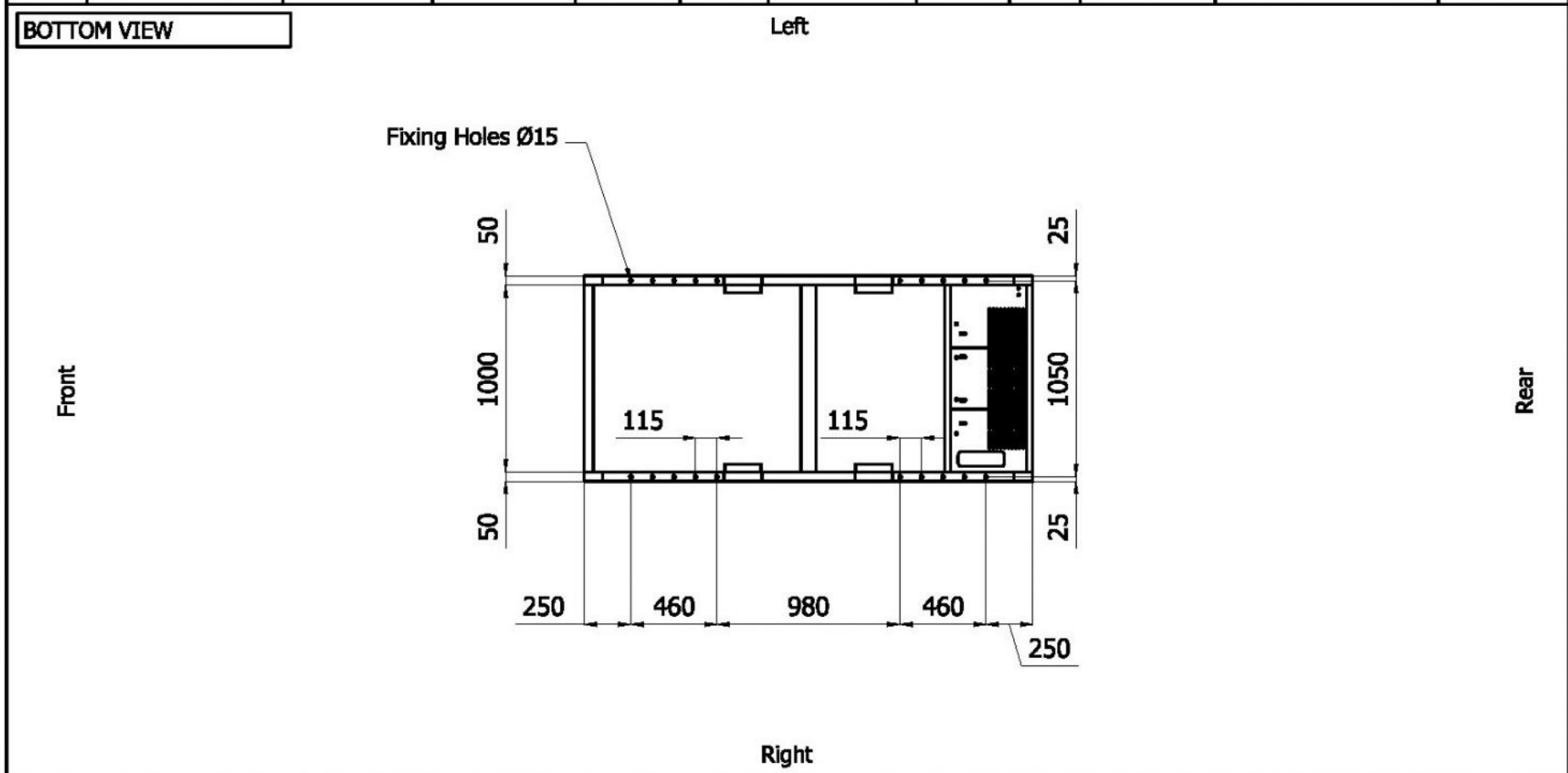
- ATS switching cabinet (QC) (only variant +11)
- Remote management software (only variant +10 & +11)
- Remote panel (only variant +10 & +11)
- Converter 485/USB (only variant +10 & +11)
- Converter 485/LAN (only variant +10 & +11)
- 16-relay module (only variant +10 & +11)
- GSM remote management modem (only variant +10 & +11)
- Radio control (only variant +11 & +12)
- UTIF counter with ARCUDI terminal box
- GSM remote control system with web application without SIM card (only variant +10 & +11)
- GPS tracking system (only variant +10 & +11)

### Other

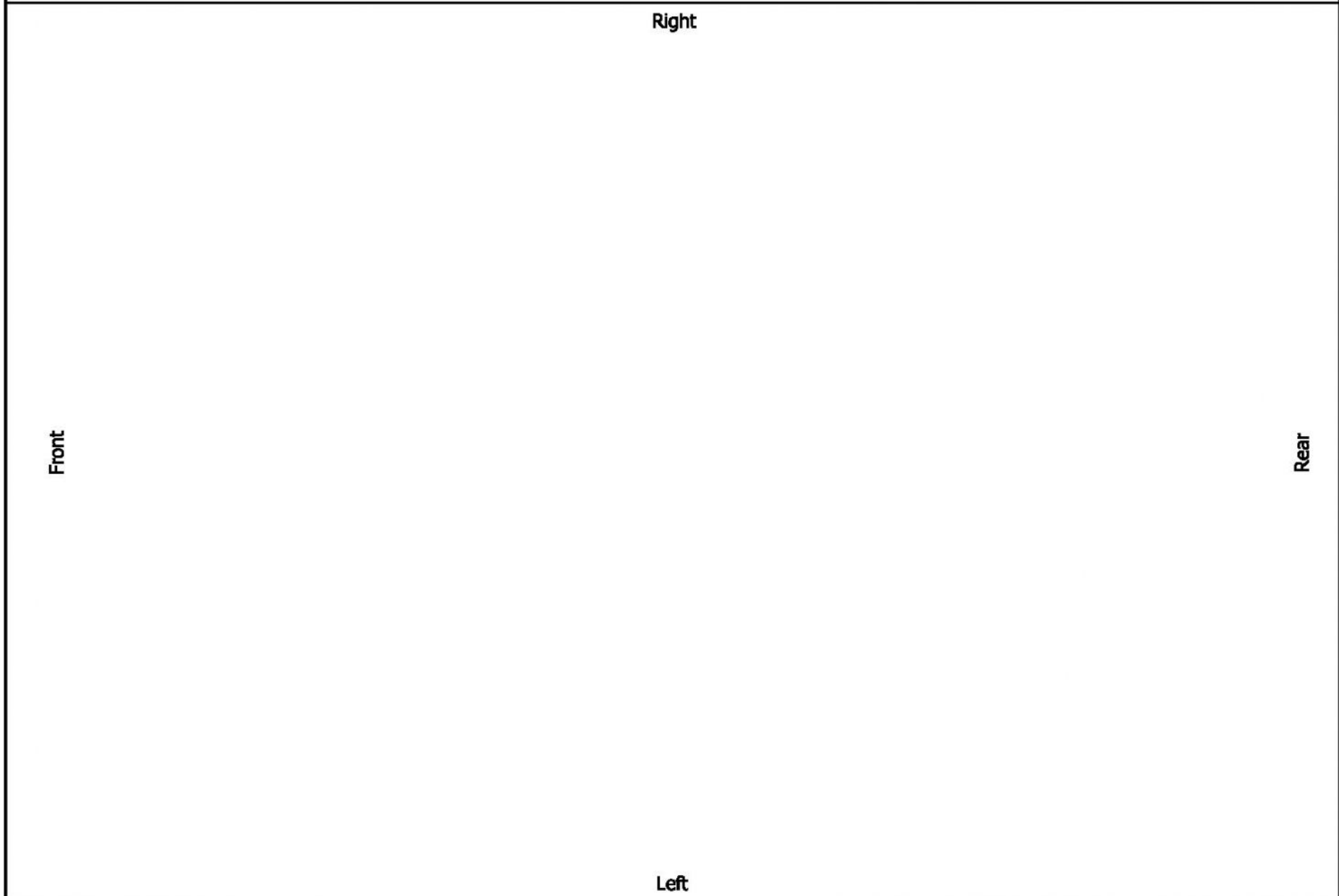
- Toolbox for ordinary maintenance



|        |                    |            |               |  |       |          |      |    |              |              |          |
|--------|--------------------|------------|---------------|--|-------|----------|------|----|--------------|--------------|----------|
| Sheet: | GE.105.130.PROV.BF | OPEN FRAME | Exhaust side: |  | Type: | STANDARD | Rev: | 01 | Last Update: | Feb 02, 2014 | Page 2/2 |
|--------|--------------------|------------|---------------|--|-------|----------|------|----|--------------|--------------|----------|



**DIMENSIONS WITH OPEN DOORS [mm]**



**VENTILATION OF THE ROOM**

The windows area in the generating set room needs to be (recommended):  
 Aspiration: on request  
 Expulsion: on request  
 ATTENTION: for a correct ventilation the expulsion air and the exhaust gas needs to be conveyed in the open-air

**IMPORTANT:**

- 1) Form and dimension refer to the generating set on catalogue
- 2) Form and dimension are subject to change in order to update or improve the products
- 3) This document can not be copied or transmitted without ELCOS S.r.l. approval