

Image for demonstration purposes

 **Generating Set**
Base Frame - Diesel

GE.YAS5.022/020.BF+011

1500 rpm - Threephase - 50Hz - 400V
Multifunction panel without switching on board



Standard equipment

Exhaust

Exhaust manifold protection
Silenced muffler -15dB(A)

Fuel Supply

Single wall daily tank with bunded base
Automatic shutdown system for low fuel level
Fuel gauge

Handling

Loadable side by side for truck transportation

Base Frame

Anti-vibrating mounting pads
Anti pollution Bunded base

Engine

Tropicalized radiator

Alternator

AVR Automatic Voltage Regulator
Impregnation for marine environment
IP23

Panel & connection

Emergency Stop button
Protection by controller
Cable output from the bottom
IP44 wiring
Start-up battery (pre-charged)
Grounding point

Documentation

CE conformity declaration
User and Maintenance manual
Wirings diagrams

Normatives

All Generating sets are compliant to CE Marking
2014/30/UE Electromagnetic compatibility
2000/14/CE Noise Emission for outdoor use
Factory-designed systems built according to ISO 9001:2015
CEI EN 60204-1:2018 - Electrical equipment of machines

Primary data

General Information

Speed	RPM	1500
Frequency	Hz	50
PRP	KVA	20
PRP - Prime power	KW	16
LTP - Standby power	KVA	22
LTP - Standby power	KW	17,6
Standard Voltage	V	400/230
Current	A	28,9
Voltage for current calculation	V	400
COSFI	0,8	0,8

General electrical protection

Circuit-breaker rated current	A	32
Type		Magnetothermal switch on panel board
Circuit-breaker poles	N	4P
Optional/notes circuit-breaker		Opening coil

Fuel Consumption

TYPE		Diesel
Standard Fuel Tank capacity	lt	90
Autonomy @ 75% load	h	23
Fuel consumption at 100% load	lt/h	5,4
Fuel consumption at 75% load	lt/h	4
Fuel consumption at 50% load	lt/h	2,9

General data

Rated capacity	Ah	1x70
Auxiliary Voltage	V	12
Exhaust diameter	mm	50

Weight and Dimensions

Dimensions (L x w x h)	cm	148x88x122
Weight with liquids (excluding optionals and fuel)	Kg (+/-3%)	472

⚙️ Engine

Factory		Yanmar
Model		4TNV88-BIECS
Emissions stage		Stage 5
Speed governor		Mechanic
Radiator	°C	50
Cooling	Tipo	liquid (water + 50% Paraflu11)
Active net power	Kwm	18
Nominal net power	CV	24,5
Cycle	Tipo	4 strokes
Injection	Tipo	Direct
Aspiration	Tipo	Natural
Numbers of cylinders	N	4
Cylinders arrangement		L
Bore	mm	88
Stroke	mm	90
Total displacement	lt	2,188
Engine oil features		15W40-API CI-4/CH-4 ACEA E5-E7
Total oil capacity	lt	7,4
Total coolant capacity	lt	7,5

⚙️ Alternator

*** May vary based on stock availability. However, a primary brand will be used.**

Factory		Stamford
Model		SOL2-G1
Single-phase Range	KVA	20
Voltage Regulator (voltage accuracy)	+/- %	1
Poles	N°	4
Phases	N°	3+N
Standard windings connection		Star Series
Stator/rotor impregnation		H (Outdoor Temp 40°C)
Efficiency	%	86,8
Engine coupling		Elastic disk
Short circuit current		>= 300% (3In)
Protection degree	IP	23
Cooling system		Self ventilating
Maxium overspeed	rpm	2250
Waveform distortion	%	<5
Exciter		Diode bridge

⚙️ Standard operating environmental conditions

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

Control Systems on board QLE-B-SC-3F-4P-63-01



operating scheme - schema di funzionamento

QLE Multifunction panel without switching on board

The QLE command and control panel offers outstanding protection, monitoring and control for small and middle size generator sets. Elcos's control module MC2 Plus offers advanced features to meet the most demanding on-site application. Elcos's control module MC2 Plus is designed to offer an easy user interface. Variant without transfer switch. The panel directly manages the QLTS and QC panels. The output line is protected by a magnetothermic breaker with opening coil. The overload and short-circuit protection is managed by the control board.

Mechanical features

Protection degree	IP	55
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Battery charger

Model		ELCOS - CB1
Maximum output current	A	2,5
Output DC voltage (selectable)	V _{dc}	12-24
Input AC voltage (selectable)	V _{ac}	220-260
Frequency	Hz	50-60

Data Communication

Data connection port	RS-485
Communication protocol	Mod-bus RTU-8N1

Remotable functions in terminal box

GS start	Genset contactor close/open command (1)
Mains contactor close/open command (2)	Remote horn - DC output
Programmable output - Volt free output	

(1) Ready to load function (ARS mode without QC or QLTS panel)(1) Genset contactor open and close command (AMF mode with QC or QLTS panel)(2) Mains contactor open and close command (AMF mode with QC or QLTS panel)

Control Module



Model	MC2 Plus
Operating mode	AMF - ARS

Specifics

Applications

Emergency to the Mains
Stand-alone
Construction site/Rental
Self-production

ENGINE MEASURES

Fuel tank level %
Engine oil pressure BAR (1)
Engine Coolant temperature °C (1)
Total run time
Battery voltage
Start-ups counter
Engine speed

ALTERNATOR MEASURES

Generator Voltage L1, L2, L3
Generator Voltage L1-N, L2-N, L3-N
Generator frequency
Generator current L1, L2, L3
Generator Apparent Power kVA
Generator Active Power kW

COMMUNICATION PORTS

Can-bus port
RS485 port with Mod-bus RTU communication
USB port for parameters saving and firmware update

EQUIPMENT

Microprocessor Logic
Back-lit display
Programmable from display
16 event log
Icons management
STOP button
START button
TEST button
Reset alarm button
Alarm mute button

PRE-ALARMS/ ALARMS

Common Alarm
Fuel reserve (pre-alarm)
Low fuel level (alarm)
Charge alternator failed (dinamo)
Low oil pressure (alarm)
Oil sensor failed (alarm)
High coolant temperature (alarm)
Low water level (1)
Water in fuel (1)
Battery undervoltage
Battery overvoltage
GS failure to start
GS failure to stop
Can-bus Failure
No Can-bus communication
Genset overload L1, L2, L3 phases
Genset short circuit
Genset overvoltage
Genset undervoltage
Genset high frequency
Genset low frequency
overspeed
Earth fault (alarm)
Maintenance request
Emergency button pressed
Remote emergency active
Genset negative phase sequence

VISUALIZATIONS ON CONTROL

MODULE/DISPLAY

Pre-alarms
Alarms
Engine measures
Alternator measures
Operating mode
Genset status
Genset contactor status
Glow plugs status

CONTROL MODULE FUNCTIONS

Remote Start and Stop
Manual Start and stop
Emergency stop button on panel board
Remote emergency stop
Remote test on load
Scheduled start-ups
MODBUS commands (Start, Stop, Reset, Test)

Elcos MC2 control module is designed for diesel generating sets. It offers outstanding protection, monitoring and control for small and middle size generator sets.

OPTIONAL

⚙️ Fuel Supply



O.G-ACO-AT-C3V-01

External fuel tank connections with 3-way valve for supply from internal or external tank (10/100 kVA)



O.G-ACO-AT-CI-01

External tank connections for supply only from external tank (g without tank) GE 10/100



O.G-ACO-BT-P1700-400

400 Lt Oversized Fuel Tank on board for BF/PRO (10/20 kVA), (Increased weight and size)



O.G-ACO-GA-01

Mechanical analogue float for internal fuel tank on board

⚙️ Alternator

O.G-ALT-AL-CHBR-01

Different brand alternator (10/40 kVA)

⚙️ Batteries



O.G-BAT-BAE-01

Maintenance free high efficiency starter batteries (10/40 kVA)



O.G-BAT-STB-01

Battery isolator lockable (10/100 kVA)

⚙️ Electrical on board



O.G-USP-32A5P

Output power socket 32A EC 5P (15/20 kVA) for Gen Sets SS Version +011



O.G-USP-SW-MOT.0010-0040

Motorization switch on board machine, integrated in the panel for 10/40 Kva Ge - (for variant +11)

O.Q-QBM-BMIN-230V-01

Additional price for 230V minimum voltage coil on the modular main switch inside the control panel (check feasibility)

O.Q-QBM-CPI-BEN-01

Permanent insulation controller for IT networks up to 230V / 400V. BENDER IR423-D4-1. Adjustable threshold $10 \div 300$ kohm. (2 DIN rail modules - check feasibility)

O.Q-QLE-K-DIF-M3

Adjustable differential protection only for MC2-PLUS controller for Gen Sets 10/500 kVA (+011 variant)



O.Q-QLE-QBM-COM-AMF25

Additional price for QBM COMAP AMF25 panel replacing the standard QLE-A.



O.Q-QLE-QBM-DSE-7320

Additional price for QBM DSE7320 panel replacing the standard QLE-A.



O.Q-QLE-QPE-MC4

Additional price for QPE-C panel with MC4 replacing the standard QLE-A.

O.Q-QPE-INT-CST-01

GE main switch STATUS contact wired to terminal board inside the QPE panel on board generator (10 / 40KVA) (no variant +10)



O.Q-QPE-SAS-02

Auto Start-Stop at load request (QPE, QLE panels)

Engine



O.G-MOT-FC-1

Dust collector filter - for Gen Sets 10/20 kVA



O.G-MOT-FSA-1

Fuel/Water Separator Filter - for Gen Sets 10/20 kVA



O.G-MOT-K-40C-01

Engine liquids suitable for -40°C ambient temperature for Gen Sets 10/40 kVA



O.G-MOT-PO-01

Oil change pump for Gen Sets 10/100 kVA



O.G-MOT-RF-01

Electronic speed governor for Gen Sets 10/40 kVA



O.G-MOT-SC-AC-EL-01

Engine pre-heater 230V with thermostat on board for Gen Sets 10/100 kVA + 130/500 PRO version



O.G-MOT-SC-AC-EL-02

Super hot engine heater 230V with thermostat on board for Gen Sets 10/100 kVA



O.G-MOT-SE-PO-LR

Oil pressure level and engine temperature sensors (from 10 to 100kVA)



O.G-MOT-SRO-AU-12L

Automatic oil refilling system (10/40 kVA)

ATS Panels



QC1.0060A

Separate ATS panel, 4P - 60A contactors (40 kVA 400V - 30 kVA 230V) Dim. 60 x 25 x 80 cm - 47 kg. (ex QC1.040)



QLTS.060A

Wall-mounted ATS switching panel 60A 4P (40 kVA 400V - 20 kVA 230V) Dim. 40 x 16 x 40 cm - 12 kg.

Exhaust



O.G-SCA-CAT-02

Catalytic converter (20 kVA)



O.G-SCA-FAP-K20

Particulate filter (DPF) for Gen Sets 10/20 kVA



O.G-SCA-GF-50

Exhaust bellow with flexible joint including flange and counter flange (10/40 kVA)


O.G-SCA-KS-50

Exhaust flex pipe for drainage (length 3 mt.)


O.G-SCA-MR-02

Residential muffler -35 dBA (10/20 kVA)

O.G-SCA-MR-MO-01

Installation on board for residential muffler, particulate filter, catalytic converter on BF (10/100 kVA)


O.G-SCA-PF-01

Spark arrestor for Gen Sets 10/40 kVA

 **Test**

MS.CP-LT-01

FAT - Factory Acceptance Test for single Gen Set from 10 to 100 kVA according to our standard procedures in Elcos factory (max 2 hours - max 4 people - max 1 hour of operation)


MS.CP-SP-01

FAT - Factory Acceptance Test for single custom Gen Set from 10 to 100 kVA max 4 operating hours or parallel system up to 4 units for 1 operating hour, in Elcos factory (max 4 hours - max 4 people)

MS.CP-ST-01

FAT - Factory Acceptance Test for single Gen Set from 10 to 100 kVA according to our standard procedures in Elcos factory (max 4 hours - max 4 people - max 2 hour of operation)


MS.TV-ST-01

Vibration test on 10 points with certificate for single Gen Set from 10 to 250 kVA

 **Vari**

O.G-VAR-CAT-01

Toolbox for ordinary maintenance.

O.G-VAR-PUN-TER-01

 Round earth spike, diam. 20 mm, height 1.5mt, galvanized, complete with clamp and 3m yellow/green cable model FS17 1x35mm² with cable lugs.

O.G-VAR-PUN-TER-02

 Cross-shaped earth spike, height 1.5mt, galvanized, complete with clamp and 3m yellow/green cable model FS17 1x35mm² with cable lugs.

O.G-VAR-SFA-02

Aspiration / expulsion sound attenuators -25dBA for Gen Sets 10/40 kVA BF Version

PRP

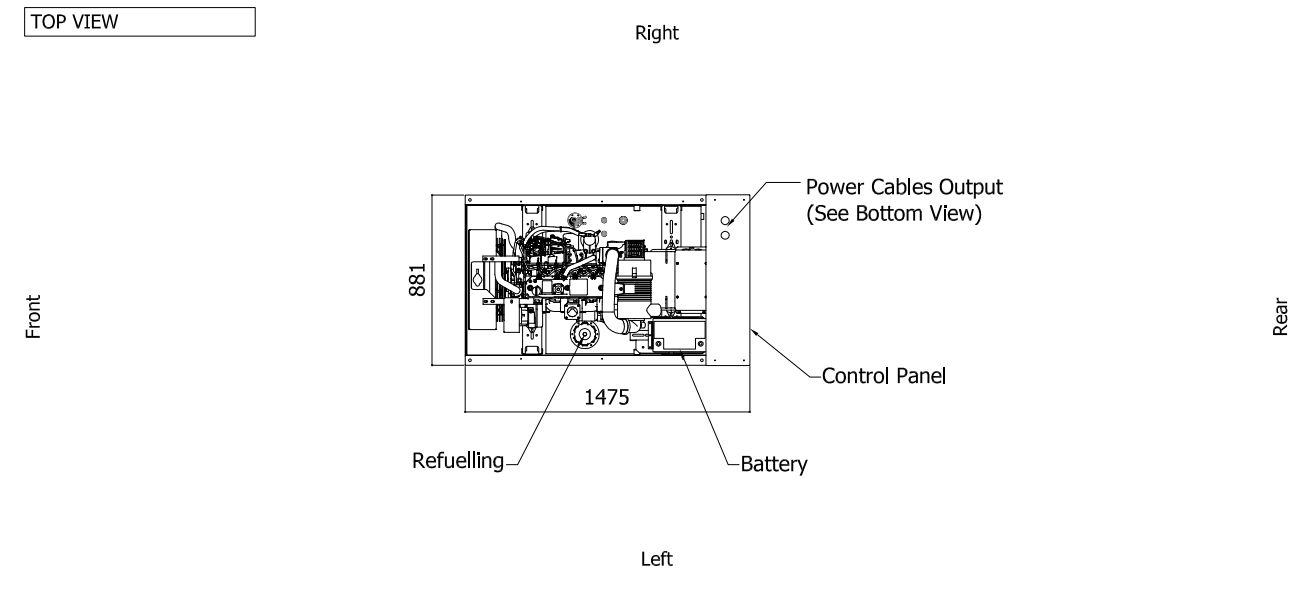
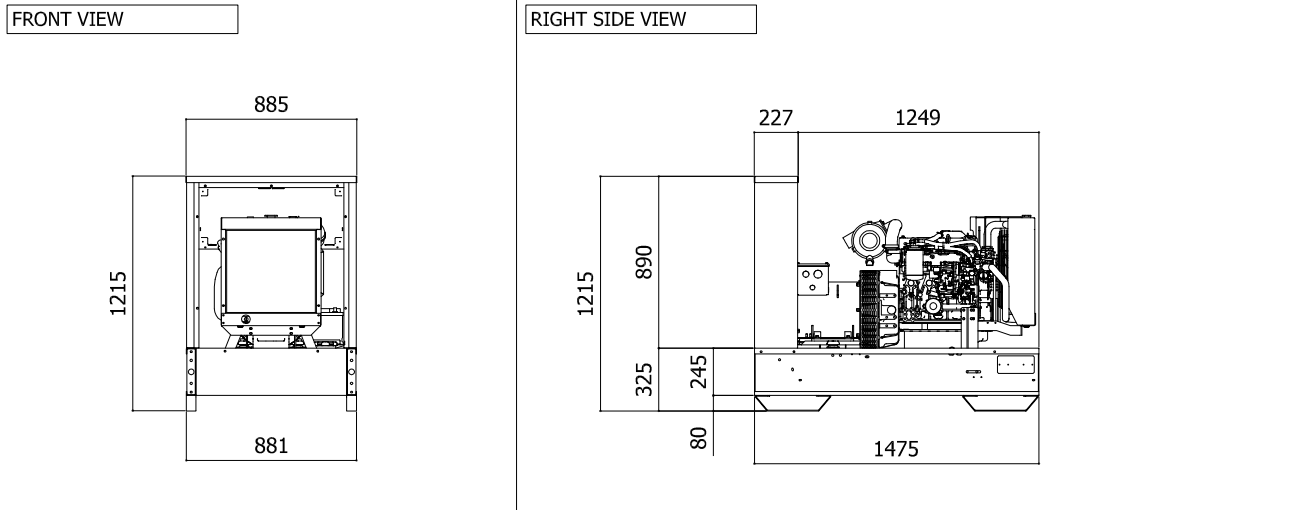
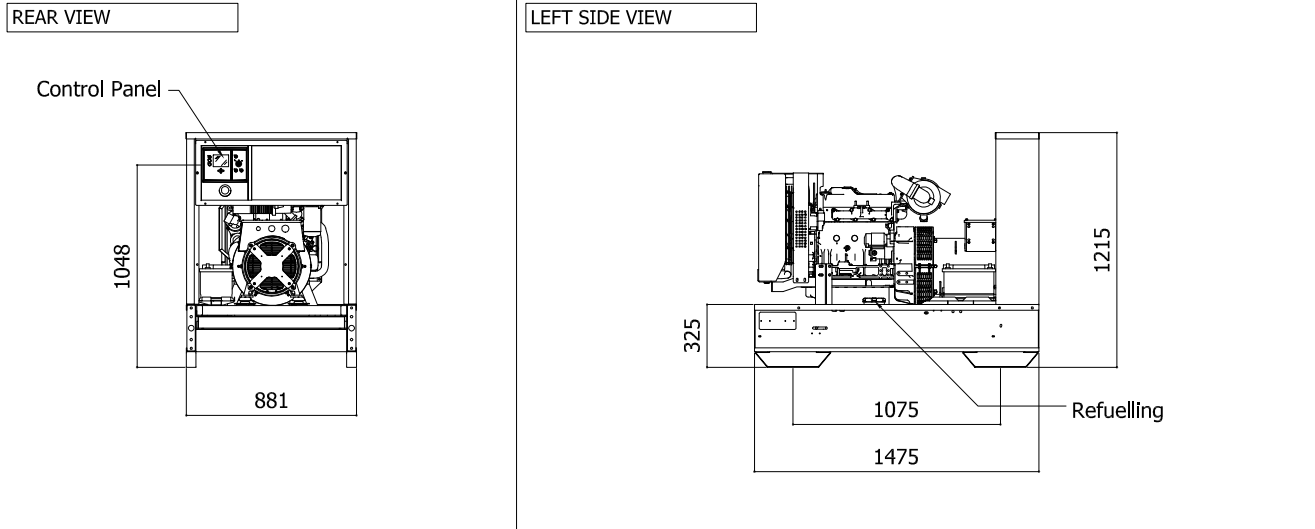
Engines of this rating provide unlimited hours of usage in a variable load application. The average load factor should not exceed 70% of the engine's prime power rating with a maximum number of 500 operational hours at 100% prime power rating. An overload capability of 10% is available, however, is limited to a period of 1 in every 12 hours

LTP

Limited-time running power is defined as the maximum power available, under the agreed operating conditions, for which the generating set is capable of delivering for up to 500h of operation per year with the maintenance intervals. The overload is not allowed.

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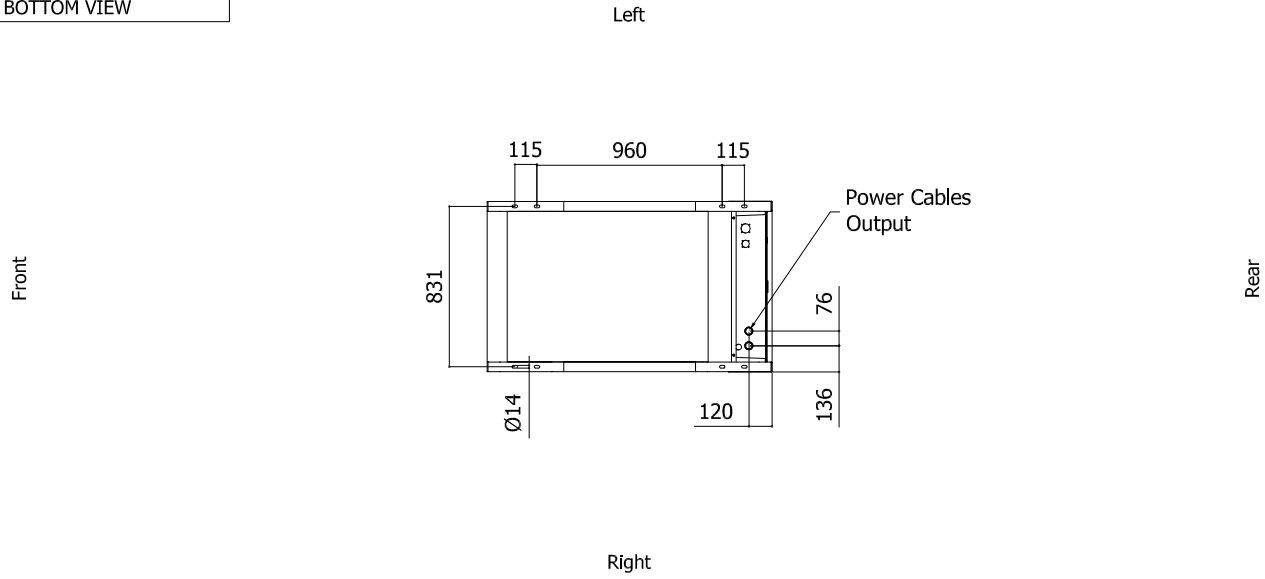
OVERALL DIMENSIONS [mm]



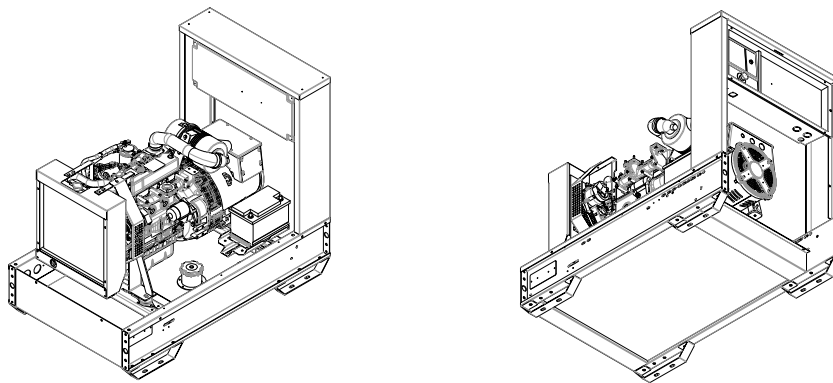
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BOTTOM VIEW



3D VIEW



VENTILATION OF THE ROOM

The windows area in the generating set room needs to be (recommended):

Aspiration: 0.26 m²

Expulsion: 0.21m²

ATTENTION: for a correct ventilation the expulsion air and the exhaust gas needs to be conveyed in the open-air

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