

## **GE.MT.2040/1850.BF+011**

1500 rpm - Trifase - 50Hz - 400V  
Automatic panel without switching on board



### **Standard equipment**

#### **Exhaust**

Exhaust manifold protection  
Exhaust flexible expansion joint  
Silenced muffler -15dB(A)

#### **Fuel Supply**

Fuel connections  
Automatic shutdown system for low fuel level

#### **Handling**

n.4 lifting hooks integrated into the bearing structure

#### **Base Frame**

Anti-vibrating mounting pads

#### **Engine**

Engine pre-heater 230V  
High coolant temperature and low oil pressure shutdown system  
Oil pressure and coolant temperature gauge (only with QPE or +14 variant)  
Oil change pump  
Engine liquids (oil and antifreeze)  
40°C radiator  
Rotating parts protection  
Electronic speed governor  
Radiator level sensor

#### **Alternator**

AVR Automatic Voltage Regulator  
AVR Pre-arranged for parallel  
Bi-phase sensing AVR  
Impregnation for marine environment  
IP23

#### **Panel & connection**

Emergency Stop button  
Magnetothermal circuit breaker on alternator board  
Cable output from side  
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 | <b>1500</b>    |
| Frequency                       | Hz  | <b>50</b>      |
| PRP                             | KVA | <b>1850</b>    |
| PRP - Prime power               | KW  | <b>1480,0</b>  |
| LTP - Standby power             | KVA | <b>2035</b>    |
| LTP - Standby power             | KW  | <b>1628,0</b>  |
| Standard Voltage                | V   | <b>400/230</b> |
| Current                         | A   | <b>2673,41</b> |
| Voltage for current calculation | V   | <b>400</b>     |
| COSFI                           | 0,8 | <b>0,8</b>     |

### General electrical protection

|               |  |             |
|---------------|--|-------------|
| Rated current | A  | <b>3200</b> |
| Type          | <b>Magnetothermal switch on the alternator board</b> |             |
| Poles         | N  | <b>4P</b>   |

### Fuel Consumption

|                               |               |                |
|-------------------------------|---------------|----------------|
| TYPE                          | <b>Diesel</b> |                |
| Standard Fuel Tank capacity   | lt            | <b>No tank</b> |
| Fuel consumption at 100% load | lt/h          | <b>353,5</b>   |
| Fuel consumption at 75% load  | lt/h          | <b>266</b>     |
| Fuel consumption at 50% load  | lt/h          | <b>184,1</b>   |

### General data

|                         |     |              |
|-------------------------|-----|--------------|
| Rated capacity          | Ah  | <b>4x180</b> |
| Auxiliary Voltage       | V   | <b>24</b>    |
| Exhaust gas temperature | °C  | <b>440</b>   |
| Exhaust gas flow        | l/s | <b>4500</b>  |
| Combustion air flow     | l/s | <b>1800</b>  |

### Weight and Dimensions

|  |            |                    |
|--|------------|--------------------|
| Dimensions (L x W x H)                             | cm         | <b>500x200x250</b> |
| Weight with liquids (excluding optionals and fuel) | Kg (+/-3%) | <b>12901</b>       |

## ⚙️ Engine

|                        |      |                                       |
|------------------------|------|---------------------------------------|
| Factory                |      | <b>MTU</b>                            |
| Model                  |      | <b>12V 4000 G24F</b>                  |
| Emissions stage        |      | <b>Stage 0</b>                        |
| Speed governor         |      | <b>Electronic</b>                     |
| Radiator               | °C   | <b>40</b>                             |
| Cooling                | Tipo | <b>liquid (water + 50% Paraflu11)</b> |
| Active net power       | Kwm  | <b>1535</b>                           |
| Nominal net power      | CV   | <b>2085,6</b>                         |
| Cycle                  | Tipo | <b>4 strokes</b>                      |
| Injection              | Tipo | <b>Direct</b>                         |
| Aspiration             | Tipo | <b>Turbo</b>                          |
| Numbers of cylinders   | N    | <b>12</b>                             |
| Cylinders arrangement  |      | <b>V</b>                              |
| Bore                   | mm   | <b>170</b>                            |
| Stroke                 | mm   | <b>210</b>                            |
| Total displacement     | lt   | <b>57,17</b>                          |
| Engine oil features    |      | <b>15W40-API CI-4/CH-4 ACEA E5-E7</b> |
| Total oil capacity     | lt   | <b>260</b>                            |
| Total coolant capacity | lt   | <b>490</b>                            |

The emission levels of the exhaust gas are indicated in the engine technical datasheet. Any changes due to more restrictive regulatory adjustments are excluded.

## ⚙️ Alternator

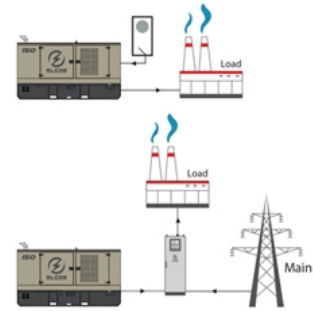
**\* May vary based on stock availability. However, a primary brand will be used.**

|                                      |       |                              |
|--------------------------------------|-------|------------------------------|
| Factory                              |       | <b>Stamford</b>              |
| Model                                |       | <b>PI734E</b>                |
| PRP continuous power                 | KVA   | <b>1900</b>                  |
| Voltage Regulator (voltage accuracy) | +/- % | <b>1</b>                     |
| Poles                                | N°    | <b>4</b>                     |
| Phases                               | N°    | <b>3+N</b>                   |
| Standard windings connection         |       | <b>Star Series</b>           |
| Stator/rotor impregnation            |       | <b>H (Outdoor Temp 40°C)</b> |
| Efficiency                           | %     | <b>95,8</b>                  |
| Engine coupling                      |       | <b>Elastic disk</b>          |
| Short circuit current                |       | <b>&gt;= 300% (3In)</b>      |
| Protection degree                    | IP    | <b>23</b>                    |
| Cooling system                       |       | <b>Self ventilating</b>      |
| Maxium overspeed                     | rpm   | <b>2250</b>                  |
| Waveform distortion                  | %     | <b>&lt;5</b>                 |
| Exciter                              |       | <b>PMG</b>                   |

## ⚙️ Standard operating environmental conditions

|                     |    |             |
|---------------------|----|-------------|
| Ambient temperature | °C | <b>25</b>   |
| Relative Humidity   | %  | <b>30</b>   |
| Max altitude        | mt | <b>1000</b> |

# Control Systems on board QPE-C-SC-3F-V1



operating scheme - schema di funzionamento

## QPE Automatic panel without switching on board

The QPE-C control panel represents the evolution of the panel for the control and management of the gen set. With its microprocessor logic it is able to meet any user requested features. The dual operation mode manual and 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 without transfer switch on board. ATS panel type QC as optional. The panel manages the QC panels directly or any other ATS panel.

### Mechanical features

|                   |    |    |
|-------------------|----|----|
| Protection degree | IP | 55 |
|-------------------|----|----|

### Battery charger

|                                |                 |             |
|--------------------------------|-----------------|-------------|
| Model                          |                 | ELCOS - CB1 |
| Maximum output current         | A               | 2,5         |
| Output DC voltage (selectable) | V <sub>dc</sub> | 12-24       |
| Input AC voltage (selectable)  | V <sub>ac</sub> | 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   | GS lock                                |
| Genset contactor close/open command (1)              | Mains contactor close/open command (2) |
| Common Alarm - DC output                             | GS test without load                   |
| GS start with key in OFF position (Only in MRS mode) | Programmable output - Volt free output |

## Control Module



|                |                  |
|----------------|------------------|
| Model          | <b>MC4</b>       |
| Operating mode | <b>AMF - MRS</b> |

### 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  
Partial run time  
Hours to maintenance  
Battery voltage  
Battery charging voltage  
Start-ups counter  
Engine speed (2)  
Engine Oil temperature (2)  
Cooler temperature (2)  
Engine oil level (2)  
Engine coolant level (2)  
Engine coolant pressure (2)  
Turbo pressure (2)  
Fuel Consumption (2)  
Tank autonomy - hrs (5)  
Fuel remaining quantity (5)  
Fuel used quantity (5)

#### 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  
Generator Reactive Power kVAR  
Generator accumulated power kWh  
Power factor Cosfi

#### MAINS MEASURES

Mains voltage L1, L2, L3  
Mains voltage L1-N, L2-N, L3-N  
Mains frequency

#### COMMUNICATION PORTS

Can-bus port  
RS485 port with Mod-bus RTU communication  
RS232 port for display connection  
USB port for parameters saving and firmware update

#### EQUIPMENT

Microprocessor Logic  
Back-lit display  
Programmable from display  
16 event log  
Multiple display languages  
STOP button  
START button  
TEST button  
Reset alarm button  
Alarm mute button  
Fuel transfer pump activation button  
Glow-plug activation button

#### PRE-ALARMS/ ALARMS

Common Alarm  
Fuel reserve (pre-alarm)  
Low fuel level (alarm)  
Tank overflow  
Charge alternator failed (dinamo)  
Low oil pressure (pre-alarm) (1)  
Low oil pressure (alarm)  
Oil sensor failed (alarm)  
High coolant temperature (pre-alarm) (1)  
High coolant temperature (alarm)  
Low coolant temperature (pre-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  
Reverse power  
Earth fault (pre-alarm)  
Earth fault (alarm)  
Block from password  
CAN communication Failed  
Maintenance request  
Emergency button pressed  
Remote emergency active  
Forced stop  
External battery failed  
Fuel theft  
Genset negative phase sequence  
Mains negative phase sequence  
Fuel theft protection

#### VISUALIZATIONS ON CONTROL

##### MODULE/DISPLAY

Pre-alarms  
Alarms  
Engine measures  
Alternator measures  
Mains measures  
Date and time  
Operating mode  
Genset status  
Mains status  
Mains contactor status  
Genset contactor status  
Digital Input and Output status  
Grounding current mA (3)  
Grounding current threshold mA (3)  
Delay time of differential protection (3)  
Glow plugs status

##### CONTROL MODULE FUNCTIONS

Automatic start and stop when the Mains Fails (7)  
Remote Start and Stop  
Remote Start and Stop with key in OFF position  
Manual Start and stop  
Emergency stop button on panel board  
Remote emergency stop  
Remote lock  
Remote test without load  
Remote test on load  
Scheduled start-ups  
MODBUS commands (Start, Stop, Reset, Test)

##### CONTROL MODULE SPECIAL FUNCTIONS (on demand)

Automatic charging of an external battery  
Dummy load (4)  
Load shedding (4)  
Redundant starter motor management  
Fuel monitoring  
GS battery Load test  
Idle mode  
Service phone number indication  
Variable speed Generator  
Master / Slave mode

- (1) Present with the sensor installed on engine
- (2) Present according to the engine equipment and to the ECU type (ECU - Canbus)
- (3) Present only with the residual current device mounted on genset board
- (4) Present with optional expansion modules
- (5) Present with special function activated
- (6) Only with the optional of the automatic fuel refilling system on board
- (7) Only in AMF mode

## OPTIONAL

### Fuel Supply



**O.Q-ACO-AT-C3V-03**

External fuel tank connections with 3-way valve for supply from internal or external tank (750/3000 kVA)

### Electrical on board



**O.Q-QPE-485.CONV-LAN**

Converter 485/LAN for QPE-C, QLE-B panel



**O.Q-QPE-485.CONV-USB**

Converter 485/USB for QPE panel

**O.Q-QPE-DIS-MS.01**

MASTER/SLAVE device for QPE panel

**O.Q-QPE-K-DIF**

Differential protection adjustable for the MC4

**O.Q-QPE-MD-QPE-C**

GSM remote management modem for QPE panel



**O.Q-QPE-PR-QPE-C**

Remote panel for QPE-C, QLE-B - available only for variant +10/+11



**O.Q-QPE-QBM-COM-AMF25**

Option with QBM COMAP AMF25 controller on board instead of QPE



**O.Q-QPE-QBM-DSE-7320**

Option with QBM DSE7320 controller on board instead of QPE.



**O.Q-QPE-RIL-16RELE**

16-relay module for QPE panel



**O.Q-QPE-RX8-QPE-C**

Start-stop radio control with max. radius 500 mt indoors and 5 km outdoors (for QPE panel).



**O.Q-QPE-SAS-02**

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



**O.Q-QPE-SCD-01**

Anti-condensation heater inside the panel



**O.Q-QPE-SEL-50-60**

Switch selector 50Hz 400V / 60Hz 480V



**O.Q-QPE-TG-EVO-GPS-4G**

Remote management system via LAN/GSM 4G with WEB application and GPS location system



**O.Q-QPE-TG-QPE-C**

Remote management software via LAN for QPE-C, QLE-B panel compatible with Windows XP and 7

### Engine



**O.G-MOT-K-40C-08**

Engine liquids suitable for -40°C ambient temperature for Gen Sets 1800/3000 kVA



**O.G-MOT-SC-AC-EL-06**

Super hot engine heater 230V with thermostat on board for Gen Sets 1250/3000 kVA



**O.G-MOT-SE-LR-03**

Radiator coolant level sensor from 750 to 3000 kVA

#### **ATS Panels**



**QC4.3150A**

Separate ATS panel, 3150A motorized change-over (2000 kVA 400V) Dim. 100 x 100 x 190 cm - 450 kg. (ex QC4.2200)

#### **Exhaust**



**O.G-SCA-MR-10**

nr. 2 Residential mufflers -35 dBA (1250/2000 kVA)

### **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.