



## ■ Engine Specification: BFM3 G1

Basic technical data	
No. of cylinders	4
Cylinder arrangement	In-line
Cycle	4 stroke
Injection system	in-line pump
Displacement	3.168 L
Bore	98 mm
Stroke	105 mm
Compression ratio	18.5:1
Mean effective pressure	5.6 bar
Piston speed	5.25 m/s
Rotation	CCW
Engine dry, w/o cooling system	245kg

Cooling system	
Delivery of coolant pump	4.2m <sup>3</sup> /h
Min. pressure before coolant pump	0.15bar
Coolant capacity(engine)	4.8L
Coolant capacity (incl. cooling unit)	TBD
Air to boil	50°C
Fan power consumption	2 KW
Cooling air flow	3960 m <sup>3</sup> /h
Air pressure loss, external	1.5 mbar
Heat balance	
Heat dissipation (engine radiator)	25KW

Inlet / Exhaust Data	
Max. intake depression (switch setting)	30 mbar
Combustion air volume	132m <sup>3</sup> /h
Max. exhaust back pressure	100 mbar
Max. exhaust gas temperature	530°C
Exhaust gas flow (at above temp)	250 m <sup>3</sup> /h

Output	
Gross output (LTP)	22 KW
Fan reduction	2 KW
Net flywheel	TBD
Electrical output	22kVA
Gross output (PRP)	20KW
Gross output (Continuous power)	19KW

Lubrication system	
Oil specification	CF-4
Oil consumption (as % of fuel consumption)	0.5
Oil capacity (sump)	7.5L
Min. oil pressure (warning)	1.5 bar
Min. oil pressure (shut down)	1.0bar
Max. permissible oil temp(oil pan)	120°C

Electrical system	
Voltage	12 V
Starter	3 KW
Alternator output	55 A



## ■ Control Panel

### Configuration

- Emergency stop button
- Protection MCB
- Battery charger
- Integrated aviation plug
- ATS connection
- Digital control module

### Features

- 3 phase generator set monitoring
- Support of engines equipped with electronic control unit
- Comprehensive diagnostic message
- Automatic or manual start/stop of the gensets
- Push buttons for simple control, lamp test
- Graphic back-lit LCD display
- Parameters adjustable via keyboard or PC
- Mains measurements ( 50HZ/60HZ)
- Generator measurements ( 50HZ/60HZ)
- Comprehensive shutdown or warning on fault condition
- 3 phase Generator protections
  - Over-/under voltage
  - Over-/under frequency
  - Current/voltage asymmetry
  - Over current/overload
- 3 phase AMF function
  - Over-/under frequency
  - Over-/under voltage
  - Voltage asymmetry
- Configurable analog inputs
- Battery voltage, engine speed (pick-up) measurement
- Configurable programmable binary inputs and outputs
- Warm-up and cooling functions
- Generator C.B. and Mains C.B. control with feedback and return timer
- RS232 interface
- Modem communication support
- Hours counter
- Sealed to Ip65
- Event log

### Benefits

- Less wiring and components
- Integrated solution
- Less engineering and programming
- User friendly set-up and button layout
- Module can be configured to suit individual applications
- PC software for simplified configuration
- Wide range of communication capabilities

### Operation conditions

- Operation temp: -20 °C to + 70 °C
- Storage temp: -30 °C to + 80 °C
- Operating humidity: 95% w/o condensation
- Vibration : 5-25Hz, ±1.6 mm  
5-100Hz, a=4g
- Shocks: a= 500m/s<sup>2</sup>

### Options

- Ethernet interface (Remote monitoring and control)
- GSM modem/wireless internet (Remote monitoring and control)
- RS232-RS485 Dual port interface
- Synchronizing control panel
- Distribution board with sockets kit and power busbar
- Battery trickle charge ammeter
- Earth leakage protection
- Earth fault protection
- Low fuel level alarm
- Low fuel level shutdown
- High fuel level alarm
- Fuel transfer system control
- Low coolant level shutdown
- High lube oil temp shutdown
- Overload via alarm switch on breaker
- Engine coolant heater controls
- Control panel heater
- Speed adjust switch
- Oil temp displayed on LCD screen
- Additional 8 inputs and outputs