



# AMF COMPACT

Enhanced Auto Mains Failure generator controller

The **AMF COMPACT** is one controller of a complete range for Energy sources and power plant management: Generators, Mains, Photovoltaic, Batteries storage, Tie breakers. This controller is dedicated to a large variety of standby diesel or gas generators, offering an automatic management of transfer switch on mains failure, as well as monitoring, control and protection of engine, alternator and power Bus bars. It offers flexibility and time saving thanks to its simple wiring, all features included (no option), and easy programming.

## HARDWARE AND DISPLAY

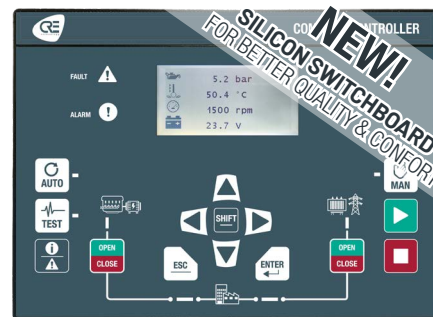
**AMF COMPACT** is available in both switchboard panel mounted version with display, or core base mounted version and compatible with **i4Gen** touchscreen color display range.

## SOFTWARE

**AMF COMPACT** is configurable from its front panel display, from **i4Gen HMI**, or through the free **i4Gen Suite** software.



CORE BASE DIN RAIL  
MOUNTED VERSION



SWITCHBOARD MOUNTED VERSION  
WITH DISPLAY

## FEATURES

### CONTROL AND MANAGEMENT

- Complete engine control of diesel, gasoline or gas generators (preheating, pre-glow, ignition, start/stop...).
- Alternative or consecutive multiple starter management.
- Warm-up and cool down at idle or nominal speed.
- Remote start and test mode available On/Off load.
- Compatible with all J1939 electronic engines. Automatic management of the standard frames.
- **New** : Possibility to create and configure up to 10 customized J1939 frames (read and write). Management of DTC and DPF/SCR (Tier 4 final and Stage 5 engines. Engine ECU address automatic detection. Sniffer/Spy function to analyse the CAN frames. Start/Stop control, speed, 50/60Hz selection.
- **New** : Compatible with MTU MDEC CANbus electronic engine.
- Mains failure detection and changeover.
- Override mode (protections inhibition + dedicated hour meter) following NFE 37-312 certification.
- Non-essential load trip control on overload or under frequency (Load shedding).
- Battery boost management.
- Configurable maintenance cycle.
- 3 password levels: end user, technician, advanced technician.

### DISPLAYED INFORMATIONS

- Engine parameters: oil pressure, coolant temperature, speed, hour run meters (normal and override), number of start attempts, battery voltage and more than 100 parameters available from J1939 ECUs and parameters available from MTU MDEC CANbus.
- Generator electrical parameters:
  - Voltage (3 phases RMS, L-L and L-N)
  - Current (3 phases RMS)
  - Frequency
  - Active power (3 phases + total)
  - Reactive power (3 phases + total)
  - Power factor (3 phases + total)
  - Calculated active energy (KWh)
  - Calculated reactive energy (KVARh)
- Mains electrical parameters:
  - Voltage (3 phases RMS, L-L and L-N)
  - Frequency
  - Current (1 phase RMS)
  - Active and reactive power
  - Power factor
- Record of 500 events/alarms/faults with timestamps.

- Displayed on controller screen & i4Gen with advanced filter.
- Configurable event logger and info pages.

### CONFIGURABLE EVENTS LOGGER

- Configurable list of parameters needed
- Configurable frequency record
- 1350 logged events with timestamp and real-time value available, non volatile memory.

### ELECTRICAL PROTECTIONS

- Generator electrical protections:
  - <F, >F: ANSI Code 81L, 81H
  - <U, >U: ANSI Code 27, 59
  - >I, >>I, >In, >Ig: ANSI Code 50, 51, 50N, 51G
  - <KW, >KW: ANSI Code 37P, 32P
  - <KVAR, >KVAR: ANSI Code 37Q, 32Q
  - Unbalance I and V
- Mains electrical protections:
  - <F, >F: ANSI Code 81L, 81H
  - <U, >U: ANSI Code 27, 59
  - <KW, >KW: ANSI Code 37P, 32P
  - <KVAR, >KVAR: ANSI Code 37Q, 32Q
  - Unbalance V

### BREAKERS CONTROL

- Adjustable pulses or latched contact for breaker closing.
- Adjustable pulses or latched contact for breaker opening.
- MN/MX coil management.
- Allows the control of 1 changeover or 2 separate breakers.
- The breakers positions feedback could be connected or not.
- Alarm management for closing failure, opening failure, unexpected closure, unexpected opening.

### PROGRAMMING FEATURES

- Alternative selection: up to 16 parameters values can be modified by triggering any digital input or ModBus TCP variable.
- Scheduler: specific functions or modes (ex: auto start, test mode, Boost...) can be programmed on scheduled operation (cyclic or one-time).
- Easy Flex:
  - 50 lines of programming with logic and arithmetic operators and conditions.
  - All inputs/outputs and variables available.
  - **New** : Debug mode displaying in real time the status or value of all variables in the programming lines
- Generic filling feature:
  - High and low set point from digital or analog input.

- Up or down direction configurable.
- User variables:
  - 100 user variables are available for programming.
  - Each variable has its own label + unit + accuracy.

### AUTOMATIC FIRMWARE UPDATE

When module is connected to **i4Gen Suite** PC software, you will automatically be suggested for a firmware update to the latest version if applicable.

### MODBUS TCP SLAVE & MASTER COMMUNICATION PORT

#### In Slave application:

- All data are accessible by ModBus TCP locally or remotely (web, GPRS).
- Read and write functions + 300 free ModBus TCP address available for custom mapping.

#### New - In Master application:

- Possibility to create and configure customized frames

### REMOTE SUPERVISION WITH i4GEN (7, 10 OR 15 INCHES)

- Internet connection: Wan port or Wifi hotspot or 4G modem or Smartphone Access point.
- Visualization - configuration - programming - remote power plant control.
- Up to 10,000 power plants with a single Zoho Assist account. (Zoho Assist PC, MAC, Smartphone application).
- **New** : Monitoring and control of the complete power plant (generators, mains, photovoltaic, batteries storage...) through a single line diagram generated automatically.
- 1 single i4Gen can monitor the entire power plant.
- Sending emails on events.



#### Part numbers:

**A56-AMF-10** Core base mounted version

**A56-AMF-00** Switchboard mounted version with display

### RELATED PRODUCTS AND CABLES

i4Gen Touchscreen color display range – Ref A56Vxx  
I/O Expansion – Ref BK5150 + KL1488 + KL2408 ...  
PC Connection Ethernet cable – Ref A53W1  
CANbus J1939/CRE/CANopen communication cable – Ref A40xx



CRE TECHNOLOGY - 130, allée Charles-Victor Naudin - Zone des Templiers - SOPHIA ANTIPOLIS - 06410 BIOT - FRANCE  
Phone : + 33 (0)4 .92.38.86.82 - [www.cretechnology.com](http://www.cretechnology.com) - [info@cretechnology.com](mailto:info@cretechnology.com)

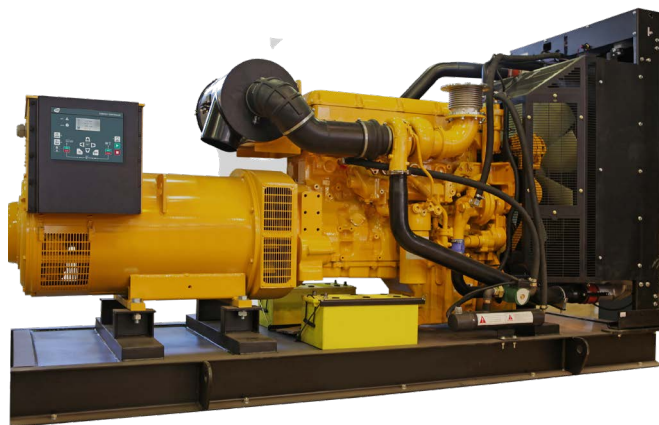
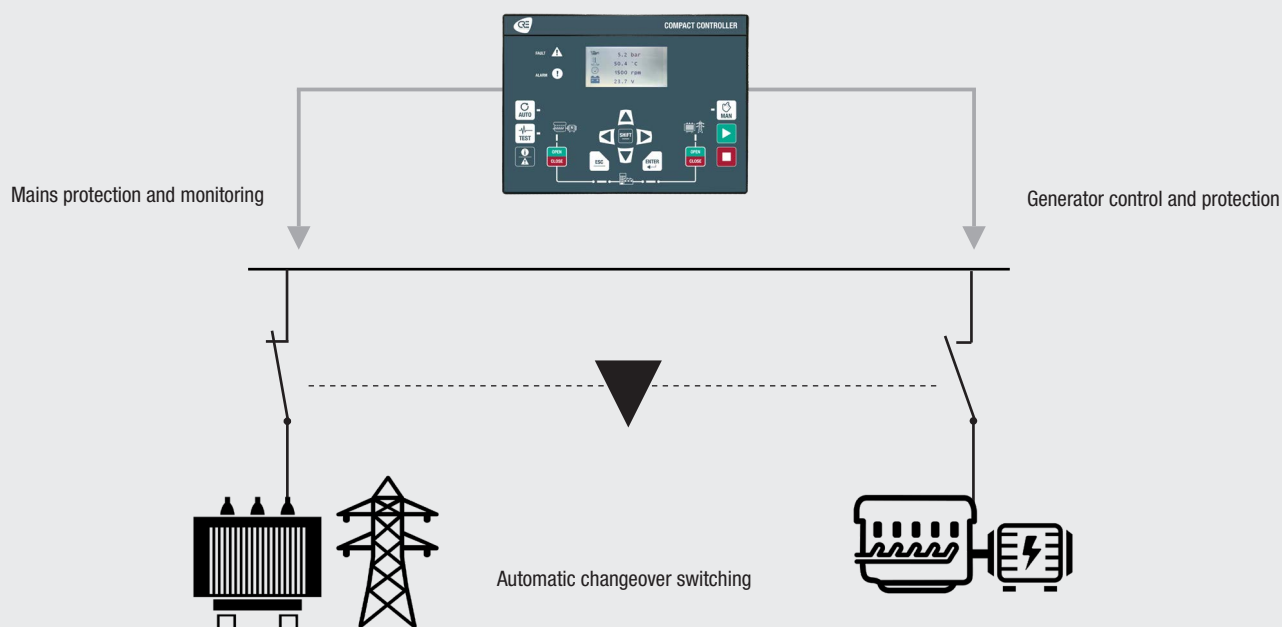
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## APPLICATIONS

The **AMF COMPACT** is an Automatic Mains Failure unit, ensuring a complete management of standby generator in backup of mains supply, by continuously monitoring utility input and starting the generator in case of operator request or emergency. The **AMF COMPACT** allows user control, test operation on schedule or from switchboard.

Its flexibility provides a large capability of features usable on the controller inputs/outputs or the 32 I/O expansions and the 16 analog inputs expansions that can be connected on CANbus. A ModBus TCP access is available on the Ethernet port, also used for PC connection.

### STANDBY GENERATOR WITH MAINS IN AUTOMATIC MAINS FAILURE



### SPECIFICATIONS

#### ELECTRICAL SYSTEM

Compatible with 3 or 4 wires three-phase, or two-phase or single phase systems.

#### CURRENT, VOLTAGE AND FREQUENCY

- DC Power supply: 7...38V<sub>DC</sub>, Max voltage 45V<sub>DC</sub> during 15mn, current consumption at 24V<sub>DC</sub> = 130mA + the sum of maximum consumption of each logic output.
- AC Voltage inputs: 80...500V<sub>AC</sub>, Consumption = 100mA max. Accuracy: 1%. 3ph + N for generator / 3ph + N for mains. Neutral terminal does not need to be connected.
- AC Current inputs: 4 wires. (3ph) for generator / 2 wires (1ph) for mains or Earth. 0...5A; 1VA. Overload 15A during 10s. Accuracy: 0.5%.
- AC Frequency measurement: 35...75Hz; 15V<sub>AC</sub> minimum between phase and neutral.

#### INPUTS, OUTPUTS

- 9 x Digital inputs: NO or NC to ground. Adjustable timer On and Off.
- 32 x Digital input expansion via CANopen.
- 3 x Analog inputs: Resistive (0...500Ω) or 0...20mA (with external resistor). Could be used as digital input. Library of sensors available. Configuration curve with up to 31 points.
- 16 Analog inputs expansion via CANopen (0-20mA, 0-10VDC, PT100, Thermocouple,...)
- 6 x Digital outputs: NE or ND. 1.8A, over-current protected.

Adjustable timer.

- 32 x Digital output expansion via CANopen.
- 2 x Relay outputs (breaker control): 5A, 240V<sub>AC</sub>.
- 2 x Analog outputs +/-10VDC: isolated output with adjustable span and offset.
- Magnetic pick up input: Frequency 50Hz...10KHz, Voltage 0.5...40V<sub>AC</sub>.

#### COMMUNICATION PORTS

2 isolated com ports are available:

- 1 CANbus: J1939 and MTU MDEC electronic engine and I/O extensions.
- 1 Ethernet: PC communication/ModBus TCP.

#### ENVIRONMENT

- Operating temperature: -30... 70°C (-22...158°F).
- Storage temperature: -40...70°C (-40...158°F).
- Humidity: 95% non-condensing.
- Altitude: Up to 4000m for 480V<sub>AC</sub>. Up to 5000m for 400V<sub>AC</sub>.
- IP Front: IP65/NEMA rating 4 - IP20/NEMA rating 1 for core base.
- IP Rear: IP20/NEMA rating 1.

#### DIRECTIVES

- EMC Directive 2014/30/UE - EMC General Requirements EN 61326-1: Immunity according with EN 61000-6-2 and Emission according with EN 61000-6-4.

- Electrical Safety Directive 2014/35/UE: According with EN 60950-1.
- Vibrations and shocks: According with EN(IEC) 60068-2-6 and IEC 60068-2-27.
- Temperature: EN(IEC) 60068-2-30; EN(IEC) 60068-2-1; EN(IEC) 60068-2-2; EN 60068-2-78.

#### SIZE AND WEIGHT

- Switchboard mounted version with display:
  - Dimensions: 245x182x40mm (9.64x7.16x1.57in).
  - Panel cut out: 220x160mm (8.7x6.3in).
- Core base mounted version:
  - Dimensions: 260x157x44mm (10.24x6.18x1.73in). (depth with connectors).
  - Fixing dimensions (4 screws): 238x129mm (9.37x5.08in). Fixing hole: Ø5.24mm (0.21in).
  - Optional DIN rail mounting.
- Weight: 0.7kg (1.54lb).

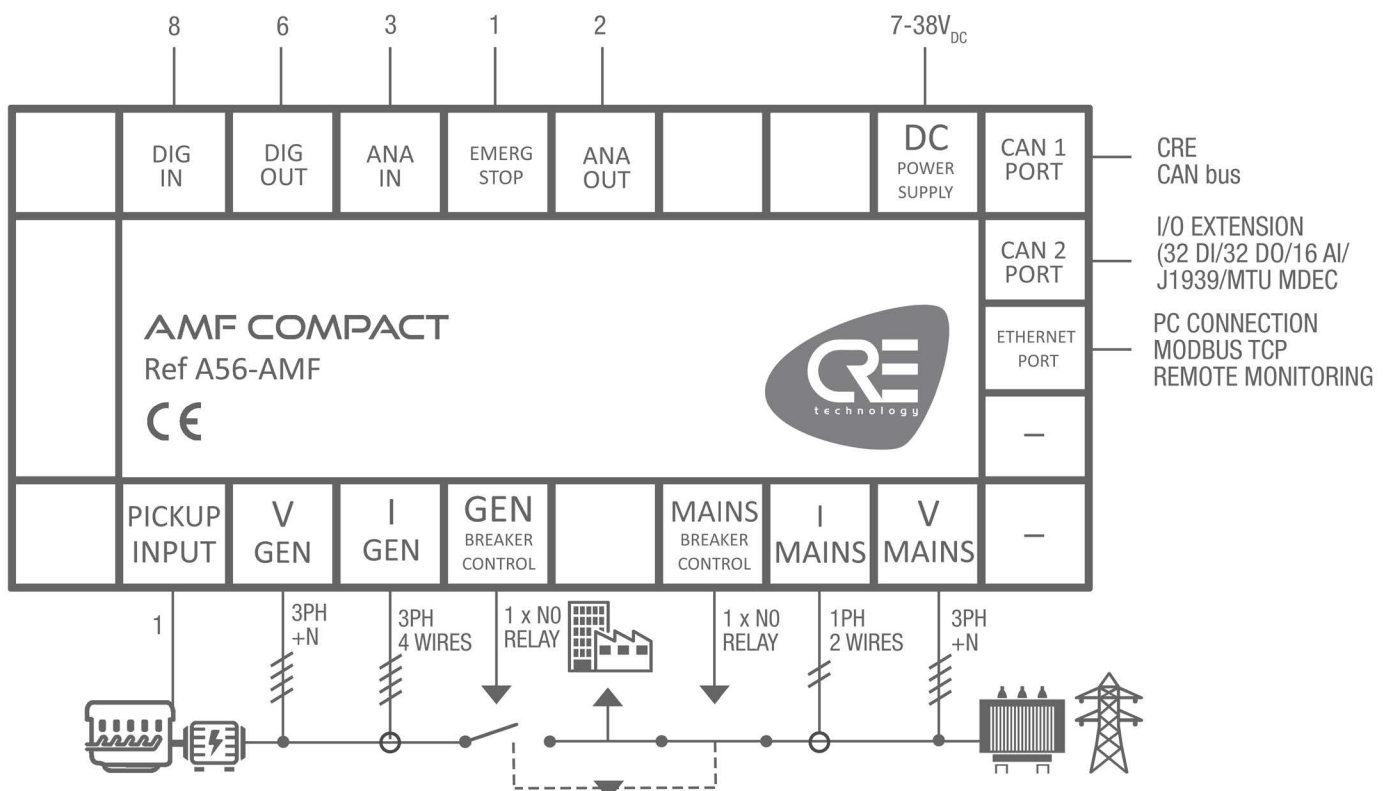
#### LCD DISPLAY CHARACTERISTICS

- Size: 40x70mm (1.50x2.75in).
- Pixels: 1024x512 Backlight: 50cd/m2 typical, configurable.
- Contrast: adjustable.

#### LANGUAGES

English, French, Italian, Spanish in standard. Portuguese, Russian, German and other custom languages are available on request.

### WIRING DIAGRAM

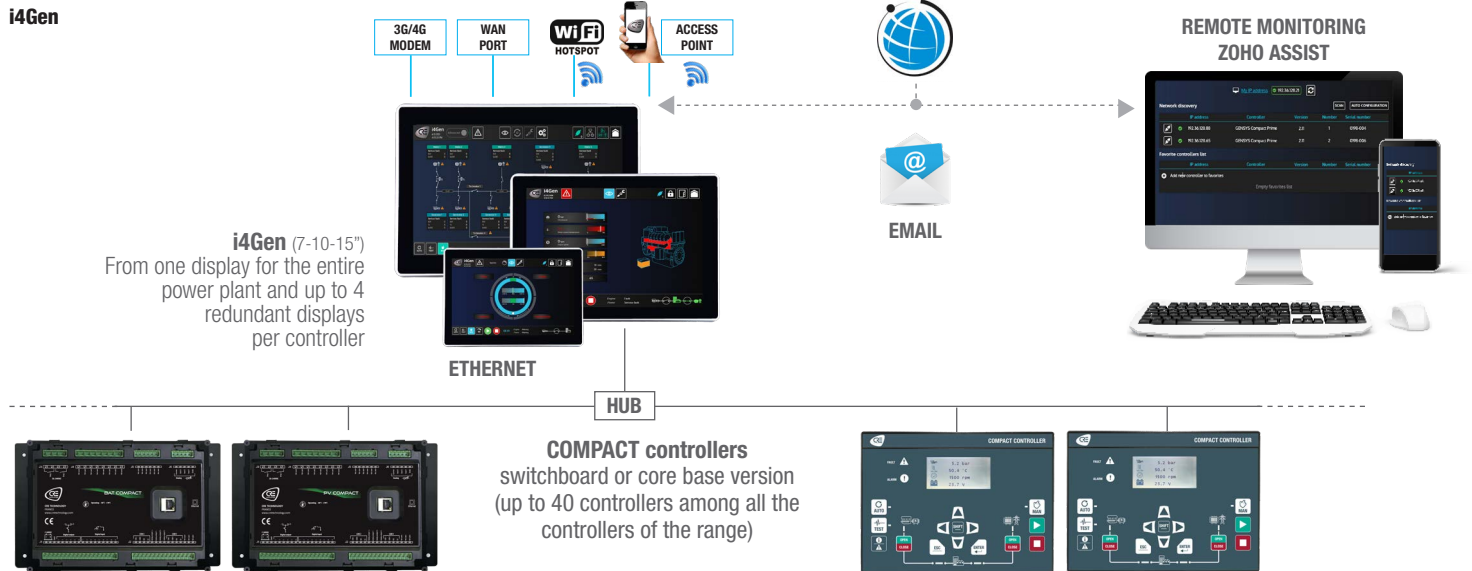




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## ASSOCIATED I4GEN MULTI-TOUCHSCREEN RANGE & MAIN FUNCTIONS

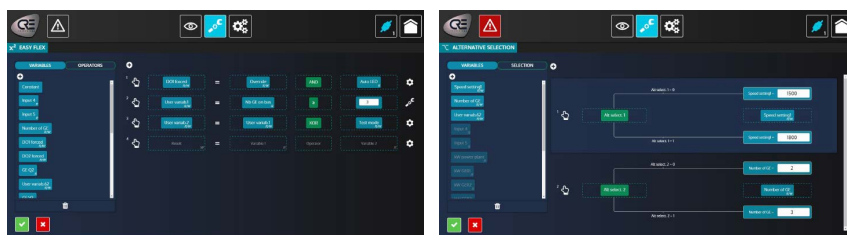


- The i4Gen touchscreen and color display range (7, 10 and 15 inches) is available for the COMPACT controllers.
- i4Gen offers configuration, control, monitoring and logging (parameters, measures, events) of COMPACT controllers.
- i4Gen display can be duplicated on computer locally by LAN or remotely by internet or GPRS
- Thanks to its WIFI function, i4Gen offers also the capability of remote service and support by connecting your smartphone in connection sharing.

### NEW - SINGLE LINE DIAGRAM AUTOMATICALLY GENERATED FROM EACH COMPACT CONTROLLER CONFIGURATION

In addition to its very advanced functions, the i4Gen now offers you the display of the single-line diagram of your complete power plant, as well as the production curves of each source.

### EASY FLEX PROGRAMMING EXAMPLE



It is possible to customize your application by programming specific features with **Easy Flex**, available directly from **i4Gen Suite** PC software. **Easy Flex** allows user to write up to 50 lines of equation through an intuitive editor, giving the opportunity to fit with any specific application and to extend standard features. Ex: Programmable relays, timers, sensor treatment, dynamic modification of the power supply...



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