AMF COMPACT

Enhanced Auto Mains Failure generator controller

AMF COMPACT is one controller of a complete range for energy sources and power plant management: generators, mains, PV/wind, 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.

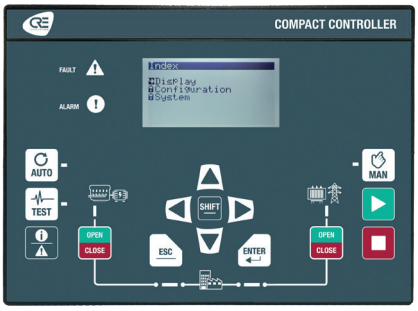
Hardware display

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

Software

The controller 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

PART NUMBERS	DESCRIPTION
A56-AMF-00	Switchboard mounted version with display
A56-AMF-10	Core base mounted version

KEY FEATURES

Easy connection to controllers
Automatic detection of controllers on the Ethernet network for fast and easy connection.

J1939 ECU addresses automatic detection
Automatic detection of all J1939 devices on the same CANbus network.

Guided experience
- Built-in documentation in i4Gen
- Dynamic display of the mimic diagram and the control buttons.

Enchanced graphical display
Important information are displayed on easy-to-read graphical widgets: numerical values, bar graphs, gauges, curves, animated synchroscope....

User friendly equations programming
Easily program your own equations using the drag & drop Easyflex feature.

Remote access (optional)
- Supervise, configure and control your power plant from anywhere through a reliable and secured remote communication provided by Zoho Assist
- Receive E-mails from i4Gen when an event, an alarm or a fault is triggered.

On-board modbus TCP client and server for integration with other devices
- Client (master): create custom frames in reception or transmission to read or write datas
- Server (slave): allow other devices to read/write the controller registers (with 300 registers available for custom mapping).

Product redundancy
Each controller can be duplicated with a backup controller (master/slave principle). If the master fails, the slave automatically takes over.

Enhanced access security
Password management compliant with cybersecurity standards (complexity, expiration, etc.).

Automatic versions update
Automatic update of controller firmware and PC software versions.

OTHER FEATURES

Power control and management

- Mains failure detection and changeover.
- Load shedding management to ensure that priority loads are supplied in case of mains failure.
- Auto Start function management.
- Automatic or manual control of circuit breakers with malfunction alarms management.
- Override mode (protections inhibition + dedicated hour meter) following NFE 37-312 certification.

Enhanced ECU support through J1939

- Enhanced ECU support:
  - Automatic management of the standard frames
  - Possibility to create and configure up to 10 customised J1939 frames (reception and transmission)
  - Management of DTC and DPF/SCR frames (Tier 4 final and Stage 5 engines)
  - Sniffer/Spy feature to analyse CAN J1939 frames

Displayed information

- Alarms and events logging: Detailed history log with timestamps of the 500 last events, alarms and faults for easy and fast troubleshooting.
- Electrical measures supervision.
- Engine mechanical measures supervision.
- Inputs/Outputs status.

Programming

- Scheduler: Periodic or one-off execution of specific functions and modes can be scheduled.
- Alternative parameters values configurable and switchable using digital inputs or through modbus TCP.

Options

- Compatibility with MTU MDEC engines.

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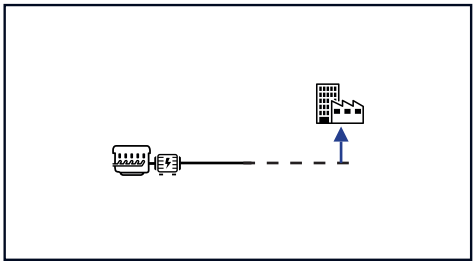
APPLICATION EXAMPLES

Single genset without breaker: auto start controller



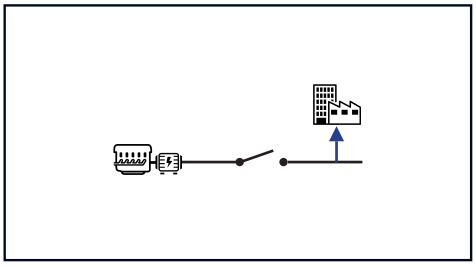
Features

- Start/Stop control
- Genset mechanical & electrical protections
- No breaker control
- No voltage control
- No speed control

Products required

- AMF COMPACT (In Auto Start Module configuration)

Single genset with 1 breaker: auto start controller



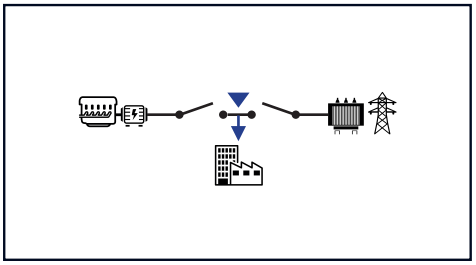
Features

- Start/Stop control
- Genset mechanical & electrical protections
- Breaker control
- No voltage control
- No speed control

Products required

- AMF COMPACT (In Auto Start Module configuration)

Single stanby genset with change over mode (auto mains failure)



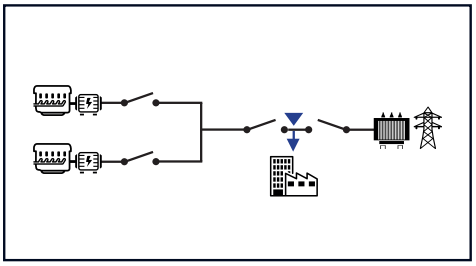
Features

- Start/Stop control
- Genset mechanical & electrical protections
- Auto transfer switch
- Breakers control
- No voltage control
- No speed control
- Mains failure detection

Products required

- AMF COMPACT or GENSYS COMPACT MAINS

Dual mutual standby



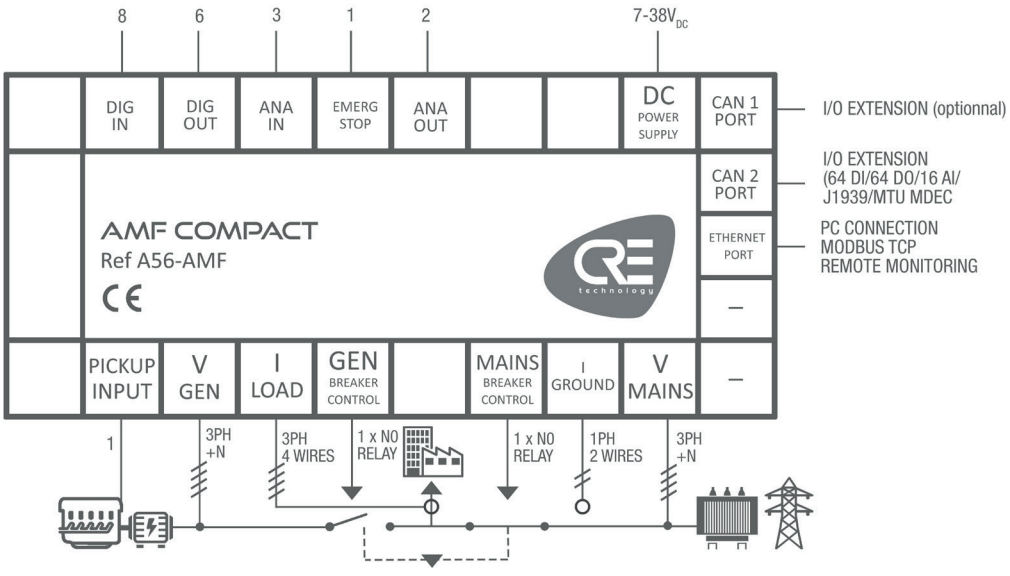
Features

- Mains failure detection
- Gensets hours meters equalization
- 1 genset in backup of the other one

Products required

- 2 AMF COMPACT

WIRING DIAGRAM



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SPECIFICATIONS

ELECTRICAL SYSTEM	
Electrical system	Compatible with 3 or 4 wires three-phase, or two-phase or single phase systems
DC POWER SUPPLY	
Power supply range	7...38 VDC
Maximum voltage	45 VDC during 15mn
Current consumption (at 24 VDC)	130 mA + the sum of maximum consumption of each digital ouput
AC VOLTAGE MEASUREMENT	
Generator measurement inputs	3ph + N (Neutral optional)
Mains measurement inputs	3ph + N (Neutral optional)
Measurement range	80...500VAC
Current consumption	100 mA max
Accuracy	1%
Frequency range	35...75 Hz, 15VAC minimum between phase and neutral
AC CURRENT MEASUREMENT	
Generator measurement inputs	4 wires (3ph)
Mains/Earth measurement inputs	2 wires (1ph)
Measurement range	0...5A; 1VA
Overload	Overload 15A during 10s
Accuracy	0.5%
INPUTS	
Digital inputs	9 : NO or NC to ground. Adjustable timer On and Off
Digital inputs expansion	64 : via CANopen
Analog inputs	3 : 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
Analog inputs expansion	16 : via CANopen (0-20mA, 0-10VDC, PT100, Thermocouple, ...)
OUTPUTS	
Digital outputs	6 : NE or ND. 1.8A, over-current protected. Adjustable timer.
Digital outputs expansion	64 : via CANopen
Relay outputs (breaker control)	2 : 5A, 240VAC
Analog outputs	2 : +/-10VDC: isolated output with adjustable gain and offset
MAGNETIC PICK-UP	
Voltage input range	0.5...40VAC
Frequency input range	50Hz...10KHz

COMMUNICATION PORTS	
CAN	2 isolated port: - CAN 1: I/O extensions (optional) - CAN 2: J1939, I/O extensions or MTU MDEC
Ethernet	Isolated port: 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 480VAC. Up to 5000m for 400VAC
IP Front	IP65/NEMA rating 4 for HMI version IP20/NEMA rating 1 for core version
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
DIMENSIONS - SWITCHBOARD MOUNTED VERSION WITH DISPLAY	
Overall (W x H x D)	245 x 182 x 40mm (9.64 x 7.16 x 1.57in)
Panel cut out (W x H)	220 x 160mm (8.7 x 6.3in)
DIMENSIONS - CORE BASED MOUNTED VERSION	
Overall (W x H x D)	260 x 157 x 44mm (10.24 x 6.18 x 1.73in) (depth with connectors)
Fixing dimensions (W x H)	238 x 129mm (9.37 x 5.08in) (4 screws)
Fixing hole	Ø5.24mm (0.21in)
Mounting	DIN rail
WEIGHT	
Controller	0.7kg (1.54lb)
LCD DISPLAY CHARACTERISTICS	
Size	40x70mm (1.50x2.75in)
Pixels	1024x512. Back light: 50cd/m² typical, configurable
Contrast	Configurable
LANGUAGES	
Supported languages	English, French, Spanish in standard. Italian, Portuguese, Russian, German and other custom languages are available on request

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PROTECTIONS

GENERATOR ELECTRICAL PROTECTIONS	
DESCRIPTION	**ANSI CODE**
Under frequency	81L
Over frequency	81H
Under voltage	27
Over voltage	59
Unbalance voltage	47
Over current	50
Over current IDMTL (Inverse Definite Minimum Time Lag)	51
Neutral over current	50N
Earth over current	51G
Unbalance current	46
Minimum active power	37P
Maximum active power	32P
Minimum reactive power	37Q
Maximum reactive power	32Q

MAINS ELECTRICAL PROTECTIONS	
DESCRIPTION	**ANSI CODE**
Under frequency	81L
Over frequency	81H
Under voltage	27
Over voltage	59
Unbalance voltage	47
Minimum active power	37P
Maximum active power	32P
Minimum reactive power	37Q
Maximum reactive power	32Q

SYNCHRONIZATION PROTECTIONS	
DESCRIPTION	**ANSI CODE**
Phase sequence	47

RELATED PRODUCTS

ADDITIONAL INPUTS/OUTPUTS	
BK5150	CANopen bus coupler
KL9010	End connection terminal
KL1488	8 digital inputs - 0 VDC
KL1889	16 digital inputs - 0 VDC
KL2408	8 digital outputs - 24VDC 0.5A
KL2809	16 digital outputs - 24VDC 0.5A
KL3044	4 analog inputs (0-20mA)
REMOTE DISPLAYS	
A60P0	RDM 1.0 alarm reporting module
A58Txx/A56Vxx	i4Gen Touchscreen color display range
BATTERY CHARGERS	
BPXX	3A, 5A, 10A, 20A, 40A. 12VDC, 24VDC
ACCESSORIES	
A58Ux	I4Gen Box - Remote monitoring and geolocation module

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