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AMF-L PRO

Automatic Mains Failure Control Panels

*“No-Break Load Transition”
between Mains & Generator*



Product Description:

AMF-L PRO “AUTO START CONTROL” units are designed for demanding generator applications, where comprehensive control features are required. These modules can monitor and measure an extensive range of engine and alternator parameters and display generator status and alarm warnings on its 4.3” colour graphical display.

These modules can be configured easily via on-board USB port and all system parameters and operating limits can be set in a graphical manner. Specific user parameter data can be stored and uploaded on the factory floor for wide range of custom applications.

PRO series control panels can adjust the GENERATOR bus voltage against MAINS bus such that, no-break load transition can be achieved with **built-in “synchronoscope”** function. Built-in second CAN J1939 bus can be connected directly to engine ECU and/or to the GOVERNOR unit for easy management of engine parameters.

“**PRO**” series AMF Modules offers flexible communication features for almost every customer demand. USB port is used for system configuration and parameter settings of the AMF module, while one of the remaining CAN port can be connected to peripheral devices. If the user wants to connect the module to external intelligent devices like PLC system, RS485 Mod-BUS RTU can be used to control complete module behaviour during operation. If these is a modem or LAN device available, the AMF module can be connected directly to the network, using ETHERNET com port.

3-phase Mains and 3-phase Generator voltage is measured for automatic start of the generator if the mains voltage falls outside set limits. Engine cranking is fully automatic, and all engine parameters are controlled during cranking and running period. Load is automatically transferred back to Mains once it is restored within the safe limits.

Monitoring engine speed, coolant temperature and oil pressure continuously provide safe protection and operation of the engine during power generation phase. Using integrated hours counter makes it easy for service and maintenance of the generator. Multi-level time scheduling and warning is possible for comprehensive service management in the field.

AMF-L PRO control module measures 3-phase generator load current for precise control of the GENERATOR during operation. Extensive protection functions can be used to monitor and/or protect the generator during operation. Neutral current is also measured for unbalanced bus protection. A wide range of AC bus parameters are measured, including KW, kvar, kVA, pF actions can be programmed based on measured values.

For multiple-generator applications, **AMF-L PRO** unit can monitor operation times and with its built-in **“Equal-Aging”** feature, units can automatically equalize generator running times, based on their availability on the AC BUS. For this feature, no additional control devices are required.

Remote start input can be used to integrate the control module with any external control unit.

Licence-free PC Tools S/W package is available for the customer to set up device configuration via USB port connection. Multi-level password protection allows safe servicing in the field.

Module front panel is manufactured with silicone rubber keypad for harsh environmental conditions and high IP protection. Plastic frame has built-in sealing gasket to ensure IP65 protection class on the front side of the module.

Unit can operate over a wide range of temperature and humidity conditions. Plug-in type connectors on the back side of the panel reduces the installation and servicing time.

MAIN FEATURES:

- ✓ 4.3” Colour graphic display,
- ✓ Alphanumeric and graphical presentation of all variables and alarm warnings,
- ✓ Multiple language selection from menu,
- ✓ Automatic transfer of LOAD between Mains and Generator,
- ✓ 3-phase Mains and 3-phase Generator voltage measurement,
- ✓ 3-phase Generator load current,
- ✓ NEUTRAL current measurement,
- ✓ Fully automatic cranking and protection of the engine,
- ✓ 4 Analogue sender signal inputs
- ✓ 1 Analogue output for AVR control
- ✓ 8 Digital signal inputs
- ✓ 8 Digital outputs (4 relay, 4 Solid state),
- ✓ Magnetic Pick-up sensor input
- ✓ D+/WL sensing input,
- ✓ 8-32Vdc wide range DC power input
- ✓ 2xCAN Bus J1939 com port for connection to engine ECU or peripheral controllers
- ✓ USB2.0 type-B configuration port
- ✓ RS485 Mod-Bus RTU com port,
- ✓ ETHERNET communication port,
- ✓ Plug-in type signal connectors
- ✓ Remote-start function input
- ✓ Built-in “SYNCHROSCOPE” function.
- ✓ Hours counter for easy maintenance,
- ✓ Alarms & Events log memory,
- ✓ Silicone rubber keypad with IP65 protection class from the front side, with sealing gasket,
- ✓ EMC immunity and emissions compatibility: EN61000-6-2 EN61000-6-4
- ✓ Electrical Safety: EN60950
- ✓ Temp. and Humidity: EN60068-2-30
- ✓ Flammability: UL94
- ✓ Overall dimensions: 205x158x45 (mm)
- ✓ Panel cutout: 182x136 (mm)

Technical Specifications	Value	Description
DC Power input voltage:	8Vdc to 32Vdc	Maximum power dissipation is <3.5W
Display:	4.3" LCD Colour graphic	TFT type with high resolution, high brightness,
Keypad:	Silicone rubber	IP65 protection from the front side (with gasket)
Mains voltage:	3-phase	TRUE RMS, high accuracy
Generator voltage:	3-phase	
Generator Load current:	3-phase load current	
Digital inputs:	8 configurable inputs	Active low input connections (sink type)
Magnetic pick-up input:	1 input	MPU connection for speed detection
Analogue inputs:	4 analogue sender inputs	Temperature (NTC, KTY) and Pressure (resistive)
Analogue outputs:	1 analogue o/p	To control AVR voltage reference or governor speed reference
Charge alternator input:	1 analogue input	D+/WL signal measurement
Digital outputs:	8 digital outputs	4-solid-state o/p and 4-Relay o/p (dry-contact, 5A/250Vac AC2)
Communication ports:	USB2.0 Type-B	Parameter configuration
	CAN Bus Open	Peripheral control network connection
	CAN Bus J1939	ECU connection
	RS485 port	Modbus RTU
	Ethernet port	
Operating temperature:	-10°C to +60°C	UV resistant keypad and enclosure
Storage temperature:	-25°C to +85°C	
Operating humidity:	10%RH to 97%RH	Non-condensing
EMC compatibility:	EN61000-1-2/3/4	Industrial level
Safety:	CATIII, 300V	
Vibration & shock:	MIL810G	Transportation
Protection class:	IP65	From front side (with gasket)
	IP00	From back side
Overall dimensions:	205 x 158 x 45	Measurements are in mm
Panel cutout:	182 x 135	
Mounting type:	Panel mounting	With screw type retention clamps
Weight:	250gr	Approximate weight



Figure 1: AMF-L PRO Front side view

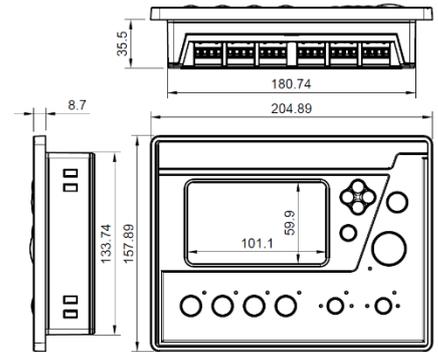


Figure 2: AMF-L PRO Dimensions



Compliance:

AMF-L PRO series control panels are tested and compliant to CE regulations for emitted and conducted RFI interference, according to EN61000-6-4 class-A. Immunity is tested against EN61000-6-2. Vibration: EN60068-6-2 Dielectric strength: IEC255, Flammability: UL94, Safety: UL508

Connection Diagram and System configuration :

