

Automatic Gen-Set Transfer Switching Controller

EAOM - 9

Features

- Protection, control and metering
- Automatic engine start / stop and load transfer
- Automatic shutdown on fault condition
- LED status and fault indication
- Simple push-button controlled operation
- Manual, automatic and test mode control
- Two user inputs configurable
- One user output configurable
- Fully programmable
- RS-232 communication port
- Standard modem communication

Monitors

- Mains voltage (Phase-Phase, Phase-Neutral)
- Alternator voltage and frequency
- Engine RPM
- Battery voltage
- Engine running time

Fail Monitoring

- Mains voltage
- Alternator voltage and frequency
- Engine speed
- Charging generator field current
- Engine temperature
- Oil pressure
- Emergency stop
- Low battery voltage
- Scheduled maintenance due

Controls

- Engine fuel supply or engine stopping
- Starter motor
- Automatic generator start
- Load transfer on mains failure
- Load transfer to mains
- Preheating
- External alarm horn

The EAOM-9 controller unit offers automatic engine starting, stopping, transfer switching, protection, control and metering of generator sets. In the event of a mains supply failure, the unit automatically transfers the load from the mains to the generator. Microprocessor technology allows exact measurement, set point adjustment and timing functions with the parameters to be simply programmed and displayed from the front panel or via RS-232 communications using a PC based software. EAOM-9 can communicate with this software over modem.



Specifications

Housing & Mounting	96mmx96mmx115mm (excl. 13mm clips)
Protection	NEMA4X (IP54 at front panel, IP20 at rear side)
Operating / Storage Temperature	-25°C to +70°C / -40°C to +85°C
EMC	EN-61000-6-4, EMC generic emission standard for industrial equipment EN-61000-6-2, EMC generic immunity standard for industrial equipment
Electrical Safety	EN-61010-1, safety requirements for electrical equipment for measurement, control and laboratory use
Supply Voltage(---)	12.0V--- (8.0V--- to 16.0V---) or 24.0V--- (16.0V--- to 32.0V---) switch selectable
Supply Voltage Measurement	8.0-40.0 V---
Mains Voltage Measurement	35 to 300VL-N ~ .Accuracy : 1%FS, Resolution : 1V~
Generator Voltage Measurement	35 to 300VL-N ~ 2 wire connection. Accuracy : 1%FS, Resolution : 1V~
Measurement Accuracy	Volts 1% Frequency: 0.25%
Cranking Dropouts	Battery voltage can be 0V--- for max. 100msn during cranking (battery voltage should be at least nominal voltage before cranking)
Generator Speed Measurement	From generator output or magnetic pickup
Alternator Frequency Range	10 - 110 Hz (@35-300VL-N~)
Magnetic Pickup Freq. Range	35 Hz - 10 kHz (@3-35 Volts peak)
Communication Interface	RS-232 serial communication
Contact Sensing	Emergency Stop (NC) Oil pressure switch (NC) Temperature switch (NO) Remote inhibit input (NO) Configurable input 1 (NO) Configurable input 2 (NO) Over current input (NO)
Outputs	Start Relay Output. 10 A (@ at 12 / 24V ---) Fuel Relay Output. 10 A (@ 12 / 24V ---) Alarm Relay Output. 10 A (@ 12 / 24V ---) Preheat Relay Output (Configurable by relay output 1 parameter) Configurable Relay Output 1. 5 A (@ 12 / 24V---) Mains Contactor Relay Output. 5A (@ 12 / 24V---) Generator Contactor Relay Output. 5 A(@12 / 24V---)
Display	4 digits, 7 segments LED display showing: Mains L1 – L2 Voltage Mains L1 – N Voltage Mains L2 – L3 Voltage Mains L2 – N Voltage Mains L3 – L1 Voltage Mains L3 – N Voltage Generator Voltage Generator Frequency Hz Engine Speed RPM Battery Voltage --- Total Run Hours Failure Information
Failure Indicator	Engine start High temperature Low oil pressure Engine over speed Generator voltage failure Charging fail Over current User configurable input 1 User configurable input 2
Status Indicator	Off mode Test mode Auto mode Manual mode Manual engine start Manual engine stop Engine running Mains voltage available Generator is ready to take the load Mains contactor Generator contactor
Information Alarms	Low battery voltage Emergency stop Maintenance due

Front View



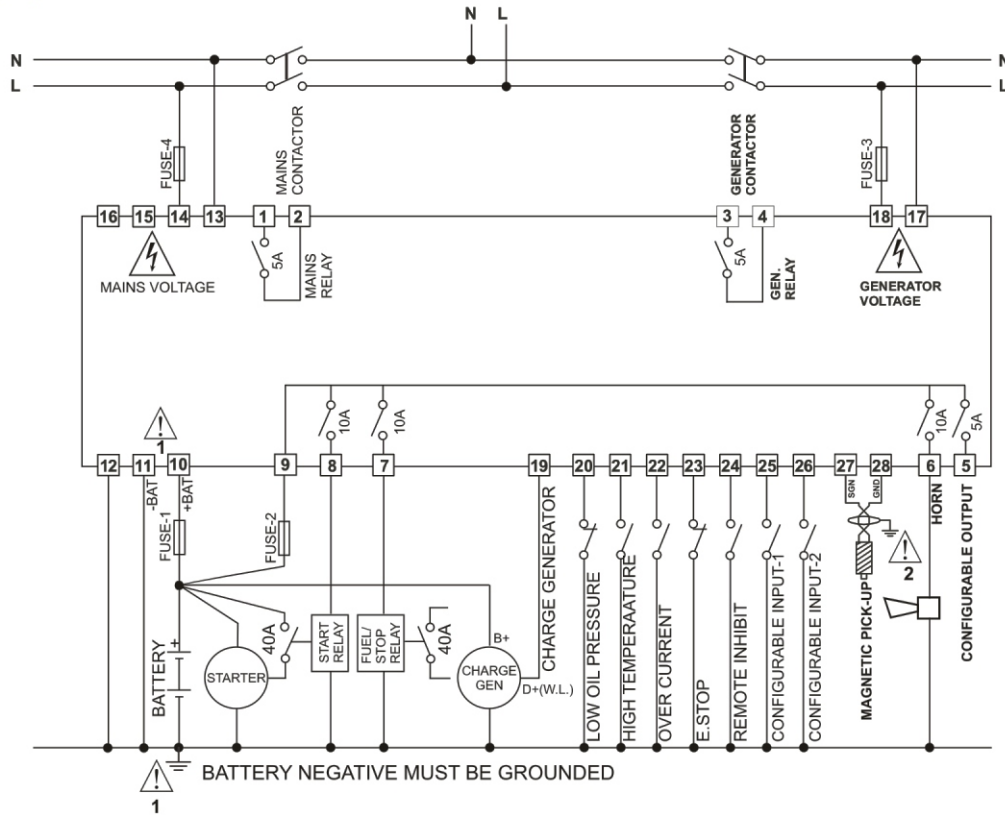
EAOM-9 Parameters List

No	Definition of Parameter	Min	Max	Default	Unit
P00	Mains Voltage Connection Level	60	600	320	V~
P01	Mains Voltage Disconnection Level	60	600	300	V~
P02	Mains Voltage Upper Limit	60	600	440	V~
P03	Alternator Voltage Lower Limit	60	600	320	V~
P04	Alternator Voltage Upper Limit	60	600	440	V~
P05	Speed Upper Limit	30.0	75.0	53.0	Hz
P06	Periodic Maintenance Hour Set Value	0	9999	5000	Hour
P07	Periodic Maintenance Hour Reset	Press 'Silence Alarm' button to reset			
P08	Number of Starting Attempts	1	10	8	
P09	Engine Cooling Time	0	99	3	Minute
P10	Horn Duration	0	999	60	Second
P11	Mains Transition Delay	0	30	3	Minute
P12	Preheat Time	0	99	10	Second
P13	Exercise Time	0	999	0	Hour
P14	Exercise Duration Time Period	0	999	20	Minute
P15	Single / Three Phase Selection	1 / 3		3	
P16	Speed Sensing Input Selection	0=Alternator Signal 1 = Magnetic Pick-up		0	
P17	Nominal Alternator Frequency	50.0/60.0	50.0	50.0	Hz
P18	Nominal Speed	500	5000	3000	Rpm
P19	Tooth Number	1	1000	100	
P20	Battery Voltage Lower Limit	7.2	24.0	8.0	V _{DC}
P21	Mains Change Over Delay	0.1	25.0	1.0	Second
P22	Stop Solenoid /Fuel Solenoid Selection	Stop / Fuel		Fuel	
P23	Stop Magnet Energising Time	0	99	20	Second
P24	Engine started signal	0=No, 1=Yes			
	P21.0 Charge Generator	0/1	1		
	P21.1 Speed	0/1	0		
	P21.2 Alternator Voltage	0/1	1		
P24	P21.3 Oil Pressure	0/1	0		
	Starting Attempt Duration	5	99	5	Second
P26	Alternator voltage limit for crank disconnection	40	360	300	V~
P27	Speed Limit For Crank Disconnection	20.0	45.0	40.0	Hz
P28	Oil Pressure Control Delay Time	0	99	30	Second
P29	Control On Delay	0	99	10	Second
P30	Alt. Voltage Fault Control Delay	0.0	10.0	5.0	Second
P31	Speed Fault Control Delay	0.0	10.0	5.0	Second
P32	Engine Running Time Reset	Enter technician Password to reset Time to "0" (zero)			
P33	Configurable Failure Input-1	0	6	0	
P34	Configurable Failure Input-2	0	6	0	
P35	Configurable Output	0	13	0	
P36	Operator Password	0	9990	0	
P37	Technician Password	0	9990	0	

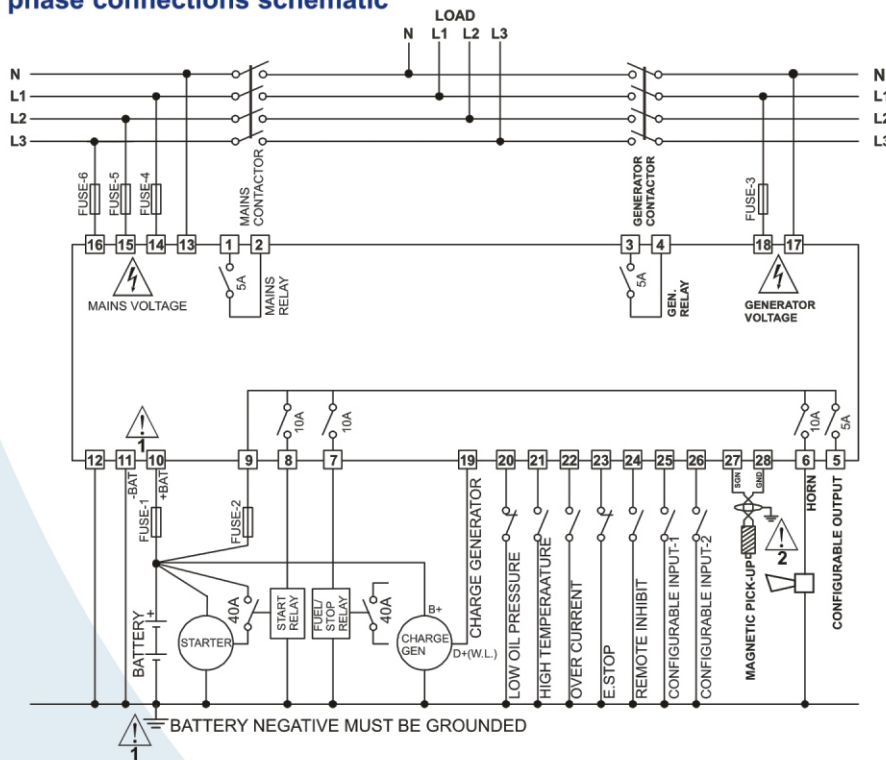
Operation

The EAOM-9 generator transfer switch controller unit provides integrated generator set control, protection, metering and automatic load transfer. If a fault is detected, the engine will automatically shutdown and the failure will be indicated by a relevant fault LED and alarm horn. The unit detects failure of any phase of the mains supply and is able to start the generator and transfer the load. When the mains supply is restored within the pre-set limits, the load is transferred back to the mains supply and the generator is shutdown in a controlled manner. EAOM-9 offers manual, fully automatic operation and test mode which allows the generator to be run without taking the load. Mode of operation can be changed at any time without affecting the operational status of the generator or load connection.

Single phase connections schematic



Three phase connections schematic



Product Codes

EAOM-9	Automatic Gen-Set Transfer Switching Controller	96mmx96mmx115mm Size
EAOM-9-SOFT	PC Communication and Programming Software	