Automatic Transfer Switch Controller, 72x72 DIN Size

EAOM-19

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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 configurable inputs
Fully programmable

Monitors
Mains voltage (Phase-Phase, Phase-Neutral)
Alternator voltage and frequency
Battery voltage
Error indication
Program parameters

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

Fail Monitoring
Alternator voltage and frequency
Charging generator field current
Engine temperature
Oil pressure
Low battery voltage

The EAOM-19 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.

Operation
The EAOM-19 automatic transfer switch controller 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-19 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.

Manual Start
The Manual Start push button sets the unit to manual mode and engine is started, engine is stopped by pressing the Manual Stop push button . The starter motor will start the engine and will disengage once the engine is running.
Once "control on delay" time is elapsed, press the Mains Contactor Open button to disconnect the load from the mains supply. Led on the Mains Contactor Open button should light. Led on the Mains Contactor Close button should go off.
Press the Generator Contactor Close button to connect the load to the generator supply. Led on the Generator Contactor Close button should light. Led on the Generator Contactor Open button should go off. The control of the generator contactor output is inhibited if the generating set is not running.

Automatic Mode
Mains voltage is continuously measured and compared with programmable upper and lower voltage limits. The AUTO push button selects automatic operation, whereby the unit uses these limit parameters to decide when to switch the load between the mains supply and the generator. When the mains supply has been restored, the unit will switch the load back from the generator to the mains supply. Programmable delays allow time for the voltage to settle before reconnecting the load.

Test Mode
TEST mode selection allows off load testing of the generator. As with automatic and manual modes, all fault indication circuits and alarms are operational. If a mains failure occurs whilst the unit is in test mode, the unit will automatically revert to AUTO operation and switch the load to the generator. Automatic Testing to exercise the

generator and re-charge the batteries can be programmed to operate at time intervals to suit the user and application.

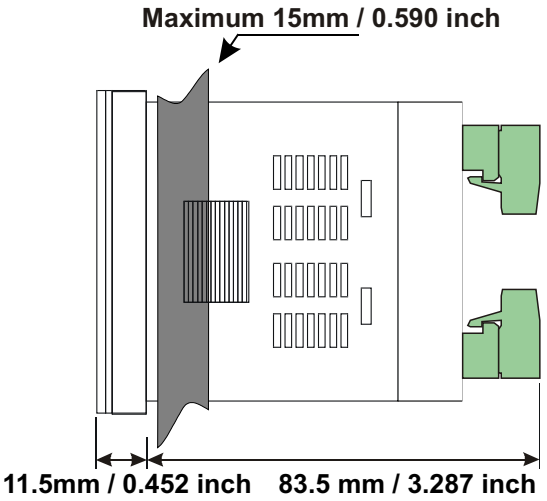
LED Indicators and Alarms

Two user configurable inputs are included which can be configured to respond in any of six different ways per input. They may be configured to sound an external horn, flash warning indicators, stop the engine, disconnect the load or to provide latched and unlatched indication always or while the engine is running or in addition to this shutdown the engine if selected. For certain fault conditions the ALARM LED will also flash, advising specific LED fault messages or information alarms which can be read from the front panel 4 digit display.

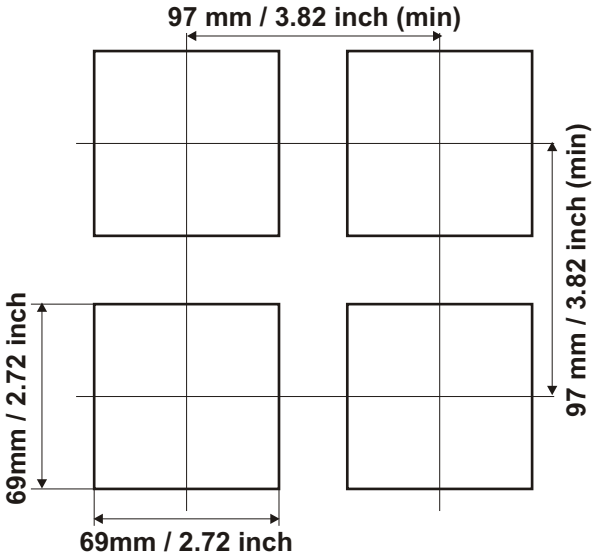
Specifications

Equipment Use	Electrical control equipment for generating sets
Housing & Mounting	72mmx72mmx95mm (including connectors) DIN43700 plastic housing for panel mounting
Panel Cut-out	69mmx69mm
Protection	NEMA4X (IP65 at front panel, IP20 at rear side)
Weight	Approximately 0.27 kg
Environmental Rating	Standard, indoor at an altitude of less then 2000 meters with non-condensing humidity
Operating / Storage Temperature	-25ºC to +70ºC / -40ºC to +85ºC
Operating / Storage Humidity	90% max. (Non-condensing)
Installation Over Voltage Cat.	II appliances, portable equipment
Pollution Degree	II, Normal office or workplace, non-conductive pollution
Mode of Operation	Continuous
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
Battery Supply Voltage(⎓)	8-32 V⎓ max. Operating current is 240 mA
Battery Voltage Measurement	8-32V⎓, accuracy:1% FS, resolution : 0.1V
Generator Voltage Measurement	Selectable three phase or single phase, 4-wire connection for three phase, 2-wire connection for single phase gen-set 35-300VL-N∿RMS (@15.6-99.9 Hz). Accuracy: 1% FS. Resolution : 1V
Mains Voltage Measurement	35-300VL-N∿RMS (@15.6-99.9 Hz). Accuracy: 1% FS. Resolution : 1V
Generator Speed (frequency)	15.6 to 99.9 Hz. (@35-300 VL-N ∿) Accuracy; 0.25 % FS, Resolution; 0.1 Hz.
Cranking Dropouts	Battery voltage can be 0V⎓ for max. 100msn during cranking (battery voltage should be at least nominal voltage before cranking)
Charge Generator Excitation	220mA, max.4W
Contact Sensing Inputs	Oil Pressure Switch (NC) Temperature Switch (NO) Configurable Input-1 (NO) Configurable Input-2 (NO)
Relay Outputs	Start relay (1NO. 12A@32V ⎓) Fuel relay (1NO. 12A@32V ⎓) Horn relay (1NO. 12A@32V ⎓) Mains contactor relay (1NC. 5A@250V ∿) Generator contactor relay (1NO. 5A@250V ∿)
Display	4 Digits, 7 segments LED display showing : Mains voltage (Phase-Phase and Phase-Neutral) Alternator voltage Alternator frequency Battery voltage Program parameters
Failure Indicators	Engine start High temperature Low oil pressure Generator over frequency Generator voltage failure Charge generator failure Battery voltage failure Configurable input-1 Configurable input-2
Status Indicators	TEST mode LED PROG mode LED OFF mode LED AUTO mode LED Manual engine start LED Manual engine stop LED Mains contactor open LED Generator contactor open LED Mains contactor close LED Generator contactor close LED
Information Alarm	Stop Error Message (Fail to Engine Stopping)

Dimensions

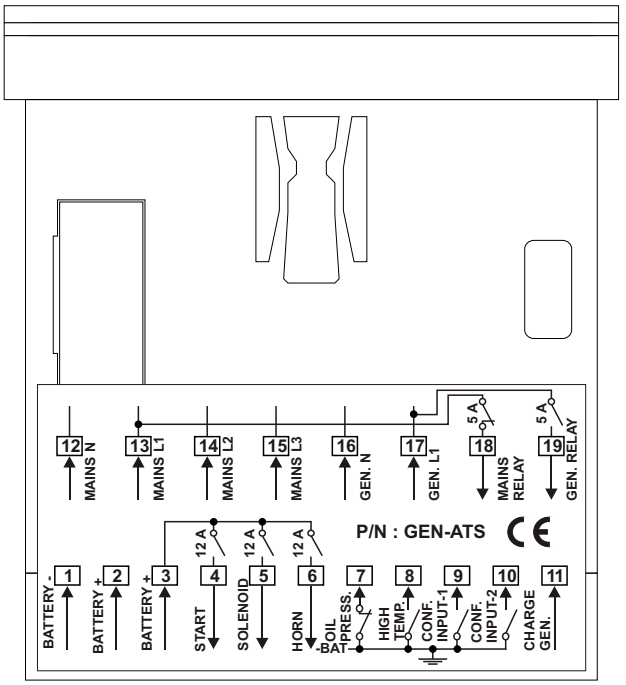


Panel Cut-Out



Front View

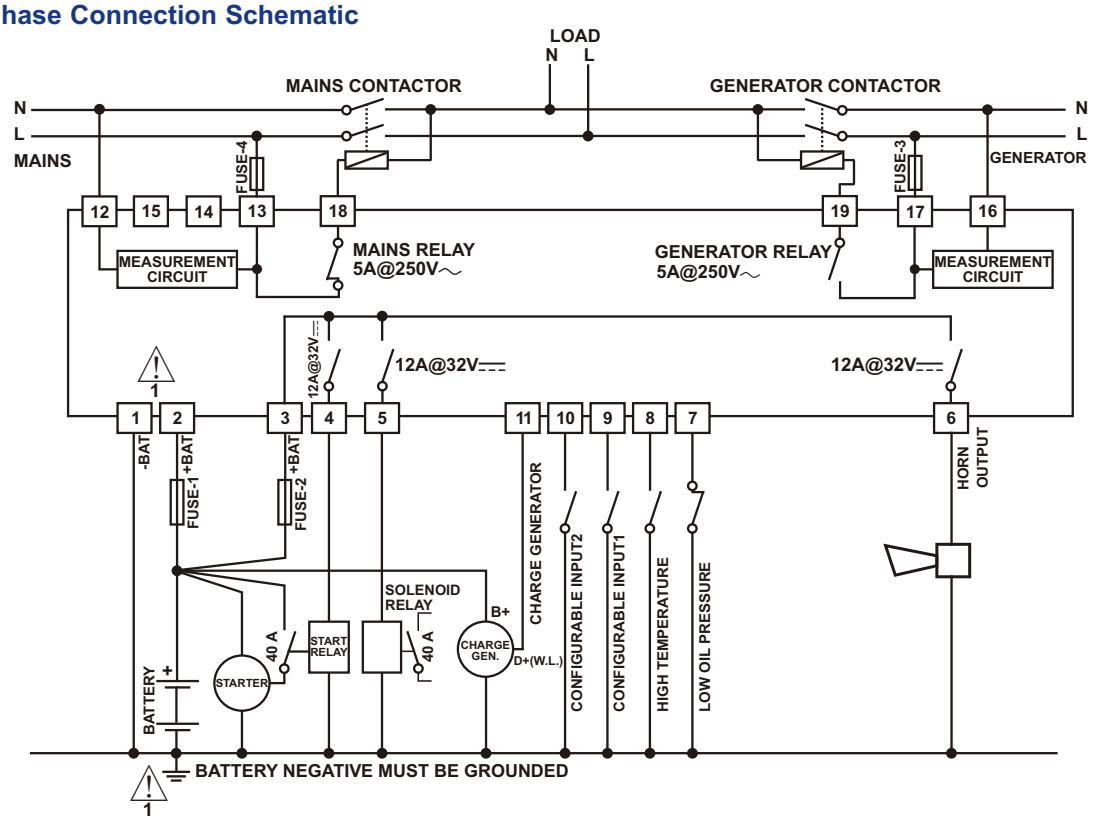
Terminal Connections



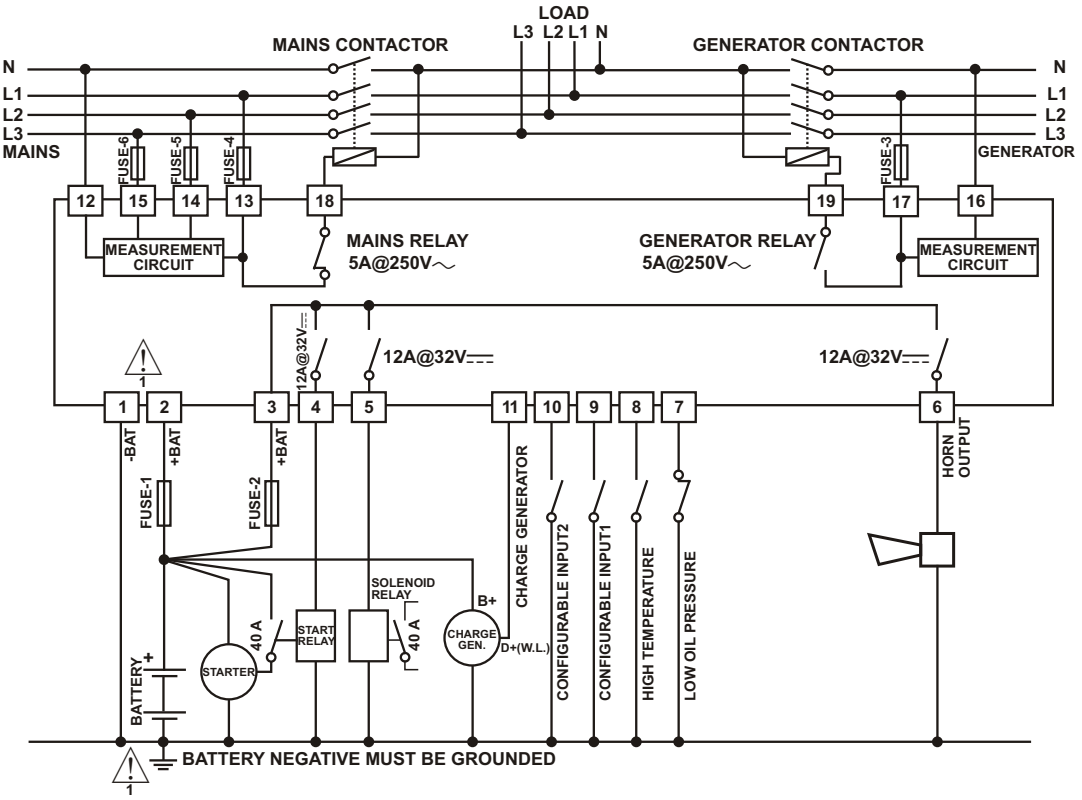
EAOM-19 Parameters List

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	Number of Starting Attempts	1	10	3	
P07	Engine Cooling Time(0=dis.cool process)	0	99	3	Minute
P08	Horn Duration	0	999	60	Second
P09	Mains Transition Delay	0	30	3	Minute
P10	Single / Three Phase Selection	1 / 3		3	
P11	Battery Voltage Lower Limit	7.2	24.0	8.0	V⎓
P12	Mains Change Over Delay	0.1	25.0	1.0	Second
P13	Stop / Fuel Solenoid Selection	Stop / Fuel		Fuel	
P14	Stop Magnet Energising Time	0	99	20	Second
P15	Engine started signal	0=No, 1=Yes			
	P15.0 Charge Generator	0/1		1	
	P15.1 Speed	0/1		0	
	P15.2 Alternator Voltage	0/1		1	
	P15.3 Oil Pressure	0/1		0	
P16	Starting Attempt Duration	5	99	5	Second
P17	Alternator voltage limit for crank disconnection	40	360	300	V~
P18	Speed Limit For Crank Disconnection	20.0	45.0	40.0	Hz
P19	Control On Delay	0	99	10	Second
P20	Alt. Voltage Fault Control Delay	0.0	10.0	5.0	Second
P21	Speed Fault Control Delay	0.0	10.0	5.0	Second
P22	Configurable Failure Input-1	0	6	0	
P23	Configurable Failure Input-2	0	6	0	
P24	Horn Output Selection	0	1	0	
P25	Choke Time	0.0	10.0	0.8	Second
P26	Generator Start Delay	0	9999	0	Second
P27	Oil Sensor Selection	0	1	0	
P28	Operator Password	0	9999	0	
P29	Technician Password	0	9999	0	

Single Phase Connection Schematic



Three Phase Connection Schematic



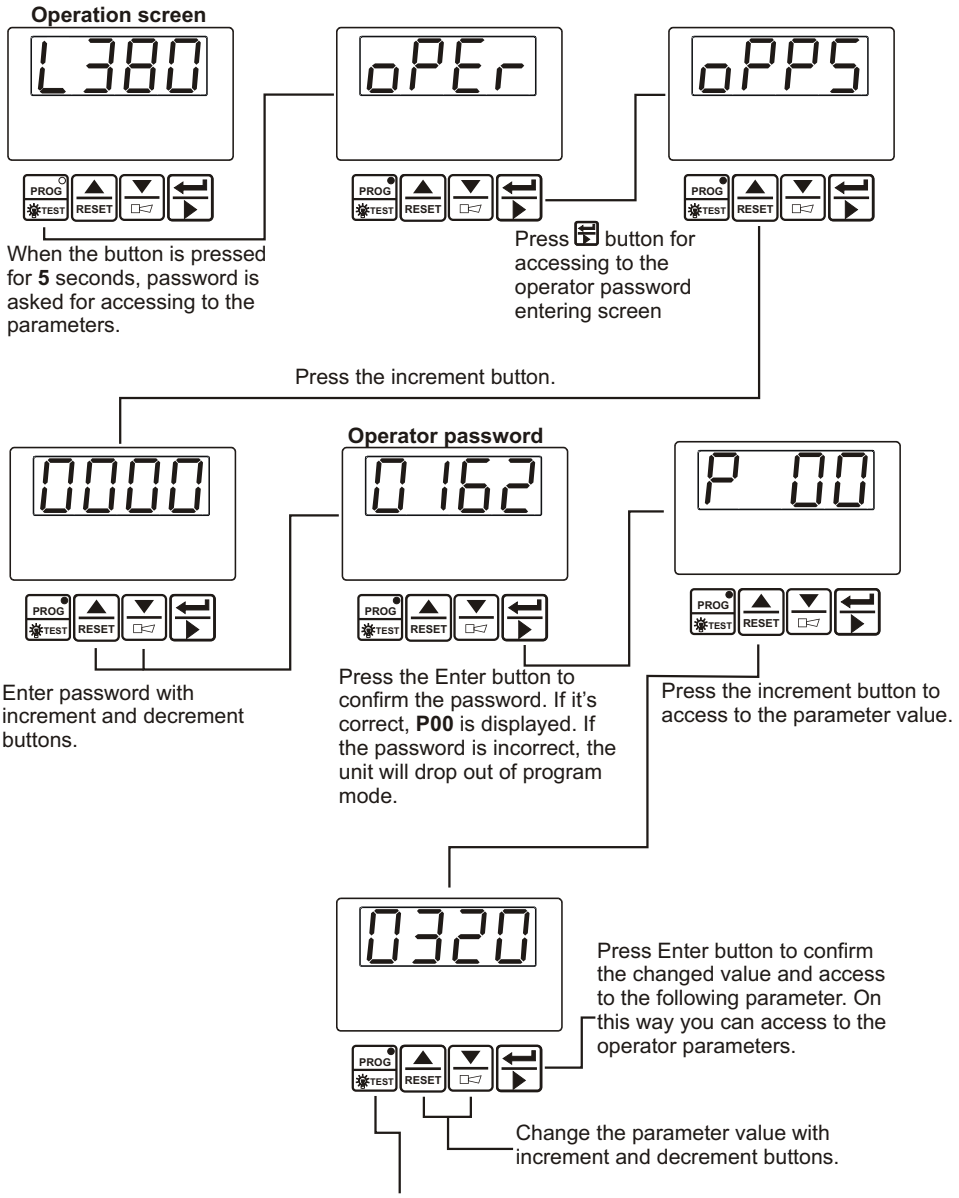
The fuses should be as follows:

FUSE-1	1A. T
FUSE-2	According to current required by solenoids (Max. 16A. T)
FUSE-3, FUSE-4	Max 5A. T
FUSE-5, FUSE-6	1A. T

1- Connect the unit as shown in the appropriate diagram above. Be sure to connect the battery supply the right way round and battery negative should be grounded. The connectors can be unplugged from the rear of the unit to facilitate connection.

Easy Access Diagram

Programming can be carried out only while the unit is in **OFF** mode. Press the OFF button. If the engine is running, it will stop. Then proceed as follows:



Note: If the PROG button is pressed or if no buttons are pressed for a period of **2** minutes, the unit will return to the normal operation screen.

Product Code

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