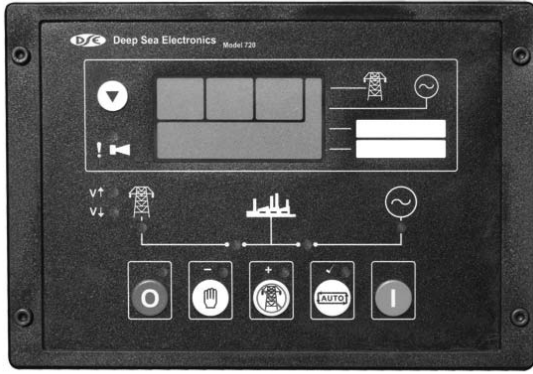




DSE 720 AMF
KONTROL MODÜLÜ
ÇALIŞTIRMA EL KİTABI

DSE 720 AMF
CONTROL MODULE
OPERATING MANUAL

DSE 720 AMF



DSE 720, AMF CONTROL MODULE OPERATOR MANUAL

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Dear Aksa Generating Set Users;

First of all, we would like to thank you for your choice of Aksa Generating Set.
Please read the following instructions carefully before starting to use your generating set.

This manual gives information about operation of the generating set.

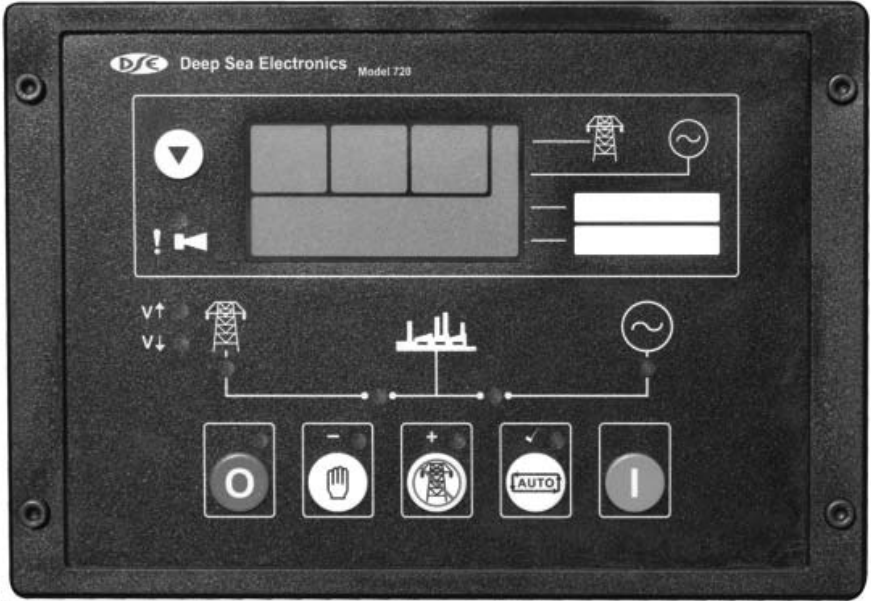
Never operate, maintain or repair your generating set without taking general safety precautions.

Aksa Jeneratör does not assume responsibility for possible errors.

Aksa Jeneratör reserves to make changes without prior notice.

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DSE 720 AMF CONTROL MODULE OPERATION



STOP MANUAL TEST AUTO START

CONTROLS

Stop / Reset

This button places the module into its Stop/Reset mode. This will clear any alarm conditions for which the triggering criteria have been removed. If the engine is running and the module is in Stop mode, the module will automatically instruct the changeover device to unload the generator ('Close Generator' becomes inactive (if used)). The fuel supply de-energises and the engine comes to a standstill. Should a remote start signal be present while operating in this mode, a remote start will not occur.

Manual

This mode allows manual control of the generator functions. Once in Manual mode the module will respond to the start button, start the engine, and run off load. If the engine is running off-load in the Manual mode and a remote start signal becomes present, the module will automatically instruct the changeover device to place the generator on load ('Close Generator' becomes active (if used)). Upon removal of the remote start signal, the generator remains on load until either selection of the 'STOP/RESET' or 'AUTO' modes.

Auto

This button places the module into its 'Automatic' mode. This mode allows the module to control the function of the generator automatically. The module will monitor the remote start input and mains supply status and once a start request is made, the set will be automatically started and placed on load.

Upon removal of the starting signal, the module will automatically transfer the load from the generator and shut the set down observing the stop delay timer and cooling timer as necessary. The module will then await the next start event.

Test

This button places the module into its 'Test' mode. This allows an on load test of the generator. Once in Test mode the module will respond to the start button, start the engine, and run on load.

Start

This button is only active in STOP/RESET or MANUAL mode.


Pressing this button in manual or test mode will start the engine and run off load (manual) or on load (test).

MANUAL OPERATION

This mode is activated by pressing the  pushbutton. An LED indicator beside the button confirms this action. Press the  button to begin the start sequence.

NOTE: There is no Start Delay in this mode of operation.

The Fuel Solenoid is energised, then the Starter Motor is engaged.

The engine is cranked for a configurable period. If the engine fails to fire during this cranking attempt then the starter motor is disengaged for the configurable rest period. Should this sequence continue beyond the 3 cranking attempts, the start sequence will be terminated and Fail to Start  fault will be displayed.

When the engine fires, the starter motor is disengaged and locked out at 20Hz measured from the Alternator output.

After the starter motor has disengaged, the Safety On delay is activated. 'Delayed' alarms (underspeed, low oil pressure etc) will be monitored after the end of the Safety On delay.

The generator will run off load, unless the mains (utility) supply fails or a Remote Start on load signal is applied, at which point the load will be transferred to the generator so long as the Warmup Timer (if configured) has expired.

The generator will continue to run on load regardless of the state of the mains (utility) supply or remote start input until the Auto mode is selected.


If Auto mode is selected, and the mains supply is healthy with the remote start on load signal not active, then the Remote Stop Delay Timer begins, after which, the load is transferred to the mains (utility). The generator will then run off load allowing the engine a cooling down period.

Selecting STOP (O) de-energises the FUEL SOLENOID, bringing the generator to a stop.

TEST OPERATION

This mode is activated by pressing the  pushbutton. An LED indicator beside the button confirms this action.


Press the  button to begin the test sequence. The Fuel Solenoid is energised, then $1/2$ second later, the Starter Motor is engaged.

The engine is cranked for a configurable period. If the engine fails to fire during this cranking attempt then the starter motor is disengaged for the configurable rest period. Should this sequence continue beyond the 3 cranking attempts, the start sequence will be terminated and Fail to Start  fault will be displayed.

When the engine fires, the starter motor is disengaged and locked out at 20Hz measured from the Alternator output.

After the starter motor has disengaged, the Safety On delay is activated. 'Delayed' alarms (underspeed, low oil pressure etc) will be monitored after the end of the Safety On delay.

The Warmup timer (if configured) is then followed.

 **NOTE** The set will not be allowed to load until all delayed alarms indicate "normal" operation. This prevents excessive wear on the damage that could be caused by loading an engine with low oil pressure.

The load will be transferred to the generator and the set will run on load until Auto mode is selected or STOP is pressed.

Selecting STOP (O) de-energises the FUEL SOLENOID, bringing the generator to a stop.

AUTOMATIC OPERATION

This mode is activated by pressing the  pushbutton. An LED indicator beside the button confirms this action.

Should the mains (utility) supply fall outside the configurable limits for longer than the period of the delay start timer, the mains (utility) is healthy indicator will extinguish. Additionally, while in AUTO mode, the remote start input is monitored.

Whether the start sequence is initiated by mains (utility) failure, or by remote start input, the following sequence is followed :

To allow for short term mains supply transient conditions or false remote start signals, the Start Delay timer is initiated.

 **NOTE:** The set will not be allowed to load until all delayed alarms indicate “normal” operation. This prevents excessive wear on the damage that could be caused by loading an engine with low oil pressure.

If the remote start is being used and has been configured to Remote start is on load, or the mains (utility) has failed, the load will be transferred to the generator.

On the return of the mains supply, (or removal of the Remote Start signal if the set was started by remote signal), the Stop delay timer is initiated, once it has timed out, the load is transferred back to the mains (utility). The Cooling timer is then initiated, allowing the engine a cooling down period off load before shutting down. Once the Cooling timer expires the Fuel Solenoid is de-energised, bringing the generator to a stop.

Should the mains supply fall outside limits again (or the Remote Start signal be re-activated) during the cooling down period, the load will be immediately transferred to the generator.


Selecting STOP (O) de-energises the FUEL SOLENOID, bringing the generator to a stop.


PROTECTIONS

The module will indicate that an alarm has occurred by illuminating the relevant LED.

WARNINGS

Warnings are used to warn the operator of an impending fault but the engine continues to run.

BATTERY CHARGE FAILURE, if the module does not detect a voltage from the warning light terminal on the auxiliary charge alternator, the  icon will illuminate. (Either 8 Volts or 16 Volts depending on the configuration of Nominal DC Voltage).

LOW PLANT BATTERY ALARM The module's DC supply is monitored and if it falls below the configurable level an alarm is generated and the  icon will illuminate.


INPUTS 1 AND 2 can be configured as warnings or shutdowns. The relevant icon will be illuminated when the input is active

 The item is indication only (not an alarm). For instance this could indicate “System in Auto”


 The item has generated a Warning alarm condition.


SHUTDOWNS


Shutdowns are latching and stop the Generator. The alarm must be cleared, and the fault removed to reset the module. In the event of a shutdown the appropriate icon will be illuminated


 **NOTE:** The alarm condition must be rectified before a reset will take place. If the alarm condition remains it will not be possible to reset the unit (The exception to this is the Low Oil Pressure alarm and similar 'delayed alarms', as the oil pressure will be low with the engine at rest). Any subsequent warnings or shutdowns that occur will be displayed steady, therefore only the first-up shutdown will appear flashing.


 **NOTE:** The safety on time (used for delayed alarms) is pre set to 12 seconds and can not be changed.


FAIL TO START, if the engine does not fire after the pre-set 3 attempts at starting, a shutdown will be initiated. The  icon will illuminate.

LOW OIL PRESSURE, if the module detects that the engine oil pressure has fallen below the low oil pressure setting after the Safety On timer has expired, a shutdown will occur. The  icon will illuminate.



HIGH ENGINE TEMPERATURE if the module detects that the engine coolant temperature has exceeded the high engine temperature setting after the Safety On timer has expired, a shutdown will occur. The  icon will illuminate.


OVERSPEED / OVERFREQUENCY, if the engine speed exceeds the pre-set trip (14% above the nominal frequency) a shutdown is initiated. Overspeed is not delayed, it is an immediate shutdown. The  icon will illuminate.


 **NOTE:** During the start-up sequence the overspeed trip level is extended to 24% above the normal frequency for the duration of the safety timer to allow an extra trip level margin. This is used to prevent nuisance tripping on start-up.

UNDERSPEED / UNDERFREQUENCY, if the engine speed falls below the pre-set trip (20% of the nominal frequency) after the Safety On timer has expired, a shutdown is initiated. The  icon will illuminate.

INPUTS 1 AND 2 can be configured as warnings or shutdowns. The relevant icon will be illuminated when the input is active.

 The item is indication only (not an alarm). For instance this could indicate "System in Auto"
 (Flashing) The item has generated a Shutdown alarm condition.

FAILED TO REACH LOADING VOLTAGE, If the engine fires but the generator fails to reach the loading voltage (fixed at 100V) before the end of the Safety On timer a shutdown is initiated. The  icon will illuminate.

FAILED TO REACH LOADING FREQUENCY, If the engine fires but the generator fails to reach the loading frequency before the end of the Safety On timer a shutdown is initiated. The  icon will illuminate

INSTRUMENT PAGE CONTENT

Engine


- o Engine Speed
- o Oil Pressure
- o Coolant Temperature
- o Engine Battery Volts
- o Run Time

Generator

- o Generator Voltage (ph-N)
- o Generator Frequency
- o Generator Current

Mains

- o Mains Voltage (ph-N)
- o Mains Voltage (ph-ph)

Pressing the  button again will scroll through each individual instrument eventually returning to the original instrument displayed.

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