

DKG-545

AUTOMATIC MAINS FAILURE UNIT

DESCRIPTION

The DKG-545 is a comprehensive AMF unit for a single genset standby or dual genset mutual standby operations.

The same unit offers also remote start operation functionality, selectable through program parameter.

In AUTOMATIC position, DKG-545 monitors mains phase voltages and controls the automatic starting, stopping and load transfer of the generating set in case of a mains failure and once the generator is running, it monitors internal protections and external fault inputs. If a fault condition occurs, the unit shuts down the engine automatically and indicates the failure source with the corresponding red led lamp and text.

The operation of the unit is controlled with front panel pushbuttons. The TEST, AUTO, MANUAL, STOP and START pushbuttons select the operating mode. Other buttons select the display parameter scroll, alarm mute and lamp test functions.

The DKG-545 provides a comprehensive set of digitally adjustable timers, threshold levels, input and output configurations, operating sequences and engine types. The unauthorized access to program parameters is prevented by the program lock input. All programs may be modified via front panel pushbuttons, and do not require an external unit.

The fault conditions are considered in 3 categories as Warnings, Load dumps and Shutdown Alarms. Measured values have separate programmable limits for warning and shutdown conditions. The unit is able to initiate modem calls and sending SMS messages in fault conditions.

Last 100 faults are stored in the event log file. The event log includes not only the date-time information, but also a comprehensive list of measured genset parameters at the time that the fault has occurred.

The service request indicator lamp turns on at the expiration of either engine hours or time limits.

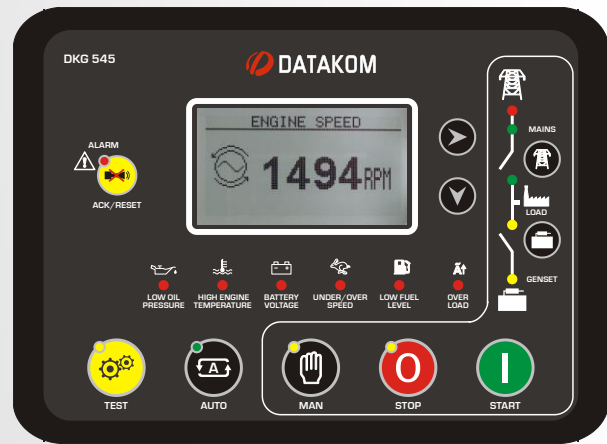
It is possible to monitor and control the operation of the system locally or remotely with the WINDOWS based RAINBOW program.

The unit supports MODBUS protocol enabling communication with PLCs and building management systems. The MODBUS protocol is also supported through GSM and PSTN modems.

The unit is designed for front panel mounting. Connections are made with 2 part plug and socket connectors.

MEASUREMENTS

Generator Volts: L1-N, L2-N, L3-N, L1-L2, L2-L3, L3-L1
 Generator Amps: L1, L2, L3
 Generator KW: L1, L2, L3, total
 Generator pf: L1, L2, L3, total
 Generator Frequency
 Engine rpm
 Mains Volts: L1-N, L2-N, L3-N, L1-L2, L2-L3, L3-L1
 Mains Frequency
 Battery Voltage
 Engine Coolant Temperature
 Engine Oil Pressure
 Fuel Level
 Engine Oil Temperature



FEATURES

- Automatic mains failure**
- Manual control & Remote Start operation available**
- Engine control**
- Gas engine support**
- Engine idle speed control**
- Generator protection**
- Built in alarms and warnings**
- Dual genset mutual standby operation**
- Load shedding, dummy load**
- Periodic maintenance request indicator**
- Built in daily / weekly / monthly exerciser**
- Event logging with time stamp and measurements**
- Statistical counters**
- Battery backed-up real time clock**
- Weekly operation schedule programs**
- 3 level password support**
- Field adjustable parameters**
- RS-232/RS-485 selectable serial port**
- Firmware downloadable from serial port**
- Free MS-Windows Remote monitoring SW:**
 - local and modem connection
 - monitoring, download of parameters
 - modem networking
- GSM and PSTN modem support**
- GSM SMS message sending on fault**
- Modem calls on fault**
- MODBUS communications**
- Graphic LCD display (128x64 pixels)**
- Triple language support**
- Customer logo display capability**
- Protected semiconductor digital outputs**
- Magnetic pickup input**
- Digital outputs: 7**
- Configurable analogue inputs: 5**
- Configurable digital inputs: 8**
- I/O expansion capability**
- Survives cranking dropouts**
- Sealed front panel**
- Plug-in connection system for easy replacement**



DIGITAL INPUTS

The unit has 8 configurable digital inputs. Each input is fully configurable with selectable names, alarm type, polling, latching and contact type.

ANALOG INPUTS

Engine analog inputs are provided for coolant temperature, oil pressure, oil temperature, fuel level and canopy temperature. The inputs have programmable sensor characteristics so that they are suitable for any type and brand of sensors.

OUTPUTS

The unit provides 7 semiconductor outputs. 5 of them have programmable functions, selectable from a list. Any function or alarm condition may be a digital output. Using two Relay Expansion Modules, the number of relays may be increased to 23, 16 of them being volt-free contacts.

EVENT LOGGING

The unit records last 100 events with date-time stamp and a total of 18 measured parameters.

TELEMETRY AND REMOTE PROGRAMMING

The unit provides the user with large telemetry facilities via its standard RS-232 serial port, connecting either to a PC, PLC or a GSM or PSTN modem. It supports both RAINBOW and MODBUS communication protocols. The standard PC software offers local and modem operation capabilities as well as modem networking feature.

The PC program is used for below purposes:

- parameter upload/download
- remote monitoring and control
- diagnostics and analysis

TECHNICAL SPECIFICATIONS

Alternator voltage: 0 to 300 V-AC (Ph-N)

Alternator frequency: 0-100 Hz.

Mains voltage: 0 to 300 V-AC (Ph-N)

Mains frequency: 0-100 Hz.

V-A-cos Accuracy: 1.0% + 1 digit

kW-kVA-kVAr Accuracy: 2.0% + 1 digit

DC Supply Range: 8.0 to 36.0 V-DC

Cranking dropouts: survives 0 V for 100ms.

Typical Standby Current: 130 mA-DC

Maximum Operating Current: 250 mA-DC (Outputs open)

Digital Outputs: 1A @ 28V protected semiconductor outputs

Charge excitation: min 150mA @ 10 to 30 V-DC

Magnetic pickup input:: 0.5 – 30 V-AC.

Magnetic pickup frequency: 10 KHz max.

Current inputs: from CTs, .../5A. Max load 0.7VA per phase.

Analog input range: 0-5000 ohms.

Serial port: RS-232, 9600 bauds, no parity, 1 bit stop

Operating temp.: -20°C (-4°F) to 70 °C (158°F).

Storage temp.: -40°C (-40°F) to 80 °C (176°F).

Maximum humidity: 95% non-condensing.

Dimensions: 202 x 148 x 48 mm (WxHxD)

Panel Cut-out Dimensions: 183x134 mm minimum.

Weight: 400 g (approx.)

Case Material: High Temperature ABS/PC (UL94-V0)

IP Protection: IP65 from front panel, IP30 from the rear

Installation: Flat surface mounting on a Type 1 Enclosure. Rear retaining plastic brackets.

CE Conformity reference standards:

EN 61010 (safety requirements)

EN 61326 (EMC requirements)

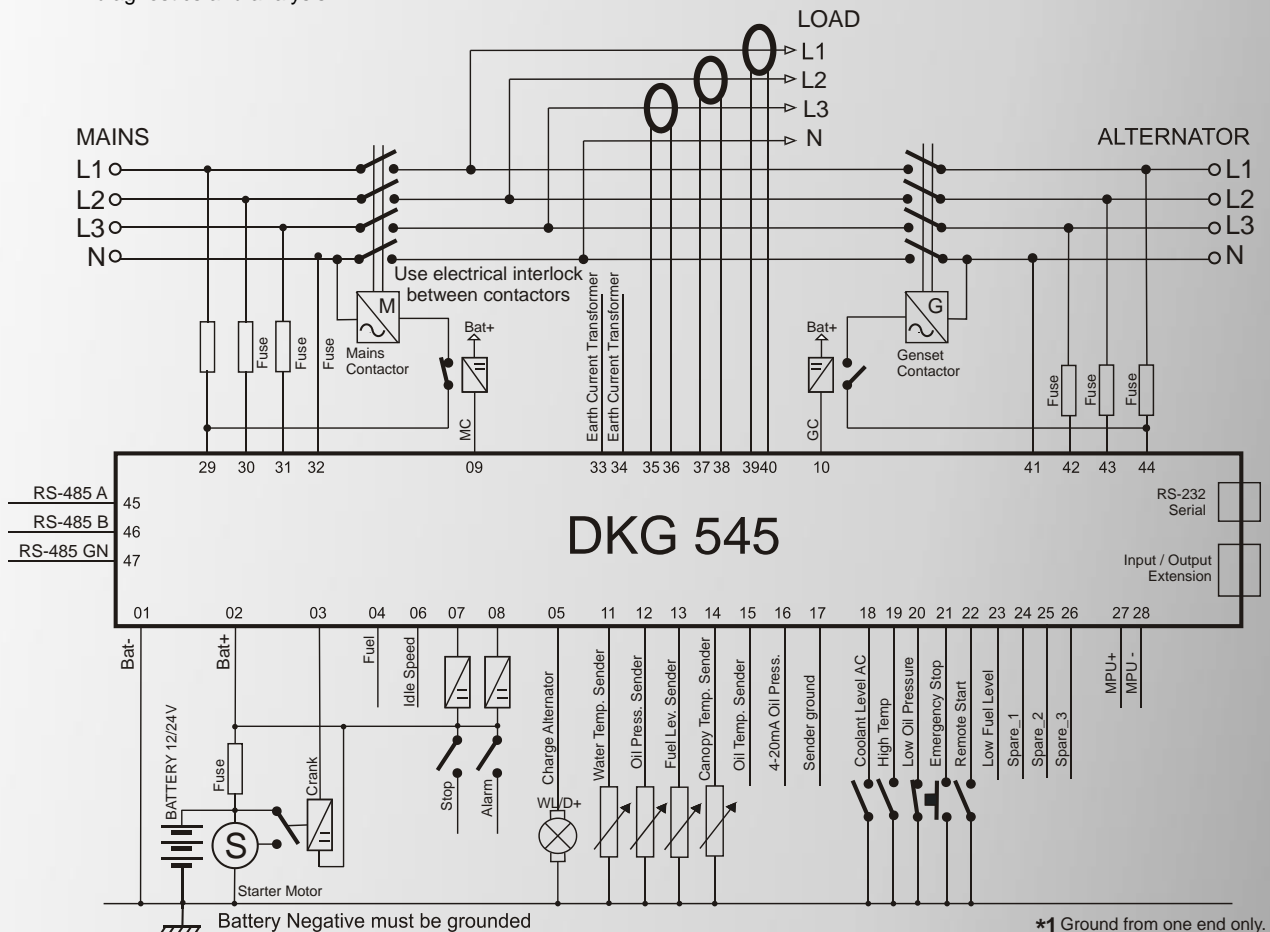
UL / CSA Conformity: certificate # 20110527-E314374

UL 508, Edition 17

UL 2200, 1st Edition.

UL 840 Edition 3

CSA C22.2 NO. 14 - Edition 10



*1 Ground from one end only.

