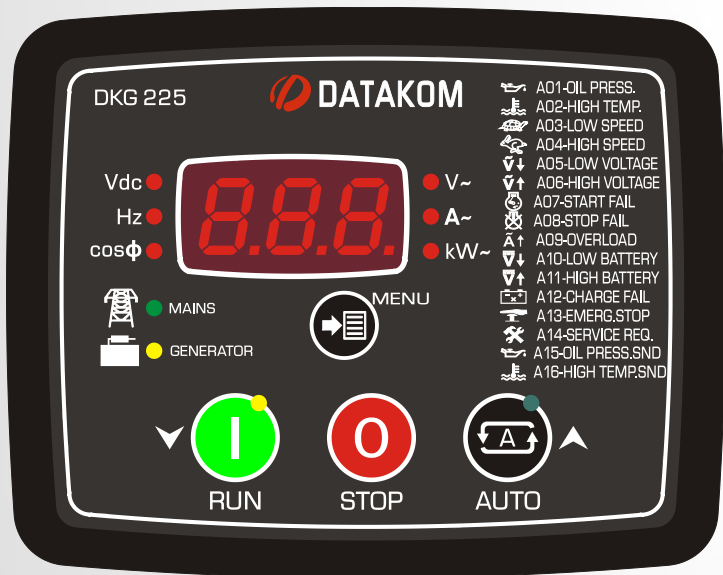


# DKG-225

## AUTOMATIC MAINS FAILURE UNIT WITH INTERNAL CHARGER



### DESCRIPTION

DKG-225, is a low cost AMF controller for 12V gensets, featuring an internal battery charger. Internal fuel and crank relays are rated at 40Amps@12V-DC and do not require external relays.

Thus a typical transfer panel will simply consist on one DKG-225 and two contactors, reducing material cost, panel size and production time.

The unit supports also current transformer connections allowing detailed power measurements from both mains and genset sides. The standard unit supports 1A and 5A secondary CTs. A special version supports low cost and small 0.1A secondary CTs allowing more compact panel design.

Thanks to the DKG-225, automatization of small gensets has become easy and cost effective.

In AUTO position, the unit monitors 3 phases of the mains, runs and stops the genset automatically and performs load transfer. When the engine is running, it monitors internal protections and alarm inputs.

The 1Amp @12V-DC rated battery charger is sufficient for the float charging of the engine start battery.

Timers, threshold levels, input and output configurations are digitally programmable. Programs are modified through front panel pushbuttons and do not require an additional unit.

The fault conditions are considered in 2 categories as Warnings and Alarms. Measured values have separate programmable limits for warning and alarm conditions.

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

### FEATURES

- **Automatic mains monitoring**
- **Automatic load transfer**
- **Automatic starting and stopping**
- **Automatic stopping in fault condition**
- **Gas engine support**
- **Test mode available**
- **Emergency backup mode**
- **3 phase mains voltage inputs**
- **3 phase genset voltage inputs**
- **3 phase mains/genset CT inputs**
- **2 configurable analog sender inputs**
- **3 configurable digital inputs**
- **Detailed AC measurements and protections**
- **Internal battery charging rectifier**
- **40 Amp rated Fuel and Crank outputs**
- **Front panel adjustable parameters**
- **Stop, preheat and choke output capability**
- **Survives cranking voltage dropouts**
- **Compact dimensions, panel mounted**

### MEASUREMENTS

Mains Volts: L1-N, L2-N, L3-N, L1-L2, L2-L3, L3-L1  
Genset Volts: L1-N, L2-N, L3-N, L1-L2, L2-L3, L3-L1  
Load Currents: L1, L2, L3  
Load total kW, kVA, kVA<sub>r</sub>, cosΦ  
Genset Frequency  
Battery Voltage  
Oil pressure  
Coolant temperature  
Engine run Hours  
Service Counters



## MODES OF OPERATION

**OFF:** Mains contactor will be energized if AC mains are available.

**AUTOMATIC:** If a mains failure on any phase is detected, the unit starts the genset and controls the load switching between mains and genset.

**RUN:** The unit will start the generator without a mains failure, but the load will not be transferred until a mains failure occurs. (Emergency backup mode)

**PROGRAM:** Used to set timers and operational limits

## OUTPUTS

**FUEL:** Positive output relay used to control the fuel solenoid. May also be programmed for **activate to stop** (40A @12Vdc)

**CRANK:** Positive output relay used to control the engine starter solenoid. (40A@12Vdc)

**ALARM:** Positive output relay activated by any alarm condition. This output can also be configured as **stop, preheat, choke** or **gas engine fuel solenoid**. (10A@12Vdc)

**GENERATOR CONTACTOR:** Outputs the alternator phase voltage to energize the genset contactor. (16A@250V-AC)

**MAINS CONTACTOR:** Outputs the mains phase voltage to energize the mains contactor. (16A@250V-AC)

## ANALOG INPUTS

**OIL PRESSURE SENDER:** Preprogrammed for 7 bars, 10-180 ohms VDO sender. Different sender types are selectable. Adjustable warning and shutdown levels on measurement are available.

**TEMPERATURE SENDER:** Preprogrammed for VDO sender. Different sender types are selectable. Adjustable warning and shutdown levels on measurement are available.

## DIGITAL INPUTS

**LOW OIL PRESSURE SWITCH:** negative closing switch input for low oil pressure protection.

**HIGH TEMP SWITCH:** negative closing switch input for engine high temperature protection.

**SPARE ALARM:** any fault signal may be tied to this input.

## TECHNICAL SPECIFICATIONS

**Alternator Voltage:** 0-300 V-AC (Phase-Neutral)

**Alternator Frequency:** 0-100 Hz.

**Mains Voltage:** 0-300 V-AC (Phase-Neutral)

**Mains Frequency:** 0-100 Hz.

**Topology:** 1 or 3 phases with neutral

**Cranking Dropouts:** survives 0V for 100ms.

**Fuel and Crank Relay Outputs:** 40 A / 12V-DC

**Alarm Relay Output:** 10A / 12 V-DC

**MC and GC Relay Outputs:** 16A / 250 V-AC

**Charge Excitation:** min 2 W.

**Battery Charge Current:** min 1A / 13.7V-DC (195-300V-AC)

**Current Inputs:** CT inputs xxx/5A (opt xxx/0.1A)

**Analog Input Range:** 0-5000 ohms

**Digital Inputs:** 0 to 36V-DC

**Operating temp.:** -40°C (-40°F) to 70°C (158°F).

**Storage temp.:** -55°C (-67°F) to 80°C (176°F).

**Maximum humidity:** 95% non-condensing.

**Dimensions:** 133x 107 x 46 mm (WxHxD)

**Panel Cutout:** 117 x 87mm minimum.

**Weight:** 200 g (approx..)

**Enclosure:** Flame retardant, high temp ABS/PC (UL94-V0)

**IP Protection:** IP65 (front with gasket), IP30 (rear)

**EU Directives Conformity**

-2006/95/EC (low voltage)

-2004/108/EC (electro-magnetic compatibility)

**Reference standards for EU Conformity:**

-EN 61010 (safety)

-EN 61326 (EMC)

## INSTALLATION DIAGRAM

