



## DKG-105 AUTOMATIC MAINS FAILURE UNIT



### DESCRIPTION

The DATAKOM model DKG-105 automatic mains failure unit is a microprocessor based digital unit offering all functions needed for the automatic control of a genset.

The unit fits into a standard 72x72mm panel meter opening and offers a very cost effective and space saving solution for the basic genset control.

In automatic mode, the unit monitors 3 phases of the mains voltage and controls the automatic starting, stopping and load transfer of the generator. Once the generator is running, the device monitors the internal protections and external fault inputs.

DKG-105 provides a full set of digitally adjustable timers and threshold levels. Also the relay configuration is programmable, enabling the control of various types of engines, including gasoline engines. The programs may be modified by the customer via pushbuttons on the unit, and do not require an external unit.

The parameters displayed on the unit are:

- Mains voltages L1-N, L2-N, L3-N
- Generator voltage L1-N
- Generator frequency

The unit works on both 12 Volt and 24 Volt gensets.

### FEATURES

- Automatic engine starting and stopping,*
- Automatic mains failure monitoring,*
- Automatic load transfer,*
- Automatic shutdown on fault condition,*
- Test mode available,*
- Survives cranking dropouts,*
- Provision for energize to stop, preheat & choke outputs,*
- Mains phases voltage limits checking,*
- Generator phase voltage limits checking,*
- Delayed overspeed and underspeed alarm,*
- Digitally adjustable low & high mains voltage limits,*
- Digitally adjustable low & high generator voltage limits,*
- Digitally adjustable underspeed & overspeed limits,*
- Digitally adjustable delay for speed alarm,*
- Digitally adjustable timers,*
- Digital display of mains & generator voltages,*
- Digital display of generator frequency,*
- Plug-in connection system for easy replacement,*
- Low cost,*
- Small dimensions,*
- Standard panel dimensions, (72x72mm)*

## MODES OF OPERATION

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

**AUTOMATIC:** The unit monitors the 3 phases of the mains and will start the generator and control the changeover of mains and generator contactors if a mains failure on any phase is detected.

**TEST:** The unit will start the generator without a mains failure, but the load will not be transferred until a mains failure occurs. (Also called EMERGENCY BACKUP mode)

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

## OUTPUTS

**FUEL:** Positive output relay used to control the fuel solenoid. May also be programmed for **activate to stop** (10 amps @28V-DC)

**START:** Positive output relay used to control the engine starter solenoid.  
(10 amps @28V-DC)

**AUXILIARY:** Positive output relay activated by any alarm condition. (10 amps @28V-DC) This output can also be configured to control a stop solenoid, as a preheat or choke output.

**GENERATOR CONTACTOR:** Outputs the alternator phase voltage to energize the generator contactor. (10 amps @250V-AC)

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

## 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.

**DC SUPPLY:** 12 or 24 volts DC, (+) and (-) terminals.

**R-S-T:** 3 phase mains voltages.

**G:** Generator phase voltage.

**NEUTRAL:** Mains and generator neutral terminal.

## TECHNICAL SPECIFICATIONS

**Step control:** 8 bit microcontroller.

**Mains voltage:** 250VAC max.

**Mains frequency:** 50/60Hz.

**Power System Type:** TN or TT.

**Alternator voltage:** 250V-AC max.

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

**Measurement Category:** CAT II

**DC Supply Range:** 9 to 33 V-DC.

4 to 33 V-DC while cranking

**Current consumption:**

60 mA-DC typical (AUTO mode, mains OK)

200 mA-DC max. (Relay outputs open)

**Total DC Current Output Rating:** 10A-DC.

**Total AC Current Output Rating:** 10A-AC.

**Max. Current for each Terminal:** 10A-RMS.

**Operating temp.:** -10°C (14°F) to 60 °C (140°F).

**Storage temp.:** -20°C (-4°F) to 80 °C (176°F).

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

**Dimensions:** 72 x 72 x 76mm (WxHxD)

**Panel cutout dimensions:** 68 x 68mm minimum.

**Weight:** 240 g (approx.)

**Accuracy:**

Phase voltages: 2% + 1v

Generator frequency: +/- 0.5 Hz

**Case Material:** Flame Retardant High

Temperature ABS (UL94-V0, 110°C)

**Conformity (EU directives)**

-73/23/EEC and 93/68/EEC (low voltage)

-89/336/EEC, 92/31/EEC and 93/68/EEC

(electro-magnetic compatibility)

**Norms of reference:**

EN 61010 (safety requirements)

EN 50081-2 (EMC requirements)

EN 50082-2 (EMC requirements)

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