

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. protocol is also supported through GSM and PSTN modems.

MEASUREMENTS

Generator Volts: L1-N

Generator Frequency

Mains Volts: L1-N, L2-N, L3-N

FEATURES

Automatic engine starting and stopping

Gas engine support

Automatic mains failure monitoring

Automatic load transfer

Automatic shutdown on fault condition

Test mode available

Survives cranking dropouts

Digital engine run-hours display

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 starts the generator and controls 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 set timers and operational limits

OUTPUTS

FUEL: Positive output relay used to control the fuel solenoid. May also be programmed for **activate to stop**

START: Positive output relay used to control the engine starter solenoid.

AUXILIARY: Positive output relay activated by any alarm condition. This output can also be configured to control a stop solenoid, as a preheat or choke output or gas engine fuel solenoid.

GENERATOR CONTACTOR: Outputs the alternator phase voltage to energize the generator contactor.

MAINS CONTACTOR: Outputs the mains phase voltage to energize the mains contactor.

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.

TECHNICAL SPECIFICATIONS

Mains voltage: 277VAC (Ph-N)

Mains frequency: 50/60Hz.

Power System Type: TN or TT.

Alternator voltage: 277V-AC (Ph-N)

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:

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

200mA-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.: -20°C (-4°F) to 70 °C (158°F).

Storage temp.: -30°C (-22°F) to 80 °C (176°F).

Maximum humidity: 95% non-condensing.

Dimensions: 78 x 78 x 50mm (WxHxD)

Panel cutout dimensions: 68 x 68mm minimum.

Weight: 200 g (approx.)

Accuracy:

Phase voltages: 2% + 1v

Generator frequency: +/- 0.5 Hz

Case Material: Flame Retardant High Temperature ABS/PC (UL94-V0, 110°C)

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

Conformity (EU directives)

-2006/95/EC (low voltage)

-2004/108/EC (EMC)

Norms of reference:

EN 61010 (safety requirements)

EN 61326 (EMC requirements)

