

# DKG-329 AUTOMATIC TRANSFER SWITCH WITH UNINTERRUPTED TRANSFER AND MULTIPLE GENSET SUPPORT

## DESCRIPTION

The DKG-329 is a control and protection panel designed to monitor 3-phase mains voltages, send remote start command to generating sets and make changeover of both generator and mains contactors.

The unit offers an internal synchroscope for uninterrupted transfer in both directions. The number of gensets to run before transfer is selectable, allowing multiple genset support.

In AUTOMATIC position, the unit monitors mains phase voltages. In case of a mains failure it controls the remote starting and load transfer of the generating set, and once the generator is running, it monitors internal protections and external fault inputs. If a fault condition occurs, the unit disables the remote starting automatically and indicates the failure source with the corresponding led lamp and text.

The unit provides a comprehensive set of digitally adjustable program parameters. The unauthorized access to program parameters is prevented by a 3 level password system. All programs may be modified via front panel pushbuttons and do not require any external unit.

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 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.

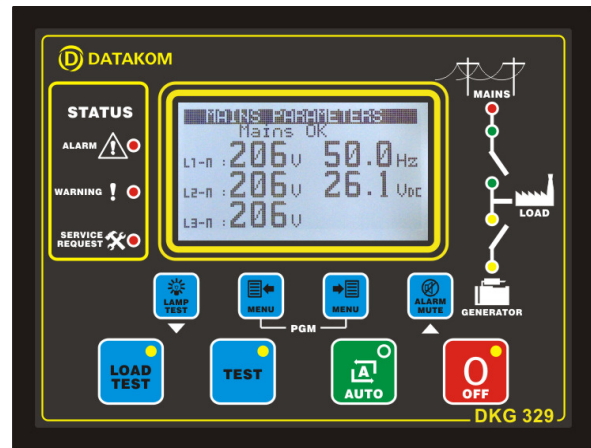
The unit supports MODBUS protocol enabling communication with PLCs and building management systems. The MODBUS protocol is also supported through GSM and PSTN modems.

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

The unit offers triple language support. Default languages are English-Turkish and Chinese. Please contact Datakom for other available languages.

## MEASUREMENTS

Generator Volts: L1-N, L2-N, L3-N  
 Generator Volts: L1-L2, L2-L3, L3-L1  
 Generator Frequency  
 Mains Volts: L1-N, L2-N, L3-N  
 Mains Volts: L1-L2, L2-L3, L3-L1  
 Mains Frequency  
 Load Amps: L1, L2, L3  
 Load kW: L1, L2, L3, total  
 Load kVAR: L1, L2, L3  
 Load pf: L1, L2, L3, total  
 Synchroscope Phase Angle  
 Battery Voltage



## FEATURES

- Automatic contactor control**
- Synchroscope & check synch**
- No break transfer & no break load test**
- Multiple genset system support**
- Electrical protections for genset**
- Built in alarms and warnings**
- 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 system**
- Field adjustable parameters**
- RS-232 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**
- MODBUS communications**
- Graphic LCD display (128x64 pixels)**
- User friendly graphic indicators**
- Triple language support**
- Customer logo display capability**
- Configurable digital inputs: 7**
- Configurable digital outputs: 2**
- Total digital outputs: 6**
- I/O expansion capability**
- Survives cranking dropouts**
- Sealed front panel**
- Plug-in connection system for easy replacement**

## STATISTICS

Following incremental counters provide statistics about past performance of the generating set:

Engine Hours Run  
Total KW-h  
Engine Hours to Service  
Time to Service

## EVENT LOGGING

The unit records last 100 events with date-time stamp and a total of 14 measured parameters. Recorded events are:

-shutdown alarms, load dumps and warnings  
-periodic records

## WEEKLY OPERATION SCHEDULE

In AUTO mode only, the unit offers the capability of defining a weekly operation schedule. Programmable parameters allow the genset to operate automatically only in defined time limits of each weekday.

The internal battery backed-up real time clock allows precise switching times.

## DIGITAL INPUTS

The unit has 7 configurable digital inputs. Each input has following programmable parameters:

-alarm type: shutdown / load\_dump / warning / no alarm  
-alarm polling: on engine running / always / on mains OK  
-latching / non-latching operation,  
-contact type: NO / NC  
-switching: BAT+ / BAT-

## DIGITAL OUTPUTS

The unit provides 6 digital outputs and 2 of them have programmable functions, selectable from a list. Any function or alarm condition may be output as a relay output.

Using two Relay Expansion Modules, the number of relays may be increased to 22, 16 of them being volt-free contacts.

## 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

The MODBUS interface allows the unit to be integrated in building management systems.

## 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.

**DC Supply Range:** 9.0 to 30.0 V-DC

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

**Typical Standby Current:** 100 mA-DC

**Maximum Operating Current:** 200 mA-DC (Relay outputs open)

**Generator/Mains Contactor Relay Outputs:** 16 A / 250V

**DC Outputs:** 1A @ 28V

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

**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:** 165 x 125 x 48 mm (WxHxD)

**Panel Cut-out Dimensions:** 151x111 mm minimum.

**Weight:** 300 g (approx.)

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

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

**Conformity (EU directives)**

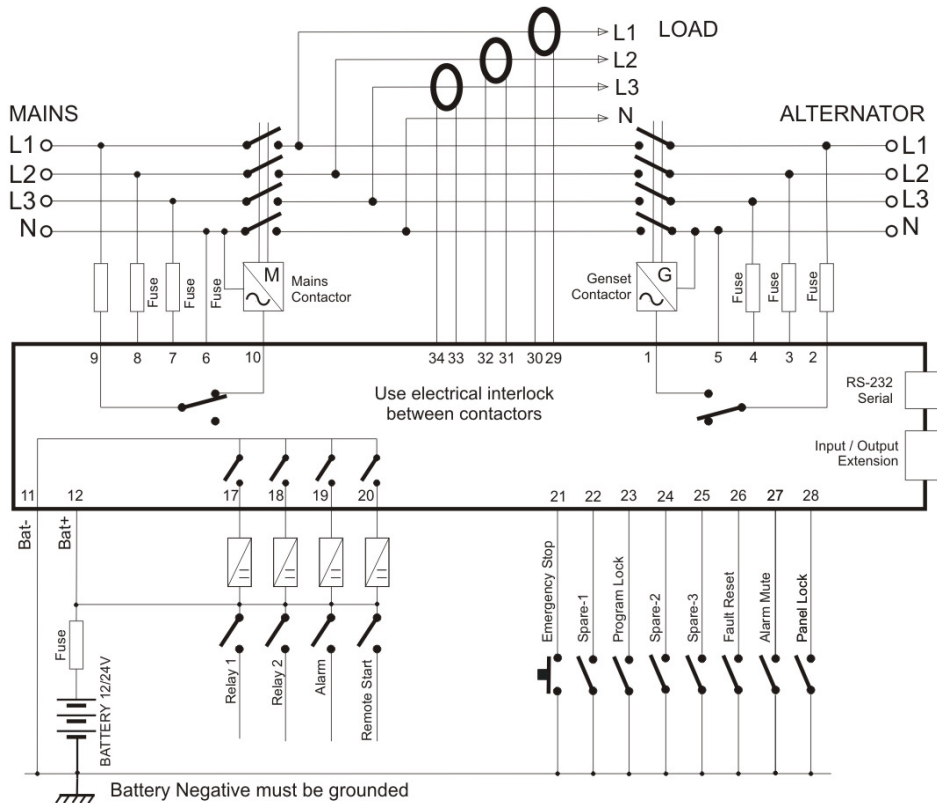
-2006/95/EC (low voltage)

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

**Norms of reference:**

EN 61010 (safety requirements)

EN 61326 (EMC requirements)



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