DATAKOM

DKG-557 MANUAL AND REMOTE START UNIT WITH J1939 INTERFACE

DESCRIPTION

The DKG-557 is a comprehensive generator control unit designed to start and stop the generating set both manually and remotely. The manual control is made using the pushbuttons on the front panel. The remote control is made via the **REMOTE START** input signal.

The unit can connect to ECU controlled electronic engines through its standard J1939 CANBUS port providing engine control, protection and instrumentation without extra senders. The ECU alarms are displayed in text.

In AUTOMATIC position, DKG-557 monitors the **REMOTE START** signal and controls the automatic starting, stopping and load transfer of the generating set. 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 LOAD TEST, TEST, AUTO, OFF and MANUAL pushbuttons select the operating mode. Other buttons select the display parameter scroll, alarm mute and lamp test functions.

The DKG-557 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, Loaddumps 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 200 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
Generator Volts: 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
Battery Voltage
Engine Coolant Temperature
Engine Oil Pressure
Fuel Level
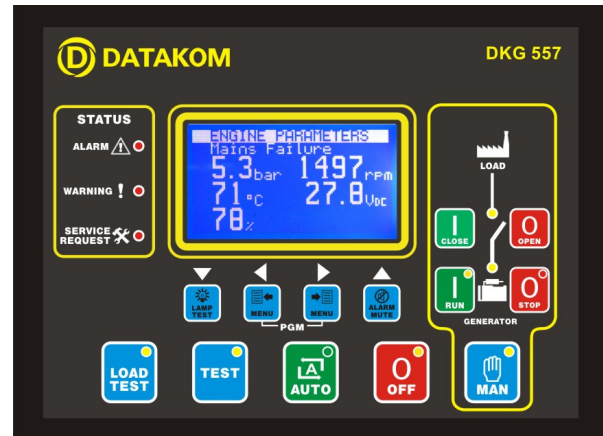
FEATURES

True RMS measurements
Both manual and remote starting and stopping
ECU control and monitoring through J1939 CAN
Various engine brands and models available
Engine control
Gas engine support
Engine idle speed control
Generator protection
Built in alarms and warnings
Remote Start operation available
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
Provision for dual genset operation
Load shedding, dummy load
Field adjustable parameters
RS-232 serial port
Software 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
Blue colour graphic LCD display (128x64 pixels)
User friendly graphic indicators
Dual language support
Customer logo display capability
Protected semiconductor digital outputs
Configurable analogue inputs: 3
Configurable digital inputs: 8
Configurable relay outputs: 2
Total relay outputs: 5
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
- Number of Engine Cranks
- Number of Genset Runs

EVENT LOGGING

The DKG-557 records last 200 events with date-time stamp and a total of 19 measured parameters. Recorded events are:
- shutdown alarms, loaddumps and warnings
- periodic records
- generator status change

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 8 configurable digital inputs. Each input has following programmable parameters:
- alarm type: shutdown / warning / no alarm
- alarm polling: on engine running / always
- latching / non-latching operation,
- contact type: NO / NC
- switching: BAT+ / BAT-

ANALOG INPUTS

Engine analog inputs are provided for the coolant temperature, oil pressure and fuel level. Analog inputs connect to resistive sender units to provide precise and adjustable protection. The inputs have programmable sensor characteristics so that they are suitable for any type and any brand of sensors.

RELAY OUTPUTS

The unit provides 5 relay 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 21, 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, Local Area Network (LAN), internet 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.
DC Supply Range: 9.0 to 30.0 V-DC
Cranking dropouts: survives 0 V for 100ms.
Typical Standby Current: 130mA-DC
Maximum Operating Current: 200 mA-DC
Generator Ready Relay Output: 16 A / 250V
DC outputs: 1A @ 28 VDC, protected semiconductor outputs
Charge excitation current: min 150mA @ 10 to 30 V-DC.
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.
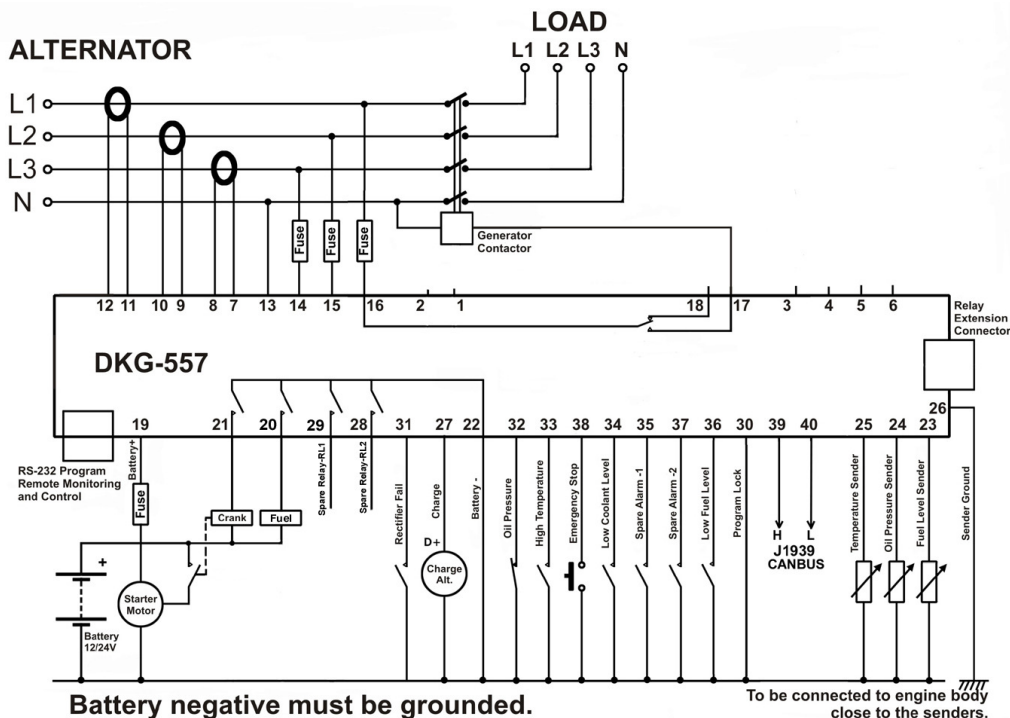**Conformity (EU directives)**
- 2006/95/EC (low voltage)
- 2004/108/EC (electro-magnetic compatibility)

Norms of reference:
- EN 61010 (safety requirements)
- EN 61326 (EMC requirements)

Battery negative must be grounded.