

# DKG-227

## MANUAL AND REMOTE START UNIT



### DESCRIPTION

The DKG-227 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 is designed in a **zero power consumption at rest** structure.

The **RUN** and **STOP** pushbuttons select the operating mode. Other buttons select the display parameter scroll, alarm mute and lamp test functions.

The unit has 3 different operation modes:

- power off (no current drain from battery)
- power on (genset stopped)
- genset running

Each depression of the **RUN** button causes the unit to switch to the next operation mode listed above. Each depression of the **STOP** button causes a return to the previous operation mode. The **REMOTE START** signal causes the unit to switch between the first and the last operation modes.

In **RUN** position, DKG-227 controls the automatic starting and stopping 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.

The DKG-227 provides a comprehensive set of digitally adjustable timers, threshold levels, input and output configurations and operating sequences. 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 2 categories as Warnings and Alarms. Measured values have separate programmable limits for warning and alarm conditions.

The service request indicator lamp turns on at the expiration of either engine hours or time limits.

It is possible to monitor the operation of the system locally or remotely with the WINDOWS based RAINBOW utility program.

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

### MEASUREMENTS

Generator Volt: U-N, V-N, W-N  
Generator Amp: U  
Generator KW phase U  
Generator pf phase U  
Generator Frequency  
Battery Voltage  
Engine Coolant Temperature  
Engine Oil Pressure

### STATISTICS

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

Engine Hours Run  
Engine Hours to Service  
Time to Service  
Number of Engine Cranks  
Number of Genset Runs  
Number of Genset on Load

### FEATURES

**Manual starting and stopping**

**Zero power consumption at rest**

**Remote Start operation available**

**Engine control**

**Generator protection**

**Built in alarms and warnings**

**3 phase genset voltage inputs**

**1 phase genset CT input**

**Engine oil pressure measurement**

**Engine coolant temperature measurement**

**Genset active power measurement (single phase)**

**Genset power factor measurement (single phase)**

**Periodic maintenance request indicator**

**Engine hours run counter**

**Event logging**

**Statistical counters**

**Operation password capability**

**Front panel configurable**

**100+ adjustable parameters**

**Logic level serial port**

**Optional RS-232 adapter**

**Free MS-Windows Remote monitoring SW:**

-local, LAN, IP and modem connection

-monitoring, download of parameters

**LED displays**

**Configurable analogue inputs: 2**

**Configurable digital inputs: 5**

**Configurable relay outputs: 2**

**Total relay outputs: 4**

**Survives cranking dropouts**

**Sealed front panel**

**Plug-in connection system for easy replacement**

**Small dimensions (130x100x39mm)**

**Low cost**

## TELEMETRY AND REMOTE PROGRAMMING

The DKG-227 module provides the user with large telemetry facilities via its optional RS232 serial port. The unit can be either connected to a PC or a modem for remote communication. The PC software offers local, Local Area Network (LAN), internet and modem operation capabilities. The modem mode is also compatible with LAN and internet modes, so that the modem data may be served by PC for reuse in the LAN or internet.

The PC program is used for below purposes:

- parameter upload/download
- remote monitoring
- diagnostics and analysis

## EVENT LOGGING

The DKG-227 records last 12 events. Recorded events are:

- alarms and warnings
- generator run / stop information

Event records are only displayed on the PC screen.

## RELAY OUTPUTS

The unit provides 4 relay outputs and 2 of them have programmable functions, selectable from a list. In addition to genset control signals any specific alarm information may be output as a relay contact.

## DIGITAL INPUTS

The unit has 5 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-

The REMOTE START input is not programmable and if used, should be supplied with the battery positive voltage.

## ANALOG INPUTS

Engine analog inputs are provided for following functions:

- Coolant temperature
- Oil pressure

The 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.

## TECHNICAL SPECIFICATIONS

**Alternator voltage:** 15-300 V-AC (Ph-N)

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

**Current input:** from current transformer, .../5A. Max load 0.7VA

**Digital inputs:** 0 - 30 V-DC

**Analog inputs:** 0 to 5000 ohms

**DC Supply Range:** 9.0 to 33.0 V-DC

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

**Typical Standby Current:** 0 mA-DC

**Maximum Operating Current:** 300 mA-DC (Relay outputs open)

**Relay Outputs:** 10 A / 28V

**Charge excitation current:** 54mA @ 12V-DC.

**Serial port:** logic levels, 2400 bauds, no parity, 1 bit stop

**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.

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

**Dimensions:** 130 x 100 x 39 mm (WxHxD)

**Panel Cut-out Dimensions:** 116x86 mm minimum.

**Mounting:** Front panel mounted with rear retaining plastic brackets.

**Weight:** 270 g (approx.)

**Case Material:** High Temperature ABS (UL94-V0, 110°C)

**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)

**UL Compatibility:** UL 508 – Industrial Control Equipment

**CSA Compatibility:** CAN/CSA C22.2 No. 14-2005 - Industrial Control Equipment

## ALTERNATOR

