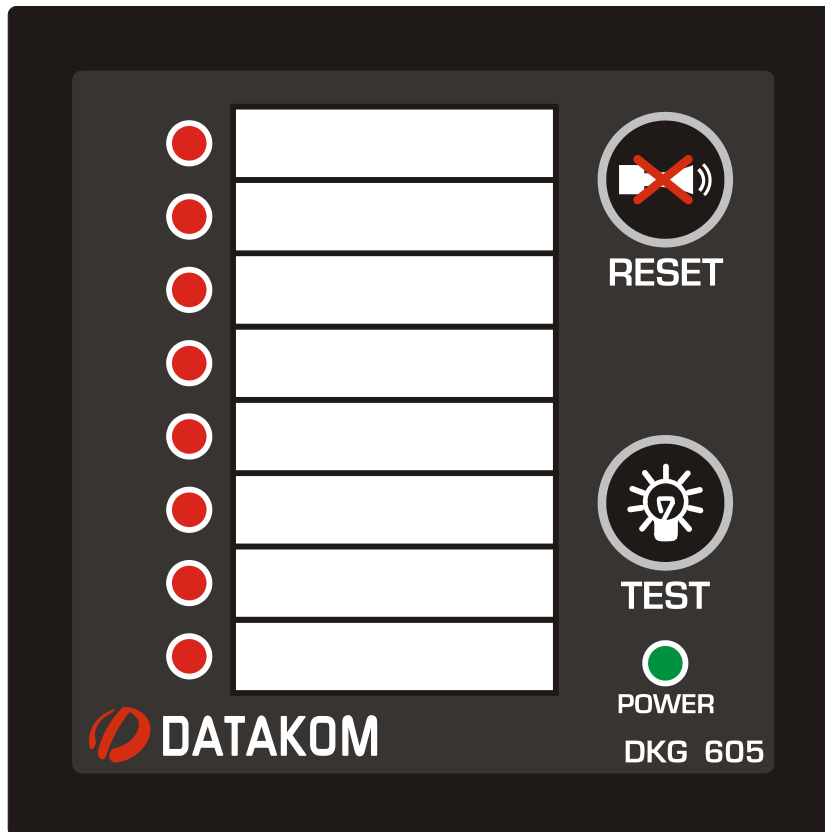




## DKG-605 ALARM ANNUNCIATOR UNIT



### FEATURES

*Panel mounted,  
8 input channels,  
2 relay outputs,  
8 semiconductor outputs,  
44 programmable parameters,  
Generator voltage input,*

*Survives cranking dropouts,  
Configurable inputs,  
Standard dimensions, 72x72mm,  
Plug-in connection system for  
easy replacement,  
Low cost*

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## 1. PROGRAMMING SUMMARY

To enter the program mode, connect the hand terminal DKG-605-P then press the button on the terminal. When the button is held pressed the display shows the program number, when it is released it shows the program value. The values are modified with RESET(+) and TEST (-) buttons. If no key is pressed within 15 seconds the program mode is cancelled.

PGM NUMBER	PROGRAM OPTION	UNIT	FACT SET	MIN. VAL.	MAX. VAL.
P01	<b>Safety On Signal Source</b> 0: generator AC voltage 1: input_8 2: safety always on 3: -	-	0	0	3
P02	<b>Safety On Timer</b>	Sec.	0	4	31
P03	<b>Frequency Delay Timer</b>	Sec.	0	0	7
P04	<b>Frequency Low Limit</b>	Hz	0	0	99
P05	<b>Frequency High Limit</b>	Hz	57	0	99
Px1	<b>Input Contact Type</b> 0: normally open 1: normally closed	-	0	0	1
Px2	<b>Input Contact Polarity</b> 0: negative switching 1: positive switching	-	0	0	1
Px3	<b>Input Detection Delay</b> 0: 0.5sec delay 1: 1 sec delay 2: 2 sec delay 3: 4 sec delay	-	0	0	3
Px4	<b>Input Priority Level</b> 0: shutdown input 1: warning input 2: visual alarm input 3: no connection	-	0	0	3
Px5	<b>Alarm Signal Latching</b> 0: latching 1: non-latching	-	0	0	1

X: stands for the input number (1 to 8)

## 2. INSTALLATION

### 2.1 Introduction to the Control Panel

The control panel is designed to provide user friendliness for both the installer and the user. Programming is usually unnecessary, as the factory settings have been carefully selected to fit most applications. However programmable parameters allow the complete control over the engine. Programmed parameters are stored in a Non Volatile Memory and thus all information is retained even in the event of complete loss of power.

### 2.2 Mounting the Unit

The unit is designed for panel mounting. The user should not be able to access parts of the unit other than the front panel.

Mount the unit on a flat, vertical surface. The unit fits into a standard panel meter opening of 68x68 millimeters. Before mounting, remove the steel spring from the unit, and then pass the unit through the mounting opening. The unit will be maintained in its position by the steel spring.

### 2.3 Wiring the Unit



**WARNING: THE UNIT IS NOT FUSED.**

Use external fuses for Generator phase: G, Battery positive: BAT(+).

Install the fuses as nearly as possible to the unit in a place easily accessible for the user.

The fuse rating should be 6 Amps.



**WARNING: ELECTRICITY CAN KILL**

**ALWAYS disconnect the power BEFORE connecting the unit. The fuse rating should be 6 Amps.**

- 1) *ALWAYS remove the plug connectors when inserting wires with a screwdriver.*
- 2) *ALWAYS refer to the National Wiring Regulations when conducting installation.*
- 3) *An appropriate and readily accessible set of disconnection devices (e.g. automatic fuses) MUST be provided as part of the installation.*
- 4) *The disconnection device must NOT be fitted in a flexible cord.*
- 5) *The building mains supply MUST incorporate appropriate short-circuit backup protection (e.g. a fuse or circuit breaker) of High Breaking Capacity (HBC, at least 1500A).*
- 6) *Use cables of adequate current carrying capacity (at least 0.75mm<sup>2</sup>) and temperature range.*

## 2.4 Inputs and Outputs

**HAND TERMINAL CONNECTION:** This connection is used to transfer data and power to the hand terminal.

**1- BAT(-):** The negative (-) terminal of the DC Supply shall be connected to this terminal. Be careful for the polarization, in case of polarity error the unit will not operate. Different units are provided for 12V and 24V battery systems.

**2- ALARM INPUT 8 :** Connect the alarm switch to this input. The switch may be normally open or normally closed, in both cases negative or positive closing type.

Following programming this input may also be used as the Safety On signal input in engine control applications.

**3/4/5/6/7/8/9- ALARM INPUTS 7/6/5/4/3/2/1:** Connect the alarm switches to these input. Every input is individually programmable and suitable for normally open or normally closed switches, in both cases negative or positive closing types.

**10- GENERATOR NEUTRAL:** Neutral terminal for the generator phase input.

**11- G:** Connect the generator phase to this input. This signal is normally used as Safety On signal in genset applications.

**12- WARNING RELAY OUTPUT:** This relay will supply DC positive voltage if a warning or an alarm occurs when Safety On signal is supplied. Relay contact rating is 10A/28V-DC.

**13- BAT(+):** The positive (+) terminal of the DC Supply shall be connected to this terminal. Be careful for the polarization, in case of polarity error the unit will not operate. Different units are provided for 12V and 24V battery systems.

**14- SHUTDOWN RELAY OUTPUT:** This relay will supply DC positive voltage if an alarm occurs when Safety On signal is supplied. Relay contact rating is 10A/28V-DC.

**15/16/17/18/19/20/21/22- ALARM OUTPUTS 8/7/6/5/4/3/2/1:** These outputs will be active when the corresponding alarm signal occurs. The outputs are of 'open collector' type semiconductor outputs. The output will be at negative supply level and sinks current when active. It is similar to an electronic relay contact to the negative supply. However the outputs are sensitive to induced high voltages and clamping diodes to positive supply should be used when driving inductive loads. The output current sink rating is 250mA-DC@28V-DC.

## 2.5 LED Displays

**POWER ON:** (green) The LED will turn on steadily when the unit waits for the Safety On signal. When the Safety On signal is provided and the Safety On Timer has elapsed it starts to flash. The flashing of this LED indicates that the unit is active and alarm inputs are monitored.

**ALARM LEDES:** (red) Each individual LED will start to flash if the corresponding alarm signal occurs when the POWER ON led is flashing. If the RESET button is pressed once, the LED will turn on steadily. If the RESET button is pressed once more the LED will turn off.

## 2.6 Modes of Operation

In its initial state, the unit monitors the Safety On signal. In this state the Power On led is steadily on.

The Safety On signal is picked up from either the AC generator voltage input or the input\_8 following programming. It is possible to use the unit without a safety\_on signal (safety always on)

When the Safety On signal arrives, the unit starts the Safety On Timer. When this timer has elapsed, alarm inputs are enabled. In this state the power on led starts flashing.

When the Safety On signal disappears, the unit returns to its initial state.

If an alarm occurs when the alarms are enabled, the corresponding led starts to flash, the corresponding alarm output turns on, and the warning and shutdown relays operate.

The warning and shutdown relays supply the battery positive voltage.

If the input is configured as a warning, the shutdown relay will not operate, if the input is configured as a visual warning, the warning relay will not operate too. If the input is configured as no connection, the alarm signal will have no effect.

The frequency limit checking is enabled by setting the Frequency Delay timer (P\_03) to a non\_zero value. The frequency control is in parallel with INPUT-1. The latching characteristics may be programmed into the INPUT-1 parameters.

To reset the alarm condition, press the RESET button. In the first pressure the shutdown and warning relays will release, flashing alarm leds will turn on steadily and alarm outputs will remain on. A second pressure resets the alarm leds and alarm outputs.

## 2.7 Display Test

Press the TEST button for display test. All alarm leds, alarm and relay outputs will be activated when the button is pressed. They will resume normal operation when the button is released.

## 3. MAINTENANCE



**DO NOT OPEN THE UNIT !**

**There are NO serviceable parts inside the unit.**

Wipe the unit, if necessary with a soft damp cloth. Do not use chemical agents

## 4. TROUBLESHOOTING

**The genset starts to operate but the POWER ON led does not flash:**

The unit is not supplied with the generator voltage. Check voltage on the connector terminals. Check the program P00 is selected to be 00. Check the program P01.

**The INPUT\_8 is supplied with Safety On signal but the POWER ON led does not flash:**

Check the voltage between the INPUT\_8 connector terminal and supply negative. Check the program P00 is selected to be 01. Check the program P01. Check the programs P81 and P82 to see if they are compatible with the signal supplied.

**The unit is inoperative:**

Measure the DC-supply voltage between (+) and (-) terminals at the rear of the unit. If OK, turn all the fuses off, then turn all the fuses on, starting from the DC supply fuse. Then try the unit again.

## 5. PROGRAMMING

The programming mode is used to program the timers and the configuration of the unit.

To enter the program mode, connect the hand terminal DKG-605-P then press the button on the terminal. When the button is held pressed the display shows the program number, when it is released it shows the program value. In this way all program parameters are accessed and the values are modified with RESET (+) and TEST (-) buttons.

Programmed values are stored in a Non Volatile Memory, which is not affected by energy failures.

If no key is pressed within 15 seconds the program mode is cancelled.

**P01=SAFETY ON SIGNAL SOURCE:** This parameter defines the source for Safety On signal. If the program value is 00, the generator AC voltage input is used, if the program value is 01, the INPUT\_8 is used. If the program value is 02, the safety will be always on.

**P02=SAFETY ON TIMER:** Waiting period after the Safety On signal is supplied and before alarm inputs are enabled.

**P03=FREQUENCY DELAY TIMER:** If the frequency goes out of defined limits during this period, then frequency alarm will be given. This alarm is in parallel with INPUT-1. If this parameter is set to zero, then the frequency will not be checked.

**P04=FREQUENCY LOW LIMIT:** If the frequency goes below this limit for longer than Frequency Delay Timer, then frequency alarm will be given.

**P05=FREQUENCY HIGH LIMIT:** If the frequency goes above this limit for longer than Frequency Delay Timer, then frequency alarm will be given.

In the following section 'x' denotes the input number between 1 and 8. Each input is independently programmable from other inputs.

**Px1=INPUT x CONTACT TYPE:** This parameter selects the switch connected to input\_x as normally open (Px1=00) or normally closed (Px1=01).

**Px2=INPUT x CONTACT POLARITY:** This parameter selects the switch either negative closing (Px2=00) or positive closing (Px2=01).

**Px3=INPUT x DETECTION DELAY:** This parameter permits the input to suit the signal source. Normally the shortest delay may be selected, but if the input signal includes a high level of noise, a longer delay should be preferred. (00=0.5sec delay, 01=1sec delay, 02=2sec delay, 03=4sec delay)

**Px4=INPUT x PRIORITY LEVEL:** This parameter defines the action to be taken upon arrival of the alarm signal. (00=shutdown, 01=warning, 02=visual alarm only, 03=no action taken)

**Px5=INPUTx LATCHING TYPE:** If this parameter is set to 0, the alarm signal will be latched and the alarm will persist even if the alarm source is removed. If the parameter is set to 1, the alarm will automatically disappear when the signal is removed.

## 6. TECHNICAL SPECIFICATIONS

**Step Control** : 8 bit microprocessor.

**Generator Voltage**: 50 to 277VAC.

**Generator Frequency**: 20-100Hz.

**DC Supply Range**: 9.0 to 18.0 V-DC (12V models).  
18.0 to 33.0 V-DC (24V models)

**Current Consumption**: 60 mA-DC typical (no alarms)  
150 mA-DC max. (outputs open)

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

**Current Rating for each Relay Output**: 10A-DC.

**Current Rating for each Alarm Output**: 250mA-DC.

**Operating Temperature Range**: -20°C (-4°F) to 70 °C (158°F).

**Storage Temperature Range**: -30°C (-22°F) to 80 °C (176°F).

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

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

**Mounting Opening Dimensions**: 68 x 68mm minimum.

**Weight**: 200 g (approx.)

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



**Stresses exceeding above limits may result to a degradation of the unit's protection level.**

## 7. DECLARATION OF CONFORMITY

The unit conforms to the 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)

The CE mark indicates that this product complies with the European requirements for safety, health environmental and customer protection.



8. CONNECTION DIAGRAM

