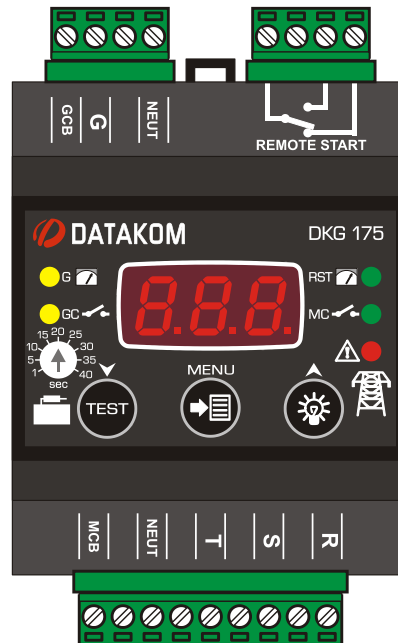




# DKG-175 AUTOMATIC TRANSFER SWITCH (WITHOUT DC SUPPLY)



## DESCRIPTION

Datakom DKG-175 is a DIN Rail mounted ATS controller not requiring DC supply. Thanks to this feature, it is not required to carry the DC supply from the battery to the transfer panels, providing ease of installation.

The unit monitors 3-phase mains voltages, sends remote start command to the generating set and performs changeover of both generator and mains contactors.

The front panel leds provide information about mains and generator power availability as well as contactor positions. Moreover, mains phase voltages and frequency can be seen on front panel.

Mains voltage and frequency high and low limits, mains waiting timer, mains fail timer, generator start delay, cooldown timer and mains contactor timer are front panel programmable. Generator contactor timer is adjustable between 1 and 40 seconds through front panel knob.

## FEATURES

***DIN Rail mounted***

***No DC supply required***

***Mains phase order check***

***Adjustable MCB and GCB delays***

***Programmable mains frequency and voltage high and low limits***

***Programmable delay timers***

***10A/250VAC MCB and GCB outputs***

***10A/28VDC remote start output***

***Isolated mains and genset inputs***

***Test mode***



**SAFETY NOTICE**

**Failure to follow below instructions  
will result in death or serious injury**

- Electrical equipment should be installed only by qualified specialist. No responsibility is assured by the manufacturer or any of its subsidiaries for any consequences resulting from the non-compliance to these instructions.
- Check the unit for cracks and damages due to transportation. Do not install damaged equipment.
- Do not open the unit. There are no serviceable parts inside.
- Fuses must be connected to the power supply and phase voltage inputs, in close proximity of the unit.
- Fuses must be of fast type with a maximum rating of 6A.
- Disconnect all power before working on equipment.
- When the unit is connected to the network do not touch terminals.
- Any electrical parameter applied to the device must be in the range specified in the user manual. Although the unit is designed with a wide safety margin, over-range parameters may reduce lifetime, alter operational precision or even damage the unit.
- Do not try to clean the device with solvent or the like. Only clean with a damp cloth.
- Verify correct terminal connections before applying power.

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## 1. INSTALLATION INSTRUCTIONS

### **Before installation:**

- Read the user manual carefully, determine the correct connection diagram.
- Be sure that the temperature of the environment will not exceed the maximum operating temperature in any case.

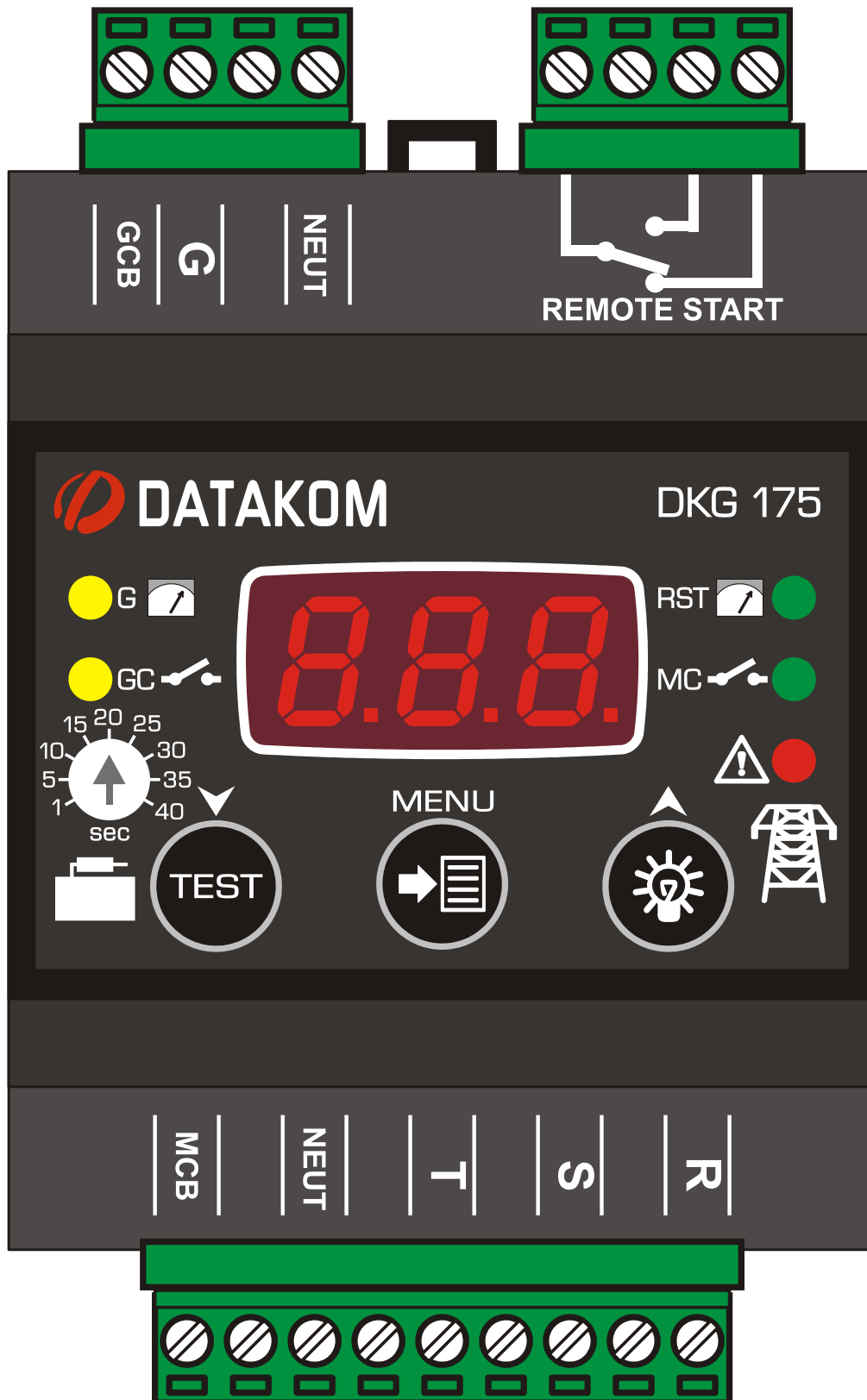
### **Below conditions may damage the device:**

- Incorrect connections.
- Incorrect power supply voltage.
- Voltage at measuring terminals beyond specified range.
- Current at measuring terminals beyond specified range.
- Overload or short circuit at relay outputs

### **Below conditions may cause abnormal operation:**

- Power supply voltage below minimum acceptable level.
- Power supply frequency out of specified limits

### 1.1 Front Panel



## 1.2 Electrical Connections



**Do not install the unit close to high electromagnetic noise emitting devices like contactors, high current busbars, switch mode power supplies and the like.**




Although the unit is protected against electromagnetic disturbance, excessive disturbance can affect the operation, measurement precision and data communication quality.

- **ALWAYS** remove plug connectors when inserting wires with a screwdriver.
- Fuses must be connected to the power supply and phase voltage inputs, in close proximity of the unit.
- Fuses must be of fast type with a maximum rating of 6A.
- Use cables of appropriate temperature range.
- Use adequate cable section, at least 0.75mm<sup>2</sup> (AWG18).
- Follow national rules for electrical installation.

## 2. LED INDICATORS

Indicator	Colour	Description
<b>G</b>	Yellow	Generator voltage is within limits.
<b>GC</b>	Yellow	Generator contactor is energised.
<b>RST</b>	Green	Mains voltage and frequency is inside within limits. Shows that mains waiting timer is counting if it is blinking.
<b>MC</b>	Green	Mains contactor is energised.
<b>ALARM</b>	Red	Mains voltage or frequency is outside the programmed limits. Phase order is wrong if <b>ALARM</b> led is blinking.

## 3. PUSHBUTTON FUNCTIONS

	<p><b><u>Operation Mode:</u></b> Displays name of the measured value.</p> <p><b><u>Programming Mode:</u></b> Click menu button to display current value of the parameter. Click menu button to return back programming menu after parameter is changed.</p>
	<p><b><u>Operation Mode:</u></b> Navigate to next parameter. Lamp test mode enable, when held pressed for 2 seconds.</p> <p><b><u>Programming Mode:</u></b> Increase related value.</p>
	<p><b><u>Operation Mode:</u></b> Navigate to previous parameter. Test mode enable, when held pressed for 2 seconds.</p> <p><b><u>Programming Mode:</u></b> Decrease related value.</p>

## 4. OPERATION OF THE UNIT

### If 3-phases of mains voltage and frequency are within limits and phase order is correct:

-**MC**, **RST** leds turn on.

-**MCB** terminal is supplied with voltage **R**.

-**REMOTE START** relay will be energised. (Normally closed and normally open contacts will switch position.)

### If any phase voltage or frequency goes outside of the limits:

-**ALARM** led turns on, **RST** led turns off.

-After the expiration of mains fail timer **MCB** terminal is open, **MC** led turns off.

-**REMOTE START** relay de-energises after engine start delay timer. (Contacts switch back to normal positions) Generator must run.

### When genset voltage is over the limit:

-**G** led turns on.

-**GC** led turns on after generator contactor timer. **GCB** terminal is supplied with voltage **G**.

### When mains voltages and frequency are inside the limits:

-**RST** led turns on.

-**ALARM** led turns off.


-After the expiration of mains waiting timer, **GCB** terminal is open.


-After the expiration of mains contactor timer, **MC** led turns on, **MCB** terminal is supplied with voltage **R**.

-After expiration of Cooldown timer (Cooldown timer starts counting when **GCB** terminal is open)

**REMOTE START** relay energises. (Normally closed and normally open contacts will switch position.)











### 4.1 Test Mode

Test mode will be active if  button is held pressed for 2 seconds on operation mode. **ALARM** led blinks, remote start relay will be deactive and generator is expected to start. Test mode will be disabled

at the end of test mode timer. Test mode will also be disabled by holding pressed the  button for 2 seconds before expiration of test mode timer.



## 5. PROGRAMMING

DKG-175 has programmable parameters to provide flexibility to the user. Press and hold  and  buttons for 5 seconds to enable programming mode. Click  and  buttons to navigate between parameters when device displays program number. Click  button to display value of the program parameter. Value of the program parameter can be increased or decreased with  and  buttons. Once program parameter is changed, click  button again to display program number. Press and hold  and  buttons for 5 seconds to exit programming mode.

<u>PROGRAM</u>	<u>DESCRIPTION</u>
P1	<u>Mains voltage low limit</u> 3-phase of the mains voltages must be higher than program parameter P1 to energise mains contactor.
P2	<u>Mains voltage high limit</u> 3-phase of the mains voltages must be lower than program parameter P2 to energise mains contactor.
P3	<u>Mains frequency low limit</u> Mains frequency must be higher than program parameter P3 to energise mains contactor.
P4	<u>Mains frequency high limit</u> Mains frequency must be lower than program parameter P4 to energise mains contactor.
P5	<u>Cooldown timer</u> Remote start signal will be off after the delay adjusted with program parameter P5. Cooldown timer will start counting when generator contactor is off.
P6	<u>Generator start delay</u> Remote start signal will be on after the delay adjusted with program parameter P6. Generator start delay timer starts counting when mains contactor is off.
P7	<u>Mains contactor timer</u> Mains contactor will be on after the delay adjusted with program parameter P7. Mains contactor timer starts counting when generator contactor is off.
P8	<u>Mains waiting timer</u> Generator contactor will be off after the delay adjusted with program parameter P8. Mains waiting timer starts counting when mains is available.

P9	<u>Mains fail timer</u> Mains contactor will be off after the delay adjusted with program parameter P9. Mains fail timer starts counting when mains is off.
P10	<u>Phase order check</u> 0: Mains phase order check disabled 1: Mains phase order check enabled
P11	<u>Test mode timer</u> Test mode will be deactive at the end of timer adjusted with program parameter P10. Remote start relay will be de-energises and generator is expected to start.

## 6. DECLARATION OF CONFORMITY

The unit conforms to the EU directives  
-2006/95/EC (low voltage)  
-2004/108/EC (electro-magnetic compatibility)  
Norms of reference:  
EN 61010 (safety requirements)  
EN 61326 (EMC requirements)

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

## 7. TECHNICAL SPECIFICATIONS

**Alternator voltage:** 170-300 V-AC (Phase-Neutral)  
**Mains voltage:** 170-300 V-AC configurable (Phase-Neutral)  
**Mains frequency:** 30 – 70 Hz configurable  
**Generator contactor timer:** 1 - 40 sec. configurable  
**Mains contactor timer:** 0 - 999 sec configurable  
**Mains waiting timer:** 0 - 999 sec configurable  
**Mains fail timer:** 0 - 999 sec configurable  
**Cooldown timer:** 0 - 999 sec configurable  
**Remote start delay:** 0 - 999 sec configurable  
**Mains contactor output:** 10A @ 250V-AC  
**Generator contactor output:** 10A @ 250V-AC  
**Remote start output:** 10A @ 250V-AC/28V-DC  
**Operating temperature:** -30°C to 70 °C  
**Storage temperature:** -30°C to 80 °C  
**Maximum humidity:** 95% non-condensing.  
**Dimensions:** 70x115x66mm (WxHxD)  
**Weight:** 180g (approx.)  
**Installation:** DIN Rail mounted.  
**Case material:** High temperature, non-flammable ABS/PC  
**IP protection:** IP20

**8. CONNECTION DIAGRAM**

