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DKG-116 MANUAL AND REMOTE START UNIT

DESCRIPTION

The DKG-116 is a low cost gasoline/diesel genset control unit designed to start and stop a genset both manually and remotely.

The manual control is made using **RUN** and **STOP** pushbuttons on the front panel. The remote control is made via **REMOTE START** input signal.

When **RUN** button is pressed or a **Remote Start** signal arrives, the engine will be cranked up to 3 times. When it runs, the crank relay will be immediately deactivated and after **Holdoff timer** delay, fault checking will be enabled. When the engine is running, if a fault condition is detected then the engine is shutdown immediately and the unit indicates the source of the failure through related alarm led.

If **STOP** button is pressed or the **Remote Start** signal disappears, the genset will continue to run during cooldown period. At the end of the period the engine will stop.

The **MENU** button selects display parameter scroll and allows program mode entry and lamp test functions.

The total engine run hours is kept in a tamper-proof non-erasable memory which is not affected by power failures.

MEASUREMENTS

Generator Volts: L1-N, L2-N, L3-N
 Generator Volts: L1-L2, L2-L3, L3-L1
 Generator Frequency
 Battery Voltage

OPTIONS

Auxiliary output (negative pulling).
 Magnetic pickup input.



FEATURES

- Both Manual and remote control**
- Generator protection**
- Built in alarms and warnings**
- Remote Start operation available**
- True RMS measurements**
- Tamper-proof engine hours display**
- Field adjustable parameters**
- High current Fuel and Crank outputs**
- Optional auxiliary output**
- Optional magnetic pickup input**
- Digital inputs: 4**
- Survives cranking dropouts**
- Sealed front panel**
- Standard panel dimensions: 96x48mm**
- Plug-in connection system**

PRECAUTIONS FOR INSTALLATION AND SAFE USE

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

- Circuit breakers must be connected serially to BAT+, PHASE-L1, PHASE-L2 and PHASE-L3 terminals, 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 genset is running, do not touch terminals.
- Do not try to clean the device with solvent or the like. Only clean with a dried cloth.
- Verify correct terminal connections when wiring.
- Electrical equipment should be serviced only by competent service personnel. No responsibility is assured by the manufacturer or any of its subsidiaries for any consequences arising out of the use of this material.
- Only for front panel mounting.

PROGRAMMING



Both **High Temperature** and **Emergency Stop** inputs must be connected to **Battery negative** prior to enter the programming mode.


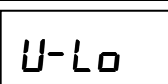
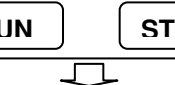
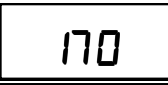

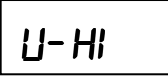
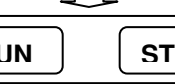


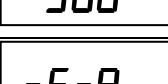
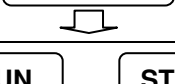
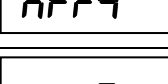

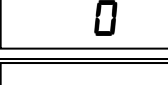

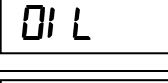
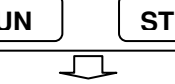
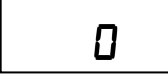



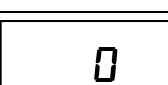

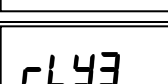
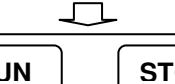
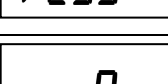

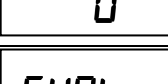

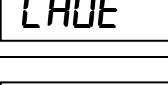
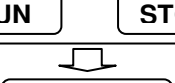
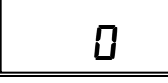

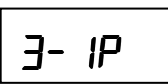
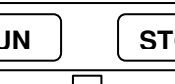
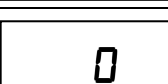

The unit offers 12 programmable parameters listed below.

NO	SYMBOL	RANGE	FACTORY SET	DESCRIPTION
1	U-L ₀	70-500 V	170 V	Low AC voltage shutdown limit
2	U-H ₁	70-500 V	300V	High AC voltage shutdown limit
3	nPU	0-1000	50	MPU crank cut frequency divided by 4
4	nFr ₉	0-1	0	Nominal frequency: 0=50Hz 1=60Hz
5	OIL	0-1	0	Oil input: 0=pressure switch 1=level switch
6	FUEL	0-1	0	Fuel output type 0:Fuel 1:Stop
7	rLY ₃	0-3	0	Relay 3 function 0:Alarm 1:Choke 2:Stop 3:Preheat
8	CHOT	0-15 sec	0	Choke timer in seconds
9	3-IP	0-7	0	Connection topology: 0=1phase 1=2phases 2=3 phases 3=3 phases (voltage checks on first 2 phases only) 4..7= same as 0..3, but voltages are not displayed
10	[Lb ₁	-	-	Phase L1-N calibration value
11	[Lb ₂	-	-	Phase L2-N calibration value
12	[Lb ₃	-	-	Phase L3-N calibration value

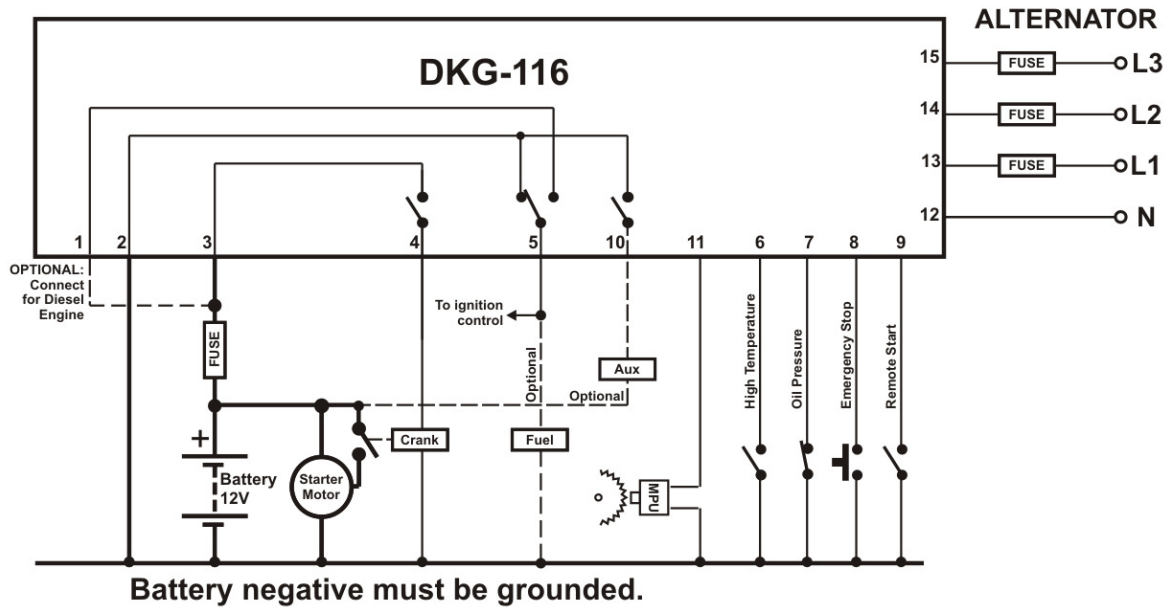
The program mode is entered by long-pressing the **MENU** button. Each depression of the **MENU** button will switch to the next parameter.

Another long press will enable the lamp test mode. Then any depression of **MENU** button will return the display to normal mode.

If no key is pressed, then the unit will return to normal display mode with a delay.

	<p>When genset is in off mode; press MENU button for 5 sec to enter program mode and display the Low AC Voltage limit.</p>	
	<p>Press RUN or STOP buttons until requested value is displayed.</p>	
	<p>Press MENU button for saving the Low AC Voltage limit and displaying the High AC Voltage limit.</p>	
	<p>Press RUN or STOP buttons until requested value is displayed.</p>	
	<p>Press MENU button for saving the High AC Voltage limit and displaying the Nominal frequency parameter.</p>	
	<p>Press RUN or STOP buttons until requested value is displayed.</p>	
	<p>Press MENU button for saving the Nominal frequency parameter and displaying the Oil input type.</p>	
	<p>Press RUN or STOP buttons until requested value is displayed.</p>	
	<p>Press MENU button for saving the Oil input type and displaying the Fuel output type.</p>	
	<p>Press RUN or STOP buttons until requested value is displayed.</p>	
	<p>Press MENU button for saving the Fuel output type and displaying the Relay-3 function.</p>	
	<p>Press RUN or STOP buttons until requested value is displayed.</p>	
	<p>Press MENU button for saving Relay-3 function and displaying the Choke timer.</p>	
	<p>Press RUN or STOP buttons until requested value is displayed.</p>	
	<p>Press MENU button for saving the Choke timer and displaying the number of phases.</p>	
	<p>Press RUN or STOP buttons until requested value is displayed.</p>	
	<p>Press MENU button for saving the number of phases displaying the calibration value.</p>	
	<p>Press RUN or STOP buttons until correct voltage value is displayed.</p>	
	<p>Any time on settings, press MENU button for 3 sec. to exit from program mode.</p>	

CONNECTION DIAGRAM



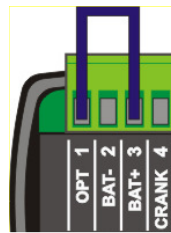
TECHNICAL SPECIFICATIONS

- Alternator voltage:** 15 to 300 V-AC (Ph-N)
- Alternator frequency:** 50 or 60 Hz nominal.
- Measurement Accuracy:** 0.5% + 1 digit
- Overspeed:** nominal frequency + 14% (+24% overshoot)
- Underspeed:** 30 Hz
- Crank time:** 10 sec.
- Crank rest:** 10 sec.
- Crank attempts:** 3
- Stop timer:** 10 sec.
- Cooldown timer:** 30 sec.
- Holdoff timer:** 10 sec.
- DC Supply Range:** 9.0 to 16.0 V-DC
- Cranking dropouts:** survives 0 V for 100ms.
- Typical Standby Current:** 12mA-DC (display off)
- Maximum Operating Current:** 130 mA-DC
- Fuel and Crank outputs:** 10A @ 12V-DC
- Auxiliary Output:** 1A @ 12V-DC (negative pulling protected semiconductor output)
- Magnetic pickup Input:** 1.5 to 30Vpp
- Operating temp.:** -40°C (-40°F) to 80 °C (176°F).
- Maximum humidity:** 95% non-condensing.
- Dimensions:** 102 x 55 x 40 mm (WxHxD)
- Packed weight:** 140 g
- Case Material:** High Temp. ABS/PC (UL94-V0)
- IP Protection:** IP65 (front panel), IP30 (rear)
- Conformity (EU directives)**
 - 2006/95/EC (low voltage)
 - 2004/108/EC (EMC)

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

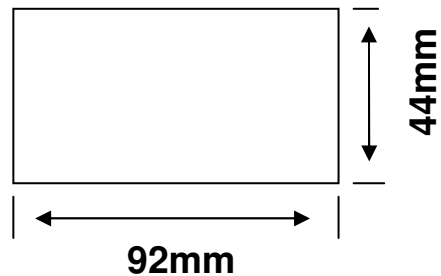


DIESEL ENGINE SELECTION



In order to control diesel engines, connect a conductive wire to between terminals 1 and 3.

PANEL CUTOUT DIMENSIONS



PACKAGING INFORMATION

- Pieces per Package:** 24
- Package Size:** 280 x 170 x 215mm (LxWxH)
- Package Weight:** 3.6 kg

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