

PORTABLE GAS-FUELED THERMOELECTRIC GENERATOR

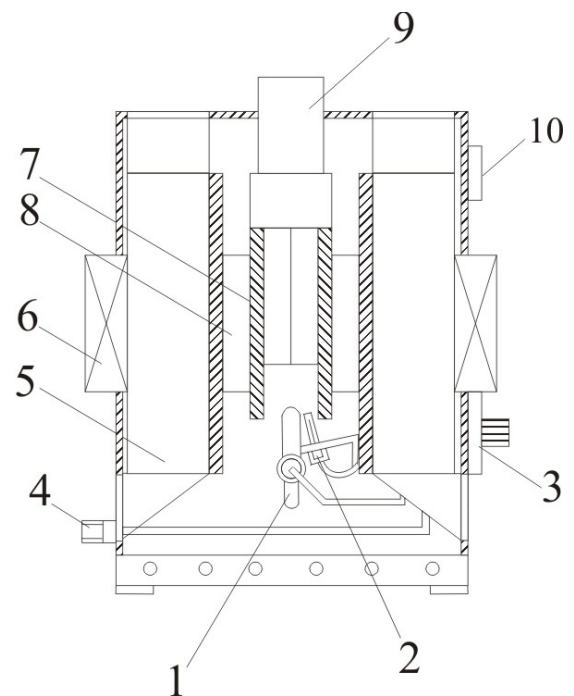
ALTEC - 8040



- The generator is intended for independent DC power supply to various low-power devices and instruments: radio electronic equipment, guard and signaling systems, radio stations, for charging of batteries and lighting. Thermal energy from fuel combustion which is rejected from the generator to the environment can be used for heating small rooms and (or) electronic equipment during cold seasons.

- The operating principle is direct conversion of thermal energy from gaseous fuel combustion to electric power with the use of thermoelectricity.

Appearance and schematic of thermoelectric generator



- The thermal generator comprises several main parts: a source of heat, thermoelectric modules, system of heat delivery and rejection from modules.

- Gas injector burner 1 with starting device 2 and automatic safety device 3 is used as a source of heat. Gas connection to the burner is done by means of connecting pipe 4. Heat rejection system comprises heat sink 5 and electric fans 6 for a forced air delivery to cold heat sink. The fans are powered from the thermal generator. Arranged between the hot 7 and cold 5 heat sinks are thermoelectric modules 8. The upper part of the generator has chimney 9 for rejection of gas combustion products to the environment.

- The generator starting is done by means of piezoigniter and controlled by light emitting diodes. The output voltage is controlled by voltmeter. To provide the consumer with the voltage of 12 V, the thermal generator is equipped with voltage stabilizer.

- Use of liquefied gas fuel provides the consumer with autonomous electric power supply.

- The thermoelectric generator is capable of a long unattended operation (time of continuous work is determined by fuel tank volume).

Thermoelectric generator parameters

No	Parameter name, unit of measurement	Value
1.	Rated electric power, W	20
2.	Electric voltage, V	12
3	Kind of fuel	Propane-butane
4.	Fuel flow rate, l/h	34÷44
5	Overall dimensions, mm	260x300x380
6.	Weight, kg	12

Orders and additional information at the address: General P.O. Box 86, Chernivtsi, 58002, Ukraine; e-mail: ite@inst.cv.ua; tel./fax: (380-3722)-41917; <http://ite.inst.cv.ua>.



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- The generator is designed for electric power supply to natural gas assessment systems, telemetric equipment and safety automatics of gas-distribution stations.
 - The operating principle is based on direct conversion of thermal energy from gas fuel combustion to electrical energy with the use of thermoelectricity.

Appearance of thermoelectric generator



- The thermogenerator comprises: heat source (gas burner or injector with a starter), thermoelectric modules, heat sinks for heat input and removal from the modules, safety automatics. The thermogenerator is placed in locked welded metal housing.
- The generator is started by means of piezo lighter and controlled by light diodes. The initial voltage is controlled by voltmeter.
- The thermogenerator is capable of long unattended operation.
- The thermogenerator design allows its outdoor use under sever weather conditions (wind, rain, snow).

Parameters of thermoelectric generator

No	Parameter, measurement unit	Value
1.	Electrical power, W	10
2.	Electrical voltage, V	24
3	Fuel type	methane
4.	Fuel flow rate, m ³ /h	0.05–0.09
5.	Inlet gas pressure, atm.	0.015–0.018
6	Overall dimensions, mm	425×425×780
5.	Weight, kg	37

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NEW!



THERMOELECTRIC GENERATOR WITH KEROSENE LAMP

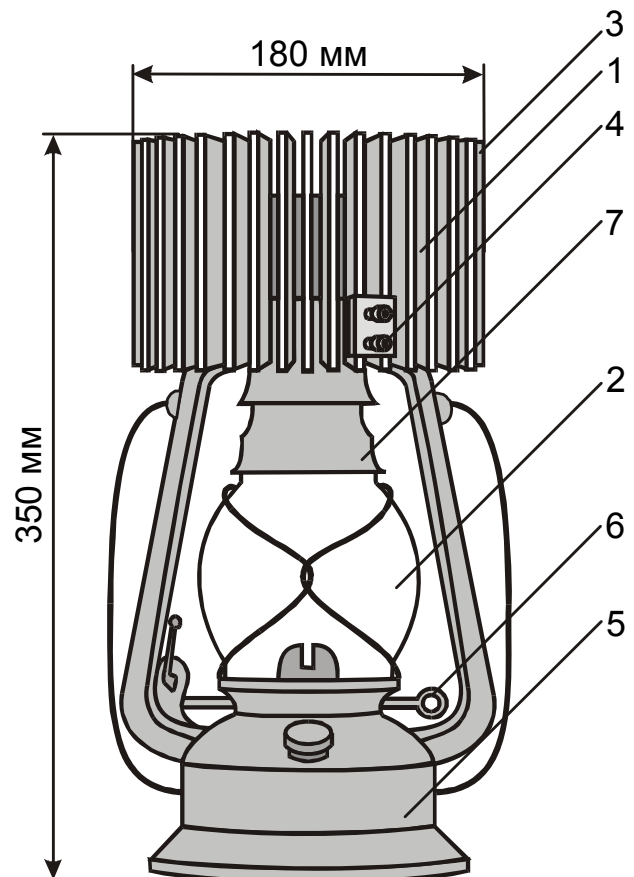
ALTEC - 8018



- Intended for direct current electric power supply to radio receivers, tape recorders, mobile phones, guard alarm systems, as well as charging of various-purposes batteries. At the same time the generator is used for the illumination of buildings, cottage houses, warehouses, garages, tents and pavilions. The generator is indispensable in walking tours, geological prospecting expeditions, outdoor rest, etc.

- The operating principle is direct conversion of thermal energy from kerosene combustion to electric energy on the basis of thermoelectricity.

Appearance and diagram of thermoelectric generator



- Thermoelectric generator consists of two main parts: thermoelectric converter 1 and heat source 2. The thermoelectric converter comprises coaxially located hot and cold heat sinks with thermopiles installed between them. Electric terminals 4 are installed on the fins of the cold heat sink 3 for connection of external load. A kerosene lamp comprising fuel vessel 5, fuel consumption regulator 6 and gas removal pipe 7 is used as a heat source.

Parameters of thermoelectric generator

No	Parameter, measurement unit	Value
1.	Rated electric power, W	2.5
2.	Output voltage, V	3
4.	Kind of fuel	Lighting kerosene
5.	Fuel flow rate, g/hour	14.5
6.	Fuel vessel, l	0.5
7.	Time of generator operation at one filling of fuel vessel, h	23
8.	Generator weight without fuel, kg	2.2

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NEW!



**INSTITUTE
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• UKRAINE •

THERMOELECTRIC GENERATOR WITH LIGHTING KEROSENE LAMP

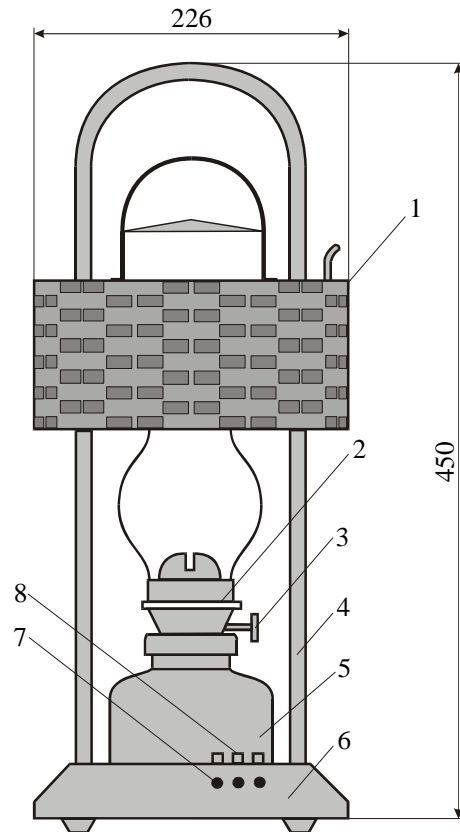
ALTEC - 8019



• Intended for DC electric power supply to household radioelectronic equipment (radio receivers, tape recorders), radio stations, guard signaling systems, as well as for charging various-purpose batteries, including mobile phones. The thermal generator is an ideal source of electric power for remote places and areas where power supply is unavailable. The thermal generator offers the advantage of being simultaneously used as a lighting source. Ease of service and minimum maintenance make it indispensable in field conditions, expeditions, camping.

• The operating principle is direct conversion of thermal energy from kerosene combustion to electric energy on the basis of thermoelectricity.

Appearance and diagram of thermoelectric generator



• Thermoelectric generator consists of two main parts: thermoelectric converter 1 and heat source 2. The thermoelectric converter comprises coaxially located hot and cold heat sinks with thermopiles located between them. The thermoelectric converter is fixed on supports 4 and can be vertically moved with fixation in the upper position. Kerosene lamp 2 is used as a heat source comprising fuel vessel 5, fuel consumption regulator 3. The thermoelectric generator has electronic converter with three values of stabilized output voltage. Connectors 8 for external load connection are located on the upper pad of base 6. The lateral base surface locates light indicators 7 of voltage at the electronic converter terminals.

Parameters of thermoelectric generator

№	Name of parameter, measuring unit	Value
1.	Rated electric power of thermoelectric converter on matched load, W	2.8
2.	The values of stabilized voltage at the electronic converter terminals, V	3, 6, 12
4.	Kind of fuel	Lighting kerosene
5.	Fuel flow rate, g/h	15.5
6.	Volume of fuel vessel, l	0.4
7.	Period of generator operation on one filling of fuel vessel, h	18
8.	Generator weight without fuel, kg	2.1

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