



HEATING CABLE

SECTION

FOR SOIL HEATING IN GREENHOUSE

TECHNICAL CERTIFICATE.
INSTALLATION AND OPERATION
INSTRUCTION

КПР.00030.02 П(ИМ)



POCC RU.ME67.B.07947



C-RU.ПБ37.B.00731

CONTENTS

Purpose	3
Technical data.....	4
Delivery kit	6
System installation	7
Safety measures.....	8
Warranty obligations.....	9
Claims	9
Warranty coupon	12



**Please, read carefully the present manual
prior to start installation procedure!**

**The manufacturer's warranty does not cover
the failures of the system caused by improper
connection.**

DEAR CUSTOMER!

Thank you for choosing the heating cable section for soil heating Green Box Agro!

We are sure that our product will live up to your expectations and provide a fair crop!

PURPOSE

Installation of the heating cable section for soil heating Green Box Agro in greenhouses allows to:

- ❶ start transplanting in greenhouses earlier irrespective of onset of the warm season;
- ❷ remove a danger of the transplant subfreezing;
- ❸ ensure ideal conditions for crops in case of adverse climatic conditions (cold summer);
- ❹ extend a cropping season of the warm-weather crops at early seasonal temperature fall.

The thermostat TP 600* ensures the maintaining of the soil temperature set by user, according to signals of the remote temperature sensor.

The device is equipped with a body of water and dust ingress protection rating IP 56.

Heating control is carried out by one button.

*Not included in delivery kit, purchased separately.

TECHNICAL DATA

The heating sections Green Box Agro got a set of design features:

- ❶ two-core cable construction ensures the ultimate protection against electromagnetic fields due to their inter-compensation as well as simplifies power connection of section (via thermostat);
- ❷ cable screen provides a safety earthing;
- ❸ cable jacket meant for outdoor use has the increased resistance to mechanical effects as well as to soil moisture and fertilizers influence.

To ensure the optimal temperature of fertile soil (from 17 to 25°C), it is recommended to apply the mean power 100 W per 1 sq. m. You should not set a higher power for a unit of area to avoid the overdrying of soil and root system of plants.

Choosing of a heating section is carried out in the following way:

- ❶ Define a plottage (garden bed) purposed for the heating installation.
- ❷ Heating area value is multiplied by a recommended specific power 100 W per 1 sq. m.
- ❸ Choose the closest to the power, the section 14GBA (Table 1).
- ❹ Calculate a laying pitch of the section by the following formula:

Laying pitch in cm = (Heating area, m / length of the chosen section, m)*100 cm.

The company "Special Systems and Technologies" offers a line of heating sections Green Box Agro for the heating of areas from 2 to 15 square meters:

Table 1

Section dW/fkbW	Power agfbgf, W	Eecti` ^WYfZ, m	Eection dW/fefS UW Ohm	Heating area at the recommended specific power 100 W/sq. m, m ²	Laying pitch, cm (Area/length of section)x100
14GBA-200	200	14	227,9-264,0	2	14,3
14GBA-300	300	21,5	145,8-168,9	3	14,0
14GBA-400	400	29	109,6-127,3	4	13,8
14GBA-500	500	34	85,7-99,5	5	14,7
14GBA-650	650	44	66,0-77,3	6,5	14,8
14GBA-815	815	56	53,8-62,8	8	14,6
14GBA-980	980	67	44,2-52,3	10	14,6
14GBA-1150	1 150	79	37,9-44,3	11,5	14,6
14GBA-1480	1 480	103	27,3-31,7	15	14,4

DELIVERY KIT

- 1 Heating cable section 14GBA.
- 2 Installation and operation instruction.
- 3 Packing box.



To control the heating temperature we recommend to use the thermostat TP 600 (Fig. 1) produced by "Special Engineering Systems", LLC (Russia). The thermostat is equipped with a water- and dustproof body (IP56) and designed specially to control the soil heating in greenhouses. The section heating control is carried out by one button.

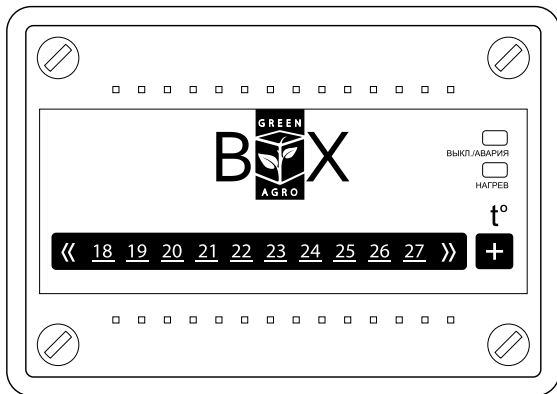


Fig. 1. External appearance of thermostat TP 600

SYSTEM INSTALLATION

- 1** Remove a soil layer (about 40 cm).
- 2** Coat with a sand layer (5 cm), splash water and tamp.
- 3** Lay a mounting mesh, lay out the heating section into the "snake" with a laying pitch according to the data from Table 1. Fix the coils of section on the mesh by using plastic cable ties in such a way as to exclude the cable movement after the laying out is performed.
- 4** Coat with a sand layer (5 cm), splash water to exclude air cavities in the layer. In order to avoid damages of cable jacket, the application of crushed stone and gravel is not allowed.
- 5** Lay the zink-plated close-meshed reinforcement or masonry mortar mesh for the purpose to create the protection against cable damages by diggers and other garden tools.
- 6** Pour the fertile soil 20-30 cm.
- 7** If you purchased the thermostat TP 600 to control the soil heating system:
 - install the temperature sensor inside the installation tube into the fertile soil layer at the level of plants' roots;
 - mount a thermostat and connect it to the power network according to the User's manual that is included in the thermostat delivery kit.

SAFETY MEASURES

It is necessary to exclude the contact of heating cable with thermal insulation or forcing through it in order to avoid the cable overheating and breaking it down.

Installation and connection of the section must be performed by a skilled electrician. All the connection works must be performed at the total de-energization of power voltage 220 V.

The thermostat connection must be performed by a skilled electrician according to requirements of Electrical installation code (Circuit breaker controlled by residual-current device).

In accordance with requirements of Electrical installation code and GOST, the connection of the heating system to power network 220 V must be performed by using a residual-current device or RCBO. The connection of the protective screen of heating section to safety earthing is obligatory. The excessive overstretching of the heating cable during the laying out as well as any other mechanical effects are not allowed.

During the soil digging works, we recommend to extract the air temperature sensor with the installation tube; after the works are completed, the sensor inside the tube can be installed right back.

WARRANTY OBLIGATIONS

The manufacturer guarantees the quality conformance of the heating cable section to the requirements of TU 3558-077-33006874-2010 under condition of the following the regulations of transportation and installation and operation instructions.

Warranty period for the product – 5 years from the date of sale.

Within the warranty period the buyer has a right to repair or replace the product, if a defect is detected occurring than through the manufacturer's fault, and under condition of the following the installation and operation instructions.

Warranty obligations do not cover the sections which have mechanical damages as well as if the defect has been occurred as the result of improper installation, connection and operation.

Availability of the filled up warranty coupon including the product designation and seller's stamp is mandatory in order to implement the warranty obligations.

CLAIMS

If any fault conditions during the warranty service lifetime, the buyer is required to immediately resort to the Manufacturer's service center or its authorized representatives in regions.

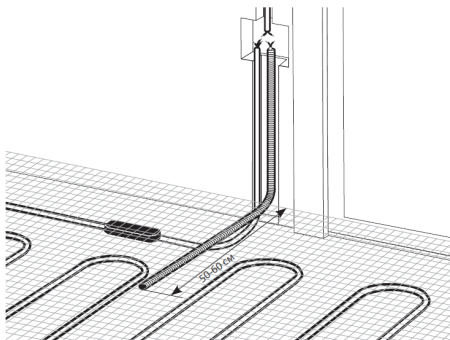


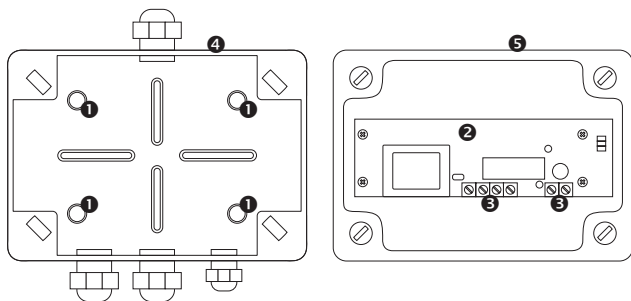
Fig. 2. System installation schematics

INSTALLING THE TEMPERATURE SENSOR

Installation of the soil temperature sensor is performed at the stage of installation of the soil heating sections. The temperature sensor is placed in a corrugated plastic tube, the end of which is closed with a sealed plug, preventing the ingress of moisture and moisture into the ground. The corrugated tube with a sensor inside is located in the layer of fertile soil at the level of plant roots. The other end of the pipe with the installation wire inside is supplied to the place of installation of the thermostat. Excess tube and installation wire are cut off at size (Fig. 2).

THERMOSTAT INSTALLATION

Remove the thermostat housing cover. To do this, using a flat screwdriver turn the four latches on the cover to the "1" position (latches slot in the horizontal position), then the thermostat front panel with the board mounted on it can be removed (Fig. 3).



- ❶ Wall mount holes
- ❷ Mother board
- ❸ Cleat terminals
- ❹ Thermostat case
- ❺ Case lid

Fig. 3. Thermostat case and shell



WARRANTY COUPON

Heating cable section _____ GBA - _____ has been manufactured, passed the acceptance test in accordance with TU 3558-077-33006874-2010 and is certified disposable for service.

Heating section type is stated on the sticker-label.

Release date _____ QCD stamp

Date of sale _____ Sales office stamp

Sales manager _____ signature Buyer _____ signature

www.avalio.shop

+357 99710826