

## **AUTOMATED ACTINOMETRIC STATION**

**by Kazeyev Y.**

PELENG JSC, 23 Makayonok str. Minsk 220023, Republic of Belarus,  
tel. +375172637544, fax +375172636542, e-mail [achugunov@tut.by](mailto:achugunov@tut.by)

### **ABSTRACT**

The specialists of the Hydrometeorological Centre of the Republic of Belarus, Main geophysical observatory (Russian Federation) and PELENG Joint Stock company (Minsk, Belarus) have developed the actinometric instruments for the automatic systems, about which the authors reported at TECO-2005, Bucharest.

On the basis of the designed devices, adapted for the meteorological observation network of the Republic of Belarus and Russian Federation the Automated Actinometric Station was developed.

The actinometric station allows to measure the following parameters:

- direct solar radiation;
- summary solar radiation;
- reflected solar radiation;
- diffuse solar radiation;
- net radiation (radiation balance).

The devices, included into the station, have undergone pilot operation in the meteorological observation network of the Belarus.

The measured characteristics of the solar radiation are displayed in personal computer and processed by a program, compatible with the data collecting program, accepted in the former USSR republics ( CIS countries).

### **TEXT**

The "PELENG SF-14" Actinometric Automated Measuring Station (AMS) was created by PELENG JSC (Republic of Belarus), State Hydrometeorology Center of the Republic of Belarus and Main geophysical observatory (Russian Federation).

The AMS performs the actinometric measurements for the 24 hours in continuous operation every 2 seconds. Now the 5 actinometric sensors are connected to AMS: 3 pyranometers, net radiometer and actinometer. In future their number can be increased up to 8 ones (illumination sensors, UV-radiation sensors, etc.). The AMS measures the 5 sensors output voltages, after processing they are converted into radiation values. The types of radiations to be measured are: direct solar radiation, reflected solar radiation, summary solar radiation, reflected solar radiation, net radiation (radiation balance). Additionally 5 actinometric characteristics more are calculated. The AMS measurements results are presented as the sums of the radiation (hourly, daily, monthly) and instantaneous values averaged for 1 minute. The measurements results are presented with taking into account the temperature and wind corrections.

The AMS includes: 5 actinometric sensors, measuring electronic unit, V23-RS 232 transmitter-receiver, personal computer, software. The distance for the data transmission is not less than 1200 m. The 5 actinometric sensors are created by above-mentioned companies, produced at PELENG JSC and certified in the Republic of Belarus and Russian Federation.