

PAGE Psion

URANUS - new and original astronomical program



for

computer Psion

Name : URANUS
 Version : 1.3 for PC Psion S5mx
 Source : Freeware
 Date : 23.12.2003
 Author : [Josef Ladra](#) and [Zdeněk Řehoř](#)
 E-mail : [Josef LADRA](#) and [Zdeněk ŘEHOŘ](#)

INTRODUCTION

* * I would like to introduce our **new and original FREEWARE** program **URANUS v. 1.3** which may become a useful assistant of every amateur astronomer. The program is designed for pocket microcomputers like **PSION S5mx, Ericsson MC 218, REVO, MAKO, netBook** and it is possible to download it in compressed form (193,944 B) here: [Uranus.zip](#). This document (135 kB - 5 pages) you can load from this adress [Uranus.PDF](#).

* After downloading and unpacking, you will learn that the program (569,854 B) is in the format **Uranos.sis** which is an **installation file for the PSION computer**. If somebody wants to participate in improvement of the program in the future and would be interested in the source code in the programming language OPL, we will provide necessary documentation in return for a guarantee that no unauthorized versions with possible faults will circulate on the Internet and the authorized version numbering will be observed.

* **URANUS** is a program which enables quick and easy navigation of telescopes **using mechanical scale**, or, **with higher accuracy, encoders** – incremental position sensors operating together with the module [NAVIGATOR 1](#), developed by our colleagues [Ján Grečner](#) (HW electronics) and [Luděk Kejzlar](#) (SW).

* **URANUS** enables communication with interface, reading values from encoders, assembly adjustment to two stars, pointing of celestial bodies, provides data on 4500 celestial bodies, calculates local star times and positions of bodies in the sky in alt-azimuthal and equatorial coordinates and performs number of further astronomical calculations.

DESCRIPTION OF USAGE OF THE PROGRAM

Set the alt-azimuthal assembly of the telescope preferably to the correct position (at least approximately). In case you will use encoders, decline the telescope so that it would be in horizontal position – elevation 0°. You

don't have to orientate the azimuthal scale of the telescope in any way but in order to secure better orientation, you can set the azimuthal scale to 0° -north. After starting the program, you will select whether you want to operate in manual mode without encoders or with **encoders (Figure 2)**.

The program is preset to operation without **encoders**. This can be changed by a click in the menu **Setup-Without Encoders**.

Then, in the menu **Pointation**, you will make initial setting of the telescope to two objects. Now the telescope is set up for the local coordinate system. **(Figure 1)**

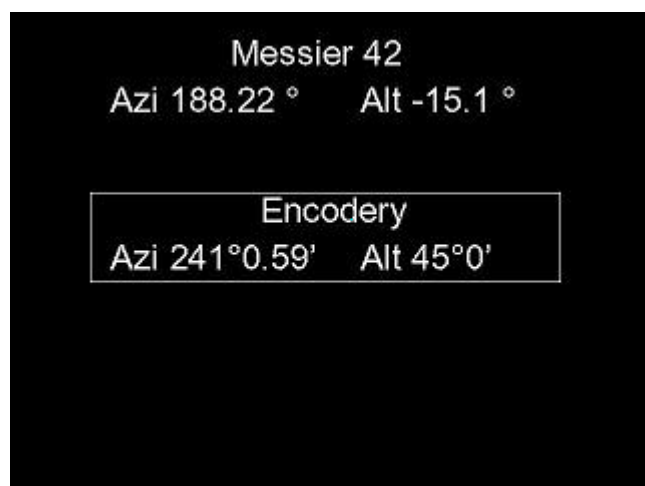


Figure 1

DISPLAY

Description of particular functions:

Impulses

number of impulses generated by the encoders (per individual encoder) is displayed on the screen.

Pointation to 0

is a function which enables initial setting of the telescope, and during observation also aiming of the telescope to a target object whose coordinates we know. We keep moving the telescope towards the target until zeros appear at both coordinates on the display under the writing **Setup**.

Azi and Alt

this function allows us to learn equatorial coordinates of the observed object resulting from the entered altazimuthal coordinates read from the telescope placed e.g. on the DOBSON assembly.

Ra and Dec

displays coordinates of the selected celestial body in respective coordinates – i.e. alt-azimuthal ones. All you have to do is enter coordinates of the desired object or choose an object from the respective catalogue, and the program will display the coordinates we need in order to set the telescope.

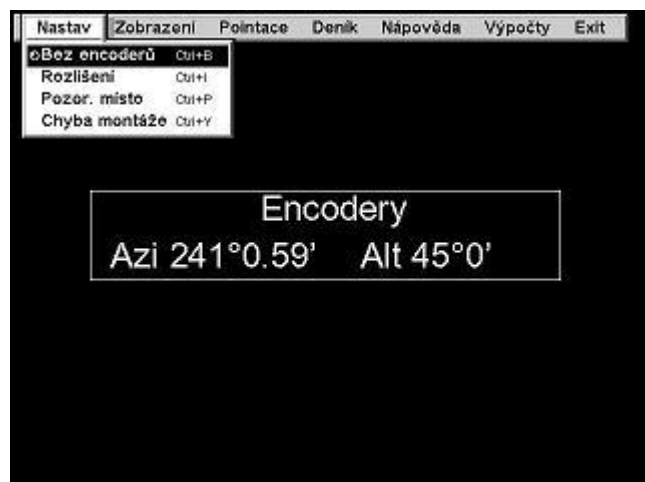


Figure 2.

Diary

Every astronomer needs space for his notes.

The function **Diary** enables to create a record in a data file for every currently pointed object which will be automatically created or opened when you select this function. If you want to open a file without making pointation, a dialog box will appear after selecting this function where you pick the desired file in a drop-down menu. All files are stored in the directory **AstroDiary** and it is, of course, possible to edit them also outside of the program Uranus.

Picture

The function **Picture** creates a picture of the currently pointed **Messier** or **NGC** object which shows how the object really looks like in a telescope with diameter of 200mm and description of the object. If you don't point any object, a menu will appear in which you will choose an object to be displayed (**Figure 3**).

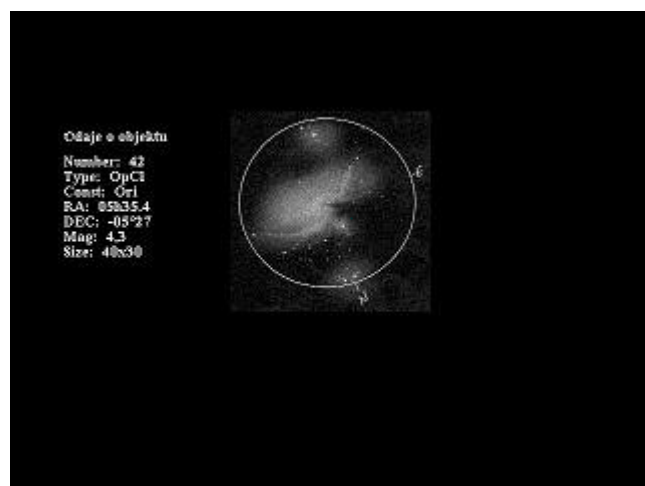


Figure 3

Other functions:

Esc

If you press the button Esc at any time, a date, time, local star time, azimuth and elevation of the currently selected object will appear.

Ctrl + c

You can display catalogues of objects you want to observe at any time by pressing [Ctrl + c].

Spc

By pressing the spacebar, you can display a picture of the currently pointed object of the **Messier** or **NGC** catalogue (see Diary menu). The size of the pictures is 200x200 dpi of the MBM formate, named Mxx or NGCxxxx , so you can also create your own pictures.

DATABASE

The program contains databases of approximately 4500 objects stored in four databases **Messier**, **NGC**, **Star** and **User**. The last one is designed for the user who may create his own observation program here (**Figure 4**)

Searching in the databases, it is possible to use a star-symbol “ * “ at the beginning or at the end in order to find a part of the chain. The Messier and NGC catalogues prefer searching by catalogue number but we can search e.g. by name of constellation or by magnitude. The Star database prefers searching by name (**Figure 5**).



Figure 4

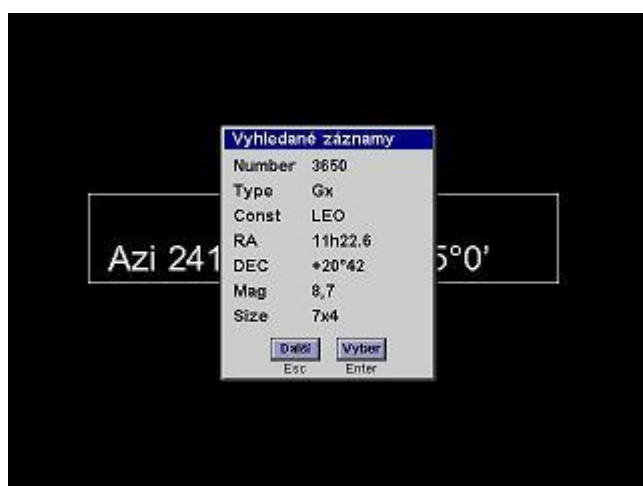


Figure 5

CALCULATIONS

The program OURANOS contains number of useful calculations from the sphere of optics and astrophotography which will make it easier for you to learn information about your telescope or correct setup of the camera (**Figure 6**).



Figure 6

CONCLUSION

The above-mentioned basic functions of the program will be extended in the future, the program will be improved and we will provide information about its new versions.

If anybody decides to purchase the computer **Psion** or would like to mount the **NAVIGATOR 1** module HW cooperating with PC **Psion**, I am willing to give advice.

The program **URANUS** whose authors are **Josef Ladra** and **Zdeněk Řehoř**, is designed for free usage for amateur purposes. Eventual commercial utilization of the program **URANUS**, professional application of the program or its modifications must be discussed in advance with the authors and approved by them.

Personal: [Josef Ladra](#) and [Zdeněk Řehoř](#)
E-mail : [Josef LADRA](#) and [Zdeněk ŘEHOŘ](#)

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