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## **BAADER PLANETARIUM NV 110/220**

In order to demonstrate the mechanics of the heavens in a heliocentric manner as well as for a geocentric negative projection of stars and constellations, many thousands of this BAADER model have been proving their scientific capabilities during the past eighteen years to students and amateur astronomers all over the world. This planetarium presents an absolutely unique method of demonstrating celestial relationships; patents have been registered in all major industrial countries.

### **Description**

Like all BAADER PLANETARIUMS the NV 110/220 model consists of three units: the star globe being black and transparent simultaneously, the solar system including its electric drive system, located inside the globe and – finally – the planetarium's base containing the control equipment and transformer.

The celestial globe of the BAADER PLANETARIUM NV 110/220 is made of plexiglass (R) which has been subjected to a black color treatment to obtain approximately 5% transparency. This material provides an amazing optical effect: Under direct light the sphere will appear almost opaque due to the light absorbing and reflecting properties of the plexiglass (R). However, when looking at the planetarium in a somewhat darker room, the human eye will adapt itself to existing light conditions and the sphere will now appear transparent: The solar System inside the globe can be clearly seen.

Using three colors, stars and constellations have been printed on the outside of the celestial globe: stars up to 5th magnitude are shown and the constellations are indicated by connecting lines. Equatorial graduations permit locating the position of fixed stars and enable the demonstrator to explain the principles of astronomical navigation.

By using white printing at the inside surface of the globe, the observer gets the impression of viewing a real sky with white stars against a black background. The ecliptic path has been included also as a line, indicating the months in order to actually show the real position of the model earth at any time of the year. The whole globe can be turned around all axes and aligned with the apparent position of the sky; clearly demonstrating why at different times of the year only specific sections of the sky can be seen.

The solar system of the BAADER PLANETARIUM NV 110/220 uses a microscope light bulb at the center of the sphere constituting a point source of light. It can be covered with a removable plastic globe providing a diffuse light body representing the sun.

The planets Mercury, Venus and Mars are shown along with their orbit paths. They can be adjusted by hand to demonstrate their positions during opposition and conjunction. The outer planets are shown by their orbits which are printed on the inside of the globe. This enables the observer to compare the relative positions and inclinations of the various orbits against Earth's ecliptic plane.

The earth-moon system is equipped with a miniature drive motor, having a variable speed. The following motions can be demonstrated.

1. The earth revolving around the sun (revolution)
2. The earth rotating around its own axis (rotation)
3. Earth's axis pointing towards the celestial poles.
4. The motion of the moon around the earth
5. The shifting of the lunar nodes!

This mode of representation and the precision achieved constitute an unique combination. It greatly facilitates apprehension of many relationships of the mechanics of the heavens, for instance:

The mechanics and causes of day and night, the mechanics of the seasons, comprehension of the moon's motion, light phases and eclipses. With equal ease a number of phenomena can be explained: The tides, the time zones of the earth, solar and sidereal time, the shift of the lunar nodes, the relation between the celestial equator and the ecliptic plane, the starry sky at various periods of the year, circumpolar stars and their relation to geographical latitude, the position of the orbital plane of a satellite, the mechanics of the light phases of Venus, the Platonic year, the changing of the equinoxes, the relativity of the observer's position, synodic, sidereal and draconitic time of the moon, a satellite's position in space.

The base of the planetarium contains the transformer as well as two knobs for control of the model earth's motion and the light intensity of the projection lamp. A flexible cable is used to connect the transformer to the gear unit of the model earth. Thus the globe including its internal gear systems can be turned around any axis at any instant.

By taking off the plastic cover producing the model sun's diffuse light, the projection capabilities of the BAADER PLANETARIUM NV 110/220 can be demonstrated. The point source of light provides a negative projection of the starry sky – as seen at any time of the year onto the ceiling of a room or hall up to a height of 15 ft – or onto one of our projection domes.

**Specifications:**

Diameter of the globe: 20 Inches (50 cm)  
Total height: 21 Inches (52 cm)  
Weight: 8 lbs (3,8 kg)

**Time of Delivery:** please inquire

**Electrical parts:**

Projecting lamp: Osram 8017/6V/15W  
Transformer: 8 V/18VA with recifier for motor supply. Standard model suitable for 100-125V or 210-240V voltage alternatively (must be specified !)  
Motor: Miniature DC motor, ratio of speed control 1:8 fitted with fixed ratio gear system.



**BAADER PLANETARIUM** G M B H

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