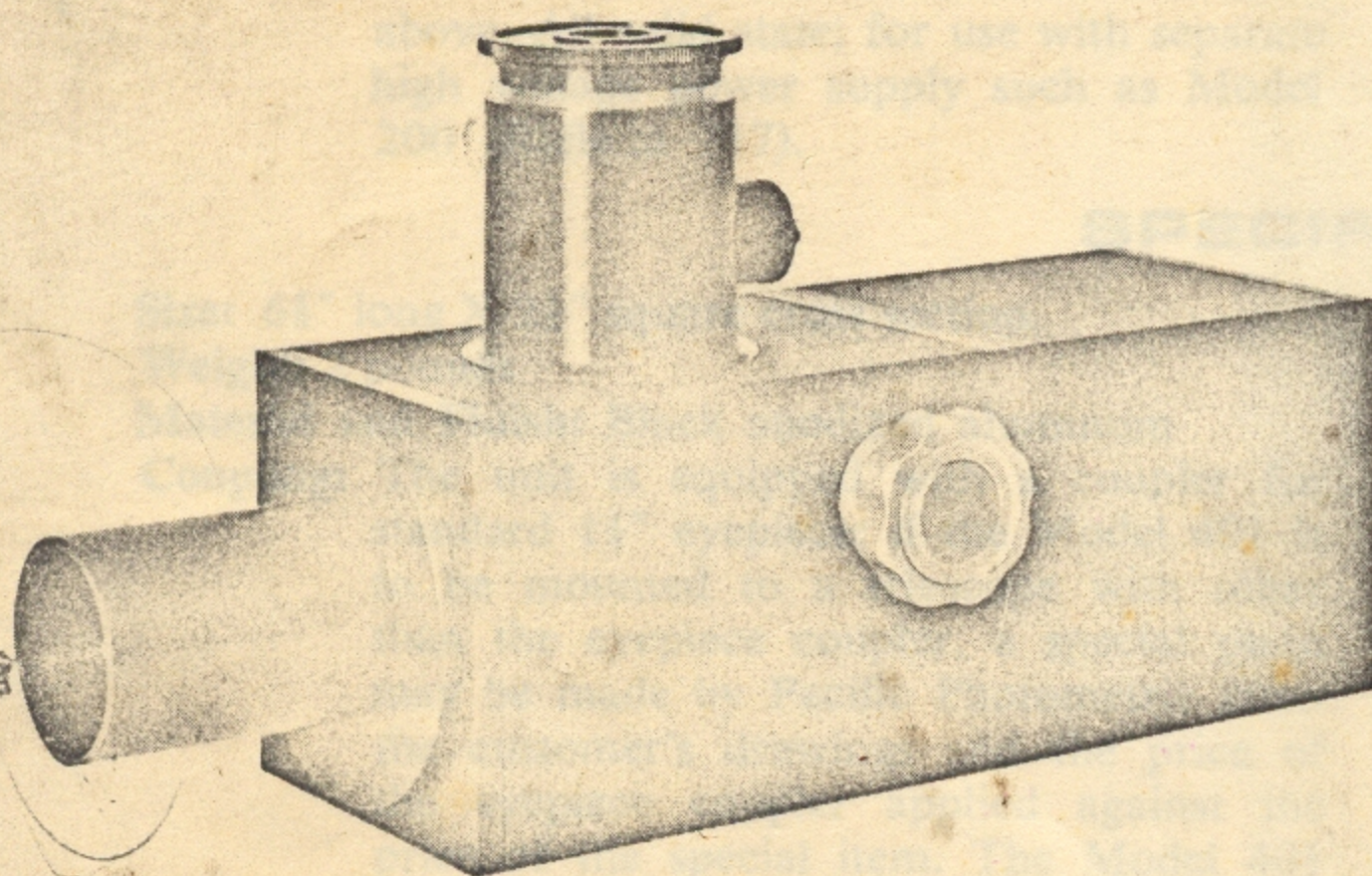


PACIFIC PHOTOMETRIC INSTRUMENTS

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PHOTOMETRIC TELESCOPE COUPLER MODEL 401



MODEL 401
Showing Standard $1\frac{1}{4}$ " eyepiece mount

GENERAL DESCRIPTION

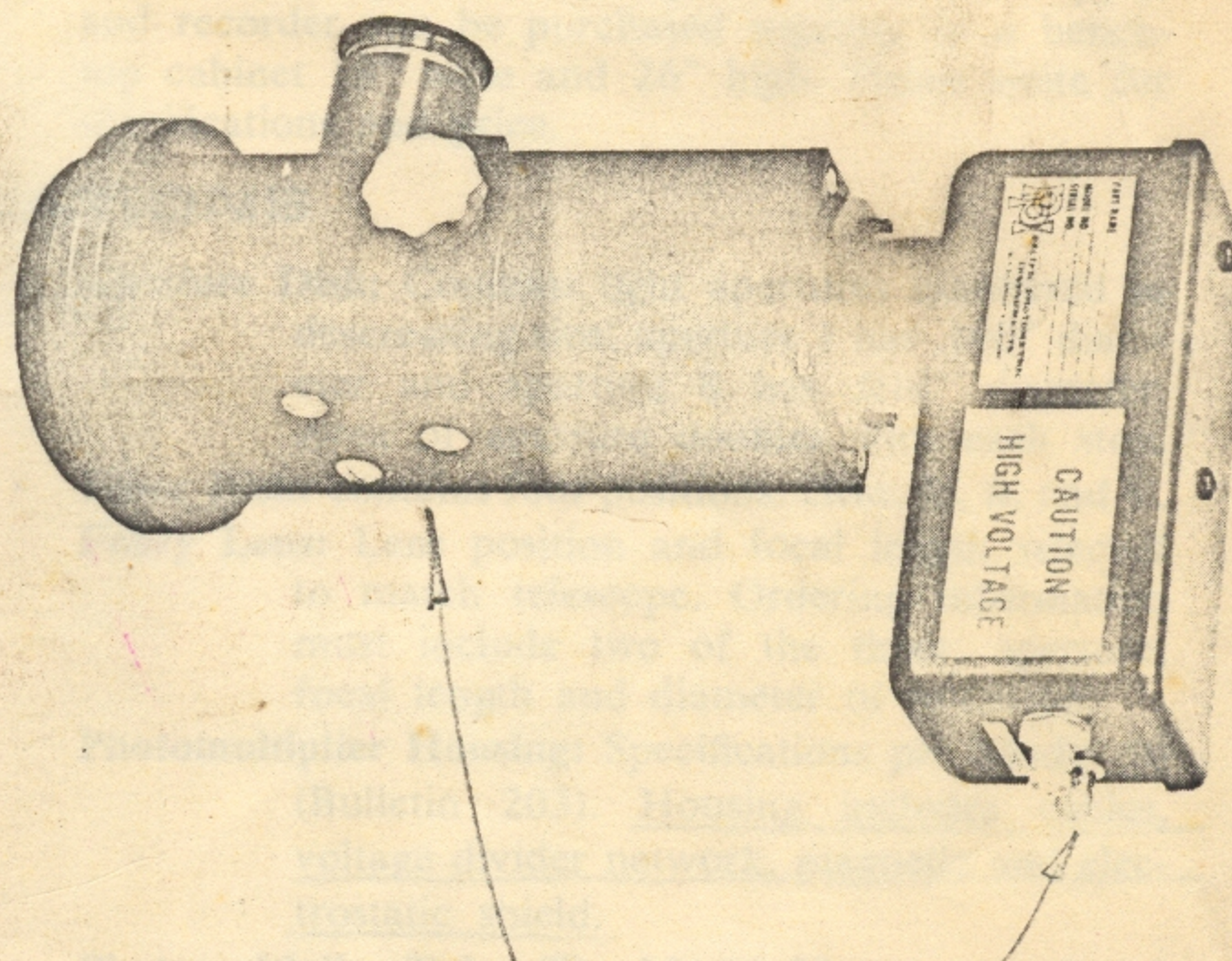
The model 401 Photometric Telescope Coupler is an electro-optical instrument used in conjunction with a telescope and a photometer to permit photometric measurements in the UVB system. The unit has an eyepiece, a disk which can be rotated to vary the aperture, and a second disk which is used to select a clear position or one of three filters.

MECHANICAL DESIGN

The Model 401 consists of the following principal components: the main housing $6\frac{1}{2}$ " long and $2\frac{1}{4}$ " square, filter disk, aperture disk, eyepiece, illuminated reticle, the flip mirror. Since the Model 401 has its own eyepiece, it replaces the eyepiece of the telescope. Starlight passes into the unit, is bent 90° by a front-surface mirror through an illuminated reticle to the eyepiece. After the telescope is positioned properly, the mirror is flipped out of the light path and the star light goes through the aperture disk, the filter disk, and a Fabry lens to the photomultiplier tube.

ELECTRICAL DESIGN

The Model 401 is designed for use with Pacific Photometric's Model 50 Photomultiplier Tube Housing which accommodates side-window tubes such as the RCA 931A and the 1P21. Other housings and other photomultiplier tubes may be used but the choice is limited since the UVB filters are intended for use



MODEL 401 AND MODEL 50

with photomultiplier tubes having S-4 photocathodes; selection of any tube other than those mentioned above should be checked carefully for this criterion. The Model 50 specifications are given in Bulletin 203; when used in this application the Model 50 is provided with 10 feet signal and high voltage cables terminated to match Pacific Photometric photometers.

The reticle is illuminated with a 6.3 V lamp connected through a ten-foot cable to a control for varying the potential and hence the degree of illumination. The control box (not shown) contains a rheostat and a step-down transformer whose primary connects to the 115 V line.

APPLICATIONS

The Model 401, working in conjunction with a photoelectric photometer, can be used to measure the brightness of novae, comets, nebulae, and various areas of the moon; color temperature and magnitude of stars (relative to known stars) can be measured for their classification on the Herzprung-Russell diagram; accurate data can be taken on fast-changing variable stars.

CHOICE OF BUILDING BLOCKS FOR A COMPLETE RECORDING SYSTEM

Measurements can be made with the Model 401 and a variety of Photometers; each photometer has an output to drive a recorder. Photometers which can be used with Model 401 include:

A. Model 11 — See Bulletin 202

Current measuring circuitry and high voltage in one unit; rackmount or cabinet style available; designed for operation with 931A and 1P21; 1% accuracy at the recorder output. Suitable for educational purposes.

B. Model 12 and Model 201 — See Bulletin 221

Current measuring circuitry and high voltage packaged separately; both units battery operated. Portability makes these two units suitable for measurements in the field. 1% accuracy at the recorder output.

C. Model 15 — See Bulletin 205

Current measuring circuitry and high voltage in one unit; excellent stability and accuracy (0.2% maximum error). For professional purposes.

D. Model 17 — See Bulletin 219

More sensitive than instruments mentioned above. All solid state; for use with separate high voltage power supply such as Model 200 (Bulletin 217).

E. Model 41 — See Bulletin 212

Sensitivity of Model 17 with the addition of an active filter to smooth effects of scintillation and dark current. Current-to-frequency converter for integration with separate counter. This photometer, designed for astronomic purposes, is most frequently purchased by observatories. For use with separate high voltage power supply such as the Model 200.

RECORDER

Any of the above photometers will operate with potentiometric recorders; Models 15, 17, and 41 will drive galvo recorders as well. The Varian G-4000 recorder line can be purchased through Pacific Photometric. Please write for specifications and price.

CABINETRY

A rackmount photometer, high voltage power supply, and recorder can be purchased together in a bench-top cabinet 19" wide and 26" high. Please write for specifications and price.

SPECIFICATIONS

Size: 6½" long X 2½" square cross section.

Weight: 2 pounds

Material and Finish: Black anodized aluminum

Coupling: The unit is equipped with a coupler for standard 1½" eyepiece; if the Model 401 is to be mounted to a telescope with other than the eyepiece coupler, a special piece may be made by Pacific Photometric from the customer's drawings and the price of the eyepiece coupler applied against the price of the special item. The Model 401 will mate to any threaded piece 2" in diameter with 32 threads per inch.

Eyepiece: Erfle design for wide field at high magnification.

Reticle: Illuminated; four etched concentric circles whose view areas correspond to apertures 1, 3, 5, and 7.

ORDERING INFORMATION

To order:

- A. Photometric Telescope Coupler
Photometric Telescope Coupler without standard 1½" eyepiece mount
Photometric Telescope Coupler with special mount

- B. Model 50 Photomultiplier Tube Housing with bolt flange for use with 931A or 1P21; magnetic and electrostatic shielding; two ten foot cables.

- C. Variable power for illumination of reticle; unit complete with 10 foot cable

- D. Photomultiplier Tube 931A
Photomultiplier Tube 1P21

- E. Telescope information. Two of the three: Aperture
Focal Length, F-Number.

Typical order reads:

Model 401, Model 50 with bolt flange, Model P6V, 1P21, aperture 8"; focal length 115".

~~X~~ **Aperture Disk:** Contains light apertures numbered in decreasing size; aperture 1 has .160" diameter and aperture 8 has .014" diameter. Area of aperture doubles with each stop.

• **Filter Disk:** contains four positions: clear, U, B, and V.

Fabry Lens: Lens position and focal length selected to match telescope. Ordering information must include two of the three: aperture, focal length and diameter of telescope.

Photomultiplier Housing: Specifications per Model 50 (Bulletin 203). Housing includes cables, voltage divider network, magnetic and electrostatic shield.

Photomultiplier Tube: The Model 50 is not equipped with a tube as a standard item. The choice of 1P21 or 931A is offered. Please see ordering information.

Specify:

Model 401
Model 401 without
part no. 10310
Model 401 with
special mount
Model 50 with
bolt flange

? Model P6V.

931A
1P21

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