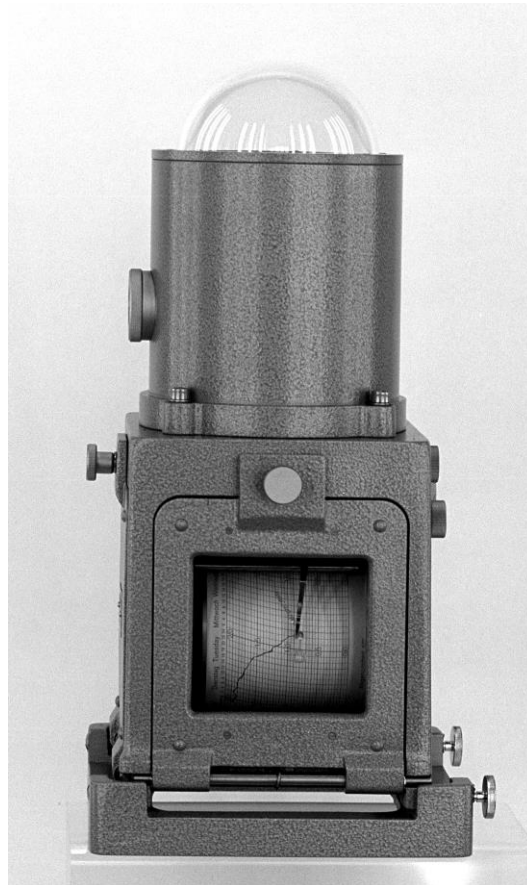


Bimetallic Actinograph, Robitzsch-Fuess Type 58dc



This bimetallic actinograph is a further development of model 58c, which has proven itself for years in meteorology and climatology. Like the former, the new design records the varying intensity of global radiation; i. e., the radiation received from sun and sky, on a horizontal surface. Operation of the instrument is as easy as that of a simple thermograph so that it can even be operated by inexperienced persons.

The measuring system consists of a bimetallic strip which has a double slit. The two outer strips of the thusly created 3 strips are coloured white, while the inner one, which is connected to the writing system, is black. All strips are interconnected with each other and with recording system, in a way compensating the influence of temperature and insuring the position of the pen is solely determined by the energy of radiation.

The measuring system is protected against the influence of the weather and of the motion of the air by an optically ground and polished glass hemisphere. In order to avoid condensation of humidity inside of the hemisphere and to keep the whole instrument dry, a small removable cup filled with "Silicagel" has been installed in each one of the two parts of the casing.

The range of sensibility comprises the whole spectrum of radiation from sun and sky, with exception of the regions absorbed by the glass hemisphere. That means, the sensed spectrum includes the total range from 0.36 μm (ultraviolet) up to the infrared appr. 2 μm . The measured and recorded radiation represents more than 90% of the terrestrial sun radiation.

In accordance with an idea of Götz and Casparis the bimetallic strips exposed to radiation have been arranged within the corresponding sector of a whitened protecting cap guarding their backside against diffuse radiation. This results in a diminution of seasonal influence, as well as of the influence of the azimuth of the sun on the coefficient of calibration and thus facilitates evaluation.

Since the bimetallic system has been improved as compared to model 58c, the power of the bimetallic system and the accuracy of measurement have been raised in spite of an increased pen amplitude from 50 to 65 mm.



A further and quite remarkable improvement is the new shape of the casing. With model 58c, the whole casing had to be taken off for a change of charts. In the new instrument, however, the drum has been installed in the lower, cubic part of the casing, while the bimetallic strips are arranged at the top of its upper, cylindrical part. The two parts of the casing are separated from one another by a horizontal wall, which offers the following essential advantages:

In order to change charts, one simply opens the two doors in the lower part. Thus, the bimetallic strips will not be damaged by falling rain drops, as they always remain protected by the glass hemisphere. Disturbances of the thermic equilibrium of the instrument caused by manipulation during operation have been greatly diminished.

Thanks to the almost rotation-symmetrical shape of the casing, thermic balance is less influenced by the variations of the azimuth of the sun and the direction of the wind, which favourably contributes to increase the accuracy of measurement. By actuating a rotary knob in the wall of the casing, it is possible to apply time marks without having to open the instrument. If necessary, the zero-position of the pen can be readjusted by means of an adjustment screw.

A small vibrator, which is fed 12 volts a.c. from a small power supply, effects a vibration to mounting and mechanism, essentially reducing thereby bearing friction and, consequently, increased accuracy of reading.

According to choice, drums are supplied for periods of revolution of 1 or 7 days.

The charts are divisioned in in $\text{cal}\cdot\text{cm}^{-2}\cdot\text{min}^{-1}$ (Charts No. 157k, 158 k) in such a manner that an immediate read-off is possible. The divisions are linear so that the sun totals of radiation may be obtained in a simple and comfortable manner by means of planimetry.

For installation of the instrument in stormproof fashion, mounting plate No. SO18 UG105 is supplied. After aligning the plate, it is screwed tightly to the given base; e. g., a wall set-off, a platform etc. Then the actinograph is fastened to the plate by means of two lateral knurled screws in such way that it always remains in the same position; i. e., bimetallic strips in east-westerly direction, glazed door towards the north. For an occasional cleaning etc. the instrument can be taken off without difficulty by slightly loosening the two screws.

Specification

No.

58dc **Bimetallic Actinograph, Robitzsch-Fuess Type,**
measuring range : 0 ... 2.0 cal cm⁻² min⁻¹
diagram division : 0.05 for cal
recording drum : 93.3 mm diameter, 93 mm height
available height for recording: 65 mm
drum rotation : 1 day or 1 week, according to choice
operation period of clock-work movements: appr. 9 days
dimensions : 180 x 200 x 400 mm
weight : 6.2 kg

Accessories free of charge:

1 set of 100 pcs. of diagrams
1 fiber pen
1 bottle of silica gel (cont. 100 gr)

Supplementary parts

SO18 UG105 Mounting plate for installation of the instrument in the measuring place
dimensions : 220 x 240 x 30 mm

Spare parts

78WFD 1 spare fiber pen
1095v 1 bottle of special ink for use with metal pen

Recording drum with clock-work movement (operation period of
clockwork movements approximately 9 days):
309w for one rotation in 1 week
309d for one rotation in 1 day

SO18 T451 1 spare glass hemisphere
SO18 UG95 1 spare drying cartridge
58n 1 bottle of silica gel (cont. 100 gr)

Diagrams

157k 1 set of diagrams = 100 sheet, 1 rotation = 1 week
158k 1 set of diagrams = 100 sheet, 1 rotation = 1 day

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