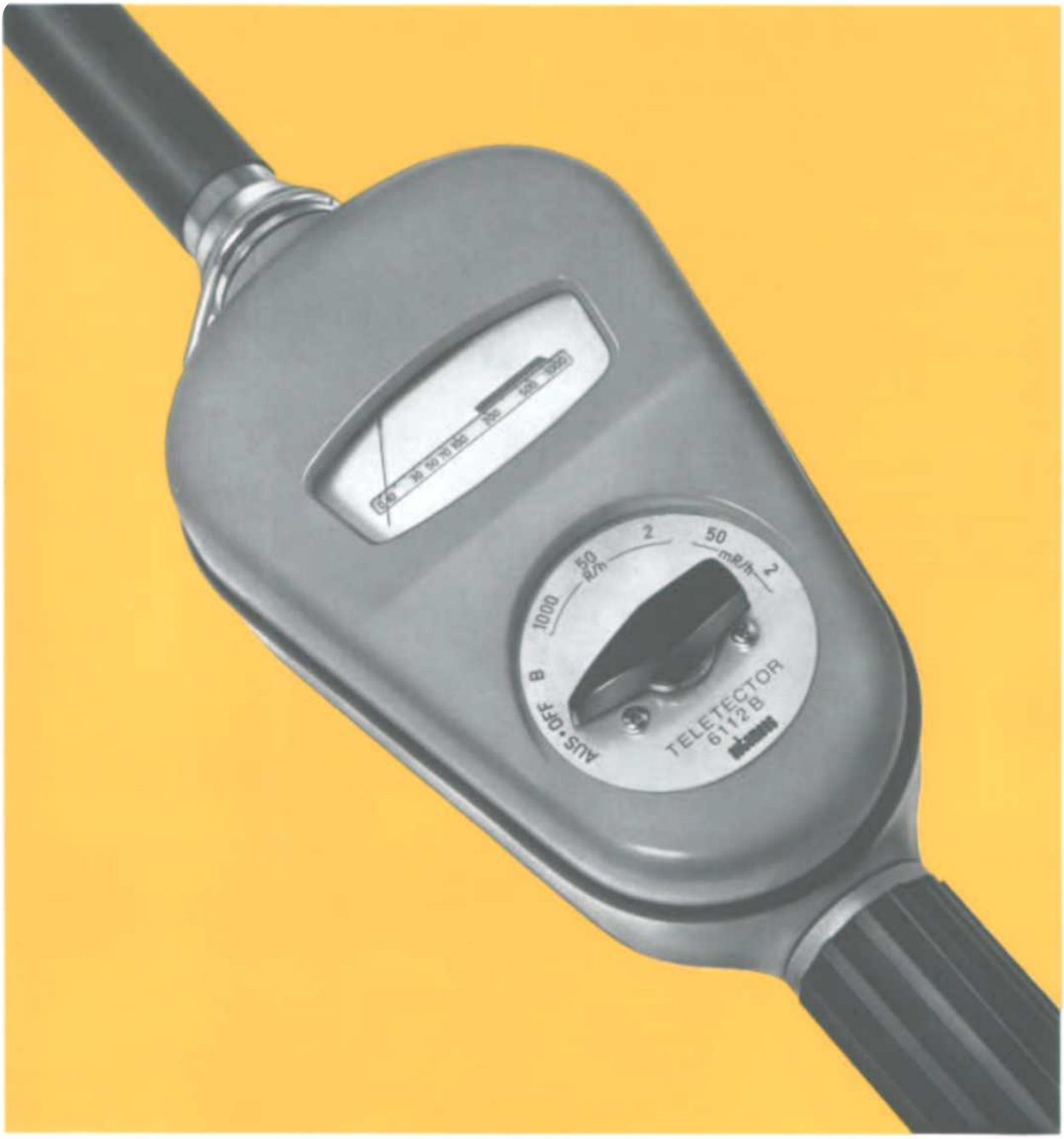
Automation und Messtechnik GmbH

automess



- WIDE RANGE OF 0.1 mR/h TO 1000 R/h
  OR 1 µSv/h TO 10 Sv/h ON 5 SCALES
- TELESCOPING PROBE EXTENDS OVER 4 m
- EXCELLENT ENERGY RESPONSE
- ILLUMINATED, SCALE-CHANGING METER FACE
- PROBE WILL OPERATE UNDER WATER
- OPERATES OVER A WIDE TEMPERATURE RANGE
- USES STANDARD C BATTERIES

TELETECTOR 6112 B

DOSE RATE METER

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TELETECTOR 6112 B
DOSE RATE METER

The TELETECTOR 6112 B is a portable battery-operated instrument for measuring gamma radiation, for detecting beta radiation, and for tracing radioactive materials or contaminations. Two GEIGER-MÜLLER tubes contained at the end of a telescopic probe serve as detectors. An earphone or an audiospeaker can be connected to the instrument for acoustic indication. The fully transistorized printed circuit is contained in a waterproof metal case. Four 1.5 V C cells in the handle of the instrument serve as power supply.

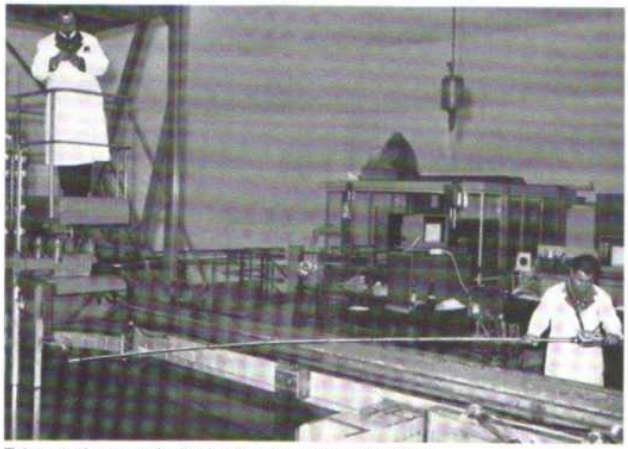
The special characteristics of the TELETECTOR 6112 B are:

Wide measuring range from 0.1 mR/h to 1000 R/h (1 µSv/h to 10 Sv/h) in five switch-controlled scales, simple operation by only one switch for all functions of the instrument, error-free reading due to scale changing meter, self-contained telescopic probe extendable up to 4 metres – consequently increased safety factor because of distance from radiation source and facility for measurement in inaccessible places.

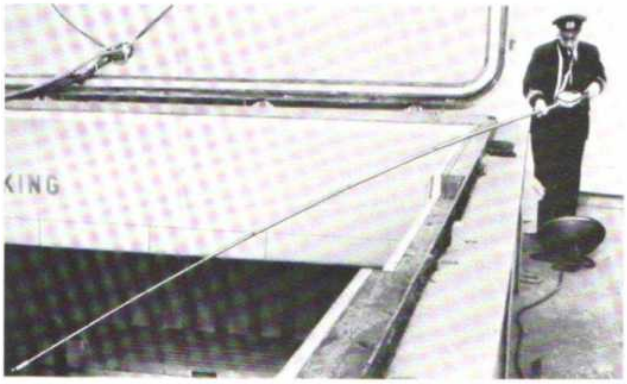
Technical Data

Radiation detectors and measuring ranges	a) High range G. M. tube 1. 0–1000 R/h (0– 10 Sv/h) 2. 0– 50 R/h (0–500 mSv/h) b) Low range G. M. tube 3. 0– 2 R/h (0– 20 mSv/h) 4. 0–50 mR/h (0–500 µSv/h) 5. 0– 2 mR/h (0– 20 µSv/h)
Accuracy	± 10 % (calibration with Cs 137, 20° C)
Energy dependence	From 80 keV to 200 keV: + 15 %, – 25 % From 0.2 MeV to 2 MeV: ± 10 %
Beta detection	By beta window (about 25 mg/cm² weight per unit area with the protective cover removed in the ranges listed under b)
Temperature range	– 30° C to + 50° C
Acoustic detection	Earphone or audiospeaker with plug
Power supply	Four 1.5 V C cells IEC R 14 diameter: 26 mm length: 50 mm; e. g. a) VARTA No. 3014, EVER READY 935 Mil. Spec. BA 42 b) VARTA No. 4014 (Alkaline)
Battery life	a) about 20 hours, intermittent b) about 60 hours, intermittent
Meter	Class 1.5; vibration- and shock-resistant
Scale changing	Coupled with operating switch. To avoid misreading only the scale associated with the pre-set range can be seen
Scale illumination	Automatic, when instrument is switched on
Case	Aluminium casting; enamel is resistant to impact, scratches, and acid; water-proof; designed for rugged field use
Telescopic probe	Stainless steel tube
Dimensions	Length: 91 cm (telescope retracted) 412 cm (telescope extended) Width: 130 mm Height: 90 mm
Weight	About 3 kg
Accessories	a) Earphone 6112 B-134 b) Audiospeaker 6640 A c) Probe sheath 6112 B-142 d) Carrying case 6112 B-150 e) Test source 6706 (Cs 137, 9.9 µCi/333 kBq)

Teletector in use at the site of an accident



Teletector in use at the basin of water moderated reactor



Teletector in use on the hatch of a freighter

Audiospeaker 6640 A, connected

The TELETECTOR 6112 B is an exceptionally versatile instrument as the following practical examples show.

① In operation on Research Reactors fitted with irradiation facilities it is frequently required for staff to work near intense but confined radiation fields. Examples are the acceptance of highly active sources and their transfer into transport containers: fitting of experimental instrumentation into reactor pipes checking the suitability of radiation shielding for experiments; survey of safety measures for transport of radioactive materials etc.

Conventional portable radiation measuring equipment does not exclude – in the examples quoted – accidental exposure to radiation. The Teletector offers a simple solution to this problem by giving accurate measurements at a safe distance, or through an orifice of an adequate radiation shield, thus eliminating the risk of damage to health by exposure to radiation. In the opinion of Reactor Physicists: "This instrument constitutes a real improvement in the safety of reactor work and a valuable addition to existing health safety instrumentation".

② As a result of careless handling, a radioactive source may get into a hospital drain, and consequently into the sewers. The fire brigade and the police are alerted and requested to recover the lost source. In this or similar cases, the Teletector is an exceptionally useful tracking device. Approach to the radioactive material ist first noticed acoustically using the earphone. Tracing under water is also possible. For this purpose a thin plastic sheath is slipped over the extended probe. With the probe retracted, the instrument is waterproof without plastic sheath. Even radioisotopes of low activities can therefore be located and recovered rapidly and safely in case of loses. The tracking of sources in the direct vicinity of moving vehicles has been successfully achieved with the Teletector.

③ Fire may break out in an isotope laboratory. Considerable radiation intensity may be set free if the lead containers of some enclosed radioactive sources melt in the fire. In addition to its normals tasks, the fire brigade must assess the extent of danger by radioactivity and must take the measures necessary if only to protect its own men. The Teletector with its telescopic probe giving vital protection to the operator due to the distance from source of radiation makes a major contribution to the solution of these problems. Moreover, ceilings, walls, pipelines, etc. can easily - and without external aid - be examined for contamination. Both low (from 0.1 mR/h / 1 µSv/h) and high (up to 1000 R/h / 10 Sv/h) dose rates are recorded by the Teletector. Operation is simple, erroneous readings are eliminated. The Teletector is an essential constituent of the equipment of more than half of all professional fire brigades in Western Germany.

④ A freighter carrying some Cobalt-60 high curie sources may suffer damage at sea. Several transport containers may be severely damaged, and there is danger of fire breaking out in the hold. Considerable radiation intensity must be expected and immediate monitoring preferably without entering the hold is required.

The Teletector is officially tested for shipping applications. An excerpt from the official test report states:

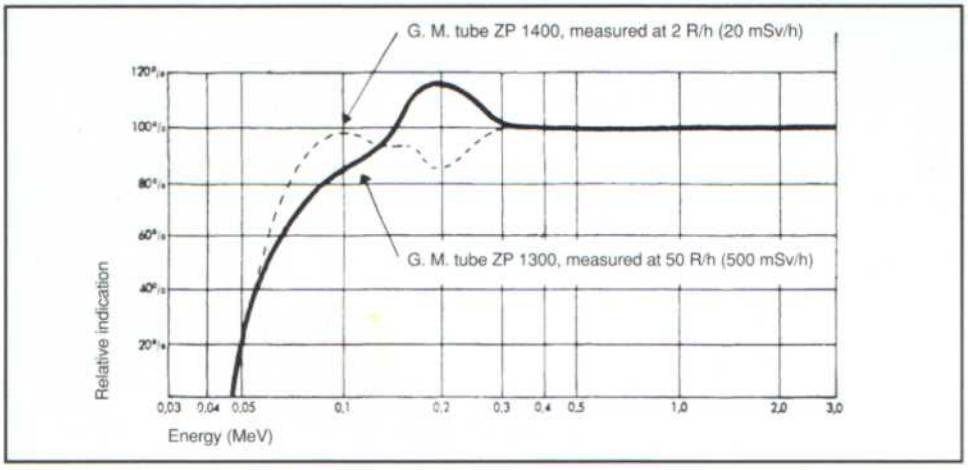
"The Teletector is an instrument which satisfies all the specifications for use on board ship, both for monitoring radiation of undamaged goods on arrival and during transport, as well as in case the packing is destroyed.

In particular the 0-1000 R/h (0–10 Sv/h) range is of the greatest importance for the crew, because a reading of any magnitude on this scale already indicates serious danger and may make it necessary to abandon ship. The instrument is extremely robust and has the additional advantage that the detector is at the end of an extendable telescope which can be pulled out to a length of 4 metres. This protects the operator and he is only exposed to a fraction of the dose rate indicated on the meter."

So much for the expert opinion. Tests have shown that radio-activity on board can be determined rapidly and safely without entering the hold by introducing the extended probe of the Tele-tector through the hatch thereby providing a greater radius of action in the upper part of the hold.

The examples of possible applications of the Teletector 6112 B could be continued indefinitely. The Teletector has also become indispensable in industry where radio-isotopes are increasingly used. It serves both for routine checks and monitoring and as an emergency device in the event of accidents or fires. For the safety engineer, the Teletector is an essential part of the equip-ment required for personnel protection from radiological hazards in factories.

Energy dependence TELETECTOR 6112 B



– SUBJECT TO TECHNICAL CHANGES –

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