

Thermo Scientific FHZ 691-10

Wide-range dose rate probe

The Thermo Scientific FHZ 691-10 intelligent probe is used for $H^*(10)$ ambient equivalent dose rate measurements over a dynamic range of 9 decades.

Features and Benefits

- High measuring accuracy, 3 % at 100 nSv/h in 1 min.
- ADF filter for filtering statistical fluctuations and fast reaction to changes
- PTB type approval for calibration in combination with the display unit FHT 6020P
- RS-485 interface
- Transfer protocol with very short reaction times for monitoring networks
- Extended self checks for probe functions
- Surge protection for all inputs and outputs



The Thermo Scientific™ FHZ 691-10 probe is specially suited for the detection of small amounts of artificial radioactivity. The high sensitivity of the scintillation detector allows detection of a few percent dose rate increase at normal background within a measuring time of one minute. But there is an additional ability that allows the discrimination between natural changes of the background radiation versus most scenarios of airborne man-made radionuclides:

The low dose rate detector is able to break down the energy spectrum of the prevailing

radiation via selected threshold values. This information is evaluated by the NBR algorithm (Natural Background Rejection) in order to differentiate between artificial parts of radiation and fluctuations in the natural dose rate (e.g. caused by precipitation) when monitoring the surrounding environment.

If there is a simultaneous change in the NBR value and dose rate, artificial radiation can be assumed. Radon-Wash out manifests itself by an increase of the background dose rate without change of the energy distribution and thus the NBR signal.



FHZ 691-10 application example



Meditron S.A.
Schönenhofstrasse 19
CH-8500 Frauenfeld

Tel: +41-(0)52-204 01 91
Fax: +41-(0)52-204 01 95
URL: www.meditron.ch

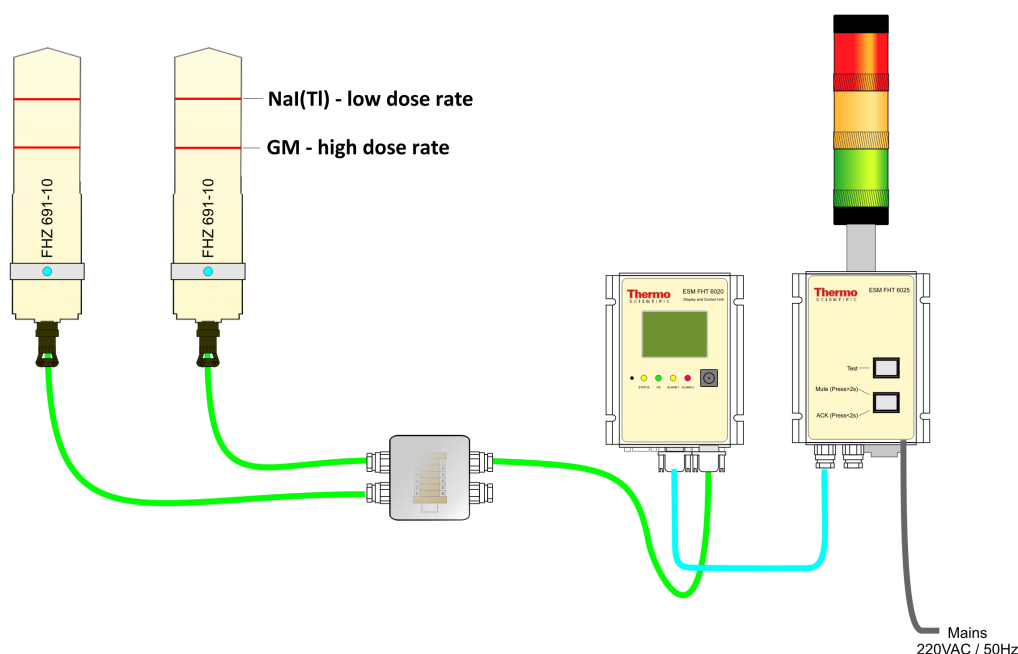
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Technical data FHZ 691-10

Measuring range H*(10):	Low dose detector NaI(Tl): 0.01 μ Sv/h to 0,2 mSv/h High dose detector (GM): 0.1 mSv/h to 10 Sv/h
Energy range H*(10):	60 keV to 3 MeV
Angular range:	- 45° bis 45°
Detector sensitivity:	Low dose detector: 160 cps/(μ Sv/h) High dose detector : 17 cps/(mSv/h)
Permissible detector dose:	10 Sv
Temperature range:	Operation: - 30°C bis + 55°C Storage: - 40°C bis + 70°C
Protection type:	IP67 in accordance DIN 40050/EN60529
Dimensions:	Diameter: 65 mm Length: 257 mm (without plug-in connection)
Weight:	520 g

PTB-approval (0.1 μ Sv/h to 10 Sv/h):**23.71****11.01**

FHZ 691-10 probe



Application example with two FHZ 691-10 probes, FHT 6020 display device and FHT 6025 alarm tower

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Europe, Africa Middle East & Countries Not Listed

Fraunauracher Strasse 96 +49 (0) 9131 998-226
D 91056 Erlangen, Germany +49 (0) 9131 998-172 fax
customerservice.eid.erlangen@thermofisher.com

China

7th Floor, Tower West, Yonghe Plaza +86 10 8419 3588
No. 28 Andingm E. Street, Beijing, 100007 China +86 10 8419 3581 fax
info.eid.china@thermofisher.com

Singapore

11 Biopolis Way, Helios, Units #12-07/08 +65 6478 9728
Singapore 138667 +65 6478 9505 fax
info.eid.singapore@thermofisher.com

USA, Canada, Mexico, Central & South America

27 Forge Parkway +1 (508) 553 1700
Franklin, MA 02038 USA +1 (800) 274 4212 US toll-free
info.eid@thermofisher.com +1 (508) 520 2815 fax

India

Plot No. C -327, T.T.C. Industrial Area, Pawne +91-22-41578800
Navi Mumbai 400 705, India +91-22-41578801 fax
info.eid.india@thermofisher.com

United Kingdom

Bath Road, Beenham, +44 (0) 118 971 5042
Reading RG7 5PR United Kingdom 44 (0) 118 971 2835 fax
customerservice.eid.beenham@thermofisher.com

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