ADVANCED TECHNOLOGY FOR A SAFER WORLD

FH 40 G/GL
Digital Survey Meter

FHT 6020
Display Unit

- ***Rugged and reliable***
- ***Versatile multipurpose meter and area monitor***
- ***Data logging***
- ***Internal detector and external probes of the FH 40 are monitored simultaneously***
- ***All detectors are appropriate for portable and area monitoring applications***
- ***Both units are available in type tested PTB* approved versions***

The FH 40 G family of advanced survey meters is designed for multiple radiation protection measurements. The integrated design represents a versatile, user-friendly, hand-held radiation measurement system.

- Classic survey meter for personal radiation protection
- Stationary gamma dose rate meter
- System center with external probes for monitoring and detection
- Simultaneous and discriminative gamma and neutron measurement in mixed radiation fields, for x-ray/gamma dose rate and beta contamination, for the highly sensitive proof of artificial gamma radiation even in variable natural radiation fields....
- System component in complex measurement system

LAURUS Systems, Inc. - Ph: 410-465-5558 - Fax: 410-465-5257 - www.LaurusSystems.com

FH 40 G/GL - Portable Dose Rate Measuring Instrument

The FH 40 G family of advanced digital survey meters is designed for many different radiation protection applications.

- Gamma meter with internal proportional counter tube
- Versatile survey meter available with a large number of external detectors
- Energy range 30 keV - 4.4 MeV [H*(10)]
- Comfortable to use
- Serial infrared interface
- Type tested by PTB (Germany) in Hx or H*(10)
- Type tested for use by fire brigades
- NRPB approved (UK)

With the exception of the display instrument FH 40 G-X, all FH 40 G versions incorporate an energy-filtered proportional detector - no external probe or cable are required for gamma dose rate measurements. The internal proportional detector is always operational while an external detector is connected. The external probes utilized with either model of FH 40 G are "smart" with the calibration parameters loaded automatically with a change of probes.

All FH 40 G versions and external probes containing the "-10" suffix are designed to meet the energy response behavior of the new SI-units ambient dose equivalent and ambient dose equivalent rate according to ICRU 39.

Measured values are shown on a clear, backlit LCD display. Measurements are digital with a vertical 3 decade logarithmic bargraph.

An intelligent rate meter algorithm (ADF mode) detects and indicates small changes in dose rate, suppressing random noise. Additional information includes alarm settings(s), audio speaker, battery voltage, external probe parameters, date and time and many user-selectable functions.

The FH 40 G is rugged, lightweight, fits snugly in the palm of the hand and is easy to operate with large keys that enable users wearing gloves.

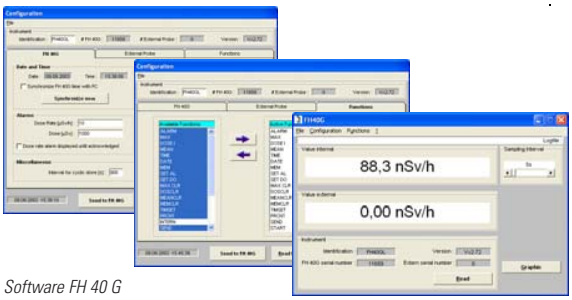
Internal diagnostics ensure proper functioning of the detector(s) and the electronics. If the battery voltage falls below a pre-defined value, an icon on the display flashes giving the user 20 hours of remaining use before replacing the batteries.

Alarm values are established for dose rate and integrated dose. When an alarm value is exceeded, an audible alarm is emitted. In parallel to the measured value display, an audible speaker can be activated to signal detector pulses.

The FH 40 G models are designed to record up to 256 data points containing measurement number, date, time and dose rate at the internal detector and external detector, status, and barcode information.

The stored values can be read directly from the LCD, accessed at any time and can also be processed and transferred for archiving to a PC via the FH 40 G serial interface.

All settings can be accessed and the data analysis can be done, using an optional Windows™ -based PC-software.



Software FH 40 G

	FH 40 G	FH 40 G-L	FH 40 GL-Ω	FH 40 G-10	FH 40 G-L10	FH 40 G-X
Order No.	4254002	4254004	4254009	4254006	4254008	4254014
Order No.*[1]	**425400250**	**425400450**	***[2]**	**425400650**	**425400850**	**425401450**
Measured Quantity	Response (Roentgen) - R			Ambient dose equivalent rate (H*(10)) - Sv		Display unit without internal counter tube
Measuring Range	1 µR/h - 100 R/h	1 µR/h - 10 R/h		10 nSv/h - 1 Sv/h	10 nSv/h - 100 mSv/h	
Energy Range	36 keV - 1.3 MeV			30 keV - 4.4 MeV		
Dose measuring range	10 µR - 1000 R	10 µR - 100 R		100 nSv - 10 Sv	100 nSv - 1 Sv	
Size/Weight	195 mm x 73 mm x 42 mm / approx. 410 g [7.7" x 2.9" x 1.7" / approx. 0.9 lb]					

*[1] The FH 40 G versions are also available with an additional earphone output. This enables a simultaneous operation of external FH 40 G probes and earphone

*[2] For connection of an earphone to FH 40 GL-Ω with a single output

External probes

Depending on the application, there are various probes available for the FH 40 G. The probes are identified automatically by the Radiameter. The calibration data are stored in an EEPROM. Thus, one specific probe can be connected to different FH 40 G types. All external probes are connected via a detector cable, with the exception of the Teleprobe FH 40 TG.

All external probes of the FH 40 G System are compatible with the FHT 6020!

The FH 40 G Measurement System provides many solutions for specific measurement problems.

Teleprobe FH 40 TG

The **Teleprobe FH 40 TG** can be used with a display unit FH 40 G-X or together with any of the FH 40 G. In this case the FH 40 System allows the simultaneous dose and dose rate measurement at the operator's location while measuring the dose rate at the teleprobe end - 4 meters away.

In normal use the measured value of the teleprobe detector is displayed, but, with the push of a button the operator can check the dose rate where he is actually standing. For both detectors independent alarm levels may be set - this is especially useful during search applications. The acoustic alarm is activated upon reaching either alarm level, as well as upon reaching an accumulated dose alarm in respect to the intrinsic detector of the survey meter.

Environmental Set FH 40 LAB-1

The FH 40 LAB-1 is an efficient supplement to the multipurpose radiameter FH 40 G for first responder task forces. It is used for immediate in situ measurements of alpha-beta contaminations, e.g.

- Filters and filter systems
- Smear tests
- Soil samples
- Foodstuff, milk
- Water etc.

Display Unit FHT 6020

The FHT 6020 display unit, with alarm and communication, is an industry-proven area monitor. It has audible and visible alarms for maximum protection against the threat of radiation.

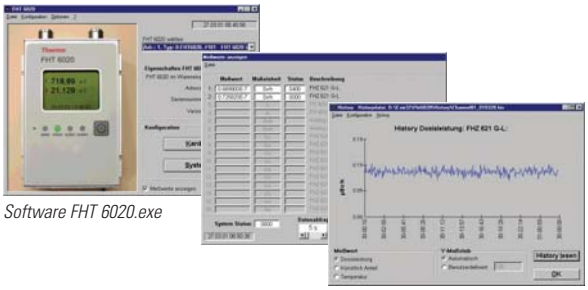
In stand-alone operation, the FHT 6020 can be used for the local display of measurements with intelligent probes, as well as with probes of the FH 40 G program. A "mixed operation" with intelligent probes and probes of the FH 40 G program is possible as well.

Features:

- Local display of measurements with up to 16 intelligent dose rate probes or amplifiers
- Local display of measurements with 1 or 2 probes of the FH 40 G probe program
- Measurement memory for probes of the FH 40 G program
- Local audible and visible alarms
- Connection to a local PC via RS-232 interface
- Incorporation in measuring networks via RS 485 interface
- Analog input/output (option)
- Digital input/output for monitoring of conditions and alarms
- Robust and compact design
- Various options for power supply - DC or AC, internal or external
- PTB type tested versions are available

Software

The FHT 6020 can be configured easily and conveniently with a PC via serial interface, and through the configuration program FHT 6020.exe.



Software FHT 6020.exe

NaI(Tl) and BGO - Scintillation Detectors

Different size, high sensitivity gamma detectors without energy compensation.
Factory set for sensitivity from approx. 30 keV.

FHZ 512 / 512 A / 512 BGO Scintillation Probes

Cylindrical scintillation crystal and a photomultiplier for highly sensitive and integral measurements of gamma radiation. The detectors can be used with both telescopic adapters.

Order number FHZ 512: 4254032
Order number FHZ 512 A: 4254028
Order number FHZ 512 BGO: 4254027

Sensitivity	Cs-137	Am-241	Co-60
FHZ 512 NaI(Tl)	300 s^{-1}/(µSv/h) 3 s^{-1}/(µR/h)	2000 s^{-1}/(µSv/h) 20 s^{-1}/(µR/h)	150 s^{-1}/(µSv/h) 1.5 s^{-1}/(µR/h)
FHZ 512 A NaI(Tl)	600 s^{-1}/(µSv/h) 6 s^{-1}/(µR/h)	4000 s^{-1}/(µSv/h) 40 s^{-1}/(µR/h)	300 s^{-1}/(µSv/h) 3 s^{-1}/(µR/h)
FHZ 512 BGO	1000 s^{-1}/(µSv/h) 10 s^{-1}/(µR/h)	3400 s^{-1}/(µSv/h) 34 s^{-1}/(µR/h)	550 s^{-1}/(µSv/h) 5.5 s^{-1}/(µR/h)
Dimension and Weight	ø 40 mm x 310 mm [ø 1.6" x 12.2"] / approx. 0.5 - 0.7 kg (1.1 - 1.5 lb)		

Application: Locating hidden gamma sources.

Probe bracket for FHZ 512 / 512 A / 512 BGO

The bracket allows one handed operation of the FHZ 512 or FHZ 512 A together with the FH 40 G.

Order number FHZ 512 BGO: 425402710
Order number FHZ 512 / FHZ 512A: 425402810

FHZ 502 Scintillation Probes

The FHZ 502 E provides a 2" x 2" NaI(Tl) crystal detector of integral line construction. The aluminum housing is splash-proof, durable and with a foam plastic lining for impact protection and thermal insulation. BNC signal output allows direct connection of a MCA for special analysis. The FHZ 502 P is constructed in the same way as the FHZ 502 E but with a plastic housing and handle. The probe can be used with a special telescopic adapter.

Order number FHZ 502 E: 4254045
Order number FHZ 502 P: 4254033

Sensitivity	Cs-137	Am-241	Co-60
FHZ 502 E and FHZ 502 P	1400 s^{-1}/(µSv/h) 14 s^{-1}/(µR/h)	7000 s^{-1}/(µSv/h) 70 s^{-1}/(µR/h)	800 s^{-1}/(µSv/h) 8 s^{-1}/(µR/h)
Weight	approx. 2 kg [4.4 lb]		

Application: High sensitivity gamma radiation measurement.

FHZ 503 E Scintillation Probe

For enhanced sensitivity to high energy gamma radiation the FHZ 503 E with 3" x 3" NaI(Tl) crystal detector is available. BNC signal output allows direct connection of a MCA for special analysis. Sensitivity: 4000 s^{-1}/(µSv/h) [40 s^{-1}/(µR/h)]. Weight: approx. 4 kg (8.8 lb). ***Order number FHZ 503 E: 4254063***

NBR - Detectors

NBR - Natural Background Rejection

The NBR measurement method has been developed by Thermo Electron Corporation, Erlangen (Germany) for extremely fast discrimination between natural and artificial gamma radiation. More than 2000 devices based on this technology are in use worldwide.

FHZ 672 E / 672 E-10

The FHZ 672 E consists of a special detector of 750 cm³ organic scintillation material of integral line construction, voltage divider, high voltage generator, amplifier and discriminator thresholds and NBR process computer. The indication of artificial radiation is shown by LED on the probe, as well as visually in the display and audibly by the speaker of the Radiameter.

Version FHZ 672 E-10: Energy response according to ambient dose equivalent rate H*(10)

Order number FHZ 672 E: 4254061
Order number FHZ 672 E-10: 4254066
Order number FHZ 672 E-10: 4254067 (PTB approved)

Measuring range	up to 100 µSv/h		10 mR/h
Energy range	FHZ 672 E: FHZ 672 E-10:	50 keV - 1.3 MeV 48 keV - 4.4 MeV	 H*(10)
Sensitivity for Cs-137	FHZ 672 E: FHZ 672 E-10:	approx. 2800 s^{-1}/(µSv/h) approx. 2500 s^{-1}/(µSv/h)	28 s^{-1}/(µR/h) 25 s^{-1}/(µR/h)

Application: Fast discrimination of natural and artificial gamma radiation.
Further information: Data Sheet FHZ 40 NBR

FHZ 672-2

The FHZ 672-2 consists of a 2 litre NBR-scintillation detector. With its plastic housing the dector can be used for stationary or installed operation (e.g. fixed to a wall) or for mobile detection (e.g. mounted inside a measuring vehicle).

Order number FHZ 672-2: 4254064

Measuring range	up to 100 µSv/h	10 mR/h
Sensitivity for Cs-137	approx. 10,000 s^{-1}/(µSv/h)	100 s^{-1}/(µR/h)

Application: Fast discrimination of natural and artificial gamma radiation.

γ-Dose Rate Detectors

FHZ 632 L / FHZ 632 L-10

Probe with a proportional counter tube for highly sensitive dose rate measurement of X-ray and gamma radiation. Both probes fit to the FH 40 G Teleprobe.
Version FHZ 632 L-10: Energy response according to ambient dose equivalent rate H*(10).

Order number FHZ 632 L: 4254056
Order number FHZ 632 L-10: 4254057

Measuring Range	100 nSv/h - 100 mSv/h	10 µR/h - 10 R/h
Sensitivity	approx. 2 s^{-1}/(µSv/h)	20 s^{-1}/(mR/h)
Energy Range	FHZ 632 L: 36 keV - 1.3 MeV FHZ 632 L-10: 30 keV - 4.4 MeV	
Dimensions / Weight	ø 35 mm x 162 mm [ø 1.4" x 6.4"] / approx. 0.2 kg [0.4 lb]	

Application: Highly sensitive gamma dose rate measurement.

FHZ 612

External dose rate probes including 2 GM's with automatic range switching. The probes fit to the Teleprobe FH 40 TG.
Version FHZ 612-10: Energy response according to ambient dose equivalent rate H*(10).
Version FHZ 612-B is the same as FHZ 612, but the low range detector is sensitive for beta and X-rays.

Order number FHZ 612: 4254052
Order number FHZ 612-10: 4254059
Order number FHZ 612-B: 4254058

Measuring Range	FHZ 612 / FHZ 612-B:	0.1 µSv/h - 10 Sv/h	10 µR/h - 1000 R/h
	FHZ 612-10:	0.1 µSv/h - 10 Sv/h	
Sensitivity	FHZ 612 / FHZ 612-B:	Low range: 1.7 s^{-1}/(µSv/h) High range: 0.03 s^{-1}/(µSv/h)	17 s^{-1}/(mR/h) 0.3 s^{-1}/(mR/h)
	FHZ 612-10:	Low range: 1.7 s^{-1}/(µSv/h) High range: 0.017 s^{-1}/(µSv/h)	17 s^{-1}/(mR/h) 0.17 s^{-1}/(mR/h)
Energy Range	FHZ 612 / FHZ 612-B:	82 keV - 1.3 MeV	
	FHZ 612-10:	60 keV - 1.3 MeV	
Dimensions / Weight	ø 34 mm x 200 mm [ø 1.4" x 7.9"] / approx. 0.2 kg [0.4 lb]		

Application: Wide range dose rate measurement.

FHZ 312 / FHZ 302 Under Water Probe

The FHZ 312 / FHZ 302 are external high/middle range dose rate probes for measurement of gamma radiation up to 20 m under water. A 20 m special cable is included.

Order number FHZ 312: 4254044
Order number FHZ 302: 4254041

Measuring Range	FHZ 312:	100 µSv/h - 100 Sv/h	10 mR/h - 10,000 R/h
	FHZ 302:	1 µSv/h - 1 Sv/h	100 µR/h - 100 R/h
Gamma Sensitivity	FHZ 312:	approx. 1.1 s^{-1}/(mSv/h)	0.01 s^{-1}/(mR/h)
	FHZ 302:	approx. 300 s^{-1}/(mSv/h)	3 s^{-1}/(mR/h)
Dimensions / Weight	ø 45 mm x 184 mm [ø 1.8" x 7.2"] / approx. 0.5 kg [1.1 lb], without cable		

Application: Under water gamma dose rate measurement.

Surface Contamination Detectors

FHZ 382

The FHZ 382 probe is designed to meet the needs for field monitoring of alpha and beta radiation. It includes a ZnS scintillation detector, the sensitive area covers approx. 100 cm². Each probe has a memory chip which contains all of the information related to the set up and calibration of that individual probe. Lightweight, small size.

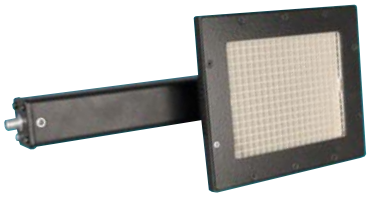
Order number FHZ 382: 4254130

Efficiency (per surface emission)	Am-241: Co-60 : Sr/Y-90:	36 % (α) 23 % (β) 49 % (β)
Gamma response (Cs-137)	approx. 40 s^{-1}/(µSv/h)	0.4 s^{-1}/(µR/h)
Window thickness/Active area	Thickness: 0.87 mg/cm² aluminized plastic film Sensitive area of 69 x 145 mm [2.71" x 5.71"]; Open area of approx. 85 %	
Dimensions / Weight	286 mm x 70 mm x 83 mm [11.3" x 2.76" x 3.27"] / approx. 0.6 kg [1.32 lb]	

Application: Alpha and beta contamination measurements. During beta contamination measurements, detected alpha-particles are indicated by LED.

FHZ 742

The FHZ 742 probe is used for measuring alpha and beta surface contamination. It includes a ZnS scintillation detector, the sensitive area covers approx. 125 cm².



Order number FHZ 742: 4254039

Efficiency (per surface emission)	Am-241: Co-60: Sr/Y-90:	40 % (α) 17 % (β) 56 % (β)
Gamma response (Cs-137)	approx. 60 s^{-1}/(µSv/h)	0.6 s^{-1}/(µR/h)
Window thickness/Window size	Thickness: 0.87 mg/cm². Size: 100 mm x 125 mm [3.94" x 4.92"]	
Dimensions / Weight	310 mm x 156 mm x 84 mm [12.2" x 6.14" x 3.31"] / approx. 1.2 kg [2.65 lb]	

Application: Alpha and beta surface contamination measurement.

FHZ 732 / FHZ 732 GM

The FHZ 732 is designed for alpha and beta surface contamination measurement. The probe includes a permanently filled proportional counter tube. The FHZ 732 GM with a Geiger-Mueller counter tube is a low price alternative to the FHZ 732. With the FHZ 732 GM it is not possible to differentiate between alpha and beta radiation. Suitable for the four segment telescopic adapter with a special holder. ***Order number: 425405130***

Order number FHZ 732 : 4254034
Order number FHZ 732 GM: 4254036

		FHZ 732	FHZ 732 GM
Efficiency (per surface emission)	Am-241: Co-60: Sr/Y-90:	18 % (α) 31 % (β) 42 % (β)	36 % 40 % 64 %
Gamma response (Cs-137)	approx. 4 s^{-1}/(µSv/h)	0.04 s^{-1}/(µR/h)	
Window size	Sensitive area of approx. ø 44 mm [1.7"] = approx. 15 cm² [2.33 inch²]		
Dimensions / Weight	245 mm x 68 mm [9.7" x 2.7"] / approx. 0.3 kg [0.7 lb]		

Application: Alpha and beta surface contamination measurement.

Surface Contamination Detectors

FHZ 742 RB

This probe is used for beta and gamma contamination measurements in tubes. The detector is a cylindrical plastic scintillator with a photo-multiplier.

Order number FHZ 742 RB: 4254168

Gamma response (Cs-137)	approx. 500 s^{-1}/(µSv/h) 5 s^{-1}/(µR/h)
Window size	Cylinder surface : 235 cm^2 [36.4 $inch^2$]; Length: 150 mm [5.9"]; Circumference: 157 mm [6.2"]
Dimensions / Weight	ø 57 mm x 510 mm [2.2" x 20.1"] / approx. 1 kg [2.2 lb]

Application: Beta and gamma surface contamination measurement in tubes.

FHZ 742 RB-50

This probe is used for beta and gamma surface contamination measurements in tubes. The detector is a cylindrical plastic scintillator with a photomultiplier. The beta or gamma measurement is achieved by fixing or removing the stainless-steel protective cap.

Without protective cap: Beta/gamma measurement.
With protective cap: Only gamma measurement.

Order number FHZ 742 RB-50: 4254069

Gamma response (Cs-137)	approx. 170 s^{-1}/(µSv/h) 1.7 s^{-1}/(µR/h)
Window size	Cylinder surface: 50 cm^2 [7.8 $inch^2$]; Length: 100 mm [3.9"]; Circumference: 50 mm [2"]
Dimensions / Weight	ø 39 mm x 445 mm [2.2" x 20.1"] / approx. 1 kg [2.2 lb]

Application: Beta and gamma surface contamination measurement in tubes.

FHZ 742 BP17B-F / FHZ 742 BP17B-H

These probes are used for beta and gamma surface contamination measurements of floors (-F) and walls (-H). The detector is a wide area plastic scintillator with a photomultiplier and amplifier FHT 642.

Order numbers:
FHZ 742 BP17B-F: 4254110
FHZ 742 BP17B-H: 4254111

Gamma response (Cs-137)	approx. 200 s^{-1}/(µSv/h) 2 s^{-1}/(µR/h)
Window size	600 cm^2 [93 $inch^2$]
Dimensions	FHZ 742 BP17B-F: 341 mm x 241 mm x 840 mm [13.4" x 9.5" x 33.1"] FHZ 742 BP17B-H: 341 mm x 241 mm x 330 mm [13.4" x 9.5" x 13"]
Weight	FHZ 742 BP17B-F: 3.3 kg [7.3 lb] FHZ 742 BP17B-H: 3.0 kg [6.6 lb]

Application: Beta and gamma surface contamination measurement on floors and walls.

Neutron Detectors

Neutron detector FHT 752

The Neutron-Rem-Counter FHT 752 is used for energy-independent measurements of neutron dose equivalent rate (Sv/h) according to ICRP 60. It consists of a proportional counter tube, a PE-moderator, high voltage supply, a preamplifier and a pulse shaper. With a special holder for the FH 40 G, the probe can be operated in one hand. The neutron and gamma radiation are measured simultaneously.

Order number FHT 752: 4229420

Measuring Range	1 nSv/h - 0.4 Sv/h
Energy Range	0.025 eV - 20 MeV according to ICRP 60
Response	Neutron: 0.5 s^{-1}/(µSv/h) for Cf-252 Gamma: < 10^{-5} at 1 Sv/h (Cs 137) = i. e. less than 10 µSv/h neutron dose rate is displayed; so a discriminating neutron measurement can be performed in a mixed field.
Filling Gas	BF_3 (1 bar)
Dimensions/Weight	ø 208 mm x 435 mm [8.19" x 17.1"] / 11 kg [24.3 lb]

Application: Neutron doserate measurements.

Neutron detector FHT 752 S / FHT 752 SH

The FHT 752 S is a neutron detector with high gamma rejection for locating neutron sources. It is not suited for the determination of neutron dose rate. It consists of a proportional counter tube, a polyethylene moderator and the associated electronics.

The FHT 752 SH is a neutron detector with high sensitivity for neutrons. It is used for search and locating neutron sources.

With the weight of only 800 g, both of the probes fit to the telescopic adapters.

Order number FHT 752 S: 4254048
Order number FHT 752 SH: 4254049

Measuring Range	0.01 - 100,000 cps
Filling Gas	FHT 752 S: BF_3, 1 bar FHT 752 SH: He-3, 10 bar
Dimensions/Weight	ø 50 mm x 385 mm [2" x 15.2"] / 0.8 kg [1.8 lb]

Application: Monitoring for neutron sources.

Attention:

All FHT 752 detectors must not be taken on a passenger plane and need to be declared as dangerous goods in case of an air freight shipment.
Upon request a less sensitive 2.5 bar version of the FHT 752 SH is available which does not fall under the IATA transportation regulations.

Neutron Detectors

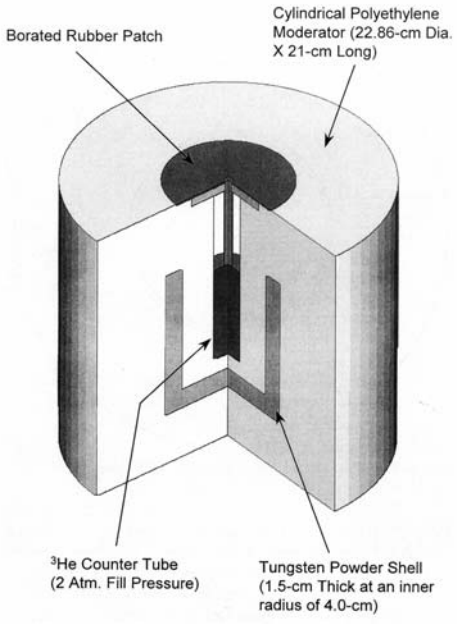
Neutron detector FHT 762 WENDI-2

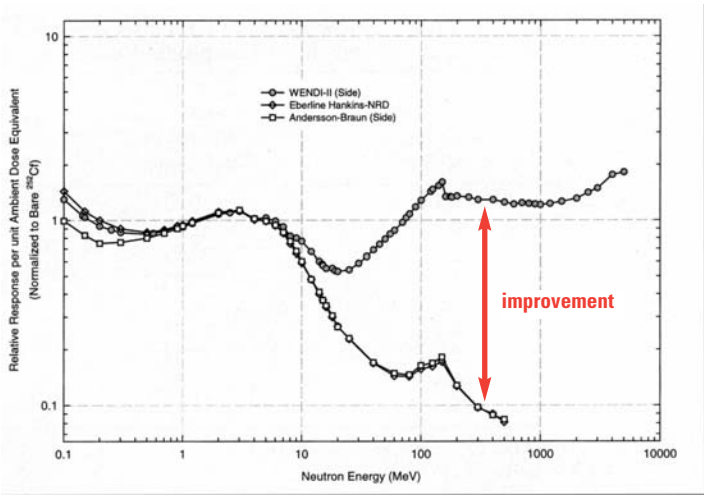
The FHT 762 is a neutron dose rate detector featuring high sensitivity and an excellent energy range and uniform angular response.
The calibration data are stored in the amplifier.

Order number FHT 762 WENDI-2: 4254085

Measuring Range (Cf-252)	1 nSv/h - 100 mSv/h (with FHT 642 and FH 40 G)
Sensitivity (Cf-252)	0.84 s^{-1}/(µSv/h)
Energy Range	25 meV - 5 GeV according to ICRP 74 (1996)
Angular dependence	± 20 % all directions
Gamma cross-sensitivity	< 5 •10^{-5} at 100 mSv/h (Cs 137) = i. e. less than 5 µSv/h neutron dose rate is displayed
Filling Gas	He-3, 2 bar
Dimensions/Weight	ø 230 mm x 340 mm [ø 9.1" x 13.4"] / 13.5 kg [29.8 lb]

Application: Mobile or stationary neutron dose rate measurement.





Reference: Olsher et al, Health Physics, 79(2): 170ff, 2000

Ionization Chamber and Preamplifiers

Ionization Chamber FHT 192

The FHT 192 is a wide range ionization chamber for high precision ambient dose equivalent rate measurements. It is based on the famous PTB-approved medium-pressure (7 bar inert gas) chamber FHT 191 N, which is used as a reference standard detector by many organizations.

Order number FHT 192: 4253540

Measured variable	Ambient equivalent dose rate H*(10)
Measuring range	100 nSv/h - 1 Sv/h
Energy range	30 keV - 7 MeV (± 30 %)
Angular acceptance	-45° < Φ < +90° (270° solid angle)
Gamma responsiveness	250 fA/(µSv/h)
Dimensions/Weight	ø 208 mm x 500 mm [ø 8.2" x 19.7"] 3.25 kg [7.2 lb] incl. polystyrene cap

Application: Measurements at high energy accelerators or X-ray sources.
Further information: Data Sheet FHT 192.

Attention:
The FHT 192 detector must not be taken on a passenger plane and needs to be declared as dangerous goods in case of an air freight shippment.
Upon request a less sensitive 2.5 bar version of the FHT 192 SH is available which does not fall under the IATA transportation regulations.

Amplifier FHT 642 I / I-2 / S / P

The preamplifiers FHT 642 I / I2 / S / P are used in combination with the FH 40 G or display unit FHT 6020.

Dimensions: ø 35 mm x 153 mm [ø 1.38" x 3.02"]

Order number FHT 642 I: 4254083
Order number FHT 642 I-2: 4254082
Order number FHT 642 S: 4254084
Order number FHT 642 P: 4254043

FHT 642 I and I-2: Amplifiers for Ionization Chambers

Detector voltage	0 - (-600 V)
Measuring range	I: 0.01 - 5,000 pA I-2: 0.002 - 165,000 pA
Recommended connecting cable length	5 m [16.4 ft]

FHT 642 S: Amplifier for scintillation counters

Detector voltage (HV)	0 - 900 V
Impedance of the detector voltage	21 MΩ
Connector type	BNC-HT (to the detector)
Recommended connecting cable length	5 m [16.4 ft]

FHT 642 P: Amplifier for proportional counters

Detector voltage (HV)	1,000 - 2,200 V
Threshold	30 fCb
maximum input cable length	0.6 m [1.97 ft] at 50 Ω / 1 m [3.28 ft] at 75 Ω, coax cable

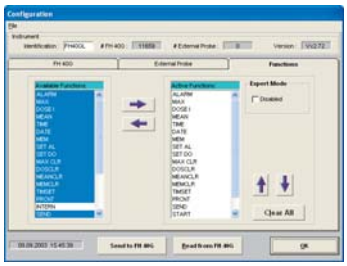
Accessories

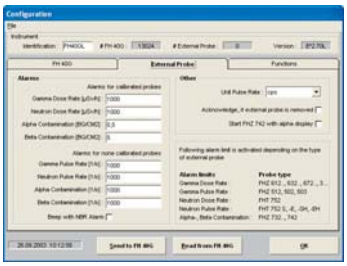
Software

Software FH40G.EXE

Using an infrared interface the user can transfer measured data from the FH 40 G to a PC or configure the unit.
The following functions are available:

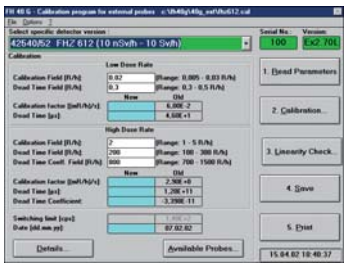
- Displaying current measured values in numerical and graphical form
- Direct transfer of measured values in a measurement file
- Displaying and transferring measured data that is stored in the unit to the PC (history)
- Configuring the unit

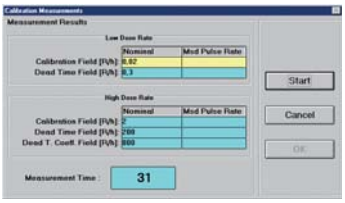


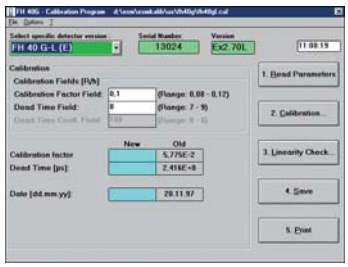


Software CAL40G.EXE

The user can calibrate the internal FH 40 G probe and the adaptable probes of the FH 40 G program using an infrared interface. A suitable radiation field, depending on the kind of the external probe is required.







Teleprobe

Teleprobe FH 40 TG and FH 40 TG-10

The Teleprobes FH 40 TG and FH 40 TG-10 are autoranging, watertight, extendible up to 4 m and individually calibrated.

Measuring range	0.01 µSv/h - 10 Sv/h [1 R/h - 1000 R/h]	
Energy range	Teleprobe FH 40 TG: Teleprobe FH 40 TG-10:	82 keV - 1.3 MeV 60 keV - 1.3 MeV
Dose rate detector	Teleprobe FH 40 TG: Teleprobe FH 40 TG-10:	FHZ 612 FHZ 612-10

Order number FH 40 TG: 4254051
Order number FH 40 TG-10: 425405310

Case for Teleprobe FH 40 TG (without content)

The aluminium case is ready for a Teleprobe FH 40 TG and a FH 40 G.
Dimensions: 900 mm x 160 mm x 150 mm (35.4" x 6.3" x 5.91").

Order number: 425405120

Telescopic adapters

Two segment telescopic adapter

Rugged and light weight aluminium extension with two segments, up to 2.7 m length, including cable and holder.

Telescopic adapter for FHZ 502 P: ***Order number 4254070***

Telescopic adapter for FHZ 512 / 632 versions: ***Order number 4254055***

Four segment telescopic adapter

Glass fibre extension with four segments , up to 4 m, including cable and holder. The extension is part of the Teleprobe FH 40 TG and FH 40 TG -10. Suitable for:

FHZ 512 and versions
FHZ 612 and versions
FHZ 632 L and versions
FHT 752 S and SH
FHZ 732 and FHZ 732 GM with adapter (***Order number: 425405130)***

Order number: 425405101

Special holders for external probes

Cavity monitoring adapter FH 40 D

The holder contains a radioactive source of 200 kBq or 400 kBq Ba-133. The adapter is used in combination with the scintillation probe FHZ 512 or FHZ 512 A to detect hidden materials in cavities via back scattering.

Order number: 425403210

Further information: Data sheet FH 40 D

Environmental kit for rapid measurement of water, food, filters and soil samples

FH 40 LAB-1 and FH 40 LAB-0

Both kits are efficient supplements to the multipurpose radiameter FH 40 G for first responder task forces. They are used for immediate in-situ measurements of alpha-beta contamination.

Components FH 40 LAB-1 / FH 40 LAB-0:

Aluminium case containing a contamination probe FHZ 732 GM, a sample changer FHT 770 G, a probe cable, disposable gloves, spatula and different probe holders.

The FH 40 LAB-0 version contains no FHZ 732 GM probe and probe cable.

Order number FH 40 LAB-1: 4254077
Order number FH 40 LAB-0: 425407730

Earphones

For the connection to the separate earphone output. This enables the simultaneous operation of external FH 40 G probes and earphone.

New!

Order number: 4254025

For the connection to FH 40 GL-Ω with a single output. This enables the selective operation of external FH 40 G probes or earphone.

Order number: 425400910

Cables

Spiral cables

Extended length 0.3 ... 1.2 m (1 to 4 ft).

Standard

Order number: 42400045

New!

Lockable

Order number: 42400085

Straight cables in different lengths

Cables to connect external probes to the FH 40 G.

Other cable lengths can be offered upon request!

Cable order numbers

	Standard	Lockable
1.25 m (4.1 ft)	425400040	425400080
5 m (16.4 ft)	425400041	425400081
20 m (65.6 ft)	425400042	425400082

Infrared interface cable

The PC adapter cable (IR) provides a direct connection to the serial interface or USB-port of a PC.

Order number: 4254026

Order number: 4254029

* PTB: Physikalisch-Technische Bundesanstalt, Braunschweig, Germany