FHT 1377 GN-2 PackEye

Radiation Detection Backpacks

The new FHT 1377 GN-2 PackEye is for the rapid, highly sensitive detection and location of gamma and neutron radioactive sources with He-3 free neutron detector technology.

The Thermo Scientific™ FHT 1377 GN-2 PackEye provides survey teams with a tool for effectively addressing the problems of orphaned sources, radiation contamination, and sources for malicious intent. By virtue of the proprietary NBR-technology (Natural Background Rejection) extremely low contributions of artificial gamma radiation are quickly detected, even with larger fluctuations of the natural gamma background radiation. The NBR measurement method has been developed by Thermo Fisher Scientific for extremely fast discrimination between natural and artificial gamma radiation. Worldwide, more than 10,000 devices based on this technology are in use.

Unlike conventional spectroscopic based gamma identification systems, the systems using NBR do not require the presence and resolution of gamma spectral peaks, and unlike Sodium Iodide detectors, NBR detectors are stable at varying temperatures and for many years of real field use, with no regular re-optimization or stabilization with sources required. Because of this flexibility, NBR can also definitively distinguish artificial high energy beta sources and heavily shielded gamma ray sources from fluctuating natural background sources. Thus alarm levels in the order of 1 µR/h are achieved for SNM or heavily shielded industrial sources in outdoor environment. Such sources may be used in Radiation Dispersal Devices (RDD's) known as "dirty bombs". Artificial gamma radiation sources are identified in seconds by operators with basic training levels. Presence of artificial gamma radiation is simply indicated by a red flashing light and an audible alarm.

- Natural Background Rejection (NBR) indicates artificial sources - no false alarm from NORM and natural background changes
- Green flashing LED = Natural radiation (even at increased level) Red LED = Artifical radiation
- Non He-3 technology with high neutron detection sensitivity superior to He-3 Packeye neutron detection sensitivity
- User friendly via LED status and level indication and optional PDA with GPS function
- Very light weight at 7.5 kg
- (FHT 1377 GN-2,

Alarm indication

In addition to the detection of artificial gamma radiation a sigma based net count rate gamma alarm is active as well. Within a preset count rate range this alarm level is constantly and automatically updated according to the present background level. Once an alarm had been triggered the location of the source can be traced by using the Acoustic Search Mode and/or LED bar indication. For stealth operation or in a noisy environment a standard earphone can be used. Optionally data display, alarm indication and data storage can be performed with the help of a PDA with Bluetooth™ communication.

Neutron detection

The detection of neutron sources is performed with the help of 2 ea. flat Li-6 scintillation detectors with a new proprietary measurement technique, allowing minimal crosstalk and the setting of a very low net alarm threshold level. The PackEye FHT 1377 GN-2 exceeds the neutron detection sensitivity of the well accepted and widely distributed predecessor FHT 1377 comprising 2 ea. He-3 counter tubes (2.5 bar, 2” dia., active length 14”). A neutron source with an activity of 20.000 n/s can typically be detected in a distance of 3 m (10 ft).

Remote Monitoring with optional PDA

The optional PDA (425505091) allows remote monitoring, so that the PackEye can be sealed in a watertight rugged case (4255085) and used as a portal monitor on a tripod stand (4255086), on a boat or as a vehicle mounted mobile detection system. The PDA offers additional information like the short term history / finder mode to enable the most effective searches. The PDA also displays live accurate gamma dose rates and neutron count rates that can be stored together with GPS data.

SPECIFICATIONS

	FHT 1377 GN-2	FHT 1377 G
Order Number	**4255061**	**4255056**
Gamma detector	NBR-detector FHZ 672 E (advanced version) with preamplifier and controller type 681	
Gamma energy range / sensitivity	20 keV to 3 MeV / > 30 cps / uRem/h [3000 cps / uSv/h] at 662 keV	
Artificlal gamma alarm	Typically better than 20 % of natural background	
Neutron detectors	2 ea. Li-6 doped flat scintillation detectors ea. 22 x 23 x 2.3 cm	-----
Neutron efficiency (Cf-252)	40 cps per n / s/cm2	-----
User Interface	LED based indicator unit at the belt. Optional PDA with Thermo PackEye software and GPS function	
Signal update	100 ms	
Power supply	Rechargeable NiMH - power pack (7.2 V)	
Operation time	approx. 30 h	approx. 60 - 70 h
Weight	approx. 7.5 kg	approx. 5 kg
Accessory aluminum case	1 ea. user manual, 1 ea. USB connection cable with driver software, 1 ea. RS 232 serial connection cable, 1 ea. rain cover for backpack, 1 ea. earphone, 2 ea. rechargeable battery packs (one in exchange), 1 ea. charger for 120/240 V AC and 12 V DC, 1 ea. package of black bands to secure the cables and belts of the backpack.	
Accessories for immediate indication of artificial gamma alarm (NBR)	Exempt check source Cs-137 3.7 kBq (0.1 ìCi), sealed in a 1“ resin chip Lutetium Test Adapter 50 g 50 Bq/g, 62 mm dia. disc (aluminum housing)	**SM149479010** **4254948**

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