Model 42-38 WENDI-2
Wide Energy Neutron Detector

Introduction

The Ludlum Model 42-38 WENDI-2 (Wide Energy Neutron Detection Instrument) Neutron Detector is designed for detection of thermal and fast neutrons (0.025 eV to approximately 5 GeV). The neutrons are not directly detected, but through nuclear reactions, which result in energetic charged particles such as protons and tritons. In many instances, intense fields of gamma rays are also found with neutrons. Therefore, it is important to choose a method of neutron detection with the ability to discriminate against these gamma rays in the detection process.

A common reaction for the conversion of slow neutrons into directly detectable particles is $n + {}^{3}He \rightarrow {}^{3}H + {}^{1}H + 0.764$ MeV. The Ludlum Model 42-38 WENDI-2 utilizes this reaction in the form of helium-3 (^{3}He), which fills the gas proportional tube of the detector.

This detector is typically used with area monitors, such as Ludlum Models 375, 3276, and 177-61. It can also be used with portable survey meters.

Specifications

Part Number: 47-3127

DETECTOR: 2 atm ^{3}He tube
MODERATOR: Polyethylene cylinder, 22.9 x 21.2 cm (9 x 8.36 in.) (D x L)
DETECTION RANGE: Thermal to approximately 5 GeV
ENERGY RESPONSE: 0.1 MeV to 5 GeV, closely follows the radiation protection guide curve for neutron dose.
SENSITIVITY (^{241}AmBe fast neutrons): 450 cpm per mrem/hr
GAMMA REJECTION (^{137}Cs): 10 cpm or less through 100 mSv/hr (10 R/hr)
OPERATING VOLTAGE: 1000 to 1200 Vdc
INPUT SENSITIVITY: -2 mV
TEMPERATURE RANGE: -20 to 50 °C (-4 to 122 °F)
CONNECTOR: Series "C" (others available)
SIZE (D x L): 22.9 x 33 cm (9 x 13 in.), including handle
WEIGHT: 13.6 kg (30 lb)

Ludlum Measurements, Inc.

Ludlum Measurements, Inc. P.O. Box 810, Sweetwater, Texas 79556
Web: http://www.ludlums.com **Tel**: 800-622-0828 / 325-235-5494 / **Fax**: 325-235-4672 / **Email**: sales@ludlums.com

May 2019