



SGLM 504

Steam Generator Leakage Monitor



Nuclear
Power



Healthcare



Homeland
Security
& Defense



Labs and
Education



Industrial and
Manufacturing

OVERVIEW

The Steam Generator Leakage Monitor SGLM 504 is used for detecting the gamma radiation from activation or fission products in the secondary loop of pressurized water reactors (PWR), which is an indication of a leakage in the physical barrier between the primary and the secondary loop (e.g. N-16 or radioactive noble gases in the main steam line).

The gamma radiation is detected by the NaI(Tl) scintillation probe of type SG 66 R. Due to its robust design the detector can operate under difficult ambient conditions without requiring additional mechanical or thermal shielding. Integral part of the probe is a pre-amplifier for pulse pre-processing and stabilization.

The associated signal processing unit DAK 250-i of the SGLM 504 forms part of the proTK™ platform of digital measurement channels and has been designed and is qualified to meet the requirements of the German KTA 3505, the IEC 60780 and the IEEE 323 for class 1E systems. The software of the DAK 250-i is certified for Cat. A functions acc. to the IEC 61226 and IEC 60880.

KEY FEATURES

- Measure gamma radiation e.g. from decaying N-16 or noble gases in the main steam line of a PWR
- Provide isolated analog outputs (0/4 to 20 mA) for the measured count rate (log. scale)
- Provide isolated relay outputs for high alarm, system fault and test mode active
- Adjustable pulse-height discrimination threshold (optionally with discrimination window)
- Qualified to perform Cat. A safety functions acc. to the IEC 61226 and is qualified acc. IEC 60780 and IEEE 323, and IEC 60880 for SW.
- Seismic qualification acc. IEEE 344 and IEC 60980
- High level of safety due to continuous status monitoring (e.g. operating voltages or SW code integrity)
- Built in test signal generators for periodic testing of signal processing (remote activation possible)

SG 66 R SCINTILLATION PROBE

- Detection: γ -radiation
- Scintillator: 2" x 2" NaI(Tl) poly-crystalline
- Energy resolution: < 10 % (FWHM) at 662 keV
- Measurement range: max. 2E+5 cps (integral count rate)
- Gamma energy range: > 80 keV
- Background count rate: approx. 50 cps (varying with discriminator threshold and level of background radiation)
- Temperature range: 0°C ... +100°C
- Temperature gradient: \leq 3 K/min
- Ambient pressure: 70 kPa ... 120 kPa (absolute)
- Relative humidity: max. 80 %, no condensation
- IP rating: IP 54
- Detector housing: nickel-plated aluminum
- Dimensions (L x D): 349 mm x 65 mm
- Weight: approx. 2 kg
- Detector cable: organic system cable, max. 200 m of type TKK 55.60 H for pulses, high voltage, low voltage and control signals

DAK 250-i DIGITAL SIGNAL PROCESSING

- Modular, multi-processor system
- Program code and configuration parameters fixed in EPROM
- Non-volatile parameter memory (CMOS-RAM with integrated Li-battery)
- Data interface: up to two RS 232 and/or RS 485 (with optional built in firewall)
- Alphanumeric LCD: 2 x 16 characters (measurement values, status and diagnostic values, parameters, thresholds, etc.)
- Alarm and status LEDs on the front panel
- Module for detector HV (0 ... 2000 V)
- Dimensions: standard 19" x 3U rack (IEC 60297)
- Isolated analog outputs: 0/4 ... 20 mA, 0/2 ... 10 V
- Binary outputs (isolated relays): 60 V/0.5 A or 125 V/1 A
- Power supply: 24 VDC or 115/230 VAC (50/60 Hz)
- Temperature: 0°C ... +70°C (+32°F ... +158°F)
- Relative humidity: max. 75% RH

REFERENCE STANDARDS

- Safety classification: Category A acc. IEC 61226
- Software conform to IEC 60880
- Qualification: IEC 60780, IEEE 323
- Seismic: IEC 60980, IEEE 344
- EMC/RF: IEC 61000-6-2, IEC 61000-6-4

VERSIONS

- 24 VDC or 115/230 VAC (50/60 Hz)
- Detector cable lengths as needed (max. 200 m)
- Detector with flange for custom mounting
- With pulse discrimination window
- Number and type of input and output modules adjustable

ACCESSORIES

- Seismic cabinet or wall-mounted cabinet for measurement channel
- Mounting clamps for custom detector positioning
- Field cables (custom lengths)
- Radioactive sources incl. fixture for periodical testing

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