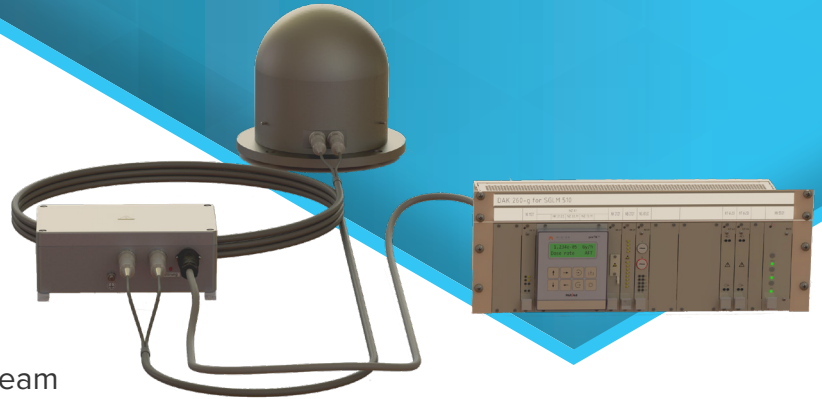




PROTK™

SGLM 510™

Steam Generator Leakage Monitor



Safety class (Cat. A) monitoring of the main steam line for leakages in a PWR nuclear power plant with a wide-range gamma ionization chamber.

FEATURES

- Gross gamma dose rate monitoring of the main steam line (incl. N-16) for primary circuit leakages
- Wide measuring range (1E-7 to 1E+2 Gy/h)
- Local HMI for display of measurement values, monitoring performance and setting parameters (key locked)
- Up to eight types of safety relay outputs for alarm and fault signals and local alarm indication
- proTK™ signal processing units are modular in hardware and software, highly customizable
- Extensive self-supervision and integrated test functions
- Designed and qualified to fulfill Cat. A functions according to the IEC 61226 and for Class 1E functions

DESCRIPTION

The SGLM 510 monitor is part of the proTK / 260 series product line. It has been designed to detect leakages between the primary and the secondary circuits in a nuclear power plant. It operates on the principle that radioactive isotopes like N-16 that are only present in the primary circuit during normal operation cross the boundary into the secondary circuit due to a leak in a steam generator tube. The radioactive isotopes are transported through the main steam line and detected by measuring the increased level of gamma dose rate on the main steam line outside the containment.

The SGLM 510 monitor offers a wide measuring range and a processing unit designed for Cat. A safety functions.

SGLM 510 | STEAM GENERATOR LEAKAGE MONITOR

MONITOR COMPONENTS

- KG 220 SEF-Gy ionization chamber
- TKK 22.30 H system cable
- NV 103.14 current-to-frequency converter
- NK 306/316 signal cable
- DAK 260-g digital signal processing unit

PHYSICAL CHARACTERISTICS

- Detector geometry: dome shaped ionization chamber with a sensitive volume of 2.3 l
- Sensitive to gamma radiation
- Gamma energy range: 0.08 to 7 MeV
- Measurement range: 1E-7 to 1E+2 Gy/h
- Relative intrinsic error: < 30% (over full range)

ENVIRONMENTAL CHARACTERISTICS

- Normal operating temperature:
 - Processing unit: +0 to +50 °C (+32 to +122 °F)
 - Detector: -30 to +100 °C (-22 to +212 °F)
 - Detector cable: -40 to +90 °C (-40 to +194 °F)
 - C/F converter, signal/supply/control cable: +0 to +70 °C (+32 to +158 °F)
- Extreme temperature:
 - Detector: 120 °C (248 °F) for 1 h
- TID (detector): 250 kGy
- Electrical protection:
 - Detector: IP65, IP67
 - Cables: IP65
- Mechanical protection (detector): IK06 (in operation), IK07 (not in operation)
- MTBF: > 100 000 h

MECHANICAL CHARACTERISTICS

- Dimensions:
 - Processing unit: 19" rack acc. IEC 60297 for installation in an electronic cabinet
 - Detector: hemi-spherical detector (Ø 220 mm) mounted on a plate (Ø 280 mm) with total height of 243 mm
 - C/F converter: approx. 160 x 260 x 97 mm
- Weight:
 - Processing unit: approx. 9 kg
 - Detector: 23 kg
 - C/F converter: approx. 3 kg
- Color: RAL 7032 gray (processing unit - front panels and C/F converter)

ELECTRICAL CHARACTERISTICS

- Power supply:
 - AC supply: 90 to 127 VAC or 185 to 255 VAC, 47 to 63 Hz
 - DC supply: 19.2 to 33 V incl. ripple
- Power consumption: approx. 30 VA

INPUT/OUTPUT

- Local alphanumeric HMI for display of measurement values, monitoring performance and fault diagnostics, activating test functions, and setting parameters (key locked)
- Analogue outputs: 0/2 to 10 V or 0/4 to 20 mA
- Binary outputs: relay outputs with floating double-throw contacts
- Data interfaces: RS-232 or RS-485 (optional)

REFERENCE STANDARDS

- System & Hardware: IEC 61513 (system design), IEC 60768 (instrumentation), IEC 60980, IEEE 344 (seismic), IEC/IEEE 60780-323 (equipment qualification), IEC 60068 (environmental), IEC 61010-1 (electrical safety), IEC 61000 series (EMC)
- Software: IEC 60880

VERSIONS

- Configurations of the processing unit:
 - Number and type of analogue and binary outputs
 - Power supply (120/230 VAC or 24 VDC)
 - Optional RS-232/RS-485 data interfaces
- Detector cable: up to 200 m
- Various software configurations acc. IEC 60880

ACCESSORIES

- PC software for parameter setting and data logging via serial interface.
- Electronic cabinet for 19" racks (seismic and EMC proof)
- Wall-mounted cabinets

SUMMARY

The SGLM 510 monitor measures the gross gamma dose rate from the main steam line over a wide measurement range. The signal processing unit converts the detector signal and displays the resulting dose rate in Gy/h. This signal can be routed to a 0/4 to 20 mA current loop and is made available for plant safety systems.

Featuring:

MGP*i***H&B**