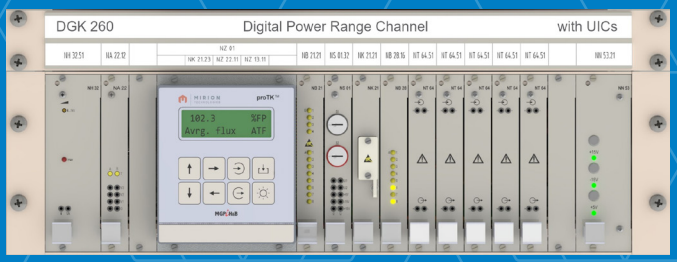
MIRION
TECHNOLOGIES

PROTK™ DIGITAL SIGNAL PROCESSING UNITS

DGK 260™

Digital Power Range Channel



Neutron flux monitoring during power operation.

DESCRIPTION

The DGK 260 digital power range channel forms part of the proTK™ product line.

It measures the neutron flux and reactor power in the power range, in combination with neutron ionization chambers. In addition, a fast current output signal, directly from the input amplifier is provided for external systems that monitor for characteristic fluctuations (noise) on the current signal.

Hardware and software of the DGK 260 channel is designed and qualified for applications at the level of the reactor protection system.

FEATURES

- Modular design, highly customizable
- Two individual signal paths for ionization chambers
- Calculation of mean value, axial deviation and linear change rate
- Independent calibration of output signals (nv, P/Pn)
- Optional signal filtering with fixed time constant
- Generation of analog signals with linear scaling, binary alarms, trip and status indication signals
- Fast response times (< 15 ms without filtering)
- Remote activation of integrated test signal generators
- Secured serial interface
- Qualified for Category A functions (Class 1 systems) acc. IEC 61226

DGK 260™ POWER RANGE NEUTRON FLUX MONITORING CHANNEL

DIGITAL SIGNAL PROCESSING
Multi-processor system
Protected program memory
Non-volatile parameter memory
RS-232 and/or RS-485 serial interface for: measurement data, status information and parameter setting
Internal LC-display: 2 x 16 characters

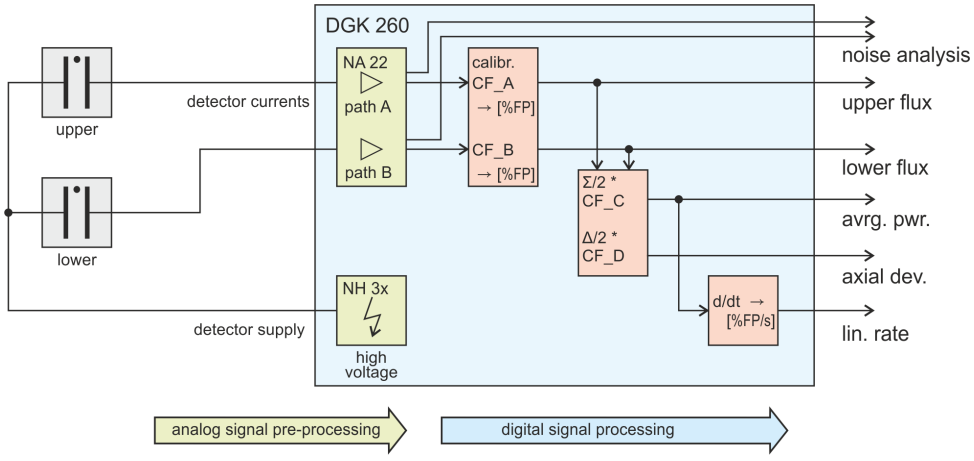
OUTPUT SIGNALS	
Top / bottom and average neutron flux or reactor power	Linear scaling: 0 … 1e+10 nv 0 … 125 %FP
Axial deviation (top / bottom)	−30 … +30 %FP
Linear rate signal	−10 ... 0 ... +10 %FP/s
Analog outputs	0/4 ... 20mA / 600 Ω, isolated
Binary outputs (isolated relay changeovers)	60V / 0.5A or 125V / 1A

The shown scaling of the output signals are examples and can be configured according to the application requirements.

QUALIFICATION / DESIGN STANDARDS (SELECTION)	
Design	IEC 61513 / IEEE 603
Software	IEC 60880 / IEEE 7.4.3.2
Qualification	IEC/IEEE 60780-323 IEC/IEEE 60980-344

DETECTORS	
Ionization chambers	Gamma compensated or un-compensated neutron ionization chambers (e.g. KNK/KNU 50 ACH)
High voltage supply from HV modules in DGK 260	Adjustable within max. range: 0 ... 0.5/1/2/4 kV

OTHER CHARACTERISTICS	
AC / DC power supply **230 VAC or 115 VAC** **18 ... 33 VDC**	 +10% / −15%, approx. 30 VA
Operating temperature **open rack** **recommended long-term op.**	 0 ... 70 °C / 32 ... 158 °F 10 ... 40 °C / 50 ... 104 °F
Mechanical vibrations	max. 5 g, 5 ... 100 Hz (or acc. custom requirements)
Dimensions (mm / inch) **Rack (W×H×D)** **Plug-in modules**	19” system acc. IEC 60297 483 × 133 × 280 / 19 x 5.2 x 11 100 × 160 / 3.9 x 6.3



MIRION TECHNOLOGIES