

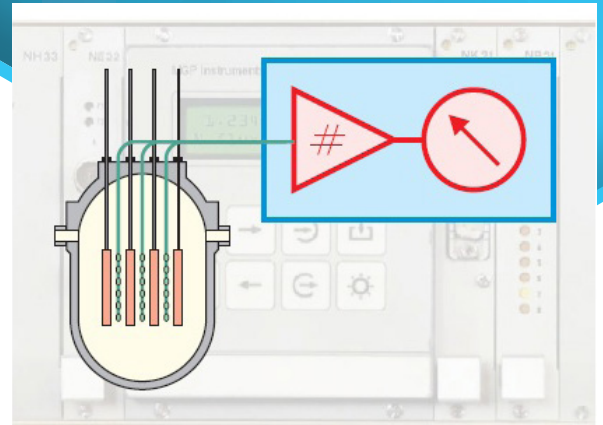


**PROTK**

# DLK 250™

*Digital Power Distribution Channel*

Working with self-powered neutron detectors to monitor local neutron flux distribution and features background compensation, calibration, and noise reduction.



## FEATURES

- Three or six signal paths per channel
- Input currents of 1μA with differential amplifier
- Suppression of fluctuations combined with short response time
- Digital calibration and offset compensation
- Calculation of the mean value and generation of a substitute signal for a faulty detector
- Remote test signals for the inputs and simulation of the output signals
- Digital adjustable parameters, lockable and non volatile
- RS232/485 data interface for calibration and data transfer

## DESCRIPTION

The DLK 250 digital power distribution channel forms part of the proTK™ product line.

It has been designed for local neutron flux distribution monitoring in the power range in combination with self powered neutron detectors. Hardware and software of the DLK 250 are designed and qualified for applications at the level of the reactor protection system.

## DETECTORS AND INPUT SIGNALS

- In-core self-powered neutron detectors
- Signal cables to DLK 250: two coaxial cables per detector, no limitation of length
- Detector supply: not needed
- Measuring range for the input current: 0.1  $\mu$ A ... 1  $\mu$ A for full scale
- Option: integrated transmitter for monitoring the fuel output temperature

## DIGITAL SIGNAL PROCESSING

- 80C31/32 multi-processor system
- Program memory: EPROM
- Parameter memory: CMOS-RAM with integrated Li-battery
- Data interface: RS232 and/or RS485
- Internal LC-display: 2 x 16 characters

## FILTER ALGORITHM

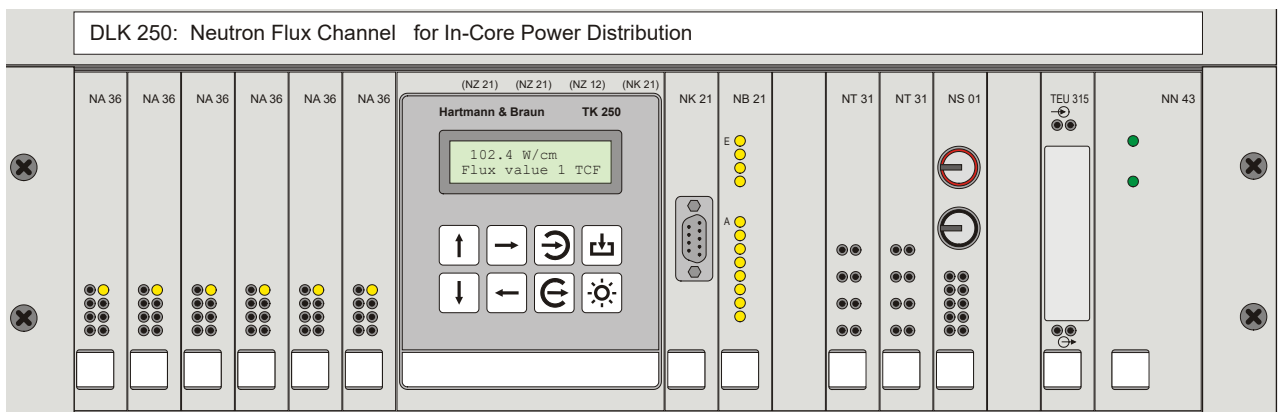
- Digital filter for the suppression of signal fluctuations
- Low pass filter 1st order with tolerance-interval-comparator for fast signal response
- Signal filter with adjustable time constant truly following the mean value in the tolerance interval  $\pm \Delta$
- Immediate step response in the range 0...1- $\Delta$
- Simple and rugged algorithm

## OUTPUT SIGNALS

- Neutron flux for each detector position and average neutron flux signal
- Calibrated to reactor power, e.g. 0 ... 125 %Pn
- Substitute signal for a faulty detector
- Analog outputs: 0/4 ... 20mA/600  $\Omega$ , insulated
- Binary outputs: insulated relay change overs, 60V/0.5A or 125V/1A

## OTHER CHARACTERISTICS

- DC power supply: 18 ... 33 VDC, approx. 1.6A at 24 V
- Optional: AC power supply: 230 VAC or 115 VAC +10%/-15%, approx. 40 VA
- Operating temperature: 0 ... 70°C (32 ... 158°F) for the main electronics
- Mechanical vibrations: < 5 g, 5 ... 100 Hz
- 19" modular system according to IEC60297
- Rack size (W×H×D): 483 mm × 133 mm × 280 mm (19 in × 5.2 in × 11 in)
- Plug-in boards: 100 mm × 160 mm (3.9 in × 6.3 in)



Featuring:

