

Quality Report About Knick Interface Technology

Document No.**TX180416A****Subject****Reliability of Interface Technology:
Failure Rate of the VariTrans P40000 High Voltage Transducer****Confirmation**

Knick Elektronische Messgeräte GmbH & Co. KG continually reviews the product quality by statistical methods and by individual examination in case of reasonable suspicion of a quality deviation.

Subject of this quality report are the following products and its variants:

P41xxxD1(TRMS)(-nnnn), P42xxxD3(TRMS)(-nnnn), P43xxxD2(TRMS)(-nnnn)

These products have been on the market for more than 10 years. The total quantity sold is larger than 100,000 units.

Knick classifies returned interface technology products as warranty case if the failure occurs within 5 years after sales and if the cause for the failure was present but not identifiable upon delivery. A random failure of a component leads to a warranty case. The number of warranty cases is the basis for calculating the failure rate.

For the listed products, Knick's quality management system identified the following reliability data based on the returned product statistics, i.e., the actual field experience:

MTBF	2165 years	(Mean Time Between Failures)
Failure Rate	53 FIT	(FIT = Failures In Time, i.e., failures in 10 ⁹ h)

For comparison: The theoretical reliability calculation according to EN 61709 (and SN 29000) yielded an MTBF of 96 years (stated in the product datasheet; conditions: stationary operation in well-kept rooms, average temperature 40 °C, no ventilation, continuous operation).

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Knick Elektronische Messgeräte GmbH & Co. KG



Dr. Edgar Ballin
Quality Management Representative