In compliance with:

**CEN ISO 13849-1:2015**

Safety of machinery, safety related parts of control systems Part 1: general principles of design

**MTTFd KSUPS Series**

B10d rating based on the calculated assumptions below is:-

\[= 1,100,000 \text{ cycles}\]

Calculation data assumptions (CEN ISO 13849-1:2015, Annex C):

\(\equiv\) Performance Level d (CEN ISO 13849-1, Table 2)

\(\equiv\) Safety Integrity Level 2 (CEN ISO 13849-1, Table 3)

\(\equiv\) MTTFd denotation HIGH (CEN ISO 13849-1, Table 4)

\(t_{cycle}\), mean time between two successive cycles \quad 3600 seconds (1 cycle per hour)

\(h_{op}\), mean operation in hours per day \quad 1 shift x 8 hours.

\(d_{op}\), mean operation in days per year \quad 220 days.

\[n_{op} = \frac{(d_{op} \times h_{op} \times 3600)}{t_{cycle}}\]

\(1760\) mean annual operations

B10d no. cycles until 10% of components fail dangerously 

\[B10d = 1,100,000\]

\[MTTFd = \frac{B10d}{0.1 \times n_{op}}\]

\[6250\] years

\[\lambda_{d} = \frac{0.1 \times n_{op}}{(B10d \times 220 \times 8)}\]

\[9.09 \times 10^{-8}\] per operating hour

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