In compliance with:

**CEN ISO 13849-1:2015**

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

**MTTFd X, Y, Z, B and W Series**

**B10d** rating based on the calculated assumptions below is:-

= 2,500,000 cycles

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

≡ **Performance Level d** (CEN ISO 13849-1. Table 2)
≡ **Safety Integrity Level** 2 (CEN ISO 13849-1. Table 3)
≡ **MTTFd** denotation **HIGH** (CEN ISO 13849-1. Table 4)

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\begin{align*}
t_{cycle}, \text{ mean time between two successive cycles} & \quad 3600 \text{ seconds (1 cycle per hour)} \\
\bar{h}_{op}, \text{ mean operation in hours per day} & \quad 1 \text{ shift x 8 hours.} \\
d_{op}, \text{ mean operation in days per year} & \quad 220 \text{ days.} \\
\eta_{op} = (d_{op} \times \bar{h}_{op} \times 3600) / t_{cycle} & \quad 1760 \text{ mean annual operations} \\
\text{B10d no. cycles until 10\% of components fail dangerously} & \quad 2,500,000 \text{ cycles} \\
\text{MTTFd} = \text{B10d} / (0.1 \times \eta_{op}) & \quad 14,204.55 \text{ years} \\
\lambda_d = (0.1 \times \eta_{op}) / (\text{B10d} \times 220 \times 8) & \quad 4.00 \times 10^{-8} \text{ per operating hour}
\end{align*}
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[Signature]

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