



Safety and Reliability Information

VIBROCONTROL 1000 Type CV-110 and CV-116

Safety and reliability related values according to DIN EN ISO 13849-1

Safety and reliability related values MTTF, PL and Category according to DIN EN ISO 13849-1 have been evaluated for VC-1000 type CV-110 and CV-116 with the following results:

Table 1: VC-1000 type CV-110

Parameter	Value	
	at 0 °C	at 65 °C
MTTF	7.866 E+06 h ~ 898 years	8.202 E+05 h ~ 94 years
PL	c	
Category	B	

Table 2: VC-1000 type CV-116

Parameter	Value	
	at 0 °C	at 65 °C
MTTF	7.343 E+06 h ~ 838 years	7.252 E+05 h ~ 83 years
PL	c	
Category	B	

Test conditions:

- Operating temperature: 0°C, 65°C
- Environmental conditions: Ground Benign, Controlled

Note:

The results of this assessment are valid when the following procedures are followed:

- The Relays of the VC-1000 have to be operated in the „normally energised” mode.
- The analog 4-20 mA signal industry-standard current loops must be used.
- The OK Relay has to be used as system function.
- The VC-1000 system must be protected against erroneous change in configuration



Abbreviations:

MTTF	Mean Time To Failure
PL	Performance Level From PL "a" (highest failure probability) to PL "e" (lowest failure probability)
Category	Category (CAT) Classification of the safety related parts of a control system in respect of their resistance to faults and their subsequent behaviour in the fault condition, and which is achieved by the structural arrangement of the parts, fault detection and/or by their reliability
Ground Benign, Controlled	Nearly zero environmental stress with optimum engineering operation and maintenance.

Note:

The harmonized standard EN 954-1 is still valid (end of 2011), but it is considered technically outdated. It was replaced by the current harmonized standards DIN EN ISO 13849-1.

More detailed information about safety and reliability values can be obtained on request from Brüel & Kjær Vibro (info@bkvibro.com).