

## 1. CERTIFIED OMNI16C SIL 1 PRODUCTS.

This SIL 1 reliability information applies to the following products of the Omni16C range:

C1480B	Omni16C Alarm Annunciator (standard)
C1480B-1	Omni16C Alarm Annunciator (0V common)
C1490B	Omni8C Alarm Annunciator (standard)
C1490B-1	Omni8C Alarm Annunciator (0V common)
C1479B	Omni16C Remote Logic Unit (standard)
C1479B-1	Omni16C Remote Logic Unit (0V common)
C1180B	Omni8C Remote Logic Unit (standard)
C1182B-0	Omni16C Remote Logic Unit (standard)
C1182B-1	Omni16C Remote Logic Unit (0V common)

## 2. CONDITIONS OF USE IN SAFETY-RELATED APPLICATIONS.

- The product must be used within its electrical and mechanical specifications.
- Specification apply to typical 24VDC operation.
- EMC environment must be “typical industrial environment” as specified in IEC61000-4-4.
- The inputs must be set to close in the NORMAL condition, opening in the ALARM condition.
- Options are not included. For safety parameters of optional modules contact Omniflex.

## 3. SAFETY PARAMETERS.

Safety parameters are summarised in the Table below. These parameters are common to all products listed. Because of internal modular construction, the same modules are used in all products and safety function of accepting and signalling a critical alarm is consequently also the same regardless of unit configuration.

Subsystem	Type B
DC	78%
SFF	83%
PFD <sub>avg</sub> , (TI = 1 year)	$2.02 \times 10^{-3}$
PFD <sub>avg</sub> , (TI = 2 years)	$4.03 \times 10^{-3}$
Safe failures detected $\lambda_{SD}$	495.5 FIT
Safe failures undetected $\lambda_{SU}$	192.1 FIT
Dangerous failures detected $\lambda_{DD}$	1623.0 FIT
Dangerous failure undetected $\lambda_{DU}$	458.8 FIT

An MTTR of 8hrs was used in the above PFD calculations.

KEY:

DC = Diagnostic Coverage	$\lambda$ = failure rate per billion hours (1 FIT = 1 failure in $10^9$ hours)
SFF = Safe Failure Fraction	Failure Rate Categories:
PFD = Probability of Failure on Demand	SU = Safe Undetected
TI = Test Proof Interval	SD = Safe Detected
MTBF = Mean Time Between Failures	DU = Dangerous Undetected
MTTR = Mean Time To Repair	DD = Dangerous Detected

## 4. EXPLANATION OF RESULTS.

In safety-related applications, the products must be used with 24VDC supply and inputs configured as “failsafe” (i.e. contacts closed to common when normal, de-energised and open when abnormal).

To satisfy SIL 1 requirements, watchdog output relay must be used to make use of diagnostic coverage of the product.

Any hardware failure which causes the annunciator to open watchdog contacts or change to the ALARM state (equivalent to open input contacts) is considered a safe failure.

Any hardware failure, which results in a unit not accepting and displaying an alarm (remains in NORMAL state of alarm and watchdog), is deemed a dangerous failure.

The listed failure rates are valid for operating stress conditions of a “typical industrial environment” similar to that specified in IEC61000-4-4, Annex A, with an average temperature over a long period of time not greater than 40°C.

A user of the Omni16C range of products can use the failure rates presented in this report in to determine Safety Integrity Level (SIL) of the entire safety function.

## 5. DISCLAIMER

This datasheet provides reliability figures only. Omniflex does not assume responsibility for the correct and safe application of the Omni16C range of products or their reliability data. In safety-related applications, it is the user’s responsibility to comply with all other requirements of EN61508, which may be applicable to the safety system in question.

Omniflex reserves the right to change specifications without notice.