CERTIFIED OMNI2 SIL2 PRODUCTS.

This SIL2 reliability information applies to the following products of the Omni2 range:

C1190B	Omni2 Door Warning Sign DWS
C1191B	Omni2S Slave Alarm Unit SAU

1. CONDITIONS OF USE IN SAFETY-RELATED APPLICATIONS.

- The product must be used within its electrical and mechanical specifications.
- EMC environment must be “typical industrial environment” as specified in IEC61000-4-4.
- The inputs must be closed in the NORMAL condition, open in the ALARM condition.
- Safety parameters apply to both mains and DC power options.

3. SAFETY PARAMETERS.

Safety parameters are summarised in the Table below. These parameters to products as listed.

Omni2 C1190B safety parameters [note 1]

Subsystem	Type A
Hardware Fault Tolerance	0
DC	94%
SFF	97%
MTTR	8 hours
Proof Test Interval	1 year
PFD_{avg}, (TI = 1 year)	0.489×10^{-3}
PFD_{avg}, (TI = 2 years)	0.964×10^{-3}
Safe failures detected λ_{SD}	790 FIT
Safe failures undetected λ_{SU}	1392 FIT
Dangerous failures detected λ_{DD}	1659 FIT
Dangerous failure undetected λ_{DU}	109 FIT

Omni2S C1191B safety parameters [note 2]

Subsystem	Type A
Hardware Fault Tolerance	0
DC	95%
SFF	97%
MTTR	8 hours
Proof Test Interval	1 year
PFD_{avg}, (TI = 1 year)	0.490×10^{-3}
PFD_{avg}, (TI = 2 years)	0.963×10^{-3}
Safe failures detected λ_{SD}	368 FIT
Safe failures undetected λ_{SU}	1417 FIT
Dangerous failures detected λ_{DD}	2282 FIT
Dangerous failure undetected λ_{DU}	108 FIT

[1] Refer on “Omni2 FMEDA to EN61508 R06” for more details

[2] Refer on “Omni2S FMEDA to EN61508 R02” for more details

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

KEY:

DC = Diagnostic Coverage	λ = 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 in compliance with the User Manual and inputs configured as “failsafe” (i.e. contacts closed to common when normal, de-energised and open when abnormal).

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

Any hardware failure which causes the annunciator to open FAIL contacts, turn of the HEALTHY indicator 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 FAIL), 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 Omni2 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 Omni2 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.