# RELIABILITY DATA

## 1. PRODUCT DESCRIPTION.

Omniterm TXB is a 24Vdc-powered universal-input Transmitter, which accepts mA, Volts, thermocouple and RTD inputs and provides universal output, selectable between milliAmps (4-20 or bipolar), Volts or pulses (frequency).

The product is designed for SIL1 safety loops and achieves reliability parameters specified by IEC61508 for this level. Since the module is only one part of the entire safety function, the claimed PFD is less than 10% of the SIL1 range 1.00E-01 to 1.00E-02, i.e. better than 1.00E-02.

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

- The TXB must be used within its electrical and mechanical specifications.
- EMC environment must be typical industrial environment (IEC61000-4-4 Level 3 or IEC61000-4-3 Class 3).
- To maximise Diagnostic Coverage, input must be used in configuration such as 4-20mA, 1-5V or TC with burnout detection where signal loss can be detected as a fault (see product configuration advanced settings).
- Output to be used in configuration such as 4-20mA or 1-5V where signal loss can be detected as a fault.

## 3. RELIABILITY INFORMATION.

Hardware reliability analysis yields the results as summarised in the Table below.

| Subsystem | Type B |
|---|---|
| DC | 71% |
| SFF | 78% |
| $PFD_{avg}$, (TI = 1 year) | $2.30 \times 10^{-3}$ |
| $PFD_{avg}$, (TI = 2 years) | $4.59 \times 10^{-3}$ |
| MTBF (in years) | 47.6 |

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

Note: DC – Diagnostic Coverage; SFF – Safe Failure Fraction; PFD – Probability of Failure on Demand; TI – Test Proof Interval; MTBF – Mean Time Between Failures; MTTR – Mean Time To Repair.

## 4. EXPLANATION OF RESULTS.

Any hardware failure, which affects accuracy, is deemed a dangerous failure. If a fault results in the loss of output signal, that failure is considered detected.

As the TXB has no hardware fault tolerance, the applications are limited to SIL1 loops.

## 5. DISCLAIMER

This datasheet provides reliability figures only. Omniflex does not assume responsibility for the correct and safe application of the TXB or its 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 system in question.

Omniflex reserves the right to change specifications without notice.