OMNITERM THZ Frequency Input Amplifier

Model C2403A - 24Vdc powered, Frequency Input, Universal Output Amplifier.

RELIABILITY DATA

1. PRODUCT DESCRIPTION.

Omniterm THZ is a frequency-input Amplifier, which accepts input from proximity sensors or other frequency sources 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.

2. CONDITIONS OF USE IN SAFETY-RELATED APPLICATIONS.

- The THZ 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, minimum input frequency must be $f_{min} > 0$ (e.g proximity sensors) and the value lower than f_{min} must be defined as Process Variable fault (see product configuration advanced settings).
- $f_{min} = 0$ can also be used but resulting DC and SFF will be lower (see Table).
- 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.

Configuration	input $f_{min} > 0$	input $f_{min} = 0$
Subsystem	Type B	Type B
DC	83%	61%
SFF	89%	74%
PFD_{avg}, (TI = 1 year)	8.86×10^{-4}	2.05×10^{-3}
PFD_{avg}, (TI = 2 years)	1.77×10^{-3}	4.09×10^{-3}
MTBF (in years)	62.8	62.8

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 THZ 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 THZ 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.