

## Alpha 3 Manufacturing Limited (Roxburgh) Glossary of Terms

### Altitude:

Rated altitude (and maximum altitude with derating)

### Attenuation:

Ability of a filter to decrease or mitigate a frequency. Amplitude drop is measured in dB (DeciBells)

### Climate Class (Environment Class):

International environmental classification governed by IEC 60068-1

Storage and Operating: -25/85/21 (derived from component data)

Minimum working temperature -25°C

Maximum working temperature +85°C

Damp Heat 21 days

The components have been exposed to 90-96% RH at 40°C for 21 days followed by a test to the relevant specification. Below is an extract from BS EN 60068-2-78:2013 showing the preferred test conditions and durations.

#### 4.2 Severity

The test severity is defined by a combination of temperature, relative humidity (RH) and total test duration. Unless otherwise specified in the relevant specification, temperature and RH severities may be selected from the following:

**Table 1 – Temperature and relative humidity**

Temperature °C	Relative humidity % RH
30 ± 2	93 ± 3
30 ± 2	85 ± 3
40 ± 2	93 ± 3
40 ± 2	85 ± 3

Preferred test durations are: 12 h, 16 h, 24 h; 2 days, 4 days, 10 days, 21 days or 56 days.

### Current Rating:

Maximum continuous current rating at 40C.

### DC Resistance:

DC resistance of the internal circuit quoted per phase or total dB measured from line to load.

### Earth Terminal:

Termination type for protective earthing conductor

EMC/EMI:

Electromagnetic Compatibility / Electromagnetic Interference

Equipment Class (Safety Class):

A safety class or equipment class that can be found in many safety standards. Class 1 - The product must have their chassis connected to earth (ground). This connection is by the protective earth (PE).

Flammability:

UL flammability classification. Standard UL 94, the Standard for Safety of Flammability of Plastic Materials for Parts. The standard classifies plastics according to how they burn in various orientations and thicknesses.

Ground Bond:

Ground bond test current applied to 100% of product. Ex: The KMF3100A, which has two earth studs and a metal case, is subjected to a current of 25A is passed between the two earth studs and resistance is measured. A pass would be  $0.1\Omega$  or less indicating that both earth studs have a good electrical connection.

The **ground bond test** (also called PE resistance **test**, **ground continuity test**), is the first **test** required by **the electrical safety testing** standards. The **ground bond test** consists in **testing** whether the **ground** points of a device under **test** are well connected in between each other, and also to the mains **ground**.

Hi Pot Production Test L-G:

Test at end of line hipot test carried out on 100% of product.

Humidity:

Relative humidity type test. Ratio of the partial pressure of water vapour to the equilibrium vapour pressure.

Ingress Protection (Environmental Rating):

International Protection marking. Ex: IP20

Insulation Resistance:

UL insulation resistance type/production test. Ex:  $500\text{VDC} \geq 3.5\text{M}\Omega$

Material (Insulation Material Group):

Performance level category group (CTI level or Comparative Tracking Index). Testing is performed in accordance with EN 60664-1:2007.

Material type:

Enclosure material type. Usually aluminium or nickel plated steel.

MTBF:

Mean time between failures

Operational Leakage Current:

Earth leakage current flowing in earth system under normal running conditions. Typical voltage imbalance and nominal capacitance

Overload Current:

UL overload test and rated intermittent overload.

Overvoltage category 2:

Regulated by EN 60664-1, overvoltage category II is for energy consuming equipment to be supplied from a fixed installation.

Pollution:

Classification of the acceptable level and type of pollution present in the environment. This classification is important since it affects creepage and clearance distances required to insure the safety of a product.

Pollution Degree 1	Pollution Degree 2	Pollution Degree 3	Pollution Degree 4
Clean room environments	Equipment being evaluated to 60950	Electrical equipment in industrial and farming areas	Electrical equipment for outdoor use
Inside of sealed components	Laboratories	Unheated rooms	
	Test stations	Boiler rooms	
	Office environment		

Table 1. Examples of pollution degree environments

Safety standards, such as UL and IEC, specify appropriate distances between high voltage and safety low voltage signals. These distances help to insure operator safety and are dependent on environmental conditions, (i.e. pollution degree). Table 2 shows a comparison of the required distances between high and low voltage signals in a pollution degree 1 and pollution degree 2 environment.

	Condition	Pollution Degree 1	Pollution Degree 2
Creepage (in equipment)	Basic Insulation, 300V, Category 1, CTI >100	0.7mm	3.0mm
Creepage (on PCB)		0.7mm	1.4mm
Clearance		0.5mm	0.5mm
Creepage (in equipment)	Basic Insulation, 150V, Category 1, CTI >100	0.3mm	1.6mm
Creepage (on PCB)		0.22mm	0.35mm
Clearance		0.1mm	0.2mm

**Residual Voltage:**

Potential remaining voltage present at terminals after power-off

**Temperature Rise:**

Temperature rise is the difference between the maximum temperature of the hottest component and the ambient temperature when the filter is running at nominal maximum current.

**Varistor:**

Where present varistor clamping voltage and maximum surge current.

**Vibration:**

Mechanical vibration test

**Voltage Rating:**

Maximum RMS voltage rating. Can be used with any lower RMS voltage

**Watt Dissipation:**

Heat lost. Measured in Watts per phase.

**Worst Case Leakage Current:**

Maximum earth leakage current flowing in earth system in situations under fault condition i.e. one phase removed.