Art of Technology

ELECTRONICS FOR:

Extreme Environments

ELECTRONIC DESIGN AND DEVELOPMENT SERVICES

Art of Technology has a long heritage in the development of electronics for extreme and harsh environments, where depending on the demands and restrictions, standard designs cannot be used successfully.

Regardless of the environment, be it underwater, on top of mountains, inside the human body or in space, we will develop a solution for your challenge.

Extreme, Harsh and Hazardous Environments

With numerous different types of demands and environments there is no single definition that constitutes an extreme or harsh environment. However, due to their nature, most of these types of applications have a common thread where they require exceptional reliability as they have to provide continuous operation (24 hours a day, 365 days a year) and have severely restricted or no service access.

An in-depth knowledge of the specific requirements, combined with a clever design methodology is necessary to make a seemingly impossible mission possible. Regardless of which type or combination of limitations have to be considered, special methods and designs are required to survive such extreme conditions.

Underwater

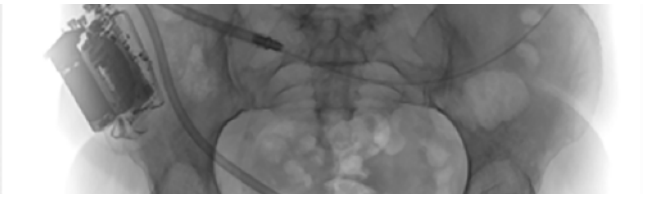
- High pressure
- Limited power available
- Restricted space and volume
- Limited or no service access

On mountains

- Rapidly changing daily temperatures (> 40°C)
- Limited power and battery capacity
- Falling debris, heavy snow, ingress of moisture
- Remote areas with limited service access

Inside the human body

- High humidity (close to 100%)
- Low power to minimise generation of heat
- Bio-compatibility of materials
- Restricted size and weight
- Severely restricted or no service-access
- Medical device regulations



Space

- Extreme temperature ranges (-200°C to +200°C)
- Temperature cycling, vibration, shock
- Special cooling requirements
- Radiation resistance
- Limited size and weight
- Limited availability of power
- Limited availability of suitable components
- Severely restricted or no service-access
- Redundancy or no “zero-point-of-failure” design

Explosive atmosphere (ATEX)

- Combination of air gases, vapours, mist or dust
- Different protection levels and methods
- Limitations by surface temperature
- Limited voltages, currents and power levels
- Critical temperature and heat management
- Restrictions for specific materials

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