

MetBaro - Pressure Device for Mars MetNet Lander

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Abstract

MetNet Mars Mission [1] focused for Martian atmospheric science is based on a new semihard landing vehicle called the MetNet Lander (MNL) (see Figure 1). The MNL will have a versatile science payload focused on the atmospheric science of Mars. The scientific payload of the MetNet Mission encompasses separate instrument packages for the atmospheric entry and descent phase and for the surface operation phase.

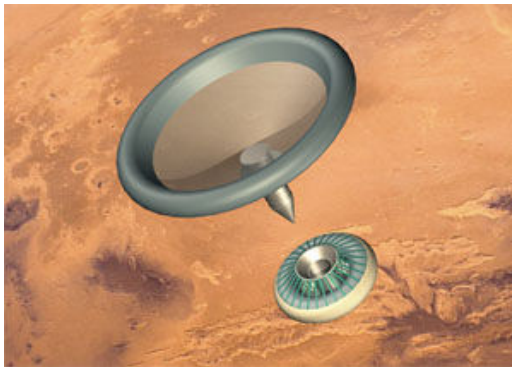


Figure 1: MetNet Lander.

MetBaro (see Figure 2) is the pressure sensor of MetNet Lander designed to work on Martian surface. It is based on Barocap® technology developed by Vaisala, Inc. MetBaro is a capacitive type of sensing device where capacitor plates are moved by ambient pressure. MetBaro device consists of two pressure transducers including a total of 6 Barocap® sensor heads of high-stability and high-resolution types. The long-term stability of MetBaro is in order of 20...50 μ Bar and resolution a few μ Bar. MetBaro is small, lightweighted and has low power consumption. It weighs about 50g without wires and controlling FPGA, and consumes 15 mW of power.

A similar device has successfully flown in Phoenix mission, where it performed months of measurements on Martian ground. Another device is also part of the Mars Science Laboratory REMS instrument (to be launched in 2011).

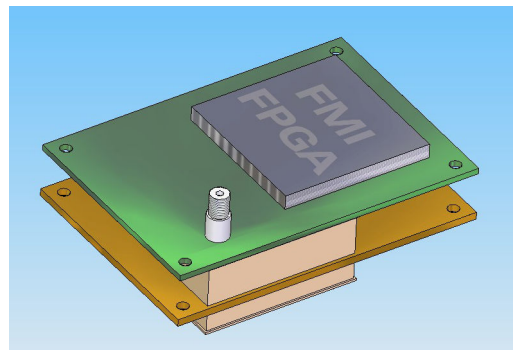


Figure 2: MetBaro Pressure device design.

References

[1] <http://metnet.fmi.fi>