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C2Po1A-07 [19]: The FlexCryo : a new flexible solution for temperature control and temperature measurement down to 50 mK

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The so-called FlexCryo is a new integrated instrumentation developed by CEA/DSBT and dedicated to cryogenic applications.

It can measure temperatures down to 50 mK using a lock-in amplifier and drive heaters from microwatts to watt.

This flexible solution is based on a 19 inch rack featuring a processor card and five slots.

Currently these slots can accept three types of cards following:

- The new ULTM50 electronic card, featuring four channels dedicated to the measurements of temperatures down to 50 mK.
- The CABTR offering eight channels to measure temperatures above 1 K.
- The new MCSUBK electronic card featuring ten channels, each able to drive in a four wires configuration, heaters from 1W down to 1μW for temperature control.

A first FlexCryo has been recently assembled. It comprises 20 temperature channels (4 subK and 16 above 1 K) and 10 heaters. All cards are controlled using a Zynq “system on chip”(with ARM processor) and the FlexCryo features a touch screen, bluetooth and WIFI capabilities. It can also be connected directly to a laptop for laboratory use or to a programmable logic controller for industrial use. Details on the performance and on the specific software will be presented.

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