

Description and Photography (model ULS2002)

Two channel time and amplitude recorder module for the digital coincidence NIM system.

1. Key functions

- o Two dimensional digital data acquisition - time and pulse height - for two channel
- o Same timebase for the two channel time measurement
- o ADC and DAC for pulse height measurement with sliding scale logic error correction
- o Real time data transfer to host computer with buffer memory
- o High speed data transfer using USB 2.0
- o NIM type module, optimised for the NIM system

2. Specifications

- o Time Count: Synchronous 28bit counter by FPGA
- o Dual port memory in FPGA and buffer memory outside of FPGA
- o Clock frequency: 100MHz or higher
- o Time count repeat period: $2.68435456\text{sec.}(2^{28} * 10^{-8})$ at 100MHz)
- o Time marker data will be added at every end of each time period
- o ADC for pulse height conversion: 16bit resolution, processing time is less than 1usec.
- o DAC for sliding scale error correction: 16bit
- o Data format: pulse height(12bit) + time(28bit) = 40bit(5byte) for one record for one pulse input
- o Case dimension: 2-width NIM Module
- o Interfacing to PC :USB 2.0

3. Updated in this version

- o Use dual port memory instead of DRAM(dynamic RAM) for continuous data acquisition without memory limitation in module
- o Some electronic parts changed for the performance upgrade
- o Data acquisition sequence problem correction



figure 1. External appearance of the module, ULS2002