Redesigning the AS-1 Signal Processor
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Original “Black Box”

- Production challenges
- Low data rate
- 16 bit resolution
- Requires two wall power supplies
- Not user modifiable/hackable

New Signal Processor

Features:
- Serial configuration menu
- USB powered
- 24 bit ADC
- Arduino compatible
- Aluminium enclosure with laser engraving
- Optional environmental sensors
- FIR filter
- XBee Radio Capability

Challenges:
- Noisy power from computer USB
- Duplicating response of original system

Production

Milling
- 4 layer FR4 PCB
- Automatic Pick and Place
- SMD Reflow Process

Laser

Electronics

Modeled Response

Amplitude
- New
- Old

Phase
- New
- Old

Event Comparison

M 6.2 - 66km SSE of Tanaga Volcano, Alaska
2018-08-23 03:35:12 (UTC)
51.340°N 177.760°W
20.0 km depth