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# Differences between Opcard ver. 2.2 and Opcard ver. 2.0

| | Opcard-2.0 | | Opcard-2.2 |
|---|---|---|---|
| |  | |  |
| 1. | Inputs: | 4, including encoders; | 6, including encoders and external triggers. |
| 2. | Outputs: | 4 general purpose (incl. SYNC_OUT), 2 for clock_sync | 6, including Sync Out. |
| 3. | Status LEDs: | --------- | 2 LEDs for status of FPGA circuits and FIFO ready. |
| 4. | Diagnostics: | --------- | +12V and Vreg power lines are watched. |

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|---|---|---|---|
| 5. | Pulse Repetition Frequency: | up to 10 000. | up to 20 000; up to 100 000 with multiplexer. |
| 6. | Input Amplifier Gain: | -28dB to 68dB (step 1dB, error +/- 0.3dB) | -31dB to 65dB (step 1dB, error +/- 0.3dB) |
| 7. | High gain | up to +92 dB | up to +89 dB |
| 8. | Encoder modules | 16 bit position counters | 32 bit position counters |
| 9. | Data transfer: | Standard data transfer:<br>each transferred measurement data must be confirmed. | 1. Data transferred by FIFO mode;<br>The system allows to buffer many acquisitions in internal memory and forward whole packet of data to control application.<br>Each acquisition forms data frame. The first 52 received bytes form HEADER.<br>Header consists of information about parameters of measurements, i.e.: sequence index, position of encoders during triggering, the hardware results of peak detectors (PD) and exceeding the signal level;<br>2. There is possibility to transfer full data frames with headers or to transfer headers only.<br>Mode of acquisition without storing measurement data, but only HEADERs with results of Peak Detectors, Encodes Positions, sequence index etc., increases speed of working;<br>3. Opcard can work in sequence mode. It has possibility to store up to 1024 sets of settings. Data acquisition is performed in the manner described above but measurement parameters can be switched very fast for every next data acquisition. |