

ACQ480ELF Product Specification



High Performance Simultaneous Data Acquisition

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1 Product Description

1. *ACQ480ELF* is an 8 channel simultaneous analog input module.
2. Standard configuration: 8 channels, 50MSPS/channel.
3. 4-Channels Single-ended input on LEMO connectors.
4. Extendable to 8-Channels via extension board.
5. Reduced cost OEM version with 8 x U.FL internal connectors. Multiple front panels possible. Please contact D-TACQ for details.
6. Compliant with D-TACQ *ELF* sites.

1.1 Product Variants

- *ACQ480ELF-LFP* : 14 bit; LEMO connectors; 4 ch @ 50MSPS/channel[#]
4 ch @ 80MSPS/channel*
- *ACQ480ELF-LFP-TOPDECK* : 14 bit; LEMO connectors;
8 ch @ 50MSPS/channel[#]
8 ch @ 80MSPS/channel*
- *ACQ480ELF-8-OEM* : 14 bit; U.FL connectors; 8 ch @ 50MSPS/channel[#]
8 ch @ 80MSPS/channel*

1.2 Applications

- Radar, Radio Reflectometry, high speed ultrasound and diagnostics..

1.3 Overview

The FMC module standard adds user IO to carrier modules fitted with FPGA resource. D-TACQ recommends modules based on the Xilinx ZYNQ system on chip, combining FPGA resource with a dual-core ARM Cortex A9 and gigabit Ethernet.

Compatible carriers include:

- D-TACQ **ACQ1001Q** : D-TACQ 1 slot FMC carrier, Z7020
- D-TACQ **ACQ2106** : D-TACQ 6 slot FMC carrier, Z7030

D-TACQ supplies a complete working Intelligent Digitizer appliance including programmable logic and microprocessor system running Linux. Evaluation boards are useful for evaluation, but for production use D-TACQ recommends use of a production-quality carrier such as ACQ2106.

[#] Standard

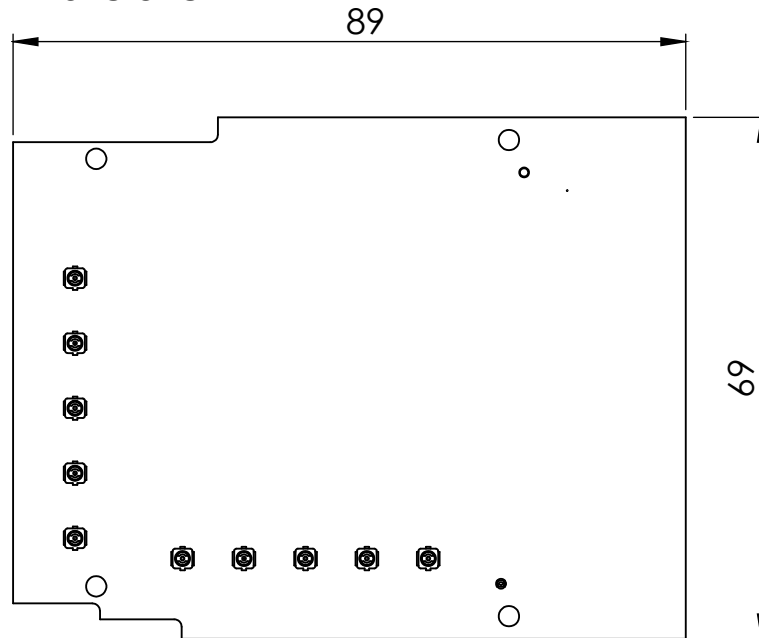
^{*} Carrier-dependent. Contact D-TACQ for details.

1.4 Glossary

- *FMC*: [VITA57 FPGA Mezzanine Card](#).
- [Xilinx ZYNQ](#) System on Chip
- *FPGA* : Field Programmable Gate Array.
- *LPC* : *FMC* Low pin count wiring standard.
- *ULPC*: *FMC* Ultra low pin count (D-TACQ).
- ULPC+ D-TACQ Ultra low pin count with LVDS
- *ELF*: D-TACQ extension to *FMC*, elongated card with provision for dedicated analog power supply rails.

2 Physical

2.1 PCB Dimensions



2.2 Appearance



ACQ480ELF-8-LFP mounted in ACQ1001Q appliance

3 Interface Specification

3.1 Front Panel Connectors

- 4x LEMO 00 connectors
- 4 channel input
- Extendable to 8 channels with extension module.
- External Digital Input for CLK (LEMO/U.FL) and TRIG (U.FL).

4 ACQ480ELF Electrical Specification

#	Parameter	Value
1	Number of Channels	4/8
2	Sample Rate	80 MSPS/50 MSPS, per channel simultaneous
3	Resolution	14 bits
4	Coupling	DC, Single-Ended Input
5	Input Impedance	100k Ω , [50 Ω option] ¹
6	Input Voltage Range	$\pm 2.5V$ (default) $\pm 1V$ (factory option)
7	Input Voltage Withstand	$\pm 30V$
8	Offset Error	± 3 mV
9	Gain Error	± 2 mV
10	INL	± 2.2 LSB typical
11	DNL	± 0.5 LSB typical
12	THD	80 dBc
13	SINAD	71 dB typical
14	SFDR	81 dBc typical
15	SNR	72 dB typical
16	Full Power BW	40 MHz @ 2Vpp (-1V variant) 15 MHz @ 5Vpp (Standard variant)
17	Small Signal BW	80 MHz
18	Crosstalk	<100 dB @ 100 kHz FS Input <90 dB typical @ 5 MHz FS Input
19	Temperature Stability	<25 ppm/C

¹ Input should be driven by a low impedance source.

5 ACQ480ELF Specification

5.1 Overall

#	Parameter	Value
1	Form Factor	D-TACQ ELF
2	Power source	D-TACQ ELF Module - Please contact us if details are required.
3	Environmental	0°C-50°C Operational -10°C-85°C Non-Operational
4	ELF Socket	Standard ELF D-TACQ Ultra Low Pin Count ULPC
5	Digital Signal IO	CLK, TRG inputs 5V TTL Tolerant