ACQ430FMC
Product Specification

High Performance Simultaneous Data Acquisition

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1 Product Description

1. ACQ430FMC is an 8 channel, 24 bit simultaneous analog input module.
2. Standard configuration : 8 channels, 128kSPS/channel.
3. VITA 57 FMC module, LPC compliant.
4. 2-wire Differential inputs, high quality differential amplifier front end.
5. Compliant with D-TACQ *ELF* sites.

1.1 Product Variants

- ACQ430FMC : 8 channels, 24 bit resolution, 128kSPS/channel
- Current-input variants are available. Please contact D-TACQ for details.

1.2 Applications

- Instrumentation applications, control and monitoring.
- Acoustic and seismic applications.

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 **ACQ1001** : D-TACQ single slot FMC carrier, Z7020
- D-TACQ **ACQ1002** : D-TACQ dual slot FMC carrier, Z7020
- D-TACQ **ACQ2006** : D-TACQ 6 slot FMC carrier, Z7020
- D-TACQ **ACQ2106** : D-TACQ 6 slot FMC carrier, Z7030

- Xilinx ZC702 evaluation board with 2 FMC slots.
- Xilinx Zedboard with 1 FMC Slot.

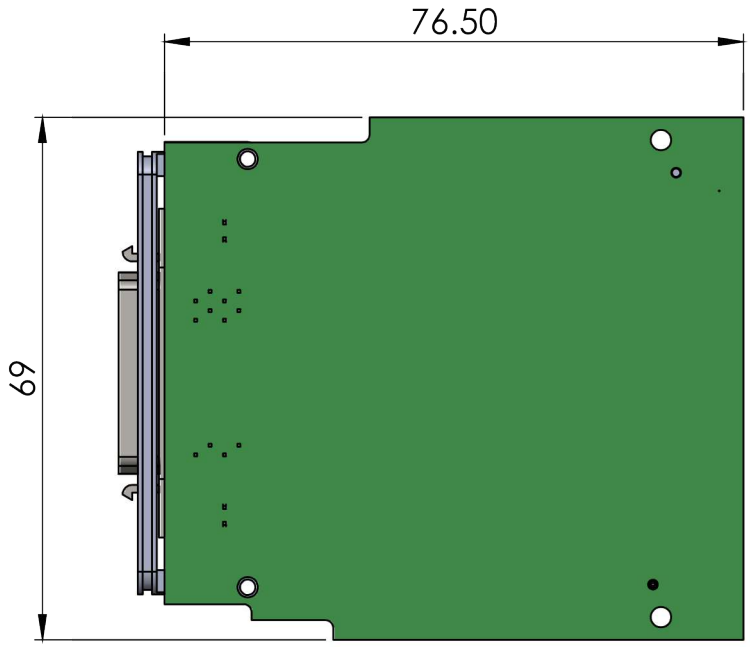
D-TACQ supplies a complete working Intelligent Digitizer appliance including programmable logic and microprocessor system running Linux. Evaluation boards are useful for evaluation, but for production use D-TACQ recommends use of a production-quality carrier such as ACQ1001.

1.4 Glossary

- *FMC*: VITA57 FPGA Mezzanine Card.
- Xilinx ZYNQ Soc
- *FPGA* : Field Programmable Gate Array.
- *LPC* : *FMC* Low pin count wiring standard.
- *ULPC*: *FMC* Ultra low pin count (D-TACQ).
- Extended, ELF : *FMC* Extended size module (D-TACQ).

2 Physical

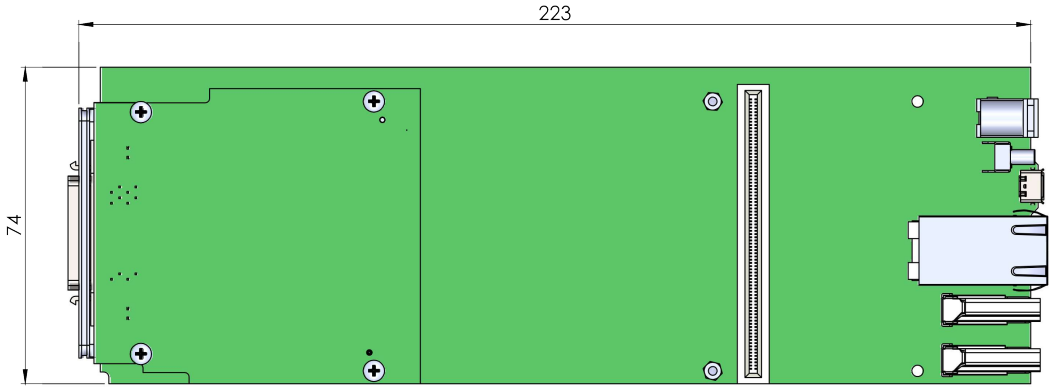
2.1 Dimensions



Standard FMC Module

2.2 Appearance

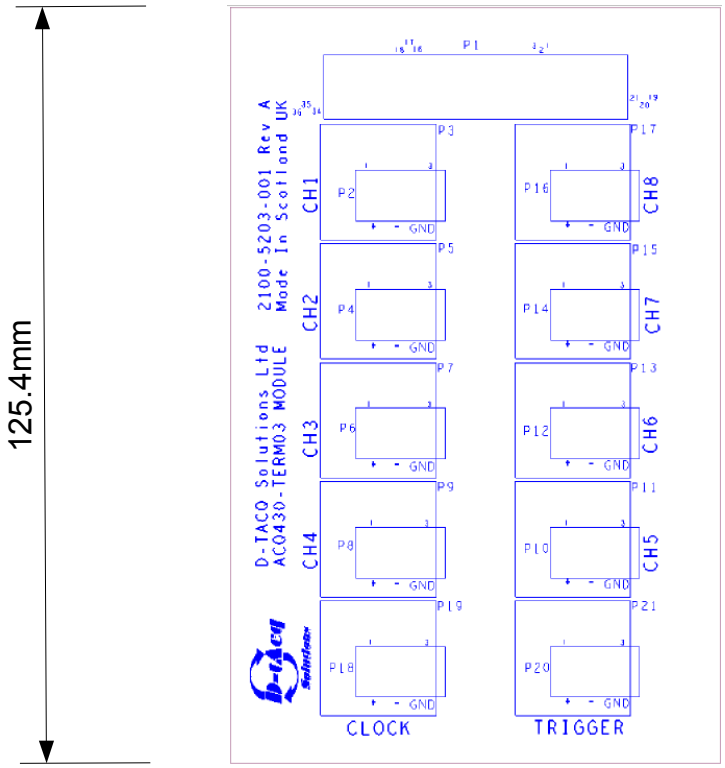
2.3 Example: Fitted to ACQ1001 Carrier



Carrier accommodates 1 x FMC e.g. ***ACQ430FMC*** or an extended size module.

2.4 ACQ430-TERM03 Termination – Physical

Optional DIN-RAIL termination accessory with 3-pin pluggable terminal blocks or BNC connections. CLK, TRIG also available. Please contact D-TACQ for more information.



3 Interface Specification.

3.1 Front Panel Connector

- 36 Pin MDR (Centronics) 3M 10236-55G3PL
- Mating Part 3M 10136-6000EL
- Compatible cables include:
  - Videk 1082-2

3.1.1 Pinout

Pin	Function	Pin	Function
1	0V	19	0V
2	CH_08+	20	CH_08-
3	0V	21	0V
4	CH_07+	22	CH_07-
5	+12V	23	+5V
6	TRIG	24	CLK
7	0V	25	0V
8	CH_06+	26	CH_06-
9	0V	27	0V
10	CH_05+	28	CH_05-
11	0V	29	0V
12	CH_04+	30	CH_04-
13	0V	31	0V
14	CH_03+	32	CH_03-
15	0V	33	0V
16	CH_02+	34	CH_02-
17	0V	35	0V
18	CH_01+	36	CH_01-

4 ACQ430FMC Performance Specification.

#	Parameter	Value
1	Number of Channels	8
2	Sample Rate High Speed Mode High Resolution Mode	Per channel simultaneous 128 kHz 52 kHz
3	Resolution	24 bits
4	Coupling	DC, Differential Input
5	Input Impedance	1MΩ
6	Input Voltage Range	±10 V
7	Input Voltage Withstand	±30V
8	Offset Error	0.01% FS with numerical calibration
9	Gain Error	0.01% FS with numerical calibration
10	INL	±0.002% FS
11	CMRR	>60dB FS @ 1 kHz
12	THD	-106 dB*
13	SFDR	107 dBc*
14	SNR High Speed Mode High Resolution Mode	 104 dB* 108 dB*
15	Analog Input BW	80kHz
16	Crosstalk	<90dB @ 1kHz FS Input
17	Digital Filter:Pass Band Digital Filter:3dB Digital Filter:Stop Band Digital Filter:Attenuate	0.453 Fsample 0.490 Fsample 0.547 Fsample 95 dB

* Typical values measured at full scale with a 9.76kHz input

5 ACQ430FMC Specification.

#	Parameter	Value
1	Form Factor	Standard FMC
2	Power source	External DC 12V, 200mA External DC 3.3V, 100 mA
3	Environmental	0°C-50°C Operational -10°C-85°C Non-Operational
4	FMC Socket	Standard FMC, Low Pin Count LPC
5	Digital Signal IO	CLK, TRG inputs 5V TTL