

AO424ELF Advance Product Specification



High Performance Simultaneous Data Acquisition

*Preliminary Product Information
Subject to Change*

1 Product Description.

1. **AO424ELF** is a standard D-TACQ product, 32 channels simultaneous AO with low current output on VHDCI connector.
2. Standard configuration: 32 channels, 16 bit resolution, 500kSPS/channel
3. Complies with *D-TACQ ELF* standard.
4. +/-10V,+/-5V per channel 5mA drive.
5. DC and AWG operating modes.

1.1 Product Variants

- **AO424ELF-32** : 32 channels, 16 bit resolution, 500kSPS/channel.
- **AO424ELF-16** : 16 channels, 16 bit resolution, 500kSPS/channel.
- **AO424ELF-8** : 08 channels, 16 bit resolution, 500kSPS/channel.

1.2 Applications

- Instrumentation applications, control and monitoring.

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.

The D-TACQ ELF standard increases the payload size of the FMC module, and assigns analog power rails to defined pins. Compatible modules include

- D-TACQ **ACQ1001** : D-TACQ single/dual site *ELF* carrier, Z7020
- D-TACQ **ACQ2006** : D-TACQ 6 site *ELF* carrier, Z7020

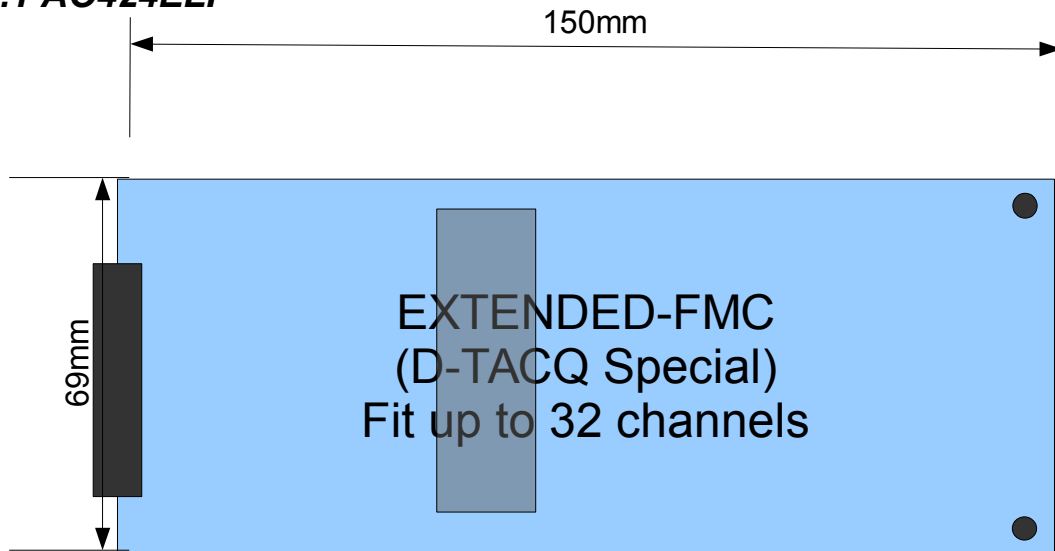
D-TACQ supplies a complete working Intelligent Digitizer appliance including programmable logic and microprocessor system running Linux. Evaluation boards are useful for evaluation, but for production use, D-TACQ recommends use of a production-quality carrier such as ACQ1001.

1.4 Glossary

- *FMC*: [VITA57 FPGA Mezzanine Card](#).
- *ELF*: D-TACQ variant of ELF, analog power and optional increased length.
- [Xilinx ZYNQ Soc](#)
- *FPGA* : Field Programmable Gate Array.
- *LPC* : *FMC* Low pin count wiring standard.
- *ULPC*: *FMC* Ultra low pin count (D-TACQ).

2 Physical

2.1 AO424ELF



- Single ELF Formfactor.
- VHDCI connector
- Use internal clock or ACQ1001/ACQ2006 front panel clock.

2.2 Front Panel Connector

- 68 Pin VHDCI
- Pinout compatible with D-TACQ BNCPANEL, SMAPANEL.

2.2.1 Pinout.

Pin	Function	Pin	Function
1	0V	35	0V
2	0V	36	0V
3	AO01	37	0V
4	AO02	38	0V
5	AO03	39	0V
6	AO04	40	0V
7	AO05	41	0V
8	AO06	42	0V
9	AO07	43	0V
10	AO08	44	0V
11	AO09	45	0V
12	AO10	46	0V
13	AO11	47	0V
14	AO12	48	0V
15	AO13	49	0V
16	AO14	50	0V
17	AO15	51	0V
18	AO16	52	0V
19	AO17	53	0V
20	AO18	54	0V
21	AO19	55	0V
22	AO20	56	0V
23	AO21	57	0V
24	AO22	58	0V
25	AO23	59	0V
26	AO24	60	0V
27	AO25	61	0V
28	AO26	62	0V
29	AO27	63	0V
30	AO28	64	0V
31	AO29	65	0V
32	AO30	66	0V
33	AO31	67	0V
34	AO32	68	0V

3 AO424FMC Electrical Specification.

#	Parameter	Value	
1	Number of Channels	32	
2	Sample Rate	Up to 500 kHz, per channel simultaneous	
3	Resolution	16 bits	
4	Coupling	DC	
5	Maximum output current	10mA	
6	Output Voltage Range	± 10 V, ± 5 V ranges	
7	Output Impedance	10 Ω	
8	Offset Error	0.01% FS	P
9	Gain Error	0.1% FS	R
10	INL	± 2 LSB	E
11	DNL	± 1 LSB	L
12	CMR	TBD	I
13	THD	Better than 80dB	M
14	SINAD	74 dBc	I
15	SFDR	85 dBc	N
16	SNR	72 dB	A
17	Full Power BW	1 MHz	R
18	Small Signal BW	2 MHz	Y
	Crosstalk	<80 dB @ 1 kHz FS Input	
	Temperature Stability	<25 ppm/C	