



PDIO - Power, Drive and I/O board

The PDIO board for the cOBC* offer many common analogue interfaces to support magnetorquers, analogue acquisitions, thermistors, secondary power supplies, and stepper motors including SADE. The solution is entirely based on COTS technology while providing a highly reliable solution.

* See dedicated cOBC Fact Sheet

Key features

- Off-the-shelf solution available at short lead times and an attractive price point
- Fast and easy integration into the cOBC, at the quantity needed, using backplane-less solution
- Highly configurable in software
- Support for both redundant and single string solutions
- Manufacturing highly automated and optimized for large quantities.

Interfaces and Capabilities (per board)

Bus Power		
Input	Unregulated 28V (22V – 38V)	Design prepared for 50V - 100V
Pulse Commands		
Number of pulses	81	9 row x 9 column pulse matrix Can also be controlled as 9 individual outputs
Pulse voltage	28V	
Pulse current	< 0.6A	
Secondary voltages		
Output channels	2	Individually switchable
Output voltage	5V	
Output current	< 0.75A	
Stepper Motors (including SADE)		
Number of motors	4	2-phase motor, support for micro-stepping
Drive voltage	28V	
Drive current	< 0.5A	
End stop inputs	8	5V
Magnetorquers		
Number of bar drives	3	Configurable as motor drive in SW
Drive voltage	28V	
Supply channels	4	
End stop inputs	8	5V
Analogue Acquisitions		
Input channels	128 / 64	Single ended / differential
Supported input types	Bi-level status Analogue 0v-5V Thermistor	Type configurable

Radiation tolerance

- Latch-up free
- Component Total Ionising Dose > 30 kRad
- All orbits suitable (additional shielding for long mission time in challenging orbits)

Environment

- Temperature -20 to +60°C
- Random vibration 15g RMS
- Shock 2000g @ 2000Hz

