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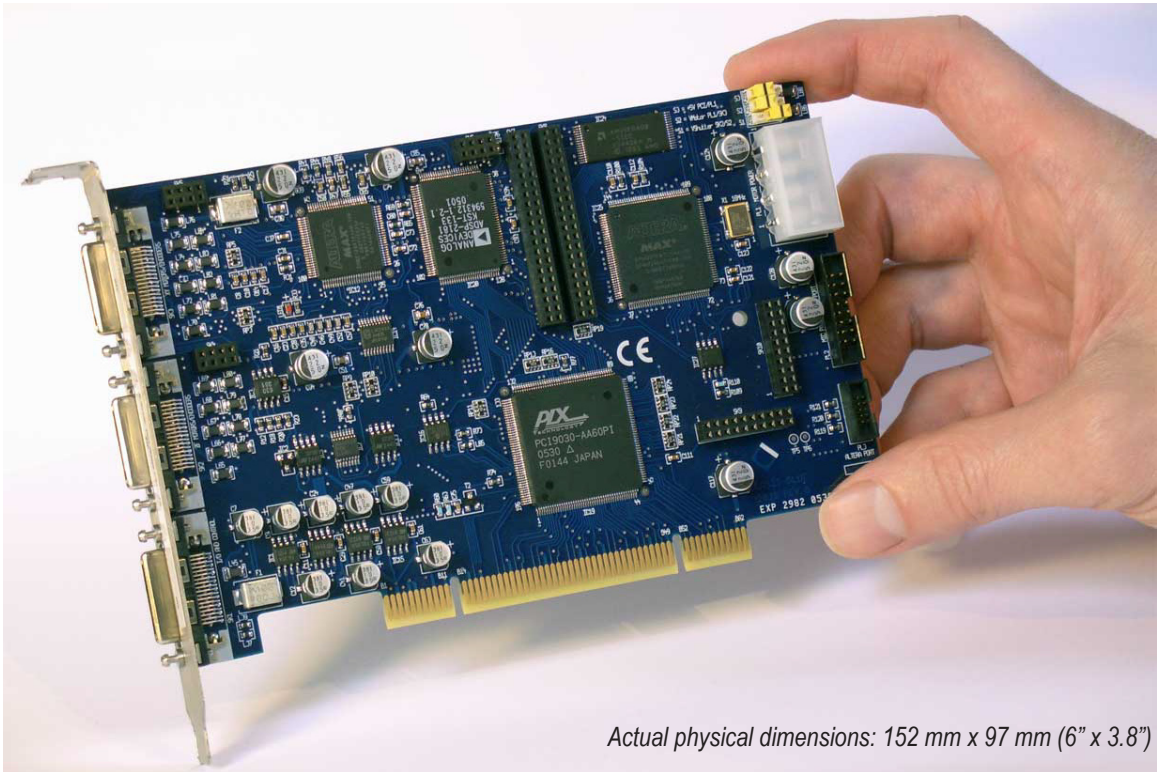
Find the *Objective Imaging Oasis-Blue* at our website: *Click HERE*

OASIS *blue*

Compact Motion Control Card

Delivering high performance and advanced functionality in a compact package, the OASIS-blue universal PCI motion controller establishes the new standard for automation in microscopy and imaging.

The OASIS-blue 4 axis precision stepper motor controller with on-board drivers offers a single-slot solution for motorized XY stages, Z focus drives, filter wheels, and shutters. Smaller than a standard PCI short card, the compact, elegant design and universal PCI form factor of the OASIS-blue enhance compatibility over a wide range of PC enclosures, providing maximum automation performance with the minimum footprint. The OASIS-blue is complemented by an extensive library of motion control functions and software utilities.



Actual physical dimensions: 152 mm x 97 mm (6" x 3.8")

Highlights

- ◊ Versatile 4 axis precision micro-stepping controller
- ◊ Ultra-compact design for maximum compatibility
- ◊ On-board drivers for complete solution
- ◊ Motor drive power through internal +12 V PC supply or external power to +40 V
- ◊ Compatible with a wide range of 3rd party XY stages, Z focus motors, filter wheels, and shutters
- ◊ Universal PCI 2.2 compliant for 3.3 V and 5 V busses
- ◊ On-board dual shutter controllers
- ◊ Powerful DSP processor for optimal performance
- ◊ Read/write flash memory for secure configuration settings
- ◊ Critical safety features for thermal and current protection
- ◊ General purpose TTL input and output channels
- ◊ Optional daughter modules for encoder support, camera trigger synchronization, and advanced functions
- ◊ Extensive library of motion control software

Objective Imaging

OASIS blue

Specifications

Stepper Performance	
Axes	4 stepper, independently controlled with on-board drivers
Microstep resolution	Software selectable from 400 steps/rev to 51,200 steps/rev with 1.8° motor
Maximum speed	960 kHz (microsteps/s), 7.5 kHz (half-steps/s)
Minimum speed	32 Hz (microsteps/s), 0.0078125 Hz (half-steps/s)
Maximum peak motor current	0.25 to 1.50 A/phase in 6 mA steps
Standby motor current	0.25 to 1.50 A/phase in 6 mA steps
Standby motor current switchover time	0 to 2097 seconds in 32 ms steps
Maximum motor supply voltage	+40 V (typically +12 V)
Minimum motor supply voltage	+10 V
Command overhead (Move XYZ)	<10 µs
Controller response time (Move XYZ)	<20 µs
Acceleration / deceleration profiles	4 preset user-definable tables (512 values per table), including linear and S-curve
Position counter resolution	32 bits

General	
Processor (DSP)	ADSP-2181
Processor clock frequency	32 MHz
Non-volatile memory	4-Mbit Flash for program and user configuration storage
Reset method	Hardware watchdog or software command (PC reset selectable as required)
Switch-on time	<1 s — fully functional

Bus Interface	
Type	Universal PCI 2.2 Compliant, 3.3 V or 5 V
Bus-type	Slave
Operating frequency	to 33 MHz

System Safety	
Watchdog timer function	Resets board on processor fail or dip in 5 V
Watchdog timeout period	1.6 s
Drive current limit	4 A maximum per motor
Drive current limit response time	4 ms (typical)
Thermal shutdown	Yes — motor driver IC's in hardware or in software are user-definable temperature
Temperature monitor	Yes — monitors driver IC's heatsink plane
Drive voltage monitor	Yes — 0 - 40 V
Hardware limit switch inputs	2 per axis, user definable N/O or N/C
Software limits	User-definable, any range within 2^{31} microsteps
Software	Stop individual or all axes command
Hardware	Opto-isolated input may be used to shutdown motor drive current
Maximum move size	User-defined from 1 to 2^{31} microsteps

I/O	
Encoder inputs	4 total (1 per axis) using optional Encoder Module
Encoder signals	Phase-quadrature TTL or RS422 using optional Encoder Module
Home inputs	4 total (1 per axis), TTL compatible with 1 kΩ pull-up to 5 V
General purpose I/O	4 TTL compatible input/output lines
General purpose inputs	2 Opto-isolated inputs, supporting interrupts to DSP
General purpose outputs	2 TTL compatible output lines
Dedicated inputs	7 TTL compatible with 10 kΩ pull-ups to 5 V, for input device buttons and switches, supporting interrupts to DSP
Synchronous serial port	Direct to DSP for further I/O expansion
+12 V Output	Via 36-way I/O connector (resettable fuse protected 1.1 A)
+5 V Output	Via 36-way X/Y, Z/F and I/O connectors (resettable fuse protected 1.1 A)
Analog port	2 x 8-bit A/D (joystick interface)
Phase-quadrature inputs	3 (for X, Y and Z axis control, digi-knob or trackball etc.)
10-40 V Motor power input	Input on XY 36-way Champ connector (SK3)
12-24 V Shutter power input	Input on ZF 36-way Champ connector (SK2)

Shutter Control	
Outputs	2 Shutter outputs for Uniblitz® 25 mm-35 mm shutters
Minimum opening time	25 ms
Maximum opening time	Infinite
Programmable	Yes, software programmable opening periods from 25 ms to 65535 ms in 1 ms steps

Power Requirements (Max)	
+5 V (±5%)	1.75 A (via PCI connector)
+12 V (±5%)	100 mA (via PCI connector)
-12 V (±5%)	50 mA (via PCI connector)
10-40 V (motor supply)	PSU 1.0 A x motor current x number of axes driven simultaneously from PC or external power supply
12-24 V (shutter supply)	2.0 A x number of shutters driven simultaneously (current required only during 20 ms pulse operation)

Connectors	
X/Y drives and encoders	36-way Champ connector (SK3) with spring latch on front plate
Z/F drives and encoders	36-way Champ connector (SK2) with spring latch on front plate
I/O joystick, digi-knobs, TTL I/O etc.	36-way Champ connector (SK1) with spring latch on front plate
PL1 - Motor power	4-way male disk-drive power connector (normally connected to PC power supply)
PL2 - I/O pass-through	16-way 2 mm pitch IDS connector for pass through of I/O signals
SK4, 5, 6 and 7	2 mm pitch connectors for mating with the Encoder Module
SK8, 9 and 10	2 mm pitch connectors for mating with the Expansion Module

Environment	
Physical dimensions	152 mm x 97 mm (6" x 3.8") not including front plate connectors
Operating temperature	0 - 35 ºC (ambient)
Storage temperature	0 - 70 ºC

Objective Imaging

Innovative Solutions for Automated Microscopy

Objective Imaging, Ltd.

In Europe:
Phone +44 (0) 1223 813777
Fax +44 (0) 1223 813778
In USA:
Phone (262) 514 2313
Fax (262) 514 2388
www.objectiveimaging.com
info@objectiveimaging.com

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