



DELTA TAU
Data Systems, Inc.

cosylab
CONTROL SYSTEM LABORATORY

microIOC

M-Box-PMAC

Cosylab is appointed integrator and distributor for DeltaTau products
The solution for your motion control system.

Product Descriptions

complete plug & play motion control

microIOC M-Box-PMAC is a **turnkey motion control solution** for controlling devices of all complexity; from slits to undulators.

Systems with **up to 8 motorized axes** are supported as well as **different types of motors**.



advanced and versatile motion controller

Delta Tau's Programmable Multi Axis Controller (PMAC) provides **powerful motion control**, taking into account characteristics of the entire system. It handles motion control algorithms, multi-coordinate system calculations, multi-axes synchronous movement, feedback control, soft and hard safety limits, acceleration and deceleration, motion tuning, movement interpolation, fast acting PID control, inverse/forward kinematics calculation for robotics applications, etc...

CS integration and complete SW support

The solution is plug&play. It includes all the required software support to **integrate the device directly to the control system**, such as EPICS, TINE, and TANGO, GSI CS. Flexible local and remote access is provided.

robust, flexible and safe – no additional circuitry needed

Specially designed electronic interface leverages PMAC's functionality providing:

- ┌ increased robustness – optical isolation and voltage level boost
- ┌ additional input/output signals (brakes, interlocks...)
- ┌ increased safety – hardware programmable circuitry
- ┌ flexible reconfiguration for different functionality

expandable and customized

Variety of feedback devices is supported and additional I/O functionality tailored to the application.

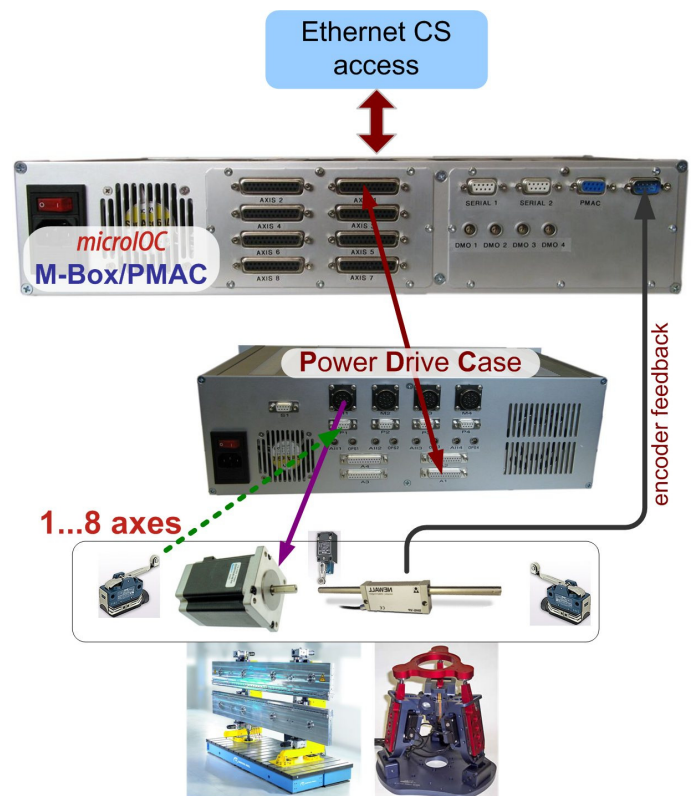
benefits

- ┌ configurable turnkey solution
- ┌ covers all signals and circumstances – without any additional electronics
- ┌ uniform/standard interface for different motion control applications



The following features are provided as standard: industrial-grade components; standard x86 architecture; dual Ethernet, 2xUSB, RS232, and VGA interfaces; complete SW support: Linux Debian or RTEMS, control system integration.

Please check microIOC baseline for the details of the microIOC family.



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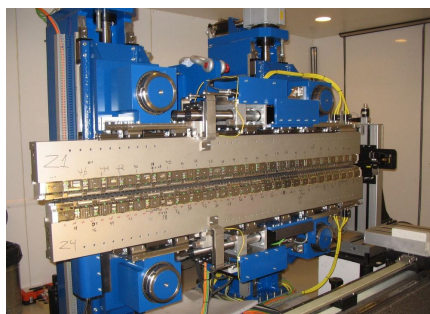
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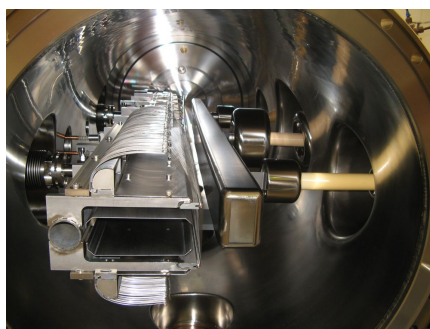
use case

- beamline components; DCM, mirrors, slits, etc. (servo, stepper, pico or nano motors)
- robotic applications: hexapod motion control (6 degrees of freedom)
- undulators, septums



Apple II undulator, provided for Danfysik, installed at ASP (2006):

- 6 axes stepper drives
- incremental and absolute position feedback
- inclination feedback
- complete EPICS support



Injection electrostatic septum control (GSI, 2007):

- 4 axes stepper drives
- linear potentiometer absolute position feedback
- custom per-axis signals
- driver with API for device manager support

"Cosylab has delivered a turn-key solution that solves all our needs for motion control. I was impressed at how fast Cosylab was able to produce high quality results."

Dr. Marcus Schwickert, Head Beam Diagnostics, GSI

technical specifications

microlOC M-Box-PMAC	
microlOC control unit	
CPU	x86 Compatible Intel Celeron 400
interfaces	10/100 Ethernet , 2xUSB, RS232, VGA
SW	Debian Linux, full control system integration (EPICS, ACS and Tango)
power supply	110/220 V (50/60 Hz), 150 W, industrial grade, current protection
casing	rack-mount 19" 2U (440 x 88 x 250)
motion controller	
unit	DeltaTau Turbo PMAC, PC/104; www.deltatau.com
axes	configurable: 4 or 8
encoder inputs	quadrature, A, B, C, channels with differential/single-ended drivers
stepper driver interface	standard pulse and direction
inputs/outputs	
signals for driver and extra outputs	24 or 5V, optically isolated pulse, direction, 4 user programmable outputs (per axis)
limit switches and extra inputs	open/closed switch detection or 5/24V external active supply two over-travel limits, home limit, 3 user programmable inputs (per axis)
controller and power drive case distance	0~250m
position feedback	absolute and relative position encoders, inclination devices quadrature encoders, EnDat, SSI, linear potentiometers
motors supported	stepper, servo, pico, piezzo, nano
power drive case	
various configurations available	1-8 axis, different power sizes and types of drivers contact for details

