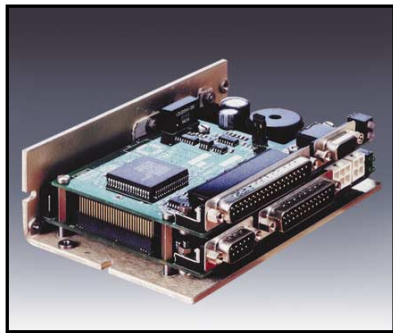




## Unilite One and Two Axis Motion Control Module

**Compact Motion Control Module Integrates High-Performance Controller with 100W Digital Drives.**



### Supported Motor:

DC Brush

The Unilite is a programmable stand-alone control module for encoder-equipped, low power DC motors. It includes one or two drives with 3A (5A peak), 15-36VDC bus.

The Unilite's size and cost-effective design create an unparalleled price/performance ratio. It is particularly suited for equipment requiring a stand-alone controller with a small footprint. Typical applications include semiconductor material handling, microscopes and auxiliary axes in multi-axis equipment.

The single-axis module includes four inputs (that can also serve as safety inputs) and two outputs. The dual-axis module includes dedicated safety inputs, eight inputs, eight outputs, two analog inputs and an analog output.

ACS Motion Control control modules are based on state-of-the-art, proprietary technology that has proven itself in many demanding applications, such as semiconductor

assembly and testing, electronic assembly and inspection, digital printing, medical imaging, and packaging.

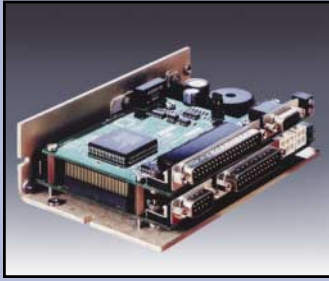
The modules can be programmed to handle motion, time and I/O events. They can operate stand-alone, without a PLC or a PC, and communicate via RS-232/422/485 serial link.

Windows tools are provided for setting up and tuning the modules and for developing application programs. Libraries for Microsoft C/C++, Borland C/C++ and Visual Basic are available for DOS, Windows 3.11/95/98/2000/NT.

The libraries support multithreading in Windows NT.

Every module is manufactured under an ISO9001 certified quality management system to meet stringent safety and EMC standards, and is CE compliant.

- Uniquely Suited for Applications with Low Inductance Motors
- Fully one and two axis programmable stand-alone or host-interfaced operation
- 20kHz Sampling Rate
- Powerful I/O Handling with Advanced PLC Capabilities
- Modifiable Servo Algorithms
- Integrated Digital Drive with 20kHz PWM Power bridge
- Comprehensive Safety, Diagnostics, and Protection
- Full Interactive Windows Application Development Suite
- Comprehensive C, C++ and Visual Basic libraries for DOS, Windows 3.x/95/98/2000/NT.



## Main Features

### Fully Programmable Standalone and Host-Interfaced Operation:

- Easy to program using ACSPL, a powerful high level language common to all SB-Series control modules
- 32k of user-programmable memory
- I/O: Single-axis module has four inputs and two outputs, all opto-isolated. Dual-axis module has eight inputs, eight outputs, two analog inputs and one analog output
- Powerful I/O handling with advanced PLC capabilities
- Teach & go for up to 1,024 points
- RS-232/422/485 high-speed serial communications interface, up to 57600 baud rate

### Digital Drive:

- Advanced 20kHz PWM power bridge with optimized current ripple and efficiency; suitable for motors with very low inductance

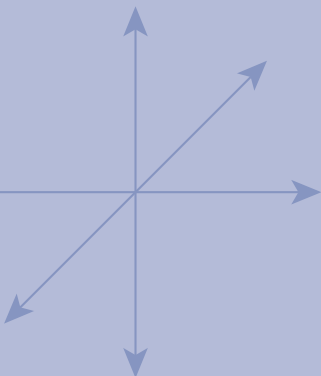
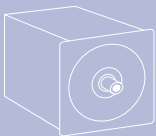
### Comprehensive Safety, Diagnostics, and Protection:

- Programmable automatic routines for each fault, error, and exception
- Real-time data collection, programmable sampling rate up to 1kHz
- CE marked, meets European safety standard EN60204-1 and EMC standards EN50081-2 (emission) and EN50082-2 (immunity)

### Powerful Programming and Support Tools:

- ACS Adjuster for Windows: Interactive tool for setting up and tuning
- ACS Debugger for Windows: Development environment for ACSPL applications
- ACS Saver/Loader for Windows: Tool for copying system setup and application data from one controller to another
- ACSLIB C Libraries: Comprehensive C, C++, and Visual Basic libraries for DOS, Windows 3.11/95/98/2000/NT

Main Features



# Product Specifications

## Position Control:

**Sampling Rate:** 20 kHz

**Control Algorithms:**

Pgain, acceleration feed-forward, automatic velocity feed-forward, anti-reset windup

**Trajectory Calculation Rate:** 1kHz

**Range:** ±999,999,999 counts

**Accuracy:** ±1 encode count

**Position Feedback:** Incremental encoder

**Encoder:**

Incremental, 3 channel (A,B,I), differential line drivers, 0-5V, single-end

**Supply Voltage:** 5V

**Maximum Current Consumption (From Onboard Supply):**

100mA per encoder (Use external supply if higher current is needed).

## Velocity Control:

**Sampling Rate:** 20kHz

**Control Algorithm:**

PI + second order low pass filter

**Range:** Up to 128,000,000 counts/second

**Resolution:** 1 count/second

**Incremental Encoder Count Rate:**

Up to 32,000,000 counts/second

**Velocity Accuracy:**

*Long term:* 0.05%

*Short term:* 0.05-2.50% (system-dependent)

**Acceleration Range:**

Up to 2,000,000,000 counts/Second<sup>2</sup>  
Acceleration build-up time (Smooth Factor): 1-255 millisecond

## Drive:

**Type:** PWM, digital voltage control

**Motor Type:** DC brush

**PWM Clock Frequency:**

20kHz, programmable

**Continuous Current:** 3A

**Peak Current:** 5A (for one second)

**Minimum Motor Inductance:** 0.1mH

## I/O:

**Single-Axis Module (standard):**

**Inputs:** Four, 5V, opto-isolated, also serve as limits and E-stop, source type

**General Purpose Outputs:** Two, 5V, opto-isolated, open emitter and collector, 5mA/output

**Dual-Axis Module (per axis, optional):**

**Safety Inputs:** Left and right limit and E-stop, opto-isolated, source type

**General Purpose Inputs:** Eight, opto-isolated inputs, 0-5V, source type

**General Purpose Outputs:** Eight, opto-isolated, 0-5V, open emitter and collector, 5mA/output

**Analog Inputs:** One differential or two single ended, ±10V, 12-bit resolution

**Analog Output:** ±10V, 10-bit resolution

## Communications:

RS232/422/485, up to 57,600 baud rate

## Controller:

**Dual Processor Architecture:**

- 20MHz Intel 80C196KD for high-level tasks and management
- 80MHz SB2500 CS Servo Processor per axis for real-time control tasks

**Memory:**

*Firmware:* 256k

*RAM:* 256k

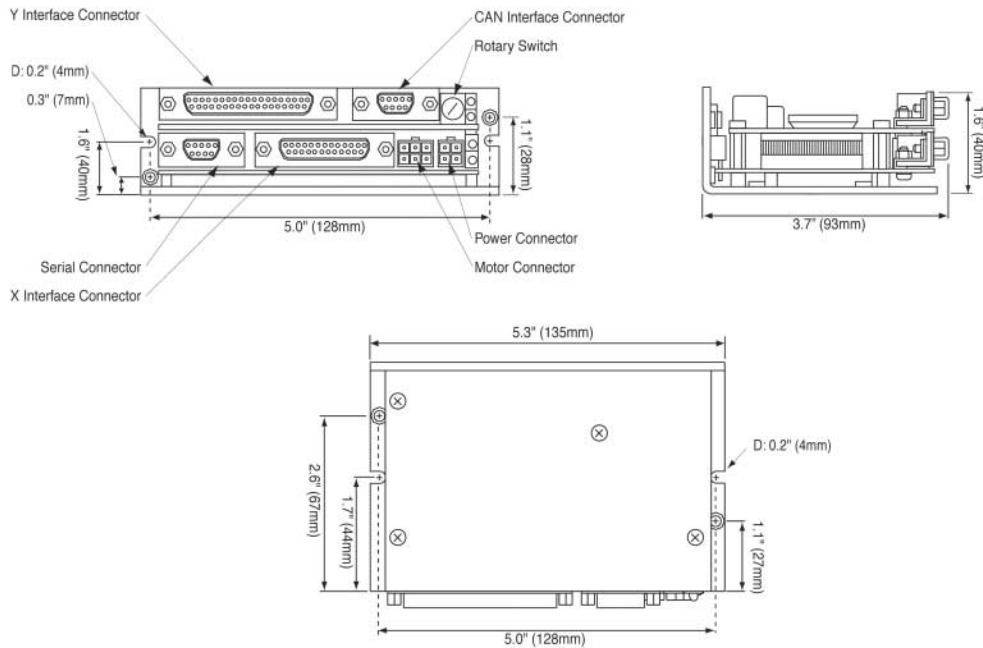
*Nonvolatile Memory:* 128k, 100,000 write cycles

*User Program Memory:* 32k

## Power:

**Supply:** 15-36VDC

# Dimensions



## How To Order

### EXAMPLE

**UNILITE - 1 - R - C**

1 Single Axis  
2 Dual Axis

R RS232/422/485

C Cover (Required for CE)

(Documentation and ACSPL software tools are included)

**ACSLIB** ACSPL C, C++ and Visual Basic Libraries

## Warranty

The warranty of this product is according to the Terms and Conditions of Sale and is effective for one year after shipment from ACS Motion Control. For further warranty information, please consult the hardware manual.

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