Adept *s*MI6 Option

The Adept *s*MI6 motion control option (p/n 01838-000) provides an integrated automation control platform designed to improve the performance of automation systems. Our motion control system combines advanced motion controls with a graphical user interface and integrated support for machine vision and conveyor tracking. The *s*MI6 option connects to the Adept SmartController™ system via the Adept SmartServo™, network, Adept's distributed controls platform built on IEEE 1394.

State-of-the-Art Motion Technology
Our advanced motion technology was designed directly from the real-time control of high-speed robotic workcells. The Adept SmartMotion system provides the following capabilities:
- 24 axes of motion, 15 independent mechanisms
- Standard and custom kinematic modules
- Coordinated and straight-line motions
- Control in World and Tool coordinates
- Manual jog modes
- Velocity and acceleration feed-forward terms
- Programmable acceleration and deceleration profiles (S-curve or trapezoidal)

HARDWARE
Controller
The *s*MI6 option is compatible with any Adept SmartController system including:
  SmartMotion CS Controller Bundle (01058-001)
  SmartMotion CX Controller Bundle (01058-002)
  See individual data sheets for more details.

*s*MI6 Option (01838-000)
  Amplifier & encoder channels per unit: 6
  *s*MI6 units per system (max): 4
  Axes per system (max): 24

Amplifier Drive Signals
  Command   ±10 VDC analog
  Resolution   16-bit, instrument grade, high linearity

Axis Interface Signals
  Dedicated interface signals for each axis, optically isolated (5 per axis plus 1 per *s*MI6)

System Interface Signals
  High-power enable - N/O output
  External Emergency-Stop input
  High-speed position-latch input

Encoder Channels
  Type: A/B quadrature encoder, incremental, index optional
  Voltage: 5VDC RS-422 line drive
  Frequency: 32 MHz edge rate max

Configuration
  Maximum of 24 total axes per system

HARDWARE (continued)
Optional MP6 Interface Kit (01840-000)
  Set of 3 field-wiring motion-interconnect panels, DIN-rail mountable, with 2.5M interface cables (1 set per *s*MI6)

SOFTWARE
Language & Operating System
  Adept V+, version 16.0 or later
  Multitasking O.S. with configurable priority
  Straight-line motion interpolation
  World and Tool coordinates
  Transformations (6 degrees of freedom)

Kinematics
  Mechanism specifications and diagnostic software
  X/Y/Z/theta kinematic device module
  6-Axis Joints device module
  Over 25 optional kinematics modules

Optional Kinematic Features
  SCARA, 6-axis articulated, Palletizer, Parallelogram, Cylindrical
  Backlash compensation
  Linear compensation
  Perpendicular compensation
  Split-axis (dual motor capability)

V$^+$ Extensions Option
  Multiple mechanism support (15 maximum)
  Conveyor Belt Tracking
  28 V$^+$ user tasks
  ALTER support

PERFORMANCE
Servo Loop
  All digital control
  Closure Rate: 8KHz
  PID (Proportional Integral Differential) with FeedForward
  Velocity and acceleration feed-forward
  Velocity or torque drive compatible

Mechanism Parameters
  User-defined axis limits, encoder resolution, duty-cycle limits, envelope limits.
  User-defined acceleration profiles allow S-curve or trapezoidal velocity profiles.