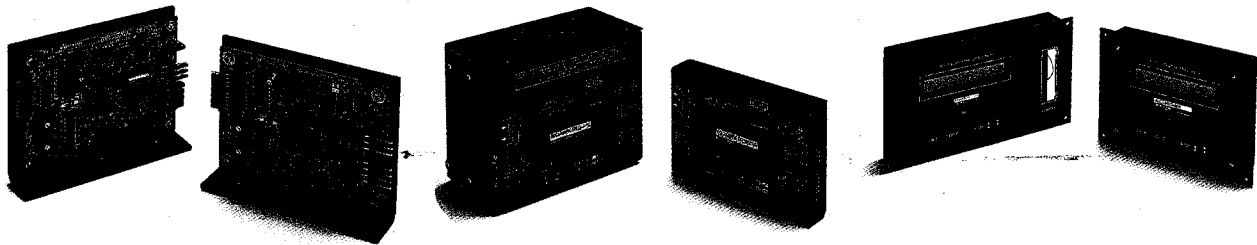


Drivers and Programmable Motion Controllers SMC Series



Board Level Drivers

SMC series board level drivers have both drive circuitry and sequencing logic on a single compact board. Operation is with TTL "pulse rate and direction" inputs and either bipolar chopper or unipolar chopper versions are available. Built-in chopper logic allows potentiometer adjustment for maximum current limit. Single power supply operation supplies both logic and motor power. Some units are available with opto-isolated inputs. Other units are available with input pulse rate buffer for buffering and metering out pulse rates at adjustable (DIP-switch selectable) ramps and rates.

Programmable Motion Controllers

SMC series programmable motion controllers are integrated drivers/controllers packed with very powerful features in a small package. Full/half or microstepping is supported. Lower power units have 16-32 VDC input (single supply required), the higher power units have built-in line-operated (110/220, switch selectable, 50 or 60 Hz) power supplies.

Outstanding features: RS-232C serial port for communication to a PC, powerful English-like command set for controlling all motion parameters, programmable inputs/outputs, on-board memory for program storage and automatic execution, multi-drop interface – up to 8 axes can be daisy chained over a single serial port. Microstepping models have mode-indexing feature with "auto rate indexing" adjustment to offer both resolution and speed.

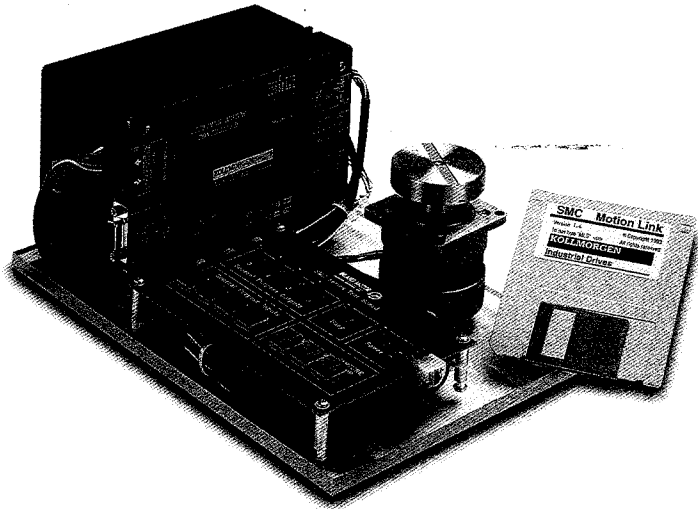
Operator Panels

OP-1 (built-in program memory) and OP-2 (removable memory cartridge) are designed to interface with any of the SMC series programmable step motion controllers. These intelligent modules with their own programmable inputs are ideal for independent machine control where the operator is required to adjust machine parameters. All text and functions are programmable via RS-232C port with any PC. Programs can be written to take inputs in real world parameters. On-board CPU translates entered variables in real units to the internal required steps.

Model	Description	Voltage	Current (AMP)	Inputs	Outputs	Outstanding Features
SMC-100	Unipolar chopper driver, full/half stepping	16-32 VDC	4A	TTL compatible w/4.7K Ω pull up to 5V. Pulse direction, idle current reduction. Step pulse, direction and winding current reduction. Inputs are optically isolated.	Step output push-pull capable, sourcing or sinking 50 milliamps	Single power supply, TTL level inputs. Idle current disable/reduction. On board pulse generator.
SMC-150 SMC-151	Bipolar chopper driver, full/half stepping	16-32 VDC	2A 3.5A			
SMC-155	Bipolar chopper driver, microstepping	16-32 VDC	4A		Step output and pole position output. Push-pull capable of sinking 50 milliamps	Hardware selectable microstepping from full step to 1/64 steps per step.
SMC-300 SMC-301	Bipolar chopper driver with input pulse rate buffer and adjustable ramp and speed output	16-32 VDC	2A 4A	Step pulse, direction and winding current reduction "home"	"Busy" output	Buffered pulse translator. Adjustable ramps.
SMC-400 SMC-401	Bipolar chopper driver, full/half stepping programmable motion controller	16-32 VDC	2A 4A	Four programmable general purpose inputs, home end limit, "E" stop, position capture, RS-232C serial interface. Optically isolated inputs.	Four programmable general purpose outputs and one busy output	Full or half-stepping programmable motion controller. RS-232C serial interface to any PC. Powerful English-like command set, on-board memory. Programmable inputs/outputs.
SMC-500 SMC-501	Bipolar chopper driver programmable motion controller	16-32 VDC	2A 4A			Same as above except microstepping. Unique mode indexing feature to give high resolution and high speed at the same time.
SMC-401-PS SMC-501-PS	Same as SMC-401/501 except w/built-in power supply	115/230 VAC 50 or 60 Hz	4A			Same as SMC-400 and SMC-500
SMC-1150	High voltage pulse and direction driver	115/230 VAC 50 or 60 Hz	10A	Optically isolated control inputs (pulse and direction)	Synthesized quadrature output for loop closure.	Bipolar chopper full/half driver 90-240 volts off-line operation. Pulse/direction mode inputs. Automatic idle current reduction.
SMC-1155	High voltage microstepping pulse and direction driver	115/230 VAC 50 or 60 Hz	10A			Bipolar chopper microstepping driver. User selectable: Full, 1/2, 1/4, 1/8, 1/16, 1/32 & 1/64 steps per step. 90-240 volts off-line operation. Pulse/direction mode inputs. Automatic idle current reduction.
SMC-1156	High voltage analog input driver	115/230 VAC 50 or 60 Hz	10A			Analog scalable input
SMC-1400	High voltage full/half stepping programmable motion controller	115/230 VAC 50 or 60 Hz	10A	Optically isolated 16 inputs, 12 general purpose. Home end limit position capture/stop.	8 general purpose outputs and one busy output.	Bipolar chopper. Full/half step driver (SMC-1400). Microstepping drive to 1/256 steps per step resolution SMC-1500. RS-232C communication port. Optional encoder input.
SMC-1500	High voltage microstepping programmable motion controller	115/230 VAC 50 or 60 Hz				

Quick Start Demonstration Unit for SMC Series

The DS Series are quick start pre-wired demonstration/evaluation units. A PC is all that is needed to plug the unit in and start executing canned programs or writing and executing new programs. A standard motor and Motion Link Software (MLS) are included with each DS unit.



Model

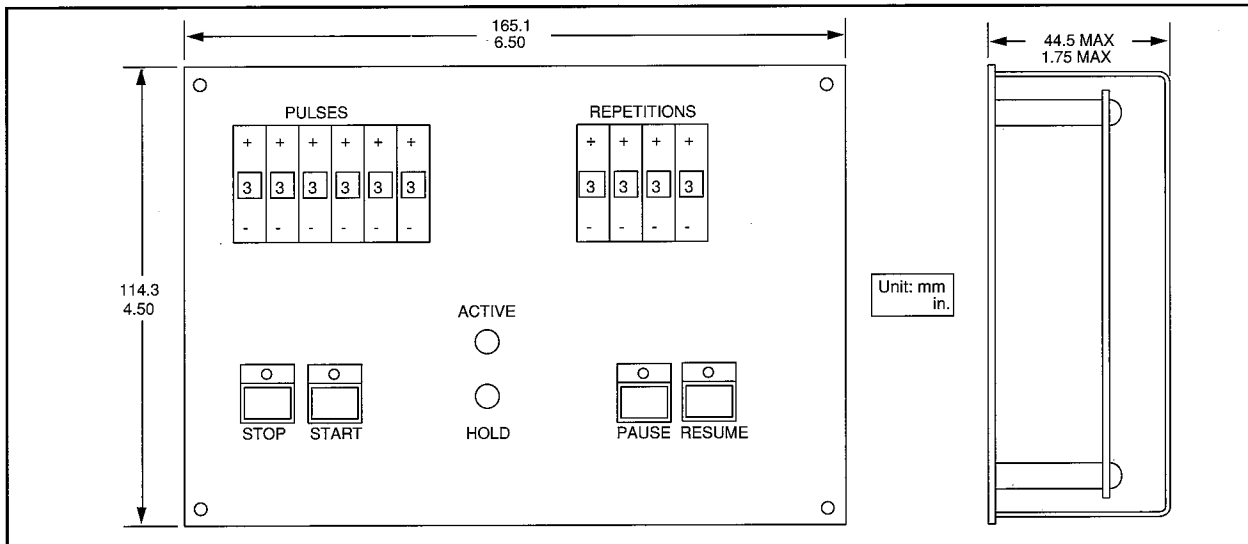
DS-1	SMC-400 Switch-LED panel for programmable inputs and outputs. PS-1 power supply-RS232 cable to PC is included. 115/230 VAC input.
DS-2	SMC-500 Microstepping motion controller; Other components are same as DS-1.
DS-3	SMC-500 controller and OP-2; Operator panel with I/O switchbox/LED panel.
DS-4	OP-2 wired with OP-PDK (OP program development kit)
DS-6	SMC-401PS, and SMC-PDK (SMC program development kit) wired together with PJT39AIU motor.
DS-14	SMC-1400E with I/O switchbox/LED panel to simulate inputs and outputs. 115/230 VAC, 8A
DS-15	Same as DS-14 except with the SMC-1500E. Microstepping 115/230 VAC, 8A motion controller.
MLS	Motion Link for Steppers—communication software.

SMC-PDC Programmable Pulse Generator

The SMC-PDC pulse generator is intended for use with SMC-I00, -150, -300, and -1150 pulse and direction drivers. Front panel thumb wheel switches are provided for the number of pulses (0-999,999) and repetitions (0-9,999). Push button

switches are provided for stop, start, pause and resume. Indicator lamps show active and pause conditions. The push-button functions are available remotely in optically-isolated form. Pulse output is also optically isolated. A "busy" input allows for synchronization with

external drive device. Pulse rates and ramping are selectable by means of DIP switches on the SMC-PDC's rear panel. A complex sequence of motions may be set up, and the number of steps and repeats may be changed anytime.



Electrical Specifications

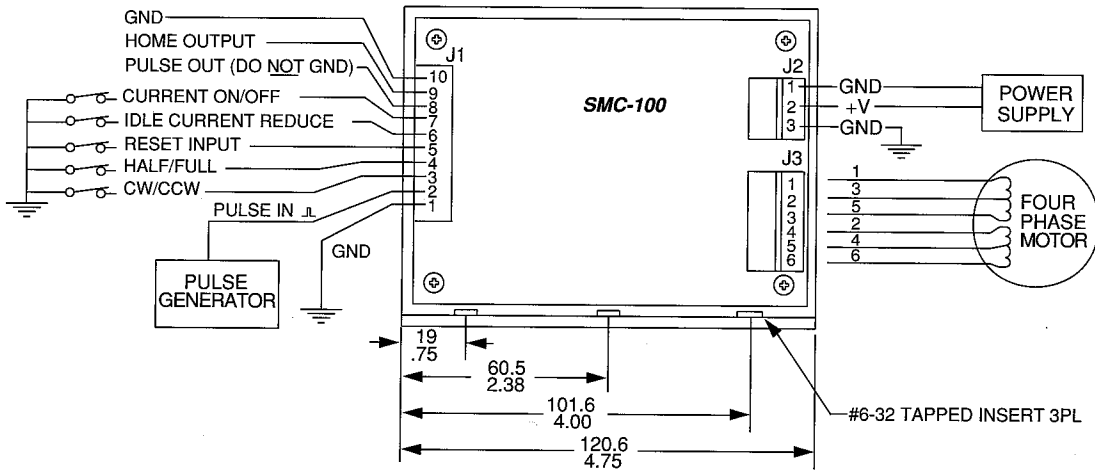
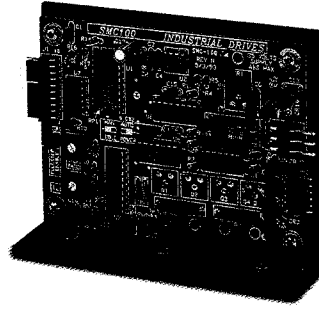
Input Supply Voltage	16-32 volts DC (45 volts optional). The source should be well filtered, but regulation is not necessary.
Idle current	Typically less than 30 mA.
Output current	The pulse output is capable of sourcing or sinking 100 mA.
Pulse rate	Switch selectable, 20 to 10,000 pps. Ramping is also switch selectable on rear panel.
Inputs	Optically isolated. Totally isolated electrically with 2200 Ω series resistors.

Physical Specifications

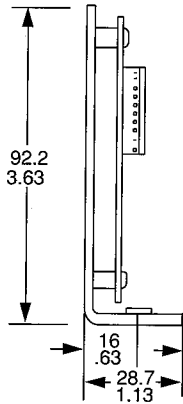
Physical size	4.75" wide, 3.625" high, 1.25" deep with fasteners.
Mounting method	Three 6-32 threaded inserts centered on the enclosure base and four thru holes in the heatsink fins.
Cabinetry	Anodized black aluminum covers and base, silkscreening on the front cover (optional).
Operating temperature	(0-50) $^{\circ}$ C, the baseplate temperature should never be above 60 $^{\circ}$ C.

Outline Drawings and Interconnects SMC Series

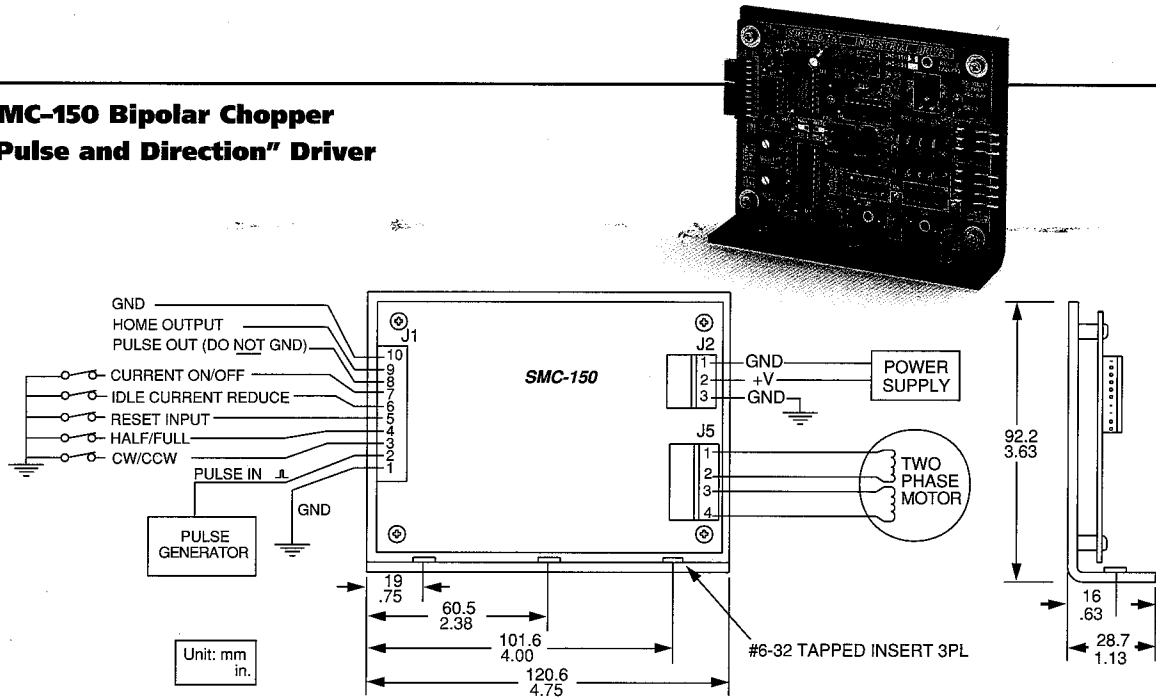
SMC-100 Unipolar Chopper "Pulse and Direction" Driver



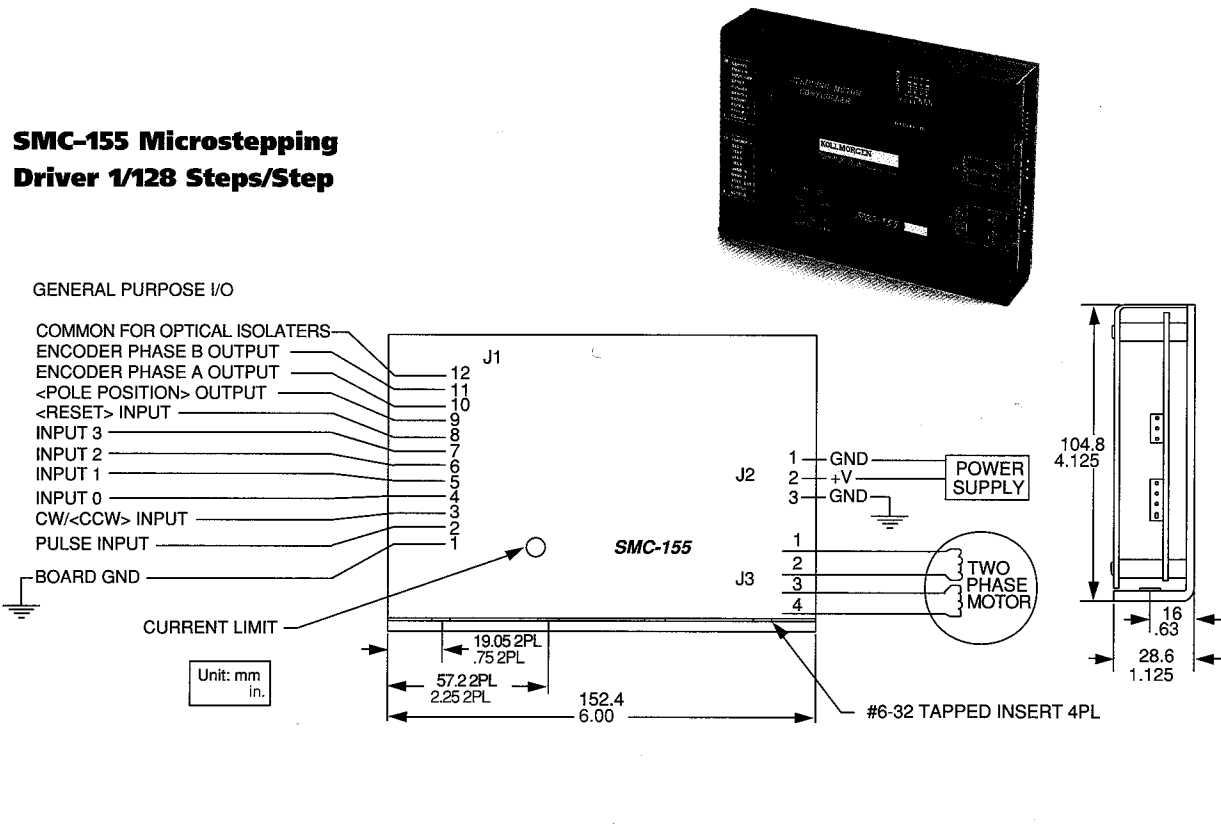
Unit: mm
in.



SMC-150 Bipolar Chopper "Pulse and Direction" Driver

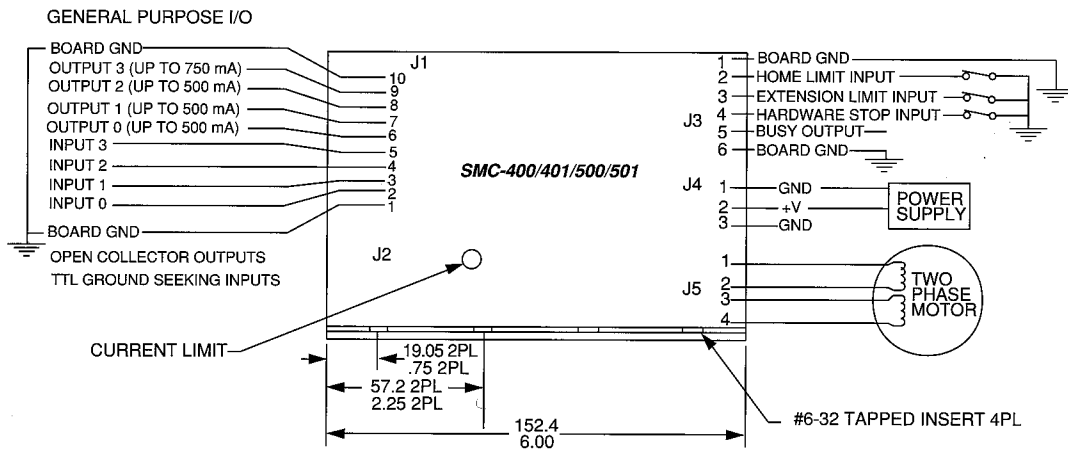
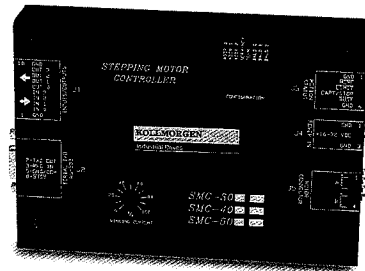
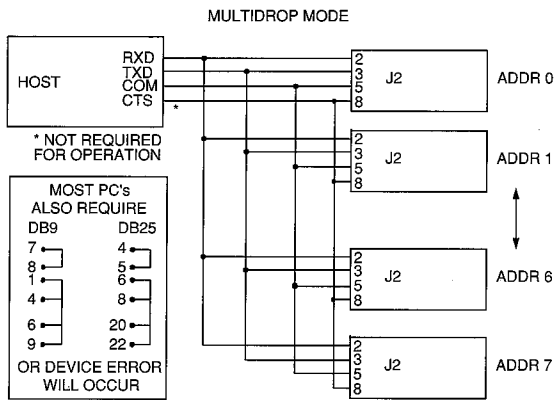


SMC-155 Microstepping Driver 1/28 Steps/Step

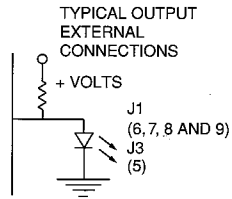
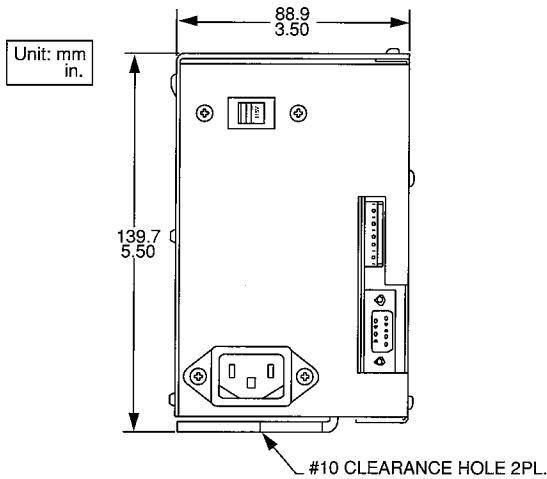
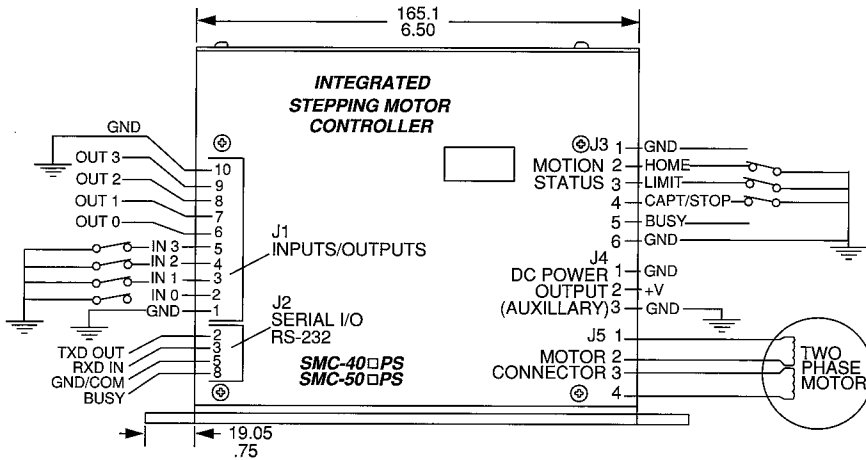
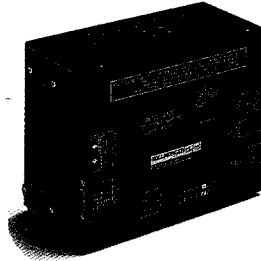


Outline Drawings and Interconnects SMC Series

SMC-400/500 Programmable Motion Controllers

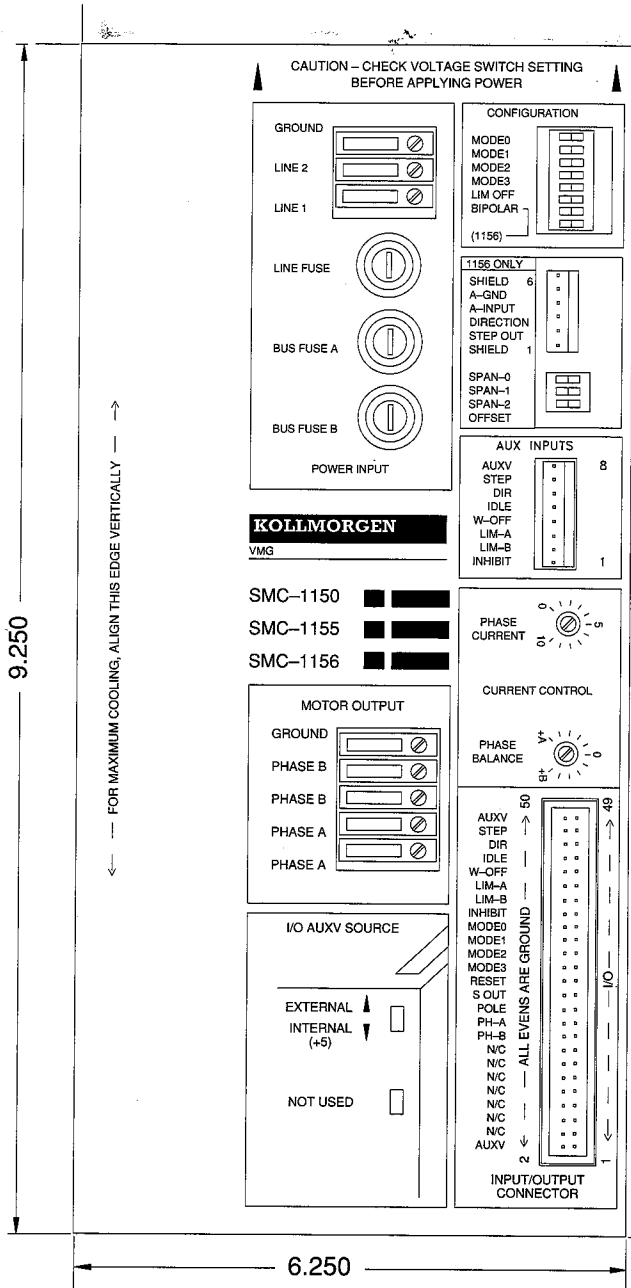


SMC-401/501PS 45 VDC
Bus Line Operated (120 VAC)
Integrated Programmable Motion Controllers



Outline Drawings and Interconnects SMC Series

SMC-1150/1155/1156 Line Operated (115/230V) Pulse & Direction Driver Full and Half Stepping



SMC-1400/1500 Line Operated Programmable Motion Controllers

