

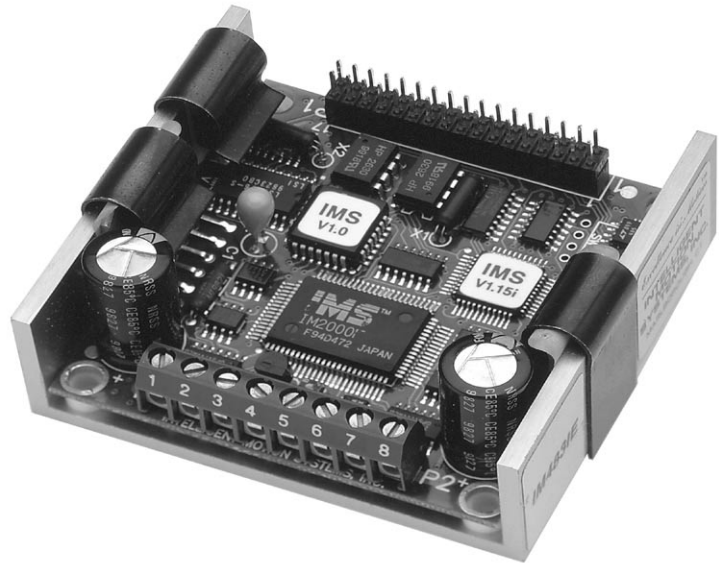
# IM483I IM483IE

Sold by Servo Systems Co. 115 Main Road, P.O. Box 97, Montville, NJ 07045-0097  
Toll Free: (800) 922-1103 Phone: (973) 335-1007 Fax: (973) 335-1661  
www.servosystems.com

## HIGH PERFORMANCE MICROSTEPPING DRIVERS

### FEATURES

- Integral Indexer, Driver and Encoder Feedback
- Extremely Compact (3 x 2.75 x 1.2 inches) (76.2 x 69.85 x 30.48 mm)
- Low Cost
- Short Circuit and Over Temperature Protection
- High Input Voltage (48V)
- High Output Current (3 Amps RMS, 4 Amps Peak)
- Advanced Surface Mount and ASIC Technology
- Single Supply
- Fixed or Variable Step Resolution
- 1/100 Step Command Resolution
- 1/256 Step Motor Resolution
- Programmable Accel/Decel Ramps
- Dual Speed Jog Inputs
- Go and Soft Stop Inputs
- Programmable Trip Points
- Programmable Motor Run and Hold Currents
- RS-422 Party Line Operation (Optional RS232)
- 2k Bytes of Nonvolatile Memory for Program Storage
- 6 Buffered User I/O Ports
- Optically Isolated Home and Limit Switch Inputs
- Motor Speeds to 6,000 RPM



### DESCRIPTION

Incorporated into the IM483I & IE drivers are proprietary circuits that minimize ripple current while maintaining a 20 kHz chopping rate. This prevents additional motor heating that is common with drivers requiring higher chopping rates. Now low inductance stepper motors can be used to improve high speed performance and system efficiency.

The built-in indexer on the IM483I & IE allows the user, via a serial link, to program parameters such as acceleration/deceleration ramps, velocity, position, resolution, drive

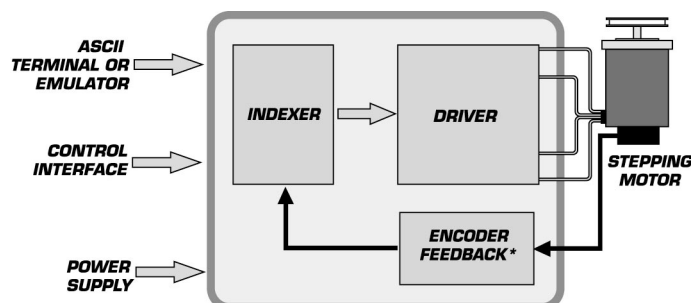
current, etc., to form simple or complex motions.

Programs can be executed by sending single commands, or can be stored in the on-board non-volatile memory which can then be executed on power-up or by discrete user inputs.

The indexer has a variety of built-in functions, including limit switch inputs, a homing algorithm, and general purpose inputs and outputs that can be used to detect switch closures and to activate solenoids and/or other external devices.

The IM483IE, with its built-in encoder option, can be used to enhance system performance by adding complex functions such as position verification, position maintenance and stall detection. These functions can be of particular importance with systems requiring closed loop control to track movement and final position.

### BLOCK DIAGRAM



\* Available on IE Versions Only

## ELECTRICAL SPECIFICATIONS

Input Voltage*	+12 to +48 Volts
Drive Current Per Phase – Software Selectable	0.4 to 4 Amps Peak (Max 3 Amps RMS)
Isolated Logic Inputs	Limit A, Limit B, Home, Party
Baud Rate	9600
Velocity Generator Range	20 to 20,000 steps/second
Motor Resolutions – 1.8°/Full Step	Auto-Variable, 200, 400, 800, 1600, 3200, 6400, 12800, 25600, 51200
Position Counter	± 8,388,607.99
Nonvolatile Memory	2k Bytes
Inputs – General Purpose	3 (0 to +5 VDC)
Inputs – Dedicated [Go, Jog +, Jog –, Jog Speed, Soft Stop]	5 (0 to +15 VDC)
Outputs – General Purpose	3 (0 to +5 VDC)
Encoder Resolution	50–2000 (Lines in 50 line increments)
Protection	Thermal and All Way Short Circuit

\* Includes Motor Back EMF, Power Supply Ripple and High Line. Recommended Power Supply: ISP200.

## PIN ASSIGNMENTS

CONNECTOR P1	CONNECTOR P2		
	PIN	NAME	FUNCTION
Please refer to table on following page.	1	NC	No Connect
	2	NC	No Connect
	3	Ground	Supply Ground
	4	+V	Supply Voltage
	5	Phase /B	Phase B Motor Connect
	6	Phase B	Phase B Motor Connect
	7	Phase /A	Phase A Motor Connect
	8	Phase A	Phase A Motor Connect

## TEMPERATURE

Storage	-40 to +125° C
Case** (Max)	0 to +70° C

\*\* External heat sink may be required to maintain case temperature.

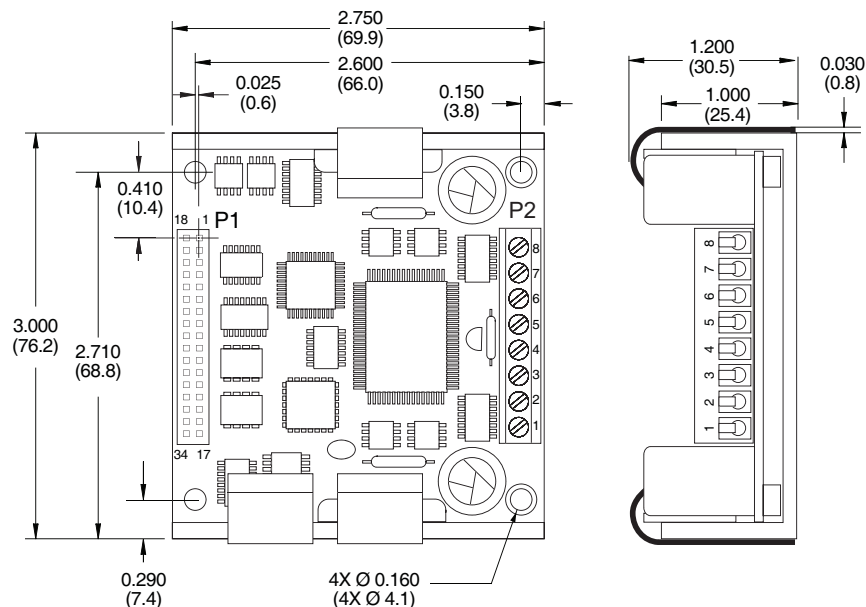
## ORDER INFORMATION

Name	Part Number
Microstepping Motor Driver	IM483I or IM483IE
Heat Sink	H-4X
Thermal Pad	TN-48
8 Position 0.045" sq Pin P2 Connector	-8P2
34 Pin Breakout Board	BB-34/BB-34-4P
Inline RS232 to RS422 Converter	CV-3222
Graphic User Interface	QuickSTART 1
Plug-on RS232 to RS422 Converter	OPT4-232
Differential Encoder Inputs†	OPT4-DE
Plug Type Terminal for P2 Connector	-PLG
Mating Connectors for the -PLG Option	PLG-R1/-R2
Side Mounting Clip Set	U3-CLP

†IM483IE and IM483IE2 only.

## MECHANICAL SPECIFICATIONS

Dimensions in Inches (mm)



# IM483I & IM483IE PIN ASSIGNMENTS

## CONNECTOR P1

PIN	NAME	FUNCTION
1	TX-	RS422 Transmit - (data out from indexer).
2	RX-	RS422 Receive - (data into indexer).
3	MSEL3	Resolution Selection 3 input. Internally pulled down via a 1.5K resistor.
4	Limit A	Optically isolated, active low limit switch input for "+" direction.
5	Output 2	User controlled output #2. This is an open collector output with an internal 10k pullup resistor to +5VDC.
6	Party	Optically isolated party mode select pin: 0 = Party, 1 (Floating) = Single.
7	Input 3	User controlled input #3. Internally pulled up to +5VDC through a 10k resistor.
8	Opto Supply	DC bias for input opto couplers. Internal current limiting resistors for +5VDC are supplied. User must connect resistors in series with optically isolated input signals for voltages greater than +5VDC.
9	Output 1	User controlled output #1. This is an open collector output with an internal 10k pullup resistor.
10	Limit B	Optically isolated, active low limit switch input for "-" direction.
11	Jog +	Active low Jog input for "+" direction. Internally pulled up to +5VDC through a 10k resistor.
12	Home	Optically isolated, active low home switch input.
13	Jog Speed	Jog speed input. Low = hi speed, hi (floating) = low speed. Internally pulled up to +5VDC through a 10k resistor.
14	Fault	High voltage open collector output indicating driver fault condition. This output will be active when the driver detects an internal fault such as overcurrent or phase short. This output must be pulled high externally. A reset or power down is required to clear the fault condition.
15	Index (Index +)	Single-end Encoder: Index marker input. Internally pulled up to +5VDC through a 10k resistor. (With Differential Encoder: Index Mark + input.)
16	Full Step	Open drain output, active for one clock pulse at each on-pole fullstep position.
17	Channel B (Channel B+)	Single-end Encoder: Channel B input. Internally pulled up to +5VDC through a 10k resistor. (With Differential Encoder: Channel B+ input.)
18	TX+	RS422 Transmit + (data out from indexer).
19	RX+	RS422 Receive + (data into indexer).
20	Input 1	User controlled input #1. Internally pulled up to +5VDC through a 10k resistor.
21	SCLK Out (Receive)	Step clock output from indexer. (With RS232 option: RS232 data into indexer.)
22	DIR Out (Transmit)	Direction output from indexer. (With RS232 option: RS232 data out from indexer.)
23	NC (Channel A-)	No Connect. (With Differential Encoder: Channel A- input.)
24	MSEL2 (Channel B-)	Resolution select 2 input pin. (With Differential Encoder: Channel B- input.)
25	+5VDC	Logic supply output for Encoder power.
26	Fullstep (Index -)	Fullstep output (see pin 16). (With Differential Encoder: Index - input.)
27	Ground	Logic supply ground connection.
28	Output 3	User controlled output #3. This is an open collector output with an internal 10k pullup resistor to +5VDC.
29	Moving	Moving output, low when indexing is in progress. High when not moving.
30	Input 2	User controlled input #2. Internally pulled up to +5VDC through a 10k resistor.
31	Soft Stop	Active low input to stop indexing using deceleration ramp. Internally pulled up to +5VDC through a 10k resistor.
32	GO	Active low level input to execute a program stored in NVM. Program execution begins at location 0 in memory. Internally pulled up to +5VDC through a 10k resistor. Once executing, the GO input is ignored until the program completes or an Abort/Stop is executed.
33	Jog -	Active low jog input for "-" direction. Internally pulled up to +5VDC through a 10k resistor.
34	Channel A (Channel A+)	Single-end Encoder: Channel A input. Internally pulled up to +5VDC through a 10k resistor. (With Differential Encoder: Channel A+ input.)