

IM483I & IM483IE

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

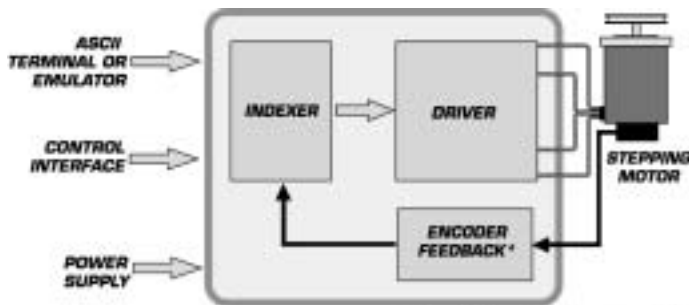
link, to program parameters such as acceleration/deceleration ramps, velocity, position, resolution, drive current, etc., to form simple or complex motions.

Programs can be executed by sending single commands, or can be stored in the on-board nonvolatile 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

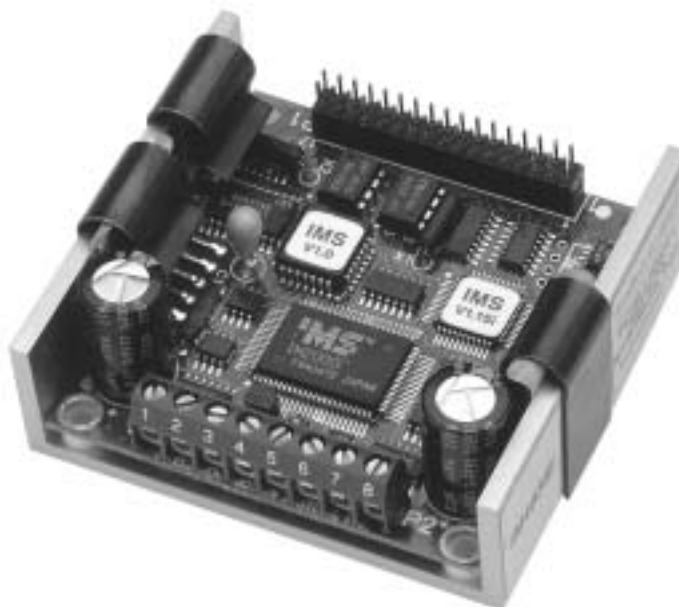
general purpose inputs and outputs that can be used to detect switch closures and to activate solenoids and/or other external devices.

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.



* Available on IE Versions Only

BLOCK DIAGRAM



S P E C I F I C A T I O N S

ELECTRICAL

IM483I & IM483IE

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
Motor Speed (1.8°/Step)	0 to 6,000 RPM
Motor Resolutions (1.8°/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 +5VDC)
Inputs (Dedicated Inputs)	(Go, Jog +, Jog -, Jog Speed, Soft Stop) 5 (0 to +15VDC)
Outputs (General Purpose)	3 (0 to +5VDC)
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

OPTIONS

TEMPERATURE

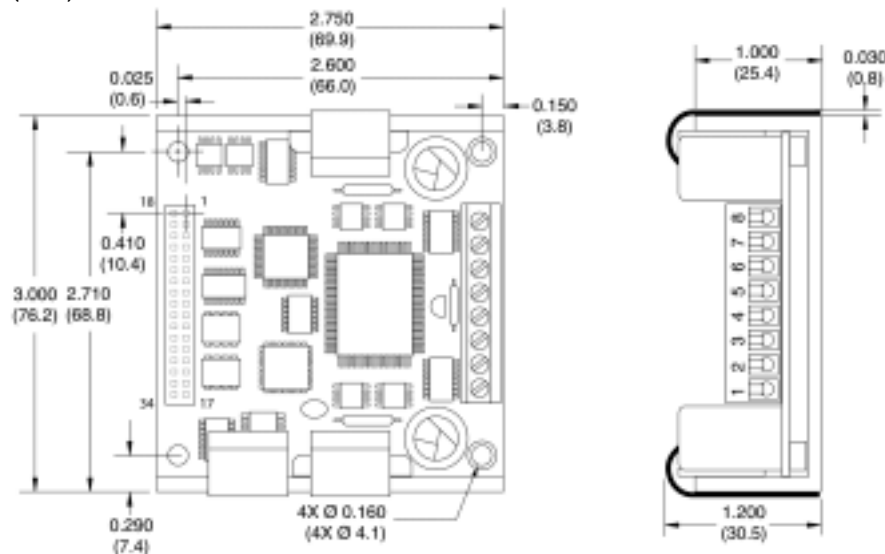
H-4X	Heat Sink
TN-48	Thermal Pad
-8P2	8 Position 0.045" sq Pin P2 Connector
BB-34(-4P)	34 Pin Breakout Board
CV-3222	Inline RS232 to RS422 Converter
QuickSTART 1	Graphic User Interface
OPT4-232	Plug-on RS232 to RS422 Converter
OPT4-DE	Differential Encoder Inputs (IM483IE and IM483IE2 ONLY)
-PLG	Plug Type Terminal for P2 Connector
PLG-R(1/2)	Mating Connectors for the -PLG Option
U3-CLP	Side Mounting Clip Set

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

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

MECHANICAL

Dimensions in Inches (mm)



PIN FUNCTIONS

IM483I & IM483IE PIN DESCRIPTION

CONNECTOR P1

Pin No.	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 +	Encoder index marker input. Internally pulled up to +5VDC through a 10k resistor/Differential Encoder Index Mark + input (with Differential Encoder Option installed).
16	Full Step	Open drain output, active for one clock pulse at each on-pole fullstep position.
17	Channel B/ Channel B +	Encoder channel B input. Internally pulled up to + 5VDC through a 10k resistor/Differential Encoder Channel B + input (with Differential Encoder Option installed).
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 /RS232 data into Indexer (with RS232 option installed).
22	DIR Out/ Transmit	Direction Output from Indexer /RS232 data out from indexer (with RS232 option installed).
23	NC/ Channel A –	No Connection. /Differential Encoder Channel A – input (with Differential Encoder Option installed).
24	MSEL2/ Channel B –	Resolution select 2 input pin /Differential Encoder Channel B – input (with Differential Encoder Option installed).
25	+5VDC	Logic supply output for Encoder power.
26	Fullstep/ Index –	Fullstep output (see pin 16). /Differential Encoder Index – input (with Differential Encoder Option installed).
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 +	Encoder Channel A input. Internally pulled up to +5VDC through a 10k resistor/Differential Encoder Channel A + input (with Differential Encoder Option installed).

CONNECTOR P2

Pin No.	Pin Name	Function
1	NC	No Connection
2	NC	No Connection
3	Ground	Supply Ground
4	V +	Supply Voltage

Pin No.	Pin Name	Function
5	Phase B̄	Phase B motor connection
6	Phase B	Phase B motor connection
7	Phase Ā	Phase A motor connection
8	Phase A	Phase A motor connection