

Quick Reference IM483H & IM805H Plus

Ultra miniature microstepping driver



IMS
INTELLIGENT MOTION
SYSTEMS, INC.

Schneider
Electric

Notes and Warnings

Installation, configuration and maintenance must be carried out by qualified technicians only. You must have detailed information to be able to carry out this work. This information can be found in the user manual.

- Unexpected dangers may be encountered when working with this product!
- Incorrect use may destroy this product and connected components!

The user manual is not included, but may be obtained from the Internet at: <http://www.imshome.com/downloads/manuals.html>.

General Specifications

Electrical Specifications		
Input Voltage (+V) Range*	IM483H Plus	+12 to +48 VDC
	IM805H Plus	+24 to +75 VDC
Output Current (RMS)	IM483H Plus	3.0 Amps
	IM805H Plus	5.0 Amps
Output Current (Peak)	IM483H Plus	4.2 Amps
	IM805H Plus	7.0 Amps
Active Power Dissipation	IM483H Plus	7 to 9 W
	IM805H Plus	9 to 12 W
Quiescent Current (+5 V Input, I/O floating)	—	145 to 225 mA

*Actual power supply current will depend on voltage and load.

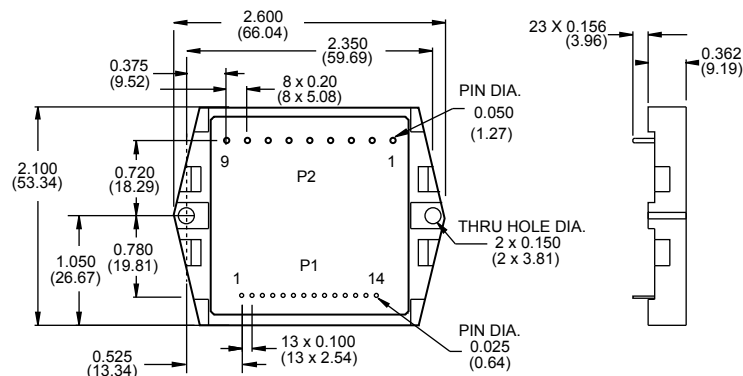
Logic Specifications			Condition	Min	Typ	Max	Unit
Low-Level Input Voltage	All Inputs		—	—	1.2	—	VDC
High-Level Input Voltage	All Inputs Except Reset		—	—	2.0	—	VDC
High-Level Input Voltage	Reset Input		—	2.3	—	—	VDC
Input Pull-Up Resistance	MSEL 0-3, Enable		—	20	—	—	kΩ
	Step Clock, Direction		—	2.0	—	—	kΩ
	Reset		0.9	1.0	1.1	—	kΩ
	Fault Input		—	4.7	—	—	kΩ
Low-Level Output Current	Fault, Fullstep (inactive)		—	—	-2.0	—	mA
High-Level Output Current	Fault, Fullstep (active)		—	—	2.0	—	mA
Low-Level Output Voltage	$I_{OL} = 1.4 \text{ mA}$		—	—	0.5	—	VDC
High-Level Output Voltage	$I_{OH} = 1.7 \text{ mA}$		2.3	—	—	—	VDC

Thermal Specifications			Min	Typ	Max	Unit
Storage Temperature	—		-40	—	+125	°C
Operating Temperature	—		-40	—	+85	°C
Rear Plate Temperature (Add't Cooling may be required)	—		—	—	+70	°C

Motion Specifications			Min	Typ	Max	Unit
Step Clock Rate	—		—	—	2.5	MHz
Number of Microstep Resolutions (See Resolution Table)	—		—	—	16	—

Mechanical Specifications

Dimensions in Inches (mm)



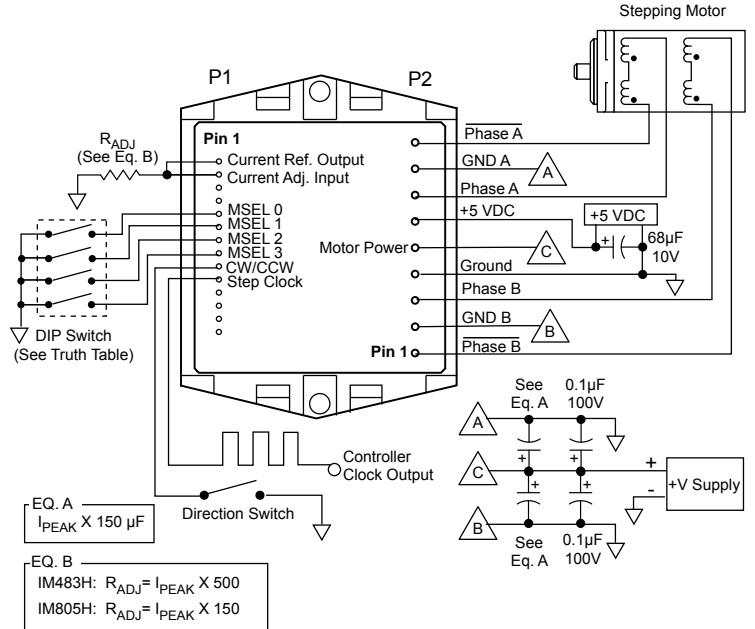
Pin Configuration

Connector P1 (Signals)	
Pin #	Function
1	Current Reference Output
2	Current Adjustment Input
3	Current Reduction Input
4	Fault Input
5 - 8	Microstep Resolution Select (MSEL) 0-3
9	Step Clock Input
10	CW/CCW Direction Input
11	Enable/Disable
12	On-Full-Step Output
13	Fault Output
14	Reset

Connector P2 (Motor and Power)	
Pin #	Function
1	Motor Phase B
2	Phase B Ground
3	Motor Phase \bar{B}
4	Power Supply Return (Ground)
5	+V (Power Supply Output)
6	+5 VDC (Logic Power Supply)
7	Motor Phase A
8	Phase A Ground
9	Motor Phase \bar{A}

Minimum Required Connections

The following illustration shows the minimum connection requirements for operating the IMxH. For use and interface of the other I/O points, please refer to the product manual.



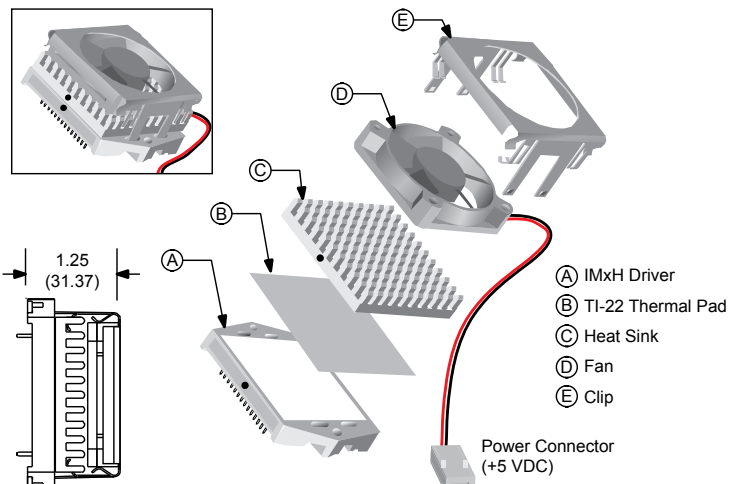
Assumes 1.8° Stepping Motor
0 = LOW (Switch Closed), 1 = HIGH (Switch Open).
MSEL Inputs Pulled to +5V Internally using a 20kΩ Resistor

Resolution	Steps/Rev	MSEL 0	MSEL 1	MSEL 2	MSEL 3
Binary Resolutions					
2	400	0	0	0	0
4	800	1	0	0	0
8	1600	0	1	0	0
16	3200	1	1	0	0
32	6400	0	0	1	0
64	12800	1	0	1	0
128	25600	0	1	1	0
256	51200	1	1	1	0
Decimal Resolutions					
5	1000	0	0	0	1
10	2000	1	0	0	1
25	5000	0	1	0	1
50	10000	1	1	0	1
125	25000	0	0	1	1
250	50000	1	0	1	1
Full Step					
1	200	0	1	1	1
.01 Degrees					
180	36000	1	1	1	1

Mounting Requirements

The IMxH is designed to be socketed or soldered into a PCB. For PCB layout information and circuit board hole pattern please refer to the product manual. This part of the Quick Reference only supplies mechanical mounting information.

HFC-22 Heat Sink Fan Combination



INT-483H/805H Interface Board

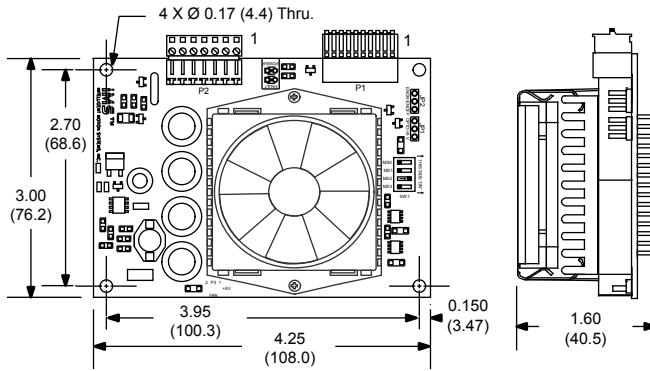
General Specifications

All test data was taken at 25° at an input voltage of +45 VDC.

Electrical Specifications	Condition	Min	Typ	Max	Unit
Optocoupler Supply Voltage	Isolated Inputs	+5	—	+40	VDC
Input Forward Current		8	10	12	mA
Input Forward Voltage		—	1.5	1.7	VDC
Reverse Breakdown Voltage	Fault, Full Step	5	—	—	VDC
Signal Output Current		—	—	25	mA
Drain-Source Voltage		—	—	100	VDC
Drain-Source On Resistance (I _{DS} = 25mA)		6.5	—	—	Ω

Mechanical Specifications

Dimensions in Inches (mm)



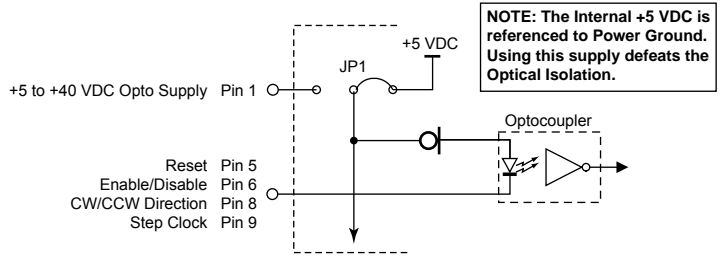
Pin Configuration

Connector P1 Function		Connector P2 Function	
Pin #	Function	Pin #	Function
1	Optocoupler Supply	1	Motor Phase \bar{A} Output
2	Current Reduction Input	2	Motor Phase A Output
3	Current Adjustment Input	3	Motor Phase \bar{B} Output
4	Ground	4	Motor Phase B Output
5	Reset Input	5	Power Supply Return (Ground)
6	Enable/Disable Input	6	
7	CW/CCW Direction Input	7	+V Motor Power Supply
8	Step Clock Input		
9	On-Full-Step Output (open drain)		
10	Fault Output (open drain)		

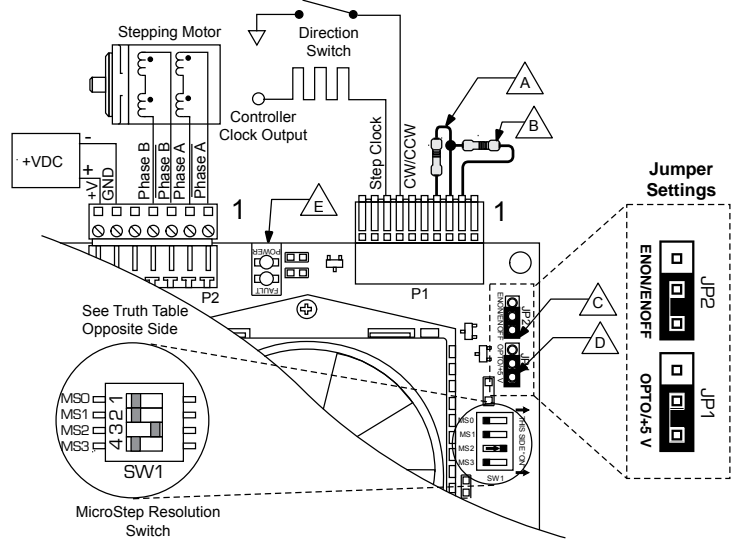
Mounting

Refer to the mounting instructions in the full product manual. An optional L-Bracket, MB-22, is available to panel mount this product.

Opto-Isolated Inputs



Minimum Required Configuration/Connections



EQ. A
 IM483H: $R_{ADJ} = I_{PEAK} \times 500$
 IM805H: $R_{ADJ} = I_{PEAK} \times 150$

EQ. B
 $R_{RED} = A \times \left(\frac{I_{RUN} \times I_{HOLD}}{I_{RUN} - I_{HOLD}} \right)$
 IM483H: $A = 500$
 IM805H: $A = 150$

- A** Current Adjust Resistor (1/8 W 1% Ω) (See EQ. A)
- B** Reduction Adjust Resistor (1/8 W 1% Ω) (See EQ. B)
- ENON**: Bridge Disables Following Move, ENOFF: Current Reduced by Resistor Value. ENOFF shown
- OPTO**: Optoisolators powered by external supply (isolated inputs) +5V: Optocouplers powered by on-board +5VDC (inputs not isolated). +5 VDC Setting shown.
- E** Indicator LEDs. Green: Power On. Red: Fault Condition Exists