

# Quick Reference IM483H & IM805H Plus

## Ultra miniature microstepping driver

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

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

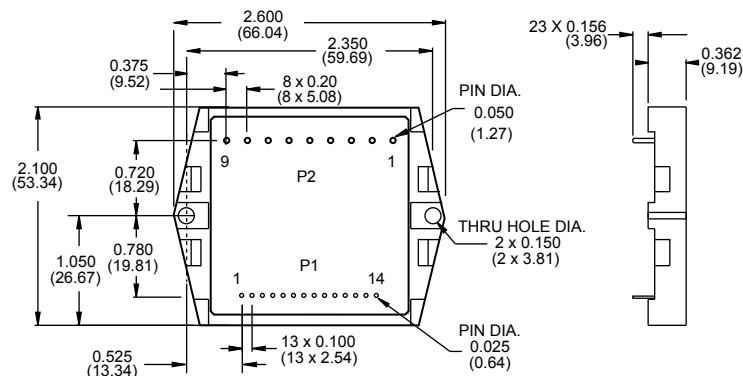
| Logic Specifications      |                           |                            |     |     |      |    |
|---------------------------|---------------------------|----------------------------|-----|-----|------|----|
|                           | Condition                 | Min                        | 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  |    |
|                           | MSEL 0-3, Enable          | —                          | 20  | —   | kΩ   |    |
|                           | Step Clock, Direction     | —                          | 2.0 | —   | kΩ   |    |
| Input Pull-Up Resistance  | 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)



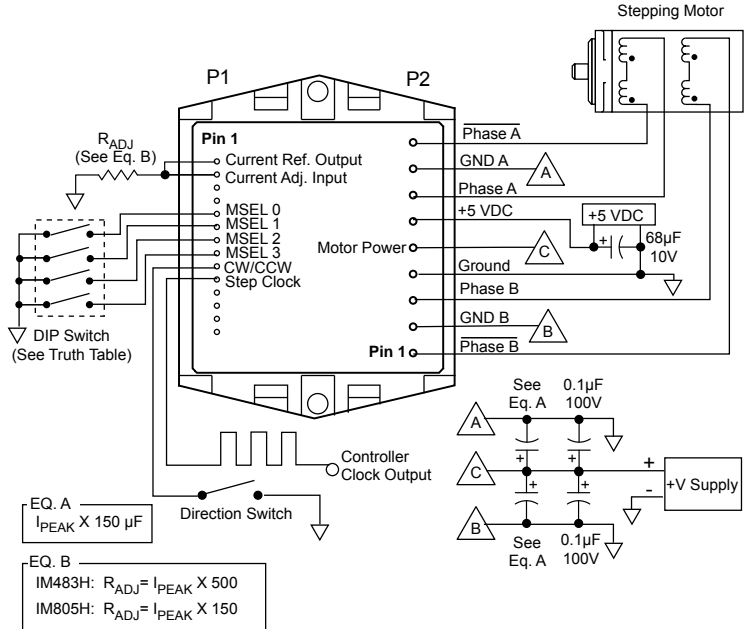
### Pin Configuration

| 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.



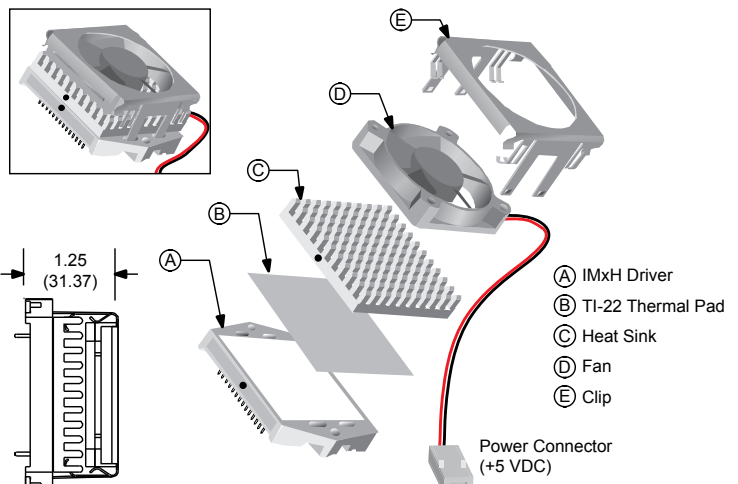
Assumes 1.8° Stepping Motor  
 0 = LOW (Switch Closed), 1 = HIGH (Switch Open).  
 MSEL Inputs Pulled to +5V Internally using a 20kΩ Resistor

| Resolution<br>Microsteps/Step | 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

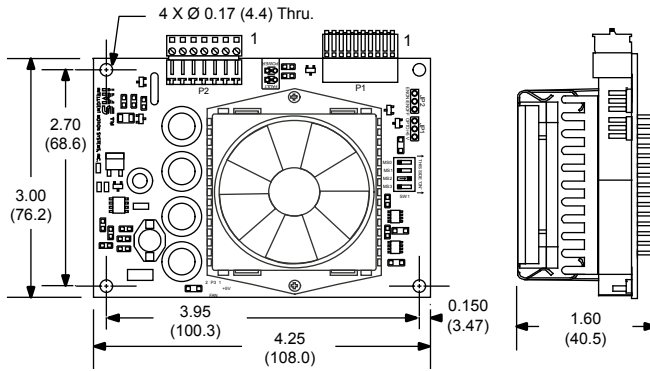
## General Specifications

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 <sub>DS</sub> = 25mA) |                  | 6.5 | —   | —   | Ω    |

## Mechanical Specifications

Dimensions in Inches (mm)



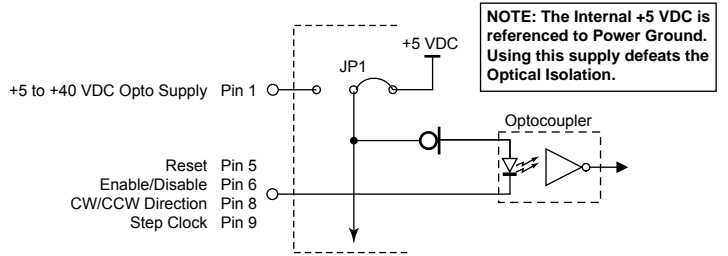
## Pin Configuration

| 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)        |                       |                              |

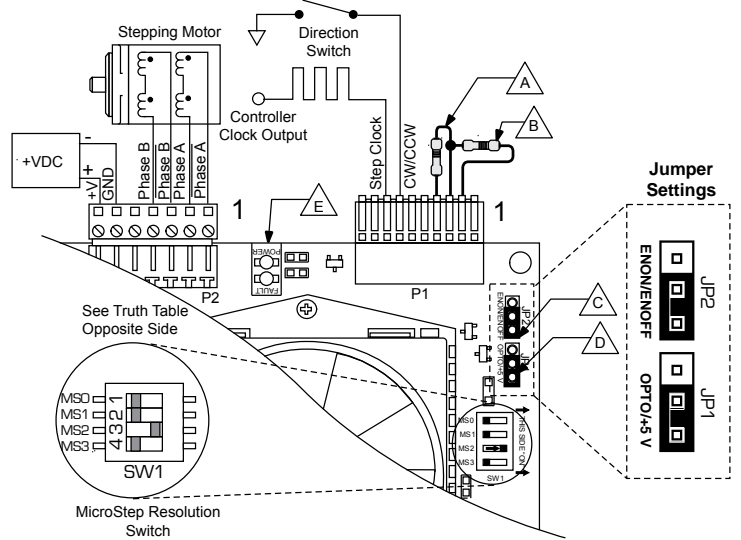
## Mounting

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)
- C** ENON: Bridge Disables Following Move, ENOFF: Current Reduced by Resistor Value. ENOFF shown
- D** 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