

Mechanical Outlines

Figure 36. Mechanical Outline for the NI ISM-7411

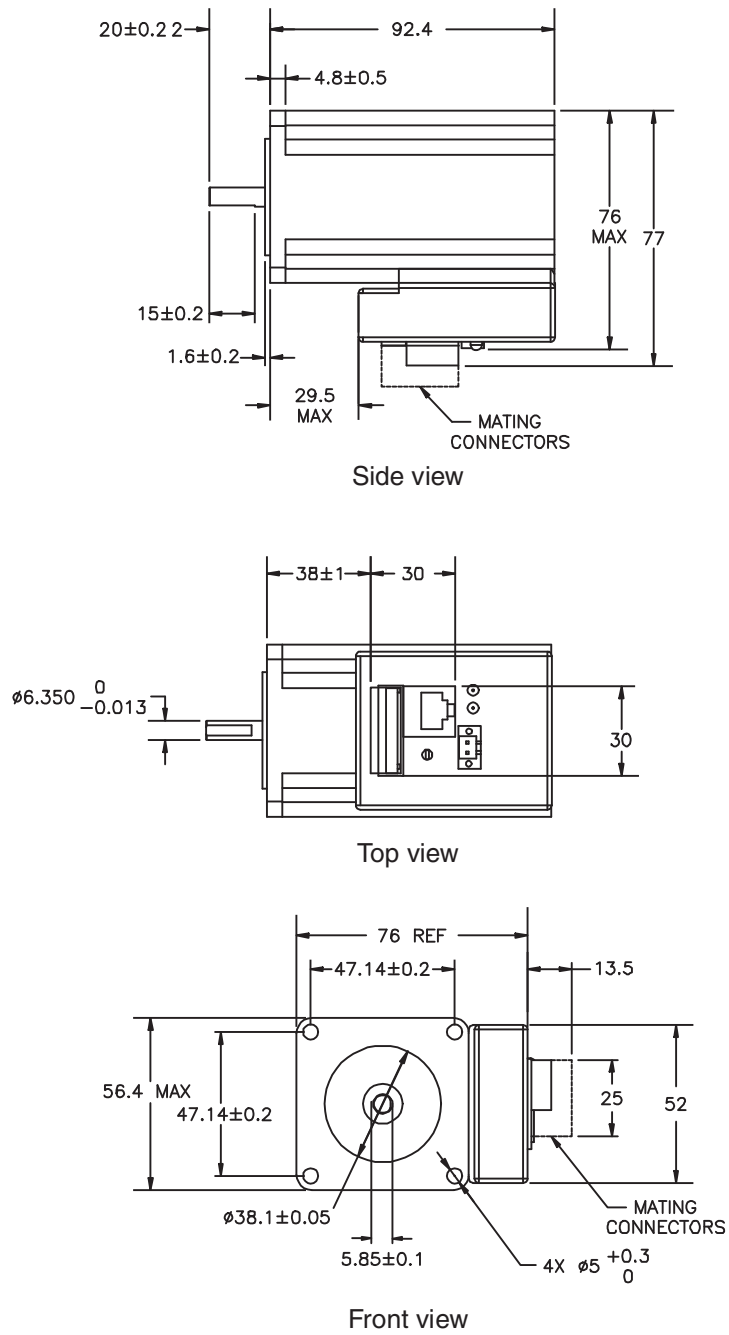
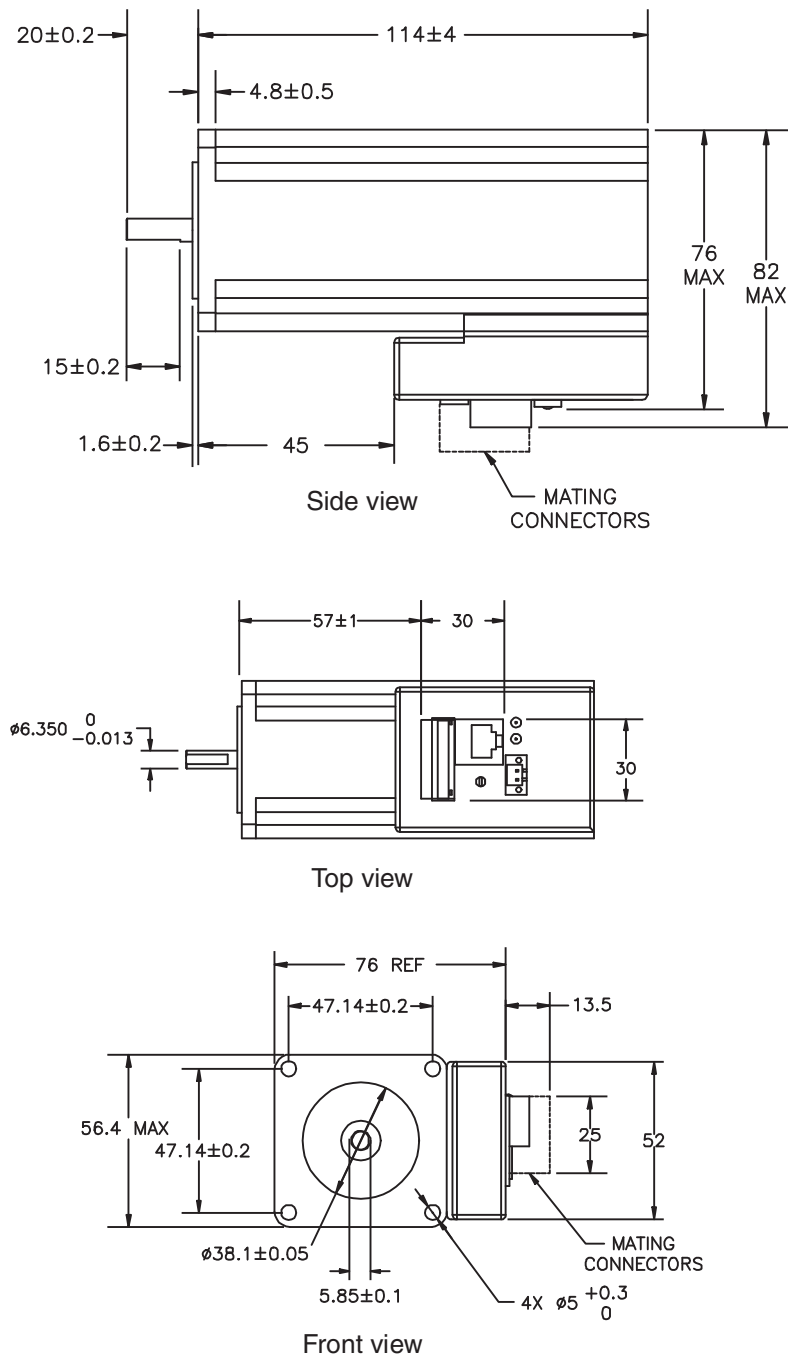


Figure 37. Mechanical Outline for the NI ISM-7412



Technical Specifications

Amplifier

Amplifier type.....	Dual H-bridge, 4 quadrant
Current control.....	4 state PWM @ 20 kHz
Protection.....	Over-voltage, under-voltage, over-current, over-temperature
Supply voltage.....	12 VDC to 70 VDC
Under-voltage alarm.....	11 VDC

Over-voltage shutdown.....	74 VDC
Over-temp shutdown.....	85 °C
Motor current	2.5 to 5.0 A/phase peak of sine
Current reduction range	0 to 90%, user configurable
Current reduction delay	User configurable

Motor

Torque	Refer to <i>Torque-Speed Curves</i>
NI ISM-7411	125 oz-in max
NI ISM-7412.....	210 oz-in max
Microstep resolution	200 to 51,200 steps/rev, user configurable

Digital Inputs

Optically isolated, 5 V to 24 V logic. Sourcing, sinking, or differential signals can be used.

Minimum on voltage.....	4 VDC
Maximum voltage.....	30 VDC
Maximum pulse frequency:	3 MHz
Minimum pulse width.....	250 ns

Analog Input

AIN is referenced to GND.

Range	0 to 5 VDC
Resolution	12 bits

Digital Output

Optically isolated, user programmable.

Maximum voltage.....	30 VDC max
Maximum current	40 mA

+5V User Output

Range	4.8 to 5.0 V
Current	40 mA, max

Physical

Frame size.....	NEMA 23
NI ISM-7411	
Size	2.22 × 3.03 × 3.64 in. (56.4 × 77 × 92.4 mm), not including pilot or shaft. 0.25 in. shaft with flat.
Weight.....	30 oz (850 g)
Rotor inertia.....	3.68×10^{-3} oz-in.-sec ² (260 g-cm ²)
NI ISM-7412	
Size	2.22 × 3.23 × 4.49 in. (56.4 × 82 × 114 mm), not including pilot or shaft. 0.25 in. shaft with flat.
Weight.....	42 oz (1191 g)
Rotor inertia.....	6.52×10^{-3} oz-in.-sec ² (460 g-cm ²)
Operating temperature range	0 °C to 40 °C

Accessories

Regeneration clamp	NI SMD-7700, NI part number 748908-01
Power Supply	
NI PS-12	24 VDC, 6.3 A, NI part number 748906-01
NI PS-13	48VDC, 6.7A, NI part number 748907-01

Alarm Codes

In the event of a drive fault or alarm, the green LED flashes one or two times, followed by a series of red flashes. The pattern repeats until the alarm is cleared.

Table 2. Status LED Blink Code Definitions

Blink sequence	Code	Error
G	Solid green	No alarm, motor disabled
GG (slow)	Flashing green slowly	No alarm, motor enabled
GG (rapid)	Flashing green quickly	Q Program running
RG	1 red, 1 green	Motor stall (encoder-equipped only)
RGG	1 red, 2 green	Move attempted, drive disabled
RRG	2 red, 1 green	CCW limit
RRGG	2 red, 2 green	CW limit
RRRG	3 red, 1 green	Drive overheating

Table 2. Status LED Blink Code Definitions (Continued)

Blink sequence	Code	Error
RRRGG	3 red, 2 green	Internal voltage out of range
RRRRG	4 red, 1 green	Power supply overvoltage
RRRRGG	4 red, 2 green	Power supply undervoltage
RRRRRG	5 red, 1 green	Over current / short circuit
RRRRRRG	6 red, 1 green	Open motor winding
RRRRRRRG	7 red, 1 green	Serial communication error

Worldwide Support and Services

The National Instruments website is your complete resource for technical support. At [ni . com / support](http://ni.com/support) you have access to everything from troubleshooting and application development self-help resources to email and phone assistance from NI Application Engineers.

Visit [ni . com / ser vi ces](http://ni.com/services) for NI Factory Installation Services, repairs, extended warranty, and other services.

Visit [ni . com / regi st er](http://ni.com/register) to register your National Instruments product. Product registration facilitates technical support and ensures that you receive important information updates from NI.

A Declaration of Conformity (DoC) is our claim of compliance with the Council of the European Communities using the manufacturer’s declaration of conformity. This system affords the user protection for electromagnetic compatibility (EMC) and product safety. You can obtain the DoC for your product by visiting [ni . com / cert i f i cat i on](http://ni.com/certification). If your product supports calibration, you can obtain the calibration certificate for your product at [ni . com / cal i br at i on](http://ni.com/calibration).

National Instruments corporate headquarters is located at 11500 North Mopac Expressway, Austin, Texas, 78759-3504. National Instruments also has offices located around the world. For telephone support in the United States, create your service request at [ni . com / support](http://ni.com/support) or dial 1 866 ASK MYNI (275 6964). For telephone support outside the United States, visit the Worldwide Offices section of [ni . com / ni gl obal](http://ni.com/global) to access the branch office websites, which provide up-to-date contact information, support phone numbers, email addresses, and current events.

Refer to the NI Trademarks and Logo Guidelines at [ni . com / t r a d e m a r k s](http://ni.com/trademarks) for more information on National Instruments trademarks. Other product and company names mentioned herein are trademarks or trade names of their respective companies. For patents covering National Instruments products/technology, refer to the appropriate location: Help Patents in your software, the `pat ent s . t x t` file on your media, or the National Instruments Patents Notice at [ni . com / pat ent s](http://ni.com/patent). You can find information about end-user license agreements (EULAs) and third-party legal notices in the readme file for your NI product. Refer to the Export Compliance Information at [ni . com / l e g a l / e x p o r t - c o m p l i a n c e](http://ni.com/legal/export-compliance) for the National Instruments global trade compliance policy and how to obtain relevant HTS codes, EECNs, and other import/export data. NI MAKES NO EXPRESS OR IMPLIED WARRANTIES AS TO THE ACCURACY OF THE INFORMATION CONTAINED HEREIN AND SHALL NOT BE LIABLE FOR ANY ERRORS. U.S. Government Customers: The data contained in this manual was developed at private expense and is subject to the applicable limited rights and restricted data rights as set forth in FAR 52.227-14, DFAR 252.227-7014, and DFAR 252.227-7015.

© 2014 National Instruments. All rights reserved.