

MMD-103

Series



3-Axis Piezo Motor Controller Reference Manual

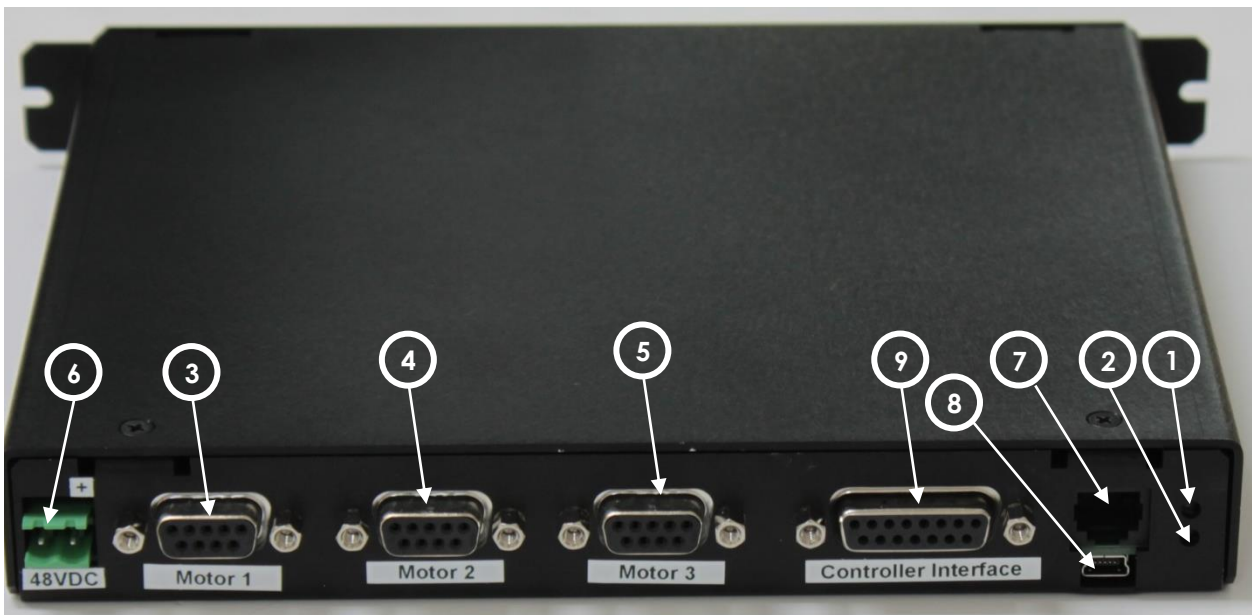
Table of Contents

1. Introduction	1-2
1.1 Product Description	1-2
1.2 Features	1-3
2. Technical Information	2-3
2.1 MMD-103 Specifications	3-3
3. Connector Pin-outs	3-4
3.1 Controller Interface Pin-Out	3-4
3.2 Motor Input Pin-out	3-4

1. Introduction

1.1 Product Description

The MMD-103 is a high performance two phase piezo motor driver designed to be used as a step/ direction three axis unit. The MMD-103 is capable of driving a piezo motor with a resolution as fine as 1 nm in open loop. The closed loop resolution is dependent on the resolution of the encoder (typically 1 nm).



1. LED Error Indicator 1
 - a. Red – An error has occurred
2. LED Addressing Indicator 2
 - a. Orange – Stage is Unaddressed
 - b. Green – Stage has an address and is ready
3. Motor 1, Female D-Sub 9-Pin Connector
4. Motor 2, Female D-Sub 9-Pin Connector
5. Motor 3, Female D-Sub 9-Pin Connector
6. Power Supply, +48VDC, Regulated
7. RS485 Intermodular Connector
8. USB Connector
9. I/O Connector

(Note: For Pin-outs see page 3-4)

1.2 Features

- Driver for MICRONIX USA stick-slip piezo motors
- Simple Step and Direction input
- Step Pulse frequency up to 3.5 MHz
- Integrated 3-Axis controller
- Open loop/closed loop operation
- Open loop resolution of less than 1 nm
- Closed loop resolution down to 1 nm (dependent on encoder)
- A quad B differential or sin/cos analog encoder feedback
- USB 2.0 or RS-485 interface

2. Technical Information

2.1 MMD-103 Specifications

Parameter	Description
Motor Type	Stick-slip piezo motors
Control Interface	Step(rising edge)/Direction(level triggered)
Signal Input Voltage	RS-422
Max Input Frequency	3.5 MHz
Power Supply	Regulated 48V DC (1A per module/axis*)
Enclosure Dimensions	8.793 x 6.75 x 1.125

*A single power supply may be used per stack. Each module/axis requires 1A. To calculate the needed amperage, add up individual module power requirements to determine the power supply amperage requirement.

3. Connector Pin-outs

3.1 Controller Interface Connector Pin-Out

Pin	Description
1	Ground
2	NC
3	Motor 3 Direction+
4	Motor 3 Step+
5	Motor 2 Direction+
6	Motor 2 Step+
7	Motor 1 Direction+
8	Motor 1 Step+
9	Ground
10	Motor 3 Direction-
11	Motor 3 Step-
12	Motor 2 Direction-
13	Motor 2 Step-
14	Motor 1 Direction-
15	Motor 1 Step-

3.2 Motor Input Pin-out

Pin	Description
1	Phase 1
2	Phase 2
3	Ground
4	Ground
5	Ground
6	+5V
7	Ground
8	Not In Use
9	Not In Use

