

# TECHNICAL DESCRIPTION

## MODEL: PMC-1202 (Piezoelectric Motor Controller)

VER. 102

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## Revision History

Version	Date	Changes	Status	Author/Approver
100	2013/03/21	First revision	draft	Jongmin Choi
101	2013/06/10	Added pulse/direction	draft	Jongmin Choi
102	2013/07/15	Changed Pulse/direction pin configuration	draft	Jongmin Choi

- The information is subject to change without notice for technical improvement

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## 1. Introduction

This user manual provides information about the electrical specifications of the PMC-1202.

PMC-1202 Controller is offered in single axis configurations.

The PMC-1202 performs digital position and velocity control for one axis, using incremental encoder devices as the main position feedback.

## 2. Features

- Industry's smallest TULA controller solution.
- PID Control and IIR filter Algorithm.
- USB (Serial over USB) or RS-232 Interface.
- Pulse/Direction feedback.
- DI/D0/AI System.
- Data Recording.
- Single Axes configuration.

## 3. Safety Precautions

Connect/disconnect the stage cable from/to PMC-1202, only when the main power cord is disconnected from the wall outlet.

## 4. Specification

<b>Model</b>	<b>PMC-1202</b>
<b>Power</b>	
Operating Voltage	5V [±10%]
Electrical power	1.5W
Power consumption	0.3A
<b>Communication</b>	USB ( Serial over USB ) / RS-232
Baud rate	115200 bps
Transmission code	ASC II
Data length	8 bit
Stop bit length	1 bit
Parity check	Nil
User software	PMC-1202 PC Manager
<b>Environmental</b>	
Ambient operating temperature	0 to +50°C
Storage temperature	-20°C to +70°C
Operating humidity	0 to 80%
Dimensions	25 mm x 61 mm x 8 mm
Weight	8g

Table 1: Technical data

## 5. Block Diagram

This section describes the block diagram of PMC-1202.

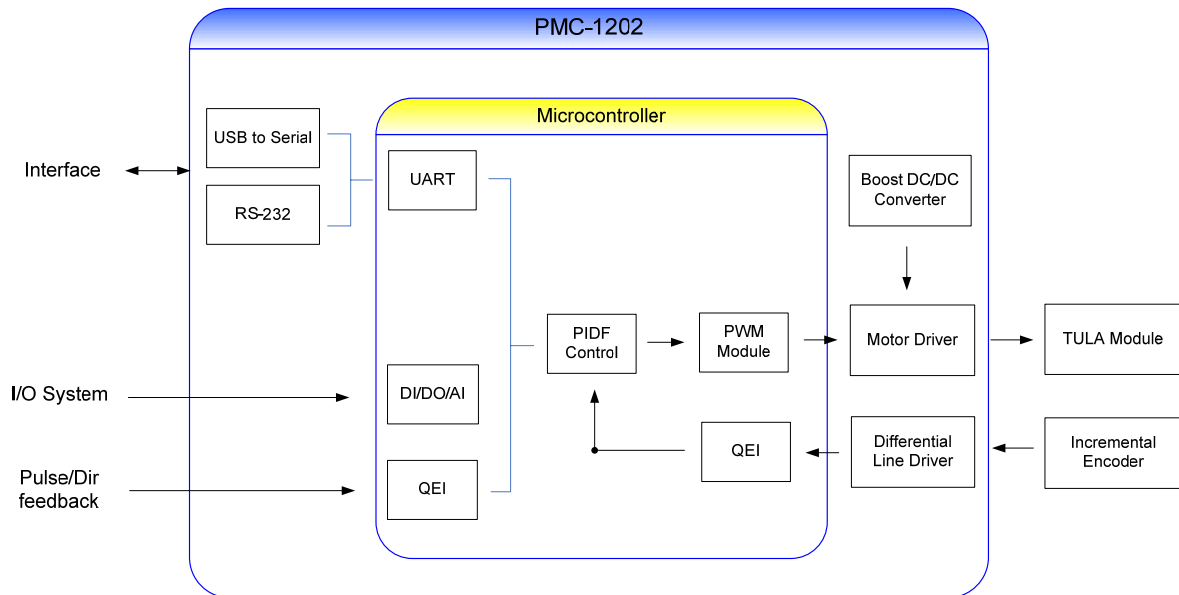


Figure 1: PMC-1202 Block diagram

## 6. Layout

This section describes the layout of PMC-1202.

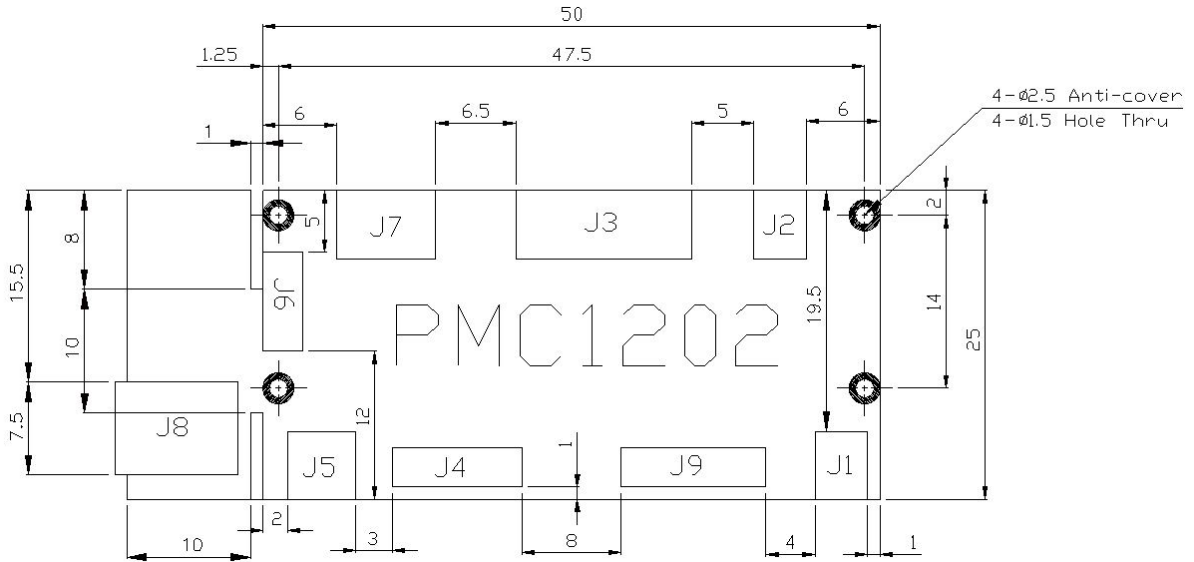


Figure 2: PMC-1202 Dimension

## 7. Switch1 setup

This section describes the switch1 of PMC-1202.

### 7-1. USB mode

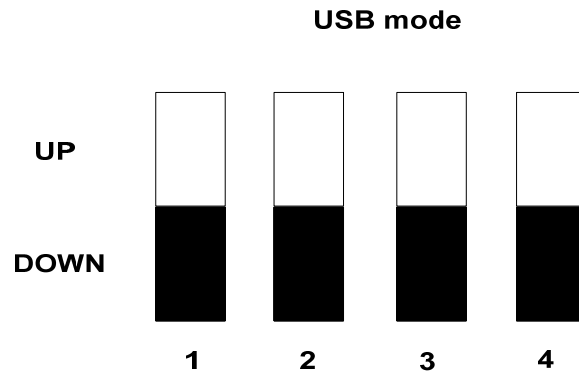


Figure 3: USB mode

### 7-2. RS232 mode

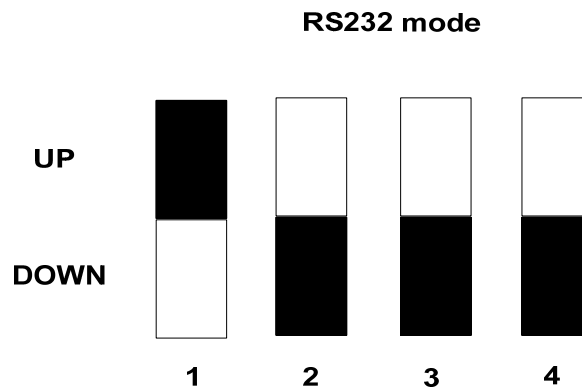


Figure 4: RS232 mode

### 7-3. Pulse/Direction mode

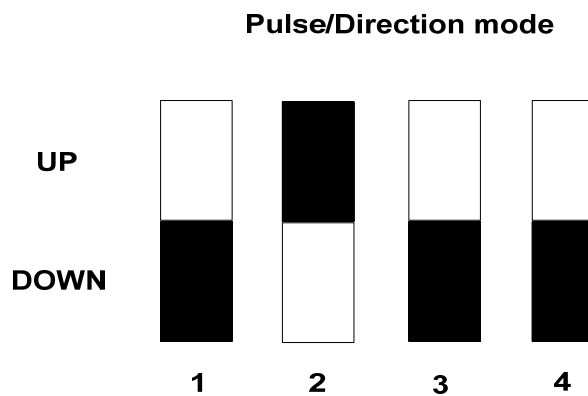


Figure 5: Pulse/Direction mode



## 8. CONNECTOR PIN CONFIGURATION

This section describes the motor and encoder connector pin out.

### 8-1. Power

Connector J1: Molex, 53048-0210

Pin#	Pin Name	Pin Type	Description
1	VCC5MAIN	P	Positive supply for PMC-1202
2	GND	-	Ground reference for PMC-1202

Table 2: PMC-1202 Main Power Connector Pin out

### 8-2. Motor

Connector J2: Molex, 53048-0310

Pin#	Pin Name	Pin Type	Description
1	MOT A	O	High voltage output A
2	MOT B	O	High voltage output A
3	GND	-	Ground reference for PMC-1202

Table 3: PMC-1202 Motor Connector Pin out

### 8-3. Encoder

Connector J3: Molex, 53048-1010

Pin#	Pin Name	Pin Type	Description
1	VCC5ENC	O	Positive supply for optical encoder
2,9,10	GND	-	Ground reference for optical encoder
3	B+	I	Incremental signals
4	B-	I	
5	A+	I	
6	A-	I	
7	Z+	I	Reference mark / Index
8	Z-	I	

Table 4: PMC-1202 Encoder Connector Pin out

#### 8-4. RS-232

Connector J5: Molex, 53048-0410

Pin#	Pin Name	Pin Type	Description
1	TXD	O	RS-232 Transmit (PMC-1202 → PC)
2	RXD	I	RS-232 Receive (PMC-1202 ← PC)
3	GND	-	Ground reference for PMC-1202
4	N.C.	-	Not connected

Table 5: PMC-1202 RS-232 Connector Pin out

#### 8-5. USB ( Serial over USB )

Connector J8: ON-Shore Technology, USB-M26FTR

Pin#	Pin Name	Pin Type	Description
1	VCC5USB	I	Positive supply for FT232R
2	D-	I/O	Differential line D-
3	D+	I/O	Differential line D+
4	N.C.	-	Not connected
5	GND	-	Ground reference for PMC-1202

Table 6: PMC-1202 USB Connector Pin out

#### 8-6. DI/DO/AI

Connector J7: Molex, 53048-0510

Pin#	Pin Name	Pin Type	Description
1	VCC3.3DIO	O	Positive supply for DIO controller
2	EXIO1	I	General purpose digital input #1 (TBD)
3	EXIO2	I	General purpose digital input #2 (TBD)
4	EXIO3	I	General purpose digital input #3 (TBD)
5	GND	-	Ground reference for PMC-1202

Table 7: PMC-1202 Digital I/O Connector Pin out

### 8-7. Pulse/Direction

Connector J4: Molex, 53047-0710

Pin#	Pin Name	Pin Type	Description
1	VCC5PD	O	Positive supply for pulse controller
2	VCC3.3PD	O	Positive supply for pulse controller
3	EXIO4	I	Not connected
4	EXIO_HOME	I	External home
5	EXIO_DIRECTION	I	External direction ( 0 = forward, 1 = reverse )
6	EXIO_PULSE	I	External pulse
7	GND	-	Ground reference for PMC-1202

Table 8: PMC-1202 Pulse/Direction Connector Pin out

\*\* for PMC1202 technical data, refer to "Pulse/Direction description".

### 8-8. Encoder output

Connector J4: Molex, 53047-0810

Pin#	Pin Name	Pin Type	Description
1	VCC30V	O	Positive supply for pulse controller
2	VCC5PD	O	Positive supply for pulse controller
3	ENC A Phase	O	Incremental signal A phase
4	ENC B Phase	O	Incremental signal B phase
5	ENC Z Phase	O	Reference mark / Index
6	N.C.	I	Not connected
7	N.C.	I	Not connected
8	GND	-	Ground reference for PMC-1202

Table 9: PMC-1202 Encoder output Pin out

## 9. Contact Information

Contact your local distributor or Piezoelectric Technology Co., Ltd.

### 9-1. Head Office

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