

# TECHNICAL DESCRIPTION

## MODEL: PMC-1804 (Piezoelectric Motor Controller)

VER. 100

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## Revision History

Version	Date	Changes	Status	Author/Approver
100	2019/04/19	First revision	draft	J.H.Nam

- 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-1804 TD-101 Controller is offered in single axis configurations.

The TD-101 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.
- DI/D0/AI System.
- Data Recording.
- Single Axis configuration.

## 3. Safety Precautions

Connect/disconnect the stage cable from/to PMC-1804, only when the main power cord is disconnected from the wall outlet.

## 4. Specification

<b>Model</b>	<b>PMC-1804</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	TULA Controller 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-1804.

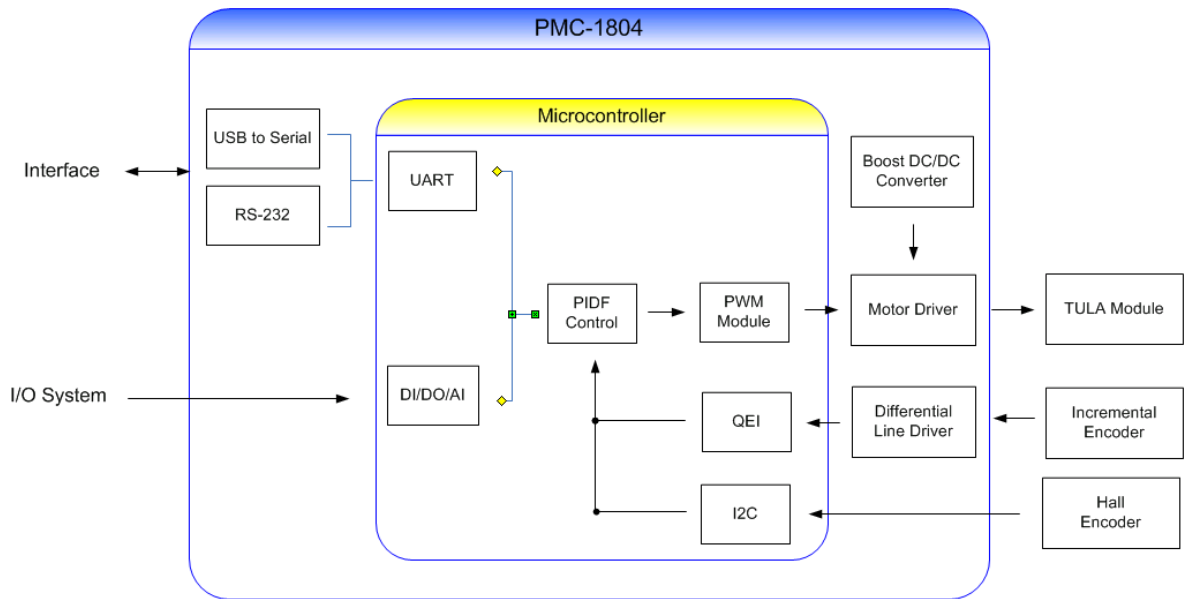


Figure 1: PMC-1804 Block diagram

## 6. Layout

This section describes the layout of PMC-1804.

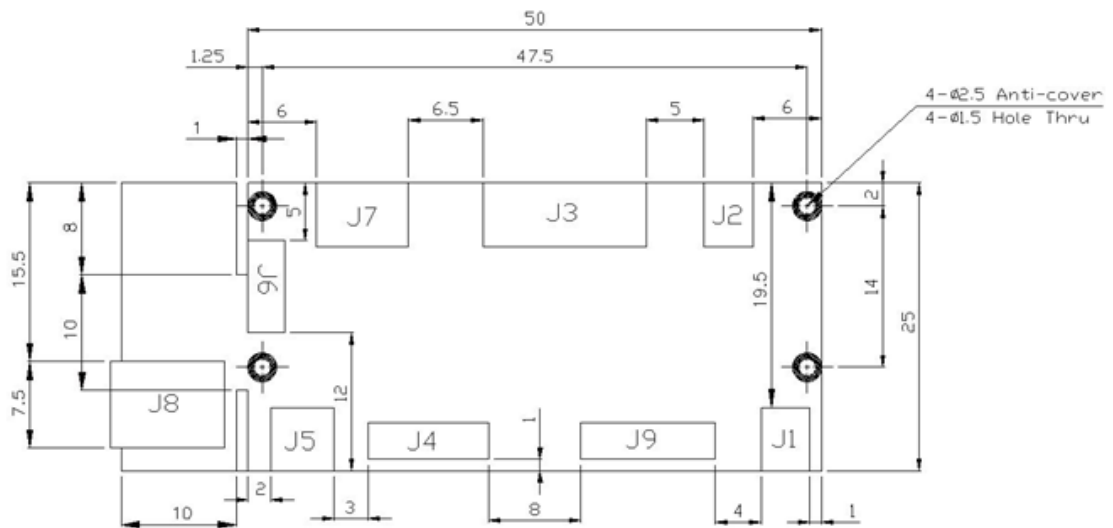


Figure 2: PMC-1804 Dimension

## 7. Switch1 setup

This section describes the switch1 of PMC-1804.

### 7-1. USB mode

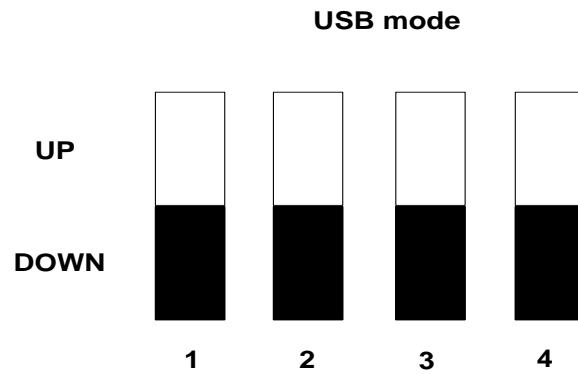


Figure 3: USB mode

### 7-2. RS232 mode

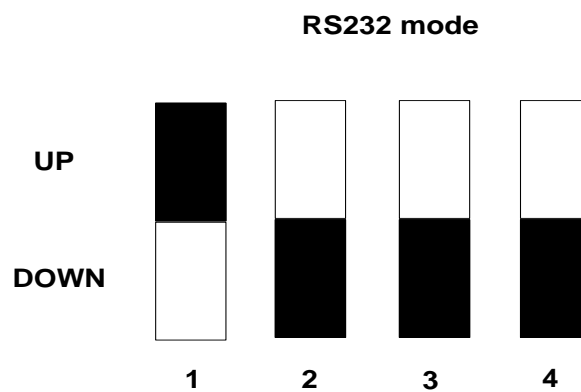


Figure 4: RS232 mode



## 8. CONNECTOR PIN CONFIGURATION

This section describes the motor and encoder connector pin out.

### 8-1. Power

Connector J1: JST, SM02B-GHS-TB

Pin#	Pin Name	Pin Type	Description
1	VCC5MAIN	P	Positive supply for PMC-1804
2	GND	-	Ground reference for PMC-1804

Table 2: PMC-1804 Main Power Connector Pin out

### 8-2. Motor

Connector J2: JST, SM03B-GHS-TB

Pin#	Pin Name	Pin Type	Description
1	MOT A	O	High voltage output A
2	MOT B	O	High voltage output B
3	GND	-	Ground reference for PMC-1804

Table 3: PMC-1804 Motor Connector Pin out

### 8-3. Encoder

Connector J3: JST, SM10B-GHS-TB

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-1804 Encoder Connector Pin out

### 8-4. RS-232

Connector J5: JST, SM04B-GHS-TB

Pin#	Pin Name	Pin Type	Description
1	TXD	O	RS-232 Transmit (PMC-1804 → PC)
2	RXD	I	RS-232 Receive (PMC-1804 ← PC)
3	GND	-	Ground reference for PMC-1804
4	N.C.	-	Not connected

Table 5: PMC-1804 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-1804

Table 6: PMC-1804 USB Connector Pin out

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

Connector J7: JST, SM05B-GHS-TB

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-1804

Table 7: PMC-1804 Digital I/O Connector Pin out

## 8-7. Hall Encoder

Connector J4: JST, SM07B-GHS-TB

Pin#	Pin Name	Pin Type	Description
1	VCC5PD	O	Positive supply for Hall Encoder
2	VCC3.3PD	O	Positive supply for Hall Encoder
3	I2C_SCL	I	I2C_Clock
4	I2C_DATA	I	I2C_Data
5	N.C	-	Not connected
6	N.C	-	Not connected
7	GND	-	Ground reference for PMC-1804

Table 8: PMC-1804 Hall Encoder Connector Pin out

## 9. Contact Information

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

### 9-1. Head Office

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