Product specification

DC-C51.MS1

Version: V1.0

statement

This user manual is a comprehensive guide for the **DC-C51.MS1** piezoelectric ceramic controller. Before operating the controller, please read this manual thoroughly. Follow the instructions in this manual during use. If any issues arise, contact our company for technical support. The company shall not be liable for any consequences caused by unauthorized modifications, disassembly, or improper operation.

Read the following content to prevent personal injury and avoid damage to this product or any connected devices. Use this product only within specified limits to eliminate potential hazards.

- Do not touch any exposed terminals on the product or accessories.
- High voltage inside. Do not open the chassis without authorization.
- Do not plug/unplug input/output cables or sensor cables while powered on.
- Keep the product surface clean and dry. Avoid operating in humid or high-static environments.
- Before turning off the controller, reset the output voltage to zero (e.g., switch from closed-loop to open-loop state).
- The piezoelectric power amplifier described in this manual is a high-voltage device capable of high-current output. Improper use may result in severe or fatal injuries.
- Strongly advised: Never touch any high-voltage output connections.
- If connecting third-party devices, follow general safety protocols.
- Exceeding the PZT′ s voltage tolerance will cause permanent damage. Ensure correct polarity and voltage range before applying power to PZT terminals.
- Unauthorized modifications or maintenance will void all liabilities. Only authorized personnel may perform maintenance using original components.

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1. Overview

1.1 Key Features

- Single-channel compact design
- Power supply: 20V–30V
- Peak current: 0.5A
- Average current: 60mA
- No-load bandwidth: 10kHz
- Output short-circuit protection
- Thermal protection
- SGS sensor-based closed-loop servo control

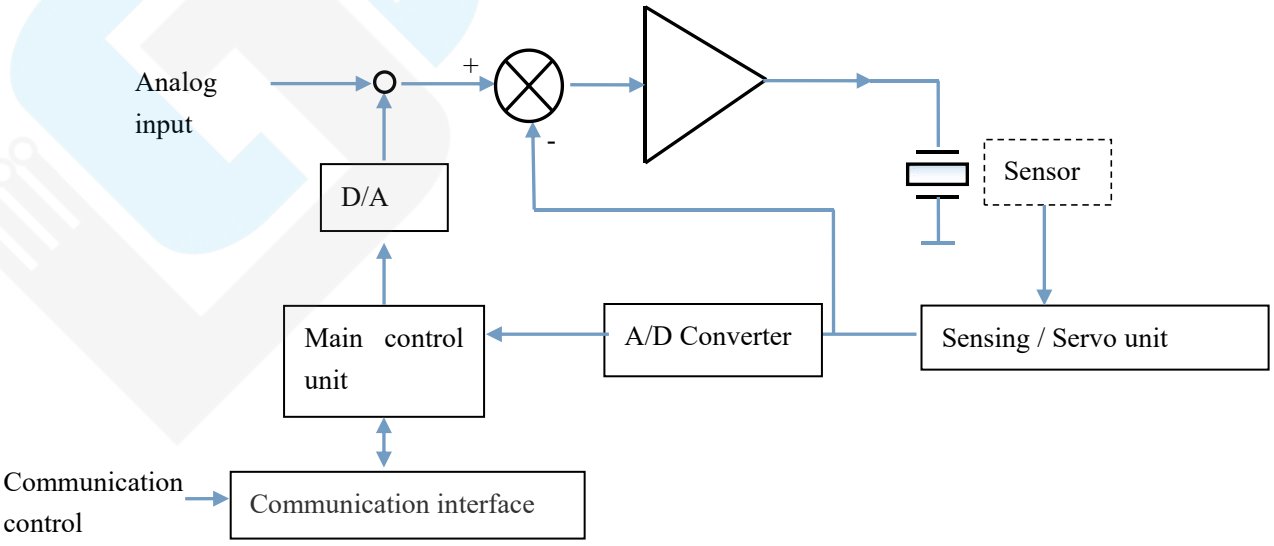
1.2 Typical applications

- Piezoelectric ceramic driving
- Piezoelectric objective lens driving
- Customizable configurations:

① 12x gain / 0–120V output (default)

② 15x gain / 0–150V output

2. Function block diagram



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3. Technical parameters

Piezoelectric controller parameters		DC-C51.MS1
Power Supply	Input Voltage	24VDC/1A(20V ~ 30V)
	Standby Power	<5W
Main Control	Processor	32-bit @ 168MHz
	D/A Converter	16bit
	A/D Converter	16bit
	Communication	USB,RS422,RS232
Sensor/Servo	Sensor Type	SGS
	Servo Characteristics	Analog P-I + Bandstop + Low-pass
Drive	Analog Input Range	0 ~ 10V
	Output Voltage Range	0~120V (Optional 0~150V)
	Peak Current	0.5A
	Average Current	60mA
	Amplifier Bandwidth	10KHz
	Ripple	10 mVpp (loaded with 2.2 uF)
	Output Rating	9W
Protection	Operating Temperature	0℃–50℃
	Short-circuit Current	30 ~ 60mA
	Overcurrent Indicator	Lights when average current exceeds 60mA
Connectors	Control Input	SMB Connector
	Sensor Output	SMA Connector
	PZT & Sensor	LEMO Single-core Connector
	Communication	DB9,MicroUSB
Physical	Dimensions	123×75×29mm³
	Weight	0.3kg

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4. Interface

No.	Function	Description
1	Power LED	Illuminates when powered
2	Servo	Closed-loop/Open-loop switch
3	Analog Input	Analog voltage input port
4	Overflow	Lights when displacement deviates from target
5	Sensor Output	Outputs sensor feedback signal
6	Zero Adjustment	Adjusts sensor zero point
7	Signal Source Selection	A: Analog Input; D: Digital Control
8	PZT Drive & Sensor	Voltage output for PZT driving
9	Limit	Overcurrent indicator LED
10	Power Switch	Main power switch
11	Power Input	Power supply connector
12	DB9 Communication Port	RS232/RS485 communication
13	MicroUSB Port	USB communication

5. Precautions & Recommendations

- Do not drive inductive loads with this product, as it may cause damage.
- Ensure ventilation openings are unobstructed.