28BYJ-48-5V Raspberry Pi Zero Stepper Motor uHAT Datasheet



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General Description

The Raspberry Pi stepper uHAT uses three ULN2003A driver ICs to power 5V 28BYJ-48 stepper motors directly from the Raspberry Pi GPIO pins. The 28BYJ-48 5V stepper motors get directly plugged into the white JST connectors on the stepper uHAT. The uHAT also has a 16 pin header



Figure 1: Stepper uHAT driving four 28BYJ-48-5V stepper motors.

Pinout



Pin Header

5V	POWER	5V)
SCL	I2C	SCL 🥑
SDA		SDA 🔘
GND	POWER	GND 🔘
3V3		3V3 🧿
TX	SERIAL	TX 🥥
RX		RX 🔘
GND	POWER	GND 🔘
5V		57 🔘
MOSI	SPI	MOSI 🔘
MISO		MISO O
SCK		SCК 🔘
CE0		CEO O
CE1		CE1 🔘
GND	POWER	GND O
21	GPIO	21/0
	5V SCL SDA GND 3V3 TX RX GND 5V MOSI MISO SCK CE0 CE1 GND 21	5VPOWERSCLI2CSDAI2CSDAPOWER3V3POWERTXSERIALRXPOWER5VPOWER5VPOWERSCKSPIGNDSPICE0SPICE1POWER21GPIO

Disable LED

There are four red LEDs in front of each motor connector which indicate the current coil of the motor being powered. The LEDs are enabled by default on every stepper uHAT. The LEDs can be easily disable for each motor connector by carefully cutting the connector between the jumper pads. To enable the LEDs, solder a small bridge on the jumper pads to connect them together.



Figure 3: LED enable jumper pads.



Figure 4: Cut trace to disable LEDs.

ID EEPROM

The stepper uHAT comes with an EEPROM chip that is used by the Raspberry Pi to get device information from the stepper uHAT. The stepper uHAT does not require any firmware or drivers to work as the uHAT is directly controlled through the GPIO. The EEPROM only contains information about the board such as the name, company, and version. If the EEPROM needs to be written to, write access can be enabled by connecting the EEPROM test pad(WE) on the back of the uHAT to ground before and during a write cycle. Updating the EEPROM is not necessary unless the data gets corrupted or there is a firmware update.



Figure 5: EEPROM WE pad.

Schematic



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