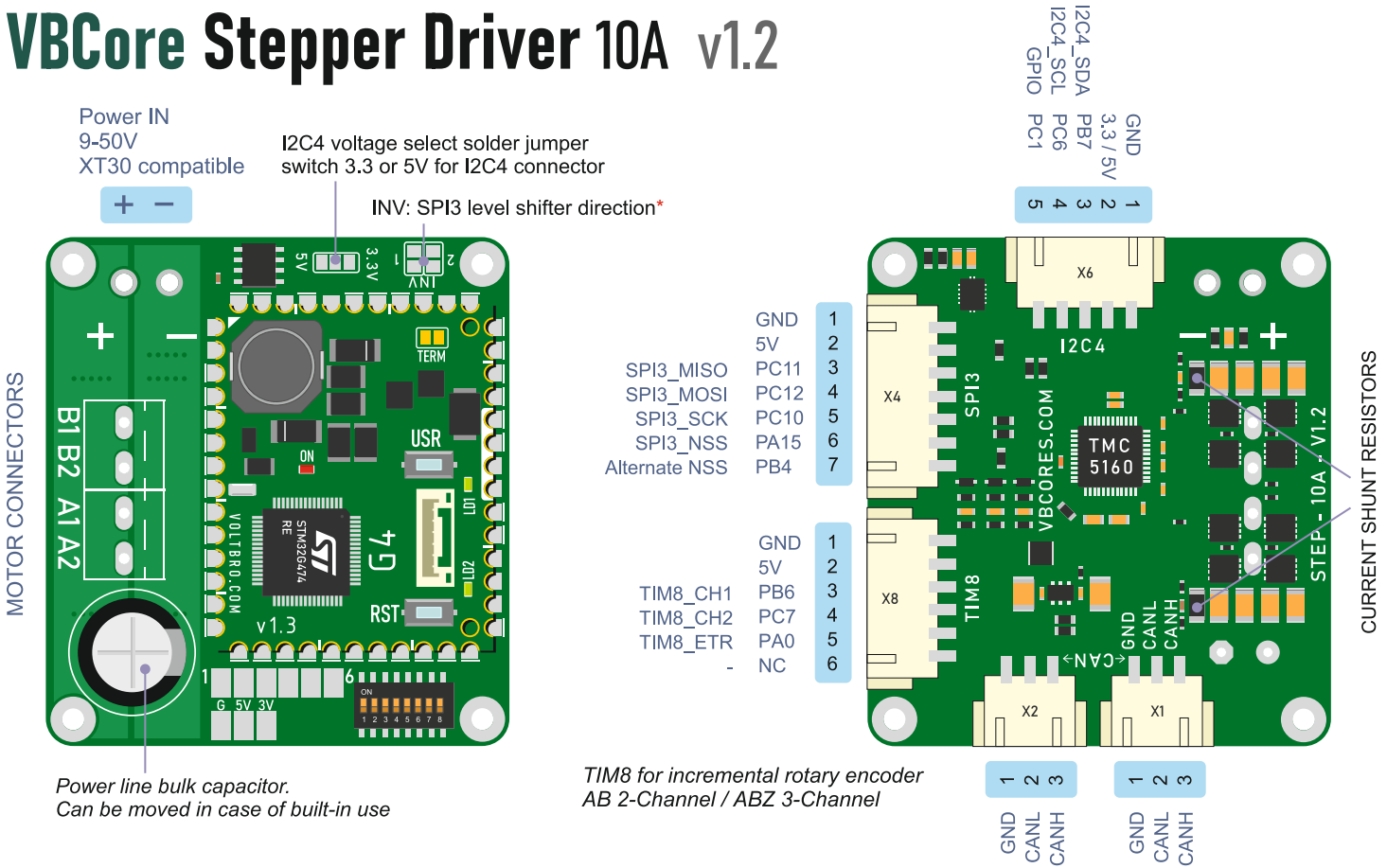
VBCore Stepper Driver 10A v1.2



Stepper driver

TMC5160, 8 to 60 V
Universal high voltage controller/driver
for two-phase bipolar stepper motor.

Controll	PIN	Timer
REFL_STEP	PA8	TIM1_CH1
REFL_DIR	PA9	TIM1_CH2
CSN_CFG3	PA4	SPI1_NSS
SCK_CFG2	PA5	SPI1_SCK
SDI_CFG1	PA7	SPI1_MOSI
SDO_CFG0	PA6	SPI1_MISO
DIAG1_SWP	PC3	
DIAG0_SWN	PC2	
SD_MODE	PA12	
SPI_MODE	PA11	
ENCA_DCIN_ CFG5	PB1	
ENCB_DCEN_ CFG4	PB0	
ENCN_DCO_ CFG6	PB2	
DRV_ENN	PC5	

EEPROM

256K, AT24C256C
**For enable, one of I2C4 voltage select solder jumper must be closed*

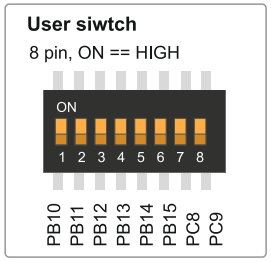
Controll	PIN	I2C
A0, A1, A2	GND	
Address		0x50
SCL	PC6	I2C4_SCL
SDA	PB7	I2C4_SDA

VBCore Stepper Driver v1.2

VIN: 9-50V
MAX CURRENT 10A
MCU: VB32G4 (STM32G474RE)
DRIVER: TMC5160
SPI interface
ABZ encoder interface
I2C interface
Current control
I2C EEPROM
CAN / CAN-FD
Dimensions: 51x56mm
Mount holes: 45x50mm D2.5 mm

NOTES:

1. The SPI1 and SPI3 connectors are connected to the controller via level shifters.
2. The Hall sensor connectors are connected to the controller via a filter.
3. The I2C4 SCL and SDA lines have external pull-ups
   — **do not use the internal pull-up.**
4. To supply power to the I2C4 bus (including the EEPROM), close the voltage selection solder jumper.
5. To use the SPI3 7-pin connector as an SPI bus, leave the INV solder pads open.
   Close the INV_1 solder jumper to configure the PA15 and PB4 pins as inputs.
   Close the INV_2 solder jumper to configure the PC10 and PC12 pins as inputs.
6. *Carefully read datasheet for TMC5160 driver futures*



VBCores
www.vbcores.com
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Current shunt resistor

Connected to TMC5160

Size	Default
1206	0.05 Ohm

Voltage control

Resistive voltage divider 16:1

Controll	PIN	ADC
V input	PC0	ADC1/2