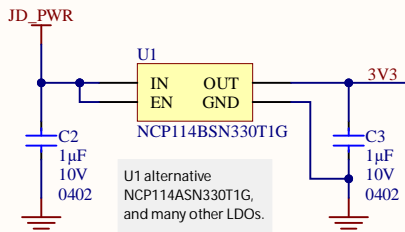


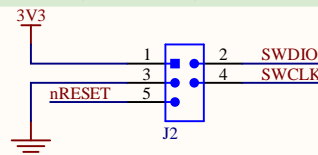
## 3V3 Regulator

Recommendation: consider replacing NCP114 with an LDO that is robust to repeated spikes of 8V or more on its input in case there is noise on the Jaccdac bus.

This component is a power-consumer.



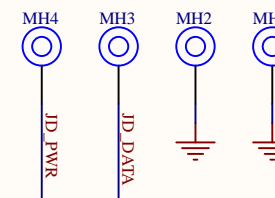
## Programming/debug connector



"Hack-connect XS" SWD adapter.

<https://arcade.makecode.com/hardware/dbg>

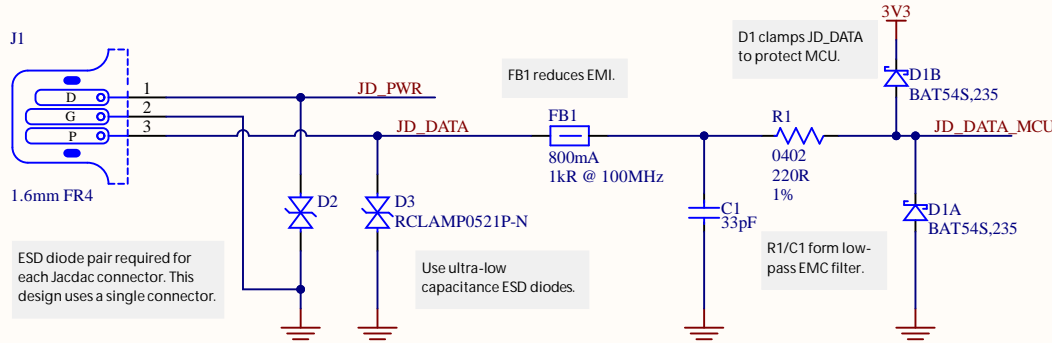
## Mounting holes



Mounting holes are electrically connected to the Jaccdac bus nets so they can be used as an alternative to the PCB edge connector. Please use the following reference designators and net mapping:

MH1 & MH2: GND  
MH3: JD\_DATA  
MH4: JD\_PWR

## Jaccdac connector



ESD diode pair required for each Jaccdac connector. This design uses a single connector.

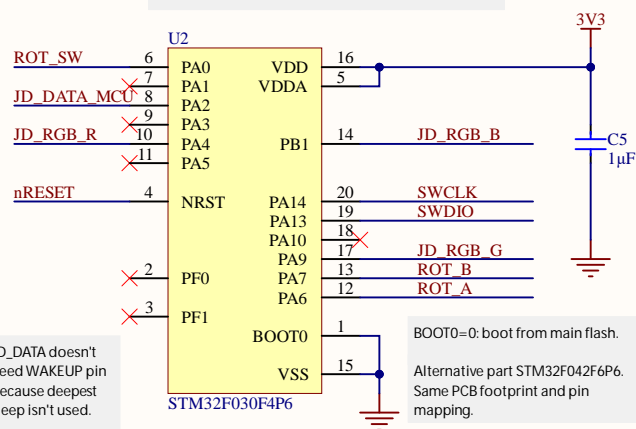
Use ultra-low capacitance ESD diodes.

R1/C1 form low-pass EMC filter.

This design uses Jaccdac 'small' mounting holes: PTH with finished diameter of 2.1mm, annular copper ring of 3.0mm diameter & copper/component keepout of 5.0mm. The mounting holes must be on 2.5mm pitch. Mounting holes should have appropriate silkscreen marker, and MH1 should have a pin 1 marker on the top side.

## MCU

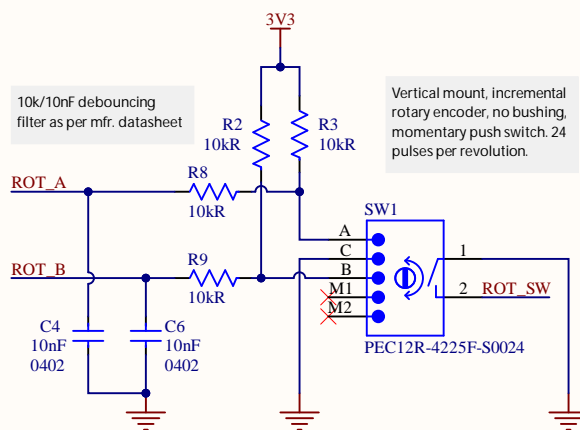
U2 critical pin mappings:  
PA2 USART1\_TX for JD data  
PA4 TIM14\_CH1 for JD\_RGB\_R  
PA9 TIM1\_CH2 for JD\_RGB\_G  
PB1 TIM3\_CH4 for JD\_RGB\_B  
PA0 encoder switch  
PA6 encoder ROT\_A  
PA7 encoder ROT\_B



JD\_DATA doesn't need WAKEUP pin because deepest sleep isn't used.

BOOT0=0: boot from main flash.  
Alternative part STM32F042F6P6. Same PCB footprint and pin mapping.

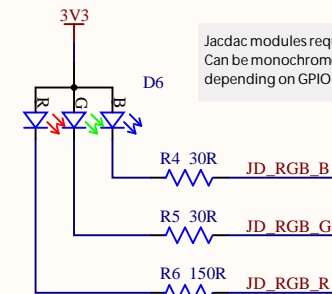
## Rotary encoder



10k/10nF debouncing filter as per mfr. datasheet

Vertical mount, incremental rotary encoder, no bushing, momentary push switch. 24 pulses per revolution.

## Status LED



Jaccdac modules require a status LED. Can be monochrome or multicolor depending on GPIO availability.

Tuoahan TZ-P4-1615RGBTCA1-0.55T RGB is footprint-compatible alternative for D6. If using alternative part recalculate R4-R6.

This reference design is a guideline. Please refer to the Jaccdac docs online at <https://aka.ms/jaccdac> for the definitive and most up-to-date information.

Silkscreen should include text to identify the module type and revision, and optionally a QR code.

This design uses a 'cute' board shape.

Silkscreen & layout notes

Block name

Design notes

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When this PDF is viewed with Adobe Reader, clicking on components shows part numbers and other details.

Microsoft

PROJECT DESCRIPTION  
Jaccdac rotary control module (with button click)

SHEET DESCRIPTION  
Complete design

PROJECT FILENAME JaccdacRotary 26.PrjPCB

PROJECT CODENAME JaccdacRotary

LAST MODIFIED 03/12/2021

PAGE 1 OF 1

DRAWN BY D. Gakure & S. Hodgse

SHEET FILENAME JaccdacRotary 26.SchDoc

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REVISION 1.2 PCB ID 26-1.2