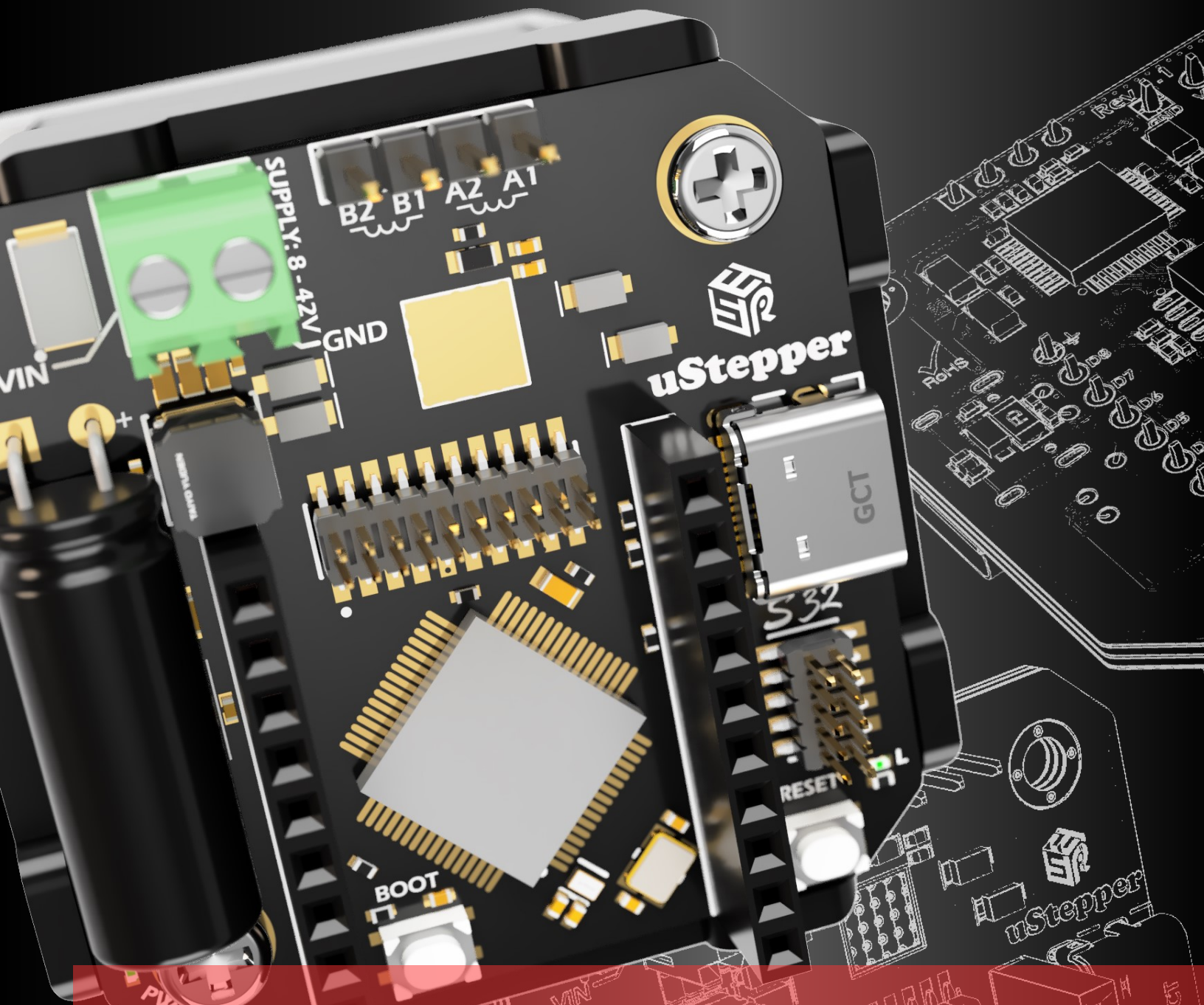


uStepper S32



TAKING YOU ONE STEP FURTHER

The stepper motor control solution that combines microcontroller, stepper driver and encoder in to one compact design



MORE THAN A STEPPER DRIVER

THE FLEXIBLE ONE-BOARD SOLUTION FOR YOUR STEP-
PER DRIVER APPLICATION GIVING YOU PROVEN RELIA-
BILITY WITH MORE THAN 7 YEARS IN THE MARKET. THE
NEXT GENERATION **uStepper** IS HERE.

STEPPER DRIVER

— the proven high performance and silent Trinamic TMC5130

HIGH PERFORMANCE MCU

— ARM Cortex®-M4 provides plenty of power

POWERFUL CONVERTERS

— more power for peripherals

RELIABLE ENCODER

— for optimal feedback performance

OPTIMIZED THERMAL DESIGN

— providing stable thermal performance

THE NEXT GENERATION **uStepper**, TAKING YOU ONE STEP FURTHER

High performance

uStepper S32 is equipped with a high per-
formance 32-bit 84MHz ARM Cortex®-M4 mi-
croprocessor providing significant performance
increases with more than 20 x the computation
power compared to **uStepper S** - giving
you plenty of power for your application code.

Time critical tasks

Improving reliability of your code with precision
timing using a dedicated RTC clock crystal. Pre-
cise Real Time Clock timing is available for those
time critical tasks while the main clock also pro-
vides eminent frequency stability ensuring sta-
ble and reliable 84MHz processing.

Precision in position

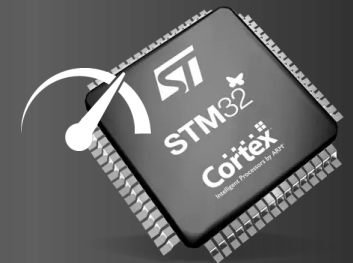
A proven reliable Infineon encoder gives accu-
rate positioning with minimal noise while high
speed filtering improves the feedback signal
precision even further for optimal feedback per-
formance.

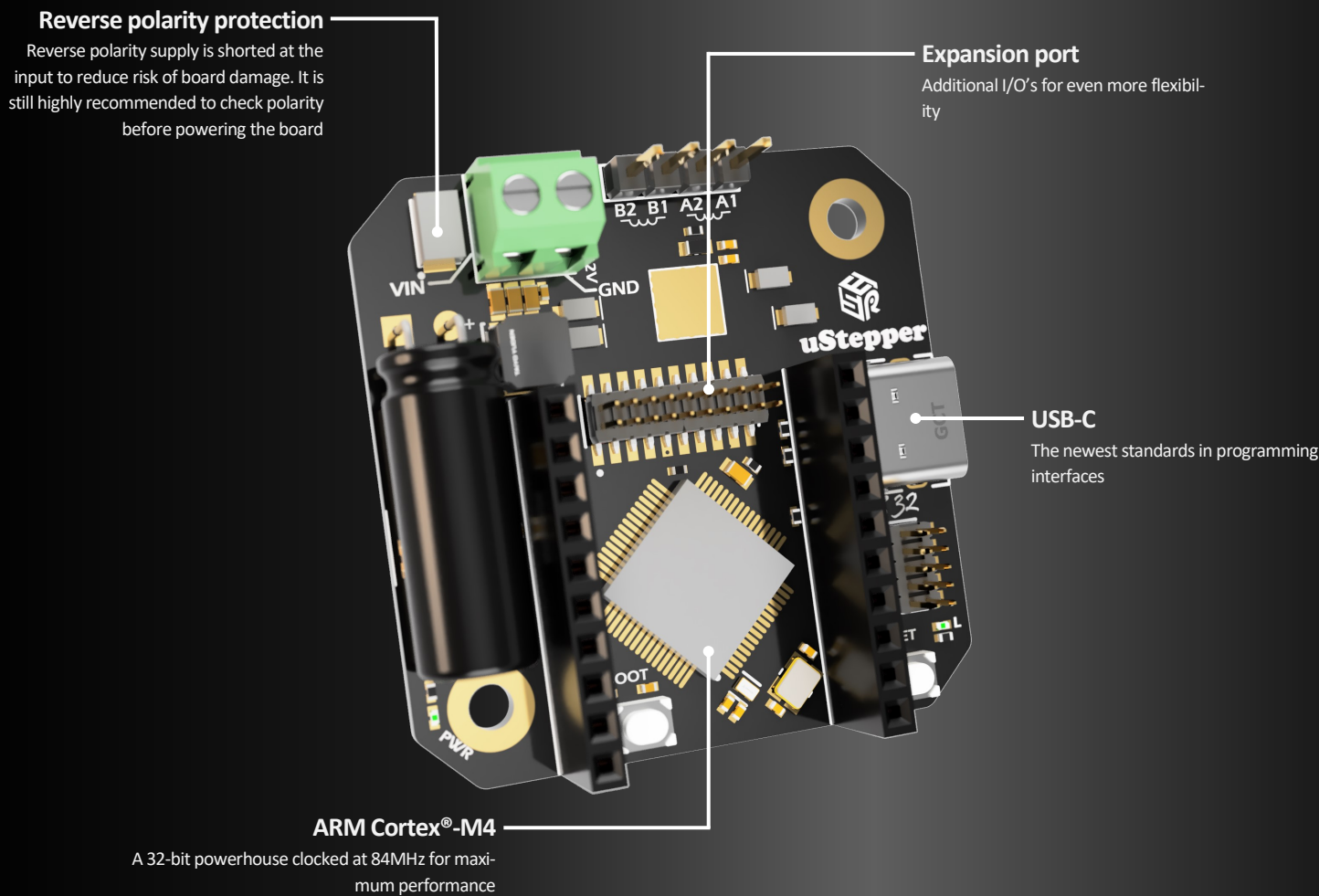
Extended functionality

The new design offers more I/O's with more
functionality and flexibility. The 3.3V logic I/O's
are all 5V tolerant for maximum flexibility for
peripheral connection. An extended range of
analog inputs, flexible interrupts and high speed
I/O's further enhances peripheral flexibility.
Connecting to program is a breeze and more
reliable than ever with the USB-C interface.

More power

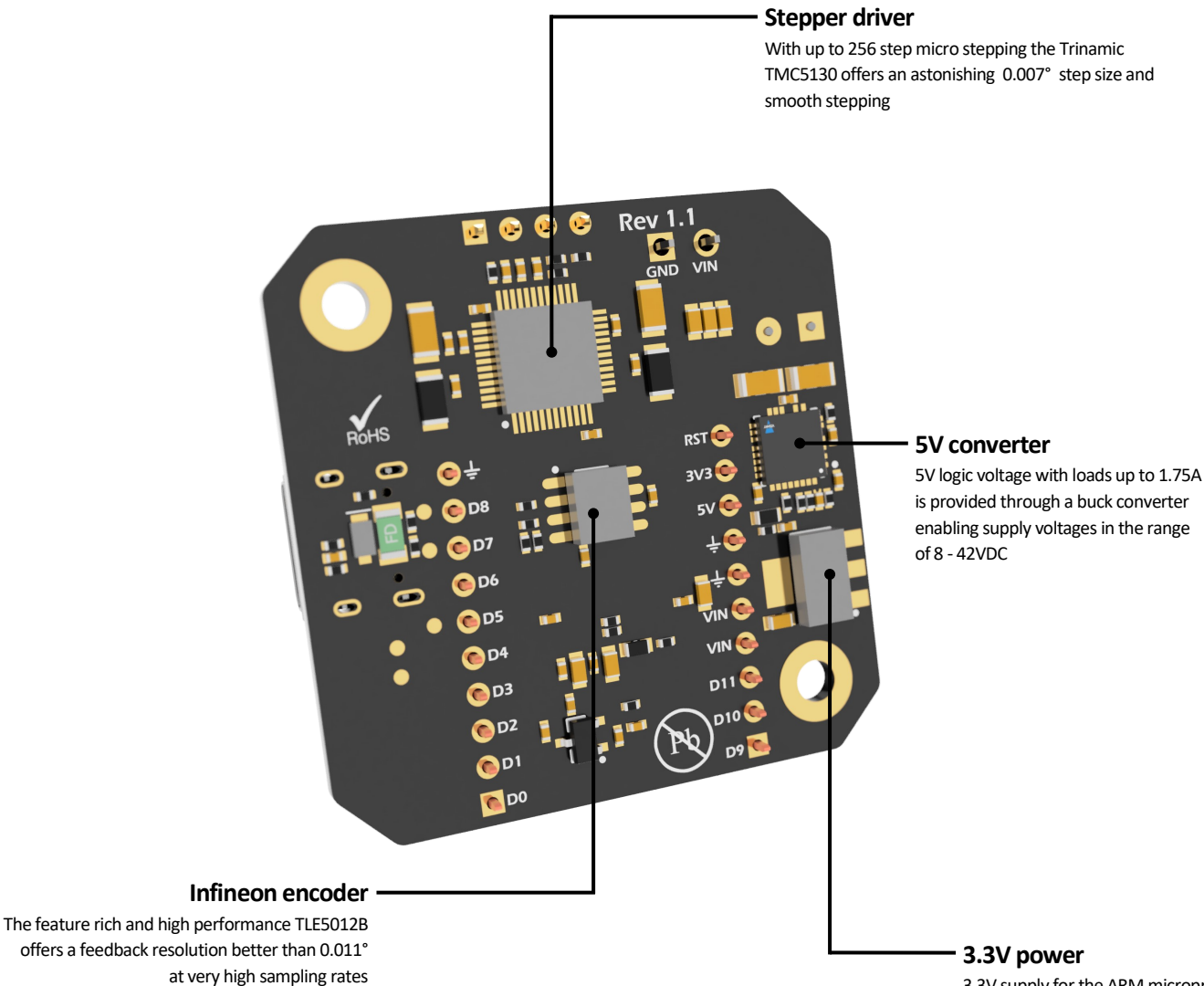
For supporting both the systems on board but
also the connected peripherals a powerful 2 A
5V converter has been added converting the 8-
42V supply reliably to 5V while a 1A 3.3V con-
verter provides plenty of power for the lower
voltage logic. All that with maximum voltage
stability from zero to full load.





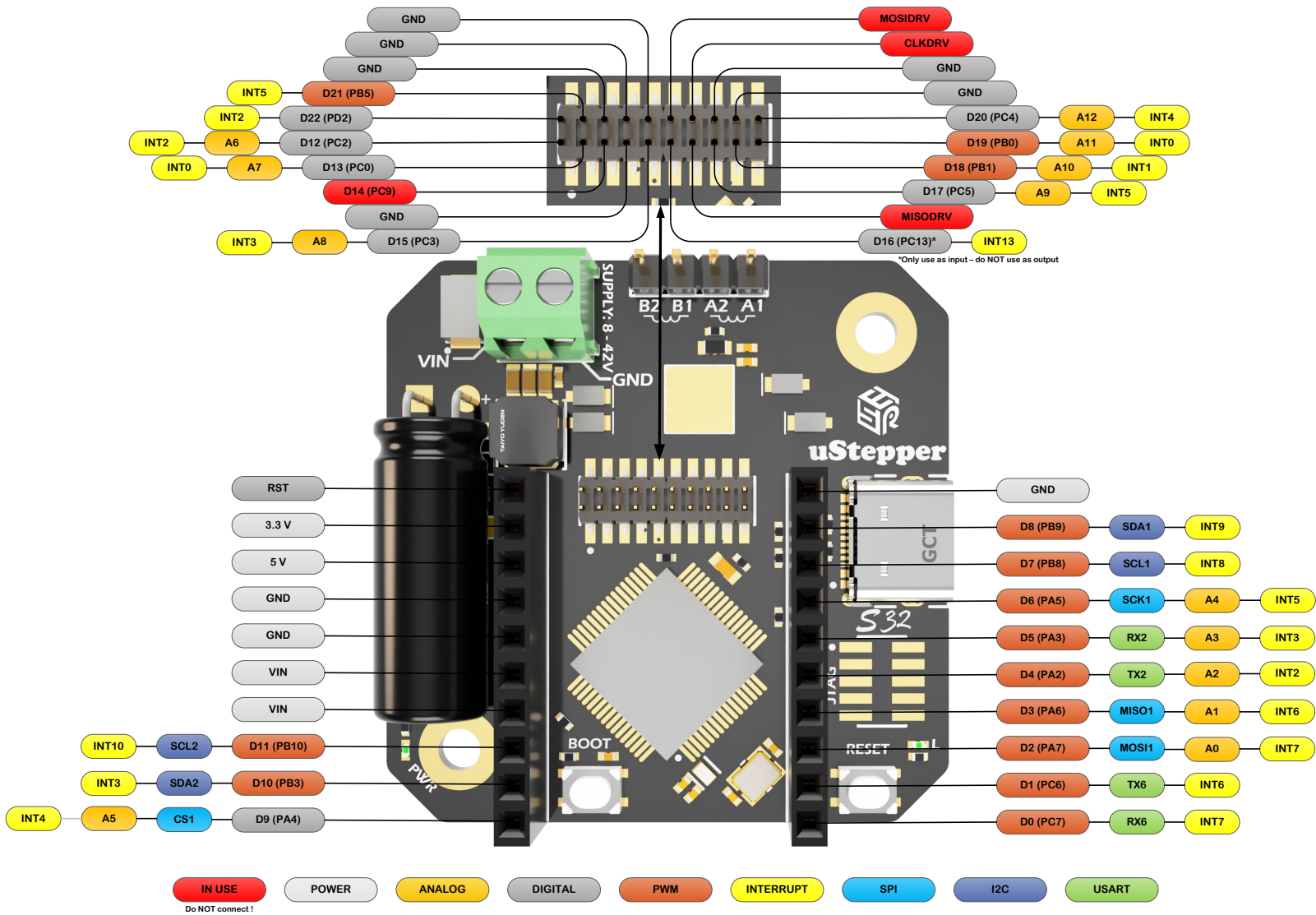
I/O Voltage	3.3 V (5V compatible)
Input Voltage (recommended)	8 - 42 V
DC Current per I/O Pin (max)	25 mA (max 120 mA total I/O draw)
DC Current for 5 V Pin (max)*	1.75 A
DC Current for 3.3 V Pin (max)	1 A
Stepper drive current	Up to 2.5 A (peak)

*Powering the board from USB only will result in less than 5V output from the 5V power pin. USB current is limited to 0.5A



Dimensions	41.8 x 41.8 x 13.2mm (31 x 31mm mount holes)
Weight	~15g

EXPANDABLE SOLUTION



More I/O for system intelligence

A high number of digital I/O, analog inputs, interrupts and PWM outputs are offered with the highly flexible range of 3.3V* I/O's on the backwards compatible pin header interface of the **uStepper S32**.

An additional selection of I/O's from the ARM Cortex®-M4 is made available through the fine-pitch expansion port interface placed centrally on the **uStepper S32** board offering you even more possibilities of system integration.

**All I/O's are 5V tolerant, meaning they will tolerate 5V input voltage*

FAQ

Information/documentation on the **uStepper S32** & Arduino library is available in the readme section on our [GitHub repository](#).

Q: I can't program uStepper from the Arduino IDE, what is wrong?

A: Three most common issues:

If you use the Windows store app “Arduino IDE” you might experience problems. Download the executable or portable version of Arduino IDE from www.arduino.cc
Install hardware support and the uStepper S library
Remember to chose uStepper S as the board you program to

Q: When I run uStepper closed loop PID or Drop-in the motor spins up and runs fast in one direction, what is wrong?

A: Two most common issues:

Check that the encoder magnet is placed correctly on the motor shaft

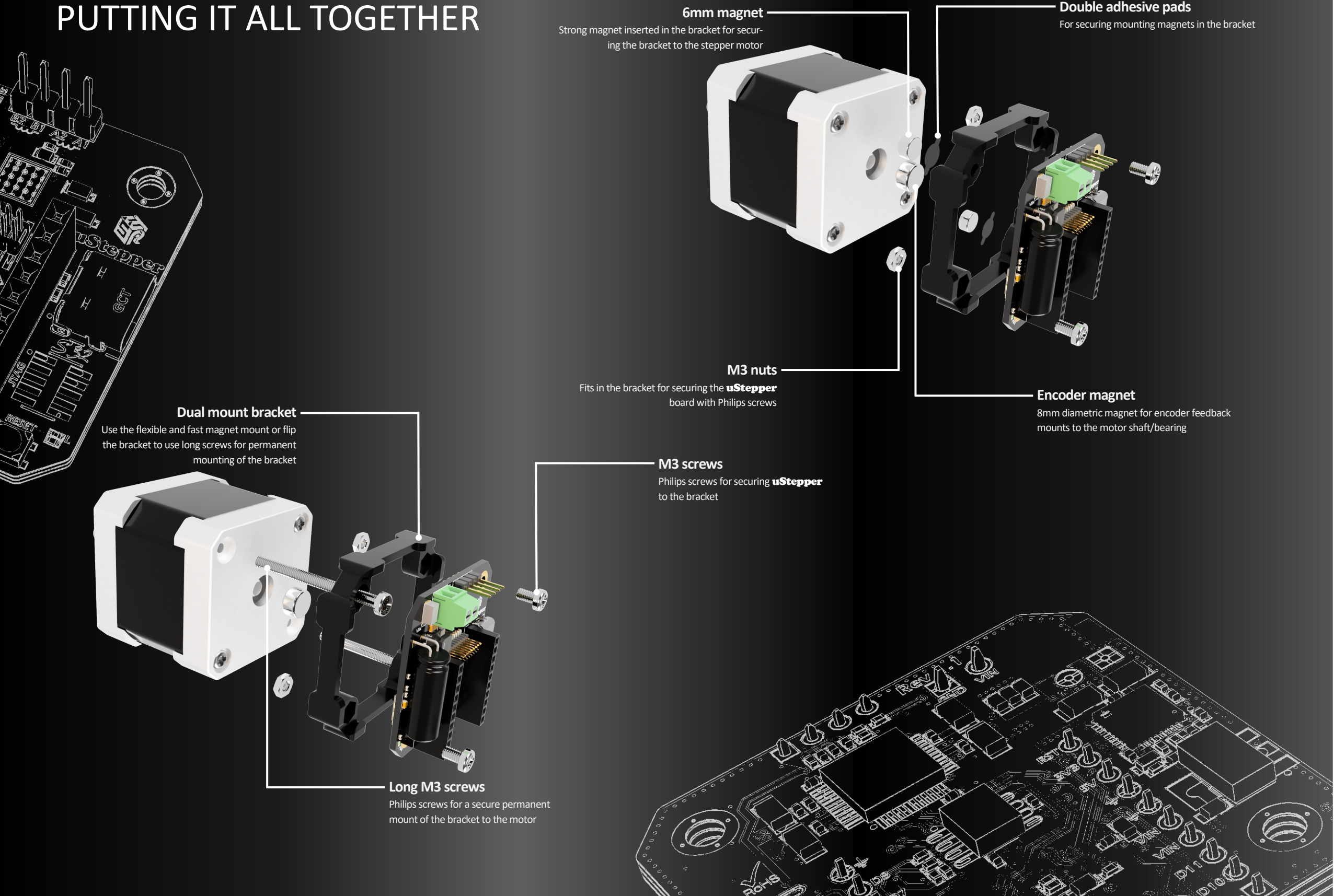
Check that your PID parameters in the Arduino code are sane. A good starting point is to set P and I to 0.5 and D to 0.

For more FAQ visit www.ustepper.com

The versatile drive solution

Low cost and high reliability makes stepper motors favored over servo drives in many applications, as for example robots, CNC machines, 3D-printers etc. With added feedback uStepper adds a new dimension to stepper operation utilizing closed loop control or correction of missed steps - making the stepper even more appealing. With the numerous features and the vast amount of I/O's (including various busses), uStepper is the choice when in need of a reliable, precise and compact actuator for almost any application.

PUTTING IT ALL TOGETHER



Resources

Mounting **uStepper S32**

The dual mount bracket gives you the option of either a flexible magnetic mounting or a permanent and more secure screw mount by just flipping the bracket. Not sure how to mount it? Then scan the QR code or press the hyperlink below.



[Mounting uStepper](#)

Code, documentation and more

Documentation, source code and more can be retrieved from our GitHub repository. Just scan the AQ code or follow the hyperlink given below.



[GitHub repository](#)

1 Disclaimers and Limitation of Liability

1.1 uStepper ApS (or any individuals affiliated with either of the two companies) can not be held responsible for any damage inflicted upon mounting or interfacing with the uStepper board. This also includes damage to stepper motor (both electrical and mechanical) or any other 3rd party hardware connected to uStepper. Most stepper motor cases are made of aluminum, and care must be taken when preparing the mountings for uStepper.

1.2 By using the uStepper products (including, but not limited to, hardware and software) you acknowledge that uStepper ApS (or any individuals affiliated with either of the two companies) can not be held responsible for any personal injuries and/or damage to any 3rd party hardware that may occur when using the uStepper products.

1.3 To the extent permitted by law, uStepper ApS will not be liable for any indirect or consequential loss or damage, of any kind, (including without limitation loss of business, opportunity, data, profits) arising out of or in connection with the use of any products (including, but not limited to, hardware and software), developed, produced or sold by uStepper ApS (or any individuals affiliated with either of the two companies).

1.4 Nothing in these Terms and Conditions shall be construed so as to hold uStepper ApS liable for death or personal injury as a result of the negligence of uStepper ApS or that of its employees or agents.

2 Indemnity

2.1 You agree to indemnify and hold uStepper ApS and its employees and agents harmless from and against all liabilities, legal fees, damages, losses, costs and other expenses in relation to any claims or actions brought against uStepper ApS arising out of any breach by you of these Terms and Conditions or other liabilities arising out of your use of this Website.

2.2 You agree to indemnify and hold uStepper ApS and its employees and agents harmless from and against all liabilities, legal fees, damages, losses, costs and other expenses in relation to any claims or actions brought against uStepper ApS arising out of any breach by you of these Terms and Conditions or other liabilities arising out of your use of products (including, but not limited to, hardware and software) developed, produced or sold by uStepper ApS (or any individuals affiliated with either of the two companies).

3 Severance

If any of these Terms and Conditions should be determined to be invalid, illegal or unenforceable for any reason by any court of competent jurisdiction then such Term or Condition shall be severed and the remaining Terms and Conditions shall survive and remain in full force and effect and continue to be binding and enforceable.

uStepper ApS

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