INTRODUCING

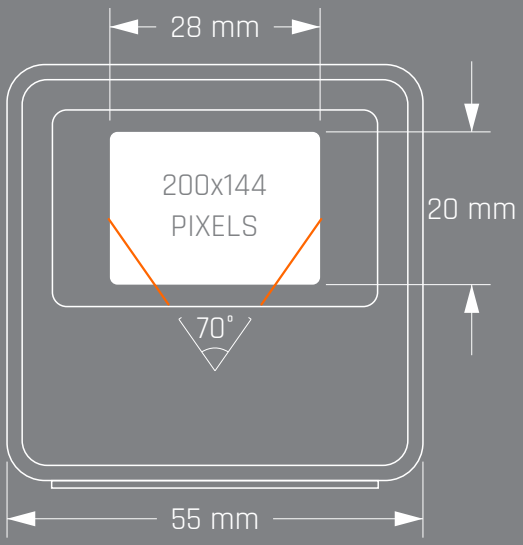
DYNAMIC ANALOGUE DIALS

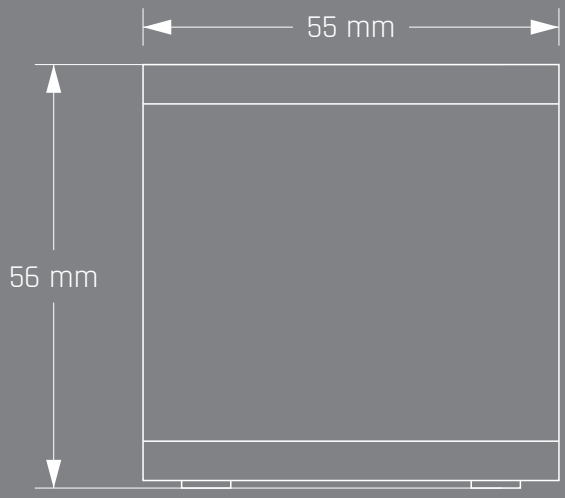
PRODUCT COLLABORATION

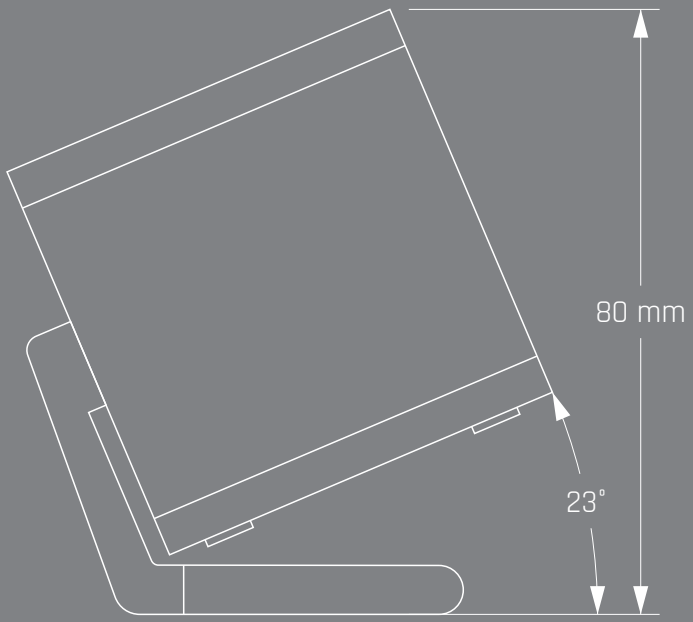
VU1 : The Specs

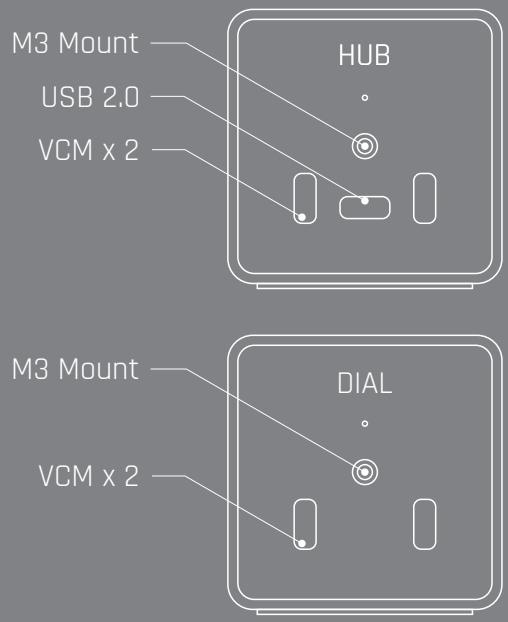
- Size: 55x55x55mm (+1mm silicon anti-slip feet)
- Weight: 180g (excluding cable/stand)
- Material: AL6063 / Glass
- Ports: (all using the type-c connector)
  - HUB - 1 x USB 2.0 + 2 x VCB[*1]
  - DIAL - 2 x VCB[*1]
- E-Ink Display: 1.5" 200x144, 188dpi
- Included Cable:
  - HUB - 1.2m Type A to C
  - DIAL - 0.3m Type C to C
- Colours: Silver, Black
- Software / OS / Data Source:
  - Server App - Agnostic
  - HW Monitor - Windows[*2]
  - 3rd Party Data - Virtually Anything[*3]
- Dial Face Illumination: RGB
- Power Consumption: ~15mA / Dial
- Max Recommended Dials Per Hub: 32[*4]
- Rear Panel Mount: M3 x 6mm
- Included Desk Stand: Steel, Finished in Black

*1 - Acronym for VU1 Communication Bus, supplying data and power over 4 lines
*2 - Based on LibreHardwareMonitor to demonstrate VU1 app integration
*3 - Via any 3rd party application that integrates or offers API support for VU1
*4 - Primarily a constraint of the USB power delivery limit









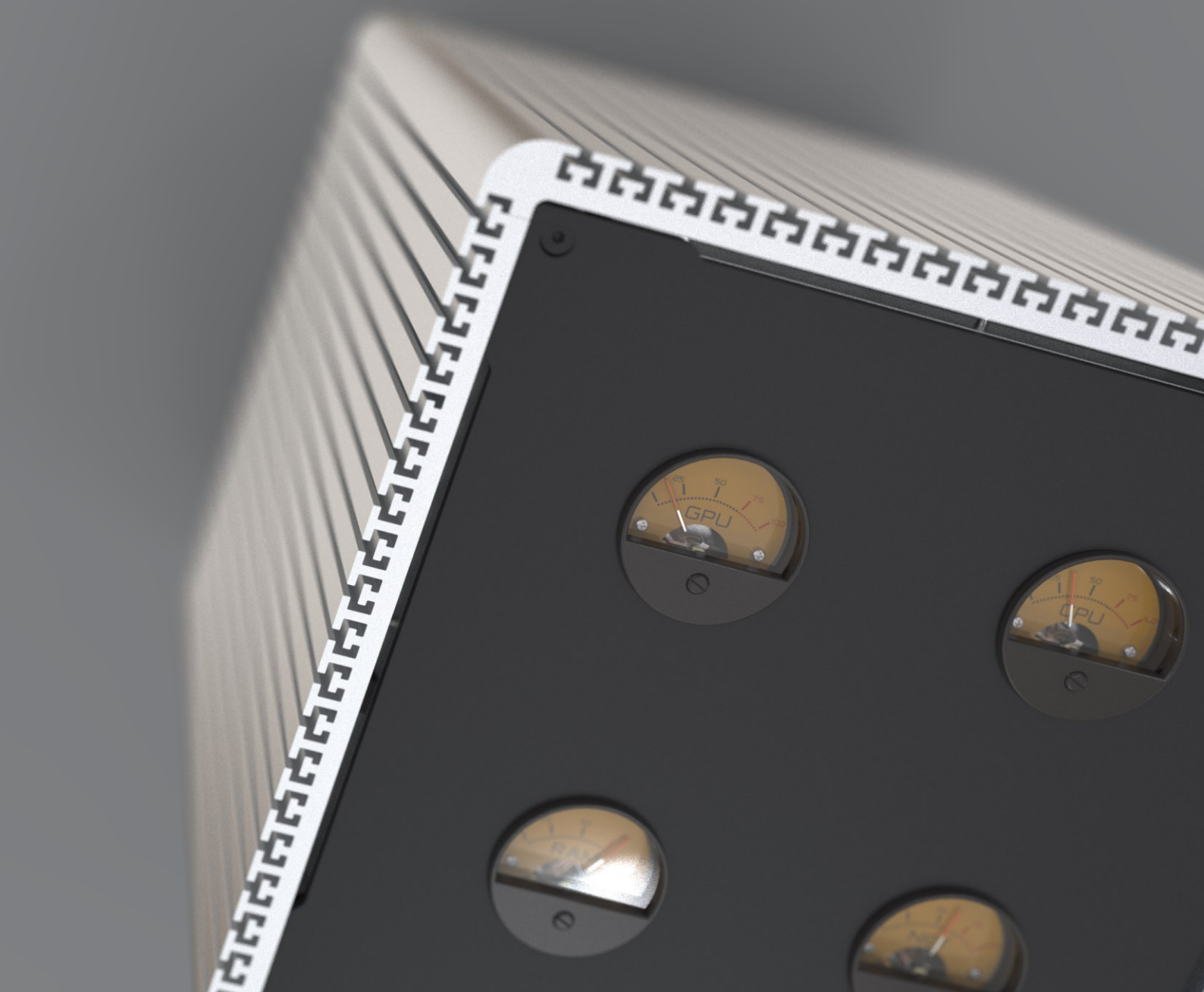
VU1 : The Story

The VU1 was inspired by an hobbyist project called CAPS which used analogue dials to show network, RAM, CPU and GPU activity. The dials were incorporated into a Streacom DB4 which is what caught our attention and lead us to reach out to Saša Karanović who developed the firmware, hardware and software for this. Needles to say we shared a lot of common ideas and passion, all of which laid the foundation for this collaboration.

Much like the original project, the initial concept was to use off-the-shelf gauge dials to display typical PC hardware information, but the question soon arose, what if someone wanted to show different information? How could we make it easier for people to customise what each dial was displaying?

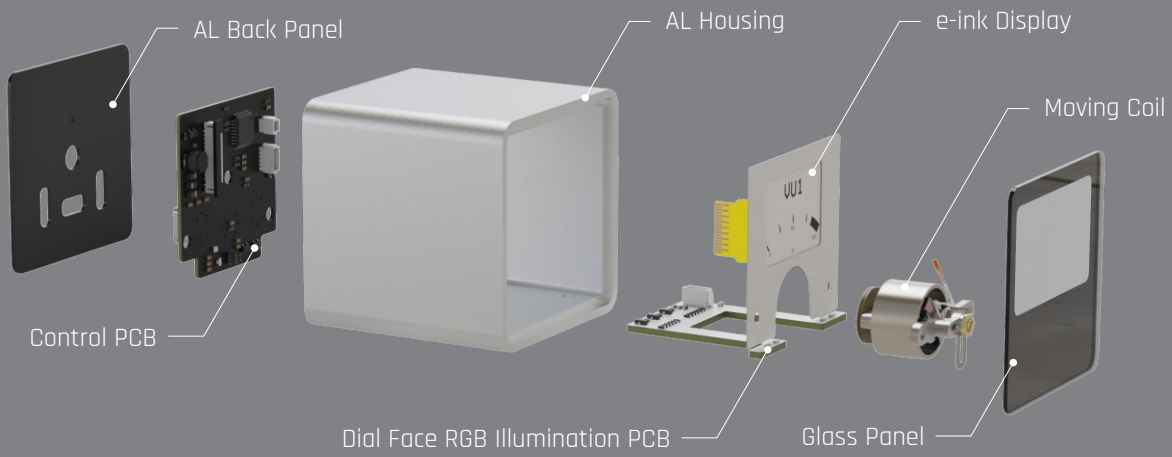
The breakthrough happened with the idea of using an e-ink display to serve as the dial face. This transformed the singular dedicated display into a highly versatile one, capable of representing virtually any numeric information from any source via this retro analogue gauge format.

Having this dynamic dial face also meant it was important for it to be an open platform with support for 3rd party applications, enabling it to be used in scenarios that are beyond our limited imagination. The VU1 was born, its name a reference to the standard 'VU - Volume Unit' labelling on audio gauges and a phonetic play on the word 'view' as it will be used to view real-time data.



VU1 : The Hardware

The VU1 is housed in a 55mm cube, machined from extruded aluminium and finished with our signature sandblasted & anodised surface giving it a premium look and solid feel. There are two types of device, a HUB and a DIAL and whilst they share the same design and construction, the HUB features an additional USB port for connectivity to the device that will be supplying power and data, e.g. your PC or Raspberry Pi.

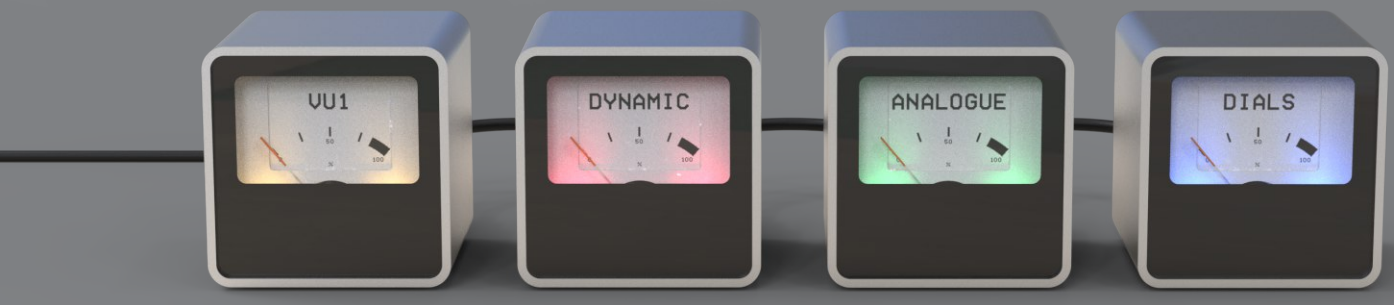


There are 3 elements that make up the visualisation of the VU1, the moving coil, the e-ink display and the RGB frontlight illumination for the e-ink.

The moving coil - For those not familiar, it consists of a wire coil on a spindle positioned inside the magnetic field of surrounding permanent magnets. When a current is applied to the coil, a magnetic field is created that repels against the field from the permanent magnets. The resulting torque makes the coil rotate, moving the pointer an angle proportional to the current applied. These types of moving coils were extremely popular in the era of analogue electronics and was a common feature on audio devices to represent the volume (VU for Volume Unit). Unlike traditional coils the VU1 coil is fully configurable, meaning the movement properties of the needle can be adjusted.

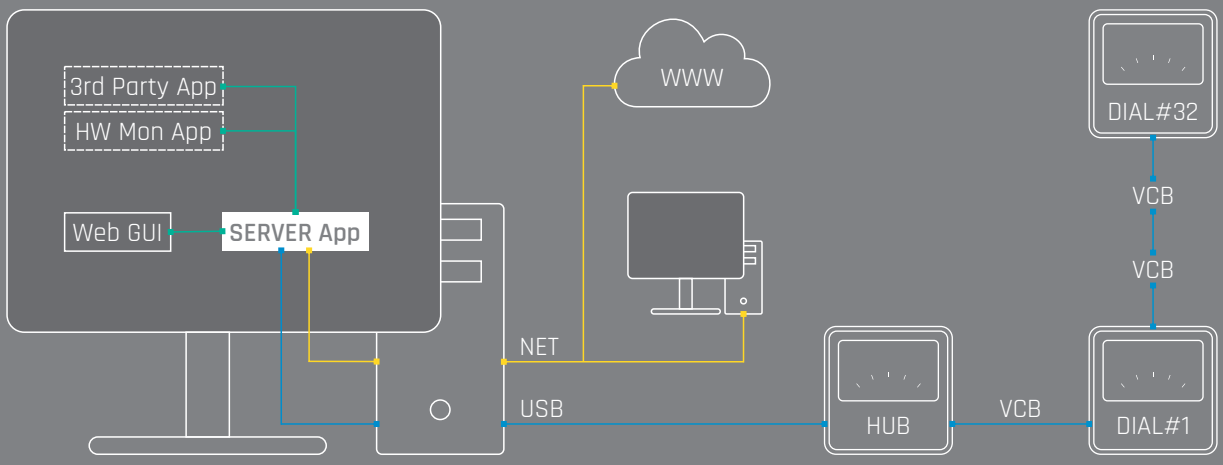
The e-ink display - Commonly used in e-readers and designed to mimic paper, they provide excellent contrast in natural light making them easy to read, comfortable on the eyes. Unlike traditional display technology, they don't light up and requires no power to maintain an image. This makes it the ideal choice for the VU1 background scale, its clear, dynamic and not distracting, as the moving coil should be centre stage.

Dial face RGB illumination - Anyone familiar with Streacom knows our thoughts on RGB (aka unicorn puke), so when you see that the VU1 has RGB lighting, you know there must be a very good reason for us to include it. As e-ink displays don't emit any light, visibility in the dark is limited without an external source. The RGB frontlight provides subtle illumination for the e-ink and can also be used to provide additional feedback based on colour, e.g. turning red when the value is above 90%.



VU1 : The Software

Rather than try to develop a parallel or competing application for every possible use case (which would also be impossible), the VU1 features a lightweight, platform agnostic Server App that runs in the background on your local device to control the dials, acting as the gatekeeper to all other applications / data sources. With the use of industry-standard REST API, 3rd party developers and the community we help grow will create new and innovative uses for the dials. We also include a HW Monitor App that covers one of the most basic PC metrics use cases for the VU1.



It might sound like exaggeration, but the VU1 dials can show almost any type of information (image, value, colour) from any application or service. Instead of locking down users to a few use-cases that we could come up with our limited imagination, we designed the VU1 to be as open and application/system agnostic as possible. This is achieved with a layered architecture for controlling the dials where any app granted permission can unitise them.

Layer 0 - The Server app is tasked with taking requests from any application(s) running on that PC or another device on the same network or even internet (with the correct security of course) and translating that into commands for each individual dial via the HUB. As part of the security layer, dials can only be accessed with an API key that must first be generated on the Server for the specific application being granted control and can be assigned on a per dial basis, this way you can have a fine grain control over which application can control which dial(s).

Another key feature of the Server app is that it allows the Dials to be independently controlled from multiple applications. For example, 2 dials could be used to display hardware monitoring information from one app and another 2 dials could be receiving live-stream statistics from a browser plugin.

Under the hood, the Server is using REST API, which is an industry standard that is easy to use and implement. This means adding support for VU1 Dials to any applications or building plugins should be extremely straight forward. In general, when some data/metric has changed, you would make a very simple HTTP request to the API server to update the dial. This might sound complicated but it is not, in most cases simply adding one or two lines of code gets you up and running.

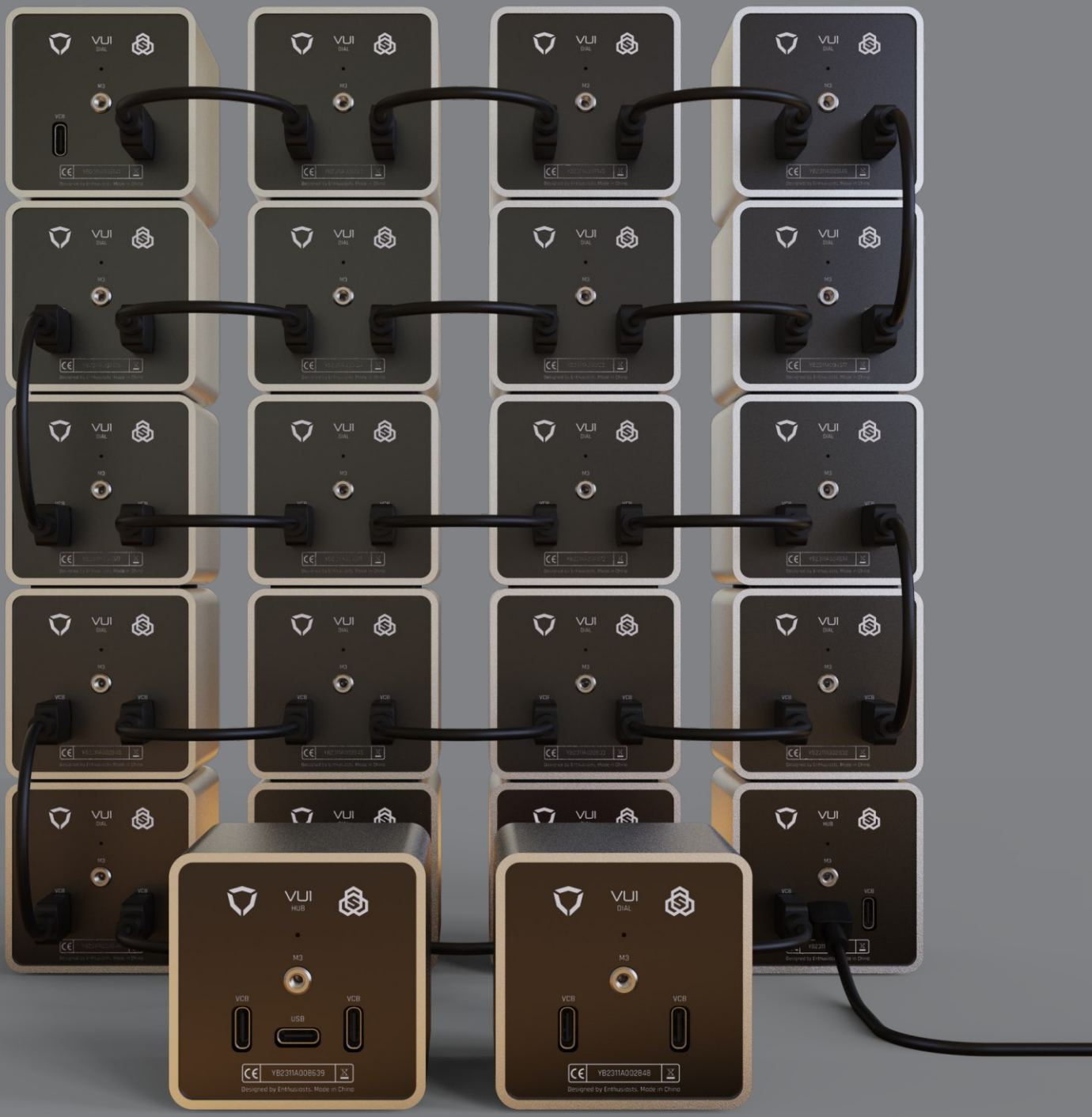
Layer 1 - This refers to locally running apps such as our included hardware monitor to show stats such as CPU/GPU temps. In addition to this, as the user base grows there will be many community made plugins, applications, integrations and services that support VU1 Dials. This is where things will start to get even more exciting as the creativity of the community expands on all the ways these dials can be used.

Layer 2 - This is the realm of third party external service, for example, smart home software like HomeAssistant or services like IFTT. This also includes simple scripts running on your server/NAS/Cloud, via the API they can ping the VU1 Server and update one or more dials with any piece of information without even knowing what VU1 Dials are or how they work. They would just make a simple request to the VU1 Server API (which will be public and open-source) and it will do the rest.

VUI : The Connection

We did our best to avoid anything proprietary and that includes the cables. Whilst we include a USB A to C cable for the HUB and the short C to C cable for dial to dial connections, it should be possible to use any standard USB type-C cable. There are some limitation such as maximum length but in principle, this does allow our cables to be replaced with different length ones to suit your setup.

Its also worth appreciating that a single USB cable to a single HUB will be able to drive multiple dials and additional dials can be added anywhere in the daisy chain without impacting existing dial configuration.



One HUB

Multiple DIALS

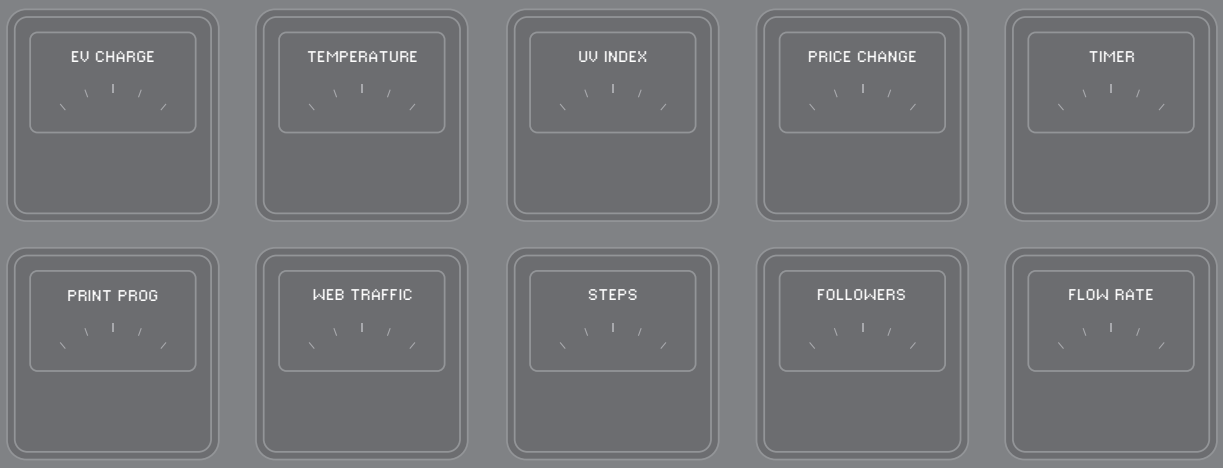
VU1 : The Use Cases

We cant state enough the potential use case scenarios for the dials. As of now, the biggest limitation is our own imagination and the need for community / 3rd party access to the VU1 to add integration or develop plugins. We expect many creative uses once these get into the hands of users and developers.

Hardware Monitoring Examples

Potential Gaming Use Cases

Potential Real World Data Use Cases

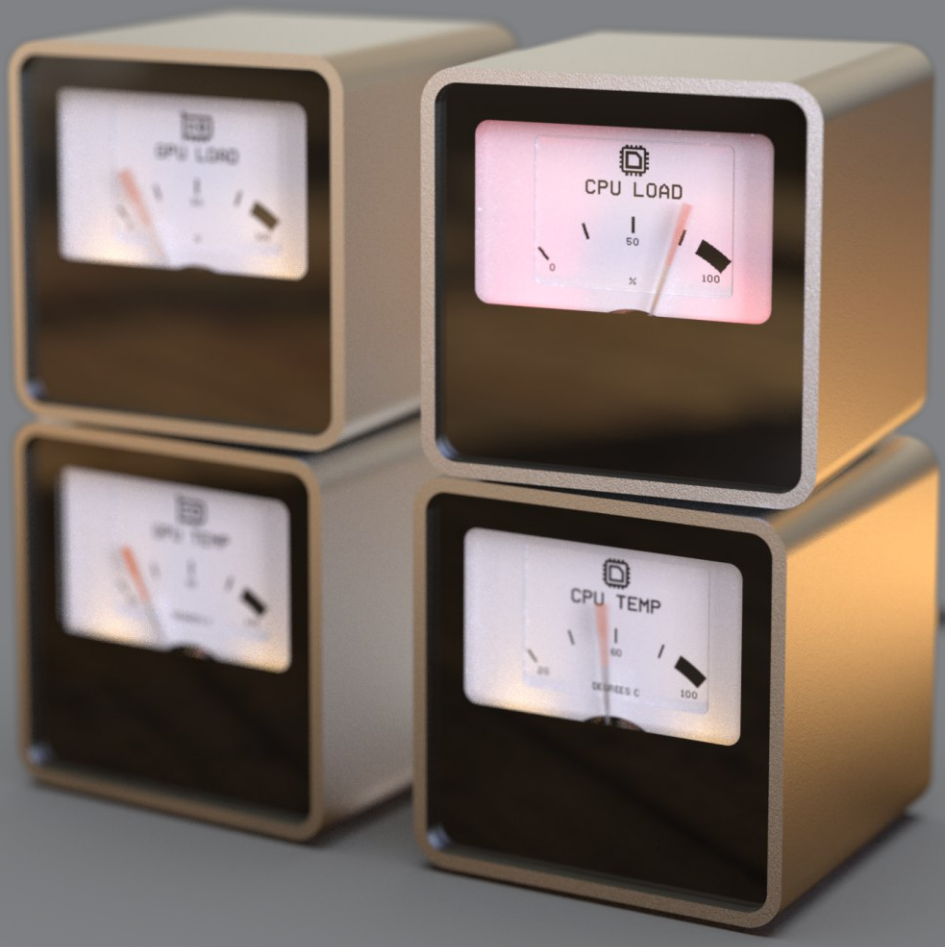


Hardware monitoring is available at launch, the other uses cases shown above are some examples of what could potentially be displayed on the VU1 with 3rd party app support. With the ease of integration and an active development community that we will host, we expect VU1 use cases to expand in ways we haven't thought of yet.

VU1 : Enjoy the VU

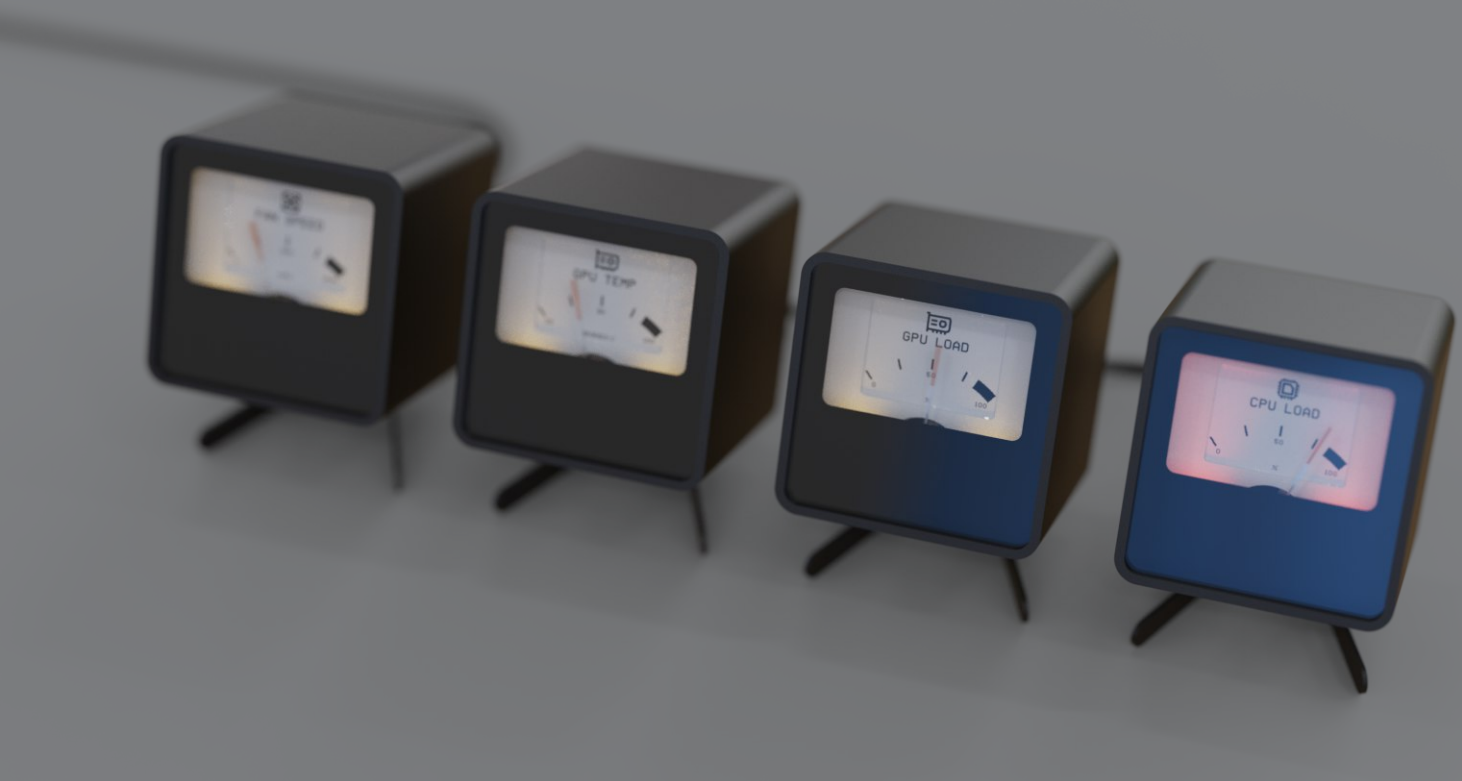
The Totem Pole Approach

VU1 : Enjoy the VU



Two by Two

VU1 : Enjoy the VU



Get Your Ducks in a Row

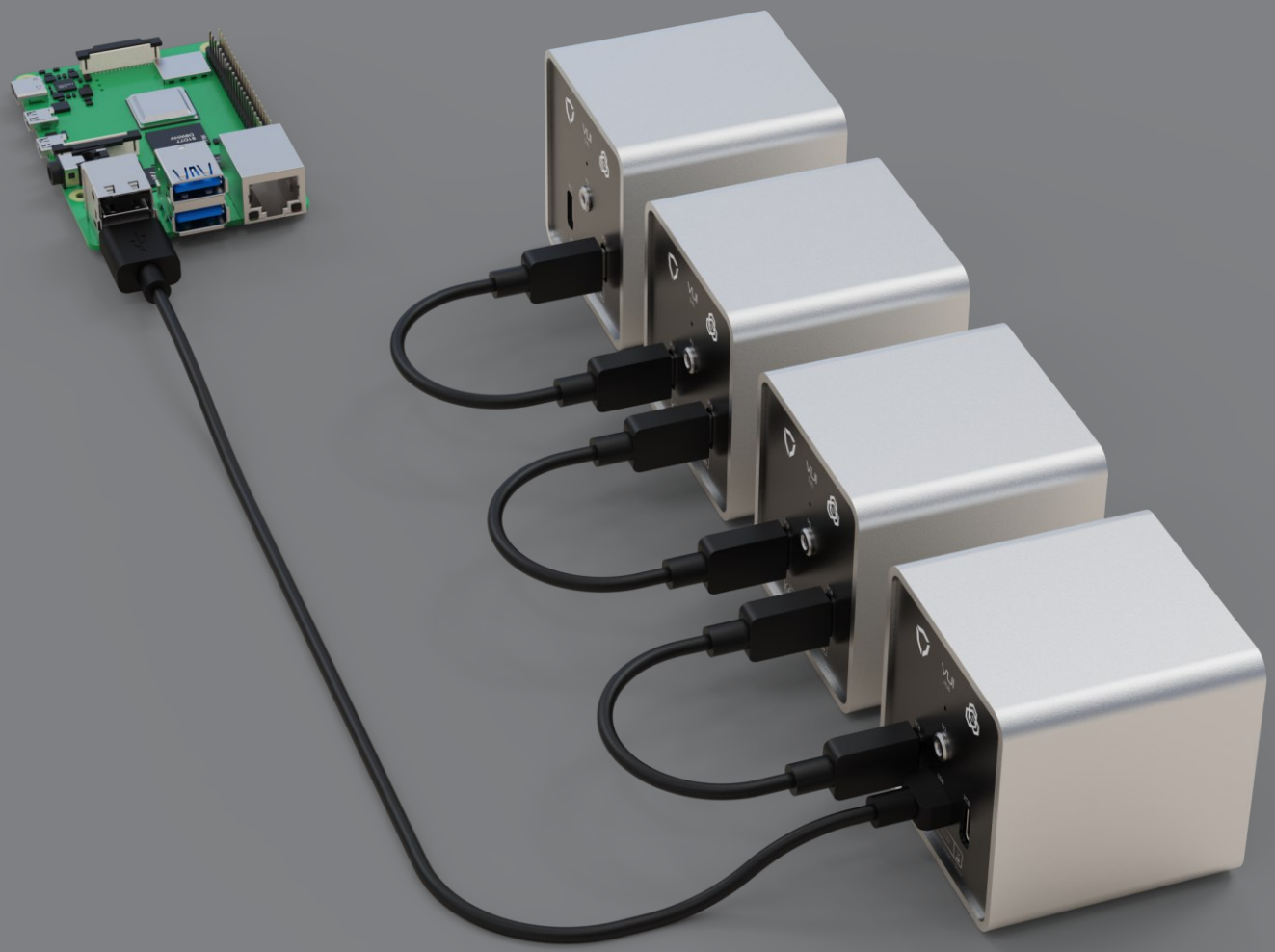
VU1 : Enjoy the VU

With or Without the Included Stand

VU1 : Enjoy the VU

VU1 + DA6

VU1 : Enjoy the VU



VU1 + Pi

VU1 : Ordering

The VU1 is available in two colours, Black & Silver and include the desk stand. The USB A to C cable for the HUB and short C to C cable each DIAL is also included. The HUB and DIAL can be purchased individually or in kit form, a 'starter' kit that contains 1 x HUB and 3 x DIALS and an 'expansion' kit that contains 4 x DIALS.

STARTER KIT - MSRP: 130EUR - PACKAGING: 250x100x70mm, 1.1kg,

SILVER
SKU: ST-VU1S-SR4
EAN: 8718469092048

BLACK
SKU: ST-VU1B-SR4
EAN: 8718469092055

EXPANSION KIT - MSRP: 125EUR - PACKAGING: 250x100x70mm, 1.0kg

SILVER
SKU: ST-VU1S-EX4
EAN: 8718469093984

BLACK
SKU: ST-VU1B-EX4
EAN: 8718469093991

INDIVIDUAL HUB/DIAL - MSRP: 42EUR/38EUR - PACKAGING: 90x60x60mm, 190g/180g

SILVER
SKU: ST-VU1S-HUB
EAN: 8718469092062

BLACK
SKU: ST-VU1B-HUB
EAN: 8718469092079

SILVER
SKU: ST-VU1S-DIAL
EAN: 8718469092024

BLACK
SKU: ST-VU1B-DIAL
EAN: 8718469092031

VU1 is now open for pre-orders and is expected to start shipping at the end of December 2023.


VU1