## Customisation Options

Standard customisation options for the Pi-Box Pro include different colour enclosure, your corporate logo, product name on the enclosure and text added to the end plates.

Extrusion Modifications:

- Colour anodise – Silver, Black, Red, Blue, Green or Grey
- Conductive coating – SurTec 650
- Powder coat – fine texture
- CNC machining – holes, slots recesses for membrane
- Digital print – single or full colour
- Laser marking of text or logo
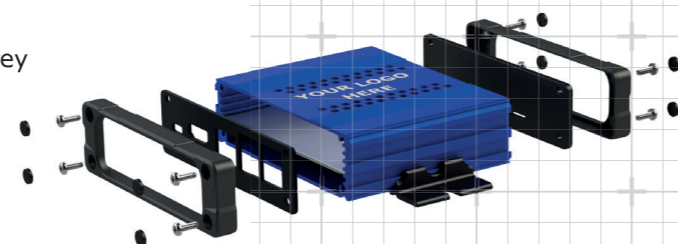
End Plate Modifications:

- Plate thickness – 1.5mm standard up to 10mm
- Brushing – standard on 3mm and above
- Oversize plate can be manufactured
- Colour anodise – Silver, Black, Red, Blue, Green or Grey
- Conductive coating – SurTec 650
- Powder coat – fine texture
- CNC machining – holes, slots, recesses for label
- Countersink & counterbore holes
- CNC punch – holes, slots and vent patterns
- Laser marking of text or logo
- Digital print – single or full colour
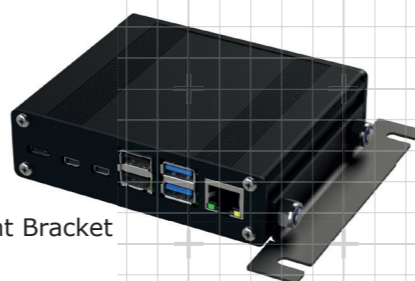- Inserts – studs, bushes and nuts
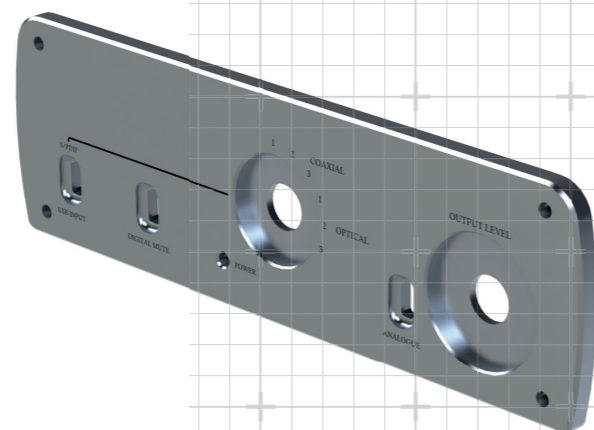
Mounting Options:

A full range of mounting options are available to allow the enclosure to be surface/wall, VESA or DIN Rail mounted.
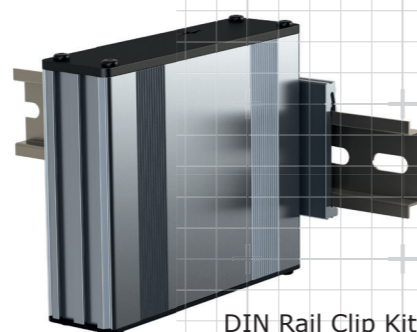

Linc-Lugs Surface/Wall Mount

Bent End Plate
Surface/Wall Mount

VESA Mount Bracket

DIN Rail Clip Kit

Contact us:
+44 (0)1403 860900
info@lincolnbinns.com
www.lincolnbinns.com

Pi-Box Pro Range
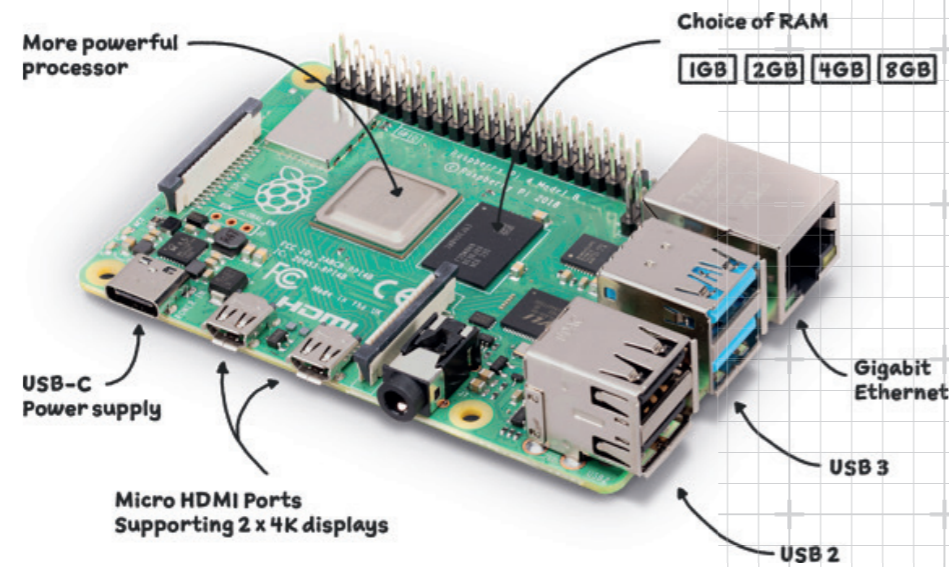
Raspberry Pi
Design Partner

Pi-Box Pro Range

- **Solutions for Raspberry Pi3 Pi4 & Pi5**
- **Stand-alone & 19" Rack mounted**
- **In silver & black as standard**
- **Full customisation available upon request**
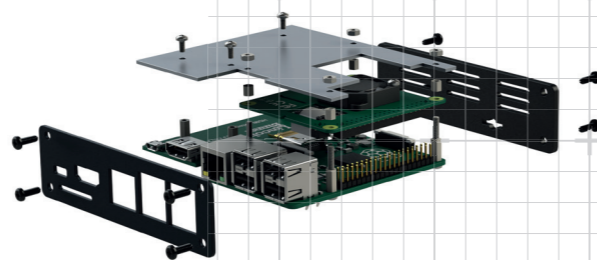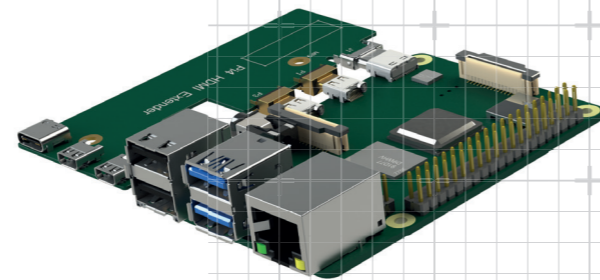
Housing the Raspberry Pi

Since the release of the original Raspberry Pi, housing the board has been an issue. The Raspberry Pi was never designed to be housed in an enclosure as it has connectors on 3 edges. Many manufacturers have produced a plastic enclosure but LB Enclosures have developed a rugged industrial solution in aluminium.

More powerful processor

Choice of RAM

1GB 2GB 4GB 8GB

USB-C Power supply

Gigabit Ethernet

USB 3

Micro HDMI Ports Supporting 2 x 4K displays

USB 2

To enable LB Enclosures to house the Pi board in our extrusions we have developed a set of extender boards. The Pi4 / Pi5 version takes the USB C and the two Micro HDMI's and turns them through 90° so that they are on the same plane as the USB's and Ethernet of the Pi. The Pi3 version does the same with the micro-USB and HDMI connector.

The Pi board and extender is mounted onto a carrier plate. The Pi4 has a passive heat kit available whereas the Pi5 carrier has been designed to work with the new active cooler.

The SD card can either be housed within the case or an alternate version will allow access to the card externally.

Bluetooth & Wi-Fi

In order to allow users to utilise the Bluetooth and Wi-Fi capabilities of the Raspberry Pi, the rear panel of the Pi-Box Pro range of enclosures is manufactured from Acrylic.

Pi5 Active Cooler

The Raspberry Pi Active Cooler for Raspberry Pi5 is a dedicated clip-on cooling solution for Raspberry Pi5. It combines an aluminium heatsink with a temperature-controlled blower fan to keep your Raspberry Pi5 at a comfortable operating temperature, even under heavy loads.
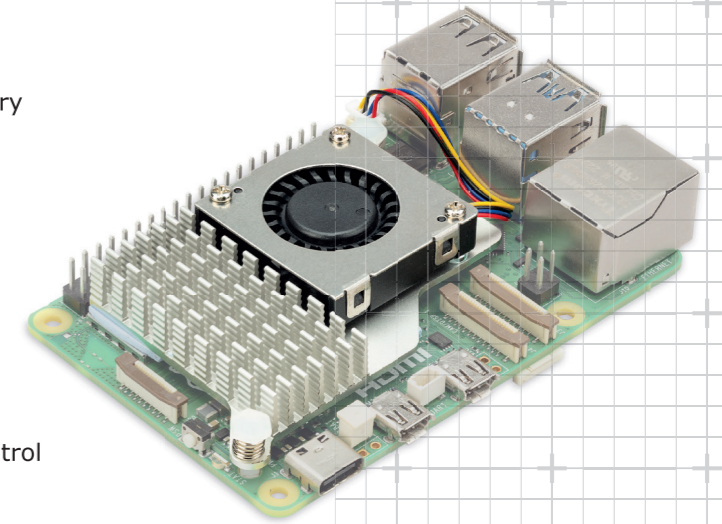
Specifications

Input voltage: 5V DC supplied via four pin fan header on Raspberry Pi5
Fans speed control: Pulse width modulation control with tachometer
Maximum airflow: 1.09 CFM
Maximum fan speed: 8000 RPM +/- 15%

Heat Sinking Kit / Pi4

With the release of the Raspberry Pi4 the temperature of the processor under 100% usage has become an issue. When the processor gets too hot it throttles back which could compromise the application that the Pi is being used to perform.

As a solution we have developed a Heat Sinking Kit that consists of 2 aluminium blocks and adhesive pads that transfer the heat from the processor and the USB controller chip to the aluminium carrier plate and then out to the enclosure, making the whole assembly a heat sink.

Temperature Bench Test

We tested the Raspberry Pi4 running at 100% over a 10-minute period to register the temperature rise of the processor. The tests were performed with a bare board, one housed in a Raspberry Pi Foundation plastic enclosure, one in a Pi-Box Pro4 silver housing and one in a Pi-Box Pro4 black housing.

We saw a 19°C drop in operating temperature from 82°C in the bare board and plastic enclosure down to 63°C when housed in the Pi-Box Pro4 aluminium enclosure and heat kit.

Note: The 82°C reached by the bare board is just past the 80°C threshold point at which the Raspberry Pi4 throttles back from running at 100%

Pi-Box Pro4 Heat Kit Test

Temperature °C

Time in Seconds

Pi4 - Bare   Pi Foundation Box   Pi-Box Pro4 - Silver   Pi-Box Pro4 - Black
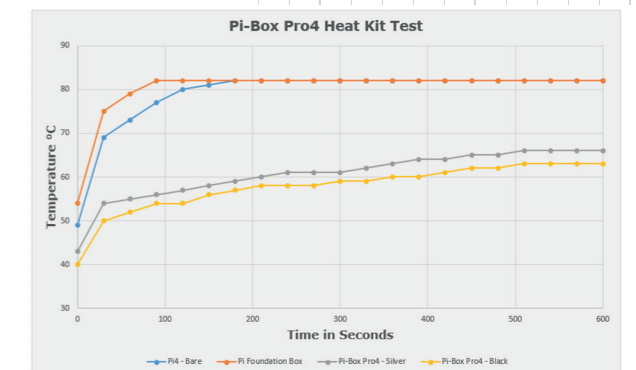
Pi 5 Enclosure Solutions

The enclosure solutions for the Raspberry Pi5 are all available with or without external access to the SD card. The enclosure with no external access is longer to house the SD card within.

All rear panels are acrylic for Bluetooth and Wi-Fi communication. Cases supplied in silver or black as standard. End plates are always black.

Stand-Alone Options

The **Pi-Box Pro5** has been designed to house the Raspberry Pi5.

The kit contains the E-Case B extruded aluminium enclosure, carrier plate, extender board, mounting kits for both the extender and the Pi board, end plates and screws.

The carrier plate has been designed to allow the Active Cooler to be mounted.

The **Pi-Box Pro5 M.2** has been designed to house the Raspberry Pi5 with a M.2 compatible module fitted. The case will also allow for the Active Cooler to be mounted.

The **Pi-Box Pro5+** has the same internal kit as the Pi-Box Pro5 but housed in our Combi-Case extrusion. Ideal for those who wish to have a rugged aluminium case but not an industrial look.

Perfect for audio and home automation projects where the enclosure is on full view.

19" Rack Mount Solutions

The Pi-Box Pro 5 can be mounted into a 1U 19" rack mount panel. The options include 1, 2 or 3 units mounted on a single rack. The   Pi-Box units feature an oversized front plate that allows for the units to be removable without having to remove the whole assembly. The standard model has a black front panel but units are housed in a silver extrusion.

Each kit contains a 19" rack panel with 1, 2 or 3 cut-outs, E-Case B extruded aluminium enclosure, carrier plate, micro-HDMI extender board, mounting kits for both the extender and the Pi board, end plates and screws.

Pi 4B Enclosure Solutions

The enclosure solutions for the Raspberry Pi4 are all available with or without a heatsink kit or external access to the SD card. The enclosure with no external access is longer to house the SD card within. The Pi-Box Pro4 can be retro fitted with the heatsink kit if required at a later date. All rear panels are acrylic for Bluetooth and Wi-Fi communication. Cases supplied in silver or black as standard. End plates are always black.

Stand-Alone Options

The **Pi-Box Pro4** has been designed to house the Raspberry Pi 4B.

The kit contains the E-Case B extruded aluminium enclosure, carrier plate, micro-HDMI extender board, mounting kits for both the extender and Pi board, end plates and screws. Heatsink kit is included if option has been selected.


The **Pi-Box Pro4 POE** kit contains the E-Case C extruded aluminium enclosure, carrier plate, micro-HDMI extender board, mounting kit for both the extender and Pi board, endplates and screws.

POE rear end plate has additional venting to aid airflow generated by the fan.

The E-case extrusion has been designed to accommodate many mounting options including;

Surface mount, VESA mount and DIN Rail mount.
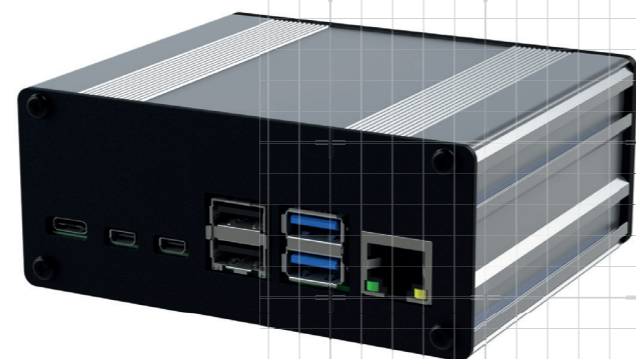
The **Pi-Box Pro4+** has the same internal kit as the Pi-Box Pro4 but housed in our Combi-Case extrusion. Ideal for those who wish to have a rugged aluminium case but not an industrial look.

Perfect for audio and home automation projects where the enclosure is on full view.

19" Rack Mount Solutions

The Pi-Box Pro4 can be mounted into a 1U 19" rack mount panel. The options include 1, 2 or 3 units mounted on a single rack. The Pi-Box units feature an oversized front plate that allows for the units to be removable without having to remove the whole assembly. The standard model has a black front panel but the units are housed in a silver extrusion.

Each kit contains a 19" rack panel with 1, 2 or 3 unit cut-outs, E-Case B extruded aluminium enclosure, carrier plate, micro-HDMI extender board, mounting kits for both the extender and Pi board, end plates and screws. The heatsink kit is included if option has been selected.

Pi 3B+ Enclosure Solutions

The enclosure solutions for the Raspberry Pi3 are all available with or without external access to the SD card. The enclosure with no external access is longer to house the SD card within. All rear panels are acrylic for Bluetooth and Wi-Fi communication. Cases supplied in silver or black as standard. End plates are always black.

Stand-Alone Options

The **Pi-Box Pro** has been designed to house the Raspberry Pi 3B+.

The kit contains the E-Case B extruded aluminium enclosure, carrier plate, HDMI extender board, mounting kits for both the extender and Pi board, end plates and screws.

The **Pi-Box Pro POE** kit contains the E-Case B extruded aluminium enclosure, carrier plate, HDMI extender board, mounting kit for both the extender and Pi board, endplates and screws.

POE end plates have additional venting to aid airflow generated by the fan.

The **Pi-Box Pro AV** kit contains the E-Case B extruded aluminium enclosure, carrier plate, HDMI extender board, mounting kit for both the extender and Pi board, AV cable, endplates and screws.

The E-Case range has been designed to accommodate many mounting options including:

Surface mount, VESA mount and DIN Rail Mount

19" Rack Mount Solutions

The Pi-Box Pro for Pi3 can be mounted into a 1U 19" rack mount panel. The options include 1, 2 or 3 units mounted on a single rack. The Pi-Box units feature an oversized front plate that allows for the units to be removable without having to remove the whole assembly. The standard model has a black front panel but the units are housed in a silver extrusion.

Each kit contains a 19" rack panel with 1, 2 or 3 unit cut-outs, E-Case B extruded aluminium enclosure, carrier plate, micro-HDMI extender board, mounting kits for both the extender and Pi board, end plates and screws. The heatsink kit is included if option has been selected.

LB ENCLOSURES

Cocom

CM4 Product Design Package

**LB Enclosures**, in partnership with **CoCom**, is offering a product design package, from concept to working samples for £2300 in 6 weeks or less. **CM4 Package** is based on the Raspberry Pi CM4 Module.

Package includes:

- Schematic & PCB design
- Manufacture and debug test of 2 working PCB's
- Gerber files & Bill of Materials
- Enclosure Design
- Manufacture of 2 fully customised enclosures inc. mounting accessories
- Production and artwork drawings
- A set of photo realistic renders of the finished product for marketing
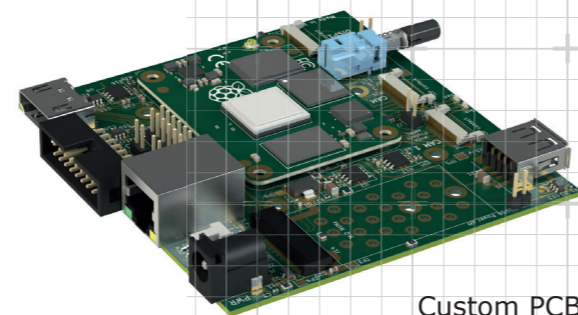- A quotation for production quantities
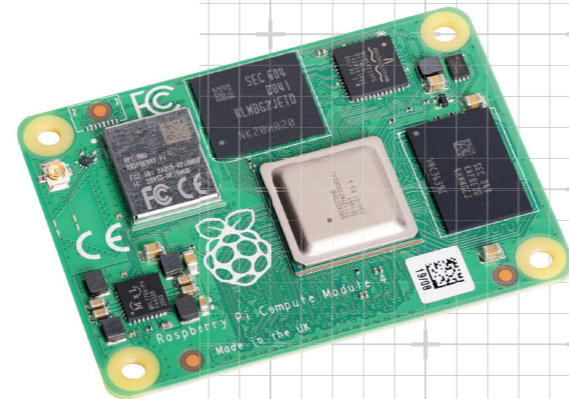
CM4 Compute Module
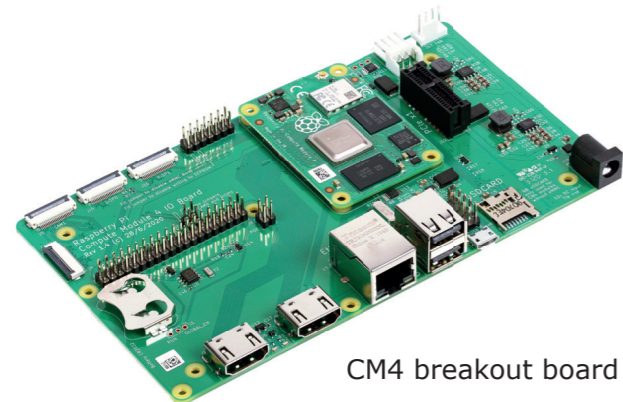
NOTE: Price is for design and manufacture of main PCB based on the Raspberry Pi CM4 breakout board. Any HATs, relays or sensors will incur additional costs.

Assistance with EMC testing can be provided.

CM4 breakout board

How the process works:

Depending on your level of knowledge, you can go through the design and connector selection and placement with one of CoCom's engineers. The PCB will either be 55mm, 100mm or 160mm wide so that it can be fitted into a Lincoln Binns enclosure.

Cocom Ltd will then design the layout and manufacture 2 working PCBs to the approved / signed off design.
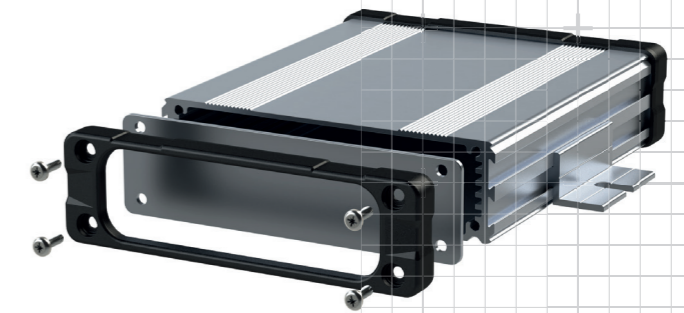
Custom PCB

Lincoln Binns will consult with you on the customisation of the enclosure – colour, artwork including connector labels, company logo etc.

2 enclosures will be manufactured to suit the PCBs in either silver or black anodised aluminium. Other colours options including red, blue, green and gun metal grey can be used on the final production run. The enclosure will also be supplied with standard stock mounting accessories if required.

Production and artwork drawings will require customer approval and sign off.

E-Case B enclosure kit

Full working sample

You will also receive 2 photo quality renders of the finished product for marketing purposes.

A quotation will be provided for production quantity breaks for the final product (board and enclosure). Minimum Order Quantity is 25pcs.

About LB Enclosures:

Established in 1985 as Lincoln Binns, an electronic enclosure specialist experienced in design and manufacture.

- Stock extrusions
- Custom extrusion
- 19" Rack enclosures
- Bent metal boxes
- Raspberry Pi Design Partner

About Cocom:

Established in 1998, Cocom is an award winning designer and manufacturer of PCB's, software and box build.

- PCB design
- PCB manufacture
- Box Build
- IoT Sensors
- Intel Realsense

Raspberry Pi Design Partner:

As a long-standing Raspberry Pi Design Partner, we have been involved in the design and manufacture of many Pi based products over the years, which means that we are in a position to help you with the design of your complete product from concept through to manufacture.

Raspberry Pi Design Partner

UK CA | CE