

Aivon Oy

Brochure

Micro-D - SMA adapters

Cryogenic connector adapter

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Micro-D - SMA adapters



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Micro-D - SMA adapters

Cryogenic connector adapter

Aivon Micro-D – SMA adapters are used to breakout 25-pin micro-D connector to individual SMA connectors. This micro-D connector is commonly used in cryostats for diagnostic and dc measurement wiring. The signals present at micro-D connector are typically fed by 12-pair twisted pair wiring and they are available at room temperature in 24-pin Fischer connector. Micro-D – SMA adapter makes it easy to separate each signal as own shielded SMA connector that can be later continued along SMA cable to the desired end location such as sample holder or cryogenic amplifier. At the room temperature end, the Fischer connector can be connected by Aivon twisted pair cables to Aivon breakout boxes for easy handling of signals.

By default, the micro-D connector at the adapter is female 25-pin with pin #13 unused. Upon request we can change the gender of this connector. The SMA connectors are non-magnetic and the body of the adapter is Au-plated copper. In some models, an extra aluminum nameplate can be added with customer's markings. The printed circuit board inside the filter has large ground planes that are connected to body of the adapter. The adapter can be mounted on the cryostat using e.g. Aivon Therma brackets.

We have two basic options for the connectivity. In 24 SMA models, every single micro-D pin (except #13) goes to the center conductor of the respective SMA. The outer shield of the SMA is connected/grounded to adapter body. In 12 SMA models, every pair of the micro-D (1-14, 2-15, ... , 12-25) goes to center and shield of respective SMA. In this model, every SMA shield carries thus active signal from the micro-D and is not grounded to adapter body.

In some models, we have added an RC filter inside the adapter.

Micro-D25 to 24 SMA adapter (Aivon Product Nr: 200201)

Aivon Micro-D25 to 24 SMA adapter connects every micro-D pin (except #13) to respective SMA center conductor. The SMA shields are connected to adapter body.

Internal pcb 0.8 - 1.0 mm thick 4-layer pcb (FR4) with inner layers tied to ground, ENIG plating. Au-plated copper C101 or C10200 enclosure. Micro-D connector Cinch M83513/02-DN, non-magnetic SMA connector Cinch Johnson 142-9701-201.

The body size without connectors is 93 mm x 74 mm x 10 mm.



Figure 1: Micro-D25 to 24 SMA adapter (product number 200201).



Figure 2: Micro-D25 to 24 SMA adapter (product number 200201) female micro-D connector detail.

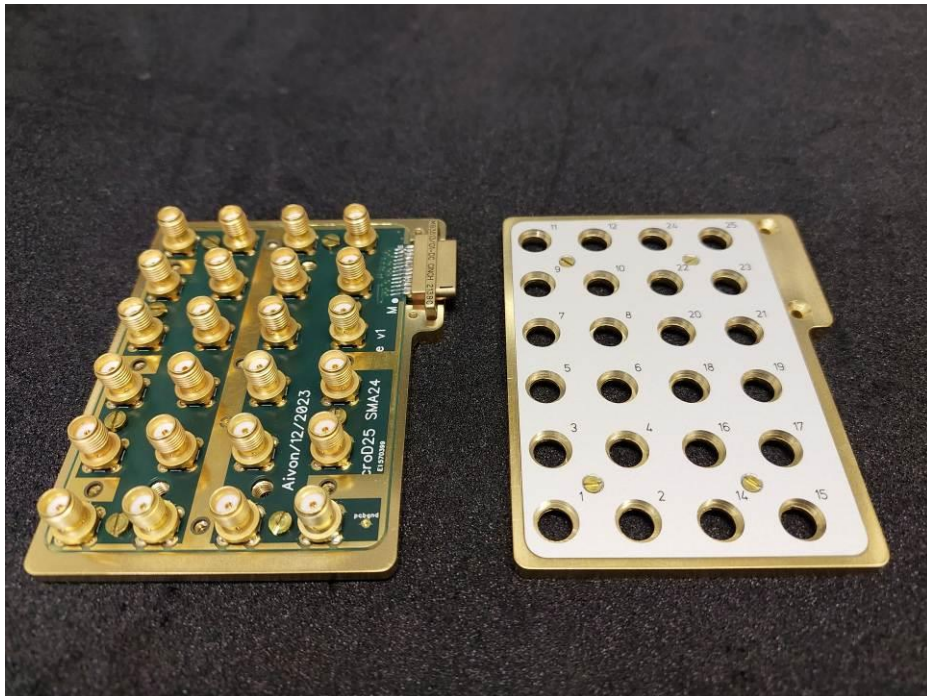


Figure 3: Adapter opened with internal pcb visible. This particular unit has male micro-D connector.

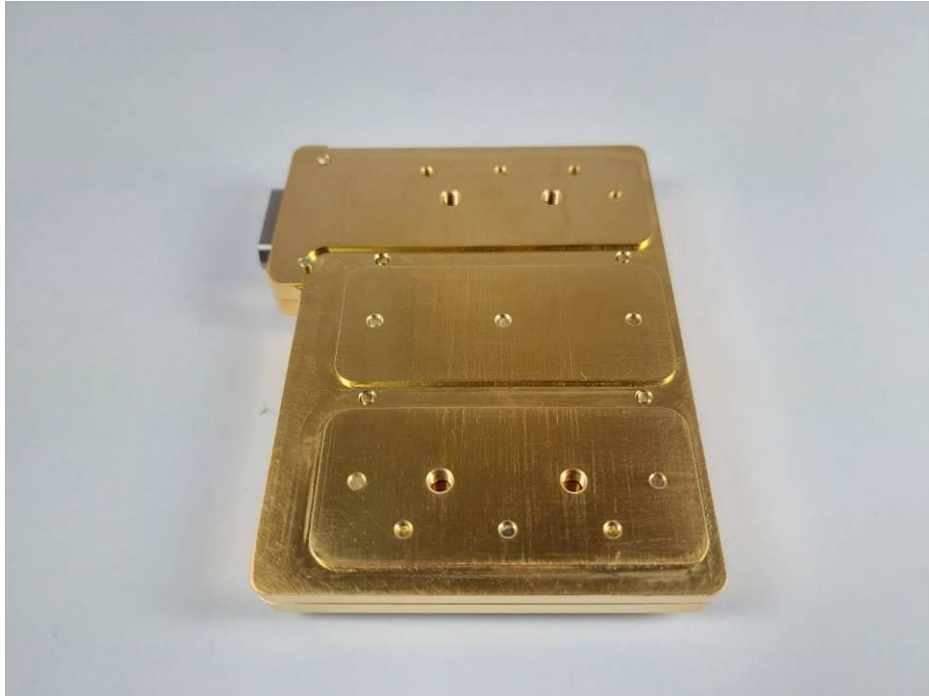


Figure 4: Four threaded M4 mounting holes in grid 20 mm x 60 mm.

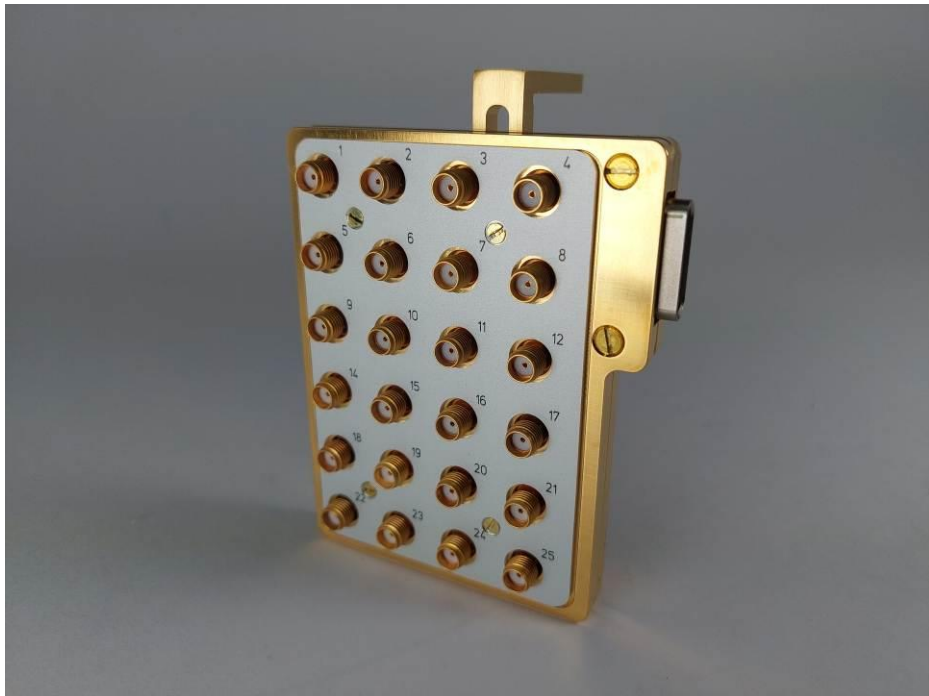


Figure 5: Front detail with mounting bracket Therma bracket 35 x 100 (Aivon product 500301).

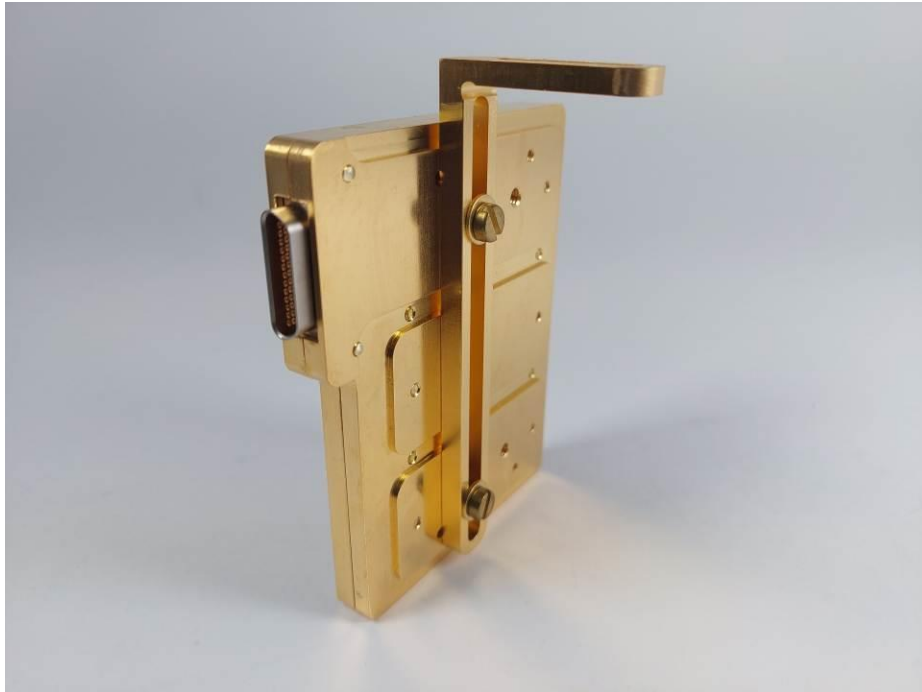


Figure 6: Rear detail with mounting bracket Therma bracket 35 x 100 (Aivon product 500301).

Micro-D25 to 24 SMA filtered adapter (Aivon Product Nr: 200501)

Aivon Micro-D25 to 24 SMA filtered adapter connects every micro-D pin (except #13) to respective SMA center conductor via RC filter and a feedthru capacitor.

The SMA shields are connected to adapter body.

Internal pcb 0.8 - 1.0 mm thick 4-layer pcb (FR4) with inner layers tied to ground, ENIG plating. Au-plated copper C101 or C10200 enclosure. Micro-D connector Cinch M83513/02-DN, non-magnetic SMA connector Cinch Johnson 142-9701-201.

Resistor is selected by customer from TE Holsworthy RN73C1J-series with size of 0603. Capacitor is ceramic with C0G/NP0 dielectric with value up to 47 nF as selected by customer. The size of capacitor is 0805. Feedthru capacitor is size 1206 e.g. Knowles Syfer SBSPP1000101MCT.

The body size without connectors is 90 mm x 106 mm x 10 mm.

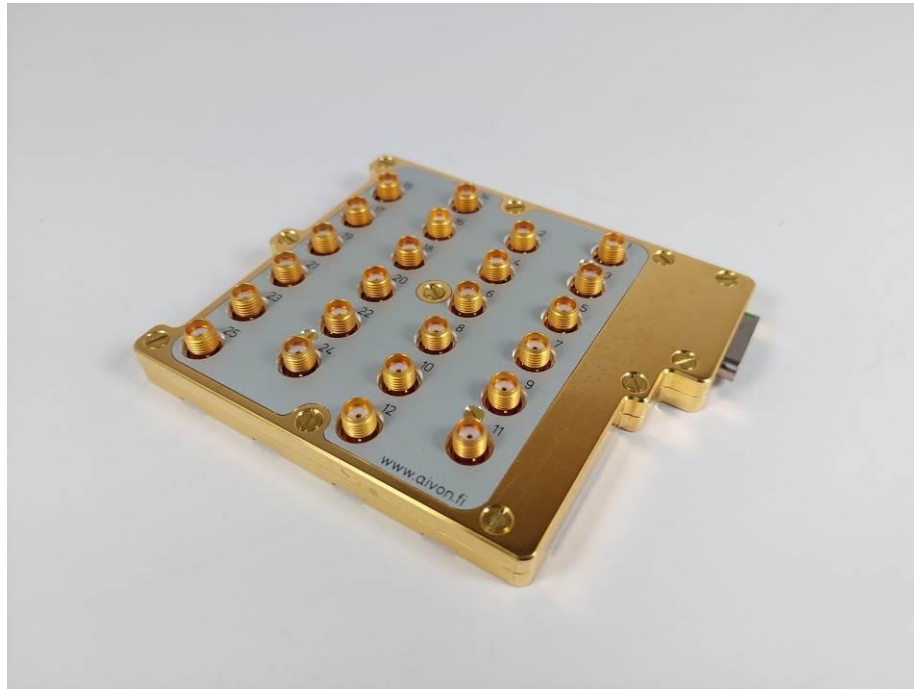


Figure 7: Micro-D - 24 SMA filtered adapter (product number 200501).

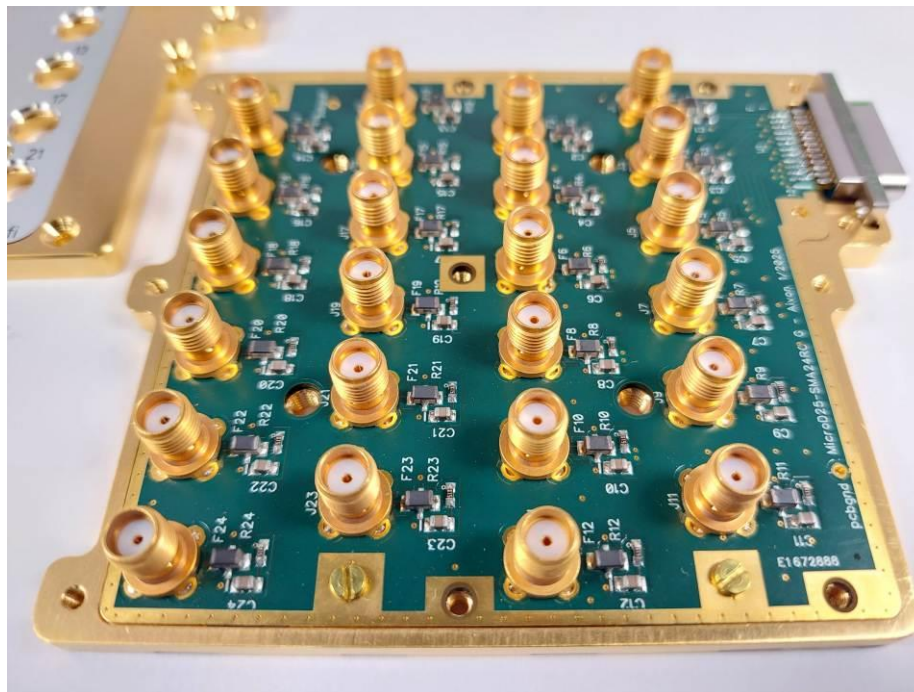


Figure 8: Adapter opened with internal pcb visible.

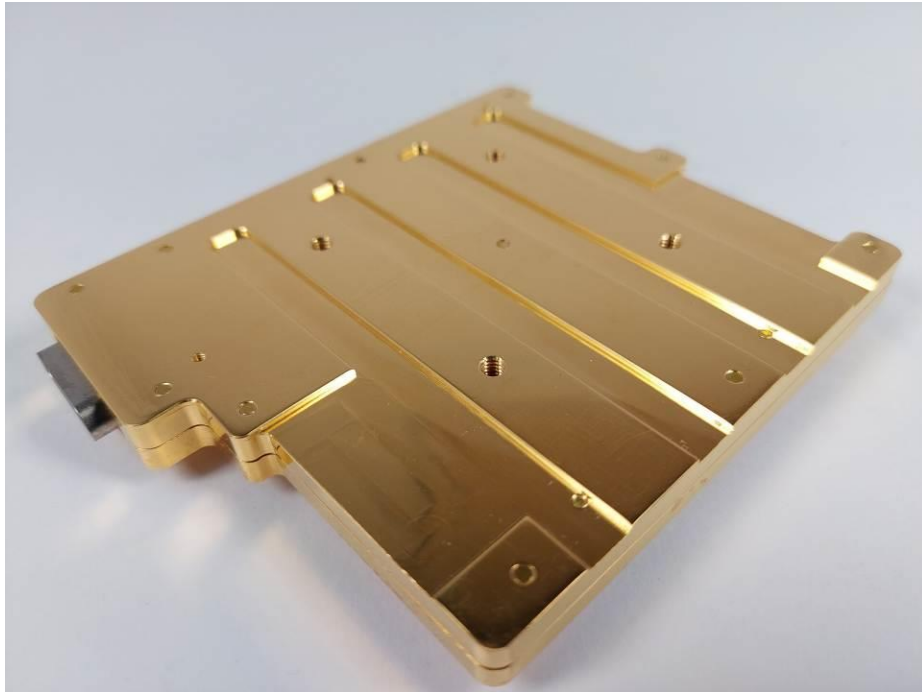


Figure 9: Four threaded M4 mounting holes in grid 40 mm x 40 mm.

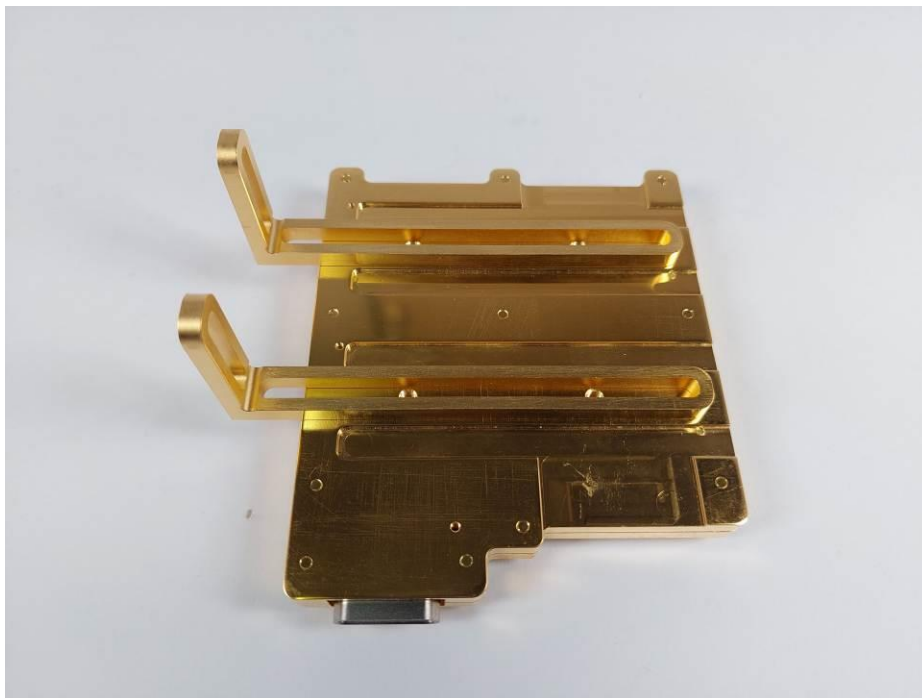


Figure 10: Two mounting brackets 35x100 installed (Aivon product number 500301)

Micro-D25 to 12 SMA adapter (Aivon Product Nr: 200301)

Aivon Micro-D25 to 12 SMA adapter connects every micro-D pin pair (1-14, 2-15, ..., 12-25) (#13 unused) to respective SMA center and outer (shield) conductor. The SMA shields are thus not connected to adapter body. Internal pcb 0.8 - 1.0 mm thick 4-layer pcb (FR4) with inner layers tied to ground, ENIG plating. Au-plated copper C101 or C10200 enclosure. Micro-D connector Cinch M83513/02-DN, non-magnetic SMA connector Cinch Johnson 142-9701-201.

The body size without connectors is 73 mm x 44 mm x 10 mm.

SMA connectors are placed on both sizes of the adapter to make it compact. Ask for one-sided designs.

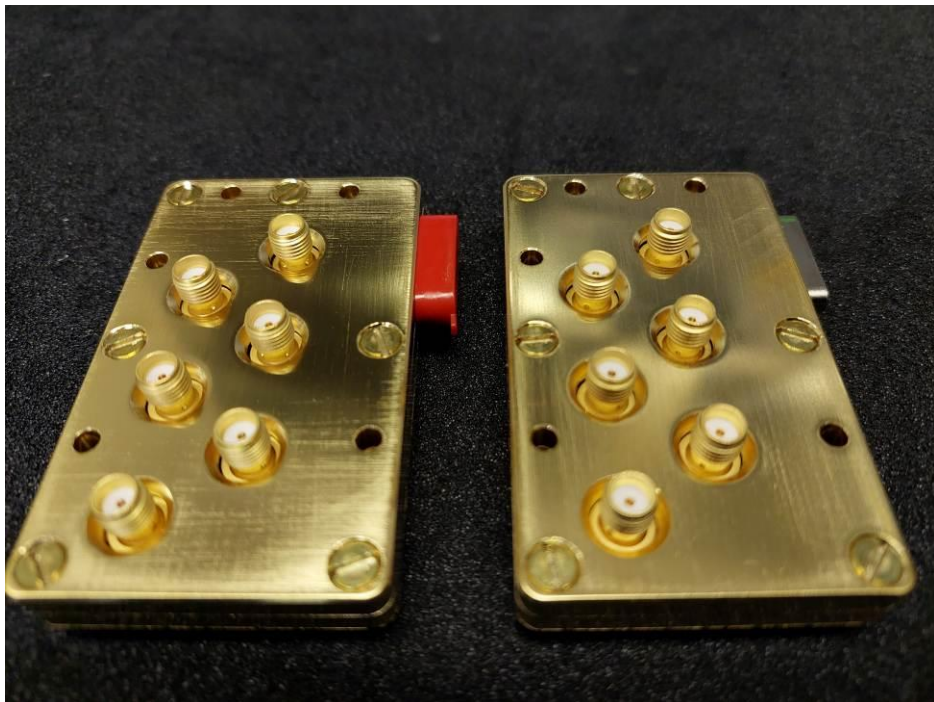


Figure 11: Micro-D - 12 SMA adapter (product number 200301)

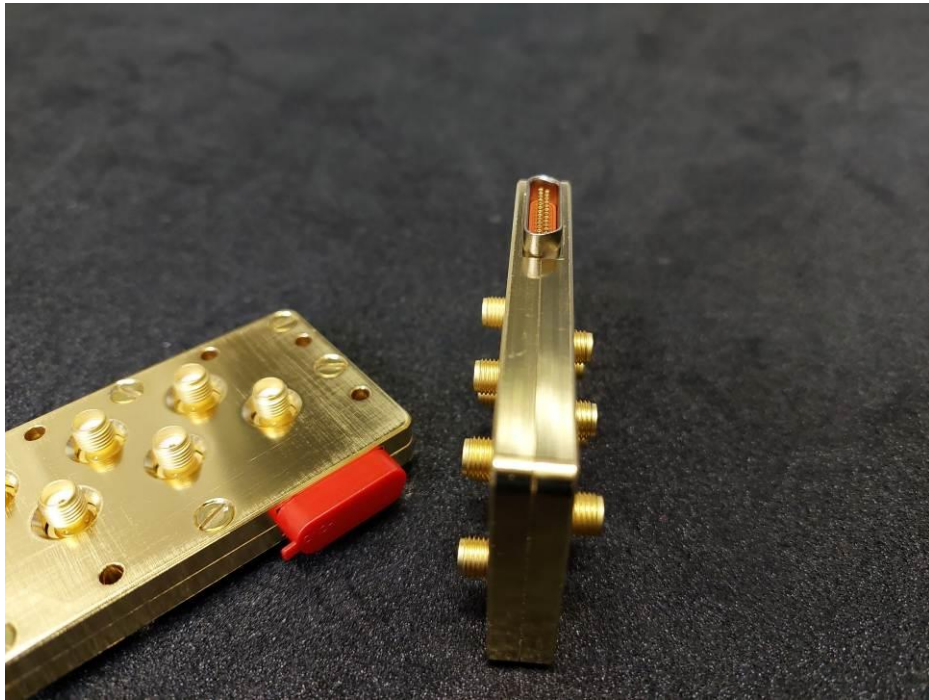


Figure 12: SMA connectors are placed on both sides of the body.

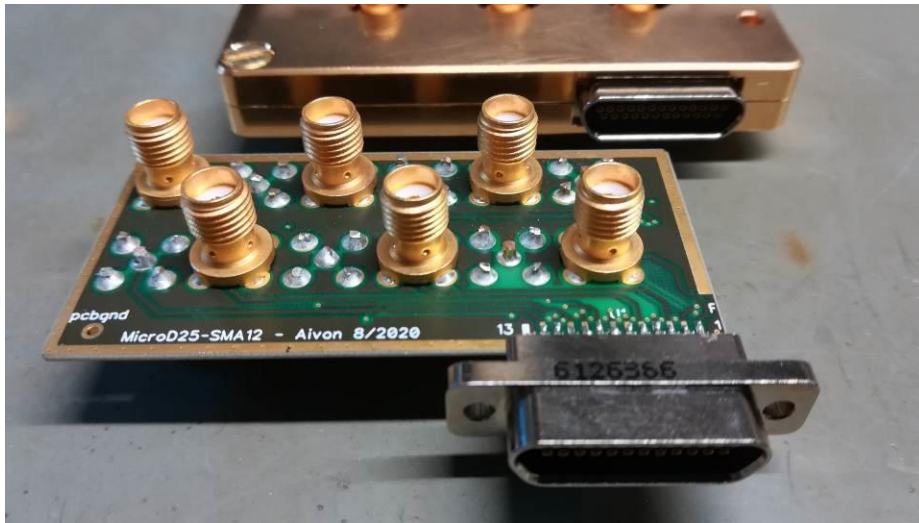


Figure 13: Internal pcb with SMAs on both sides.

Micro-D25 to 12 SMA filtered adapter (Aivon Product Nr: 200401)

Aivon Micro-D25 to 12 SMA filtered adapter connects every micro-D pin pair (1-14, 2-15, ..., 12-25) (#13 unused) to respective SMA center and outer (shield) conductor. A RC filter and feedthrough capacitor are added to the connection. The SMA shields are thus not connected to adapter body. Ask for different connection schemes that match your needs.

Internal pcb 0.8 - 1.0 mm thick 4-layer pcb (FR4) with inner layers tied to ground, ENIG plating. Au-plated copper C101 or C10200 enclosure. Micro-D connector Cinch M83513/02-DN, non-magnetic SMA connector Cinch Johnson 142-9701-201.

Resistor is selected by customer from TE Holsworthy RN73C1J-series with size of 0603. Capacitor is ceramic with C0G/NP0 dielectric with value up to 47 nF as selected by customer. The size of capacitor is 0805. Feedthru capacitor is size 1206 e.g. Knowles Syfer SBSPP1000101MCT.

The body size without connectors is 84 mm x 66 mm x 10 mm.



Figure 14: Micro-D 12 SMA filtered adapter (product number 200401)

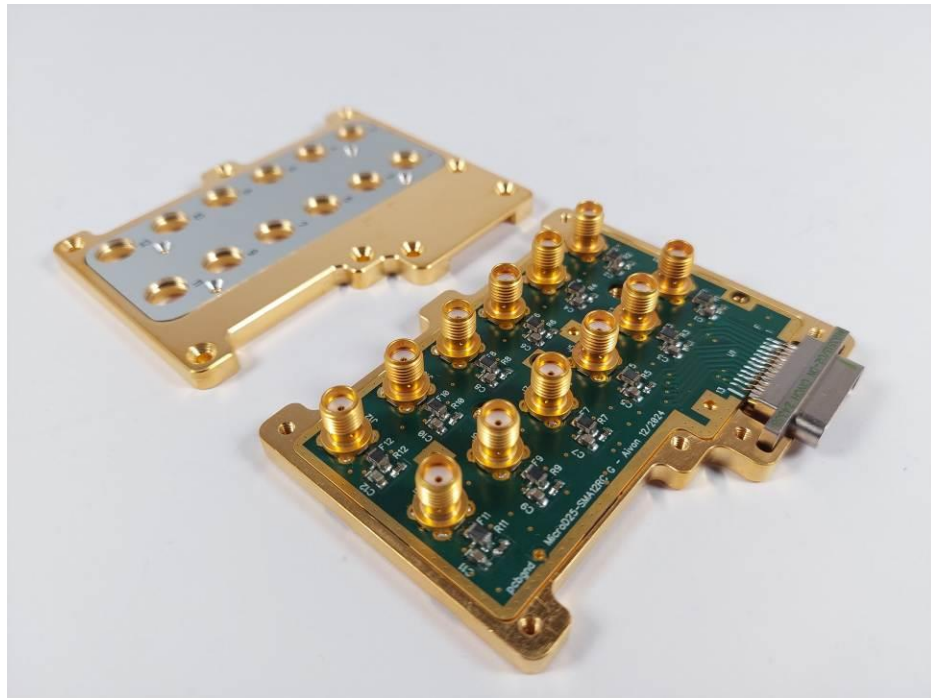


Figure 15: Adapter opened showing the internal pcb.

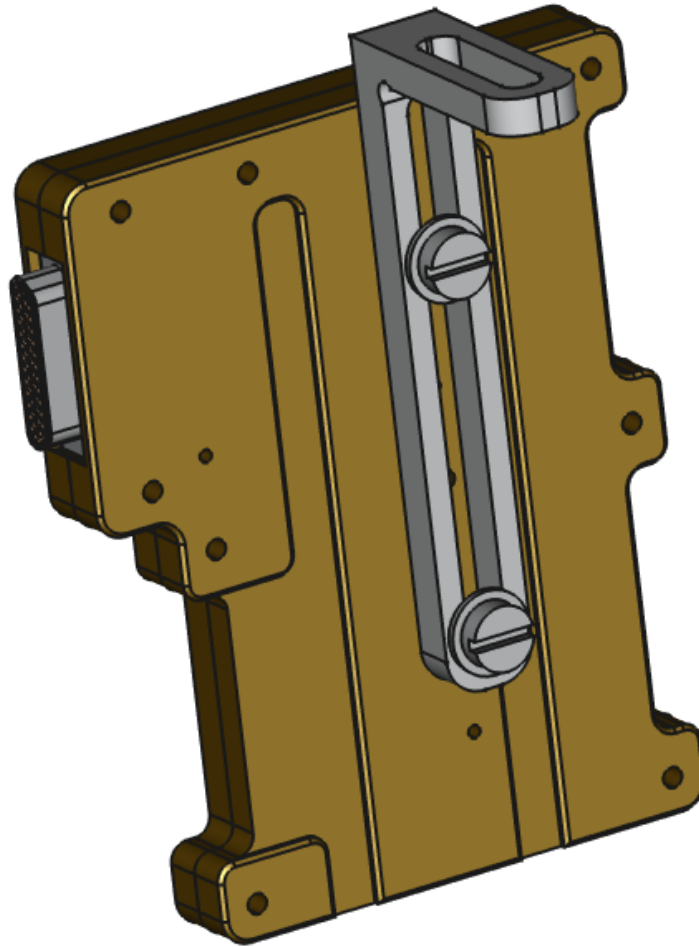


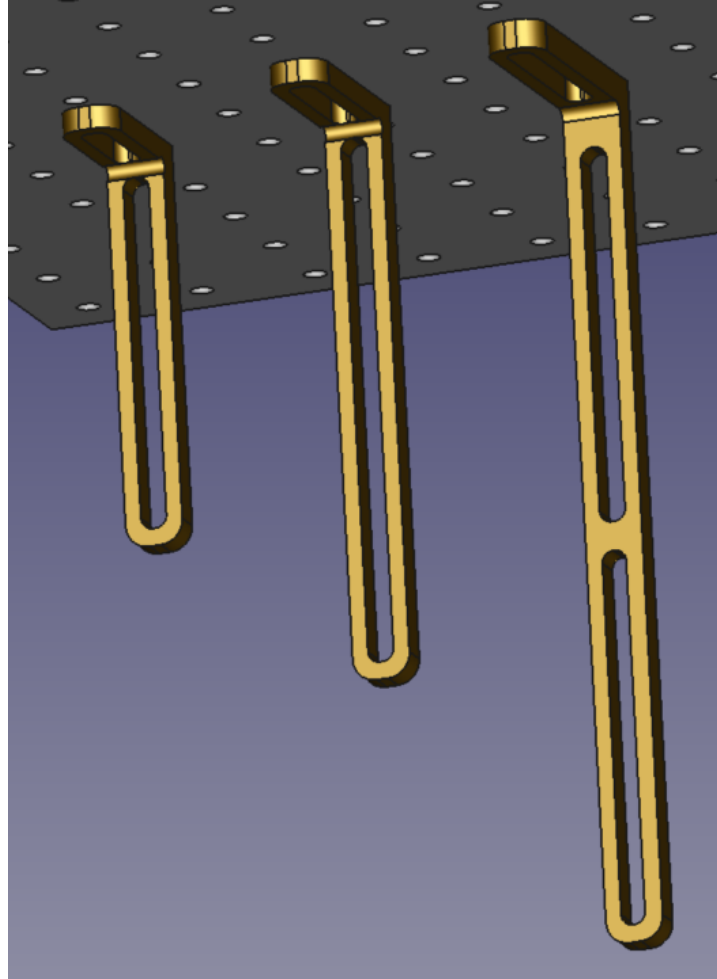
Figure 16: Two M4 threaded holes in 40mm separation for mounting. Here shown with Aivon Therma bracket 30x70 (product 500101)..

Product summary

Product code	Product name	Description
200201	Micro-D - 24 SMA adapter	Micro-D25 to 24 SMA breakout/adapter
200301	Micro-D - 12 SMA adapter	Micro-D25 to 12 SMA breakout/adapter
200401	Micro-D - 12 SMA filtered adapter	Micro-D25 to 24 SMA breakout/adapter with internal RC filter
200501	Micro-D - 24 SMA filtered adapter	Micro-D25 to 12 SMA breakout/adapter with internal RC filter

Mounting of adapters

We can design and manufacture mounting brackets for easy thermal anchoring of the filter. Please ask for more information.



Specifications

Data for the components is following:

- All size 0603 resistors
 - TE Holsworthy RN73 series, values 4R7 – 511k
 - Specs at room temperature:
 - $\pm 10\text{ppm}/^{\circ}\text{C}$
 - $\pm 0.1\%$
 - 63mW (0603)
- All size 0805 capacitors
 - COG / NPO, 50V or better (except 0805, 47 nF)
 - COG / NPO, 25V (0805, 47 nF)
 - Acrylic, 16V (0805, 220nF)
 - Specs at room temperature:
 - 5% (or better upon request)

Enclosure

Material	Raw aluminum, copper C101 or Au-plated copper C101
Male connector plug (option)	Cinch M83513/01-DN
Female connector socket (default)	Cinch M83513/02-DN

Document revision history

Date	Version	Description	Author
4.9.2025	0.1	Initial draft	JSP