

Technical Datasheet

Graphenea Cartridge

General Description

The Graphenea Cartridge interfaces the graphene microdevice and the electrical equipment used for its readout. Moreover, it allows for in-situ measurements with liquids thanks to its reservoir. This cartridge has a polyimide body, with high chemical stability, and spring loaded pogos that connect the chip to the input/output female connector. The cartridge has a small cleft onto which place the GFET die; the Graphenea Cartridge is fully compatible with the GFET S20, S21, S20P and S21P chips from Graphenea. The individual source channels allow to choose an individual channel or to combine multiple at the same time.

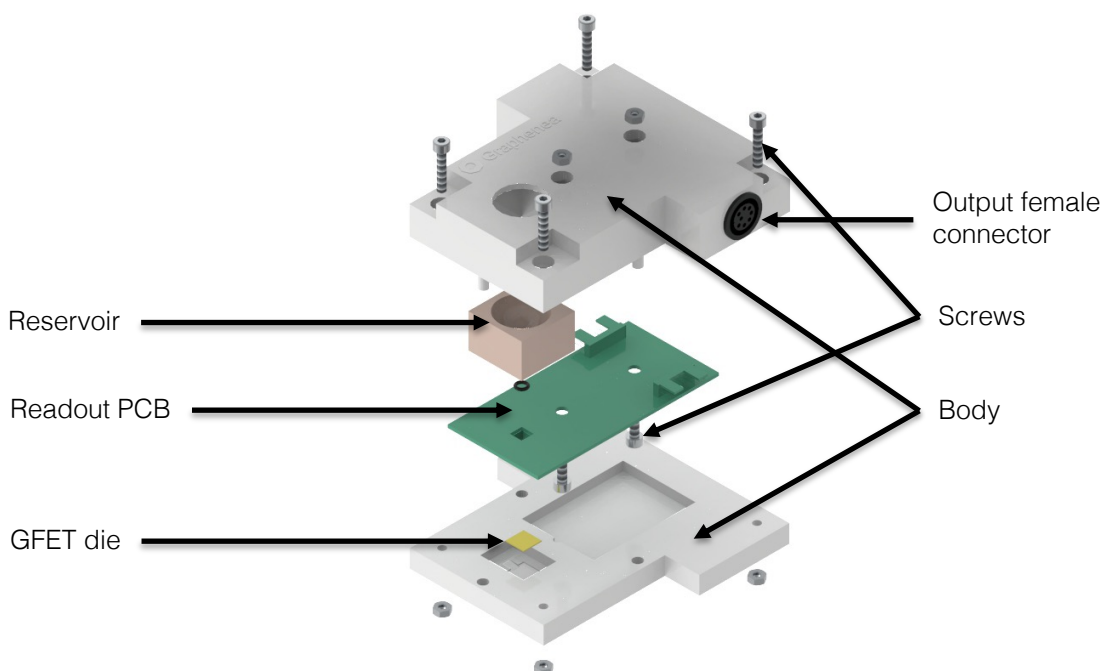
Features

- A reusable, easy-to-use interface, fully compatible with the GFET S20 and S21 series.
- Allows for individual channel measurement.
- Body and reservoir manufactured in polyimide for high chemical stability and negligible interaction with the liquid sample.
- High-quality components for a reliable readout, even at low powers.
- Standard BNC connectors for an easy and solid link with the measurement equipment.

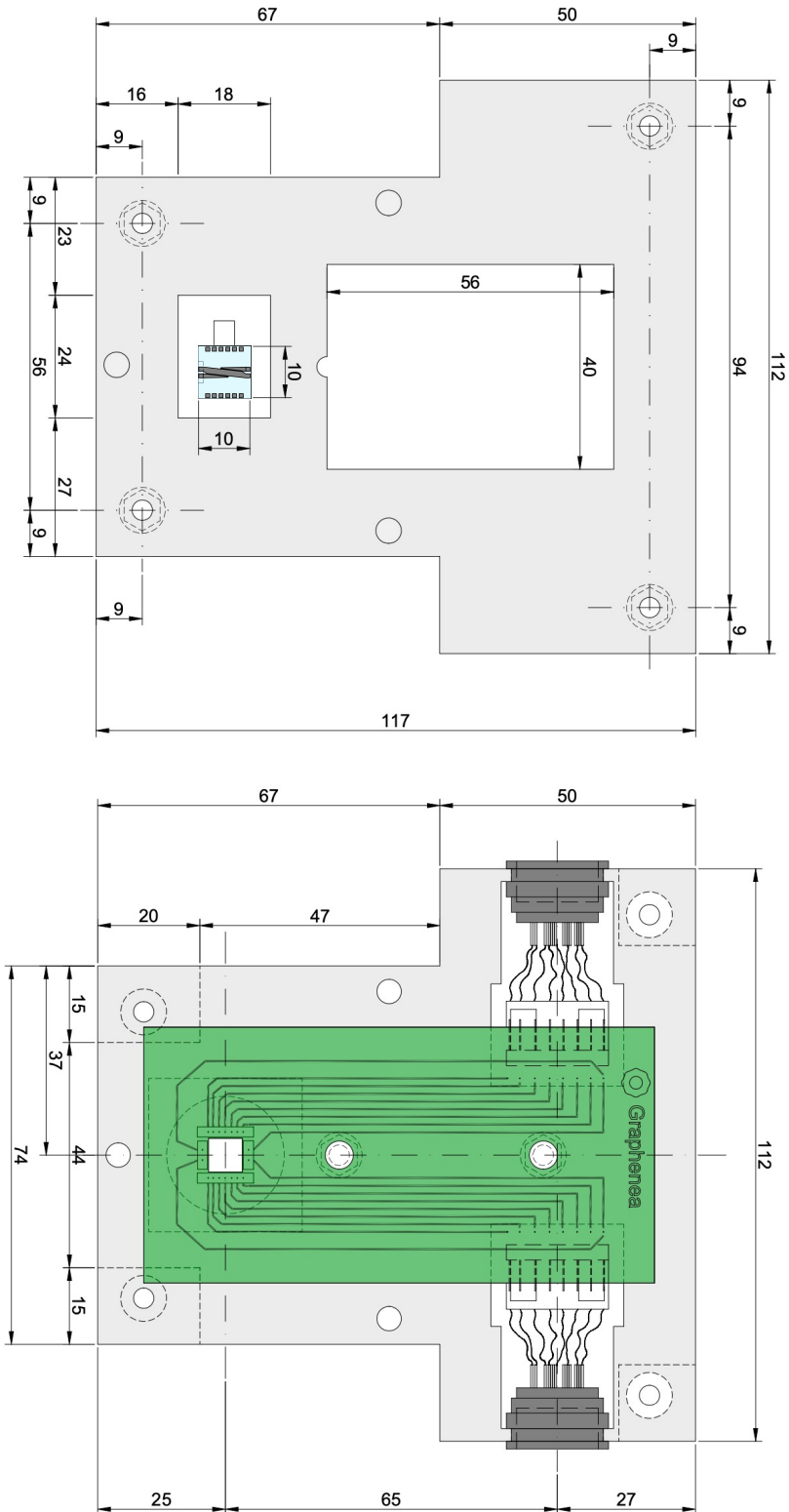
Applications

- Graphene device research
- Biosensors
- Bioelectronics
- Pre-clinical tests
- Point of Care (PoC) applications
- Healthcare

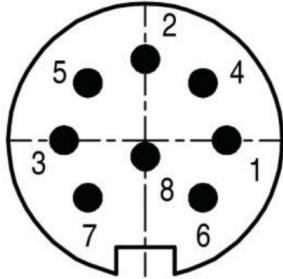
General Schematic



Dimensions (mm)



Output female connector

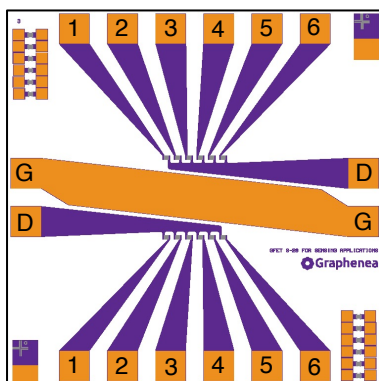


Pin #	Connector
1	Source 6
2	Source 4
3	Source 2
4	Source 5
5	Source 3
6	Drain
7	Source 1
8	Gate

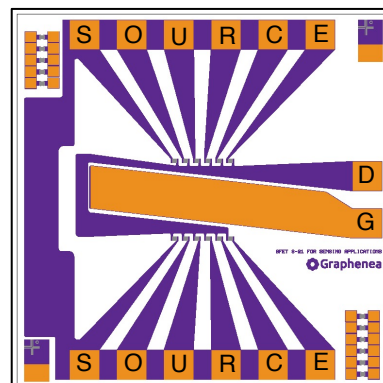
Model	Binder M16 IP40
Pole	8 DIN
Wire gauge (mm)	0.75 mm ²
Wire gauge (AWG)	20
Max. cable outlet	3-6 mm
Temp. range	-40 - +85 °C
Material	Ag plated CuZn
Rated voltage	60 V
Rated current	5 A
Resistivity	< 5 mΩ
Mechanical stability	> 500 mating cycles

GFET contact label

S20 & S20P

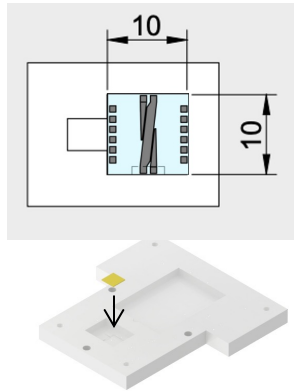


S21 & S21P

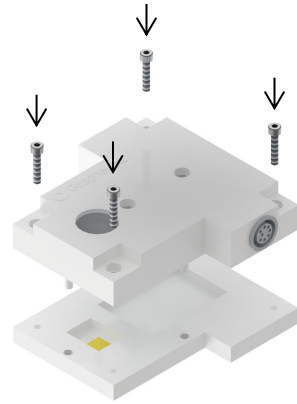


How to insert the GFETs into the Graphenea Cartridge

Place the GFET die into the base of the cartridge, where there is a squared die mark, and make it wiggle gently so it sits right on the mark. Make sure the alignment of the GFET checking the position of the contacts

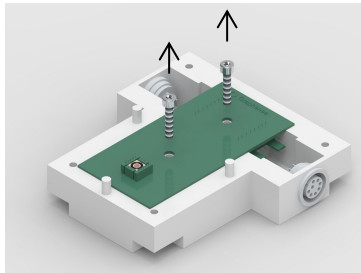


Once the GFET die is placed at the mark, close the cartridge with the lid, and insert the screws. The maximum torque that can be applied to the screws is 0.43 Nm. The cartridge is ready!

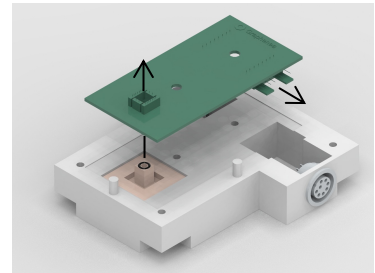


How to replace the reservoir of the Graphene Cartridge

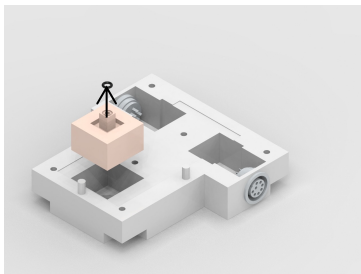
Flip the lid of the cartridge so it is upside down. Remove the 2 screws that fix the PCB to the lid.



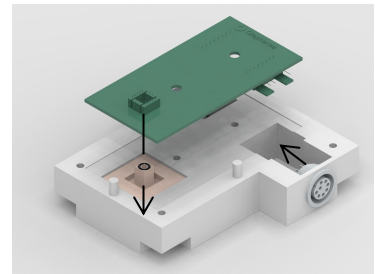
Once the screws are removed, lift the PCB gently and remove the bus from the lateral sockets that plug into the PCB.



One can now lift the reservoir and replace it and the o-ring with a new one.



When the reservoir has been replaced, plug the bus back into the PCB socket and place the PCB back, fitting the reservoir through the PCB hole.



To finish, just screw back the PCB to the lid.

