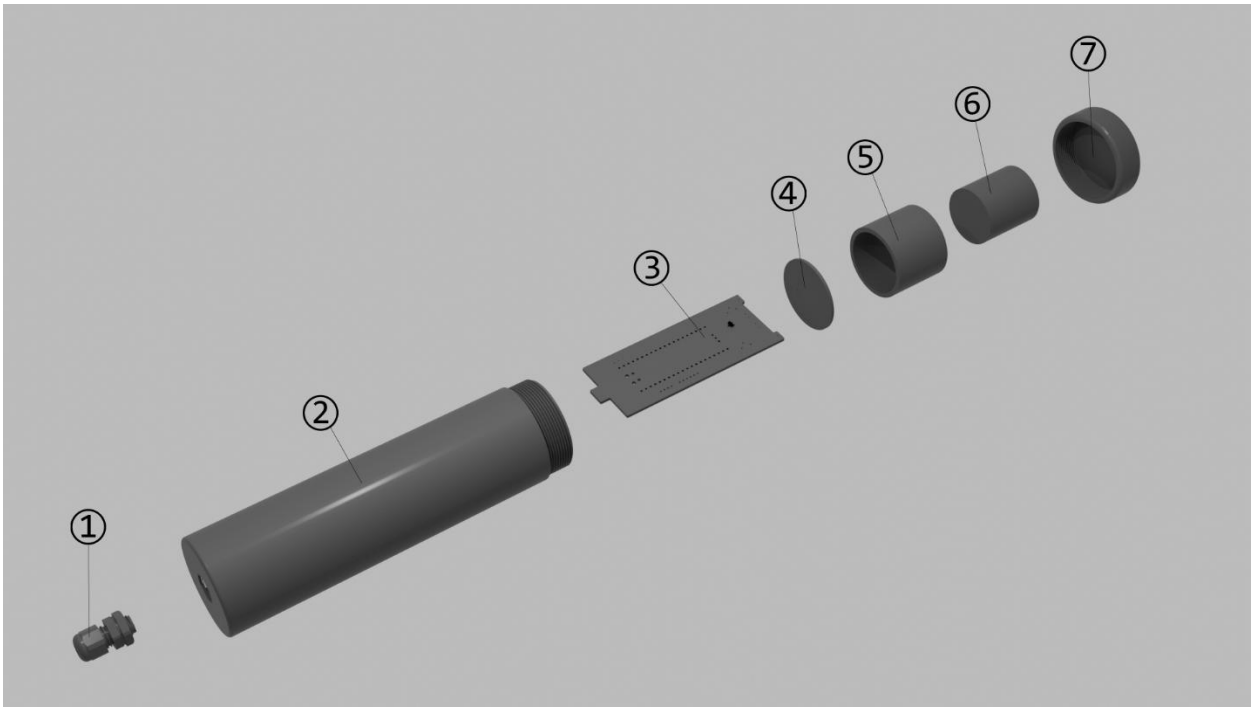
OpenGammaKit

Assembly Guide v0.1

Exploded Assembly View



Parts List

1. **Cable gland**
2. **Enclosure tube**
3. **Main board**
4. **SiPM board**
5. **Spacer ring**
6. **Scintillation crystal NaI(Tl)**
7. **End cap**

Assembly Sequence

1. **Insert the USB cable** (3.5 mm diameter) through the **cable gland (1)**.
2. **Solder the USB Micro connector** to the cable, adding a **4.7 – 5.1 kΩ OTG resistor** between the ID and GND pins.
3. **Feed the cable** with the connector through the **enclosure tube (2)**.
4. **Secure the cable gland (1)** inside the enclosure to hold the cable firmly in place.

5. **Solder the SiPM board (4)** to the **main board (3)** and connect it to the **USB Micro connector**.
6. **Insert the main board (3)** into the internal guide slots of the **enclosure tube (2)**, pulling the cable through the cable gland.
    - The **SiPM board** should rest precisely on the **inner support ring** inside the enclosure.
    - The **SiPM sensor** must face **outward** from the enclosure.
7. **Tighten the cable gland** on the outside of the enclosure.
8. **Apply a small drop of silicone oil** to the surface of the SiPM to ensure good optical coupling.
9. **Insert the spacer ring (5)** into the upper part of the enclosure.
10. **Place the NaI(Tl) scintillation crystal (6)** inside the spacer ring.
11. **Screw the end cap (7)** onto the top of the enclosure with light tension—tight enough to secure the crystal without applying excessive force.
12. **(Optional – Light Shielding):**
    If the enclosure is made of **optically transparent plastic**, the SiPM must be protected from external light exposure.
    - Slide a **black heat-shrink tube (50 mm diameter)** over the assembled enclosure.
    - **Gently heat** the shrink tubing to fit snugly, taking care **not to overheat or deform** the plastic enclosure.

Notes

- Ensure that all solder joints are clean and free of flux residues.
- Avoid touching the surface of the SiPM or the crystal directly—use gloves or optical tissue if necessary.
- Verify correct alignment before sealing the enclosure.