

Detachable Loop-ATR probe with polycrystalline or chalcogenide fiber

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1. Specification

The detachable loop probe is assembled with Mid-Infrared transmitting silver halogenide polycrystalline fibers or chalcogenide glass fibers upon requested specification. It consists of the shaft with a polycrystalline fiber loop tip as ATR element and flexible fibers. PEEK tubing protects the fibers outside of the shaft. Fibers are terminated with SMA connectors.

Specification of Detachable Loop Probe materials

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|--|---|
| Material of fibre | Silver chloride-silver bromide solid solution or chalcogenide glass |
| Inner protective tubing for the fibres | PEEK |
| ATR-Element | Silver chloride-silver bromide solid solution |
| Sealing between ATR and shaft | Polytetrafluorethylene (Teflon) , Epoxy resin UHU Schnellfest |
| Probe tip and shaft material | PEEK |
| Protective conduit material | PEEK |
| Connectors material (inside coupler) | Stainless steel, brass, Titanium |
| Temperature range | - 40°C / + 80°C |

Please verify the chemical compatibility of the Probe in accordance with specified materials chemical resistance.



2. Handling Instruction

Handle DLP-ATR Probe with care.

The Probe contains silver halogenide fibers or chalcogenide glass fibers that are flexible but it can be damaged when it get a shock of the probe shaft or fibre protective sleeve. Also the bending radius of these fibres is limited as not less than 15cm, i.e. 30cm diameter.

Caution! If the probe was bent to a less diameter then suggested then it results in irreversible transmittance particularly in the range of 3-8 μm .

Caution! ATR element is a bare fibre loop which reacts with metals. Do not touch the loop to any metal parts.

Caution! Fiber is sensitive to daylight and luminescence light. Protect the loop tip against chemical and radiation damage with a cap when it is not in operation. Dry carefully before to put the cap on.

Caution! Be careful with ammonium solutions (NH_4^+), Sodium thiosulfate ($\text{Na}_2\text{S}_2\text{O}_3$), concentrated bromide solutions (Br^-) and concentrated acids.

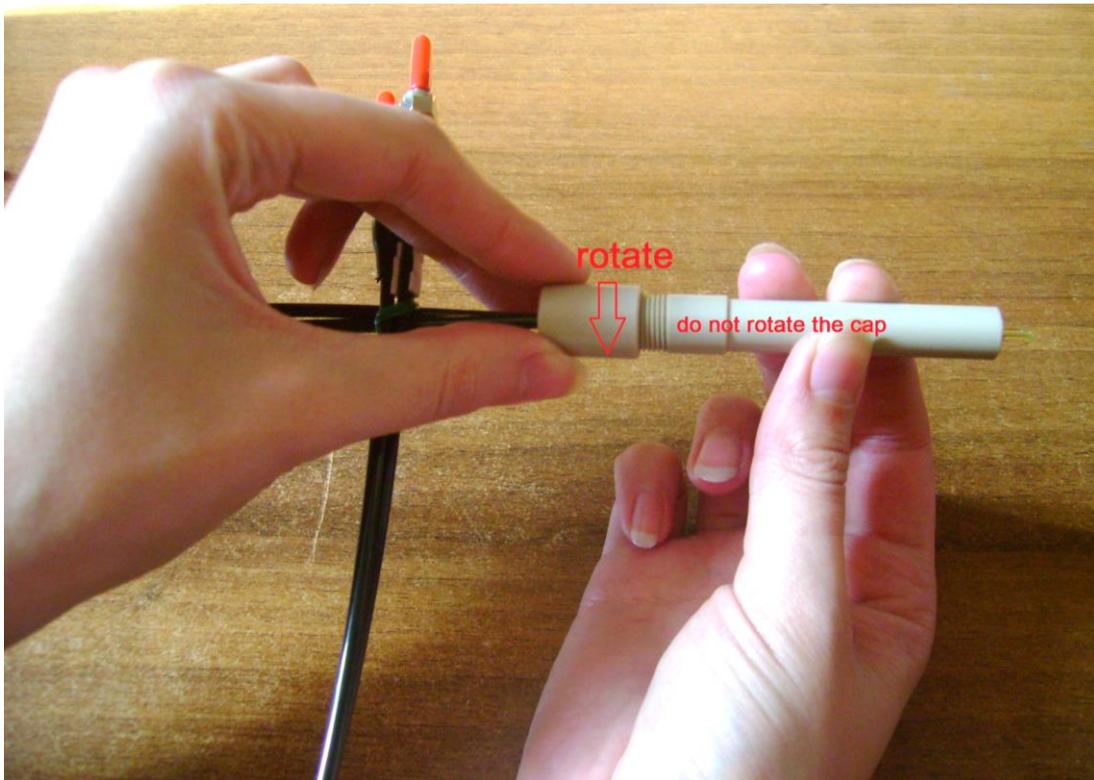
Take care of touching any surfaces because the loop tip can be easily damaged which cause in less or no signal.

- Do not bend the probe less than 30cm diameter, as mentioned before
- Put protective caps onto loop tip and both fibre ends of the Probe when it's not in use
- Hold the probe at both ends during the transport!
- Prevent the Probe of falling down from any objects!
- Return the Probe to original box when it's not in use

3. How to attach/replace fibre loop tip

Make sure that the probe tip is clean and dry before detachment of loop tip.

Unscrew the nut and pull the fixing cap from the probe. Rotate the nut but not the cap.



Take the old loop from the slot on the probe and prepare a new loop tip.

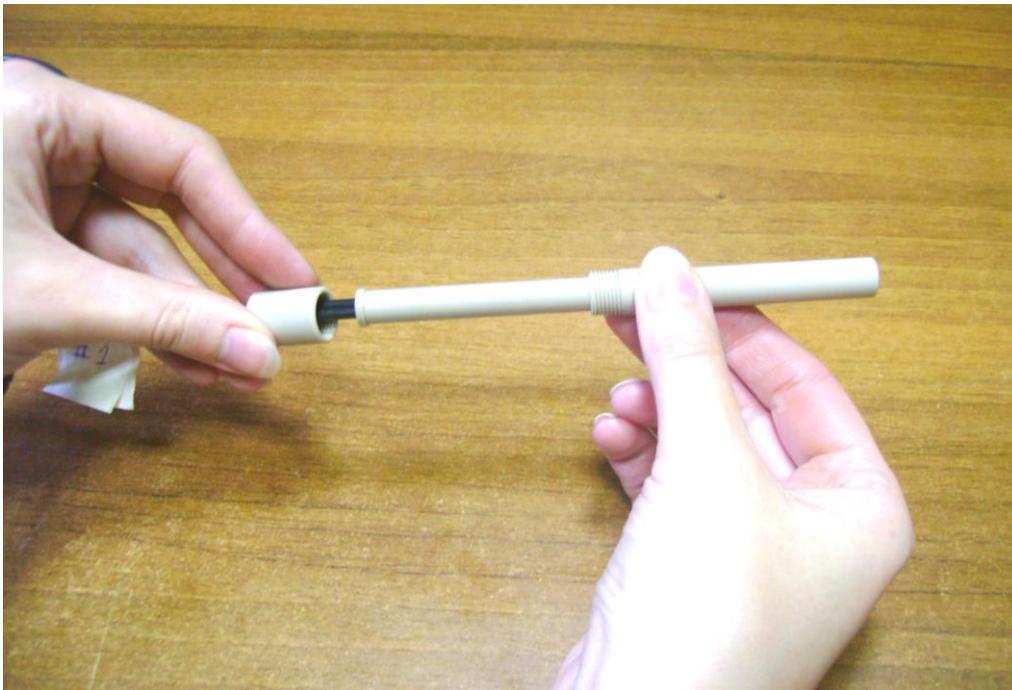


Prevent any contamination of the fibre ends on the probe tip. Take care not to lose Teflon sealing ring (inside the fixing cap).

Put a new loop tip onto the slot and put the fixing cap.



Screw on and tighten the screw nut. Rotate the nut but not the cap.





4. Cleaning of loop ATR Probe

The probe loop tip can be cleaned from the reaction mixture by any appropriate solvent.

A soft brush can be used for the manual cleaning.

Use a lint-free napkin for the drying of the tip.

Inspect visually the loop tip. If any remains are still left then repeat the cleaning.

To make sure that the cleaning is completed determine the optical cleanliness of the loop tip:

- Collect Background spectrum.
- Clean the loop tip with an appropriate solvent.
- Collect a Sample spectrum and observe it.
- Please check if there are any peaks visible.
- If there are no remains of the liquid sample left then the spectrum should be presented as a smooth 100% line.

5. Storage.

After the work with detachable loop probe is finished then clean and dry the probe tip. Put on protective caps on the probe tip and SMA connectors. Do not store the probe without the fixing cap. Place the probe into the storage box when it's not in use or place it in a suitable location for safety storage.