

ADR Kit for PPMS[®]

Quantum Design introduces a compact Adiabatic Demagnetization Refrigerator (ADR) designed for the PPMS platform as co-development work with the Institute for Materials Research, Tohoku University Japan. The ADR extends the PPMS temperature range down to ~ 100 mK from room temperature in less than 3 hours, and holds temperature below 1.9 K for more than 2 hours. This enables DC resistivity and electrical transport measurements down to ~ 100 mK.



Features

- Extends the PPMS temperature range to ~ 100 mK in 3 hours
- Compatible with QD PPMS, EverCool II and DynaCool
- DC Resistivity and Electrical Transport measurements
- Two samples can be measured simultaneously
- Simple operation principle without mechanical movement



PPMS Requirements

- High vacuum option
- DC Resistivity (ETO puck)

Specification

| | |
|--------------------|--|
| Temperature range | 300 K to 100 mK (typical - guaranteed spec. = 150mK) |
| Time to base temp | 3 hours (from room temp. to ADR base temp.) |
| Temperature sensor | 1000 Ω Ru ₂ O |
| Number of leads | 8 (Allows for two samples to be measured simultaneously) |
| Sample mounting | PPMS He ³ DC resistivity sample stage |
| System requirement | High vacuum option DC resistivity |

ADR Process

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| 1. Set sample puck in ADR and insert into PPMS |
| 2. Cool down PPMS to 1.9K |
| 3. Apply 3 T magnetic field |
| 4. Vacuum PPMS to high-vacuum state |
| 5. Set zero magnetic field |
| 6. Temperature decreases to ~100 mK |

Temperature sweep data

