

Diamond Telescope Detector: Specification

S.N.	Parameters	URSC Specifications
1.	Diamond Telescope Detector	The telescope is a stack of two diamond detectors. Following are the Specifications for each detector and the housing:
2.	Material for detector-1	Diamond (single crystal grown via chemical vapor deposition, sCVD)
3.	Size for detector-1	Approximately 4 mm X 4 mm (± 0.5 mm)
4.	Thickness for detector-1	250 μ m (± 10 μ m)
5.	Material for detector-2	Diamond (single crystal grown via chemical vapor deposition, sCVD)
6.	Size for detector-2	Approximately 4 mm X 4 mm (± 0.5 mm)
7.	Thickness for detector-2	500 μ m (± 10 μ m)
8.	Separation between the two detectors	No passive material is to be present between the two detectors. The two detectors should be very compactly attached to each other, with <200 μ m between them.
9.	Housing Material	Aluminum
10.	PCB (on which the diamond detectors are mounted)	FR4, Completely RF shielded. Vacuum compatible (Non de-gassing compounds)
11.	Any other material used in the assembly	Vacuum compatible (Non de-gassing compounds)
12.	Vacuum Compatibility:	UHV (better than $1E-6$ mbar)
13.	Electrode Material:	Non corrosive, non-de-gassing material, thickness < 200 nm
14.	Mounting Arrangement:	4 mounting holes (standard size; M2 or M3) to be provided on the housing to arrest the housing on the test bench.
15.	Connector	Vacuum, temperature and radiation compatible connectors for each detector.
16.	Stacking Arrangement (To hold the two diamond detectors together)	If a screw-nut assembly is used, then provide the type of screw-nut assembly along with the torque given. If epoxy or glue is used, provide the details of it. It should be temperature and vacuum compatible, with non-degassing properties
17.	Temperature Range	-40 $^{\circ}$ C to 55 $^{\circ}$ C
18.	Aperture	≥ 10 mm ²
19.	Certificate of Conformance	Provide Certificate of Conformance
20.	Test Report of the Telescope	Test results of both the detectors, individual as well as with coincidence, with a suitable beta source for 24 Hours continuous operation at nominal operation bias for each detector.
21.	Bill of Material	Provide Bill of Material (only list and quantity to be provided)
22.	Warranty	2 years from the date of receipt and acceptance at Stores, URSC, Bangalore