

# ADVANCED TECHNOLOGIES FROM ISRO

Interest Exploration Note

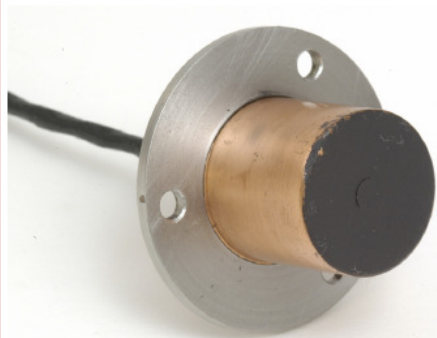
TT / 09 / 01 / VSSC

## Thermal Sensors

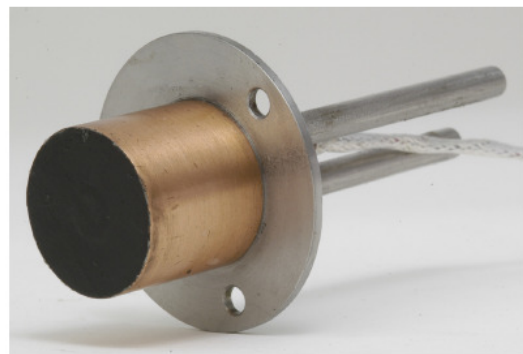
Indian Space Research Organisation at its Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram has developed various kinds of heat flux sensors and temperature probes. They have applications in a variety of heat measurements like radiative and convective heat flux measurement for short durations in flight, aerodynamic heat transfer measurements on moving bodies during flight and on wind/plasma tunnels, flame temperature measurement at nozzle exhaust, hot gas temperature measurement inside combustion chambers etc.

### TECHNICAL SPECIFICATION(S)

Sensor Name	Measured parameter	Range	Sensor Output at full range	Over range	Accuracy
Thin foil heat flux sensor	Heat Flux	10/ 25/ 50/ 100/250/500 W/cm <sup>2</sup>	Linear output, 10 mV	25% of rated heat flux	±5%
Slug heat flux sensor	Heat Flux	500 W/cm <sup>2</sup>	50 mV	--	±10%
Graphite heat flux sensor	Heat Flux	2000 W/cm <sup>2</sup>	50 mV (3 channels)	---	±10%
Gas Temperature probe	Temperature	77 to 2500 K	75mV	---	±1%
Stagnation Temperature probe	Temperature	300 to 2500 K	50 mV	---	±3%
Fast Response Temperature probe	Temperature	300 to 2000 K	50 mV	---	±3% for temperature, ±10% for heat flux
Eroding Temperature probe	Temperature	300 to 2000 K	20 mV	---	±3%



Thin foil heat flux sensor (Uncooled)



Thin foil heat flux sensor (water cooled)



Slug heat flux sensor



Graphite heat flux sensor



Gas Temperature probe



Stagnation Temperature probe



Fast Response Temperature probe



Eroding Temperature probe

## TECHNOLOGY TRANSFER FROM ISRO

ISRO is willing to offer the process know-how of fabricating this sensors to eligible interested parties who are manufacturers of heat sensor equipments in India. Capable manufacturing industries in acquiring this know-how may write with details of their present activities, requirements and plans for implementation, infrastructure and technical expertise available with them, their own market assessment, if any, and plans for diversification to the address given below. Alternatively, you can also fill in the response form provided in this website.

For further details, please contact:

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