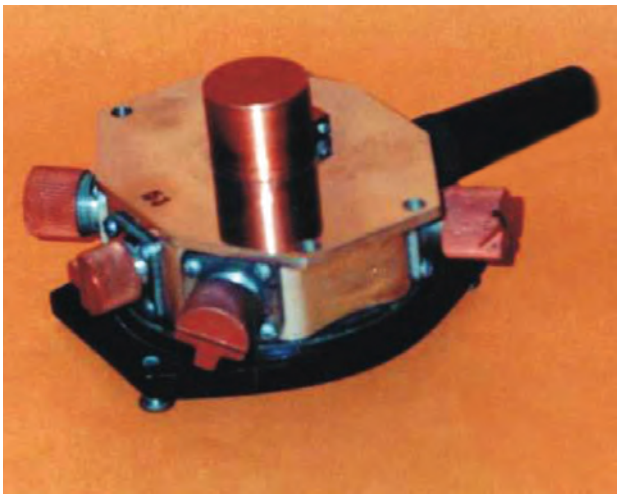
THERMOELECTRIC COOLING SENSOR (TCS)

Areas of Application

The device is to be used for analysis of rocks in deep well drilling. It can be used on interplanetary stations to determine the elemental composition of soil of the Solar System planets, as well



Specification

Energy resolution, at least, eV	600
Isolation resistance between disconnected electrical circuits, max Mohm	20
Power consumption in the supply circuit of thermoelectric cooler, W	40
Warm-up time, at most, min	10
Supply voltage of thermoelectric cooler, V	12 ± 5
Pressure inside thermoelectric cooling sensor, at most, mmHg	5×10^{-3}
Cooling at an ambient temperature of 0 °C, at most, °C	–100
Weight, at most, g	1500
Operational life in continuous operating mode, at most, hours	2
Operational life at periodic operating mode, at least, hours	30
Probability of failure-free performance, at least, %	99.9
Time of depressurization of thermoelectric sensor, at least, min	5

Advantages

The device provides an energy resolution of about 600 eV for energy of 5.9 keV, which enables determination of element concentration in soil of down to 10^{-6}

Stage of Development. Suggestions for Commercialization

IRL6, TRL6
The product is manufactured and supplied, upon request

IPR Protection

IPR3

Contact Information

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