

# NASA TECH BRIEF



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## Automatic Calibration Apparatus for Telemetry Systems

Apparatus has been designed for automatically calibrating and testing spacecraft telemetry systems. The apparatus can generally be used to calibrate analog-to-digital converters in which an analog test voltage established at a channel input varies to seek the level of maximum probability of indecision by servo action.

In the past, calibration of a telemetry system involved the search and identification of average indecision zones and was done manually using complex equipment. Because the indecision zones have quite narrow bounds, the test operator has had considerable difficulty in locating these indecision zones and visually interpreting the telemetry output data. The operator was required to use the data to manually adjust the analog input voltage to the apparatus so as to establish the point of maximum probability of indecision. The confidence level of such tests was not high, and operator fatigue was a factor.

The new apparatus automatically specifies the input function in a closed servo loop. It combines a servo-controlled voltage source and an integrating digital voltmeter with automatic printout. Advantages of the automatic apparatus include:

1. Adaptability to various telemetry systems and analog-to-digital converters.
2. Accurate setting of calibration point, even though the telemetry system may have only an arbitrary word length.
3. Greater speed than other known methods.

### Note:

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### Patent status:

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