

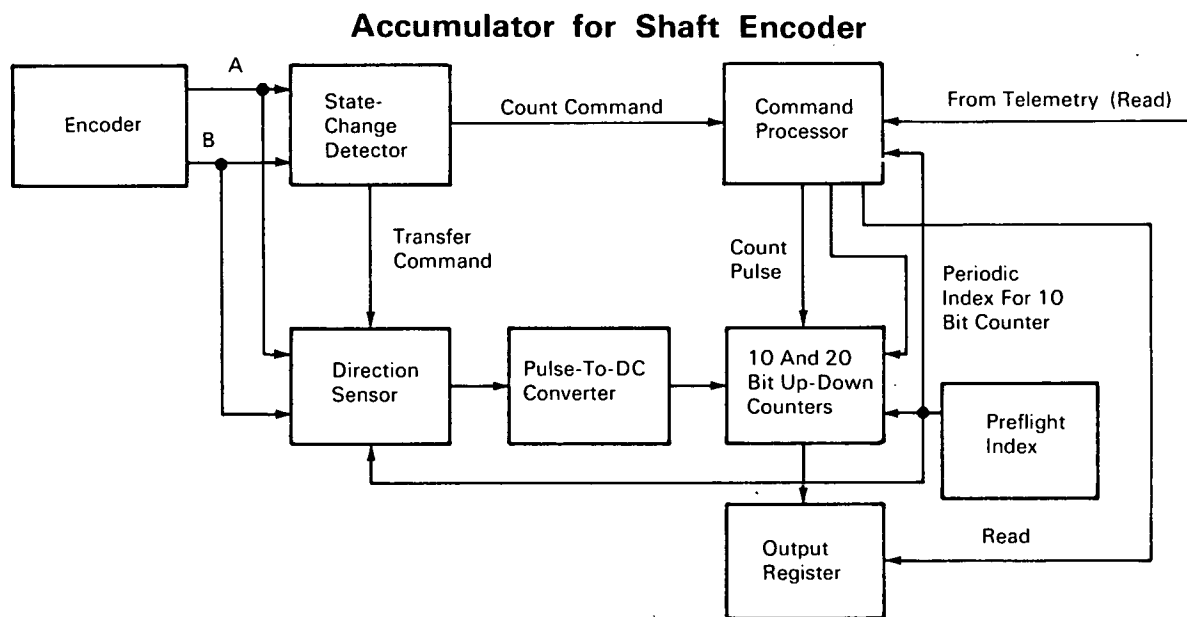
March 1968

Brief 68-10093

# NASA TECH BRIEF



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The block diagram represents a digital accumulator which relies almost entirely on integrated circuitry to process the data derived from the outputs of a gyro shaft encoder. The accumulator distinguishes between clockwise and counterclockwise rotation and then collects and stores the data.

The shaft encoder output signals (A and B) are initially transformed into a usable form by means of the state change detector and direction sensor. The command processor (designed to reject "noise" rates up to 270 kHz) ensures that the count and telemetry read commands are always carried out separately even if the initial commands overlap or are given at the same instant. The pulse-to-dc converter takes the output of the direction sensor and converts it to a dc level which is applied to the "up" and "down" controls. Before the 10 and 20 bit up-down counters can process a count pulse, both must be indexed by the preflight index command. However, no additional

indexing is required for the 20 bit counter. After the read command is given, the output register collects and stores the data that are on the set output terminals of the up-down counters.

### Note:

Complete details may be obtained from:  
Technology Utilization Officer  
Marshall Space Flight Center  
Huntsville, Alabama 35812  
Reference: B68-10093

### Patent status:

No patent action is contemplated by NASA.

Source: C. C. Carroll, R. J. Robison,  
and J. A. Childs  
of Auburn University  
under contract to  
Marshall Space Flight Center  
(MFS-13599)

Category 01