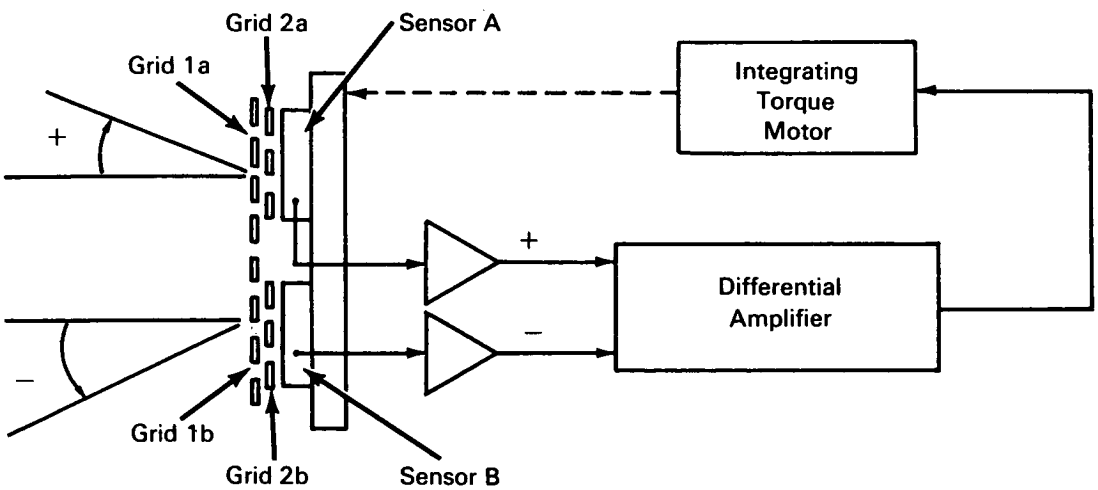
NASA TECH BRIEF

Direction Indicator System Does Not Require Complicated Optics



The problem:

To design a direction indicator that can be used to align a system relative to a light source, such as the sun. The indicator should be simple in operation, should not require complicated optics, have no moving parts, and be able to provide very fine vernier acquisition.

The solution:

Use two photocells as light sensors to form a set. Each set indicates one direction, for example, pitch attitude.

How it's done:

Two sensors (A and B) are located side by side and each is provided with a special blocking grid in front of it. Sensor A has grids 1a and 2a that will admit light only from one side (the right side). The other sensor has grids 1b and 2b that will admit light only from the opposite side (the left side). When both sensors point at a light source the grids block the light so it will not reach the sensor. This is a null point and the output from the sensors will be zero, indicating that the system is oriented. With the system pointing to one or the other side of the light source, light will strike the appropriate sensor and there will be an output from the sensor on the side receiving the light. The output signal is used to correctly position the system.

(continued overleaf)

Note:

Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Western Operations Office
150 Pico Boulevard
Santa Monica, California 90406
Reference: B66-10407

Patent status:

This invention is owned by NASA, and a patent application has been filed. Royalty-free, nonexclusive licenses for its commercial use will be granted by NASA. Inquiries concerning license rights should be made to NASA, Code GP, Washington, D.C. 20546.

Source: James W. Mildice
of General Dynamics/Convair
under contract to
Western Operations Office
(WOO-305)