

The Fine Spinning Adcole Sun Sensor provides better accuracy and resolution than the Miniature Spinning Sun Sensor.

Adcole Spinning Sun Sensors are uniquely designed to provide sun aspect angle and sun crossing pulses for spinning spacecraft. This information is used to determine spin rate and spin axis orientation relative to the sun.

It is a redundant system consisting of one optical head per redundant electronics channel. It is used for attitude determination of spinning spacecraft, sun acquisition, and fail-safe recovery.



PARAMETERS	
Field of View	$\pm 64^\circ$ Fan-Shaped (each sensor)
Accuracy	<p>Sun Pulse $\pm 0.1^\circ$ at 0° $\pm 0.3^\circ$ at 40° $\pm 0.6^\circ$ at 64°</p> <p>Electronics $\pm 0.1^\circ$ 0° to 40° $\pm 0.25^\circ$ 40° to 64°</p>
Size	<p>Sensor 2.6"×1.3"×1.0" (66×33×25 mm)</p> <p>Electronics 2.0"×3.2"×3.5" (51×82×89 mm)</p>
Weight	<p>Sensor 0.24 lb (109 g) nominal</p> <p>Electronics 1.05 lb to 1.6 lb (475 g to 725 g)</p>
Input Power	28 \pm 7 Vdc (other ranges available) (Typical power dissipation 0.4 W)
Output	Sun Pulse (one per revolution) Parallel Coarse Data Fine Data (Vsine, Vcosine, Vbias)

APPLICATIONS	
<ul style="list-style-type: none"> • Attitude Determination of Spinning Spacecraft 	
<ul style="list-style-type: none"> • Sun Acquisition 	
<ul style="list-style-type: none"> • Fail-Safe Recovery 	

CONFIGURATION	
Number of Measurement Axes	1 Plus Sun pulse (each sensor)
Redundant System	2 Sensors (with redundant electronics)

COMPANY HERITAGE

Founded by Addison Cole in 1957, the sun sensors designed by Adcole have flown on numerous space exploration missions, including all Mars Rovers, New Horizons, Juno, and the Parker Solar Probe. An engineer by trade, Cole invented a sun angle sensor that enables rockets and satellites to maintain their orientation in space. Cole's invention, which is in use by space agencies today, provided the impetus behind the launch of Adcole Corporation.

