



# COARSE SUN SENSOR (Cosine Type)

**RAD-HARD Hi-REL**



The Redwire Coarse Sun Sensor (Cosine Type) is a small, lightweight sun sensor that offers approximate cosine and conical symmetry field of view capabilities.

- + Single Detector
- + Field of View (FOV): Approximate cosine, conical symmetry
- + Baffles can be provided to restrict the FOV
- + Coarse Sun Sensor (Cosine Type) is Rad hard >100 krad (Si)

## PARAMETERS

### APPROXIMATE COSINE, CONICAL SYMMETRY

Field of View

NONE

Input Power

500  $\mu$ A to 1300  $\mu$ A

Peak Output



10 GRAMS (NOMINAL), 0.353 OZ

Mass

MOUNTING FLANGE X BODY X HEIGHT  
1.10" X 0.74" X 0.47"  
2.8 CM X 1.9 CM X 1.2 CM

Dimensions

## APPLICATIONS

- + Solar-Array Pointing
- + Sun Acquisition
- + Fail-Safe Recovery

## CONFIGURATION

### BAFFLES CAN BE PROVIDED TO RESTRICT FOV<sup>1</sup>

Baffles

1: Nearly any FOV can be accommodated by a unique baffle for the CSS. Typically the customer defines the particular FOV needed to shield the detector from any stray light reflections. Redwire designs the baffle to meet this Stray Light FOV, while maximizing the Active FOV of the detector. For complex baffle designs, a prototype baffle is typically built and verified by test.

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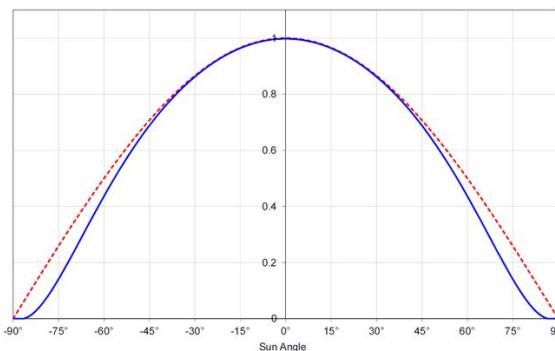
MADE IN THE USA

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- + GRAIL
- + Mars Phoenix
- + GPM
- + GPIM
- + LRO/LCROSS
- + WISE
- + Kepler
- + SDO
- + EMM (Hope)
- + Worldview
- + Fermi (GLAST)
- + MRO
- + Deep Impact
- + Swift
- + Classified Programs

Typical CSS response with no baffles installed



Actual CSS Response is shown solid; true cosine is shown dashed.

This can be represented by an 8th order polynomial approximately as follows:

$$R(\theta) = 2 \times 10^{-16} \cdot \theta^8 - 1 \times 10^{-12} \cdot \theta^6 - 1 \times 10^{-9} \cdot \theta^4 - 1.5 \times 10^{-4} \cdot \theta^2 + 1 \quad (\theta \text{ in degrees})$$

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