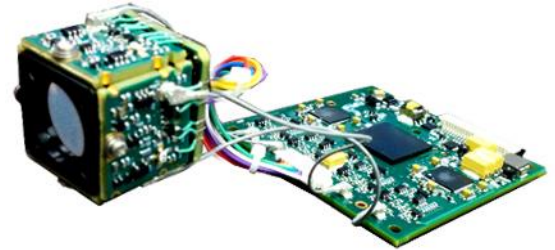




## MULTIPLE LASER SPOT TRACKER MODULE

- Identifies Multiple Spots Simultaneously
- Very High Sensitivity
- Tracker Mode – Tracks Specific PRF Codes
- Seeker Mode – Identifies/Reports all Valid PRF Codes Within the FOV
- Ultra-Wide Dynamic Range
- Detector Optimized for 1.06  $\mu\text{m}$
- Adaptive Noise Tracking Thresholds
- Power-On Built-in-Test (BIT)
- Interference Filter and Optics Included
- Preamplified Mechanical Interface



### DESCRIPTION:

The **Model 743DP** is a new generation of miniaturized Multiple Laser Spot Tracker Modules designed for target identification and tracking applications. The **Model 743DP** utilizes a silicon quadrant detector optimized for 1.06  $\mu\text{m}$ . Independent five channel noise detectors set the lowest thresholds to achieve long acquisition ranges for different background light and spot positions. The unit can be operated with a finely focused spot size for steering applications or with a defocused spot for target location identification within the FOV. The Model 743DP will decode and report up to 4 separate and independent laser pulse trains.

### SPECIFICATIONS:

|                              |  |                    |  |
|------------------------------|--|--------------------|--|
| <b>Quadrant Detector</b>     | 1.5 mm diameter SiAPD Quad   | <b>Inputs</b>      | First/last/peak pulse logic, PRF code via RS-422/RS-485 full duplex serial interface |
| <b>Spectral Response</b>     | 1064 nm with 10 nm narrowband optical filtering                    | <b>Outputs</b>     | Steering plus status information sent via serial interface                           |
| <b>Field-of-View</b>         | 7° full angle with a spot size ~1/2 detector                       | <b>Power</b>       | +5 V $\pm$ 2% @ 500 mA<br>- 5 V $\pm$ 2% @ 200 mA                                    |
| <b>Aperture Size</b>         | 11 mm clear aperture   | <b>Temperature</b> | Operating: -40°C to +71°C<br>Storage: -55°C to +85°C                                 |
| <b>Boresight Accuracy</b>    | Standard Deviation < 1.0 mr/axis at 10x minimum detectable signal  | <b>Size</b>        | 1.1" x 1.1" x 1.0" Sensor Assembly<br>2.5" x 2.5" x 0.4" Processor Assembly          |
| <b>Min Detectable Signal</b> | < 1 femtojoule (23°C)  | <b>Weight</b>      | Sensor = 22 g<br>Processor = 24 g  |
| <b>Dynamic Range</b>         | > 100,000:1  |                    |  |
| <b>False Alarm Rate</b>      | Controlled by adaptive threshold on each channel, plus sum channel |                    |  |

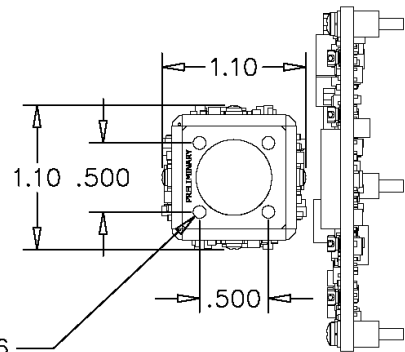
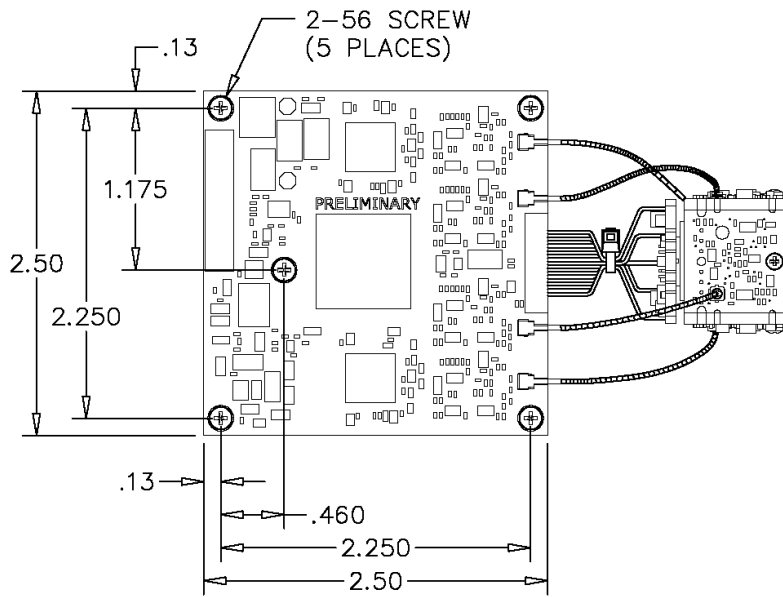
Specifications subject to change without notice.

U.S. Patent No. 8,451,432

### APPLICATIONS:

*Missiles, UAS, Handheld & Mounted Tracking Systems, Weapons Systems, Alignment*

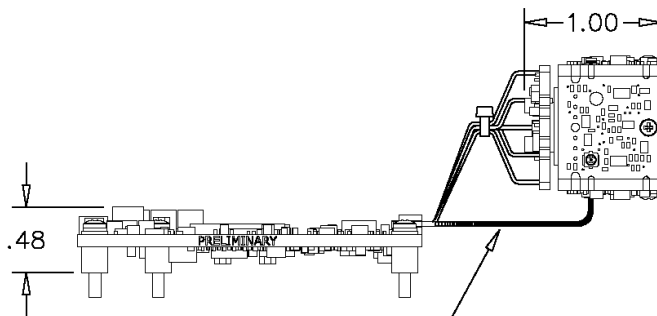
"In the event this commodity will be transferred to a "foreign person" as defined in 22 CFR 120.16, either outside or within the United States, a validated US State Department license is required."



2-56  
(4 PLACES)

TOLERANCES

.XX=±.03  
.XXX=±.005



COAXIAL OUTPUT LEADS  
LENGTH: 3.5"  
4-CHANNELS

8481\_4.DWG

## Sensor Assembly

Dimensions are in inches.

The *Model 743DP* comprises a hermetically-sealed detector with built-in front-end electronics on a rigid flex board, and a separate board assembly (2.5" x 2.5") containing analog and digital processing circuits. The individual channels are digitized with a high-speed A-D converter and output as a serial digital interface for steering or as an X -Y location within the field of view. An adaptive threshold control allows optimum signal-to-noise operation and power management is used to reduce power consumption.