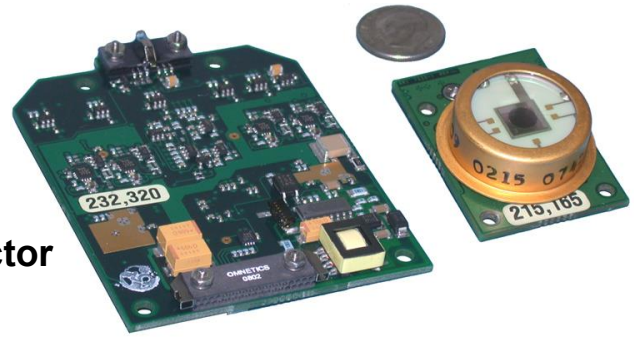
ANALOG MODULES, INC.

a HEICO company

MODEL 742DP
LASER SPOT TRACKER MODULE

LASER SPOT TRACKER MODULE

- **Very High Sensitivity**
- **Ultra-Wide Dynamic Range**
- **Decoding Included**
- **Optimized for 1.06 μm**
- **Sunlight Tolerant**
- **Up to 14.1 mm Diameter Quadrant Detector**
- **Adaptive Noise Tracking Thresholds**
- **Flexible Interface and Features**



DESCRIPTION:

The ***Model 742DP*** is a new generation of Laser Spot Tracker Module with wide flexibility for missile and platform tracker applications. The detector is temperature controlled and optimized for 1.06 μm. Independent five channel noise detectors set the lowest thresholds to achieve long acquisition ranges for different background light and spot positions and special circuits resist sunlight blinding in any one or all quadrants. A range of N-type custom-designed detectors gives the highest performance at 1.06 μm. A separate substrate allows the detector size or type to be optimized for your application. ***Model 742DP*** comprises a hermetically-sealed temperature-controlled detector with built-in front-end electronics, mounted on a SMT board. A second printed board contains 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. An adaptive threshold control allows optimum signal-to-noise operation and power management is used to reduce power consumption.

SPECIFICATIONS:

Quadrant Detector	
Size	5.33 mm (-1), 14.1 mm (-2) Other sizes & InGaAs available
Inter-element Gap	0.003" (76 μm) (-1) 0.005" (127μm) (-2) (reduced response)
Responsivity	0.4 A/W at 1.06 μm
Bias Voltage	180 V
Leakage (25°C)	< 10 nA (-1), < 5 μA (-2) (per quad)
Temperature	Built-in heater and controller
Sun Protection/Performance	
Linear Operation	Up to 10 μW/quadrant at 1.06 μm
Over-temperature	Temperature sensor output
Over-current	Resistively limited
Dynamic Range	> 100,000:1
Threshold	
FAR	Controlled by adaptive threshold control on each channel, plus sum channel
Minimum Signal	200 nW (-1), 400 nW (-2); single channel typical at 50% probability of detection

Inputs	First/last/peak pulse logic tri-service code & PIM sequence via RS-422/RS-485 full duplex serial interface
Outputs	Steering plus status information sent via serial interface
Gain	Multiple stages automatically set
Power	+5 V ± 2% @ 600 mA (includes up to 250 mA for heater) -5 V ± 2% @ 200 mA
Physical	Hermetically sealed Detector/Amplifier on mini SMT PCB; Quadrant Processor board
Connections	Omnetics PN A16464-001
Operating Temp	-40°C to +85°C
Size	Detector: 1.123" diameter x 0.43" high Amplifier PCB: 1.6" x 1.18" x 0.492" high Quad Processor: 3.0" x 2.30" x 0.50" high
Weight	1.62 oz. (45 g)

Specifications subject to change without notice.

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

APPLICATIONS: *Missiles, UAS, Mounted Tracking Systems, Weapons Systems*

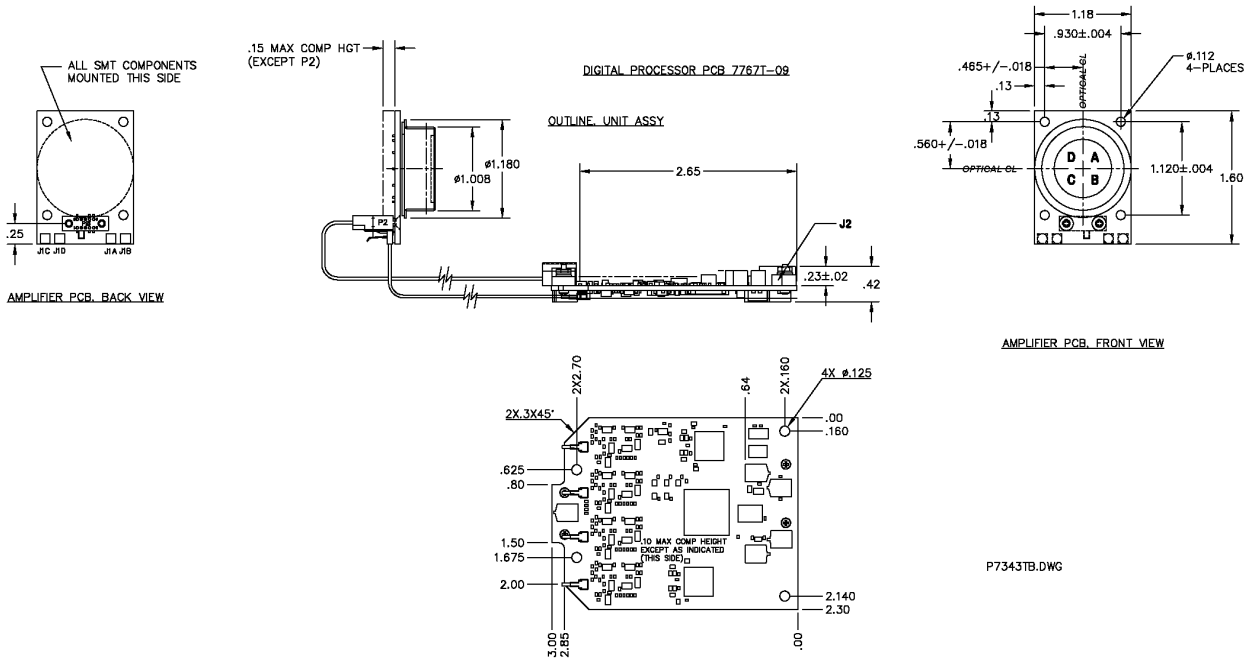
"In the event this commodity will be transferred to a "foreign person" as defined in 22 CFR 120.16, either outside or within the United States, a validated US State Department license is required."

126 BAYWOOD AVENUE ♦ LONGWOOD, FLORIDA 32750-3426 ♦ USA
(407) 339-4355 ♦ FAX (407) 834-3806 ♦ E-mail: ami@analogmodules.com
www.analogmodules.com

04/2020

	Detector Options			
Model Number	Detector Diameter	Inter-element Gap	Leakage (25°C)	Minimum Signal
742DP-1	5.33 mm	0.003” (76 µm)	< 10 nA	200 nW*
742DP-2	14.1 mm	0.005” (127 µm)	< 5 µA	400 nW*

*single channel typical at 50% probability of detection



Model 742DP Outline Drawing