

## Activity Detection Unit

The DG009-M1 from Teledyne Defence & Space (TDS), is an ultra fast activity detection unit (ADU), that provides an indication of RF signal presence across the full 2.0 to 6.0GHz frequency range. The DG009-M1 consists of a power divider followed by two banks of 8 channel multiplexers, one on each arm of the power divider. The outputs from these multiplexers are terminated in diode detectors followed by high-speed video comparators providing 16 TTL digital outputs indicating the RF channel with a valid signal. Each channel of the DG009-M1 has a separately digitally programmable threshold of 32 levels over a 16 dB window. This is valid for each of the two selectable video bandwidths (10 MHz or 5MHz).

The DG009-M1 has been designed such, that when RF signals are present in the crossover regions of the multiplexers, only one

of the two adjacent digital channels will trigger, ensuring clear and unambiguous indication of input frequency.

The DG009-M1 is ideally suited to airborne transport environments of  $-20$  degC to  $+80$  degC and up to 50,000 feet altitude.

The ADU has an ultra low false alarm rate, providing exceptionally high system reliability and probability of detection when incorporated into typical Electronic Support Measures (ESM) suites.

Please contact the sales team for further information.

### FEATURES

- 2.0 to 6.0GHz Coverage
- 16 Channels
- 250 MHz Channel Bandwidths
- Selectable video detection bandwidths
- Ultra Low False Alarm rate
- 50ns RF pulse width capability

### APPLICATIONS

- Coarse Frequency Measurement
- Fast RF Activity Detection
- Fast Set on Receivers
- Airborne Transport Environments

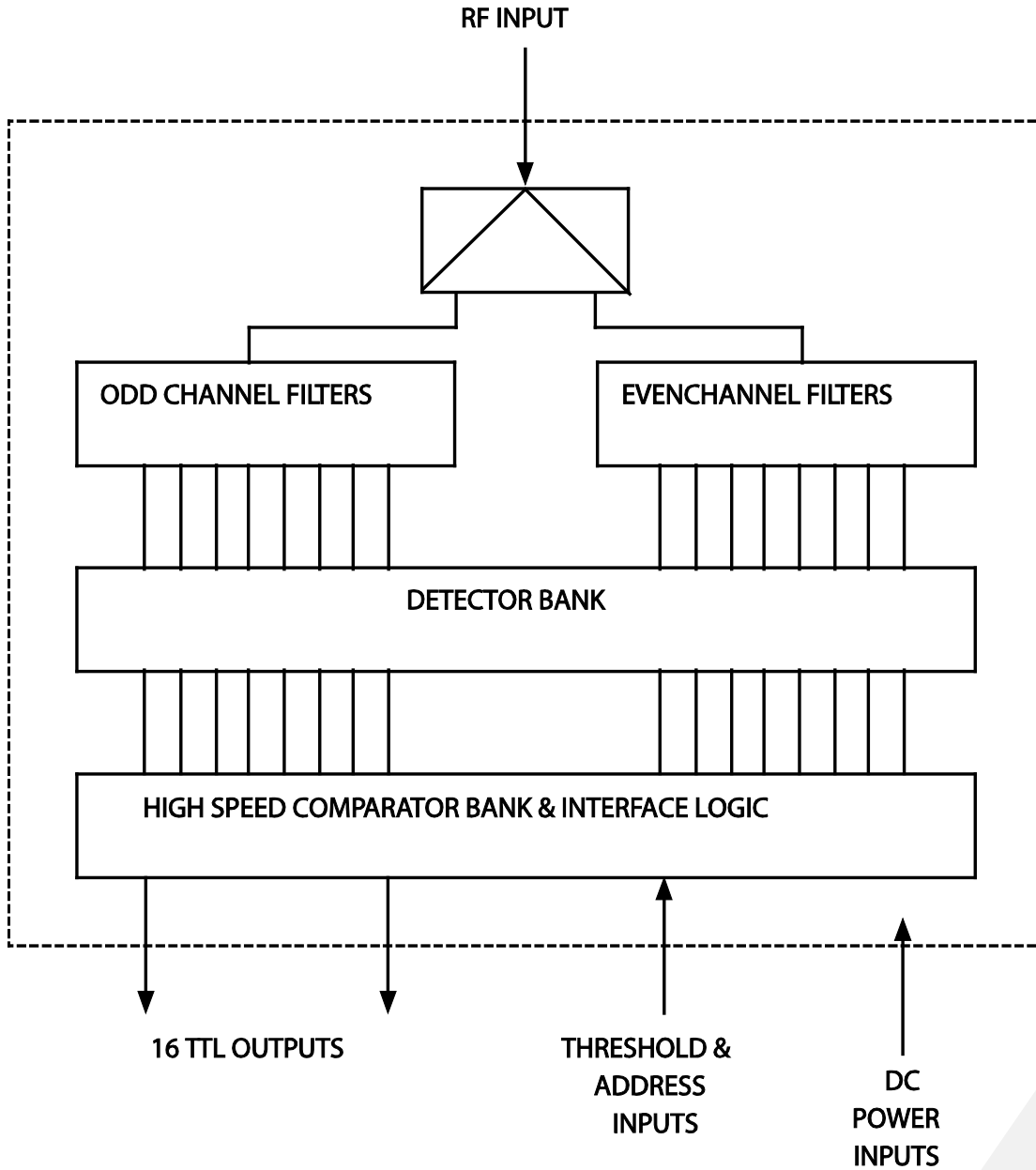
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## SPECIFICATION

Parameter	Specification
Operating Frequency Range	2.0 - 6.0 GHz
Number of Channels	16
Nominal Channel Bandwidth	250 MHz
Input VSWR (max)	1.9:1
Maximum Input Power	25.0 dBm
Input Power Range for Video BW of 10 MHz	10.0 to 16.0 dBm
Input Power Range for Video BW of 5 MHz	8.2 to 16.0 dBm
Signal to Harmonic Ratio	-9.0 dBc
Noise Input Power Level	15.0 dBm
Selectable Video Bandwidth: Video BW WB	10 MHz
Video BW NB	5 MHz
Probability of Detection, Centre Band (Unambiguous Zone)	> 0.99
Probability of Detection, Cross Over (ambiguity Zone)	> 0.93
False Alarm Rate (Far)	1 per second
Unambiguous Channel Bandwidth (min)	220.0 MHz (fo $\pm$ 110 MHz)
Cross Over Ambiguity Zone (max)	Fcr $\pm$ 15.0 MHz
Non-Activity Frequency Band	DC -1.97 GHz and 6.03-18.0 GHz
Pulse Width Range	
Wide Band Video Band Width (10 MHz) Narrow	50ns to CW
Band Video Band Width (5 MHz)	250ns to CW
Recovery Time (max)	90ns
Logic Output Characteristics	16 TTL Outputs
Power Supply Voltage (V)	
+5.0 $\pm$ 5%	220 mA
+15.0 $\pm$ 5%	40 mA
-12.0 $\pm$ 5%	125 mA
Maximum Power Consumption	3.3 Watts
DC Voltages Ripple, Noise and Spikes	Up to 2% at Frequencies Up to 1 MHz
Weight	< 0.8 Kg
Operating Temperature Range	-20 °C to + 80 °C

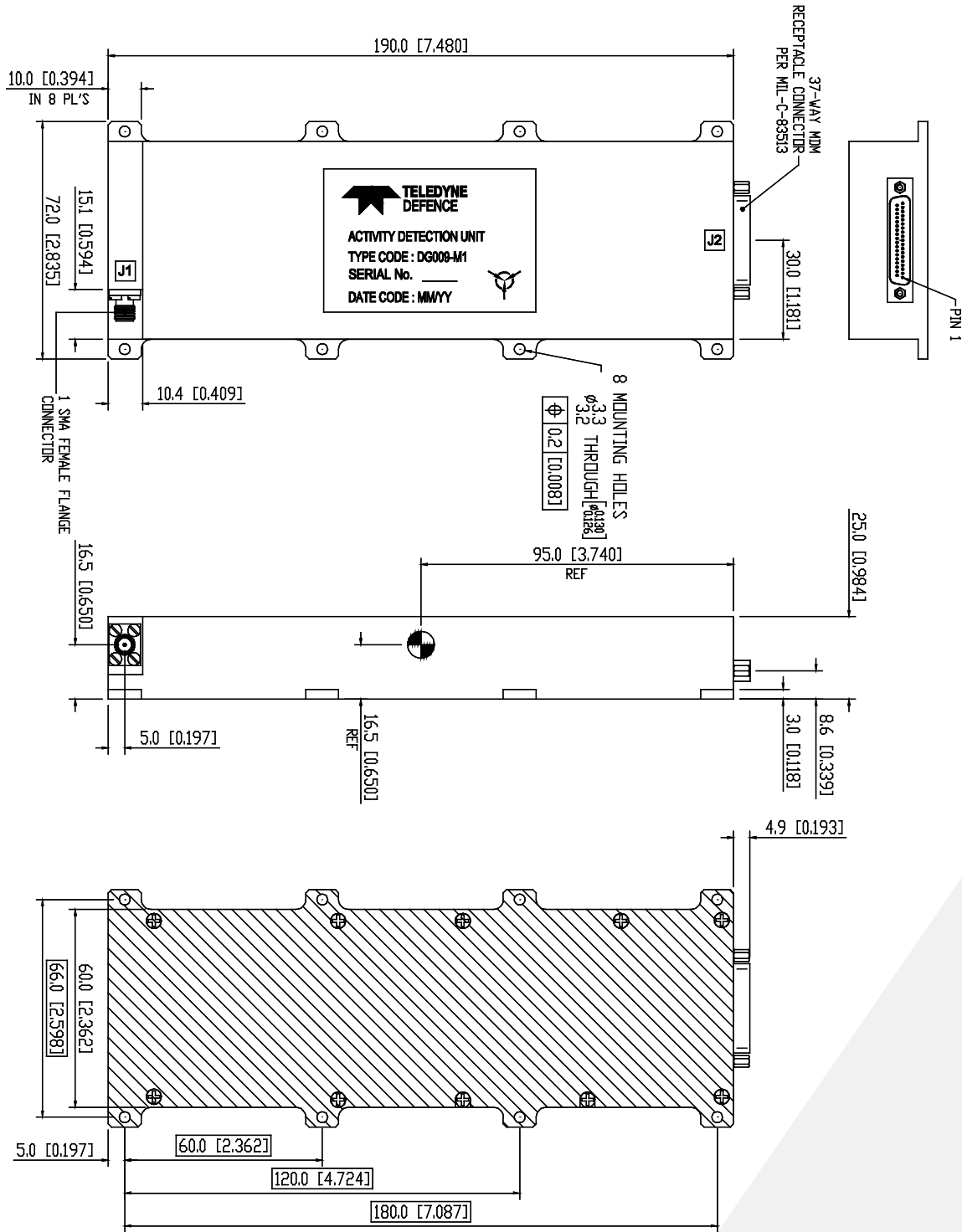
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