

MFTD Product Information

August 2011

The Solid State Scientific Corporation (SSSC) Multi-Function Threat Detector (MFTD) represents cutting-edge technology for today's threat warning needs, including the pervasive hostile fire indication (HFI) problem. Coupling a custom spectral imager based on a commercial-off-the-shelf focal plane array with advanced, proprietary optics and phenomenology-based algorithms makes the MFTD a powerful, comprehensive sensor in a small, uncooled package. As a stand-alone system or integrated with an existing sensor suite, the MFTD provides advanced threat warning to flight crews and ground platforms for the protection of aircraft, ground vehicles, and forward operating bases (FOBs).

MFTD Concept

Originally designed for airborne platforms, the MFTD is a small optical and electronics module designed with the following characteristics:

- Small Size, Weight, and Power (SWaP)
- Wide Field-of-View coverage
- No moving parts
- No refrigeration system
- Zero-to-minimal changes to platform A-kit¹
- Primary or adjunct sensor role
- Spectral imager based on a COTS FPA
- Close-proximity Processing electronics

The MFTD module consists of a camera, control electronics, and an algorithm processing circuit card. Output from MFTD module includes threat messages that identify **threat class** and **angle of origin** (AOO) and can be integrated into existing displays, recorded for future analysis, or sent to remote locations.

MFTD Applications

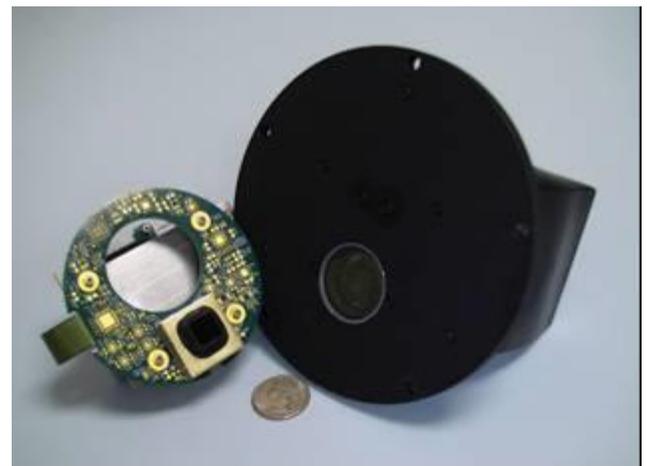
Applications include the following:

- **HFI** detection of small caliber weapons, heavy machine guns, AAA, anti-tank missiles, unguided rockets, RPGs, and tracer rounds
- **Missile Threat Warning** for guided threats²
- **Navigation Aide**, for obstacle-avoidance and help in visually degraded environments
- **ISR Cueing** for use on airborne and ground vehicles to slew targeting sensor
- **Force Protection** – aircraft, ground vehicles and FOBs

MFTD Configurations

The MFTD has been successfully integrated into the AN/AAR-47 Missile Warning System as well as other threat warning systems, and designated a TRL-6 technology by an independent assessor. Configurations for specific applications in threat targeting on UAV/UAS platforms and ground vehicle protection are at various stages of development. Selected parameters for the MFTD module as integrated within the AN/AAR-47(V)2 sensor head are shown in the following table:

Parameter	MFTD Value
Spectral Band	Uncooled SWIR
Volume	CCAs= 8.2 in ³ ; optics and FPA = 0.807 in ³ (w/o housing)
Weight	~1.5 pounds (without housing)
Power	10 Watts
Power Supply	15 V
Temp. Range	-40° to +55° C, operational
Output	RS-485 serial data trans.
HFI Detection/ Declaration Types	Tracers, Small Arms, AAA, HMGs, RPGs, unguided Rockets
Accuracy (AOO)	<~5 (az. and el.)



(Left) MFTD module for the AN/AAR-47(V)2;
(Right) MFTD module in stand-alone housing

Further Information

For additional information on the MFTD, to discuss how the MFTD can integrate with your system, or to discover how the MFTD can help protect your platform, contact:

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¹ When integrated within existing sensor suites.

² MFTD module can function as primary or adjunct sensor