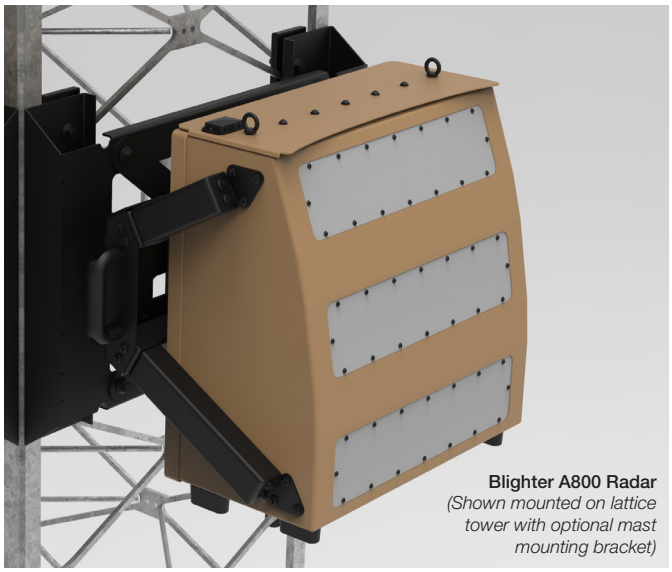
DATASHEET

Blighter® A800 3D Drone Detection Radar



Blighter A800 Radar
(Shown mounted on lattice tower with optional mast mounting bracket)

- Latest generation monopulse elevation measurement
- 3D elevation detection over 40°
- 3D elevation measurement over 20°
- Indication of ground based/low and high-flying targets
- AI target identification and rejection filters (Doppler Signature Analysis)
- Encrypted Dual Gigabit Ethernet interfaces
- Integrates with Blighter 'Nexus'
- Stereo Streaming Doppler Audio (upper/lower channels)
- Ruggedised case for fixed, portable and mobile mounting

Blighter's new A800 3D drone detection radar is an automatic tri-mode electronic-scanning ('e-scan') radar, based on the latest generation monopulse antenna technology. It provides the unique ability to use its optimised air security modes to search for small drones. At the same time, it can use its ground/sea surveillance modes to search for surface targets over land and water.

The A800 performs its air, ground and sea detection functions all at once, allowing tri-mode operation with simple user setup. The A800 uses triple, transmit and receive, radar-beam spotlighting to focus all its energy on targets of interest. The radar ignores ground clutter and off-beam targets, giving rapid scanning of a 90° wide by 40° high cone.

A800 3D Drone Detection Radar

The A800 radar's main function is detection and precise location of commercial 'hobby' drones in 3D space. The A800 inherits its core technology from Blighter's TRL-9 (technology readiness level nine) field-proven A400 series air security radars. However, the A800 combines the ability to detect land or water-based objects, which of course may include the drone operator. In addition, the A800 classifies that targets are either:

- Surface targets (i.e. on land or water)
- Flying targets (with full 3D coordinates)
- High-flying targets (i.e. above and outside the 3D measurement cone)

Countering Low-Slow-Small (LSS) Threats

The A800 acts as the key detect element in C-UAS (counter-unmanned aerial system) products. It is designed to counter current low-slow-small (LSS) threats caused by the mis-use of commercial 'hobby' drones. (Including the commonly used 'DJI Phantom' style quadcopters.) To further enhance system performance, the A800 features smart micro-Doppler target filtering. This reduces false alarms and helps improve the detection of multicopter and winged drones.

Ruggedised and Secure

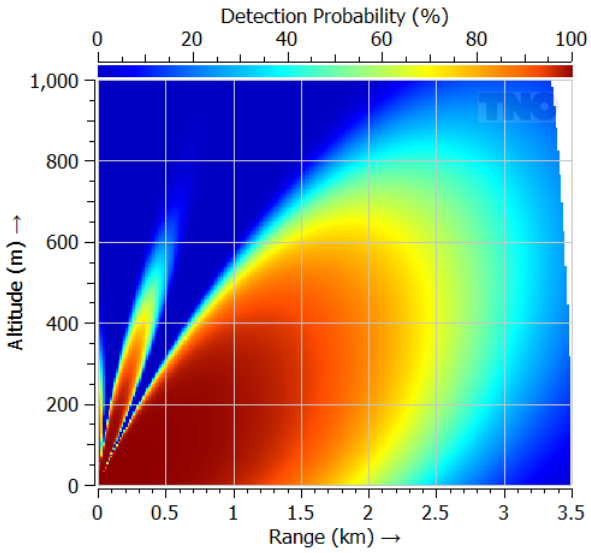
The A800's rugged e-scan design with zero moving parts, allows it to operate in harsh conditions of high or low temp. It comes with mounting options for:

- Tripods and quad-pods
- Land vehicles and trailers
- Fixed towers and masts

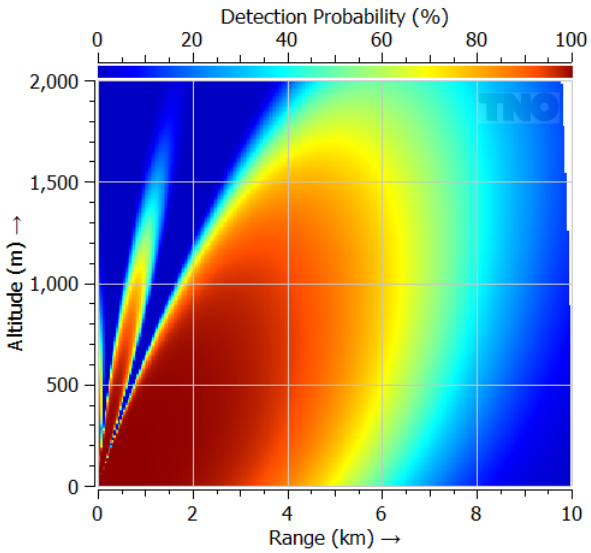
For use in critical security projects, the radar is fitted with dual Gigabit Ethernet interfaces with built-in robust data encryption. A software developer's kit (SDK) is available for download. The SDK allows system integrators to quickly upgrade their existing wide area perimeter security and C-UAS systems. Such systems can then make full use of the A800 radar's advanced long-range detection features. The A800 connects with the leading industry standard PSIM (physical security information management) platforms and defence C2 (command & control) systems.

Detection Performance

Micro UAS (< 2 kg) *e.g. DJI Phantom or similar*



UAS or Walking Person



Specification

Architectural Overview

- Radar type: 3D Automatic Tri-mode Frequency Modulated Continuous Wave (FMCW) Doppler AESA Radar
- Radar mode: tri-mode (air, ground and coastline)
- Frequency band: Ku radar band
- Operational bandwidth: 15.7 to 17.2 GHz
- Scan type: fully electronic scanning in azimuth ('e-scan') on both transmit and receive
- Elevation measurement type: multi-beam amplitude comparison monopulse
- Transmitter power (nominal): 4 Watt
- Multi-radar operation: supported and unlimited
- Embedded software and firmware: field upgradeable via network connection

Coverage

- Instrumented maximum range: 3.5 km, 10 km or 20 km (2.2 mi., 6.2 mi. or 12.4 mi.)
- Instrumented minimum range: less than 10 m (33 ft.)
- Azimuth scan angle: 90° horizontal e-scan
- Elevation beam (3D detect): 40° vertical beamwidth
- Elevation beam (3D measure): 20° vertical beamwidth
- Fastest scan time (for 90°): 1.0 s
- Fastest scan time (in Drone Spotlighting Mode): 0.25 s

Target Detection

- Maximum targets per scan: 700
- False Alarm Rate (FAR): 1 false alarm per day (adjustable)
- Minimum detectable target radial velocity: 0.37 km/h (0.23 mph)

Connectivity & Software

- Main I/O interfaces (for radar control and target data): dual encrypted 1000BASE-T Ethernet LAN (RFC 8446 TLS 1.3)
- Auxiliary I/O interfaces: RS-232 and RS-422 control lines, opto-isolated control/status inputs and isolated switched contact outputs
- Software (SDK): API software library (Windows) and generic Interface Control Document (ICD) are both available to System Integrators

Electrical

- Power input voltage: 24 V to 28 V (DC) (nominal)
- Power compliance: MIL-STD-1275E
- Power consumption: 130 W (nominal)

Physical, Environmental & Reliability

- External dimensions of radar unit(s) (W x H x D)*: 518 mm x 555 mm x 260 mm (20.4 in. x 21.9 in. x 10.2 in.)
- Weight of radar unit (approx.)*: 31 kg (68 lb.)
- Operating temperature: from -32° C to +65° C (from -25° F to +149° F) Note: extended operating temperature version available
- IP rating: IP66 (dust tight and protected against powerful water jets)
- MTBF: > 65,000 h

* excluding optional mountings and solar shield

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