

# ARCHIVED REPORT

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## M-Tek Triton - Archived 01/2008

### Outlook

- Only one unit, a prototype, is known to have been built
- Production never caught the attention of the world market
- This report will be archived next year, January 2008

### Orientation

**Description.** The Triton is an electro-optical tracking system developed for naval use, though it has also been considered for a land-based anti-aircraft role. It is composed of a thermal imager, a dual field-of-view TV camera, a laser rangefinder, a TV auto-tracker, a fiber-optic sight line gyro unit in an above-deck director, and a below-deck operator console with four monitors (three raw video, one color), a video recorder, and two multifunction hand controllers.

#### Sponsor

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**Status.** Only one prototype produced.

**Total Produced.** As of January 2007, only one Triton system had been fabricated and that was for test purposes.

**Application.** Naval electro-optical tracking and fire control system. The system was reportedly adaptable for anti-aircraft roles.

**Price Range.** The per-unit price was reported as \$600,000 in a 1996 publication. Comparable European systems sell for around \$1.55 million in the same timeframe.

### Contractors

#### Prime

M-Tek (Pty) Ltd

<http://www.mtek.co.za>, PO Box 10239, 131 Edison Crescent, Hennospark x 26, Centurion, South Africa, Tel: + 27 0 12 6532528, Fax: + 27 0 12 6532524, Email: [info@mtek.co.za](mailto:info@mtek.co.za), Prime

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## Technical Data

**Design Features.** The Triton utilizes an 8-12 $\mu$ m Eloptro TS20 thermal imager, a dual FOV M-Tek TV camera, an Eloptro LR40 eye-safe laser rangefinder, a TV auto-tracker, and a fiber-optic sight line gyro unit. Control is provided by direct-coupled, brushless, rare-earth, permanent magnet motors. Below deck, the system includes four monitors (three raw, one color), a video recorder, and two multifunction hand controllers for manual tracking control and input. The color monitor adds a range of overlay information, including

crosshairs, providing a targeting function for most gun and missile systems. The Triton can be fitted with different sensors per customer requirements; the minimum configuration includes a TV camera, a single-shot laser rangefinder, and a black-and-white display. Production costs were reduced through use of commercial off-the-shelf (COTS) components, including VME-bus-based industrial cards for digital control and video imaging. A modular design facilitates upgrades.

### Specifications

Azimuth	Continuous 360°
Elevation	-20° to +85°
Accuracy	0.3mrad
Angular Acceleration	< 4rad/s <sup>2</sup>
Angular Acceleration Rate	2rad/s

### Fields of View

TV Camera	2° and 8°
Thermal	2.7° and 9.6°
TV Camera Light Level Range	2-200,000 lux
Laser Rangefinder	10 Hz, 1.54 $\mu$ m band

### Seeker Head

	<u>Metric</u>	<u>U.S.</u>
Height	90 cm	2.95 ft
Weight	150-225 kg	330.69-496.04 lb

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SAS *Amatola* F-145 Meko A-200 patrol corvette is a typical platform carrier for the M-Tek Triton

Source: South African Navy



M-Tek Electro-Optical Tracking System

Source: M-Tek Pty Ltd

## Program Review

**Background.** M-Tek is a South African firm specializing in control systems, and in subsystems such as slip rings. Although M-Tek provides documentation and support with its products, little information is otherwise provided. As such, details on the Triton system are sparse.

In 1996, the Triton was approaching the end of its development phase, and underwent sea trials on the SNS *Jan Smuts*. This electro-optical day/night tracker was designed as a top-end system having less than one-third the cost of comparable European systems. Production costs were reduced by using COTS

components and eliminating the electromagnetic pulse hardening found in similar trackers.

Some reports indicated that the South African Navy's four Meko A-200 class patrol corvettes would be equipped with Triton trackers, but other reports suggested another indigenous company, Reutech, would likely provide RTS-6400 fire control systems. As each Meko A-200 is capable of fitting two fire control systems, it is possible that these options are not mutually exclusive. The Meko A-200 carries two four-cell MBDA MM 40 Exocet SSM launchers, two eight-cell vertical 16 Umkhonto surface-to-air missiles, one

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76mm Oto Melara naval gun, and an LIW 35DPG 35mm dual-purpose gun. Both the Triton and the RTS-6400 are suitable for fire control of these weapon systems. Similar ships, such as the related K130 of Germany or the older Meko A-100 of Malaysia, are unlikely to utilize Triton systems. Poland commissioned two Project 621 Gawron II (Meko A-100) class ships in 2005 and 2006, which will possibly be fitted with the Triton. Unlike the A-200, the A-100 is equipped with only one targeting system.

Although fabrication of only a single prototype was confirmed, information on the contract awarded for the refurbishment and upgrading of Triton trackers suggests more may have been manufactured. This contract was signed on February 11, 2004, at a value of ZAR1,410,500 (\$206,370); the most likely buyer is South Africa, which may require four Tritons for its Meko A-200 patrol vessels. However, the contract could also have been awarded by Poland or an unknown third client. No other information on the system has been obtainable since that time.

## Funding

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Research and development was company funded, as was the production of the prototype.

## Contracts/Orders & Options

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Contract information is not routinely provided; thus, additional award announcements have not been made available at this time.

<u>Contractor</u>	<u>Award (\$ millions)</u>	<u>Date/Description</u>
M-Tek Pty Ltd	206,370.0	Feb 2004 - Refurbishment and upgrading of an undisclosed number of Electro-Optical Trackers (various models).

## Timetable

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<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1996	Sea trials of developmental Triton system
Jan	2005	Company reports system available for production

## Worldwide Distribution/Inventories

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One prototype produced in **South Africa**.

## Forecast Rationale

Sometimes competition exceeds demand in the market place and this appears to be the case with the M-Tek Triton which is one of many naval electro-optical tracking systems on the market. The Triton has no notable capabilities that cannot be matched or exceeded by other EO systems, limiting its appeal on the South African and international market. While less expensive than comparable European systems (due in part to its

use of commercial off-the-shelf components), the Triton is not hardened against electromagnetic pulses, which can be a drawback to its selling. Be that as it may, it is possible that a couple of additional Tritons will find customers, even though the system is not being aggressively marketed. Unless there is a dramatic change in the market outlook for the M-Tek Triton, this report will be archived in January 2008.

## Ten-Year Outlook

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Only one prototype is known to have been made, therefore the forecast chart has been omitted.

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