



SURVEILLANCE TARGET ACQUISITION AND WEAPON SIGHT DIRECT FIRE SYSTEM

The STAWS Direct Fire System provides a flexible and cost effective day/night sighting solution for a wide variety of armoured fighting vehicles ranging from light tanks up to and including self propelled howitzers.

The Direct Fire Sight system is an enhanced version of the proven in-service Surveillance, Target Acquisition and Weapon aiming Sight (STAWS) and uses the latest thermal imaging technology being supplied into the British Army and other international forces.

Images from the sensor are displayed on two rugged 8.4 inch SVGA High performance flat panel gunner and commander crewstation display units. The crewstation display units provide full control of the sensor and the direct fire system.

The system provides vehicles with a 24-hour operational capability independent of starlight/ moonlight or cloud cover conditions, unlike older generation systems that are based on image intensification.

The ballistic computer embedded in the system can be programmed with the data for up to six different ammunition types and for a range of different weapon calibres. The use of uncooled thermal imaging technology provides higher levels of reliability and reduces ongoing maintenance costs by eliminating the need for expensive cooling engines to be replaced through the life of the product.

The STAWS sensor module comprises the following sensor subsystems:

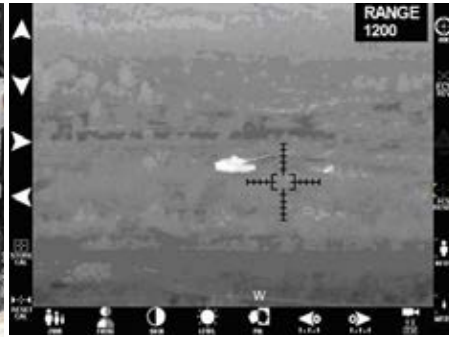
- Dual Field of View (FoV) high performance 640 x 480 uncooled thermal imager (TI)
- High performance colour day TV camera with zoom optics
- Eye-safe Laser Range Finder (LRF)
- Tilt sensor
- Aperture protection device.

For ease of use the FoVs of the TI and Day TV sensors are electronically matched. This facility can be switched off to utilise the full zoom range of the lens.

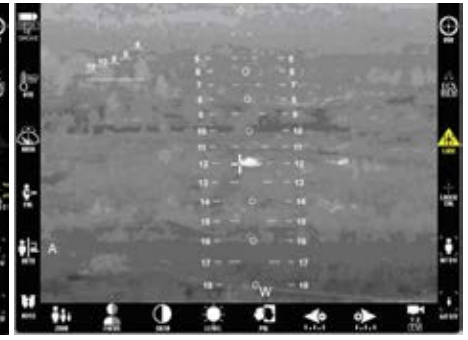
STAWS DF



Crewstation Display Unit



Assisted Aiming Mode



Reversionary Mode

The wiper module is mechanically and electrically interfaced to the sensor module and provides separate wipers for the TI objective lens and the day TV/LRF windows.

TECHNICAL SPECIFICATIONS

Detector Pixels	640 hoz x 480 vert pixels
Wide FoV	15.5° x 11.6° nominal
Narrow FoV	5° x 3.75° nominal
Focus Range	WFOV, 10m to infinity
	NFOV, 27m to infinity
Detector NETD	<50mK
Typical Range Performance	>7500m (Target Detection, NFOV)
	>3500m (Target Detection, WFOV)
	>3100m (Target Recognition, NFOV)
	>1600m (Target Identification, NFOV)
Detector Pixels	752 hoz x 582 vert pixels
Full Zoom Range	2.34° x 1.76 ±10% NFOV
	to 33.4° x 25 ±10% WFOV
Focus Range	WFOV, 2m to infinity
	NFOV, 2m to infinity
Sensitivity Range	1 to 100,000 lux
Typical Range @Narrowest Field of View	>10000m (Target Detection, NFOV)
	> 5000m (Target Recognition, NFOV)
	> 2500m (Target Identification, NFOV)
Type	Class 1 Eye-safe (in accordance with BS EN60825-1 IEC 60825-1 Ed1.2)
Wavelength	1550nm
Minimum Operating Range	50m
Typical Accuracy	±5m
Maximum Range	4000m (22km visibility)

In addition to the thermal image from the STAWS sensor, both gunner and commander are also provided with a high resolution image from a Colour Charged Coupled Device (CCD) sensor. The CCD sensor has a continuous zoom facility which can be used to enhance target recognition and identification ranges.

An eye-safe Laser Rangefinder (LRF) has been integrated into the sight to provide accurate target ranging and improved accuracy.

A tilt sensor has also been incorporated to provide sight and trunnion tilt compensation and increase the first round hit probability.

The system can also be fitted with an optional wind / meteorological sensor to provide compensation for wind and temperature effects.

The system features two modes of operation:

- Assisted Aiming Mode automatically calculates the ballistic offset and moves the aiming mark on the display to the required position
- Reversionary (Backup) Mode displays a number of electronically generated ballistic reticules corresponding to the ammunition types for weapon aiming.