



RADAR AND OPTRONIC FIRE CONTROL SYSTEM

NA-25X is a Fire Control System (FCS) to control medium calibre guns used for anti-air and anti-surface warfare, as well as small calibre guns in the close-in weapon system role, where up to three guns of different calibres can be controlled.

NA-25X is a modern FCS based on the ORION RTN-25X tracking naval radar. This is a J-Band, fully coherent equipment, characterised by anti-nodding, extensive ECCM and anti-clutter features, together with high tracking accuracy.

A set of two electro-optic (EO) sensors (TV camera and IR camera) can be installed on the radar director to provide passive line-of-sight data on the same target and enable firing assessment. A third sensor (a laser range finder) can be installed to provide a complete EOIR tracker facility.

NA-25X can be provided with a dedicated multi-functional console or its human-computer interface (HCI) can be integrated within any Combat Management System (CMS).

Two Target Designation Sight (TDS) enhance the FCS configuration. NA-25X can be easily integrated inside an Inner Layer Defence System (including at least two FCSs) to optimize the use of all onboard guns against multiple concurrent targets (such as missiles, and air and surface targets).

The FCS is designed in fully accordance with modern international military standards to guarantee high performance in all weather conditions.

ARCHITECTURE

The FCS architecture comprises:

- ORION RTN-25X mono-pulse fully coherent tracking radar, radiating a coded waveform
- An optronic sensor suite, TV, IR and laser can be installed to provide alternative passive line-of-sight (LOS) scene monitoring and kill assessment
- Servo and Conversion Unit (SCU) housing:
 - Pedestal Servo Amplifier
 - Power Distribution Unit

NA-25X

- ORION RTN-25X Tracking radar Receiver Unit
- ORION RTN-25X Tracking radar Transmitter Unit
 - Computer Unit (CU): it is a state-of-the-art processor for Tracking Mode and Ballistic Mode, complete of power supply modules and processing resources as well as interface boards
- A versatile display system, which incorporates two high resolution colour monitors to display raw radar (its own tracking radar and, in addition, search radar if required), TV/IR videos, laser measures, system status, and supplementary information.

MAIN OPERATIONAL FUNCTIONS

NA-25X performs the main following tasks:

- Radar and optronic autonomous sector search on tracker radar video with fixed or pre-programmed elevation patterns
- Autonomous search on tracker radar video where alerts are raised when a radar echo come within a pre-set range
- Surveillance on external radar video (if available)
- Automatic engagement following a pre-set guard ring search and designation from an external source. Manual engagement is always possible either via the NA-25X operator or following EO search
- Automatic air and surface targets tracking
- Automatic detection of launched missile
- Control of up to three guns with different calibres
- Line-of-sight, line-of-fire stabilisation
- Firing modes: direct and indirect against shore targets, normal or barrage against air targets, inclusive of special features to increase the surface firing in all seastate conditions.

STATUS

NA-25X FCS and RTN-25X tracking radars are in service on vessels of the Italian Navy, as well as more than 20 other navies.

TECHNICAL SPECIFICATION

All FCS subsystems are designed to guarantee high reliability and low life-cycle cost.

SENSOR HEAD	
Training limits	Unlimited (slip ring)
Elevation limits	-22° to +84°
Training max. speed	2.8rad/s
Training max. acceleration	6.5rad/s ²

Elevation max. speed	1.5rad/s
Elevation max. acceleration	3.5rad/s ²
Slew Time	180 deg slew time < 1.9 sec
	90 deg slew time < 1.2 sec

RADAR	
Frequency	X-Band (J-Band)
Antenna type	Cassegrain
Transmitter	Fully coherent, coded waveform and frequency agility
Receiver	Super heterodyne double conversion, MTI and anti-clutter filters, enhanced ECCM features

TV CAMERA	
Target	CCD
Sensitivity	10lux to 200,000lux
Lenses	Continuous zoom

IR CAMERA	
Type	3µm -5µm (8 µm -12µm), FPA
Dual FOV	Narrow and wide

LASER RANGE FINDER	
Type	Eyesafe Class 1M
Range accuracy	Better than 5m
Instrumental range	200m to 20,000m
High rate repetition frequency	

INSTALLATION DATA

ANTENNA GROUP (ABOVE DECK)	
Dimensions (h)	1,435mm
Diameter	2,100mm
Weight (EO sensors excluded)	490kg

SERVO AND CONVERSION UNIT	
Dimensions (h x w x d)	1,520mm x 730mm x 750mm
Weight	360kg

COMPUTER UNIT	
Dimensions (h x w x d)	1,310mm x 695mm x 910mm
Weight	140kg

TRANSMITTER	
Dimensions (h x w x d)	1,875mm x 700mm x 695mm
Weight	250kg

RECEIVER	
Dimensions (h x w x d)	1,990mm x 720mm x 560mm
Weight	240kg

CONSOLE (ONLY IN THE STAND-ALONE CONFIGURATION)	
Dimensions (h x w x d)	1810 x 905 x 995mm
Weight	240kg