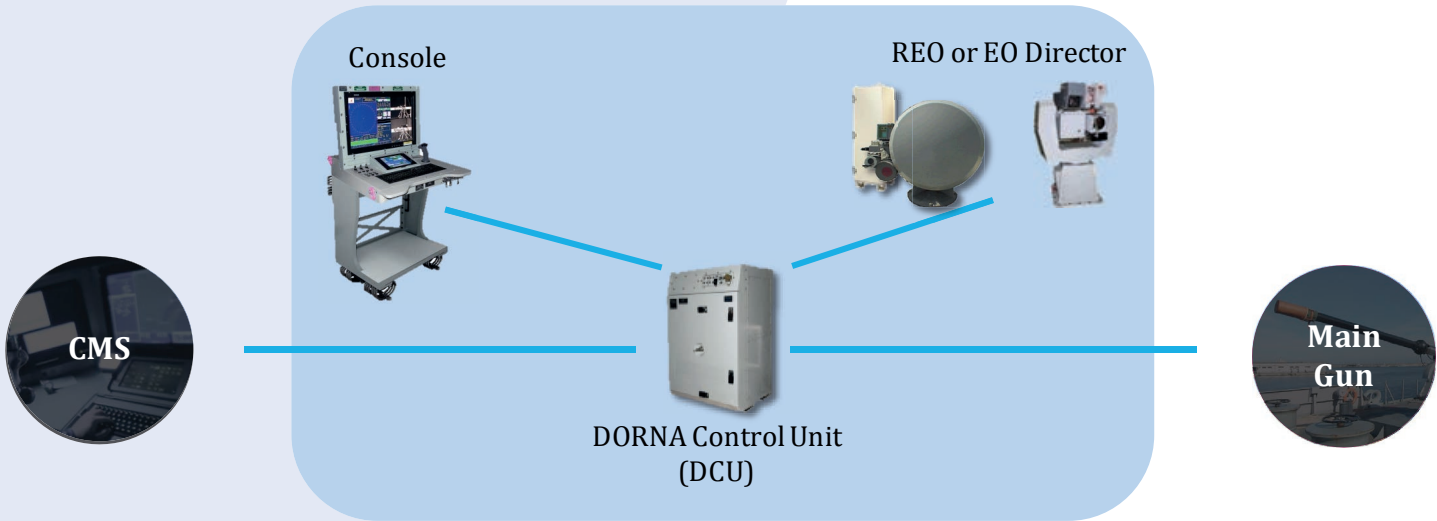


DORNA GUN FIRE CONTROL SYSTEM

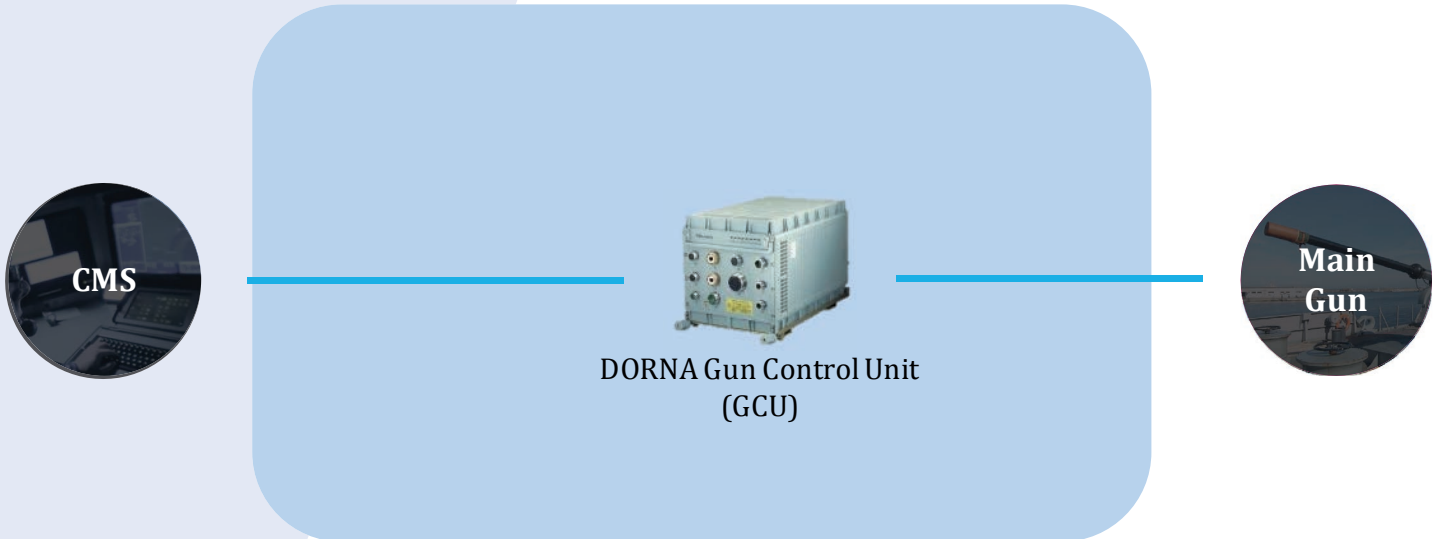


DORNA PRODUCTS

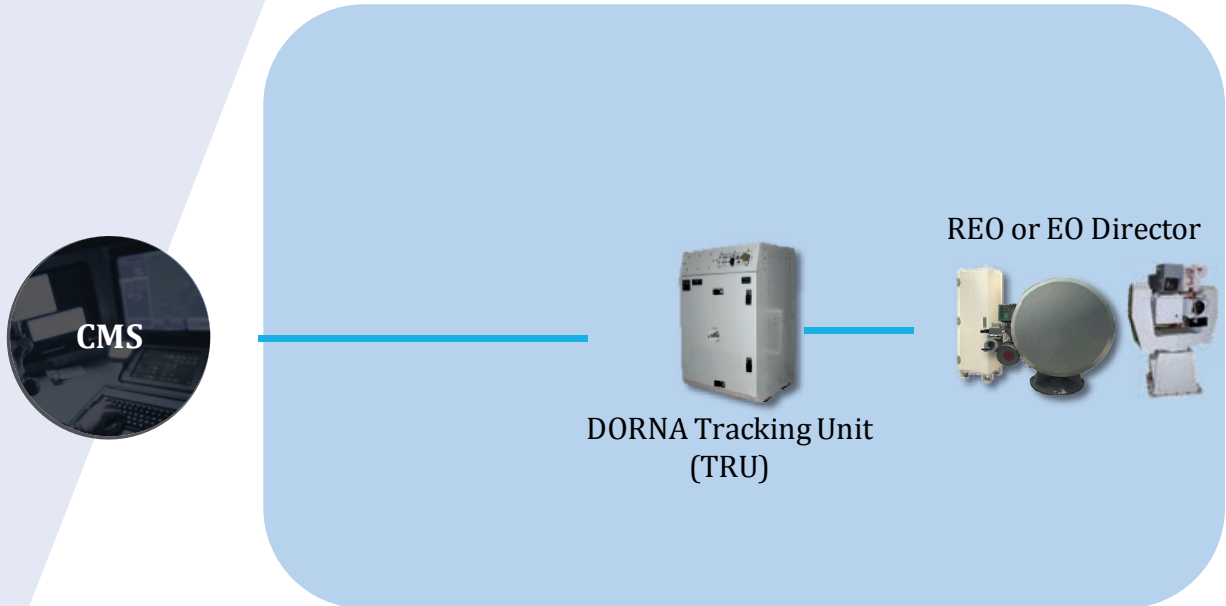
DORNA GFCS(REO or EO GFCS, with or without Console)



DORNA GCU



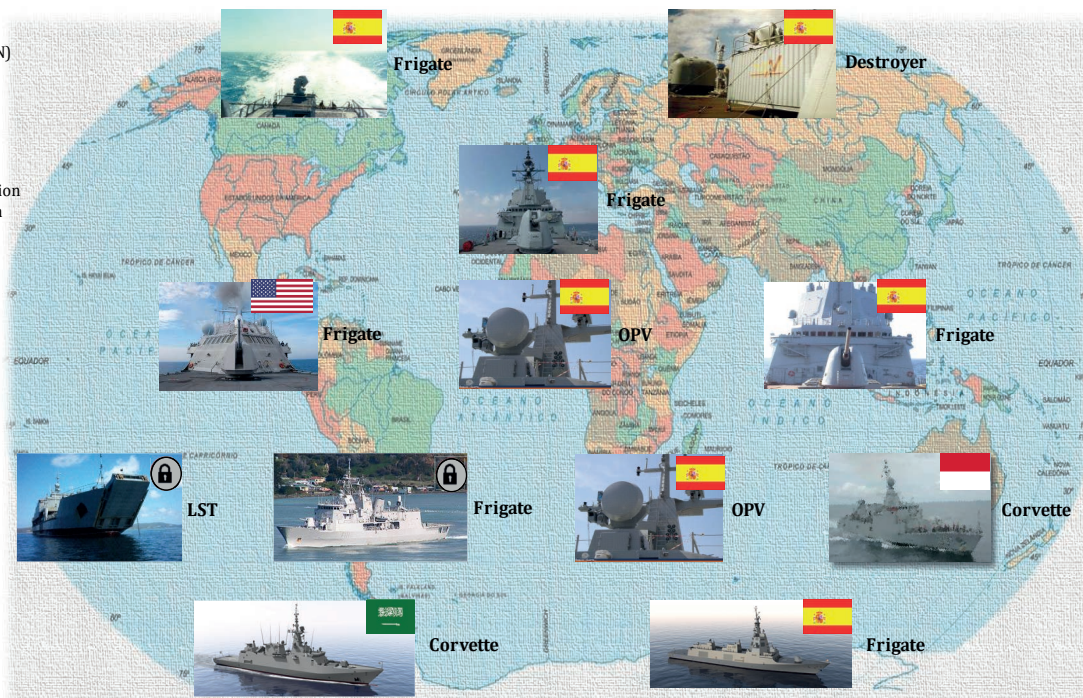
DORNA Tracking Unit





EXPERIENCE

Prototypes (1990)	R&D Program (SDG - TECIN) System Demonstration
Mod 1 (1998)	First qualified military version Environmental Certification
Mod 2 (2004)	Technology Refresh
Mod 3 (2013)	Compaction Post Mission Analysis Maintenance Tools Technology Refresh
Mod 3A (2017)	Additional compaction Expanded payload choices Functional improvements



HUMAN MACHINE INTERFACE

MISSIONS

The main goal of the DORNA Gun Fire Control System (GFCS) is to neutralize a threat.

Its main missions are:

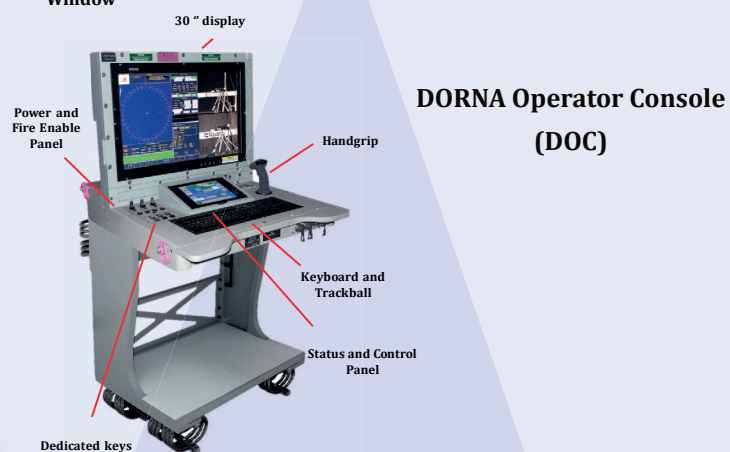
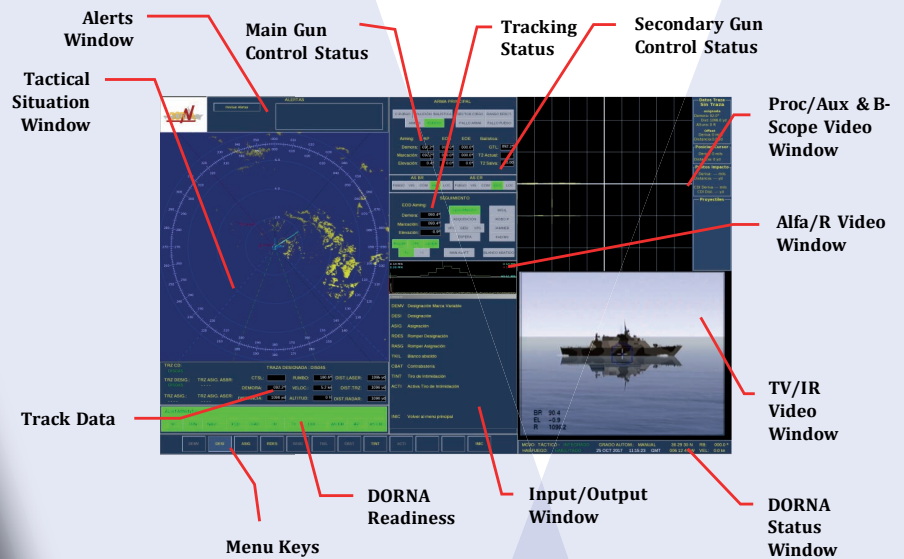
- Anti-Air Warfare engagement.
- Anti-Surface Warfare engagement.
- Naval Gun Fire Support.
- Asymmetric Warfare.

Secondary missions can include:

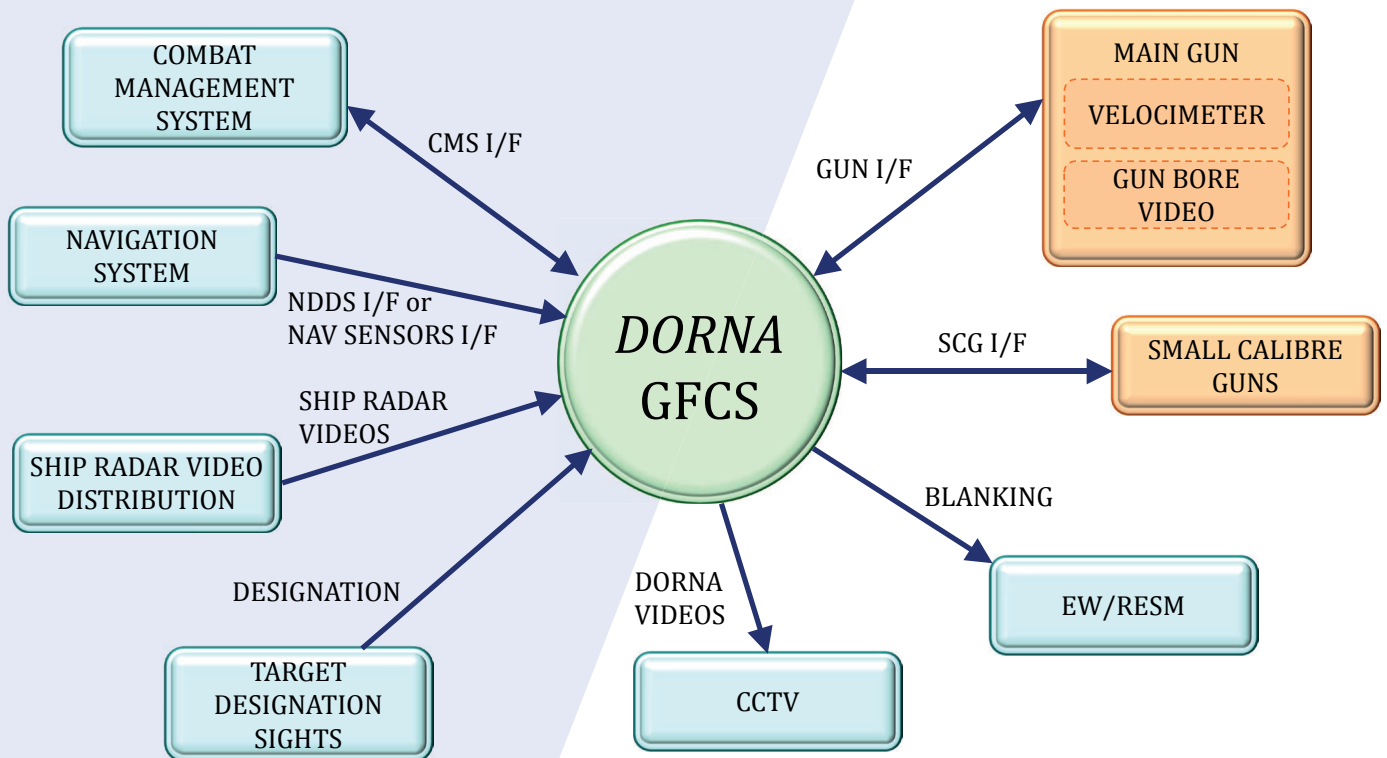
- Surveillance and Reconnaissance.
- Identification.
- Search and Rescue Support.
- Warning and Disabling Firing.
- Navigation support.

Auxiliary functions can be:

- Tactical functions (as a reduced-CMS).
- Embedded Training.
- Built-In Maintenance aids.



INTERFACES



DORNA is tailored for each Project, adapting its software and hardware to the required interfaces. No changes to other systems are needed. Minimum interfaces required by DORNA are to receive some navigation data (pitch, roll, heading), and the interface with a gun

INTERFACES ALREADY DEVELOPED

GUNS:

- 127mm BAE Systems Mk45, Mk42
- 120mm Bofors
- 76 mm Oto Melara Super Rapid & Compact
- 57 mm Bofors Mk110
- 40 mm Oto Melara Twin 40L70
- 40 mm Bofors 40
- 35 mm RAD Millennium
- 25 mm BAE Systems Mk38

SHIP RADAR VIDEOS:

- Kronos NV
- SPS-774
- SPQ-2F
- CORA SPS-702
- TRS-3D
- SCANTER-6002
- ARIES
- SPY-1D, AN/SPS67, AN/SPS73 SPS-52B / 10F
- CAS

COMBAT MANAGEMENT SYSTEMS:

- SCOMBA
- CATIZ
- CDS/AEGIS
- WDE/WSP
- CMS-330

NAVIGATION SYSTEMS:

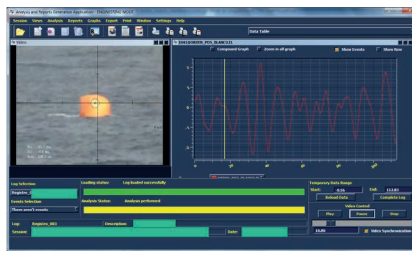
- DIANA NDDS
- NAVSSI NDDS
- NAV SENSORS
- DDU



OTHER INTERFACES CAN BE DEVELOPED WITH VERY LITTLE EFFORT

POST MISSION ANALYSIS

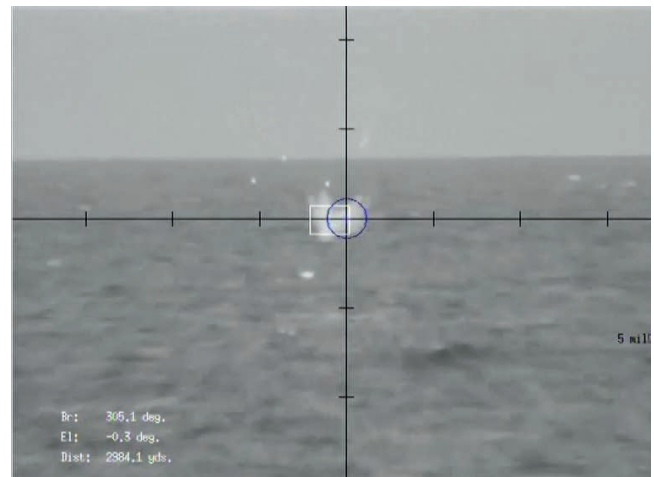
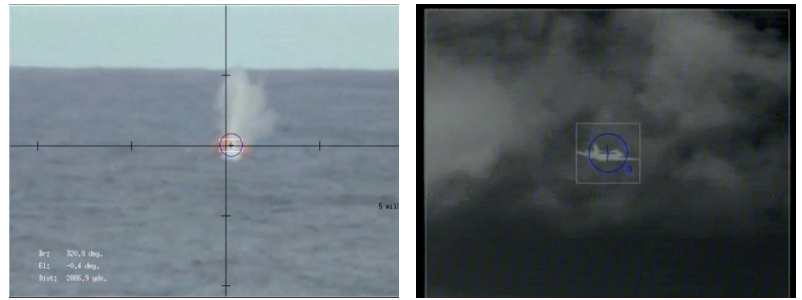
Synchronized video graphs, data in moveable, adjustable windows



- Graphs with several variables
- Several graphs can be displayed at a time
- Data and graphs can be exported
- Replay control



Automatic reports can be generated (e.g. Combat Assignment, Fire & Trajectory, images)



MAINTENANCE TOOLS

Maintenance tools

- Hardware test applications
- DORNA Hardware Test Box

Software Maintenance tools

- Selected by operator during boot
- Allows execution of HW specific tests, i.e.
 - Signal Interface Module (SIM)
 - Gun Control Unit (GCU)
 - Digital Synchro Interface Board
 - Signal generation



Ruggedized TAMD laptop version



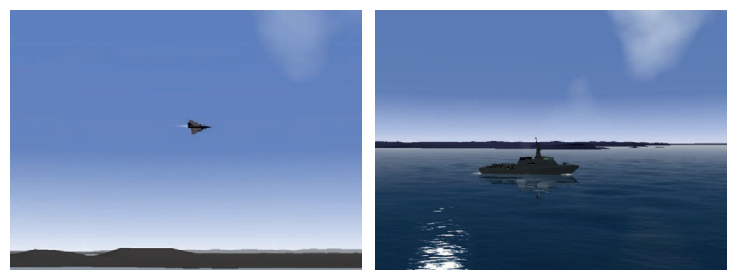
Standard TAMD laptop version

TRAINING MODE

Training is managed from the TAMD laptop, which includes generation of the scenario.










The operator sees a realistic video, and the system behavior is similar to the tactical mode (responding to movement controls, videotracking, firing, etc).



ABOUT NAVANTIA

Navantia is a Spanish Government Owned Company and is an Industrial Group with the following Business Lines:

-  Naval shipbuilding and design.
-  **Systems.** -----
-  Ship repairs and conversions.
-  Diesel engines, gearboxes and power generation.
-  Through Life Support.
-  Transfer of Technology solutions
-  Offshore merchants and wind energy

Command and Control systems
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Navigation systems
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