«Sarmat-2»

Shipboard optronical artillery fire control system

Purpose

- **Fire control for automated guns up to 76 mm calibre (АК-630, АК-630М, АК-306, АК-230, АК-725, АК-725М, АК-726, АК-726М, АК-176, АК-176М) to air, surface and shore targets .**
- **Surface and coast environment surveillance.**

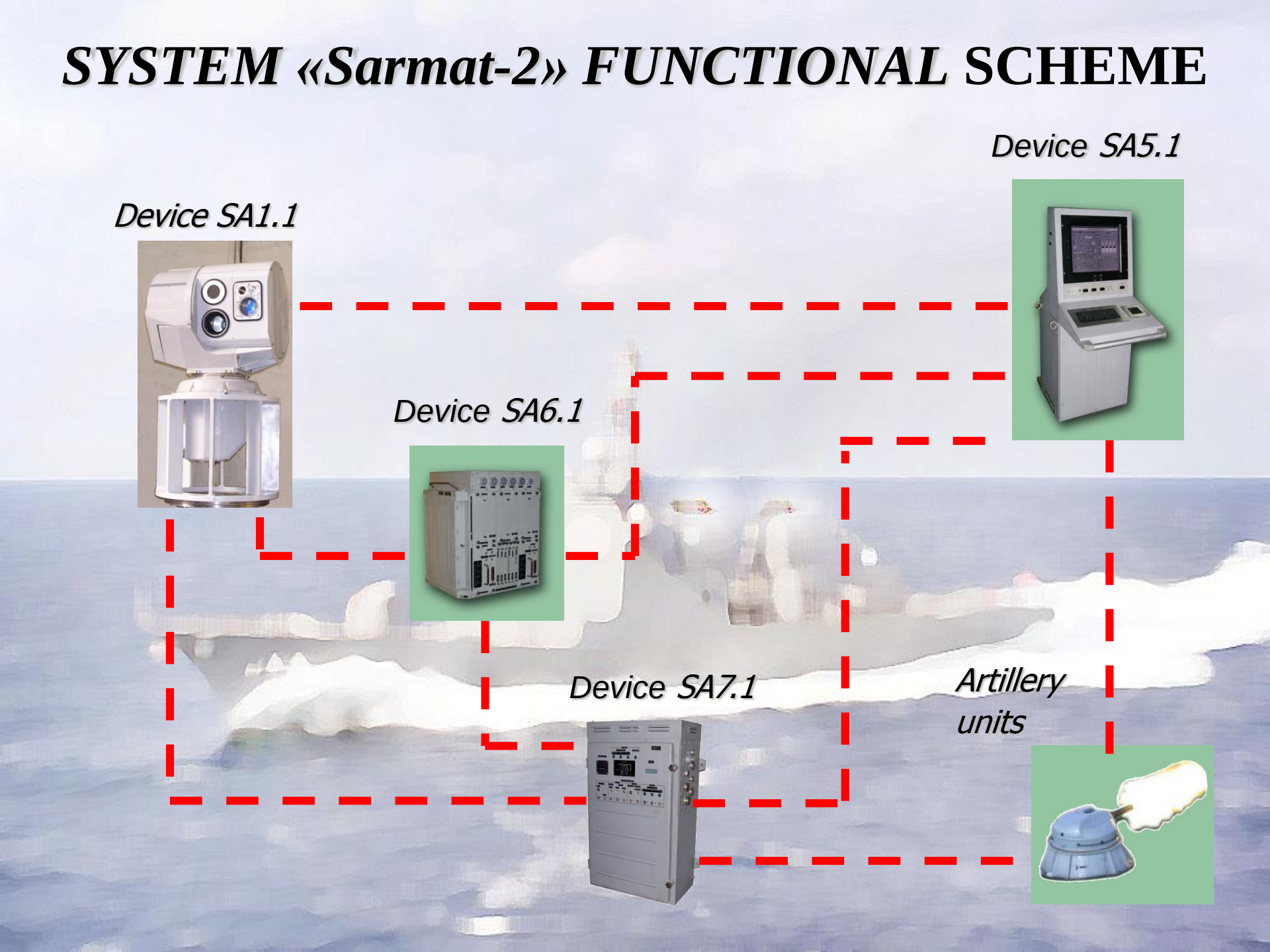
The basic solved problems:

- **Reception of a target designation from all-round looking radar or at the command of commander and hand-operated targets presearch in the field of errors of a preliminary target designation;**
- **Hand-operated target lock-in and auto tracking of the targets on angular coordinates and range;**
- **Measurement of angular coordinates and range to the tracking targets;**
- **Inertial tracking of the targets on the extrapolated coordinates;**
- **Reception of the target running coordinates in a deck coordinate system and their conversion to the stabilized terrestrial coordinate system;**
- **Definition of the target moving parameters;**
- **Providing of meteorological and ballistic preparing of firing;**
- **Solution of the shell and target rendezvous problem and elaboration of the gun barrel laying parameters (full angles of traversing and elevating);**
- **Calculation of firing correction;**
- **Elaboration and displaying of information, going with firing;**
- **Autonomous hand-operated search of targets (air, surface, coastal) in the given sector;**
- **Firing modes selection and calculation of spent ammunition;**
- **On-line built-in test with fault detection and isolation down to LRU level and the automated test of the system general workability with displaying of the information about faulty units on the video monitor screen;**
- **Staff training on battle usage of the system.**
- **System can be adapted to other types of automatic gun mounts up to 76 mm caliber, using both analog and digital information (including gun mount Oto Melara)**

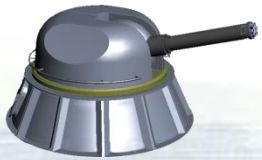
The basic technical characteristics

- **Root-mean-square error of elaboration of full angles of gun barrel traversing and elevating not more than 1,5 … 2,0 mrad;**
- **Error of a tracking target coordinates definition :**
  - **Angular coordinates, mrad, not more than 0,2;**
  - **Distances, m, not more than 5.**
- **Working sectors in deck coordinate system:**
  - **azimuth coverage: ±175º;**
  - **maximum elevation coverage: -20º to +85º.**
- **Working system time (from the target lock-in moment to the readiness for the firing beginning) not more than 3 sec.**
- **Retargeting velocity, deg/sec:**
  - **azimuth 70;**
  - **elevation 50.**
- **Fields of view of optronical devices:**
  - **Daylight CCD TV:**
    - **NFOV 1°27 ′ × 1°5 ′;**
    - **WFOV 28°31′ × 21°23′;**
  - **Thermal imager:**
    - **NFOV 2,5° × 1,67°;**
    - **WFOV 12 ° × 8°.**
- **Range of an aircraft lock-in at meteorological distance of visibility ≥ 25 km:**
  - **Daylight CCD TV channel, km, is not less 12;**
  - **Thermal imager channel, km, is not less 10.**
- **System weight without the replacement components 416 kg, including weight of optronical post 217 kg.**
- **Power consumption ≤ 2 kW.**

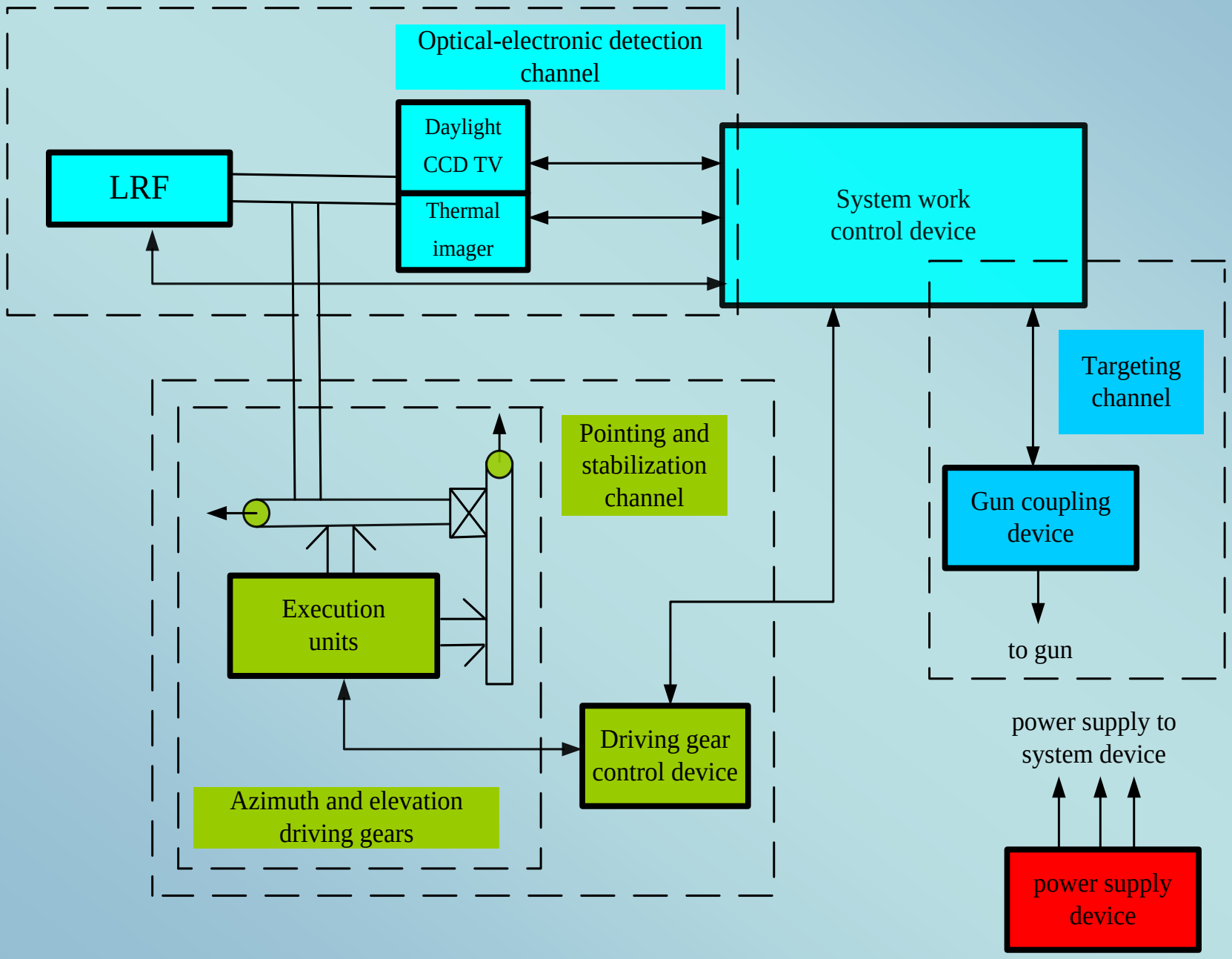
SYSTEM «Sarmat-2» FUNCTIONAL SCHEME



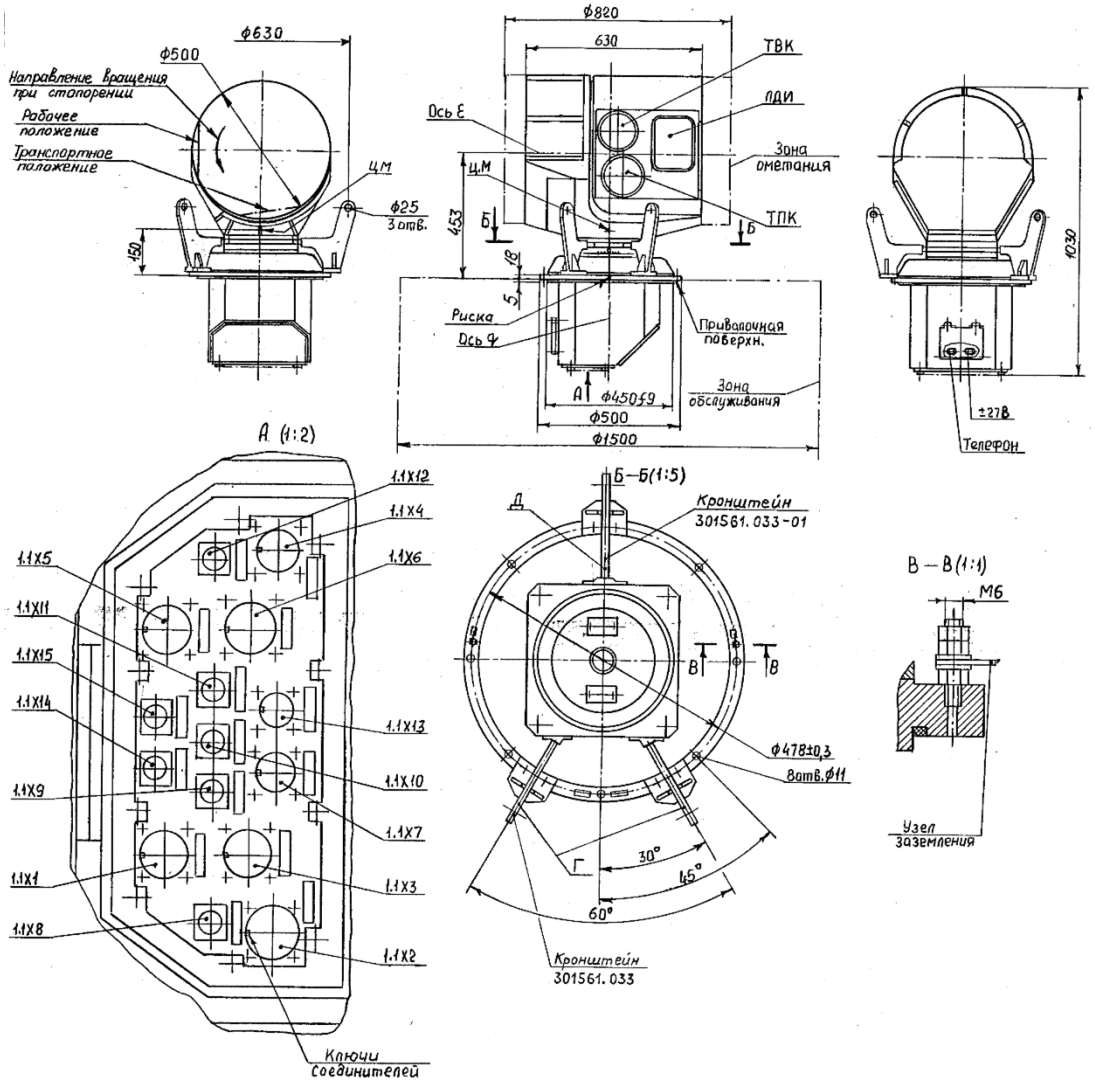
Fire control System Configuration



Structure electronic scheme of system «Sarmat-2»



Optronical post



Operator's console