MTG. Scan assembly electronics (SCAE)

SENER XSPACE / XSCIENCE & EARTH OBSERVATION / SPACE

MTG. SCAN ASSEMBLY ELECTRONICS (SCAE)

Cliente: ESA

País: Space

The main function of the MTG (Meteosat Third Generation) scan assembly electronics (SCAE) is to provide a controlled, high precision scan and sweep movement of the mirror of the main telescope.

To achieve this, the electronics house the following functions:

- Accurate control and input of the dual axis motors: N/S (North/South) and E/W (East/West)
- Control and input of blocking/unblocking motors of the mechanism
- Monitoring and fault management
- Communications with the spacecraft
- Conditioning and internal distribution of power
- Data processing and management

Most of these functions take place in SW developed by SENER on a LEON2 platform.

The unit consists of a nominal and a redundant section, both identical. Each of these sections houses the

modules:

- Modules:
- DC/DC converter
- Backplane, to interconnect modules
- Processing module
- Acquisition and motor drive module
- **Mass:** 5 Kg
- **Size:** Length: 247; height: 150; width: 175
- **Thermal power:**
  - Operating range: -20ºC: +50ºC
  - With start at – 25ºC
- **Redundancy:** Two fully redundant sections in a single box.
- **Input:** Input bus: +28 V
  - Power consumption: 25-30 W (approximate values according to the operating mode)
- **Observability and controllability:**
  - Each section has various 1553 MilBus and SpaceWire communication buses for control and monitoring and dispatch of data, respectively
  - The unit implements a reduced set of PUS services
- **Features of the processing module:**
  - Processor: LEON2 AT913E
  - Link SpW up to 80 Mbit/s (with capacity of 200 Mbit/s)
  - PROM memory: 32 kB
  - EEPROM memory: 4Mbit
  - SRAM memory: 5 MB (including fault detection and correction (EDAC)