

MAIN COMPONENTS OF THE COMOS (Control and Monitor System)

(Card Level)

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## Abstract

This report lists the various cards of the COMOS. Brief functional description and specifications are included. This is to help in understanding of the COMOS at the card level, for production management, space planning etc. It will also help in understanding the inter-connectivity of the various components of the COMOS with respect to other modules of the GMRT electronics system.

Main components of the CONTROL and MONITOR System (COMOS)  
( Card Level )

1. ANTCOM : Antenna Communication Electronics.
2. CEBCOM : CEB Communication Electronics.
3. MCM : Monitor and Control Modules.
4. CFEPS : Communication Front End Processor and Switch.
5. ANTPS : Power supply for ANTCOM & Optical Fiber systems.
6. CEBPS : Power supply for CEBCOM.
7. PAEX : PAEX for the COMOS and the CEB.
8. FOS : Fiber Optic Splitter.

Brief description and specifications of the cards follow. Please refer to appropriate reports for more detailed information.

ANTCOM

ANTCOM incorporates all electronics required for control, monitor and communication purposes at the remote antennas. Functional modules in the ANTCOM are;

- a) MODEM for the fiber optic link to the CEB.
- b) ABC : Antenna Base Computer.
- c) MUX : Voice-Data multiplexer.
- d) MCM : for monitor/control points.

All these modules are integrated into a single ANTCOM card.

Location : Remote Antennas. In the sub-rack which is shared with the Fiber Optics system.

Quantity : 30 Nos ( One per Antenna )

Size : 233 X 341 mm

Power Supply : +5 V DC 300 ma  
+12 V DC 100 ma  
-12 V DC 50 ma

Connectors : Euro, TNC, BERG

## CEBCOM

CEBCOM incorporates the MODEM, and the MUX at the CEB. It has a PABX interface build into the MUX. A number of CEBCOM's (One per antenna) are linked to the CFEPS.

Location : CEB in the Sub rack of the COMCS

Size : 233 X 160 mm

Power Supply : + 5V DC 200 ma  
+ 12V DC 100 ma  
- 12V DC 50 ma

Connectors : Euro, TNC, BERG

## MCM

MCM's are distributed at all the remote antennas and at the CEB. MCM's are connected to the ANTCOM at the antennas and to the CFEPS, at the CEB. Either a plastic fiber or a shielded twisted copper pair can be used. Each MCM can accept 62 monitor points and provide 16 TTL control lines.

Location : Will be housed with the unit to be monitored / controlled

Quantity : 300 (Estimated)

Size : 100 X 160 mm.

Power Supply : + 14V to +16V DC 100 ma.  
- 14V to -16V DC 50 ma.

Connectors : Euro, BERG, Terminal block.

## CFEPS

CFEPS is the data Communication Front End Processor and Switch electronics. It incorporates a CEBCOM and a switch. The switch accepts data from 30 antennas and connects one of them to the Array Control Computer(ACC) via the CEBCOM's serial port. Switch is controlled by a CEBCOM. CFEPS also connects to a CEBCOM which has all the MCM's at the CEB connected. This way, the CEB

just appears an extra antenna. This simplifies the Control and Monitor software. There will be two units in a redundant configuration. When failure is detected the standby unit is activated automatically.

Location : CEB in the sub rack of the COMOS.

Quantity : TWO

Size : 233 X 160 mm

Power Supply : +5V DC 200 ma.

No of Antenna supported : 32 ( Expandable )

Switch input/output : 250 Kb/s, TTL

#### ANTPS

This unit supplies power to the ANTCOM and to the Optical Fiber system. Normally power is drawn from the regulated AC mains. When AC supply fails, a DC - DC switching converter is activated. This converter has an efficiency better than 70 %. Since astronomical observation is interrupted during a power failure, interference generated by the converter is not important.

Location : Antenna. Housed in the same rack along with the backup batteries.

Size : To be fixed

Quantity : 30 Nos

Power Supply : Input 230 V AC + 10 %  
24 V DC + 20 %  
Output +5 V DC 1.0 A  
+12V DC 2.5 A  
-12V DC 2.5 A

#### CEBPS

This unit supplies DC power to the COMOS components located at the CEB. This is a straight 230 V AC mains to DC linear or SMPS. There will be two units in a redundant configuration.

Location : CEB. Located in the COMOS sub rack.

Size : To be fixed

Quantity : Two nos

Power Supply : Input 230 V AC + 20 %

Output +5 V DC

+12 V DC

-12 V DC

### PABX

This is a commercial product. It can be an inexpensive model, as very sophisticated features of a regular EPABX are not essential. Thirty two extension unit is required for telephone facility to all the antennas. The trunk lines can be connected to the P & T lines or a VHF transreceiver for external access. It is possible to start with a small unit and expand it at a later date. With extra lines it can also serve the CEB and the hostel.

### FOS

This unit is required when more than one MCM has to be connected to a ANTCOM or a CFEPS. It is a splitter and combiner for the plastic fiber optic cables. Splitting / combining is done electrically and the outputs / inputs go to individual optical sources / detectors. It is also possible to do the splitting in the optical domain. At present, this option is more expensive.

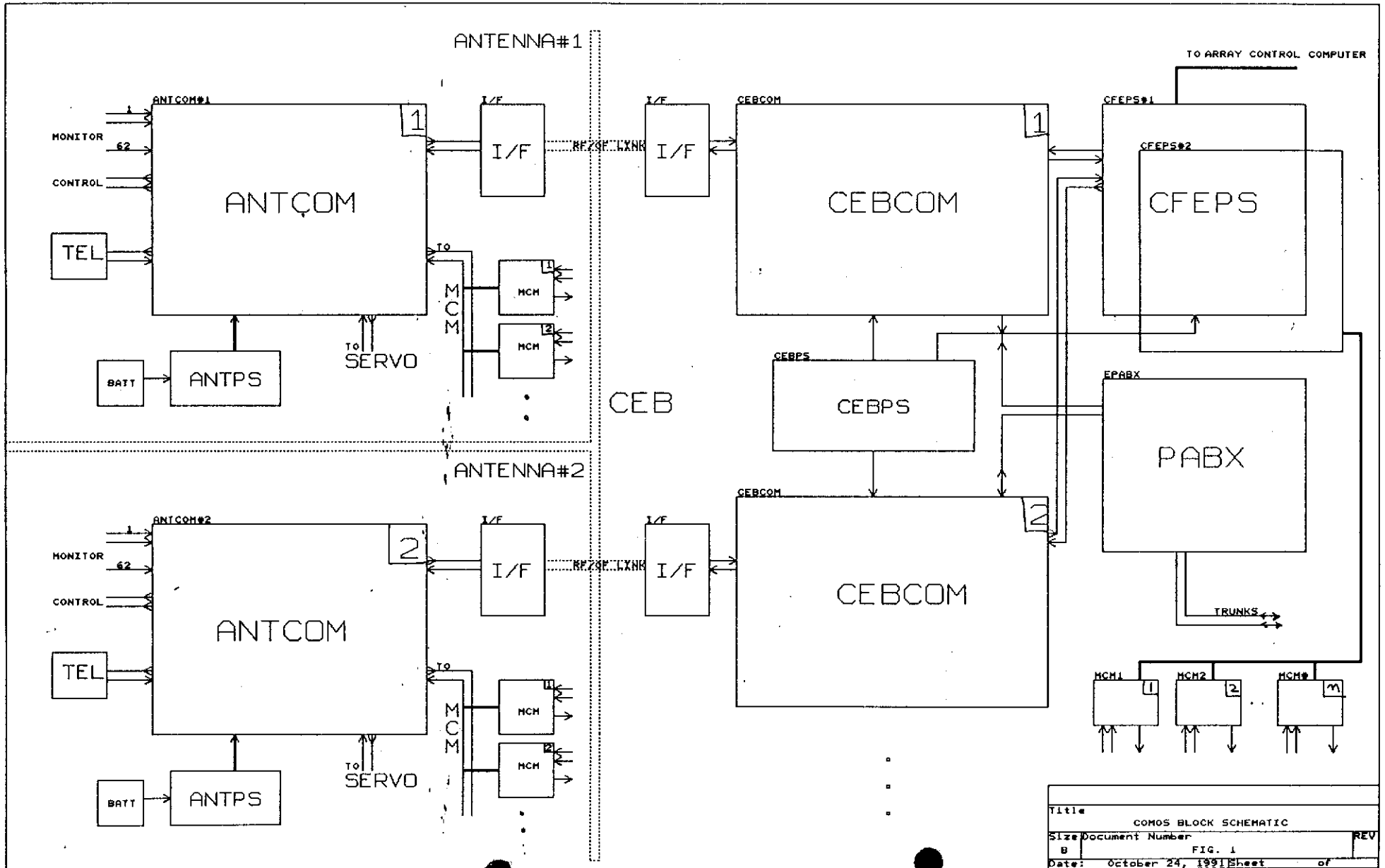
Location : Antenna, CEB. Housing will depend on the location of the MCM's.

Quantity : 3 - 4 Nos.

Size : to be fixed.

Power supply : +5 V DC 100 mA for a four way unit.

Connectors : Fiber optic, Terminal block.



Title		
COMOS BLOCK SCHEMATIC		
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