REMOTE CONTROL AND MONITORING SYSTEM FOR AGL

Brief description

The system is held from three hierarchical levels:

1. Bottom level - **Local computer** managing constant current regulators,
2. Average level - **Concentrator** with the **printer**, **command board** and **information board**, There is a second Concentrator in "Hot standby" mode.
3. Top level - **Main computer**.

Up to 10 pcs of Local **computers** are placed in rooms near to regulators /CCR/. They control the regulators, connected to them, /up to 8 piece /.

The common number of CCR connected in system is equal 80.

The **concentrator** - basic manages all other devices in the system. With the help of the **command board** the air traffic dispatcher can control AGL system and receive the information on its status.

The **information board** is placed in the maintenance room. It gives the detailed light information on a status and sound trouble signaling.

The **Main computer** supplements and expands functions of system. It accumulates the archival data on work of system and stores them during one year, operates system in an emergency.

I. THE LOCAL COMPUTER /LC/

The specialized microprocessor controller:
- 8 bit processors PHILIPS 80C552, 8K the RAM, 32 EPROM;
- 3 serial channels /current loop, RS232, I2C /;
- 90 digital inputs 24V/20mA;
- 72 digital outputs -60V/100mA;

A block principal constructs LC. The microcomputer carries out logic operations and carries out communication with the Concentrator / in emergencies - with the Main computer /on the serial channel. Connection - on telephone pair / or optical /. The digital outputs operate electromagnetic relays of regulators.

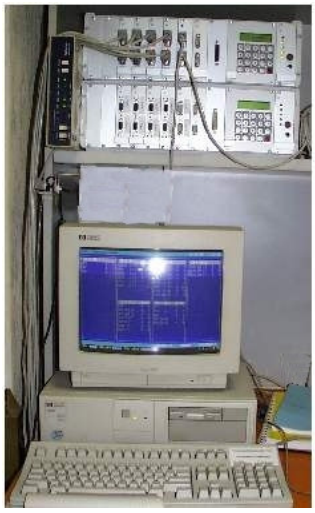
The presence of microprocessor in the Local computer gives the continuous control of serviceability of the devices, connected to the local computer, and own modules. All failures are transferred on the channel of communication and are kept in memory of the Local computer.

The local computer is equipped with protection providing safe work of the device. After occurrence of dangerous failure all regulators are included on the degree, beforehand determined by the consumer.

II. THE CONCENTRATOR

The concentrator - specialized microprocessor device:
- 8 bit processors PHILIPS 80C552, 8K the RAM, 32 EPROM, 256K EEPROM;
- 10 serial channels /current loop /
- 6 serial channels /RS232, I2C /;
- 1 parallel channel CENTRONIX.

The concentrator has connection with all devices of the system. It collects commands from air traffic dispatcher /command board/, process them, sends control commands to LC, collects all back-information and displays it on the boards.
Concentrator sends information of AGL system to meteorological system. The communication is carried out by the modem on telephone pair.



III. COMMAND BOARD - THE BOARD OF AIR TRAFFIC DISPATCHER

Is placed in a room of the air traffic dispatcher /tower room/. With its help the management of system is carried out.

Technical parameters:

- 8 bit one-crystalline computers PHILIPS 80C31;
- 256 outputs for dynamic indication;
- 64 inputs for a key;
- 1 serial channel /current loop / - 48V/40mA;
- Sound signal system pressed a key and failures.

IV. THE INFORMATION BOARD
The information board of serving structure - microprocessor device for indication of a status light system of the airport, Command board and Concentrator.
Technical parameters:
- 8 bit one-crystalline computers PHILIPS 80C31;
- 256 outputs for dynamic indication;
- 64 inputs for a key;
- 1 serial channel /current loop / - 48V/40mA;
- Sound signal system pressed a key and failures.

V. THE MAIN COMPUTER

The main computer - personal computer such as PC 586 with the following min. configuration:

- 32 □B SDRAM;
- Winchester 2.5 GB;
- Floppy disk 1.44 □□;
- 101 key;
- SVGA the monitor;
- Module the interface RS232;
- Printer.

When the Main computer is included, it supp[illegible]r the information on a status of system and updates it everyone 3 seconds. It is possible to unpack the archive, saved on a disk, in a suitable format. The main computer can operate AGL system in a serviceable status with the sanction of the managers or in emergencies; reads the tables of failures of Local computers, read and verify hours of the Concentrator and Local computers.

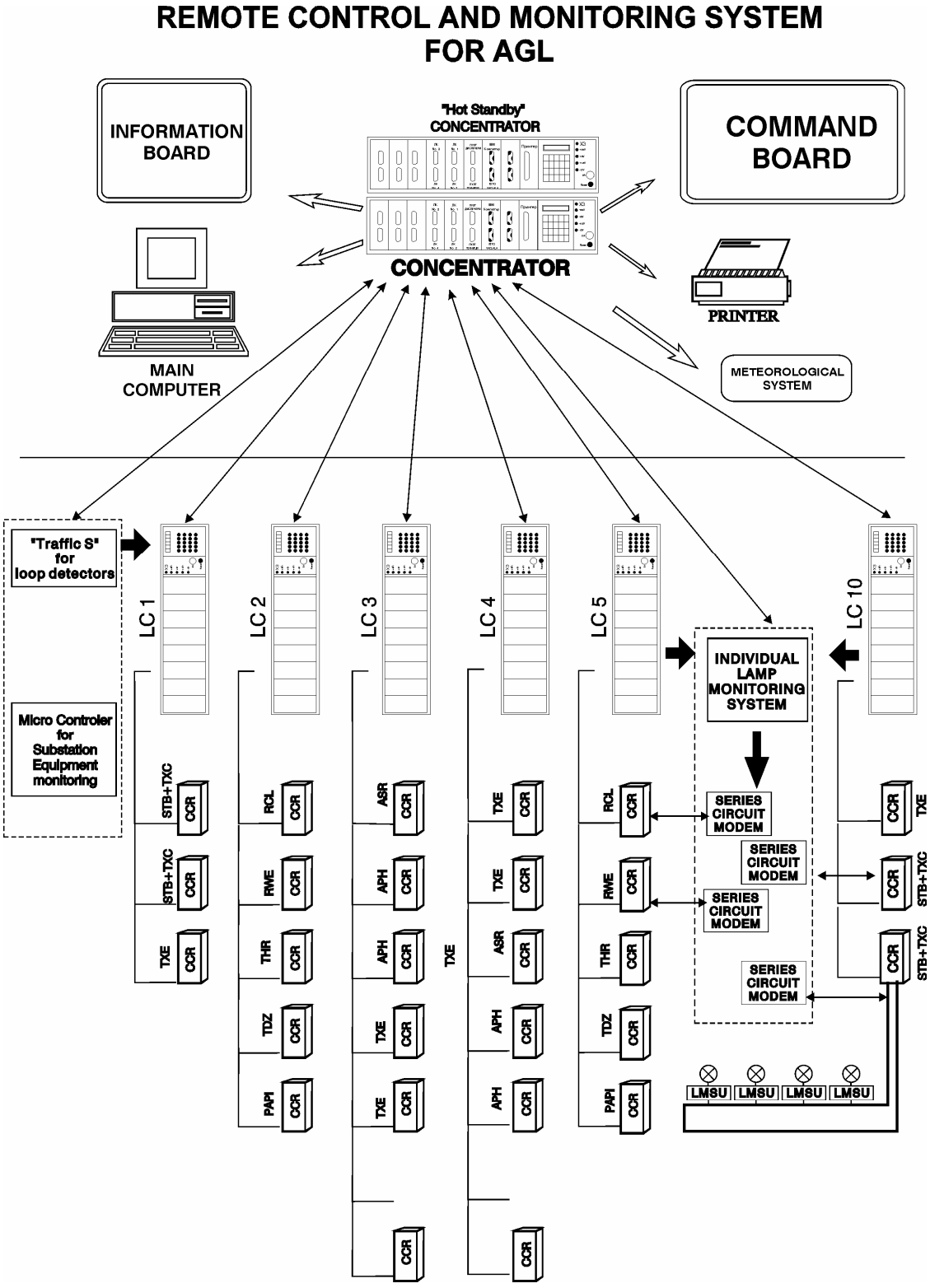
THE OPERATING PROCEDURE OF SYSTEM

By pressing on keys or set by a key, the command board sends commands to the Concentrator. The concentrator develops commands to local computers and switches on/off regulators /CCR/ on the given degree. Each second the Concentrator asks the Local computers about their status, status of CCR and displays all actual information on the boards.

In archive is entered all events - actions of the persons working with the given system and current status of all devices in the system. The archive is kept in EEPROM of the Concentrator for 30 days, printed out on the printer and transferred to the Main computer.

Simultaneously the system for AGL collects information from other electrical systems and devices like UPS, loop detectors /CAT II/III mode/ and so on.

BLOCK DIAGRAM



SUMMARY - THE BASIC FUNCTIONS:

- On/off switching, brightness.
- Status of airfield lighting system. Continuous monitoring, processing, logging and analyzes of current lighting operations.
- Graphic display of the lighting system - a visualization system provides the status indication through colored codes.
- Processing sensor messages from aircraft that cross stop bars and taxiway intersections.
- Selective switching of lighting segments - e.g. stop bars and/or taxiway centerline lighting for continuous aircraft guidance.
- Monitoring and displaying status of power supply switcher, generating sets and other external systems.
- Interfaces for communication with external systems (e.g. docking systems).

THE ADVANTAGES

- **Multi-functional and flexible design. The system is constructed by a block principle and it can be applied in any configurations. By the order of the consumer the system can be expanded by additional functions. Thus, it can be adapted to optimally meet local demands: airport sizes, traffic volume, different CAT operating modes and also to completely specific conditions.**
- **Ability to control simultaneously different types of CCR**
- **High reliability.**
- **Compact size.**
- **Easy installing.**
- **Easy expansibility with Individual Lamp Control Monitoring System.**

" Traffic Systems" Ltd. offers you:

- Advice and technical help;
- Complete set and deliveries;
- Installation and start-up;
- Development of the consumer programs and means by the order;
- Training the attendants;
- Two years a warranty period.

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