

### REMOTE-CONTROLLED AUTONOMOUS MW 50 W RADIOBEACON

The radiobeacon RBA 9300 T is particularly adapted for insulated grounds poorly frequented.

The installation is power supplied by solar cells, with a battery of floating accumulators.

The starting into operation is remote controlled from an aircraft, through the transmission of a carrier on the selected VHF channel.

The duration of each period of operation may be programmed on 30 or 60 minutes. Associated with a "Daisy" antenna, the transmitting range of this radiobeacon is around 200 km (over sea propagation).

The study of this radiobeacon is developed in order to hit the following targets :

- high performances and utmost reliability,
- simple and easy installation, and easy setting into service
- easy maintenance.

The radiobeacon RBA 9300 T constitutes a dual transmission unit in the 200-535 kHz frequency range. The equipment is composed of :

- a leaking proof cabinet, equipped and cabled, 18 U high, holding the VHF reception antenna mast, and including :
  - two transmitters EBT 9300/50, adjustable up to 50W NON/A1A - NON A2A,
  - one change-over unit BRB 9300, compliant with I.C.A.O. requirements,
  - one VHF remote control unit TLC 9200 which permits, via a call from an aircraft, to start the radiobeacon,
- one automatic tuning unit UAA 9400 I which ensures the automatic tuning of the "Daisy" antenna,
- one autonomous power supply unit composed of 4 solar modules on a support, a cabinet including 8 batteries and a charge regulator,
- one terminal capacity antenna, "Daisy" type.



## CHARACTERISTICS OF THE TRANSMITTER EBT 9300/50

- **Supply voltage:**  
48 V d.c. (typical)
- **Frequency range:**  
200-535 kHz - synthesized 100 Hz steps
- **Output power :**  
Adjustable up to 50 W (200 W peak) on a 50-ohm load.  
The power stage is constituted by 4 "Mosfet" transistors mounted in "H", "D" class
- **Consumption for a 50 W carrier:**  
< 2 A (carrier non keyed)
- **Modulation type:**  
NON/A1A - NON/A2A
- **Modulation frequency NON/A2A:**  
1020 Hz  $\pm$  50 Hz, 400 Hz  $\pm$  25 Hz
- **Distortion:**  
< 5% at 95% of modulation
- **Harmonic frequencies:**  
< -45 dBc at the transmitter output  
< -65 dBc after the antenna
- **Spurious frequencies:**  
< -45 dB compared with the carrier
- **Programming of the code signal:**  
Up to 3 letters
- **Keying cycle:**  
20 s in NON/A1A and 10 s in NON/A2A  
Elementary time 120 ms. Possibility of indicating stand-by transmitter and power supply on battery between 2 code signals
- **Operation temperature:**  
-20°C to +55°C
- **Storage temperature:**  
-40°C to +70°C
- **Presentation:**  
Drawer unit for 19" standard rack, height 2 U

## CHARACTERISTICS OF THE CHANGE-OVER UNIT BRB 9300

**The change-over unit ensures three functions:**

- programming of the transmitters by means of LCD's and 3 control keys,
- checking of the operation,
- display of the parameters.
- **Programming:**  
RF frequency, modulation type, modulation frequency, code signal
- **Display of the parameters:**  
Supply voltage, direct power, reflected power, modulation rate in A2A, RF frequency, transmission type, modulation frequency, code signal
- **Change-over criteria:**  
*Mode NON/A1A:*
  - carrier reduction of more than 3 dB,
  - absence of keying*Mode NON/A2A:*
  - carrier reduction of more than 3 dB,
  - reduction of the modulation rate of more than 4 dB,
  - absence of keying.
- **Télémonitoring:**  
The change-over unit has an interface series type RS232 for telemonitoring. The telemonitoring system is optional and permits to transmit the following information:
  - programming parameters,
  - supply voltage,
  - direct power,
  - reflected power,
  - transmitter switched on standby,
  - limit stop information (for tuning unit),
  - external information.
- **Telesignalling:**  
Station on standby. Good operation of the change-over unit
- **Dummy antenna:**  
A 50-ohm load is incorporated in the rack, in order to permit the adjustment of the transmitters
- **Presentation:**  
Drawer unit for 19" standard rack, height 2 U



#### CHARACTERISTICS OF THE REMOTE CONTROL UNIT TLC 9200

- **Power supply:**  
48 V (typical)
- **Frequency range:**  
108-144 MHz
- **Channel spacing:**  
25 kHz
- **Level of release:**  
Adjustment from 1 to 20  $\mu$ V
- **Reception time necessary to set the radiobeacon into service:**  
10 s
- **Duration of the transmission cycle:**  
30 or 60 minutes (user's choice)
- **External relay control:**  
Mechanical contact
- **Setting into service:**  
Through commuted network, signal 109 of the modem
- **Presentation:**  
Drawer unit for 19" standard rack, height 1 U

#### CHARACTERISTICS OF THE CABINET

Leaking proof cabinet, holding the VHF reception antenna mast, cabled to accommodate the radiobeacon.

- **Height:**  
1050 mm
- **Width:**  
530 mm
- **Depth:**  
750 mm
- **Equipped mass:**  
45 kg
- **Height of the VHF reception antenna:**  
3 m

#### CHARACTERISTICS OF THE AUTO. TUNING UNIT UAA 9400I

It ensures the automatic tuning unit of the radiobeacon "Daisy" antenna despite the possible variations of the tuning capacity caused by the fluctuations of the climatic conditions on the site.

A microcontroller on the control PCB allowing to automatically select the impedance which gives the minimum reflected power.

The automatic tuning unit has the shape of a leaking proof cabinet which is fixed on the insulating part of the mast base of the "Daisy" antenna.

- **Power supply:**  
48 V (typical)
- **Consumption:**  
< 200 mA
- **Carrier RF power:**  
200 W NON/A1A - NON/A2A
- **Impedance of connecting antenna:**  
50 ohms
- **Impedance of adaptable antenna:**  
2.5 - 5 - 7.5 - 10 - 15 - 20 ohms
- **Measure on 50 ohms:**
  - direct power
  - reflected power
  - antenna intensity
- **Visual signals:**
  - power supply
  - carrier
  - modulation
  - limit stop
  - tuning localization
- **Indication of limit stop information:**  
By means of series link of the change-over unit
- **Lightning protection:**  
Spheres discharger located on the cabinet

#### CHARACTERISTICS OF THE AUTONOMOUS POWER SUPPLY UNIT

For a transmission power 50W:

- 2 solar modules 140 W - 24 V,
- 4 batteries 12 V, 130 Ah,
- 1 charge regulator.

#### NOTE

The unit RBA 9300 T can be adjusted in our factory to emit an output power of 100W. In that case, the solar generator has to be more important.

## RBA 9300 T

### CHARACTERISTICS OF THE "DAISY" ANTENNA

This antenna is based on the principle of the terminal capacity, which gives a gain of about 6 dB compared with a classical antenna of same height. Its reduced height is particularly adapted for airstrip access and makes possible the suppression of night and day marker lights. It also reduces the lightning risks.

- **Height:**  
14.20 m
- **Diameter at the top:**  
4.44 m
- **Mass:**  
162 kg
- **Frequency range:**  
200-700 kHz
- **Admissible power:**  
400 W NON/A1A - 200 W NON A2A
- **Impedance:**  
50 ohms

### CHARACTERISTICS OF THE PROGRAMMER PGM 9200

When there is no change-over unit BRB 9300, it permits to display the transmitter parameters and to program the configuration of the transmitter (frequency - code signal - mode...).

- **Programming of the frequency:**  
200-535 kHz (100 Hz steps)
- **Supply (d.c. voltage):**  
By means of the maintenance connector of the transmitter
- **Programming of the code signal:**  
Up to 3 letters
- **Programming of the modulation mode:**  
NON/A1A - NON/A2A
- **Mechanical characteristics:**
  - Height : 60 mm
  - Width : 205 mm
  - Depth : 40 mm
  - Mass : 360 g

### CONTROL OF OPERATION THROUGH MODEM LINK

Associated with a pair of modems, the N.D.B. can be set into service through a connection on the commuted network, or specific line.

On starting, a control of the station can be performed with a TSV 9400 telecontrol unit operating on a PC under Windows 95, or with a telecontrol console PTS 9400.



*In that case, the RBA 9300 T 19" standard rack is installed inside a shelter*