TELERAD

Aeronautical and Maritime Radiocommunication Systems

TRANSPORTABLE 50 W MW NDB

RBT9300MS

OVERVIEW

The transportable NDB 50W RBT9300MS has been designed to meet the requirements of temporary and fast installations: assistance for approach and landing of helicopters on any field.

The radiobeacon is installed in a waterproof cabinet placed flush with the ground and connected with another waterproof cabinet (antenna automatic tuning unit system).This unit may be supplied either by mains 230 V, or by external 24 V d.c. Designed for military operations, this NDB can be used as a "locator" on insolated working site.

CONSTITUTION OF THE EQUIPMENT

Waterproof 7U cabinet RBT9300MS containing:
- a 50W A1/A2 transmitter EBT9300MS-24,
- a programmer PGM9200MS,
- a 24 V/75 A rectifier FLATPACK 2,
- a battery assembly BAT24 V/7 AH,
- a 50 ohms load CHF9300MS,
- a VHF remote control TLC9200 (option).

Waterproof 12U cabinet DAA9400MF containing:
an automatic tuning device DAA9400IMF

RFantenna bag containing:
- two U supports,
- a 8 m whip antenna in 8 parts,
- an insulator,
- a set of 3 guys.

Ground system bag containing:
- a ground plane made up of 6 conductors on reels,
- installation accessories (stakes, hammer).

PGM9200MS PROGRAMMER CHARACTERISTICS

It permits the following functions: display the transmitter parameters, programming the configuration of the transmitter (frequency - code signal - mode...).

Frequency programming:
200-535 kHz (100 Hz steps)
Power supply (d.c. voltage):
By means of the maintenance connector of the transm.
Programming of the code signal:
Up to 3 letters
Programming of the modulation type:
NON/A1A - NON/A2A

EBT9300MS-24 TRANSMITTER CHARACTERISTICS

Power supply voltage:
24 VDC (typical)
Frequency range:
260-500 kHz - 100 Hz step
Output power:
Adjustable up to 50 W (200 W peak) on 50 ohms load.
The power stage is constituted of "Mosfet" transistors installed in "H", "D" class.
Consumption for 50W carrier:
< 3.5 A (carrier non keyed)
Modulation mode:
NON/A1A - NON/A2A
Modulation frequency in NON/A2A:
1020 Hz + 50 Hz, 400 Hz + 25Hz
Distortion:
< 5 % at 95% of modulation
Harmonic frequency:
- < -45 dBc at the transmitter output
- < -65 dBc after antenna

Spurious frequency:
< -45 dB compared with the carrier
Code signal programming:
Up to 3 letters
Keying cycle:
20 s in NON/A1A and 10 s in NON/A2A
Dot duration 120 ms. Possibility of indicating power supply on battery between 2 code signals.
Signaling:
Battery operation
Operating temperature:
-20 °C to +55 °C
Storage temperature:
-40°C to +70°C
Presentation:
Drawer unit for 19" standard rack, 2U height

FLATPACK 2 RECTIFIER CHARACTERISTICS

It supplies power 24V= to the whole NDB and ensures the charge of the battery.
Input voltage:
230 V, ± 15 %, 47-63 Hz
Power factor:
> 0.98 in rated charge
Performance:
90 % in rated charge
Output power:
24 V, ± 0.5 %, 75 A
Battery:
24 V/7 AH (1 hour autonomy)

TLC9200 REMOTE CONTROL CHARACTERISTICS (- OPTION -)

It allows the activation of the radiobeacon from the plane, via the transmission of a carrier wave on the VHF channel.
- Activation with time delay that allows the transmission during 30 or 60 minutes,
- Activation with the possibility of stopping the transmission with the help of a new VHF call,
- Maintenance of the VHF carrier during 10 s in order to trigger or disable the station.

It is installed in the RBT9300MS cabinet, instead of 1U panel.
The VHF antenna is fixed on the DAA9400MF cabinet.
Power supply (d.c. voltage):
24 V
Radiobeacon's authorized consumption:
8 A
Operating range:
118-144 MHz
Channel spacing:
25 kHz
Triggering level:
Set up from 1 to 20 µV
Activation of the radiobeacon:
10 s
Duration of the transmission sequence:
30 or 60 minutes (at user's discretion)

DAA9400IMF AUTO TUNING UNIT CHARACTERISTICS

It ensures the tuning and his automatic maintenance for the whip antenna or umbrella antenna, despite the possible variations of the tuning capacity and impedance caused by the climatic conditions on the site.

It is presented in the form of a 12U waterproof cabinet.
Supply voltage (d.c.):
24 V (typical)
Consumption :
< 300 mA
RF carrier power:
50 W NON/A1A- NON/A2A
Antenna impedance connection:
50 ohms
Antenna impedance adaptable:
7.5 - 10 - 15 - 20 - 25 - 35 ohms
Measuring on 50 ohms:
Forward power, reflected power, antenna intensity, selected impedance
Visual signaling:
Power supply, carrier, modulation, limit stop
Lightning protection:
Spheres discharger placed inside the cabinet

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

ANTENNA CHARACTERISTICS

This ANT9400FA whip antenna has been designed for temporary installations. It can be erected by two people in less than an hour.

It is made up of the following sub-assemblies:
- a mast made up of seven 1 m elements,
- an insulated mast foot, fixed to the cabinet,
- three antenna guys,

The antenna is assembled in the horizontal position and then erected. The ground plane is essential to the operation of the antenna and is made up of six 40 m conductors on reels.

Frequency ranges:
- ANT9400FA: 260-535 kHz

Max. admissible power:
50 W A2A
Antennas capacitance:
- ANT9400FA: 120 pF

Antenna fabric bag weight:
22 kg
Ground plane and accessories fabric bag:
25 kg
Antenna height:
8 m

RBT9300MS CABINET

- Width: 535 mm
- Depth: 690 mm
- Height: 400 mm
- Weight: 41 kg

DAA9400MF CABINET

- Width: 535 mm
- Depth: 630 mm
- Height: 620 mm
- Weight: 35 kg

RF ANTENNA BAG

- Length: 1100 mm
- Width: 430 mm
- Height: 220 mm
- Weight: 22 kg

GROUND SYSTEM BAG

- Length: 470 mm
- Width: 360 mm
- Height: 220 mm
- Weight: 25 kg

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