ND Series

ND 500

nautel

SIMPLY THE BEST ENGINEERED TRANSMITTERS

ND500II

125 W Solid State Radiobeacon Transmitter

- Compliant with the specifications and recommendations of ICAO Annex 10, Vol. 1, Part 1, Section 3.4
- Available in single and dual versions with Automatic Changeover
- High overall efficiency, low consumption from AC or DC supply
- Field experience indicates MTBF in excess of 100,000 hours
- Modular construction in single rugged 19 inch rack mount unit
- Built-in Direct Digital Synthesizer
- Extended Frequency Range Options
- Many optional accessory items

Features

The 125 W totally solid state radiobeacon transmitter is a well-proven, efficient design with outstanding reliability.

The RF output may be fed by a 50 ohm coaxial cable to an automatic antenna tuning unit, model ATU500 matching to an antenna system. The ATU may be located at any distance from the transmitter. The tuning controls are located on the transmitter so it's operation may be checked from the transmitter.

Single Version

Harmonic Filters

The transmitter may be fitted with one of two Harmonic Filters providing a standard band from 190 kHz to 650 kHz, or an extended band coverage from 650 kHz to 1250 kHz plus 1.6 MHz to 1.8 MHz. All of these frequencies are generated by a direct digital synthesizer that provides an exceptionally pure spectral output with ± 3 ppm frequency stability and with adjustments in 100 Hz steps.

All low level circuit cards and adjustment controls are accessible from the top of the transmitter with the top cover removed. The Power Amplifier/ Modulator Module and the Harmonic Filter are mounted on the rear of the transmitter.

Metering

Metering includes Forward and Reflected Power (FWD/RFL) together with push buttons that enable the operator to move the ATU off tune and return to tune as a checking tool. The meter may also be used to measure modulation depth for whichever parameter limits modulation; i.e. voltage or current at the output of the transmitter.

Other Meter Functions:

- Various voltages around the transmitter
- Overall DC current consumption
- Built-in speaker with ON/OFF control for Call Sign Monitoring
- Status and Alarm Diagnostic Features

Plug-in Modular Construction

This plug-in modular construction keeps repair time to a minimum and facilitates field repair. Trouble-shooting is further simplified through the use of LED indicators, a comprehensive test meter and test points. High reliability is assured by using very few parts in the high efficiency design. Parts are derated well below their stress limits.

High Efficiency

Extremely high efficiency in terms of power out to power in from either an AC or DC supply at all operating power levels, makes this transmitter exceptionally attractive where DC operation is required. This results in cost reduction of batteries and/or solar power systems.

Optional Extras

- Cabinet for dual or single transmitter
- 48 V Battery Charger (3 A or 5 A)
- Surge Protection Unit for additional AC surge/ lightning protection
- CSA Inspection
- Remote Control units with RS232/RS422 interface for direct connect or dial-up operation
- DC Operation 24 V at 12.8 A maximum (125 W, 95% modulation)
- Synthesized Beacon Monitor Receiver with Loop Antenna

ND500II
125 W Solid State Radiobeacon Transmitter — Specifications

SPECIFICATIONS

Continuous Carrier Power
- 125 W maximum—N0N/A2A
- 200 W—CW, G1D version
- Adjustable from 20% to 100%

Frequency Range
- 190 kHz-650 kHz Standard Band
- 650 kHz–1250 kHz and 1600 kHz-1800 kHz Extended Band (limited to 100 W maximum, requires different filter)

Frequency Stability
- Synthesized with 100 Hz steps
- ± 0.0003% over full environmental range

Modulation Level
Adjustable from 0% to 95%

Peak Envelope Power
Up to 500 W

Emission Modes
- N0N (CW)
- A2A (MCW Keyed Tone)
- G1D (MSK) version

Keying
- Microprocessor controlled for ease of programming
- Programmable generation of 1, 2, 3 or 4 Morse letters or numbers
- Programmable frame length of 5-16 seconds
- Programmable sequence repetition
- Programmable standby codes

Internal Keyed Tone Frequency
400 Hz or 1020 Hz ± 5%

Harmonic Levels
Not exceeding -70 dB relative to carrier when used in conjunction with the ATU500 into a standard Antenna Load

Hum and Noise
Not exceeding -46 dB relative to 1020 Hz at a modulation level of 95%

Audio Distortion
Less than 5% at up to 95% modulation

Monitor Failure Thresholds
Adjustable thresholds normally set so that changeover or shutdown will occur if
a) Carrier power reduces more than 3 dB
b) Modulation level reduces more than 4 dB
c) Keying fails
d) Carrier power increases more than 2 dB
e) Incorrect Identification Code

Standard External or Remote Controls
- ON/OFF
- Select various Standby codes

External or Remote Alarms
- Each Transmitter Shutdown
- High VSWR
- External DC Operation

AC Power Requirements
Single Phase either 95 V AC to 125 V AC or 190 V AC to 250 V AC, 50/60 Hz, 350 VA
(125 W, 95% modulation)

DC Power Requirements
48 V at 5.6 A maximum
(125 W, 95% modulation)
or
24 V at 12.8 A maximum
(125 W, 95% modulation)

Environmental Limits
- -10°C to +55°C
- 0% to 95% relative humidity

Altitude
- Up to 3048 m
- 10,000 ft.

Dimensions
Single:
31 cm x 48 cm x 51.5 cm
12.25 x 19 x 20.3 in.
Single in IP66 Cabinet:
49.5 cm x 57 cm x 63 cm
19.5 x 22.5 x 25 in.
Dual in IP66 Cabinet:
91.5 cm x 57 cm x 63 cm
36 x 22.5 x 25 in.

Weight (Single transmitter without cabinet)
Unpacked: Approximately 25.5 kg/56 lbs.
Packed: 49.5 kg/109 lbs.

Weight (Single transmitter in IP66 cabinet)
Unpacked: Approximately 38 kg/84 lbs.
Packed: 57 kg/126 lbs.

Weight (Dual in IP66 cabinet)
Unpacked: Approximately 75 kg/165 lbs.
Packed: 108 kg/238 lbs.

Specifications established at rated power unless otherwise noted. All measurements at 50 ohms resistive load; AC input voltage at nominal level. Specifications subject to change without notice.

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