Vector NDB Series

FEATURES ISSUE 5.2
www.nautel.com | info@nautel.com

500 W, 1,000 W and 2,000 W NDB Transmitter

ATU Control (If ATU-HP or ATU-LP used)

Control available over a serial RS485 connection, 1,000 m (3,280 ft.) maximum.

Resistive Match Servo Inhibit

Inductive Tune Servo Inhibit

Increase/Decrease Resistive Match

Increase/Decrease Inductive Tune

ATU Monitor (If ATU-HP or ATU-LP used)

Monitoring available over a serial RS485 connection, 1,000 m (3,280 ft.) maximum.

Antenna Current

Resistive Match Servo Inhibited

Inductive Tune Servo Inhibited

Resistive Match Limit

Inductive Tune Limit

Local/Remote

Set-up Mode

ATU Temperature

Fan Fail

Monitor Failure Thresholds

Adjustable threshold normally set so that changeover can occur if:

- Carrier power reduces more than 3 dB
- Carrier power increases more than 2 dB
- Modulation level reduces more than 4 dB
- Incorrect identification code

In current feedback mode (if used with Nautel's ATU-HP, ATU-LP), the output power automatically adapts to ensure a constant antenna current. As the output power level changes, the fault thresholds adjust to reflect the new output power level. Essentially, when in current feedback mode, the fault thresholds are referenced to the preset antenna current.

Transmitter Local/Remote Control

Including but not limited to:

Control available using RS422 or RS232

Operating Side (A/B)

Transmitter Reset

Automatic Side Switchover Enable

Transmitter Power (On/Off)

Power Source (AC/DC)

Increase/Decrease RF Power

Transmitter Local/Remote Monitor

Including but not limited to:

Monitoring available using RS422 or RS232

Keying (On/Off)

Modulation (On/Off)

Transmitter temperature

Operating Side Status

Main Side Selected

Power Source (AC/DC)

Interlock Open

Local / Remote

Press to Talk

Monitor Bypass

RF On Status

VSWR Alarm

Audio Limit

Low AC

Memory Battery

Changeover

Shutdown

Monitor Failure

Fault location to the lowest replaceable unit

Metering

(Analog meter and digital display)

Forward Power, Reflected Power, Antenna Current, Modulation Percentage, DC Voltages, DC Current, VSWR, AC Voltage, Transmitter and ATU Temperature, PA Volts

Keying

Microprocessor controlled for ease of programming. The keyer is capable of programming the following:

- Generation of 1, 2, 3, or 4 Morse letters or numbers
- Frame length of 4 to 20 seconds.
- Sequence repetition
- Standby codes

Shipping

Export packed in wooden crate

All assemblies to remain in transmitter for shipment

ISTA Procedure 1B compliant

Options

Dual Operation

144 V dc back-up operation for Vector 500 and Vector 1000

Battery charger

ATU-HP or ATU-LP

Extended warranty

CSA inspection

AIA (keyed carrier)

NDB site control/monitor

Modem

USB

NDB remote control application software

*48 V dc back-up operation

**available only for Vector 500 transmitter output power limited to 250 W when operating on 48 V dc*

Standard Warranty

13 months after shipment

Vector NDB Series

TECHNICAL SUMMARY ISSUE 5.2
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500 W, 1,000 W and 2,000 W NDB Transmitter

Modulation Level
Adjustable from 0% to 95%

Continuous Carrier Power
500 W, 1, 000 W and 2,000 W maximum
- N0N/A2A/A2A & A3E
750 W, 1,500 W and 3,000 W maximum
- A1A (optional)

All are adjustable from 10% to 100% of maximum

Frequency Range
Single channel

Synthesized with 100 Hz steps

190 kHz to 535 kHz standard band

Frequency Stability
± 0.0003% over full environmental range

Emission Mode
N0N (CW no modulation)

A2A (MCW double sideband keyed tone)

A2A & A3E (Simultaneuous AM double sideband telephony and MCW double sideband keyed tone)

Internal Keyed Tone Frequency
400 Hz or 1,020 Hz ± 5%

External Audio Input Level
-20 dBm to + 10 dBm across balanced 600 ohm load with audio limiter

Audio Frequency Response
±2 dBm from 300 Hz to 3,000 Hz (A3E)

RF Terminating Impedance
50 ohms unbalanced

Maximum Reflected Power Threshold

Product	Peak Reflected Watts
Vector 500 NDB	30 W
Vector 1000 NDB	60 W
Vector 2000 NDB	120 W

** The above peak reflected watts causes stepped reduction in output power until reflected power is less than maximum peak reflected watt threshold*

Product	Peak Reflected Watts
Vector 500 NDB	80 W
Vector 1000 NDB	160 W
Vector 2000 NDB	320 W

** The above peak reflected watts causes instantaneous reduction in output power to 0 W.*

Changeover and shutdown are inhibited when reflected power thresholds have been exceeded.

Harmonic Levels
Not exceeding –80 dB relative to carrier when used in conjunction with an ATU-HP into a standard antenna load.

Not exceeding –70 dB relative to carrier when used in conjunction with an ATU-LP into a standard antenna load.

Hum and Noise
Not exceeding –50 dB relative to 1,020 Hz at a modulation level of 95%

Audio Distortion
Less than 3% at 95% modulation

MTBF Transmitter
Greater than or equal to 15,072 hours using MIL_HDBK 217E calculation methods

Field experience indicates MTBF in excess of 3,000,000 hours for Nautel NDBs.

MTTR Transmitter
Less than or equal to ½ hour at PWB/ module level

Electromagnetic Compatibility
Designed for compliance with applicable standards

ESD
Designed for compliance with applicable standards

AC Efficiency
70% AC input to RF output

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

Storage:
-30°C to +70°C
0% to 95% relative humidity

Climate
Any including tropical

Altitude
Up to 3,048 m (10,000 ft)

Safety
Compliant with Nautel Internal Safety Audit.

Compliant with EN60215:1996 Safety Requirements for Radio Transmitting Equipment.

Designed with intent to comply with Safety Code 6 and/or IEEE C95.1-1999 when used with Nautel ATU-HP or Nautel ATU-LP.

Compliances
Compliant with ICAO Annex 10 Volume 1 Part 1 Section 3.4

Compliant to Industry Canada RSS-117

Designed with intent to comply with R&TTE Directive 1999/5/EC.