

Vector NDB 125/250

FEATURES ISSUE 1.4
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125 W and 250 W NDB Transmitter

ATU Control (If 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-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

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-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.

Programmable automatic reset available which can reset transmitter from shutdown after a predetermined time interval

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

Keying (On/Off)

Modulation (On/Off)

Transmitter Power (On/Off)

Power Source (AC/DC)

Increase/Decrease RF Power

Automatic Reset from Shutdown

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, 4, 5 or 6 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

Designed for compliance to ISTA Procedure 1A/1B

Options

Dual Operation

48 V dc back-up operation for Vector 125/ 250

24 V dc back-up operation for Vector 125

Extended warranty

CSA inspection

NDB site control/monitor

Modem

USB

19" Deluxe Cabinet

IP66 rated Cabinet

SNMP Ver. 1 polled implementation (requires VR-Link)

Vector NDB 125/250

TECHNICAL SUMMARY

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125 W and 250 W NDB Transmitter

Modulation Level

Adjustable from 0% to 95%

Continuous Carrier Power

125 W and 250 W maximum

- NON/A2A/A2A & A3E

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

536 kHz to 1250 kHz plus 1600 kHz to 1800 kHz extended band offered for Vector 125 NDB

1600 kHz to 1800 kHz extended band offered for Vector 250 NDB

Frequency Stability

± 0.0003% over full environmental range

Emission Mode

NON (CW no modulation)

A2A (MCW double sideband keyed tone)

A2A & A3E (Simultaneous 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 125 NDB	15 W
Vector 250 NDB	30 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 125 NDB	80 W
Vector 250 NDB	80 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 -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 the following using MIL_HDBK 217E calculation methods:

Vector 125/250 Single Configuration: 12,590 hours

Vector 125/250 Dual Configuration: 17,640 hours

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:

-30°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.

Designed for compliance 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-LP.

Compliances

Compliant with ICAO Annex 10 Volume 1 Part 1 Section 3.4

Compliant to Industry Canada RSS-117

Compliant with R&TTE Directive 1999/5/EC

Designed for compliance to FCC part 87

Compliant with Green Passport requirements

ANATEL certified

Vector NDB 125/250

TECHNICAL SUMMARY
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Dimensions (optional 19" Deluxe Cabinet)

(Includes side panels, rear door and output connector)
185.9 cm H x 58.6 cm W x 76.2 cm D
(73.2 in. H x 23 in. W x 30 in. D)

Dimensions (optional 19" Short Cabinet)

(Includes side panels, rear door and output connector)
106.7 cm H x 58.6 cm W x 76.2 cm D
(42 in. H x 23 in. W x 30 in. D)

Weight (Unpacked)

No Cabinet - 23.6 kg (52 lbs)
In IP66 Cabinet - 39.0 kg (86 lbs)

Weight (Packed)

No Cabinet - 63.0 kg (137 lbs)

Dimensions (optional IP66 Cabinet)

Floor/Base Mount
82.3 cm H x 60 cm W x 66.3 cm D
(32.4 in. H x 23.6 in. W x 26.1 in. D)

Wall Mount
78.8 cm H x 60 cm W x 73.2 cm D
(31.03 in. H x 23.6 in. W x 26.1 in. D)

Dimensions (no cabinet)

53.3 cm H x 48.3 cm W x 55.9 cm D
(21.0 in. H x 19.0 in. W x 22 in. D)

Power Requirements

Product	Power Requirements
Vector 125 NDB	single phase 90 V ac to 270 V ac, 50/60 Hz 500 VA maximum, dc 48 V dc @ 6.3 A or dc 24 V dc @ 12.6 A maximum
Vector 250 NDB	single phase 170 V ac to 270 V ac, 50/60 Hz 1000 VA maximum, dc 48 V dc @ 12.4 A

**dc input is reverse polarity protected and has low battery disconnect.*

Cooling and Heat Flushing

(Forced Air pressure)

Product	Normal Operation cu.ft/min
Vector 125 NDB	Convection cooled
Vector 250 NDB	110

Notes:

Specifications defined in a laboratory environment with high grade source and demodulation equipment. Standard factory measurement does not include all items

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.