

Nautel NE30, 30 Watt FM Analog Exciter



Quick Specs

- Frequency agile
- Metering of FWD and RFLD power, PA volts and current, and heatsink temperature
- VSWR protected
- RF Monitor output
- Compact, lightweight design

The Nautel NE30 is a broadband 30 watt FM broadcast exciter. It has simple frequency adjustment, achieved by internally set direct reading dial switches, it requires no tuning adjustment and audio performance is not affected by channel selection.

This broadband solid state amplifier is capable of up to 30 W with adjustable output to less than 1 W. Output power is adjusted by a potentiometer on the rear panel. The NE30, which is illustrated in the block diagram, provides numerous benefits for today's FM broadcaster, such as extremely high reliability and operating efficiency.



NE30

FRONT PANEL DISPLAY

The NE30's front panel meter shows forward and reflected power together with internal voltages and the modulation level. The desired parameter of the NE30 can be viewed simply by using the selector rotary switch. Additional monitor points for both audio multiplex/composite input and RF output are provided. Quick-view status monitoring using dual color LEDs indicate that PLL lock, forward power and reflected power are within a preset tolerance when green.

REAR PANEL REMOTE CONTROL/ MONITORING

The rear panel includes a remote control/monitoring socket that allows carrier muting and open-collector (normal state is low) status signaling to an external system, including forward power, reflected power and PLL lock alarms. The output transistors can sink up to 100 mA maximum with an absolute maximum switched voltage of 30 V.

VSWR CUTBACK

The NE30 will operate into any load without damage, thanks to its VSWR

cutback circuit that protects the power amplifier stage from adverse operating conditions.

SWITCH MODE DC-DC CONVERTER

The NE30 utilizes a switch mode DC-DC converter allowing the unit to be supplied with a wide AC input voltage range (115 or 230 Vac +10%, -20%) or a DC input voltage (24-30 Vdc). The use of this converter also results in high efficiency.

HIGH RELIABILITY

Very conservatively rated components ensure extremely high reliability.

RF AMPLIFIER

The RF amplifier is a 2-stage broadband amplifier capable of producing 1-30 W RF output. Rugged MOSFETs generate the RF power while maintaining signal integrity. An RF monitor permits modulation analysis.

LOW POWER TRANSMITTER

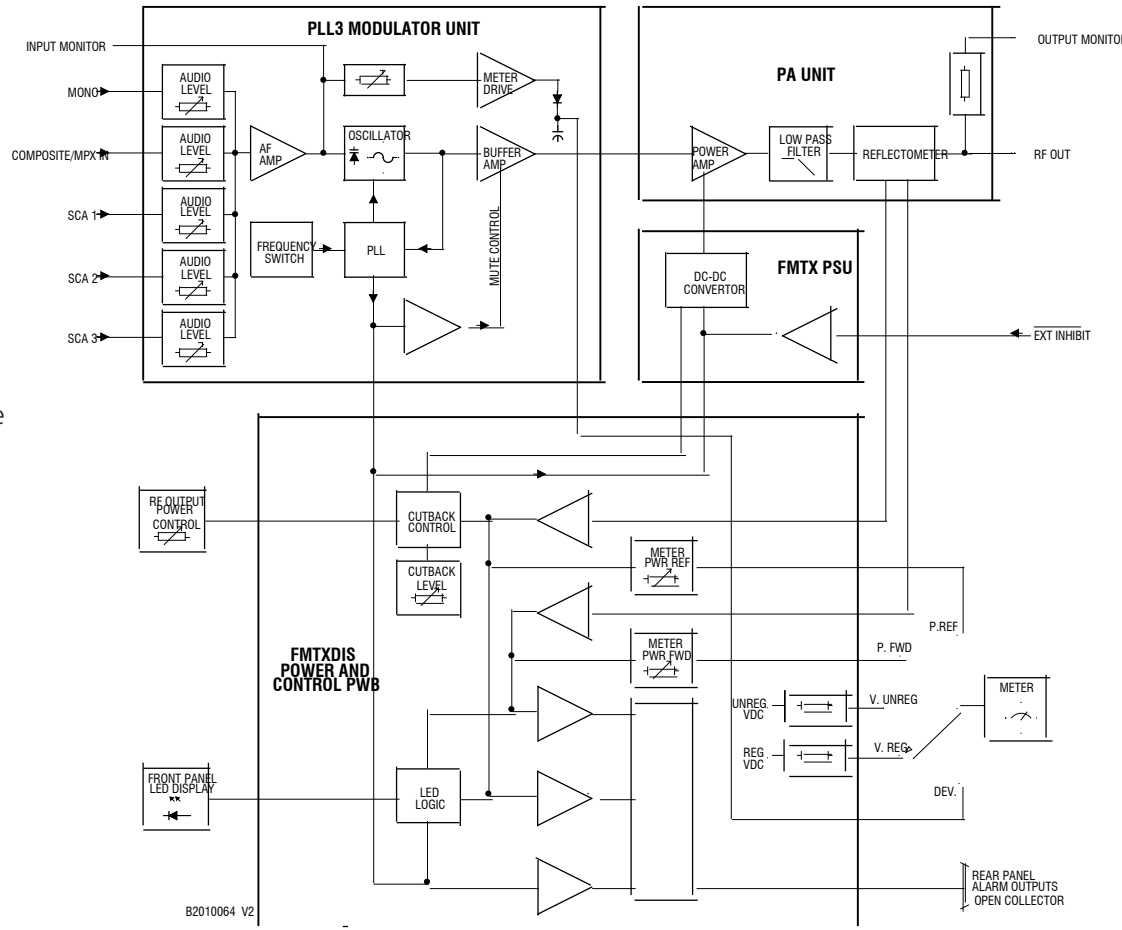
The NE30 may be utilized as a low power FM transmitter, when equipped with the optional harmonic filter. The RF output level is adjustable from less than 1 W to 30 W.

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NAUTEL SOLID STATE FM TRANSMITTERS

The NE30 is a value priced alternative that can be used in conjunction with any of Nautel's FM transmitters. Nautel FM transmitters are 100% solid state and are available from 1 kW to 40 kW. On-air serviceability and typical overall efficiency rating of up to 68% are some of the key benefits of owning a Nautel FM transmitter. With an NE30 exciter and a solid state Nautel FM broadcast transmitter, reliable performance and cost-efficient operation can be realized.



**BLOCK DIAGRAM OF NE30
(SHOWING SUBSYSTEMS AS DESCRIBED)**

Contact Nautel for details.

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GENERAL

Power Output Range

<1 to >35 watts, adjustable by rear panel multi-turn potentiometer (tool required)

Frequency Range

87 MHz to 108 MHz, in 50 kHz steps by internal direct reading switches

Fine Frequency Range

(Drift Adjust): ± 2 kHz approx, by internal trimmer capacitor

RF Output Impedance

50 ohms, type 'N' jack; VSWR protected

RF Output Monitor

-40 dBc approx, BNC jack on front panel

RF Harmonic and Spurious Suppression

Meets or exceeds all FCC, DOC and ISC requirements and CCIR recommendations for a 30 W transmitter. Internal low-pass filter fitted as standard.

Frequency Stability

± 500 Hz, 0°C to 50°C ambient temperature range. Higher stability to order.

Modulation Type

Direct FM of VCO (voltage controlled oscillator)

Display

Moving coil meter

Modulation Capability

200% (± 75 kHz reference standard)

Modulation Indication

Front panel peak reading meter calibrated in 5 kHz increments; 0-100 kHz

Asynchronous AM S/N Ratio

<55 dB minimum below reference carrier with 100% AM

Synchronous AM S/N Ratio

<50 dB below reference carrier with 100% AM. Measured with 100% FM modulation of carrier at 1 kHz.

ELECTRICAL AND MECHANICAL

AC Input Power

100, 115 or 230 V ac. $\pm 10\%$, 50/60 Hz, <90 watts typical at 30 W output.

Dimensions

13.34 cm H x 48.26 cm W x 30 cm D
(5.25" H x 19" W x 12" D)

Mounting

Standard 19" 3u rack

Weight

6 kg (13.2 lbs)

ENVIRONMENTAL

Temperature Range

0°C to +50°C
Derate 3°C per 500 m above sea level
(2°C per 1,000 ft)

Relative Humidity

0-95% non-condensing

Altitude

0 m to 4,000 m (0 ft to 13,000 ft)

WIDEBAND COMPOSITE INPUT

Inputs

One, balanced or unbalanced, rear panel (on BNC jack), one unbalanced front panel test point on BNC

Input Impedance

Balanced/Unbalanced - >10 k or 75 ohm internal jumper selectable

Input Level

3.5 V p-p nominal for ± 75 kHz deviation, adjustable from rear panel multi-turn pot.

Amplitude Response

-0.0 dB, +0.15 dB - 30 Hz to 53 kHz
-0.0 dB, +0.4 dB - 53 kHz to 100 kHz

Signal to Noise Ratio

<80 dB below 100% modulation (Reference 400 Hz at ± 75 kHz deviation with 75 ms de-emphasis and DIN 'A' weighting 20 Hz to 100 kHz bandwidth)

Harmonic Distortion

0.1% or less at 1 kHz 100% mod. measured in a 22 Hz to 80 kHz bandwidth with 75 ms de-emphasis

CCIF Intermodulation Distortion

0.1% or less (15 kHz/14 kHz 1:1 ratio)

SMPT E Intermodulation Distortion

0.3% or less (60 Hz/7 kHz 1:1 ratio)

Stereo Separation

Better than 50 dB @ 1 kHz (better than 45 dB 40 Hz to 15 kHz) when measured in conjunction with a high quality stereo generator and demodulator

SCA (RBDS/RDS) PERFORMANCE

Inputs

Three, unbalanced on rear panel (on BNC jack)

Input Impedance

10 k ohm

Input Level

3.5 V p-p nominal for ± 7.5 kHz deviation, adjustable from rear panel multi-turn pot.

Amplitude Response

± 0.5 dB 20 kHz to 100 kHz

Subcarrier Frequency Range

20 kHz to 100 kHz

Notes:

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

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.