526

AM Modulation Monitor

The 526 is Inovonics' fourth-generation Modulation Monitor for medium-wave commercial AM broadcast services. It delivers a wealth of information about the transmitted RF carrier as well as the audio modulation component that defines what is heard by the listener.

The all-digital 526 combines detailed DSP signal analysis with a menu-driven touchscreen display, plus Webserver-based total access for remote operation, including measurements, graphical data and Web-browser audio monitoring of the off-air program.

INOVONICS BROADCAST

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526 AM MODULATION MONITOR

FEATURE HIGHLIGHTS

- Unexcelled off-air broadcast reception with highly-accurate displays of total-modulation and associated measurements, even in the presence of on-channel or adjacent-channel HD Radio sidebands.
- Intuitive, menu-driven setup from the front panel, or remote setup and operation with the built-in Webserver, accessible over any IP network by computer or mobile device. The 526 supports full SNMP remote control and monitoring.
- Graphic front-panel and remote display of signal level metering; FFT spectrum analysis of the IF passband and program audio; oscilloscope display of the modulation envelope and demodulated program audio.
- Monitors, displays and graphically plots both short-term and long-term MDCL action.
- Accurate, program loudness measurement to the human perception ITU-R BS.1770 ('LU') loudness specification.
- Built-in Scheduler for Day/Night operating conditions.
- Antenna and two high-level RF inputs.
- Collects and logs a history-over-time of RF and audio signal parameters.
- Analog, AES3-digital, HTTP/UDP Web-streaming and independent AoIP-streaming program audio outputs.
- Alarms for a range of signal faults, with tallies and SMS/text or email message dispatches to specific individuals for various alarm conditions. Alarm settings are unique to each station preset; alarms are also logged chronologically.
- The BandScanner™ utility scans the AM spectrum and displays each station along with its relative signal level.
- Exclusive StationRotation™ mode enables automatic sequential monitoring of multiple station presets.
- Stays on-channel and retains measurement setups through signal and power losses.

PLEASE NOTE:
Specifications tabulated on the following page are actual, real-world measurements, not optimistic allusions to theoretical ideals. Measurement results should be repeatable when using the appropriate, laboratory-grade test equipment.

TECHNICAL SPECIFICATIONS

RF & RECEPTION

Tuning Range:
530kHz-1710kHz in 100kHz steps or 531kHz-1701kHz in 9kHz steps.

Antenna Input: 50Ω/75Ω (F), 1Vrms max.

High Level RF Inputs:
Two selectable 50-ohm (BNC) inputs for day/night scheduling, 5Vrms max.

Off-Air Sensitivity:
For 50dB SNR, 5dBµV or better with 10kHz audio bandwidth and NRSC deemphasis; 15dBµV or better with 15kHz bandwidth, no de-emphasis.

Frequency Response):
±0.25dB, 20Hz-15kHz in full-bandwidth mode.

Distortion (at 99% modulation):
<0.01% THD+N; <0.02% IMD (SMPTE, 60Hz/7kHz, 4:1).

De-emphasis: NRSC 'truncated' 75µs (defeatable).

Audio Cutoff Filter:
8th-order low-pass in audio monitor outputs only, programmable between 15kHz and 2kHz in 1kHz steps.

OUTPUTS AND PORTS

Program Audio Outputs:
Monaural program audio is delivered to 'Left' and 'Right' outputs for convenience in audio monitoring. The 526 does not support AM-stereo broadcasting. ***NOTE:*** Levels noted apply to symmetrical, ±100% carrier modulation. Consider headroom allowances for +125% program peaks.

Balanced Analog:
(XLR) Outputs 1 and 2 ('L/R') are adjustable from –15dBu to +15dBu in 0.1dB steps; 200Ω resistive source.

AES Digital:
(XLR) Adjustable from –30dBFS to 0dBFS in 0.1dB steps; user-selected 44.1kHz or 48kHz sample rate; 110Ω transformercoupled.

Dante/AES67 Compatible AoIP Port:
(RJ45) Output at 44.1kHz (Dante-only) or 44.1kHz/48kHz (Dante/AES67). The AoIP utility has independent IP, Audio Format and Transmit Flow settings; level adjustable from –30dBFS to 0dBFS in 0.1dB steps.

UDP Stream:
ADTS or ADTS in MPEG-TS transport. HTTP/Icecast 'Casual' Listening Stream: Web browser remote-listening stream employs HE-AACv2 encoding, 44.1kHz or 48kHz sample rate, bit-rates from 18kbps to 64kbps; accommodates up to 10 simultaneous listeners. HTTP/ Icecast and raw UDP streams are available simultaneously.

Headphone Jack: (¼" TRS) Menu-adjustable listening level.

LAN Port:
(RJ45) LAN connection to local network or Internet provides remote monitoring, control, listening and full SNMP implementation; user-programmable network setup and streaming parameters.

General Purpose I/Os (Plug-In Barrier Strip):
Inputs: GPIs are ground-seeking logic inputs with internal pull-up to +5Vdc. Programmable to accept momentary or sustained ground to switch functions.

Outputs: Individual open-collector NPN transistor closures to ground are associated with alarm alerts. Each is programmable for GPO assignment and logic polarity. Outputs sink 100mA, 40VDC max.

DISPLAYS AND DISPLAY OPTIONS

Bargraph & Numerical Level Metering:
Positive and Negative Carrier Modulation (+150%/–100%) • Demodulated Monaural Audio (dB) • BS.1770 Loudness (LU) • RF SNR (%)

Graphic Displays and History Plots:
IF Spectrum • Audio Spectrum • IF/Demod Oscilloscope • Modulation History • RF Metrics History • Loudness History • Audio History • BandScanner.

TIMEKEEPING, SCHEDULER AND ALARMS

Real-Time Clock:
Auto-sets to Internet time; auto/manual DST setting; battery backup.

Day/Night Scheduler:
Webpage setup utility with link to FCC Sunrise & Sunset Calculator for automatic switchover, or GPI closure to ground for D/N operation.

Local & Remote Alarms:
Positive Overmod • Negative Overmod • Audio Loss • Low Signal (Day) • Low Signal (Night). ***NOTE:*** Alarms have multiple parameter settings. All alarms can send text or email notifications. Alarms are automatically logged daily, weekly and monthly.

POWER, ENVIRONMENTAL, MISCELLANEOUS

Power Requirement: 88-264VAC, Single-Phase; 12W.

Operating Environment:
32°F/0°C-122°F/50°C; 0%-95% non-condensing relative humidity; 10,000ft/3048m.

Size and Weight: 3½"H x 19"W x 9"D; 12 lbs. shipping weight.

Conformances:

CE EN50081-1 / EN50082-1
93/68/EEC

RoHS 2002/95/EC

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