DAVID IV 719N

FM/HD Radio™ Broadcast Audio Processor
with Network Interface

DAVID IV is the fourth generation in our DAVID (vs. Goliath) series of competitive FM and digital air-chain processors. This streamlined DSP-based audio processor gives broadcasters total control over the most important sonic 'signature' parameters, and is designed to maximize audio quickly and effortlessly.

Comprehensive processing includes 5 bands of compression and equalization, intelligent 'windowed' gain-riding AGC, sub-bass and stereo field enhancements, and our proprietary PIPP™ Limiter to optimize program density. The DAVID IV also includes a precision FM stereo generator with dual outputs and internal metering for your RDS/RBDS subcarrier.

Setup is quick and operation is intuitive (even for non-engineers!) using the front panel interface or through an intuitive network GUI. Presets are optimized for popular world formats, and user settings can easily be backed-up and shared over station networks. The DAVID IV features TCP/IP connectivity that is virtually automatic and allows full remote control access from anywhere. The rugged closed box design requires no fans or heat sinks for cooling, and extreme low latency allows for direct off-air monitoring and instant boot times.
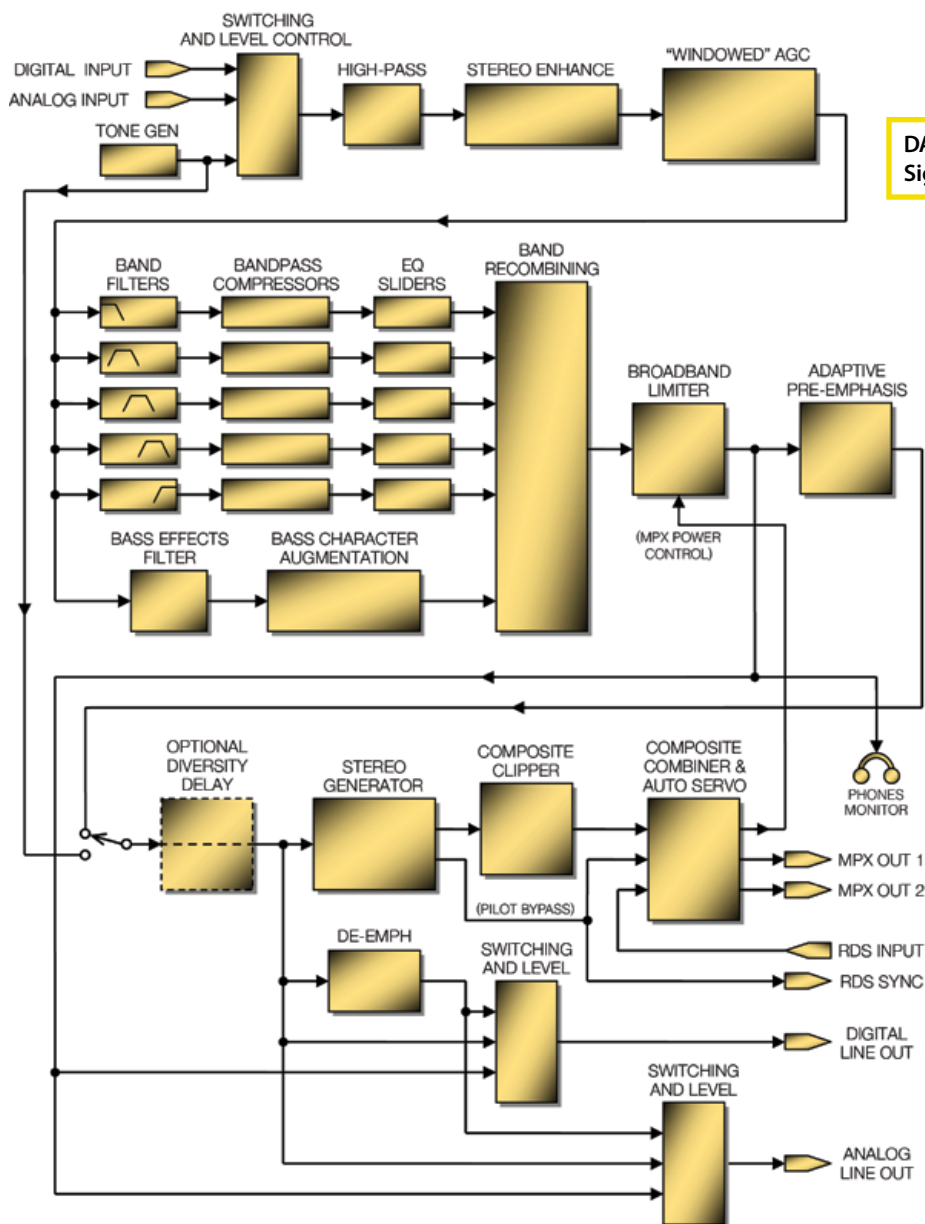

INOVONICS
BROADCAST

FEATURE HIGHLIGHTS

- Intuitive menu driven set-up and IP interface for Web access and control.
- Adjustable gain-riding and windowed AGC with intelligent gating
- 5 bands of adjustable dynamic range compression and 'graphic-EQ' with adjustable crossovers and dynamics
- Low-bass enhancements with independent 'Rumble' and 'Punch' adjustments
- Stereo field processing to adjust the listening sound stage
- Inovonics' proprietary PIPP™ Limiter for ultimate program density
- 25 factory presets and 20 custom, shareable user presets
- Balanced L/R Analog and AES Digital inputs and outputs; dual composite/MPX outputs
- Remote control and access via TCIP/IP connection
- HD Radio™ delay of up to 9.999 seconds for the analog FM carrier (optional drop-in board)
- ITU Multiplex Power Control to meet the European Standard ITU-R BS.412-9
- Built in Stereocoder with internal RDS metering and combining
- Built in Tone Oscillator to aid setup and for program-path troubleshooting
- English, Spanish, and Portuguese Language Hardware/Software menus.

DAVID IV
Signal Path Block Diagram

TECHNICAL SPECIFICATIONS

PERFORMANCE SPECIFICATIONS

(With processing defeated and assuming measurement using a lab-quality FM multiplex decoder with appropriate de-emphasis where applicable.)

Frequency Response:
Composite/MPX Output: ±0.25dB, 20Hz -15kHz

L/R Analog Line Outputs: ±0.25dB, 20Hz -15kHz in the FM mode; ±0.25dB, 20Hz - 20kHz in the Flat mode

AES Digital Output (Digital Input): ±0.25dB, 20Hz -15kHz in the FM mode; ±0.1dB, 20Hz - 20kHz in the Flat mode

Noise (unweighted):
Composite/MPX Output: SNR >85dB with reference to ±75kHz carrier deviation

L/R Analog Line Outputs: Residual noise better than 100dB below the output clipping point

AES Digital Output (Digital Input): Residual noise better than 130dB below 0dBFS

Distortion:
Composite/MPX Output: <0.01%

Line Outputs: <0.006% THD in digital and analog Line Outputs

Stereo Separation:
Composite/MPX Output: >65dB, 20Hz - 15kHz

Linear Crosstalk: (main/sub or sub/main): >78dB

L/R Analog Line Outputs: At 1dB below the output clipping level, >100dB in both FM and flat (unweighted) modes

AES Digital Output: At 0dBFS, >130dB in both FM and flat (unweighted) modes (using the Digital Line Input)

Program Signal Latency:
≤4.2ms, any input to any output in any operating mode ≤3.6ms from the MPX outputs

19kHz Stereo Pilot Protection:
>65dB with reference to 9% pilot injection

38kHz Suppression:
>80dB with reference to 100% carrier modulation

57kHz RDS Subcarrier Protection:
>65dB with reference to 5% RDS sub-carrier injection

REAR PANEL APPOINTMENTS

Digital Line Input:
The AES3 stereo input (XLR) accepts program sources at sampling rates of 32kHz, 44.1kHz, 48kHz and 96kHz; 16/24-bit. Input gain is adjustable for average program levels between −5dB and −35dB, re: −20dBFS.

Analog Line Inputs:
L/R active balanced/bridging (XLR) inputs accept average program line levels between −15dBu and +15dBu; +26dBu max peak level.

Line Outputs:
The Digital and Analog Line Outputs may each be configured independently for 20kHz flat response, or for 15kHz 'FM' characteristics, either with pre-emphasis or normalized to flat.

Digital Line Output:
The AES3 (XLR) stereo output may be adjusted between −20dBFS and 0dBFS, corresponding to 100% (peak) carrier modulation. The output sampling rate may be set to follow the Digital Line Input or forced to 32kHz, 44.1kHz, 48kHz or 96kHz. Sampling resolution is 24 bits.

Analog Line Outputs:
Active balanced (XLR) outputs are adjustable between −10dBu and +24dBu (+21.5dBm), corresponding to 100% carrier modulation; source impedance is 200 ohms.

Composite/MPX Output:
Two unbalanced (BNC) outputs are independently adjustable between 0.8V p-p and 8V p-p (+11dBu), corresponding to 100% carrier modulation; source impedance is 75 ohms. Pre-emphasis may be set to 75µs, 50µs or OFF.

RDS Input:
Unbalanced/bridging (BNC) input accepts a 57kHz RDS subcarrier at any level between 0.5V p-p and 5.0V p-p for a typical injection level of 5% of total carrier modulation.

19kHz RDS Sync:
When RDS is enabled, the Sync Output (BNC) delivers a 5V p-p TTL-compatible square wave at the 19kHz pilot frequency; 75-ohm source.

Network Port:
An RJ45 jack accepts TCP/IP network connections for remote setup and operation of the DAVID IV 719N using any Web enabled device. SNMP is fully supported.

Headphone Jack (Front Panel):
A quarter-inch (TRS) headphone jack allows the user to monitor the processed program audio. A volume control next to the jack adjusts the listening level.

AUDIO PROCESSING FEATURES

Program High-Pass:
A user-programmable high-pass filter attenuates subaudible noise that could compromise modulation efficiency. The filter is adjustable between 20Hz and 65Hz.

AGC:
Unobtrusive, gated 'gain-riding' AGC is quasi-average- responding with a capture/correction range of ±18dB. Positive AGC gain may be truncated to any value between +18dB and 0dB; the AGC 'window' and correction rate are programmable.

Stereo Enhancement:
This dual-action utility effectively broadens the soundstage of the stereo program and the center channel 'solo' component independently.

5-Band 'Multipressor':
Program audio is split into five frequency bands. Each band imparts both dynamic compression and adjustable static gain to afford fixed equalization and other 'signature' control of the program audio. Crossover frequencies and attack/release timing are programmable.

Bass Augmentation:
Sub-bass program frequencies undergo independent dynamic compression, expansion, selective clipping and filtering for control over both static 'Rumble' and dynamic 'Punch' of bottom-end components.

PIPP™ Peak Limiter:
Inovonics' exclusive Polarity-Independent Peak Processing assures optimum modulation of the FM carrier or other delivery channel.

ITU Multiplex Power Control:
The Peak Limiter section may optionally be configured to control the r.m.s. power of the composite multiplex signal to meet the European Standard ITU-R BS.412.9.

Adaptive Pre-Emphasis:
Fast HF limiting and distortion-cancelled clipping are each utilized to best advantage in providing independent amplitude control of program frequencies subjected to the FM pre-emphasis curve. This helps preserve program brightness and clarity despite power bandwidth constraints native to FM broadcasting.

Composite Clipping:
At the user's discretion, up to 3dB of clipping may be applied to the composite/baseband signal. Clipping is performed before the injection of the stereo pilot and RDS subcarrier.

HD Radio Delay:
The composite/MPX output of the DAVID IV may be delayed between 1ms and 9.999 seconds in 1ms increments, relative to the analog and digital program line outputs when they are set to the 20kHz (Flat) output mode. When set to the FM mode(s), the line outputs are subjected to the programmed delay as well.

THE USER INTERFACE

Front-Panel:
A front-panel graphic display and jog wheel allow easy, menu-guided in-situ setup and operation of the DAVID IV. LED-bar displays indicate in/out levels and audio processing action.

Network Control:
A full function 'responsive' Web interface works on any desktop, tablet, or smart phone. SNMP support allows control and monitoring of all settings. Emails can be sent for various alarm conditions.

DAVID IV 719N Web Interface

Processing Presets:

25 factory presets are provided and optimized for popular world formats, and an additional 20 custom user settings can easily be saved and shared across station networks.

Adult Contemporary	Jazz
Alternative	Latin / Salsa
Bollywood	New Age
Contemporary	Oldies
Christian	Pop
Classic Hits	Reggae / Island
Classic Rock	Rock
Classical	Samba / Brazilian
Country	Talk
Easy Listening	Top 40
Electronic / Dance	Urban
Exitos	Variety
Hip Hop / Rap	Flat

MISCELLANEOUS

Test Tone Generator:
20Hz - 20kHz, 0 - 60dB attenuation; pre- or post-processing

AC Mains Requirements:
105 - 130VAC or 210 - 255VAC, 50/60Hz; 8 watts

Size and Weight:
1.75"/44m H, 19"/483mm W, 9.5"/240mm D (1U);
9lbs./4kg (net), 12lbs./5.4kg (shipping)

3 year WARRANTY

CE

Made in USA

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