



OPTIMOD 5518



TECHNICAL DETAILS (continued from page 3)

Non-Digitized SCA Inputs	2 x non-digitized analog on BNC connectors; summed into the analog composite outputs SCA 2 input can be configured to supply a 19 kHz pilot reference
Windows PC Software	Included in delivery; requires Microsoft Windows® 7 OS or higher; PC connection via TCP/IP protocol via direct cable connect, modem or Ethernet interface (RJ45) or serial RS232 interface
GPI Interface	8 x user-programmable inputs, floating on DB-25 male connector
Tally Outputs	2 x NPN open-collector
Voltage	85–264 VAC, auto-selected, 50–60 Hz, 30 VA
Dimensions (W x H x D)	19" x 1.75" (1U) x 14.25" / 48.3 cm x 4.5 cm (1U) x 36.2 cm

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OPTIMOD 5518



OPTIMOD 5518 is a superb stand-alone stereo encoder combining look-ahead and band-limited clipping techniques with latency as low as 2 ms and full overshoot limiting and extremely tight peak control in both the left/right and composite baseband domains, to control STL-induced overshoots while minimizing artifacts. The 5518 is the ideal choice for network broadcasters who process with an FM audio processor at the network origination point and who need a processor at every transmitter to eliminate network STL overshoots.

Key Features

Quick Setup provides a guided, systematic procedure for setting up the 5518.

Factory Presets: The 5518 is a dedicated stereo encoder, it comes with only one Factory Preset, which allows you to set up the parameters of the stereo encoder. For example, you could activate and defeat the left/right domain overshoot limiter by creating two User Presets, one with the limiter turned on and another one with the limiter turned off.

Overshoot compensation: The sample rate is 64 kHz and multiples thereof, up to 512 kHz. The internal audio bandwidth is high enough to prevent overshoots caused by spectral truncation of the left/right input signals that are band-limited to 18 kHz or lower.

15, 16, or 17 kHz linear-phase **lowpass filtering** can be applied to the input signal. To minimize input/output delay, this filter can be bypassed, which is appropriate if the input signal is correctly band-limited by the audio processor driving the 5518.

Universal transmitter protection & audio processing for FM broadcast: The 5518 stereo encoder has overshoot limiters that protect the transmitter from overmodulation. The 5518 can be configured to interface ideally with any commonly found transmission system in the world.

ITU BS-412 Multiplex Power Control: A defeatable, program-adaptive multiplex power limiter can unobtrusively control the multiplex power according to ITU-R BS412 standards.

Composite Limiter/Clipper: A patented "Half-Cosine Interpolation" composite limiter providing excellent spectral

protection of the pilot tone and SCAs (including RDS). If you prefer the sound of conventional composite clipping, we also offer a defeatable composite clipper with spectral protection for the pilot tone and subcarriers. The composite clipper drives the composite limiter, which serves as an overshoot compensator for the composite clipper when it is active.

SSB Stereo Encoder Operation: Allows its stereo encoder's stereo subchannel modulator to operate in an experimental compatible single sideband/vestigial sideband mode. In SSB mode, the subchannel modulator acts as a pure SSB generator for L-R material in the frequency range of 150 Hz to 17 kHz and as a vestigial sideband generator below 150 Hz.

10 MHz Reference Input: With the 10 MHz Reference Input it is possible to lock the Internal DSP clock, the stereo pilot tone frequency and digital composite output sample rate to a 10 MHz reference signal. This feature facilitates the operation within single- and near-single-frequency-networks (N-SFN).

RDS: Built-in full-featured RDS/RBDS generator that supports static and dynamic RDS values.

Bypass Test Mode and Tone Generator: A Bypass Test Mode can be invoked locally, by remote control or by automation to perform a broadcast system test or to compare easily original and processed sound. A built-in line-up tone generator facilitates quick and accurate level setting.

Diversity Delay: A maximum delay of 16 seconds can be used as the diversity delay in HD Radio/DAB+ installations, which allows the 5518's stereo encoder (including composite limiter) to be used in an HD Radio/DAB+ installation.

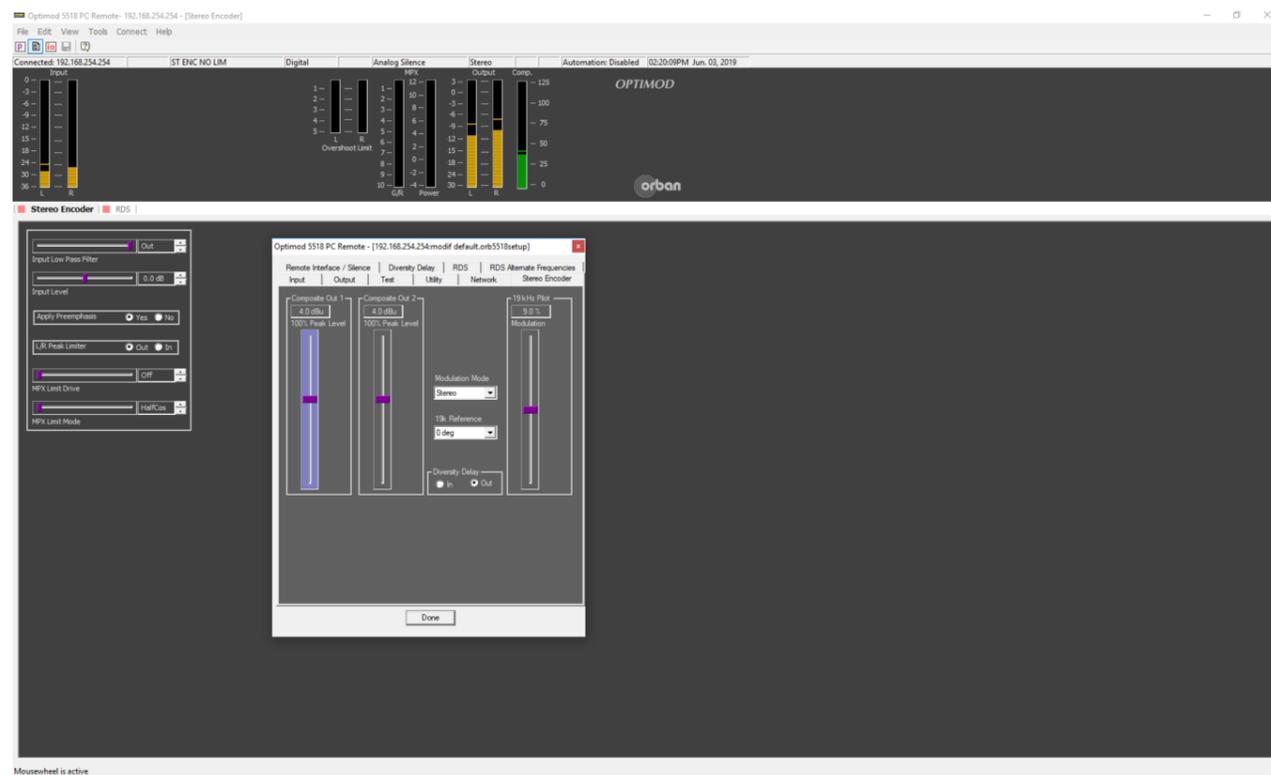
Failsafe switching detects loss of audio on the primary input, which you can assign to be the analog or digital input. If audio



is lost on the primary input, the 5518 can switch automatically to the secondary input.

SNMP Support: The SNMP (Simple Network Management Protocol) feature allows you to monitor your OPTIMOD's status and to send alarm notifications via your OPTIMOD's Ethernet connection to your network.

Remote Control or front panel operation: You can operate and configure the 5518 comfortably via the supplied Windows PC Software using your local network or the Internet. Alternatively, all functionalities are also available via the front panel with its display.



TECHNICAL DETAILS

Total System Distortion (de-emphasized, 100% modulation)

<0.01% THD, 20 Hz–1 kHz, rising to <0.05% at 15 kHz. <0.02% SMPTE IM Distortion

Frequency Response

Follows standard 50µs or 75µs pre-emphasis curve ±0.10 dB, 20 Hz–15 kHz. Analog left/right output and digital output can be user-configured for flat or pre-emphasized output

Sample Rate

64 kHz to 512 kHz, depending on processing being performed

Total System Separation

> 55 dB, 20 Hz - 15 kHz; 60 dB typical

Defeatable Analog FM Diversity delay

Up to 16 seconds

Minimum Processing Delay

2 ms

Analog Audio Inputs/Outputs

Stereo on XLR connectors
Nominal Input level: –4.0 to +13.0 dBu (VU) or –2 dBu to +20 dBu (PPM)
Output level = –6 dBu to +24 dBu peak

Digital AES Audio Inputs/Outputs

1 x Stereo input on XLR, 24 bit resolution
Input Reference Level: Variable within the range of –30 dBFS to –7 dBFS (VU) or –23 dBFS to 0dBFS (PPM)
1 x Stereo output on XLR
Output Level (100% peak modulation): –20.0 to 0.0dBFS software controlled

Sampling Rate

32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, and 96 kHz

Wordclock Sync Input on BNC Connector

1x word clock or 10 MHz clock, automatically selected
DSP master clock can be phase-locked to these signals, which in turn phase-locks the 19 kHz pilot tone frequency, facilitating single-frequency network operation. The digital output sample frequency can also be locked to these signals.

Composite Baseband Outputs

2 x analog on female BNC connectors providing –12 dBu (0.55 Vp-p) to +16.0 dBu (13.82Vp-p) levels for 0.1 dB adjustment resolution

Stereo Separation

At 100% modulation = 3.5Vp-p, > 60 dB, 30 Hz - 15 kHz.
At 100% modulation = 1.0 - 8.0 Vp-p, > 55 dB, 30 Hz - 15 kHz

Baseband Spectral Protection

pilot protection > 60 dB re 9% pilot injection, ±250 Hz;
subcarrier protection > 70 dB;
RDS protection > 50 dB re 4% RDS injection.
All specs apply with up to 2 dB composite processing drive