

## AUDIO SPECIFICATIONS

### GENERAL

#### RF Frequency Range

87.5 MHz to 108 MHz

Digitally programmable in 10 kHz steps

#### Frequency Stability

$\pm 1$  ppm  $0^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  ambient temperature range

#### Modulation Type

Direct Digital Synthesis (DDS) using a 32-bit NCO

#### Modulation Capability

160% (4 dB)  $\pm 75$  kHz reference standard

### STEREO PERFORMANCE WITH DIGITAL AUDIO INPUT

#### Input Connector

Two XLR female inputs

#### AES/EBU Input Impedance

110 ohms, nominal

#### Input Level

0 dBfs to -16 dBfs for 100% modulation

#### Data Format

AES/EBU (XLR), 16 bits to 24 bits resolution

#### Data Rate

32 kHz to 192 kHz

#### Pilot Carrier

19 kHz  $\pm 0.01$  Hz, programmable 6% to 12% injection level. Available on rear panel BNC as 1 Vp-p sine wave. Pilot phase may be referenced to GPS 1 PPS (BNC) and adjusted with  $1^{\circ}$  resolution.

#### 38 kHz Suppression

80 dB below  $\pm 75$  Hz deviation reference

#### Stereo Separation

Specification: Better than 60 dB, 30 Hz to 15 kHz

Typical: -65 dB, 30 Hz to 15 kHz

#### Amplitude Response (L or R)

$\pm 0.1$  dB, 30 Hz to 15 kHz referenced to 0 dB at 400 Hz

#### FM Signal-to-Noise Ratio (L or R)

80 dB below 100% modulation (reference 400 Hz, measured in 22 Hz to 22 kHz bandwidth with 75  $\mu\text{s}$  de-emphasis and DIN 'A' weighting)

#### Stereo Total Harmonic Distortion (L or R)

0.025% or less, 30 Hz to 15 kHz, measured in 22 Hz to 22 kHz bandwidth with 75  $\mu\text{s}$  de-emphasis

#### Stereo Crosstalk

60 dB below 100% (30 Hz to 15 kHz)

Modulation reference: L+R to L-R and L-R to L+R

#### Intermodulation Distortion (L or R)

CCIF: 0.008% or less (14/15 kHz, 1:1)

SMPTE: 0.025% or less (60 Hz and 7,000 Hz, 1:1)

#### Transient Intermodulation Distortion

(DIM) (L or R)

0.05% or less (2.96 kHz square wave/14 kHz sine wave)

#### Stereo/Monaural Mode Control

Monaural mode selectable using left channel, right channel, or left + right channels

### STEREO PERFORMANCE WITH ANALOG STEREO INPUT

#### Input Connector

Two XLR female (Left and Right)

#### Input Impedance

Balanced, no transformers, 600 ohms

#### Input Level

-12 dBu to 12 dBu for 100% modulation

#### Input Quantization

Sampled at 96 kHz with 24-bit ADC

#### Pre-Emphasis

0  $\mu\text{s}$ , 50  $\mu\text{s}$  or 75  $\mu\text{s}$ , user selectable

#### Pilot Carrier

19 kHz  $\pm 0.01$  Hz, programmable 6% to 12% injection level. Available on rear panel as TTL or 1 Vp-p sine wave. Pilot phase may be referenced to GPS 1 PPS

(BNC) and adjusted with  $1^{\circ}$  resolution.

#### 38 kHz Suppression

80 dB below  $\pm 75$  Hz deviation reference

#### Stereo Separation

Specification: Better than 60 dB, 30 Hz to 15 kHz

Typical: -65 dB, 30 Hz to 15 kHz

#### Amplitude Response (L or R)

$\pm 0.1$  dB, 30 Hz to 15 kHz referenced to 0 dB at 400 Hz

#### FM Signal-to-Noise Ratio (L or R)

80 dB below 100% modulation (reference 400 Hz, measured in 22 Hz to 22 kHz bandwidth with 75  $\mu\text{s}$  de-emphasis and DIN 'A' weighting)

#### Stereo Total Harmonic Distortion (L or R)

0.025% or less, 30 Hz to 15 kHz, measured in 22 Hz to 22 kHz bandwidth with 75  $\mu\text{s}$  de-emphasis

#### Stereo Crosstalk

50 dB below 100% (30 Hz to 15 kHz)

Modulation reference: L+R to L-R and L-R to L+R

#### Intermodulation Distortion (L or R)

CCIF: 0.008% or less (14/15 kHz, 1:1)

SMPTE: 0.025% or less (60 Hz and 7 kHz, 1:1)

#### Transient Intermodulation Distortion (DIM) (L or R)

0.05% or less (2.96 kHz square wave/14 kHz sine wave)

#### Stereo/Monaural Mode Control

Monaural mode selectable using left channel, right channel, or left + right channels

### AUDIO SPECIFICATIONS

#### MONAURAL PERFORMANCE WITH DIGITAL OR ANALOG INPUTS

##### Amplitude Response (L or R)

±0.1 dB, 30 Hz to 15 kHz referenced to 0 dB at 400 Hz

##### FM Signal-to-Noise Ratio

90 dB below 100% modulation (reference 400 Hz at ±75 kHz deviation with 75 μs de-emphasis and DIN 'A' weighting in 22 Hz to 22 kHz passband)

##### Harmonic Distortion

0.005% or less at 400 Hz measured in 22 Hz to 22 kHz bandwidth with 75 μs de-emphasis

#### WIDEBAND COMPOSITE OPERATION

##### Input Connector

Two BNC female connectors, balanced

##### Input Impedance

10,000 ohms

##### Input Quantization

Sampled at 750 kS/s with 16-bit ADC

##### Input Level

3.5 Vpp nominal for 100% modulation

##### Amplitude Response

±0.05 dB, 20 kHz to 100 kHz

##### Phase Response

±0.1° from linear phase, 20 Hz to 100 kHz

##### FM Signal-to-Noise Ratio

90 dB below 100% modulation (reference 400 Hz at ±75 kHz deviation with 75 μs de-emphasis and DIN 'A' weighting in 22 Hz to 22 kHz passband)

##### Total Harmonic Distortion

0.005% or less, (reference 400 Hz at ±75 kHz deviation with 75 μs de-emphasis and DIN 'A' weighting in 22 Hz to 22 kHz passband)

##### Stereo Separation

50 dB, 20 Hz to 15 kHz

#### SCA (RBDS/RDS) PERFORMANCE

##### Input Connector

Two BNC female connectors, balanced

##### Input Impedance

10,000 ohms

##### Input Level

3.5 Vpp nominal for ±7.5 kHz deviation

##### Amplitude Response (L or R)

±0.2 dB, 20 Hz to 100 kHz

##### Subcarrier Frequency Range

57 kHz to 93 kHz (25 kHz to 93 kHz monaural)

#### SCA GENERATOR PERFORMANCE

##### Input Connector

Two XLR female connectors, balanced

##### Input Impedance

600 ohms

##### Input Level

-12 dBu to 12 dBu for ±7.5 kHz deviation

##### Amplitude Response

±0.2 dB, 30 Hz to 7.5 kHz

##### Pre-Emphasis

0 μs, 50 μs, or 75 μs

##### Signal-to-Noise Ratio

70 dB or better

##### Frequency

20 kHz to 99 kHz, adjustable in 1 Hz steps

##### Modulation

Narrow band FM with maximum deviation of ±7.5 kHz

##### Injection Level

0% to 15%, user adjustable

#### RDS/RBDS GENERATOR PERFORMANCE

##### Input Connector

RJ45, RS-232 (DCE, 115.2 kbps)

##### Frequency

57 kHz ±0.03 Hz

##### Injection Level

0% to 10%, user adjustable

##### Programming

ASCII, UECP

##### Supported Commands

PI, PS, PTY, PTYN, TA, TP, MS, DI, RT, AF, ODA (Freeformat)