



710A Digital FM Stereo Generator

With digital AES/EBU and Analog Audio Inputs



Digital Encoding From The Originator Of Digital Composite.

Long before it was fashionable to offer digital audio transport, QEI was securing its position as the Digital Composite STL pioneer. No other company can match this technological achievement.

Through the patented technology developed by QEI for the CAT-LINK digital composite transmission system emerges the third generation of digital stereo generators (encoder) the model 710A. The QEI 710A has established the benchmark by which all stereo generators performance will be judged.

DSP for Better Composite

The 710A executes stereo encoding with digital signal processing (DSP) for unsurpassed performance. The Digital audio input accepts any sample rate from 12 kHz to 56 kHz on the professional AES/EBU digital audio input. The Dual independent composite outputs are fed from an 18 bit Digital to Analog (D/A) converter. Independent phase compensation on each output allows up to 50 meters of RG-58 to be driven into a 50 Ohm load without loss of performance.

Superior Audio Performance

Every step of the way the 710A has been designed for outstanding audio performance. From the independent linear power supplies for analog and digital circuitry to the dual independent A/D converters, the 701A has the performance advantages your listeners will hear. Un-surpassed clarity, separation and high frequency definition are benefits your listeners will immediately realize.

Flexible

The 710A adapts to your changing processing requirements by offering all these features in a stand-alone package. Stations who utilize non-composite digital STL's can now gain the performance benefits of digital stereo encoding without having to upgrade their entire system. The stand-alone design also allows stations with analog STL's to make a budget conscious change-over to digital one piece at a time.

Features

- **Entirely numeric 24 bit Digital Signal Processing third Generation Digital Technology**
- **Accepts any sampling rate from 12 kHz to 56 kHz**
- **AES/EBU Digital and analog audio inputs**
- **64 times oversampled 18 Bit D/A conversion on composite output**
- **Independent A/D converters**
- **Separate Analog and Digital linear power supplies for superior noise performance**
- **Extremely low spurious output**
- **DSP eliminates Routine alignment Forever**
- **MPX test output for Sampling Entire composite signal Without Interruption of Program**
- **"Star" ground eliminates ground loops**
- **Front Panel LED Metering of Left and Right Input and Digital Composite.**
- **Audio failure alarm output, remote Control of mono/Stereo, Digital/analog audio source and pre-emphasis**
- **Compact Single rack Unit Design**

710A Digital Stereo Generator

Technical Specifications

PERFORMANCE SPECIFICATIONS

Separation:..... 75 dB; 10 Hz -16 kHz

Noise:-90 dB below 100% (Stereo with 75 or 50 usec de-emphasis)

Distortion:

THD0.007%

IMD0.007%

Crosstalk:

Linear.....better than -75 dB

Non-Linear.....better than -75 dB

38 kHz Subcarrier Suppression:>-80 dB typical (referenced to 100% modulation)

76 kHz Subcarrier Suppression:>-85 dB typical (referenced to 100% modulation)

Spurious Output Beyond 53 kHz:>-85 dB typical, >-80 dB guaranteed

Pilot Frequency:..... 19 kHz

Pilot Stability:..... +/- 1 Hz

Pilot Injection Level: adjustable, 4% to 12%

ANALOG INPUT

Configuration:... discrete Left & Right active balanced

Impedance:.....selectable, 600 Ohm or High Z

Common Mode Rejection:..... >70 dB

Input Level: + 4 dBm nominal, front adjustable

Connectors: (2) XLR-type, female

DIGITAL INPUT

Configuration:professional two channel AES/EBU standard

Sample Rate:..... variable, 12 kHz to 56 kHz

Input Level:-3 dB below full scale for 100% modulation

Connector: (1) XLR-type, female

SCA/RDS/RBDS SUBCARRIER INPUTS

Configuration:(2) subcarrier inputs with independent level control

Input Impedance: 10 kOhm

Input Level:adjustable, .2V_{P-P} to 1.5 V_{P-P}

Connection:..... (2) BNC, un-balanced

COMPOSITE BASEBAND OUTPUTS

Configuration:two independent outputs, each with independent phase compensation

Load Impedance:50 Ohm, will drive up to 50 meters of RG-58 without loss of performance

Coupling:.....DC or AC

Level:adjustable, 2.5 V_{P-P} to 18.0 V_{P-P} with output level control (3.5 V_{P-P} nominal for 100% modulation into 50 Ohm or higher load impedance)

Connectors: (2) BNC, un-balanced

PILOT REFERENCE OUTPUT

Configuration:buffered square wave for RDS and RBDS reference

Load Impedance:..... 50 Ohm or greater

Level:..... 3.5 V_{P-P} square wave

Connector:..... (1) BNC, un-balanced

MPX TEST OUTPUT

Configuration:single front panel output for test/monitoring

Load Impedance:.....High Z

Connector:..... (1) BNC, un-balanced

REMOTE CONTROL INTERFACE

Configuration:remote control of mono/stereo, digital/analog audio source and pre-emphasis. Audio fault alarm contact closure for remote alarm or control upon loss of source audio

Interface:

Input:relay or open collector closure to ground

Output:form "C" closure upon audio fail

Connection:DB-15, male

PHYSICAL

External Switches and Status Displays:switch selection of input (analog/digital). Pre-Emphasis (on/off), stereo/mono, pilot on/off

Controls:input level (analog - Left/Right, SCA/RDS/RBDS). Output levels (composite, L+R to L-R and pilot) output phase (composite).

Metering:two 8-segment LED bargraph displays show left and right analog input levels. One 8-segment LED bargraph display shows digital composite levels (composite, main, sub). LED audio fault detection on loss of audio input on analog or digital source.

Power Requirements:selectable 120/240 VAC, 50-60Hz, EMI/RFI line filtering.

Fuse:..... 1/2 Amp. 3AG 250V slow-blow

Grounding:true "star" ground scheme to eliminate ground loops

Safety Standards:..... IEC 950 compliant

Dimension: 19" (48.3 cm) Wide X 18.25" (46.36 cm) Deep X 1.75" (4.45 cm) High. One Rack Unit

Weight:

Actual..... 11 lbs. (4.98 kg)

Packed..... 14 lbs. (6.35 kg)

Ambient Temperature Range:

Startup..... 32° to 120° F, 0° to 50° C

Operating..... 5° to 120° F, -15° to 50° C

Humidity: ... 0-95% relative humidity, non-condensing

Warranty: One Year Parts And Labor

CIRCUIT CHARACTERISTICS

Analog To Digital Converter:

Device: (2) Motorola DSP56ADC16S

Performance:sigma-delta analog/digital, 64X oversampled

Digital Signal Processing:

Device: Motorola DSP56001

Range:24-bit, 144 dB Internal Dynamic Range

Digital To Analog Converter:

Device: Burr Brown PCM58P

Performance: 18-bit Digital/Analog Converter

Some or all of the 710A system technology is protected under US Patent #5,054,070 1991.

QEI maintains an ongoing program of research and development to insure the finest product performance and quality. All specifications are subject to change without notice