Subscriber Systems

Model 8656-XEU-AMC Scrambler

21914

Scientific-Atlanta's Model 8656-XEU-AMC Scrambler provides dynamic switched sync suppression, video and sync inversion, and high-speed encrypted data transmission to the 8600^{X}™ Advanced Analog Home Communications Terminal (HCT). The Model 8656 Scrambler also provides in-band audio data transmission to Models 8600 and 8590 Home Terminals. The Model 8656-XEU-AMC Scrambler is upgradable to SoundProtect™ audio masking capability.

DESCRIPTION

The Model 8656 Scrambler provides dynamic switched sync suppression, video and sync inversion, and drop-field scrambling. These scrambling modes can be configured for any individual mode or a combination using up to ten pre-defined dynamic modes. The scrambler is compatible with all existing Scientific-Atlanta addressable and non-addressable home terminals. In addition, the scrambler is compatible in Jerrold, Zenith, Hamlin, Eagle, Tocom, and Pioneer scrambling systems.

The scrambler transmits conditional access information to the 8600^{X} advanced analog HCT using the vertical blanking interval (VBI) of the video channel. The 8600^{X} HCT transactions are received by the scrambler at a rate of 153.6 kbps from the Model 8658 Headend Controller (HEC). The scrambler supports up to ten lines for VBI data transmission at a rate of 59 transactions per second on a single VBI line. This provides a total throughput of 590 transactions per second on a single channel. Descrambling information is also transmitted in the VBI. Descrambling transactions for the 8600^{X} HCT are encrypted using a random seed generator and unique session keys.

The scrambler transmits conditional access information to the Model 8600 and Model 8590 as AM pulses modulated on the audio carrier of various channels in the headend. The data are interleaved with descrambling information, providing a higher degree of security.

The Model 8656 is used to store and transmit message data for the 8600^{X} HCT and Model 8600 Home Terminal. In addition, the scrambler provides data delivery for the interactive viewing guide and virtual channels to the 8600^{X} HCT.

The unit is housed in a standard 19-inch rack adaptable chassis and fits any EIA-standard 24-inch rack.

FEATURES

- Secures premium video and pay-per-view services with more than 50 scrambling modes
- Supports 8600^{X} HCT (VBI) and Model 8600 home terminal (Audio) type data transactions
- Supports 8600^{X} HCT and Model 8600 home terminal messaging, as well as interactive viewing guide and virtual channel data transmission for the 8600^{X} HCT with 512 kB memory.
- Video scrambling compatible with all new and existing Scientific-Atlanta addressable and non-addressable descrambling systems
- Remote control via System Manager
- Front panel setup and calibration
- Upgradable to SoundProtect audio masking capability

Model 8656-XEU-AMC Scrambler

SPECIFICATIONS

Electrical

Baseband Video

Input level
0.5 V p-p to 2 V p-p (1 V p-p nominal) (neg. going sync)
Output level
1 V p-p ± 10%
Input impedance
75 Ω, unbalanced
Input return loss
30 dB (min) from 100 kHz to 4.5 MHz
Chrominance-to-luminance delay
70 ns (max)
Differential group delay
70 ns p-p (max) up to 3.7 MHz
Differential gain
1.5% (max)
Differential phase
2° (max)
Frequency response
0.5 dB p-p max ripple from 100 kHz to 3.7 MHz,
>26 dB attenuation from 4.4 to 10 MHz
Response slope
0.3 dB/MHz max from 100 kHz to 3.7 MHz

Audio IF

Input level
+37 dBmV ± 6 dB
Insertion loss
0 ± 0.5 dB (at 41.25 MHz, ±73 kHz)
Impedance
75 Ω, unbalanced
Hum and noise
-60 dB
Data pulse height
4.0 to 7.0 dB, adjustable
Sync buzz reduction level
5.8 dB ± 0.2 dB
Harmonic distortion
< 0.2% THD
Spurious outputs
< -57 dB

Power Supply

Input voltage
115 V AC ± 20%, 50 to 60 Hz
Power consumption
50 W max
Supplies
5 V ± 0.5 V, ± 15 V ± 0.5 V
Ripple
5 V:100 mV p-p max
± 15 V: 225 mV p-p max

Video IF

Input level
+46 dBmV ± 6 dB
Insertion loss
0.0 dB ± 1.0 (over 41.5 to 47.0 MHz range)
Video sync suppression
5.4, 5.8, or 6.0, ± 0.1 dB
Impedance
75 Ω, unbalanced
Input return loss
16 dB (min) from 33.0 to 47.0 MHz
Hum and noise
-60 dB
Frequency response
± 0.25 dB from 4.15 to 47.0 MHz
Differential gain
± 0.25 dB
Differential phase
0.5 degrees
Spurious and harmonic outputs
< -57 dBc

Vertical Blanking Interval

Data amplitude
68 ± 5 IRE
Data lines
Selectable; lines 9 through 262 may have data;
System Manager supports lines 11 through 22

Mechanical

Size
Housed in standard 19-inch (483 mm) rack-adaptable chassis, 3.5 in. (89 mm) high. Fits EIA-standard 24-inch (610 mm) deep rack.
Weight
Approximately 10 lbs (4.5 kg)

Environmental

Temperature
32°F to 120°F (0°C to 50°C)
Humidity
95%, non-condensing

Specifications and product availability subject to change without notice.

Scientific Atlanta

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