Multi-Channel Audio & Data
RF Digital STL
Clear, digital audio...

For decades, you’ve depended on the Moseley name for outstanding Studio-Transmitter Link performance. Now we’re proud to offer the Starlink SL9003Q—the world’s first open-architecture, all-digital, multi-channel linear audio STL in exciting new HD Radio™ configurations.

**UNCOMPROMISING LINEAR AUDIO**
The SL9003Q is a fully transparent link in your all-digital air chain, allowing the clarity of your audio to shine through. AES/EBU inputs and outputs combine with a built-in variable rate converter to offer seamless, compression-free connectivity. Front panel audio metering with RF and Modem diagnostics continually monitor the quality of your signal, assuring easy initial installation and maintenance.

**EXCEPTIONAL SPECTRAL EFFICIENCY**
Utilizing spectrally efficient Quadrature Amplitude Modulation technology, the SL9003Q can be configured to deliver linear audio channels, UDP for HD Radio™, plus RS-232 for remote control and RBDS over narrow-bandwidth RF STL channels. User-selectable modulation rates of 16, 32, 64, and 128 QAM allow the end-user to maximize payload for RF channel allocations.

**INTELLIGENT MULTIPLEXING**
An optional digital multiplexer allows the SL9003Q to convey additional UDP/LAN, compressed programs, FSK, as well as asynchronous and synchronous data channels in a variety of user-defined configurations.

**ROBUST PERFORMANCE**
Powerful Reed-Solomon Error Correction, coupled with a 20 tap adaptive equalizer, provides unsurpassed signal robustness. An optional Starlink Bandpass Cavity is recommended for extremely hostile RF environments.
MULTI-HOP SYSTEMS WITH STARLINK SL9003Q

STL paths over long distances or in difficult terrain can be accomplished using one or more Starlink repeaters. A Starlink repeater consists of a SL9003Q receiver and transmitter in a single chassis. Repeaters can be configured with source decoders to create a drop-and-pass of the payload at the repeat site. In a Starlink repeater system, audio integrity is preserved throughout the system without decoding and re-encoding at each site.

Features

- Linear uncompressed audio
- HD Radio™ Data Streams
- 32, 44.1, or 48 kHz sample rates
- Input AES/EBU Digital or Analog (L+R)
- Output AES/EBU Digital and Analog (L+R)
- Built in RS-232 data channels
- User-Selectable 16, 32, 64, 128 QAM modulation
- User-selectable 200-500 kHz channel bandwidth
- Adaptive Equalizer
- Powerful Reed-Solomon Error Correction
- Low processing delay

HD RADIO™ READY TODAY

Starlink SL9003Q meets all the requirements for IBOC digital radio. Starlink transports AES/EBU digital audio at all the approved sample rates along with simplex Ethernet data to provide all the signals necessary for the audio, multicasting, and data-casting services. With Starlink, stations can get the most out of HD Radio™ conversion now and in the future.

COMMON CONFIGURATIONS

Start from one of the four most-requested configurations to build your station’s ideal mix of audio/data channels:

- **SL9003Q-2S** provides one stereo pair with 44.1 kHz audio sampling at 16 QAM.

- **SL9003Q-4S** provides two stereo pairs with 32 kHz audio sampling at 32 QAM or 44.1 kHz sampling at 128 QAM.

- **SL9003Q-2SLAN** provides one 44.1 kHz stereo pair with RS-232 channels, plus 544 kbps simplex Ethernet data.

- **SL9003-4SLAN** provides two 32 kHz stereo pairs with RS-232 channels, plus 384 kbps of simplex Ethernet data.

Contact Moseley marketing for custom configurations.

### System

**Audio Capacity**
4 linear (32 kHz sample rate) + 2 data channels; or 4 linear (44.1 kHz sample rate)  
Contact Moseley for other audio configurations.

**Frequency Response**
0.5 Hz to 22.5 kHz (48 kHz sample rate), >0.5 Hz to 15 kHz (32 kHz sample rate)

**Distortion**
<0.01%

**Data Coding Method**
Selectable 32, 44.1, 48 kHz built-in rate converter

**Dynamic Range**
90 dB static encoder/decoder

**Time Delay**
Linear 0 ms, ISO/MPEG 160-200ms

**Cross Talk**
>-80 dB

**Bit Error Immunity**
>10E-04 with no subjective loss in audio quality

**Level Stability**
>-0.2 dB

### Source Encoder

**Audio Input Conversion**
XLR Female  
XLR Male

**Audio Input Sample Rates**
32/44.1/48 kHz selectable, built-in rate converter  
Output Rates same

**Analog Audio Inputs**
Electronically balanced, 600/10k Ohm selectable,  
CMRR>60 dB  
Levels same

**Analog Audio Levels**
-10 dBu to +18 dBu, rear panel accessible  
Level Connectors same

**Digital Audio Inputs**
AES/EBU or SPDIF selectable  
Levels same

**AES/EBU Inputs**
Transformer balanced, 110 Ohm input impedance  
Outputs same

**SPDIF Inputs**
Unbalanced, 75 Ohm input impedance  
Outputs same

**Data Input Connectors**
9-pin D Male RS-232 levels  
Output Connectors same

**Data Input Rates**
Async, 300-4800 bps selectable  
Output Rates same

**Trunk Output Connector**
15-pin D Female  
Input Connectors same

**Trunk Output Rates**
Uncompressed Linear (1.024, 1.4112 or 1.536 Mbps)  
Input Rates same

**Trunk Output Types**
Synchronous V.35 or RS-449

**Intelligent Multiplexer**

**Capacity**
6 Local Ports, can multiplex 8 audio cards

**Aggregate Rates**
Up to 2.048 Mbps

**Resolution**
8000 bps, 768-2048 kbps; 4000 bps, 384-768 kbps; 2000 bps, 192-384 kbps

**Clocks**
Internal, Derived, External Port

**Interfaces**
Choice of: Low Speed Async Data (RS-232); High Speed Sync Data (V.35, RS-449)

**Speeds**
Low Speed 300-38400 bps; 16, 24, 32, 64 kbps

**Trunk**
V.35 or RS-449

**Compression Options**
MPEG2, MP3, AAC-LC&LD, and G.722/G.711 (consult factory)

### Transmitter

**Frequency**
215-235, 335-512, 800-960, 1350-1525 MHz,  
1.7-2.2 GHz synthesized

**Power Out/Threshold**
+30 dBm standard, +27 dBm (1.5 GHz)  
-93 dBm/16 QAM; BER 10-6

**Step Size**
25 kHz  
-90 dBm/64 QAM (10-6) 2 Channels

**Occupied Bandwidth**
200/300/500 kHz. Rate/QAM mode dependent  
20 kHz

**Monitoring**
Fwd, Rev Power, Tx Lock, Radiate  
RSL, BER, Rx Lock

### Receiver

**Frequency**
215-235, 335-512, 800-960, 1350-1525 MHz,  
1.7-2.2 GHz synthesized

**Power Out/Threshold**
-93 dBm/16 QAM; BER 10-6  
-90 dBm/64 QAM (10-6) 2 Channels

**Step Size**
25 kHz

**Occupied Bandwidth**
200/300/500 kHz. Rate/QAM mode dependent

**Monitoring**
RSL, BER, Rx Lock

### Modulator

**Frequency**
70 MHz

**Modulation/Demodulation**
User Selectable: 16, 32, 64, 128 QAM

**Error Correction**
Reed-Solomon t=8

**Equalizer**
N/A

### Demodulator

**Frequency**
70 MHz

**Modulation/Demodulation**
Coherent 16, 32, 64, 128 QAM

**Error Correction**
Reed-Solomon t=8

**Equalizer**
20 tap Adaptive

---

These specifications are subject to change without notice. Rev. 3DAD1E

Moseley Associates Incorporated • 82 Coromar Drive • Santa Barbara, CA 93117-3093 • Phone (805) 968-9621 • Fax (805) 685-9638 • Web http://www.moseleysb.com