QV2 Modem

ASI / SMPTE 310-M Variable Rate Digital Modulator & Demodulator

Applications:

- Studio-to-Transmitter Links
- Inter-city Relays
- ENG Digital Backhauls

Features:

- ASI interface @ fixed 19.39 Mbps data rate
- ASI interface @ variable 4.9 to 19.39 Mbps data rates (auto detecting)
- SMPTE 310M (19.39 Mbps)
- 3 RU high slide-in card (compatible replacement for QM2)
- T1 (1.544 Mbps) or E1 (2.048 Mbps) data channel
- 9.6 Kbps RS-232 "Wayside" channel
- 7 MHz occupied bandwidth @ 16QAM
- Adaptive Equalization
- Reduces SMPTE-310M Jitter

Compatibility

- DAR PLus Transmitter & Receiver
- TwinStream Transmitter & Receiver

QV2 Modulator & Demodulator Modules

Overview

The QV2 offers maximum interface flexibility for data transport requirement up to 19.39 Mbps. It allows the User to select either SMPTE 310M , fixed data rate ASI, or variable data rate ASI connections by selecting jumper settings on the modem cards. Further, the QV2 also helps to reduce jitter that accumulates in SMPTE-310M transport systems.

In the variable data rate mode, the QV2 will detect any data rate between 4.9 Mbps and 19.39 Mbps and automatically adjust to accommodate that data rate. The QV2 provides an embedded T-1 or E-1 data channel that can be multiplex for ancillary data services. In addition, a 9.6 Kbps RS232 asynchronous wayside service channel is a standard feature.

The QV2 modems are a 3 RU card that slide-in to DAR Plus and TwinStream radios and interconnect at a 70 MHz IF level. The compact, space efficient design makes them an ideal upgrade option to SMPTE 310M only QM2 modems.

QV2 demodulator modems include adaptive equalization circuitry to help minimize the effects of frequency selective multipath fading commonly associated with terrestrial digital microwave systems. This circuitry also helps to compensate for antenna or waveguide deficiencies that may exist in older systems.

MICROWAVE RADIO COMMUNICATIONS

SPECIFICATIONS

QV2

GENERAL SPECIFICATIONS

Variable Data Rate: .....4.9 to 19.39 Mbps
Fixed Data Rate: ..... 19.39 Mbps
Date rate interface: .....ASI or SMPTE-310M
Data connector interface: ..... BNC (75 ohm)
Wayside channel data rate: ..... T1(1.544 Mbps) or E1(2.048 Mbps)
Wayside connector interface: 9-pin "D"
Service channel data rate:..... up to 9.6 Kbps (RS-232 asynchronous)
Service channel interface: ..... 9-pin "D"
Modulation: ..... 16 QAM
RF bandwidth: ..... 7 MHz
Receiver threshold at 10-6 BER: ..... < –85 dB (2 to 13 GHz)
SMPTE-310M ..... Jitter Reduction Circuitry
ASI..... Meets ASI PCR Jitter requirements per ETSI TR101-290

TRANSMIT MODULATOR

Tx IF level: ..... –12 ±1 dBm
Output IF impedance: ..... 75 Ohm
Output return loss: ..... –25 dB or better
Output IF frequency: ..... 70 MHz ±50 ppm
Nyquist data filtering: ..... x/sin(x) compensated Square-root raised cosine
FEC scheme: ..... Reed-Solomon and depth 12 interleaving

RECEIVE DEMODULATOR

Rx IF level: ..... –12 dBm nominal –35 dBm min, 0 dBm max
Input IF impedance: ..... 75 Ohm
Input return loss: ..... –25 dB or better
Input IF frequency: ..... 70 MHz ±400 kHz
Nyquist data filtering: ..... Square-root raised cosine
FEC scheme: ..... Reed-Solomon and depth 12 interleaving

HDTV INTERFACE

Input/Output Line code: ..... Biphase Mark Coding, SMPTE-310M compliant
Input/Output connectors: ..... 75 Ohm BNC

T-1/E-1 INTERFACE

Input/Output Line code: ..... AMI or B8ZS coding user select G.703 compliant
Input/Output connectors: ..... DB-9 female on the back panel, 100 Ohm unbalanced

POWER REQUIREMENTS

Power Consumption: ..... 10W typical, 12W max
(each unit): Internal DC Voltage/Current +15/0.1A, –15V/0.2A, +5V/1.2A
Internal Voltage Tolerance: ..... ±5%

ENVIRONMENTAL

Operating Temperature: ..... 0° to 50°C
Relative Humidity: ..... 95% non-condensing

PHYSICAL

QV2 Modulator: ..... 4.63" h x 12.0" w (11.7 cm x 30.5 cm)
Weight: ..... 0.4 lbs (192 g)
QV2 Demodulator: ..... 4.63" h x 12.0" w (11.7 cm x 30.5 cm)
Weight ..... 0.4 lbs (192 g)

ORDERING

QV2 Modulator with T-1 907696-1
QV2 Modulator with E-1 907696-2
QV2 Demodulator with T-1 907698-1
QV2 Demodulator with E-1 907698-2

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