



DQT860 Digital to QAM Transcoder with Digital Processing and Multiplexing



Includes Advanced Applications such as:

[Economical multiplexing and conversion of 2 Off-air 8VSB channels into a single 256QAM channel ...](#)

[VSB to QAM or QAM TO QAM Transmodulation...](#)

[Regenerating a clean QAM signal from a noisy link...](#)

[Translating a QAM signal to a new RF output channel...](#)

The R. L. Drake model DQT860 is a professional quality, digital headend transcoder product that tunes and demodulates MPEG2 digital VSB or QAM modulated signals from an off-air broadcast or CATV source or accepts an ASI input source. After error correction, it remodulates and upconverts the recovered MPEG2 transport stream onto a new QAM modulated digital output channel.

The standard DQT860 is supplied with two tuner/demodulators. The DQT860 may also be special ordered with a single tuner/demodulator. For these units, a second tuner/demodulator module is also available by special order. An optional ASI input module is also available as a field installable option. If a DQT860 is configured with two tuner/demodulators and an ASI input module, only Tuner/Demod A and one of the other inputs may be used and multiplexed at one time. These options may be added to the standard DQT860, all within the DQT860 chassis. The output section of the DQT860 consists of a QAM modulator with an agile RF upconverter

with an output of up to 61 dBmV that tunes from 54 to 860 MHz.

With one tuner/demodulator the DQT860 functions as a digital channel processor. One can receive a MPEG2 encoded ATSC, DVB, or DigiCipher® II input signal on any channel in the CATV or broadcast spectrums in 8VSB, 16VSB, or 16QAM to 256QAM modulation and remodulate as a MPEG2 DVB or DigiCipher® II QAM signal. While performing this process, the DQT860 will apply the appropriate Forward Error Correction (FEC) to the received input stream, add null packets if required by the selected output bitrate, perform PCR correction and re-encode with the appropriate output FEC for the modulation chosen. The QAM output signal is then up-converted to a new RF output channel using Drake's high performance low noise circuitry.

When the second tuner/demodulator is installed, the DQT860 can multiplex the demodulated transport streams from two separate ATSC inputs and modulate all of the data onto a single output channel at 256QAM modulation. This allows a cable operator to distribute two local ATSC broadcast channels in one 6 MHz wide cable channel without losing any of the original programs and without any additional compression of the broadcast signal.

The ASI input module accessory is also available. When this module is added, one of the inputs may be delivered to the DQT860 via this ASI input. As an example, this option may be used to input from a direct feed sent from a local broadcast station.

- Front panel display and buttons allow easy setup and monitoring of operating mode and parameters.
- High output, 61 dBmV, agile QAM modulator and upconverter are built in.
- The single input model provides the digital processing function.
- The field installable ASI input or second tuner/demodulator modules add the transport stream multiplexing function.
- Input tuner/demodulator(s) tune off-air or CATV channels between 54 and 860 MHz and provide demodulation of 8VSB, 16VSB, or QAM modes from 16QAM to 256QAM. ATSC, ITUA (DVB), or ITUB (DigiCipher® II) FEC modes are supported.
- A wide range equalizer suppresses multipath effects on ATSC signals.
- Off-air ATSC mode incorporates a NTSC co-channel rejection filter.
- MPEG program number and minor channel number renumbering with user selected offsets.
- Major channel number pass through or remarking is selectable.
- Rewriting of the MPEG tables is provided when two input streams are multiplexed.
- PCR correction is performed when necessary.
- 61 dBmV QAM low phase noise output is agile on CATV channels from 54 to 860 MHz.
- High MER output signal quality.
- Meets or exceeds DOCSIS 2.0 Downstream output specifications.
- 1U tall package with internal power supply conserves rack space.
- Manufactured in the USA.

Drake Digital DQT860 Technical Specifications

Demodulator Input(s)	applies to both tuner/demodulators, if so equipped.
Input Frequency Range:	54 - 864 MHz. Off-air channels 2-69, CATV channels 2-135.
Menu Selectable Channel Plans:	Standard CATV, HRC, IRC or Broadcast.
Input Channel Bandwidth:	6 MHz.
Input RF Level Range:	-28 dBmV to +30 dBmV.
Minimum Input Level per Mode:	8VSB: -28 dBmV, 16VSB: -25 dBmV, 64QAM: -20 dBmV, 256QAM: -15 dBmV.
Maximum Input Power (sum of all channels):	Not to exceed -16 dBm.
Input Impedance:	75 Ohms with Return Loss typically 8 dB.
Noise Figure:	Less than 12 dB.
Image Rejection:	40 dB.
Adjacent Channel Rejection:	60 dB.
Local Oscillator Leakage to Input:	Less than -12 dBmV.
Demodulation Modes:	ATSC: 8VSB or 16VSB ITU-A: 16QAM, 32QAM, 64QAM, 128QAM, or 256QAM. ITU-B: 64QAM or 256QAM.
Symbol Rates:	Commonly used presets and user programmable.
Equalizer Span:	-6 μ S to +40 μ S.
QAM Modulator	
Modulation Modes:	16QAM, 32QAM, 64QAM, 128QAM or 256QAM.
Symbol Rate:	1 Ms/S to 7 Ms/S.
Forward Error Correction (FEC):	ITU-A (DVB) or ITU-B (DigiCipher® II).

I/Q Phase Error:	Less than 1 degree.
Carrier Suppression:	45 dB.
Channel Amplitude Error:	Less than 1dB.
MER:	Greater than 38 dB with blind equalizer.
Analog EAS IF Input	
Input Impedance:	75 Ohms with a return loss of 20 dB.
Operating Input Level:	+30 dBmV \pm 5 dB @ 45.75 MHz.
Auto Switching Level:	+20 dBmV minimum.
RF Output	
Output Frequency Range	54 MHz to 864 MHz.
Channel Plan:	Standard CATV, HRC, IRC or Broadcast.
FCC Offsets:	Automatic, +12.5 or +25 kHz.
Frequency Stability:	\pm 5 ppm.
Maximum Output Level:	+61 dBmV minimum, adjustable downward.
Minimum Output Level:	+45 dBmV.
Output Level Accuracy:	\pm 1 dB.
Output Impedance:	75 Ohms with return loss better than 14 dB (within output filter passband).
Spurious Outputs:	-60 dBc from 40 MHz to 1000 MHz.
Broadband Noise:	Less than -12 dBmV (6 MHz bandwidth @ \pm 12 MHz).
Phase Noise:	-95 dBc @ 10 kHz offset, -OR- 1 kHz to 10 kHz: Less than -36 dBc double sideband noise power. 10 kHz to 50 kHz: Less than -54 dBc double sideband noise power. 50 kHz to 3 MHz: Less than -54 dBc double sideband noise power.
General	
Power:	90-260 VAC, 47-63 Hz, 38 W (all options installed).
Weight:	7 lbs. (3.2 Kg.)
Size:	19" (48.3 cm) W x 1.75" (4.45 cm) H x 11.5" (29.2 cm) D
Operating Temperature:	0° C (32° F) to 50° C (122° F)

Specifications, price, and availability are subject to change without notice or obligation.

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