

# CW-4875 OFDM DEMODULATOR QUAD

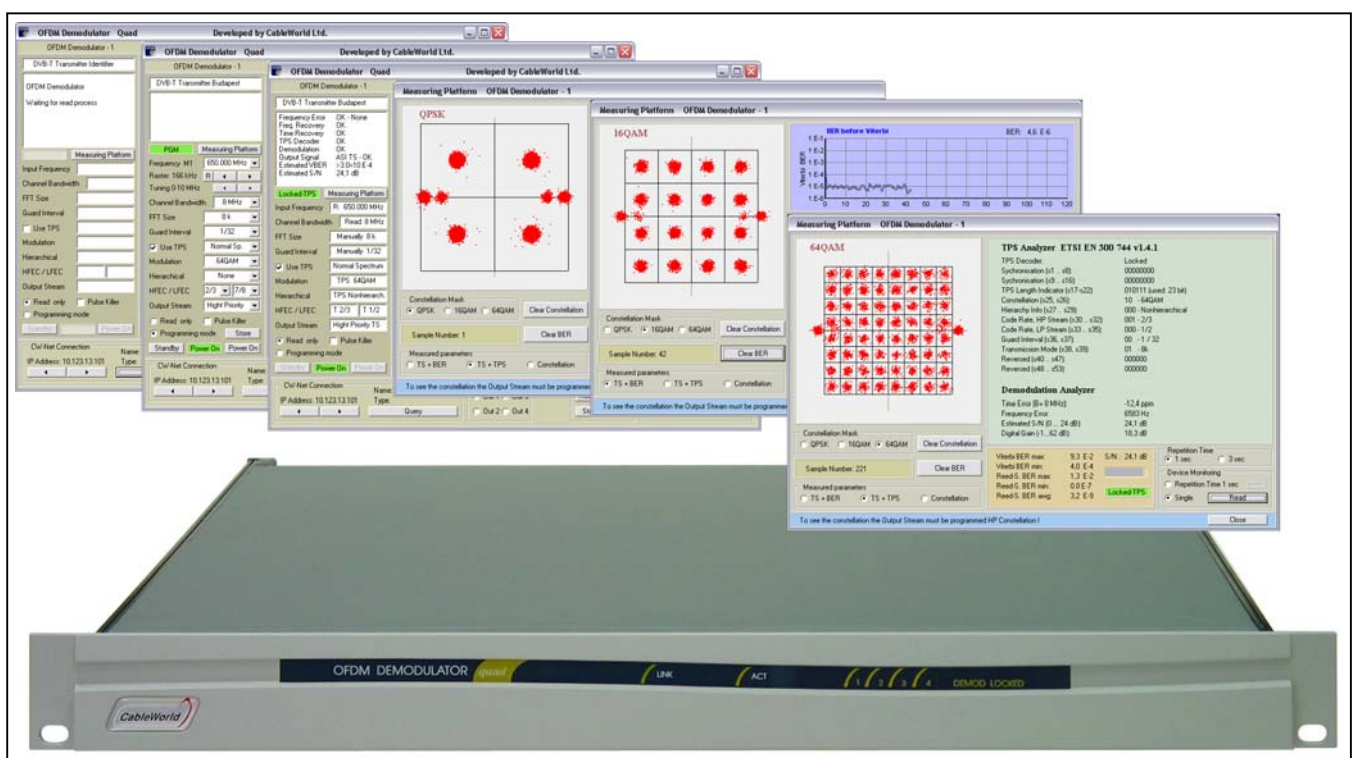


The European Union plans to terminate analogue television broadcasting by 2012, thus replacing the analogue terrestrial transmitters with digital ones is an actual occurrence. Thus, beyond the subscribers, more and more professional signal users, cable TV operators, IP TV providers and others require the signals of the new digital system for their jobs.

In order to satisfy these demands, CableWorld Ltd. has developed its Quad family's OFDM demodulator, which is capable of receiving the signal of four different terrestrial transmitters simultaneously. The four output signals of the device are delivered at four independent outputs in ASI format. By using CableWorld's CW-Net Device Control System, the device provides facilities, which cannot be found yet in products of any other manufacturer: the output transport streams can be analyzed and saved in file in the controlling computer, played on monitor etc. At the same time the CW-Net performs also system management.

The CW-4875 OFDM Demodulator Quad comprises four independent DVB-T receivers with loop-through inputs and double ASI outputs by channel. The applied most up-to-date circuitry provides automatic transmission parameter detection including FFT size and Guard Interval from the TPS (Transmission Parameter Signalling). As a device of the new generation, the CW-4875 OFDM Demodulator Quad has no controls on its front panel; all settings and programming are made from the computer. The SW-4875 control software of the device is available for free download at [www.cableworld.hu](http://www.cableworld.hu).

In the CW-Net Data Transmission and Device Control System each device is equipped with an individual IP address, thus the number of devices the connected single computer can handle is not limited. The devices operate independently from the computer, which is needed for their programming and supervision only.



## Main features:

- Four COFDM demodulators with loop-through inputs for the whole VHF-UHF band
- Automatic FFT size and Guard Interval identification
- Setting of the modulation parameters manually or with TPS
- Measuring of the transmission characteristics: constellation diagram, TPS decoder, BER etc.
- Computer management system through the CW-Net
- Built-in transport stream analyzer and picture/sound reproduction
- 19" × 1 HU unit frame, 5 V supply voltage, low power consumption, continuous service

The CW-4875 OFDM Demodulator is a member of CableWorld's demodulator quad family, comprising four OFDM demodulators for FTA reception. The loop-through inputs of the four demodulators highly simplify the distribution of the antenna signal.

The applied Philips COFDM demodulator IC belongs to the latest generation of integrated circuits; it is equipped with automatic FFT size (2k/8k) and automatic Guard Interval detection, it is capable of demodulating hierarchical mode transmissions, and it offers a special solution for suppressing the short time impulsive noise.

The four OFDM demodulators of the CW-4875 comprise almost no analogue components. The tuner works from +5 V, but the supply voltage of the control and matching circuitries is as low as 3,3 V only, or even lower, which results in extremely high reliability and expectable lifetime.

The two ASI outputs per channel of the CW-4875 OFDM Demodulator Quad permit driving two independent ASI lines. Beyond the FTA version, the version with four CIs is already being designed.

The CW-4875 OFDM Demodulator Quad – as all new devices of CableWorld's digital headend – is programmed in IP environment from the user's computer or the computer built in the headend. The SW-4875 OFDM Demodulator Controller software shows the operating states of the 4 demodulators and the actual reception parameters simultaneously. Setting the parameters is made with CW-Net instructions; the settings are stored in an EEPROM. The number of possible reprogramming is more than 1,000,000.

The computer control via CW-Net permits the device to be used also in automatic measuring and monitoring systems, where the signals of the four outputs are supervised in time-sharing mode. The measurement is supported by the TPS Analyzer, TS Analyzer, constellation display, BER Analyzer and more subunits of the device.

By the device's output selector the CW-Net system permits any of the output signals to be put into the computer in real-time mode for being analyzed and reproduced there without disturbing the ASI outputs. Nearly all software available at CableWorld's web site can be used with the device, e.g. one of the output signals can be supplied directly into an IP network.

### Technical data

(The technical data are identical for all four channels.)

#### Input data

RF input	loop-through type
Input frequency range	49 ... 861 MHz
Raster frequency	1/6 MHz
Frequency accuracy	better than $1 \times 10^{-4}$
Minimal input level	typ. -80 dBm /64QAM, FEC 1/2
Maximal input level	typically -25 dBm
RF AGC range	min. 35 dB, typically 45 dB
Total AGC (RF+IF)	typically 65 dB
RF input impedance	75 ohm
RF input connector	IEC (female)
RF (loop-through) output connector	IEC (male)
Loop-through insertion gain	+4 ... +9 dB

#### Transmission parameters

Modulation/coding	COFDM, full DVB-T compatibility with ETS 300 744
FFT size	2k, 8k
Modulation	QPSK, 16QAM, 64QAM
Code Rate	1/2, 2/3, 3/4, 5/6, 7/8
Guard Interval	1/4, 1/8, 1/16, 1/32
FEC	Reed-Solomon, Viterbi
IF frequency	36.166 MHz
Bandwidth	6, 7 and 8 MHz, variable
Frequency pull-in range	$\pm 90$ kHz
Special facilities	
FFT Size and Guard Interval	automatic recognition
Noise reduction	Pulse Killer
TPS	decoding and applying
Hierarchical mode	supported ( $\alpha=1, \alpha=2, \alpha=4$ )
Constellation	display
Transport Stream	analysis and display

#### Output data

Transport stream output	asynchronous serial (ASI) (DVB-TM1449)
Nominal output impedance	75 ohm
Output amplitude	typ. 800 mVpp
Output data rate	270 MBaud
Front panel LED indicators	LINK, ACT, LOCK

#### General data

Service period	continuous
Power requirement	90 ... 264 V, 47 ... 440 Hz
Power consumption	max. 40 VA
Mass	approx. 3.5 kg
Physical dimensions	19" x 1 HU
Width x Height x Depth	483 mm x 43.6 mm x 473 mm
Environmental data	
Operating temperature range	+5 ... +40 °C
Relative humidity	max. 80 %
Non-operating	-25 ... +45 °C
Relative humidity	max. 95 %, non-condensing

**CableWorld Ltd.**

Budapest XI., Kondorfa u 6/B  
Hungary  
H-1519 Budapest, Pf. 418  
Tel.: +36 1 204 7815  
Fax: +36 1 204 7839

Internet: [www.cableworld.hu](http://www.cableworld.hu)  
E-mail: [cableworld@cableworld.hu](mailto:cableworld@cableworld.hu)