

# CW-4873, CW-4874 QAM DEMODULATOR QUAD



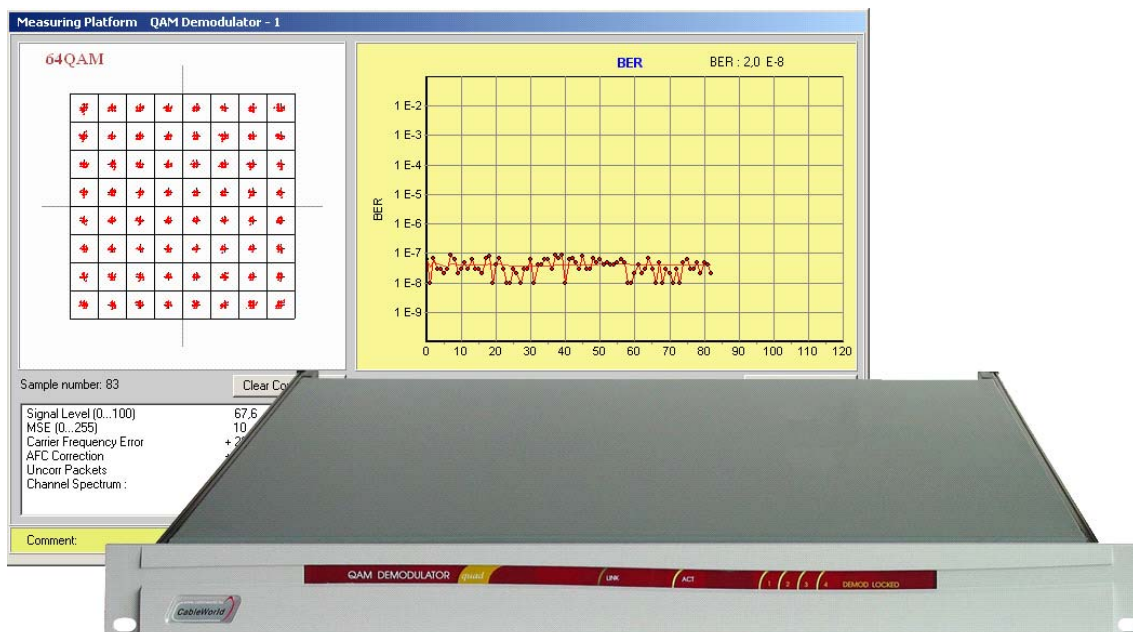
On the increasing demand for high quality digital channels and for optionally compiled digital program packets the DVB-T demodulators with ASI output have become more and more required. In order to satisfy these demands, CableWorld Ltd. developed its quad demodulator series, which includes the CW-4873 and the CW-4874 QAM Demodulator Quads.

“Quad” refers to the four independent demodulator units, which are built in a 1 HU instrument frame. All devices of the quad series are operated, controlled and monitored with CableWorld’s own developed CW-Net Data Transmission and Device Control System. Using the CW-Net, in the controlling computer the transport stream outputs of the demodulator can be analyzed, saved in file and played on the monitor. At the same time the CW-Net performs also the job of the computer monitoring system.

The CW-4873 and CW-4874 QAM Demodulator Quads comprise four independent sophisticated QAM demodulators with loop-through input and double ASI output each. The applied AFC (Automatic Frequency Control) function permits the device to be used also for the reliable reception in MMDS systems, where large frequency shifts may often occur. In the CW-4874 QAM Demodulator Quad all of the four channels are equipped with own Common Interface circuitry.

As all other devices of CableWorld’s new generation range, the CW-4873 and CW-4874 QAM Demodulator Quads do not have controls on their front panels: all settings and programming are made from the computer. The CW-4873 set-up and control software of the devices is available free of charge at [www.cableworld.hu](http://www.cableworld.hu).

In the CW-Net Data Transmission and Device Control System all connected devices are equipped with an own IP address, thus the number of devices managed from the computer is not limited. The devices operate independently from the computer; the computer is needed for their programming/supervising only.



### Main features:

- Four QAM demodulators with loop-through inputs for the 51 ... 858 MHz band
- Symbol rate 1 MS/s ... 7 MS/s
- FTA (CW-4873) and CI (CW-4874) version
- Measuring receiver functionality for measuring the BER, the constellation and much more
- Common Interface compatible 188 byte/packet format output signal
- Computer monitoring system
- Built-in transport stream analyzer function with picture and sound reproduction
- 19" × 1 HU unit with low power consumption, suitable for continuous service

The CW-4873 and CW-4874 QAM Demodulator Quad belong to CableWorld Ltd's quad series, whose devices comprise four demodulators each. They serve receiving non-scrambled and scrambled cable signals respectively. The loop-through inputs make the distribution of the QAM signal easy. The main functions of the demodulator (AGC, Nyquist filter etc.) are all implemented using digital solutions that assures beyond the excellent parameters high reliability and long lifetime. At designing the device we consciously limited the number of parameters requiring being set, and - where it was possible - we preferred using 'auto' mode. However, for checking the optimal operation numerous data are at the user's disposal.

The double ASI output of the channels of the CW-4873 and CW-4874 QAM Demodulator Quad permits driving two separate ASI lines. The output signal is of 188 byte/packet format and Common Interface compatible.

The demodulator quad devices - as the other devices of CableWorld's digital equipment range - are programmed in IP environment from the user's computer or from the PC built fixed in the headend. The QAM Demodulator Set-up and Control Software displays simultaneously the operational status of the 4 demodulators and the actual reception parameters. Setting of the parameters is made by CW-Net instructions; the settings are stored in the device's EEPROM.

The device is allowed to be reprogrammed up to 1,000,000 times.

The device can also be used in MMDS systems: the applied AFC mode compensates continuously for the frequency shift of the head and performs the fine-tuning of the symbol rate.

The computer control permits the device being used in automatic test and measuring systems, too. The measuring data and the constellation give a good overview of the transmission quality.

The CW-Net system is a 100 Mbit/s Ethernet network, which transmits both the transport stream and the device control commands built in UDP/IP packets. The system is an open system; it is described in the CW-Net.pdf file, which can be downloaded from CableWorld's web site.

The CW-Net system permits any of the output signals to be selected and transmitted in real time mode in the computer, where it can be analyzed and reproduced. The CW-4873 and -74 can be used with nearly any of the pieces of software downloadable from CableWorld's web site thus e.g. one of the output signals can be directly supplied even in an IP network. The output signals of the four outputs are monitored in time sharing mode.

### Technical data

(The technical data are identical for all four channels)

#### Input data

RF input	
Input frequency band	51... 858 MHz
Input level	44 ... 84 dB $\mu$ V
RF input impedance	75 $\Omega$
RF input connector	F socket
RF (loop-through) output connector	F socket
Insertion gain	$\pm$ 5 dB, typically 0 dB

#### Input signal processing

Modulation	QPSK, 16QAM, 32QAM 64QAM, 128QAM, 256QAM (DVB-C)
Symbol rate	1 ... 7 MSps
Frequency pull-in range	$\pm$ 200 kHz
SR pull-in range	$\pm$ 10 kS/s
Intermediate frequency	36.166 MHz

#### Data in AFC mode at 6.875 MSps

Frequency pull-in range	$\pm$ 3.5 MHz
Frequency hold-in range	$\pm$ 4 MHz
SR pull-in range	$\pm$ 5 kS/s

#### Output data

Transport stream output	asynchronous serial (ASI) (DVB-TM1449)
Nominal output impedance	75 $\Omega$
Output amplitude	typ. 800 mVpp
Output connector	BNC socket
Front panel LED displays	LINK, ACT, DEMODULATION LOCKED

#### General data

Mass	approx. 3.5 kg
Physical dimensions	19" $\times$ 1 module
Width $\times$ Height $\times$ Depth	483 $\times$ 43.6 $\times$ 473 mm
Service period	continuous
Powering	90 ... 264 Vac, 47 ... 440 Hz
Power consumption	
CW-4873 (FTA)	max. 40 VA
CW-4874 (CI)	max. 80 VA
Operating temperature range	+5 ... +40 $^{\circ}$ C
Relative humidity	max. 80 %
Non-operating temperature range	+25 ... +45 $^{\circ}$ C
Relative humidity	max. 95 %, non-condensing



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