



The software can be downloaded from [www.cableworld.hu](http://www.cableworld.hu) and be used free of charge.

After having installed and run the proper one from the SW\_487x software, set in the CW-Net Connection panel the IP address of the device you want to address; in this example the 102.

The computer can only address the device if its IP address is set correctly. In case of correctly set IP address on clicking the Query button the name and type of the device will be displayed.

### 3. HARDWARE AND SOFTWARE SUPPORT

In CableWorld's system, managing the devices is based on the CW-Net and it needs beyond the devices a PC only. For controlling the CW-Net, the user can use his own PC, but if demanded the PC can also be delivered with the system: the CW-4891 DataBoss 19" rack mounted PC or the CW-4892 DataChief notebook PC.

Data streams of low data rate, e.g. elementary streams can be processed even with computers of lower performance.

In order to introduce and spread its unique system, CableWorld Ltd. supports its user by issuing many descriptions, guidelines and pieces of software, whose number will even increase in the future; They can be freely downloaded from [www.cableworld.hu](http://www.cableworld.hu). In the first phase of the market introduction following materials are at our users' disposal:

#### CW\_Net\_a.pdf

Summary of establishing the CW-Net, support to design the first pieces of own software.

#### CW\_Net2a.pdf

Description of the use of CW-Net, block diagram of the structure of the CableWorld system.

#### SW-4800 CW-Net Principal

Simple software for establishing the CW-Net, setting the IP addresses, testing the readiness for operation and troubleshooting.

#### SW-4841 ASI to IP & IP to ASI Converter Control Software

Common managing software for both converter types, and also for use with other devices. The software permits using the whole IP address range and provides supports for correcting the errors made at IP address setting.

#### SW-4890 Computer Performance Tester

Simple software for testing the set-up and the capabilities of the computer connected to the CW-Net.

#### SW-4811 TS Analyzer

Transport stream analyzer software for inspecting the structure and content of the given TS, for developing

and training purposes and for checking the operation of devices.

#### Using\_CW\_Net.pdf

Guidelines for applying the CW-Net, support to make the first steps, hints for elaborating the applications.

### 4. PUTTING THE DEVICES IN OPERATION

Connect the device to the specified power voltage and switch on the mains switch. After a few seconds the device is ready to operate.

When using the own computer for making the settings, install SW-4800 CW-Net Principal and the appropriate from the SW-487x, which are available for download in the 'Software' page at [www.cableworld.hu](http://www.cableworld.hu). The programs install in the C:\Program Files\CableWorld folder and create an icon on the desktop. All pieces of software have been designed for the Windows XP Professional operation system. The simpler pieces of software can run in other environment, too but there we have not tested them.

After having installed the software, set the IP address of the computer to the fixed 10.123.13.201 value, or to any other value within the 10.123.13.x range (x = 0...255).

For the CW-4891 DataBoss and the CW-4892 DataChief computers these procedures have already been performed.

#### 4.1 Input signals

The QAM- and OFDM demodulators need input signals in the 47 ... 860 MHz frequency band with a level of 40 ... 85 dB $\mu$ V. Input signals with too low or too high level result in the increase of the bit error rate.

Between the RF IN and the (bridged) RF OUT connectors the QAM and OFDM demodulator modules are equipped with an amplifier of 3 ... 6 dB gain. When bridging the inputs of multiple modules, be careful not to overdrive the input amplifiers of the tuners (when bridging 4 modules, the signal level at the input of the last tuner will already be by 9 ... 18 dB higher).

When bridging the inputs of OFDM demodulators, severe problems can be caused if the signal coming from the antenna contains anywhere in the 47 ... 860 MHz band analogue TV signals or other signals at a level by 20 ... 30 dB higher than the signal to be received. Such high-level signals can lead to overdrive even in the amplifier between the RF IN and RF OUT of the first module. The disturbing products arisen by intermodulation can appear even in the reception band, and block the operation of the demodulator. In such case the antenna signals should be distributed by directional coupler type distributors.

The QPSK demodulator is equipped between the RF input and RF output with an amplifier of 0 ... 1 dB-gain. Here, bridging will not cause overdriving unless the level of the input signal is too high.

With QPSK demodulators, by making use of the bridging possibility, usually no SAT IF distributor is needed.

From the double ASI outputs of the QPSK-, QAM- and OFDM Demodulators one can be used e.g. for the main stream, the other for connecting a Transport Stream Analyzer, thus using ASI distributors can be spared.

#### 4.2. Ethernet converter

Beyond the ASI transport stream output signals of the 4 demodulator or ASI modules, one of them can be selected on the GUI of the managing software to lead it to the Ethernet board and output it in form of UDP/IP packets.

This output signal is the selected transport stream implanted in UDP/IP packets. The structure of the packets is described in the CW\_Net\_a.pdf file.

The converter implants a continuity counter signal in the packets, which permits the steady monitoring of the error-free transmission in the Ethernet network. Building the network and setting-up the computer are described in details in the Using\_CW\_Net.pdf file.

Since the computer is not capable of accurate timing, the Ethernet converter implants in the packets also the signals of a 25 MHz quartz oscillator. The details of this PCR-like (Program Clock Reference) implantation are described in CW\_Net\_a.pdf, too.

The connection between the device and the computer can be established in the simplest case by connecting the RJ45 output of the device with the network card of the computer through a crossover cable. When connecting multiple devices, they should be connected through an Ethernet switch, but in this case with straight cables. The basics of networks building are discussed in the CW-NET\_a.pdf, putting in operation and configuring the computer in Using\_CW\_Net\_a.pdf.

The detailed instructions for using the devices' managing software are to be found in the Help menus of the software and also in pdf format in the 'Software' page of our web site.

### 5. TECHNICAL DATA

The technical data of the CableWorld products are published in their data sheets, which are available at the web site [www.cableworld.hu](http://www.cableworld.hu).

#### Additional technical information:

5.1. All ASI inputs and outputs are insulated from the frame by transformers, which assure 2000 V separation. This design is very advantageous in applications, where to be prevented is the formation of earth currents due to transmitting the ASI signal over larger distances between different rooms or laboratories.

From the point of view of electromagnetic radiations and protection against disturbances, it is advantageous if the outer shielding of the ASI connecting cable is earthed at a proper point. This point has to be found individually in each application.

If the user wants to earth the outer shielding of the coaxial cable just at the device's output or input, the product can optionally be delivered with metallic ASI socket(s) instead of insulated socket(s). In individual cases the user can easily make the earth connection with a short jumper.

Troubleshooting for the most frequent problems at building the CW-Net, configuring the computer, putting the devices into operation and others are given in the Using\_CW\_Net\_a.pdf file.

We appreciate receiving all remarks, experiences, measuring results made with our products and we pay respect to them at our further developments.

Beyond serial products, CableWorld is ready to deliver products for special demands and implement individual ideas.

Those customers, who are going to integrate our products into their systems and undertake writing own software for operating these products or for solving their individual task, can reckon with our utmost support. Your questions, ideas and suggestions are always welcomed at [cableworld@cableworld.hu](mailto:cableworld@cableworld.hu).

In all four versions of the quad series (QPSK-, QAM- and OFDM demodulator quad and ASI Descrambler) each of the four independent channels is equipped with an own CI circuitry. Handling the CI interface and configuring the CAM modules is made with the SW-4872 CAM Analyzer and Programmer software, separately from the settings of the high frequency demodulator parameters.