

1. Introduction

1.1. Overview

TERRA Link is a stand-alone program, that allows to control and diagnose in an easy way the small version of CATV headend **CMH3000** (two base units **UC180** max.).

TERRA Link has addressing capabilities up to 32 modules, including 16 front mounted easy replaceable modules and 16 rear mounted system modules.

TERRA Link provides a user-friendly graphical interface for all of the programmable **CMH3000** units control and for reading diagnostic information.

TERRA Link determines the configuration of the **CMH3000** headend during scanning process, so no preconfiguration is needed.

All of the **TERRA Link** controls are activated by the click of the mouse left button (left-click).

To use using **TERRA Link** succesfully it is highly recommended to read carefully the user manuals of all the parts included into **CMH3000** delivery.

1.2. System requirements

You will need the following to use **TERRA Link**:

- **Computer:** an IBM AT compatible PC
- **Operating system:** Windows 98/Windows XP
- **Minimum Hardware:** Pentium 400 MHz or compatible
64 MB RAM
2 MB free disk space
one free USB port
- **Required:** the UD100 adapter driver installed

1.3. The UD100 driver

The **UD100** adapter driver must be installed before using the **TERRA Link**.

To install the driver do following:

- connect the **UD100** USB cable to PC USB port
- follow the instructions of the driver installation wizard.

After successful installation of the driver, an additional COM port appears in the PC hardware configuration.

At this point the **TERRA Link** can be launched, but at first time setting of communication parameters is necessary.

1.4. Connections

Connect the **UD100** USB cable to the PC USB port and the **UD100** output cable to one of the **DATA BUS EXTENSION PORTS**, mounted on the rear side of **UC180**.

If a headend consists of two base units, you must connect the **DATA BUS EXTENSION PORTS** between first and second base units with a special cable, included into a set of **UC180** delivery.

Configuration switches on the rear side of the **UC180** must be switched in accordance with User Manual.

2. Using TERRA Link

2.1. Main panel

Controls, which are common for all of the **CMH3000** installation, are placed on the **TERRA Link** main panel (Fig.1).

- System menu
- **Scan** button - intended for launching system scanning process
- **Diag** button - intended for viewing module diagnostic
- **Exit** button - terminates program
- Buttons **1 ... 16** - intended for selection of modules. Buttons **1 ... 8** corresponds to front mounted modules and buttons **9 ... 16** - to rear mounted modules, accordingly.
- Status bar for displaying system messages at bottom of panel.

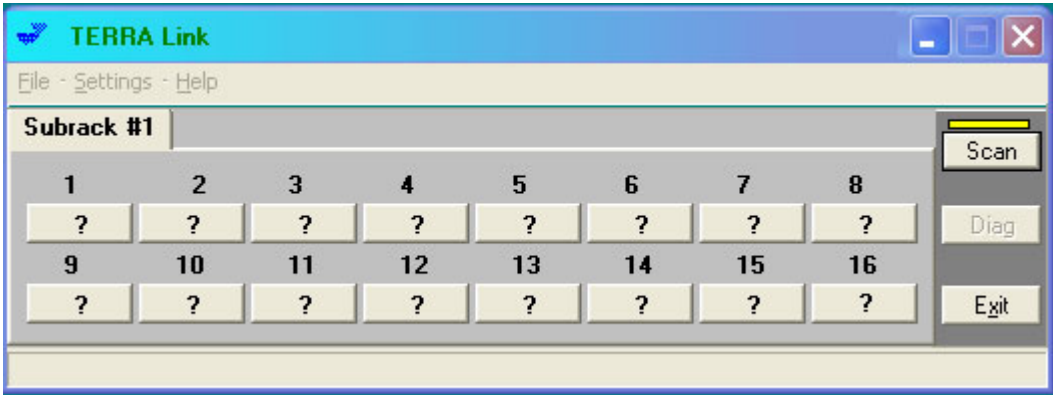


Fig.1

When the **TERRA Link** is launched, there will be a question marks "?" on the modules selection buttons, because the system configuration is not known at this point. To collect this information you must launch the scanning process (by left-clicking on the **Scan** button).

2.2. Menus

- Menu item **File** - has following sub items:
 - Save config** - writes current settings of all HeadEnd modules to disk file.
 - Load config** - loads settings from previously written file to Head end modules.

Important: for successful uploading configuration, all modules, installed at HeadEnd, must exactly match these, which were installed at moment of saving configuration (including position, type and firmware version of each module). Save/Load config. functions may be useful for "cloning" HeadEnds or fast restoring configuration in case of technical faults.

 - Save Module** - writes settings of selected module to disk file.
 - Load Module** - uploads settings from file to selected module.

Important: for successful uploading, type and firmware version of selected module must exactly match with type and version of module, which settings were written to file.

 - Exit** closes program (like button **Exit**).
- Menu item **Settings** - subitem - **Communication** opens the Communication settings window.
- Menu item **Help** - has three sub items:
 - Russian** - opens the Russian help file
 - English** - opens the English help file
 - About** - displays About box of **TERRA Link**

2.3. Settings

Communications settings window (Fig.3) is intended for setting COM port number and module response time out.

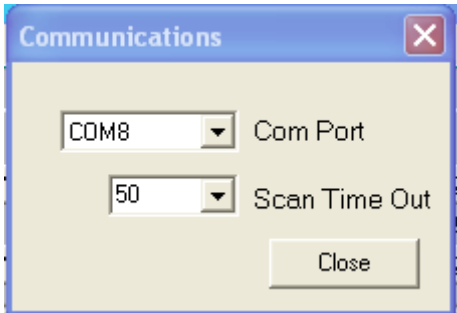


Fig.3

Before the first system scanning, you must set proper COM port number in the **Com Port** list box. COM port number, assigned to the **UD100** during driver installation, must be selected from the list. Communication with the **CMH3000** will be impossible in case of erroneous selection of COM port.

Scan Time Out list box serves for selecting module response time out value. You must select minimal value, which ensure a proper reading of the system configuration, without omitting installed modules.

These settings need to be made only at first launch of the **TERRA Link**. They are stored in the initialization file and will be restored at each time, when the **TERRA Link** starts.

2.4. Scanning

Process of scanning is started by left-click the on the **Scan** button. Flashing light at the top of the **Scan** button indicates that scanning is in progress. After the scanning process completes, the main panel will look like shown in Fig.2



Fig.2

Now, the **CMH3000** modules names are displayed on the module selection buttons faces. Buttons with numbers **1** to **8** are intended for selecting front mounting replaceable modules and these with numbers **9** to **16** represent the rear mounted system modules. Buttons with "-" mark represent empty addresses (without modules assigned to). If the module name appears in red, the diagnostic message from this module is on. To view module diagnostic, you must select this module and left-click on the **Diag** button, when the modules control panel appears. Modules without problems are displayed in green. On the status bar a total detected modules count is displayed. If there are two base units installed, the tabs **Subrack #1** and **Subrack #2** appears at the top of main panel. Clicking the tabs will switch to first or second base unit correspondingly. The scanning may be repeated at any time by left-clicking on the **Diag** button.

Attention: you must invoke the scanning process at each change of a system configuration (after installing/replacing/removing modules). It is necessary to keep the system configuration up to date.

2.5. Module selection

To gain access to the **CMH3000** module controls and/or diagnostic information, it is necessary to select a module at first. To select the desired module, you must left-click on the corresponding module selection button on the **TERRA Link** main panel. The modules control panel appears, when module selection is made. You may also get module diagnostic information at this time, by clicking on the **Diag** button.

2.6. Control panel

General view of the control panel is shown on the Fig.4 (by the example of twin TV modulator **mt120A**).

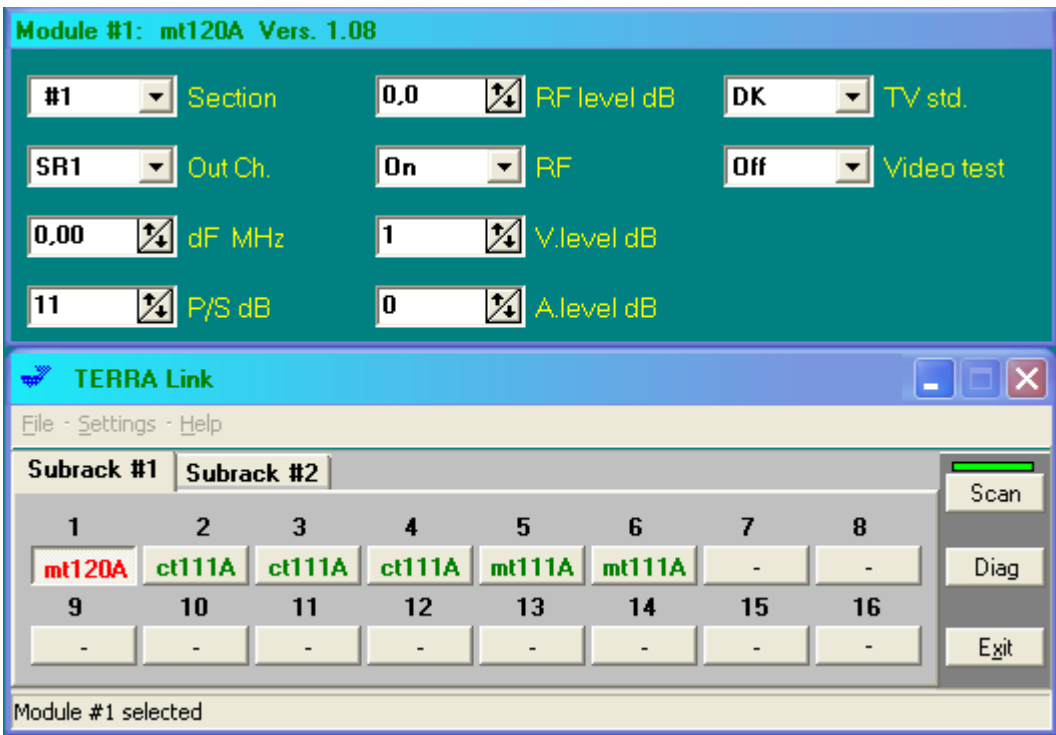


Fig.4

Controls, that are assigned for each programmable parameter of a selected module, are placed on the control panel desk top . A count and purpose of the controls are depended of module type, but control procedures for all modules types are similar. There are two most common kinds of the controls:

- A List Box, serves for parameter value selection from the list, e.g. TV channel selector (Fig.5).



Fig.5

The list can be opened by clicking on the small triangle mark at the right of box. To activate the desired value of parameter, simply left-click its position on the list.

- A Spin Box, serves for increment/decrement the parameter value by fixed step, e.g. RF level control (Fig.6)
-



Fig.6



Fig.6 b

To change the parameter value by one step, left-click up or down arrow at the right of the box. Some elements of this kind may have direct input capability. These have colored background (Fig.6 b). To input new value, double click on element window to select old value, then enter new value from keyboard and press the "Enter" key to accept changes.

Some sophisticated types of modules can be switched to the advanced control mode. The control panel of such modules has a special button **Advanced** (Fig.7).



Fig.7

Switching to the advanced control mode, gains the special control window.

The control panel can be closed by clicking on the **Scan** button or other module selection button.

2.7. Diagnostic panel

The module type, firmware version, serial number and module diagnostic information are displayed on the diagnostic panel. The diagnostic panel may be closed by repeatedly clicking on the **Diag** button or any module selection button.

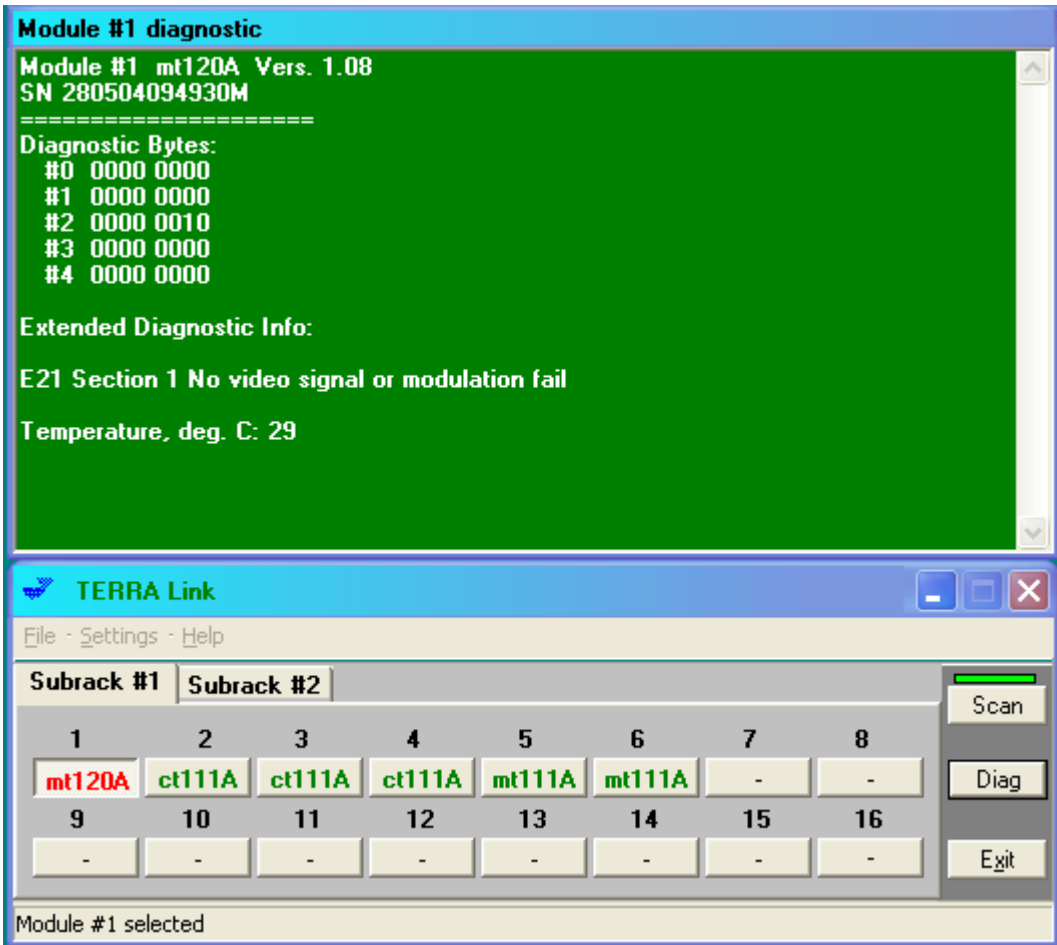


Fig.8

Diagnostic information is represented by **Diagnostic bytes** and **Extended Diagnostic info**. The count of **Diagnostic bytes** depends on module type. When the module status is normal, all bits in all **Diagnostic bytes** are in "0" state. The "1" state of any bit indicates corresponding erroneous state of module. In this case, each "1" bit will have the corresponding error explanation string in the **Extended Diagnostic** list. The error string starts with error number "EBb", where **B** means **Diagnostic byte** number, and **b** - bit number in the byte (bits are numbered from 0 to 7, right to left). Next to **Extended Diagnostic info**, there may be additional messages, like temperature value inside of module.

Notice: some types of the **CMH3000** modules may not have the **Extended Diagnostic info**. In this case, you must advert to the module User Manual for diagnostic bytes description.

2.8. Advanced control

After clicking on the **Advanced** button, the advanced control window appears. Content of this window hardly depends on module type. You must thoroughly study the User Manual of the module for adequate use of the advanced control mode. You can see an advanced control window of the DVB-S receiver **rd110** module, by the example, at Fig.9.

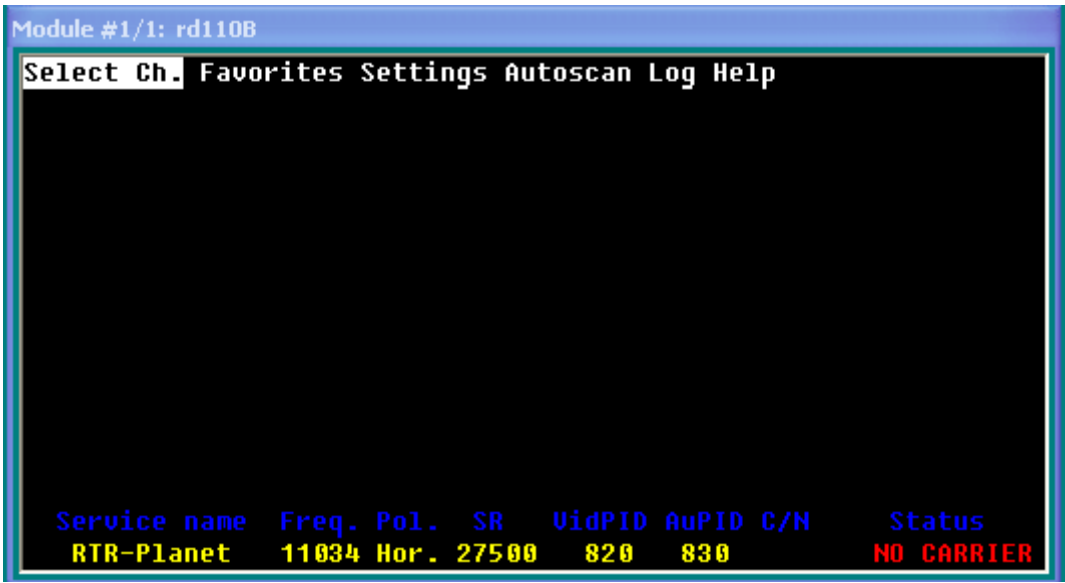


Fig. 9

The advanced control window closes by pressing the **Escape** key on the PC keyboard.