

# A20Lab

## Control software for the A20 and A20T FM Monitoring Decoder

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## User Manual

2010, October

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# 1. Introduction

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A20Lab is a PC software for MS Windows 2000/XP/Vista/7 and enables the user to operate the A20 / A20T by remote control. Remote connection is possible via TCP/IP or RS-232 interface. Almost every function of the A20 FM Monitoring Decoder can be displayed and controlled.

## Important

Please read the entire manual before you start to use the software. Keep this manual for future use. It contains important operating instructions.

This manual explains the operation of the Software "A20Lab" and does not replace the manual of the "A20 FM Monitoring Decoder". For details of A20 functions please consult the "A20 FM Monitoring Decoder" manual.

## Explicit definitions

This software is developed for the use with the MS Windows operating system. Its usage is similar to MS Windows. Please see your MS Windows manual for details of windows operations. For necessary mouse operations please place the mouse pointer on the specified display area and execute one of the following corresponding actions.

Double-click	Quickly push left mouse button twice
Mouse-click	Single push on left mouse button
Right-click	Single push on right mouse button

Additional notes:

The model on the title page may differ from the supplied A20 model.  
The figures in the manual may differ from the actual screen display.

Configurations, functions and specifications may change for further development without notice.

# 2. Manufacturer

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### **3. Installation**

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This section explains you how to install the software on the control PC.

#### **Installation of the program files**

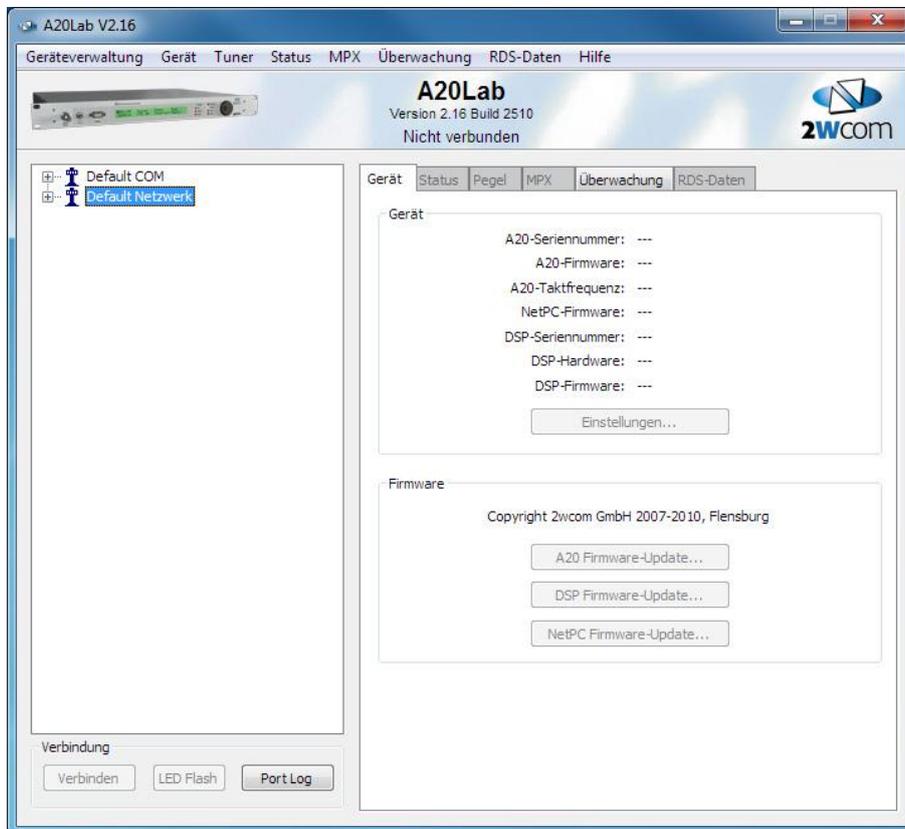
To install A20Lab please open the file "Setup.exe", contained in the corresponding folder on the delivered CD-ROM, and follow the instructions on the screen.

## 4. General operation

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### Start the software

Simply double-click the file "A20Lab.exe" in the Windows Explorer or the established desktop shortcut. The software will then start with a window similar to the shown below:



### Structure of the program window

The program window has a structure of three different sections. The upper graphical section contains the program name, program mode, detailed version information, as well as a status display that shows the present program status and activity. In the top right-hand area of the window, just next to the 2wcom logo, an activity symbol is shown if a background operation is ongoing (activity symbol: .

The left-hand section of the window shows a tree view structure and the buttons for the connection control. The tree view structure shows the established structure of networks/locations (antenna tower symbol) with its A20 devices (A20 symbols). This enables a good overview of small or large structures.

The right-hand section of the window can show various functional elements of the software, depending on the selected tab.

## Menu information and menu language

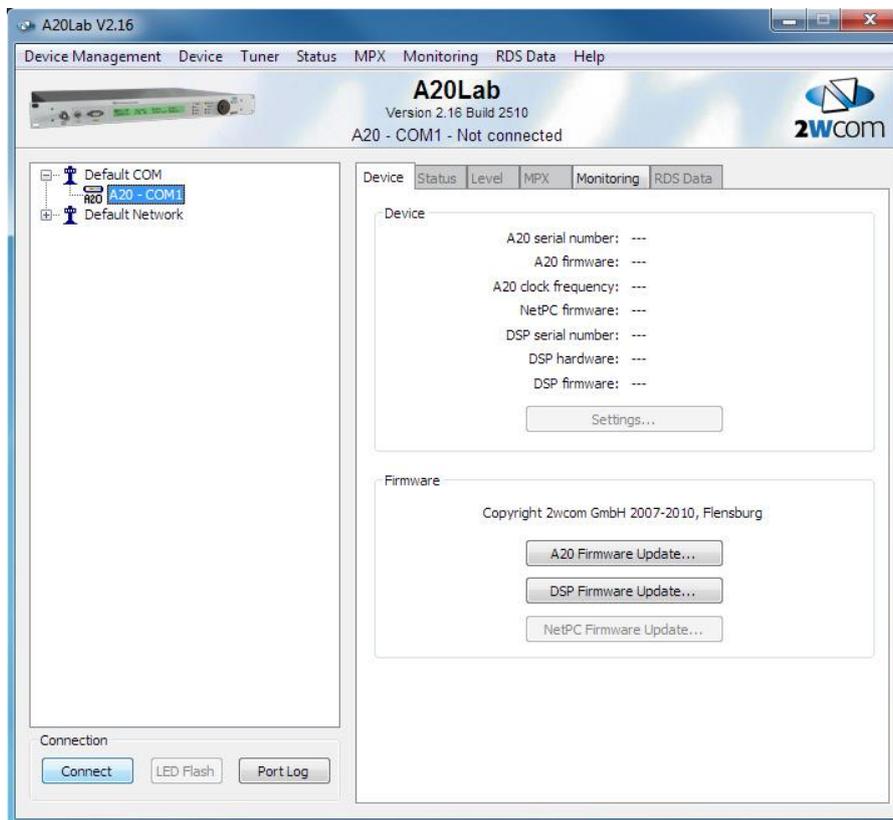
A20Lab has a menu that enables instant access to the main program functions. Some functions are accessible even only via the menu.

The menu enables you to select the displayed program language (German / English / French) at any time (menu entry [Help → Language]).

## Set up the interface for data connection

After the installation, the tree view already shows some locations/networks with contained A20 devices. The contained A20 device symbols are shown after a mouse-click on the [+] symbol in front of the corresponding location/network.

To set up the A20Lab interface to the A20 device, perform a right-click on the corresponding A20 symbol. Then select the entry [Properties...] of the appearing menu by a mouse-click to display the window "I/O Settings" (also accessible via the program window menu [Device Management → Properties]).



- Connection via TCP/IP

If it is intended to establish the connection to the A20 via TCP/IP, the following settings are necessary:

Use the drop-down menu at the top of the window "IO Settings" to select the entry "TCP/IP connection". Then it is necessary to enter the hostname as defined in the network **or** the IP-address as defined in the A20 device.

Additionally it is necessary to enter the port number as defined in the A20 device. The configuration port is used for the data connection to A20Lab.

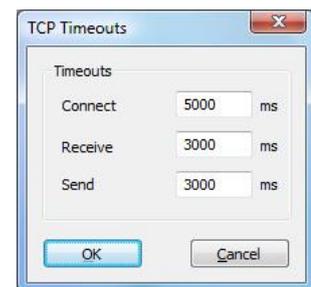
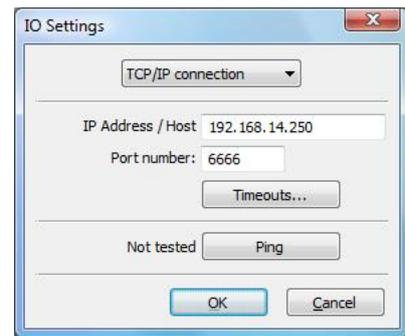
The [Timeouts...] button can be used to set up other than the default timeouts for the network connection, if required. If the used TCP/IP connection is very slow and the connection is stopped by timeout, increase the TCP timeout values.

The [Ping] button can be used to find out if the entered IP address is reachable via the network. Additionally the latency of the routing is shown.

To finish the set up, perform a mouse-click on the [OK] button. For the remote control, connect the network connectors of the control PC and the A20 device to the same network.

Note: Ethernet cables are available as patch cable or as cross-link cable. A cross-link cable is only used if the A20 device and the control PC are connected directly via a cable.

The structure and configuration of a network is individual and cannot be explained in this document. Please note: IP addresses have to be unique and should be assigned by a responsible network administrator if possible. In case of problems, please check the network, network cables, network ports and the network configuration of the PC and the A20 device. Consult the responsible network administrator where applicable.



- Connection via RS-232 interface

If it is intended to establish the connection to the A20 device via an RS-232 serial interface, the following settings are necessary:

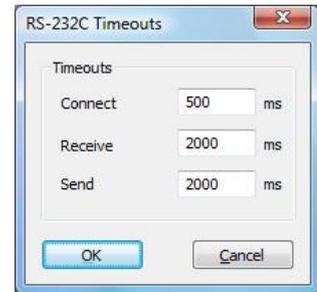
Use the drop-down menu at the top of the window "IO Settings" to select the entry [RS-232C connection]. Then at "Port:" it is necessary to select the COM port, used on the control PC.



The [Timeouts...] button of the window "IO Settings" can be used to set up other than the default RS-232 interface timeouts.

To finish the set up, perform a mouse-click on the [OK] button.

For remote control via RS-232, connect an RS-232 cross-over/null modem cable between the configured COM port of the control PC and the [Front] or [DTE1] connector of the A20 device.

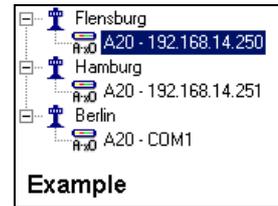


In case of problems, please check the cross-over/null modem cable, connectors and the interface configuration of the control PC and the A20 device. Consult the responsible system administrator where applicable.

## How to change the tree view structure

The tree view shows a default structure of networks/locations with A20 devices. This structure can be expanded for using additional A20 devices on additional networks/location sites. Additionally it is possible to modify the existing structure.

To add a new location, move the mouse pointer to a network/location entry and perform a right-click with the mouse. Select the entry [New Location...] in the appearing context menu (or select [Device Management → New Location] in the menu). Enter a name in the appearing edit field. Do not use more than 8 to 12 characters or the symbols \ / : \* ? " < > |. Confirm the settings by hitting the "Return" key or by a mouse-click outside the edit field. If you want to cancel the process, hit the "ESC" key.



To add a new A20 device, select the location entry where the new device should appear and then perform a right-click. Choose the entry [New Decoder...] in the appearing context menu (or select [Device Management -> New Decoder]). Enter a name in the appearing edit field. Do not use more than 8-12 characters or the symbols \ / : \* ? " < > |. Confirm the name with a mouse-click on the [OK] button. Then the new device is shown in the tree view.

To delete an existing entry or to change the name of an entry, just follow the previously described steps. Use the context menu or the program window menu entry [Device management] and select [Delete Entry...] or [Rename Entry...]. Location entries have to be empty to be deletable.

At the start of the program, the software automatically selects the tree view structure entry of the A20 device that was connected before.

## Out of range input indication (orange colored input fields)

If a numerical input field of a remote tab contains an out of range value, the input field turns orange. Then, a ToolTip shows the valid value range. If the value is corrected and within range again, the input field turns back to normal background colour.

## Connection control

If the device and the interface to the control PC are configured correctly, the remote control functions can be used. The buttons of the connection control have the following functions:

[Connect] - The desired device has to be selected with a mouse-click in the tree view for connection. A mouse-click on a [+] symbol opens the tree with the devices of a specific location. A mouse-click on the button [Connect] establishes a data connection to the selected device.

(Note: If your A20 device has outdated firmware versions installed, a firmware update is initiated automatically. See page 12 for details.)

A20Lab allows only a single user to take control over the connected A20. If another user is connected to the A20 via RS-232, and you try to establish a connection via TCP/IP to the same A20, an "Access conflict" window appears. (If you try to connect an A20 device via TCP/IP that is already connected to another user via TCP/IP, a connection error message appears instead.)



You can choose if you do not want to access the A20 in this case or if you accept a read-only access. Then A20Lab does not allow changes on the A20, but it is possible to read-out all values. If the first connected user e.g. changes the tuner frequency, the second connected (read-only) user can see these changes. Another possibility is to take control over the A20 yourself, instead of the first user. The first user then loses control of the A20 and sees the following message window:



So the previous first user is informed that another user has taken control over the A20 as first user. The previous first user then has the possibility to disconnect or to access the A20 in read-only mode.

[Disconnect] - A mouse-click on this button disconnects an established data connection.

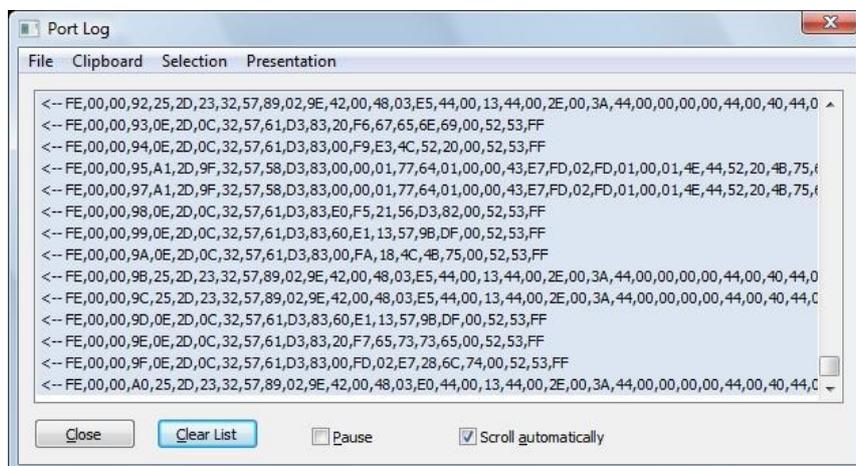
[LED Flash] - This button enables the user to identify the connected device out of several devices (e.g. in a rack) by activating all LED's for a short flash.

[Port Log] - The data communication between A20Lab and the connected device is continuously logged in the background. The button [Port Log] starts a "Port Log" window, which shows the logged data.

A right-click in the list box of the "Port Log" window opens a context menu that enables to copy the log content or to save it as a file. Only the selected rows are saved (or all rows if no selection is active). These functions can also be used via the window menu. Additionally the window menu contains the entry [Presentation] to select between the display of the complete UECP frame data or just the contained user data.

White colored rows indicate data sent by A20Lab to the A20 device. Blue colored rows indicate response data / data of the A20 device.

The checkbox [Pause] can be used to pause the logging. The checkbox [Scroll automatically] can be used to ensure that the latest data is shown in the list box.

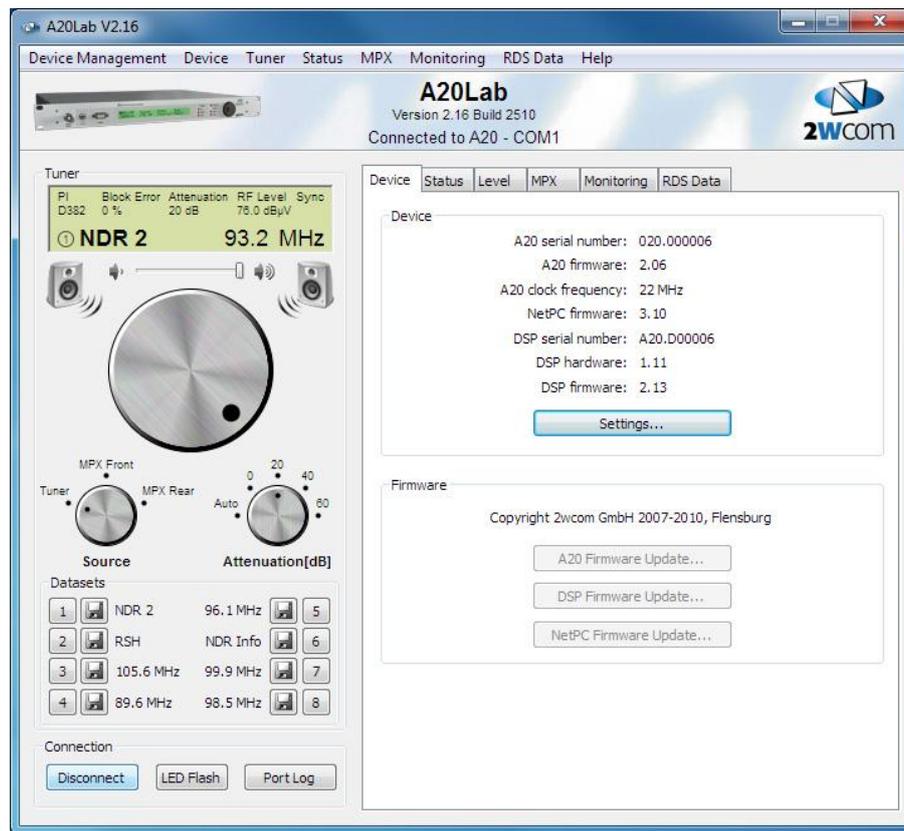


### **Automatic firmware update**

The A20Lab software requires an A20 device with up-to-date firmware versions. Therefore A20Lab performs a version check if a connection to an A20 device is initiated. A20Lab checks the versions of the controller firmware, the DSP firmware, and the NetPC firmware. If the firmware needs to be updated, A20Lab displays corresponding message windows. These windows can be used to transfer the firmware versions consecutively to the A20 device. Please follow the corresponding messages. Please see also pages 45, 47, and 49 for details about the (manual) firmware update process.

## 5. Functions

### Tuner control



If A20Lab has established a data connection to an A20 device, the left-hand part of the program window shows a tuner control instead of the tree view structure.

The simulated LCD screen shows several important information:

PI, block error rate, chosen RF attenuation (in case of activated auto-attenuation, the automatically selected attenuation), RF level, sync. status (in case of no sync., the word "Sync" is displayed in grey instead of black), the number of the active monitoring dataset (bottom left, encircled number), PS, tuner frequency or MPX Front/Rear, and the TP/TP-EON indicator.

The big Jogwheel can be used to tune the frequency. The two rotary-switches can be used to select the signal source (internal tuner, MPX front, MPX rear), as well as the RF attenuation.

Below the two rotary switches are eight "station buttons". The buttons can be used to activate one of the eight monitoring datasets. Changes (e.g. a changed frequency or RF attenuation) can be saved by a mouse-click on the disk-symbol [📀] of the corresponding dataset.

If the A20 device is operated locally (e.g. the frequency is changed), these changes are automatically shown on the simulated LCD screen and also by the rotary switches for signal source and RF attenuation of A20Lab. So these A20Lab elements always show the present status of the device.

### Audio monitoring

The two loudspeaker symbols below the LCD-screen (only visible for devices with MP3 option) can be used to start an audio monitoring of the currently received station / signal input.

The audio monitoring establishes an IP-connection to the MP3 port of the A20, to play the MP3 data stream via an audio device (sound card / sound on-board). So it is not necessary to install and use external MP3 player software.

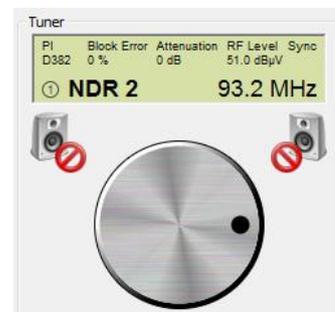
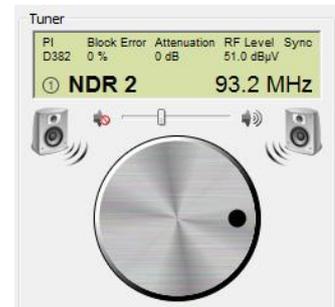
If the connection is established, the loudspeaker symbols are switched to "active" (see figure on the right side) to indicate the active audio monitoring.

After the data buffering and the start of the audio playback, an audio volume slide control is displayed above the Jogwheel. The symbol that is left of the slide control can be used as an audio mute button.

The audio monitoring requires that an MP3 audio codec is installed as part of the Windows operating system. Windows XP/Vista/7 have this codec installed by default. Other Windows systems have this codec installed if Windows Media Player Version 9 or above is installed.

If A20Lab cannot detect an MP3 codec or an audio device on the PC, the audio monitoring is not possible. The loudspeaker symbols are then marked accordingly (see figure on the right side).

If the mouse pointer is placed at such a marked loudspeaker symbol, a help text shows the details of the problem.



### TP/TA and EON function

If the function is activated (menu entry [Tuner → TP/TA ], the simulated LCD Display shows if the received station supports Traffic Announcements (TA) – either directly "TP" or indirectly "TP-EON". If a traffic announcement occurs, the audio monitoring is activated (if not yet done). For EON stations without TA service it will even tune the A20 to the EON station that provides the TA service during traffic announcements – just like e.g. a car-radio would do.

## **Tab [Device]**

The tab [Device] shows the serial number of the connected A20 device, as well as all hardware and firmware versions.

If no data connection is established, the buttons [A20 Firmware Update...], [DSP Firmware Update...] and [NetPC Firmware Update...] can be used to update the A20 controller firmware, the DSP-firmware, and the NetPC firmware of the A20 device that is currently selected in the tree view structure. Details about this procedure can be found on pages 45, 47, and 49.

All basic settings of the A20 are covered in the separate dialog "Device Settings", accessible via the button [Settings].

## **Device Settings**

The window "Device settings", accessible via the button [Settings] on the tab [Device], covers the following A20 settings:

[IP], [SNMP], [Headphone], [MP3], [I/O] and [Real time clock / Units].

Changes need to be sent by a mouse-click on [OK] or [Apply].

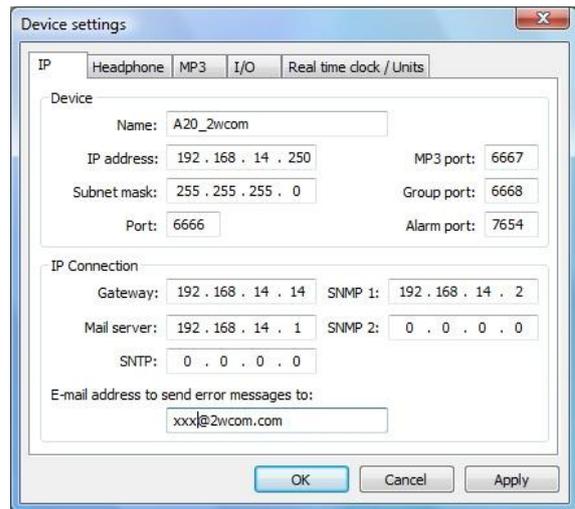
As some of the settings can only be configured and saved directly in the NetPC, the network modul of the A20, the tab [SNMP] is only present, if the connection to the A20 is established via TCP/IP. Apart from that the tabs [IP] and [Real time clock / Units] are slightly different depending on whether the connection to the A20 is established via TCP/IP or via RS-232.

As the enhanced settings are only relevant for the operation of the A20 inside TCP/IP networks, this should not be a constraint.

The individual settings of the dialog "Device Settings" are explained on the next pages.

Tab [IP], connected via RS-232

The tab [IP] of the window [Device Settings] is for setting the TCP/IP interface of the connected A20, as well as setting its E-Mail-, SNMP-, and SNTP-configuration.

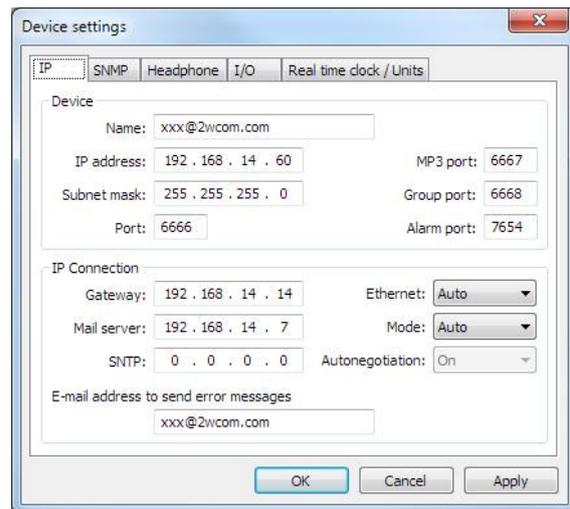


Name	Show/Select the device network name / email sender address for the email function of the device.
=E-mail sender addr.	E-mail function: Depending on the configuration of the e-mail server (local SMTP server that does not require authentication for sending e-mails), here it is necessary to enter a full e-mail sender address (e.g. A20_FL04@2wcom.com) or just the part in front of the @-symbol for a working e-mail function. The recipient of the e-mails then sees it as the sender address. Do not use spaces or special characters. Please consult the responsible network administrator for assistance if possible.
IP address	Unique device address, which identifies the device in a network.
Subnet mask	Bit mask that separates an IP-address into a network part and a host part.
Port	Show/Select the port number that is used for the connection to A20Config.
MP3 port	Port number that is used for the MP3 streaming (requires option MP3).
Group port	Port number that is used for the RDS group data.
Alarm port	Port number that can be used for transferring alarms.
Gateway	Address of the system / router, which connects the local network to the internet.
Mail server	Address of the SMTP e-mail server to be used.
SNMP 1	Show/Enter to which IP address the monitoring function of the device sends the SNMP-traps / events (messages).
SNMP 2	Show/Enter to which IP address the monitoring function of the device sends the SNMP-traps / events (messages) additionally.
SNTP	Show/Enter which NTP time server IP can be used for synchronizing the internal real time clock.
E-mail address to send error messages to	Show/Enter to which e-mail address the monitoring e-mail-messages of the device should be sent. Please see also the description above about the field "Name" for necessary details.

Tab [IP], connected via TCP/IP

When connecting the A20 via TCP/IP, the possible settings on the [IP] tab differ slightly compared to the ones when connected via RS-232.

Instead of the input fields for SNMP 1 and SNMP 2 (the enhanced settings for SNMP can now be found on the extra tab [SNMP]), the behavior of the ethernet interface of the A20 can be configured to fit the requirements within the network.



Ethernet	[10 MBit] / [100 MBit] / [Auto] (Default = Auto) Maximum ethernet speed
Mode	[Half Duplex] / [Full Duplex] / [Auto] (Default = Auto) Ethernet mode
Autonegotiation	[On] / [Off] (Default = On) Activated auto-negotiation enables devices to automatically exchange information about possible speed and duplex abilities and to negotiate the settings accordingly. The possible speed and duplex abilities offered in the auto-negotiation process can be limited by e.g. setting the speed to 10 MBit - auto-negotiation will then only offer that speed (selecting "Auto" will offer both options). Auto-negotiation can only be deactivated, wenn for both speed and mode a fixed setting is chosen instead of "Auto"; the A20 will then operate with this fixed settings.

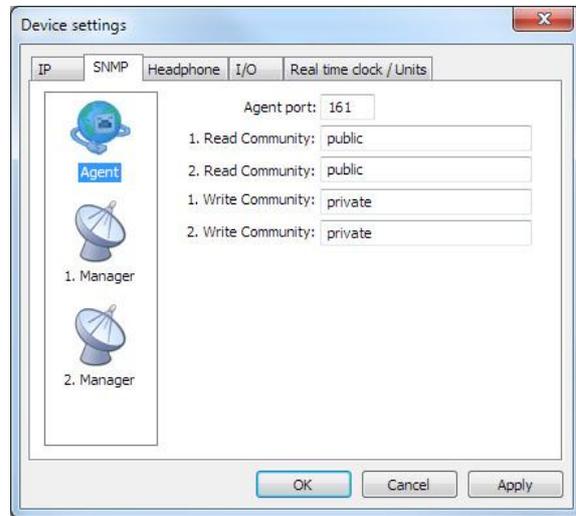
Tab [SNMP] *only when connected via TCP/IP*

The tab [SNMP] of the window [Device Settings] allows adjusting the settings for the SNMP protocol. The A20 is able to send SNMP events to configured IP addresses of one or two SNMP managers within the scope of its monitoring function. It is also possible to read out many values and settings via "SNMP Get".

The tab [SNMP] is divided into three sub categories – Agent, 1. Manager, 2. Manager

Tab [SNMP – Agent]

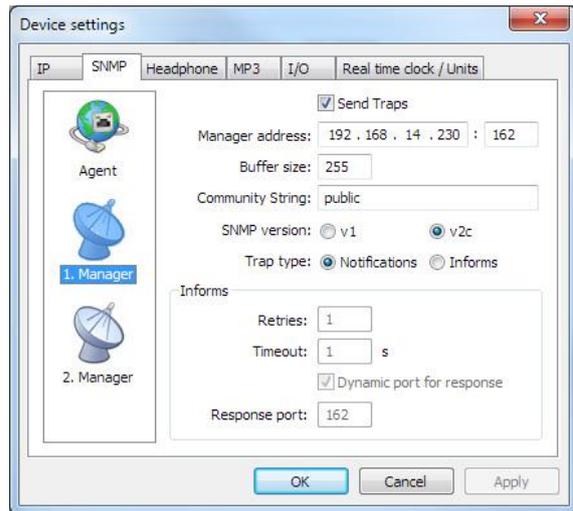
The SNMP sub category "Agent" allows adjusting the settings for the SNMP agent running on the A20.



Agent port	Port number of the agent, accessible via SNMP GET and SET commands from e.g. network management systems Default port number is 161
1. Read Community	First community string (password) for reading informations via SNMP (GET) Default is "public"
2. Read Community	Second community string (password) for reading informations via SNMP (GET) Default is "public"
1. Write Community	First community string (password) for setting parameters via SNMP (SET) Default is "private"
2. Write Community	Second community string (password) for setting parameters via SNMP (SET) Default is "private"

Tab [SNMP – 1. Manager]

The SNMP sub category “1. Manager” allows adjusting the settings for the first SNMP manager addressed when the A20 is sending SNMP events.



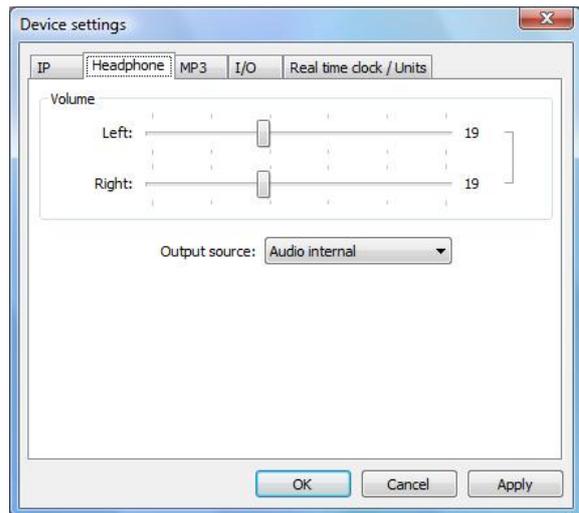
Send Traps	Determines, if events should be sent to the first manager. Can be used to easily suppress the sending of events without the need to change any other settings (e.g. for servicing).
Manager address	IP address of the first SNMP manager including the port number (Default port number is 162)
Buffer size	Number of traps the A20 will buffer in its memory, when the first manager is temporarily not available
Community String	Password used when sending informs to the first manager
SNMP version	Determines, if the SNMP events sent by the A20 should conform to SNMP standard v1 or v2c. If SNMP v1 is chosen, all following options are automatically disabled (grayed out), as they do not apply to SNMP standard v1.
Trap type	Determines, if the A20 should send notifications (v2c traps) or informs in case of chosen SNMP standard v2c. If notifications are chosen, all following options are automatically disabled (grayed out).
Retries	Maximum allowed number of retries to send an inform in case of missing inform acknowledgement on the part of the SNMP manager
Timeout	Time, after which an already sent inform will be send again in case of missing inform acknowledgement on the part of the SNMP manager
Dynamic port for response	Determines, if the SNMP manager will send the inform acknowledgements to the dynamic port number used by the A20 when sending the informs or if the manager will always use a fixed port number for the answer. If the manager is using a fixed port number for the inform acknowledgements (like MG-SOFT), this option has to be disabled.
Response port	Fixed port number for the inform response / acknowledgement

Tab [SNMP – 2. Manager]

The same settings available for the first manager are available for the second manager.

Tab [Headphone]

The tab [Headphone] of the window [Device Settings] is for setting the volume of the headphone output and the audio source for the headphone audio output of the A20.

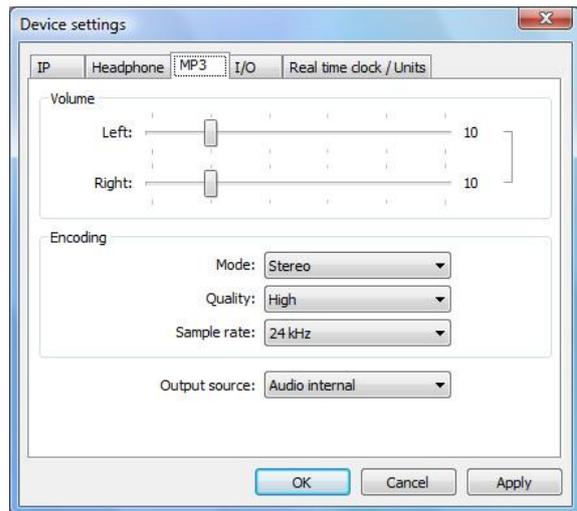


Volume Left:	Show/Select the left channel headphone volume level.
Volume Right:	Show/Select the right channel headphone volume level.
Bracket at the sliding controls	Show/Select if the volume level of the channels (left/right) should be set individually (interrupted line) or combined.
Output source	Show/Select which signal should be available at the headphone connector of the A20. [None] = no signal [Audio internal] = signal of the internal stereo decoder [Audio external] = Signal of the external audio inputs [Audio MPX] = non decoded internal receiver MPX signal

Tab [MP3]

The tab [MP3] of the window [Device Settings] is for the configuration of the MP3 encoder, to enable the transmission of an MP3 audio live stream via TCP/IP (see also "Audio Monitoring" on page 15).

Note: Only applicable for A20 devices with integrated MP3 module.



Volume Left / Volume Right	Show/Adjust the maximum volume level of the generated MP3 signal. This setting is for an initial adjustment only and determines the maximum audio level available at the MP3 player software; the actual MP3 playing volume is adjusted at the MP3 player software only.  The levels generally need to be adjusted carefully to avoid signal overload clipping.
Bracket at the sliding controls	Show/Select if the volume level of the channels (left/right) should be set individually (interrupted line) or combined.
Mode	Show/Select if a stereo or mono MP3 signal should be generated.
Quality	Show/Select which MP3 coding quality level should be used. The coding quality level affects the effective bit rate of the data stream. Available are [Low], [Mid] and [High].
Sample rate	Show/Select which sample rate should be used. Available are [16], [22.05], and [24] kHz.
Audio source	Show/Select which signal should be sent via the MP3 live stream. [None] = no signal [Audio internal] = signal of the internal stereo decoder [Audio external] = Signal of the external audio inputs [Audio MPX] = non decoded internal receiver MPX signal

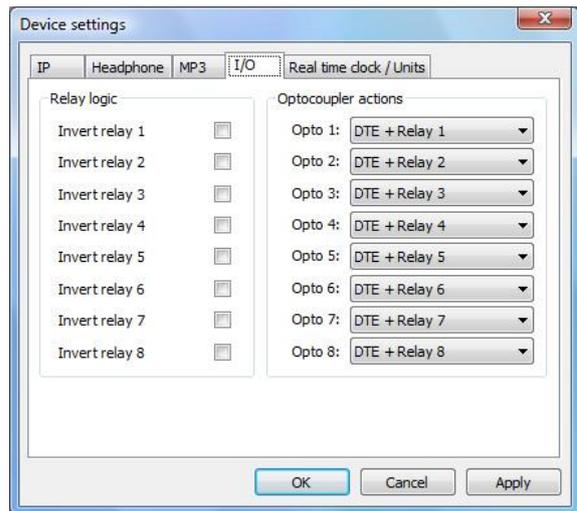
Manual start of the MP3 streaming via an external player: In the MP3 player application, select the function to play an URL and enter the URL in the format: "http://xxx.xxx.xxx.xxx:mp3-port".

The "x" represents the IP address of the specific A20 device and is followed by a colon and the configured MP3 port number.

The MS Windows Media Player software does not support the generated MP3 stream format ICY Shoutcast (tested with V10.00.00.3802 and V11.0.6000.6324). Programs that support the format are e.g. Winamp and iTunes.

Tab [I/O]

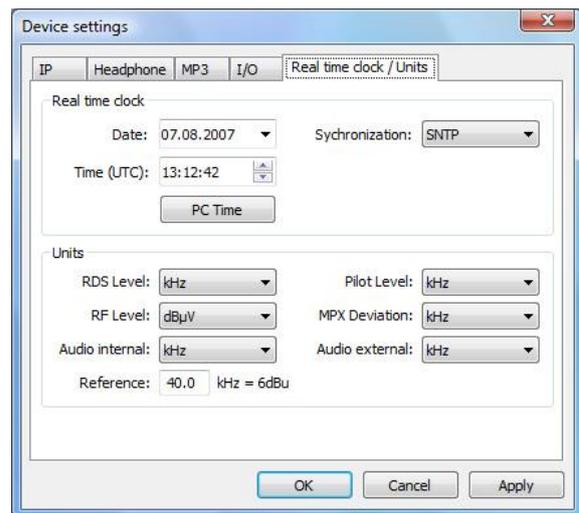
The tab [I/O] of the window [Device Settings] is for setting the configuration of the relay logic (inverted or normal) and the opto input actions.



Relay logic	The “Invert” checkboxes can be used to invert the relay functions (inverting is active if checkbox is activated).
Opto input actions	<p>Show/Select the assigned function of the specific opto input. If an opto input is actuated, the assigned function is executed. Possible functions are:</p> <ul style="list-style-type: none"> <li>• E-Mail: Sends an e-mail message to defined address</li> <li>• DTE: Outputs an ASCII text message via port DTE1</li> <li>• Relay x: Activates relay x (x = No. 1...8)</li> <li>• SNMP: Sends an SNMP trap message to defined SNMP address.</li> <li>• DSx: Activates a monitoring dataset (x = No. 1...8)</li> <li>• All dual combinations of the above functions (except DSx)</li> </ul> <p>Notes:</p> <p>No opto functions are executed if the scan mode is activated.</p> <p>The activation of an opto input resets the functions that are activated by other active opto inputs.</p> <p>Active messages are not ended by switching to another dataset.</p> <p>Opto input 1...8 represent opto input 0...7 of the device.</p>

Tab [Real time clock / Units], connected via RS-232

The tab [Real time clock / Units] of the window [Device Settings] is for setting the A20 integrated real time clock and for setting the configuration of the measurement units to be displayed.

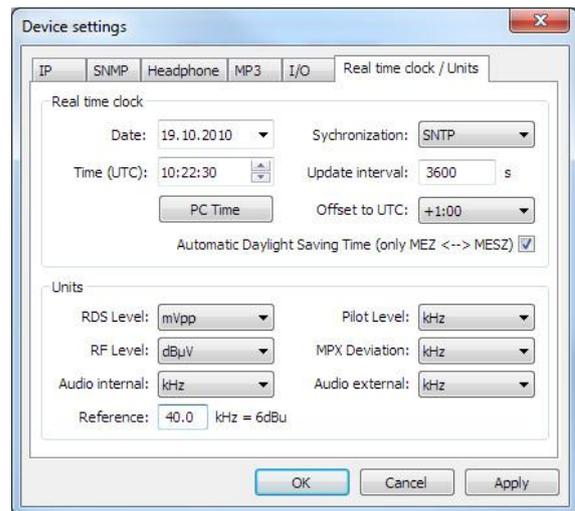


Date	Input field for the display/input of the date of the internal real time clock.
Time (UTC)	Input field for the display/input of the time of the internal real time clock.
PC Time	Copies the date and the time of the PC clock to the input fields
Synchronization	<p>Setting the method for synchronizing the integrated real time clock (RTC).</p> <p>[None]: No synchronization of the RTC.</p> <p>[CT]: The A20 RTC is set by the RDS CT if two consecutive, correct CT transmissions (minimum two minutes) have been received.</p> <p>[SNTP]: The A20 RTC is set by an NTP time server over TCP/IP connection (for SNTP server setting see tab [IP])</p>
Units	<p>Here it is possible to choose the measuring unit to be displayed for several measurement values.</p> <p>Additionally it is possible to set the transmitter FM deviation that is caused by a modulation voltage level of 6 dBu. With this setting it is possible to display correct modulation voltage levels. (Typical values are e.g. 40 kHz or 50 kHz.)</p>

Tab [Real time clock / Units], connected via TCP/IP

When the connection to the A20 is established via TCP/IP, the options on the tab [Real time clock / Units] differ slightly from the ones when connected via RS-232.

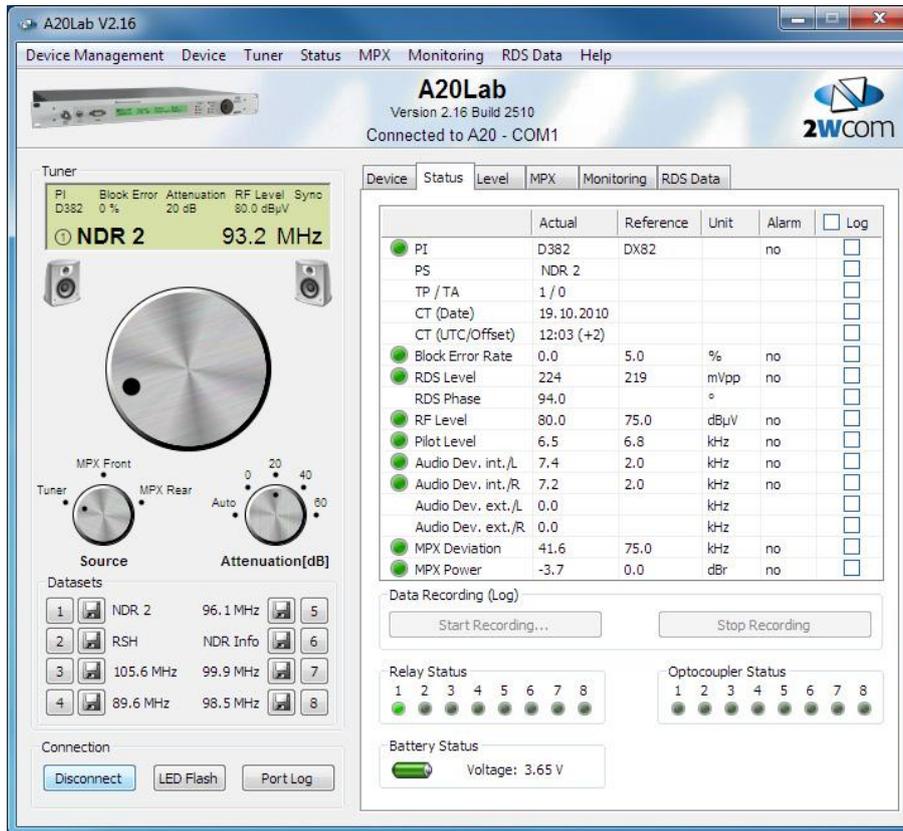
There are additional settings for the SNTP synchronization and for the timestamps used when sending SNMP events.



Update interval	If SNTP is chosen for the synchronization of the real time clock of the A20, the synchronization with the SNTP server set on the tab [IP] will be done every "update interval" seconds.
Offset to UTC	Determines the time zone and thereby the local time via the offset to UTC (Universal Time Coordinated).  The real time clock of the A20 will be synchronized to UTC by both CT and SNTP. If the inserted timestamps of the SNMP events should express local time (plus an information about the offset to UTC), the offset to UTC has to be set accordingly.
Automatic Daylight Saving Time	If the A20 is located in the Central European Time Zone, the switch between Central European Time CET and Central European Summer Time CEST can be done automatically.  For other time zones the offset to UTC has to be changed manually in case of a summer/winter time switch, provided that local time information is wanted in the SNMP events. Otherwise the offset to UTC can be set to 0; the timestamps of the SNMP events will than express UTC.

## Tab [Status]

The tab [Status] is for showing several received RDS parameter and values. Additionally the status of the relay, opto inputs, and the internal buffer battery is shown. The display is continuously updated.



If an alarm method is assigned to a monitorable parameter/value, a status “LED” indicates for most of the values, if this parameter/value is currently within the defined tolerance range (green) or out of the defined tolerance range (red). This indication is independent of the defined delay times and is only shown if the measured values are valid.

Two individual columns show the actual/reference values. If a reference value is shown, the corresponding actual value is monitored. The “Alarm” column shows if a value triggered an alarm.

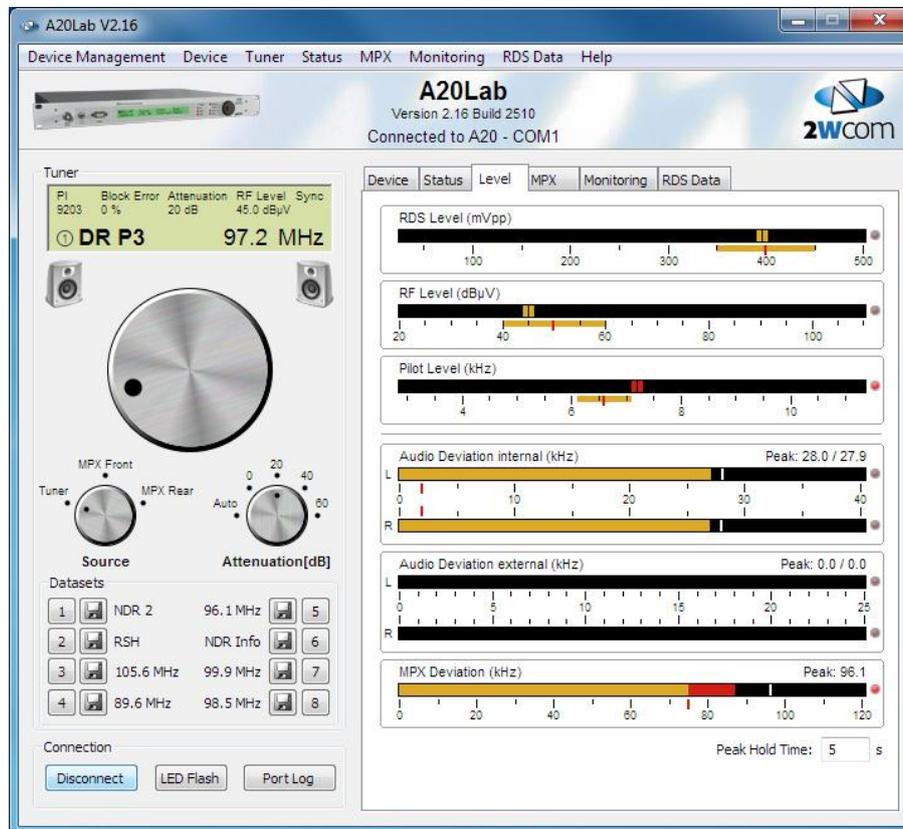
The “Log” column can be used to select the data for the logging. The logging itself is started by a mouse-click on the button [Start Recording...]. Use the appearing “Save status data” dialog to specify the log file name and target folder. The log file has the CSV format and contains all marked values. Use the button [Stop Recording...] to stop the logging.

**Note:** If the measurement units are changed (via tab [Device] -> [Settings...] -> tab [Real time clock / Units]) while the logging is activated, the log file is closed and a new log file for all new log data is created. The name of the new log file is the old log file name plus a counter suffix. This counter is increased for every change of the measurement units.

## Tab [Level]

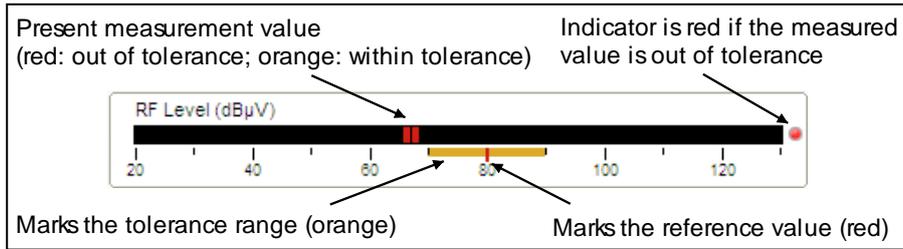
The tab [Level] is for the graphical display of the RDS-, RF-, and pilot level, as well as the audio deviation (internal/external, L/R) and the MPX deviation.

Note: Not all shown level displays may be shown with your A20 device, as this depends on the type/options of the connected A20. These options can be upgraded. Please contact us for details.

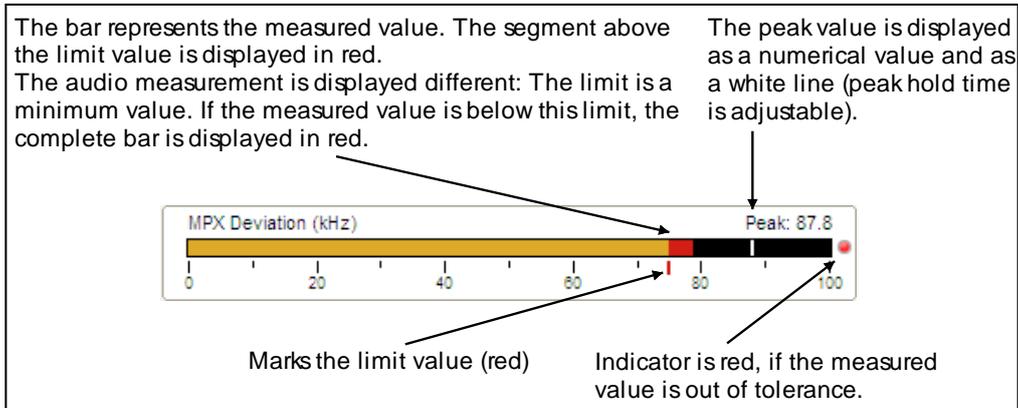


The graphical display of levels and FM deviation levels is slightly different. The details of the elements are shown in the following figures.

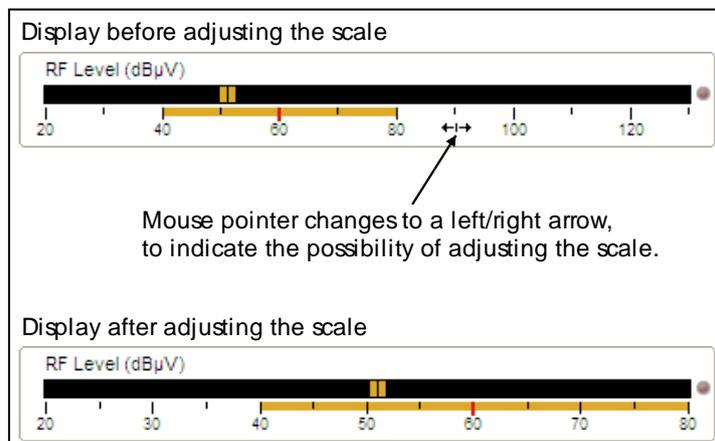
### Graphical display of levels



### Graphical display of FM deviation levels

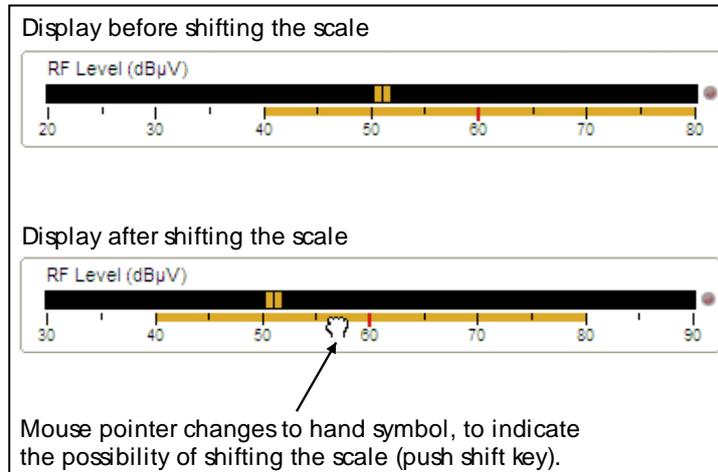


The scales of the level displays are adjustable and can be adjusted according to your needs. If the mouse pointer is positioned on a scale, it changes to a left/right arrow. By pushing the left mouse button while moving the mouse, it is possible to adjust the max. value of the scale. The maximum value is limited to a reasonable value, depending on the selected level unit.

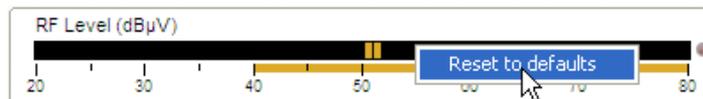


Additionally it is possible to shift the scale range (e.g. to have a scale range of 30 to 90, instead of 20 to 80). To do this, place the mouse pointer on the scale, push the shift-key and keep it pushed (mouse pointer changes to a hand symbol). Then push the left mouse button while moving the mouse to shift the scale. The maximum and minimum values are limited to reasonable values, depending on the selected level unit.

Display before/after shifting the scale



It is possible to reset the scales to its default values at any time. To do this, right-click on the corresponding scale and select [Reset to defaults] in the appearing context menu.



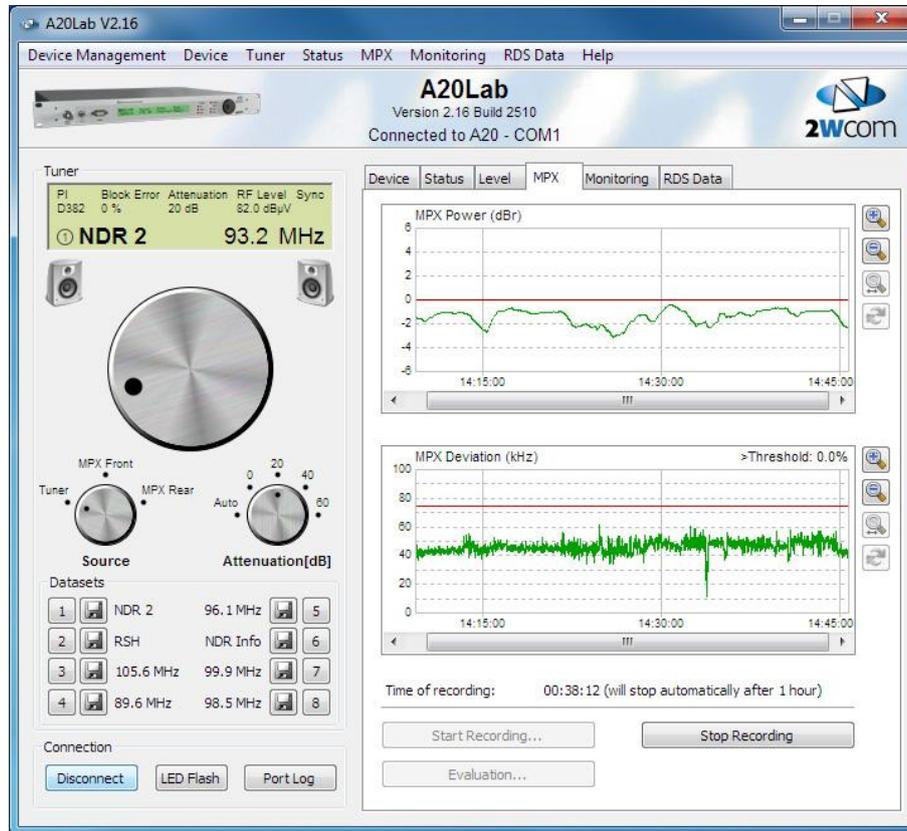
The tolerance range indicator or the limit/reference indicator of a bar display is only shown if a monitoring alarm method is selected for the value. If this is not the case, the level bar is always plain orange.

The input field [Peak Hold Time] can be used to change the peak hold display delay time. Possible values are between 1 and 999 seconds.

## Tab [MPX]

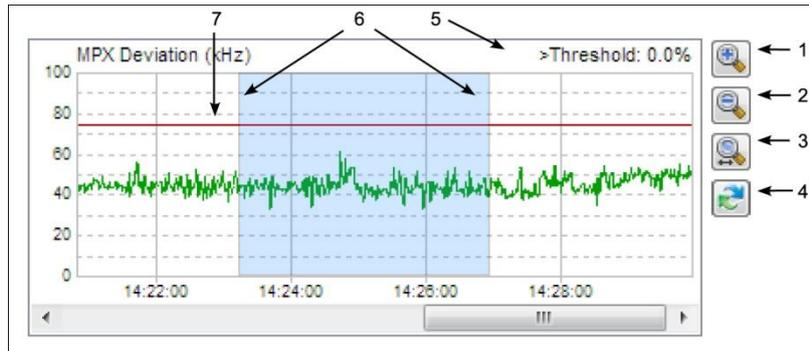
The tab [MPX] is for recording the MPX power and the MPX level over a longer time period. The recorded values are displayed as a graphical diagram.

Note: The access to the tab [MPX] is limited to connected A20 MPX devices.



The button [Start Recording...] will open a "Save" dialog, in which the user can specify the name and target folder for the file that will store the following measurement data. In that dialog it is also possible to choose, if the recording should stop after a certain amount of time (1 – 4 hours). The file will be saved in a proprietary format, which can be read by the simple enclosed evaluation program MPXView (see page 33). To save measurement data in CSV format for processing in a different program, use the functionality provided by the tab [Status] (see there).

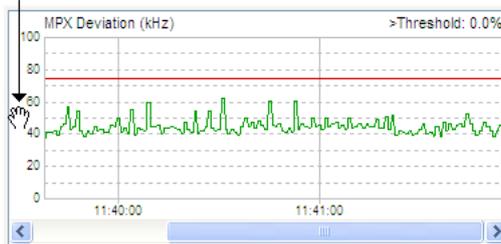
During and after recording the presentation of the measurement data in the diagram controls can be adjusted. The details of the diagram control elements are shown on the next pages.



- 1: The magnifying glass with the plus symbol stretches the time domain (limited to a specific limit, which deactivates the button).
- 2: The magnifying glass with the minus symbol compresses the time domain (limited to a specific limit, which deactivates the button).
- 3: The magnifying glass with the arrow symbol zooms the display to an existing selection (see index 6 for selection details; without a selection, the button is deactivated).
- 4: Synchronization of the two diagram controls. When clicking on that symbol, the diagram left to the symbol will be synchronized to the other diagram (where the other diagram is the source for the synchronization). Synchronization includes the zoom level (time domain) and scroll position.
- 5: Displays the amount of values that exceed the limit. The value is expressed as a percentage.
- 6: Selection: Click into the diagram and keep the left mouse button pushed, while moving the mouse to make the desired selection. The selected area is shown as a blue shaded area.
- 7: Red line: The red line marks the limit value. Measurement values above this limit are drawn in red color, values below this limit are drawn in green color.

Like the scale of a level display on tab [Level], the vertical scale of the MPX level and MPX power diagram can be adjusted. This can be done in the same way as described before.

Mouse pointer changes to a hand symbol to indicate the possibility of shifting the scale (push shift key).



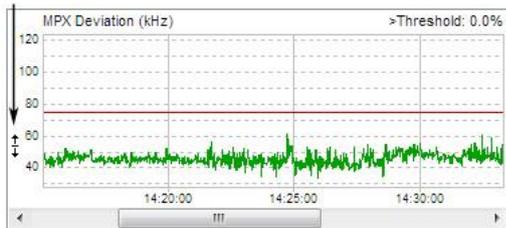
Default scale display

If the mouse pointer is positioned on a vertical scale, it changes to an up/down arrow. By pushing the left mouse button while moving the mouse, it is possible to adjust the max. value of the scale.

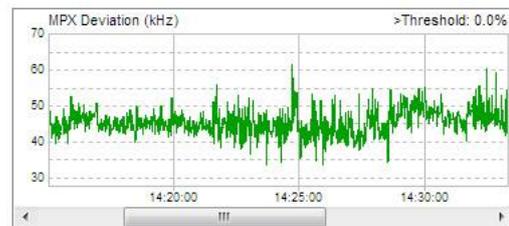
Additionally it is possible to shift the scale. To do this, place the mouse pointer on the scale, push the shift key and keep it pushed (mouse pointer changes to a hand symbol). Then push the left mouse button while moving the mouse to shift the scale.

The maximum and minimum values are limited to reasonable values, depending on the selected level unit. If you want a more detailed display and e.g. the lower scale value is at the limit, first adjust the max. value of the scale to a lower value and then shift the scale to the desired scale display.

Mouse pointer changes to up/down symbol to indicate the possibility of adjusting the scale range.



Display after shifting the scale range



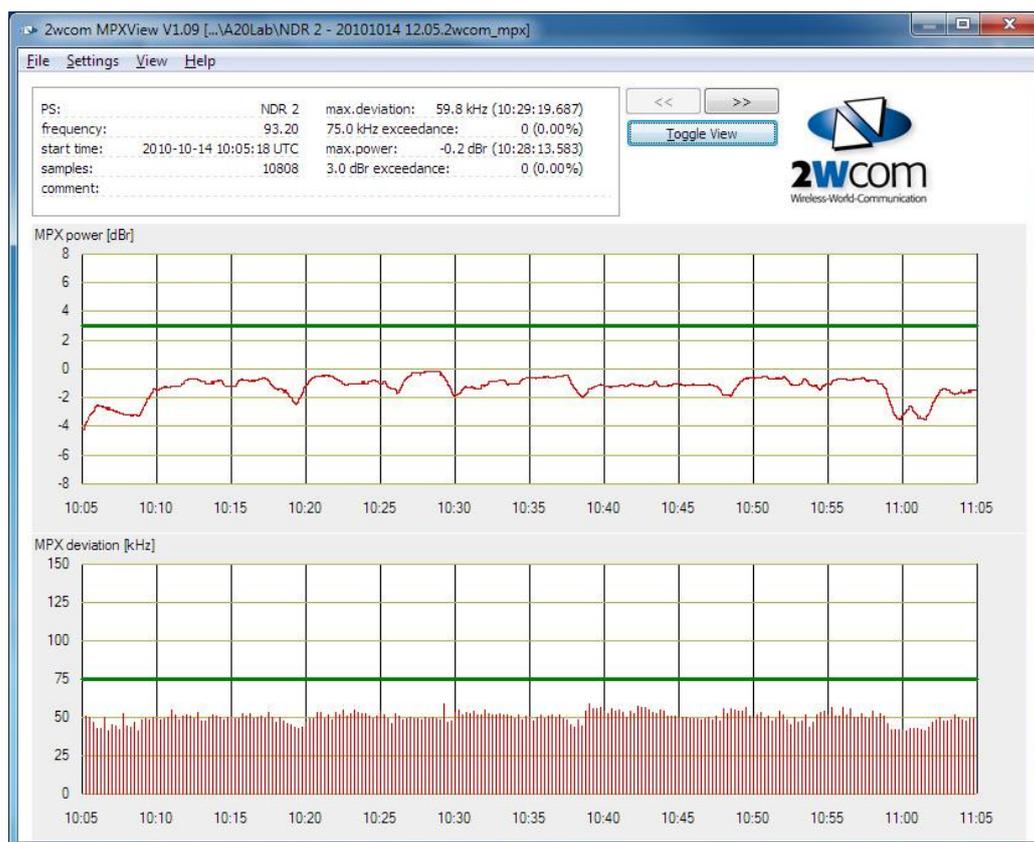
Display after changing the scale max. value

The recording can be stopped at any time with the button [Stop recording]. The button [Evaluation...] automatically starts the simple enclosed evaluation program MPXView with the measurement data file just recorded.

**Please note:** If the measurement units are changed (via tab [Device] → [Settings...] → tab [Real time clock / Units]) while the logging is activated, the log file is closed and a new log file for all new log data is created.

### MPX Evaluation Program MPXView

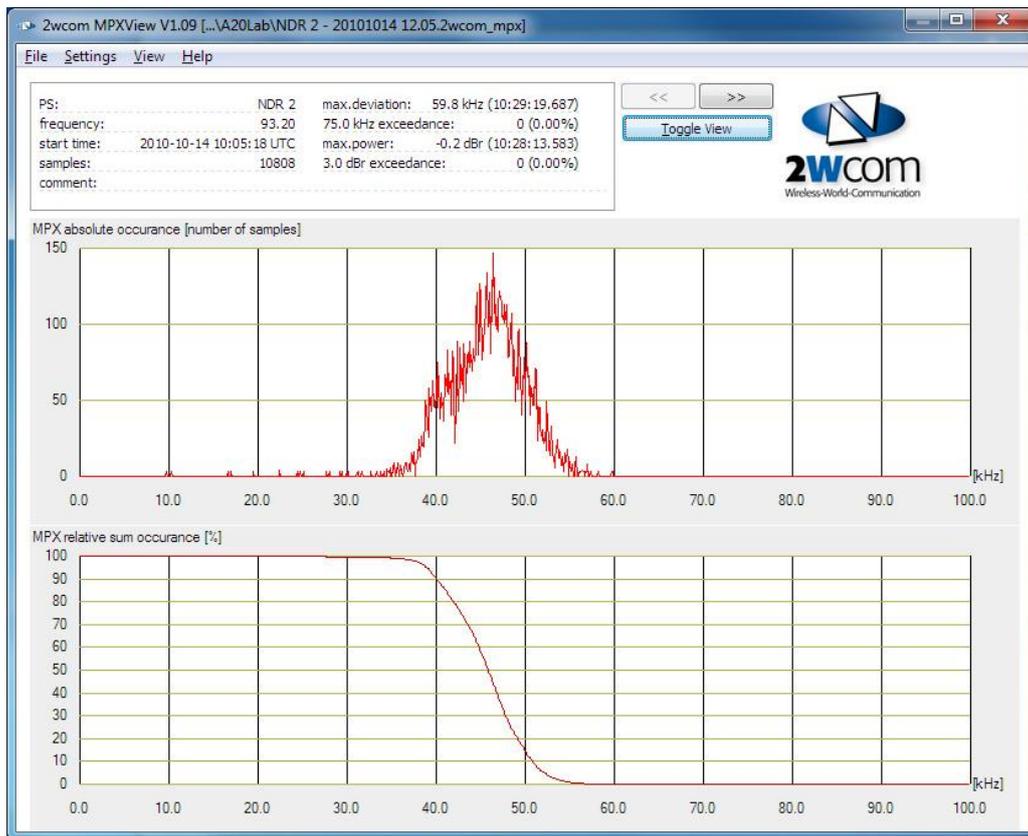
For a simple evaluation of the recorded MPX data the enclosed program MPXView can be used.



It is meant for documentation purposes of the MPX recording and shows the maximum deviation and power as well as the percentage of the MPX deviation and power exceedance. The diagrams show a complete hour; with the buttons [ << ] and [ >> ] it is possible to scroll the view in steps of half an hour (provided that the recording is that long).

It is possible to adjust the sampling time for the MPX deviation via the menu entry [Settings → Deviation Sampling Time].

Apart from the two diagrams showing the MPX power and deviation on a time axis, the button [Toggle View] will show another two diagrams, namely the MPX absolute occurrence and the MPX relative sum occurrence.



Using the menu entry [File → Print] will print the currently visible diagrams together with the textual data shown in the upper left corner. The menu entry [Settings → Enter Comment] will allow entering a free comment, which will also show in the print-out.

## Tab [Monitoring]

The tab [Monitoring] is for editing the monitoring datasets. These datasets can be saved locally on the PC or can be read out from the connected A20.



The "Monitoring Datasets" area shows a list with the eight datasets. The column "Monitor" contains checkboxes to activate the monitoring of the individual datasets. A mouse-click on the checkbox in the column header activates/deactivates the monitoring of all datasets.

The two radio buttons above the dataset list can be used to select if the locally saved data ([File]) or the read-out data of the connected A20 ([A20]) should be displayed. If [File] is selected, the button [Send to A20] below the list can be used to send all datasets to the connected A20.

If a data connection to an A20 device is active and the tab [Monitoring] is chosen the first time, the radio button [A20] will be activated and the datasets of the connected A20 will be read-out and shown. While the read-out process starts and continues, it is possible to edit the datasets that are already read-out. After read-out all datasets, the button [Save to file] below the list can be used to save the read-out datasets locally on the PC.

A double-click on a dataset shows the "Edit Dataset" window with all monitoring settings of the dataset.

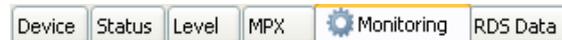
Changes on the dataset settings are saved instantly (no matter if [File] or [A20] is selected as data source).

The tab [Monitoring] can be used to configure the dataset settings also while not connected to a device. To do this, a device has to be selected by a mouse-click in the tree view. Then the settings of the tab can be changed. This can be done for every device

profile individually. The dataset changes are saved locally on the PC and can be transmitted to a device while connected later on.

The checkbox [Scan Mode] can be used to start/stop the dataset scan mode. An activated scan mode is indicated by a gearwheel symbol in the tab header of tab [Monitoring].

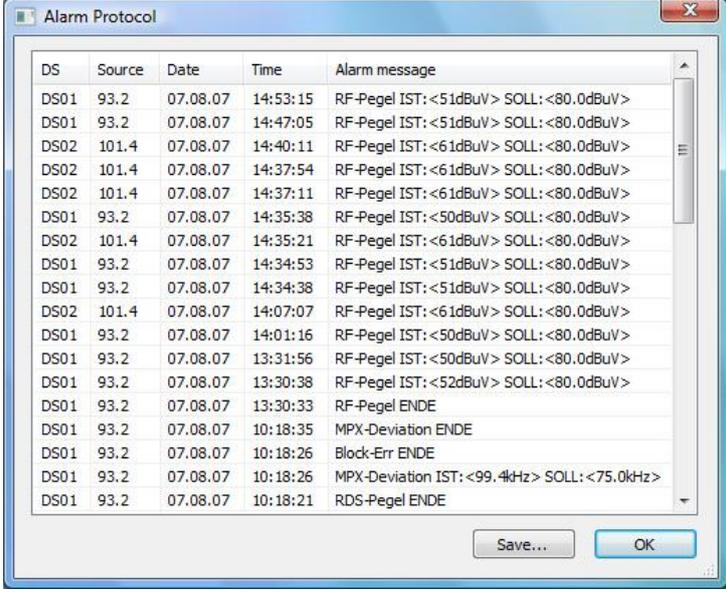
Note: If connected to an A20T, the scan function is not available!



The button [Show Alarm Protocol...] can be used to display the stored alarm messages of the connected A20 (see next page for details about the "Alarm Protocol" window).

The button [Delete Alarm Protocol] deletes all alarm messages, stored in the connected A20.

## Alarm Protocol



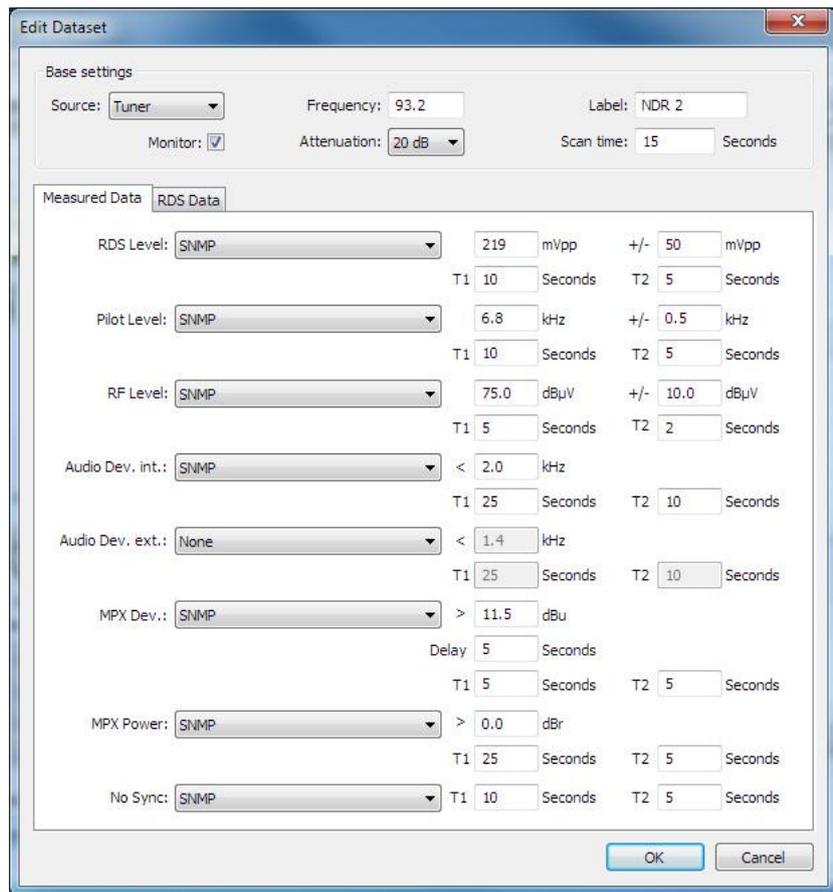
DS	Source	Date	Time	Alarm message
DS01	93.2	07.08.07	14:53:15	RF-Pegel IST: <51dBuV> SOLL: <80.0dBuV>
DS01	93.2	07.08.07	14:47:05	RF-Pegel IST: <51dBuV> SOLL: <80.0dBuV>
DS02	101.4	07.08.07	14:40:11	RF-Pegel IST: <61dBuV> SOLL: <80.0dBuV>
DS02	101.4	07.08.07	14:37:54	RF-Pegel IST: <61dBuV> SOLL: <80.0dBuV>
DS02	101.4	07.08.07	14:37:11	RF-Pegel IST: <61dBuV> SOLL: <80.0dBuV>
DS01	93.2	07.08.07	14:35:38	RF-Pegel IST: <50dBuV> SOLL: <80.0dBuV>
DS02	101.4	07.08.07	14:35:21	RF-Pegel IST: <61dBuV> SOLL: <80.0dBuV>
DS01	93.2	07.08.07	14:34:53	RF-Pegel IST: <51dBuV> SOLL: <80.0dBuV>
DS01	93.2	07.08.07	14:34:38	RF-Pegel IST: <51dBuV> SOLL: <80.0dBuV>
DS02	101.4	07.08.07	14:07:07	RF-Pegel IST: <61dBuV> SOLL: <80.0dBuV>
DS01	93.2	07.08.07	14:01:16	RF-Pegel IST: <50dBuV> SOLL: <80.0dBuV>
DS01	93.2	07.08.07	13:31:56	RF-Pegel IST: <50dBuV> SOLL: <80.0dBuV>
DS01	93.2	07.08.07	13:30:38	RF-Pegel IST: <52dBuV> SOLL: <80.0dBuV>
DS01	93.2	07.08.07	13:30:33	RF-Pegel ENDE
DS01	93.2	07.08.07	10:18:35	MPX-Deviation ENDE
DS01	93.2	07.08.07	10:18:26	Block-Err ENDE
DS01	93.2	07.08.07	10:18:26	MPX-Deviation IST: <99.4kHz> SOLL: <75.0kHz>
DS01	93.2	07.08.07	10:18:21	RDS-Pegel ENDE

The window "Alarm Protocol" can be opened by a mouse-click on the button [Show Alarm Protocol...] on tab [Monitoring]. It is possible to cancel the read-out process by closing the "Alarm Protocol" window.

The button [Save...] can be used to save all alarm messages in a text file.

Window [Edit Dataset]

A double-click on a dataset entry of the tab [Monitoring] opens the window "Edit Dataset" with the corresponding monitoring settings. All parameters of the dataset can be edited.



Source	Show/Select if the [Tuner] signal or a signal from the MPX inputs [MPX Front] or [MPX Rear] should be monitored.
Frequency	Show/Select the dataset specific receiving frequency for tuner operation.
Label	Show/Input the name of the data set (up to 9 characters are possible).
Monitor	Show/Select if the configured monitoring and alerting settings of the dataset should be activated (checkbox activated) or not.
Attenuation	Show/Select if the RF signal at the [RF Input] should be attenuated to extend the measurement range.
Scan time	Show/Select the time that the device waits before switching to the next dataset during active scan mode (A20T: Function not available).

The monitoring functions on the next pages can be assigned to various messaging methods.

Available are:

- [None] (Monitoring inactive)
- [E-Mail] (Sends alarm message via e-mail)
- [Relay] (Activation of a relay; 8 are available)
- [DTE] (ASCII text message via the DTE1 RS-232 interface).
- [SNMP] (Alerting by an SNMP-trap via TCP/IP).
- Additionally all methods can be dual combined.

Furthermore there's the possibility to combine the messaging of several monitoring functions to one of three summary alarms. A summary alarm will get active, if one of its combined monitoring functions triggers an alarm; if another one of the combined monitoring functions triggers an alarm, the summary alarm won't give another alarm. The summary alarm will be withdrawn, when all of its combined monitoring functions signal valid parameters.

The only available messaging methods for the summary alarms are [SNMP] and [E-Mail] (either single or dual combined).

Several functions allow to enter an alarm activation delay time (T1) and an alarm reset delay time (T2) in seconds additionally.

Only if an alarm messaging method is selected, the corresponding input fields are accessible (and possibly colored in orange, if the entered value is out of range).

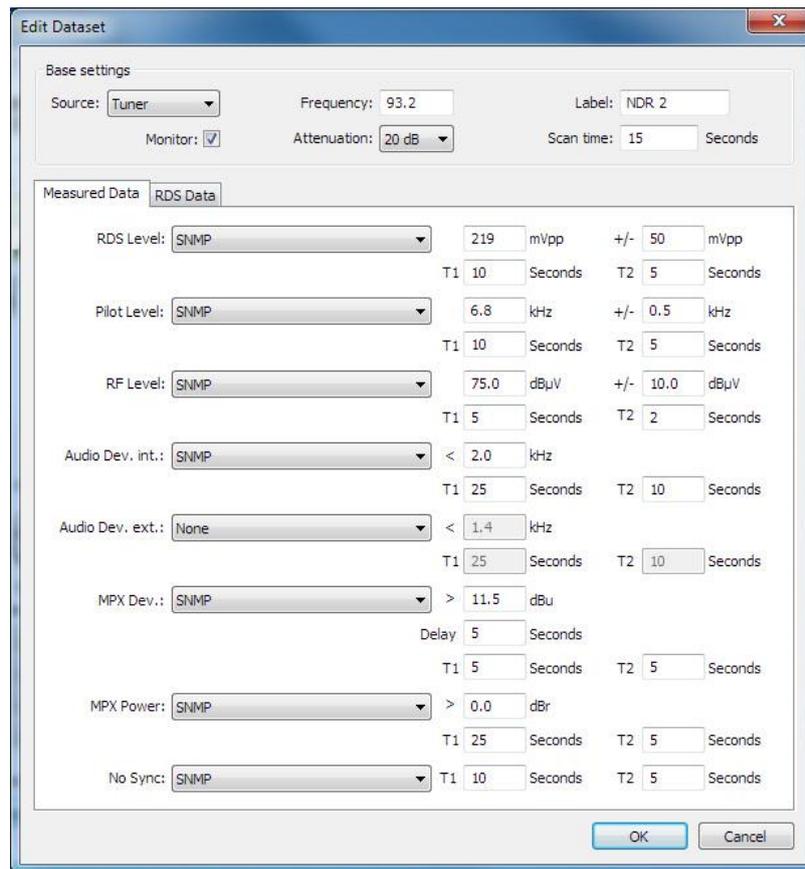
As the possible tolerance value range depends on the reference value, the tolerance range is automatically changed if the reference value is changed.

Example:

Valid value range	Reference value	Possible tolerance range
25...2500 mVpp (RDS)	200 mVpp	+/- 175 mVpp
25...2500 mVpp (RDS)	1000 mVpp	+/- 975 mVpp

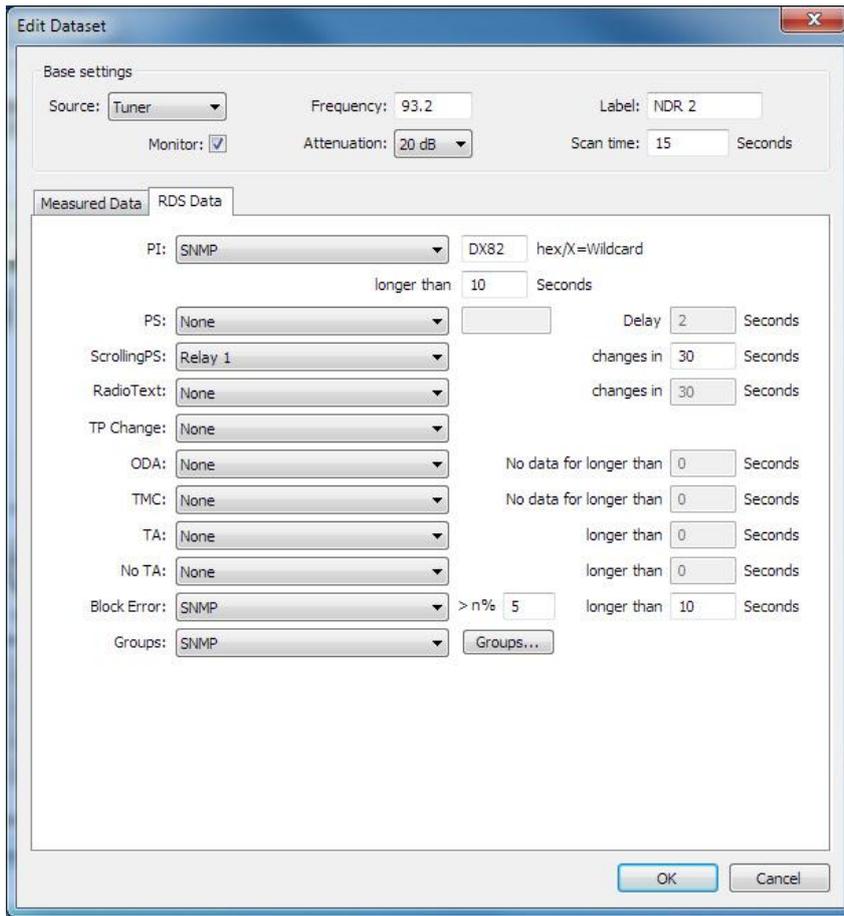
To avoid that invalid values are transferred to a connected A20, it is only possible to save a dataset if all values are valid / in range (no orange colored input fields).

Tab [Measured Data] of the window "Edit Dataset"



RDS Level	Show/Select the RDS modulation level to be monitored. Additionally a tolerance range can be defined.
Pilot Level	Show/Select the pilot signal level to be monitored.
RF Level	Show/Select the RF level to be monitored.
Audio Dev. int.	Show/Select if the received audio should be observed for a minimum audio level / FM deviation within a specified time interval. If the tuner audio signal is monitored and the signal is below the minimum according to the monitoring, the LED "Audio" at the unit is activated.
Audio Dev. ext.	Show/Select if the audio signal from the external audio inputs should be observed for a minimum audio level / FM deviation within a specified time interval.
MPX Dev.	Show/Select if the MPX signal should be monitored for exceeding a definable MPX level / FM deviation value. An exceeding is actively identified if it occurs longer than time T1 and is reset if the measured value is below the definable value longer than time T2. Additionally a switching delay time can be configured (active after switching data set or changing the tuner frequency).
MPX Power	Show/Select if the MPX power should be monitored for exceeding a definable value. An exceeding is actively identified if it occurs longer than time T1 and is reset if the measured value is below the definable value longer than time T2.
No Sync	Show/Select if a lost of the RDS synchronization should be monitored.

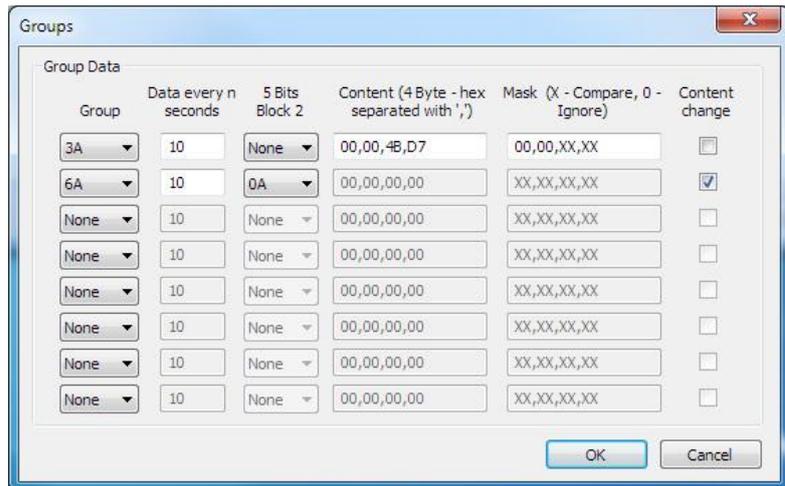
Tab [RDS Data] of the window "Edit Dataset"



PI	Show/Select the PI to be monitored.
PS	Show/Select the PS to be monitored and the trigger delay time that is used in case of a frequency change or MPX signal source change.
ScrollingPS	Show/Select if the Scrolling PS should be monitored for changing within a definable time interval (optional device function).
RadioText	Show/Select if the RadioText should be monitored for changing within a definable time interval (if the change doesn't take place within the defined time interval, the alarm will get triggered).
TP Change	Show/Select if the TP should be monitored for a change.
ODA	Show/Select if the received data should be observed for ODA (group 3A) content. Additionally it is configurable how long the system waits for ODA data before alerting.
TMC	Show/Select if the received data should be observed for TMC (group 8A) content. Additionally it is configurable how long the system waits for TMC data before alerting.
TA	Show/Select if the TA bit should be monitored. It is monitored if the TA bit is set longer than the defined time interval.
No TA	Show/Select if the TA bit should be monitored. It is monitored if the TA bit has not been set longer than the defined time interval.
Block Error	Show/Select if the RDS block error rate should be monitored. It is monitored if the defined percentage value is exceeded for more than the defined time interval.
Groups	Opens a new window for the configuration of the group monitoring. Details about the group monitoring can be found on the next page.

Window [Groups]

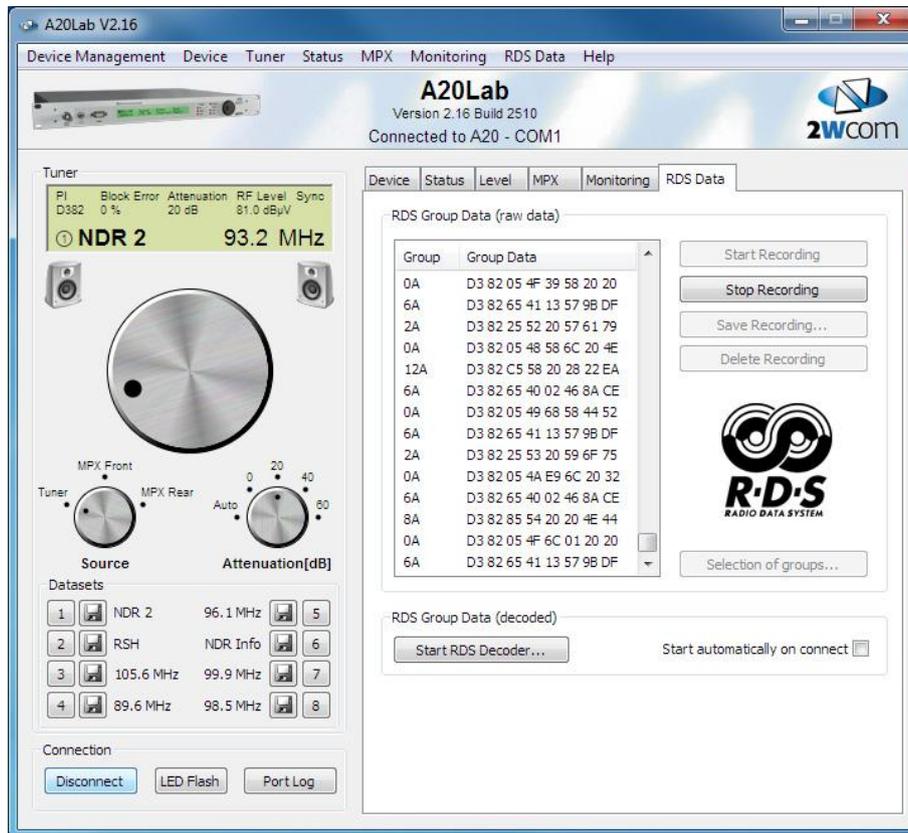
The Window [Groups] allows the individual configuration of up to eight special RDS group data monitoring setups.



Group	RDS group to monitor
Data every n seconds	<p>If content change is monitored, the value specifies the time, in which the data content of the selected group has to change. On expiration of that time without a content change an alarm will get triggered.</p> <p>If the RDS group data of the selected group is monitored for the presence of certain data, this value specifies the time, in which that data has to be received periodically. If the time expires without the reception of that data, an alarm will get triggered.</p>
5 Bits Block 2	<p>Hexadecimal value to further narrow the selected RDS group. For Inhouse data (group 6A) the 5 bits of block 2 represent the channel number.</p> <p>In the second example shown above, the Inhouse data in channel 10 (and only in that channel) has to change at least every 10 seconds.</p>
Content	4 Byte hexadecimal, separated by comma
Mask	<p>4 Byte, separated by comma, which serve as a mask for the content. It's possible to mask individual nibble (4 bit, one hexadecimal digit); X will mask in a nibble, 0 will mask it out (meaning it will be ignored).</p> <p>In the first example shown above only the last two bytes (block 4 of the RDS group data) will get used for the content comparison; the content of the first two bytes (block 3) will be ignored and doesn't matter. Concretely, the first example would monitor, if the AID for RT+ (4BD7) will get send in the 3A group at least every 10 seconds.</p>
Content change	Determines, if the RDS group data should be monitored for changing content (checkbox active) or should be checked against the data given in the field "Content".

## Tab [RDS Data]

The tab [RDS Data] is for viewing the received RDS group data - displayed as hexadecimal data or as decoded data by the external decoder software RDS Lab or RDS soft decoder.



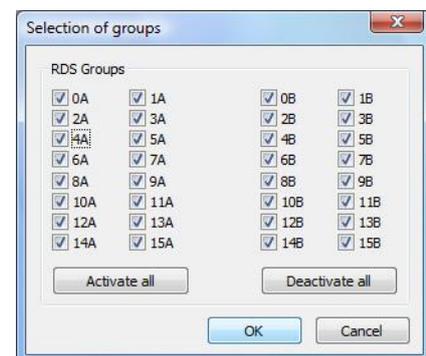
The button [Selection of groups...] can be used to select the RDS groups that are considered for the RDS group recording.

The button [Start Recording] can be used to start the RDS group recording and the display of the hexadecimal group data in a list.

The button [Stop recording] stops the RDS group recording. If the recording is stopped and the RDS group data list contains data, the button [Save recording...] can be used to save the recorded data. By default the data is saved as a text file. If the A20 has the "RDS Logger" option, the data can optionally be saved in a proprietary format of the 2wcom RDS Logger software. Such a file can be used later one together with the Log Player (bundled with the 2wcom RDS Logger software), which allows a playback of the data in the RDS decoder software. Optionally the Log Player can send the data to a 2wcom RDS encoder, which will transmit the data 1:1 (provided that the encoder has the option "Transparent Mode").

To delete the recorded data, the button [Delete Recording] can be used.

The button [Start RDS Decoder] or the shortcut "Ctrl-R" can be used to start the external 2wcom software RDS Lab or RDS Soft Decoder. The decoder shows the decoded RDS content like PI, PS, PTY, RT, RT+, TMC etc. (please see separate documentation). If the



connected A20 contains the option "RDS Lab", the advanced RDS Lab decoder software will be started; otherwise the standard RDS Soft Decoder is started.

RDS Lab is in many ways superior to the older decoder software, but is missing the feature to save the RDS data to a HTML report. If that feature is needed, it's still possible to start the standard RDS Soft Decoder even with the "RDS Lab" option present. This can be done by holding the [Shift] key while clicking on the button [Start RDS Decoder].

If the checkbox [Start automatically on connect] is checked, the RDS decoder software starts when A20Lab will be connected to an A20.

## Transfer of a new A20 firmware version to the device

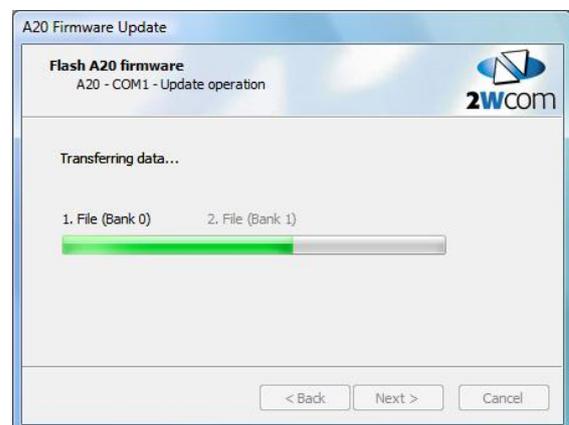
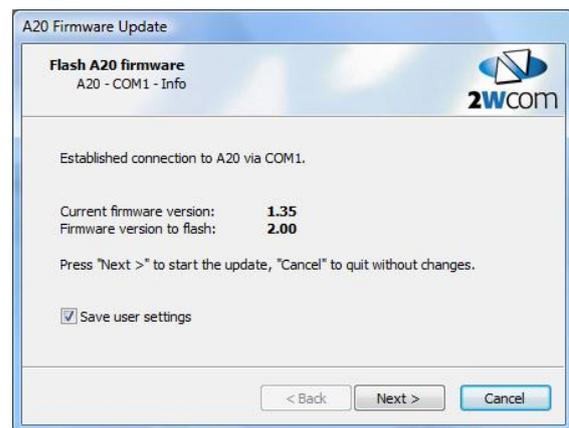
A20Lab includes a function to transfer a new A20 firmware version to an A20 device.

If a new firmware version file has been released and is present as file on the control PC, the following steps are necessary to transfer the firmware to the device via a stable TCP/IP or RS-232 connection.

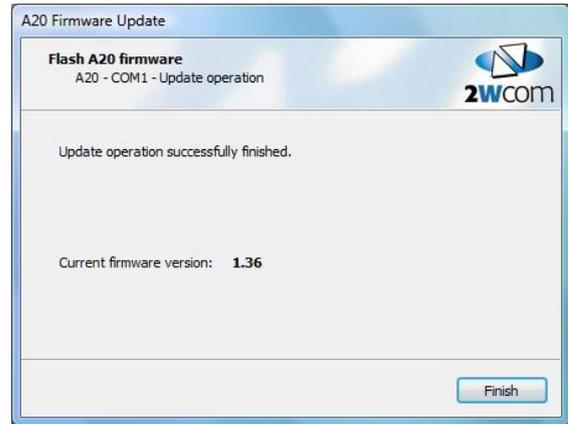
- Select a device in the tree view with a mouse-click. (Disconnect, if a data connection is active.)
  - Then the button [A20 Firmware Update] is available on the tab [Device]. Activate the button by a mouse-click.
  - An "Open file" window appears. Navigate to the specific firmware file "BANK0.BIN" and open it.
  - Then a data connection to the A20 will be established. The version of the firmware to be flashed and the current device firmware will be determined and displayed in a dialog as shown on the right-hand side.
- If the checkbox "Save user settings" is activated, the settings as contained in the device are restored after the update. If you deactivate it, the device is set to the default factory settings (except the IP settings) after the update.

As the flashing process is not already started, at this point it can be cancelled without any problems and changes in the device.

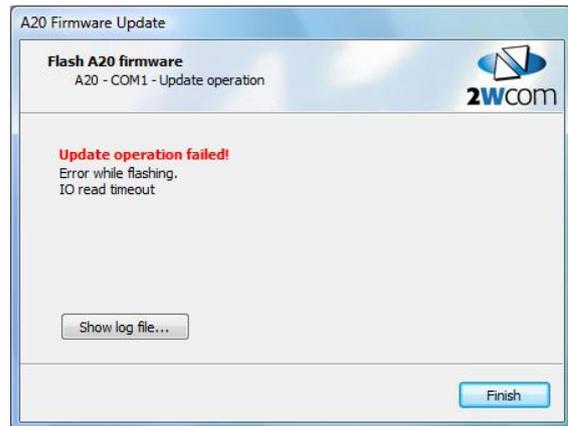
- A mouse-click on [Next >] starts the firmware transfer process. This is indicated by a progress bar. Two files (Bank 0 and Bank 1) are transferred consecutively. The device LCD shows "Flashing Bank 0" and "Flashing Bank 1" consecutively and also shows a progress bar. Additionally the LED's of the device are activated cyclical.



- After transferring, the device shows "Burn" and performs a reset. To verify the successful transfer of the firmware, a data connection is established to read-out and display the present firmware version. The A20 is then ready for service again.



- The transfer fails if the connection to the device is interrupted during the process. In this case a window as shown on the right-hand side is displayed. The window shows the type of problem and enables to display a log of the UECP data communication by a mouse-click on [Show log file...].



- In case of an update error, a restart of the device is necessary. The device then shows "Flash bad" and cannot be operated. After starting the update process, A20Lab automatically detects if the A20 is in boot loader mode and displays a corresponding message. However, the firmware update can be transferred as already described. After the successful transfer, the device is ready for service again.

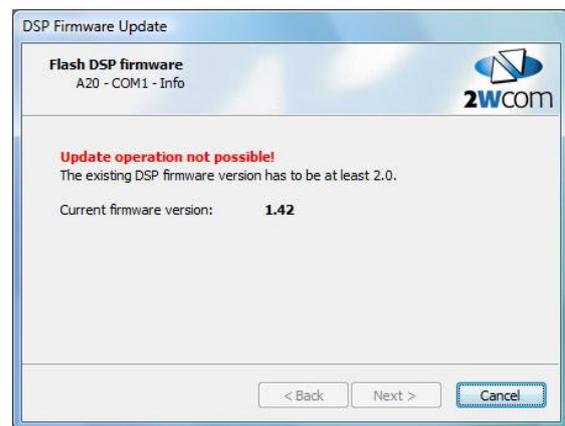


## Transfer of a new A20 DSP firmware version to the device

A20Lab includes a function to transfer a new A20 DSP firmware version to an A20 device. A requirement for this is, that the present DSP firmware version is V2.0 or higher.

If a new firmware version file is released and is present as a file on the control PC, the following steps are necessary to transfer the DSP firmware to the device via a stable TCP/IP or RS-232 connection.

- Select an A20 device in the tree view with a mouse-click. (Disconnect, if a data connection is active.)
- Then the button [DSP Firmware Update...] is available on the tab [Device]. Activate the button by a mouse-click.
- An "Open file" window appears. Navigate to the specific firmware file "XXXXX.DSP" and open it.
- Then a data connection to the A20 will be established to check if the current DSP firmware version of the A20 supports an update. If this is not the case, a window as shown on the right-hand side is displayed.



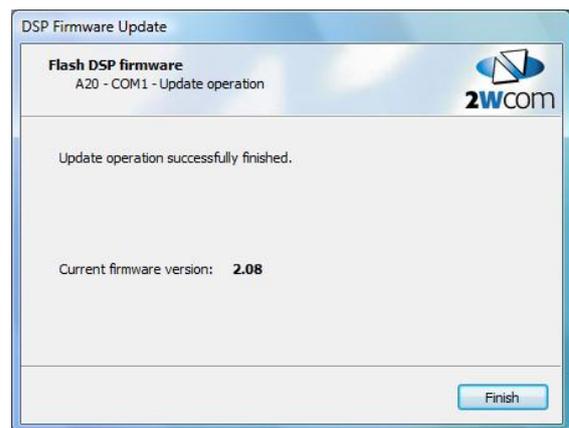
- If a DSP update is supported, the version of the firmware to be flashed and the current device DSP firmware will be determined and displayed in a dialog as shown on the right-hand side. As the flashing process is not already started, it can be cancelled without any problems and changes in the device.



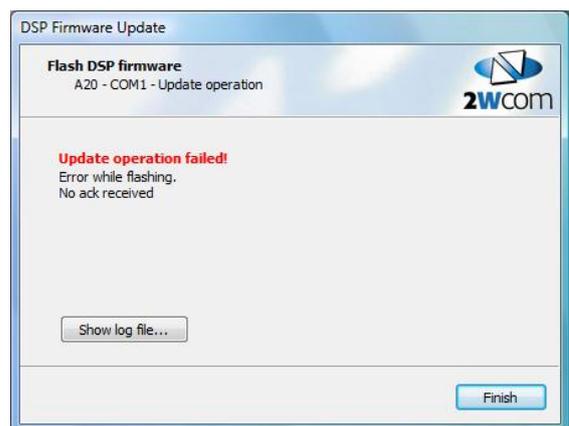
- A mouse-click on [Next >] starts the DSP firmware transfer process. This is indicated by a progress bar. The device LCD shows "Writing DSP flash data..." and then "Flashing DSP...".



- After flashing the DSP firmware, the A20 performs a reset. To verify the successful transfer of the firmware, a data connection is established to read-out and display the present firmware version. The A20 is then ready for service again.



- The transfer fails if the connection to the device is interrupted during the process. In this case a window as shown on the right-hand side is displayed. The window shows the type of problem and enables to display a log of the UECP data communication by a mouse-click on [Show log file...].



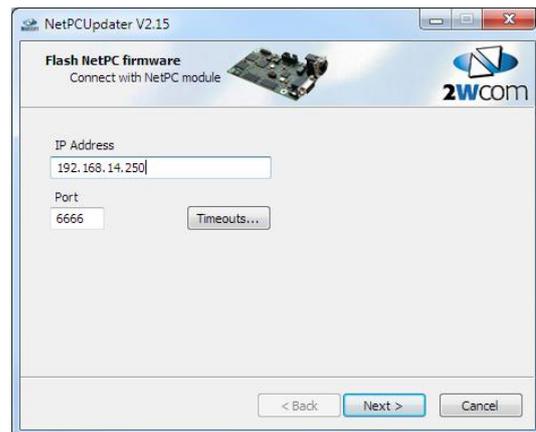
- In case of an update error, a restart of the device is necessary. Then, the DSP firmware update can be transferred again as already described. After the successful transfer, the device is ready for service again.

## Transfer of a new NetPC firmware version to the device

A20Lab includes a function to transfer a new NetPC (integrated TCP/IP module) firmware version to an A20 device.

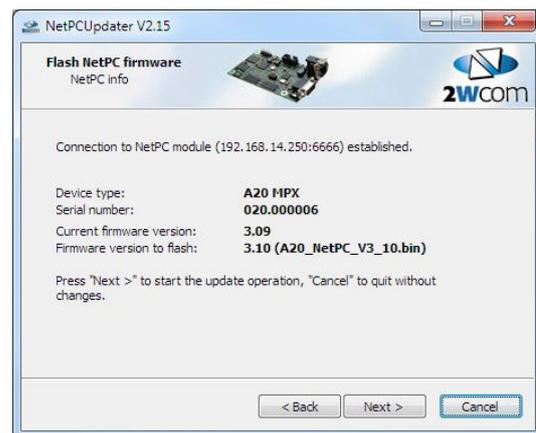
If a new firmware version file is released and is present as a file on the control PC, the following steps are necessary to transfer the NetPC firmware to the device via a stable TCP/IP connection (no transfer via RS-232 connection possible):

- Select an A20 device in the tree view with a mouse-click. (Disconnect, if a data connection is active.)
- Then the button [NetPC Firmware Update...] is available on the tab [Device]. Activate the button by a mouse-click.
- A "NetPC Updater" window appears. Enter the IP address or hostname and the IP port of the target A20 device.



- Then a data connection to the A20 will be established to show the device type, serial number, current version and the version to be transferred.

The transferring can be started by a mouse-click on [Next >]. This process may take a few minutes ("Transferring firmware to NetPC module..." and "Flashing in progress..."). If the transferring was successful, a corresponding message is shown ("Update operation successfully finished.").



If the tool was not able to establish a data connection to the A20 device (e.g. "Could not connect to the NetPC module") or the transferring fails ("Update operation failed"), please double-check that the A20 can be connected via IP-network and that the connection is stable. Then it is usually possible to simply restart the update process. If the tool shows a firmware conflict screen, please double-check that the firmware is intended to be used in the connected A20 before you continue.

**Please note:** An updated NetPC firmware may requires updated 2wcom MIB files for your SNMP application if applicable. These files are provided separately.

## 6. Command options

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A20Lab can be started by using command options to establish automatically a data connection to an A20 device.

Possible command options:

<code>/COM[:x]</code>	<code>x</code> : Number of the COM port; default is 1
<code>/IP:&lt;ipaddr&gt;[,port]</code>	<code>ipaddr</code> : IP-address with format xxx.xxx.xxx.xxx <code>,port</code> : Port number; default is 6666

Examples:

```
A20Lab.exe/COM:5  
A20Lab.exe/IP:192.168.14.10,6666
```

The software immediately tries to connect the A20 device with the given command options. If the connection fails, a corresponding message is generated and A20Lab is closed.

If the connection is established, A20Lab first looks if the connected A20 is part of the existing tree-view structure. If the connected A20 is already part of the structure, the existing default datasets (part of the locally stored folder "LocationData") are used. If the A20 is not part of the structure, a temporary folder with the data of the folder "ScanData" is created for this A20. This folder is deleted automatically, if the A20 is disconnected later on.