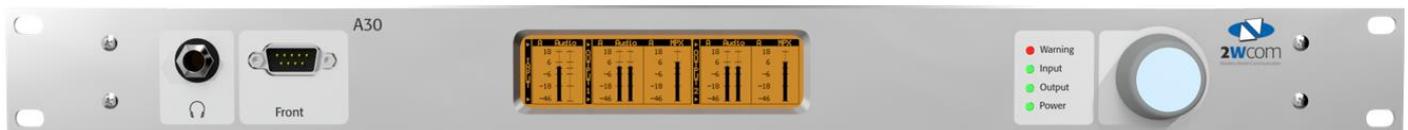# A30

## Professional, flexible FM/DAB Monitoring and Measurement Receiver

*Backup- and Rebroadcast-Receiver
with Dual FM tuner and scanmode*

## User Manual

(most examples and pictures based on ARM firmware version: 1.09-1.10, 1.20-1.39)

A30 User Manual V02.54

August 2020

# Content

# 1.  Symbols in this Manual

## 1.1.    References and Hyperlinks in this PDF File

The original text document of this manual uses bookmarks for reference purposes. If you read this manual as a non-print version, please note that this PDF file also contains all bookmarks! So you can navigate through the document via the content overview in your PDF viewing software if you activate "bookmarks view".

All references to pages, sections, figures and tables as well as hyperlinks in the text identify a location within this PDF file. Just click the reference to find the referred passage in the text!

## 1.2.    Warning Signs and their Meaning

The following warning signals are used in this user manual:

| | |
|---|---|
| ⚠ | Warning of general danger location |
| ⚡ | Warning of electric shock |
| 🔥 | Warning of hot surface |
| 🔥 | Warning of fire hazard |

## 1.3.    Tags and their Meaning

The following signal words are used in the product documentation in order to warn the reader about risks and dangers. The tags described here are always used only in connection with the related product documentation and the related product.

| | |
|---|---|
| ⚠ **DANGER** | Indicates a hazardous situation which, if not avoided, will result in death or serious injury. |
| ⚠ **WARNING** | Indicates a hazardous situation which, if not avoided, could result in death or serious injury. |
| *NOTICE* | Describes precautions necessary to protect the equipment. |
| ⓘ | **NOTE:** Useful information for the user. |

# 2. Introduction

Description
The following user manual describes the Flexible Monitoring Device A30 with Dual FM tuner and scanmode. The following functions are integrated in the A30:

- RF demodulation and monitoring (TMC/RT+ decoding and RDS Databridge)
- 2 RF antenna inputs
- (optional) RF3 input for DAB Tuner that also supports DAB+
- Silence detection of Audio In (optional)
- Dual Option (extra rights)
  - o Dual Tuner
  - o Dual MP3 Streaming
  - o Dual Audio Output (analog and digital switchable)
- Enhanced Measurements (optional)

The main function of the device is to monitor and to demodulate the audio signal from one of the 30 configurable FM stations and send alarms via email, SNMP or switching relay contacts. The A30 is equipped with two tuners (optional). Both tuners can scan and monitor up to 30 FM stations. Scanning function can be activated only for one tuner at the same time.

The A30 can be equipped with DAB module that also supports DAB+ modulation and monitoring (e.g. RF Level, FIC Error, Slideshow).

The following manual guides you through the separate operation modules of the A30. Some features can be combined with each other as separate modules and built in on request. Please contact our sales department.

Control
**HTTP Web interface**
The unit is controlled via a built-in web user interface.

**SNMP**
Additional monitoring of the device using SNMP is possible. Rudimentary device control, status information and alarm trap generating are available.

**LCD and jog wheel**
Simple configurations can be made via LCD menu and jog wheel.

User
Only experienced technical personal or engineers should operate the A30 devices. Basic knowledge about FM technology and IP networks is required.

---

**NOTE**: Read this user manual carefully before attempting to operate the unit. Save this user manual for future reference – it contains important safety and operating instructions for the device.

## 2.1.    General Functions

A30 is a professional flexible monitoring rebroadcast receiver that is able to monitor up to 30 stations feeding over two FM inputs and rebroadcast them as an MPX signal over 2x MPX outputs.

It can be brought into operation for example for rebroadcasting radio stations by the broadcast transmitters in the distant areas, where the RF signal is too weak and RDS cannot reach the receiver.

If DAB/DAB+ Tuner option is available, the A30 can save up to 30 stations (DAB Services) and monitor one of them at once.

The A30 is equipped with 2x RF antennas, 1x RF3 Input (optional), 1x MPX input and a double internal FM tuner. You can individually configure up to 30 stations, process one of them and monitor multiple stations over the second tuner with scan modus (DAB+ Tuner is optional, excludes MPX Input).
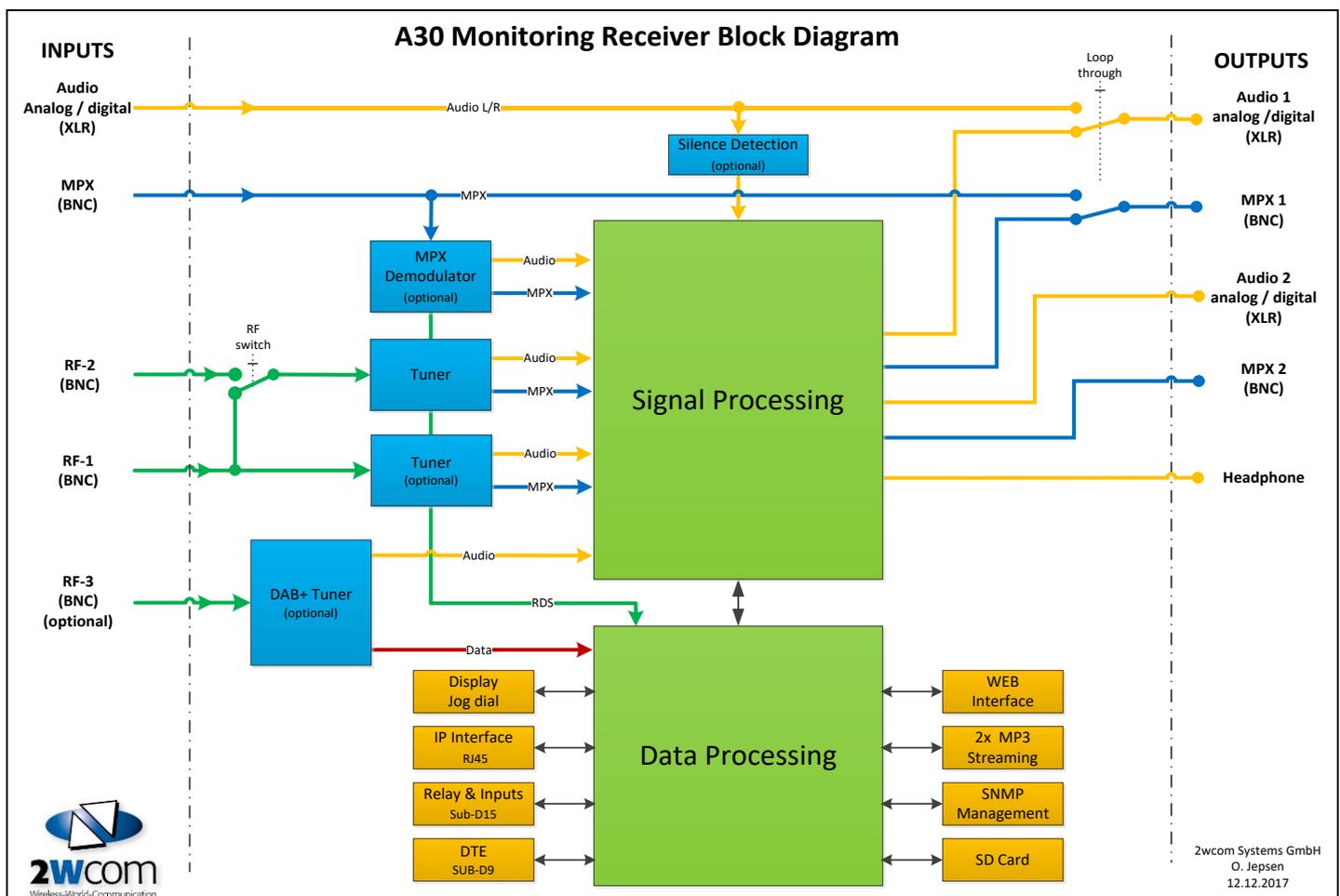


**Inputs**

- 2x RF antenna inputs for redundant feeding of an RF signal (up to 120dBμV)
- 1x MPX input
  bypass [MPX IN]→[MPX OUT 1]
- 1x analog or digital audio input - bypass in case of power failure:
  [Analog-L/R IN]→[Analog-L/R Out 1] or [AES/EBU IN]→[AES/EBU OUT 1])
- 1x RF antenna for DAB+ Tuner (optional, excludes the "MPX In" option).

---

**Signal outputs**

- 2x Audio (Analog or Digital) –gain configurable
- 2x MPX – gain configurable
- headphones
- 2x MP3 streaming via TCP/IP
- serial RS232 interface (only for servicing purposes)

**Audio demodulation**

The demodulated audio signal can be distributed from the FM tuner/DAB tuner to the audio outputs (analog or digital) as well as to the MPX outputs. Only one MPX Output 1/2 can be configured as a source for Tuner 1/2.
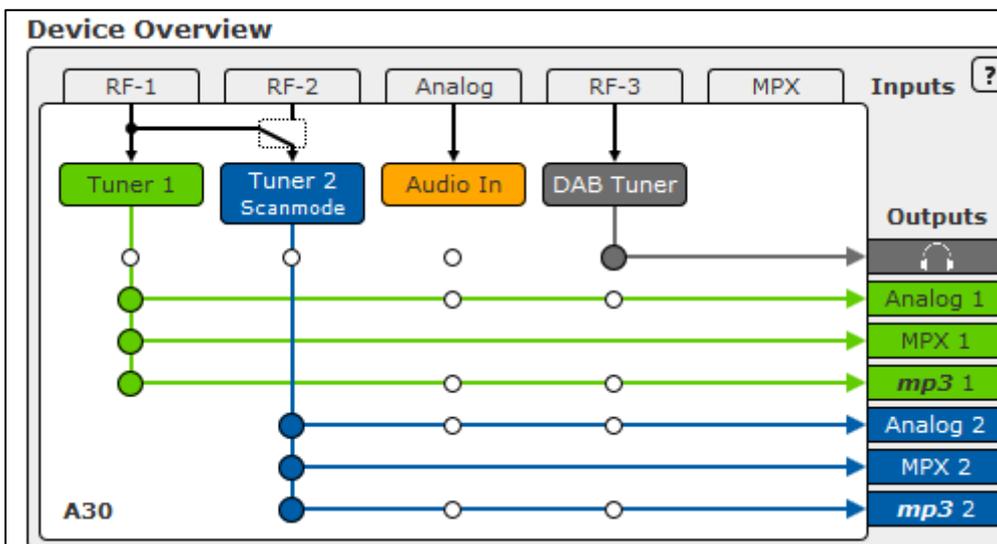


**FM Tuning**

- Dual Tuner
- up to 30 stations for monitoring configurable
- band scanning for a quick search of the available stations
- two different stations can be monitored at the same time (each tuner)
- optionally: scanmode function can monitor up to 30 stations round robin
- auto/mono/stereo for each tuner configurable

**FM Monitoring**

Configurable:

- silence detection for Audio Input L/R (optional)
- FM station change alarm

Configurable for each station:

- FM parameter
    - RF level (hysteresis controlling)
    - pilot tone
    - MPX power
    - MPX deviation
    - pilot deviation

- RDS deviation
- long-term measurements of
  - cumulated MPX deviation distribution
  - MPX peak deviation
  - MPX modulation power
- Audio parameter
  - audio level L/R (silence detection)
- RDS parameter
  - RDS synchronization
  - basis RDS monitoring of PI, PS, TA, TP, "No TA", AID and BER
  - TMC (group 8A)
  - ODA (group 3A)
  - 8 freely definable RDS groups

## DAB Monitoring

- label, ensemble ID, services, date, workload, time
- RF Level
- SNR, CNR, FIC quality, FFT offset
- service ID, type, CA, protection, bitrate, sampling rate
- audio mode, DL
- title, artist, program
- Categorized Slideshow (catSLS)

## Device Monitoring

- device temperature

## Scanmode (optional)

In scanmode the A30 can monitor up to 30 stations. It is tuning the configured stations round robin and is monitoring them during a defined time interval. You can also set the RF input individually for each station.



If the device detects an error in the RF signal in a station before it exceeds the correspondent time T1 (configured under "Alarm Settings"), the countdown of the scantime will continue in the next pass. Scanmode "remembers" T1 values for each station and each parameter and adds them up.

---

**RDS decoder**

- RDS Databridge
- Decoding of all RDS data:
    - PI, DI, RT, RT+, MS, PS, TA, TP, PTY, CT, EON TA, EON PI
- RDS synchronization
- Filtering and monitoring of individual RDS data groups
- Inspection of the received RDS data with external PC software **RDS Lab**
- Remote operation by using the supplied remote control software for PC
- Optional: extended RDS logging over internal memory card
    - up to 32 Gigabyte
    - RT, RT+, TMC, TA
    - accessible via FTP

**RDS Lab**

RDS Lab is an external Windows application, which allows you to see all RDS data together with the A30 in real-time. RDS monitoring over RDS Lab is for FM Tuner 1 and 2 available.

You can download RDS Lab from the device web interface (extra rights, Fig. 45 on page 72) or directly from the following link:
http://download.2wcom.com/software/RDS_Lab/RDSLab_Current_incl_Tables.zip

For more information about A30 settings for RDS Lab see section 15 "RDS Lab" on page 72.

**RDS Databridge**

The A30 can be operated like an RDS Databridge allowing to pass dynamic RDS data from an off-air received signal and forward on demand selected RDS data to an additional RDS Encoder for retransmission.

The A30 is able to:

- receive the dynamic RDS parameters over an RF antenna or an MPX input
- build UECP commands to feed the received information into a connected RDS encoder via a serial line for retransmission
- generate alarm via SNMP, e-mail or relay in case of failure of certain RDS groups as well as of TA and No TA

**Alarm reporting via**

- SNMP traps
- email
- activation of floating relay contacts (6 NO (normally open), 1 CO (change over))
- warning LED (front panel)
- alarm log

## 2.2.    Control over Web Interface

**MPX In option**

## DAB+ Tuner option

## Overview

### Device Overview

| | | | | | |
|---|---|---|---|---|---|
| RF-1 | RF-2 | Analog | RF-3 | MPX | Inputs |

Tuner 1 | Tuner 2 Scanmode | Audio In | DAB Tuner

**Outputs**

Analog 1
MPX 1
mp3 1
Analog 2
MPX 2
mp3 2

**A30**

| | |
|---|---|
| Uptime: | 27 days, 23:22:11 |
| Last Reboot: | 18. April 2018, 10:24:00 |
| Chassis Temperature: | 47 ºC |

| Input | Outputs | | | |
|---|---|---|---|---|
| Analog | Analog 1 | MPX 1 | Analog 2 | MPX 2 |
| -61.6  -92.6 dBu | -5.4  -5.4 dBu | 9.6 dBu | -2.5  -2.6 dBu | 8.7 dBu |

| FM Tuner | DAB Tuner | DAB Explorer |
|---|---|---|

### DAB Tuner

| Current Channel: | NDR SH (12B - 225.648 MHz) | Alarm Settings |
|---|---|---|

**Ensemble**

| Label: | NDR SH | Short Label: | NDR SH |
|---|---|---|---|
| Ensemble ID: | 0x000010F2 | Workload: | 800 CU / 92% |
| Services: | 10 | Sub-Channels: | 10 |
| Date: | 16.05.2018 | Time: | 09:57:05 |

Valid: 🟢  FIC: 🟢  Acquired: 🟢

| | | |
|---|---|---|
| RF: | | 58 dBµV |
| SNR: | | 3 dB |
| CNR: | | 18 dB |
| FIC Quality: | | 100 % |
| FFT Offset: | | -2 |

**Current Service**

| Label: | N-JOY | | Alarm Settings |
|---|---|---|---|
| Short Label: | N-JOY | Service ID: | 0x0000D385 |
| Bitrate: | 96 kbps | Samplerate: | 48000 Hz |
| Audio Mode: | Stereo | Protection: | EEP A-2 |
| DL: | Hot N Cold - Katy Perry | | |
| Title: | These Days (feat. Jess Glynne, Macklemore & Dan Caplen) | | |
| Artist: | Hot N Cold | | |
| Programm: | | | |

| L Level: | | -4.4 dBu |
|---|---|---|
| R Level: | | -4.5 dBu |

State: 🟢  **Slideshow**  Show: ▮

| All [50] | Jetzt läuft [28] | Nachrichten [6] | Wetter [8] | Events [2] |
|---|---|---|---|---|

**A30 DEMO**

Name:
Test Device
Location:
2wcom Flensburg
Description:
with DAB

**Information**
» Overview «
MPX Measurements

**FM Settings**
Stations / Bandscan
Tuner 1
Tuner 2

**DAB Settings**
Stations / Bandscan
DAB Tuner

**Interface Settings**
Audio / MPX / Headphone
Relay
GPI
mp3 Stream
RDS Databridge
RDS Logging

**Network Settings**
TCP/IP
SNMP
SMTP (Email)
SNTP (Time)

**System Settings**
Global
Time
User
Alarm

**Status**
Alarm
Internal Storage
Log

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## Overview

### Device Overview

Inputs: RF-1, RF-2, Analog, RF-3, MPX

Tuner 1, Tuner 2 Scanmode, Audio In, DAB Tuner

A30

Outputs: Analog 1, MPX 1, mp3 1, Analog 2, MPX 2, mp3 2

| | |
|---|---|
| Uptime: | 27 days, 23:24:29 |
| Last Reboot: | 18. April 2018, 10:24:00 |
| Chassis Temperature: | 47 ºC |

**Input** — Analog: -61.3 -93.4 dBu

**Outputs**
- Analog 1: -12.6 -12.6 dBu
- MPX 1: 7.3 dBu
- Analog 2: -12.7 -12.0 dBu
- MPX 2: 7.4 dBu

Tabs: FM Tuner | DAB Tuner | DAB Explorer

### DAB Explorer

| | |
|---|---|
| Current Channel: | NDR SH (12B - 225.648 MHz) |

Alarm Settings

**Ensemble**

| | | | |
|---|---|---|---|
| Label: | NDR SH | Short Label: | NDR SH |
| Ensemble ID: | 0x000010F2 | Workload: | 800 CU / 92% |
| Services: | 10 | Sub-Channels: | 10 |
| Date: | 16.05.2018 | Time: | 09:59:24 |

Valid: ● FIC: ● Acquired: ●

**Services**

| | Service ID | Label | Short Label | CAId |
|---|---|---|---|---|
| | 0x0000D354 | NDR Blue | NDR Blue | - |
| | 0x0000D383 | NDR Kultur | NDR Kult | - |
| | 0x0000D385 | N-JOY | N-JOY | - |
| | 0x0000D387 | NDR Plus | NDR Plus | - |
| | 0x0000D4E1 | NDR 1 SH | NDR 1 SH | - |
| | 0x0000DE82 | NDR 2 | NDR 2 | - |
| | 0x0000DE84 | NDR Info | NDR Info | - |
| | 0x0000DF84 | NDR Info Spezial | NDR Spez | - |
| | 0xE0D000F0 | NDR BWS | NDR BWS | - |
| | 0xE0D020F0 | ARD TPEG | ARD TPEG | - |

**CU Usage**

**Sub Channels**

| SubChId | Start | Size | Type | Service | CA | Protection | Bitrate |
|---|---|---|---|---|---|---|---|
| 1 | 0 | 96 | DAB+ | Slideshow (SLS) | No | EEP A-2 | 96 kbps |
| 2 | 96 | 96 | DAB+ | Slideshow (SLS) | No | EEP A-2 | 96 kbps |
| 3 | 192 | 96 | DAB+ | Slideshow (SLS) | No | EEP A-2 | 96 kbps |
| 4 | 288 | 96 | DAB+ | Slideshow (SLS) | No | EEP A-2 | 96 kbps |
| 5 | 384 | 96 | DAB+ | Slideshow (SLS) | No | EEP A-2 | 96 kbps |
| 6 | 480 | 96 | DAB+ | Slideshow (SLS) | No | EEP A-2 | 96 kbps |
| 7 | 576 | 96 | DAB+ | Slideshow (SLS) | No | EEP A-2 | 96 kbps |
| 8 | 672 | 96 | DAB+ | Slideshow (SLS) | No | EEP A-2 | 96 kbps |
| 49152 | 768 | 16 | Packet | TPEG | No | EEP A-2 | 16 kbps |
| 49153 | 784 | 16 | Packet | Broad. Web Site | No | EEP A-2 | 16 kbps |

**Sidebar: A30 DEMO**

Name: Test Device
Location: 2wcom Flensburg
Description: with DAB

**Information**
- » Overview «
- MPX Measurements

**FM Settings**
- Stations / Bandscan
- Tuner 1
- Tuner 2

**DAB Settings**
- Stations / Bandscan
- DAB Tuner

**Interface Settings**
- Audio / MPX / Headphone
- Relay
- GPI
- mp3 Stream
- RDS Databridge
- RDS Logging

**Network Settings**
- TCP/IP
- SNMP
- SMTP (Email)
- SNTP (Time)
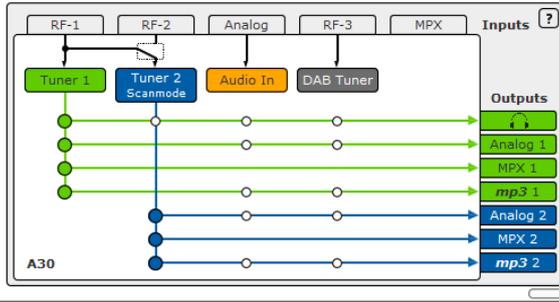
**System Settings**
- Global
- Time
- User
- Alarm

**Status**
- Alarm
- Internal Storage
- Log

# 3. Safety Instructions

For a secure operation of the device the user should read and hold on all safety instructions mentioned in this manual before the first operation.

| ⚠ **WARNING** | Non-compliance with the safety instructions can lead to serious injury. |
|---|---|

Any changes on the device or operation of the parts not having been proved and released by the manufacturer can lead to unforeseen damage.

Every improper use of the device and all actions on the device not mentioned in this user manual are regarded as a not allowed misuse outside the statutory limits for liability of the manufacturer.

If you sell the device or give it to another person, attach this user manual to the device.

Never operate the device, if it does not function properly. If the device or its part is out of order, put it out of operation. Never repair the device by yourself. If there are any damages in the device, send it immediately to 2wcom Systems for maintenance or dispose it professionally according to the regional disposal regulations.

Keep the device away from unauthorized persons.

| ⚠ **DANGER** | |
|---|---|
| ⚡ | **DANGER of electric shock** <br><br> Plug the device into a grounded power socket only. Never remove the grounding wire/contact. <br><br> Never open the housing of the device by yourself. Never touch open electrical parts. <br><br> Dangerously high voltages are present inside the housing. Even after disconnecting the mains supply, dangerously high voltage levels may be present for a certain time. <br><br> Do not touch the device with wet hands. <br><br> Never expose the device to liquids. If any liquid comes inside the housing, immediately disconnect the device completely from the power supply. Do not continue operating the device. |
| 🔥 | **FIRE HAZARD of overheating or electric shock** <br><br> Ensure sufficient heat dissipation during operation. Avoid following when installing the device: |

- non-ventilated environment, for example a narrow shelve or built-in rack;
- extremely warm or cold place;
- direct sunlight exposure;
- too high or too low temperature;
- extremely wet or dusty environment.

Do not operate the device in the presence of flammable gases.

Do not cover the ventilation openings of the device to avoid heat accumulation.

Do not put objects with open flames such as burning candles on the device.

Do not put heavy objects on the supply cord. A damaged cord can lead to fire or electric shock hazards.

To disconnect the supply cord, drag always the plug and never the cable to avoid the cord damage.

# ⚠ WARNING

**WARNING of explosive atmosphere**

Risk of the explosion hazard.

Do **not** use the device in an explosive environment.

**WARNING of hot surface**

The surface of the device can heat up during operation. The device is equipped with a passive cooling system.

Do not touch the surface of the device during operation.

# NOTICE

**CAUTION: Risk of equipment damage**

*Before the first operation:*

Check the housing, the front panel, the supply cord and the plug for visible damage (e.g. scratches, cracks, damaged isolation and abrasion)

In case of damage, unplug immediately the supply cord. Never operate device with a damaged supply cord.

All damaged components must be replaced immediately.

| | |
|---|---|
| | *Installation:*<br><br>Use only a grounded three-wire power supply cord and -plug that complies with the national regulations.<br><br>If necessary, another than the supplied supply cord has to be used, in compliance with the regulations of the country where the device is operated.<br><br>Make sure that the AC power outlet is next to the device and readily accessible to the user.<br><br>*Installation of other devices:*<br><br>External devices which are connected to the device could be damaged by the device or damage the device itself if the output levels exceed the specified limits.<br><br>*Cleaning:*<br><br>Do not use corrosive detergents on the device such as benzine, thinner, alcohol or acetone. Clean the surface of the device only with a soft dry cloth. |

# 4. Supplied Parts

- A30 Device
- Instruction for user manual download "Link to product data"
- Power supply cord*
- Patch cable (optional)
- PC Software to download (RDS Lab optional)
- User manual in PDF format to download; on request by paper

*available for different countries

| | |
|---|---|
| **i** | **NOTE**: The scope of delivery may deviate in special cases. |

# 5. Manufacturer

2wcom Systems GmbH • Am Sophienhof 8 • 24941 Flensburg • Germany

Phone (+49) 461 – 662830-0 • Fax (+49) 461 – 662830-11

contact@2wcom.com • www.2wcom.com

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# 6.  Installation

Best setup location

The device should be installed in a 19" rack. Avoid direct sunlight, proximity to radiators and air conditioning, dust, water, and chemicals. Choose a rack location that permits a clear view of the indicators on the device and ensure a sufficient heat dissipation of the device.

Mains supply connection

The device is designed for operation with 100 to 240 V AC, 50 to 60 Hz. Check the corresponding device labeling for compatibility to the domestic line voltage and frequency before connecting the IEC power connector to the mains supply!
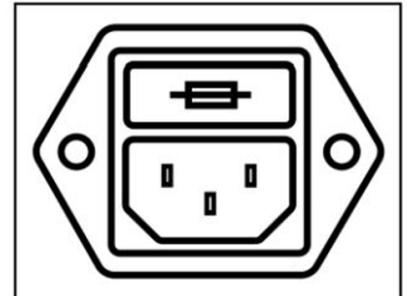
No power switch is available; unplug mains supply connector to remove power. Keep the mains supply plug readily accessible to the user.

| ⚠ WARNING | |
|---|---|
| ⚠ | **WARNING** <br> Disconnect mains power plug before you open the housing. <br> Repair of the equipment must only be carried out by authorized and qualified personnel. <br> Read also Section „Safety Instructions". |

# 7. Operation

## 7.1. Device Control via Web Interface

The device has an integrated web interface. All configurations and operations can be made using a web browser.

To control the device via web interface:

**Connection**: for network configuration and access to the web interface see Section 8.2.

> **i** **NOTE:** To maintain security, you are automatically logged out after 15 minutes of no activity.

**Navigation**: to navigate through the web interface, use only the menu buttons of the web interface and not those of the web browser (i.e. forward and back).

**Buttons**:

- if you want to save any changes made in the configuration of the device, press the save button;

- if you don't want to save the changes, reload the page or press the "F5" key.

> **i** **NOTE:** Each field has to be saved individually.
> If you change data in several fields, you must click save under each field, in order to save all changed data.
> If you want to reset the previously saved status and leave the field unsaved, just reload the page without saving.

**Numbers**: use a decimal point as the decimal separator in numbers in the input fields (i.e. "6.5" for six and a half).

**Input fields**: After entering a number or text in an input field, you must click on the corresponding save or ok button to activate the changes. Alternatively you can use the ENTER-key of your computer keyboard.

Most fields are able to check the entered values. If the entered value is incorrect, the field will be marked red.

The next sections explain the separate web interface functions. The operation via jog wheel and LCD on the device is similar to these descriptions.

## 7.2. Operation via LCD/Jog Wheel

### 7.2.1. Description of the Menu Navigation

Some basic functions of the device can also be operated via the LCD/jog wheel at the device.

The possible movements of the jog wheel are:
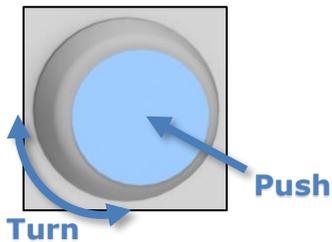


The display consists of the two main navigation menus:

- Status Overview (turn the jog wheel left or right)



- Configuration Menu (push the jog wheel)



Via display and jog wheel you can:

- configure network settings for the first access to the device over the web user interface
- configure outputs
- set up available stations for FM Tuner and for DAB Tuner
- change a tuned station
- view the tuner and the device status
- view the level of the input/output signal
- reboot the device
- load factory settings

After the warmstart/coldstart of the device the display first shows a "Levels" screen of the "Status Overview" menu:

- To move the cursor in the menu structure, turn the jog wheel.

- To open a menu entry or to confirm a setting, push the jog wheel.

- To select a configurable menu entry, turn the jog wheel.

- To adjust a menu entry, push and then turn the jog wheel.

- To confirm the adjustment, push the jog wheel.

- To return to a previous menu level, activate the menu entry "**<<**" at the upper left corner of the display

- Some settings need a restart of the device to be activated.

## 7.2.2. Navigation Structure

**Status Overview menu**

# Configuration menu

Configuration menu (push jog wheel)

- Tuner 1
  - Station → Station 1...30
  - Mode → Mono/Auto/Stereo
  - Source → RF1/RF2
- Tuner 2
  - Station → ...
  - Mode → ...
  - Source → ...
  - Scanmode activation
- Stations
- DAB Tuner
  - Station 1-30
  - Station
    - Tuned
    - Name
    - Frequency
- DAB Stations
  - Station 1-30
    - Tuned
    - Name
    - Channel
    - Service ID
- Interface
  - Device
    - Bypass activation
    - Audio In Type
      - Analog
      - Digital
  - Headphone
    - Volume
    - Source
  - Audio Out 1
    - Gain
    - Source
      - Tuner 1
      - Audio Input
      - DAB Tuner
    - Type
  - MPX Out 1
    - Gain
    - Source
  - Audio Out 2 → ...
  - MPX Out 2 → ...
- Network
  - MAC Address
  - DHCP activation
  - IP Address
  - Netmask
  - Gateway
  - Primary DNS
  - Secondary DNS
- Global
  - Reboot Device
  - Load Factory Settings

# 8. First Steps

The following section contains instructions for quick start.

✓ You have already unpacked and installed the device in an appropriate place

## 8.1. Power Supply

| **NOTICE** | |
|---|---|
| | Make sure that the device and the contained cords are compatible to the domestic line voltage and frequency! |

If the device is compatible, connect the power supply cord fully to the IEC power connector at the back panel of the device and a mains power outlet.

⇒ The "Power" LED will then turn on:
   o red during the system is booting,
   o green when the system is ready.

## 8.2. Network Configuration

For delivery the device is configured with default settings for the first connection via the IP interface.
   – IP address:   192.168.14.250
   – Netmask:     255.255.255.0
   – Gateway:     192.168.14.14.

To configure the IP settings:

1. Use the jog wheel to select "**Configuration menu**"➔"**Network**".



2. Configure settings for your existing IP network (IP address, netmask, gateway etc.; consult the responsible network administrator if applicable).

3. Save the settings by using the jog wheel and reboot the device under "**Global**" confirming the reboot question.

4. Connect a network patch cable to the "10/100-Base-T" connector on the back panel of the device and your existing IP network.

⇒ Your device is now connected to network.

## 8.3. Web Interface

The device can be fully operated with an internet browser via the integrated web interface. For this purpose use a computer that is connected to the same IP network that the device is connected to.

To operate the device via the web interface:

1. Start an internet browser (always use an up-to-date version with Java Script activated).
2. Enter the configured IP address in the address bar of the browser. If the IP address has not been changed in step 8.2, please enter the default address in the address bar of the browser: **192.168.14.250**.
3. A login screen with *Username/Password* appears. Use the default accounts:
   i. for a read-only access use "user"/"user"
   ii. for a full access use "manager"/manager" or "admin"/"admin"

⇒ After entering the correct login data (case sensitive), the main A30 page appears.

> **(i)** **NOTE**: Change the login data as soon as possible to avoid unauthorized access to the device and document the login data in a safe place.
> You can change your login data under **System Settings→User**.

For more information see section 10.1 „TCP/IP: Configuration of the Ethernet Interfaces"
on page 33.

## 8.4. Connecting the Device

For audio and RDS monitoring, connect the device as follows:

1. Connect the A30 with the available antenna inputs for feeding an RF signal (internal source).
2. Connect the [RF-3] input for feeding a DAB signal, if DAB/DAB+ Tuner available (optional).
3. Connect the device with the MPX input/outputs, if available.
4. Connect the digital/analog inputs/outputs, if applicable.
5. Use the headphone output for monitoring the internal source.

For more information about interfaces see section 9.2 "Back Panel" on page 31.

## 8.5. Set up Inputs/Outputs

To set up the source for outputs and configure the gain:

1. Select **Interface Settings→Audio/MPX/Headphone**.

2. In the "Device Settings" block you can activate bypass from audio input to the audio output (digital or analog) and for MPX input/output.

---

**Note**: In bypass mode the A30 is looping through the external signals MPX and analog/digital audio from the connected inputs to the connected outputs. No further settings are necessary.

3. To switch between Analog or Digital Audio Input, choose the type of Audio Input in the "Audio In Type" dropdown menu in the same block.

4. Configure Audio Outputs 1-2 in the same menu: Type, Gain, Source (Tuner 1/2, Audio In, DAB Tuner/MPX In (Mutually Exclusive Options).

5. Configure MPX Outputs 1-2: Gain, Source (Tuner 1-2/MPX In).

6. Configure Headphone interface: Volume, Source, Tuner 1-2, Audio Input or DAB Tuner/MPX In (Mutually Exclusive Options)

7. Configure the audio volume for the MP3 streaming output under **Interface Settings→ mp3 Stream.**

For more information see section 11 "Input/Output Settings" on page 37.

## 8.6. Set up Tuner

### 8.6.1. FM Tuner

It is possible, to set up 30 individual input settings ("stations"), which you can save and quickly switch over.

To set up one of the 30 stations:

1. Select **FM Settings→Stations/Bandscan** in the web interface menu.
2. Select an activated input for RF signal in the dropdown menu "Input" for scanning available stations: Tuner 1.
3. Start band scanning by clicking the "Start" button.
4. Activate the displayed stations for tuning by selecting the corresponding radio buttons.
5. Click the "Save selected stations" to save the changes.
6. Enter a "Name" for each selected station and save the changes.
7. Select **FM Settings→Tuner 1** in the web interface menu.
8. Select a configured station for input in the dropdown menu "Station" in block "Tuning"
9. Click the "Save" button to save the changes.

⇒ The device is now receiving a radio signal and is able to demodulate and monitor it.

For more information see section 12 "FM Tuner Settings" on page 40.

### 8.6.2. DAB Tuner

If DAB/DAB+ Tuner option is available, the A30 can save up to 30 stations (DAB Services) and monitor one of them at once.

1. Start scanning the available channels by clicking the "Start" button in the "Bandscan" block under **DAB Settings→Stations/Bandscan**.

2. Select one station that should be tuned by clicking the corresponding green LED from the list in the "Stations" tab.

3. Click the "Save" button to save the tuned station.

4. Select the station (DAB Service) that should be monitored under **DAB Settings→DAB Tuner**.

   ⇒ The device is now receiving a radio signal and is able to demodulate and monitor it.

For more information see section 13 "DAB Tuner Settings" on page 48.

## 8.7. Set up Alarm

For each station individually, you can set up monitoring of certain audio and RDS parameters which should be measured (see section "Introduction" on page 6). In case of failure, an alarm can be sent over email, SNMP, relay switching and/or will be indicated by a warning LED in the front of the device and/or through an entry in the alarm log.

To set up alarm for the available audio and RDS parameters:

1. Select **System Settings→Alarm** in the web interface to open the monitoring setup page.

2. Select one of the preconfigured stations in the dropdown menu "Stations Alarm Settings" to configure monitoring for this station (see section "Tuner Settings" on page 37).

3. Click the "Alarm Settings" button. The "Alarm Settings" page for the selected station appears.

4. For each parameter default values are already preset. T1 or T2 is the time a parameter has to be "bad" or "good", resp. before an alarm will be generated vs. retracted.

5. Enable the corresponding checkboxes, to activate the way of the alarm distribution (SNMP, Email, Log, LED, Relay).

6. Click the "Save" button to save the changes or the "Close" button to close the menu without saving the changes.

7. In the same menu under **System Settings→Alarm** you can set the alarm for all stations in case of station change and the level for audio input.

8. Click the "Save" button to save the changes.

9. Configure DAB Alarm parameters (if available) under **DAB Settings→Stations/Bandscan** in the "Channels" and "Stations" tabs by clicking the "Settings" button.

10. Under **Status→Alarm** and **Status→Log** you can see the status of the monitoring parameters and details about the sent alarms.
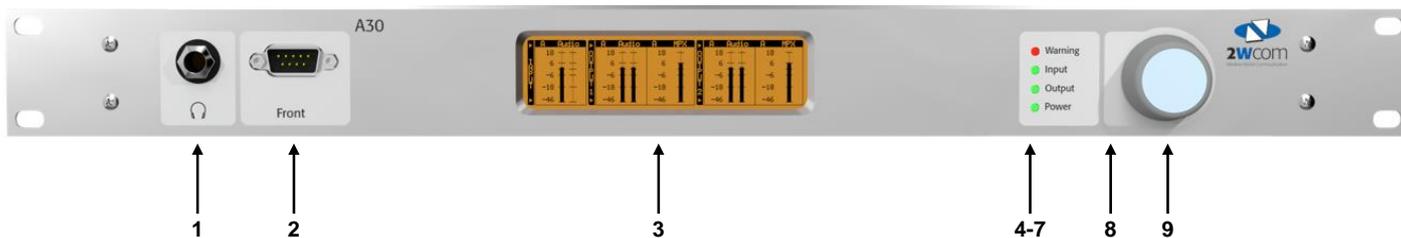
For more information see section 13 "DAB Tuner Settings" on page 48.

> **NOTE:** These first steps are only intended for a quick first start and do not cover all device functions. Pease read carefully the entire manual to be able to use all functions of the device.

# 9. Control Elements and Connectors

## 9.1. Front Panel



| 1 | Headphones | 6.3 mm / 1/4" socket for the connection of headphones; internal audio signal (tuner). |
|---|---|---|
| 2 | [Front] | 9 pole D-Sub male connector; only for device servicing purposes. |
| 3 | LCD screen | Illuminated, Liquid Crystal Display (LCD), graphical, 264x64 pixel. |
| 4 | [Warning] LED | LED indicator (red); flashes red if alarm is triggered. |
| 5 | [Input] LED | Activated (green) if the device is configured for an input source and the audio signal in the input is ok. |
| 6 | [Output] LED | Activated (green) if the device is configured for an output, the outgoing signal is available and is ok. |
| 7 | [Power] LED | Activated (yellow) if the device is booting.<br><br>Activated (green) if the device is ready, the power supply cord is connected and the power supply is ok. |
| 8 | reset button (pin hole) | Recessed reset button for resetting the device (warmstart). |
| 9 | Jog dial | Jog dial for the device operation via the LCD screen on the device. Turn the jog dial to place the cursor on the desired menu entry and push the jog dial to activate the highlighted menu entry. |

## 9.2. Back Panel
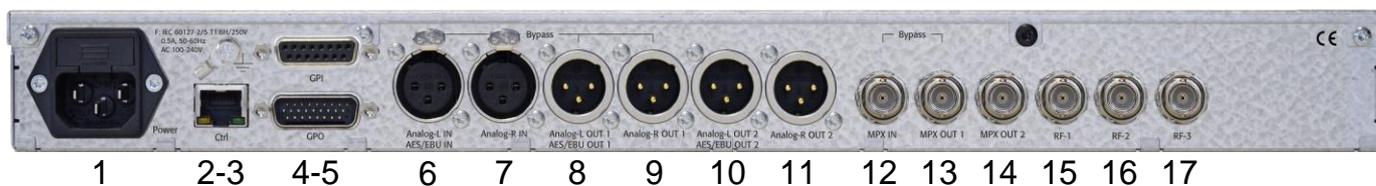


| 1 | IEC power supply connector | Standardized IEC supply connector with integrated fuse holder. |
|---|---|---|
| | | Fuse ratings depending on mains supply voltage: 90-260V, 47-63 Hz: T1.6A, time lag type, 5x20 mm, 250 V |
| 2 | [Grounding stud] | The stud can be used to connect a grounding system if necessary. |

**NOTE**: The required protection earth (PE) is accomplished via the 3-wire mains supply cord.

| 3 | [Ctrl] | RJ-45 connector for control and monitoring the device via Ethernet. The device can communicate with the IP network and can be configured with an internet browser via the integrated web interface. The LED´s at the socket show the link status (green; active if a physical network connection exists) and the activity status (yellow, active if data communication is active). |
|---|---|---|
| 4 | [GPI] | Remote Control Inputs: 15 pole D-Sub female connector; remote control input, 7 inputs. |
| 5 | [GPO] | Remote Control Outputs: 15 pole D-Sub male connector; 7 floating relay contacts; switch contacts of the integrated relays. |
| | | The relays can be activated by the monitoring function in case of an alarm. |
| 6 | [AES/Analog-L IN] | Balanced XLR female socket; double function: |

- input of the digital audio or of the left channel of the analog audio signal;
- input of the looping through (bypass) digital or analog audio signal.

(switchable over web interface, for the looping through signal output always the same as input, e.g. AES/EBU IN→AES/EBU OUT).

| 7 | [Analog-R IN] | Balanced XLR female socket; input of the right channel of the analog audio signal (internal source and bypass). |
|---|---|---|
| 8 | [AES/ Analog-L 1 OUT] | Balanced XLR male socket; double function: |

|       |                      |                                                                                              |
|-------|----------------------|----------------------------------------------------------------------------------------------|
|       |                      | • AES/EBU interface for output of the digital or analog looping through audio signal (bypass). The sample rate of the signal depends on the received signal. |
|       |                      | • output of the digital audio or of the left channel of the analog audio signal |
| 9     | [Analog-R 1 OUT]     | XLR male socket for output of the right channel of the analog audio signal with configurable signal level (internal source, bypass). |
| 10    | [AES/ Analog-L 2 OUT] | Balanced XLR male socket; double function: |
|       |                      | • AES/EBU interface for output of the digital (external source). |
|       |                      | • output of the left channel of the analog audio signal (external source). |
| 11    | [Analog-R 2 OUT]     | Balanced XLR male socket; output of the right channel of the analog audio signal (external source). |
| 12    | [MPX IN]             | BNC connector, unbalanced; MPX input (internal source, bypass) |
| 13    | [MPX OUT 1]          | BNC connector, unbalanced; output of the MPX signal (internal source, bypass). |
| 14    | [MPX OUT 2]          | BNC connector, unbalanced; MPX output for internal FM tuner (external source) |
| 15-16 | [RF-1/2]             | 2x BNC connectors, unbalanced; RF input (50 $\Omega$, 87,5-108 MHz, 76.0…90.0 MHz (Japan)). Input of two FM signals; 2x independent FM tuner. |
| 17    | [RF-3]               | (optional) BNC connector, unbalanced, RF input (50 $\Omega$, 168-240 MHz, DAB Band III). Input for DAB signal; DAB/DAB+ tuner. |

# 10. Network Settings

✓ You have already connected the device to the network [10/100-Base-T] and configured the access to the web user interface (see section "First Steps" on page 26).

## 10.1. TCP/IP: Configuration of the Ethernet Interfaces

You can configure the Ethernet interface (control/monitoring) of the device under **Network Settings→TCP/IP.**

In block **TCP/IP** the following parameters can be configured or changed:

| | |
|---|---|
| *DHCP* | Activate or deactivate the Dynamic Host Configuration Protocol which enables the device to get an IP Address automatically. |
| *IP-address:* | Individual address that is necessary to identify hardware in an IP network like the internet or intranet. |
| *Netmask:* | Bit mask, which separates an IP address into a network part and a host part. |
| *Gateway:* | Address of the local system that is used for the internet access (e.g. the router). |
| *Primary DNS:* | IP address of the primary Domain Name Service (DNS) server. |
| *Secondary DNS:* | IP address of the secondary Domain Name Service (DNS) server. |
| *Ports* | Configure port numbers for the connection between the device and internet (e.g. for mp3 streaming or RDS lab configuration). |

The necessary address settings above depend on the individual network and should be assigned by the responsible network administrator if applicable.

⇒ Save the settings by clicking the "Save" button.

**LCD-menu: Configuration Menu→Network**

## 10.2. Monitoring Function: Configuration of SNMP

As part of the monitoring function, the device is capable to send SNMP traps to the defined IP addresses of the SNMP managers. It is also possible to readout device settings via SNMP Get.

This menu item is available under **Network Settings→SNMP** and is used to setup the IP addresses of the SNMP managers (see Fig. 1).
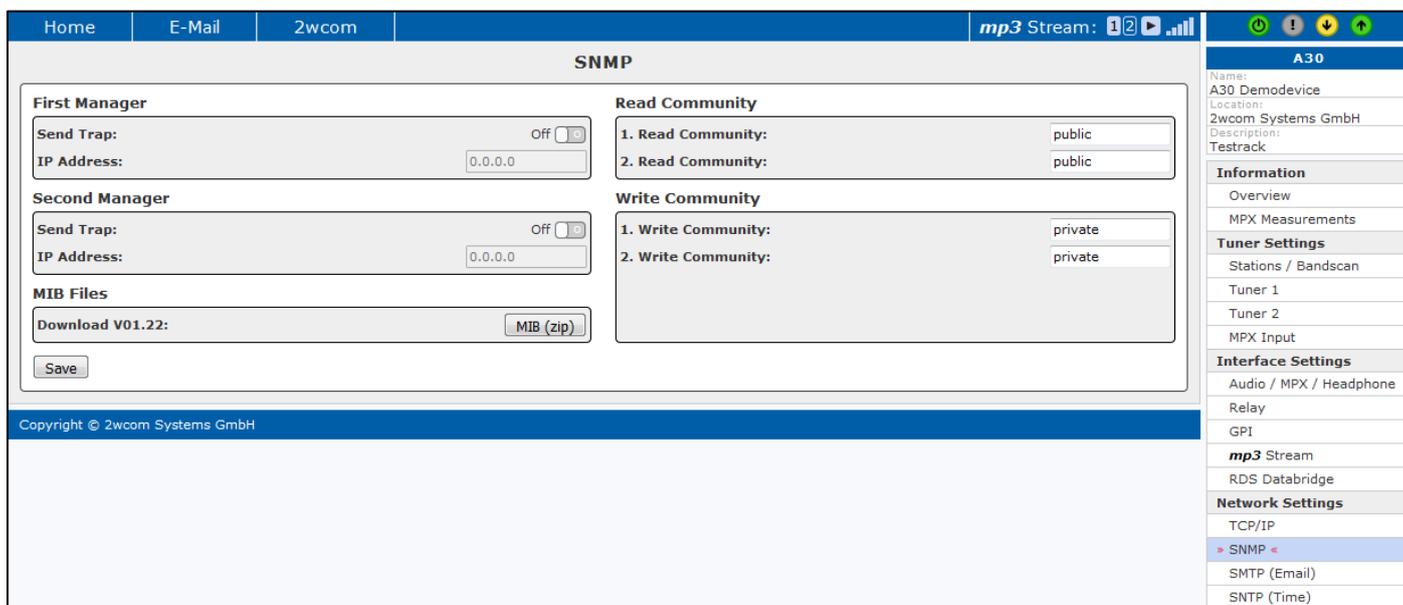
**Fig. 1: Network Settings – SNMP**

Additionally, access data (read community / write community) that is necessary for external SNMP requests to device can be configured here.

You can configure or change in this menu the following parameters for SNMP:

| | |
|---|---|
| *First manager:* | IP address of the first SNMP manager that receives SNMP traps. The trap sending to this address can also be deactivated by a checking "off" at "Send trap:". |
| *Second manager:* | IP address of the second SNMP manager that receives SNMP traps. The trap sending to this address can also be deactivated by a checking "off" at "Send trap:". |
| *Read community:* | SNMP access data for the external read SNMP access to the device. |
| *Write community:* | SNMP access data for the external write SNMP access to the device. |

> **NOTE**: In order for the SNMP manager tool to operate correctly, it requires the specific MIB files. These MIB files need to be compiled by the SNMP manager tool and are provided for download or via email.

| | |
|---|---|
| *MIB Files* | To download the corresponding MIB files to local file (ZIP folder), click the "MIB (ZIP)" button and start the file download in the web browser. Confirm the choice to save the folder locally. |

⇒ Save the settings by clicking the "Save" button.

You can configure and activate the monitoring functions under **System Settings→Alarm**. More information about alarm settings you can find in section 14 "Monitoring and Alarm Settings" on page 55).

> **NOTE**: Each activated trap will be sent once at startup for initialization.

## 10.3. SMTP Settings

This menu item is available under **Network Settings→SMTP** and is used to setup the e-mail address for sending alarm reporting via e-mail. Here you can configure SMTP and enter the e-mail login data for transferring the alarm reports from your e-mail address to a target recipient address (see Fig. 2).

In the "Interval for summarized mail" field enter the time, during that the system will collect all massages with alarms and send them as one e-mail after every configured interval (e.g. every 60 s). If you want to send the messages in separate e-mails, enter 0 (zero).

In the "Subject addition:" field chose the subject for the mail in the "A30" dropdown menu. Possible subjects are: Name, Location, Description, IP Address.



***Fig. 2: Network Settings – SMTP***

## 10.4. SNTP Settings: Configuration of Date and Time

This menu item is available under **Network Settings→SNTP** and is used to enable the automatical synchronization of the date and time of the device with an external SNTP server (see Fig. 3).
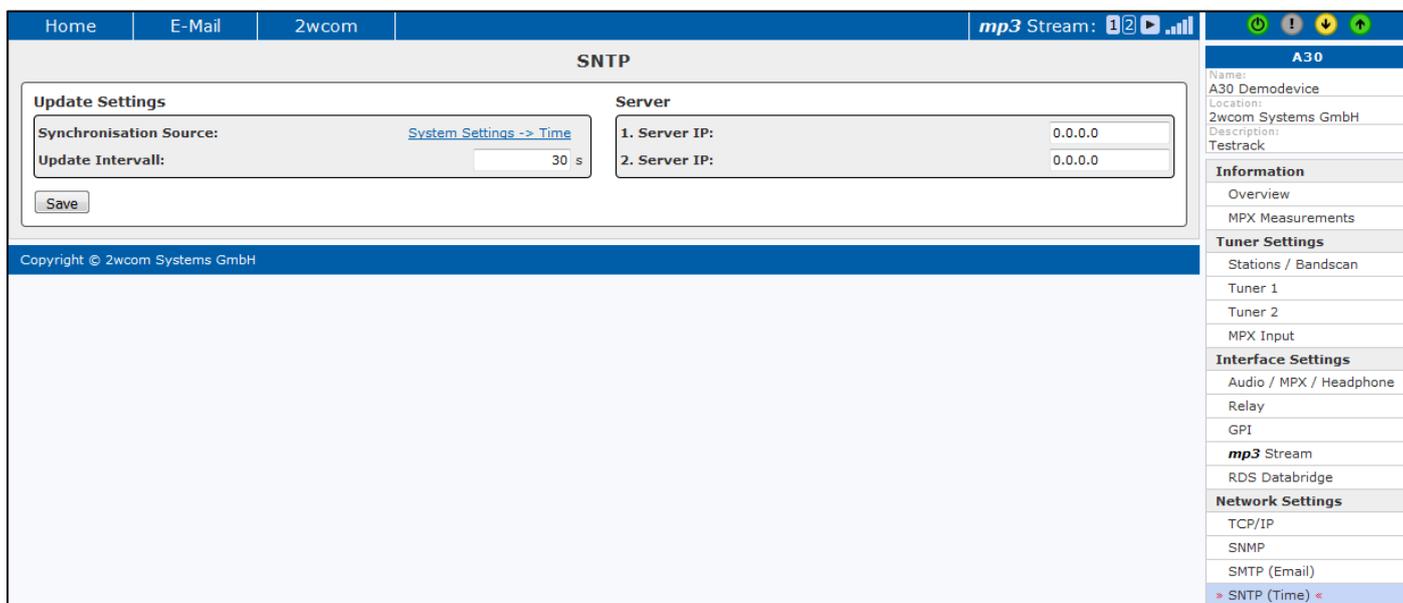
*Fig. 3 Network settings - SNTP*

In block **Update Settings** the following parameters can be configured or changed:

| | |
|---|---|
| Synchronisation Source | Under **System Settings→Time** in "Synchronisation Settings" field you can set up if the device clock should be synchronized via SNTP or not. |
| Update interval [min. 30 sec] | Time interval for synchronizing the device clock with the NTP server in seconds. |
| Last synchronisation | Information about the last synchronisation you can find under **System Settings→Time** in "Synchronisation Settings" field. |

In block **Server** the following parameters can be configured or changed:

| | |
|---|---|
| 1. Server IP | IP address of the first NTP server to be used. |
| 2. Server IP | IP address of the second NTP server to be used. |

⇒ Save the settings by clicking the "Save" button.

# 11. Input/Output Settings

## 11.1. Audio/MPX/Headphone

To set up the source for outputs and configure the gain:

1. Select **Interface Settings→Audio/MPX/Headphone**.



***Fig. 4: Audio output settings***

2. In the "Device Settings" block you can activate <u>bypass</u> from audio input to the audio output (digital or analog) and for MPX input/output.

   **Note**: Bypass function is foreseen as a backup option for power failure: The device without power is always activated for bypass and, if connected, the input signals are looped through to the bypass interfaces (Audio, MPX).

   **Note**: If the A30 has power and bypass is activated, the Audio/MPX input signals can still be used as a source for monitoring, converting and forwarding to other outputs.

3. To switch between <u>Analog or Digital Audio Input</u>, choose the type of Audio Input in the "Audio In Type" dropdown menu in the same block.

4. Configure <u>Audio Outputs 1-2</u> in the same menu:

   - **Type** of the audio output: Analog or Digital
   - **Gain**: -10.0 dB – 10.0 dB
   - **Source**: Tuner 1/2, Audio Input or DAB Tuner/MPX In (Mutually Exclusive Options)

5. Configure <u>MPX Outputs 1-2</u> in the same menu:

   - **Gain**: -10.0 dB – 10.0 dB
   - **Source**: Tuner 1-2, if available MPX IN

6. Configure <u>Headphone</u> interface in the same menu:

   - **Volume**: -60 dB – 0 dB
   - **Source**: Tuner 1/2, Audio Input or DAB Tuner/MPX In (Mutually Exclusive Options)

7. For configuration the MP3 outputs see section 20 "MP3 Settings" on page 87.

8. Click the "Save" button to save the settings.

**Note**: You can make the same settings for directly over the block diagram "Device Overview" (see Fig. 13 on page 43). Just assign a source input to each available output by clicking the connecting nods in the switch diagram in the "Device Overview" block (Fig. 13 on page 43, Fig. 24 on page 54 and Fig. 5):
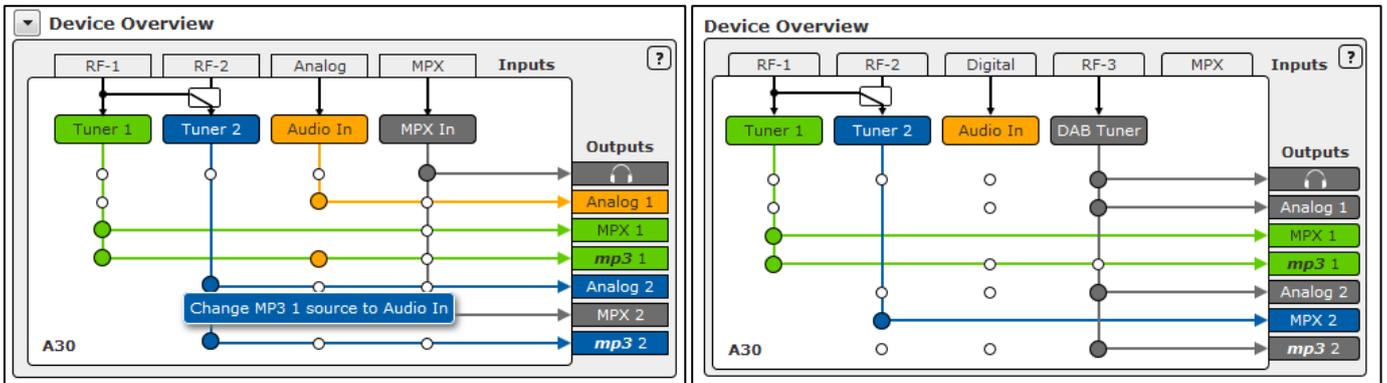


*Fig. 5: Source switch for the outputs (MPX and DAB Options)*
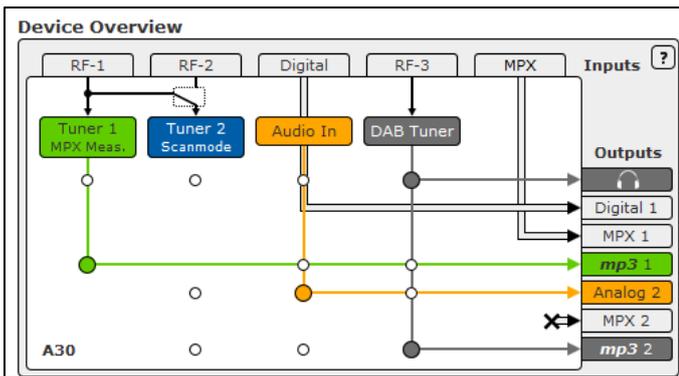


*Fig. 6: Enabled MPX bypass deactivates [MPX 2] output in older A30 versions*

## 11.2. Relay Outputs

The A30 is equipped with a 15 pole D-Sub connector with 7 floating relay contacts (see Fig. 7).
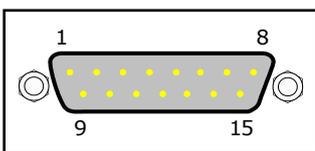


*Fig. 7: D-Sub male connector, 15 pole*

The relays can be used for indicating the alarm alerts.

Table 1 shows the scheme of the possible relay switch contacts.

| Relay No. | Switch contacts | Switch type |
|---|---|---|
| 1 | 1,9 | SPST, NO |
| 2 | 2,10 | SPST, NO |
| 3 | 3,11 | SPST, NO |
| 4 | 4,12 | SPST, NO |
| 5 | 5,13 | SPST, NO |
| 6 | 6,14 | SPST, NO |
| 7 | 15 —○ ═○— 8 ○— 7 | SPDT |
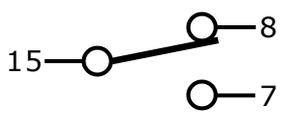
*Table 1: Pinout relay output – A30*

## NOTICE

| | The relay contacts have maximum rating of 0.5A at 30V DC! |
|---|---|

Certain alerts can not only generate SNMP traps but also switch 7 relays. Alarm signaling via relays can be configured under **System Settings→Alarm.**

# 12. FM Tuner Settings

## 12.1.  Stations Setup

It is possible, to set up 30 individual input settings ("stations"), which you can save and quickly switch over.

To set up 30 stations:

1. Select **FM Settings→Stations/Bandscan** in the web interface menu. The page *Stations/Bandscan* appears.

2. To ease the search of the available stations, use the function of "Bandscan" (see Fig. 10).

3. To scan the frequency band for stations, select the available tuner in the drop menu "Input":

   – Tuner 1 is available, if e.g. no MPX measurements are running (see section 17 "Enhanced Measurements" on page 77).
   – Tuner 2 is available, if e.g. scanmode is not activated (see section 12.3.2 "Scanmode" on page 44).
   – If an Input is not available, the reason is given in brackets.

4. Define the frequency range for scanning.

5. The frequency and available stations will be shown in the diagram and marked with a green circle. Move your mouse-pointer close to the green circle and level of the signal will be displayed. The stations are also listed in a table under the diagram.

6. Define available stations for monitoring by dragging the corresponding station from the table to the field "Stations" or by selecting the station via the switch and clicking the "SAVE SELECTED STATIONS" button.

7. You can sort the stations according to Level, SNR, PI, PS and Freq. by clicking the corresponding header and reorder them by dragging.

8. To hide the "Bandscan" menu, click on  .
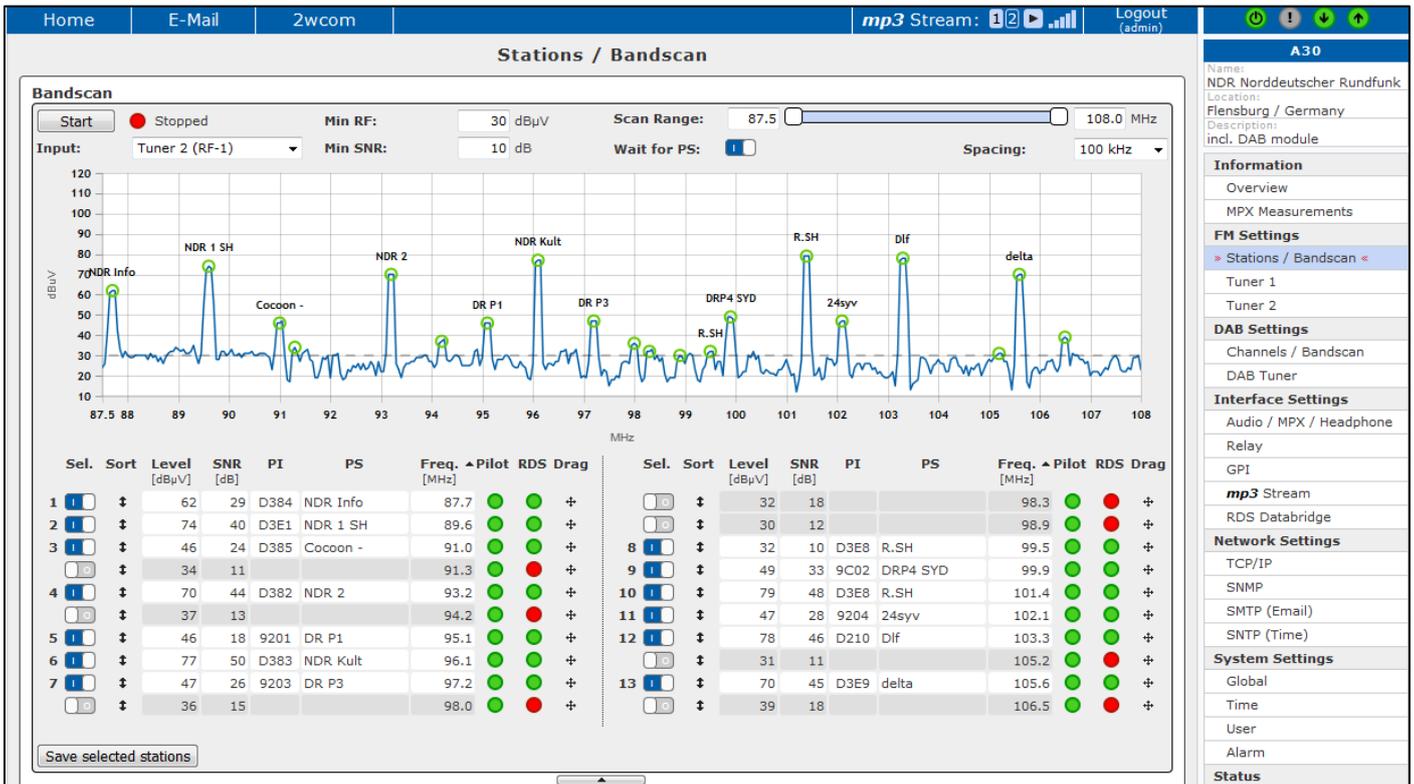
*Fig. 10: "Bandscan" - Search of the available stations via scanning the frequency band*

9. Define names for each station that should be scanned, monitored and/or modulated. The length of the station name is max. 19 characters (see Fig. 11).
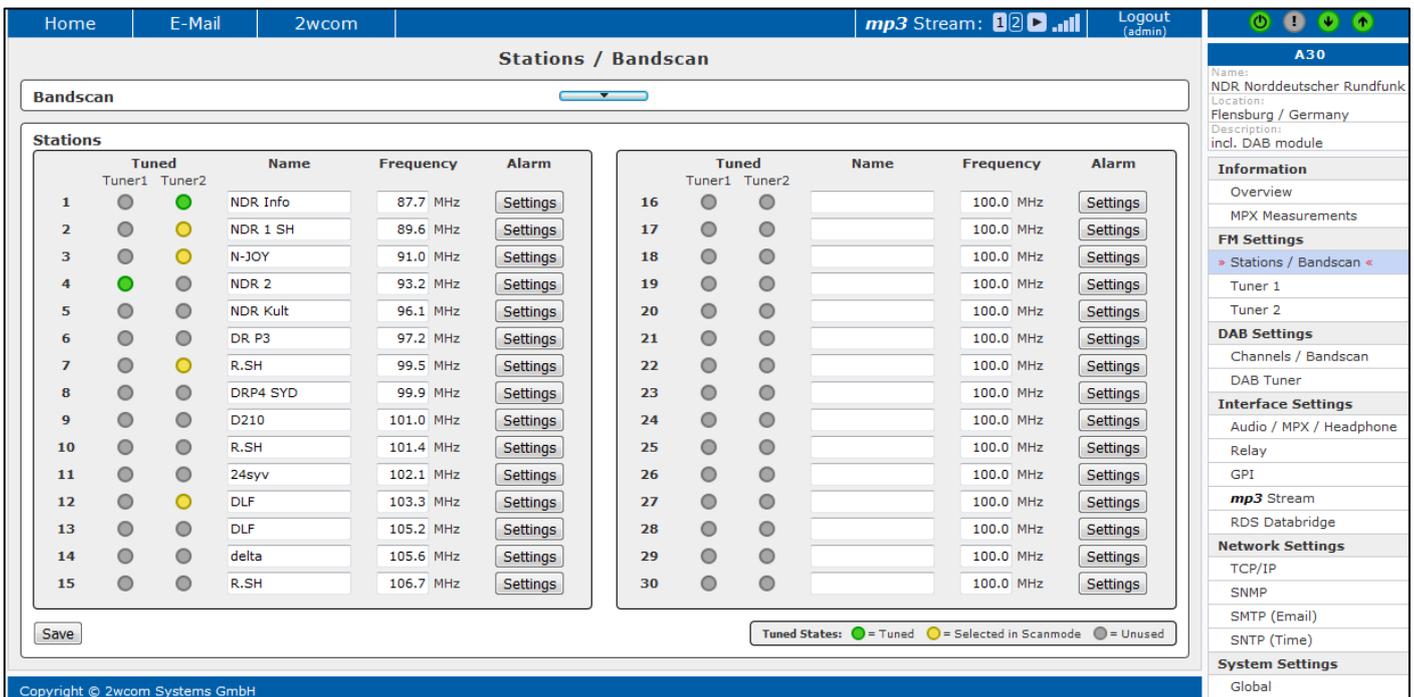


*Fig. 11: Configuration of stations*

10. In the same field you can configure or change the "Alarm Settings" for each station individually by clicking the "SETTINGS" button (for more information about "Alarm Settings" see section 14 "Monitoring and Alarm Settings" on page 55).

11. Click the "Save" button to save the changes.

## 12.2.  Tuner 1

You have already defined the frequencies of the stations that should be scanned, monitored and/or demodulated (see section 12.1 "Stations Setup" on page 40).

To setup Tuner 1:

1. Select **FM Settings➔Tuner 1** in the web interface menu.
2. In the **Tuning** block select a configured station in the dropdown menu **Station** that should be monitored or/and demodulated (see Fig. 12).
3. To switch the internal audio between stereo and mono for the selected station, select "Auto/Stereo/Mono" in the "Mode" dropdown menu.

   **Note**: "Auto" mode switches automatically the tuned signal to "mono" if the RF Level reaches the "Stereo Blend Threshold Start" value configured in the "Tuner Settings" block in the same menu.
   It switches back to "stereo" if the RF signal reaches the configured "Stereo Blend Threshold End" value.

4. In the "Source" field you can see the configured source "RF-1" or "RF-2". "RF-1" is a default source for Tuner 1 (if the option "dual tuner" is available in your device).
5. In the same field you can configure or change the "Alarm Settings" by clicking the "ALARM SETTINGS" button (for more information about "Alarm Settings" see section 14 "Monitoring and Alarm Settings" on page 55).



***Fig. 12: Tuner 1 - Tuning inputs setup***

6. To change the currently active station, choose another configured station in the dropdown menu **Station**.
7. If the device has a right for "Scanmode" option but not for a "Dual Option", you can enable the scanmode for Tuner 1 in this menu as well (for more information see section 12.3.2 "Scanmode" on page 44).
8. Configure "mute threshold" and "stereo blending" in the **Tuner Settings** block in the same window under **FM Settings➔Tuner 1**. Enter the values for the RF level that should be reached for stereo blend activation resp. deactivation.

9. Set up the deemphasis in the same menu. Possible values are 0/50 (see Fig. 12).

10. Click the "Save" button to save the changes.

**LCD menu: Configuration Menu→Stations→Station 1→Frequency** (manual setting)

## 12.3. Tuner 2

As Tuner 2 you can use both inputs RF-1 and RF-2 (option "dual tuner" must be available).

If available, the scanmode can be activated for Tuner 2.

### 12.3.1. Tuning Setup

To setup the Tuner 2:

1. Select **FM Settings→Tuner 2** in the web interface menu.
2. In the "Tuning" block select a configured Station in the dropdown menu **Station** that should be monitored (see Fig. 14).

   **LCD menu: Main Menu→Tuner 2→Current Station**

3. To switch the internal audio between auto mode, stereo and mono for the selected station, select the corresponding radio button in the "Auto/Stereo/Mono" field.
4. To assign the input to Tuner 2, select the radio button RF-1 or RF-2 in the "Source" field or just click the connecting block in the switch diagram in the "Device Overview" block (see Fig. 13).



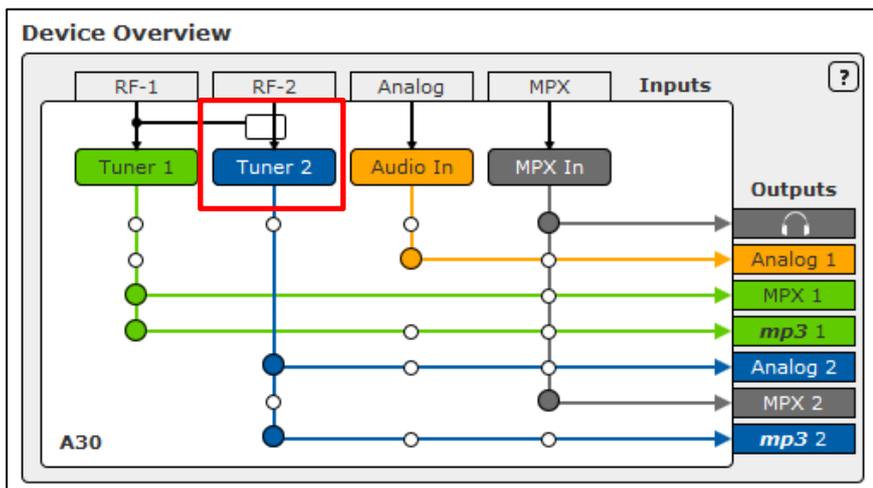*Fig. 13: Input Switch over the "Device Overview" block*

   **LCD menu: Main Menu→Tuner 2→RF Source**

5. In the same field you can configure or change the "Alarm Settings" by clicking the "ALARM SETTINGS" button (for more information about "Alarm Settings" see section 14 "Monitoring and Alarm Settings" on page 55).
6. Click the "Save" button to save the changes.
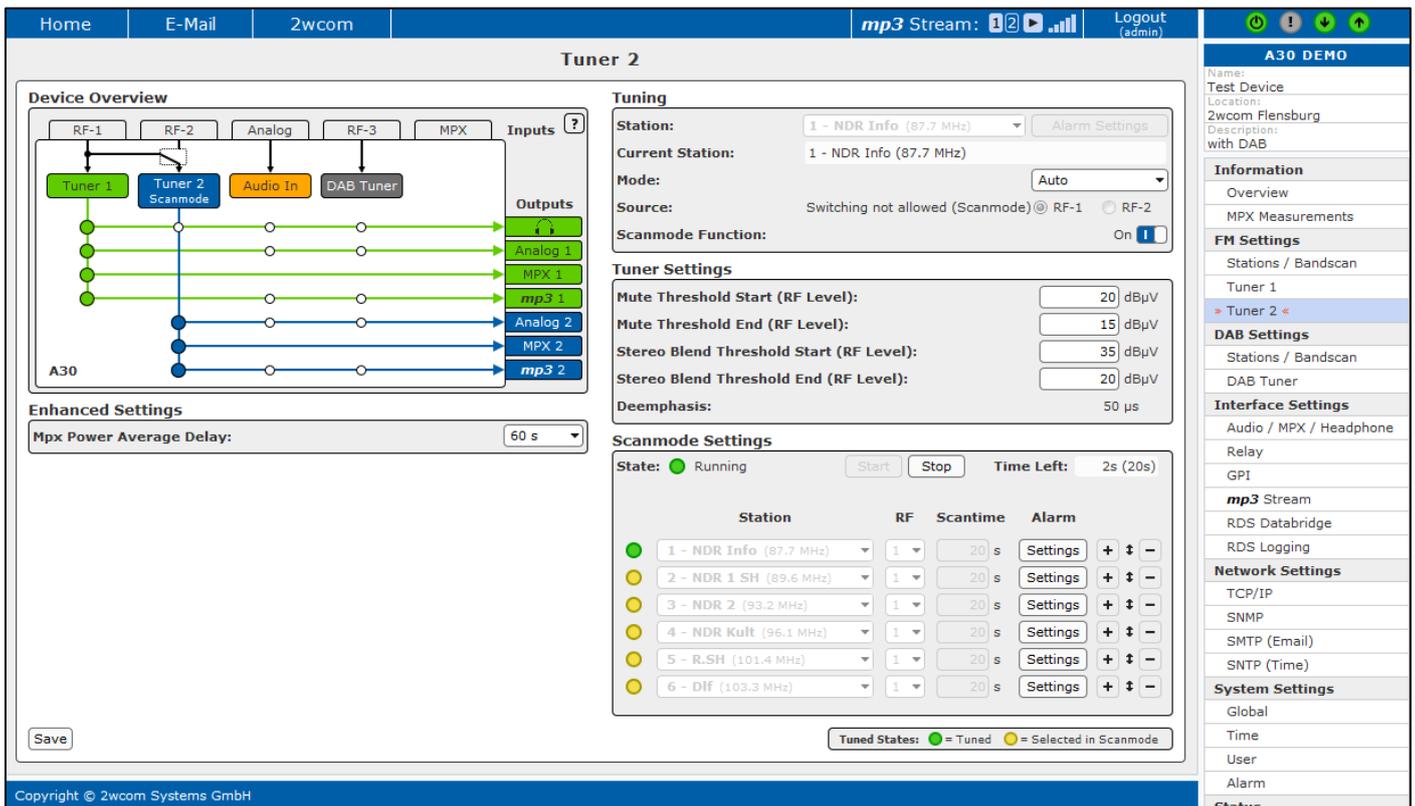
**Fig. 14: Tuner 2 - Tuning input setup**

## 12.3.2. Scanmode

In scanmode the A30 can monitor up to 30 stations. It is tuning the configured stations round robin and is monitoring them during a defined time interval. You can also set the RF input individually for each station.

If the device detects an error in the RF signal in a station before it exceeds the correspondent time T1 (configured under "Alarm Settings"), the countdown of the scantime will continue in the next pass. Scanmode "remembers" T1 values for each station and each parameter and adds them up.

If the station is not being tuned at the moment, the last available values will be shown at the "Overview" site.

For "Tuner 2" you can activate the scanmode function, if the "Dual" option is available in your device.

**Note**: Scanmode for Tuner 1 is only available if "Scanmode" without "Dual" option is activated for your device.

To activate the scanmode:

1. Select **FM Settings→Tuner 2** in the web interface menu.
2. To activate the scanmode, select "ON" in the virtual switch "Scanmode Function" the checkbox "Enable" in block **Tuning** in the "Scanmode Function" field (see Fig. 14 and Fig. 15).
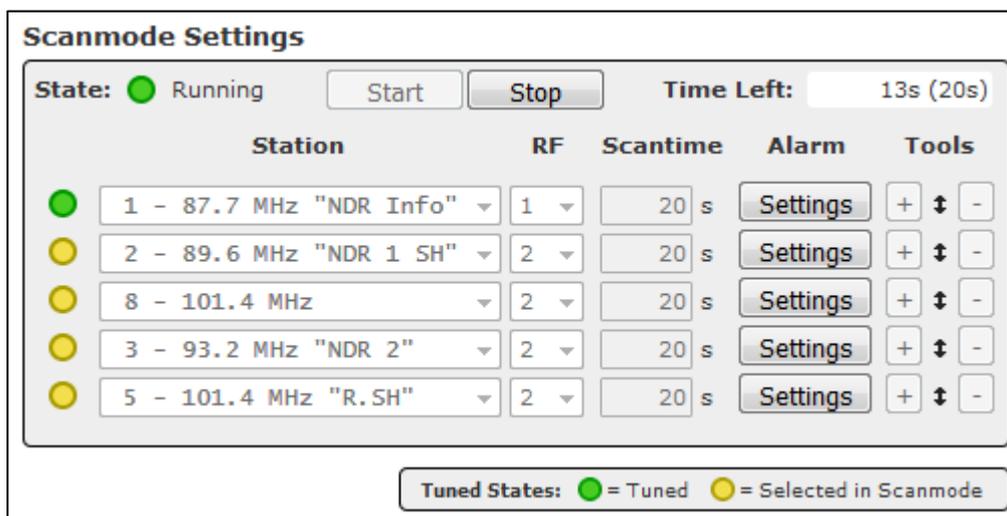
***Fig. 15: FM Settings - Tuner 2 – Scanmode Settings***

3. In the **Scanmode Settings** block select configured station in the dropdown menus **Station** that should be scanned and set up the scanning time in seconds.

4. To add or to reduce the number of stations to be scanned click the "+" or "-" buttons.

5. To start scanning, click the "START" button in block **Scanmode Settings** in the "State" field.

6. To stop the scanning mode, click the "STOP" button in block **Scanmode Settings** in the "State" field.

7. In the same field you can configure or change the "Alarm Settings" by clicking the "ALARM SETTINGS" button (for more information about "Alarm Settings" see section 14 "Monitoring and Alarm Settings" on page 55).

> **NOTE**: If the device during the Scanmode detects an error in the RF signal in a station before it exceeds the correspondent time T1 (configured under "Alarm Settings"), the countdown of the scantime will continue in the next pass.
> Scanmode "remembers" therefore the T1 values for each station and each parameter and adds them up.

8. The currently measured parameters and values of the station being scanned are displayed under **Information→Overview** and **Information→MPX Measurements** (for more information see section 12.4 "View the Tuner Status" on page 46, section 14.1.3.2 "View the RDS status" on page 61 and section 17 "Enhanced Measurements" on page 77).

`LCD menu: Status Overview→Tuner 2`

9. Click the "Save" button to save the changes.

`LCD menu: Configuration menu→Tuner 2→Scanmode enable`

⇒ The A30 is now scanning the configured stations for the defined time.
⇒ In the "Station" field in block **Tuning** you can see the station being currently scanned.
⇒ The green LED in the "Tuned" field in block **Scanmode Settings** indicates the station that is currently being scanned. In the same block you can see the time left for scanning the current station.
⇒ Yellow LEDs in the "Tuned" field in block **Scanmode Settings** indicate the stations selected for scanning.

---

## 12.4.    View the Tuner Status

You can view the current status of the tuner and of the incoming audio signal at any time on the web interface page or in the LCD menu of the device.

1. Under **Information→Overview** you can view the current details about the activated inputs, internal audio signal and the status of the tuner (see **Fig. 16**)
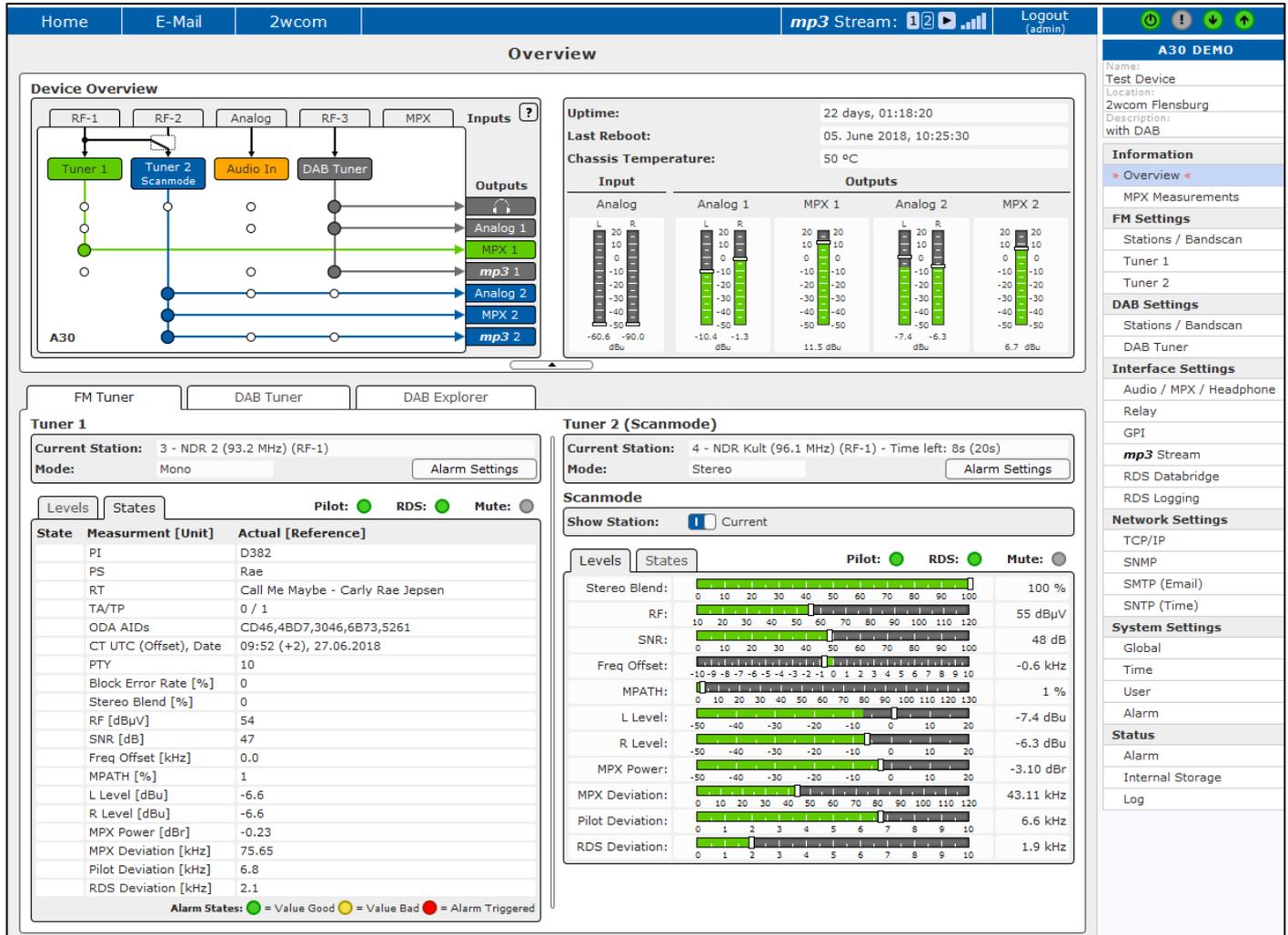


**Fig. 16: Information - Overview of the Tuner 1 and Tuner 2 levels:**
         SNR – signal-to-noise ratio
         Freq Offset – frequency offset
         MPATH - multipath

2. You can also view the current status of some parameters directly on the LC display. To change the menu turn the jog wheel left or right.

3. In the block "Device Overview" you can see the scheme of currently activated inputs and outputs.

4. In the same menu under **Information→Overview** in "Tuner 1" and "Tuner 2" block you can see levels of the configured tuner parameters (see **Fig. 16**).

   **Note:** The **Pilot** tone and **RDS** signal monitoring is active even if tuner operate in "mono" mode. Within "**mono**" mode the status LEDs in the "Tuner 1/2" block can be:

- 🟢 green, if pilot/RDS is available
- ⚪ grey, if pilot/RDS is not available

5. If the DAB Option is available, in the same menu you can see the DAB Tuner status (for more information see section 13.3 "View the DAB Tuner Status" on page 51).

In case of alarm, the corresponding LED in the menu **Status→Alarm** will flash red (see Fig. 41).

**LCD Menu: Status Overview→Tuner 1-2**

# 13. DAB Tuner Settings

An optional input source for audio is DAB Tuner.

**Note**: DAB Tuner excludes the MPX Input option.

## 13.1. Scan Available DAB Services

### 13.1.1. Bandscan

To scan the band for available channels:

1. Select **DAB Settings→Stations/Bandscan** in the web interface menu. The page *Channels*/*Bandscan* appears.

2. Click the "Start" button in the "Bandscan" block to start scanning. The scanning LED is green.

   ⇒ Available channels will be shown in the diagram below the "Start" button (see Fig. 17).
   ⇒ Green bars highlights the channels with available MUX signal.
   ⇒ Below the diagram the available MUX stations and their details are listed.
   ⇒ When the scanning is finished, the status LED is red and signed "Stopped"

3. To see the details of separate channels, point the cursor over the correspondent bar.
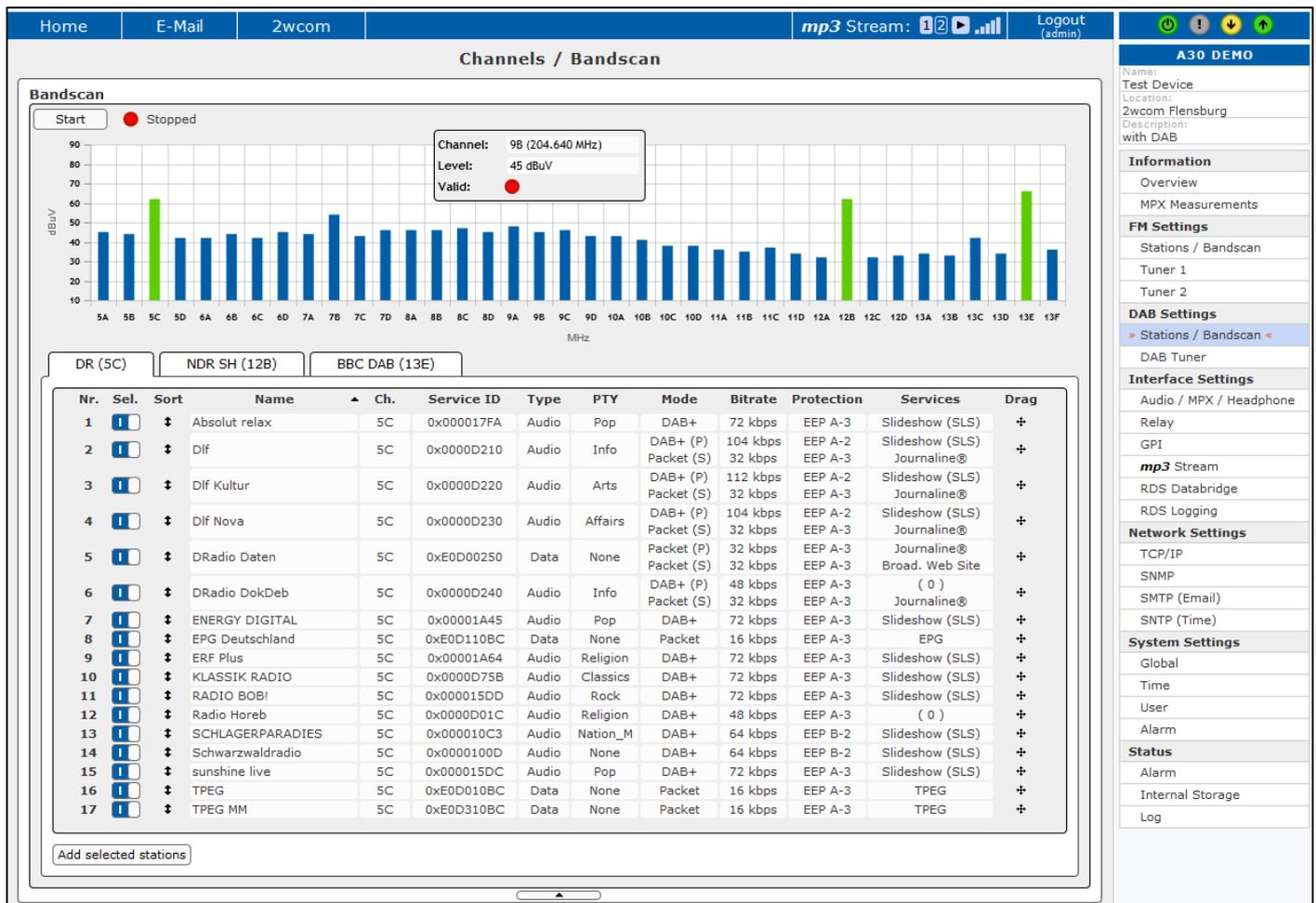


**Fig. 17: "Bandscan" – Search of the available DAB channels**

## 13.1.2. Configure Available Channels

The results of the Bandscan are sorted by the channels and are displayed in separate tabs below the diagram (**DAB Settings→Stations/Bandscan**).

Select and save available channels as follows:

1.  You can sort the channels by the Name, Service ID, Type, Mode, Quality and Services clicking the corresponding header and reorder them by dragging the ↕ arrow.
2.  Select the channels from the list that should be monitored by activating correspondent virtual switches.
3.  Click the "Save channel/ensemble names" button to save the chosen stations and to assign them together as one channel (max. 38 channels).

    ⇒ New entries for corresponding channels will appear in the "Channels" tab (see Fig. 18).
    ⇒ The stations and the belonging channels are displayed in the "Stations" tab (see Fig. 19 ).

4.  To hide the "Bandscan" menu, click the ⬆ button.
5.  Define names in the "Name" field for each channel that should be scanned, monitored and/or modulated. The length of the channel name is max. 9 characters.
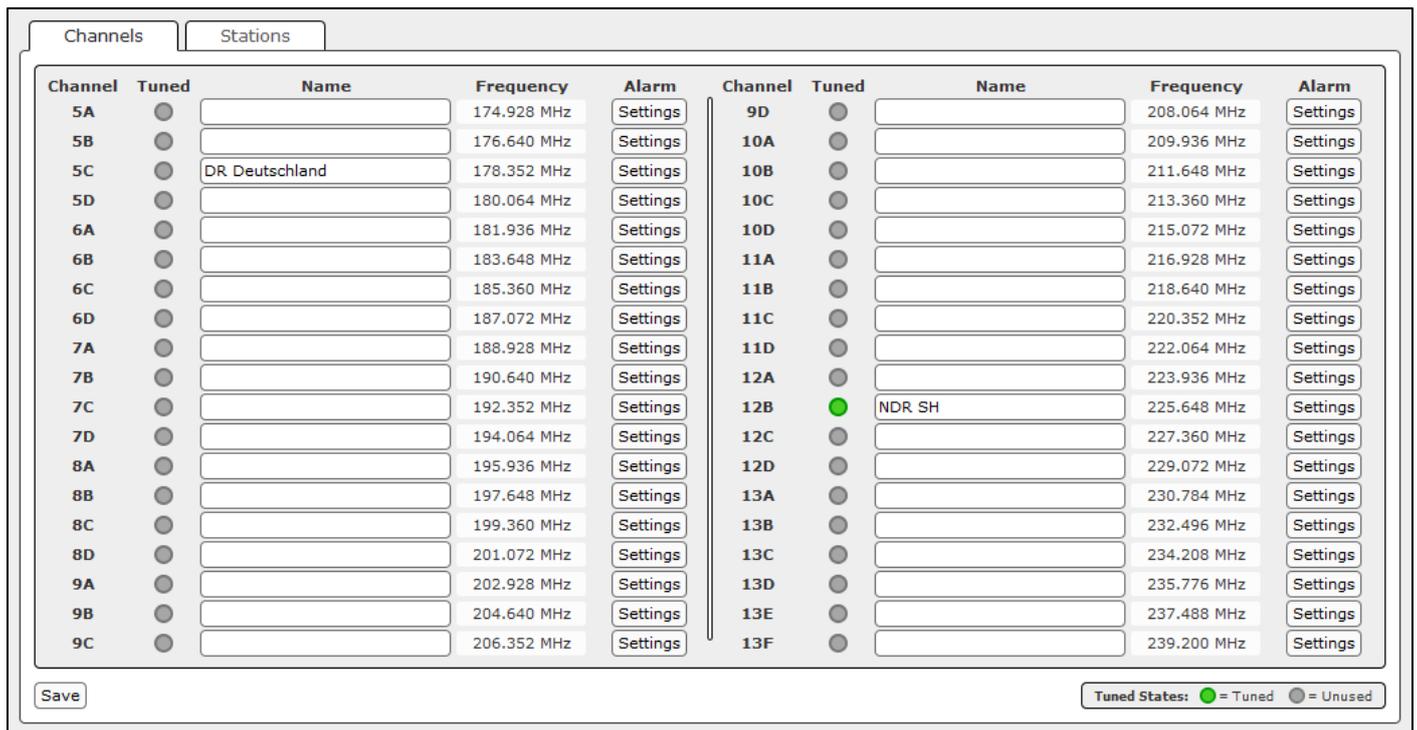
| Channel | Tuned | Name | Frequency | Alarm | Channel | Tuned | Name | Frequency | Alarm |
|---|---|---|---|---|---|---|---|---|---|
| 5A | ◯ | | 174.928 MHz | Settings | 9D | ◯ | | 208.064 MHz | Settings |
| 5B | ◯ | | 176.640 MHz | Settings | 10A | ◯ | | 209.936 MHz | Settings |
| 5C | ◯ | DR Deutschland | 178.352 MHz | Settings | 10B | ◯ | | 211.648 MHz | Settings |
| 5D | ◯ | | 180.064 MHz | Settings | 10C | ◯ | | 213.360 MHz | Settings |
| 6A | ◯ | | 181.936 MHz | Settings | 10D | ◯ | | 215.072 MHz | Settings |
| 6B | ◯ | | 183.648 MHz | Settings | 11A | ◯ | | 216.928 MHz | Settings |
| 6C | ◯ | | 185.360 MHz | Settings | 11B | ◯ | | 218.640 MHz | Settings |
| 6D | ◯ | | 187.072 MHz | Settings | 11C | ◯ | | 220.352 MHz | Settings |
| 7A | ◯ | | 188.928 MHz | Settings | 11D | ◯ | | 222.064 MHz | Settings |
| 7B | ◯ | | 190.640 MHz | Settings | 12A | ◯ | | 223.936 MHz | Settings |
| 7C | ◯ | | 192.352 MHz | Settings | 12B | 🟢 | NDR SH | 225.648 MHz | Settings |
| 7D | ◯ | | 194.064 MHz | Settings | 12C | ◯ | | 227.360 MHz | Settings |
| 8A | ◯ | | 195.936 MHz | Settings | 12D | ◯ | | 229.072 MHz | Settings |
| 8B | ◯ | | 197.648 MHz | Settings | 13A | ◯ | | 230.784 MHz | Settings |
| 8C | ◯ | | 199.360 MHz | Settings | 13B | ◯ | | 232.496 MHz | Settings |
| 8D | ◯ | | 201.072 MHz | Settings | 13C | ◯ | | 234.208 MHz | Settings |
| 9A | ◯ | | 202.928 MHz | Settings | 13D | ◯ | | 235.776 MHz | Settings |
| 9B | ◯ | | 204.640 MHz | Settings | 13E | ◯ | | 237.488 MHz | Settings |
| 9C | ◯ | | 206.352 MHz | Settings | 13F | ◯ | | 239.200 MHz | Settings |

Tabs: Channels | Stations

Save

Tuned States: 🟢 = Tuned ◯ = Unused

***Fig. 18: DAB Settings - Selected channels***

6.  In the same field you can configure or change the "Alarm Settings" for each channel individually by clicking the "SETTINGS" button (for more information about "Alarm Settings" see section 14.2 "DAB monitoring" on page 69).

7.  Click the "Save" button to save the changes.

**LCD menu: Configuration menu→DAB stations→Station 1-30 and …→Service ID**

## 13.2. Configure a Station (DAB Service)

✓ You have already scanned for the available services and saved them (see section 13.1).

Configure available stations and set one station (service) for tuning as follows:

1. To view and monitor available stations (services), open DAB Settings→Stations/Bandscan and select "Stations" tab (see Fig. 19 ).

2. You can manually change the name, Service ID (hexadecimal), the assigned channel of the stations or fill this information manually, if bandscanning is not available.

3. Click the "Save" button to save the changes.

4. In the same field you can configure or change the "Alarm Settings" for each station individually by clicking the "Settings" button (for more information about "Alarm Settings" see section 14.2 "DAB Monitoring" on page 62).

5. To select a station for tuning and monitoring from the list, click the corresponding State LED (grey) in the "Stations" tab (see Fig. 19 ).

⇒ The Status LED is lit green.
⇒ The changes are saved automatically and the selected station is now active.
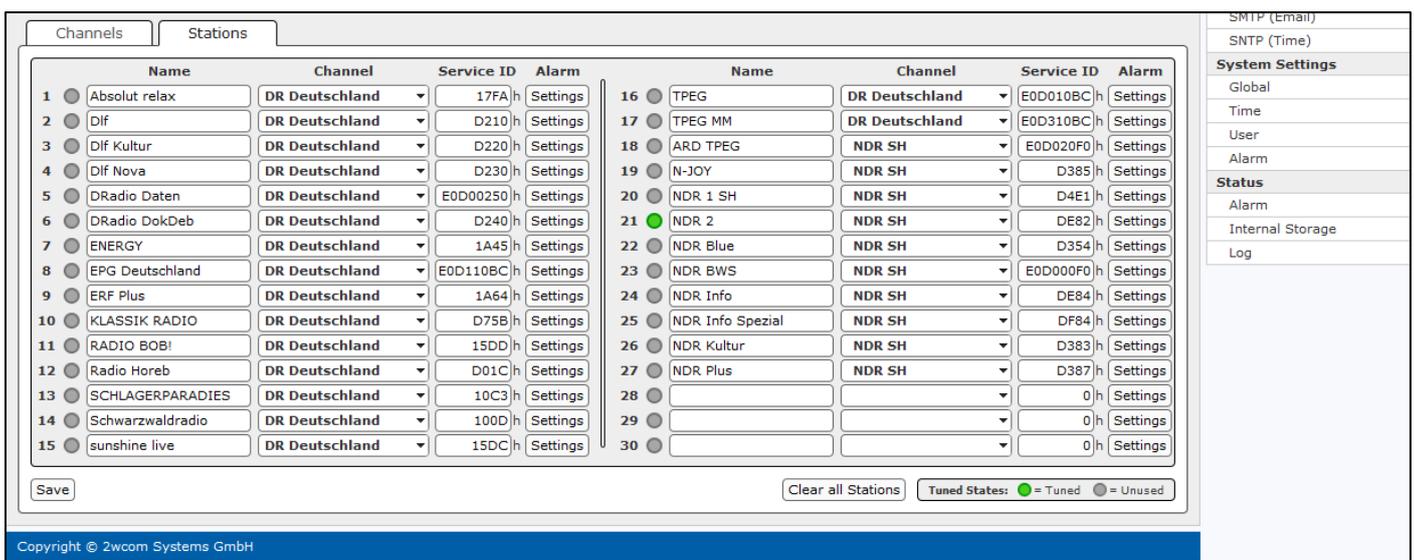


*Fig. 19: DAB Settings – saved Stations and Channels*

6. You can alternatively select a saved station for tuning and monitoring in the dropdown menu "Station" under **DAB Settings→DAB Tuner** in the "Tuning" field (see Fig. 20).
Click the "Save" button to save the changes.

⇒ The tuned station will be shown in the "Current Station" field and the corresponding channel in the "Current Channel" field (see Fig. 20).

7. Set up outputs for the RF-DAB signal in the "Device Overview" block diagram in the same menu under **DAB Settings→DAB Tuner** by clicking the available nodes by the cursor or under **Interface Settings→Audio/MPX/Headphone**.

For more information about the configuration of the outputs see section 11 "Input/Output Settings" " on page 37.

For more information about the monitoring configuration see section 14 "Monitoring and Alarm Settings" on page 55.

`LCD menu: Configuration menu`→`DAB Tuner`

## 13.3. View the DAB Tuner Status

You can view the current status of the DAB tuner and of the incoming audio signal at any time on the web user interface page or in the LCD menu of the device.

1. Select **DAB Settings**→**DAB Tuner** in the web interface menu. "DAB Tuner" page appears (see Fig. 20):
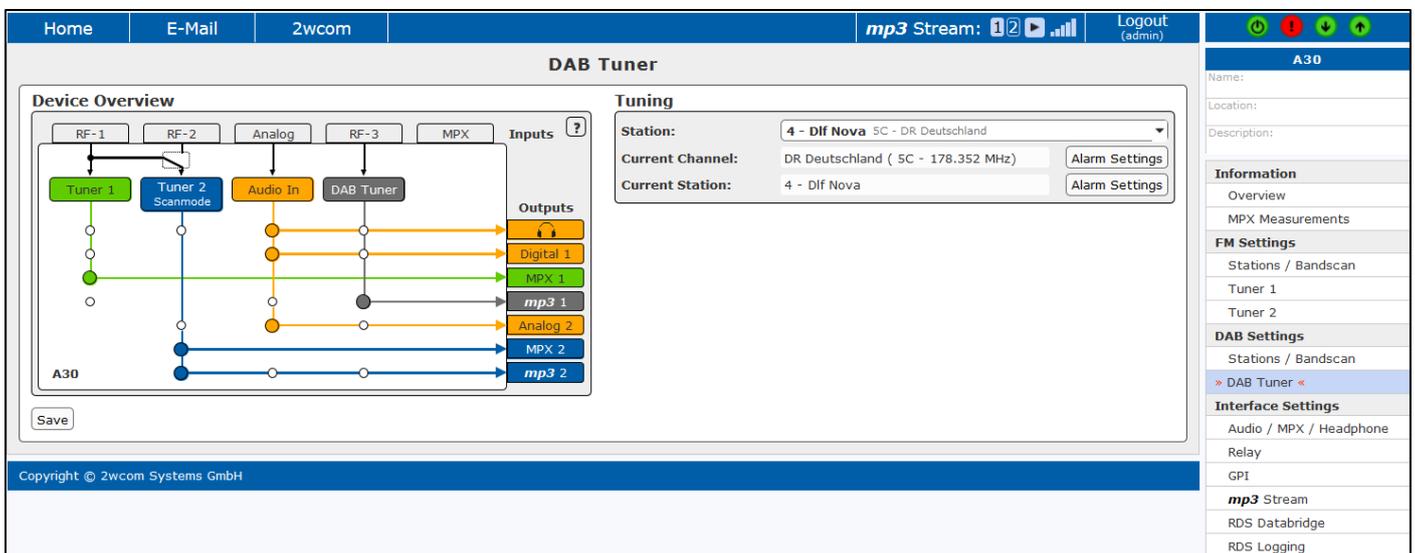


*Fig. 20: DAB Tuner setup*

2. In the "Tuning" block you can view the currently tuned station and the corresponding channel (see Fig. 14).

3. Under **Information**→**Overview** in the "DAB Tuner" tab you can view details about the current service, channel and quality of the DAB RF signal (see Fig. 22).

4. In the "Current Channel" block the following measurements are displayed:

   RF Level
   SNR              signal-to-noise ratio
   CNR              carrier-to-noise ratio
   FIC Quality   Fast Information Channel Quality
   FFT Offset    Fast Fourier Transform offset

5. For "RF Level" and "FIC Quality" you can set up monitoring functions (max/min value, LED activation). To open the configuration menu, enter "Alarm Settings" button. For more information see section 14.2.1.

6.  In the "Current Service" block the following measurements are displayed: L/R Level

7.  In the "Current Service" block you can activate the virtual switch "Show" to see the current slideshow with categorization parameters (CatSlS) in the display, if the service is available. This service provides a sequence of slides that carry information in the form of images.

8.  Above the display you can see available categories and the number of available slides in each category ("News", "Weather" etc.).



***Fig. 21: Overview - DAB current service: details of the current (CatSLS) Slideshow***

9.  To see the details of the slide, point the cursor to the blue field with the file name below the display.

⇒ The menu will expand to the detailed view:



⇒ To fix the detailed view, click the pin symbol in the right corner.

| Parameter | Description |
|---|---|
| Size | Size of the current slide |
| Loadtime | Load time of the current slide (each slide must be loaded before it appears in the display) |
| Loaddate | The date and the time of the first load of the current slide |
| ID | Identification of the slide (if categories are available) The number in the brackets identifies the running number of the slide in the correspondent category |
| Repeats | The number of repetitions |
| Link | A hyperlink to additional information of the broadcasting station (if available) |

⇒ You can move to any previous slide by clicking one of the bubbles below the display:



⇒ The bar on the left side shows the position of the current slide in the whole slideshow.

⇒ By left mouse click in the bar you can move to any slide as well.

10. The decoder supports transfer of maximum 50 slides and shows each slide automatically. To stop or to start view of the slideshow in the browser, click the stop/play button below the slideshow block. The device continues updating the current slideshow in the background.

11. For "L/R Level" and Slideshow you can activate and set up monitoring functions (max/min value, image update, image loadtime, LED activation). To open the configuration menu, enter "Alarm Settings" button. For more information see section 14.2.1 "Channel Monitoring" 62.



*Fig. 22: Information - Overview of the DAB Tuner Status*

12. Under **Information→Overview** in the "DAB Explorer" tab you can view further details about the current channel and quality of the DAB RF signal (see Fig. 22).
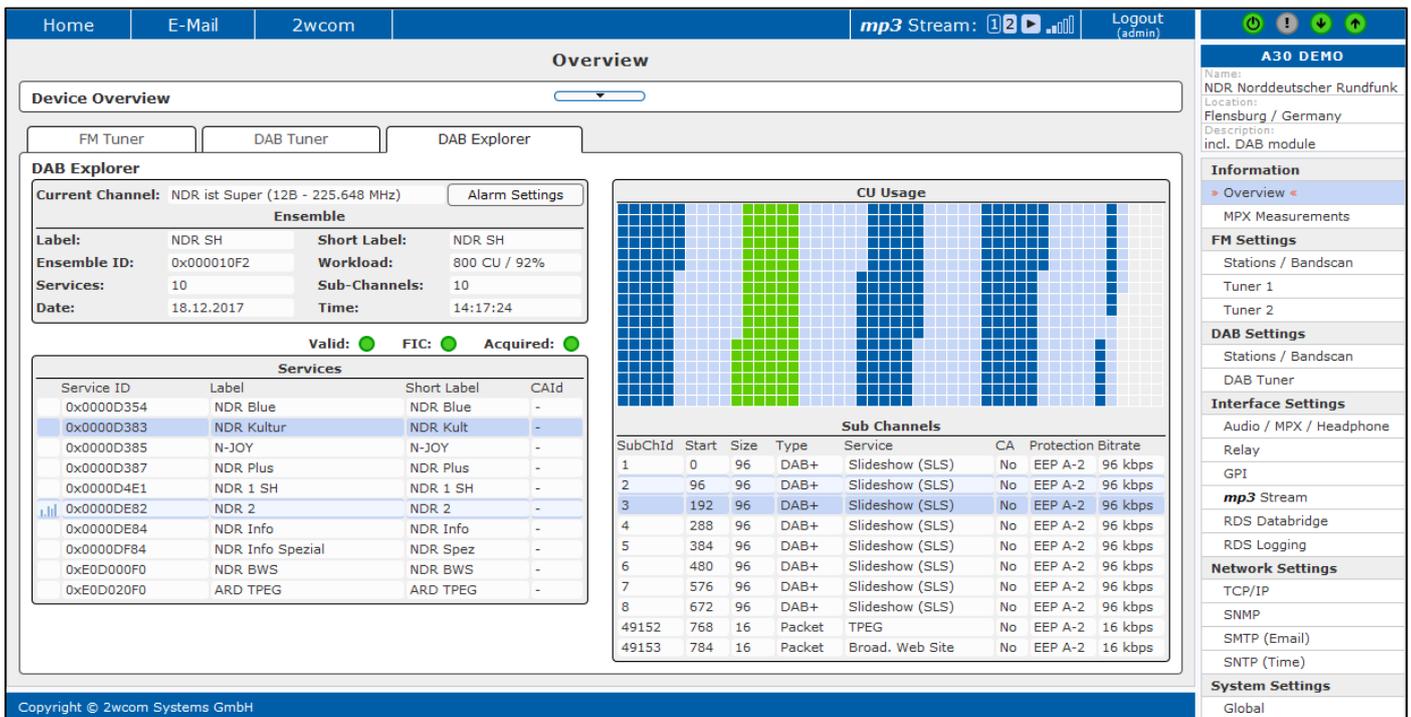
**Fig. 23: Information – Overview: DAB Explorer**

13. The current station will be shown in the "Services" field as an equalizer symbol [⏸] in the first column.

14. In the „CU Usage" block you can see the current usage of the capacity units of the channel.

    **Note**: If you point with the cursor to one service, the corresponding partition in the "CU Usage" block and its details in the "Sub Channels" block will be marked green (see Fig. 23).

    The amount of partitions (=units) in the "CU Usage" diagramm corresonds to the value in the column „Size".

15. You can also view the current status of some parameters directly on the LC display.
    To change the menu turn the jog wheel left or right.

16. In the block "Device Overview" you can see the scheme of currently activated inputs and outputs.
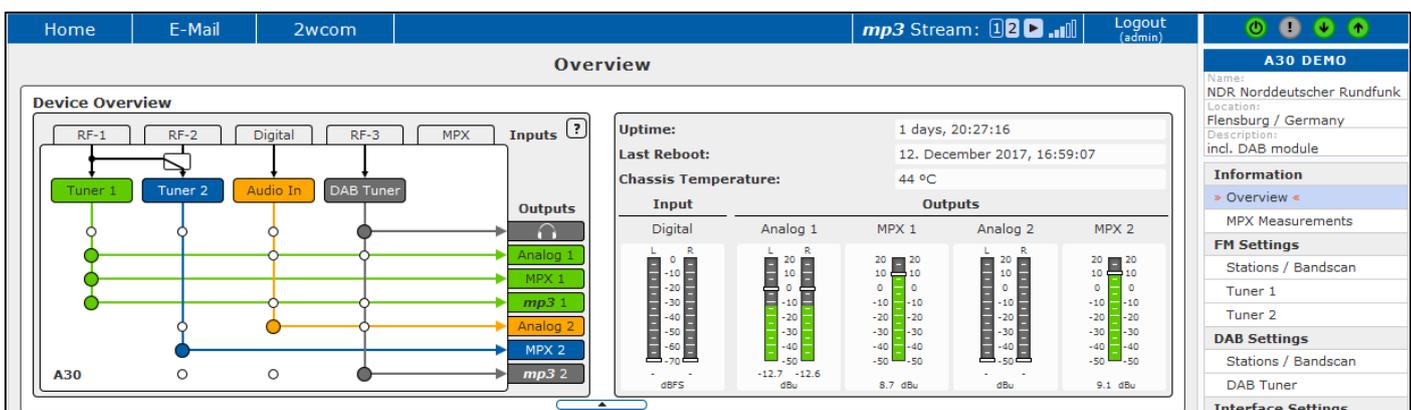


**Fig. 24: Information: Device Overview**

`LCD menu: Status Overview→DAB Tuner`

# 14. Monitoring and Alarm Settings

## 14.1. FM Monitoring Settings

The A30 is equipped with a dual tuner and each tuner is able to monitor continuously one of the 30 saved stations. The second tuner can also operate in scanning mode and monitor multiple stations, if this option is available in your device (see section 12.3.2 "Scanmode" on page 44).

### 14.1.1. FM Parameter Monitoring

The following FM parameters and alarms can be configured for monitoring for each station:

| | |
|---|---|
| **RF Level** | Alarm is triggered if the RF level of the internal source falls below or exceeds the configured values |
| **No Pilot** | Alarm is triggered if no pilot tone is available in the internal source |
| **MPX Power** | Alarm is triggered if the MPX modulation power exceeds the entered power value. |
| **MPX Deviation** | Alarm is triggered if the MPX deviation exceeds the entered level value (kHz) |
| **Pilot Deviation** | Alarm is triggered if the pilot deviation falls below the configured minimal level or exceeds the configured maximal level (kHz). |
| **RDS Deviation** | Alarm is triggered if the RDS deviation falls below the configured minimal level or exceeds the configured maximal level (kHz). |

A triggered alarm is signaled by sending SNMP traps, sending an email, activating of an available relay and, if configured, of the "Warning" LED on the web user interface page or on the front panel of the device. The alarm can be also indicated by an entry in the alarm log.

More information about the available SNMP traps you can find in Section 10.2.

Set up monitoring of the FM parameters <u>separately</u> for each configured tuner station as follows:

1. Open page "Alarm" under **System Settings→Alarm** in the web interface of the A30.
2. Select the configured Station in the dropdown menu "Stations Alarm Settings", for which the monitoring should be set up (see Fig. 25).

   ⇒ The "Alarm Settings – Station #" window will appear (see Fig. 26).

---

**NOTE**: To <u>copy</u> the Alarm Settings from another station, just select the Station in the dropdown menu in the "Copy/Load from:" block in the "Alarm Settings – Station #" window.
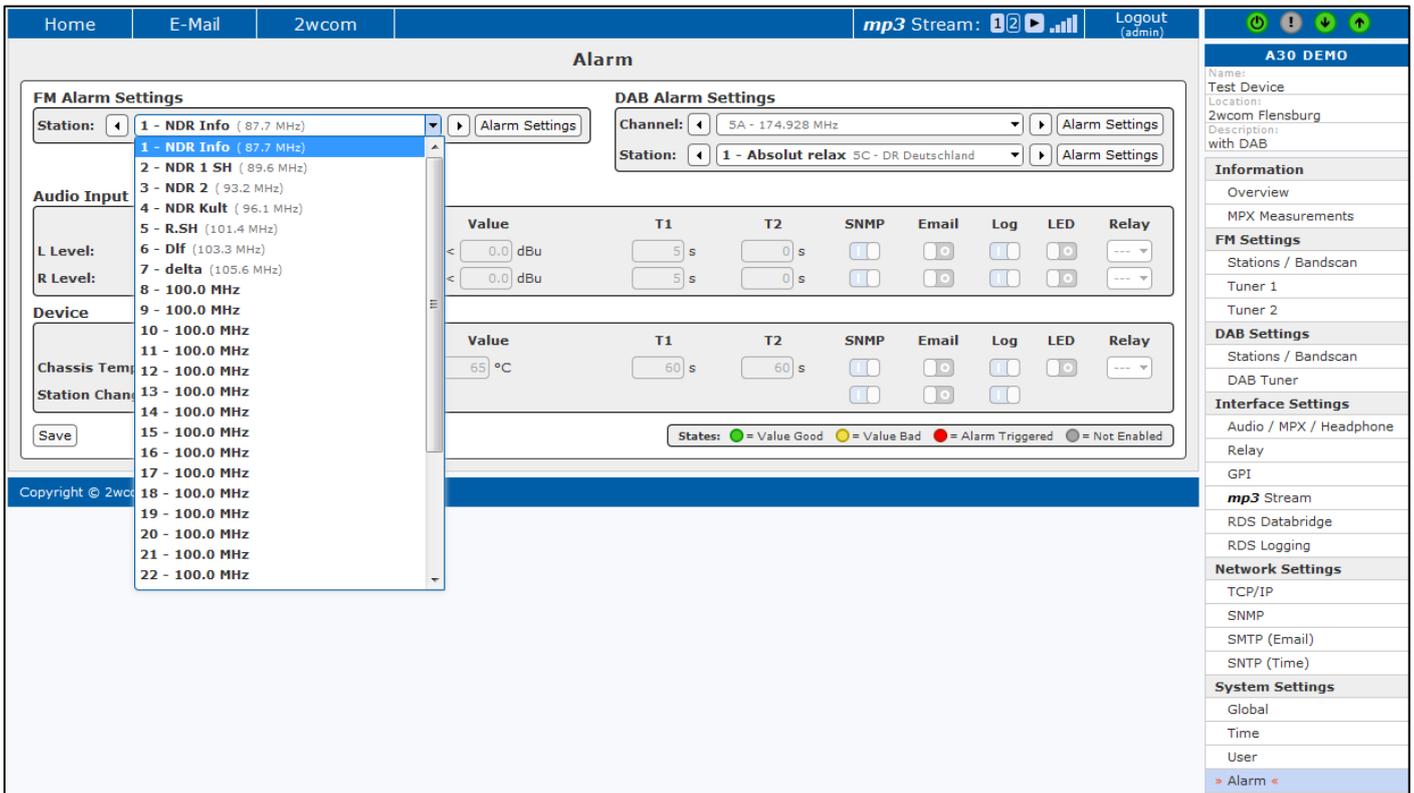
---

**Fig. 25: Station selection for alarm settings.**

3.  Klick the "ALARM SETTINGS" button to open the "Alarm Settings" page for the selected Station (see Fig. 26).
    You can also get to this page from some other menus by clicking the "ALARM SETTINGS" button (**Information→Overview**, **System Settings→Alarm**, **Status→Alarm**).
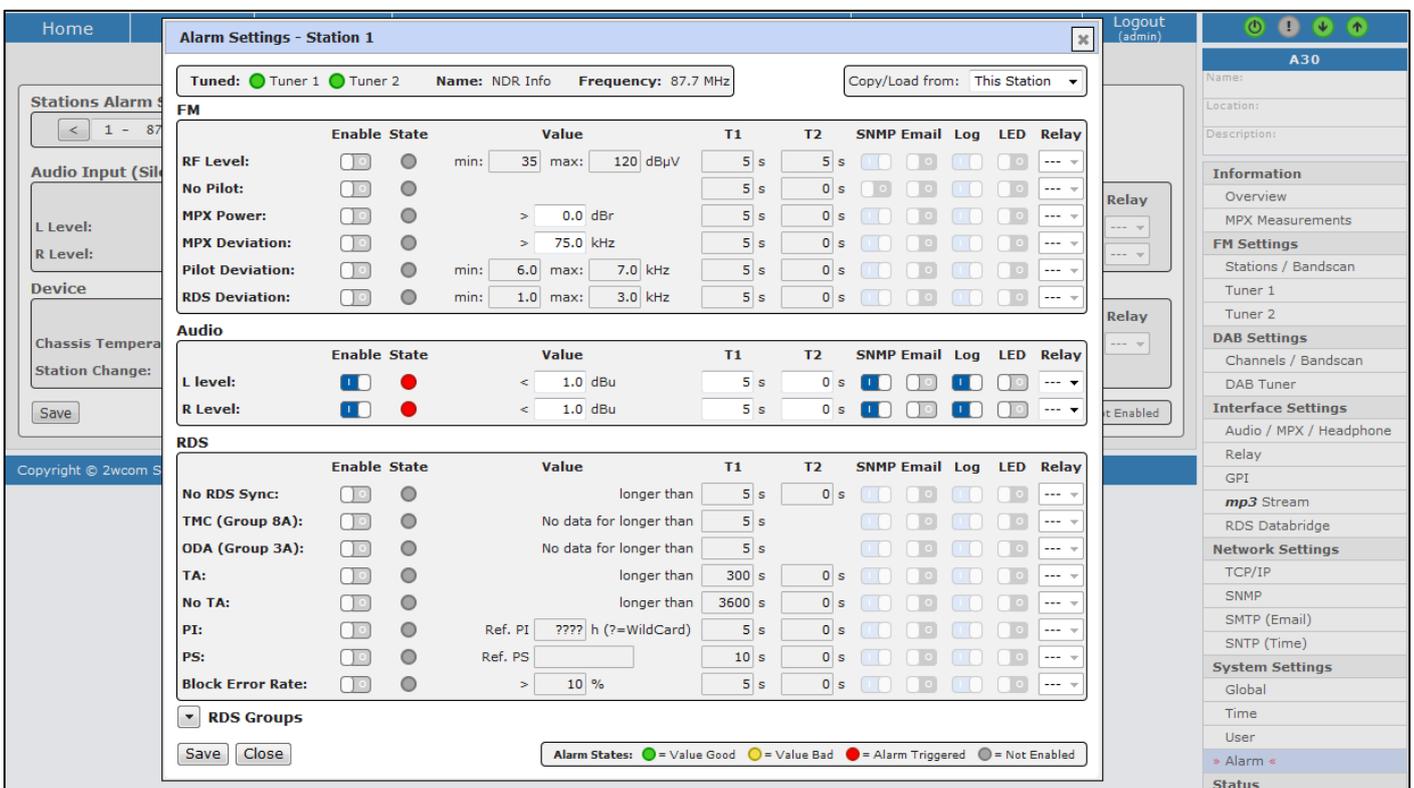


**Fig. 26: Alarm settings – monitoring of the internal audio signal**

4. On the top of the page you can see the current information about the selected station: name, frequency and the tuner.
   If the LED near the tuner with a Scanmode function flashes yellow, it means that the station is selected for scanning mode.

5. To configure the monitoring of FM parameters enter the changes in the "FM" block.

6. Enable each tuner monitoring function separately in the corresponding checkbox "Enabled", if this parameter should be monitored (see Fig. 26).

7. Define for each monitoring function the delay time T1 (in seconds) for alarm trigger. The delay time from this defined value will be regarded by the system as "bad", so that after the delay time T1 an alarm will be set off.

   **NOTE**: If the device during the Scanmode detects an error in the RF signal in a station before it exceeds the correspondent time T1 (configured under "Alarm Settings"), the countdown of the scantime will continue in the next pass. Scanmode "remembers" therefore the T1 values for each station and each parameter and adds them up.

8. Define for each monitoring function the delay time T2 (in seconds) for alarm end, how long a "good" signal for this parameter should be available, before the system switches off the alarm.

9. Enable checkbox "SNMP" if the alarm should be signaled by sending SNMP traps.

10. Enable checkbox "Email" if the alarm should be signaled by sending an email (email configuration under **Network Settings→SMTP**).

11. Enable checkbox "Alarm log" if the alarm should be registered in the alarm log (**Status→Log**)

12. Enable checkbox "LED" if the alarm should be signaled by the Warning LED on the web user interface page or on the front panel of the device.

13. Select in the dropdown menu "Relay" one of the available relays that should switch to signal the alarm (see section 14 "Monitoring and Alarm Settings" on page 55).

14. In the "RF Level" block, enter minimal/maximal value for the internal RF level, below/above which the alarm should be set off (dBµV). In the "Value" column of the "MPX Power" field enter the maximum value in dBr above that the alarm should be set off.

16. In the "Value" column of the "MPX Deviation" field enter the maximum level in kHz that should be exceeded in order to set off alarm.

17. In the "Value" column of the "Pilot Deviation" and "RDS Deviation" fields enter the minimal/maximal level for the internal audio level (kHz) below/above that the alarm should be set off.

18. Click the "Save" button to save the changes or the "Close" button to close the menu without saving the changes.

19. Repeat the same steps to configure the alarm settings for the further stations.

---

**NOTE**: Information about error and alarm alerts can be viewed in the *Alarm* and *Log status* menu under **Status→Alarm** and under **Status→Log**.

## 14.1.2. Audio Parameter Monitoring

The following audio alarm functions can be activated in all A30 devices:

| | |
|---|---|
| **L Level** | Alarm is set off if the signal level of the left channel of the analog output signal falls below the configured value |
| **R Level** | Alarm is set off if the signal level of the right channel of the analog output signal falls below the configured value |

To set up the monitoring parameters for controlling the signal level of the analog output audio signal for each channel:

1. Open page "Alarm" under **System Settings→Alarm** in the web interface of the A30.
2. Select the configured Station in the dropdown menu "Stations", for which the monitoring should be set up (see Fig. 25).
3. Klick the "Alarm Settings" button to open the "Alarm Settings" page for the selected Station (see Fig. 26).
4. To configure the monitoring parameters for demodulated analog audio signal enter the changes in the "Audio" block.
5. To configure the monitoring parameters, follow the instructions described in steps 4. - 12. on page 57 in section 14.1.1 "FM Parameter".
6. In the "Value" column enter the value for minimal level of the demodulated analog audio signal, below that the alarm should be set off.
7. Click the "Save" button to save the changes or the "Close" button to close the menu without saving the changes.
8. Repeat the same steps to configure the alarm settings for the further stations.

---

**NOTE**: Information about error and alarm alerts can be viewed in the *Alarm* and *Log status* menu under **Status→Alarm** and under **Status→Log**.

---

## 14.1.3. Basic RDS Monitoring

The A30 is equipped with an RDS decoder and are able to recognize and to monitor the RDS data in the inputting signal: PI, PS, TA, TP, PTY, No TA and RDS synchronization. Alarm can be triggered via Email, by Logging, by sending SNMP traps, activating an available relay or switching a virtual LED.

### 14.1.3.1. Set up Basic RDS Monitoring

The following RDS alarm functions can be activated in all A30 devices:

| | |
|---|---|
| **No RDS sync.** | Alarm is set off if RDS has not been synchronized for a certain time |
| **TMC (Group 8A)** | Alarm is set off if no TMC data (Group 8A) is available |
| **ODA (Group 3A)** | Alarm is set off if no ODA data (Group 3A) is available |
| **TA** | Alarm is set off if no RDS TA is available |
| **NO TA** | Alarm is set off if no RDS NO TA signal is available |
| **PI** | Alarm is set off if no or a false station identification code is detected in the RDS stream |
| **PS** | Alarm is set off if no or a false station service name is detected in the RDS stream |
| **Block Error Rate** | Alarm is set off if the block error ratio (BER) of the received RDS blocks exceeds the entered ratio value (one RDS group consists of four blocks). |
| **Groups** | Alarm is set off if a defined RDS group has not been received in the RDS stream |

A triggered alarm is signaled by an Email with an error description, by sending SNMP traps, activating of an available relay and, if configured, of the "Warning" LED on the web user interface page or on the front panel of the device. The alarm can be also indicated by an entry in the alarm log.

More information about the available SNMP traps you can find in section 10.2.

Set up the monitoring parameters for controlling the RDS signal separately for each configured tuner station as follows:

1. Open the page *Alarm* under **System Settings→Alarm** in the web interface of the A30.
2. Select the configured Tuner Station in the dropdown menu "Station", for which the monitoring should be set up (see Fig. 27).



***Fig. 27: Station selection for alarm configuration***

3. Enable each RDS alarm function separately in the corresponding checkbox "Enabled", if this parameter should be monitored (see Fig. 28).
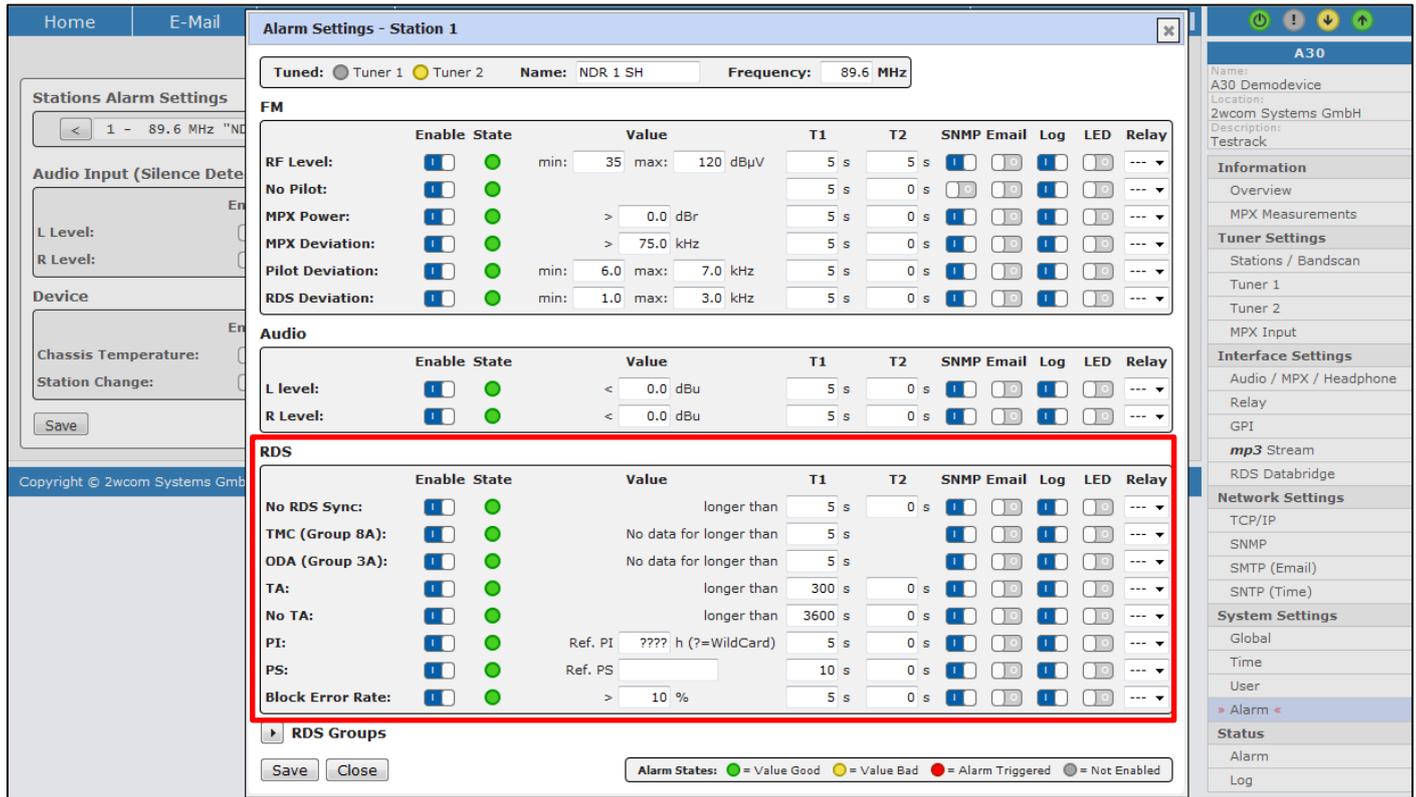


*Fig. 28: Alarm settings – indication of the RDS data in the internal signal*

4. Define for each monitoring function the delay time *T1* (in seconds) for alarm trigger. The delay time from this defined value will be regarded by the system as "bad", so that after the delay time *T1* an alarm will be set off.

5. Define for each monitoring function the delay time *T2* (in seconds) for alarm end, how long a "good" signal for this parameter should be available, before the system switches off the alarm.

6. Enable checkbox "SNMP", if the alarm should be signaled by sending SNMP traps.

7. Enable checkbox "Email", if the alarm should be signaled by sending an email (email configuration under **Network Settings→SMTP**).

8. Enable checkbox "LED", if the alarm should be signaled by the Warning LED on the web user interface page or on the front panel of the device.

9. Enable checkbox "Alarm log", if the alarm should be registered in the alarm log (**Information→Alarm log**)

10. Select in the dropdown menu "Relay" one of the available relays that should switch to signal the alarm (see section 11.2 "Relay Outputs" on page 38).

11. In the „PI" block enter the correct RDS PI as a four-digit hexadecimal number in the first box , to allow the monitoring system to recognize the correct station identification code (PI).

12. In the „ PS" block enter the correct RDS PS in the first box , in order to allow the monitoring system to recognize the correct station service name (PS).

13. In the „Block Error" block enter the BER value for the received RDS blocks (percent) above that the alarm should be set off.

   **Example**: 10% value for BER means that alarm will be set off, if more than 10% of the received RDS blocks contain an incorrigible error.

14. Click the „Save" button to save the changes or the „Close" button to restore the last settings.

In the last block "RDS Groups" under **System Settings→ Alarm → FM Alarm Settings** you can configure monitoring of separate RDS Groups (see Fig. 29).
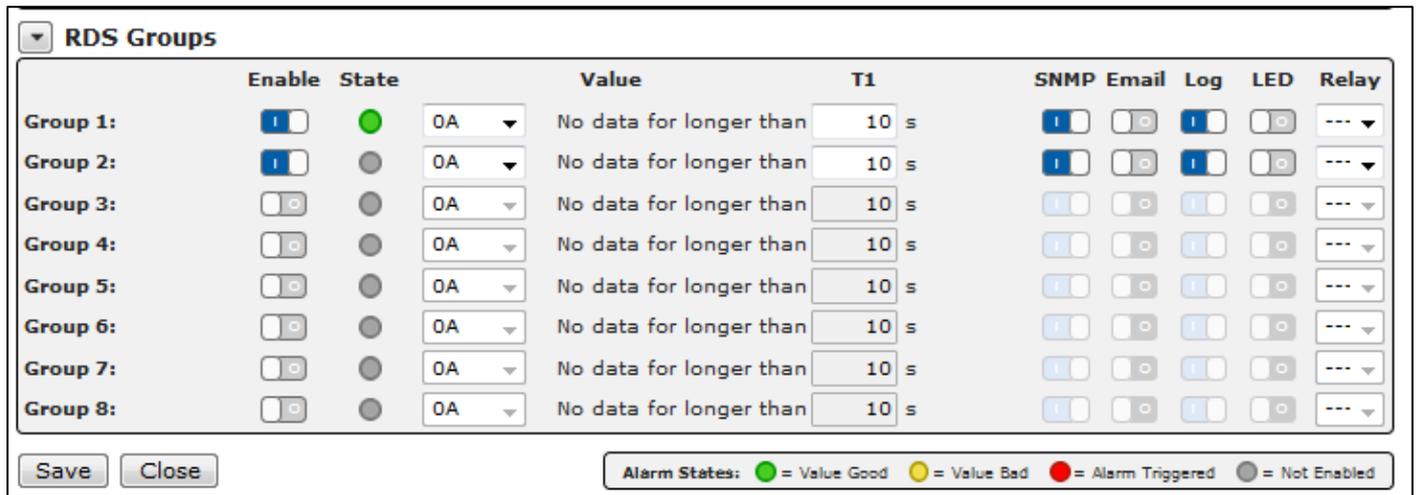


**Fig. 29: Alarm Settings – RDS Groups**

### 14.1.3.2.    View the RDS status

You can view the current status of the inputting RDS data at any time on the web user interface page or in the LCD menu of the device.

Under **Information→Overview** you can view the current status of the decoded RDS data of the internal source (see **Fig. 16**).

In case of alarm, the corresponding LEDs in the menu **Information→Alarm status** will light red.

`LCD Menu: Status overview→Tuner 1/2`

### 14.1.3.3.    RDS Logging

The monitoring results of the separate RDS parameters for each input can be inserted to the log book and saved on the internal storage.

Under **Interface Settings→RDS Logging** you can enable the RDS Logging for available RDS parameters separately by activating the virtual switch in the "Enable" field (see Fig. 30).

⇒ The time and the date of the reception for each parameter will be recorded as well as the status, if the parameter is available or not.

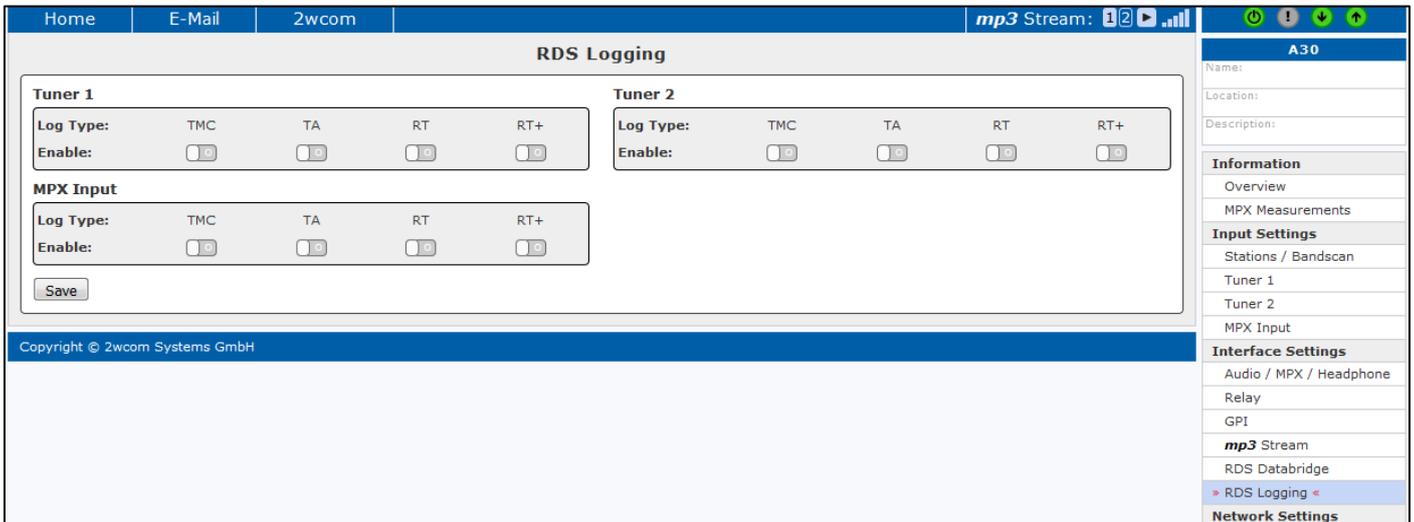⇒ The recorded results can be downloaded from the internal storage over FTP.

***Fig. 30: Activation of RDS Logging***

## 14.2.   DAB Monitoring Settings

If the A30 is equipped with a DAB/DAB+ Tuner, monitoring of one of the tuned channels and DAB services is possible. Alarm can be triggered via Email, by Logging, by sending SNMP traps, activating an available relay or switching a virtual LED.

### 14.2.1.  Channel Monitoring

You can edit alarm settings for DAB Channel monitoring under **System Settings→Alarm** in the "DAB Alarm Settings" block in the "Channel" field.

You can also open "DAB Alarm Settings" over other menus:

- **DAB Settings→Stations/Bandscan**, Block "Channels" column "Alarm" (Fig. 18 on page 49).
- **DAB Settings→DAB Tuner**, Block "Tuning", field "Current Channel" (Fig. 20 on page 51).
- **Information→Overview**, Block "DAB Tuner", field "Current Channel" (Fig. 22 on page 53).

The following monitoring parameters can be configured and activated for each DAB channel:

| | |
|---|---|
| **RF Level** | Alarm is triggered if the RF level of the DAB channel falls below or exceeds the configured values |
| **FIC Quality** | Alarm is triggered if the current (error-free) value of the FIC Quality is below the configured percentage. |

1. To set the channel for configuration, select the channel in the dropdown menu "Channel" under **System Settings→Alarm** in the "DAB Alarm Settings" block.
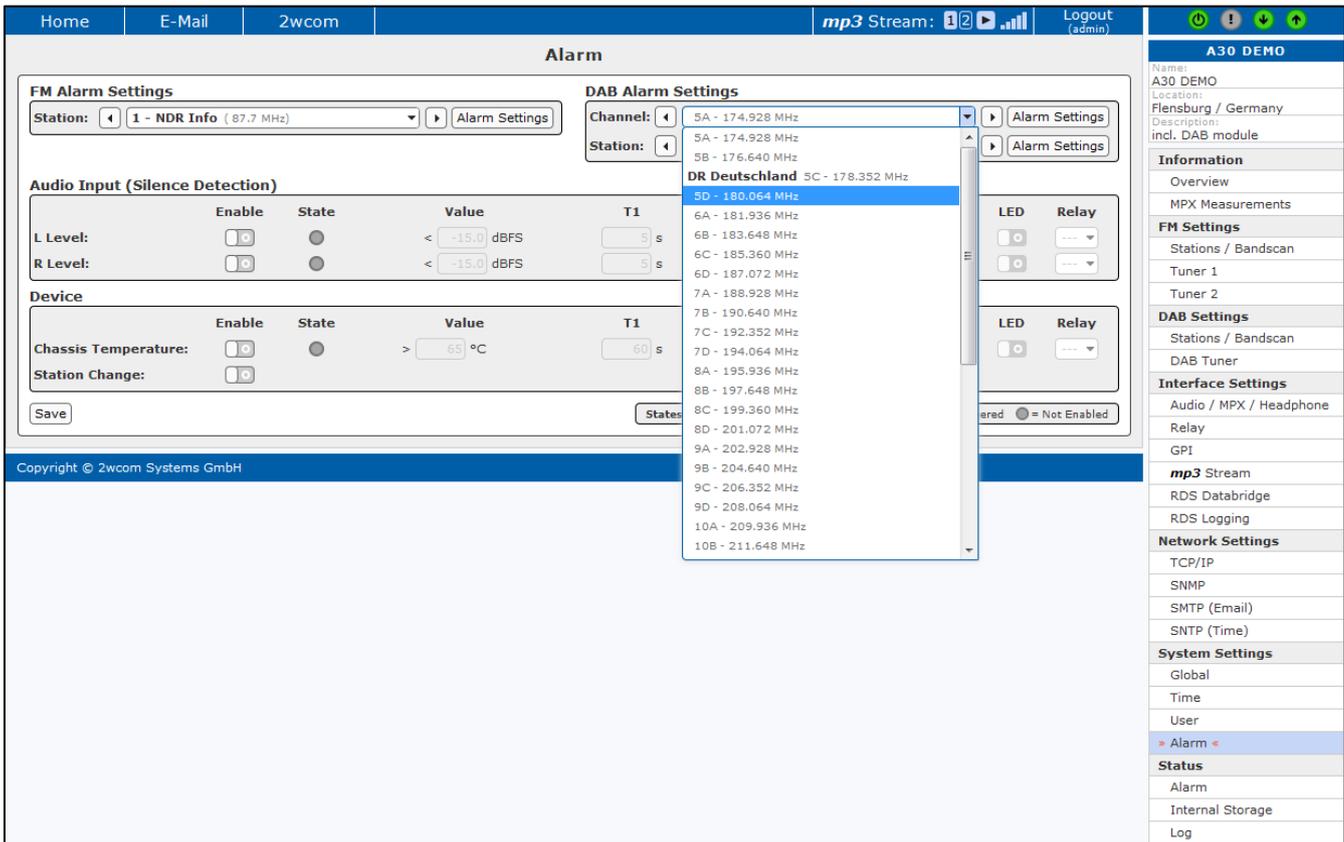
*Fig. 31: Selecting of a DAB Channel for monitoring*

2. To edit alarm settings for DAB Channel monitoring click the "Alarm Settings" in the "Channel" field.

⇒ "Alarm Settings" menu for the selected DAB Channel appears (see Fig. 32).
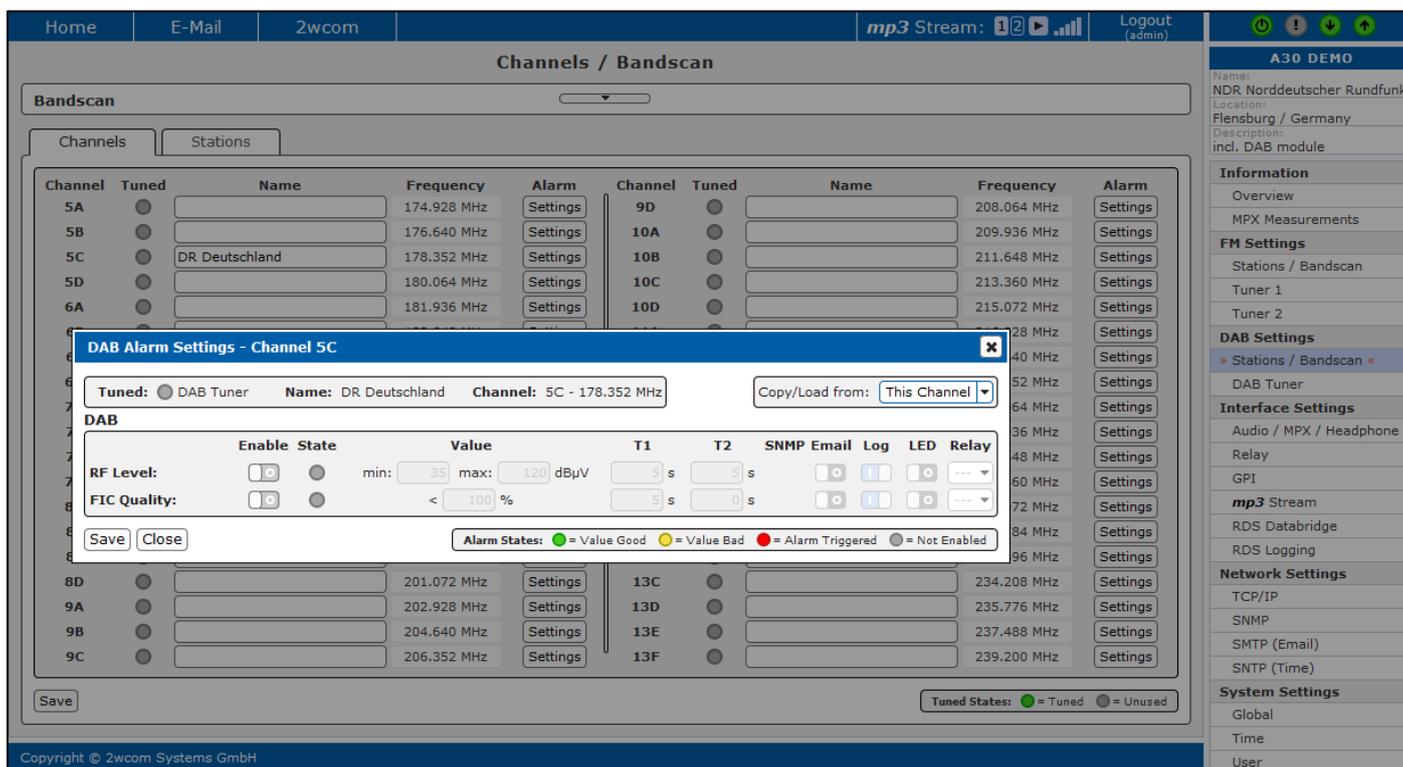
*Fig. 32: Alarm Settings – DAB Channel*

3.  To copy saved alarm settings from another channel, select the channel from the dropdown menu "Copy/Load from:"

    ⇒  The loaded values are displayed in the corresponding fields.

4.  Enable each alarm function separately in the corresponding checkbox "Enabled", if this parameter should be monitored (see Fig. 32).

5.  In the "RF Level" block, enter minimal/maximal value for the RF level of the DAB channel, below/above which the alarm should be set off (dBµV).

6.  For the further settings follow the same instructions (from step 7. ) as described in section 14.1.1 on page 57.

7.  Enter the "Save" button to save the changes.

8.  Under **Information→Overview** in the "DAB Tuner" ("Current Channel" field) you can see the current status of the monitoring parameters of the DAB Station: RF Level, FIC Quality (see Fig. 21 on page 52).

**LCD Menu: Status Overview→DAB Tuner**

## 14.2.2.  Stations Monitoring

You can edit alarm settings for station monitoring under **System Settings→Alarm** in the "DAB Alarm Settings" block in the "Station" field (see Fig. 33).

You can also open "DAB Alarm Settings" in other menus:

*   **DAB Settings→Stations/Bandscan**, Block "Stations" column "Alarm" (Fig. 19 on page 50).

- **DAB Settings→DAB Tuner**, Block "Tuning", field "Current Station" (Fig. 20 on page 51).
- **Information→Overview**, Block "DAB Tuner", field "Current Service" (Fig. 22 on page 53).

The following monitoring parameters can be configured and activated for each DAB station:

| **L/R Level** | Alarm is triggered if the level of the left/right channel of the tuned DAB service falls below the configured value |
|---|---|
| **Image Update (Slideshow)** | Alarm is triggered if no new slideshow image is available in the tuned DAB service for longer than a configured time |
| **Image Loadtime** | Alarm is triggered if the loading time of the slide is longer that a configured value |

1. To set the station for configuration, select the available service in the dropdown menu "Station" under **System Settings→Alarm** in the "DAB Alarm Settings" block.

2. To edit alarm settings for monitoring of the selected DAB Station, click the "Alarm Settings" in the "Station" field.

3. To copy saved alarm settings from another station, select the station in the dropdown menu "Copy/Load from:"

   ⇒ The loaded values are displayed in the corresponding fields.

4. Enable each alarm function separately in the corresponding checkbox "Enabled", if this parameter should be monitored (see Fig. 33)
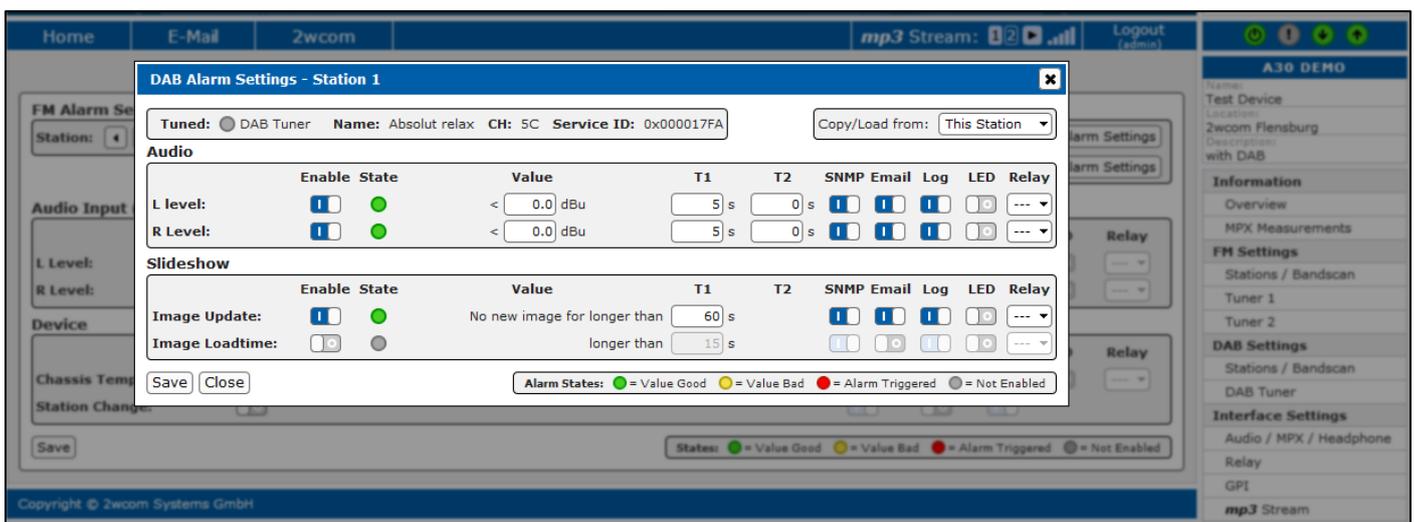


***Fig. 33: Alarm Settings – DAB Station***

5. For the further settings follow the same instructions (from step 7. ) as described in section 14.1.1 on page 57.

6. Enter the "Save" button to save the changes.

7. Under **Information→Overview** in the "DAB Tuner" ("Current Service" block) you can see the current status of the monitoring parameters of the DAB Station: L/R Level, Slideshow (see Fig. 21 on page 52).

---

## 14.3. Device Monitoring Settings

### 14.3.1. Set up Device Monitoring

The following parameters and alarms for device monitoring of the A30 can be activated:

| **Station change** | Alarm is set off if the station changes (the frequency) |
|---|---|
| **Case temperature** | Alarm is set off if the device temperature exceeds the entered value |

A triggered alarm is signaled by sending SNMP traps, activating of an available relay and, if configured, of the "Warning" LED on the web user interface page or on the front panel of the device. The alarm can be also indicated by an entry in the alarm log.

More information about the available SNMP traps you can find in section 10.2 "Monitoring Function: Configuration of SNMP" on page 33.

---

> **ℹ** **NOTE:** The alarm for "station change" can be signaled only by SNMP, Email, Relay and Alarm log, but not by an LED.

---

Set up the device monitoring parameters independently from the station as follows:

1. Open the page *Alarm* under **System Settings→Alarm** in the web interface of the A30.
2. Enable each alarm function separately in the corresponding checkbox "Enabled", if this parameter should be monitored (see Fig. 28).
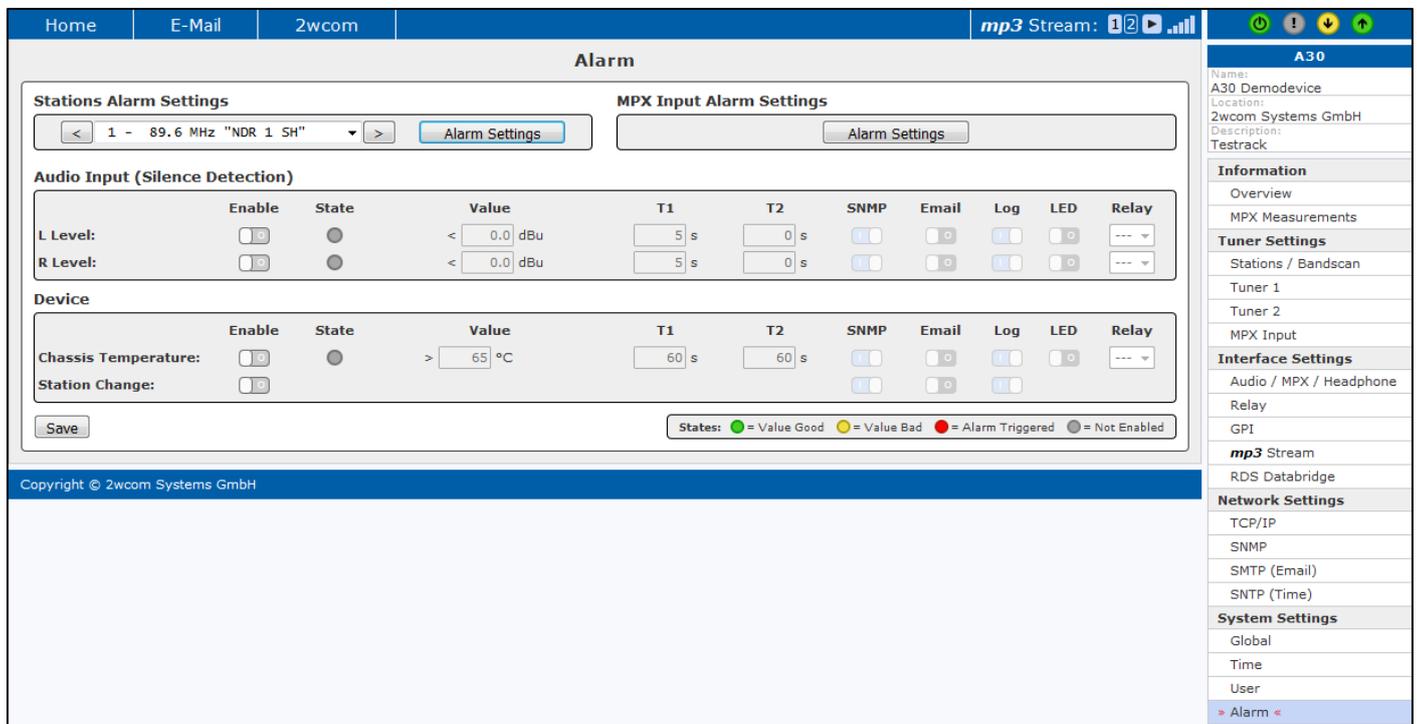


***Fig. 34: Alarm settings – device monitoring***

---

3. Define for each monitoring function the delay time *T1* (in seconds) for alarm trigger. The delay time from this defined value will be regarded by the system as "bad", so that after the delay time *T1* an alarm will be set off.

4. Define for each monitoring function the delay time *T2* (in seconds) for alarm end, how long a "good" signal for this parameter should be available, before the system switches off the alarm.

5. Enable checkbox "SNMP", if the alarm should be signaled by sending SNMP traps.

6. Enable checkbox "Email", if the alarm should be signaled by sending an email (email configuration under **Network Settings→SMTP**).

7. Enable checkbox "LED" (if available), if the alarm should be signaled by the Warning LED on the web user interface page or on the front panel of the device.

8. Enable checkbox "Alarm log", if the alarm should be registered in the alarm log (**Information→Alarm log**, in the ARM Version beginning with 2.19: **Status→Log**)

9. Select in the dropdown menu "Relay" one of the available relays that should switch to signal the alarm (see section 14.4).

10. In the „Case Temperature" block enter the value for the maximal allowed device temperature. If the case temperature exceeds the entered temperature for T1 seconds, an alarm will be set off.

11. Click the "Save" button to save the changes or the "Reset" button to restore the last settings.

## 14.3.2. View the Device Status

You can view the current status of the device under **Information→Overview** (see Fig. 35):



| Uptime: | 7 days, 22:14:56 |
| Last Reboot: | 16. November 2016, 14:47:58 |
| Chassis Temperature: | 47 ºC |

***Fig. 35: Information - System***

In case of alarm, the corresponding LED in the menu **Information→Alarm status** will flash red (see Fig. 41).

In the ARM Version beginning with 2.19 you can view the current status of the device under **System Settings→Global** (see Fig. 63 on page 90, Section 20.2).

`LCD menu: the 2`nd` display menu (turn the Jog Wheel one time clockwise).`

## 14.3.3. View the Internal Storage Capacity

You can see the storage capacity under **Status→Internal Storage**:



***Fig. 36: Internal Storage Capacity***

## 14.4.  MPX IN Monitoring

An optional input source for audio is MPX In (excludes option DAB Tuner).

To monitor the MPX Input signal:

1. Set up "MPX In" as a Source for the audio outputs in the switch diagram in the "Device Overview" block or under **Interface Settings→Audio/MPX/Headphone** as described in section 11 "Input/Output Settings" on page 37.

2. Under **System Settings→Alarm** click the "Alarm Settings" button in the "MPX Input Alarm Settings" block (see Fig. 37) or under **Tuner Settings→MPX Input** (see Fig. 39):



***Fig. 37: Alarm Settings***

3. Set up the monitoring parameters for MPX Input (see Fig. 38) as described in section 14.1.1 "FM Parameter" on page 55).
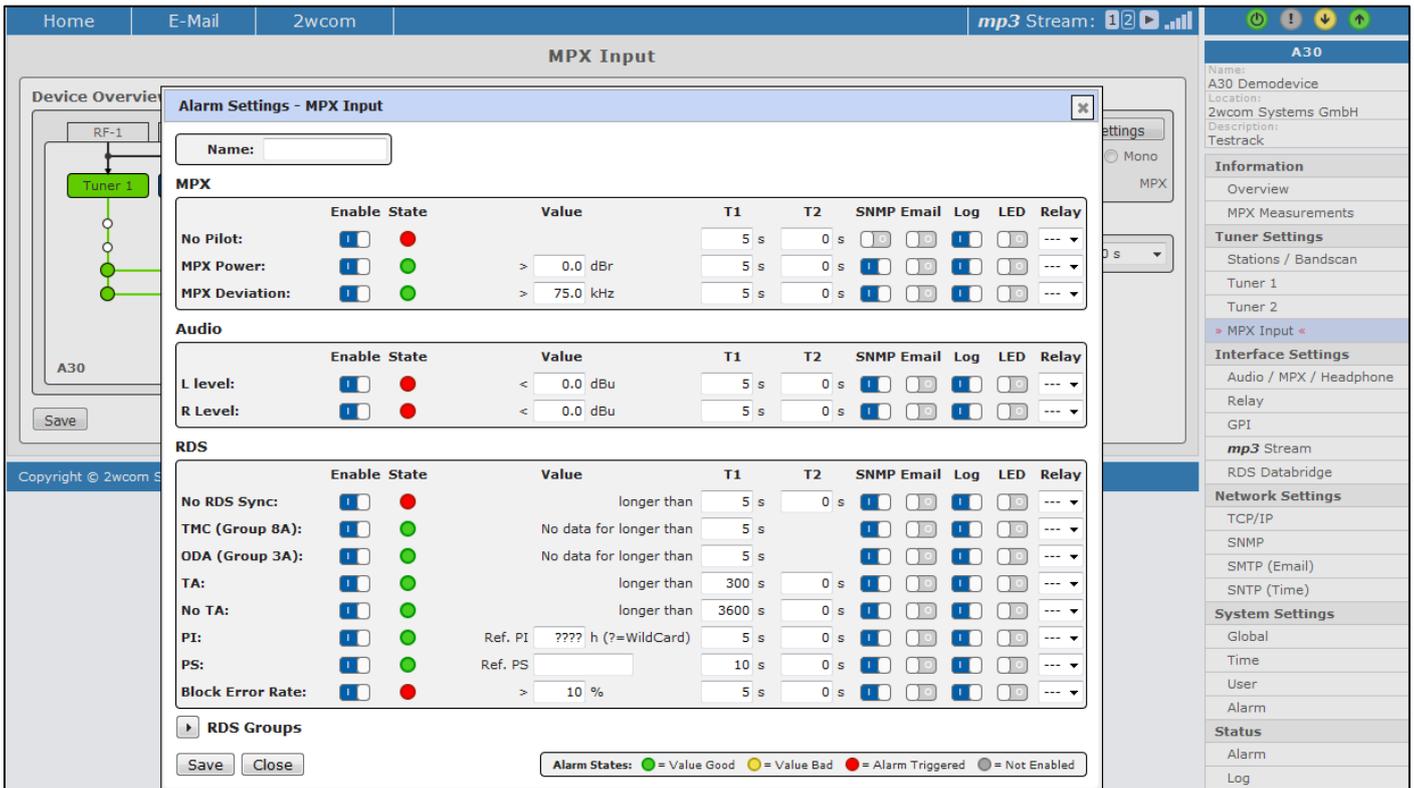
**Fig. 38: Alarm Settings – MPX Input**
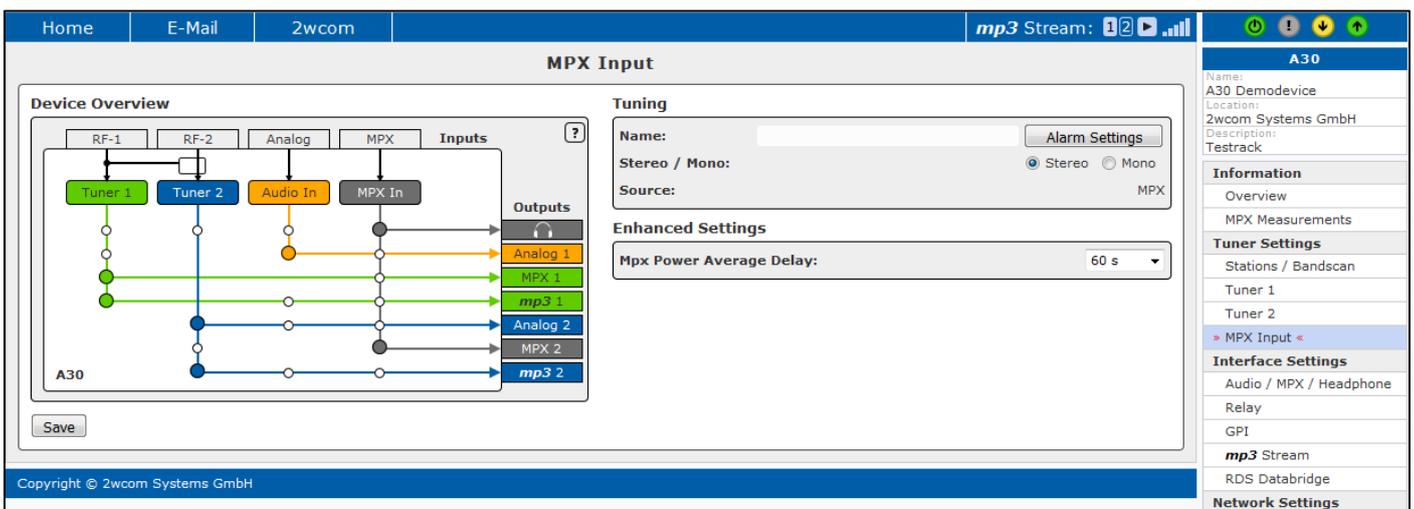


**Fig. 39: Overview – MPX Input Status**

4. Under **Information→Overview** you can see the status of MPX Input in the MPX Input tab (see Fig. 40):



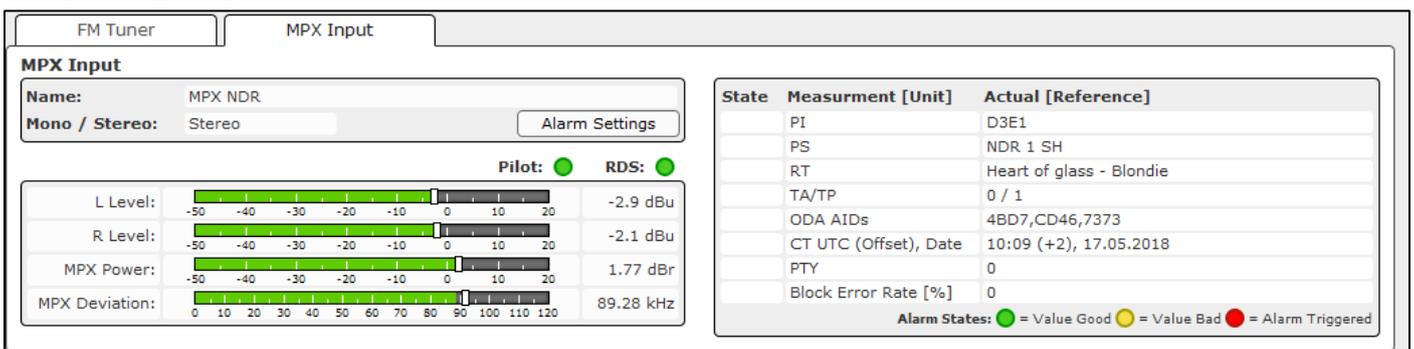**Fig. 40: Information – Overview, MPX Input status**

## 14.5. Alarm Status

### 14.5.1. View Alarm Staus

You can call up the current information about the monitoring Audio and RDS parameters under **Status→Alarm** (see Fig. 41).
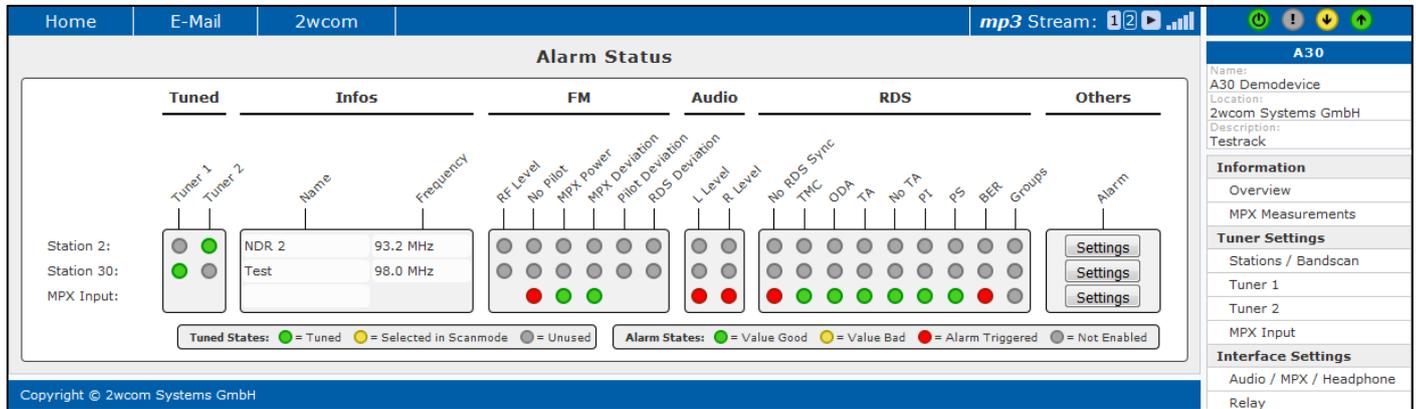


***Fig. 41: Alarm Status***

***The LED color means:***

> 🟢 *- Monitoring is activated, no alarm is triggered*
> 🟡 *- Monitoring is activated, the value is above the threshold, alarm will be triggered, after the delay time T1 is reached*
> ⚪ *- Monitoring is deactivated*
> 🔴 *- Monitoring is activated, alarm is triggered*

In the ARM Version beginning with 2.19 you can also call up this information directly under **System Settings→Alarm**. The colors of the LEDs on the left side have the same meaning as in Fig. 41.

## 14.5.2. View Alarm Log

Under **Status→Log** you can call up information about the device operation, data distribution and errors since the last event log deleting. A list with a description of the events with the timestamps is displayed in this menu (see Fig. 42).



***Fig. 42: Status – Event Log***

To delete the last events click the "Delete" button.

In the dropdown menu you can change the view between all entries (static) and the 50 most recent entries (auto-update).

# 15. RDS Lab

RDS Lab is an external Windows application that decodes RDS data in real-time. The RDS group data can be provided by a 2wcom decoder via TCP/IP interface.

You can download **RDS Lab** from the device web interface (extra rights, see Fig. 45 on page 73) or directly from the following link:
http://download.2wcom.com/software/RDS_Lab/RDSLab_Current_incl_Tables.zip

It doesn't need to be installed – just **copy the RDS Lab folder** to a location on your hard drive, e.g. "Station Files". When you start RDS Lab, you will see a small dialog named "IO Settings" asking for the connection parameters to your A30. Select **"TCP/IP connection"** in the combo box at the top and enter the **IP address** of your A30. The port number can be changed on the "TCP/IP" page; its default value is 6668. Click "OK" to start RDS Lab.

For further information about RDS Lab please refer to the manual that can be found in the downloaded folder with the application.

You can monitor RDS for Tuner 1 and Tuner 2. To monitor the both Tuners, define the Ports for Tuner 1 and Tuner 2 under **Network Settings→TCP/IP**, which you should also set in the RDS Lab:
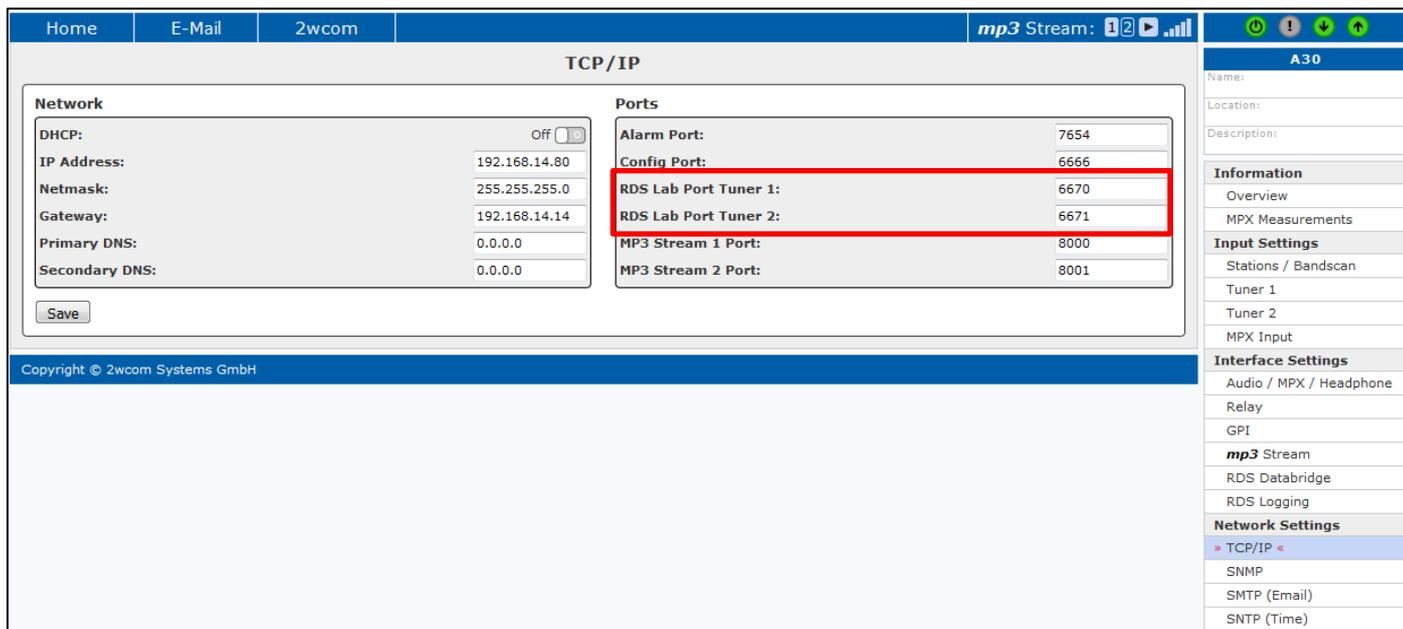


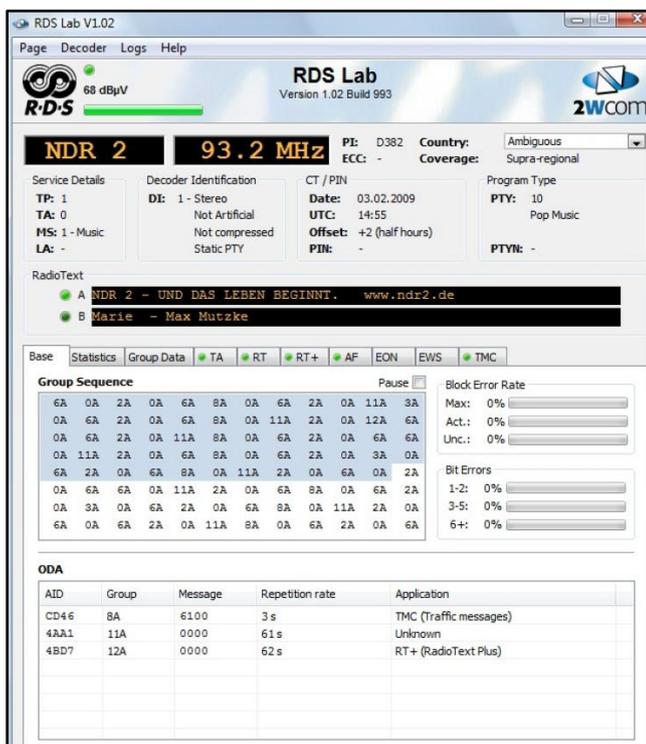**Fig. 43: Port configuration for RDS monitoring of Tuner 1 and Tuner 2**

*Fig. 44: RDS Lab menu*

Under **System Settings→Global** in the "RDS Lab" block you can download the current Software version from the 2wcom FTP Server:
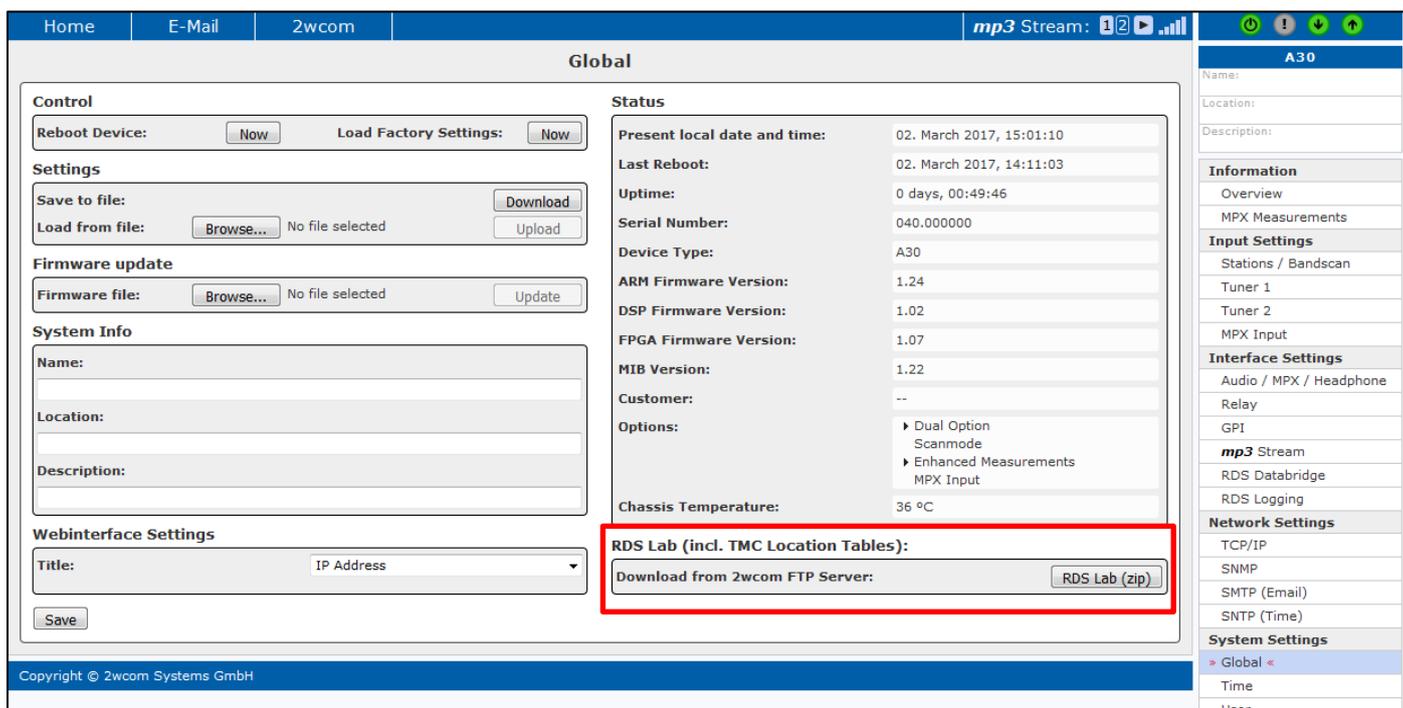


*Fig. 45: RDS Lab – software update*

# 16. RDS Databridge

The function of RDS databridge is a standard function in the A30 (see section "Introduction" on page 6). This function allows converting the dynamic RDS parameters into UECP commands and passing them to a connected RDS Encoder for retransmission.

## 16.1. Special Handling for Cyclic Transfer

Some data can only be transferred after being decoded completely like PI, PS, TA or RT. For each of that RDS data you can configure, if it should be transferred to the connected RDS encoder or not. Normally a UECP command would only be sent to the encoder, if the corresponding RDS data has changed. This should be sufficient in most cases. For safety reasons you may however decide to specify an **additional time** period in seconds for **cyclic transfer** (see Fig. 46). If the time has elapsed, the A30 will unconditionally send a UECP command with the current RDS data to the encoder. Specifying a value of **zero seconds** (default) will transfer the data only when it changes its value.

## 16.2. Special Handling for EON-TA

EON-TA is special in some regards: When an **EON-TA** is decoded, the A30 cannot know the PSN, in which it has to set the TA for EON-TA. This depends on the setup of the connected RDS encoder. It's therefore necessary, that you specify the **PSN**, if EON-TAs should be transferred (see Fig. 46). If you also want **cyclic transfer for EON-TA**, the **PI** of the EON-PSN has to be specified, too, so that the A30 can look up the current state of the EON-TA. Dynamic data like ODA (3A group), Inhouse (6A group) or TMC (8A group) can be 1:1 transferred as raw RDS group data using the Free Format Group (FFG) UECP command. You can individually specify, which raw RDS groups should be transferred.

## 16.3. Special Handling for RT+

There's a special handling for RT+: If you are sending RT+ data, there's the problem that the A30 has to receive the RadioText completely at least once before it can generate the corresponding command for the connected RDS encoder. This short delay is bad for the corresponding RT+ data sent in e.g. the 12A group, as the relation between RT and RT+ is only handled by the order in which the information is received. If you enable the **special RT+ handling** (see Fig. 46), the A30 will take care of the retransmission of the RT+ data; it will find the raw RDS group used for the RT+ data via the 3A group information for the RT+ AID and will delay newly received RT+ data until the corresponding RadioText has been received completely and sent to the RDS encoder to keep both in sync. You should omit the **corresponding RDS group** (e.g. 12A) from the direct 1:1 transfer and just enable the **RT+** checkbox (see Fig. 46). The information in the **3A group** should however be enabled for 1:1 transfer.

## 16.4. Set up RDS Databridge Parameters

Over the A30 RDS Databridge web interface you can individually set up all main parameters for the RDS databridge.

Configure the RDS Databridge parameters as follows:

1. Open the menu *RDS Databridge* under **Interface Settings→RDS Databridge**.

2. In the "Settings" block activate the virtual switch "Databridge" to "ON".

3. In the "Transferred decoded RDS data" block enable RDS parameters that should be transferred. If any parameter is not selected, it will not be transferred (see Fig. 46).

> **(i)**  **NOTE**: The abbreviations of the RDS data are explained below the Fig. 46.

4. Set up the updating time of the signals for each activated RDS parameter in seconds. The value of 0 seconds means that the corresponding RDS parameter will be sent once, if it changes its value.

5. In the "Transfer raw RDS group data" block enable RDS group data that should be transferred.

6. Click the "Save" button to save the changes.
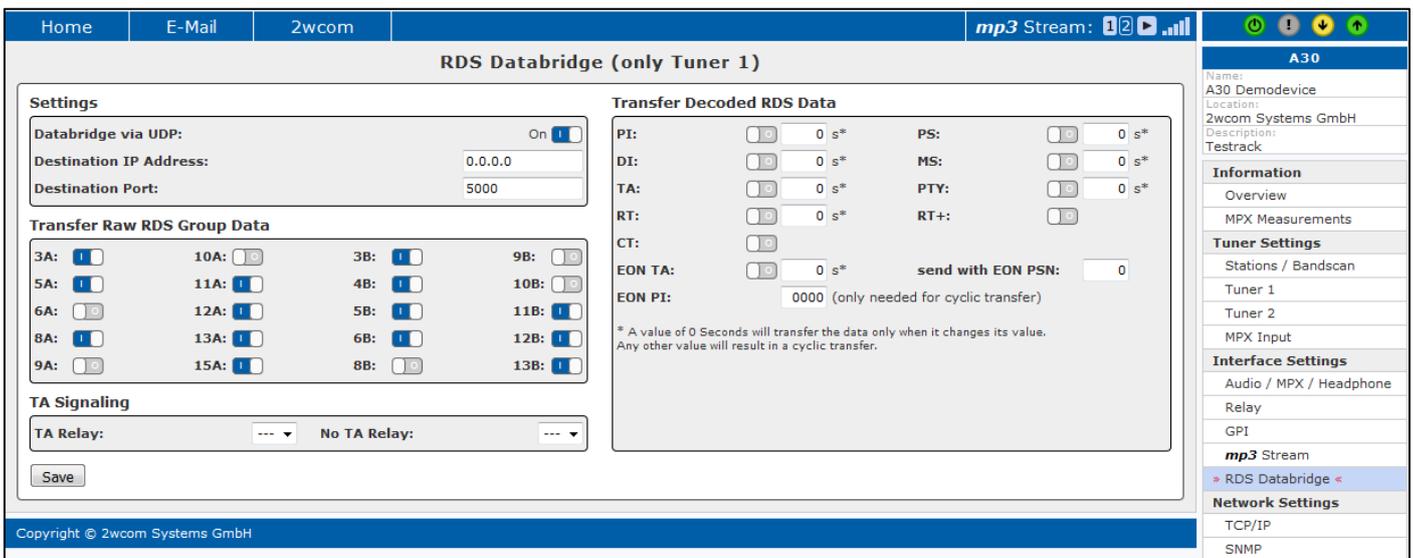


***Fig. 46: A30 RDS Databridge –RDS data configuration***

| | |
|---|---|
| *CT* | Clock time and date |
| *DI* | Decoder identification |
| *MS* | Music/Speech |
| *PI* | Station identification |
| *PS* | Station identification |
| *PTY* | Station type |
| *RT/RT+* | Radiotext |
| *TA* | Traffic-announcement identification |
| *TP* | Traffic-station identification |
| *EON* | Enhanced Other Networks |

Under **Information→Overview** you can view the status of the RDS data transfer (see ***Fig. 16***).

## 16.5. TA Signaling

A30 RDS Databridge can switch a configured relay, if TA is available in the RDS data or not.

Configure the relay for signaling of the "TA" and "No TA" data as follows:

1. Open the menu *RDS Databridge* under **Interface Settings→RDS Databridge** (see Fig. 46).
2. In the "Settings" block activate the virtual switch "Databridge" to position "ON"
3. In the "TA Signaling" block select an available relay in the "TA Relay" dropdown menu that should be switched, if TA data is available in the RDS signal.
   To deactivate TA signaling, select "---".
4. In the "TA Signaling" block select an available relay in the "No TA Relay" dropdown menu that should be switched, if TA data is NOT available in the RDS signal.
   To deactivate "No TA" signaling, select "---".
5. Click the "Save" button to save the changes.

# 17. Enhanced Measurements

## 17.1. MPX Measurements

The MPX measurement is available in the A30 as an option. Signals from the internal tuner inputs and [MPX In] can be measured. If the active dataset is configured for monitoring the MPX signal deviation during tuner operation, the graphical presentation of MPX values can be viewed on the web interface of the device.

The signals from the external MPX audio input can be measured simultaneously if this option and the corresponding rights are available in your device.

The MPX measurements are possible over a defined time period for **the currently tuned station** or MPX input signal. The currently displayed value in the status menu of the A30 is an average value measured over the defined time.

1.  Configure the monitoring of the MPX measurement for each station under **System Settings→Alarm** in the web interface of the device (see section 14.1.1 "FM Parameter" on page 55).

2.  To see the graphical presentation of MPX values, open the corresponding menu under **Information→MPX Measurements** (see Fig. 48-Fig. 50).

3.  To hide a graphical presentation, click the ⬜ button.

4.  To show a hidden graphical presentation, click the ⬜ button.

5.  To start all measurements of the currently tuned station at once (Tuner 1 or Tuner 2), click "Start all" button in the "Master Control" block (see Fig. 47) or

6.  To start separate measurements of the currently tuned station for the defined period of time, click the "Start" buttons in the corresponding blocks of the MPX deviation and MPX power.

7.  To change the view of the measurements between Tuner 1, Tuner 2 and MPX Input click to the corresponding tab in the same block (see Fig. 47 red box).
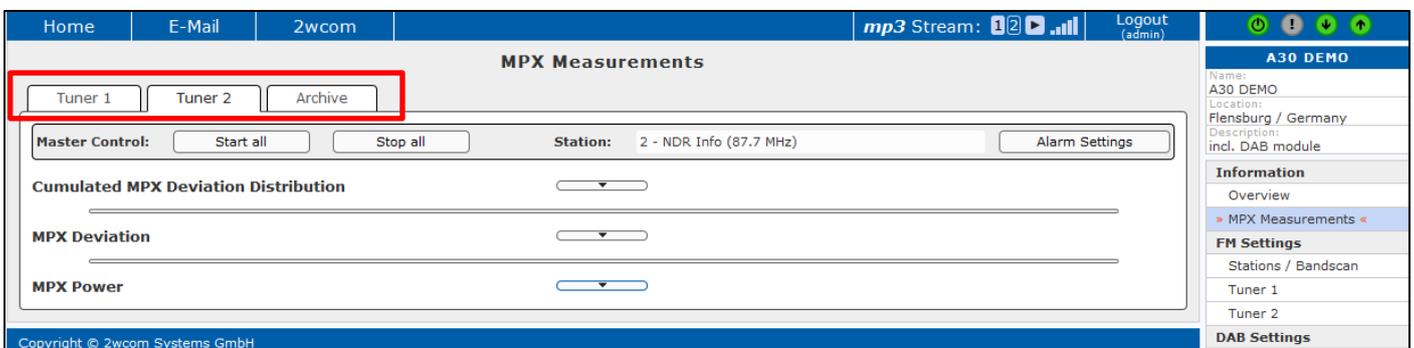


***Fig. 47: Settings for MPX measurements***

8.  In the same block in the "Station" field you can see the current station of the measurements presented in the graph.

---

9. To stop the current measurements at once, click the "Stop all" button in the "Master Control" block or "Stop" buttons in separate blocks.

To see the exact value of the measurement in a certain time move the cursor on the corresponding section of the graph.

**NOTE**: Each graph shows the values of the last hour. If the measurements last longer than one hour, the X axis will slowly move forward together with the graph.

## 17.1.1. Cumulated MPX Deviation Distribution

The graph in the Fig. 48 shows the distribution of the frequency of the MPX values over the defined time interval:
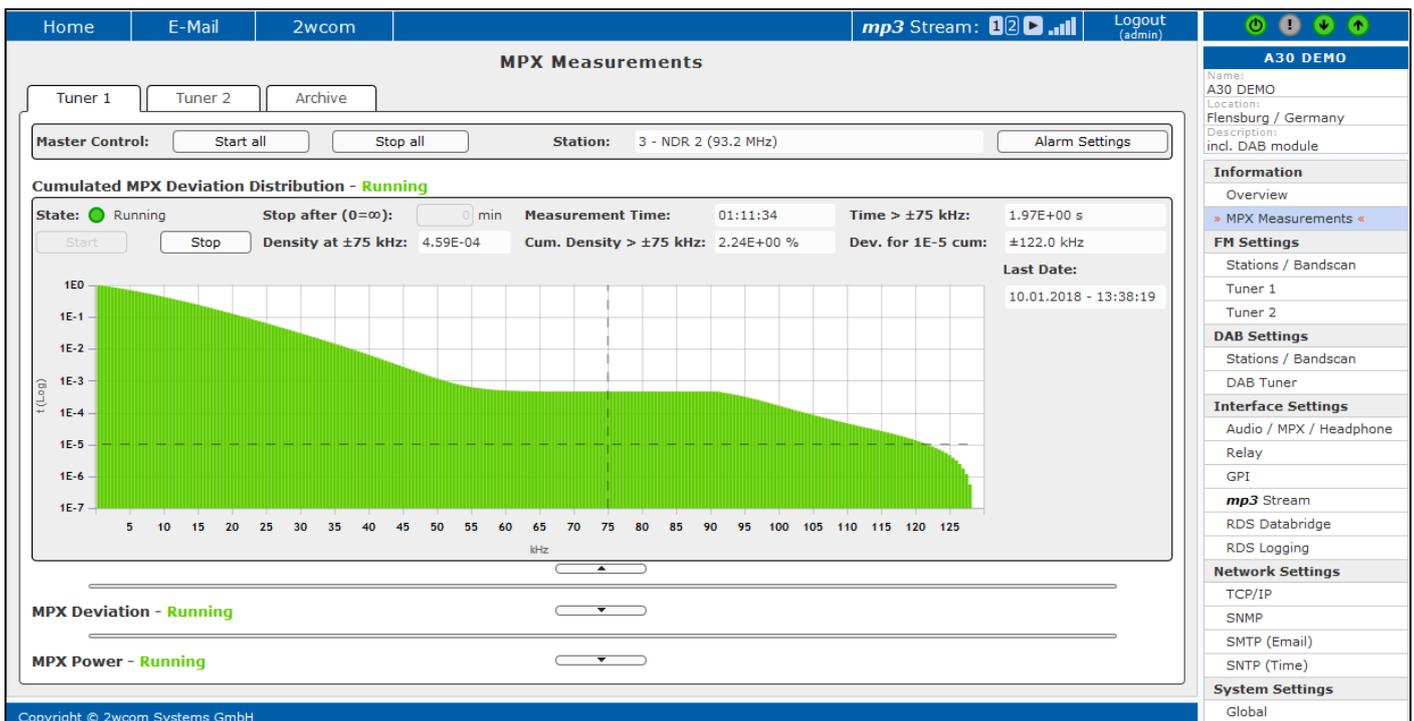


***Fig. 48: Information – MPX Measurements. Cumulated MPX Deviation Distribution.***

1. Define the measurement time in the field "Stop after" for automatic stop. Zero means constant measurement.

2. In the "Measurement Time" field you can see current time of the running measurement.

3. The value for "Time>±75 kHz" shows the cumulated time during which the MPX deviation was greater than the defined value (you can define this value for the corresponding station under **System Settings→Alarm→FM Alarm Settings**, block "FM" field "MPX Deviation").

   Example in the screenshot: the value of the MPX deviation was greater than ±75 kHz for $4,59 \cdot 10^{-4}$ seconds during the last hour and 11 minutes.

4. The value for "Cum. Density >" shows the percentage of the measured MPX Deviation above the defined threshold (in the screenshot ±75 kHz, configurable under "Alarm Settings" in the "FM" block, "MPX Deviation").

5. The value for "Density at" shows the density of the measured threshold of the configured value for the MPX Deviation (in the screenshot ±75 kHz, configurable under "Alarm Settings").

6. The value for "Dev. For 1E-5 cum:" indicates an approximate MPX deviation in the frequency of $1 \cdot e^{-5}$.

**Example:** the horizontal line of the frequency $\mathbf{1} \cdot \mathbf{e}^{-5}$ cuts the distribution approximately by 106,6 kHZ



7. In the "Last Date" field you can see the date and time of the last measurement.

## 17.1.2. MPX Deviation

The MPX deviation is the value of the maximal frequency deviation from the frequency of the unmodulated carrier.

The A30 delivers the maximal deviation value every second.

The graph in the Fig. 49 shows the course of the measured deviation over the configured time interval. The separate measurements of the graph are the maximal values measured over 5 seconds.

The "Max Deviation:" field displays the maximal value of the MPX deviation measured over the configured time interval. To configure the interval for MPX power measurements for each tuner, change between "Tuner 1", "Tuner 2" and "MPX Input" tab and enter the value for "Max Deviation".

1. To zoom the graph (see Fig. 50) for a shorter time interval after the measurement has been stopped, select the corresponding interval by left mouse click; to come back to the normal view, click the "RESET ZOOM" button.

2. To activate the auto scale view, select "Auto" in the virtual switch "Scale" in block "MPX Deviation".
   If you select "User", you can manually change some parameters of the diagram view:

   i. To change the scale of the MPX values, move the cursor along the vertical axes by holding the left mouse button.

ii. To move the graph up or down, move the cursor along the vertical axes by holding the left mouse button and the SHIFT key.

**Note**: If you activate the "Auto" scale and try manually to change the diagram view, the scale mode will automatically change to manual.
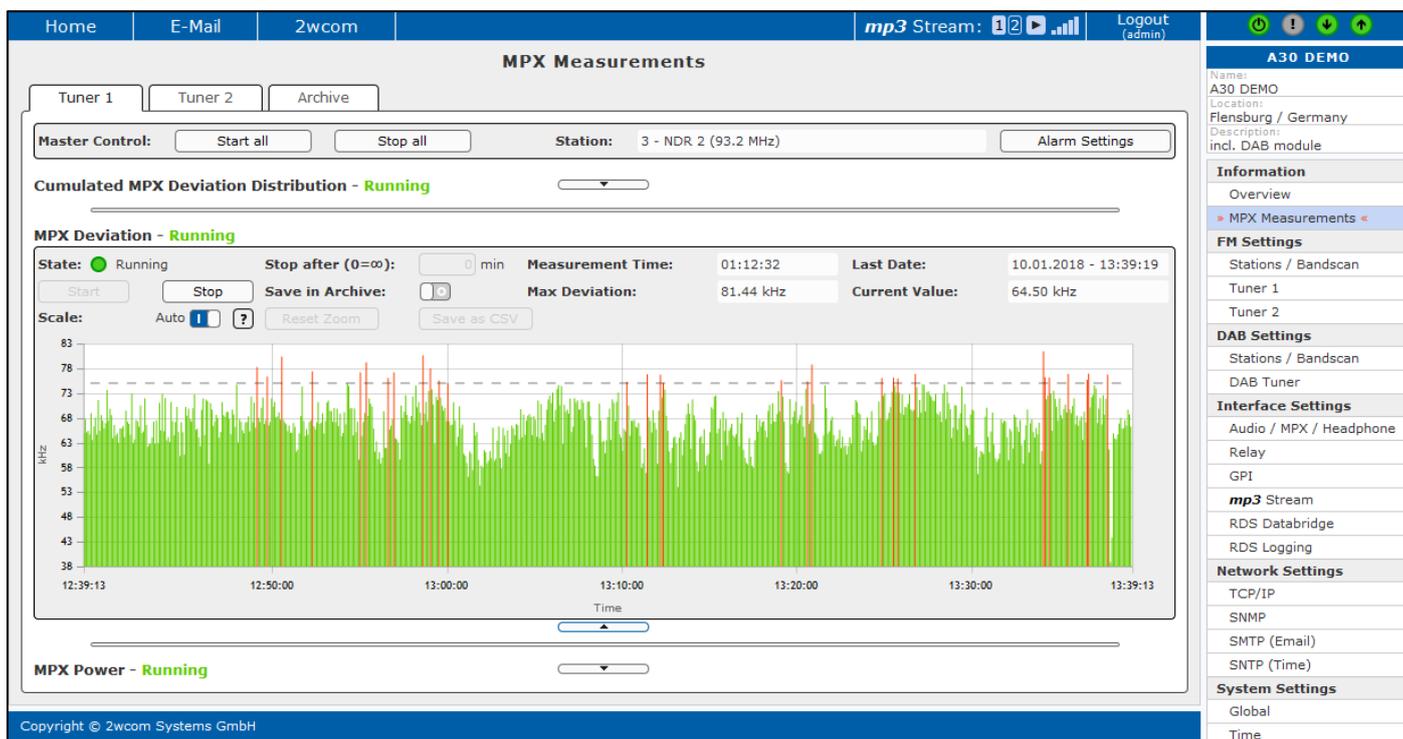


*Fig. 49: Information – MPX Measurements: MPX Deviation*

3.  The current value of the MPX Deviation is displayed in the "Current Value:" field as well as in the "FM Tuner" tab under **Information→Overview**.

4.  If you stop measuring, you can download the measured values as a CSV-File by clicking the "Save as CSV" button. The file contains the complete maximal values measured every second.

5.  To save the measurements in archive, activate the virtual switch "Save in Archive:".
    You can see the saved measurements in the "Archive" tab (for more information see section 17.2 on page 82).

## 17.1.3. MPX Power

The interval between the next updates of measured MPX values ("MPX Power Average Delay") can be configured under **Input Settings→Tuner 1/2** in block "Enhanced Settings" (see Fig. 12 on page 42).

It is assumed that the power of the complete multiplex signal (including pilot-tone and additional signals) integrated over any interval of 60 s is not higher than the power of a multiplex signal containing a single sinusoidal tone which causes a peak deviation of +/- 19 kHz.

The value of 0 dBr is correspondent therefore to the MPX power of a sinusoidal signal (without pilot tone and without additional signals) which causes a peak deviation of +/- 19 kHz.

The MPX power measurement uses exactly this variable measurement range of 60 s. Every second the device delivers a new measured value of the MPX power over the time interval of 60 seconds. The graph of this measurement is shown in Fig. 50. The separate measurements of the graph are the maximal values measured over 5 seconds.
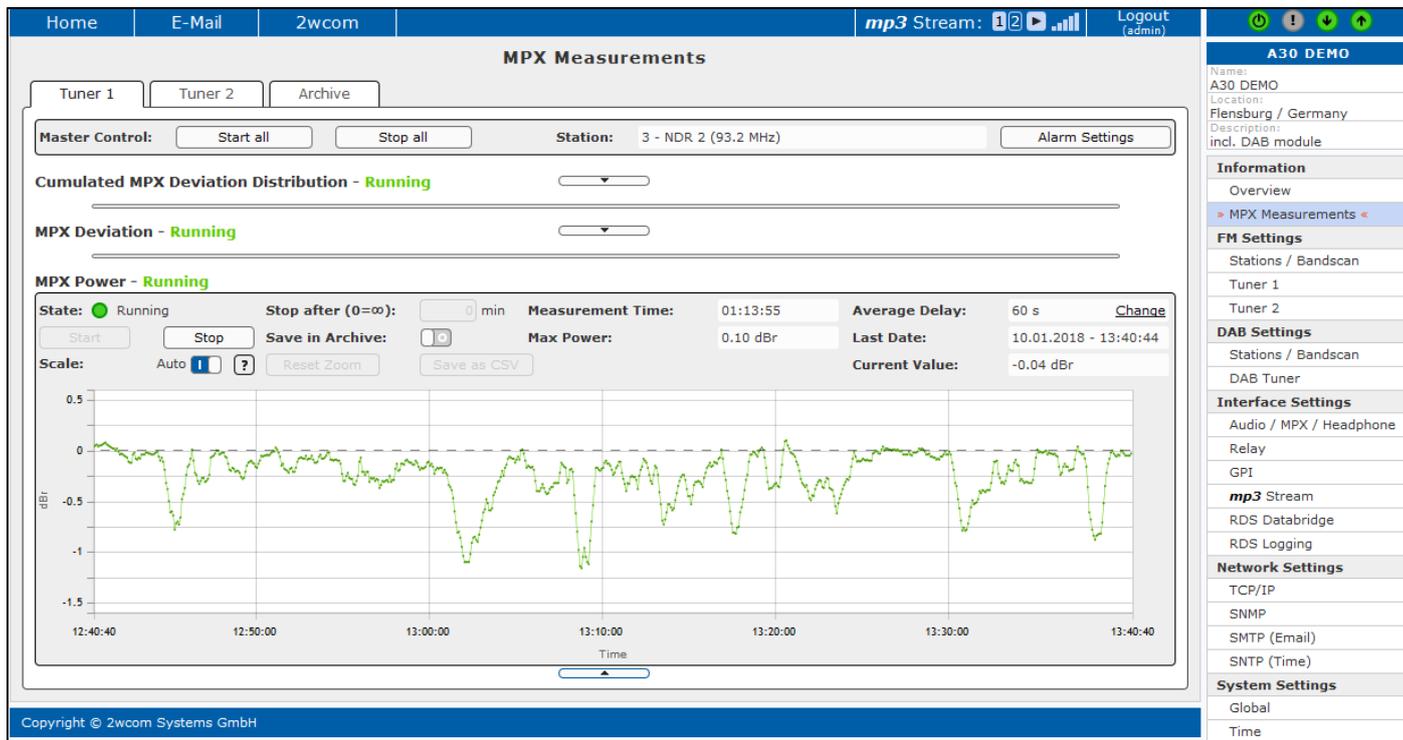


**Fig. 50: MPX Measurements – MPX Power**

6. To configure the interval for MPX power measurements for each tuner, change between the "Tuner 1", "Tuner 2" and "MPX Input" tab and enter the value for "Max Power".

7. To zoom the graph (see Fig. 50) for a shorter time interval after the measurement has been stopped, select the corresponding interval by left mouse click; to come back to the normal view, click the "RESET ZOOM" button.

8. To activate the auto scale view, select "Auto" in the virtual switch "Scale" in block "MPX Deviation".
   If you select "User", you can manually change some parameters of the diagram view:

   i. To change the scale of the MPX values, move the cursor along the vertical axes by holding the left mouse button.

   ii. To move the graph up or down, move the cursor along the vertical axes by holding the left mouse button and the SHIFT key.

9. The current value of the MPX Power is displayed in the "Current Value:" field as well as in the "FM Tuner" tab under **Information→Overview**.

10. If you stop measuring, you can download the measured values as a CSV-File by clicking the "Save as CSV" button. The file contains the complete maximal values measured every second.

11. To save the measurements in archive, activate the virtual switch "Save in Archive:".
    You can see the saved measurements in the "Archive" tab (for more information see section 17.2 on page 82).

12. In the "Average Delay" field you can directly change the configured value by clicking the "Change" link. The browser will forward you to the "Tuner 1" settings menu and the "Mpx Power Average Delay:" field will flash (see red frame in Fig. 50).
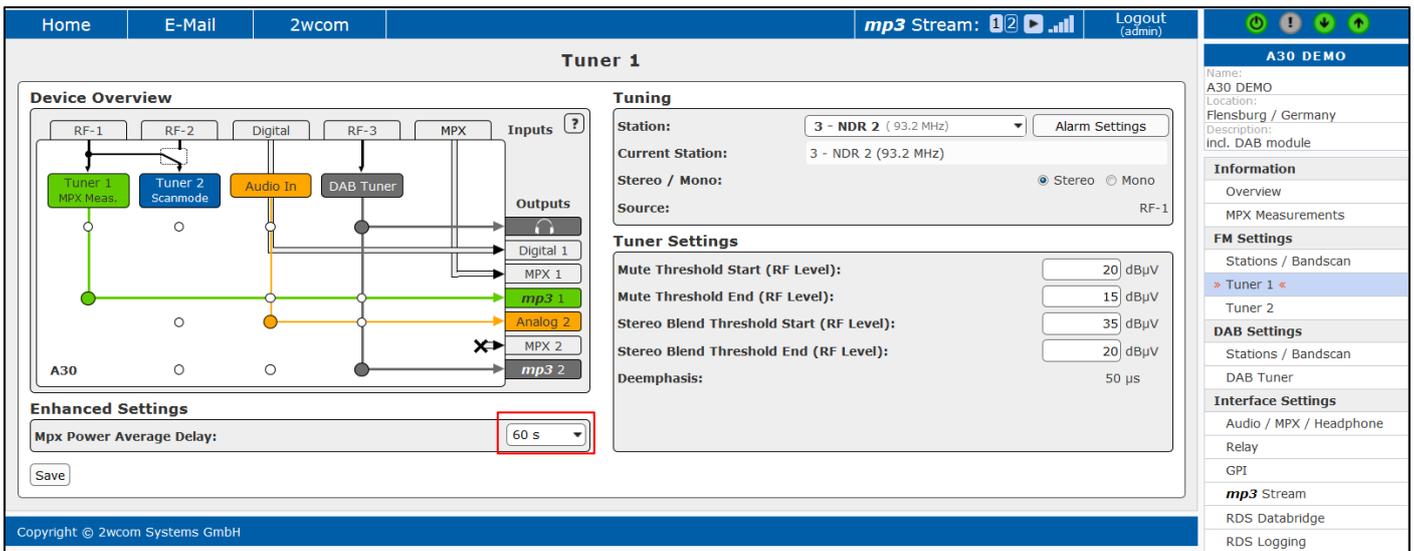


**Fig. 51: Configuration of MPX Power average delay**

## 17.2.    Measurements Archive

If the A30 is equipped with an internal storage, an option „MPX Measurements Archive" is available for each input, that is recording all Deviation and MPX Power measurements once an hour and is storing them for 3 months.

To activate saving the MPX measurements to Archive:

1. Under **Information→MPX Measurements** activate for Tuner 1/2 or MPX Input the virtual switch "Save in Archive" in the "MPX Deviation" and "MPX Power" block:
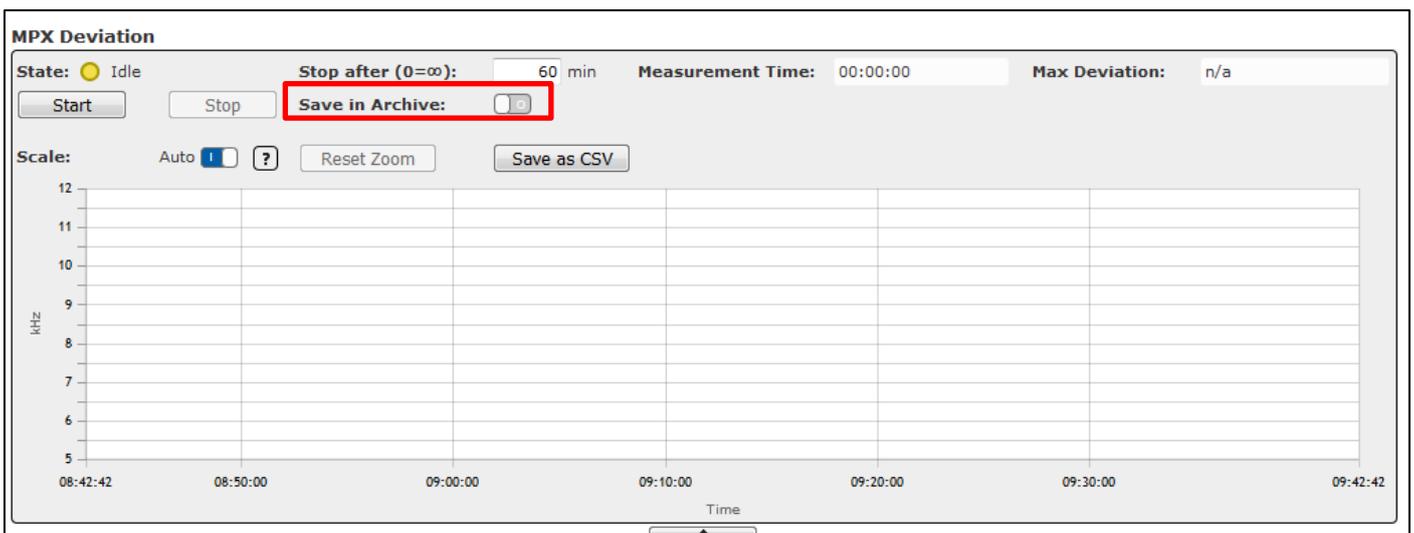


**Fig. 52: Activation of Measurements Archive**

2. To view the saved measurements, select the "Archive" tab in the same menu.

3. Click the "Select By Date" button in the "Internal Storage" field:
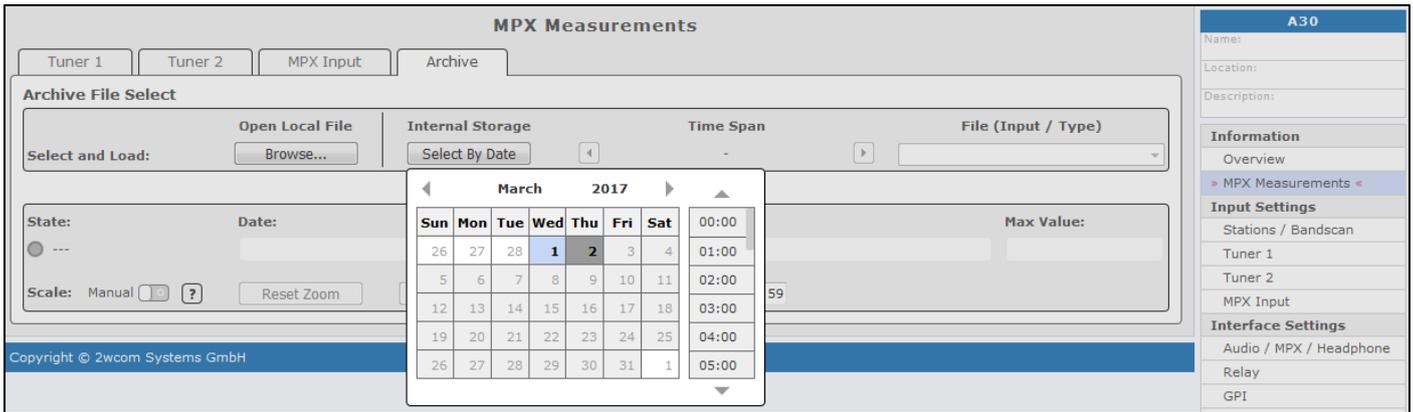


*Fig. 53: Available dates with saved measurements*

4. Select the date and the time of the recorded measurements in the calendar. The days with available data are highlighted in black-grey color.

5. Change the Time Span in the corresponding field by clicking the ▶ button.

6. Select the available files with the measurements for different inputs in the "File (Input/Type)" dropdown menu.

⇒ The available measurements for the selected time span appears in the same menu:
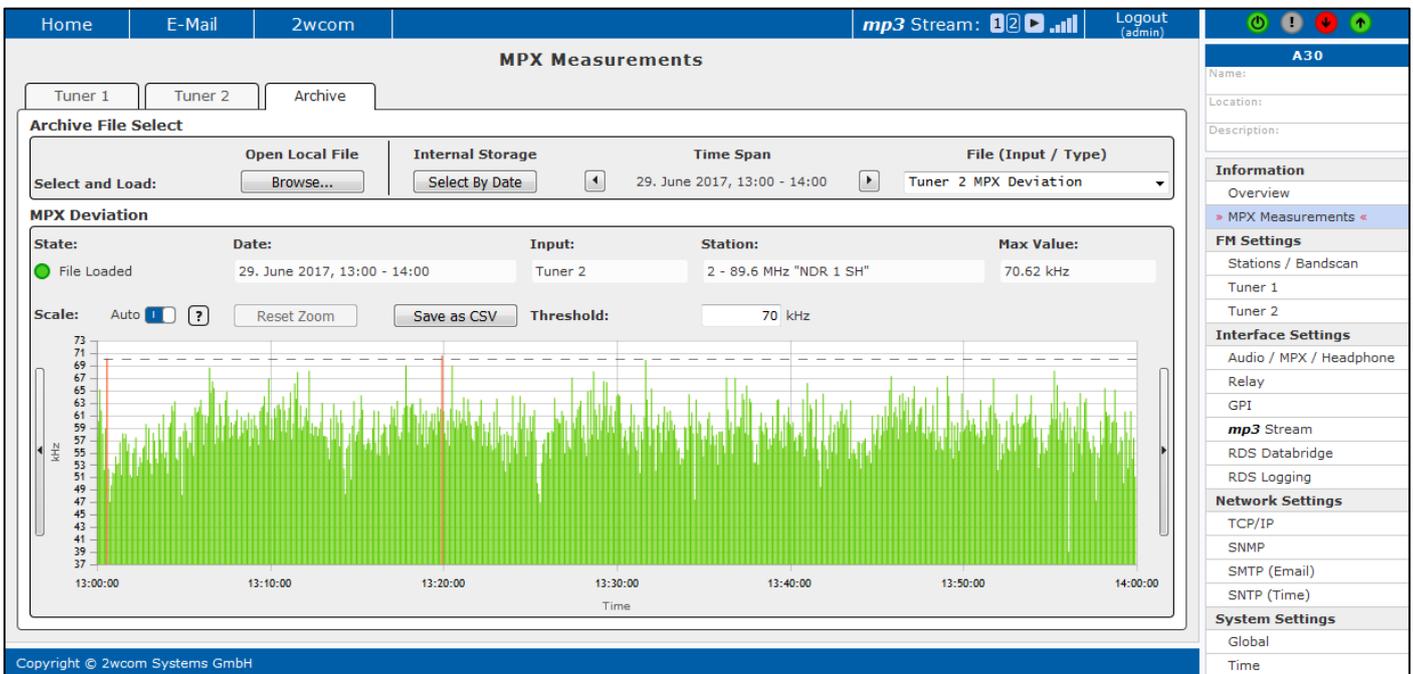


*Fig. 54: View of the archived measurements*

**NOTE:**
- By square selecting you can zoom any section of the diagram.
- In the "Threshold" field you can set the maximal value and all measurement over this value will be marked red.
- Click the narrow buttons with arrows on the left and on the right side to change the time span of the measurements.
- If you put the mouse pointer to the separate measurements, a block with exact values appears.
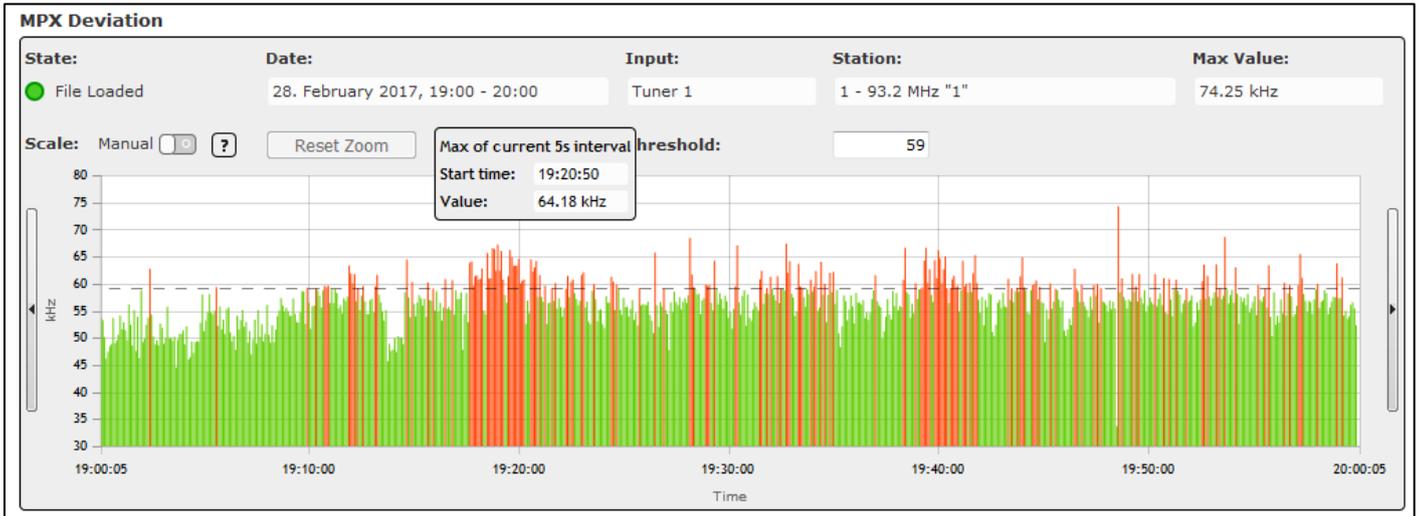


*Fig. 55: Changing the view details of the archived measurements*

# 18. Remote Control via GPI and SNMP

## 18.1. GPI Remote Control Inputs

The A30 series are equipped with a 15 pole D-Sub connector with 7 inputs (see Fig. 56). The inputs can be used for the remote control of the device.
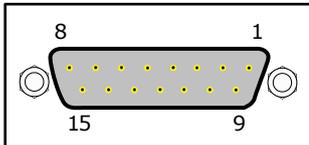
**Fig. 56: D-Sub female connector, 15 pole**

Table 2 shows the pinout scheme of the connector.

| Input No. | Control Pin No. |
|:---:|:---:|
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| 6 | 6 |
| 7 | 7 |

**Table 2: Pinout scheme of the remote control inputs**

To actuate an input pull the corresponding control pin electrically to ground (pins 9, 10, 11, 12, 13, 14, 15). The control current is less than 5 mA.

| NOTICE | |
|---|---|
| | Voltage on the inputs must not be negative or exceeding +0.7 V! |

## 18.2. Set up GPI Remote Control Inputs

Over remote control inputs (GPI) in the A30 you can change some configurations (see Fig. 57):

- Change station 1-30 for tuner monitoring
- Change RF inputs for Tuner 1/2
- Activate bypass (loop through)

Under **Interface Settings→GPI** in the user web interface of the A30 you can individually configure GPI 1-7 inputs and assign to each input one command for remote control (see Fig. 57):



*Fig. 57: Configuration of the remote control inputs in the A30*

| Active Level | Low Active |
| :--- | :--- |
|  | High active |

| Function | Change station |
| :--- | :--- |
|  | RF Input (Tuner 2) |
|  | Bypass |

⇒ Click the "Save" button to save the changes or the "Reset" button to restore the last settings

# 19. MP3 Settings

The internal audio source can be monitored via MP3 streaming in all A30 devices.

To monitor the internal source over MP3 streaming, install a media player on the remote PC, for example *WinAmp*. The A30 is equipped with an adjustable bit rate encoder that can encode the audio signal into three different MP3 quality levels. You can manually set up the parameters for MP3 encoding depending on the bandwidth available for data distribution.

Set up 2 streams for MP3 streaming over TCP/IP as follows:

✓ The device should be connected to the available network via the [10/100-Base-T] connector.


1.  Start an available media player on your remote PC and enter the URL for streaming "IP address of the device:streaming port" (standard port for MP3 streaming is 8000, e.g. http://192.168.12.23:8000).

2.  To view or to set up the streaming port, use the menu *MP3* under **Interface Settings→MP3 Stream** in the web user interface page of the A30 (see Fig. 59).



***Fig. 59: MP3 streaming settings***

3.  Enter value in dB for Volume.

4.  Select the Source for Streaming: "Tuner 1" for Stream 1 and "Tuner 2" for Stream 2, "Audio In", "MPX In" or optionally "DAB Tuner" (excludes "MPX In" option).

5.  Select an MPEG-Version in the dropdown menu **MPEG-Version** (see Fig. 59). Available options are: *MPEG 1, MPEG 2.*

6.  Select stereo or mono audio mode for MP3 streaming in the dropdown menu **Mode** (see Fig. 59).

7.  Select a sample rate for the streaming in the dropdown menu **Samplerate** (see Fig. 59). Available options are: *16 KHz/22 KHz/24 KHz.*

8.  Select Bitrate for MP3 quality levels *48-160 kb/s* in the dropdown menu **Bitrate** (see Fig. 59).

9. Click the "Save" button to save the changes.

⇒ Your media player is now playing the MP3 data in the configured quality.

Alternatively you can monitor the MP3 streaming directly over the A30 interface (see red box in Fig. 60). To change the stream, click the "1" or "2" button. To start playing, click the ▶ button. To stop playing, click the ⏸ button.
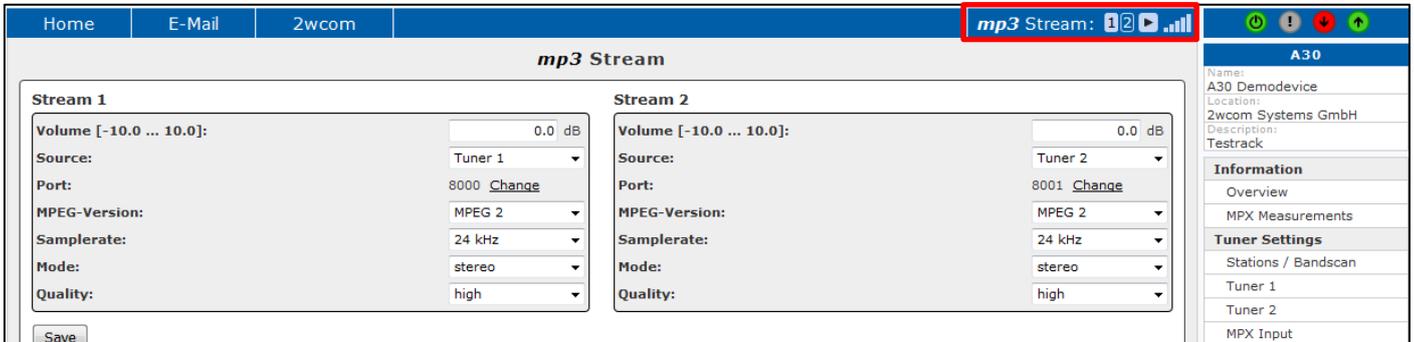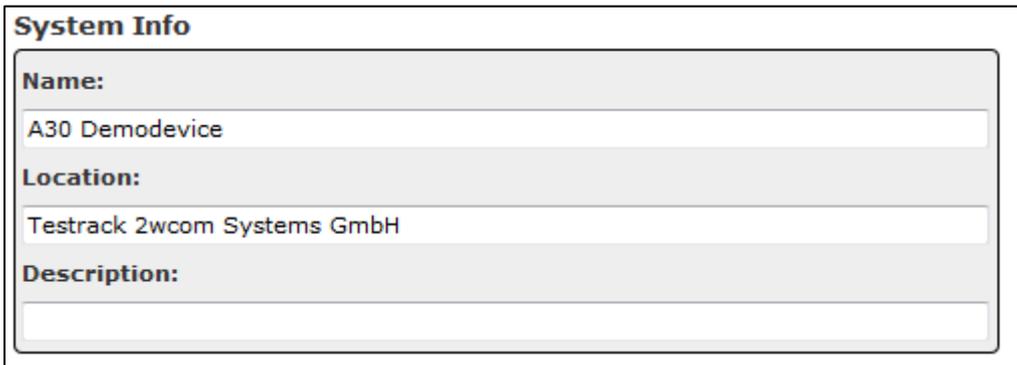


*Fig. 60: Monitoring of the MP3 Stream*

# 20. Global Settings

## 20.1. Enter the Device Information

To enter the name and description of the device for identification:

1. Open the window *Global* under **System Settings➔Global**.
2. Enter the identification information of the device in the **System Info** block (see Fig. 61).



*Fig. 61: Global System Settings – System Info*

3. Click the "Save" button to save the changes.

   **Note**: The System Information saved in this menu will be displayed the alarm mails (see section 14 "Monitoring and Alarm Settings" on page 55) and in the title of the tab dialog box of your browser (for settings see section 20.2 "View the System Information" on page 89).

⇒ The saved information can be viewed over the main menu in the web user interface.

## 20.2. View the System Information

On the web user interface, you can view general settings of the device and current system information like uptime, serial number, firmware version, the temperature etc.

To view the system information:

1. Open the window *Global* under **System Settings➔Global.**
2. The device information is always displayed in the top right field of the web interface of the device (see Fig. 62).
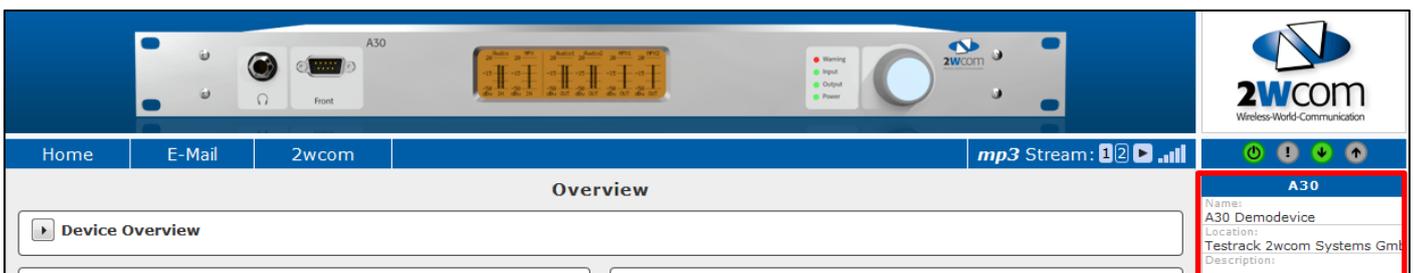


*Fig. 62: Global Settings – Device Information*

3. To view the system information and the current status of the device, open block **Status** under **System Settings➔Global**:

---

A30 User Manual V02.54                                                                89
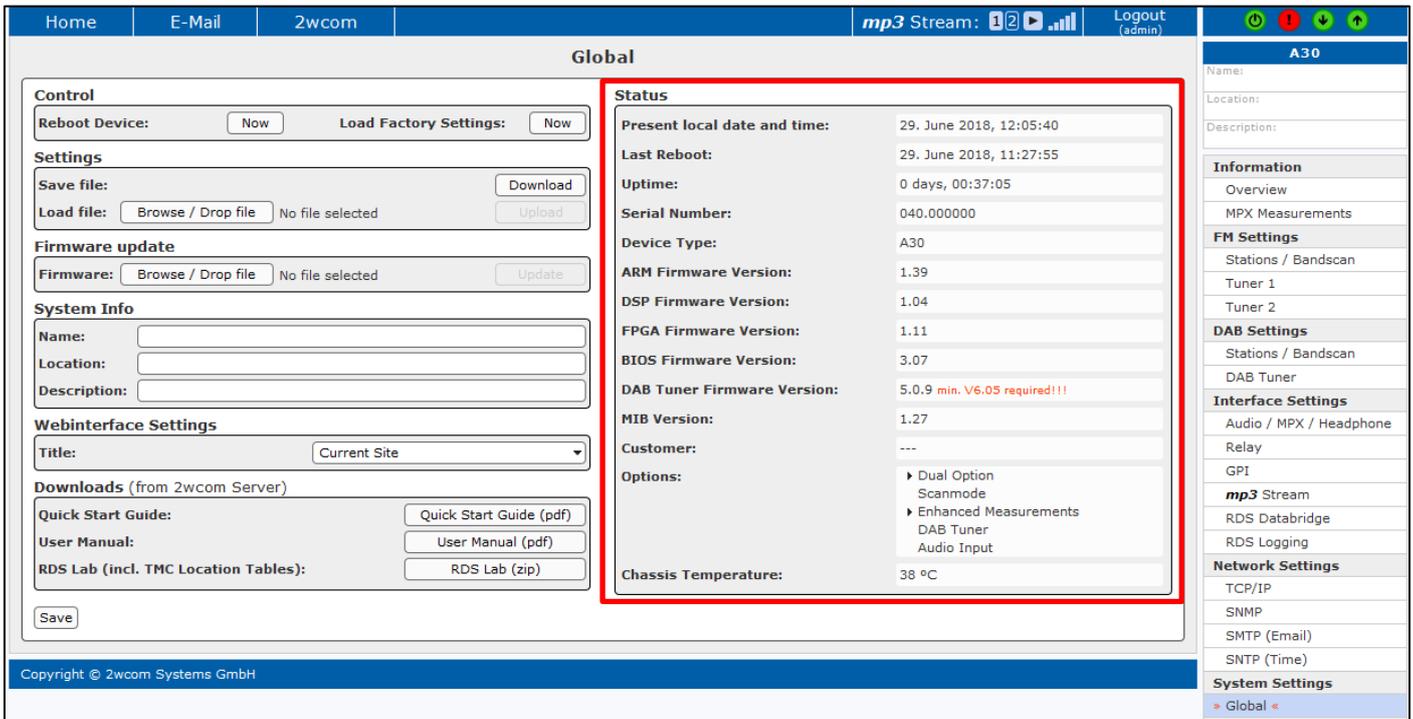
**Fig. 63: Global Settings – Status and System Information**

4. In the same menu in the "Webinterface Settings" block you can select the title of the tab dialog box of your browser: Current Site, IP Address, Name, Location and Description of the device.

5. Click the "Save" button to save the changes.

## 20.3. Restore Factory Settings

| **NOTICE** |
|---|
| **CAUTION:** If you restore factory settings, all saved configurations made earlier by user will be deleted except for the IP address! |
| This applies also for the access accounts! |

To reset the device to the factory settings:

1. Open the block *Control* under **System Settings→Global.**
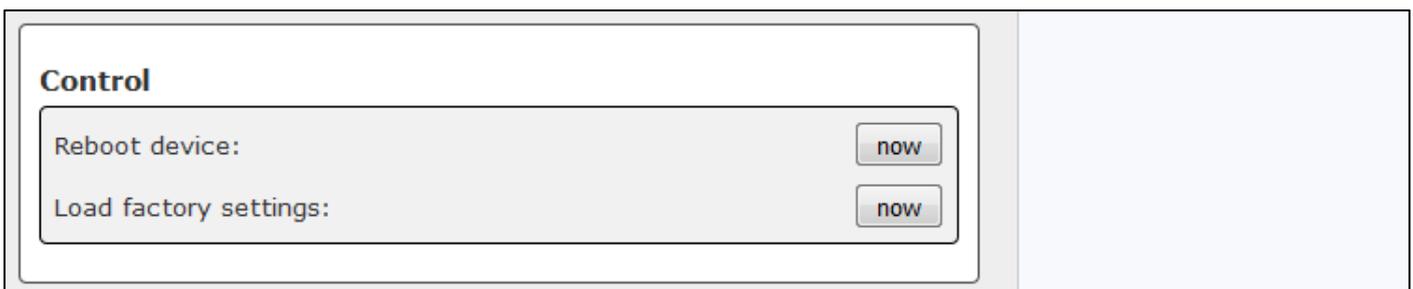


**Fig. 64: Global Settings – Control**

2. Click the "Now" button in the field "Load factory settings" to restore factory settings (see Fig. 64).

`LCD menu: Main Menu`➜`Device Control`➜`Load Factory Settings`

## 20.4. Upload and Activate Settings Stored Locally

MM01 is able to store and load all settings in different CODEC interconnection profiles through the Web interface to an SD Card, USB stick or any other local store.

To upload settings stored locally:

1. Open the window *Global* under **System Settings**➜**Global.**
2. Drop the settings file from your browser directly to the **Settings** field or click the "Browse/Drop file" button and choose the settings file in your browser.
3. Click the "Upload" button to upload the file. The file upload can take longer and may not be interrupted.
4. Follow the prompt to restart the device after successful upload.

⇒ The new settings will be activated after the restart of the device.

## 20.5. Save settings to Local File

You can download the current settings and save them as a file.

To save setting to local file:

1. Open the window *Global* under **System Settings**➜**Global.**
2. Click the „Generate" button in the **Settings** field to start the generation of a settings file.
3. A link to that file will be shown. Right-click on it to save it to a location of your choice.

⇒ The saved settings can be uploaded in the "Upload Settings" field.

## 20.6. Upload and Activate Firmware Stored Locally

You can upload an ARM firmware stored locally or directly from an USB.

To upload and to activate the new firmware:

1. Open the window *Global* under **System Settings**➜**Global.**
2. Click the Browse button in the **Firmware update** field (see Fig. 65). The "Open file" dialog of your system software will be displayed.
   Drop the firmware file from your browser directly to the **Firmware update** field or click the "Browse/Drop file" button and choose the firmware file in your browser.
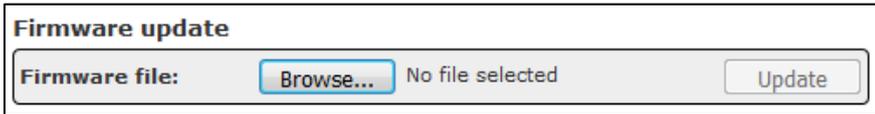
**Fig. 65: Global System Settings - Firmware update**

3. Click the "Update" button, to start the file upload in the web browser. The file upload can take longer and may not be interrupted.

4. Follow the prompt to restart the device after successful upload.

⇒ The new firmware will be activated after the restart of the device.

`LCD menu: Configuration menu`➔`Global`

## 20.7. Set up Time

You can set up or change manually the present local time zone and date of the internal clock of the device.

To set up the internal clock of the device:

1. Open the window *Time* under **System Settings**➔**Time**

2. In block **Time and date settings**, set up the internal time in the 24h format and the datum (see Fig. 66).
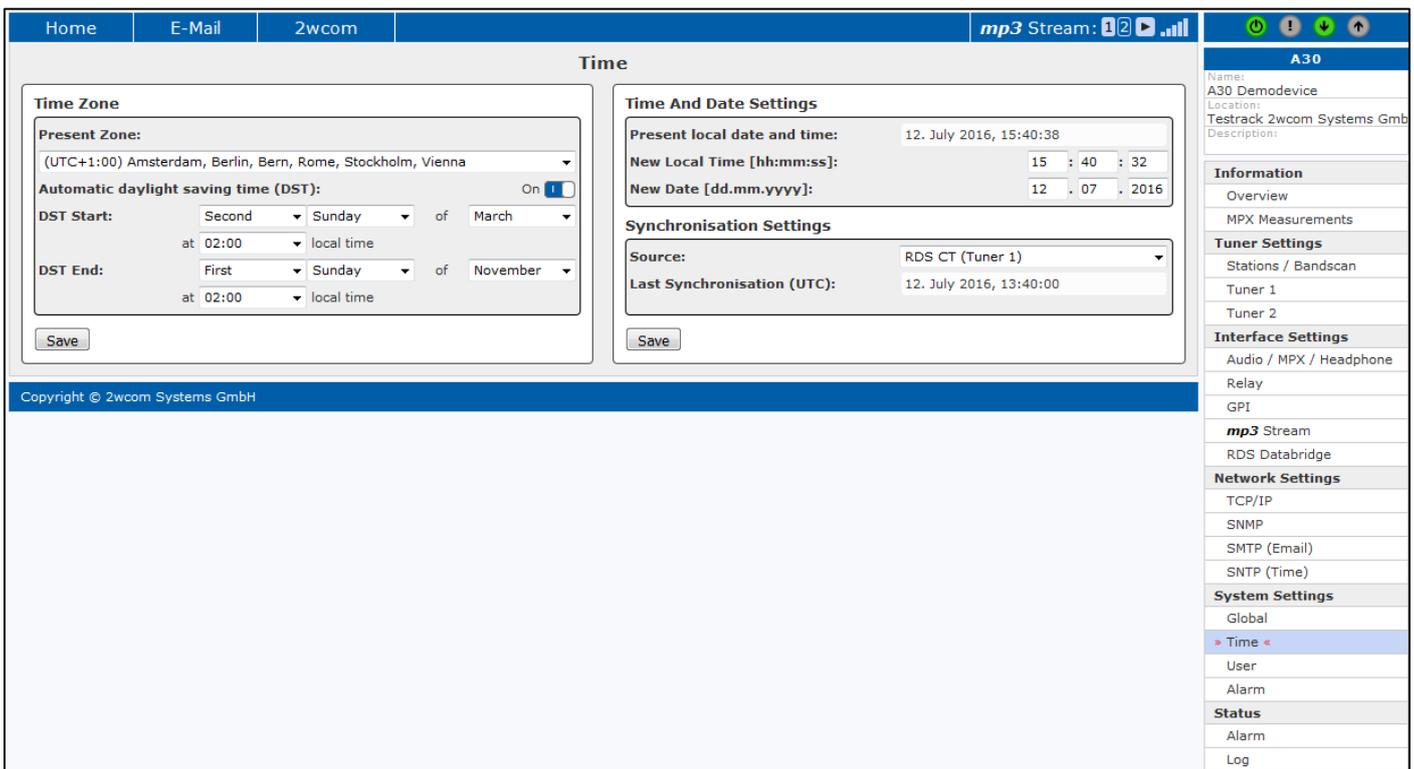


**Fig. 66: System Settings - Time**

3. Click the "Save" button to save the changes.

⇒ The current time and datum of the internal clock is displayed under "Present local device time and date" in the same **Time and date settings** block (see Fig. 66).

## 20.8. Configure User Accounts

The default accounts are a read-only access (Guest account), a full access without a permission to manage the user accounts (Manager account) and a full access (Admin account).

| **Note**: | Only **Admin** is authorized to change the user names and passwords. |

Change the login data for the access after the first login to the web user interface. To change the login data:

1. Open the window *User settings* under **System Settings→User**.
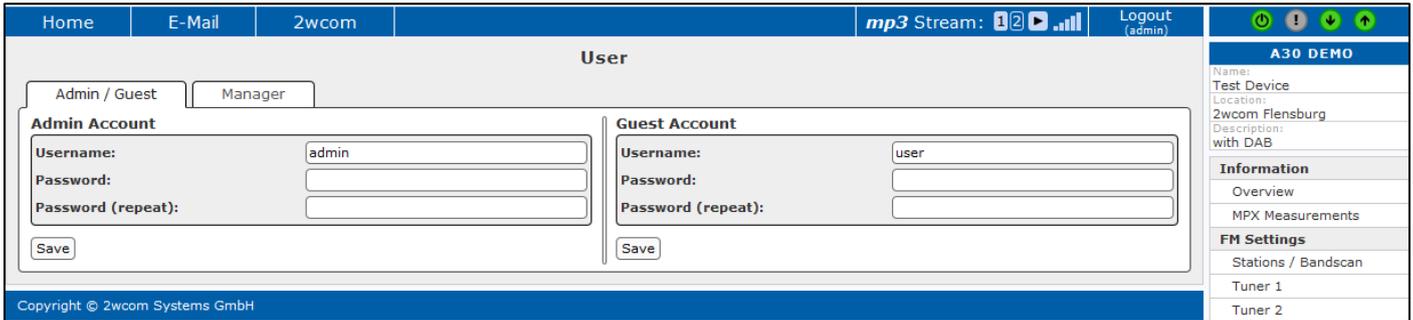


***Fig. 67: Management of the User Accounts for Admin/Guest access***

2. Change the login data for the full access in the **Admin account** tab and repeat the new password.
3. Click the "SAVE" button to save the changes.

| **Note**: | If you are logged in as **User** or **Manager**, the "SAVE" button is hidden in this menu.<br><br>Consider the sensitive case while entering a new password! |

4. Change the login data for the read-only access in the **Guest account** block and repeat the new password.
5. Click the "SAVE" button to save the changes.
6. In the same menu in the "Manager" tab Admin can deprive Manager account of the rights for Tuner 1 or Tuner 2 and changing separate Stations (see Fig. 68).

| **Note**: | If the rights for Tuner 1 und Tuner 2 are deactivated, **Manager** <u>cannot</u>:<br> • change Settings for Tuner 1 and Tuner 2,<br> • change the Station<br> • start MPX Measurements |

To allow **Manager** configuring Tuner 1/2, activate the function "Right: Tuner1/2" by selecting "ON" in the virtual switch "Enable" in the "Access Rights" block.

To deprive **Manager** the access to Tuner 1/2 configuration, deactivate the virtual switch in the corresponding field.

To forbid **Manager** to change configurations of the separate Stations, select "ON" in the virtual switch "Locked" in the "Lock Stations" block.
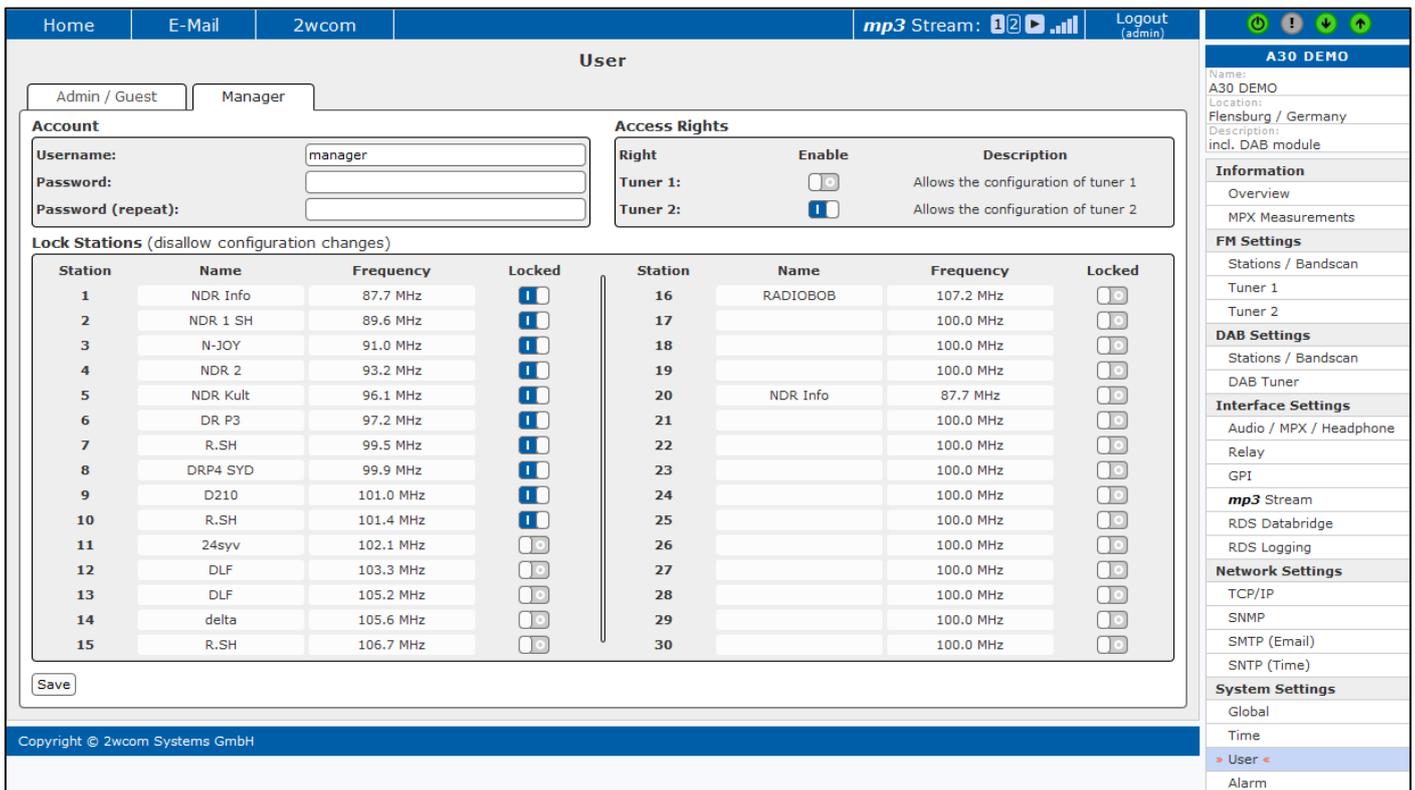
*Fig. 68: Management of the User Account for Manager access*

## 20.9. Restart the Device

To restart the device:

1. Open the window *Global* under **System Settings→Global.**

2. Click the "NOW" button in the field "Reboot device" in the last block of the web page to reboot the device (see Fig. 64).

3. Confirm the system question "Reboot the device now?" by clicking "OK" button.

⇒ The device restarts.

`LCD menu: Configuration menu→Global`

# 21. Troubleshooting

The following chart is designed to help you to correct minor problems with the use of the device prior to contact our service department (report failures by email to *contact@2wcom.com* or fax to +49 461-662830-11). Also be sure to read the entire manual carefully, as this often helps in understanding and fixing typical problems.

| Problem | Possible Cause | Solution |
|---|---|---|
| Device does not turn on | • Power cable is improperly connected<br><br>• Mains supply failure<br><br>• Blown fuse | • Check supply cord<br><br>• Make sure that the power plug at the device is fully inserted<br><br>• Check mains supply<br><br>• Replace fuse by same type |
| Device cannot be operated via Ethernet | • Network cable not connected<br><br>• IP address / TCP port is not known.<br><br>• A device with the same IP address was connected a few minutes before. Then the ARP table still assigns the old MAC address to the IP address. | • Connect the network cable.<br><br>• Use the default address 192.168.14.250. If the address was changed and is not known please see page 15.<br><br>• Usually the ARP table is refreshed automatically after a few minutes by the operation system. For an instant access to the device please reset the ARP table of your computer e.g. by entering "arp –d" in the Windows Command Prompt. |
| RDS signal distorted | • Improper signal cable<br><br>• Signal cable defect | • Use proper, screened cable only<br><br>• Use faultless signal cable |
| SNMP Get requests are not working | • SNMP community strings of the device and the SNMP management tool are not aligned. | • Check/Align the SNMP community strings (see section 10.2 Monitoring Function: Configuration of SNMP on page 33). |
| Relay output is not actuated as desired | • Relay output is not actuated as desired | • Check/Change stationming of the relay functions (see section 18 on page 85) |

# 22. Maintenance and servicing

**Maintenance**

No special maintenance is necessary on the device. Dust can be removed with a dry duster. For cleaning use only neutral, non-corrosive detergents applied to a cloth - not the device.

**Servicing**

The modules of the device are complex and should be serviced only by authorized personnel.

The 2wcom Systems GmbH is equipped with special measurement and repair kits. Therefore a repair by the user is not intended.

**Calibration**

Due to the design and construction of the device, no calibration is necessary.

# Index

BER  9
EON-TA  74
MPX Power Average Delay  80
multipath  46
No TA  9
pilot tone  8

PSN  74
RDS databridge  74
RDS Lab  10
scanmode  8, 9, 44
UECP  10

# A30 FM/DAB Monitoring Decoder – Technical Details

according to CENELEC EN 60950,
EMV EN55022 and EN55024

## Inputs

### RF-FM

| | |
|---|---|
| | 2 unbalanced, BNC |
| | internal switch matrix |
| Impedance | 50 Ω |
| Frequency Range | 87.5...108.0 MHz |
| | 76.0...90.0 MHz (Japan) |
| | 50/100 kHz steps |
| RF sensitivity | 35 dBµV |
| (S/N 40 dB, stereo) | |
| Max. RF input | 120 dBµV |

### RF-DAB

| | |
|---|---|
| | 1 unbalanced, BNC (optional) |
| Impedance | 50 Ω |
| Frequency Range | 168-240 MHz (DAB Band III) |
| RF sensitivity | 10 dBµV |
| Max. RF input | 100 dBµV |

### MPX

| | |
|---|---|
| | MPX loopthrough |
| | optional: MPX measurements |
| Connector | BNC unbalanced, 1x rear |
| Impedance | >10 kΩ |

### Inputs (passive loop through)

| | |
|---|---|
| MPX connector | BNC |
| AES/EBU / Audio L connector | XLR |
| Audio R connector | XLR |

## Measurement

### FM

| | |
|---|---|
| RF level | 20...120 dBµV |
| SNR | Typ. 65 dB |
| Frequency offset | +/- 10 kHz |
| MPATH | 0...100% |
| MPX power (graph: optional) | -50...+20 dBr |
| MPX deviation (graph: optional) | 120 kHz |
| MPX distribution cum. graph (optional) | 0...120 kHz |
| Pilot deviation | 0...+10 kHz |
| Stereo blend | 0...100% |

### RDS

| | |
|---|---|
| RDS deviation | Measurement of RDS deviation (error <3 %) |
| RDS decoding | PI, PS, RT, TA, TP, ODA AIDs, PTY, CT, Group sequence, |
| | Optional: Content of all group types, TMC , RT+ (via RDS Lab tool) |
| RDS Block Error Rate | 0...100% |

### Audio

| | |
|---|---|
| Audio level | Separate measuring of audio level L/R (RMS) for tuner and input |

### DAB (optional)

| | |
|---|---|
| RF Level | 0...63 dBµV |
| FIC Quality | 0...100% |
| Audio | Separate measuring of audio level L/R (RMS) |
| PAD | DLS, Slideshow, MOT |
| Ensemble decoding | Ensembl ID, Label, Short Label, Workload (CU Usage), Service Count, Sub-Channel Count, Date, Time |
| Service / Subchannel decoding | Service ID, Label, Short Label, CAId, Sub-Channel ID, CU Start, CU Size, CA, Protection, Bitrate, Type |

## Outputs

### Multiplex

| | |
|---|---|
| | 2x unbalanced BNC |
| | (On request: 1 balanced XLR) |
| Impedance | <20 Ω |
| Level | Max. 15 dBu |
| Frequency response | 20 Hz...95 kHz ±0.1 dB |
| Signal/Noise ratio | Typ. 70 dB stereo |
| (75 kHz deviation) | |
| Harmonic distortion | Typ. 0.05% |
| Stereo separation | >48 dB |

### Analog Audio

| | |
|---|---|
| | 2x L/R balanced XLR |
| Impedance | <20 Ω |
| Level | max. 15 dBu |
| Frequency response | 20 Hz...15 kHz ±0.1 dB |
| Deemphasis | 50 µs (optional 75 µs) |

| | |
|---|---|
| Signal/Noise ratio | Typ. 70 dB stereo |
| (75 kHz deviation) | |
| Harmonic distortion | Typ. < 0.1% |
| Stereo separation | >40 dB |

### Digital Audio Headphone

| | |
|---|---|
| | 2x AES/EBU balanced XLR |
| Connector | 6.35 mm |

## Front panel

| | |
|---|---|
| LCDisplay | Graphical, 264x64 pixel |
| Jog wheel | Impulse, ENTER button |
| 4 Duo LEDs | Power, Input, Output, Warning |

## Alarm functions

| | |
|---|---|
| Controlling data | RF level, MPX power, MPX peak deviation, no pilot, no RDS sync, TA, no TA, PI, PS, block error rate, pilot deviation, RDS deviation, audio level L, audio level R |
| Control content (RDS group) | received within x sec. / change |
| Alarm types | Potential free relays, E-mail, SNMP |
| Alarm report | Via serial port or TCP/IP |

## Scan mode (optional)

| | |
|---|---|
| Frequencies | 30 |
| Switch over time | individually for each frequency |
| Control functions | On all Alarm functions |

## Interfaces

### Remote control input

| | |
|---|---|
| | 7 inputs |
| Connector | 15 pole sub-D female |

### Remote control output

| | |
|---|---|
| | 7 floating relays (6x SPST, 1x SPDT) |
| | (for DC: max. 30 V, 0.5 A) |
| Connector | 15 pole sub-D male |

### Data interfaces

| | |
|---|---|
| | front serial interface for setup data and setup function (RS-232C) |

### TCP/IP data interface

| | |
|---|---|
| | input/output setup functions |
| Connector | RJ45 |
| Type | full duplex 10/100 BASE-T |
| Data format | HTTP, SNMP, SNTP, optional: FTP |

## MP3-Encoder

| | |
|---|---|
| Type | MPEG 1/2 Layer 3 encoder |
| Transmission of encoded MP3 data by TCP/IP | Adjustable MPEG Encoder quality in 3 steps |
| optional: 2x MP3 stream | Adjustable sample rates for latest Live-stream-Technology |
| | Reception of Audio-Live-stream by shoutcast compatible media player like WinAmp or VLC |
| Internal input | from FM/DAB tuner module |
| | optional: MPX in, Audio in |

## General data

| | |
|---|---|
| Power consumption | 40 VA |
| Case dimensions | 19", 1 HU, 310/424/484 mm |
| Weight | 5 kg |
| Housing | steel plate (aluminum-zinc coated) |
| Operating temp. range | 0...+45°C |
| Storage temp. range | -40...+70°C |
| Power supply | Internal, 90...260 V, 47...63 Hz |

Version 12.12.2017
These data are subject to
modifications and amendments.
Errors excepted

**2W**com
Wireless-World-Communication