

## STC 4-16 light

**Default access data:**  
192.168.0.120  
User: admin  
Password: geheim

**GSS**.compact classic

**Assembly Instruction**

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# 1 SAFETY REGULATIONS AND NOTES

- The devices meet the EU directives 2011/65/EU, 2014/30/EU and 2014/35/EU.



- This device is subject to the provisions of protection class I. Operate the device only to mains sockets with protective conductor connection!
- If the power cord needs to be replaced, only use an OEM power cord.
- The standards EN/DIN EN 50083 resp. IEC/EN/DIN EN 60728 must be observed, especially concerning equipotential bonding and earthing.
- Observe the relevant country-specific standards, regulations and guidelines on the installation and operation of antenna systems.
- Before starting installation or service work disconnect the receiving system from mains.
- Do not perform installation and service work during thunderstorms.
- Assembly, installation and servicing must be carried out by an authorised electrician.



- For a complete disconnection from the mains, the mains plug must be pulled out of the mains socket. Ensure that the mains plug can be pulled out without difficulties.



- **The head-end station should only be installed in a room where the permissible ambient temperature range (0 °C ... +50 °C) can be maintained, even during fluctuations in climatic conditions.**



- **Make sure there is a minimum space of 10 cm on either side and 50 cm above and below.**



- **To avoid too strong interacted heating of the head-end stations it is not admissible to mount them one upon the other without using thermic precautions (e.g. permanently air recirculation, ventilation, heat deflectors etc.).**

- If additional fans are to be used to circulate the air, ensure that the system will be shut down (disconnected from mains) should any one of the fans fail.
- Install the head-end station
  - in a dry, dust-free environment, in such a manner that it is protected from moisture, fumes, splashing water and dampness
  - where it is protected from direct exposure to sunlight
  - on a vibration-free wall or floor construction
  - not within the immediate vicinity of heat sources
- In case of the formation of condensation wait until the system is completely dried.
- Ensure that the head-end station is adequately ventilated.
- Do not cover the ventilation openings!
- Do not install the head end in cabinets or recesses which are not ventilated.

- Do not place any vessels containing liquids on the head-end station.
- Do not place anything on the head-end station which could initiate fires (e.g. candles).
- Due to the risk of fires caused by lightning strikes, we recommend that all mechanical parts (e.g. distributor, equipotential bonding rail, etc.) be mounted on a non-combustible base. Wood panelling, wooden beams, plastic covered panels and plastic panels are all examples of combustible bases.
- Avoid short circuits!
- To ensure electromagnetic compatibility, make sure all connections are tight and that the covers are screwed on securely.
- No liability is accepted for damage caused by faulty connections or inappropriate handling of the device.
- The firmware contains components which are licensed as Open Source software. The components to which this relates and the respective license terms can be called up via menu Help/Licences.

This parts of software source code can be provided at cost price on CD upon request. The licensee is granted a non-exclusive right of use for the Open Source Software by the respective right holders used; the conditions stipulated by the respective valid license terms apply. The license terms of this license only apply to the components which are not listed as Open Source software.

In relation to the licensor the regulations on liability and warranty in these license terms apply for the whole software. The liability and warranty regulations of the Open Source licenses only apply in relation to the respective right holders.

- **Test the firmware versions of the device and update them if necessary. The current firmware version can be found at "[www.mygss.eu](http://www.mygss.eu)".**



Take action to prevent static discharge when working on the device!



**Electronic devices should never be disposed of in the household rubbish. In accordance with directive 2002/96/EC of the European Parliament and the European Council from January 27, 2003 which addresses old electronic and electrical devices, such devices must be disposed of at a designated collection facility. At the end of its service life, please take your device to one of these public collection facilities for proper disposal.**

## 2 GENERAL INFORMATION

### 2.1 PACKING CONTENTS

1 STC 4-16 light	1 LAN cable
1 Brief assembly instructions	1 Mains cable

### 2.2 MEANING OF THE SYMBOLS USED



Important note



Danger by electrical shock



General note



Performing works

### 2.3 TECHNICAL DATA

The devices meet the following EU directives:

2011/65/EU, 2014/30/EU, 2014/35/EU

The product fulfils the guidelines and standards for CE labelling (page 33).

Unless otherwise noted all values are specified as "typical".

#### **RF input DVB-S/S2 (ETSI 300 421)**

Frequency range: ..... 950 ... 2150 MHz

DVB-S modes: ..... QPSK

DVB-S2 modes: ..... QPSK, 8PSK, 16APSK, 32APSK

Symbol rate DVB-S: ..... QPSK: 1 ... 45 MSymb/s

Symbol rate DVB-S2:

QPSK ..... 4.5 ... 45 MSymb/s

8PSK ..... 4.5 ... 45 MSymb/s

16APSK ..... 4.5 ... 39 MSymb/s

32APSK ..... 4.5 ... 32 MSymb/s

Maximum data rate/tuner ..... 83 MBit/s

Level range: ..... 60 dB $\mu$ V ... 80 dB $\mu$ V

Input impedance: ..... 75  $\Omega$

LNC supply total: ..... 13V; max. 500 mA

### **RF output**

Frequency range: ..... 42.0 MHz ... 868.0 MHz  
Channels: ..... S21 ... C69  
Types of modulation: ..... QAM 16, 32, 64, 128, 256  
Dynamic phase error: ..... < 0.2°  
MER: ..... 45 dB  
Symbol rate ..... 1000...7500 kBd  
Output level: ..... 80...96 dB $\mu$ V  
Output impedance: ..... 75  $\Omega$

### **LAN interface for HTML control/update**

Standard: ..... 100-BASE-T

### **Connections**

SAT inputs: ..... 4 F sockets  
RF output: ..... 1 F socket  
RF test output (-25 dB): ..... 1 F socket  
LAN: ..... 1 RJ 45 socket

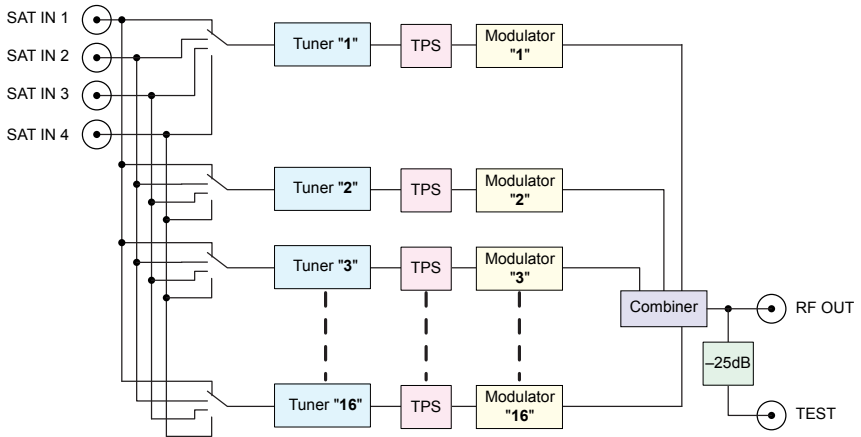
### **General**

Mains voltage: ..... 100...240V~, 50/60 Hz  
Power consumption without LNC supply ..... 40 W  
Maximum Power consumption: ..... 55 W  
Admissible ambient temperature: ..... 0 ... +50 °C  
Dimensions (WxHxD): ..... 341 x 282 x 85 mm  
Weight: ..... 5 kg

## 2.4 DESCRIPTION

The head-end station converts 16 transponders modulated acc. to DVB-S/DVB-S2 standard (up to 32 APSK) into 16 DVB-C modulated transponders.

### BLOCK DIAGRAM



### GENERAL

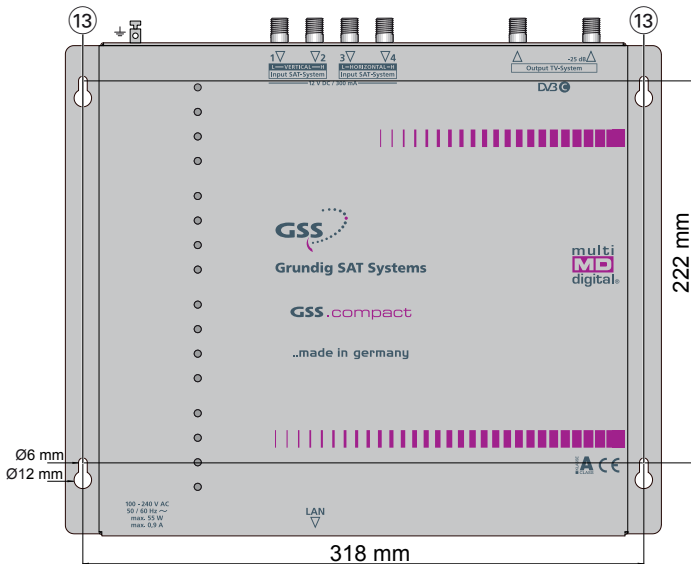
The station is equipped with four SAT IF inputs, one RF output and one test output (-25 dB). It is preset to receive the most popular ASTRA transponders. Different programming is possible at any time. Each of the 16 tuners can be assigned to any SAT input. Via the RF output of the station, the QAM modulated RF output signals are output. The output levels of the channel strips can be set. The configuration of the station is to be done via an HTML user interface via a PC and a standard HTML browser connected to the LAN input.

## 3 ASSEMBLY

### 3.1 INSTALLING THE DEVICE



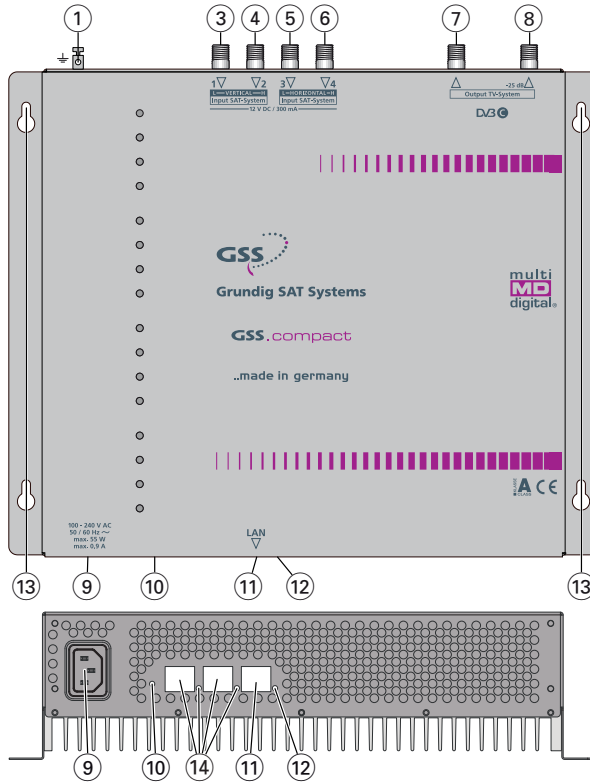
- The device must not be operated lying down, since the function of the heat sink will be severely restricted. **Only with vertically arranged cooling fins sufficient cooling is ensured.**
  - The device should only be installed in a room where the permissible ambient temperature range (0 °C ... +50 °C ) can be maintained, even during fluctuations in climatic conditions.
  - Mount the device on a non-combustible base.
  - Use mounting material suitable for the **wall properties**.
  - Position the device with a minimum distance on the left and right side of 10 cm, below and above 50 cm.
- Attach four mounting screws at the installation site. The drilling distances are shown in the drawing below.



- Hang the unit with the mounting supports ⑬ on the 4 screws.
- Tighten the screws.



## 3.2 DEVICE OVERVIEW



- ① Connector potential equalisation
- ③ SAT IF input vertical low\*      ④ SAT IF input vertical high\*
- ⑤ SAT IF input horizontal low\*      ⑥ SAT IF input horizontal high\*
- \* Factory defaults for ASTRA reception, can be changed individually.
- ⑦ QAM output      ⑧ Test output  $-25\text{dB}$
- ⑨ IEC connector C14; connector for mains cable
- ⑩ Reset IP address /host name / password (hold depressed for more than 5 seconds) to 192.168.0.120 / gss / geheim
- ⑪ LAN socket\*\* for configuration      ⑫ LAN-Status-LED
- ⑬ Mounting support      ⑭ Without function

\*\* Use at least CAT6 LAN cables!

### 3.3 POTENTIAL EQUALISATION (PE)



#### Equalise the potential (PE) in accordance with IEC/EN/DIN EN 60728.

- Connect the PE connection terminal ① to a PE rail (supplied by customer) using the PE wire (Cu 4 mm<sup>2</sup> - 9 mm<sup>2</sup>).

### 3.4 CONNECTING THE DEVICE

- Connect the SAT IF inputs ③ vertical low\*, ④ vertical high\*, ⑤ horizontal low\* and ⑥ horizontal high\* to the corresponding outputs of an LNB.

\*Factory defaults for the preprogrammed ASTRA reception, can be changed individually.

- **Make sure that all inputs have the same level!**

- Connect the attached mains cable to the IEC connector C14 ⑨.

—> If you would like to integrate the device to an existing plant, now first you should connect it to the mains and perform all settings (Configuration page 11).



- Connect the mains cable to a mains socket with protective conductor connection. Thereby note the voltage specified on the device.

—> This device has no power switch and starts immediately after connecting the operating voltage.

- Configure the device (page 11).
- **If the programming is finished** connect the RF output ⑦ to the cable network.

## 4 CONFIGURATION / UPDATES

The configuration of the station is to be done via an HTML user interface via a PC and a standard HTML browser.

### 4.1 INITIAL CONFIGURATION

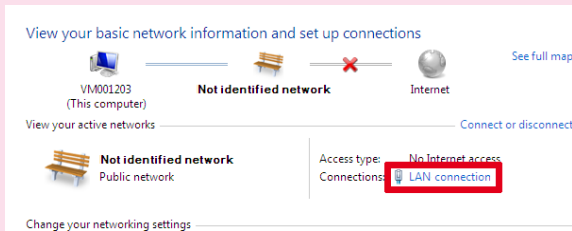
- Connect a PC via a LAN cable directly to the LAN input (11).

→ **The PC and the head-end station must be within the same network (same IP address range). Cookies must be accepted and JavaScript must be active.**

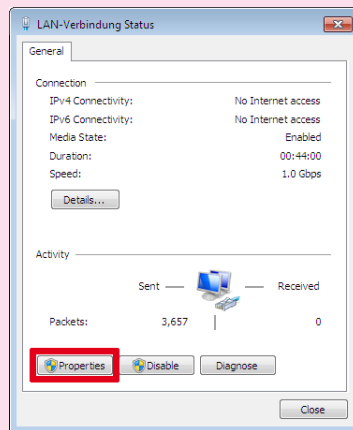
**Use current browser versions.**

→ Example for IP address setting with Windows 7 operating system:

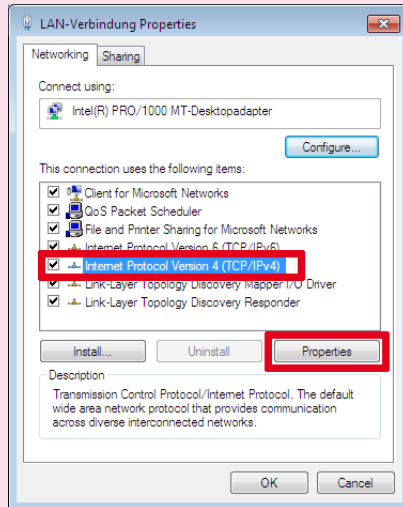
- For the initial setup open the **properties** for TCP/IPv4 **of the PC**:
  - > Control Panel
  - > Network and Sharing Center



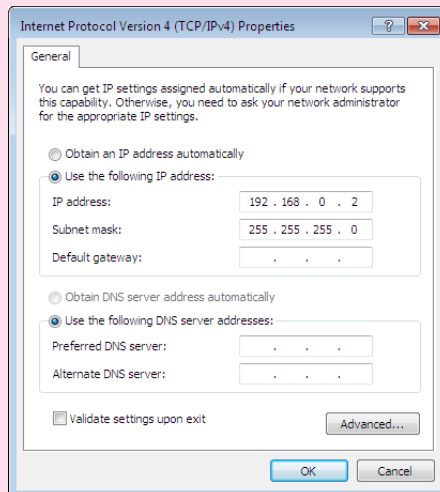
> LAN connection



> Properties

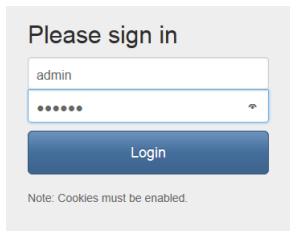


- > Internet Protocol Version 4 (TCP/IPv4)
- > Properties



- Activate point "Use the following IP address".
- Enter e.g. 192.168.0.2 for the IP address.
- Enter for the Subnet mask 255.255.255.0.
- Confirm the setting with "OK".

- Start the browser, enter the IP address of the device (factory default is 192.168.0.120) and start the establishment of the connection.

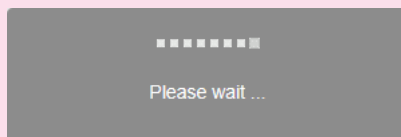


A screenshot of a web browser's login page. At the top, it says "Please sign in". Below this is a text input field containing the word "admin". Underneath is a password input field with seven dots and a small eye icon on the right. A blue "Login" button is positioned below the password field. At the bottom of the form, there is a small note: "Note: Cookies must be enabled."


- Enter user "admin" and your Password and click on button "Login". The default password is "geheim".

—> We recommend that you replace the default password to a password of your choice in order to prevent unauthorized access to the head-end station (menu **System > Security**)!

—> The Overview window is displayed.  
First, an "empty" table is displayed (as with all menus). While the data is read from the device ...



... is displayed.

—> **Changes in the menus are only transmitted to the head-end station when you click the  button!**

### OVERVIEW WINDOW

- 50 Via the selection **System** you have access to the menus of the System settings: Logbook (page 23); Notification (page 24); Network (page 26); Security (page 27); Firmware (page 28); User (page 31)
- 51 In all menus you will return to the Overview via the button **Overview**.
- 52 Via the selection **Configuration** you have access to the menus of the Configuration settings: Input (page 16); Output (page 18); Filter (page 21)

Line	usedmax	Name	Input	C/N (reserve)	Output
41	4822 50070	Sky Comedy	11720 MHz	11.4 dB 4.9 dB	258.000 MHz (L-)
42	4797 50070	Sky Cinema	12032 MHz	12.0 dB 5.5 dB	268.000 MHz (L-)
43	4987 50070	NatGeo Wild	11758 MHz	11.4 dB 4.9 dB	274.000 MHz (L-)
44	4872 50070	Sky Cinema 1 HD	12070 MHz	12.0 dB 5.5 dB	282.000 MHz (L-)
45	4194 50070	topescha24 HD	11053 MHz	13.0 dB 6.3 dB	290.000 MHz (L-)
46	4254 50070	Just HD	11347 MHz	11.4 dB 4.7 dB	298.000 MHz (L-)
47	4170 50070	USA	12544 MHz	8.8 dB 3.8 dB	306.000 MHz (S21)
48	3415 50070	RTL Television	12187 MHz	11.5 dB 6.5 dB	314.000 MHz (S22)
49	3665 50070	Sonnentv	12460 MHz	13.1 dB 6.1 dB	322.000 MHz (S23)
50	3743 50070	RTL Austria	12227 MHz	11.4 dB 6.4 dB	330.000 MHz (S24)
51	1797 50070	WDR Bluefeed	12422 MHz	9.2 dB 4.2 dB	338.000 MHz (S25)
52	4022 50070	ZDF HD	11362 MHz	12.3 dB 5.6 dB	346.000 MHz (S26)
53	4168 50070	Das Erste HD	11494 MHz	13.4 dB 6.7 dB	354.000 MHz (S27)
54	4175 50070	BR Fernsehen Süd HD	11053 MHz	12.3 dB 5.9 dB	362.000 MHz (S28)
55	4175 50070	BR Branderburg HD	10952 MHz	13.6 dB 6.9 dB	370.000 MHz (S29)
56	4241 50070	EWTH katholisches TV	12460 MHz	8.8 dB 3.8 dB	378.000 MHz (S30)






- 53 Herein the installed firmware version is displayed.
- 54 This location text can be modified arbitrary in menu System/User.

→ If you remote control head-end station at different locations, herein you can enter the location and a local contact person.

- 55 Herein select the menu language English or German.
- 56 Herein the current system temperature as well as date and time of the last login is displayed.

→ If a system temperature of 85°C will be reached, the system will be shut down.

- 57 Via button **Logout** you can leave the graphical user interface.

- ⑤8) Via the **Help** menu you can call up the assembling instructions (PDF) as well as a ZIP file containing a list and all licences of the used Open-Source software.
- ⑤9) Overview of the transponder set, with input frequency, C/N value, output frequency and data rate. Via the background colour of column **Line** you are informed about the quality of the input signals (  good/  bad/  no signal), a possible exceeding the output data rate (  ), or whether the modulator is switched off (  ).

- > If in menu Configuration/Input (page 16) transponder names are NOT assigned, the name of the first station of each transponder is displayed.
- > The maximum displayed C/N value is 15.0dB at DVB-S resp. 20.0dB at DVB-S2. This means the actual value is  $\geq 15/20\text{dB}$ .

- ⑥5) Via button **Download** a configuration protocol can be stored as text file resp. opened using a text editor.


- > From this protocol file e.g. a list of the programmed stations can be prepared using e.g. a text editor.

- ⑥6) Herein notes are displayed, which you can enter in menu System/User.

## PERFORM CHANGES

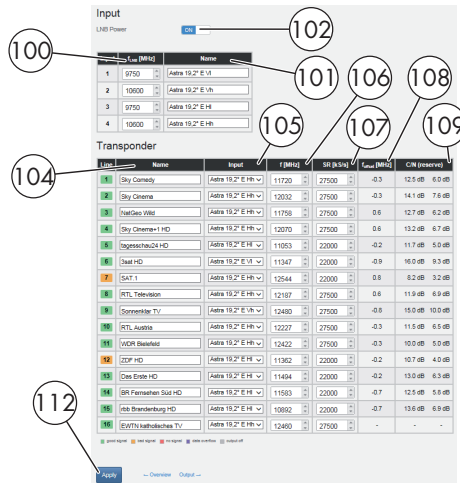
**Before leaving a menu**, changes must be transmitted to the head-end station.

- Therefore click on button .

After that  is displayed for a short time in the upper right corner.

## NUMBER FORMAT

For entering/indication of the different IDs the number format can be set to hexadecimal or decimal in menu **System > Firmware**.



→ Via the background colour of column Line you are informed about the quality of the input signals (green/orange/red), a possible exceeding the output data rate (purple), or whether the modulator is switched off (grey).

- 100 In column **f<sub>LNB</sub>**, enter the LNB Oscillator frequencies for the 4 inputs – dependent on the LNB used.
- 101 In column **Name**, enter a personal input name.
- 102 With this button switch on or off the LNB supply (13V/max. 500mA).
- 104 In column **Name**, you can enter a personal transponder name

→ If you delete a transponder name, the name of the first station of this transponder is entered. If the transponder will be changed, the transponder name will NOT be changed automatically!

- 105 In column **Input**, select the desired input for each tuner.
- 106 In column **f (MHz)**, enter the desired input frequency for each tuner.
- 107 In column **SR (kS/s)**, enter the related input symbol rate for each tuner.



⑩ In column **f<sub>offset</sub>**, the current frequency offset is displayed.


—> The frequency offset should not exceed  $\pm 1.5$  MHz!  
IF necessary correct the LNB oscillator frequency (if all transponders of one input are affected) resp. the input frequency (if only one transponder is affected) accordingly.

⑪ In this column, the C/N is displayed with reserve.

—> The maximum displayed C/N value is 15.0dB at DVB-S resp. 20.0dB at DVB-S2. This means the actual value is  $\geq 15/20$ dB.

⑫ Before leaving the menu, changes must be transferred to the head-end station!

- Therefore click on button .

—> After that  is displayed for a short time in the upper right corner.

Line	used/maax	Modulator	Name	Chan. / Freq. [MHz]	SR [k.Sig]	Modulation	Spectrum	Level [dB]
1	43748 kBit/s 50870 kBit/s	ON	Sky Comedy	258	6900	QAM256	normal	0
2	47093 kBit/s 50870 kBit/s	ON	Sky Cinema	266	6900	QAM256	normal	0
3	46673 kBit/s 50870 kBit/s	ON	NatGeo Wild	274	6900	QAM256	normal	0
4	48708 kBit/s 50870 kBit/s	ON	Sky Cinema+1 HD	282	6900	QAM256	normal	0
5	41985 kBit/s 50870 kBit/s	ON	tagesschau24 HD	290	6900	QAM256	normal	0
6	42084 kBit/s 50870 kBit/s	ON	3sat HD	298	6900	QAM256	normal	0
7	32095 kBit/s 50870 kBit/s	ON	SAT.1	306	6900	QAM256	normal	0
8	34333 kBit/s 50870 kBit/s	ON	RTL Television	314	6900	QAM256	normal	0
9	38874 kBit/s 50870 kBit/s	ON	Sonnenklar TV	322	6900	QAM256	normal	0
10	17438 kBit/s 50870 kBit/s	ON	RTL Austria	330	6900	QAM256	normal	0
11	17513 kBit/s 50870 kBit/s	ON	WDR Bleisfeld	338	6900	QAM256	normal	0
12	42010 kBit/s 50870 kBit/s	ON	ZDF HD	346	6900	QAM256	normal	0
13	41378 kBit/s 50870 kBit/s	ON	Das Erste HD	354	6900	QAM256	normal	0
14	41588 kBit/s 50870 kBit/s	ON	BR Fernsehen Süd HD	362	6900	QAM256	normal	0
15	41811 kBit/s 50870 kBit/s	ON	rtb Brandenburg HD	370	6900	QAM256	normal	0
16	39523 kBit/s 50870 kBit/s	ON	EWTV katholisches TV	378	6900	QAM256	normal	0

Level: -5

Apply


—> Via the background colour of column **Line** you are informed about the quality of the input signals (  good/ bad/ no signal), a possible exceeding the output data rate (), or whether the modulator is switched off ().

- 150 The upper value shows the current needed data rate.  
The lower value shows the maximum possible output data rate (dependent on the output settings).

—> The background colour  in column **Line** indicates an output data overflow.  
In this case change the output settings or remove stations from the data stream using the station filter.

- 151 In column **Modulator**, switch on or off the modulators of the individual lines.

- 152 In column **Chan. / Freq. [MHz]**, enter the desired output channel/frequency of the individual lines.


—> Double assignments are indicated by a warning icon .

—> A **output signal** is normally transmitted with a bandwidth of 8 MHz. This means that you can only use the channel centre frequency of the existing channel grid in the range of channels C21...C69 (frequency grid 8 MHz). The CCIR channel grid is 7 MHz in the range of the lower frequency bands (channels C5 ... C12). If 8 MHz QAM signal packages are transmitted in these channel ranges, this will result in interference (overlapping) and transmission problems.

For programming in these channel ranges and in the frequency ranges below them, we recommend starting with frequency 306 MHz going back in steps of 8 MHz (see frequency table on page 32). Please note thereby that many DVB-T receivers cannot receive the channel ranges S21 ... S41 (306 ... 466 MHz).


Chan. / Freq. [MHz]	
S22	314
S22	314

- 153 In column **SR [kS/s]**, enter the desired output symbol rate of the individual lines.

—> The background colour  in column **Line** indicates an output data overflow.


In this case increase the output symbol rate or the QAM modulation or remove stations from the data stream using the station filter.

- 154 In column **Modulation**, select the desired kind of modulation of the individual lines – QAM 16, 32, 64, 128, 256


—> The background colour  in column **Line** indicates an output data overflow. In this case change the output settings or remove stations from the data stream using the station filter.


- 155 For exceptional cases and "older" digital cable receivers, in column **Spectrum** the spectral position of the user signal can be inverted (**invers**). Factory default is "**normal**".


- 156 In column **Level [dB]**, balance the output levels of the different lines (0...-10dB). Therefore measure and note down the output level of each modulator. Adjust the higher output levels to the output level of the modulator with the lowest output level incrementally.

—> Changes must be transmitted to the head-end station!  
Therefore click on button .

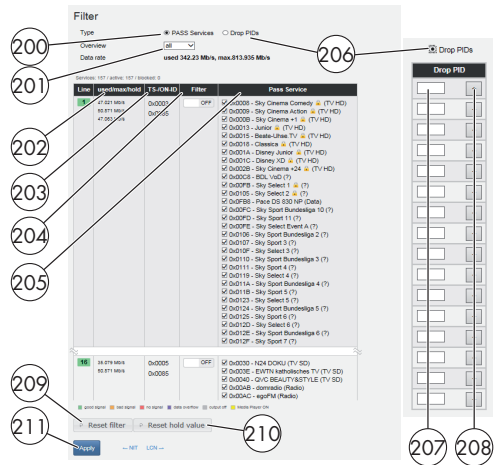
- 161 Balance here the **master output level of the station** to the level of the cable network (0...-31 dB; off).  
0dB = unchanged level; -31 dB = 31 dB attenuation  
off = Level 0 (no output signal)

—> Changes must be transmitted to the head-end station!  
Therefore click on button .

- 180 Before leaving the menu, changes must be transferred to the head-end station!
- Therefore click on button .

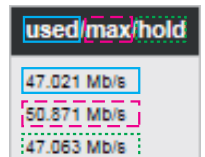
—> After that  saved is displayed for a short time in the upper right corner.

In menu **Filter** you can remove stations/services (with adaptation of the tables) and PIDs (Drop PIDs; without adaptation of the tables) from the data streams of the transponders.





—> For entering/indication of the different IDs the number format can be set to **hexadecimal** or **decimal** in menu **System > Firmware**.

- 200 Select displaying the station filter.
- 201 Herein you can select whether only one line is displayed or all lines are displayed.
- 202 Indication of the **output data rate** of the transponder:  
**used** = current needed output data rate  
**max** = maximum possible value  
**hold** = previously achieved peak value
- 203 Indication/Modification of **TS-/ON-ID**.  
 The first line shows the TS-ID, ON-ID is display below.
- 204 In column **Filter** you can individually switch on or off the filter.
- 205 In column **Pass Service** you select the stations (services) which you would like to play out.



—> Only if the filter 204 is enabled, services in which the hook has been removed () , are suppressed (filtered out)!

- > If the filter is enabled, new services added to the transponder are suppressed until a hook is set.
- > The background colour  in column **Line** indicates an output data overflow. In this case check the values in column **used/max/hold** <sup>(202)</sup>, change the output settings or remove stations from the data stream using the station filter.
- >  indicates scrambling.


<sup>(206)</sup> Select displaying the PID filter.

<sup>(207)</sup> Activate the indication of the PID filter by select box "Drop PIDs" <sup>(209)</sup>. Herein you can remove individual PIDs from the transport stream of each line.

- Enter the PID to be dropped...

<sup>(208)</sup> ... and confirm with "+".


- > After that an additional field appears to enter an additional PID.
- > Therefore also observe the functions <sup>(201)</sup> and <sup>(209)</sup>.

<sup>(209)</sup> Via button **Reset**, only for the **displayed filters** (dependent on the selections for **Typ** <sup>(200)</sup> <sup>(206)</sup> and **Overview** <sup>(201)</sup>) columns **Pass Service** <sup>(205)</sup> and **Filter** <sup>(204)</sup> are reset to factory defaults ( and ).

<sup>(210)</sup> With button **Reset hold value** reset the previously achieved peak values of the data rate (<sup>(202)</sup> "hold").

<sup>(211)</sup> Herein

- Therefore click on button .

- > After that  saved is displayed for a short time in the upper right corner.

In the logbook different alerts or events are displayed. This helps at a possible troubleshooting.

- 300 Herein you can select whether only one line is displayed or all lines are displayed.
- 301 Via this button you can clear the logbook.
- 302 Via this button you can refresh the indication.

**Logbook**

Note: Configure 'System → Notification' to get alarm messages.

Line:  300 301 302

Options:

entries: 4 (OK: 3, error: 1)

No.	Line	Date	Time	State	Event
4	1	01/25/2018	07:53:55	ok	parameter configured
3	1	01/25/2018	07:51:40	error	parameter configured
2	1	01/25/2018	06:42:47	ok	start
1	-	01/24/2018	12:53:14	-	logbook cleared

- Please also note the items 310 and 311 in the Notification menu (page 24).
- The logbook is included in the protocol file (page 14)!

## NOTIFICATION

In this menu you use the reaction time to set when entries for input signal or data overflow errors are entered in the logbook (page 23).

Enter the access data for the outgoing mail server of your e-mail account here if you want to be informed about error entries in the logbook by e-mail. The e-mail is then sent via the outgoing mail server of your e-mail account to the inbox of the recipient.

—> Therefore the configuration interface must have access to the Internet.

The screenshot shows a web-based configuration interface titled "Notification". It contains several sections with input fields and radio buttons, each annotated with a circled number:


- Reaction time logbook entry 'input signal'/overflow'**
  - "Signal Error" field: "from" [0] sec., callout 310.
  - "Signal OK" field: "from" [20] sec., callout 311.
- E-Mail**
  - "User" field: "user@gmx.de", callout 312.
  - "Password" field: [redacted], callout 313. Below it is the text "The password is not shown for security reasons".
  - "Outgoing mail server" field: "mail.gmx.net", callout 314.
  - "Outgoing server port" field: "587", callout 315.
  - "Scrambling" section: Radio buttons for "TLS / STARTTLS" (selected, callout 316) and "SSL".
  - "Recipient" field: [redacted], callout 317.
  - "Test Settings" section: Check box "send alarm mail" (checked, callout 318). Below it is the text "Please save settings before test".
  - "Lock" field: "60" min., callout 319.
- "Apply" button: callout 321.

- 310 Enter the duration in seconds that an input signal or data overflow error must occur for an entry to be made in the logbook.
- 311 Enter here the duration in seconds which must be a signal "OK" again for an entry to be made in the logbook.
- 312 Herein enter the e-mail address to transmit the e-mail.
- 313 Herein enter the password for the outgoing mail server of your e-mail account.
- 314 Herein enter the outgoing mail server of your e-mail account.
- 315 Herein enter the port of the outgoing mail server of your e-mail account.
- 316 Herein select the e-mail encryption which is supported from your e-mail provider:
  - "TLS/STARTTLS" (usually Port 587) or
  - "SSL" (usually Port 465)



317 Herein enter the mail address of the recipient.

318 Via button **send alarm mail** you can send a test mail.

—> Before you can send a test mail, changes must be transferred to the head-end station! Therefore click on button .

—> Example:

Error message

```
-----  
Logbook ==>  
Date / Time: 04/21/201509:35:30  
Line: 1  
Error message: error: input  
-----
```

```
GSS.compact  
90471 Nuernberg, Beuthener Str. 43  
Tel.: +49 911 703 88 77 / Mail: info@gss.de
```


—> In the e-mail, the contact details, which are stored in menu **System > User** are displayed to identify the head-end station.

319 Enter here how long new e-mails will not be sent.

—> In order to prevent you (e. g. in case of changing reception conditions) from being flooded with e-mails, the function is blocked for this time after sending an e-mail. The lock can be removed by deleting the logbook.

321 Before leaving the menu, changes must be transferred to the head-end station!

- Therefore click on button .

—> After that  saved is displayed for a short time in the upper right corner.

Herein you customize the IP Address, Gateway and Subnet to the local network. **Enter a fixed IP address that is not yet assigned and is out of the DHCP range of the router.**

You can use the **Hostname** to call up the user interface without entering the IP address. To do this, enter the **host name** followed by **".local"** in the browser (e.g. **gss.local**). If you operate several head stations in the network, you must enter different names here.

### Network

Hostname

Configuration Interface

IP Address

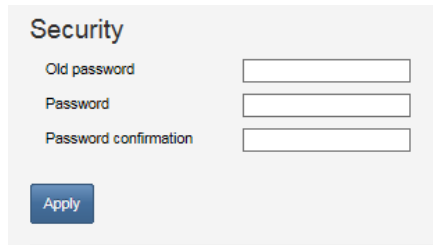
Gateway

Subnet

MAC

- Write down the IP address and the Host name! Further access to the device is only possible via the IP address or the host name.
- **If you have forgotten your IP address, you can reset the network settings and the password by the reset button (10 page 9)!**
- The MAC address is only displayed for information and can not be changed.
- Before leaving the menu, changes must be transferred to the head-end station! Therefore click on button .
- After that  is displayed for a short time in the upper right corner.


Herein replace the default password **geheim** by a password of your choice.




The screenshot shows a 'Security' configuration window. It contains three text input fields labeled 'Old password', 'Password', and 'Password confirmation'. Below these fields is a blue button labeled 'Apply'.

—> We strongly recommend that you change the default password to prevent unauthorized access to the station.

- For authorisation enter the "old" password and after that the "new" password twice.

—> Before leaving the menu, changes must be transferred to the head-end station! Therefore click on button .

—> After that  is displayed for a short time in the upper right corner.

—> **If you have forgotten your password, you can reset the network settings and the password by the reset button (10 page 9)!**

## FIRMWARE

Herein select the time zone, automatic daylight saving time and the number format (hexadecimal/decimal). In addition a firmware update, backup, factory reset as well as a system restart (warm start) can be done. The manager allows you to store different configurations in the head-end station.

The screenshot shows the 'Firmware' configuration page. It is divided into several sections: Time, Versions, Firmware, Settings, Manager, System, and Tools. Numbered callouts point to various elements: 332 points to the 'UTC offset' dropdown (set to 1); 333 points to the 'Summertime' toggle (set to ON); 334 points to the 'Number format' dropdown (set to hexadecimal); 335 points to the 'Apply' button; 336 points to the 'Load firmware update from PC' button; 337 points to the 'Save settings to PC' button; 338 points to the 'Load settings from PC' button; 339 points to the 'Save actual config' button; 340 points to the 'Load config' button; 341 points to the 'Delete config' button; 342 points to the 'reset to factory defaults' button; 343 points to the 'Reboot' button; 344 points to the 'Ping' button.


### - SYSTEM SETTINGS:


332 Herein select the time zone setting dependent on the location of the head-end station. The head-end station receives the **Coordinated Universal Time – UTC** from the satellite. Enter the corresponding **UTC offset**.

—> Herein the "standard" or "wintertime" must be set.

—> In order e.g. to adjust the **Central European Time – CET**, the offset must be set to **+1 hour**.

333 Herein you can switch off or on the automatic daylight savings time (DST).

- ③34 Herein you can select the number format for entering/indication the different transport stream IDs (hexadecimal/decimal).
- ③35 Before leaving the menu, changes must be transferred to the head-end station!
  - Therefore click on button .

—> After that  saved is displayed for a short time in the upper right corner.

#### - FIRMWARE UPDATE:

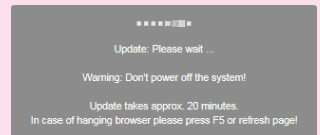
- ③36 Herein the firmware version of the head-end station is displayed.
  - Start the firmware update via button **Load firmware update from PC**.
  - Select the new firmware file (\*.tar) in the appearing pop-up menu.

—> Therefor the firmware must be previously stored on your PC. The current firmware version can be found at "www.mygss.eu".  
Unzip the \*.zip file → **\*.tar update file** + added notes

—> A firmware update may take a long time to complete.

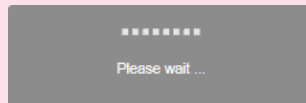
—> **Aborting the firmware update or interrupting the power supply during the update might in worst case result in a defect of the device!**

—> During the update this warning is displayed.



—> After a successful update, the following message is displayed:

 System updated successfully! System is going to reboot ... please wait at least 30 sec. before logging in again



The head-end station then restarts.

## - BACKUP:

- ③37 Via button **Save settings to PC** you can download the settings from the head-end station as "\*.tar" file for backup.

—> Settings **including password** but **without network settings**.

- ③38 Via button **Load settings from PC** you can restore the settings from a prior downloaded backup.

## - MANAGER:

In the Manager, you can save configurations in the head station.

- ③39 Enter a name and save the configuration with the **Save actual config** button.

Load a configuration stored in the manager:

- ③40 In the "Saved configurations:" field, select a saved configuration and load it with the **Load config** button.

Delete a configuration stored in the manager:

- ③41 In the "Saved configurations:" field, select a saved configuration and delete it with the **Delete config** button.

## - RESET TO FACTORY DEFAULTS:

- ③42 Reset the head-end station to factory defaults via button **reset to factory defaults**.

—> All settings but NOT Password and IP address!

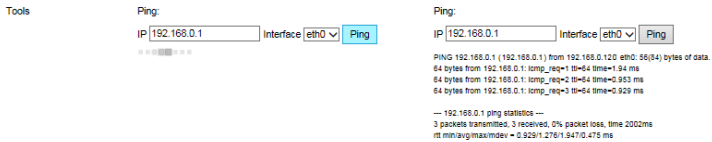
—> **If you have forgotten your password, you can reset the network settings and the password by the reset button** (hold depressed for more than 5 seconds; ⑩ page 14)!

## - SYSTEM RESTART:

- ③43 Via button **Reboot** you can restart the head-end station (warm start).

## - PING (NETWORK DIAGNOSTIC TOOL):

- 3.4.4 You can use the Ping button to check whether a device is accessible on the network.
- Enter the IP address you want to "ping" and click the **Ping** button.



## USER

In section User you can adjust the location-based data that is displayed in the header of the menus accordingly. If you remotely manage multiple head-end stations, you know at any time, at which station you just work.

In the Notes field you can enter any text that will be displayed in the overview as a reference.

The screenshot shows the User configuration form. It has the following fields:

- Name:** 90471 Hasenberg, Beuthener Str. #3
- Contact:** Tel. +49 911 703 1254 / info@gsst.de
- Notes:** A large text area with the placeholder text "Notes entered in this field are displayed in menu Overview".
- Apply:** A blue button at the bottom left.

- > Before leaving the menu, changes must be transferred to the head-end station! Therefore click on button **Apply**.
- > After that **saved** is displayed for a short time in the upper right corner.

## 5 CHANNEL AND FREQUENCY TABLES

### Advice for a frequency grid (8 MHz) in the Band I/III

Frequenzzaster Frequency grid [MHz]	Frequenzzaster Frequency grid [MHz]	Frequenzzaster Frequency grid [MHz]	Frequenzzaster Frequency grid [MHz]	Frequenzzaster Frequency grid [MHz]	Frequenzzaster Frequency grid [MHz]
42.00	82.00	146.00	186.00	226.00	266.00
50.00	114.00	154.00	194.00	234.00	274.00
58.00	122.00	162.00	202.00	242.00	282.00
66.00	130.00	170.00	210.00	250.00	290.00
74.00	138.00	178.00	218.00	258.00	298.00

### CCIR – Hyperband (Frequency grid 8 MHz)


Kanal Channel	Kanalmittelfrequenz Channel centre frequency [MHz]	Kanal Channel	Kanalmittelfrequenz Channel centre frequency [MHz]	Kanal Channel	Kanalmittelfrequenz Channel centre frequency [MHz]	Kanal Channel	Kanalmittelfrequenz Channel centre frequency [MHz]
S 21	306.00	S 26	346.00	S 30	378.00	S 34	410.00
S 22	314.00	S 27	354.00	S 31	386.00	S 35	418.00
S 23	322.00	S 28	362.00	S 32	394.00	S 36	426.00
S 24	330.00	S 29	370.00	S 33	402.00	S 37	434.00
S 25	338.00						
						S 38	442.00
						S 39	450.00
						S 40	458.00
						S 41	466.00

### CCIR – Band IV/V (Frequency grid 8 MHz)

C 21	474.00	C 31	554.00	C 41	634.00	C 51	714.00	C 61	794.00
C 22	482.00	C 32	562.00	C 42	642.00	C 52	722.00	C 62	802.00
C 23	490.00	C 33	570.00	C 43	650.00	C 53	730.00	C 63	810.00
C 24	498.00	C 34	578.00	C 44	658.00	C 54	738.00	C 64	818.00
C 25	506.00	C 35	586.00	C 45	666.00	C 55	746.00	C 65	826.00
C 26	514.00	C 36	594.00	C 46	674.00	C 56	754.00	C 66	834.00
C 27	522.00	C 37	602.00	C 47	682.00	C 57	762.00	C 67	842.00
C 28	530.00	C 38	610.00	C 48	690.00	C 58	770.00	C 68	850.00
C 29	538.00	C 39	618.00	C 49	698.00	C 59	778.00	C 69	858.00
C 30	546.00	C 40	626.00	C 50	706.00	C 60	786.00		



# Declaration of CE conformity

<b>GSS</b> GRUNDIG SAT SYSTEMS	<b>Konformitätserklärung</b> <b>Declaration of Conformity</b> <b>130/16</b>	<b>CE</b>
Hersteller / Manufacturer : <b>GSS Grundig SAT Systems GmbH</b>		
Anschrift / Address : <b>Beuthener Straße 43, D-90471 Nürnberg, Germany</b>		
Produktbezeichnung / Product : <b>Kopfstation</b>		
Typenbezeichnung / Type : <b>GSS.compact STC 4-16 light</b>		
Bestellnummer / Article number : <b>GCS 1300</b>		
Die <b>GSS Grundig SAT Systems GmbH</b> bestätigt hiermit, dass das bezeichnete Produkt mit den folgenden Richtlinien zur Angleichung der Rechtsvorschriften übereinstimmt. The <b>GSS Grundig SAT Systems GmbH</b> hereby confirm that the designated product complies with the following directives on the harmonisation of the laws.		
a.) <b>Elektromagnetische Verträglichkeit / EMC (2014/30/EU vom 26. Februar 2014)</b> Folgende Normen werden eingehalten / Applied harmonised standards : EN 50083-2: 2012 61000-3-2: 2014; 61000-3-3: 2013 ETSI EN 300386 V1.6: 2012		
b.) <b>Niederspannungsrichtlinie / Low Voltage Directive (2014/35/EU vom 26. Februar 2014)</b> Folgende Normen werden eingehalten / Applied harmonised standards : EN 60728-11: 2010 EN 60950-1:2006 + A11:2009 +A1:2010 + A12:2011 +A2: 2013		
c.) <b>RoHS Richtlinie (2011/65/EU vom 8. Juni 2011)</b> Richtlinie zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten / Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment Folgende Normen werden eingehalten / Applied harmonised standards : EN 50581: 2012		
Ort, Datum : Place/ Date	Nürnberg, den 21. Juni 2016	
Rechtsverbindliche Unterschrift : Binding signature	 Michael Bierschneider Leiter Entwicklung/ Manager Development	

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