

# Control and Remote Control Software

# PSW 1000

V.57

for head-end stations of the standard and profi line

English English

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GSS Grundig SAT Systems GmbH Beuthener Strasse 43 D-90471 Nuremberg Phone: Fax: E-mail: Internet: +49 (0) 911 / 703 8877 +49 (0) 911 / 703 9210 info@gss.de http://www.gss.de/en

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# 2 GENERAL INFORMATION 2.1 MEANING OF THE USED SYMBOLS Meaning Important note -> General note • Performing works

-> The shown illustrations of menus are partly dependent on the cassettes resp. its software versions as well as the used operating system and its settings. Variations are possible.

# 2.2 DESCRIPTION

The PSW 1000 software allows to configure, record and store the settings of head-end stations / plants of the standard and profi lines online as well as off-line.

# —> All settings (with exception of the "direct control via the virtual control unit") first will be done in the PSW 1000 software (random access memory – RAM of PC) and must be finally transferred to the plant ("send data")!

All current cassettes and head-end stations of the standard and profi lines can be controlled with a PC directly via the serial COM port interface of the headend station, or remote controlled via a modem, a GSM mobile phone or via Ethernet by using a corresponding management system.

# <u>Software updates:</u>

Always keep the software versions of the head-end stations and the PSW 1000 up-to-date in order to be able to configure also the newest products.

- -> The most recent version can be downloaded from "www.gss.de/en". If you do not have Internet access, we will send you a DVD on request.
- -> Software updates for head-end stations and cassettes can be done with the BEflash software.

# 2.3 PC SYSTEM REQUIREMENTS

System requirements for the PSW 1000 software:

Microsoft .NET Framework 3.5 (can be downloaded from Microsoft free of charge).

-> During the installation of the PSW1000 it is checked whether .NET F 3.5 is installed in the system, and if not the download from Microsoft will be offered. Without this, PSW1000 can not be installed!

- Supported operating systems (32/64 Bit): Windows Server 2003, Windows Server 2008, Windows Vista, Windows XP, Windows 7; Windows 8.
- Processor: 400 MHz Pentium Processor or equivalent (Minimum); 1GHz Pentium Processor oder equivalent (recommended).
- RAM: 96 MB (Minimum); 256 MB (recommended).
- Hard Disk: 500 MB free hard disk space.
- Display: 800 x 600, 256 colours (Minimum); 1024 x 768 high color, 32-bit (recommended).
- LAN interface (RJ-45 socket, for remote control via Ethernet).
- Serial interface (RS-232 Sub D, for in-situ operation) .
  - -> For PCs with USB connector (without serial interface), we recommend the DeLOCK "USB 2.0 to Serial adapter" (Product No. 61460).

- Network/Internet access for downloads and remote control via Internet.

#### 2.4 **R**EQUIRED HARDWARE

Only one head-end station can be configured without a management unit. For in situ configuration of the head-end station the PC must be connected to the control unit (RS-232 cable). The head-end station can be remote controlled if a modem is connected to the control unit (BE-Remote) and the modem function is activated in the control unit (see page 43).

In order to remote control more than one head-end stations of a plant via the PSW 1000 software following additional hardware is required (dependent on the kind of connection "router with Internet access" or "modem with phone connection"):

- Management system RCU 1 for remote control via Ethernet of up to two head-end stations or one head-end station + monitoring cassette PSCU 6000/HSCU 6000 or backup system PRS 16/8,

or

- management unit PRCU 8 for remote control via Ethernet (requires an additional LAN adapter) or modem of up to 8 head-end stations, resp. monitoring cassette PSCU 6000/HSCU 6000 or backup system PRS 16/8.

or

- management system PRCU 12 for remote control via Ethernet or modem of up to 12 head-end stations, resp. monitoring cassette PSCU 6000/ HSCU 6000 or backup system PRS 16/8,

	Number of control- lable components	HSCU 6000 PSCU 6000	PRS 16/8	In situ control via COM port	Remote control via modem	Remote control via GSM phone	Remote control via Ethernet
RCU 1	2	• <sup>1</sup> )	• <sup>1</sup> )	_	_	_	•
HRCU 8/PRCU 8	8	•	•	•	•	•	•²)
PRCU 12	12	•	•	•	•	•	•
BE-Remote	1	_	_	•	•) <sup>3</sup>	•) <sup>3</sup>	• <sup>2</sup> ) <sup>3</sup> )

Overview:

<sup>1</sup>) HSCU/PSCU or PRS

GSS

<sup>2</sup>) requires an additional LAN adapter
 <sup>3</sup>) requires a modem adapter (page 18)

# **3** INSTALLING THE SOFTWARE ON A **PC**

# 3.1 Key Code (Activation Code) for the software

A key code is required for the activation of the PSW 1000 software. This can be obtained from your regional authorised distributor.

#### **3.2** INSTALLING THE SOFTWARE

The PSW 1000 software can be downloaded from "www.gss.de/en". If you do not have Internet access, we will send you a DVD on request.

- Unzip the "PSW1000\_Vxx.zip" file and start the "setup\_PSW1000\_Vxx.exe" programme by a double click.
- Select the desired language and click the **OK** button to confirm.



• Select the desired language and click the **OK** button to confirm.



• Start the setup wizard using button "Next >".



- Read the license agreement.
- If you accept the license agreement select "I accept the agreement" and click the "Next >" button.

Setup - PSW1000  Information Please read the following important information before	re continuing.
When you are ready to continue with Setup, click Nex	xt.
Be sure to always use the latest software releases fr 1000 so that you can also configure the latest produ	
Grundig SAT Systems GmbH	ack Next > Cancel

- -> Keep the software version of the PSW 1000 always up-to-date in order to be able to remote control also the newest products.
- -> After installing the PSW 1000 software, update the software for the cassettes if necessary.
- Click the "Next >" button.

GSS

🔤 Setup - PSW1000	- • ×
Select Destination Location Where should PSW1000 be installed?	GSS
Setup will install PSW 1000 into the following folder.	
To continue, click Next. If you would like to select a different folder, cli	ck Browse.
C:\Program Files\GSS\PSW 1000	Browse
At least MB of free disk space is required.	
Grundig SAT Systems GmbH	
http://www.gss.de/ <back next=""></back>	Cancel

- Specify the directory in which the PSW 1000 should be installed (e.g. C:\Programme\GSS\PSW1000).
- Click the "Next >" button.

setup - PSW1000	- • ×
Select Start Menu Folder Where should Setup place the program's shortcuts?	GSS
Setup will create the program's shortcuts in the following Start I	Menu folder.
To continue, click Next. If you would like to select a different folder, click	Browse.
GSS	Browse
Grundig SAT Systems GmbH	
http://www.gss.de/	Cancel

- Enter a name for the shortcut to the programme which will be created in the start menu.
- Click the "**Next >**" button.

Ready to Install Setup is now ready to begin insta	lling PSW1000 on your computer.	
Click Install to continue with the i change any settings.	nstallation, or click Back if you want to re	eview or
Destination location: C:\Program Files\GSS\PSW1	000	*
Start Menu folder:		
		-
4		F.

• Click on "**Install**" in order to proceed with the installation of the programme, or on "**Back**" to make corrections or changes.



- -> The installation progress is shown.
- Click on "Finish", to complete the installation.

# 4 **BASIC CONFIGURATION OF THE PLANT**

#### 4.1 IN SITU OPERATION (DIRECT CONNECTION)

Via direct connection it is possible to control the head-end station more comfortable than via the control unit. In addition the configuration can be stored on the PC.



- Connect the RS-232 interface 1 on the control unit with the serial interface (e.g. COM 1) on the PC using the supplied cable 2.
  - -> For PCs with USB connector (without serial interface), we recommend the DeLOCK "USB 2.0 to Serial adapter" (Product No. 61460).



#### 4.2 REMOTE CONTROL VIA MODEM WITHOUT MANAGEMENT SYSTEM

Head-end stations can be remotely configured if a PC with a modem is used (alarm messages, timer function and the control of a backup system are not possible). If a GSM modem is selected, the control unit transmits the PIN to the modem. It is also necessary to set the PIN for the SIM card to "0000".



- Plug the connection cable (2) into the RS-232 interface on the control unit (1).
- Plug the cable (2) into the modem adapter (3) and tighten the fastening screws.
- Plug the modem adapter (3) into the serial interface (RS 232) on the modem and tighten the fastening screws.

-> Connection cable and modem adapter are available on request.

- Using a standard telephone cable (4), connect the modem to a phone jack (only for analogous modem).
- Activate the modem operation via the menu of the control unit for the headend station.
  - -> Therefore observe the assembly instruction of the head-end station.
  - -> Deactivate modem operation (OFF) in order to remote control via a management unit or to control in situ (PC is connected directly).

# 4.3 REMOTE CONTROL VIA MANAGEMENT SYSTEM

The basic configuration of the plant depends on the kind of connection (Internet, phone, RS-232) and the management system used.

It must be done during the installation of the management system and is therefore described in its assembly instruction.

# 5 CONNECTION TO THE PLANT

#### 5.1 REQUIREMENTS

The basic configuration of the used management system must already be done during its assembly.

-> Therefore observe the assembly instruction of the management unit.

- Start the PSW 1000 software.
  - -> A key code is required for the activation of the programme. This can be obtained from your regional authorised distributor.

PSW1000			
	Please enter th	ne activation key:	
	V OK	Demo	

- -> Via the "Demo" button a Demo Version with limited functions can be started. "Export", "Save plant", "Print plant", "Control unit" as well as "Send data" are locked.
- Click the "OK" button when entered the 25 key code.
- -> Via menu Extras > Language select the language of the menus.



-> Via menu Help > Help you reach the operating instruction (PDF). The menu Help > Info on PSW 1000 shows the software version.

## 5.2 CONNECTION VIA COM PORT (IN SITU CONNECTION)

(not possible with RCU 1)

Click the 🔎 button.

-> The "Connection settings" window is activated.

- Select tab "COM".
  - -> All in your system existing Com ports are listed. If there are no interfaces shown, start a search with button .

🔎 Con	nection settings
🗯 📇	里 ②
COM	Modem Ethemet
Inter	face
	(COM3) •
	V OK X Cancel

- Select the corresponding COM port.
  - --> Via the Windows Device Manager > Ports (button >>> ) you get information about the COM port which is used by an USB-RS-232 adapter.
- Click on button "OK".



-> The connection will be activated.
-> The connecting button changes from 10 to 10.

## 5.3 CONNECTION VIA MODEM

• Click the 🔎 button.

-> The "Connection settings" window is activated.

- Select tab "Modem".
- At "Settings" select the connection protocol which corresponds to your modem connection installed at your PC.
- At "Phone number" enter the phone number of the modem which is connected to the management system / head-end station.
- If necessary enter the "Waiting time at call" for call and recall.
- Click on button "OK".

-> At connection via modem the phone status is shown.

Modem connection to the control unit:

- -> If the modem is connected **directly** to the control unit of a head-end station (via a modem adapter), no password is requested.
- -> The connection will be activated.
- -> The connecting button changes from Je to Je.

Modem connection to a management system:

-> If the modem is connected to a management system, a password will be requested (if set).



- 21	-
------	---

a 🗐 🖉 🔞
COM Modem Ethemet
Settings
SSTP 🔻
Phone number
Waiting time at call:
Waiting time at call: 80 🛫 sec.
V OK K Cancel



- If a password was set before enter the password (case-sensitive).
- Click on button "OK".
  - -> The connection will be activated.
  - -> The connecting button changes from \_\_\_\_\_ to \_\_\_\_.
  - -> The password setting is to be done in menu Plant settings > Security (page 82).

🔽 Plant	settings	;			
File	Plant	Help			
G		- +	1	2	
Plant	Security	Connect	tion Alan	n	
Config	uration	protecti	n		
New	password	H			Ept
Repe	at passw	ord			
			_		
				Save password	đ

# 5.4 CONNECTION VIA ETHERNET

Click the Let button.

-> The "Connection settings" window is activated.

- Select tab "Ethernet" and enter
  - at a connection via a local network the IP address and the port of the management system e.g. IP 192.168.0.120 and port 60003.
  - at a connection via the Internet the "external" (public) IP address of the router or its "dynamic DNS account" and the port of the router, for which port forwarding to the management system is configured e.g. IP 212.20.172.0 and port 59999.

- -> For remote control via Internet the router of the management unit must be connected to the Internet. In addition its "public" IP address with which it is connected to the Internet must be known.
- -> Port forwarding must be set for the port you set during LAN configuration at the router of the management unit.
- -> Observe the operating instructions of the router.

#### Connection via LAN adapter:

- Klicken Sie auf die Schaltfläche "OK".
  - -> If the connection is done via a LAN adapter which is connected directly to the control unit of a head-end station (via a modem adapter), no password is requested.
  - -> The connection will be activated.
  - -> The connecting button changes from \_\_\_\_ to \_\_\_\_.

Connection via a management system:

- -> If the modem is connected to a management system, a password will be requested (if set).
- If a password was set before enter the password (case-sensitive).
- Click on button "OK".



If no password is set, the following message appears:

Management Unit	×
Note: Password is not set.	
ОК	

• Click on button "OK".

-> The connecting button changes from 🔎 to 🔎.

If you have entered a wrong password, the following message appears:

🔑 Password	×
Enter pass	sword:
🗸 ОК	X Cancel

- Enter the password (case-sensitive).
  - -> The connecting button changes from Je to Je.
  - -> The password setting is to be done in menu Plant settings > Security (page 82).

Bart Security Connection Alam      Configuration protection      New password      Repeat password	Flant         Security         Connection         Alam           Configuration         protection         New password         Ip/In	File	Plant	Help			
Configuration protection New password	Configuration protection     New password     Repeat password	G		+	t	2	
New password	New password	Plant	Security	Connec	tion	Alarm	
	Repeat password	Confi	guration	protecti	on		
Repeat password		New	password				Epti
		Rep	eat passwo	ord			



# 6 CONTROLLING THE PLANT

- -> Functions/settings, currently not available (e.g. management unit does not support this function etc.) are disabled.
- -> All settings (with exception of the "direct control via the virtual control unit") first will be done in the PSW 1000 software (random access memory – RAM of the PC) and must be sent finally to the plant (" send data")!

# 6.1 READ DATA (CONFIGURATION)

Via this function the current configuration of the plant can be imported into the programme.

• Click the 🦺 button.



- Select which data should be imported.
- Select whether "everything", or only the selection (choice) should be overwritten.
  - -> For example: If only one cassette together with "overwriting everything" is selected, all the data of the other cassettes will be deleted in the configuration data of the PC.
- Click on button "OK".

-> The selected data will be imported.



 $-\!\!\!>$  After reading the main window of the plant is shown. e.g.  $\ldots$ 

PSW1000			
File Plant Edit Extras Help	Detail of choice Choice list Complete list IPTV		
Anlage           Image           Image<	Parameter Plant Location Street Connection RCU 1 Software version Ethernet IPadress Pot Mask Gateway HTTP Pot HTTP VersLogin Alarm E-Mail outgoing mail server (SMTP) SMTP Pot User Password Subject	Value Musterstadt Musterstadt 1212.20.172.0.59999 192.168.0.200 60003 255.255.255.0 192.168.0.1 80 RCU1 25	
C:\Users\Documents\PSW1000\BERs\Ethernet_C:	ssettes.ber	http://	www.kopfstation.de/ http://www.qss.de/

# 6.2 START PAGE

200 PSW1000			_ • ×
File Plant Edit Extras Help		🕆 🔎 🔍 隆 🕅 🖗 🚣 🗐 🞯	
	Detail of choice Choice list Complete list	IPTV Supervision list Portfolio of cassettes	
Anlage 	Parameter Plant	Value	
□ [C02] HADA 5100 SPTS □ [C02] HADA 5100 SPTS □ [C03] HDE 210 □ [C04] HDTV 1000 S	Location Street Connection	Musterstadt Musterweg 1 212.20.172.0:59999	
[C05] HDMT 1000 MPTS     [C06] HDMT 1000 SPTS	RCU 1 Software version	£16.20.17£.0.30303	
	Ethernet IP-adress Port	192.168.0.200 60003	
[C10] HMPT 1000 T     [C11] HMPT 1000 FM     [C11] HMPT 1000 FM     [C12] HSPT 1000 C	Mask Gateway HTTP Port	255.255.255.0 192.168.0.1 80	
□ [C13] HSPT 1000 T [C14] <free> [C15] <free></free></free>	HTTP User Login	RCU1	
[C16] <free></free>	Alarm E-Mail outgoing mail server (SMTP)		
	SMTP Port User	25	
	Password Subject		
< •			
C:\Users\Documents\P5W1000\BERs\Ethernet_Ca	ssettes.ber	http://www.ko	pfstation.de/ <u>http://www.qss.de/</u>

In the left window (tree chart) the hardware configuration of the plant is shown. Herein select the component of the plant, whose settings you would like to modify resp. about which you would like to get information.

Dependent on the selected tab the right window shows...

- detailed information ("Details of choice", Page 28) or
- basic information ("Choice list" Page 29) of the components selected in the left window, or
- basic information ("Complete list" Page 30) of all fitted cassettes, or
- IP information ("IPTV" Page 31) of all fitted cassettes, or
- the supervision list (Page 98) at installed monitoring cassette, or
- an overview of all compatible components ("Portfolio of cassettes" Page 35) for plannings, search function included.



GSS

The following explains the individual tabs:

-> The buttons of the toolbar are described at its corresponding menus.

## TAB "DETAILS OF CHOICE"

Parameter	Value	
Plant		
Location	Musterstadt	
Street	Musterweg 1	
Connection	212.20.172.0:59999	
RCU 1 Software version		
Ethernet		
IP-adress	192.168.0.200	
Port	60003	
Mask	255.255.255.0	
Gateway	192.168.0.1	
HTTP Port	80	
HTTP User Login	RCU1	
Alarm E-Mail		
outgoing mail server (SMTP)		
SMTP Port	25	
User		
Password		
Subject		

In tab "Details of choice" you get general information about a component selected in the tree chart.

- -> The management system was selected in this example.
- -> The software version is only shown if the configuration was read out from the plant.

TAB "CHOICE LIST"

			Choice list							
s		С	Name	Тур	SW	Input	Mod.	Output	Chan	TS- / ON-ID
		10 A	HMPT 1000 T	IP-MPTS / DVB S2 to		227.40.50	ON	850,000 MHz	C68	
	1	10 B	НМРТ 1000 Т	IP-MPTS / DVB S2 to		227.40.50	ON	858,000 MHz	C69	
•										•

In tab "Choice list" you get an overview about the settings of a component selected in the tree chart.

- -> Cassette 10 of station 1 was selected in this example.
- -> When you call the list the system is checked for conflicts. If Output frequencies are assigned twice, a warning flashes and the affected cassettes are highlighted.
- -> Using the context menu, you can directly access the settings of the affected cassette.
- -> The changes do not take effect until they are sent to the plant  $\uparrow$ .

#### TAB "COMPLETE LIST"

										_
s	С	Name	Тур	SW	Input	Mod.	Output	Chan	TS- / ON-ID	
1	10 A	HMPT 1000 T	IP-MPTS / DVB S2 to		227.40.50	ON	850,000 MHz	C68		
1	10 B	HMPT 1000 T	IP-MPTS / DVB S2 to		227.40.50	ON	858,000 MHz	C69		
1	11 A	HMPT 1000 FM	MPTS to FM		227.40.50	OFF				
1	11 A	HMPT 1000 FM	MPTS to FM		227.40.50	OFF				
1	11 A	HMPT 1000 FM	MPTS to FM		227.40.50	OFF				
1	11 A	HMPT 1000 FM	MPTS to FM		227.40.50	OFF				
1	11 A	HMPT 1000 FM	MPTS to FM		227.40.50	OFF				
1	11 A	HMPT 1000 FM	MPTS to FM		227.40.50	OFF				
1	11 A	HMPT 1000 FM	MPTS to FM		227.40.50	OFF				
1	11 A	HMPT 1000 FM	MPTS to FM		227.40.50	OFF				
1	11 A	HMPT 1000 FM	MPTS to FM		227.40.50	OFF				
1	11 A	HMPT 1000 FM	MPTS to FM		227.40.50	OFF				
1	11 A	HMPT 1000 FM	MPTS to FM		227.40.50	OFF				
1	11 A	HMPT 1000 FM	MPTS to FM		227.40.50	OFF				
1	11B	HMPT 1000 FM	MPTS to FM		227.40.50					
1	12 A	HSPT 1000 C	SPTS to QAM			ON	850,000 MHz	C68		
1	12 B	HSPT 1000 C	SPTS to QAM			ON	858,000 MHz	C69		
1	13 A	HSPT 1000 T	SPTS to COFDM			ON	850,000 MHz	C68		
1	13 B	HSPT 1000 T	SPTS to COFDM			ON	858,000 MHz	C69		
•			III							Þ.
					frequency assignn					

In tab "Complete list" you get an overview about all cassettes of the plant.

- -> When you call the list the system is checked for conflicts. If Output frequencies are assigned twice, a warning flashes and the affected cassettes are highlighted.
- —> You can change the sort order by clicking to the corresponding column headings. For example, if you will click to the column heading "Output", all cassettes with the same output frequencies (conflicts) will be shown together.
- -> Using the context menu, you can directly access the settings of the affected cassette.
- -> The changes do not take effect until they are sent to the plant  $\uparrow$ .



# TAB IPTV

# HARDWARE IP ADDRESSES (NETWORK CONFIGURATION)

In tab "Network Configuration" you get an overview about the hardware IP addresses of the plant.

IP IP	192.168.0.12	8 Port	60000	)		DHO	CP	Options		
Netmask			vay 192.1	192.168.0.1				V Autosort		
-Address	Netmask	Gateway	Port	DHCP	s	С	Cassette			
92.168.0.120	255.255.255.0	192.168.0.1	60003	-	-	-	RCU 1			
92.168.0.128	255.255.255.0	192.168.0.1	60000	OFF	1	4	HDTV 1000 S (DVB-S2 1	to SPTS)		
92.168.0.128	255.255.255.0	192.168.0.1	60000	OFF	1	5	HDMT 1000 MPTS (DVB	-T to MPTS)		
92.168.0.128	255.255.255.0	192.168.0.1	60000	OFF	1	6	HDMT 1000 SPTS (DVB	-T to SPTS)		
2.168.0.128	255.255.255.0	192.168.0.1	60000	OFF	1	7	HDTV 1000 MPTS (DVB-S2 to MPTS			
92.168.0.128	0.128 255.255.255.0 192		60000	OFF	1	8	HDTV 1000 SPTS (DVB-	S2 to SPTS)		
192.168.0.128 255.255.255.0 19		192.168.0.1	60000	OFF	1	11	HMPT 1000 FM (MPTS 1	o FM)		
92.168.0.128	255.255.255.0	192.168.0.1	60000	OFF	1	12	HSPT 1000 C (SPTS to	QAM)		
92.168.0.128	255.255.255.0	192.168.0.1	60000	OFF	1	13	HSPT 1000 T (SPTS to	COFDM)		

# Example: IPTV addresses with conflicts



- -> "Hardware" IP addresses, over which the components are connected in the network (e.g. 192.168.0.x) must be within the "private" range from 10.0.0.0 to 10.255.255.255, 172.16.0.0 to 172.31.255.255 resp. 192.168.0.0 to 192.168.255.255.
- -> When you call the list the system is checked for conflicts. If IP addresses are assigned twice, a warning flashes and the affected addresses are highlighted.
- —> You can change the sort order by clicking to the corresponding column headings. For example, if you will click to the column heading "IP-Address", all cassettes with the same IP address (conflicts) will be shown together.

If you select a row in the table, you can change this settings directly in the area above of the table. Store the changes using button **[**.

-> If an "Ethernet password" is assigned to the management system, it will be requested.

If you select a row in the table, you can change - based on this address - all subsequent IP addresses in ascending sequence using button .

- Select, for example, the second row of the table.
- Enter the desired values in the upper area of the window (e.g. IP address 192.168.0.130, Gateway 192.168.0.1)
- Start the automatic IP setting for all cassettes using button 🚳.

PTV-Configuration	Network Configura	IPTV								
IP         0.0.0.0           IP         0.0.0.0           Netmask         0.0.0.0		Port 0 Gateway 0.0.0.0				DHO	CP	Options V Autosort		
IP-Address	Netmask	Gateway	Port	DHCP	s	С	Cassette			
192.168.0.120	255.255.255.0	192.168.0.1	60003	-	-	-	RCU 1			
192.168.0.130	255.255.255.0	192.168.0.1	60000	OFF	1	4	HDTV 1000 S (DVB-	/B-S2 to SPTS)		
192.168.0.131	255.255.255.0	192.168.0.1	60000	OFF	1	5	HDMT 1000 MPTS (DVB-T to MPTS)			
192.168.0.132	255.255.255.0	192.168.0.1	60000	OFF	1	6	HDMT 1000 SPTS (DVB-T to SPTS)			
192.168.0.133	255.255.255.0	192.168.0.1	60000	OFF	1	7	HDTV 1000 MPTS (DVB-S2 to MPTS)			
192.168.0.134	255.255.255.0	192.168.0.1	60000	OFF	1	8	HDTV 1000 SPTS (DVB-S2 to SPTS)			
192.168.0.135	255.255.255.0	192.168.0.1	60000	OFF	1	11	HMPT 1000 FM (MP	TS to FM)		
192.168.0.136	255.255.255.0	192.168.0.1	60000	OFF	1	12	HSPT 1000 C (SPTS	to QAM)		
192.168.0.137	255.255.255.0	192.168.0.1	60000	OFF	1	13	HSPT 1000 T (SPTS	to COFDM)		
•								•		

# Example: IPTV addresses without conflicts

- -> In the example the IP addresses of rows 3 to 9 are assigned to 192.168.0.131...137. The netmask, gateway and port settings will be transferred to all cassettes. Also the DHCP setting will be transferred if it is supported by the cassette.
- -> The changes do not take effect until they are sent to the plant  $\uparrow$ .

You can export the IP address list as text file via button 🔝.

# IPTV IP ADDRESSES (MULTICAST IP ADDRESSES)

In tab "IPTV-Configuration" you get an overview about the IPTV IP addresses of all cassettes of the plant.

IPTV-Conf	figuration Ne	twork Configura	IPTV tion											
74	IP Protocol FEC-L	227.40.50.2 UDP Annex A	<ul><li>RTP</li><li>Anne</li></ul>	ex B off	•		1 ackets 7 lode ON	234					Autosort 'Mode OFF'	
IN-IP	0	JT-IP	Port	Protocol	XPTS	TS Pcts	A/FEC	Mode	s	С	L	No.	Service(s)	
	22	27.40.50.1	1234	UDP	SPTS	7	off	OFF	1	4	1	1		
	22	27.40.50.2	1234	UDP	SPTS	7	off	OFF	1	4	1	2		E
	22	27.40.50.3	1234	UDP	SPTS	7	off	OFF	1	4	1	3		
	22	27.40.50.4	1234	UDP	SPTS	7	off	OFF	1	4	1	4		
	22	27.40.50.5	1234	UDP	SPTS	7	off	OFF	1	4	1	5		
	22	27.40.50.6	1234	UDP	SPTS	7	off	OFF	1	4	1	6		
	22	27.40.50.7	1234	UDP	SPTS	7	off	OFF	1	4	1	7		
	22	27.40.50.8	1234	UDP	SPTS	7	off	OFF	1	4	1	8		
	22	27.40.50.9	1234	UDP	SPTS	7	off	OFF	1	4	1	9		
	22	27.40.50.10	1234	UDP	SPTS	7	off	OFF	1	4	1	10		
	22	27.40.50.11	1234	UDP	SPTS	7	off	OFF	1	4	1	11		
	22	27.40.50.12	1234	UDP	SPTS	7	off	OFF	1	4	1	12		
	22	27.40.50.60	1234	UDP	MPTS	7	off	ON	1	5	1	1		
	22	27.40.50.61	1234	UDP	MPTS	7	off	ON	1	5	2	1		
	22	27.40.50.62	1234	UDP	SPTS	7	off	ON	1	6	1	1		-
•		I	11										+	

Warnung: IP-address conflict

- -> "IPTV" IP addresses, which are used to send and receive the IPTV channels (e.g. 227.40.50.x) must be within the "multicast" range from 224.5.0.0 ... 231.255.255.255.
- -> Analogous to tab "Network Configuration" (Page 31) also the following functions are available:
  - Check for conflicts (OUT-IP)
  - Alerts are issued
  - Changing the sort order
  - Changing of settings
  - Automatic IP assignment 🝥

-> The changes do not take effect until they are sent to the plant  $\uparrow$ .

-> The column names "S", "C", "L" and "No." mean Station, Cassette, Line and IP address no.

You can export the IP address list as text file via button 🔝.



#### **O**PTIONS

Options	
Autosort	
Mode OFF'	
(UTF-8)	

Autosort:

By default the list of the IP addresses is sorted by columns S/C/L/No. (Station/ Cassette/Line/Number). Via the column headers the sorting can be changed. If "Autosort" is checked, the list will be resorted by S/C/L/No. if any changes are stored by button .

Uncheck "Autosort" if you do not want the automatic sorting function.

"Mode OFF" (only tab "IPTV-Configuration"):

In column "MODE" it is displayed, which IP addresses are "active" (ON) or "inactive" (OFF).

If "Mode OFF" is unchecked, all inactive IP addresses are hidden.

Export IP addresses:

You can export the list of IP addresses as text file in the "UTF-8" file format via button 🔊.

-> This UTF-8 export has been integrated in order to generate an "IPTV channel list", which can be imported in the Multimedia Server Cassette HSMS 100/PSMS 1000.

#### TAB "SUPERVISION LIST"

In tab "**SUPERVISION LIST**" you get an overview about all monitored channels/ frequencies if a monitoring cassette is used, which can also be exported in form of a ".txt" file by button <u>Export</u>.

Via the context menu you can open the settings of the (see also Page 98).

-> If an error occurs a warning flashes.

# TAB "PORTFOLIO OF CASSETTES"

In tab "Portfolio of cassettes" you get an overview of all cassettes which can be controlled via the PSW 1000. A "+" indicator in the columns signals, that the cassette has the appropriate functionality.

	F	Portfolio of casset	tes						
Filter									
Name	In: <all></all>	▼ Out: <all> ▼</all>							
Category Standard Profes	sional 🔲 Management						13		
Name	Туре	NIT/LCN	Filter (Pass)	SID Remap	PID Remap	Logbook			
HDTV 1000 ASI LAN	QPSK to QAM ALL	+	+	+	+	+			
HDTV 1000 ASI D	QPSK to QAM ALL	+	+	+	+	+			
HDMC 1000 C	QPSK/COFDM to QAM ALL	+	+	+	+	+			
HDMC 1000 T	QPSK/COFDM to COFDM	+	+	+	+	+			
HDTV 1000 FM	QPSK to FM		+			+			
HDMC 1000 FM	QPSK/COFDM to FM		+			+			
HMPT 1000 FM	MPTS to FM								
HDTV 1001 C	DVB-S2 to QAM (scrambling)	+	+	+		+			
HDMT 1000 ASI LAN	COFDM to QAM ALL	+	+	+	+	+			
HDMT 1001 C	COFDM to QAM (scrambling)	+	+	+		+			
HDTV 1000 T	DVB-S2 to COFDM ALL	+	+	+	+	+			
HDTV 1001 T	DVB-S2 to COFDM (scrambling)	+	+	+		+			
HDMT 1000 T	COFDM to COFDM	+	+	+	+	+			
HDTV 1100 T / HDTV 1200	QPSK to COFDM ALL	+	+	+		+			
HDTV 1200 C CI	QPSK to QAM ALL	+	+	+		+			
	DVR-97 to MDTS	-	1	+	-	± ,			

In section "Filter" you can enter filter settings, in order to limit the result:

- Input field "Name" limits the result to assigned product names.
   The input of e.g. HDTV 1000 returns as result all cassettes of this type.
- Using the selection field "In:" resp. "Out:" you can limit the result to cassettes which can handle the corresponding input resp. output signals.
   The button resets all filter settings.

In section "Category" you can filter for the corresponding category/categories.

At the right side the number of results is shown (128 in this example).

#### 6.3 START PAGE - TOOLBAR

The following functions can be called up directly via buttons:

- Ċ Exits the program Opens a saved configuration (plant) - Page 37 -Saves the current configuration – Page 38 λ. Saves the current configuration under a new name - Page 38 Prints the current configuration - Page 39 Opens the "Plant Settings" window - Page 81 (+) \* Opens the "Timer" window - Page 90 \* Opens the "Station configuration" window - Page 95 \* Opens the "Redundant Power Supply" window - Page 96 \* Opens the "Settings" window- Page 46 \* Opens the "Filter" window - Page 52 N \* Opens the "create NIT" window - Page 65 \* 🔊 Opens the "NIT (Expert Mode)" window – Page 68 N Opens the "copy NIT" window - Page 78 ł Reads the data of the connected plant - Page 41 Calls up the virtual control unit – Page 43 Sends the current configuration to the plant – Page 42 1 Establishes a connection to the plant – Page 44 10 Deactivates a connection - Page 44 9 Checks various parameters of the configuration - Page 45 DH Decimal <-> hexadecimal presentation/entering of IDs - Page 51 P Calls up the "Service List Management" (SELMA) – Page 109 A To playback an IPTV stream – Page 117 ۲, Searches for programme updates - Page 121.
- Calls up the operating instruction Page 119.
  - \*) A component, which supports this function, must be selected/ present in the left section (tree structure).
#### 6.4 MENU FILE - ADMINISTRATE THE CONFIGURATION DATA

Via menu "File" the data of the configuration held in the main memory can be administrated.



All changes/configurations, done in the PSW 1000, first are held in the temporary random access memory (RAM). Save the configuration data (recommended) so that they can not be lost.

File			
	Open plant	Strg+O	
	Save plant	Strg+S	
Z	Save plant as	Strg+U	
	Close plant	Strg+W	
P	Last used files		•
	Print plant	Strg+P	
	Print plant Export	Strg+P	
		Strg+P Strg+X	

#### 📄 OPEN PLANT

In this menu the saved data of a plant can be loaded into the PSW 1000.

• Select menu item File > Open plant.

-> This function can also be selected by button 🚞.

	<ul> <li>Documents          <ul> <li>My Documents              <li>PS\</li> </li></ul> </li> </ul>		• <del>•</del>	Search PSW1000	
Organize 🔻 New folder				100	
Eigene Dokumen * Eigene Places	Documents library PSW1000			Arrange by: F	older 🔻
Eigene Videos GSS	Name	Date modified	Туре	Size	
	3 BERs	26.03.2012 14:13	File folder		
🥃 Libraries 🗧	081210	08.12.2010 12:35	PSW1000 BER-file	25 KB	
Documents	201011	20.10.2011 13:26	PSW1000 BER-file	28 KB	
My Documents	<b>I</b> 1312011	13.10.2011 09:45	PSW1000 BER-file	25 KB	
PSW1000	🔤 aktuell	21.11.2011 10:50	PSW1000 BER-file	16 KB	
	🏧 Anlage 1	08.09.2010 07:36	PSW1000 BER-file	17 KB	
	🎫 Anlage 2	04.10.2010 07:11	PSW1000 BER-file	23 KB	
	🔤 Anlage 3	04.10.2010 10:26	PSW1000 BER-file	23 KB	
	🏧 Anlage 4	07.10.2010 11:13	PSW1000 BER-file	24 KB	
	Anlage Musterstadt	29.03.2012 09:43	PSW1000 BER-file	23 KB	
	Ethernet_Cassettes	29.03.2012 08:10	PSW1000 BER-file	22 KB	
Ψ.	🔤 max mustermann	26.03.2012 14:22	PSW1000 BER-file	89 KB	
File na	me:		•	Plant files (*.ber)	

Select a plant and confirm with button pen .

-> The saved data are loaded into the programme (RAM).

SAVE PLANT

In this menu the current configuration can be saved (backup).

- Select menu item File > Save plant.
  - -> This function can also be selected by button .
  - -> The configuration data loaded in the RAM will be saved.
  - -> At new prepared or read data the menu "Save plant as..." appears if a filename is not yet assigned.

## 📕 SAVE PLANT AS...

In this menu the current configuration can be saved with a different file name (variant).

Select menu item File > Save plant as.....

-> This function can also be selected by button 漏.

- -> The menu "Save plant as..." appears.
- If necessary select a different folder, enter a file name and save the file with button Save.

### CLOSE PLANT

In this menu you can close (cancel) the current configuration.

• Select menu item File > Close plant.



Confirm the warning with button Yes

LAST USED FILES

In this menu, you have direct access to recently used files.

-> Not saved data will be lost!

• Select menu item File > Last used files > "the file".

Last used files	6	C:\Users\\Documents\PSW 1000\Anlage Musterstadt.ber Strg+L		
	Û	Delete list		

-> The saved data are loaded into the programme (RAM).

## **PRINT HEADEND CONFIGURATION PROTOCOL**

In this menu a protocol of the current configuration can be printed.

- Select menu item File > Print plant.
  - -> This function can also be selected by button 📠.
  - -> A "Print preview" window appears.
  - -> In the main section of the window the print preview dependent on the selected settings is shown.
- Select all settings to be printed in section "Choice".
- Start printing with button

#### **HTML S**TORE THE CONFIGURATION **P**ROTOCOL AS **HTML** FILE

• Store the configuration protocol as HTML file with button **HTML**.

-> The print preview can be cancelled with button
 G.



Export 🔍

In this menu parts of the configuration can be exported as a text file.

• Select menu item File > Export.



- Select the part to be exported. For the points "system settings" up to "timer", you can select which separator (tabulator or semicolon) shall be added, for a column view.
- Export the file using button vok
   Enter a file name and the path of the memory location in the appearing "Save as" window in order to store the file.

#### 🕛 Ехіт

With this menu item you can exit the programme.

-> Attention: Unsaved changes will be lost.

Select menu item File > 🕐 Exit or button 🕐.

## 6.5 MENU PLANT - COMMUNICATION PROGRAMME <-> PLANT

The communication with the plant is done via menu "Plant".



All settings first will be done in the PSW 1000 software (RAM of the PC). In order to get it "active" at the plant the configuration data must be sent finally to the plant (" Send data")!

Plan	t	
♣	Read data	Strg+Down
1	Send data	Strg+Up
	Control unit	Strg+C
₽	Establish a connectio	n Strg+J
9	Reset Controlunit	Strg+R
9	Check parameters	

👆 🖶 🕹

In this menu you can read the configuration data out of the plant into the programme (RAM).

- Select menu item Plant > Read data.
  - -> This function can also be selected by button ->
  - -> If there is no connection to the plant, the menu "Connection settings" appears. For a detailed description of this menu see chapter 5 "Connection to the plant" (Page 19).

	🕀 Read data 📃 💌
GSS	Plant RCU 1 Station V Timer  Overwrite everything
Check Plant	
Cancel	V OK X Cancel

- -> At **the first reading via a COM interface after a PC restart** incorrect data may be displayed. In this case click to button **Cancel** and then to button **J** again.
- Select which data of the head-end station should be read.
  - -> By default all checkboxes are selected  $\overline{\mathbb{V}}$ .
  - -> If you would like to read out only one or a few components, uncheck box "plant" (all components are deselected) and then select the desired components. The checkbox "Overwriting everything" will be deactivated, checkbox "Overwriting choice" will be activated.

  - -> To select all the components again, check the box "Overwriting everything".





In this menu you can send the configuration data out of the PC into the plant.

- Select menu item **Plant > †** Send data.
  - -> This function can also be selected by button 👚.
  - -> If there is no connection to the plant, the menu "Connection settings" appears. For a detailed description of this menu see chapter 5 "Connection to the plant" (Plant 19).



- Select which data should be sent into the head-end station (1977).
- Start the process using button \_\_\_\_\_\_.





#### CONTROL UNIT

In this menu you receive a "virtual" control unit in order to operate the plant via the PC.

- Select menu item Plant > 🔚 Control unit.
  - $\rightarrow$  This function can also be selected by button  $\prod$ .
  - -> If there is no connection to the plant, the menu "Connection settings" appears. For a detailed description of this menu see chapter 5 "Connection to the plant" (Page 19).
  - -> This feature is disabled in the demo version.

Controlunit 1	~
	x
File Station Help	
BE-Remote V 44	
REMOTE	
KEMOTE	
Main menu	
7 8 9	
MULTI MODE	
4, 5 6,	
1 2 3	
VIDEO AUDIO	
[192.168.0.200:60003]	

Via this menu the control unit of the plant can be remote controlled. If several stations are connected select the corresponding control unit in menu "Station". The keys of the figure are designed as buttons (mouse control).

In order to activate the system information menu click on button

In addition operation via the number keypad of the PC is possible. The assignment of the keys is shown in the figure.

Close the menu with menu item **File > G** Exit or button **E**.

#### **E**STABLISH A CONNECTION / **D**EACTIVATE CONNECTION

With this menu item you can establish/deactivate the connection to the plant (toggle function).

- Select menu item Plant > Establish a connection / Deactivate connection.
  - -> This function can also be selected by button  $\mathcal{P}/\mathcal{P}$ .
  - -> If there is no connection to the plant (menu " Establish a connection"), the menu "Connection settings" appears. For a detailed description of this menu see chapter 5 "Connection to the plant" (Page 19).
  - -> If there is already an active connection to the plant (menu " Deactivate connection"), the connection will be deactivated.

#### 🔄 Reset Control unit

With this menu item you can restart the control unit.

-> A connection to the plant must be established.

Select menu item Plant > <a>Select Control unit.</a>

-> The number of selectable stations depends on the kind of connection / management unit.

💿 Reset	×
Reset all Stations	
Station 1: STC 1200 (N)	
Station 2: (free )	
V OK X Cancel	

Select the stations, whose control unit is to be reset and confirm with button

#### **CHECK PARAMETERS**

With this menu item you can check the system parameters for conflicts.

• Select menu item **Plant** > **Select** menu item **Plant** > **Check** parameters.

Parameter	Check for	Conflict indication in tab	
Output frequencies	double assignment of output frequencies	Complete list	
Output IPTV	double assignment of IPTV out- put IP addresses	IPTV > IPTV-Configuration	
IP addresses	double assignment of hard- ware IP addresses	IPTV > Network Configuration	
Supervision list (PSCU/HSCU 6000)	deviation from the reference levels (TV analog and digital), BER > 1 e <sup>-4</sup> (TV digital)	Supervision list	
Temperature (only with digital backplane)	exceeding the maximum al- lowable station temperature.	Details of choice (of the station) > Station configuration	

-> This function can also be selected by button  $\mathbb{R}$  .

R Plant - Check parameters	
Output frequencies	~
Output IPTV	<b>~</b>
IP-addresses	×
Supervision list	-
Excess temperature	<b>v</b>
Close	

If there are no conflicts detected, 💜 is displayed. If there are conflicts detected, 💥 is displayed. Not available parameters are displayed by 💻.

> -> In the example no conflict are detected at the output frequencies, IPTV output IP addresses and the temperature. At the hardware IP addresses double assignments are detected. A monitoring cassette does not exist.

#### 6.6 MENU EDIT - PLANT CONFIGURATION

All necessary tools for configuring the plant are included in menu "Edit":



All settings (with exception of the "direct control via the virtual control unit") first will be done in the PSW 1000 software (random access memory – RAM of the PC). In order not to loose the configuration data it should be saved (recommended).

To get it "active" at the plant the configuration data must be sent finally to the plant ("Send data")!



#### 📻 Settings

Via this menu a component marked in the left window (tree structure) can be configured.

- Select the component to be configured in the left window (tree structure).
- Select menu item Edit > = Settings.
  - -> This function can also be selected by button := or the context menu (right mouse button).
  - -> If a plant is selected, the menu "Plant settings" appears (see Page 81).
  - -> All settings to be done via the control unit are possible.

As the settings (and therefore the menus) of the individual cassettes are quite different, cassette HDTV 1000 ASI LAN (PHDQ 1000 ASI LAN) is described exemplarily in this instruction.

-> The changes do not take effect until they are sent to the plant  $\uparrow$ .

#### EXAMPLE:

Station 1, Cassette 5 - HDT	V 1000 ASI (TPM32) (PSV	V1000)	<b>—</b> ×
File Plant Edit Help			
G 🔸 🖬 🕇 🦷	🗏 🗐 🔮 🛃 💡 —	D <sub>H</sub> 🔺	
Line A Line B Line ASI			
Input			]
Satellite Name	Astra 1H 👻	LNB Frequency [MHz]	10600 -
Transmitter Name	ARD Digital 👻	Frequency [MHz]	< <tr>         11836</tr>
		IF Frequency [MHz]	1236,0
TS-/ON-ID: 0x0453 / 0x000	1	Symbol Rate [MS/s]	27,500 ▼
C/N (reserve): 15,3 dB (11,3	dB)	Default DVB-Mode	DVB-S 🔻
Output			
Channel	€67 ▼	Symbol Rate [MS/s]	6,900
Modulator Level	-3	QAM	256 -
	<	Spectrum	nomal 🔻
V Filter		Failure	Single Carrier 🔻
NIT NIT		TS-/ON-ID 0	( 0001 0x 0100
Modulator		Drop PID	( 0000

In the example the menu contains three submenus (tab - Line A, Line B and Line ASI). In section "Input" of "Line A(B)" all settings for tuner input A(B), in section "Output" all settings for the modulator output A(B) are to be done. "Line ASI" contains all settings for the ASI output.

In the following figures the input fields are assigned to the corresponding menus of the control unit.

# Section Input Line A/B



In the input fields "Satellite Name" and "Transmitter Name" an optional text (max. 16 character) can be entered.

- -> This text is shown in listings and facilitates the identification of the transponder set.
- -> "Names" can only be stored in an existing management system. At e.g. local connection without management system the "names" are only stored within a ber-file if the complete head-end station is stored (page 38). At renewed processing of the head-end station, first, the stored ber-file must be imported into the PSW 1000, before reading the head-end station.

# Section Output Line A/B



# Section Output "Line ASI"

Bx 4 ASI RATE 108000 KBits	Bx 4 ASI OPTION 188 pos cont.
Output Data rate [MBit/s]	108,000
Data fate [MDit/8]	
Packet Length	
Polarisation	positive
Mode	[cont. •]

-> For further information about the settings observe the assembly instruction of the corresponding cassette.

#### SETTINGS WINDOW - FILE MENU

## G <u>Back</u>

- Via menu item File > Back exit the settings.
  - -> Return to the main window.
  - -> This function can also be selected by buttons G/

#### SETTINGS WINDOW - PLANT MENU

The functions ...

- 🕹 <u>Read data</u>,
- <u>
   Aend data</u> and
- Control unit correspond to the functions in the main menu "Plant" and are described from Page 40 on.

#### SETTINGS WINDOW - EDIT MENU

Filter

The function  $\overline{\mathbb{Y}}$  <u>Filter</u> corresponds to the functions in the main menu "Plant" and is described from Page 52 on.

#### 🖳 <u>Ethernet</u>

GSS

In this menu you can change the network settings of an IPTV cassette.

Ţ	Ethernet Settings		<b>×</b>			
	Station 1 / Cassette 4 : HDTV 1000 S					
	Obtain an IP automatically (DHCP)					
	Output Use the following IP:					
	IP:Port	192.168.0.130	: 60000			
	Netmask	255.255.255.0				
	Gateway	192.168.0.1				
	V OK		Cancel			

- If necessary enter the desired addresses for your network.
- If the cassette shall obtain the IP settings from a DHCP server, activate checkbox 
   Obtain an IP automatically (DHCP).
- Save the settings using button volume

<u>Logbook</u> See page 52.

Export cassette and filter settings

With this menu item you can export the cassette and filter settings.

- Select menu item Edit > 🔜 Export cassette and filter settings.
- Enter a file name, select the target directory and save the file using button
  Save
  .

🚰 Import cassette and filter settings

With this menu item you can import the cassette and filter settings.

- Select menu item Edit > 🔚 Import cassette and filter settings.
- Select the corresponding file and confirm with button open -

-> The saved data will be imported into the programme.

# SELMA

With this menu item you can import the input settings from SELMA or export the input settings to SELMA (page 109).

-> The cassette must support this function.

• Select menu item Edit > SELMA.

-> SELMA is opened in order to select or to store a transponder.

## Settings window - Help menu

P<sub>H</sub> <u>Decimal <-> Hexadecimal</u>

With this menu item you can change the indication (and input) of IDs from Hexadecimal to Decimal numbering system (and vice versa).

Select menu item Help > <sup>D</sup><sub>H</sub> Decimal <-> Hexadecimal or click on button <sup>D</sup><sub>H</sub>.

-> The hexadecimal numbering system always starts with the term "Ox".

# 🛓 <u>VLC</u>

With this menu item you can start the playback of an IPTV stream of an IPTV cassette.

GSS

- -> The "VLC Media Player" must be installed on your PC.
- -> The "VLC.exe" file must be assigned at the first use.
- Select menu item Help > A VLC or click on button A.

#### 📃 Logbook

Via this menu you can call up the logbook of a component, marked in the left window (tree structure).

- Select the desired component in the left window (tree structure).
- Select menu item Edit > []] Logbook.
  - -> This function can also be selected by button []] or the context menu (right mouse button).
  - -> The cassette must support this function.
  - -> The logbook is also displayed in the "main window/detail of choice" if the cassette is selected in the left area (tree diagram).
  - -> Failures and incidents of the cassette are recorded together with date and time (e.g. missing input signal, reset or remote configuration of the cassette). These incidents are shown in the menu window after read out.
  - -> Saving the configuration will also save the log file.

📜 Logbook			
File Logbo	ok		
G 🔶		Û	
Date	Time	Event	
13.04.2012	10:37	Line B CN OK	
13.04.2012	10:37	Line B CN Error	
13.04.2012	10:37	Line B Input OK	
13.04.2012	10:37	Line A FIFO overflow off	
13.04.2012	10:36	Line B Input Error	
13.04.2012	10:36	Line A Input OK	
13.04.2012	10:36	Line A FIFO overflow on	
13.04.2012	10:36	Line A Input Error	
01.01.2000	23:00	Start	

- Click to button in order to read the current log file.
  - A connection to the plant must be activated (1).
     Otherwise menu "connection settings" appears, in order to activate a connection.

- Click to button 🚔 in order to print the log file.
- Click to button 📑 in order to export the log file in form of a .txt file.
- Click to button 👕 in order to delete the log file in the cassette.
  - A connection to the plant must be activated (1).
     Otherwise menu "connection settings" appears, in order to activate a connection.

#### CLEAR ALL LOGBOOKS

Via this menu you can clear all logbooks of the plant.

- Select menu item Edit > []] Clear all logbooks.
  - A connection to the plant must be activated (1).
     Otherwise menu "connection settings" appears, in order to activate a connection.





#### **FILTER**

-> The cassette must support this function.

As the settings (and therefore the menus) of the individual cassettes are quite different, cassette HDTV 1000 ASI LAN (PHDQ 1000 ASI LAN) is described exemplarily in this instruction.

Via this menu you can set the input and output routing as well as e.g. the filtering of the services and PIDs (dependent on the type of cassette). SIDs and PIDs are shown in Hexadecimal or Decimal numbering system ( $P_{H}$ ).

-> The hexadecimal numbering system always starts with the term "Ox".

- Select the cassette to be set in the left window (tree structure).
- Select menu item Edit > 🐺 Filter.

 $\rightarrow$  This function can also be selected by button  $\overline{Y}$  or the context menu (right mouse button).

EXAMPLE:

Filter - Station: 1, Cessette: 5 - HDTV 1000 ASI       Back     Plant       Filter     Measurement       Heip     Image: Comparison of the second secon		PID SID ∰ D <sub>H</sub> ⑧	
Input: A + B + ASI -> 1	ASI	->2 • Output: 1 -> M/	A   2 -> MB   ASI -> ASI ▼
Input A-Pass-Filter (6 Services)		B-Pass-Filter (9 Services)	ASI-Pass-Filter (1 Services)
Service PDB CA TS-Dip CAMAD / ON-ID: CAMOD Service DAMAD / ON-ID: CAMOD Service Service SFS N(SID: 0x6DCE) Service Service SiD: 0x6DCC) Service Service SiD: 0x6DCC Service Service SiD: 0x6DCC Service Service SiD: 0x6DCC Service Service SiD: 0x6DCC Service		Service         IDB           ■         TS-10:0.04037 / ON-ID:0.00001           ⊕         Set (SID: 0x6D67)           ⊕         DKULTUR (SID: 0x6D60)           ⊕         DRado Wissen (SID: 0x6D71)           ⊕         ORAdo Wissen (SID: 0x6D71)           ⊕         QZ DF (SID: 0x6D66)           ⊕         QZ DF (SID: 0x6D66)           ⊕         QZ DF (SID: 0x6D66)           ⊕         ZZ DFinfo (SID: 0x6D66)           ⊕         ZZ DFinfo (SID: 0x6D68)	Service DDa ♥ TS-ID: 0x3302 / ON-ID: 0x2114 ⊕ ♥ Franken Femaelve (SID: 0x4882) Input ASI
	Overview	filter settings (5 Services)	
Filter	From Input A Input A	Service Name         SID         PID           Das Erste         0x6DCA           Baverisches FS N         0x6DCE	Remapping Note
Data Rate Measurement MB/t/s PID load SID / PID	Input B Input B	Davesides 1 Sin         DidOcc           ZDF         0x6D66           zdf neo         0x6D6E           Franken Fernsehe         0x4882	
Input A Input B Input ASI Output Nulpackets	Int	ernal transport stream 1	
Output Datarate			

#### SECTION "ROUTING":

In this section the input and output routing can be adjusted.

Input:

A + E	3 + ASI -> 1	ASI -> 2	-
A +	ASI -> 1	B + ASI -> 2	
A + E	3 + ASI -> 1	ASI -> 2	
A +	ASI -> 1	A + ASI -> 2	

- -> Input routing (INROUTE) = the distribution of the input signals to the (internal) transport streams 1 and 2. "A+B+ASI=>1 | ASI=>2" means: Tuner input A + tuner input B + ASI input is switched to internal transport stream 1, in addition the ASI input is switched to internal transport stream 2.
- Select the desired setting.

## Output:

1 -> ASI	2 -> MB   .	ASI -> MA 🛛 🔻
1 -> MA	2 -> MB /	ASI -> ASI
1 -> ASI	2 -> MB	ASI -> MA
1 -> MA	2 -> ASI   /	ASI -> MB

- Output Routing (OUTROUTE) = the distribution of the (internal) transport streams 1 and 2 and the ASI input to the outputs.
   "1=>ASI | 2=>MB | ASI=>MA" means: Transport stream 1 is switched to the ASI output, transport stream 2 to modulator B and the ASI input is switched to modulator A.
- Select the desired setting.

## SECTION "INPUT":

Via the tabs "**Services**" and "**PIDs**" the service and PID filter settings for the (internal) transport streams 1 and 2 can be done. Tab "**CA Modul**" (transport stream 1) contains the filter settings (the services to be descrambled) and the settings of a CA module.

Select transport stream 1 or 2 via buttons
 1 2

-> The windows in section "Input" (e.g. A-Pass-Filter) are dependent on the settings of "Input Routing". • In tab "Service" select the services to be transmitted.



- —> In order to save bandwidth, PIDs can be deselected (e.g. the PIDs of languages not needed). Please also refer to the memory usage of the PID Administration (Data rate measurement page 62).
- -> The individual PIDs are arranged below the corresponding channel.

In tab "**PIDs**" all PIDs are listed in ascending order without an assignment to a channel.

PIDs	
🖃 🔲 TS-ID: 0x044D / ON-ID: 0x0001	
PID (0x0001) CAT	
PID (0x0010) NIT	
PID (0x0011) SDT	=
PID (0x0012) EIT	=
PID (0x0014) TDT	
📝 PID (0x0067)	
📝 PID (0x0068)	
📝 PID (0x0069)	
PID (0x00C8)	
ID (0x00CB)	*

- -> If filters will be activated in tab "Services", these filters are also activated in tab "PIDs" (and vice versa).
- -> Therefore also observe the functions "Add a new PID and "Remap a PID PID" on page 61.
- -> If filters for Services and PIDs are set, first only the setting of the filters will be transmitted to the cassette.

The filters are not activated until the "Filter ON" check box V Filter is activated (separately for transport stream 1 and 2 1 2) and also these settings are transmitted to the cassette 1.

-> Without activated filters all services/PIDs of the "A-Pass-Filter" will be transmitted.

If a cassette contains a CA module, in tab "**CA Modul**" the corresponding filter settings (the services to be descrambled) as well as the settings of the CA module can be done.



- Select the services to be descrambled.
  - -> If a service can not be descrambled, as e.g. the number of PIDs to be descrambled by the CA module are exhausted, PIDs of e.g. not needed languages can be deselected, to get free capacities.

Via selection field "**Supply**" <u>dependent on the cassette</u> (and its software version) the power supply of the CA module can be switched over from 5V to 3.3V.

Power supply switching of "newer" cassettes will be done automatically. If the cassette does not have the control menu "Supply",
 Bx 4A CA Supply 5.0 V
 the selection field "Supply" is out of order.

-> Please also observe the operating instructions of the CA module.

Via selection field "PID Check" the PID monitoring can be switched OFF.

—> By default PID monitoring is switched ON. If particular PIDs are not descrambled the CA module is reset. If dropouts occur during the descrambling of several stations the PID monitoring can be switched off.

Configuration of the CA module:

-> A connection to the plant must be activated ( $\bigcirc$ ).

- Click on button CA Menu
  - -> This menu depends on the CA module used. Therefore please observe the operating instruction of the CA module. The following figure is exemplarily.

-> The menu items are numbered in section "CA Menu".

- Click on the corresponding numbered button in section "CA Control" in order to select a menu item.
- Using button 🔝 the contents of the "CA Menu" can be copied into the clipboard of the PC.
- Using button Reset CAM the CA module can be reset.

- Using button you will return from any submenu of the CA module to its main menu.
- Using button Close [Esc] you will exit the configuration.

## SECTION "OVERVIEW FILTER SETTINGS":

Herein you get a summery of the selected filters in section "Input" of the corresponding internal transport stream independent on whether the filters are activated.

## FILTER WINDOW - MENU BACK

Menu item Back > = Settings:

Via this menu item you can open the cassette settings (Page 46).

## <u>Menu item Back > 😋 Back:</u>

Via this menu item you will return to the main window of the programme.

## FILTER WINDOW - MENU PLANT

You will find a description of the menu item at the following pages:

- 🖶 Read data Page 41
- 👚 Send data Page 42
- 🔚 Control unit Page 43
- 📗 Logbook Page 52
- ව Reset Page 44

## FILTER WINDOW - MENU FILTER

# Menu item Filter > PID:

Via this function a new PID can be created.

• Click to any PID of the list which should be complemented by the new PID.

-> The menu / the button 📴 becomes "active".

Select menu item Filter > PID or click on button

📧 Insert new PID 🗾	
New PID	
0x 0000 DH	
V OK X Cancel	

- Enter the new PID as a hexadecimal value and click on button
  - If necessary, you can switch the input from Hexadecimal to Decimal numbering system using button <sup>D</sup>H.
    - The hexadecimal numbering system always starts with the term "Ox".
  - -> The new PID will be added to the list at the corresponding position (red type).
  - -> The changes do not take effect until they are sent to the plant  $\uparrow$ .

# Menu item Filter > SID Remapping:

Via this function a SID can be remapped.

- -> This allows the exchange/replacement of a programme, without having to perform a new channel search at the receivers..
- Click on the service to be remapped e.g. **■** Bayerisches FS N (SID: 0x6DCE)
- Click on button 5 0.



Enter the new SID as a hexadecimal value and click on button

V OK

 If necessary, you can switch the input from Hexadecimal to Decimal numbering system using button <sup>D</sup>H.

The hexadecimal numbering system always starts with the term "Ox".

--> The "new" SID will be added behind the "old" SID ("old" SID --> "new" SID) Bayerisches FS N (SID: 0x6DCE => 0x6DCF). -> The changes do not take effect until they are sent to the plant

Menu item Filter > PID Remapping:

Via this function a PID can be remapped.

-> The check box of the **corresponding SID** must be deactivated.

- Click on the PID to be remapped (e.g. PID (0x0011) SDT).
- Click to button P .



- Enter the new PID as a hexadecimal value and click on button
  - -> If necessary, you can switch the input from Hexadecimal to Decimal numbering system using button P<sub>H</sub>.

The hexadecimal numbering system always starts with the term "Ox".

-> The "new" PID will be added behind the "old" PID ("old" PID -> "new" PID) PID (0x0111 => 0x0113).

-> The changes do not take effect until they are sent to the plant  $\uparrow$ .

Menu item (Checkbox) Filter > I no 'BAT' and no 'SDT-other'

Via this checkbox the "BAT" and "SDT-other" tables can be filtered out (for both internal transport streams).

—> An activated checkbox is also displayed in section "Overview filter settings".

GSS

# Menu item Filter > To Delete all filters:

Via this function the filter settings of the cassette can be reset.

• Select menu item Filter > The Delete all filters or click on button Th

The "Filter ON" setting will not be reset!.
 Filter
 If you do not set new filter settings after a reset at activated "Filter ON" setting all services are disabled!
 The changes do not take effect until they are sent to the plant 1.

# Menu item Filter > DH Decimal <-> Hexadecimal

With this menu item you can change the indication (and input) of IDs from Hexadecimal to Decimal numbering system (and vice versa).

Select menu item Filter > D<sub>H</sub> Decimal <-> Hexadecimal or click on button D<sub>H</sub>.

-> The hexadecimal numbering system always starts with the term "Ox".

## FILTER WINDOW - MENU MEASUREMENT

### Menu item Measurement > Image: Data rate:

Via this function the input and output data rates of cassettes can be displayed.

- Select menu item Measurement > Image Data rate or click on button Image.
  - -> The cassette must support this function.
  - -> Make sure that the cassette has the latest software version
  - A connection to the plant must be activated (1.).
     Otherwise menu "connection settings" appears, in order to activate a connection.

-> The data rates are displayed in section "Data Rate Measurement" and will be updated continuously (reading measurements is flashing) until is deactivated.

	MBit/s	PID load
SID / PID		
Input A	26,843	16 %
Input B	4,199	4 %
Input ASI	0,000	0 %
Output Nullpackets	76,939	
Output Data rate	108,000	
Output Data fate	108,000	

- -> The data rates of the inputs A, B and ASI are shown. In addition it is possible to read the data rates of the output and the null-packets. In order to get the data rate of a single SID/PID mark the SID/PID in the input window – then its data rate is shown at "SID/PID ?".
- -> In column "PID load" the memory usage of the PID administration is displayed. If 90% memory usage is reached, the corresponding field becomes red. From a utilization of 100% there will be errors in the PID Administration. In this case remove PIDs which are not needed by the PID filter in order to free up memory (page 55).
- -> Changes (e.g. of the filter settings) will take effect in measuring not before they are transmitted to the cassette (with activated filters).

## Menu item Measurement > **Stream information**:

Via this function changes in the stream information can be shown.

Select menu item Measurement > Stream information or click on button
 .

W Filter - Station: 1. Cassette: 5 - HDTV 1000 ASI	(DS)/(1000)						- 0 ×
Back Plant Filter Measurement Hife	(PSW1000)						
		PID TIT D <sub>H</sub>					
Routing	<b>C</b>						
Input: A + B + ASI -> 1	ASI	-> 2 •	Output:	1 -> MA	2 -> M	B   ASI -> AS	- I
1 2							
Input							
A-Pass-Filter (6 Services)		B-Pass-Filter (9 Services)				-Filter (1 Services	5)
Service PIDs CA		Service PIDs			Service		
E = 15-10: 60440 / OH-D: 60001     E = 80440 / OH-D: 60001     E = 80440 / OH-D: 60001     E = 8010 66764     E = 8010 6676     E = 8010 667     E = 8010		E ■ 15-10: 6x4037 / 0x10: 0x				S-ID: 0x3302 / OI	
	Overview	filter settings (5 Services)					
V Filter	From	Service Name	SID	PID	Remapping	Note	
Data Rate Messurement ABige PID (ead SID / PID Popt A Popt AS Popt AS Output Nupedets Output Nupedets Output Nupedets	Input A Input A Input B Input B Input ASI	Das Erste Bayerisches FS N ZDF zdf_neo Franken Fernsehe "BAT" "SOT-other"	0x6DCA 0x6DCE 0x6D66 0x6D6E 0x4882			excluded excluded	
reading stream informations	<	There are new Streaminformati	ons availa	ble. Display	them?	>	Output OK

- A connection to the plant must be activated (19).
   Otherwise menu "connection settings" appears, in order to activate a connection.
- -> reading stream informations is flashing.
- If any changes are registered,
   There are new Streaminformations available. Display them? is displayed.
- Click to button There are new Streaminformations available. Display them? in order to show the changes.
  - -> For example an additional PID is shown "underlined". Note that some PIDs will not be transmitted permanently but in intervals of some seconds. This will cause in regular notifications of changes.
  - -> The stream information will be shown until button  $\checkmark$  is deactivated.

### FILTER WINDOW - MENU HELP

## Menu item Help > ② Help:

With this menu item you call up the programme Help.

## **CREATE NIT (NETWORK INFORMATION TABLE)**

Via this menu you can create a new NIT.

-> The NIT contains information about the output signals of the plant, which receivers need to do a station search. As most of the receivers cannot work with more than one NIT, all cassettes of a plant must have the same NIT containing all services.

This function creates a NIT which will be transmitted to all cassettes.

• Select menu item Edit > 🗾 NIT.



Abbrechen





Please read new cassette data

ОК

# Do not modify the selection!

So it is ensured that all necessary data will be read.

Click on button

-> The selected data will be read.





The data will be checked and possible conflicts will be indicated.

Create NIT	×
<b></b>	conflict Output frequencies: 850,000 MHz 
	ОК

-> In this example the output frequency 850 MHz is used several times and at cassettes 2 Line B and 5 Line B the same TS-/ON-IDs are used.

- Eliminate possible conflicts and create the NIT again.
- For standard applications leave the check at "Take from original NIT".
- For special applications remove the check and enter the specific values.
- Send the NIT to the plant using button 👚.

N Create NIT				×
File Plant	Options			
: 😋 🛛 🕅	🚽 🖬 1	LC	n D <sub>H</sub>	2
-NIT-Header-				
🔽 Take f	rom original NIT			
Network-II	D:		0x 0000	
Version (m	ax.: 0x1F):		0x 00	
Networkna	ame:			
NIT				
Frequenz	Symbolrate	TS-ID	ON-ID	
306,000	6,900			
794,000	-	0x0437		
802,000		0x3302		
850,000	6,900	0x044D	0x0001	
				4

-> NIT is switched to ON at all cassettes.

## Do not modify the selection!

So it is ensured that all necessary data will be sent.

• Click the 🖉 🗸 or button.





## CREATE NIT WINDOW - MENU FILE

## Menu item File > 📝 Save NIT:

Via this menu item you can save the NIT inclusive of the LCN settings.

-> Via this function it is possible to save the NIT of a plant in form of an ".oni" file, in order to import it into another plant.

- Select menu item File > 📝 Save NIT in the "Create NIT" menu.
- Enter a file name, select the target directory and save the file using button
   CK

-> Via the menu Edit > Copy NIT (Page 78) of the PSW 1000 the saved NIT can be imported into another plant.

### Menu item File > 😋 Back:

Via this menu item you will return to the main window of the programme.

#### CREATE NIT WINDOW - MENU PLANT

You will find a description of the menu item at the following pages:

- 🖶 Read data Page 41
- 👚 Send data Page 42
- 🔚 Control unit Page 43
  - -> Via menu Plant > Fin Controlunit or button Fin modifications still can be done at the station (see Page 43). That the changes can be considered when the NIT is created you should read in again the station data via the menu Plant > Read data or the button.

### CREATE NIT WINDOW - MENU OPTIONS

### Menu item **Options > = LCN**:

Via this menu item you call up the LCN settings.

You will fund the description of this function in chapter 7 "LCN – Logical Channel Numbers" (Page 123).

## Menu item Option > PH Decimal <-> Hexadecimal:

With this menu item you can change the indication (and input) of IDs from Hexadecimal to Decimal numbering system (and vice versa).

Select menu item Filter > P<sub>H</sub> Decimal <-> Hexadecimal or click on button P<sub>H</sub>.

-> The hexadecimal numbering system always starts with the term "Ox".

## 🔏 NIT (Expert Mode)

Via this menu the NIT can be modified.

- -> For the majority of all plants it is sufficient to create a NIT "automatically" via menu item "Create NIT". Using menu item "Edit NIT" creates a new NIT "manually". It is e.g. possible to remove transponders from the NIT. These transponders potentially will not be found during station search of receivers. It is also possible to add transponder from "older" cassettes not implied in the NIT automatically.
- -> Make only modifications if you are aware of its consequences.

Select menu item Plant > MIT (Expert Mode).

	<u>a</u> 🖻		2			
ction of the I						Overview of the new NIT
ette NITs Sta	ation Channe	ls New	Import			NIT Header Edit Transponder
Station         O           1         2           1         3           1         4           1         6	•	Net	work Name:	0x EF7F ix1F): 0x 00		Network ID: 0× (0000 Version (max.: 0x1P): 0× (00 Network Name:
			Take o	over		Default Header
Frequency 474,000	SR	Mod. QAM64	TS-ID 0x0453	ON-ID 0x0001		Frequency SR Mod. TS-ID ON-ID
482,000		QAM64	0x0441	0x0001		no data available
834,000 842.000		QAM64 OAM64	0x3301 0x3302	0x2114 0x2114	Selection	
850,000	6,900	QAM256		0x0001	All	Sele



The "NIT (Expert Mode)" menu consists of two sections:

- "Selection of the transponder"
  - herein the contents of the NIT will be selected.
- "Overview of the new NIT"
  - herein the contents will be collected,
  - modifications can be done and
  - LCN can be edited.

## Section "Selection of the transponder" > TAB CASSETTE NITS:

Station 1 1 1 1	Cassette 2 3 4 6	NIT Header       Network ID:     0x       Version (max.: 0x1F):     0x       Network Name:			
Frequency	SR	Mod.	Take o	ON-ID	
474,000	-	OAM64	0x0453	0x0001	
482,000		QAM64		0x0001	
834,000		QAM64	0x3301	0x2114	
842,000		QAM64	0x3302	0x2114	Selec
850,000	6,900	QAM256	0x044D	0x0001	

The NIT of a selected cassette (e.g. Station 1/Cassette 5) will be shown below.

- Click to button in order to transfer all listed transponders to section "Overview of the new NIT", or
- select individual transponders in order to transfer only the selection using button button
  - -> Transponders not transferred to section "Overview of the new NIT" will not be part of the new NIT and will possibly not found during station search of a receiver!

# Tab "Cassette NITs" > NIT Header:

In this menu you can modify the "Network ID", the "Version" and the "Network name".

-> Normally nothing must be modified.

- At special applications enter the specific values.

# Section "Selection of the transponder" > Tab Station Channels:

-> The **transponder data (not the NIT!)** of all cassettes transmitting a NIT will be shown.

	Station C	hannels				
	Stati	on overview	output para	ameters		
Frequency	SR	Mod.	TS-ID	ON-ID	S/C	
474,000	-	QAM64	0x0000	0x0000	01/02	
482,000	-	QAM64	0x0441	0x0001	01/02	
834,000	-	QAM64	0x3301	0x2114	01/06	
842,000	-	QAM64	0x3302	0x2114	01/06	
;						Selection

- Click to button in order to transfer all listed transponders to section "Overview of the new NIT", or
- select individual transponders in order to transfer only the selection using button button to section "Overview of the new NIT".

-> Any conflicts in the transponder list are marked red.

-> If one tries to transfer conflicted transponders to section "Overview of the new NIT" e.g. following window appears:

Warning: The following entries are not accepted!	×
TS-/ON-ID: 0x0000/0x0000 (474,000 MHz)	
ОК	

The values are not transferred. Solve all the conflicts, before creating a new NIT.

-> Transponders not transferred to section "Overview of the new NIT" will not be part of the new NIT and will possibly not found during station search of a receiver!

#### Section "Selection of the transponder" > TAB New:

-> Transponders of older cassettes which are not transmitting a NIT and transponders of external components can be added to the NIT manually. As it is not possible to transmit the "new" NIT to external components, the NIT must be switched off at all of this components in order to avoid two different NITs.

Older cassettes which are not transmitting a NIT are shown in window "Station Cass.".

• Dependent on the cassette click to the tabs QAM or COFDM and enter the data of the transponder.

New
QAM COFDM
Frequency MHz
Modulation QPSK -
Bandwidth 8 MHz 💌
Code rate 1/2  Selection
Guard intervall 1/4
Mode Zk 💌
TS-ID 0x 0000
ON-ID 0x 0000

- Click to button in order to transfer the transponder to section "Overview of the new NIT".
  - -> The transponder data can be complemented in section "Overview of the new NIT".
  - -> For adding several transponders repeat this procedure accordingly.
#### Section "Selection of the transponder" > Tab Import:

Herein you can import a NIT which was exported before.

This function is useful if a plant consists of several stations, remote controlled via some management units.
 In order to create a NIT for the complete plant, please note the example on Page 79.

		Import			
-NIT Head	er				
Network	ID:	0x 0000			
Version (	max.: 1F):	0x 0000			
Network	Name:		·		
	Take ove	r			
			- V		
Frequency	SR	Mod.	TS-ID	ON-ID	
					Selection
					All
					All D

 In order to import a saved (exported) NIT click to button and select a saved .oni file.

-> The imported transponders are listed below.

- Click to button in order to transfer all listed transponders to section "Overview of the new NIT", or
- select individual transponders in order to transfer only the selection using button section "Overview of the new NIT".

-> Transponders not transferred to section "Overview of the new NIT" will not be part of the new NIT and will possibly not found during station search of a receiver!

# Tab "Import" > NIT Header:

In this menu you can modify the "Network ID", the "Version" and the "Network name".

-> Normally nothing must be modified.

- At special applications enter the specific values.
- Click on button Take over , to take over the modified values into section "Overview of the new NIT".

-> Proceed with section "Overview of the new NIT".

#### SECTION "OVERVIEW OF THE NEW NIT":

Overview of the new NIT					
NIT Header Edit Transponder					
Network Version ( Network	max.:0x1F): Name:	0x EF7F 0x 00 GSS ault Header			
Frequenz	SR	Mod.	TS-ID	ON-ID	
482,000 834,000 842,000 850,000	- - 6,900	QAM64 QAM64 QAM64 QAM256	0x0441 0x3301 0x3302 0x044D	0x0001 0x2114 0x2114 0x0001	CK LCN Selection All
					4

All transponders selected in section "Selection of the transponder" will be listed in the lower part of the window.

-> Herein e.g. you can modify transponder, which you have added in section "Selection of the transponder" > New".

• Select a corresponding transponder of the list.

-> In the upper section tab "Edit Transponder" is activated.

Overview of t	he new NIT				
Frequency	482,000	MHz	Bandwidth	8 MHz 🔻	]
Symbol Rate		MS/s	Code Rate	7/8 -	]
Modulation	QAM64	•	Guard Inter	rval 1/32 🗸	]
TS-ID	0x 0441		Mode	2k 🗸	]
ON-ID	0x 0001		<b></b> 1	Take over	]
Frequency	SR	Mod.	TS-ID	ON-ID	
482,000	-	QAM64	0x0441	0x0001	OK
834,000	-	QAM64	0x3301	0x2114	
842,000	-	QAM64	0x3302	0x2114	
850,000	6,900	QAM256	0x044D	0x0001	LCN
					Selection
					Ū
					All
					Û

• Modify the data of the corresponding transponder if necessary.

NIT.

• Take over the modifications with button \_\_\_\_\_\_ Take over \_\_\_\_\_\_ into the list.

Via button the menu LCN (Logical Channel Numbers) will be opened, to preset "Channel Numbers" (see Page 123).
 Via button selected transponders can be removed from the

-> Via button all transponders can be removed from the NIT.

## EXPORT "CASSETTE NITS" (\*.ONI-DATEI", INCL. LCN):

Via menu item **File > File Transform File NITs** or button **File** you can export the NIT in form of an ".oni" file inclusively the LCN settings.

- Enter a file name, select the target directory and save the file using button
  Save
  - -> Via the menu Edit > Copy NIT (\*.oni) (Page 78) of the PSW 1000 the saved NIT can be imported into another plant.

#### COMPLETE THE NIT PROCESSING

- Complete the processing of the NIT with button
  - -> The NIT will be transferred from section "Overview of the new NIT" to all activated cassettes.
  - -> Section "Overview of the new NIT" gets "empty".
  - -> To check the new NIT select a cassette in section "Selection of the transponder" -> its NIT is shown.
  - -> The modifications will be done as all settings via PSW 1000 first in the programme (RAM). The new (modified) NIT must finally be sent to the plant <sup>1</sup>/<sub>1</sub>.

### The Send the NIT to a Plant:

Select menu item File > Send data or click on button <sup>1</sup>/<sub>1</sub>.

-> The NIT will be send to all cassettes able to transfer a NIT. NIT is switched to ON at all cassettes.

# IMPORT NIT (\*.ONI/\*.NIT):

- -> Herein data exported by function File > File
- -> Also former PSW 1000 data versions (\*.NIT files) can be imported.
- Select menu item File > import NIT or click on button import NIT.
- Select the corresponding file.
- Click on button Open .

## COPY NIT (DIRECTLY INTO THE CASSETTES OF THE PLANT INCL. LCN)

Via this menu you can copy a NIT, stored as a ,oni file (Page 77), directly into the cassettes of a plant.

• Select menu item Edit > 📝 Copy NIT.

Copy NIT	
Please select a file (oni)	
Write NIT	Close

- Open the selecting window with button
- Select the corresponding ".oni" file from the source directory and click on button Open

Copy NIT	<b>x</b>
C:\Daten\\Test.oni	
Write NIT	Close

• Copy the NIT directly to the cassettes of the plant using button

## Do not modify the selection!

So it is ensured that all necessary data will be sent.

- Click on button ✓ ○K
  - -> The NIT will be send to all cassettes able to transfer a NIT. NIT is switched to ON at all cassettes.



#### Note on the creation of a NIT for several stations - LCN included:

```
=> Station 1 / Management system 1:
```

Create a NIT (Page 65). Assign the LCNs. Save the NIT as "\*.oni file" (Page 77).

#### => Station 2 / Management system 2:

Create a NIT (Page 65).

Open the "NIT Expert Mode" (Page 68).

Select a cassette in tab "Cassette NITs" and transfer its NIT into section "Overview of the new NIT" using button  $\begin{bmatrix} All \\ Db \end{bmatrix}$ .

Import the NIT (\*.oni) from Station 1/Management system 1 (Page 73) and transfer it also to section "Overview of the new NIT" using button

Assign the still missing LCNs.

Exit the processing of the NIT using button 🛹 .

Export this NIT as a "\*.oni file" (Page 77), in oder to copy it into Station 1/Management system 1.

#### => Station 1 / Management system 1:

Via menu **Edit > Copy NIT** (Page 78) copy the NIT from Station 2/ Management system 2, stored as \*.oni fils, into Station 1/Management system 1.

=> Now both stations/management systems contain an identical NIT.

SPECTRUM I/Q

Via this menu you can invert the spectral position of the user signal.

• Select menu item Edit > **Spectrum I/Q**.

-> This function can also be selected by the context menu (right mouse button).

Back Plant			
) 🖡 🖬 🕇 🔞			
Choice normal		Choi	ce inverse
E Ine			
Station 1 / Ca	assette 2 / HDTV	1000 T / Line A / no	mal
Station 1 / Ca	assette 2 / HDTV	1000 T / Line B / nor	mal
Station 1 / Ca	assette 2 / HDTV	1000 T / Line C	
Station 1 / Ca	assette 3 / HDTV	1000 ASI / Line A / I	normal
Station 1 / Ca	assette 3 / HDTV	1000 ASI / Line B / r	normal
Station 1 / Ca	assette 3 / HDTV	1000 ASI / Line C	
Station 1/Ca	assette 6 / HDMT	1000 T / Line A / no	rmal
Station 1 / Ca	assette 6 / HDMT	1000 T / Line B / no	rmal
Station 1 / Ca	assette 6 / HDMT	1000 T / Line C	
Station 1 / Ca	assette 7 / HDM (	204 QMX / Line A / n	ormal
Station 1 / Ca	assette 10 / HDT	/ 610 CI TPS / Line A	/ normal
V III Station 1 / Ca	assette 10 / HDT	/ 610 CI TPS / Line E	/ normal

In the menu the lines of all cassettes are listed, possible to set the spectral position.

- Via the check boxes select from which lines you would like to change the spectral position (check box marked).
- Use button <u>Choice normal</u> in order to switch the selected lines to spectral position "normal".
- Use button <u>Choice inverse</u> in order to switch the selected lines to spectral position "inverse".
  - -> This function is also possible in the output settings of the corresponding cassettes.

-> The changes are only effective when they were sent to the plant  $\uparrow$ .

Close the menu:

GSS

Close the menu via the menu item Back or buttons G / EX.

PLANT > 🔚 SETTINGS

Configure a management unit via this menu.

-> For a connection via COM port (in situ connection) no plant settings are necessary.

- Select menu item Edit > III Plant > 亘 Settings.
  - -> This function can also be selected by the context menu (right mouse button).

🔽 Plant	t settings	<b>X</b>
File	Plant	Help
G		+ + @
		Connection Alam
Statio	n data –	
Loca	ition	
Stree	et	
Conr	nection	
Hardv	vare	
RC	:U (	dree> ▼
	Monitorin	g cassette



#### TAB "PLANT":

• Herein enter data of the plant.

Plant	
- Station data	
Location	Musterstadt
Street	Musterweg 1
Connection	212.20.172.0:59999
Hardware	
RCU	RCU 1
Monitor	ing cassette

-> This data are for information only and will be transmitted in error messages.

This helps to keep track if you have to manage several plants.

• Select your management unit in drop-down menu "RCU".

 Dependent on your selection only needed configuration fields are enabled.

- Activate the check box beside "**Monitoring cassette**" if a monitoring cassette is used in your plant.
  - -> Only with this check box activated the settings for error messages are enabled.

# TAB "SECURITY":

Herein you can enter a password for the remote access to the plant if a management unit is selected.

Security Configuration protection		
New password		Effa
Repeat password		
	Save password	

-> This password will be asked for when establishing a connection. By default no password is assigned.



- Enter your desired password in field "New Password".
- Enter your desired password in field "Repeat password" again.
- Click to button Save password in order to save the password.

-> Using button 🕡 you can change the indication of the password from "visible" into "••••••".

### TAB "CONNECTION" > "MODEM":

If a management unit is connected via modem, the connection settings needed are to be done in this tab.

Connection	
Modem Ethemet	
GSM modem or analogue moden station?	n attached to the
analogue modem	
analogue modem at party line	
GSM modem	Pin 🗾 🕼
Direct connection or date return	ı call?
Direct connection	
Data recall	
Phone number	

 Select the kind of modem connected to the management unit. If GSM modem (mobile phone) is selected enter the pin number of its telephone card in field "Pin number".

-> Using button is you can change the indication of the pin from "visible" into "••••••".

 Select "Direct connection" or "Data recall". At "Direct connection" the plant answers the telephone call. At "Data recall" the plant does not answer the telephone call, but tries to identify the phone number and calls back. Enter the number to be called back in field "Phone number" if an identification of the number does not work.



#### TAB "CONNECTION" > "ETHERNET":

If a management unit is connected via LAN, in section "Settings" all network settings needed are to be done.

Nodem Ethernet	
Settings	
IP-Adresse : Port	10.6.11.20 : 60003
Netmask	255.255.255.0
Gateway	10.6.11.254
HTTP Port	80
	Take over
Enter ethernet pas	sword:
New password	Epte
Repeat password	
	Save password

-> For connection via Internet (especially for remote maintenance) network knowledge is required. If you are not familiar with the terms in section "Settings" please contact your system administrator.

	RCU 1	PRCU 12
IP:	192.168.0.120	192.168.0.123
Mask:	255.255.255.0	255.255.255.0
Port:	60002	60003
Gateway:	192.168.0.1	192.168.0.1
HTML Port:	80	_

-> The management units are preset in the factory:

- -> If a different IP address range is used in the network the plant is installed or the preset IP address is already in use, the settings must be changed accordingly. Therefore observe the assembly instruction of the management unit.
- -> Only use ports in the range of 35000 60100 or 61000 65000!
- Enter the settings required for the network (the plant is installed).
- Click to button Take over



A connection to the plant must be activated (\_\_\_\_\_).
 Otherwise menu "connection settings" appears, in order to activate a connection.

🔑 Ethernet Password	- RCU1
Enter pas	sword:
✓ 0K	Cancel

- Enter the password (default is "GSS" or "Grundig" dependent on the management unit) and confirm it with button **agement**.
  - -> The data are sent to the management system.
  - -> The management unit restarts (ca. 1 minute).



The Ethernet password can be changed in section "Enter ethernet password".

- Enter the desired password in field "**New password**" and (for confirmation) in field "**Repeat password**".
- Click to button Save password

-> Like in section "Settings" the modification will be transmitted directly to the management unit.

### TABS FOR THE ALARM SETTINGS:

The remaining tabs help configuring the alarm messages. Therefore a monitoring cassette PSCU/HSCU 6000 must be installed. The check box " Supervision cassette PSCU/HSCU available" must be activated in section "Station data".

### TAB "ALARM" > "SETTINGS":

Herein enter the time interval from the appearance of an error until the error message will be sent as well as the language of the error message.

Alam	
Settings Modem E-Mail SNMP	
Waiting time alarm report	
Alam report after at the earliest minutes send.	5 🚔
Error message!	
Deutsch	
English	
I Test alarm report	

• Perform the desired settings.

Alarm test:

Click on button
 Test alarm report

A test alarm report will be sent according to the alarm settings done in menu "Plant settings" (Page 81).

## TAB "ALARM" > "MODEM":

(only HRCU/PRCU 8 or PRCU 12)

If a management unit is connected via modem, all settings to send an error message as SMS or fax are to be done in this tab.

arm 1 Alarm 2 Alar	m 3				
Alarm 1 active					
hone number of t	he receive	r			
Country code:					
National phone numb	er:				
Provider settings					
Alarm report to	SMS	۲	FAX	0	Pager
Fax to SMS format:		۲	TAP	0	UCP
Provider service numb	er:				

Three recipients for error messages can be entered (Tabs Alarm 1, 2 and 3).

- Activate tab "Alarm 1".
- In section "Phone number of the receiver" enter the "Country code" (e.g. 0049 for Germany) and the "National phone number" (e.g. 0891234).
- In section "Provider settings" select whether the message should be sent as a SMS, a fax or to a pager and select the transmission format supported by the provider (TAP or UCP). Enter the service number (SMSC) of the provider and its qualifier if a SMS should be converted into a fax.
- Activate the alarm with check box "Alarm 1 active".

-> The alarms 2 and 3 will be set analogous to alarm 1.

### TAB "ALARM" > "E-MAIL":

(only RCU 1 or PRCU 12)

If a management unit is connected via LAN, all settings to send an error message as e-mail are to be done in this tab.

	Alam
Settings Mod	
- Settings (SI	MTP Port 25)
Provider	SMTP. Provider .de
User	Mustermann
Password	•••••
Subject	Error
- E-Mail	
I ON	Max.Mustermann@gss.de
ON ON	
ON ON	
ON ON	
ON 📃	

- In section "E-mail settings" enter the data needed in order to send an e-mail via your e-mail account:
  - Provider: SMTP server address of the provider.
  - User: Your e-mail account address.
  - Password: Your password needed in order to send e-mails.
  - Subject: Individual text

-> Standard SMTP port 25 is used to send e-mails.

- Enter up to 5 recipient e-mail addresses in section "E-mail addresses" which should receive the error message.
- Activate the e-mail addresses via the corresponding checkbox.



#### TAB "ALARM SNMP-INFORM REQUEST":

(only RCU 1 or PRCU 12)

If a management unit is connected via LAN, all settings required to send an error message as SNMP Inform Request are to be done in this tab.

	Alam	
Settings N	Nodem E-Mail SNMP	
Inform Re	equest	
	IP Address:Port	
ON 🔍	10.6.11.19	
ON 📃		
ON 📃		

Enter up to 3 IP addresses which should receive the error message and activate them via the corresponding check box.



-> The changes are only effective when they were sent to the plant  $\uparrow$ 

		Plant > 🕒	TIMER						
ſ	Edit	1							
	:=	Settings	Ctrl+E	]					
		Logbook	Ctrl+L						
	P	Filter	Ctrl+F	-					
	N	NIT	Ctrl+N						
	<u> </u>	NIT (Expert Mode)	Ctrl+T						
	N	Copy NIT (*.oni)							
	x	Spectrum I/Q							
		Plant	•	==	Settings		]		
		Station configuration	1	٢	Timer	•	(-)	Settings	Ctrl+I
	ø	Redundant Power Su	ipply					Time offse	et
	8	Monitoring cassette	•					Restart ti	mer
		Backup System					_		
				1					

Via this menu the output of analogue cassettes which support this function can be switched on and off - time controlled.

-> For this function a management system is required.

- Select menu item Edit > Plant > Timer > 🕒 Settings auswählen.
  - -> This function can also be selected by button 🕒 or the context menu (right mouse button).
  - -> This function is controlled by the management unit, so any changes must be transferred to the management unit.
  - -> The plant must contain a cassette which can forward the time to the management unit (timing circuit).
  - -> A maximum of 100 timers are possible.

🕒 Timer									
File E	Edit Help								
G	11 Z I	+ -	Timing cir	cuit : Stat	tion 1 / Ca	ss. 1 A / HDM	2370 P / 55,25 MHz /		•
Position	Timer	Time	Days	Output	Station	Cassette	Туре	Frequency	Transmitter Name
Position	Timer ON	Time 18:00:00	Days M T W T F S S	Output ON	Station 1	Cassette 01 A	Type HDM 2370 P	Frequency 55,250 MHz	Transmitter Name
Position 1 2			-		Station 1 1				Transmitter Name
Position 1 2 3	ON	18:00:00	MTWTFSS	ON	Station 1 1 1	01 A	HDM 2370 P	55,250 MHz	Transmitter Name

GSS

#### **D**EFINE A TIMING CIRCUIT:

In the selecting menu "Timing circuit:" all cassettes are shown which can forward the time to the management unit.

- —> Cassettes with timer functionality are shown in menu Help > Cassettes as a timer as well as in column "info" of the "Portfolio of cassettes" (Page 35) marked by "Timing circuit".
- Select the desired timing circuit in the selecting menu (Station/Cassette/ Linie) with button 🔽.

#### DEFINE A NEW TIMER:

- Open the menu Edit > New Timer or click on button .
- Activate (ON) or deactivate (OFF) the timer in section "Timer".
- Enter the time and the days the timer is desired.
- In section "Output" select, whether the timer should switch on or off the output of the cassette.

New Timer		
	ON	OFF
Time		
	00:	00:00
Days		
		✓ Monday
		✓ Tuesday
		✓ Wednesday
	📝 daily	Thursday
		☑ Friday
		Saturday
		✓ Sunday
Dutput		
	ON	OFF
Station / Ca	sette / Line	
🗸 OK		X Cancel

-> Only one switching operation is possible for each timer. In order to switch a cassette on and off, two timers must be defined.

- In section "Station/Cassette/Line" select the cassette (and the output line A or B), to be switched.
- Confirm the timer with button \_\_\_\_\_

#### EDIT A TIMER:

- Activate the line of the timer which is to edit.
- Open menu "New Timer" via menu item Edit > Edit selection or button //.
- Edit the settings and confirm the changes with button

#### **D**ELETE A TIMER:

- Activate the line of the timer which is to delete.
- Delete the timer via menu item Edit > Delete timer or button

#### SORT TIMER:

With this function the sequence of the timer in the overview can be changed.

- Activate the line of the timer which is to shift.
- Shift the selected timer upwards or downwards by menu item Edit > Up / Down or with buttons \_\_\_\_\_.

#### <u>Close the timer menu:</u>

Close the menu via the menu item File > Back or buttons G / EXE.

-> This timer function is controlled by the management unit, so any changes must be transferred to the management unit.

### 🕒 TIME OFFSET:

-> For this option a cassette suitable as timing circuit must be set in menu Edit > Plant > Timer > ( Settings / Define a timing circuit (Page 91).

In this menu a time offset (correction, time zone etc) can be entered for the time provided by the timing circuit. This offset is stored in the management unit.

-> If the time provided from the timing circuit does not correspond to the local time, this setting is important for a correct timer function.

• Select menu item Edit > Plant > Timer > (-) Time offset auswählen.

-> If no connection to the plant is activated, menu "connection settings" appears, in order to activate a connection.

🕒 Station: 1 / Cassette: 1A / Time offset 🛛 💽						
12:49:47						
12:49:47						
🔊 Reset						
() Help						

-> In section "Current time" the time provided by the timing circuit + the stored time offset is displayed.

# Adjust a time offset:

- Adjust desired day and time using buttons 🔄 .
- Store the time offset with button \_\_\_\_\_ Take over

-> After that in section "Current time" the modified time is displayed.

### Reset the time offset:

Reset (delete) the stored time offset with button

-> After that in section "Current time" the time **without** time offset is displayed.

Close the menu with button
 Close
 Close

#### 🕀 Restart Timer:

This option starts the timer programmed in menu **Edit > Plant > Timer >** ( **Settings**.

-> If for example due to maintenance work the switching states were modified or new timer are set, the switching states will be brought into the correct order by this option.

- Select menu item Edit > Plant > Timer > 🕀 RESTART TIMER auswählen.
  - -> If no connection to the plant is activated, menu "connection settings" appears, in order to activate a connection.

OK



-> The target state at the current time is set.

#### **STATION CONFIGURATION**

The output level of stations and cassettes equipped with an electronic level controller can be set via this menu. The stored maximum temperature can be reset.

-> If button **IIII** becomes "active" after selecting a station in the left window (tree structure) of the PSW 1000 the station is equipped with an electronic level controller.

Access for this menu is only possible via this button.

- -> The setting of the output level of cassettes is possible from the control units software version V44 (BE-Remote) on.
- Click to button IIII an.

💷 Statio	n configuration			<b>—</b> ×
File	Plant Help			
G		🕹 🖩 🕈	2	
Station	1:	1 - STC 1200 (N)		
Level [	dB]:			-6 🌲
Tempe	rature:	37°C / 98°F		Reset
No.	Cassette			Level [dB]
1	HDM 2370 P			-6 🌻
2	HDTV 1000 ASI			-6 🌻
3	HDTV 1000 ASI			-6 🌲
4	HDTV 1000 ASI			-6 🌻
5	HDTV 1000 ASI			-6 🌲
6	HDTV 1000 ASI			-6
7	HDTV 1000 ASI			-6 🚔
8	HDTV 1000 ASI			-6
9	HDTV 1000 ASI			-6 🚔
10	HDTV 1000 ASI			-6
11	HDTV 1000 ASI			-6 🌲
12	HDTV 1000 ASI			-6

- Adjust the output level of the station via buttons 🖻 to the desired value (0...-6dB).
- Adjust the output level of the corresponding cassette via the corresponding buttons to the desired value (-25...0dB).
- Activate the check box "Reset" in order to reset the stored temperature.
- Send the setting to the station 👚.

-> Using button 🖶 the current values of the plant can be read out again.



#### 🔎 REDUNDANT POWER SUPPLY

In this menu it is possible to check the conditions of the power supply of a head-end station with redundant power supply (STC 816 R/PSU 8-16 R) via remote access, and if necessary, switch off and on all cassettes of the station (reset).

🔤 PSW1000, · GSS - Grundig SAT System:	s GmbH
File Plant Edit Extras Help	• E III Y E A E 🔸 🖬 🛧 🔎 🛠 📴 🖌 🛠 🌚
Anlage	Details of choice Ist Complete list IPTV Supervision list Portfolio of cassettes
GO1] STC 816 R	Parameter Wert
[C02] <free> [C03] <free></free></free>	Anlage Ot
[C04] <free></free>	Urt Straße
[C05] <free></free>	Verbindung
[C06] <free> [C07] <free></free></free>	
[[C08] <free></free>	
Power supply error!	http://www.kopfstation.de/ http://www.gs.de/



 Open the "Redundant Power Supply" menu by clicking on button *s* or via menu Edit > Redundant Power Supply.

🎉 Red	undant Po	wer Supply				×
File	Plant	Help				
G	4 🖩	1 (	2			
W	/aming: "F	ower OFI	" dea	ctivates	all cass	ettes!
Stat	ion No.	1		•		
Stat	us (	Power v	vaming	!		
Pow	/er	ON	0	OFF		



 If more than one STC 816 R/PSU 8-16 R are connected via a management unit, select an individual head-end station via pull down menu "Station No.".

Status informations are displayed in the lower section of the window.

- -> If "OK" is displayed, both power supply units are fine.
- -> If "Power warning!" is displayed, one power supply unit is defective, but the power supply nevertheless works via the second power supply unit.
- -> If "POWER ERROR!" is displayed, both power supply units are defective, the station is out of order.

### **R**ESTART (RESET) ALL CASSETTES OF A STATION

Via **Power (o)** ON **(c)** OFF the power supply of the cassettes can be switched OFF and ON. The power supply of the control unit is still working.

Activate button "OFF" and send the command to the station via button <sup>1</sup>/<sub>1</sub>.

-> The power supply of the cassettes is switched off.

Activate button "ON" and send the command to the station via button <sup>1</sup>/<sub>1</sub>

-> The power supply of the cassettes is switched on.

### MONITORING CASSETTE

Via this menu a connected monitoring cassette can be configured. Using a monitoring cassette the output signals of a broadband cable system can be monitored in the following frequency ranges:

Furthermore an info channel is fed into the cable system displaying the channel assignment, inclusive the channel names which are detected from the RDS resp. VPS data.

The monitoring cassette must be assembled according to its assembly instruction, a channel search must be done.

-> Only PAL, FM and DVB-C, but no DVB-T channels can be monitored.

Read the data of the monitoring cassette 4.

SETTINGS

• Select menu item Edit > Monitoring cassette > = Settings.

Station 1, Cassette 12 - PSCU/HSC	CU 6000 (V.23) (PSW1000)		×
File Plant Edit Help			
G 🔸 🖬 🕇 🛛 🖗 🗉	🗏 🔮 🐘 🔋 — D <sub>H</sub>	<u>A</u>	
Settings			
Output			
Transmitter Name Info	✓ Nom	CCIR (C) T	0
Modulator ON	Channel	C25 -	
Video			
Depth normal	✓ Infomode	extended 🔹	
Level tolerance settings	I	Attenuation setting	Voltage
		Attentiation setting	Voltage
TV analog TV d	digital Radio	0 📥 dB	U5: 5.23 V
Minus 10 🚔 dB 10	🚔 dB 🛛 10 🚔 dB		U12: 10.70 V
Plus 10 🚔 dB 10	🚔 dB 🛛 10 🚔 dB		U33: 33.91 V
			U50: 45.23 V
Display Text			
Station 1			

Section Output:

Output		1			
Transmitter Name	Info 👻	· Nom	CCIR (C) -	FT	0
Modulator ON		Channel	C25 -		4 <b>F</b>

• Enter the transmission parameters of the info channel and switch it on or off with check box "Modulator On".

Section Video:

Depth nomal  Infomode extended	⊂ Video			
		nomal 🔻	Infomode	extended 🔹

Modulation "Depth":

The modulation depth can be decreased (-5%, -10%) if sound interferences dependent on the picture content occur.

Info channel "Infomode":

Via this info mode setting the informations to be transmitted can be selected. At display mode "**extended**" following transmitter data are displayed in

the OSD menu "Info channel":

- At analogue TV channels: Channel, name and HF level in dBµV.
- At digital TV channels: Channel centre frequency in MHz, symbol rate in MSymbols/second, BER (Bit error rate) and HF level in dBµV.
- At FM band stations: Frequency in MHz, RDS name, HF level in dBµV.

Kanal	Name	BEI	R d	BμV
C 2	B R -3			63
С 3	ARD			62
C 4	ZDF			64
426,00	6,900	Ms1	e-7	51
434,00	6,900	M s 1	e-7	53
442,00	6,900	Ms1	e-7	51
95,15	Bayern	3		62
104,60	Radio F			63
Station 1		Se	eite 1	/6

Kanal	Name
C 2	B R - 3
C 3	ARD
C 4	ZDF
426,00	6,900 Ms
434,00	6,900 Ms
442,00	6,900 Ms
95,15	Bayern 3
104,60	Radio F 63
Station 1	Seite 1/6

At display mode "normal" of the

OSD menu "Info channel" the HF levels (dBµV) and the BER (Bit-Error-Rate) are not displayed, but the measuring for the monitoring is still done in the background.



Section "Level tolerance settings":

- Level to	lerance settings -		
	TV analog	TV digital	Radio
Minus	10 🚔 dB	10 🊔 dB	10 🚔 dB
Plus	10 🚔 dB	10 🌲 dB	10 🚔 dB

- Adjust the level tolerance range of the monitored signals.
  - -> Exceeding the tolerances longer than the time frame set (Page 86) results in an error message.

Section "Attenuation setting":

Attenuation setting									
Alteruation setting									
0 dB									

Herein attenuations inserted between the output of the head-end station and the input of the monitoring cassette can be entered in order to take it in consideration for the monitoring (offset).

- -> Using the measuring output of a STC 1200, enter the 20dB attenuation of the measuring output, in order to get the actual value of the stations output level.
- Enter a corresponding attenuation.

Section "Voltage":

Herein the operating voltages (+5V, +12V, +33V und +50V) of the head-ens station are displayed.



Section "Display Text":

```
Display Text
Station 1
```

• Enter the text which should be displayed in the footer of the info channel (Page 99).

```
-> The changes do not take effect until they are sent to the plant \uparrow.
```

#### **SUPERVISION LIST**

- Select menu item Edit > Monitoring cassette > W Supervision list.
  - -> If the supervision list is still empty tab "Headend list" is activated. If already channels are present in the supervision list tab "Change" is activated.
  - -> The supervision list is also displayed in tab "Supervision list" of the main window (Page 34).

Insert transmitter from head station:

• Activate tab "Headend list".

File Plant O	ptions											
3 🖬 🔸	🖬 🔶 🔯											
eadend list Char	ne New											
Output channel												
Channel / Freg		TV/Radio	Symbol ra	te (	DAM	s c		Name				
306,00 MHz		TV digital	6,900 MS	/s é	- 54	1 7	A	HDM 204 Of	MX (DV	B-SPI (4	x) to QAM HYP)	
786,00 MHz		TV digital			256	1 3	A	HDTV 1000				
818,00 MHz		TV digital	6,900 MS	/s 1			A (	HDTV 610 C	I TPS (	DVB-S2	to QAM ALL)	
826,00 MHz		TV digital	6,900 MS	/s 1	256	1 10	В	HDTV 610 C	I TPS (	DVB-S2	to QAM ALL)	
858,00 MHz		TV digital	6,900 MS	/s 1	256	1 3	в	HDTV 1000	ASI (Q	PSK to (	QAM ALL)	
			W I	nsert se	lected t	ransmitte	rs					
upervision list												
hannel / Freq	Transmitter Name	TV/Radio	Symbol rate	QAM	Level	Refer	e	Control	s	С	Name	
no data available												

-> In section "Supervision list" the output signals found during the channel search of the monitoring cassette are shown.

• Select all transmitters to be monitored in the "Headend list" and insert them into the "Supervision list" using button "Insert selected transmitters".

File Plant O	ptions										
3 🖬 🔸	🖬 🔶 🙂 🔍	🔶 l 🟦									
		~									
eadend list Modi											
Output channel	list (10)										
Channel / Freq	Transmitter Name	TV/Radio	Symbol ra	te Q	AM S	с	Name				
306,00 MHz		TV digital	6,900 MS	/s 6	4 :	. 7A	HDM 204 C	MX (DV	B-SPI (4:	<li>k) to QAM HYP)</li>	
786,00 MHz		TV digital	6,900 MS	/s 2	56 :	L 3 A	HDTV 1000	ASI (Q	PSK to Q	AM ALL)	
818,00 MHz		TV digital	6,900 MS	/s 2	56	10	A HDTV 610	CI TPS (	DVB-S2	to QAM ALL)	ſ
826,00 MHz		TV digital	6,900 MS	/s 2	56 :	101	B HDTV 610	CI TPS (	DVB-S2 t	to QAM ALL)	
858,00 MHz		TV digital	6,900 MS	/s 2	56	L 3B	HDTV 1000	ASI (Q	PSK to Q	AM ALL)	
			V I	nsert sel	ected tr	ansmitters	;				
upervision list (	2)										
uper vision lise									-		
	Transmitter Name	TV/Radio	Symbol rate	QAM	Level	Refere		S	С	Name	
Channel / Freq		TV digital	6,900 MS/s	256	0	New	OFF	1	10 A		
818,000 MHz		-						1	10 B	HDTV 610 CI TPS (DVB-S	2 to OAM
		TV digital	6,900 MS/s	256	0	New	OFF	1	10.0	101101010101110(0100	
18,000 MHz		-	6,900 MS/s	256	0	New	UFF	1	100	101001001113(0003	
18,000 MHz		-	6,900 MS/s	256	0	New	OFF	-	100	1010 010 01 113 (040 3	

# Modify transmitter:

• Activate tab "Modify".

📟 Edit PSCU/HSC	U data									- • ×
File Plant Op	otions									
Headend list Modif	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	â   Û								
Туре	TV digital 🔻	Frequency	818,000	)	4	Symb	ol rate [MS/	s]	6,900 ∢	Þ
Transmitter Name	•	Control	ON			QAM			256	•
				👿 Take	over cha	ange				
-Supervision list (	3)									
Channel / Freq	Transmitter Name	TV/Radio	Symbol rate	QAM	Level	Refere	Control	s	с	Name
818,000 MHz		TV digital	6,900 MS/s	256	0	New	OFF	1	10 A	HDTV 610 CI TPS (DVB-S2 to QAM
826,000 MHz		TV digital	6,900 MS/s	256	0	New	OFF	1	10 B	HDTV 610 CI TPS (DVB-S2 to QAM
858,000 MHz		TV digital	6,900 MS/s	256	0	New	OFF	1	3 B	HDTV 1000 ASI (QPSK to QAM ALL)

- Activate the transmitter to be changed in the supervision list.
- Enter the changes in section "Modify".
- Take over the modified channels into the "Supervision list" using button "Take over change".



## Add a new transmitter:

Activate tab "New".

File Plant C	ntions										
G 🗉 🛛 🔸	🖬 🚹 🔍 🔍	2 🗇									
Headend list Mod	fy New										
Туре	TV analog 🔹	Channel [Mł	[z] C	2	•						
Transmitter Nam	e 🔻	Control	ON ON								
				Insert	new tran	smitter					
	(3)			/ Insert	new tran	smitter					
Supervision list		TV/Radio	Symbol rate	7 Insert QAM	new tran Level	smitter Refere	Control	S	с	Name	
Supervision list		TV/Radio TV digital		1			Control OFF	S 1		Name HDTV 610 CI TPS (DVB-S2 tr	0 QAM .
Supervision list Channel / Freq 818,000 MHz			Symbol rate	QAM	Level	Refere					
Supervision list Channel / Freq 818,000 MHz 826,000 MHz		TV digital	Symbol rate 6,900 MS/s	QAM 256	Level 0	Refere New	OFF	1	10 A	HDTV 610 CI TPS (DVB-S2 to	o QAM .
Supervision list Channel / Freq 818,000 MHz 826,000 MHz		TV digital TV digital	Symbol rate 6,900 MS/s 6,900 MS/s	QAM 256 256	Level 0 0	Refere New New	OFF OFF	1 1	10 A 10 B	HDTV 610 CI TPS (DVB-S2 to HDTV 610 CI TPS (DVB-S2 to	o QAM .
Supervision list Channel / Freq 818,000 MHz 826,000 MHz 858,000 MHz		TV digital TV digital	Symbol rate 6,900 MS/s 6,900 MS/s	QAM 256 256	Level 0 0	Refere New New	OFF OFF	1 1	10 A 10 B	HDTV 610 CI TPS (DVB-S2 to HDTV 610 CI TPS (DVB-S2 to	o QAM .

In section "New" enter "Type", "Channel" resp. "Frequency" and the transmitter name. If "Type" is set to "TV digital" the kind of modulation (QAM 4...256) and the symbol rate must be entered.

		VInsert new transmitter		
Transmitter Name	Control	ON ON	QAM	256 🔹
Type TV digital 💌	Frequency [MHz]	862,000	Symbol rate [MS/s]	6,900
New				

Activate check box "ON" in order to monitor a transmitter.

• Insert the transmitter into the "Supervision list" using button "Insert new transmitter".

**<u>Remove a transmitter from the supervision list:</u>** 

- Activate the transmitter to be deleted in the "Supervision list".
- Select menu item **Options > Delete transmitter** or button .
- In order to delete all transmitters select menu item Options > Clear supervision list.

# <u> Reference level:</u>

In order to monitor level variations first reference levels must be stored. When the data of the monitoring cassette is read ( ) also the current levels of the transmitters are read (column "Level").

If no reference levels are stored (indication "NEW" in column Reference), the imported levels are used for reference.

- Activate the transmitters in the "Supervision list" whose <u>current</u> levels should be stored for reference levels.
- Store the levels of column "Level" for reference via menu item Options > 
   Level -> Reference or click on button
- Send the new reference levels to the cassette (1).

# Switching on (2) and off (2) the transmitter control individually:

If transmitters are included in the "Supervision list" and reference levels are stored it does not mean that it even will be monitored. The control can be switched on and off individually for each transmitter.

- Activate one (or several) transmitter(s) in the "Supervision list". Via menu item Options > Switch control on (2) or Options > Switch control off (2) you define which transmitters are to be monitored. In column "Control" of the "Supervision list" these settings are displayed (ON/OFF).
  - -> Analogue transmitters will be monitored for "level within the tolerance" and "Sync.", digital transmitters for "level within the tolerance", "locked" and "bit error", and FM transmitters for "level" and "malfunction of RDS data".

-> The changes do not take effect until they are sent to the plant  $\uparrow$ .

<u>Close the menu:</u>

Close the menu via the menu item Back or buttons

#### **LEVEL INDICATION**

- Select menu item Edit > Monitoring cassette > Level indication.
  - -> If no connection to the plant is activated, menu "connection settings" appears, in order to activate a connection.

Supervision list	🖄 Level display Back Help								×
B18,000 MHz         TV digital         256         6,900 MS/s         0         1         10 A           Measurements         TV digital / Frequency: 818,000 MHz / QAM: 256 / Symbol rate: 6,900 MS/s         Level:         78 dBuV									
Measurements TV digital / Frequency: 818,000 MHz / QAM: 256 / Symbol rate: 6,900 MS/s Level: 78 dBuV	Channel/Frequ	Transmitter	TV/Radio	QAM	Symbol rate	Level	Reference	Station	Cass
TV digital / Frequency: 818,000 MHz / QAM: 256 / Symbol rate: 6,900 MS/s	818,000 MHz		TV digital	256	6,900 MS/s		0	1	10 A
TV digital / Frequency: 818,000 MHz / QAM: 256 / Symbol rate: 6,900 MS/s									
TV digital / Frequency: 818,000 MHz / QAM: 256 / Symbol rate: 6,900 MS/s									
TV digital / Frequency: 818,000 MHz / QAM: 256 / Symbol rate: 6,900 MS/s									
TV digital / Frequency: 818,000 MHz / QAM: 256 / Symbol rate: 6,900 MS/s									
TV digital / Frequency: 818,000 MHz / QAM: 256 / Symbol rate: 6,900 MS/s									
TV digital / Frequency: 818,000 MHz / QAM: 256 / Symbol rate: 6,900 MS/s									
TV digital / Frequency: 818,000 MHz / QAM: 256 / Symbol rate: 6,900 MS/s									
TV digital / Frequency: 818,000 MHz / QAM: 256 / Symbol rate: 6,900 MS/s									
TV digital / Frequency: 818,000 MHz / QAM: 256 / Symbol rate: 6,900 MS/s									
Level: 78 dBuV	Measureme	ents							
	TV digita	l / Frequen	cy: 818,00	00 MHz	/ QAM: 25	6 / Syn	ibol rate: 6	,900 MS	/s
BER: 1e-7		Le	evel:		78 d	BuV			
		BI	ER:		1e-7				

- Select the transmitter whose level you would like to display
  - -> At analogous transmitters, level and sync. is displayed
  - -> At digital transmitters level and Bit error rate (BER) is displayed
  - -> For FM band stations the level is displayed.

#### **S**TART SEARCH RUN:

If the configuration of the plant was changed, using this function a station search of the monitoring cassette can be started in order to find new stations for monitoring.

• Select menu item Edit > Monitoring cassette > start search run.

-> If no connection to the plant is activated, menu "connection settings" appears, in order to activate a connection.

Question	x
Start new search run?	
Yes No	

• Start the station search with button

Dearch	ı run display	×
	C 48	
	close window	

-> After that read in the new data from the monitoring cassette into the PC ->.

# BACKUP SYSTEM

Via this menu a connected backup system can be configured.

- Select PRS 16/8 in the left window (tree structure) and click to button
- Select menu item Edit > I Backup System.

G 🕇 😨 🔞					
Bac	kup System PRS 16/8: Or	itput		Input	
1		•	OFF		▼]
2		-	OFF		•
3		•	OFF		•
4		•	OFF		•
5		•	OFF		•
6		•	OFF		•
7		•	OFF		•
8		•	OFF		

#### INPUT ASSIGNMENT:

Click on button .

😸 Satellite Name Input	t 💌
Input 1	<b></b>
Input 2	· · · · · · · · · · · · · · · · · · ·
Input 3	
Input 4	
Input 5	<b></b>
Input 6	<b></b>
Input 7	<b></b>
Input 8	<b></b>
Input 9	<b></b>
Input 10	-
Input 11	<b></b>
Input 12	<b></b>
Input 13	-
Input 14	-
Input 15	-
Input 16	•
	✓ OK

- Enter the connected satellite layers for the corresponding inputs of the backup system (e.g. astra, astra vl, eutel hl etc.).
- Confirm the settings with button 🗾 🗸 OK .

## BACKUP SYSTEM: OUTPUT

Herein the present backup cassettes will be entered.

 Select the connected backup cassettes for the corresponding outputs of the backup system (e.g. Station 2/Box:1/Linie:A/HDTV 1000 T /DVB-S2-COFDM).

#### BACKUP SYSTEM: INPUT

Herein the needed input (SAT layer) will be assigned to the backup cassettes.

• In case of a cassettes malfunction assign the needed input to the corresponding backup cassette.

1 2 0		
Backup System PRS 16/8: Output	Input	
1 S: 2/C: 1 /L: A / HDTV 1000 T / DVB-S2 to COFDM ALL	▼ 1 [Astra 1H]	▼]
2 S: 2 / C: 1 / L: B / HDTV 1000 T / DVB-S2 to COFDM ALL	OFF	•
3 S: 2/C: 2/L: A/HDTV 1000 T/DVB-S2 to COFDM ALL	OFF	•
4 S: 2 / C: 2 / L: B / HDTV 1000 T / DVB-S2 to COFDM ALL	▼ OFF	-
5 S: 2 / C: 3 / L: A / HDTV 1000 T / DVB-S2 to COFDM ALL	▼ OFF	▼]
6 S: 2 / C: 3 / L: B / HDTV 1000 T / DVB-S2 to COFDM ALL	▼ OFF	•
7 S: 2/C: 4/L: A/HDTV 1000 T/DVB-S2 to COFDM ALL	OFF	•
8 S: 2/C: 4/L: B / HDTV 1000 T / DVB-S2 to COFDM ALL	<ul> <li>OFF</li> </ul>	•

-> The changes do not take effect until they are sent to the plant  $\uparrow$ .

<u>Close the menu:</u>

Close the menu via the menu item Back or buttons G / EXE.
#### 6.7 MENU EXTRAS



## SELMA – SERVICE LIST MANAGEMENT

Herein you can create lists (databases) of transponders/services (programmes) which can be used for a quick input parameter setting of the cassettes.

- -> The cassette must support this function.
- —> A service list of the satellit ASTRA 19.2° is already added (Astra\_ Template.xml). In column "Update" you can check the state of the list.
- -> In order to modify this database, it must be "saved as..." with a new name (Page 114), because at every software update the original file will be overwritten.
- Select menu item Extras > 📡 SELMA.

You can modify the "Astra" list as well as create new lists.

File Edit	Extras											
<b>)</b> +	1000	D	н	<b>BBB</b>	. 🖻	Database A	stra_Templa	ite.xml			• (3)	
learch												
Service				-								
Fransponde	er (94), Services (	757)										
Satellite	Transponder	TP	Pol.	DISEqC	f [MHz]	LNB [MHz]	SR [MS/s]	DVB-Mode	ON-ID	TS-ID	Services	U¢
Astra 1KR		0	н	off	11244	9750	22,000	DVB-S	0x0000	0x0000	ATV 2, BKF, ORF Sport +, StarParadies Österreich, T	29
Astra 1L		0	н	off	11303	9750	22,000	DVB-S	0x0000	0x0000	ORF 2 HD, ORF Eins HD, Servus TV Deutschland HD,	29
istra 1KR		0	V	off	11318	9750	22,000	DVB-S	0x0000	0x0000	AXN España, AXN White España, Canal + 1 30, Ca	29
stra 1KR		0	V	off	11347	9750	22,000	DVB-S	0x0000	0x0000	3sat HD, KI.KA HD, ZDF info HD	29
stra 1KR		0	н	off	11362	9750	22,000	DVB-S	0x0000	0x0000	ZDF HD, ZDF Kultur HD	29
Astra 1KR			н	off	11421	9750	22,000	DVR-S	0x0000	0x0000	6 Live TV, Achtung Singles TV, Amore-TV, Astra 3D p	20

If several databases are created, select the desired database via selection field Database Astra19.2

# TRANSFER TRANSPONDER FROM/TO CASSETTES

- -> In order to transfer transponders from or to a cassette, SELMA must be called up via the settings menu of the cassette!
- Call up the 📻 settings menu of a cassette.
  - -> In the following example, cassette HDTV 1000 ASI LAN (PHDQ 1000 ASI LAN) is described exemplarily in this instruction.

Station 1, Cassette 5 - HDT	/ 1000 ASI (TPM32)	(PSW1000)	×
File Plant Edit Help G I IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	₽ III 2 8   ¥	D <sub>H</sub> A	
Input		1	
Satellite Name	Astra 1H 👻	LNB Frequency [MHz]	10600 👻
Transmitter Name	ARD Digital 👻	Frequency [MHz]	<
		IF Frequency [MHz]	1236,0
		Symbol Rate [MS/s]	27,500 👻
TS-/ON-ID: 0x0453 / 0x0001 C/N (reserve): 15,3 dB (11,3 d		Default DVB-Mode	< ► DVB-S ▼
Output		1	
Channel	C67 •	Symbol Rate [MS/s]	6,900
Modulator Level	-3	QAM	256 -
	< _ >	Spectrum	nomal
V Filter		Failure	Single Carrier 🔻
NIT     Modulator		TS-/ON-ID	c 0001 0x 0100
		Drop PID 0	c 0000

• Call up menu item Edit > 📡 SELMA or button 📡.

-> SELMA will be opened, in order to select or store a transponder.

File Edit	Extras	6 D		<b>1</b> . ±	R 🚔	Database	Astra Templa	ite vml			- (3)	
Search		~	•	100 100-			-stro_rempie					
Service												
Transpond	er (94), Service	es (757)										
Satellite	Transponder	TP	Pol.	DiSEqC	f [MHz]	LNB [MHz]	SR [MS/s]	DVB-Mode	ON-ID	TS-ID	Services	Up
Astra 1KR		0	н	off	11244	9750	22,000	DVB-S	0x0000	0x0000	ATV 2, BKF, ORF Sport +, StarParadies Österreich, T	29
Astra 1L		0	н	off	11303	9750	22,000	DVB-S	0x0000	0x0000	ORF 2 HD, ORF Eins HD, Servus TV Deutschland HD,	29
Astra 1KR		0	V	off	11318	9750	22,000	DVB-S	0x0000	0x0000	AXN España, AXN White España, Canal + 1 30, Ca	29
Astra 1KR		0	V	off	11347	9750	22,000	DVB-S	0x0000	0x0000	3sat HD, KI.KA HD, ZDF info HD	29
Astra 1KR		0	н	off	11362	9750	22,000	DVB-S	0x0000	0x0000	ZDF HD, ZDF Kultur HD	29
Astra 1KR		0	н	off	11421	9750	22,000	DVB-S	0x0000	0x0000	6 Live TV, Achtung Singles TV, Amore-TV, Astra 3D p	29
Astra 1KR		0	٧	off	11436	9750	22,000	DVB-S	0x0000	0x0000	Canal + 1 HD, Canal + Fútbol, Canal + Xtra, Viajar	29
Astra 1M		0	н	off	11464	9750	22,000	DVB-S	0x0000	0x0000	Pro Sieben Deutschland, Sat. 1 Deutschland HD, Sixx	29
Astra 1L		0	٧	off	11479	9750	22,000	DVB-S	0x0000	0x0000	CanalSat France promo, French Lover TV, Girondins	29
Astra 1L		0	н	off	11494	9750	22,000	DVB-S	0x0000	0x0000	ARTE Deutsch HD, Das Erste HD, SWR Fernsehen Ba	29
Astra 1M		0	V	off	11509	9750	22,000	DVB-S	0x0000	0x0000	Al Jazeera Channel, Al Jazeera English, Arirang Worl	29
Astra 1M		0	н	off	11523	10600	22,000	DVB-S	0x0000	0x0000	Augsburg TV, Franken Fernsehen, Franken Sat, Loka	29
Astra 1M		0	V	off	11538	10600	22,000	DVB-S	0x0000	0x0000	CCTV Français, CCTV News, Fashion One, France 24	29
Astra 1L		0	V	off	11568	10600	22,000	DVB-S	0x0000	0x0000	Campus Bac, ESPN Classic France, MCS Bien-Etre, M	29
Astra 1L		0	н	off	11582	10600	22,000	DVB-S	0x0000	0x0000	Bayerisches Fernsehen, Bayerisches Fernsehen, ND	29
Astra 1L		0	V	off	11597	10600	22,000	DVB-S	0x0000	0x0000	Andalucía TV, BBC World News Europe, Best of Shop	29
Astra 1KR		0	н	off	11612	10600	22,000	DVB-S	0x0000	0x0000	Astra 3D promo, Holiday, Magic 3D promo, RTB TV, R	29
Astra 1KR		0	V	off	11627	10600	22,000	DVB-S	0x0000	0x0000	Animax España, Baby TV Europe, Barça TV, Boing Es	29
Astra 1M		0	н	off	11641	10600	22,000	DVB-S	0x0000	0x0000	RTL 2 Österreich, RTL Österreich, Vox Österreich HD	29
Astra 1KR		0	н	off	11671	10600	22,000	DVB-S	0x0000	0x0000	Kabel Eins Austria HD, Pro Sieben Austria HD, Puls 4	29
Astra 1KR		0	V	off	11686	10600	22,000	DVB-S	0x0000	0x0000	Antena 3, Canal Panda España, La Siete, Neox, Nick	29
Astra 20		0	v	off	10979	9750	22.000	DVR-S	0v0000	0×0000	Canal + Ytra, Canal Hollywood Esnaña, Clan TVE, Cu	29
							III					•
tation 1, Ca	ssette 3, Linie 1 -											
	export to tuner			import tun	er settings							

# $\underline{\mathsf{SELMA}} \rightarrow \underline{\mathsf{Cassette}}$

 In order to transfer transponder data from a SELMA list to a cassette, select the transponder and click on button report to tuner.

# $\underline{\text{Cassette}} \rightarrow \underline{\text{SELMA}}$

- In order to transfer transponder data from a cassette to a SELMA list, click on button import tuner settings.
  - -> The "Astra\_Template.xml" can not be modified.
    At every software update the original file will be overwritten.
    If this list is selected, the following window appear:

🚎 New QAM Database	<b>×</b>
Name:	
ОК	Cancel

Enter a name and thereby generate a new list (page 112).

-> If another list is selected (e.g. a copy of the "Template list"; page 115), the transponder from the cassette will be added to the list.

CREATE A NEW DATABASE (LIST)
<ul> <li>Activate menu item Edit &gt; s new database or button s.</li> </ul>
New QAM Database Name: OK Cancel
<ul> <li>Enter a name and click on button οκ</li> </ul>

#### ADD TRANSPONDER / SERVICES

Activate menu item Edit > - Add entry or button - .

—> This fu	unction can a n).	lso be	selected by	the cont	lext n	nenu	ı (ri	ght ma	ouse
Edit entry						F	×	)	
Parameters			Services			_			
Satellite	Astra 2B (28.2°E) 🔹	H •	Name:						
Transponder	ARD Digital	71 🌲	SID:	0x 0000					
DiSEqC	TBV -		Тур:	HD 💌					
LNB Frequency [MHz]	10600 👻								
Frequency [MHz]	11836		Service		SID	Туре			
IF Frequency [MHz]	1236.0								
Symbol rate [MS/s]	27,500 ↓ ▶								
DVB-Mode:	DVB-S 🔻								
TS-/ON-ID [Hex]	0x 0000 0x 0000								
								1	

• First enter the parameter of the desired transponder in section "Parameters".

DH

Cancel

- -> For cassettes, which support DiSEqC\* the corresponding command can be selected under point "DiSEqC".
   \*DiSEqC™ is a trademark of EUTELSAT
- After that enter a "name", the corresponding "SID" and the "type" of service in section "Services" and click to button 📑 in order to add this service to the transponder.
  - -> The service appears in the list below. Enter all services of the transponder you need.

Edit entry				×
Parameters		Services		
Satellite	Astra 2B (28.2°E) 🔹 H 💌	Name:		
Transponder	ARD Digital 71 🚔	SID: 0x 0000		
DiSEqC	TBVI -	Typ: HD	-	
LNB Frequency [MHz]	10600 -			
		Service	SID	Туре
Frequency [MHz]	11836	Das Erste	0x6DCA	HD
	< >	Bayerisches Fernsehen Süd	0x6DCB	HD
IF Frequency [MHz]	1236.0	HR Fernsehen	0x6DCC	HD
	07.500	Bayerisches Fernsehen Nord	0x6DCE	HD
Symbol rate [MS/s]	27,500	WDR Fernsehen Köln	0x6DCF	HD
	< >	SWR Fernsehen Baden-Württemberg	0x6DD1	HD
DVB-Mode:	DVB-S 💌			
TS-/ON-ID [Hex]	0x 0000 0x 0000			
ОК	Cancel			

## Change a service:

Activate the service which you would like to change in the list.

-> Its data will be displayed in the corresponding input fields.

Change the data and store the changes using button I.

## <u>Delete a service:</u>

- Activate the service which you would like to delete in the list.
- Delete the service using button 💼.

Exit Menu "Add entry":

-> The transponder is added to the list.

G +/	0.00	DH		B 🛃 🕋	Database	Astra_Templa	te.xml				• (3)	
Search Service Transponder (	*											
Satelite	Transponder	TP	Pol.	Frequency	LNB Freq.	SR	DVB-Mode	ON-ID	TS-ID	Services	Update	
Astra 1H	ARD Digital	71	н	11836 MHz	10600 MHz	27,500 MS/s	DVB-S	0x044D	0x0001		09.05.20	

# 🧪 Modify (a database)

- To modify a database, activate the corresponding transponder in the list and select menu item Edit > *Modify* or click on button *2*.
  - -> This function can also be selected by the context menu (right mouse button).

arameters			Services			
Gatellite	Astra 2B (28.2°E) 🔹 H	•	Name:			
Transponder	ARD Digital 71	×	SID:	0x 0000		
DiSEqC	TBV -		Тур:	HD 🔻	]	
LNB Frequency [MHz]	10600 -					
	< >		Service		SID	Type
Frequency [MHz]	11836		Das Erste		0x6DCA	HD
	< F		Bayerisches Fernsehen Sü	d	0x6DCB	HD
F Frequency [MHz]	1236.0		HR Fernsehen		0x6DCC	HD
			Bayerisches Fernsehen No	ord	0x6DCE	HD
Symbol rate [MS/s]	27,500		WDR Fernsehen Köln		0x6DCF	HD
	< F		SWR Fernsehen Baden-W	ürttemberg	0x6DD1	HD
DVB-Mode:	DVB-S 👻					
TS-/ON-ID [Hex]	0x 0000 0x 0000					
ОК	Cancel	DH				

Modify the data and confirm the changes using button

ОК

#### **T** REMOVE A TRANSPONDER FROM A DATABASE

 To remove a transponder from a database, activate the corresponding transponder in the list and select menu item Edit > TRemove or click on button

> -> This function can also be selected by the context menu (right mouse button).

# 📑 Copy / 🖺 Insert

Via this functions you can copy transponders from one database into another.

- Activate the transponder to be copied in the list.
- Activate menu item Edit > 
   Copy or button
- Switch to the "target database" and activate menu item Edit > is Insert or button

-> This functions can also be selected by the context menu (right mouse button).



## WORKING DIRECTORY

The standard database "Astra\_Template.xml" is stored in the installation directory "My Documents/PSW1000/...". Via the function "Working directory" you can select the storage location for new/changed databases.



- Activate menu item Edit > improved working directory or button improved button.
- Select/create the desired directory.

#### SAVE AS

Herein you can save a database under a new name e.g. to get a variant of it.

#### 🚋 Delete database

Activate menu item Edit > - Delete database or button - .

## **D**<sub>H</sub> Decimal <-> Hexadecimal

With this menu item you can change the indication (and input) of IDs from Hexadecimal to Decimal numbering system (and vice versa).

Select menu item Extras > P<sub>H</sub> Decimal <-> Hexadecimal or click on button
 P<sub>H</sub>.

-> The hexadecimal numbering system always starts with the term "Ox".

# SID / TYPE

Via this checkboxes in menu "Extras" it is possible to show the service ID and the type (HD, SD, Radio or Data) of the Services in column "Services".

Extr	as	Comilana
D.,	Decimal <-> Hexadecimal Strg+D	Services
- H	Decimal C-2 Hexadecimal Sug+D	ZDF HD (0x0000, HD)
	SID	
	Туре	/



#### SEARCH

Via this function you can search for services.

Search											
Service		-	ZDF								
Transpond	er (94), Services (	757)									
Satellite	Transponder	TP	Pol.	f [MHz]	LNB [MHz]	SR [MS/s]	DVB-Mode	ON-ID	TS-ID	Services	Update
Astra 1KR		0	н	11244	9750	22,000	DVB-S	0x0000	0x0000	ATV 2, BKF, ORF Sport +, StarParadies Österreich, Tele	29.05.20
Astra 1L		0	н	11303	9750	22,000	DVB-S	0x0000	0x0000	ORF 2 HD, ORF Eins HD, Servus TV Deutschland HD, Ser	29.05.20
Astra 1KR		0	V	11318	9750	22,000	DVB-S	0x0000	0x0000	AXN España, AXN White España, Canal + 130, Canal	29.05.20
Astra 1KR		0	V	11347	9750	22,000	DVB-S	0x0000	0x0000	3sat HD, KI.KA HD, ZDF info HD	29.05.20
Astra 1KR		0	Н	11362	9750	22,000	DVB-S	0x0000	0x0000	ZDF HD, ZDF Kultur HD	29.05.20
Astra 1KR		0	н	11421	9750	22,000	DVB-S	0x0000	0x0000	6 Live TV, Achtung Singles TV, Amore-TV, Astra 3D prom	29.05.20

Enter a search term (e.g. ZDF) and start the search using buttons vards) or (upwards).

-> The search function is limited to the search for services (left selection field is locked).

# HEXADEZIMAL <-> DEZIMAL CALCULATOR

• Select menu item Extras > Hex <-> Decimal.

Dec <-> Hex	×
Decimal Hexadecimal	
C	lose

If you enter a decimal or hexadecimal value into the corresponding input field, the converted value is displayed in the other field.

#### **D**<sub>H</sub> Decimal <-> Hexadecimal

With this menu item you can change the indication (and input) of IDs from Hexadecimal to Decimal numbering system (and vice versa).

Select menu item Extras > P<sub>H</sub> Decimal <-> Hexadecimal or click on button
 P<sub>H</sub>.

-> The hexadecimal numbering system always starts with the term "Ox".



#### **OUTPUT SYMBOL RATE CALCULATOR**

• Select menu item Extras > Symbolrate Calculator auswählen.

Entering the FEC parameter and the input symbol rate the output symbol rates for the different modulation types.

Sym	nbol Rate Cal	culator	X
6	Parameter		
	FEC	3 🗸 / 4 👻	
	Input Symb	ol Rate [kS/s] 6875	
	Result		
	256-QAM	SymbolRate_out = 1289 kS/s	
	128-QAM	SymbolRate_out = 1473 kS/s	
	64-QAM	SymbolRate_out = 1718 kS/s	
	32-QAM	SymbolRate_out = 2062 kS/s	
	16-QAM	SymbolRate_out = 2578 kS/s	
	4-QAM	SymbolRate_out = 5156 kS/s	
		Close	

# 🛓 VLC

If the "VLC media player" is installed on the PC, the playback of IPTV streams via the VLC player can be started via the PSW 1000.

- -> VLC is a free and open source cross-platform multimedia player and framework that plays most multimedia files as well as DVD, Audio CD, VCD, and various streaming protocols. For information and download see http://www.videolan.org
- Select menu item **Extras > 🖾 VLC** or button 📥.

🛓 VLC		×
IP-TV Source		
IP:Port	227.40.50.60 : 60000	
Protocol	UDP C RTP	
C:\Program I	Files\VideoLAN\VLC\vlc.exe	
	Play	

• Click on button 🔍 and select the installation path of the VLC player.

-> The installation path must only be assigned at the first start.

 Enter the IP address, the port and the protocol of the IPTV stream, you would like to playback and start with button

#### IPS1

Via this menu you can start a browser e.g. to get access to the HTML user interfaces of connected components.

• Select menu item Extras > IPS1.

IPS1 - Webbrowser	- • <b>•</b>
▲ http://	Navigate

• Enter the DNS name or the IP address of the connected component into the input line and click on button Navigate.

-> Observe the sample configuration in Annex A (Page 131)

#### **LANGUAGE**

In menu "Language" select you preferred the menu languages.

> —> The language of system internal buttons depend on the display language selected at the PC system settings resp. the installed language packs of the operating system.



#### 6.8 MENU HELP

In menu "Help" tools and functions are collected which will support you at your work with the PSW 1000.

Help	>	
2	Manual	F1
•	TeamViewer	
۲	Check for Update	F4
	License	
<b>i</b>	Info on PSW 1000	

#### 🕜 MANUAL

Via this Menu you call up the internal programme help.

During the installing process of the software the operating instruction is copied onto your PC and can be called up via this menu item. Therefore an application which can display PDF files (e.g. Adobe Acrobat Reader).

-> If button (?) is integrated in the toolbar of a window, the operating instruction can be called up..



#### 🔁 TEAMVIEWER

A TeamViewer Module which runs without installation has been included for support. Here you can give our technicians a controlled access to your PC, in order to get remote support to solve specific problems.

GSS TeamViewer Support	×
Allow Remote Control	\$
Please tell us your ID and your password in order that we can establish a connection to your desktop.	
Your ID	
Password -	
Not ready. Please check your connection	n
www.teamviewer.com	=

• Wait until the connection indicator changes from "red" to "green" and your ID (e.g. 555 112 716) and a password (e.g. 5541) is displayed.

GSS TeamViewer Support	×
Allow Remote Control	\$
Please tell us your ID and your password in order that we can establish a connection to your desktop.	
Your ID 555 112 716	
Password 7243 🖒	
Ready to connect (secure connection)	
www.teamviewer.com Cancel	

• If you are prompted, tell our technician your "ID" and the "password".

AT every TeamViewer restart you will get a new password.
 The connection is displayed at the lower right screen edge.





#### Scheck for updates

Via this menu item you can check, whether a new version of the PSW 1000 is available.

-> You should always use the newest version, in order to ensure that always the newest components can be controlled.

5W1000	x
search Download	
Check for Update (©) when the application starts (©) manually	
Close	

- Select whether you would like to search for update automatically at every programme start or manually.
- Click on button search to start the search.

555 PSW1000	<b>—</b>
The software is up to	date.
search	Download
Check for Update when the application manually	on starts
Close	.#

If your software is up-to-date close the function by button

555 PSW1000	<b>—</b>
New version avai	ilable: v.xx
search	Download
Check for Update when the applica manually	tion starts
Close	

If a newer version is available you can download it via button
 Download

ICENCE

Via this menu item you can call up the software licence agreement, which you already accepted during installation process.

# (i) Info on ...

Via this menu item you call up the programme information.

GSS - Gru Beuthene 90471 Nu Web:		GSSS Grundig SAT Systems
	Close	



# 7 LCN - LOGICAL CHANNEL NUMBERS

LCN is a static, virtual assignment of programme numbers for services. Suitable receivers use these LCN information in order to sort the channels after a station search. The LCN information is part of the Network Information Table (NIT).

-> At present LCN version 1 is supported.

# 7.1 CALL UP THE LCN MENU

• In window "Create NIT"...

Create NIT				×
File Plant	Options			
G 🗖	🚽 🖬 1	LC	N D <sub>H</sub>	2
- NIT-Header -				
📝 Take f	rom original NIT			
Network-II	D:		0x 0000	
Version (m	ax.: 0x1F):		0x 00	
Networkna	ime:			
NIT				
Frequenz	Symbolrate	TS-ID	ON-ID	
306,000	6,900	0x096A		
794,000	-	0x0437		
802,000		0x3302		
850,000	6,900	0x044D	0x0001	
				4

... select the menu item **Options >** = **LCN** resp. click on button **LCN**, or in the NIT Expert Mode (Page 68)...

Cassette NITs Stat Station Ca 1 2 1 3 1 4 1 6	NET F	Imports feader feader finite (PTP) for (PTP) for (naw.: 0x3P); 0x 00 for (Name: Take over	NT Header Eds. Transconder Network To: 0 (000) Version (max. 1 ox 17): 0 (00) Network Tome: Default Header
Frequency 173,000 142,000 834,000 834,000 850,000	SR Mod. - QAM64 - QAM64 - QAM64 6,900 QAH256	15.00 0420 04430 04001 03300 02114 03300 02114 03300 02114 04440 044001 04440 044001 04440 044001 04400 044001 04400 044001 04400 044001 04400 04400 04400 04400 04400 04400 04400 04400 04400 04400 04400 04400 04400 04400 04400 04400 0440 04400 04400 0440 04400 040000 04000 04000 04000 04000 040000 040000 0400000000	Presserv         SR         Mod.         T5-62         O6-62           no data evaluate </th



... click o

• View	📑 рн 🔞									
-	H Service	Type	SID	TS-ID	ON-ID	SF/SF HD	s	с	L	LCN Neuer Service
	Das Erste	TV SD	0x6DCA	0x044D	0x0001	on / on	1	2	A	Editieren
	WDR Köln	2	OxGDCF	0x044D	0x0001	on / on	1	4	A	
	Bayerisches FS S	?	0x6DCB	0x044D	0x0001	on / on	1	4	Α	Das Erste
	hr-fernsehen	?	0x6DCC	0x044D	0x0001	on / on	1	4	A	SID [Hex] 0x6DCA
	Bayerisches FS N	TV SD	0x6DCE	0x044D	0x0001	on / on	1	2	A	TS-/ON-ID: 0x044D / 0x0001
	SWR Fernsehen BW	?	0x6DD1	0x044D	0x0001	on / on	1	4	А	
	QVC	TV SD	0x401D	0x3302	0x2114	on / on	1	3	в	
	Bibel TV	TV SD	0x402A	0x3302	0x2114	on / on	1	3	в	LCN: 3 👾
	DLF	?	0x6D6D	0x0437	0x0001	on / on	1	4	в	LCN HD: -1 🐳
	Franken Fernsehe	TV SD	0x4882	0x3302	0x2114	on / on	1	з	в	
	zdf_neo	TV SD	0x6D6E	0x044D	0x0001	on / on	1	5	A	Visible Service Flag: on 💌
	Franken Fernsehe	TV SD	0x4882	0x044D	0x0001	on / on	1	5	A	Visible Service Flag HD: on
	Channel 21/Euron	TV SD	0x4025	0x3302	0x2114	on / on	1	з	в	independention and in
	ZDF	TV SD	0x6D66	0x044D	0x0001	on / on	1	s	Α	
	zdf_neo	TV SD	0x6D6E	0x0437	0x0001	on / on	1		в	<ul> <li>Accept change</li> </ul>
	zdf.kultur	TV SD	0x6D70	0x0437	0x0001	on / on	1	2	в	
	ZDF	TV SD	0x6D66	0x0437	0x0001	on / on	1	2	в	
	ZDFinfo	TV SD	0x6D6B	0x0437	0x0001	on / on	1	2	в	Bits for LCN data structure
	3sat	?	0x6D67	0x0437	0x0001	on / on	1	4	в	see receiver specs. 14 (max. LCN 9999
	KIKA	?	0x6D68	0x0437	0x0001	on / on	1	4	в	Private Data Specifier
	DRadio Wissen	Radio	0x6D71	0x0437	0x0001	on / on	1	2	в	Private Data Specifier
	DKULTUR	Radio	0x6D6C	0x0437	0x0001	on / on	1	2	в	ON [Hex] 0x 00000028
										Optionen
										Autosort LCN HD 📃 Autosort LCN
										choose
										Info
										Services: 25 / LCNs: 0 / LCN-HDs: 0
										TV SD: 16 / TV HD: 0 / Radio: 3 / Data: 0 / ?: 6

-> All services are shown in the table.

Via menu "View" services (Type) resp. columns temporarily can be hidden.



In order to hide services resp. columns uncheck the corresponding checkbox.

# 7.2 AUTOMATIC LCN ASSIGNMENT

Herein it is possible to assign the LCNs in the order of the sorting.

#### SORTING

## AUTOMATIC SORTING:

-> By default the table is sorted by columns C (Cassette)/L (Linie) in ascending order.

Clicking a column header will change the sorting according to the column criteria.

#### MANUAL LCN SORTING:

You can sort the services manually by "Drag and Drop".

- Click on a service and hold the mouse button depressed.
- At depressed mouse button drag the service to the desired list position.

## AUTOMATIC LCN ASSIGNMENT

Options	
Autosort LCN HD	Autosort LCN
choose	-
Choose CN HD LCN CN CN LCN HD CN CN Service	

In section "Options" select for "SD" services ICN or for "HD" services
 LCN HD.

-> The LCNs will be assigned in the order of the sorting.

#### 7.3 EDIT LCNs

#### TAB "LCN"

## MANUAL LCN ASSIGNMENT:

• Click to a service in the table.

-> The service is shown in section "LCN assignment" on the right side.

- Enter a LCN or (at HD channels) a LCN HD in the corresponding input field and click the Accept change button.
  - -> Due to the differentiation of LCN and LCN HD it is possible to assign the same channel number for a channel transmitted in "SD" and "HD" quality. Suited "HD" receivers will prefer the services in "HD" quality, "SD" receivers will use the service in "SD" quality.
  - -> The assigned LCN is shown in the table on the left side.
  - -> If the checkbox Autosort LCN resp. Autosort LCN HD in section "Options" is checked, the list will be sorted (in ascending order) by columns LCN/LCN HD immediately when entered a corresponding LCN.

# VISIBLE SERVICE FLAG (HD)

This setting must be set to "on" if a receiver should find the service during a station search. Setting "off" - for example - is used for channels used for software update only.

#### **RESET ALL LCNs / LCN-HD ASSIGNMENTS**

Options	
Autosort LCN HD	Autosort LCN
choose	-
choose	
🛞 LCN HD	
LCN	
T LCN HD	
T LCN	
T Service	

In section "Options" select for "SD" services TLCN or for "HD" services
 LCN HD.

-> All assigned LCNs will be deleted in the table.



# **R**ESET INDIVIDUAL LCNs / LCN-HD ASSIGNMENTS

• Click on a service in the table.

-> The service is shown in section "LCN assignment" on the right side.

- Click on the 🗊 button next to the LCN.
- Click on button

-> The assigned LCN will be deleted in the table.

#### **R**EMOVE INDIVIDUAL SERVICES TEMPORARILY

• Click to a service in the table.

-> The service is shown in section "LCN assignment" on the right side.

In section "Options" select T Service.

-> The service will be temporarily deleted from the table.

# TAB "ADD SERVICE"

# ADD INDIVIDUAL SERVICES

Via tab "Add services" individual services not included in the table can be added via tab "Add service".

- Select the corresponding TS- and ON-ID.
  - -> Herein all TS and ON IDs of the transponder, included in the NIT are shown for selection. If you would like to add services from other transponders, first you have to add these transponders into the NIT via the NIT expert mode (Page 72).
- Enter the SID and the desired LCN (HD).
- Select the kind of service (Type).
- Assign a name (optional).
- Click on button



- -> The added service is shown in the table on the left side.
- -> The name is only displayed in the table and will only be stored in a LCN backup () or when the LCN is exported in form of a text file () – not in a cassette!

## BITS FOR LCN DATA STRUCTURE / PRIVATE DATA SPECIFIER

For "LCN Data Structure" and "Private Data Specifier" IEC 62216-1 recommends the values "10 Bit" and "00000028". Receivers in German speaking regions mainly use this settings.

As in some regions (e.g. United Kingdom, Nordig, France etc.) different regulations exist, observe the country specific guidelines, if required.

#### BUTTONS

SAVE THE LCN LIST IN FORM OF A \*.GSL FILE

• Select menu item File > LCN backup save or click on button 📊.



- If you would like also to save services without LCN assignment select Yes
   If you would like to save only services with LCN assignment select, you have to select
   No
- Enter a file name, select the target directory and save the file using button
  Save
  .

## 📄 Open a LCN backup (\*.gsl file)

- Select menu item File > open LCN backup or click on button
- Select the corresponding file.
- Click on button Open .

-> The current LCN list will be overwritten/complemented.

-> Herein assigned names of added services can be helpful (Page 127).

# EXPORT A SERVICE (LCN) LIST AS A TEXT FILE

- Select menu item File > Export service list or click on button 🔜.
- Enter a file name, select the target directory and save the file using button
  Save
  .

**D**<sub>H</sub> Change the indication of the IDs (decimal <-> hexadecimal)

- Select menu item File > Decimal <-> Hex or click on button PH.
  - -> The indication of all IDs will be changed from hexadecimal to decimal (and vice versa).
  - -> The hexadecimal numbering system always starts with the term "Ox".
- 7.4 COMPLETE THE LCN PROCESSING...

... AT LCN PROCESSING VIA MENU "NIT"

# G Close the LCN menu:

Close the menu via the menu item G File > Back or via button G.

# ... AT LCN PROCESSING VIA MENU "NIT" (EXPERT MODE)

# Ġ Close the LCN menu:

- Close the menu via the menu item G File > Back or via button G.
- Complete the NIT processing using button
  - -> The modifications will be done as all settings via PSW 1000 first in the programme (RAM). The new (modified) NIT must finally be sent to the plant <sup>1</sup>/<sub>1</sub>.
  - -> All LCN assignments will be lost if a NIT is created directly via the control unit!

# 8 FINAL HINTS



# As often repeated:

All modifications/configurations be done with the PSW 1000 first are only be hold in the RAM (random access memory) of the PC. To get "active" the configuration data must be sent to the plant.

> —> So it is often necessary to send modifications to the plant and after that to read the modified settings into the programme again (in order - for example - to measure modified data rates or to make modified filter settings available for transmitting to other cassettes).



# ANNEX A

A1 CONNECTION PC -> ETHERNET -> UMTS-VPN -> MANAGEMENT SYSTEM

Assembling and configuration of a plant with included management system and UMTS router for remote control via a PC with Internet connection.

#### **S**AMPLE CONFIGURATION WITH TESTED COMPONENTS



#### **COMPONENTS USED**

- 3 x PSU 8-16 head-end station
- PRCU 12 management system
- PSW 1000 remote control software
- UMTS HSUPA VPN Router UR5i v2
- IP power switch IPS1: LAN controlled 230 VAC switch of the ELV company (www.elv.com - order no. 83514).
- mdexfixed.IP of the mdex GmbH (www.mdex.de)

APN: Access Point Name; the name of the external access point of a GPRS network. Normally the standard APNs of the network provider are configured in mobile handsets. In order to use the mdexfixed.IP the standard APN must be changed to the mdex APN.

OpenVPN: A software to create a virtual private network (VPN) via a SSL encrypted connection. The OpenSSL programme libraries are used for the encryption. OpenVPN uses UDP or IP protocol for transport. OpenVPN is a free software and supports several operating systems e.g. Linux, Windows 2000/XP etc.

# FUNCTIONAL PRINCIPLE

An UMTS - HSUPA VPN Router which can be accessed via a mobile phone network is connected via LAN to the management system of the plant. In order to get access via mobile phone network the router must have a static IP address which can be purchased e.g. from the "mdex GMBH" (mdexfixed.IP). mdex offers miscellaneous solutions for several mobile phone networks and also acts as a network provider by offering the "mdexsim". The mdex APN must be set in the router.

Using the PSW 1000 software on a PC with Internet access it is possible to get access to the plant via the mdex network.

Via the IP power switch IPS1 suitable components can be switched on and off via remote (for example a HF switch).

#### **CONFIGURATION SEQUENCE**

• First you need a "mdexfixed.IP", which can be purchased from mdex (www.mdex.de).

You will get a confirmation mail from mdex containing all needed data. For this example:

mdex access details						
	User name	Password	Product description			
Internet access point (OpenVPN)	i00xxxxa	abc	fixed.IP for OpenVPN			
Mobile access point	m00xxxxb@mdex.de	def	fixed.IP via Vodafone APN: cda.vodafone.de			
web.direct access point	m00xxxxc	ghi				
Device addresse	es					
	IP address	Access type	Host name			
fixed.IP via OpenVPN	172.21.88.xxx	Internet access	i00xxxxa.maxmuster- mann.mdex.de			
fixed.IP via Vodafone	172.20.207.xxx	Mobil access	m00xxxxc.maxmuster- mann.mdex.de			

• Assign the IP addresses for the components at receiving plant side. For this example:

Component	IP address	Port
IP address router	192.168.1.1	
IP address management system	192.168.1.200	60003
IP address IP power switch IPS1	192.168.1.201	80

• **Configure the Ethernet settings for PRCU 12** via a direct connected PC and and the remote control software PSW 1000:

Connect the "PC" socket on the front side of the 19" cover with the serial Interface of the PCs via a 1:1 RS-232 cable. Optionally use a USB/RS-232 adapter at PCs with USB interface (without serial interface, see page 17). Start the remote control software PSW 1000 and make a in situ connection (Page 20).

Call up menu **Edit > Plant > Settings > Connection/Ethernet** (Page 84), enter the settings required for the network (the plant is installed) and click to button <u>Take over</u> in order to send the settings to the management system.

Settings	
IP-Adresse : Port	192.168.1.200 : 60003
Netmask	255.255.255.0
Gateway	192.168.1.1
HTTP Port	80

-> The specified values relate to this example.

# • Configure the IP power switch IPS1.

By default IPS1 is set to the static IP address 192.168.1.100, Subnetmask 255.255.0.0, Gateway 192.168.1.1, Port 80.

Adjust your PC to a static IP address in the address range of the IPS1 (e.g. 192.168.1.2, Subnetmask 255.255.0.0).

Connect the PC with the IPS1 via a LAN cable.

Call up the web interface (only in German) of the IPS1 via a browser (http://192.168.1.100).





Systemeinstellu	ngen						
Auf dieser Seite können Sie die Systemeinstellungen des IPS 1 verändern und an Ihre Netzwerkparameter anpassen. Sie können zudem den Hostnamen sowie die Hintergrund- und Textfarbe ändern. Die MAC-Adresse des IPS 1 wird ebenfalls angezeigt.							
Sollten Sie die IP-Adresse ändern, müssen Sie, nachdem die neue Adresse übernommen wurde, ebenfalls die IP-Adresse in der Adresszeile ändern, um wieder Zugriff auf den IPS 1 zu erhalten. Beachten Sie, dass falsche Eingaben dazu führen können, dass Sie keinen Zugriff mehr auf den IPS 1 erhalten.							
Alle Änderungen auf dieser Seite werden erst nach einem Klick auf die Schaltfläche "Übernehmen" übernommen. Dabei werden die Eingaben überprüft und nur akzeptiert, wenn die Eingaben gultig sind. Im Fehlerfall wird eine Warnung inklusive der fehlerhaften Eingabe erzeugt. Mit der Schaltfläche "Verwerfen", werden alle Änderungen rückgängig gemacht, die noch nicht übernommen worden sind.							
Zuweisung durch den DHCP-Server							
<ul> <li>and the second se</li></ul>							
IP-Adresse:	192.168.1.201						
Subnetzmaske:	255.255.255.0						
Gateway:	192.168.1.1						
Primärer DNS Server:	192.168.1.1						
Sekundärer DNS Server:	0.0.0.0						
MAC-Adresse:							
Host Name:							
Hintergrundfarbe:	<b>R</b> 0 <b>G</b> 0 <b>B</b> 21						
Textfarbe:	<b>R</b> 255 <b>G</b> 96 <b>B</b> 0						
Übernehmen Verwe	erfen zurück						

Select "manuelle Konfiguration", enter the required settings click to button Übernehmen (apply).

->	The specified values relate to this example.
	"local" IP address 192.168.1.201
	Subnetmask 255.255.255.0
	Gateway 192.168.1.1 ("local" IP address of the router)

Click to button **zurück** in order to return to the main menu.

Click to button <u>Benutzer/Passwort</u> (user password).

Auf dieser Seite können Sie das Passwort und den Usernamen ändern. Mit einem Klick auf die "Übernehmen"- Schaltfläche wird das Password geändert. Sollten die beiden Passworteingaben nicht übereinstimmen, erscheint eine Warnung und die Eingaben werden zurückgesetzt. Passwortüberprüfung O Ein O Aus Benutzername admin Password Password wiederholen	Benutzer/Passwort ändern						
Benutzername admin Password Passwort wiederholen	das Password geändert. Sollten die beiden Passworteingaben nicht übereinstimmen, erscheint eine Warnung und die Eingaben						
Password Passwort wiederholen	Passwortül	berprüfung		• Ei	n 💿 Aus		
Passwort wiederholen	Benutzerna	me		admin			
	Password						
Ühernehmen Verwerfen zurück	Passwort v	viederholen					
Übernehmen Verwerfen zurück							
Zurdek		Übernehmen	Verwerfen		zurück		

GSS

Enter a user name (Benutzername) and a password (Passwort) and switch on the password request **©** Ein, in order to prevent unauthorized access to the IPS1.

Click to button Übernehmen (apply).

# • Configure the UMTS router UR5i v2.

By default UR5i is set to the static IP address 192.168.1.1, Subnetmask 255.255.255.0.

Adjust your PC to a static IP address in the address range of the UR5i (e.g. 192.168.1.2, Subnetmask 255.255.255.0).

Call up the web interface of the UR5i via a browser (http://192.168.1.1).

🕞 🛞 💋 http://192.168.1.1//	_
\$	
Windows Security	
The server 192. 168.1.1 at UR5i-v2 requires a username and password. Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).	
User name Password Remember my credentials	
OK Cancel	

Enter "User name" (default is "root") and password (default is "root") for login.

-> We recommend to change the password.

LAN configuration:

Limit the address range of the IP pool of the DHCP server so, that the static IP addresses of the management system (192.168.1.200) and the IPS1 (192.168.1.201) are outside the DHCP range (menu LAN configuration, "IP Pool Start"/"IP Pool End")



http://172.20.207			×⊅≊ - Q	Ø UR5i-v2 ×	n \$
Index Kopfstation 🦉 GS	5 🧃 GSS Kopfstation				
	upr:				
<b>ITS router</b>	UK3I VZ				
tus				LAN Configuration	
twork		Primary LAN	Secondary LAN		
CP TS/GPRS	DHCP client	disabled	<ul> <li>disabled</li> </ul>	•	
ec	IP Address	192.168.1.1			
nDNS	Subnet Mask	255.255.255.0			
stem Log	Media Type	auto-negotiation	<ul> <li>auto-negotiation</li> </ul>	•	
nfiguration	Default Gateway				
N RP					
TS/GPRS	DNS Server				
ewall T	Enable dyna	mic DHCP leases			
enVPN	IP Pool Start	192.168.1.2			
ec E	IP Pool End	192,168,1,80			
E FP	Lease Time	600	sec		
nDNS			bec		
P MP	Enable static				
TP	MAC Address	IP Address			
S Dansion Port					
B Port					
rtup Script /Down Script					
tomatic Update					
tomization					
er Modules					

Confirm the settings with button Apply.

NAT configuration:

By default the management system is set to port 60003, IPS1 can exclusively be accessed via port 80.

Enter the following port forwardings in menu "NAT":

-		- 4 💌
C 🖉 🖉 http://172.20.207.0/nz	د.cgi	
👍 🗿 Index Kopfstation 🧃 GSS 🧧	GSS Kopfstation	
UMTS router U	R5i v2	~
Status	NAT Configuration	
Network	Public Port Private Port Type Server IP Address	
DHCP UMTS/GPRS	1000 60003 TCP - 192.168.1.200	
IPsec	1001 80 TCP • 192.168.1.201	
DynDNS Svetem Log	TCP -	

In column "Public Port" enter the ports needed to get "external" access to the Router (e.g. port 1000 for the management system, port 1001 for IPS1). In column "Private Port"enter the ports, to which the "Public Ports" must be forwarded (e.g. Port 60003 for the management system, port 80 for IPS1).

-> Herein for the management system you have to enter the port, which you have entered in the Ethernet settings (page 84).

In column "Server IP Address" enter the corresponding "internal" IP addresses (e.g. 182.168.1.200 for the management system, 192.168.1.201 for IPS1).



- -> Herein you have to enter the IP addresses which you have assigned at the beginning of the configuration (page 133).
- -> Using http://172.20.207.0:1001 ("public" IP address of the routers : port for the port forwarding to the "internal" IP address 192.168.1.201) e.g. you can get "external" access to the browser user interface of the IPS1.

Confirm the settings with button Apply.

# <u>UMTS/GPRS configuration:</u>

In menu "UMTS/GPRS Configuration" enter the APN mobile access data from mdex as well as the pin of the SIM card of the router:

(-) (2) (2) http://172.20.207	1.0/ppp.cgi		오 - 🗟 Ċ × 💋 UR5i	v2 ×	
🍃 🎒 Index Kopfstation 🦉 GS	iS 🧃 GSS Kopfstation				
UMTS router	UR5i v2				
Status			UMTS/	GPRS Configuration	
Network	Create PPP conne	rtion			
DHCP		Primary SIM card	Secondary SIM card		
UMTS/GPRS IPsec	APN *	cda.vodafone.de			
DynDNS	Username *	m00xxxxb@mdex.de			
System Log	Password *	def			
Configuration	Authentication	PAP or CHAP	<ul> <li>PAP or CHAP</li> </ul>	•	
LAN VRRP	IP Address *				
UMTS/GPRS Firewall	Phone Number *				
NAT	Operator *				
OpenVPN IPsec	Network Type	automatic selection	<ul> <li>automatic selection</li> </ul>	•	
GRE	PIN *	XXXX			
L2TP DynDNS	MRU	1500	1500	bytes	
NTP	MTU	1500	1500	bytes	
SNMP SMTP	Get DNS addresses from operator				
SMS Expansion Port	Check PPP connection (necessary for uninterrupted operation)				
USB Port Startup Script	Ping IP Address				
Up/Down Script	Ping Interval			sec	
Automatic Update Customization	Enable traffic monitoring				
User Modules					
Administration	Data Limit		MB		
Change Profile	Warning Threshold		%		

-> IF no PIN, or a wrong PIN is entered, the SIM card will be blocked when trying to establish a connection.

Confirm the settings with button Apply.

Connect the management system and the IPS1 to the UR5i router via LAN cables.

• Instal the OpenVPN client on the PC, from which you would like to remote control the plant.

Together with the access data from mdex you will get a link, to download the install file of the VPN client.

Start the file an follow the instructions of the "OpenVPN Setup Wizard".

After a successful installation start **All Programs > OpenVPN > OpenVPN GUI** with administrator privileges.

-> In some operating system you have to start OpenVPN GUI with administrator privileges otherwise the routing to the management system resp. IPS1 does not work.

-> 📑 is shown in the information section of the task bar.

Right click the symbol and select "Connect".

is shown in the information section of the task bar, until the connection is established.

Current State: Conr	ecting	
Mon Nov 07 13:26 Mon Nov 07 13:26	22 2011 JopenVPN - User Authentication 22 2011 Username: 000xxxx4 22 2011 Password: 22 2011 Password: 22 2011 OK Cancel	] built on Feb 3 2011
1		



Enter the mdex OpenVPN access data.

- -> If the connection is established, 🗾 is shown in the information section of the task bar.
- -> If the connection establishment will not work, check the "Proxy Settings" in the context menu - if necessary contact your system administrator.

# • Remote control via PSW 1000.

The OpenVPN connection to the UR5i must be active (). Start the PSW 1000.

Click on button 🤎 (establish a connection).

Select "Ethernet" and enter the IP address, which you got from mdex for the mobile access (172.20.207.0 in the example) and – separated by a colon – the "Public Port", which you entered for the management system during configuration of the UR5i (1000 in the example).

C () (2 http://172.20.2	107.0/nat.cgi			Q	- 2C× 🧉
👍 🗿 Index Kopfstation 🧃	GSS 🧧 GSS Kopfstation				
UMTS route Status	r UR5i v2				
Network	Public Port	Private Po	ort Type	Server IP Address	
DHCP	1000	60003	TCP •	192.168.1.200	
UMTS/GPRS IPsec	1001	80		192.168.1.201	
DynDNS			TCP -		

🥬 Connection settings				
a 🚆 👰				
COM Modem Ethemet				
Connection				
IPv4/URI 172.20.207.0 👻				
Port 1000				
Password				
V OK X Cancel				

Remote switching of IPS1 via PSW 1000

Open the internal browser via **Options > IPS1** by which you can get access e.g. to the web interface of the IPS1.

IPS1 - Webbrowser	
▲ http://	Navigate

Enter the IP address, which you got from mdex for the mobile access (172.20.207.0 in the example) and – separated by a colon – the "Public Port", which you entered for the IPS1 during configuration of the UR5i (1001 in the example), and click to button Navigate. The connection to IPS1 will be established.

Windows Security	/	×		
The server 172.20.207.0 at (null) requires a username and password.				
Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).				
	User name Password Remember my credentials			
	OK	el		

Enter the access data which you assigned during configuration of the IPS1 and click to button \_\_\_\_\_.

	<b>IP-Switch IPS1</b>		
	Ein Aus Aus		
Benutzer/Passwort	Systemeinstellungen	Timer	
© 2009 ELV Elektronik AG			

Via buttons **Ein** (on) and **Aus** (off) you can change the switching status of IPS1.

-> The current switching status is shown between the two buttons.

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