POLYTRON®
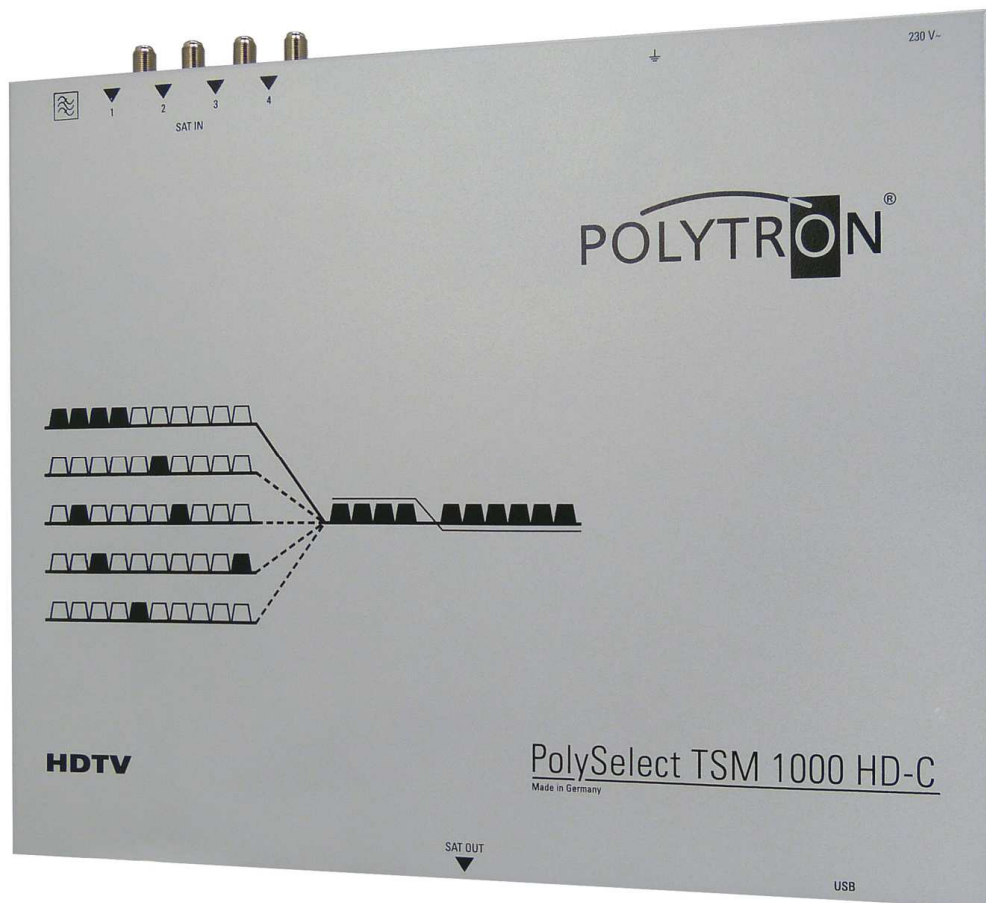
TSM 1000 HD-C
TSM 1000 HD-CF

User Manual

MADE IN GERMANY

0901743 V1

Table of contents

1. Hazard and safety information

Power supply and power cord
The device must be operated only at a power supply with a voltage
of 230 V / 50 Hz.

Connection cable
Place the connection cable always trip proof !
Replace the power cord only with an original power cord.

Potential equalization / grounding
Proper grounding and installation of the device must be carried out according to EN 60728-11 / VDE 0855-1 regulations.
Operation without grounding or potential equalization of equipment is not allowed.

Humidity and placement location
The device must not be exposed to dripping or splashing water. If water condensation occurs, wait until the device is completely dry. The device must be installed on a vibration-free location.

Ambient temperature and heat effect

The maximum allowable ambient temperature is 50 ° C.

The ventilation holes of the device must **NOT** be covered under any circumstances. Too much heat or heat accumulation affect the life of the device and can be a source of danger.

To prevent heat buildup and to ensure good ventilation, the device must be mounted horizontally (eg. on a wall). The device must not be mounted above, on top, or near heat sources (e.g radiators, heating plants), where the device is exposed to heat radiation or oil vapors. The installation must be done **only** in rooms that ensure compliance with the permissible ambient temperature range, even under changing climatic conditions.

Warning:
When installed in rooms such as storage or attic one should pay particular attention on compliance with the ambient temperature. Because of the danger of fire due to overheating or lightning strike, it is recommendable to install the device on a noncombustible surface. Combustible surfaces are wood beams or bars, wood boards, plastic materials, etc.

Conditions to ensure electromagnetic compatibility (EMC)
All covers, screws and connectors must be securely mounted and tightened, contact springs must not be bent or oxidized.

Opening the case

ATTENTION   Device's case opening and repairs must be performed only by authorized personnel. First to be done is to pull the network plug. Replacing of fuses must be done only with fuses of same type, value and melting characteristics.

☞ **No maintenance work during storms**

ATTENTION

This module contains ESD components! (ESD = Electrostatic Sensitive Device). An electrostatic discharge is an electrical current pulse, which can flow also through an electrically insulated material, when triggered by large voltage difference.

To ensure the reliability of ESD components, it is necessary to consider their most important handling rules:

Electrostatic sensitive components can be processed only on electrostatic protected area (EPA)!

➢   Pay attention permanently to potential equalization (equipotential bonding)!
➢   Use wrist straps, approved footwear for personnel grounding!
➢   Avoid electrostatically chargeable materials such as normal PE, PVC, polystyrene!
➢   Avoid electrostatic fields >100 V/cm !
➢   Use only labeled and defined packing and transportation materials!

Damage caused by faulty connections and / or improper handling are excluded from any liability.

Waste disposal

Electronic equipment is not household waste but should be properly disposed on electrical and electronic equipment waste - in accordance with Directive 2002/96/EC OF THE EUROPEAN PARLIAMENT AND COUNCIL.

Please take this device at the end of its use for proper disposal at the designated public collection points.

WEEE-Reg.-Nr. DE 51035844

2.   General

With the TSM 1000 HD-C, any desired DVB-S/S2 satellite transponder is converted from its original frequency range to a user-defined SAT IF frequency raster. Any transponders that are not desired are thus ruled out. The outputs of multiple devices can be interconnected via a distributor at the output. Each channel strip has an automatic gain control (AGC), so that all the transponders (even if there are level fluctuations at the input) are in line with the system level set at the output.

The **TSM 1000 HD CF** is equipped with a built-in TSM SAB 09 filter.

3.   Description

The **TSM 1000 HD-C**.. implements any 10 DVB-S or DVB-S2 transponders (QPSK / 8PSK) in any 10 output frequencies in the SAT IF range. The output frequency range can be individually adjustable from 950 to 2150 MHz. This frequency range can be fed into an existing, satellite-grade coaxial distribution network. It does not matter if it is a network with a star, tree or mixed structure.

Viewers can receive all the TV channels located on the transponders via a commercially available DVB-S/S2 receiver or a TV set with an integrated DVB-S/S2 tuner. It does not matter whether the individual channels are broadcast in HDTV, as pay TV or as free-to-air signals.

Programming is performed using a laptop or a desktop PC. This is connected to the USB connector via the USB cable (supplied). The TSM 1000 HD-C.. can be quickly and easily programmed using a graphical user interface.

4.   Scope of supply

1 x TSM 1000 HD-C.. (TSM 1000 HD-CF: with built-in TSM SAB 09 filter).

1x Power cable

1x USB cable

1x USB flash drive (programming software)

1x User manual

1x Mounting accessories

1x Drilling template

5.   Input circuit

Four freely selectable SAT IF signals can be switched to the 10 tuners with the 4 in 10 switching matrix. The power supply for the LNB is available directly from the input tuner at inputs 1 and 4.

6.   Assembly

The TSM 1000 HD-C must be assembled in a well-ventilated room. The ambient temperature must not exceed 50°C. Ensure that air can circulate through the ventilation holes. There must be a minimum distance of 15 cm around the unit to allow air to circulate freely. To perform any assembly work or when working on the cabling, the power plug must first be unplugged.

15 cm

15 cm
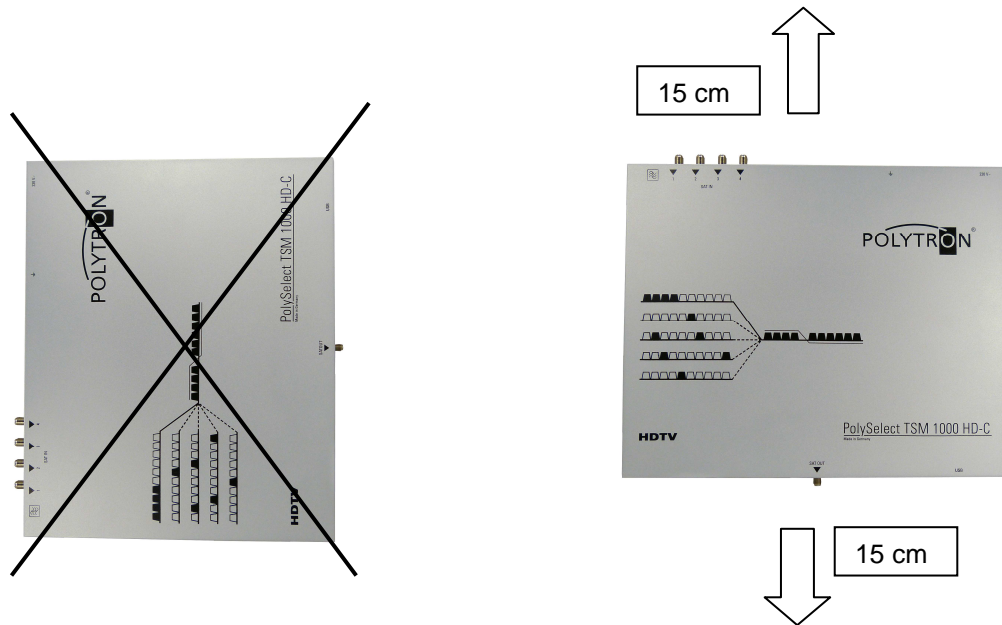
6.1 Earthing (grounding)
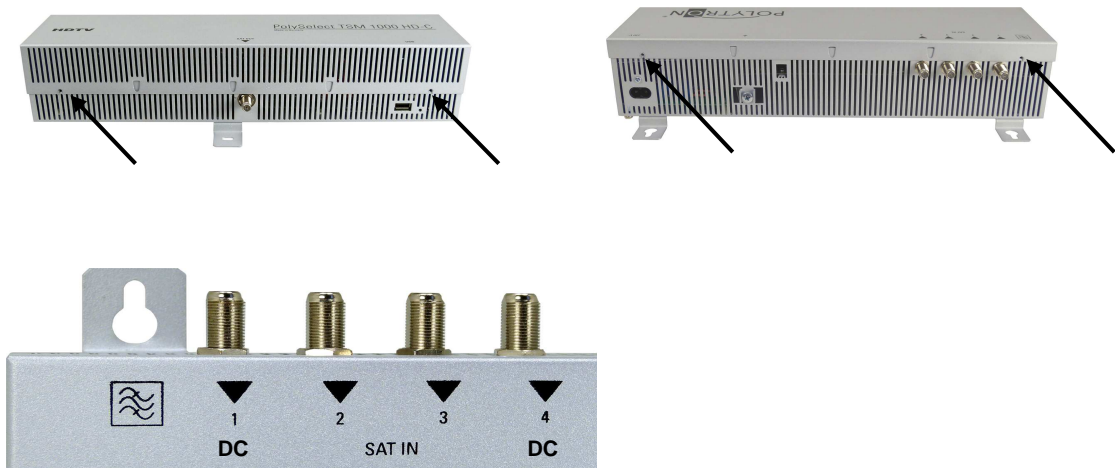
The device must be earthed in accordance with EN 60728-11.

- Strip off approx. 15 mm of the cable insulation from the earthing cable (4 mm²).
- Slip the end from which the insulation has been stripped under the earthing screw and tighten the
  screw securely.

Earthing screw

7. Installation

Remove the screws and take off the cover, lifting it upwards.

Connect the various SAT levels to the four inputs (SAT 1, SAT 2, SAT 3, and SAT 4).

Levels from different LNBs can also be connected.
The LNB voltage is fixed at inputs 1 and 4.
The current consumption of the LNBs connected must not exceed 250 mA per input.
Please note that a digital-grade Quattro LNB (e.g. a Polytron OSP AP 94) should be used.
If the LED for the LNB supply is not lit, the LNB supply will be interrupted or disrupted.

Please note:

The overall current consumption of all the LNBs connected must not exceed 500mA.

7.1 TSM 1000 HD-C input assignment

The inputs and outputs of the device are pre-programmed at the factory with a standard frequency assignment (see the extra sheet). This assignment is adapted to the usage of the TSM SAB 09 (already installed in the TSM HD CF).

In order to receive the pre-programmed ASTRA transponders, the satellite inputs must be connected as shown in the following diagram.
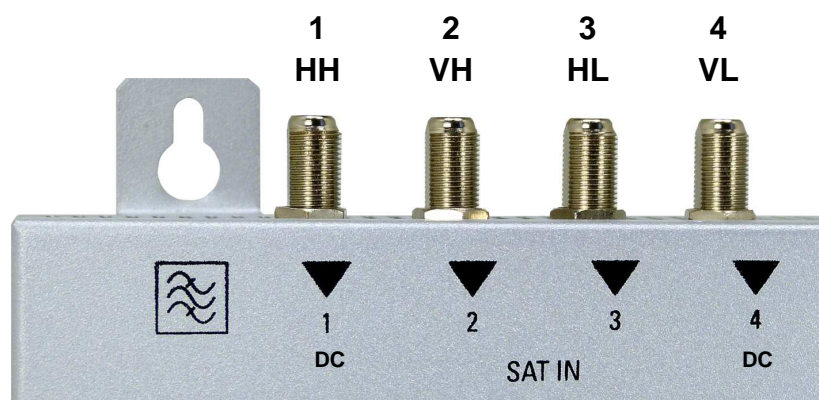
Assignment during pre-programming

7.2 Input level

To ensure good reception, make sure that the level at the inputs is between **60** and **80 dBµV**.
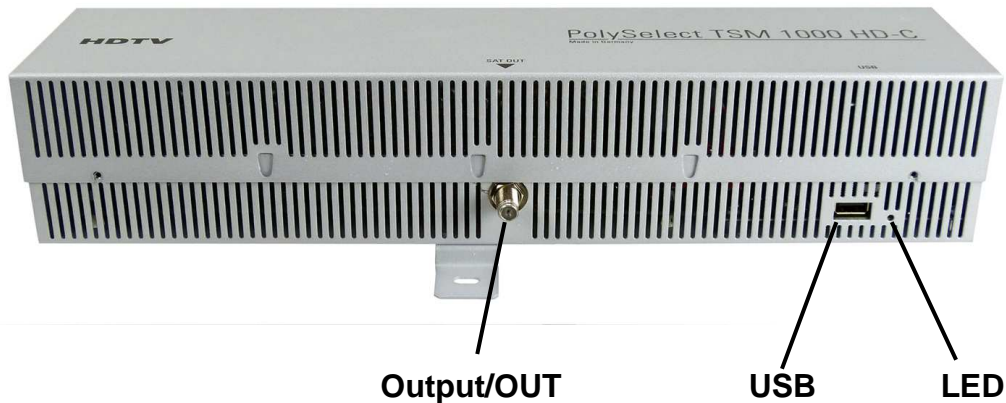
☞ **When receiving digital signals, it is better to have a level that is too low rather than one that is too high.**

Use an attenuator with high input levels

7.3 Output level

The output level is **90 dBµV** when supplied. This can be changed
by programming the device (see Point 9.2.2)


Output/OUT   **USB**   **LED**

8 Programming in general

After connecting the power supply cable, the device runs through an internal routine, and all 10 channels are set to the data previously stored. During this time, the **Status LED** next to the USB socket will flash green.

A connection between the TSM HD-C 1000 and the laptop or PC is only possible once the **status LED** is <u>permanently</u> illuminated green .

☞ **The programming software must first be installed on the laptop or PC before this is connected to the TSM 1000 HD-C**

USB   **LED**
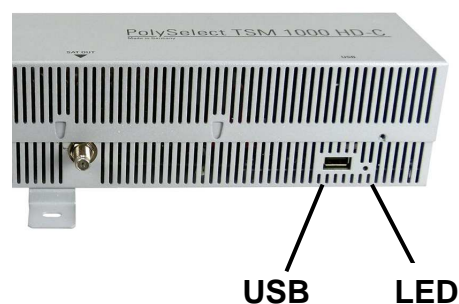
8.1 Software installation

Download the software package (**SATIF10.zip**) from the **www.polytron.de** homepage and unzip it to any directory (e.g. **C:\TSM1000HDC**).
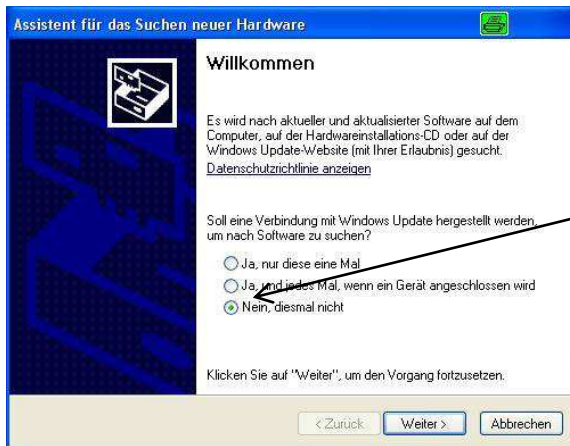
The software can also be downloaded from the USB flash drive (supplied).

8.1.1 Installing the driver
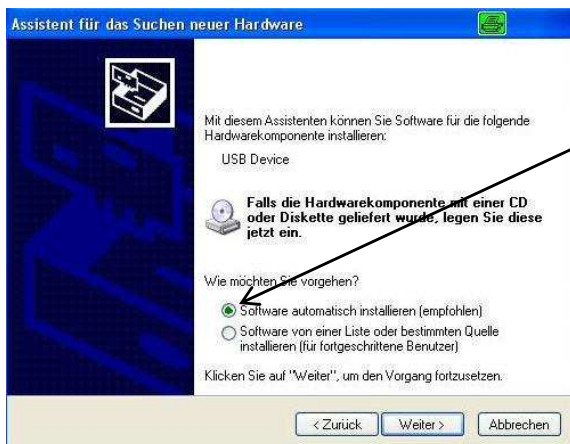
Start **Instal_driver.cmd**

Follow the instructions on the screen.

With some initial installations, the following dialog may appear. This depends on the operating system. Follow the subsequent instructions and tick the check boxes:

No, not now

Next

Automatically install the software

Next

If this information is shown:

continue installation

The software for the following hardware has been installed

Proceed

The installation of the driver software is now complete.

8.1.2 Installing the programming software

Install the software in the desired folder by launching the **"Setup.exe"** program.
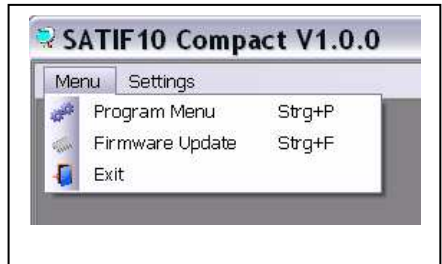
Follow the instructions on the screen.

Close the screen displays when the installation is complete.

👉 **The TSM 1000 HD-C may be connected to the computer with the USB cable once the programming software has been installed on the computer.**

8.2.0 Programming the device parameters
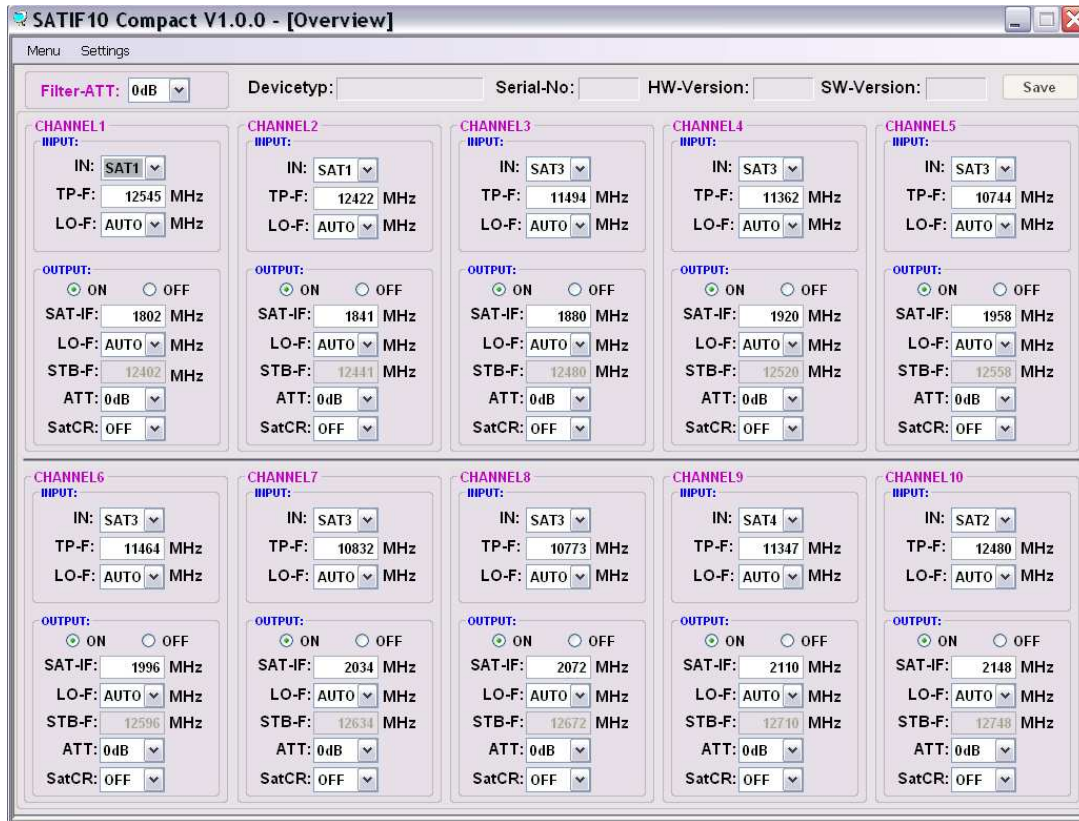
Launch the – **SATIF10** – program   ⟶

Click the top left **Menu**

The following menu items will be available:

- **Program Menu**
- **Firmware Update**
- **Exit**

All the settings of the input and output parameters are made in the **"Program Menu"**. After calling up the menu, all 10 channels will be queried and the respective *set parameters* will be displayed.

Program menu.

The device data such as type, serial number, hardware version and software version are displayed in the upper part of the menu.

An existing program can be saved or loaded using the **"Settings"** menu item. See Point 9.3

8.2.1 Input parameters

IN > Selection of the input signal source

TSM 1000 HD-C

Select the desired Sat IF level from SAT 1 to SAT 4

When using the pre-programming feature, please

observe the input connection in the previous chapter.

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The desired transponder data is entered in the menu fields.

These are available in the literature or on the satellite operator's website, for example www.Astra.de, www.eutelsat.com etc.

TP > Transponder frequency

Enter the desired transponder frequency

LO > LNB oscillator frequency at the input

AUTO automatically adjusts itself to the frequency required.
However, it can also be set to 09750, 10600 or to an OTHER frequency.

8.2.2 Output parameters

SAT IF > SAT IF frequency output frequency

When using the TSM SAB 09 filter, the pre-programmed output frequency should be maintained.

The desired SAT IF is set here if a filter is not used.
The frequency to be programmed on the receiver is then shown as
STB-F

When programming the output frequency, ensure there is enough clearance from the neighbouring transponders.
This is fallen short of, a collision message will appear

LO-F > LNB oscillator frequency at output

AUTO automatically sets the optimum frequency.
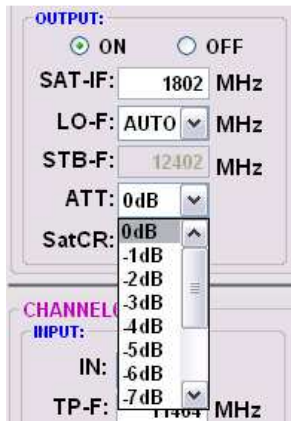The output frequency can be manually set to an OTHER frequency.

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STB-F > Set-top box frequency

The frequency to be programmed on the receiver is shown at **STB-F**

ATT > Reducing the output level

ATT allows the reduction of the transponder's output level, in order to mutually equalize the output channels.
The reduction can be set in 1 dB steps, from 0 to -12. The difference between the various transponders should not be more than 2 dB. By making appropriate settings, it is possible to compensate for any cable attenuation from different output levels.

On   OFF > Switching off the output channel

If not all of the 10 output channels are to be assigned, each channel can be individually switched off with **OFF**.

Note: The DVB-S / S2 receiver must be programmed according to the set parameters (search)

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8.3 Saving the programs

It is possible to save an existing program on a PC or to load it from a PC. This makes it possible to archive various combinations of programs.

The **Settings** menu item

opens the main program

8.3.1 Saving settings

The **Save Settings**

menu item makes it possible to store the program on the PC.
To do this, you must enter a directory and a file name (for example "object").

The asterisk before the ".f10" file extension **must** be replaced by a name!
The file name must retain the ".f10" extension!

In addition, a rtf file is also stored; this can be used to print out the parameters.
This file is then located in the same folder
as the TSM 1000 HD-C software.
The file can be opened, edited, and printed out using
Microsoft Word, Open Office or Wordpad, for example.

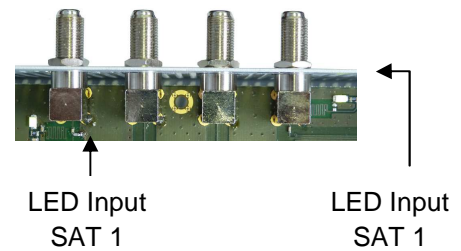## 8.3.2 Loading the settings

The **Load Settings** menu item

makes it possible to load an existing program
from the PC to the TSM 1000 HD-C..
To do so, select the desired file in the directory and open it.
The data will be loaded automatically.

8.4 LED evaluation

LED inputgreen: 12V LNB voltage
          off: no LNB voltage (short circuit?)


LED Input
SAT 1

LED Input
SAT 1

8.6 Firmware update

The firmware update menu is used to update the firmware of the device.
This way the basic software of the device is brought up to date.
The programmed parameters are not affected.

Software: Download and open **SATIF10_Vxxx.zip** from the Polytron website. (See 9.1)

Update via laptop/PC:

Call up the **Firmware Update** menu item

Click on the **Update** button,

the latest software will be loaded.
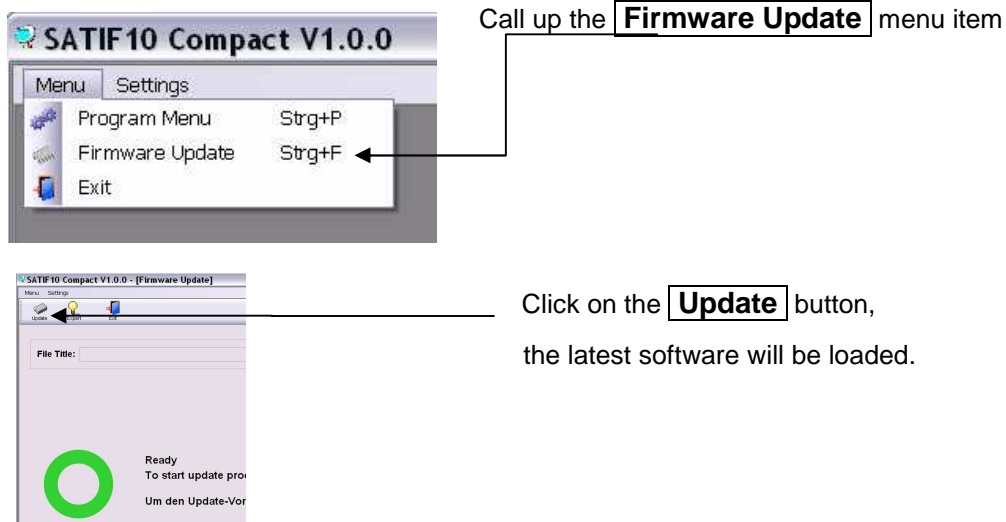
Firmware update via a USB flash drive:

Download the "SATIF10_FW_xxx.UC3" file from the www.polytron.de homepage

and in the root directory of the USB flash drive

unplug device

insert USB flash

connect the device to the mains

Status - LED red: Update is running

Status - LED flashes red: Data is being transmitted

Do not remove the USB flash drive

Status – LED green: Update process is finished
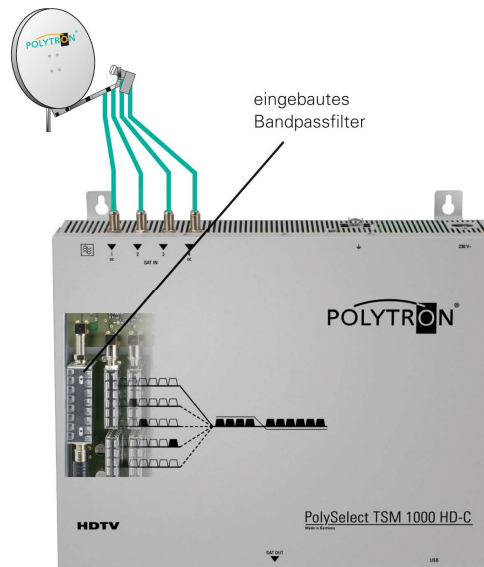
Remove the USB flash drive

9.   Application examples

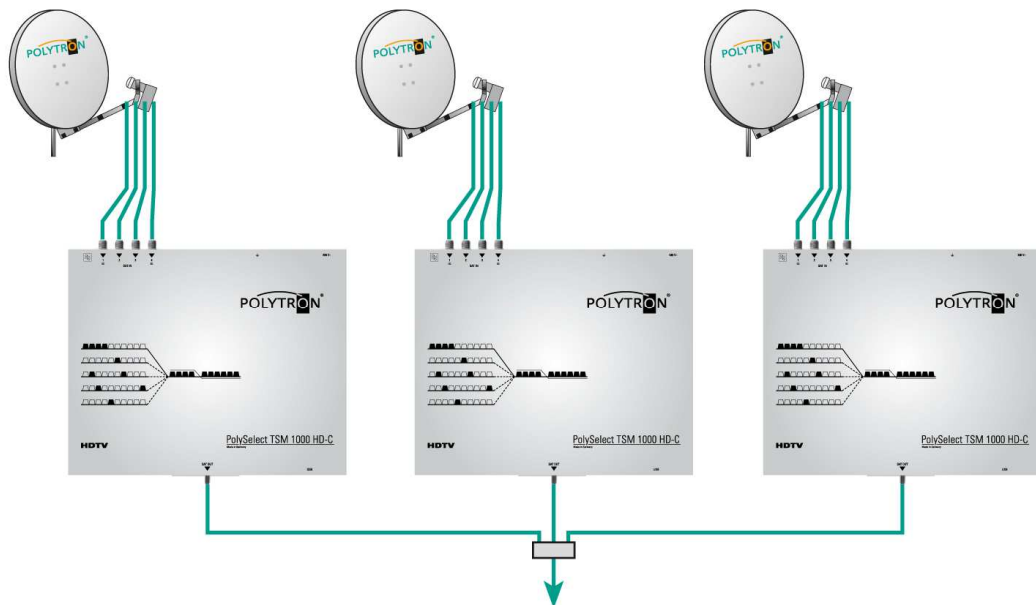## 9.1   TSM 1000 HD-CF (with built-in TSM SAB 09 filter)

Example:

28 transponders through the TSM-SAB 09 filter

Please refer to the extra sheet on "pre-programming" for details of the passband of the filter and the current pre-programming,

Example 2:
3 x TSM 1000 HD-C for 30 freely programmable transponders.

10. Technical Data

Type	TSM 1000 HD-C
Article no.	5903520
Inputs	4
Input matrix	4 to 10
Input frequency	950-2150 MHz
Input level	60–85 dBµV
Frequency steps	1 MHz
Remote feed	every 12 V / 250 mA (input 1–4)
LNB current	max. 500 mA
Output frequency range	950-2150 MHz
Output level	97 dBµV
Attenuator	-12 dB
Connectors	FC
Operating voltage	190–250 V~, 50/60 Hz
Power consumption	max. 35 W
Operating temperature	0–50 °C
Dimensions (W x H x D)	376 x 305 x 77 mm

TSM 1000 HD CF with integrated TSM SAB filter
Art. No. 5903530

11. Declaration of Conformity

POLYTRON
Broadband Systems

((· Declaration of Conformity

In accordance with Low Voltage Directive 2006/95/EG
In accordance with EMC Directive 2004/108/EG
In accordance with RoHS Directive 2011/65/EU

The manufacturer

Polytron-Vertrieb GmbH
Langwiesenweg 64-71
75323 Bad Wildbad
Germany

hereby declares that the following product

Product designation: TSM 1000 HD-CF

conforms with the requirements of the above directives including any amendments.

Following standards and regulations were used:

* EN 60728-11:2011
* EN 60065:2011
* EN 50003-2:2012
* EN 50581:2012

Bad Wildbad, 31.03.2014

Wolfgang Schlüter
Managing Director

$C\!E$ - Declaration of Conformity

In accordance with Low Voltage Directive 2006/95/EG
In accordance with EMC Directive 2004/108/EG
In accordance with RoHS Directive 2011/65/EU

The manufacturer

Polytron-Vertrieb GmbH
Langwiesenweg 64-71
75323 Bad Wildbad
Germany

hereby declares that the following product

Product designation: TSM 1900 HD-C

conforms with the requirements of the above directives including any amendments.

Following standards and regulations were used:

* EN 60728-11:2011
* EN 60065:2011
* EN 50083-2:2012
* EN 50581:2012

Bad Wildbad, 11.12.2012

Wolfgang Schlüter
Managing Director

12. Default assignment

Please refer to the extra sheet

TSM 1000 HD-C service case

The most important features of Polytron's TSM 1000 HD-C are its ease of handling and high quality standard. Nevertheless, should a problem still occur, this can be usually resolved very quickly and easily over the telephone. Our experts know all the types of devices very well and can provide valuable advice and assistance. You can make use of this service and call us from Monday to Friday 7:30 a.m. to 4:30 p.m. at:

Technical advice: +49 (0) 7081-1702-12

If an emergency outside occurs office hours, you can contact a technician via the following mobile number:

Emergency hotline: +49 (0) 151-16508206

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Internet   http://www.polytron.de
E-mail   info@polytron.de

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