Safety Notes

⚠️ WARNING

- Turn off the receiver or any used power supply before installing, to avoid short-circuit.
- Installation and repairs to the equipment may only be carried out by technicians observing the current VDE guidelines. No liability will be assumed in the case of faulty installation and commissioning.
- Before opening the device, pull the mains cable or remove the power supply, otherwise there is a danger to life. The same is true when you clean the device or perform work on the connections.
- Power feeding cables as well as feeder lines may not be damaged or clamped by objects of any kind.
- Avoid exposure of the equipment to direct sunlight and to other heat sources (e.g. radiators, other electrical devices, chimney, etc.). Absolutely avoid that cables come near any source of heat (e.g. radiators, other electrical devices, chimney, etc.).
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1 Common

1.1 Delivery

Fig. 1: Delivery

- SAT-Navi SZU 21-00
- Transparent weather-protection
- RS-232 Adapter

Note
Batteries (12xAA) are not included in delivery!

Separately available:
Programming-Set SZU 22-00, consisting of:
1 x Adapter RS-232 to USB
1 x USB connecting cable
1 x Null-Modem cable
1 x Driver CD ROM
Switching mode power supply SZU 99-22
1.2 Description

This product is simple and convenient for setting and aligning a satellite dish. Using the satellite parameters the user can set and align a satellite dish quickly, accurately and easily.

Fig. 2: Inputs, display, buttons

Inputs, display, buttons
1. DC-power supply socket
   If the SAT-Navi should be operated with an external power supply (which is not included) please connect it here.
2. Slide switch
   In the upper position, the SAT-Navi will acquire power from the external power supply or from tuner power supply input (by a connected receiver). In the lower position, the SAT-Navi will acquire the power supply from the AA cells in the battery compartment.
3. Low Voltage LED
   The red LED is glowing, when the input voltage is too low (< 13,3 V) or when the batteries are empty.
4. Power LED
   The LED is glowing, when the device is in operation.
5. Buttons (↑, ↓, OK)
   To navigate in the software menu

6. LC- Display
   Shows menu and additional information.

7. LNB input
   Satellite signal input port - connect directly to the LNB.

8. DC power supply input
   The SAT-Navi can be supplied by a connected power supply (SZU 99-22) or satellite receiver using this F-socket.

At the bottom side

9. Battery compartment
   Here, you can insert 12 AA (Mignon) batteries or rechargeable batteries to power the device independently of any power supply.

10. RS232 - serial port
    Interface used for software updates. (Please see in “Update menu”)
    You will find the port behind the battery flap.
2 Power supply

There are three ways to establish the power supply of the device:

2.1.1 External power supply
- Connect the external power supply to the DC-power supply socket (1).
- Make sure the slide switch (2) is in the position (“EXT”).

Fig. 4: DC-power supply socket (1), slide switch (2)

2.1.2 Satellite receiver
- The SAT-Navi can be operated by delivering the power remotely from a satellite receiver or multiswitch (which may be supposed to be connected to the LNB after searching the Satellite).
- The receiver/multiswitch should be able to deliver 600mA of current to the LNB!
- Make sure the power supply selector is in the position (“EXT”).
- Connect the LNB/IF input of the satellite receiver to the DC power supply input (8) of the SAT-Navi
- If the SAT-Navi does not power up or switches off when trying to search satellites, the current delivered by the receiver may be insufficient. Please use another receiver or another way of supply.

2.1.3 Internal batteries
- Make sure, you have inserted fitting batteries into the compartment in the right direction.
- Put the Power Supply Selector in the lower position (“BATT”) to activate battery operation.
- You can use non-rechargeable and rechargeable batteries in AA size.
Low Voltage

- If the voltage of any power source is lower than 13.3V, the red low voltage LED lights up
- Take care, that the input voltage is always higher than 13.3V.
- If you are using rechargeable batteries, switch off (to “EXT”) the device when the red LED lights up to prevent the cells from total discharge.

3 Operation

3.1 Main menu

At power on, the display shows version information of the software, and then appears the main menu.

![Main menu](image)

*Fig. 5: Main menu*

With the buttons ↑/↓, you can choose the following options:

- SAT-Navi (to align the satellite dish to a desired satellite)
- Light (toggle the LCD background light)
- Update (to initiate the software update by the USB Adapter)
SAT-Navi menu

To align a satellite dish, please take the following steps:

1. Select a satellite from the list

![SAT-Navi menu](Fig. 6: SAT-Nav menu)

2. Choose if you want to search the satellite with the default transponder (FREQ. DEFAULT) or with other transponders (FREQ. LIST). Please prefer (FREQ. DEFAULT), because the identification of the satellite is more precise for this option.

![Transponder](Fig. 7: Transponder)

⇒ If you choose (FREQ. LIST), you can select the transponder in the following menu. Now, the Satellite and Transponder is chosen and the device tries to lock on a signal from the desired satellite.

![Searching of a signal](Fig. 8: Searching of a signal)
3. Please move now the Satellite dish antenna slowly until you clearly hear the buzzer noise. The SAT Navi has logged-in and recognized the wanted Satellite. The following other informations are displayed now too:

- **P**: Signal Strength (in dBµV)
- **BER**: Bit Error Rate
- **Q**: Signal Quality (Bar Graph)

![Signal Display](image)

*Fig. 9: Signal*

With this Information and the acoustic signal, you can fine-tune the antenna to the optimal position.

The frequency of the acoustic signal is linked to the signal quality. So you can search the satellite and fine-tune the position also without seeing the display of the Sat Navigator.

⇒ To exit the Satellite Navigator function, just press **OK**.

### 3.1.1 Short Circuit Protection

If there is a short circuit on the LNB input, the LNB power will be cut off and there will be the message “Short c. detected” in the display.

After you have removed the cause for the short circuit, it appears the message “Short c. restored” and the LNB Power is switched on again.

### 3.2 Light menu

In the Light Menu, you can switch the background light of the LCD on or off.
3.3 Update menu

For always being up to date, there is a possibility to update the software of the Satellite Navigator by a serial (RS-232) interface. Since most modern PCs don’t have a RS-232 port any more, an adapter to USB has to be used.

To update the software, please do the following steps:

1. Connect the update adapter to the Satellite Navigator at the connector found in the battery compartment (see picture).

![Fig. 10: RS-232-Adapter](image)

2. Connect the update adapter to the USB adapter with the connection cable.
3. Connect the USB adapter to your PC.
4. Start the software update application on your PC and choose the right COM-Port. If you are not sure, which COM-Port to choose, under Windows you can find out the right port in the device manager.
5. Press “Send” on the update tool.
6. Power on the Satellite Navigator and choose “Update” from the main menu. The Satellite Navigator begins to download, this will takes some minutes. After the update, the software is burned into the internal flash memory.

**DO NOT SWITCH OFF WHILE THE SOFTWARE IS BURNING!**

If the update was not successful, there might be the following reasons:

1. The communication between the Satellite Navigator and the update application failed.

   ![Time out](image)

   **Fig. 12: Time out**
   - please check the connections and make sure you have selected the right COM port.
   2. You try to update with the same version, which is already on the device.
Fig. 13: *Update cancelled*

There will also be the message “The STB is up to date!” in that case.
4 Technical specifications

<table>
<thead>
<tr>
<th>Frequency range</th>
<th>950…2150 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF connectors</td>
<td>F female</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>13…19 VDC</td>
</tr>
<tr>
<td>Current consumption</td>
<td>300mA</td>
</tr>
</tbody>
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