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2 Safety precautions

For your own protection, carefully read the safety precautions before starting to use your new device.

The manufacturer is not liable to damage caused by improper handling or by disregarding the safety precautions.

Take care that empty remote control batteries are not put into the household waste but disposed off properly (return to specialist stores, special waste)

Styrofoam packing harmful to the environment has not been used. The packing which can be recycled corresponds to the requirements of the new packing regulations.

Never open the device. There is danger of an electric shock. Repairs should only be carried out by qualified specialists.

Operational breaks: during a storm or when operation is interrupted for a long time disconnect the device from mains.

In the following cases disconnect the device from mains and ask a specialist for help:

- the power supply cord or the connector are damaged
- the device was exposed to humidity or a liquid has flown into the device
- in case of considerable malfunctions
- in case of considerable external damage.



3 Connections

3.1 Outdoor unit

If possible, try to use an outdoor unit with TWIN LNB to be able to receive satellite TV channels and digital radio channels at the same time, independent of each other. If you do not want to receive TV and digital radio channels at the same time, you may continue to use your V/H LNB (s. 3.3 Satellite TV receivers).

Connect the LNB input of the ASTRASTAR AX 1 with the LNB of your receiving equipment using an adequate coax cable. If the LNB input is overloaded the message "cable error" appears in the display after switching on.

If there is a short-circuit on the **LNB input**, the ADR receiver switches off (a "ticking" is heard). In both cases switch off the ASTRASTAR AX 1 using the mains switch and eliminate the error cause. Observe also 4 "Installation".



You can also connect the ASTRASTAR AX 1 to an ISISAT serial distribution. Please take into consideration that in this case not all channels can be received.



3.2 HiFi amplifier

Connect the **audio analogue outputs** of the ADR receiver ASTRASTAR AX 1 with an adequate amplifier input of your HiFi equipment (e.g. CD or AUX). Caution, the phono input is not adequate!

Devices with digital inputs (amplifiers, DAT recorders etc.) you can connect to the electrical digital output.

Corresponding connection cables you can buy from your TechniSat sales representative.

3.3 Satellite television receiver

If you want to operate your ADR receiver and a satellite television receiver with a V/H LNB connect the coax cable from the **LNB input** of the satellite television receiver to the **TV receiver connection** of the ADR receiver.



In this case you cannot receive TV channels and digital radio channels at the same time.

As soon as the ADR receiver is disconnected from the network or the ADR receiver is in standby mode the LNB voltage is switched through to the LNB by the satellite television receiver.

Moreover, you can connect the **audio outputs** of your satellite television receiver to the **audio analogue inputs** of your ADR receiver. The audio signals of the satellite television receiver are transmitted to the amplifier when the ADR receiver is disconnected from the network or is in standby mode.

3.4 Personal computer

You can connect a personal computer to the female connector **PC IN/OUT** that can be used to control the ADR receiver. The software and connection cables you can buy from your TechniSat sales representative.

4 Installation

4.1 Calling the installation menu

The installation menu includes the most important basic settings for the set-up of the ADR receiver. It can only be called with the help of a multiple key operation so that none of the settings are modified by mistake.

> switch off the ASTRASTAR AX 1 with



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- > press or on the ADR receiver and
- > at the same time switch on the receiver again with

The individual settings are marked in the channel number display with the stages E1 to E7. The function which is to be modified is indicated via the information display.

- E1 setting the remote control code
- E2 selecting the display language
- E3 adapting the local oscillator frequency
- E4 selecting the search mode for Astra or other satellites
- E5 selecting the search range
- E6 deleting the channel memory
- E7 copying the preprogrammation

The individual settings **E1**, **E4** and **E5** only serve for service purposes or are provided for future applications.

A modification becomes effective when switching to the next stage.

4.2 LOF adjustment

To adapt the ADR receiver to older outdoor equipments you can modify the factory-adjusted LOF of 9.75 GHz. Small frequency failures which may occur are compensated by the automatic fine tuning (AFC) of the ASTRASTAR AX 1.

- > call the installation menu (see 4.1)
- > call setting E3 "LOF 9750" with or
- > switch to "LOF 10000" or "ISI_AB" or "ISI_ABC" with PROGRA
 - or 🔼
- press press or repeatedly until "Standby" appears in the display

Analogously, you can remodify the LOF to 9.75 GHz. Please take into consideration that you cannot receive all ADR channels with an ISISAT equipment.

4.3 Display language

You can switch the display language between German, English, Danish and Swedish.

- > call the installation menu (see 4.1)
- > call setting E2 "German" with or
- > switch to the desired language with from or



Correspondingly, you can switch the display language again to German. The messages of the smart card are not affected by this modification. They always appear in English.

4.4 Deleting all channels

If you want to completely reprogramme your ASTRASTAR AX 1 you can delete the entire channel memory. Take into consideration that afterwards you have to programme new channels according to 6 "Programming".

To avoid an unintended deletion of all channels a multiple safety interrogation is integrated.

or 🔽

- > call the installation menu (see 4.1)
- > call setting E6 "delete?" with
- > switch to "really?" with programm or
- > switch to "with RC!" with PROGRAMM or
- > delete the channel table using the recessed delete key
 (^{LÖSCHEN}) of the remote control

The function can be interrupted before pressing \bullet (delete) with \bullet without deleting the channels.

5 Operation

The ADR receiver ASTRASTAR AX 1 is factory-preprogrammed to the at present most current assignation of all digital Astra radio channels. Chapter 6 tells you how to extend or update this preprogrammation.

5.1 General

The digital radio system of the Astra satellite broadcasts radio channels in CD quality. This digital System offers so-called "free" and "DMX" channels. The "free" channels are known public radio transmitters which broadcast their channels in digital sound quality. Additionally, channels from "Digital Music Express" (DMX) are broadcasted in the ADR system in encoded form. To receive these channels you need the decoder integrated in the ASTRASTAR AX 1 and a valid smart card. After you have payed a monthly charge the smart card becomes valid. For further information refer to the DMX information sheet.

Apart from music the DMX channels transmit additional information about title, interpreter, composer, album and order number of the running CD. This information can be indicated on a special remote control with display. This kind of remote control you can buy from your TechniSat sales representative.

5.2 Switching on and off

Preferentially, use the mains to switch the ASTRASTAR AX 1 on and off in order to save electricity costs and energy. For short operational breaks you can use the remote control function:

> switch on and to standby with



After the connection to the network the channel position that has last been active for at least 5 sec. is adjusted.

As soon as the ADR receiver is in standby mode, "standby" is displayed for approx. 5 sec. in normal brightness. During this time the automatic tuning system can be called (see 6 "Programming").

After the "standby" display is dim the ASTRASTAR AX 1 can be switched with all keys to the last activated channel.

5.3 Channel selection

The ADR receiver ASTRASTAR AX 1 has three channel tables: FREE, DMX and FAV.

FREE contains all channels which can be received any time without additional charge. The DMX table lists all "Digital Music Express" channels which are transmitted in encoded form and can only be received with a valid smart card. In the FAV table you can save your own favourite, i.e. preferential free channels and DMX channels. (Please refer to 6 "Programming" for information about the table assignation).

<u>Table</u>	Identification	Channel
FREE	DMX LED off	free channels without charge
DMX	DMX LED on	"Digital Music Express" channels
		(only receivable with a valid smart
		card)
DMX	DMX LED blinking	the smart card message can be
		displayed with
FAV	e.g. F 2	individual collection of free
		channels and DMX channels
		FREI DMX FAV

> selection of a desired channel tabel with

FREI , DMX or O

To receive DMX channels a valid smart card must be inserted with the contact side downwards into the card slot below the front lid. Within a channel table the channels can be selected as follows:

> with ten-key keypad, e.g.

028	-	channel position 123
(hold depressed)	-	channel position 12
6 (hold depressed)	-	channel position 6
1 (wait 3 s)	-	channel position 1
with PROGRAMM	of the rer	note control or

the ADR receiver

>

Channel numbers of unoccupied channel positions are ignored. To be able to set all channels also without the remote control, the

keys on the device switch from FREE to DMX at the end of the table. On request, you can leave the FAV table by connecting the installation menu from E1 ... E7, "STANDBY".

If a transmission station transmits two different channels (MONO A and MONO_B) instead of a stereo channel, the LED does not lighten and the two channels can be received independently of each other



vou can switch between the two MONO channels.

5.4 Kind of programme selection

Within the ADR system a fixed kind of programme which allows e.g. only to call successively programmes of the same kind is assigned to a channel.

The following kinds of programmes are differentiated:

country
special musi
regional
news
general

Take into consideration that the kind of programme selection only works within the tables FREE and DMX. ASTRASTAR AX 1 automatically switches from the FAV table to the FREE or DMX table during the kind of programme selection.

Within the kind of programme mode one kind of programme is assigned to the numeral keys respectively.

> switch on the kind of programme mode with



> select the desired kind of programme using a numeral key

> switch to the next programme of the same kind of programme in





> you can leave the kind of programme mode by pressing repeatedly or by calling a FREE, DMX or FAV table.

on

5.5 Alternate channels



In this process, you always switch between the current and the previously adjusted channel and it is irrelevant whether you have changed the table in the meantime.

5.6 Sound



5.7 DMX card messages

During the reception of DMX channels transmitter messages can be transmitted to your ADR receiver. These messages are displayed in English and can be indicated in the information display with Text, as soon as the DMX LED is blinking.

PLEASE INSERT CARD PLEASE WAIT WRONG CARD IS INSERTED YOUR CARD IS INVALID INSERT OLD CARD INSERT NEW CARD THIS CHANNEL IS BLOCKED THE CARD HAS EXPIRED INCORRECT CARD THIS CARD IS BLOCKED PUSH BUTTON TO LISTEN PROGRAMME IS BLOCKED

6 Programming

6.1 Copying preprogrammation

Your ADR receiver ASTRASTAR AX 1 contains a factorypreprogrammation of free channels and DMX channels which, on request, you can call if you have deleted your own programmation.

- > call the installation menu (see 4.1)
- > call setting E7 "copy?" with or
- > switch to "really?" with programm or
- > switch to "save!" with PROGRAMM or
- > delete the channel table using the recessed \bullet (save) key of the remote control

The procedure is indicated in the display with "Tabkopie". After the copy procedure the FAV table is deleted.

Additional channels you can programme according to 6.4. Your own table must be reprepared according to 6.3.

6.2 Automatic tuning system (ATS)

To be able to save new ADR channels with unknown receive data the ASTRASTAR AX 1 has an automatic tuning system (ATS). This tuning system automatically saves all anti-interference digital radio channels of the Astra system to the correct table FREE or DMX. The procedure takes approx. 30 min. Your individually prepared FAV table remains unaffected.

The automatic tuning system saves the empty channels continuously according to the ascending Astra transponder number and the DMX channels according to their transmitted channel number. A repeated ATS run does not delete any channel which cannot be received at present, however, it adds new channels to the existing table.

- > switch on standby mode with
- start the tuning system with during the first 5 sec. (display is bright)

The procedure is indicated in the display with "A.T.S."

You can only interrupt the automatic tuning system by pressing the

-key on the device.

Afterwards, you can prepare your own table according to 6.3.

6.3 Individual channel table

The ASTRASTAR AX 1 offers the possibility of saving 50 of your favourite channels in an individual table. In this table you can collect free channels as well as DMX channels.

> set the desired channel table with



set the favourite channel with the ten-key keypad or PROGRAM PROGRAMM > press the recessed • (save) -key

P and the bottom free channel position appear in the display.

> On request, you can set a different channel position with the

ten-key keypad or

- > press again (save) -key or
- > interrupt the procedure with O or (

6.4 Directly entering channel data

In order to avoid having to start the tuning system for the storage of each newly broadcasted channel, you can directly enter the receiving data of this transmitter. The direct entry is also adequate for future digital radio channels of other satellites which are transmitting in the same norm. The receiving data of new transmitters are published in corresponding magazines, e.g. INFOSAT.

The ASTRASTAR AX 1 identifies whether the currently received channel is a free channel or a DMX channel and offers the possibility of saving this new channel to channel positions 241 to 255 of the respective table. The table FREE or DMX is automatically selected.

The receiving parameters are indicated in the display.



PROGRAMN set the 1st IF of the channel with or with the > ten-key keypad set the correct polarisation level ($\mathbf{A} \mathbf{v}$ = vertical, $\mathbf{A} \mathbf{h}$ = > horizontal) with and press > set the subcarrier frequency of the channel with > PROGRAMM or with the ten-key keypad - . SPEICHERN (save) > press and, on request, set a channel position in the range of 241 to > 255 using the ten-key keypad or The table is automatically selected. SPEICHERN save the channel data on this channel position with > (save) or leave the setting with without saving > or

6.5 Deleting channels

Due to the preprogrammation copy of the automatic tuning system undesired channels may be saved. These channels can be deleted individually.

- > set the channel table with
- FREI , DMX or FA
- set the undesired channel using the ten-key keypad or PROGRAMM
- > press the recessed \bullet (delete-key)

The receiver automatically switches to the next higher channel.

7 Troubleshooting notes

Malfunctions	Possible causes	Elimination measures
Device cannot be switched on or "cable"/"error" appears in the display	short-circuit in the LNB connection line	switch off the device, disconnect the LNB line, eliminate the short-circuit
No reception after switching on the receiver, signal LED is on	no signal available or the signal is too weak	check the installation (e.g. selected LOF of the LNB), if necessary, redirect the satellite antenna
During operation: reception is interrupted, signal LED is fluttering or remains on. The audio signal is interfered.	receiving interferences due to effects of the weather: heavy rain or snow, heavy layer of clouds	use bigger satellite antenna
Only with individual channels there are frequent disturbances in form of interruptions and whistleing in the audio signal. These disturbances are not put down to effects of the weather	receiving interferences due to the irradiation of adjacent satellites (e.g. of the satellite position 16° east)	direct the satellite antenna in an optimal way to ASTRA, then drive the satellite antenna by approx. 0.5 to 1° east. This reduces the irradiation considerably.
No DMX channels can be received	the access to these channels is blocked	check whether the smart card is inserted in the card slot (observe the notes for inserting the card). Switch the device off and on again. Consult the sales representative
The satellite television receiver connected to the ADR receiver cannot receive all TV channels	when you use a V/H LNB, the polarisation of the satellite antenna is given if the ADR receiver is on.	switch off the ADR receiver or switch it to standby mode.

8 Technical data

Features

- integrated DMX decoder
- 255 channel positions for DMX channels
- 255 channel positions for freely receivable ADR channels
- 50 channel positions for individual channel table
- three-digit channel number display
- eight-digit LED point matrix for displays transmitter identification, kind of channel and different operational states
- further additional displays via 3x LED (DMX, stereo, signal)
- operation of the device with standard or bidirectional remote control. The bidirectional remote control presents the following additional data in a 2 x 16-digit LCD display:
 - music title
 - interpreter
 - composer
 - album
 - order number of the CD
- volume regulation via remote control
- RS 232 interface

Tuner input frequency range

input resistance input level range input connection LNB voltage IF bandwidth tuning 1st IF subcarrier frequency tuning range transponder usage 950 to 2050 MHz 75 ohms 44 to 79 dB(V F connector 0, +13, +18 V (400 mA) 27 MHz

increments 1 MHz with AFC increments 1 kHz 0.36 to 8.82 MHz per transponder 6.12 to 8.46 MHz

Audio

electrical audio digital output analogue audio output left/right analogue audio input left/right

audio system

audio mode

audio bit rate

modulation bit error rate

audio frequency range dynamic range audio S/N audio resolution sampling frequency THD channel division

Power supply

network voltage power consumption

Cinch 0.5 Vp-p SPDIF format Cinch Cinch (in standby or when NET OUT active) ISO/IEC 11172-3 Layer II MUSICAM mono. 2 channel mono. stereo or joint stereo transmission 192 kBit/s (gross bit rate 256 kBit/s) OPSK <= 1 x 10-5 (C/N = 9.5 dB for 26 MHz) 20 Hz to 20 kHz 91.5 dB (typically) 96 dB (typically) 18 bits 48 kHz 0.003 %

230 V +/- 10 %, 50 Hz <= 20 W <= 11 W (without LNB) <= 9 W (in standby mode) <= 0.5W (mains off)

-100 dB (20 Hz to 10 kHz)

General

temperature range atmospheric humidity +15°C...+35°C <= 80 %

Dimensions

Height: 65 mm, width: 370 mm, depth: 270 mm, weight: 1.5 kg



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