SAT–Kabel®
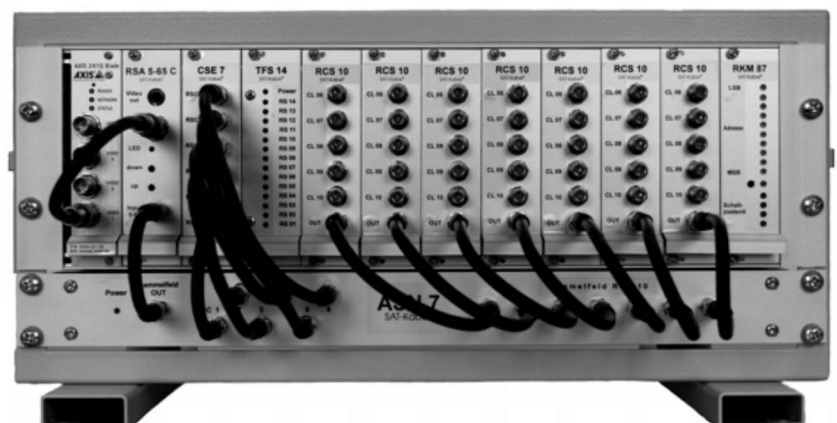
Satelliten- und Kabelfernsehanlagen/Industrievertretung GmbH
Chemnitzer Straße 11 · 09217 Burgstädt

Operating instruction

RCC 70

25.11.2011

Return path cluster controller
for up to 70 return path cluster

with remote control over phone and LAN

We thank you for buying of a product of the company SAT-Kabel®.

This operating instructions shall help you to understand the functions of the instrument and to ease its use. If you have questions about this instrument or suggestions for further improvements, please get in touch with us.

This manual has been created after best knowledge. Errors as well as changes and amendments without notice.

Updated manuals in PDF format can be downloaded from our website.

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■ **Notation**

These operating instructions is basically applicable for all **RCC 70**. However some feature and possibilities have been added during the technical development. These are certainly not in all instruments available, depending of its manufacturing date. The description for it can be skipped in this case.

If you are interested, a few innovations can also be retrofitted. In this case get in touch with us.

1 Description

The return path cluster monitoring **RCC 70** is a measuring and monitoring unit especially for the return path range from 5 to 65 MHz in cable TV networks (CATV). It is used for adjusting, checking and troubleshooting in this range. The modular assembly supports especially the return path monitoring of CATV networks, which are divided in areas, so called cluster. To a **RCC 70** can be connected from 1 (if required) up to 70! cluster.

By the remote control over phone and/or LAN (according to equipment) is every time a fast checking of any single cluster is possible from any point of the system – e. g. from a subscriber in setting up an Internet connection. The measuring values are displayed as a visual display over video (CVBS). With a modulator this signal is fed into the cable system and can be seen on a usual TV set.

2 Scope of delivery

The **RCC 70** is assembled and delivered according the requirement of the customer. An upgrade till the maximal possible modules is every time applicable. Accessories you can find at the respective assemblies (module).

▸ **Basis configuration**

BGT 3HE	assembly carrier 19 inch, 3 RU, mounted
RSA 5-65 E	Return path spectrum analyser 5 –65 MHz for cluster control
CSE 7E	Cluster control unit with phone connection for RSA control
RCS 10	Return path cluster switch 10-fold (up to 7 total), controlled from **CSE 7**

▸ **Options**

ASN 7	Power supply, combiner with amplifier (at several **RCS 10** necessary)
TFS 14	phone remote switch 14-fold, connected at **CSE 7**
AXIS 241 QB	Video display over network (Internet)
CSE-WEB	Web server with network connection (LAN)

3   Impotant advices

The modules are inserted into the assembly carrier **BGT 3HE** and with the both screws tightened on the front panel (hand-tight, without force). A fully equipped unit is no problem. This assembly carrier is designed to be installed in 19 inch rack/cabinets. The **ASN 7** is designed for a direct installation under the **BGT 3HE** (see operating instruction **ASN 7**).To adequate ventilation should be paid attention.

⚠

   The F sockets of the **CSE 7E** are in NO CASE to terminate with a load resistor, because they are control outputs, no RF outputs.

4   Cleaning

The surface of the housing can be cleaned with a dry, soft and lintfree cloth. Do NOT use aggressive solvents for the cleaning.

5   Special features

- programming is made over phone or network (LAN with **CSE-WEB**)
- monitoring and control of maximal 70 cluster
- every cluster can be assigned a »name«
- the cluster scan is automatically or manually possible

     automatically | In predetermined time switches
                          the system to the next cluster

     manually | permanent scan of a cluster, Switching to the next one
                          first after notification by phone and input of an order.

- The troubleshooting in the return path is alleviated, as by means of a mobile phone the **RCC 70** can be called and the desired cluster can be selected. So it stands to continuous assessment during the operation available.
- Flat carrier monitoring with threshold limit evaluation, see also return path channel twin generator of type **RTG 14+56**
- Video output with CVBS signal
  This is fed with an external modulator into the distribution network.
- Dynamics 40 dB
- The minimal configuration consist of the 19 inch assembly carrier **BGT 3HE** with **RSA 5-65E**, **CSE 7E** and a **RCS 10**. At larger HFC networks further **RCS 10** are to use.

6 Assembly

– Example without cabling

Fig. 1

Video display over network (optional)
Return path spectrum analyser **RSA 5-65E**
Cluster control unit **CSE 7E**
Web server **CSE-WEB** (optional)
Phone control **TFS 14** (optional)
Return path cluster switch **RCS 10** (maximal 7 pcs)

Assembly carrier
BGT 3HE (3 rack unit)

Active combiner with
power supply **ASN 7**
(optional)
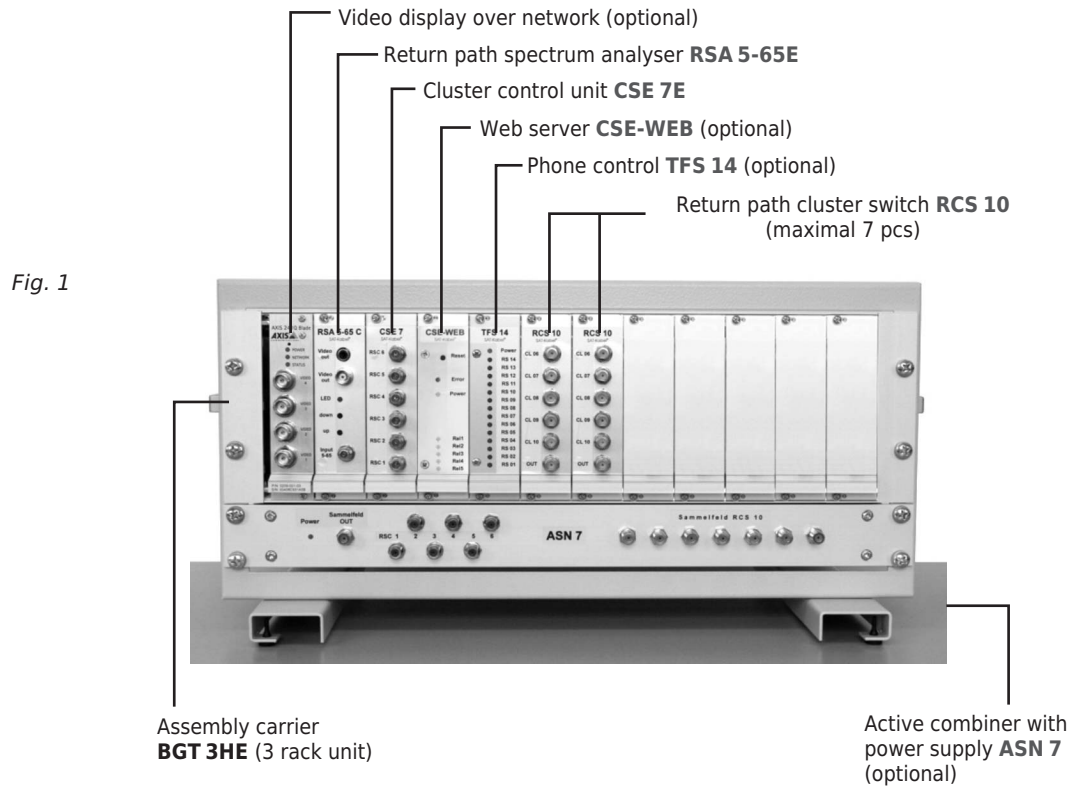
7 Circuit diagram

Minimal configuration

Scheme 1

BACK SIDE

FRONT SIDE
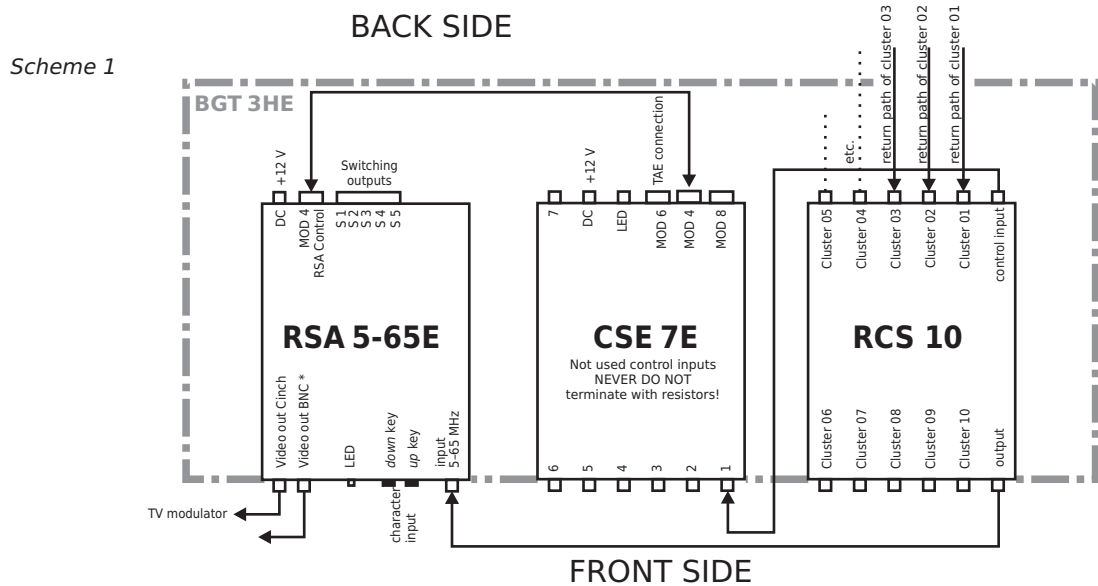
Maximal extension

Scheme 2

230 V/50 Hz
1,2 A

6× DC OUT
12 V/3 A

CATV network
TV modulator
– headend component
– not a component of RCC 70

ASN 7

0 dB   phone   LAN   LAN

AXIS 241 QB

RSA 5-65 E

CSE 7 E

control OUT
to 1.–7. RCS 10

CSE-WEB

TFS 14

maximal 7×
RCS 10

BGT 3HE

Video IN
1 2 3 4

OUT
(Cinch/BNC)
1 2   IN

up to 7× OUT
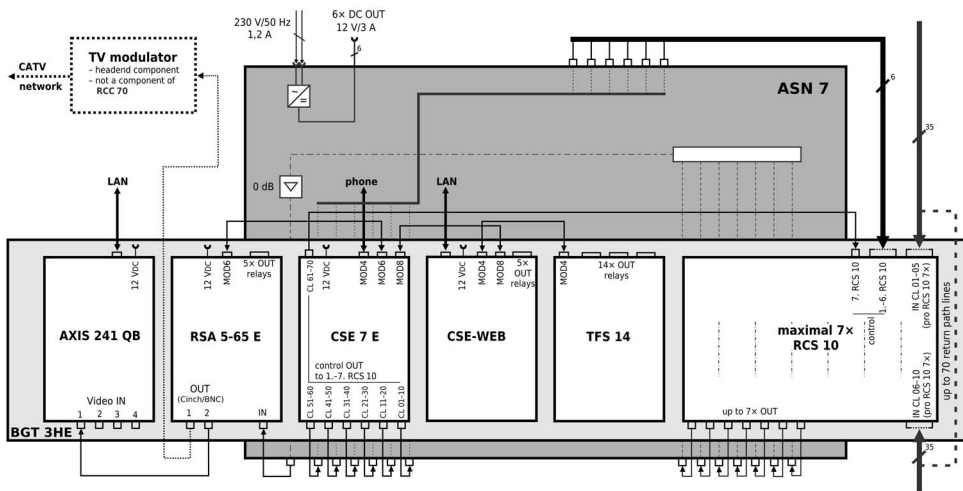
8   System components (modules)

On the following pages are described the various components (modules) of the system. These are inserted into the 19-inch rack **BGT-3HE** and each fastened with two screws on the front page.

The power supply is advantageously carried out by the **ASN 7**, but also possible by a plug power supply, if included.

8.1   Return path Spectrum Analyser RSA 5-65E

The **RSA 5-65E** is a return path spectrum analyser. This analyser scans the signals of the return path in the spectrum 5 –65 MHz. The signals are converted for a visual display in a PAL signal according the TV standard B/G. This procedure is patented. Thereby the return path signals from 5 to 65 MHz are displayed on the Y-axis with a grating of 5 MHz and on the X-axis the normalized level in *dB(µV)*.

The manually operating of the **RSA 5-65E** is possible by the keys *»up«* and *»down«*. However it can also be programmed in the system by the **CSE 7E**.

At front side the video signal is available at the cinch socket – from June 2009 additional at the BNC socket. This can be connected to a respective modulator of the head end. This feeding into the distribution network allows a visually assessment of the return path by means of a measuring instrument or with a usual TV set of the subscriber on every point of the distribution network.

Fig. 2

At the back side of the assembly are located the 5 switching outputs S1 –S5. The load capacity of a switching output is 24 V/500 mA. In the programming mode can be assigned to the 5 corresponding relays per a return path frequency with an allowed level tolerance. Precondition is however the existence of flat carriers – one or more – in the return path spectrum (e.g. from a **RTG 14-65**).

Furthermore in the programming mode there are the possibility to furnish the single cluster with a recognizable alphanumerical marking.

8.1.1 Scope of delivery

1 **RSA 5-65E** – plug-in module for **BGT 3HE**
1 plug-on power supply 12 V/400 mA
1 ribbon cable line 10-pole, 1,5 m, with pin socket connector for the connection of the alarm relays

8.1.2 Connexions and controls

Scheme 3

Power supply over provided power supply or from **ASN 7**

Video out Cinch — DC — +12 V

*) from June 2009 — Video out BNC * — MOD 4 — connection from **CSE 7E**

operating indicator — LED

RSA 5-65E

S 1
S 2
S 3
S 4
S 5 — switching outputs

charakter input — *down* key

up key

from output **RCS 10** – at 2–7 **RSC 10** is to use a combiner — input 5–65 MHz
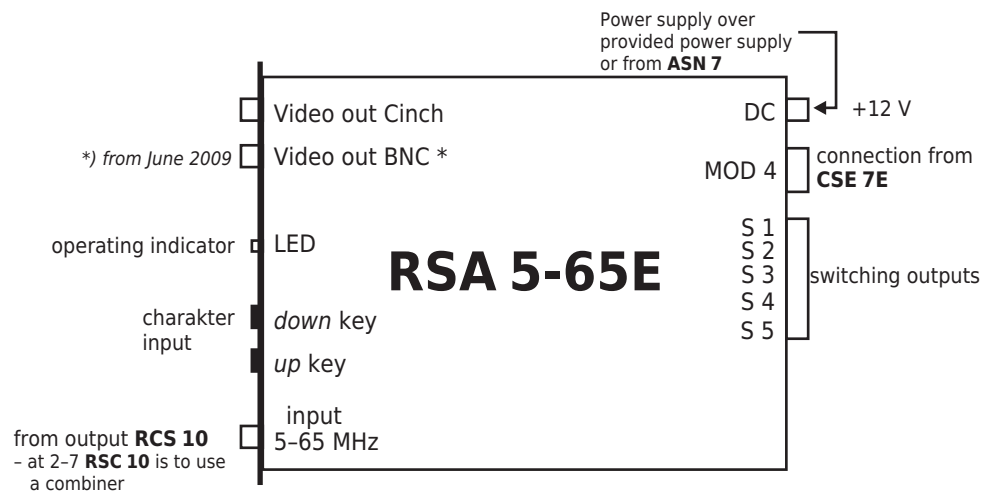
8.1.3 connection cable for alarm relays

Scheme 4

S1
S2
S3
S4
S5

24 V/500 mA   5×
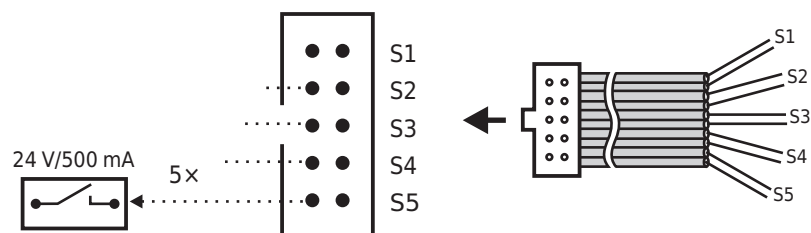
8.1.4 Technical data

Input .... F-socket
Frequency range (Scann) .... 5–65 MHz
Level at input for 0 dB display .... 70 dB(µV)
Output .... video
Operation .... 2 keys or over **CSE 7E**
Power supply .... 12 V$_{DC}$ over plug-on power supply
.... or from **ASN 7**
Switched outputs .... 5× 24 V/0,5 A
Design .... plug-in module for 19 inch
.... assembly frame **BGT-3HE**

8.1.5 TV display of the measuring value

Image of a normalized return path cluster monitoring of 0 dB calibrated by means of a return path fixed frequency generator **RSA 5-65E** resp. an according levelled return path cluster (perfect condition). This correspond to 70 dB(µV) at the RF input of the **RSA 5-65E**.

Fig. 3

8.1.6 Programming
*with the keys »up« and »down« on the **RSA 5-65E***

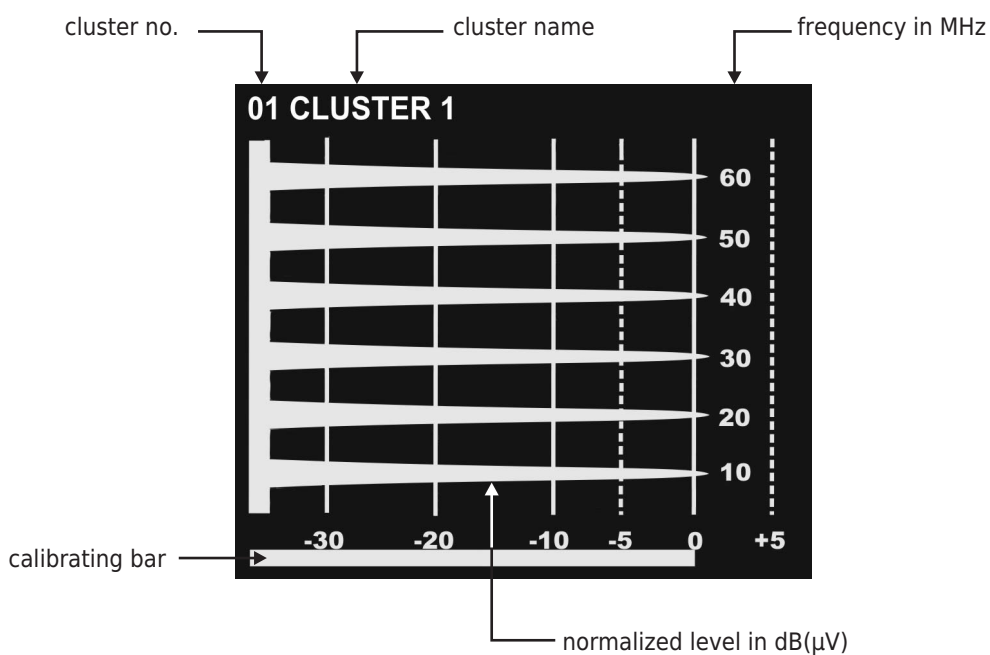|	
mode ON	»up« and »down« push simultaneously, until cursor (dash under a character) appears
cursor position	Push any key long (ca. 1 s) (depending of the key one position to left or to right)
cluster switch to the next or change name	At the cursor position push shortly a key (tip) – character selection forward or backward
text store	If the cursor is in the text area, push both keys simultaneously. After 1 –2 s the cursor jumps to the cluster no. **00 –70**. Now can be selected for a further text input a further cluster no.
mode OFF	If the cursor is on a cluster number, push both keys simultaneously. After 1 –2 s the cursor disappears.

Text, which is stored on cluster No. **00**, appears at switch on of the **RSA 5-65E** without the cluster no. **00** and is not selectable by the cluster control unit **CSE 7E**.

▸ **Switching outputs – relays**

In the programming mode can be adjusted on the cluster No. 71 –75 the function of 5 relays. Thereby can be programmed up to 5 frequencies with level thresholds, at which this relays switch:

e.g. »**71 10.00 MHz AL< -05 3U -05**«

71	–	adjustments for the relays resp. monitoring frequency 1
10.00 MHz	–	monitoring frequency
AL<	–	at undercut of the level threshold an alarm is given
AL>	–	at exceeding of the level threshold an alarm is given
		At an alarm the relays is activated and drops out only at undercutting or exceeding of the level threshold by 5 dB from.
–05 dB	–	specified level limit (–5 dB)
3U	–	number of the successive cluster circulation (here 3×) at which the level limits must undercut or exceeded, that alarm is given
05	–	measured level (5 dB)

▸ **Scan range**

In the programming mode can be changed on the cluster No. 90 –92 the scan adjustment.

cluster-Nr. 90	scan adjustment	from 5,0 MHz to 65,0 MHz
cluster-Nr. 91	scan adjustment	from 5,0 MHz to 32,5 MHz
cluster-Nr. 92	scan adjustment	from 32,5 MHz to 65,0 MHz

8.2   Cluster control CSE 7E

The **CSE 7E** is the central assembly of the return path monitoring system for control of the moduls **RSA 5-65E**, **RCS 10** and **TFS 14**. The specific feature are:

- controls the switch over of the lines of the cluster, connected at the **RCS 10**
- support up to seven **RCS 10** with each 10 lines, thus a total of 70 lines (cluster)
- every line can be controlled individually by phone
- controls the automatic circulation with cluster detection
- the respective maximal number of the connected lines can be programmed
- controls the relays of the phone remote switch **TFS 14**
- allows the programming of the **RSA 5-65E** via phone

Fig. 4

*When operating together with the **CSE-WEB** the programming of the modules is carried out via a network connection (LAN) through a web interface. An analog phone connection is not necessary in this case, the parallel operation however is also possible.*

8.2.1   Scope of delivery

1   **CSE 7E** – plug-in module for **BGT 3HE**
1   plug-on power supply 12 V/400 mA
1   connecting cable for connection of a **RSA 5-65E**

8.2.2   Connexions

6. RCS 10 with lines 51–60	6	Unused control outputs DO NOT terminate with resistors!
5. RCS 10 with lines 41–50	5	
4. RCS 10 with lines 31–40	4	**CSE 7E**
3. RCS 10 with lines 21–30	3	
2. RCS 10 with lines 11–20	2	
1. RCS 10 with lines 01–10	1	

7	7. RCS 10 with lines 61–70	*Scheme 5*
DC +12 V	power supply over included power supply or from **ASN 7**	
LED	operating indicator	
MOD 6	TAE connexion (analogue)	
MOD 4	connexion **RSA 5-65E** (with enclosed cable)	
MOD 8	connexion **TFS 14** or **CSE-WEB**	

8.2.3   Instructions for operation

For the operating and programming of the **CSE 7E** is an analogue phone connexion mandatory! This could be done as follows:

- analogue line network connexion at the place of installation of the **RCC 70** is available
- connexion over VoIP modem with analogue phone output

⚠️

– connexion over GSM module for conversion of mobile radio to an analogue phone connexion

For ONLY-on-site service (e.g. only programming or for testing)

– use of an analogue private branch exchange (from 2 subscriber)
  1. subscriber is the phone, 2. Subscriber the **CSE 7E**

At the connexion of the cluster switch **RCS 10** it is important to ensure, that these are to connect always sequentially, thus beginning at 1, to the **CSE 7E**. Not used control outputs must not IN NO CASE terminate with resistors! Tip: Use to protect the connectors when needed simply with the needless protection caps of the F taps or splitter.

8.2.4   Operating

Call | The cluster control is called over a phone and is activated after ca. 3 ringing tones. To welcome sounds a melody.

Control | The control is done over the key input of the phone. (see subsequent table)

Power blackout | After a power blackout the cluster control starts with the last given order over the phone

Ring off | After the ring off the cluster control rings off also after maximal 20 s and can be called now again.

The cluster control also rings off, if no keystroke is done within 5 minutes. Than it can be called again. The last dialled line remain interconnected after the ring off , till the cluster control gets a new order over the phone.

After a power blackout will be set again the last interconnected line resp. the automatic circulation is set.

8.2.5   Programming

- **For 2-digit number input keys must be pressed within 2 seconds**
- **At the correct input is heard a fast sequence of notes.**
- **At incorrect input are two notes slowly played with a low frequency.**

	Key input						Explanation
Adjustment of the cluster control CSE 7E							
Adjustment of the maximal connected lines at the cluster The settings of the lines **xx** must be done within 4 s.	0	0	9	8	x	x	**x x:** stand for the input of the number of max. connected lines (input from 1 to including 70 possible). But the lines must connected in turn on the **CSE 7E** (1. line = cluster 1 etc.)
Greeting melody	0	0	9	7	x	x	**x x:** stand for the input of a 15-digit melody, which is played at a call.

	Key input						Explanation
Control of lines of the connected RCS 10							
all cluster switch off			0				
Control of single lines at RCS 10 of a defined cluster							
For cluster 1							
Line 1 at cluster 1 on			1				
Line 2 at cluster 1 on			2				
etc. up to							
Line 10 at cluster 1 on			1	0			
etc. up to for cluster 7							
Line 1 at cluster 7 on			6	1			
Line 2 at cluster 7 on			6	2			
etc. up to							
Line 10 at cluster 7 on			7	0			
Automatic circulation with new time input shall be started. The time settings must be done within 4 s, otherwise the old time settings remains.			9	9	x	x	**x x:** stands for the input of the time (1–99 s) for the next line switch over. At no input persist the last preset time.

	Key input						Explanation
Control of the RSA 5-65E							
Input of the street name at RSA over the cluster control	0	0	5				mode starts (than the following keys are available for this functions)
1) In the programming mode of the RSA comes only at incorrect keys e fast note sequence, so can the character fast be changed			8				character at one decrease (character down)
			2				character at one increase (character up)
			4				cursor at one shift to the left (Position down)
2) The line setting resp. automatic circulation persist in the time of the Programming.			6				cursor at one shift to the right (Position up)
			0				inputted values store
			5				programming rmode conclude
Adjustment of the alarm relays show			7	1			adjustment for alarm relays 1 show
			7	2			adjustment for alarm relays 2 show
			7	3			adjustment for alarm relays 3 show
			7	4			adjustment for alarm relays 4 show
			7	5			adjustment for alarm relays 5 show
Picture resolution change (Zooming)			9	0			range 5...65 MHz
			9	1			range 5...35 MHz
			9	2			range 35...65 MHz

		Key input			Explanation
Control of the relays on TFS 14					
Relays for 3 s energize		**7**	**6**		Relay 11 is for 3 s energized
		7	**7**		Relay 12 is for 3 s energized
		7	**8**		Relay 13 is for 3 s energized
		7	**9**		Relay 14 is for 3 s energized
Relays 1 to 10 switch on/off		**8**	**0**		State of Relay 1 is shown (ON/OFF)
		8	**0**	**0**	Relay 1 ⇒ OFF
		8	**0**	**1**	Relay 1 ⇒ ON
		8	**1**		State of Relay 2 is shown (ON/OFF)
		8	**1**	**0**	Relay 2 ⇒ OFF
		8	**1**	**1**	Relay 2 ⇒ ON
					etc.
		8	**9**		State of Relay 10 is shown (ON/OFF)
		8	**9**	**0**	Relay 10 ⇒ OFF
		8	**9**	**1**	Relay 10 ⇒ ON

Summary

Which number stand for which line at cluster switch

Number input	Line at the cluster
1 to 10	line 1 to 10 at cluster 1
11 to 20	line 1 to 10 at cluster 2
21 to 30	line 1 to 10 at cluster 3
31 to 40	line 1 to 10 at cluster 4
41 to 50	line 1 to 10 at cluster 5
51 to 60	line 1 to 10 at cluster 6

8.2.6   Technical data

Control outputs to the **RCS 10** .... 7× F-socket

Connections for .... phone, **RSA 5-65 E**, **TFS 14**

Programming, operation .... over phone (analogue)*, display over **RSA 5-65**

Power supply .... 12 V$_{DC}$ (plug-on power supply or from **ASN 7**)

Switched outputs .... 5× 24 V/0,5 A

Bauform .... plug-in module for 19 inch

.... assembly frame **BGT-3 HE**

*)ATTENTION! The direct connection of a phone is not possible. The connection is made over an analogue subsidiary device (from 2 subscribers).

8.3   Return path Cluster Switch RCS 10

The **RCS 10** is the really return path cluster switch, over which the switching of the single return path signals is taken place. These are than over its output transferred to the **RSA 5-65E** for the evaluation. The control of the switches is carried out by the

CSE 7E. It can be connected maximal 10 return path cluster to a **RCS 10**. Not used inputs can be terminated with a F-resistor of 75 Ohm, but it is not really necessary.

The power supply of the **RCS 10** is done over the control line (an usual F-patch cable) from the **CSE 7E**. A separate power supply is therefore not necessary. For installation the **RCS 10** is to insert into the assembly carrier **BGT-3HE** and by means of the two screws to tighten at the front side.

The system **RCC 70** can manage till seven **RCS 10**. If several of this modules are used, they must combined over a splitter (inverse, i. e. over the RF outputs to the RF input of the splitter) or at best with the **ASN 7**. The RF output is to connect after that with the RF input of the **RSA 5-65E**.

To gate out not needed return path inputs use at the **CSE 7E** the setting »*maximal connected lines*« (keyboard order 0098xx, see table page 10). However precondition is, the inputs of all **RCS 10** are occupied sequentially. It has to begin with cluster 1 at switch 1 and successive to continue. Thereby the maximal RF level of 105 dB(µV) at each input must not exceed to protect mutual disturbances. Furthermore it is to consider, that at the signal analysis by the **RSA 5-65E** already 70 dB(µV) at its input a display of 0 dB produce on the screen, i. e. the input signal at the **RSA 5-65E** is adequate to match – best with fixed attenuator.

Fig. 5

8.3.1   Scope of delivery

1   **RCS 10** – plug-in module for **BGT 3HE**

8.3.2   Connexions

RF return path inputs (cluster): max. 105 dB(µV)   *Scheme 6*

cluster 06 · cluster 07 · cluster 08 · cluster 09 · cluster 10 · output

RCS 10

cluster 05 · cluster 04 · cluster 03 · cluster 02 · cluster 01 · control input (AF + DC)

etc.

return path from cluster 03

return path from cluster 02

return path from cluster 01

from control output CSE 7E (F-patch cable)

to input **RSA 5-65E**
– if necessary over splitter
  or **ASN 7**
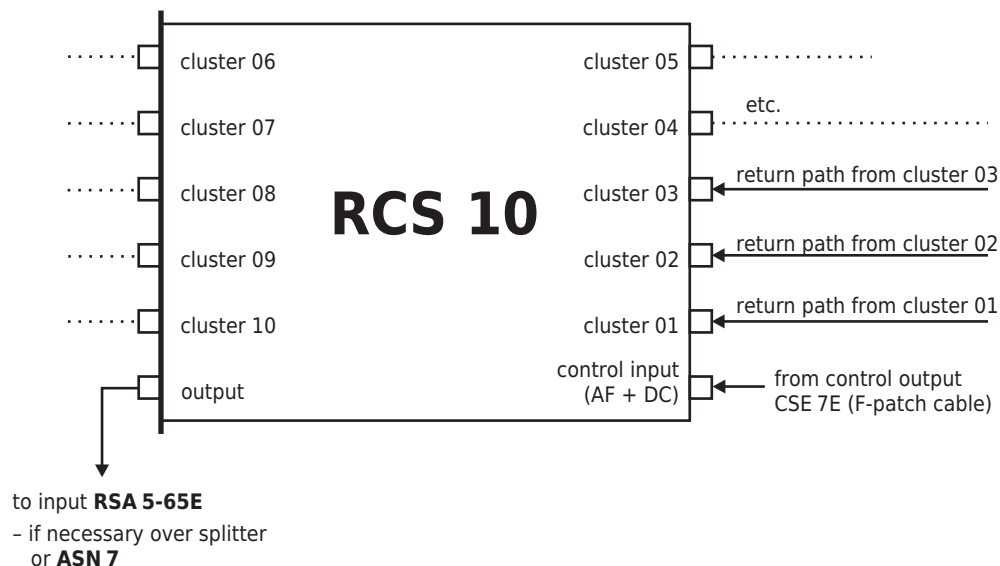
8.3.3 Technical data

Frequency range .... 5–65 MHz
RF inputs ....10× F-socket
RF output .... F-socket
Control, power supply .... from **CSE 7 E**
Design .... plug-in module for 19 inch
.... assembly frame **BGT -3HE**

8.4 Cluster Control Web Server CSE-WEB

Fig. 6

Important!
Activate JavaScript

Another optional component of the return channel cluster monitoring **RCC 70** is the **CSE-WEB**. There is an »Embedded Web server«, which act as a Web interface to the **CSE 7E** as well as the **RSA 5-65** and the **TFS 14**. Through a Web interface a comfortable controlling and configuration of these systems is possible.

The graphical user interface of the **CSE7-WEB** is operating system independent and generate web pages in HTML format. The interactive control is realized by JavaScript code. The presentation of the web pages is basically browser independent. It is recommended however, to use a current browser.
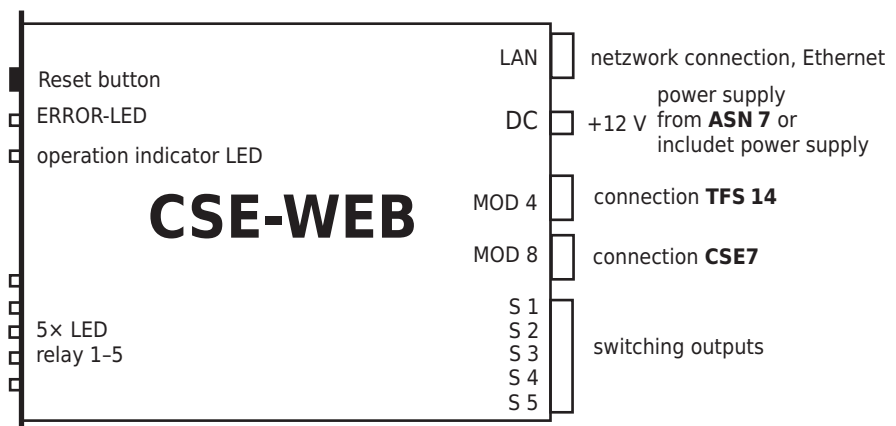
Important! JavaScript must be enabled in your browser.

8.4.1 Scope of delivery

1 CSE-WEB – plug-in module for BGT 3HE

8.4.2 Connexions, controls

Scheme 7

	LAN	netzwork connection, Ethernet
Reset button		power supply
ERROR-LED	DC +12 V	from **ASN 7** or
operation indicator LED		includet power supply
	MOD 4	connection **TFS 14**
CSE-WEB	MOD 8	connection **CSE7**
	S 1	
5× LED	S 2	
relay 1–5	S 3	switching outputs
	S 4	
	S 5	

8.4.3 Features, set functions

- Web server that supports HTTP (hypertext transfer protocol)
- Network protocols: IP / ARP / TCP / UDP
- optional: FTP server, send e-mail, NTP client, DHCP support, name resolution via DNS, time-driven tasks
- Control and configuration of **CSE 7E**, **RSA 5-65E** and **TFS 14**

8.4.4 configuration possibilities

In addition to controlling of **CSE 7E** and **RSA 5-65E**, **CSE-WEB** is also used to configure the system.

▸ **CSE-WEB**

Through the web interface it is possible to change the configuration of the **CSE-WEB**. These are stored in its internal non-volatile memory. The settings will remain obtained thus even after a reboot (eg after a power interruption).
- IP configuration – network address, network mask
- Security settings – access to the web interface for authentication
- Status inquiry and control of the CSE7-WEB-relay – ON / OFF

▸ **CSE 7E**

The **CSE 7E** is connected directly to the **CSE-WEB**. The following functions can be performed via the web interface:
- Switch on automatic circulation
- Circulation time setting (2–180 seconds)
- Number of connected lines specify (1–70)
- Select a specific line
- All cluster switch off
- Status requests of:
  - current line / fixed line quantity
  - circulation time
  - circulation status (automatic ON / OFF)

▸ **RSA 5-65E**

The **RSA 5-65E** is not directly connected to the **CSE-WEB**. Communication takes place via the **CSE 7E**. The following functions can be performed via the web interface:
- Resolution of the analyzer
- Video output switch (ON / OFF)
- Designation of the individual lines (1–70)
- Alarm relay settings and status inquiry

▸ **TFS 14**

The **TFS 14** is connected directly to the **CSE-WEB**. The following functions can be performed via the web interface:
- Status inquiries and control of the relay – ON / OFF
- optional designation to each relay

8.4.5 Technical data

Operating voltage . . . . 9.0 ... 12.0 V
Controller . . . . ATmega644P . . . .
 . . . . Clock: 20 MHz external
 . . . . memory: . . . . 64 kB Flash, 2 kB EEPROM,
 . . . . 4 kB SRAM
 . . . . Operating voltage: . . . . 3,3 V
Network controller . . . . ENC28J60, 10 MBit/s
memory . . . . SD card slot (data storage)
design . . . . module for 19-inch rack BGT 3HE

8.4.6 First-time operation

The **CSE-WEB** is delivered with a default setting. These can be adjusted individually after the first-time operation.

- Network setting
    Network address: 192.168.5.100
    Net mask: 255.255.255.0
    In the delivery state is the CSE-WEB IP address 192.168.5.100. This can be changed under the menu item »Settings / CSE-WEB«.
- security settings
    user name: root
    password: 0000
    Access to the web interface is possible only after the authentication. On delivery the registration is done with the username »root« in conjunction with the password »0000«.The change is possible under the menu item »Settings / CSE-WEB«.
- Reset
    Resetting the network settings and the authentication in the delivery status is possible via the switch »Factory Reset« (reset) on the front of the **CSE-WEB**. The settings are reset when the switch is actuated at the start of the **CSE-WEB**.

8.4.7 Operating and adjusting interface (software)

Through the web interface, the cluster control unit **CSE 7E** can be operated comfortably alternatively to the phone. The design of the web interface has been kept deliberately simple. It is therefore self-explanatory, so should be discussed here only briefly.
After calling up the device and enter your user name plus password appears the start page of the user interface (Figure 7). From here another 4 main pages can be selected: control, settings, video server, information.

Home page of web interface
CSE-WEB

On the left are the buttons to the main pages.

Fig. 7

main page C**ontrol**

This page contains three sub-pages. Here takes place the selection of clusters for the automatic circulation. Furthermore, the relays can be activated.

Fig. 8

main page **Settings**

All settings of the system can be performed on three sub-pages.
On the sub-page »CSE-WEB« can be changed here the network settings like IP, username and password.

Fig. 9

main page **Video server**

It can be adjusted the video output of the measured spectrum.

Fig. 10

main page **Information**

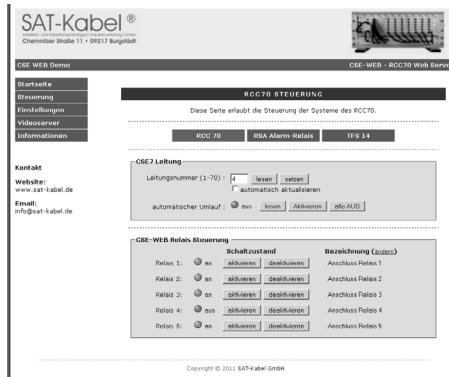This page provides a quick overview of the current operating state (status) of the system.
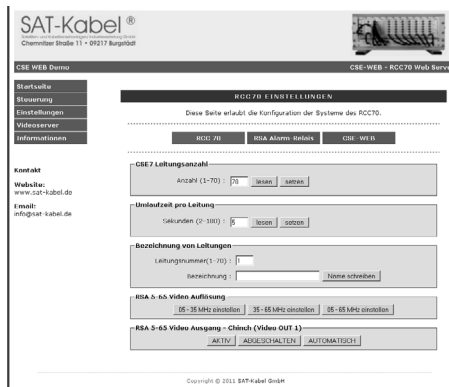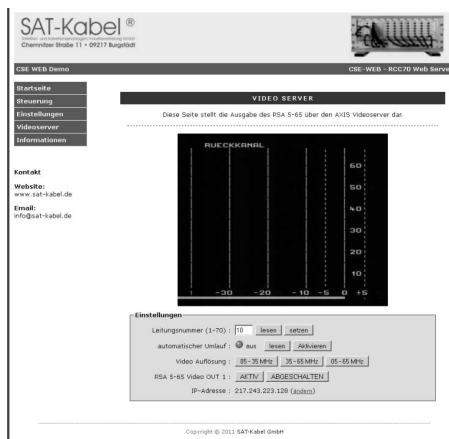

*Fig. 11*

8.5 Phone switch TFS 14

The phone control **TFS 14** is an optional assembly of the return path cluster monitoring **RCC 70**. It extents this one with the possibility, to activate different switching operations, e. g. devices to switch on or off. For this purpose the **TFS 14** is equipped with 14 relays, whose switching contacts are amenable by means of connecting cable (see 8.5.3). Over a control line the phone control is connected with the **CSE 7E**. So it is possible to activate the relays from one phone, which is connected with the **CSE 7E**. A separate power supply for the **TFS 14** is not necessary, because it is done from the **CSE 7E**.

When using the **CSE-WEB** the **TFS 14** is connected to this module. Control and power supply are now done over it.

8.5.1 Scope of delivery

1 TFS 14 – plug-in module for **BGT-3HE**
1 connecting cable to the **CSE 7E**
3 ribbon cable line 10-pole,1.5m, with pin socket
   (see down)

8.5.2 Connexions

Scheme 7

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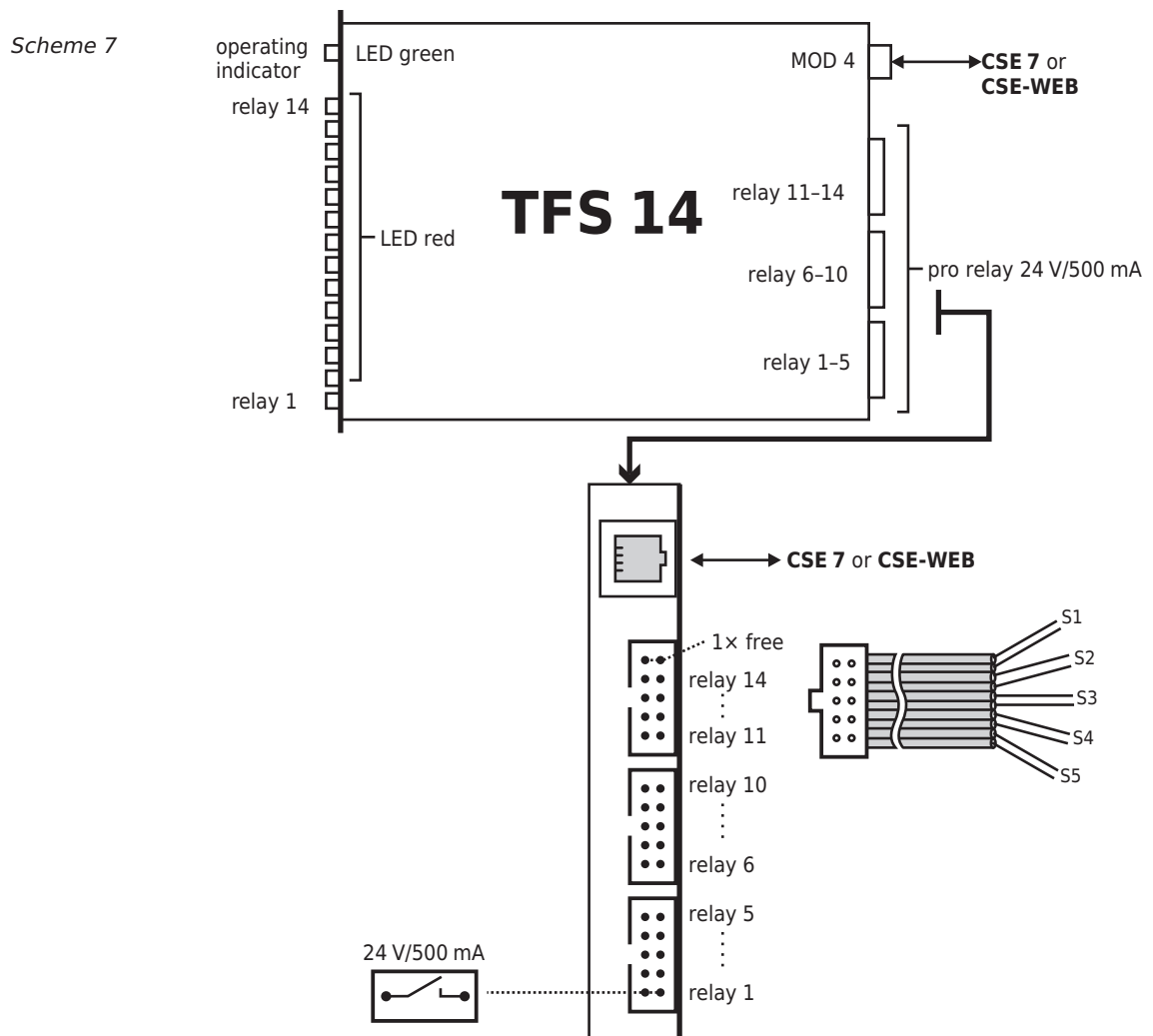
8.5.3   Technical data

Frequency range .... 5–65 MHz
RF inputs ....10× F-socket
HF output .... F-socket
Control,power supply ....from **CSE 7E** or **CSE-WEB**
Design .... plug-in module for 19 inch
....assembly frame **BGT-3HE**

9   Aktive combiner and power supply ASN 7

Fig. 7

The active combiner **ASN 7** is a component of the return path monitoring system **RCC 70**. It allows a clearly arranged connection of the system components among each other and serves simultaneously for a central power supply of the single components. The main feature are:

- installation under the »RCC 70« systems
- 6× feed-through of the six signal lines at the front of the **CSE 7E** at the back side of the system to realize a clearly arranged connection of the **RCS 10**
- central power supply for the components of the »RCC 70« system and accessories
- combiner for 7× **RCS 10** for common connection at the **RSA 5-65E**

9.1   Scope of delivery

1 **ASN7** – 19 inch plug-in module 1 RU (rack unit)
1 Cold devise connecting cable
4 DC connecting cable 35 cm long
2 DC connecting cable 50 cm long
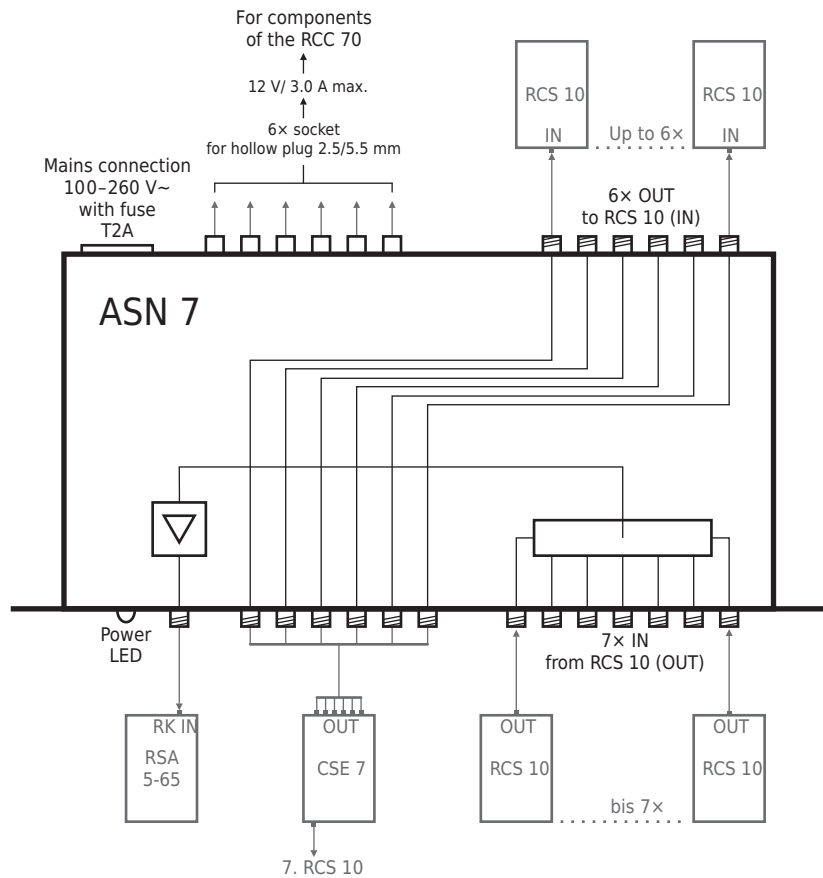   Operating instructions

9.2   Important advice for installation

The device is designed for installation in 19 inch racks/cabinets. It should not be strongly heated from below. For it is to leave free at least 1 rack unit under the device and to ensure a ventilation (cover with openings).

9.3 Installation scheme

Scheme 8

For components
of the RCC 70

12 V/ 3.0 A max.

6× socket
for hollow plug 2.5/5.5 mm

Mains connection
100–260 V~
with fuse
T2A

RCS 10
IN

Up to 6×

RCS 10
IN

6× OUT
to RCS 10 (IN)

ASN 7

Power
LED

7× IN
from RCS 10 (OUT)

RK IN
RSA
5-65

OUT
CSE 7

OUT
RCS 10

bis 7×

OUT
RCS 10

7. RCS 10

9.4 Technical data

Mains connection .... 100 –260 VAC, 47–63 Hz
Current consumption .... 1.2 A/115 V; 0.6 A/230 V
Fuse .... 2 A inert
.... glass fuse in the mains connection
Load inrush current .... 60 A
Special features .... overload protection, short circuit proof
Ambient temperature.. 0 °C to +40 °C
dimensions .... 19 inch plug-in 1 RU (rack unit)
.... D 447 mm × B 220 mm × H 44 mm

10   **Warranty regulations** State July 2006

For this instrument will be granted a service life (in following called guarantee) to following conditions:

This guarantee is valid for new instruments purchased in Germany.

New instruments and their components, which are defective because of production faults and/or material faults, are repaired or are replaced from SAT-Kabel® against a corresponding instrument.

For wear parts, like accumulators, keyboards, housings, bags, connecting cables this guarantee is valid for 6 month from the purchasing date.

The guarantee claim expires at matings by the purchaser or third persons.

At defects, caused by improper handling or operating, by wrong installation or store, by improper connection or mounting, no guarantee is granted .For not justified demand of our service we charge for our service the usual payment for material, working hours and forwarding costs.

Repairs are only made with filled service covering.

Forms for service coverings and further information are found in the standard form contracts under: www.sat-kabel.de

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