Assembly Instructions

English

Grundig SAT Systems

Head-End Receiver Converter

HRC 300 AV

KLASSE A CLASS

CE

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Contents

1 Safety regulations and notes

- Assembly, installation and servicing should be carried out by authorised electricians.
- Switch off the operating voltage of the system before beginning with assembly or service work or pull out the mains plug.
- Do not perform installation and service work during thunderstorms.
- Install the system so it will not be able to vibrate…
  - in a dust-free, dry environment
  - in such a manner that it is protected from moisture, fumes, splashing water and dampness
  - somewhere protected from direct sunlight
  - not within the immediate vicinity of heat sources
  - in an ambient temperature of 0 °C to +50 °C. In case of the formation of condensation wait until the system is completely dried.
- Ensure that the head-end station is adequately ventilated. Do not cover the ventilation slots.
- Beware of short circuits
- No liability is accepted for any damage caused by faulty connections or inappropriate handling.
- Observe the relevant standards, regulations and guidelines on the installation and operation of antenna systems.
- The standards IEC/EN/DIN EN 50083 resp. IEC/EN/DIN EN 60728 must be observed.
- **For further information please read the assembly instructions for the head-end station used.**
- **Test the software versions of the head-end station and the cassette and update them if necessary. The current software versions can be found at "www.gss.de".**

Take action to prevent static discharge when working on the device!

Electronic devices should never be disposed of in the household rubbish. In accordance with directive 2002/96/EC of the European Parliament and the European Council from January 27, 2003 which addresses old electronic and electrical devices, such devices must be disposed of at a designated collection facility. At the end of its service life, please take your device to one of these public collection facilities for proper disposal.

2 General information

2.1 Scope of delivery

1 HRC 300 AV cassette
1 Brief assembly instructions

2.2 Meaning of the symbols used

 Important note

—> General note

• Performing works

2.3 Technical specifications

The requirements of the following EU directives are met:
2006/95/EC, 2004/108/EC
The product fulfils the guidelines and standards for CE labelling (page 20).

Unless otherwise noted all values are specified as "typical".

Input Video:

Type of signal: ..... CVBS signal
Input level: ..... 1 V_{pp}
Input impedance: ..... 75 Ω
Frequency range: ..... 20 Hz ... 5 MHz

Input Audio

Input level: ..... 500 mV_{rms}
Input impedance: ..... 10 kΩ
Frequency range: ..... 20 Hz ... 15 kHz

Output:

HF level: ..... 95 dBµV
Channels: ..... C02 ... C69 including S02 ... S41
Frequency range: ..... 42.00 MHz ... 870.00
Standard: ..... PAL B/G, PAL I
Output impedance: ..... 75 Ω

Connections:

Video inputs: .....3 (1 per modulator)
Audio inputs: .....6 (2 per modulator)
HF output: ..... 1 IEC socket
Connection strip (10-pin): .....for supply voltages and control circuits
RS 232 socket:..... serial interface for software update

Remote maintenance

Remotely controllable (via PSW 1000*): .....yes
Remote update (via BEflash*): .....yes

(* and a corresponding management unit)

2.4 Description

The cassette is used to feed standardised audio and video signals into a cable system from completely different audio and video sources (e.g. audio and video reproduction devices, test picture generators, observation cameras etc.). The audio and video signals fed in via the cinch sockets of the cassette are modulated to adjustable carrier frequencies in the modulators and supplied to the combiner. There they are combined and are sent to the HF output collector of the head-end station via the HF output socket of the cassette. The common output level can be set at the HF output collector of the head-end station.
When the head-end station is switched on, the two-line LC display shows the software version of the control unit. To operate this cassette the software version of the control unit must be "**V 44**" or higher. You can find the current operating software for the control unit and the cassette, the software "**BE-Flash**" and the current assembly instructions on the website "***www.gss.de***".

The cassette is designed for use in head-end stations of the standard line.

Display of the control unit software version

If necessary, you can activate the indication of the software version of the control unit manually:

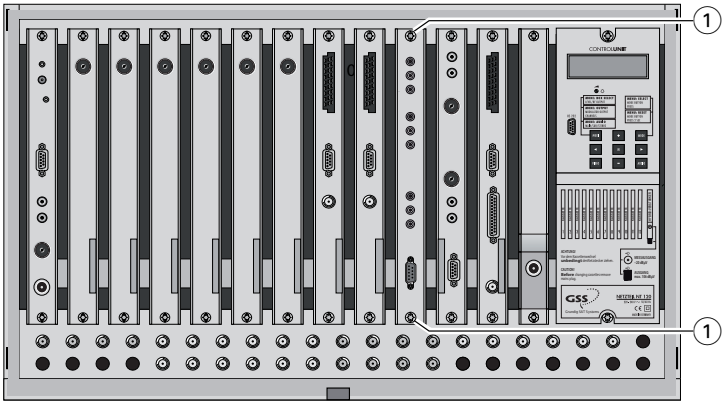
- Press any two keys on the control unit of the head-end station simultaneously until the display goes dark and the software version, e.g. "**V 44**" appears.

3 Installation

3.1 Installing the cassette

– Ensure the head-end station is mounted so it will not be able to vibrate. Avoid, for example, mounting the head-end station onto a lift shaft or any other wall or floor construction that vibrates in a similar way.
– Before installing or changing a cassette unplug the power cable from the mains power socket.

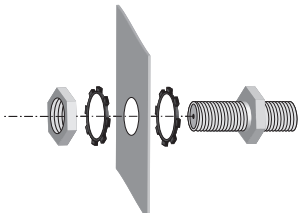
- Remove the fastening screws (1) of an unoccupied slot from the bracket of the head-end station.
- Insert the cassette in this slot and push it into the housing.
- Align the cassette and apply slight pressure to connect it to the connections of the board and the HF bus bar.
- Fasten the cassette with the screws (1).



3.2 EMC REGULATIONS

To comply with the current EMC regulations, it is necessary to connect the lines leading in and out of the head-end station using cable terminals.
When mounting the cassette in a head-end station which is installed in a 19" cabinet, make sure the connections leading in and out for the 19" cabinet are made using cable terminals.

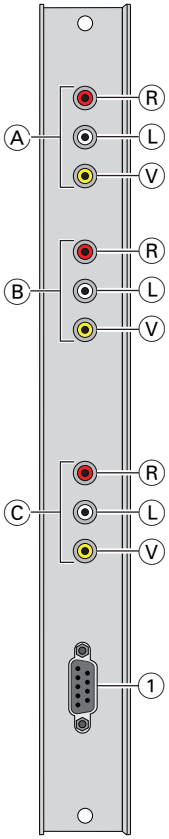
The attenuation of shielding of the connection lines for ASI and antenna must meet the requirements for "Class A".



- Insert the required number of cable terminals in the openings provided in the head-end station or in the 19" cabinet.

Tighten the nuts of the cable terminals until the teeth on the lock washers put under **have penetrated the exterior coating and a good connection is made between the housing / 19" cabinet and cable terminals.**

3.3 Overview of the cassette



Ⓐ Inputs of channel strip "**A**"
Ⓡ Audio input "right"
Ⓛ Audio input "left", "mono"
Ⓥ Video input

Ⓑ Inputs of channel strip "**B**"
Ⓡ Audio input "right"
Ⓛ Audio input "left", "mono"
Ⓥ Video input

Ⓒ Inputs of channel strip "**C**"
Ⓡ Audio input "right"
Ⓛ Audio input "left", "mono"
Ⓥ Video input

① D-SUB socket "RS 232"

The operating software of the cassette can be updated via the 9-Pin D-SUB socket "RS 232" using a PC or notebook and the software "**BE-Flash**".
You can find the current operating software on the website "***www.gss.de***".

3.4 Connecting the cassette

- Connect the peripheral devices to the cinch input sockets Ⓥ (video - yellow), Ⓡ (audio right - red) and Ⓛ (audio left, mono - white) of the modulators Ⓐ, Ⓑ and Ⓒ.
- Connect the head-end station to the mains power supply.

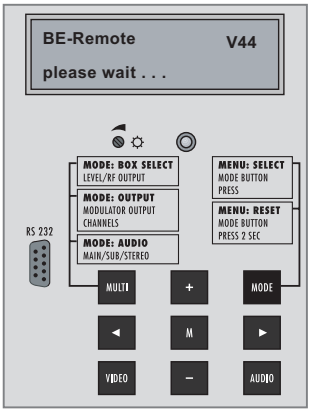
4 The control unit at a glance

4.1 Menu items

Program the cassette using the buttons on the control unit of the head-end station. The two-line display of the control unit then shows the menus.
The parameters and functions to be set are underlined.

Use the **MODE** button to select the following main menu items:

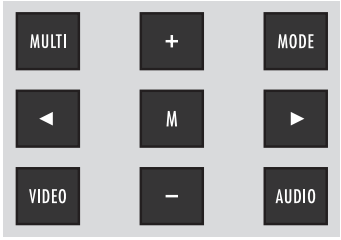
- Cassette
- Channel strip (modulator)
- HF output level,
  switching the modulator on / off
- Channel or frequency setting, TV standard
- Output channel / Output frequency
- Audio type / Audio level



4.2 Control panel

The key pad on the head-end station is used to scroll through the menus:

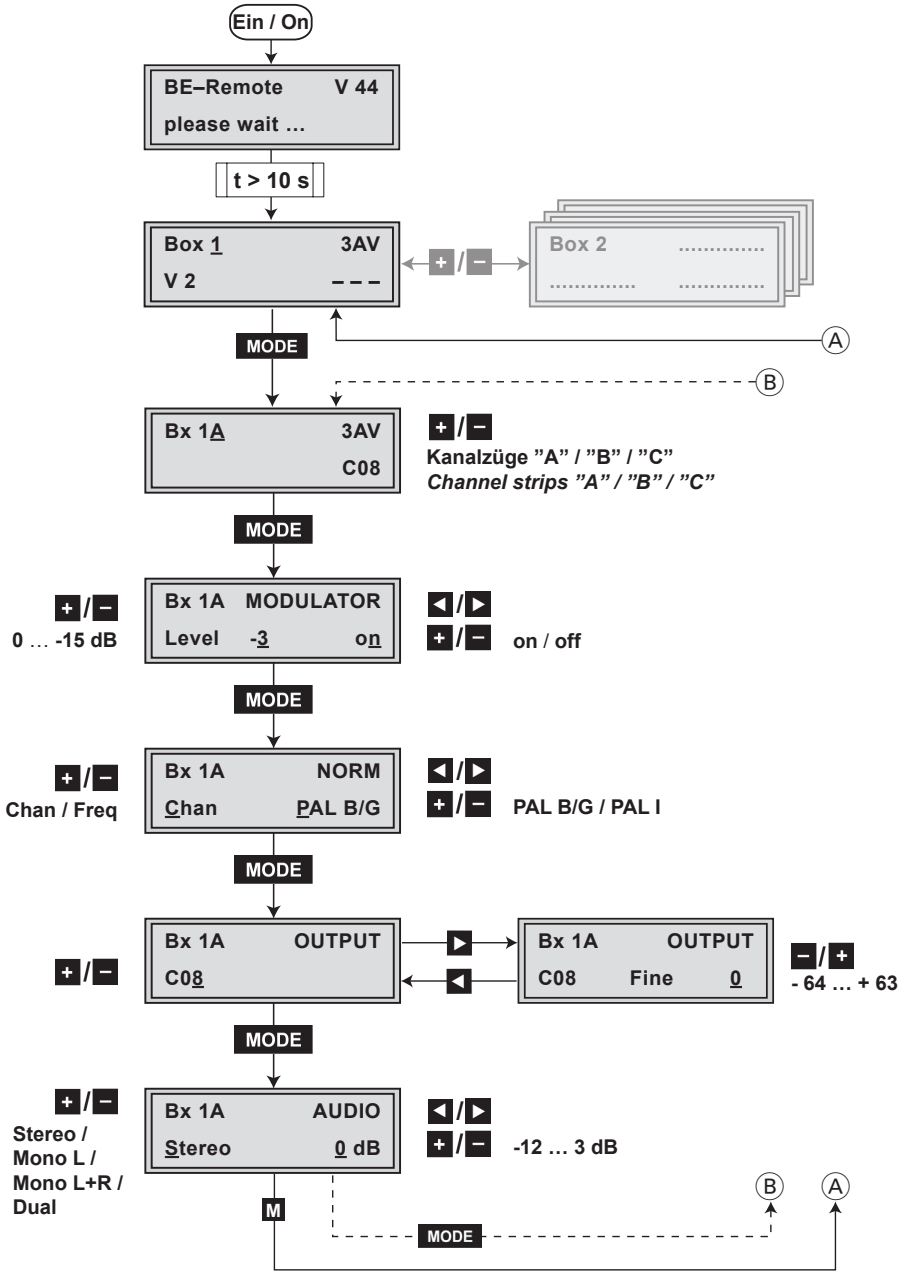
MODE scrolls forward through the menus.
◄ / **►** select parameters in the menus.
+ / **-** set values, initiate actions.
MULTI selects sub-menus.
AUDIO scrolls backward through the menus.
M saves all entries.



5 Programming

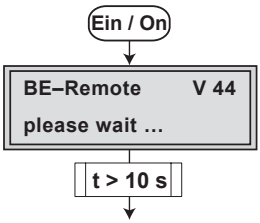
5.1 Preparation

- Connect the test receiver to the HF output or the test output of the head-end station.
- Set the output channels / output frequencies of the cassette (page 16) and adjust the test receiver to the respective channel / frequency.
- Switch on the modulator if necessary (page 14).
- Measure the output levels of the channel strips and adjust them to a uniform output level (page 17).


Ein / On
BE–Remote V 44
please wait ...
t > 10 s
Box 1 3AV
V 2 – – –
+ / –
Box 2 .....
....
MODE
A
B
Bx 1A 3AV
C08
+ / –
Kanalzüge "A" / "B" / "C"
Channel strips "A" / "B" / "C"
MODE
+ / –
0 ... -15 dB
Bx 1A MODULATOR
Level -3 on
◀ / ▶
+ / –
on / off
MODE
+ / –
Chan / Freq
Bx 1A NORM
Chan PAL B/G
◀ / ▶
+ / –
PAL B/G / PAL I
MODE
+ / –
Bx 1A OUTPUT
C08
▶
◀
Bx 1A OUTPUT
C08 Fine 0
– / +
- 64 ... + 63
MODE
+ / –
Stereo /
Mono L /
Mono L+R /
Dual
Bx 1A AUDIO
Stereo 0 dB
◀ / ▶
+ / –
-12 ... 3 dB
M
B
A
MODE

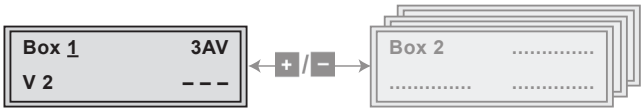
—> Pressing the **MODE** button for longer than 2 seconds cancels the programming procedure. This takes you back to the program item "Selecting the cassette" from any menu. Any entries that have not been saved are reset to the previous settings.
—> Entries in the menus can be saved by pressing the **M** key. You are taken back to the "Selecting the cassette" menu item.
—> Pressing the **AUDIO** button returns to the previous menus.

- Switch on the head-end station.



—> The display shows the software version (e.g. V 44)
—> The processor reads the cassettes' data (approx. 10 seconds).

SELECTING THE CASSETTE



- Select the cassette you want to program (e.g. "**Box 1**") by repeatedly pressing the button **+** / **-** if necessary.

—> The display shows e.g. the menu "**Box 1 3 AV**":
V 2

"**Box 1**"	stands for slot 1
"**3AV**"	type of cassette
"**V 2**"	software version of the cassette

- Press the **MODE** button.

—> The "Selecting the channel strip" – "**Bx 1A**" menu is activated.

SELECTING THE CHANNEL STRIP

- Use **+** / **-** to select the channel strip (modulator) "**A**", "**B**" or "**C**" to be set.

—> The display shows e.g. the menu **Bx 1A 3AV C08**

"**Bx 1**" stands for slot 1,
"**A**" stands for channel strip "**A**"
"**3AV**" type of cassette
"**C08**" channel set

—> If frequency setting is selected the frequency set is displayed instead of the channel set (e.g. "**196.25**").

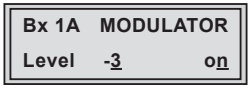
—> If the channel strip (modulator) is switched off, "**off**" is displayed instead of the channel or the frequency set.

- Press the **MODE** button.

—> The "HF output level" / "Switching the modulator off / on" – "**MODULATOR Level**" menu is activated.

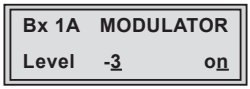
HF OUTPUT LEVEL

In this menu you can set the HF output levels of the channel strips "**A**", "**B**" and "**C**" to the same values and switch on or off the modulator of the channel strip.



- Measure and note down the output level of channel strip "**A**".
- Activate menu item "**Selecting the channel strip**" using the **AUDIO** button and select channel strip "**B**".
- Activate the "**MODULATOR Level**" menu by pressing the **MODE** button.
- Measure and note down the output level of channel strip "**B**".
- Repeat this procedure for channel strip "**C**".
- Select the channel strips with the higher HF output levels one after the other and by pressing **-** adjust the higher output levels of the channel strips to the output level of the channel strip with the lowest output level ("**0**" to "**–15**" dB).
- Activate menu item "**Selecting the channel strip**" using the **AUDIO** button if necessary and call up the channel strip to be programmed.

SWITCHING THE MODULATOR OFF/ON



- Place the cursor under "**on**" or "**off**" using the **◄**/**►** buttons.
- Press **+**/**-** to switch the modulator of the channel strip "**off**" or "**on**".

—> In position "**off**" the "**Level**" menu item is inactive.

- Press the **MODE** button.

—> The "Channel / frequency setting" / "TV standard of the output signal" – "**NORM**" menu is activated.

CHANNEL / FREQUENCY SETTING

In this menu, you can select the channel or frequency setting for the adjustment of the HF output. The channel setting covers the range of channels C02 ... C69 including channels S02 ... S41, the frequency setting covers the range from 42.00 MHz to 870..00 MHz. Additionally the TV standard of the output signal can be set.

- Press **+**/**-** to select channel setting "**Chan**" or frequency setting "**Freq**".

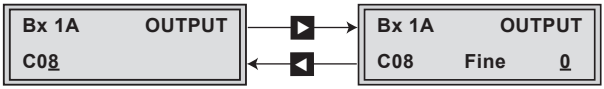
TV STANDARD OF THE OUTPUT SIGNAL

- Place the cursor under the TV standard displayed using the **◄**/**►** buttons.
- Press **+**/**-** to select the TV standard of the output signal ("**PAL B/G**" / "**PAL I**").

- Press the **MODE** button.

—> The "Setting the output channel" or "Setting the output frequency" – "**OUTPUT**" menu is activated.

Output channel



- Use + / - to set the output channel of the modulator.

Fine tuning

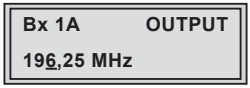
⚠ Adjust the fine tuning (frequency offset) only in individual cases which give you reason to do so (e. g. moiré, interferences), since all TV sets connected to the cable system have to be fine tuned after making changes.

- Press the ▶ buton.

—> "**FINE 0**" additionally appears on the display.

- Use + / - to set the fine tuning.
- Press ◀ to return to the main menu.

Output frequency



- Use the ◀ / ▶ buttons to place the cursor under the digit of the frequency displayed to be set, then use + / - to set the output frequency wished.

- Press the **MODE** button.

—> The "Audio type" / "Audio output level" – "**AUDIO**" menu is activated.

Audio type

In this menu you can set the audio type in which the modulator is to modulate the audio signals. If a mono audio signal (white Cinch socket) is fed in into a channel strip, program the respective channel strip to "**Mono L**". Additionally you can adjust various audio output levels of the signal sources.

- Use **+**/**-** to set the audio type ("**Stereo**", "**Mono L**", "**Mono L+R**", "**Dual**").

Setting the audio output level

- Feed in an external audio signal (refer to "Technical specifications").
- Use **+**/**-** to set the audio output level.

Saving settings

- Press the **M** button.

—> The settings are saved.
—> You return to the "Selecting the cassette" menu (page 12).
—> By pressing the **MODE** button, you will be returned to the menu item "Selecting the channel strip" **without** saving the programmed data (page 13).

After installing the head-end station, upgrading accessories or installing cassettes it is necessary to tighten all cable connections, cable terminals and cover screws in order to maintain compliance with current EMC regulations securely.

- Securely tighten the cable connections using an appropriate open-ended spanner.
- Measure the output levels of the other cassettes and tune them to a uniform output level using the appropriate level controls or software dependent on the head-end station used. Please regard the assembly instructions of the respective head-end station.

—> In order to prevent interference within the head-end station and the cable system, the output levels of the digital cassettes must be set lower by 8 dB compared to analogue cassettes.

- Mount the front cover (s. assembly instructions of the head-end station).

CCIR – Band I/III (Frequency raster 7 MHz)

Kanal Channel	Bildträgerfrequenz Picture carrier frequency [MHz]	Kanal Channel	Bildträgerfrequenz Picture carrier frequency [MHz]	Kanal Channel	Bildträgerfrequenz Picture carrier frequency [MHz]	Kanal Channel	Bildträgerfrequenz Picture carrier frequency [MHz]	Kanal Channel	Bildträgerfrequenz Picture carrier frequency [MHz]
C 2	48.25	S 5	133.25	C 5	175.25	C 11	217.25	S 15	259.25
C 3	55.25	S 6	140.25	C 6	182.25	C 12	224.25	S 16	266.25
C 4	62.25	S 7	147.25	C 7	189.25	S 11	231.25	S 17	273.25
S 2	112.25	S 8	154.25	C 8	196.25	S 12	238.25	S 18	280.25
S 3	119.25	S 9	161.25	C 9	203.25	S 13	245.25	S 19	287.25
S 4	126.25	S 10	168.25	C 10	210.25	S 14	252.25	S 20	294.25

CCIR – Hyperband (Frequency raster 8 MHz)

Kanal Channel	Bildträgerfrequenz Picture carrier frequency [MHz]	Kanal Channel	Bildträgerfrequenz Picture carrier frequency [MHz]	Kanal Channel	Bildträgerfrequenz Picture carrier frequency [MHz]	Kanal Channel	Bildträgerfrequenz Picture carrier frequency [MHz]
S 21	303.25	S 27	351.25	S 33	399.25	S 39	447.25
S 22	311.25	S 28	359.25	S 34	407.25	S 40	455.25
S 23	319.25	S 29	367.25	S 35	415.25	S 41	463.25
S 24	327.25	S 30	375.25	S 36	423.25		
S 25	335.25	S 31	383.25	S 37	431.25		
S 26	343.25	S 32	391.25	S 38	439.25		

CCIR – Band IV/V (Frequency raster 8 MHz)

C 21	471.25	C 35	583.25	C 49	695.25	C 63	807.25
C 22	479.25	C 36	591.25	C 50	703.25	C 64	815.25
C 23	487.25	C 37	599.25	C 51	711.25	C 65	823.25
C 24	495.25	C 38	607.25	C 52	719.25	C 66	831.25
C 25	503.25	C 39	615.25	C 53	727.25	C 67	839.25
C 26	511.25	C 40	623.25	C 54	735.25	C 68	847.25
C 27	519.25	C 41	631.25	C 55	743.25	C 69	855.25
C 28	527.25	C 42	639.25	C 56	751.25		
C 29	535.25	C 43	647.25	C 57	759.25		
C 30	543.25	C 44	655.25	C 58	767.25		
C 31	551.25	C 45	663.25	C 59	775.25		
C 32	559.25	C 46	671.25	C 60	783.25		
C 33	567.25	C 47	679.25	C 61	791.25		
C 34	575.25	C 48	687.25	C 62	799.25		

Declaration of CE conformity

GSS	**Konformitätserklärung** **Declaration of Conformity / Déclaration de Conformité** **085/ 09**	CE

Der Hersteller/Importeur
The manufacturer/importer
Le producteur/importateur

GSS GRUNDIG SAT-Systems GmbH

Anschrift / Address / Adresse

Beuthener Straße 43, D-90471 Nürnberg, Germany

erklärt hiermit eigenverantwortlich, daß das Produkt:
declare under their sole responsibility that the product: / déclare, que le produit:

Bezeichnung / Name / Description

AV - Cassette

Type / Model / Type

GSS HRC 300 AV

Bestell-Nr. / Order-No. / Nº de réf.

GAS 2200

folgenden Normen entspricht:
is in accordance with the following specifications: / correspond aux normes suivantes:

EN 50083-2:	***2006***
EN 60065 :	***2002***
EN 60065 + A1 :	***2006***

Das Produkt erfüllt somit die Forderungen folgender EG-Richtlinien:
Therefore the product fulfils the demands of the following EC-Directives:
Le produit satisfait ainsi aux conditions des directives suivantes de la CE:

2006/95/EG	**Richtlinie betreffend elektrische Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen** **Directive relating to electrical equipment designed for use within certain voltage limits** **Directive relatives au matériel électrique destiné à être employé dans certaines limites de tension**
2004/108/EG	**Richtlinie über die elektromagnetische Verträglichkeit** **Directive relating to electromagnetic compatibility** **Directive relatives à la compatibilité électromagnétique**

Nürnberg, 17. Juli 2009

Michael Bierschneider
Leiter Entwicklung
Manager Development / Directeur Développement

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