Amplifier

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Overview

Technical data

CATV amplifiers
- **House connection amplifiers *eco-power***
- **House connection amplifiers *midi-power***
- **House connection amplifier *high-power***
- **Line-/distribution amplifier**
- **Accessories**

Super wideband amplifiers
- **Amplifiers for terrestrial and SAT signal**

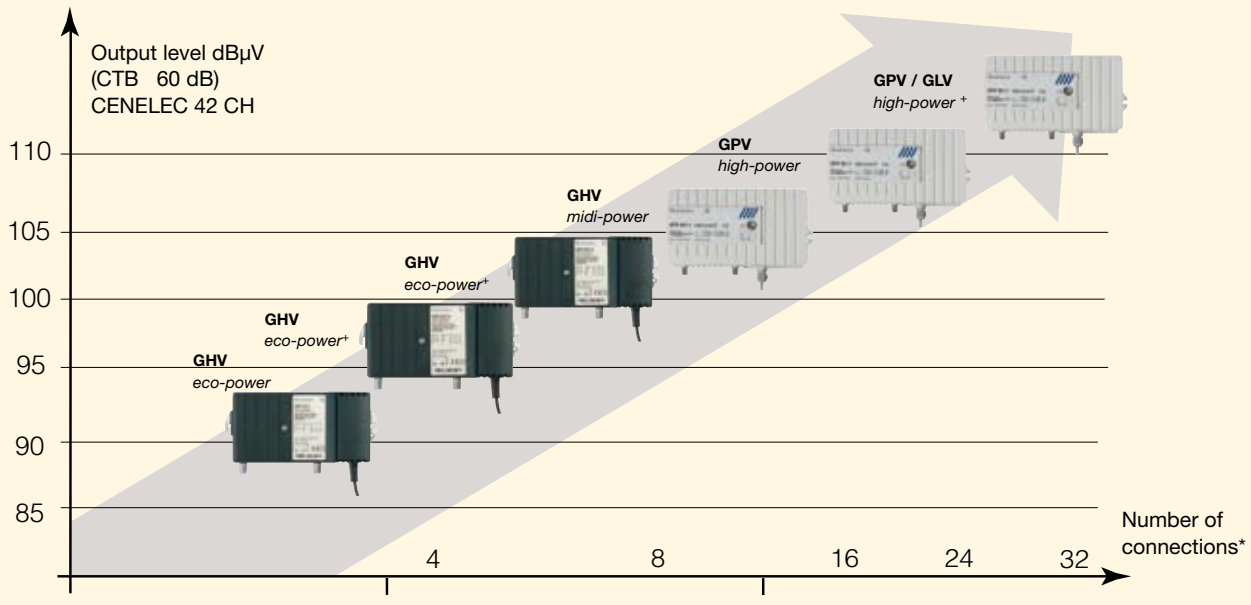
Multi-band amplifier

Terrestrial multi-purpose amplifiers

Overview - CATV amplifiers

	Apartment amplifier | House connection amplifiers						
Product family	*eco-power*		*eco-power +*			*eco-power +*	
							
Suitable for digital							
Use	Flats, detached and Semi-detached homes		Smaller building distribution systems				
With multimedia capability (return channel)		•		•		•	•
Types	**GHV 24 E**	**GHV 20 M**	**GHV 20 E**	**GHV 820 A**	**GHV 820 C**	**GHV 30 E**	**GHV 833**
Mains supply 230V							
Remote feeding							
HF - connections	F	F	F	F	F	F	F
Level attenuator	• Pot.	• Pot.	• Pot.	• Pot.	• JME	• Pot.	• Pot.
Line equaliser				• Pot.	• JME	•	• Pot.
Interstage preemphasis							
Return path options	-	p	-	p, a	p, a	-	p
ROB[1)]	-	-	-	•	•	-	-
VHFI/RP switch over	-	-	-	-	•	-	-
Return path modules	-	-	-	-	-	-	-
5 - 30 MHz	-	-	-	-	-	-	•
5 -65 MHz	-	•	-	•	•	-	-
Output level (forward)							
IMA3 > 60 dB (EN 50083-5) dBµV	103	103	113	113	113	115	115
CSO > 60 dB (CENELEC 42Ch) dBµV	91	87	97	97	99	101	103
CTB > 60 dB (CENELEC 42Ch) dBµV	91	90	100	100	101	101	103
Basic gain dB	17/18	10/12	21	21	21	29	29

1) ROB: Return channel on board with VHF switchover
2) Can be switched from 862 MHz to 606 MHz
3) Interstage Slope 7 dB
4) Regulated output level range
5) 5/8" connection on request

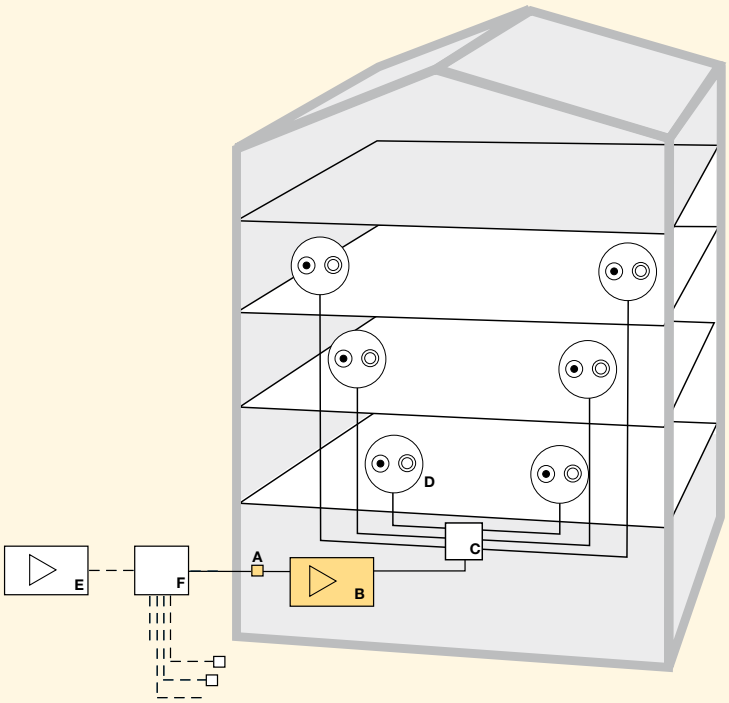


		midi-power	high-power		high-power +	
						
		Medium-sized building	Large house installations		CATV distribution distribution	Line amplifier installations
•	•	•	•	•	•	• •
GHV 830 A	**GHV 830 C**	**GHV 834 C**	**GPV 845 E**	**GPV 845 C 845 CF**	**GPV 851 I 851 F**	**GPV 865 865 F** / **GLV … 865 AGC 865 F AGC**
F	F	F	F	F 5/8" [5]	F	PG11 / PG11
• Pot.	JME	JME	• Pot.	JME	• Pot.	• Pot. / • Pot.
• Pot.	JME	JME	• Pot.	JME	• Pot. [2]	• Pot. [2] / • Pot. [2]
	•	•	•	•	•	•
p, a	p, a	p, a	-	p, a	p, a	p, a / p, a
•	•	•	-	•	m	m / m
-	•	•	-	•	•	• / •
-	-	-	-	•	•	• / •
-	-	-	-	•	•	• / •
•	•	•	-	•	•	• / •
115	115	118	123	123	124	124 / (124)
101	103	106 [3]	111 [3]	111 [3]	114 [3]	114 [3] /
101	102	105 [3]	110 [3]	110 [3]	114 [3]	114 [3] / (95 - 105) [4]
30	30	34	36/30	36/30	36/29	36/29 / 28

Pot. = potentiometer
JME = Jumper Matrix Elemente
p = passive return channel
a = active return channel
m = return path via plug-in modules

Application example

A : Home connection point
B : House connection amplifiers GHV… / GPV…
C : Tap-off AFC 1861
D : Antenna outlet socket EDU 04 F
E : Line amplifier GLV 865 F
F : Tap-off



House connection amplifier*eco-power*

Type	GHV 20 E	GHV 30 E	GHV 24 E
Order number	940 023-001	940 024-001	941 081-001

Small but powerful
The house connection amplifiers are optimal CATV amplifiers for smaller building units without return channel utilisation.

GHV 20 E and GHV 30 E.
These inexpensive amplifiers are suitable for digital TV and ideal for use in (MATV and SMATV) systems.
- *Very efficient with extremely low power consumption*
- *Compact integrated transformer power supply unit with permanent screw-on housing*
  – *Shock protection even when the amplifier is opened*
- *Control elements:*
  – *Removable cover main screw allows easy configuration*
  – *Not accessible when closed thus protected from tampering*
- *The die-cast basic housing reduces component temperature to increase service life and reliability.*
- *Satisfies the standards*
  EN 60065
  EN 50083-1
  EN 50083-2, Class A
  EN 50083-3, quality class 2
- CE KLASSE A CLASS

GHV 24 E

CATV indoor distribution amplifier with integrated 4-way tap-off
The GHV 24 E apartment amplifier has 4 outputs for direct, point-to-point distribution of analog and digital signals.
The ideal distributor amplifier without return channel utilisation for
- *Apartments*
- *Family homes and semi-detached homes*
- *Small apartment blocks*
- *Single floors in large apartment blocks*

Special features:
- *Amplification adjustable from 0 to 18 dB*
- *Outputs decouples using directional coupler*
- *TV band I compatible*
- *1 GHz amplifier technology*
- *High level output at low power consumption*
- *High-quality die-cast housing with integrated power supply unit*
- *Compatible with standards*
  EN 60065, EN 50083-1,
  EN 50083-2, Class A
  EN 50083-3, quality class 2,
- CE KLASSE A CLASS

Advantages offered by the compact solution:
No external tap-offs, or distributors, therefore:
- *Easier and visually appealing installation in residential buildings*
- *Increased reliability*
- *Cost advantages*

Frequency range				
Return/forward MHz		-- / 40...862 (1000)	-- /40...862 (1000)	-- / 40....862 (1000)
Gain				
@ 862 MHz	dB	21	29	
@ 862 MHz output 1	dB			16
@ 862 MHz output 2, 3, 4	dB			17
Level attenuator	dB	0...20	0...20	0...20
Linearity amplitude frequency response				
40...862 (1000) Mhz	dB	1.5 (3)	1.5 (3)	1.5
Fixed slope	dB	+1	+1	+1
Noise factor	dB	4.5	4.5	4.5
Return loss				
40 MHz, -1.5 dB/octave	dB	>14	>14	>14
Output level, IMA = 60 dB				
IMA 2 in acc. with EN 50083-3	dBµV	100	105	92
IMA 3 in acc. with EN 50083-5	dBµV	113	115	103
CSO Cenelec 42 chan. 862 MHz	dBµV	97	101	91
CTB Cenelec 42 chan. 862 MHz	dBµV	100	101	91
HF connectors (75 Ω)				
Input		F-socket	F-socket	F-socket
Output		F-socket	F-socket	F-socket
Decoupling of outputs	dB			30
Operating conditions				
Maximum output level (EMC)	dBµV	105	105	105
Dimensions W x H x D	mm	150 x 80 x 50	150 x 80 x 50	150 x 80 x 50
Operating voltage	V	230 10%	230 10%	230 10% Power
Power consumption	W	3	5	5
Operating temperature range	°C	-25 ... +55	-25 ... +55	-25 ... +55
Protection class	II		II	II
Protection class (IP)		IP 20	IP 20	IP 20
Weight	kg	0.64	0.64	0.64
RoHS 2002/95/EC conformant		yes	yes	yes

House connection amplifier*eco-power*

Type	GHV 20 M
Order number	940 030-061

Four decoupled Outputs

		Forward	reverse
Frequency range	MHz 85...862	5...65	
Gain			
@ 862 (65) MHz output 1 (data)	dB	12	-1.0
@ 862 MHz output 2, 3, 4	dB	10,5	
Level attenuator	dB	0...20	
Linearity amplitude frequency response	dB	1.5	
Noise factor	dB	4.5	
Return loss			
@ 40 Mhz, -1.5 dB/octave	dB	>14	
Output level, IMA = 60 dB			
IMA 2 in acc. with EN 50083-3	dBµV	90	
IMA 3 in acc. with EN 50083-5	dBµV	103	
CSO Cenelec 42 chan. 862 MHz	dBµV	87	
CTB Cenelec 42 chan. 862 MHz	dBµV	90	
HF connectors (75 Ω)			
Input		F-socket	
Output		F-socket	
Operating conditions			
Maximum output level (EMC)	dBµV	105	
Dimensions W x H x D	mm	150 x 80 x 50	
Operating voltage	V	230	
Power consumption	W	3	
Operating temperature range	°C	-25 ... +55	
Protection class		II	
Protection class (IP)		IP 20	
Weight	kg	0.65	
RoHS 2002/95/EC conformant		yes	

GHV 20 M

CATV in-premises amplifier with integrated 4-way tap-off

The GHV 24 E apartment amplifier has 4 outputs for direct, point-to-point distribution of analog and digital signals.
The ideal distribution amplifier with return channel applications

- *Apartments*
- *Family homes*

Special features:

- *Return channel capable data output 1 5...65 MHz*
- *Outputs decoupled via directional couplers*
- *High-quality die-cast housing with integrated power supply unit*
- *Compatible with standards EN 60065, EN 50083-1, EN 50083-2, Class A EN 50083-3, quality class 2,*
- CE KLASSE A CLASS

Advantages offered by the compact solution:

No external tap-offs, or splitters, therefore:

- *Easier and visually appealing installation in residential buildings*
- *High decoupling between data return channel and other connections suppresses interference*
- *Increased reliability*
- *Cost advantages*

House connection amplifier*eco-power* with return channel (pas-

Type	GHV 820 A	GHV 830 A
Order number	940 020-065	940 022-065

GHV 820 A/GHV 830A

The optimal solution for preparing house distribution networks for expansion. The multimedia enabled amplifiers are suitable for digital TV and interactive services, and ideal for implementation in smaller building units and CATV domestic networks.

"All on board".

- *Forward channel for TV band 1 or return channel are alternatively available through configuration of the diplex filters*
- ***Integrated return channel amplifier can be connected via jumper***
- ***Return channel optionally active/ passive/blocked.***
- *Compatible with standards EN 60065, EN 50083-1, EN 50083-2, Class A EN 50083-3, quality class 2*
- CE KLASSE A CLASS

Frequency range MHz			
Setting: VHF I "on", RC "off"		-/40...862	-/40...862
Setting: VHF I "off", RC "on"		5...65 /85...862	5...65 /85...862
Gain forward			
@ 862 Mhz	dB	21	30
Level attenuator	dB	0...20	0...20
Line equaliser	dB	0..18	0...18
Amplification backward			
@ 60 MHz via output 1	dB	-1,5/20	-1,5/24
Level attenuator (input RC)	dB	0...20	0...20
Attenuation Jumper (output RC)	dB	0/10	0/10
Linearity amplitude frequency response			
40...862 (1000) MHz	dB	1.5	1.5
Noise factor			
forward (VHF I "on")	dB	5.5	5.5
Return loss			
@ 40 Mhz, -1.5 dB/octave	dB	>14	>14
Output level forward			
IMA/IMA >60 dB	dBµV	100/113	105/115
CSO/CTB >60 dB, 42 ch,	dBµV	97/100	101/101
HF connectors (75 Ω)			
Input		F-socket	F-socket
Output		F-socket	F-socket
Operating conditions			
Maximum output level (EMC)	dBµV	105	105
Dimensions W x H x D	mm	150 x 80 x 50	150 x 80 x 50
Operating voltage	V	230 10%	230 10%
Power consumption	W	4.5	6
Operating temperature range	°C	-25 ... +55	-25 ... +55
Protection class		II	II
Protection class (IP)		IP 20	IP 20
Weight	kg	0.64	0.64
RoHS 2002/95/EC conformant		yes	yes

House connection amplifier*eco-power* with return channel (pas-

Type		GHV 820 C	GHV 830 C
Order number		940 020-062	940 022-062

Frequency range			
Setting: VHF I "on", RC "off"	MHz	-/40...862	-/40...862
Setting: VHF I "off", RC "on"	MHz	5...65 /85...862	5...65 /85...862
Gain forward			
@ 862 MHz	dB	21	30
Attenuator (2 dB increments) input	dB	0...16	0...16
Line equalisation (2.5 dB increments)	dB	0...16	0...16
Gain return path			
@ 60 MHz on output 1	dB	-1.5/20	-1.5/25
Attenuator increments input	dB	0/3/6/9/50	0/3/6/9/50
Attenuator increments output	dB	0/10	0/10
Linearity amplitude frequency response			
40...862 (1000) MHz	dB	1.5	1.5
Fix slope	dB	+1	+1
Linearity amplitude frequency response			
5...60 MHz	dB	1.5	1.5
Noise factor			
forward (VHF I "on")	dB	5	5
return path (VHF I "off")	dB	6	6
Return loss			
@ 40 Mhz, -1.5 dB/octave	dB	>14	>14
Output level forward			
IMA2 >60 dB	dBµV	100	105
IMA3 >60dB	dBµV	113	115
CSO >60 dB, 42 ch, Slope 0/7	dBµV	97/99	101/103
CTB >60 dB, 42 ch, Slope 0/7	dBµV	100/101	100/102
HF connectors (75 W)			
Input		F-socket	F-socket
Output		F-socket	F-socket
Operating conditions			
Maximum output level (EMC)	dBµV	110	110
Dimensions W x H x D	mm	150 x 80 x 50	150 x 80 x 50
Operating voltage	V	230 10%	230 10%
Power consumption	W	5	6
Operating temperature range	°C	-25 ... +55	-25 ... +55
Protection class		II	II
Protection class (IP)		IP 20	IP 20
Weight	kg	0.64	0.64
RoHS 2002/95/EC conformant		yes	yes

GHV 820 C/GHV 830 C

GHV 820 C and GHV 830 C are multimedia-enabled house connection amplifiers for smaller to medium-sized building units. All important function units such as forward amplifier, diplex filters, return channel amplifier and the associated actuators are completely implemented on the PCB. Easy migration of the return channel "TV band I" or "return channel 65 MHz" can be selected, return channel switchable: "active or "passive". adjustment of the return channel amplification by means of adjustable attenuators on the input and output

Structure

- *Increased long-term stability thanks to discrete, switchable attenuators and equalisers (i.e. potentiometers are not used)*
- *Compact integrated transformer power supply with permanent screw-on plastic hood as shock protection*
- *Maximum output level 110 dBµV*
- *Compatible with standards EN 60065, EN 50083-1, EN 50083-2, Class A EN 50083-3, quality class 2,*
- CE KLASSE A CLASS

House connection amplifier *midi-power* with return channel (pas-

Type	GHV 834 C
Order number	940 030-062

GHV 834 C

GHV 834 C is a multimedia-enabled house distribution amplifier for medium-sized building units. All important function units such as forward amplifier, diplex filters, return channel amplifier and the associated actuators are completely implemented on the PCB. Easy migration of the return channel "TV band I" or "return channel 65 MHz" can be selected, return channel switchable: "active or "passive" adjustment of the return channel amplification by means of adjustable attenuators on the input and output

Structure

- *Increased long-term stability thanks to discrete, switchable attenuators and equalisers (i.e. potentiometers are not used)*
- *Compact integrated transformer power supply with permanent screw-on plastic hood as shock protection*
- *Maximum output level 110 dBµV*
- *Compatible with standards EN 60065, EN 50083-1, EN 50083-2, Class A EN 50083-3, quality class 2,*
- CE KLASSE A CLASS

Frequency range		
Setting: VHF I "on", RC "off"	MHz	-/40...862
Setting: VHF I "off", RC "on"	MHz	5...65 / 87...862
Gain forward		
@ 862 MHz	dB	34
Attenuator input (2 dB increments)	dB	0...16
Line equaliser (2.5 dB increments)	dB	0...16
Interstage pre-equalisation	dB	0/7
Gain return path		
@ 60 MHz on output 1	dB	-1.5/26
Attenuator increments input	dB	0/3/6/9/50
Attenuator increments output	dB	0/10
Linearity amplitude frequency response		
47...862 MHz	dB	1.5
Fix slope	dB	+2
Noise factor	dB	6
Return loss		
@ 40 MHz, -1.5 dB/octave	dB	>14
Output level, IMA = 60 dB		
IMA 2 in acc. with EN 50083-3	dBµV	112
IMA 3 in acc. with EN 50083-5	dBµV	118
CSO (42 chan. 862 MHz) Slope 0/7	dBµV	104 /106
CTB (42 chan. 862 MHz) Slope 0/7	dBµV	103 / 105
HF connectors (75 Ω)		
Input		F-socket
Output		F-socket
Operating conditions		
Maximum output level (EMC)	dBµV	110
Dimensions W x H x D	mm	150 x 80 x 50
Operating voltage	V	230 +6 / -10%
Power consumption	W	7.5
Operating temperature range	°C	-25 ... +55
Protection class		II
Protection class (IP)		IP 20
Weight	kg	0.68
RoHS 2002/95/EC conformant		yes

Line / distribution amplifiers *high-power*

Type		GPV 845 C	GPV 845 CF
Order number		940 153-061	940 154-061

Frequency range MHz			
Setting: VHF I "on", RC "off"		-/40...862	-/40...862
Setting: VHF I "off", RC "on"		5...65 /85...862	5...65 /85...862
Gain forward			
@ 862 Mhz	dB	36	36
Attenuator (2 dB increments) input	dB	0...16	0...16
Equaliser (2 dB increments) input	dB	0...16	0...16Interstage / attenuation
(jumper)	dB	0/6	0/6
Interstage / equalisation (jumper)	dB	0/7	0/7
Gain return path			
@ 60 MHz	dB	-1.5/26	-1.5/26
Attenuation on the input	dB	0/2/4/6/50	0/2/4/6/50
Attenuation on the output	dB	0/3/6/9	0/3/6/9
Linearity amplitude frequency response			
40...862 (1000) Mhz	dB	1.5	1.5
Fix slope	dB	+1	+1
Linearity amplitude frequency response			
5...60 MHz	dB	1.5	1.5
Noise factor			
forward (VHF I "on")	dB	5.5	5.5
Return channel (VHF I "off"	dB	6	6
Return loss			
@ 40 Mhz, -1.5 dB/octave	dB	>14	>14
Output level forward			
IMA2 >60 dB	dBµV	114	114
IMA3 >60 dB	dBµV	123	123
CSO >60 dB, 42 ch, Slope 0/7	dBµV	109/111	109/111
CTB >60 dB, 42 ch, Slope 0/7	dBµV	108/110	108/110
HF connectors (75 Ω)			
Input		F sockets	F sockets
Output		F sockets	F sockets
Operating conditions			
Maximum output level (EMC)	dBµV	113	113
Dimensions WxHxD	mm	150x80x50	150x80x50
Operating voltage	V	180...253	25...65
Power consumption	W	9	9
Operating temperature range	°C	-25 ... +55	-25 ... +55
Protection class		II	II
Protection class (IP)		IP 65	IP 65
Weight	kg	2	0.64
RoHS 2002/95/EC conformant		yes	yes

GPV 845 C / CF

GPV 845 C (CF) is a multimedia-enabled house connection amplifier for medium-sized to larger building units. It is used to compensate the cable and distribution attenuation in the CATV domestic network. "All on board" - all important functional units such as forward amplifier, diplex filters, return channel amplifier and the associated actuators are completely implemented on the PCB. The amplifier is configured for the specific case via jumpers in the device and settings can be made during installation as well as operation.

- *Easy migration of the return channel without additional modules. Either "TV band I" or "Return channel 65 MHz" [1] can be selected. Adjustable return channel: "active / "passive" / "off". Optimal adjustment of the return channel amplification (C/N) by means of adjustable at the input and output.*
- *Increased long-term stability due to discrete, switchable attenuators and equalisers, i.e. neither potentiometers nor a large number of plug-in pads are necessary*
- *High output level with extremely low power consumption thanks to MMIC GaAs push/pull output stage and switched-mode, high-efficiency power supply*
- *Long service life through low temperature development (low power consumption and diecast housing with cooling fins and extensive protection against ESD and surge voltage*
- *Power supply GPV 845 C Local supply from 230 V - domestic network GPV 845 CF remote feeding via coaxial HF input*
- *Compatible with standards EN 60065, EN 50083-1, EN 50083-2, Class A EN 50083-3, quality class 2,*
- KLASSE A CLASS

Line / distribution amplifiers *high-power*

Type	GPV 845 E
Order number	940 153-001

GHV 845 E

GPV 845 E is a variant of the high-power GPV 845 house connection amplifier family, especially equipped for MATV installations with local SMATV headends that do not provide any interactive services via this network.

Features:

- *Only the forward path - including VHF band I is implemented*
- *Level adjuster and line equaliser with potentiometers.*
- *High output level at extremely low power consumption through MMIC GaAs push/pull output stage and switched-mode, high-efficiency*

Power supply:

- *Local supply from 230 V domestic network*
- *Compatible with standards EN 60065, EN 50083-1, EN 50083-2, Class A EN 50083-3, quality class 2,*
-

Frequency range MHz	40...862	
Gain forward		
@ 862 Mhz	dB	36
Attenuator / input	dB	0...20
Line equaliser / input	dB	0...17
Interstage attenuation	dB	0/6
Interstage pre-equalisation	dB	0/7
Linearity amplitude frequency response		
40...862 (1000) Mhz	dB	1.5
Fix slope	dB	+1
Noise factor	dB	5
Return loss		
@ 40 Mhz, -1.5 dB/octave	dB	>14
Output level, IMA = 60 dB		
IMA 2 in acc. with EN 50083-3	dBµV	114
IMA 3 in acc. with EN 50083-5	dBµV	123
CSO (42 chan. 862 MHz) Slope 0/7	dBµV	109 / 111
CTB (42 chan. 862 MHz)Slope 0/7	dBµV	108 / 110
HF connectors (75 Ω)		
Input		F-socket
Output		F-socket
Test point output (bi-directional)		F-socket, -20 dB
Operating conditions		
Maximum output level (EMC)	dBµV	105
Dimensions W x H x D	mm	150 x 80 x 50
Operating voltage	V	180...253
Power consumption	W	6.4
Operating temperature range	°C	-25 ... +55
Protection class		II
Protection class (IP)		IP 65
Weight	kg	2.0
RoHS 2002/95/EC conformant		yes

House connection amplifier*high-power* +

		GPV 851 I	GPV 851 F
Order number		944 770-013	944 777-001
			
Frequency range	MHz		
Device without return channel modules		47 ... 862	47 ... 862
Gain			
@ 862 Mhz	dB	36	36
Level attenuator	dB	0 ... 20	0 ... 20
Interstage slope	dB	0/7	0/7
Linearity amplitude frequency response 47...862			MHz
Lineequaliser	dB	1.5	1.5
Equalisation / switchable	MHz	0 ... 18	0 ... 18
Interstage / pre-equalisation	dB	862 / 606	862 / 606
Noise factor		0/7	0/7
Noise factor	dB		
Return loss		7	7
@ 40 Mhz, -1.5 dB/octave	dB		
Output level forward		>14	>14
IMR2/IMR3 >60 dB	dBµV		
CSO/CTB >60 dB, 42 ch,	dBµV	117 / 124 dBµV	117 / 124 dBµV
Pre-equalisation 7 dB	dBµV	113 / 112 dBµV	113 / 112 dBµV
HF connectors (75 Ω)		114 / 114 dBµV	114 / 114 dBµV
Input			
Output		F-socket	F-socket
Test point input: bi-directional	dB	F-socket	F-socket
Test point output: bi-directional	dB	-30 dB	-30 dB
Operating conditions		-30 dB	-30 dB
Maximum output level (EMC)	dBµV		
Dimensions W x H x D	mm	113 dBµV	113 dBµV
Operating voltage	V	190 x 110 x 85	190 x 110 x 85
Power consumption	W	195 ... 244 V	32 ... 65 V
Operating temperature range	°C	13	14
Protection class		-40°... +55°C	-40°... +55°C
Protection class	(IP)	II	II
Weight	kg	65	65
Standards		2.0	2.0
Product standard		EN 50083-3, Class 2	EN 50083-3, Class 2
Safety standards		EN 50083-1; EN 60065	EN 50083-1; EN 60065
EMC		EN 50083-2	EN 50083-2
RoHS 2002/95/EC conformant		yes	yes

GPV 851 I / GPV 851 F

- *Implementation in local CATV distribution networks to 862 MHz*
- *Power doubler output stage*
- *HF connectors with F sockets (female)*
- *Die-cast housing, protection class IP 54 (when using the appropriate F connectors), for installation inside and outside of buildings*
- *Local supply or remote feed*
- *Two basicamplifications selected using internal jumpers (Interstage)*
- *Equalisation with internal jumpers can be switched from 606 MHz or 862 MHz*
- *Level adjuster on the input*
- *Equalisation frequency-dependent line attenuator on the input*
- *Return channel (in conjunction with plug-in modules)*
  – passive with diplex module
  – active with return channel module
- *With diplex modules individual configurable return channel and Forward channel 5-30 MHz 47-862 MHz, 5-65 MHz, 85-862 MHz*
- *Return channel modules, with adjusters for level and frequency-dependent line attenuation*
- *Screw clamp for equipotential bonding outside on the housing*
- *Satisfies EN 50083-1, 2 return loss in accordance with EN 50083-3 quality class 2*
- CE KLASSE A

Note

- *Diplex and return channel modules are listed after the line/ distribution amplifiers Remote feed version GPV 851 F*
- *Selectable remote feed route:*
  – via input
  – via output
  – feed through

Line/distribution amplifier

Type		GLV 865	GLV 865 F
Order number		944 409-002	944 410-002
			
Freuency range	MHz		
Basic device without return channel modules		47 ... 862	47 ... 862
Gain			
@ 862 Mhz	dB	36	36
Level attenuator	dB	0 ... 20	0 ... 20
Interstage attenuation	dB	0/7	0/7
Linearity amplitude frequency response			
47...862	MHz	1.5	1.5
Line equaliser	dB	0 ... 18	0 ... 18
Equalisation / switchable	MHz	862 / 606	862 / 606
Interstage / pre-equalisation	dB	0/7	0/7
Noise factor			
Noise factor	dB	7	7
Return loss			
@ 40 Mhz, -1.5 dB/octave	dB	>14	>14
Output level forward			
IMR2/IMR3 >60 dB	dBµV	117 / 124	117 / 124
CSO/CTB >60 dB, 42 ch,	dBµV	113 / 112	113 / 112
Pre-equalisation 7 dB	dBµV	114 / 114	114 / 114
HF connectors (75 Ω)			
Input		PG 11	PG 11
Output		PG 11	PG 11
Test point input:	bi-directional	- 20 dB	- 20 dB
Test point output:	bi-directional	- 20 dB	- 20 dB
Operating conditions			
Maximum output level (EMC)	dBµV	113	113
Dimensions W x H x D	mm	190 x 110 x 85	190 x 110 x 85
Operating voltage	V	195 ... 244	32 ... 65
Power consumption	W	13	14
Operating temperature range	°C	-40°... +55°C	-40°... +55°C
Protection class		II	II
Protection class (IP)		65	65
Weight	kg	2.0	2.0
Standards		EN 50083-3, Class 2	EN 50083-3, Class 2
Product standard		EN 50083-1; EN 60065	EN 50083-1; EN 60065
Safety standards		EN 50083-2	EN 50083-2
EMC			
RoHS 2002/95/EC conformant		yes	yes

GLV 865/865 F

- *Implementation in CATV distribution networks to 862 MHz*
- *Power doubler output stage*
- *HF connectors for PG 11 Screw-fastening*
- *Diecast housing, protection class IP 65 for installation inside and outside of buildings*
- *Cascading up to 5 devices*
- *Local supply or remote feed*
- *Two basic amplifications selectable with internal jumpers (Interstage)*
- *Equalisation with internal jumpers can be switched from 606 MHz or 862 MHz*
- *Return channel (in conjunction with plug-in modules)*
  – passive with diplex module
  – active with return channel module
- *With diplex modules individual configurable return channel and Forward channel 5-30 MHz 47-862 MHz 5-65 MHz 85-862 MHz*
- *Return channel modules, with adjusters for level and frequency-dependent line attenuation*
- *GLV…F: remote feed via input, output or loop-through of the remove feed voltage can be selected by plugging fuses into different sockets*
- *Additional internal terminals for direct feed voltage connection*
- *Internal F test sockets on input and output for forward channel and return channel measurements*
- *Input and output are surge protected*
- *Screw clamp for equipotential bonding on the exterior of the housing*
- *Satisfies EN 50083-1, -2, 50083-3 Class 2*
- CE, CLASS A

Note

- *Diplex and return channel modules are listed after the line/distribution amplifiers*
- *Compatible with standards EN 60065, EN 50083-1, EN 50083-2, Class A EN 50083-3, quality class 2,*

Line / distribution amplifiers with automatic level control

Type		GLV 865 AGC	GLV 865 F AGC
Order number		944 786-002	944 799-002
			
Frequency range [1]	MHz	47 ... 862	47 ... 862
Basic gain	dB	28	28
Noise factor	dB	7	7
Output level in accordance with DIN EN 50083			
at 60 dB IMA second order	dBµV	117	117
at 60 dB IMA third order	dBµV	124	124
Cenelec [2] CSO at 100 dBµV	dB	69	69
CTB at 100 dBµV	dB	78	78
Total level analysis	MHz	47 ... 320	47 ... 320
Setting range	dBµV	95 - 105	95 - 105
Delivery condition	dBµV	100	100
Control stroke	dB	± 5	
Return loss on			
input and output	dB	18	18
Impedance	Ω	75	75
Adjustable line equaliser	dB	0…18	0…18
Level adjuster	dB	0…18	0…18
Test sockets internal F			
on the imput bi-directional	dB	–20	–20
on the output directional	dB	–20	–20
Operating voltage	V~	230	32 - 65
Power consumption	W	14	14 (at 40 V)
Max. admissible current			
of the remote feed	A	-	3.5
Ambient temperature range			
in accordance with EN 60065	°C	–20 … +55	–20 … +55
Functional in the temperature range	°C	–40 … +60	–40 … +60
Housing			
Weight	kg	approx. 2.0	approx. 2.0
Dimensions W x H x D	mm	190 x 110 x 80	190 x 110 x 80
HF connectors 75 W		PG11 thread	PG11 thread

[1] Basic device without diplex module and without active return channel module
[2] 42 channels

Description

- *Line and distribution amplifiers for implementation in CATV / installations*
- *Local feed (GLV 865 AGC) or remote feed GLV 865 F AGC:*
- *Frequency range 862 MHz*
- *AGC - automatic level control for compensating attenuation fluctuations in the cable network; total load control 47-320 MHz*
- *Power doubler GaAs hybrid*
- *Cascading up to 5 devices*
- *With diplex modules individually configurable*
- *Return channel optionally active with adjuster for level and frequency-dependent line attenuation*
- *Level adjuster*
- *Operating display LED, internal*
- *Equalisation of frequency-dependent, line attenuation, adjustable*
- *GLV 865 F AGC: Remote feed via input, output or loop-through of the remote feed voltage*
- *Internal F test sockets on the input and output*
- *HF connections for PG 11 screw-fastening, adapters are available to F 5/8", IEC M14 and 3.5/12*
- *Diecast zinc housing, protection class IP 65 with screw terminal for equipopotential bonding*
- *Satisfies EN 50083-3, quality class 2,*

CLASSE A CLASS

Note

- *Diplex and return channel modules are listed after the line/distribution amplifiers*
- *Compatible with standards EN 60065, EN 50083-1, EN 50083-2, Class A EN 50083-3, quality class 2,*

Modules for house connection amplifiers GPV... and line/distribution amplifiers GLV

Diplex modules for house connection amplifiers GPV...
and line/distribution amplifiers GLV ...

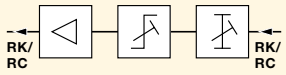
- *Diplex modules passively distribute the frequency range in return channel and forward channel*

Additional versions are available on request!

Diplex modules		GRM 3047 P	GRM 6585 P
Order number		944 412-001	944 416-001
Frequency range			
Return channel	MHz	5-30	5-65
Forward channel	MHz	47- 862	85-862
Throughpass attenuation			
Return channel	dB	1	1
Forward channel	dB	1	1
Return loss	dB	20	20
Decoupling between			
Forward channel / return channel	dB	63	63
Environmental temperature range	°C	–20 to +80	

Return channel amplifier modules for house connection amplifiers GPV ...
and Line/distribution amplifiers GLV ...

- *Equaliser and level adjuster on the module input*
- *Use for high input level of the return channels*

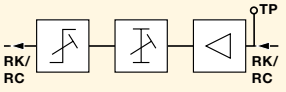


Additional versions are available on request!

Return channel modules		GRM 3005 G	GRM 6505 G
Order number		944 411-001	944 419-001
Frequency range	MHz	5-30	5-65
Gain	dB	20	20
Frequency response	dB	1	1
Noise factor	dB	7	7
Output level			
IMA2 P 60 dB (EN 50083-3)	dBµV	110	110
IMA3 P 60 dB (EN 50083-5)	dBµV	118	118
Return loss on			
input and output	dB	20	20
Adjustable line equaliser	dB	0-10	0-10
Level adjuster	dB	0-10	0-10
Current consumption of the internal			
operating voltage 24 V	mA	approx. 60	approx. 60
Environmental temperature range	°C	-20 to +80	–20 to +80

Return channel amplifier modules for house connection amplifiers GPV ... and Line/distribution amplifiers GLV ...

- *Equaliser and level adjuster on the module - output*
- *Better signal/noise ratio for RC input level below 90 dB*



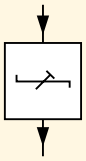
Additional versions are available on request!

Return channel modules		GRM 2030 G	GRM 2065 G
Order number		944 414-002	944 420-002
Frequency range	MHz	5-30	5-65
Gain	dB	20	20
Frequency response	dB	1	1
Noise factor	dB	5	5
Output level			
IMA2 P 60 dB (EN 50083-3)	dBµV	108	105
IMA3 P 60 dB (EN 50083-5)	dBµV	116	116
Return loss on			
input and output	dB	20	20
Adjustable line equaliser	dB	0-10	0-10
Level adjuster	dB	0-10	0-10
Test socket return channel input	dB	–20	
Current consumption of the internal			
operating voltage 24 V	mA	approx. 60	approx. 60
Environmental temperature range	°C	-20 to +80	–20 to +80

Remote feed power supply

Type	SWF 6530
Order number	947 592-001
	
Operating voltage	230 or 240 V~ (switchable) 50-60 Hz
Output voltage /	42/ 50/ 58/ 65 V~ (switchable)
Output current, max.	4.75/ 4.0/ 3.45/ 3.05 A
Power consumption, max.	200 VA
Operating conditions	
Ambient temperature	-20°... +50°C
Weight	5.33 kg
Dimensions W x H x D	170 x 188 x 85 mm

Line equaliser LES ...

Type	LES 450	LES 600	LES 860
Order number	947 558-001	947 559-001	947 560-001
			
Frequency range	47-450 MHz	47-606 MHz	47-862 MHz
Adjustable equalisation	18 dB	18 dB	18 dB
Basic attenuation (frequency-dependent)	1 dB	1 dB	1 dB
Operating conditions			
Dimensions W x H x D	48 x 44 x 24 mm	48 x 44 x 24 mm	48 x 44 x 24 mm

Accessories

Type	LES 2020 F
Order number	947 589-001
	
Frequency range	40 MHz / 940 MHz / 2150 MHz
Throughpass attenuation	21 dB / 12 dB / 2 dB
Max. remote feed current	1 A / 24 V DC

SWF 6530

- *For supply of remote feed amplifiers in distribution networks, such as the*
  – GPV series
  – GLV series
- *4 selectable output voltages*
- *Output: IEC screwed connection M 14/1 (connector with cable in scope of delivery)*
- *Control output: 4 mm round socket*
- *Short-circuit proof through electronic output fuse*
- *Interior mounting on the wall*
- *Power cord approx. 1.5 m with Shock-proof plug*
- *Protection class 1, protection class IP 65*
- *Satisfies EN 60 065, EN 50083-1,-2*
- *4 selectable output voltages*
- *Output: IEC screw connection M 14/1 (connector with cable in scope of delivery)*
- *Control output: 4 mm round socket*
- *Short-circuit proof through electronic output fuse*
- *Interior mounting on the wall*
- *Power cord approx. 1.5 m with Shock-proof plug*
- *Protection class 1, protection class IP 65*
- *Satisfies EN 60 065, EN 50083-1,-2*
- CE

Accessories

- *Remote feed coupler CA 1065-14 for 5/8" cable connector (to 1 GHz) Order number 980 000-377*
- *Fitting 5/8 M-AC Order number 980 000-391*

Accessory for eco-power series Line equaliser LES ...

- *For compensating frequency-dependent cable attenuation*
- *Slope adjustable in the respective frequency range*
- *HF connections with F connectors and F-socket*
- *Can be screw-fastened to the house connection amplifiers GHV 20 E and GHV 30 E*
- *Metal housing*
- *Satisfies EN 50083-1, 2*
- CE

Line equaliser 40-2150 MHz

- *For compensating frequency-dependent cable attenuation*
- *Use for example with amplifiers CVE ...*
- *With DC passthrough*
- *Adapter F-IEC (SBFC 01, see section Connectors), please order separately*
- *HF connectors: F sockets*
- *Satisfies EN 50083-2*

Terrestrial and SAT amplifier

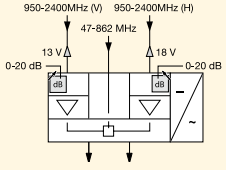
Type	CNV 11 F	CNV 235 E
Order number	947 764-001	947 643-002
		
47-862 MHz		
Gain	12 dB	29 dB
Level attenuator	5 dB	0...20 dB
Line equaliser		0...20 dB
Isolation IN / IN		60-55 dB
Isolation OUT / OUT		20-18dB
Output level	95[1] /113[2] dBµV	108[1] / 118[2] dBµV
Noise factor	5 dB	5 dB
Return loss on		12 dB
Return loss off		12 dB
950-2150 MHz		
Gain	13-21 dB	36 dB
Level attenuator		0...20 dB
Line equaliser		0...20 dB
Isolation SAT in/in		60 dB
Isolation SAT out/out		55 dB
Isolation SAT on/out		60 dB
Output level	103[3] / 115[4] dBµV	110[3] / 121[4] dBµV
Noise factor	6 dB	8 dB
Return loss in		10 dB
Return loss out		10 dB
2150-2400 MHz		
Gain	20 dB	27 dB
Isolation SAT in/in		55 dB
Isolation SAT out/out		55 dB
Isolation SAT on/out		55 dB
Output level	103[3] / 113[4] dBµV	107[3] / 118[4] dBµV
Noise factor	6 dB	
Return loss in		8 dB
Return loss out		8 dB
Operating conditions		
Remote feed voltage, current	max 450 mA	
Operating voltage	13-18V	
Current consumption	35 mA	
Power consumption	approx. 0.6 W	
Weight	0.6 kg	1.5 kg
Dimensions	80 x 44 x 25 mm	285 x 115 x 70 mm
Operating voltage		230V~/50-60Hz
Operating temperature	-20°C to +60°C	

CNV 11 F

- *Remote feed*
- *Post-amplifier terrestrial and SAT signals*
- *Remote feed of LNB´s via the HF cable*
- *For single antenna systems with longer cable sections*
- *One input, one output*
- *Operating voltage of the LNBs and of the post-amplifier is provided by the receiver or by the multiswitch*
- *Line equaliser LES 2020 F for compensating the frequency-dependent cable attenuation in the distribution network at the end of this section*
- *Satisfies EN 50083-2*

CNV 235 E

- *Post-amplifier for compensating the attenuation losses in the distribution network*
- *Selective signal amplification of the terrestrial and two SAT signals*
- *Level adjuster -20 dB for each band*
- *Line equalisers for each range.*
- *Power supply via the DC input with provided power pack*
- *Satisfies EN 50083-1, 2*



[1] in accordance with EN 50083, Part 5 for interference products, second order at 60 dB IMA
[2] in accordance with EN 50083, Part 5 for interference products third order at 60 dB IMA
[3] in accordance with EN 50083, Part 5 for interference products, second order at 35 dB IMA
[4] in accordance with EN 50083, Part 5 for interference products third order at 35 dB IMA
All values with level adjuster on 0 dB and linear frequency response (equalisation 0 dB)

Multi-band amplifiers

Type		HMB 6	HMB 10A	HMB 10B	HMB 10S
Order number		940 310-001	940 311-001	940 312-001	940 313-001
					
Number of inputs	St.	5	5	6	8
Number of outputs	St.	1	1	1	2
Number of channel filters	St.	6	6	10	10
Test socket	St.	no	1 (- 20 dB)	1 (- 20 dB)	1 (- 20 dB)
Gain					
Input BI/FM	dB	24	48	48	45
Input BIII/DAB	dB	35	48	48	45
Input HF and UHF (aux)	dB		39	39	35
Input UHF 1	dB	48	55	55	50
Input UHF 2	dB	42	55	55	50
Input UHF 3	dB	30		55	50
Input SAT 1	dB				36-49 slope
Input SAT 2	dB				36-49 slope
Attenuation	dB	0-20	0-20	0-20	0-20
Selectivity	dB / MHz		16/16	16/16	16/16, 40@862
Noise figure					
VHF	dB	9.0/3.0	5.0	5.0	5.0
DVB-T VHF	dB		5.0	5.0	5.0
VHF and UHF (aux)	dB		6.0	6.0	6.0
UHF	dB	3.0/5.0/5.0	9.0	9.0	9.0
SAT	dB				6.0
Output level (IMA3 /-60 dB/third order)					
BI	dBµV	103	124	124	118
BIII	dBµV	108	124	124	118
VHF/UHF (aux)	dBµV		124	124	118
UHF	dBµV	112/115/112	124	124	118
SAT (-35 dB)	dBµV				118
General data					
DC (pre-amplifier)	V/mA	12/50	12 or 24/60	12 or 24/60	12 or 24/60
LNB supply	V/mA				0/13/17/300
	kHz			0-22	
Power supply	VAC/Hz	230/50	230/50	230/50	230/50
Connections		F sockets	F sockets	F sockets	F sockets
Impedance	Ohm	75	75	75	75

The programmable multi-band amplifier HMB 10 is ideally suited for implementation in a network where many different signals must be amplified and distributed.
With just one device digital and analog signals from up to 8 differently aligned terrestrial TV and FM antennas or SAT antennas can be actively interconnected.
Additional equipment features:

- *Very flexible thanks to 10 highly selective and adjustable filters in the VHF range*
- *In the amplifier, integrated easy programming. Channels are programmed directly via the keypad and are shown in the numeric display*
- *All settings can be transferred to other amplifiers. The programmed data can be copied to off-the-shelf MMC/SD memory cards and imported into other amplifiers.*
- *Up to 8 inputs, depending on type: FM, BIII, VHF/UHF aux, 3 UHF inputs, 2 SAT inputs*
- *Signal level*

Terrestrial multi-purpose amplifier 0.15-862 MHz

GNS 320 A
- *For small to medium-sized MATV installations*

GNS 440 A, GNS 445 A
- *For medium-sized master antenna installations*

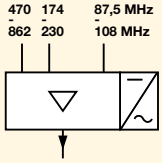
GNS 440 A
- *Level adjuster 20 dB on each input except LMK*

GNS 445 A
- *Level adjuster 20 dB on all inputs*
- *External terminal + 24 V for remote feed-stepped pre-switching devices (max. 60 mA)*

Common features
- *For amplifying signals received from terrestrial sources*
- *Implementation in receiving stations*
- *HF connectors: Coaxial sockets in accordance with IEC 60169-2*
- *Operating voltage 230 V~/50-60 Hz*
- *Metal/plastic housing*
- *Ambient temperature –20 °C to +50 °C*
- *Satisfies EN 50083-1, 2*
- KLASSE A

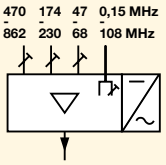
A new generation will be available in the second half of 2007:
- *GNS 20 (GNS 320A) Order number 940,320-001*
- *GNS 30 (GNS 440A,GNS 445A) Order number 940,321-001*
- *GNS 35 (new) Order number 940 322-001*

Type	**GNS 320 A**
Order number	944 652-001
Power consumption 4 W	
Dimensions 200 x 105 x 63 mm	



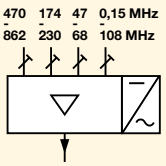
		LMK	FM	BI	BIII	BIV/V
Frequency range	MHz	0.15-10	87.5-108	47-68	174-230	470-862
Gain	dB	-	20	-	20	20
Output level	dBµV	-	109 [1]	-	109 [1]	109 [1]
	dBµV		109 [2]			
Noise factor	dB	-	7	-	7	7

Type	**GNS 440 A**
Order number	944 655-001
Power consumption 4 W	
Dimensions 200 x 105 x 63 mm	



		LMK	FM	BI	BIII	BIV/V
Frequency range	MHz	0.15-10	87.5-108	47-68	174-230	470-862
Gain	dB	–1.5	27 ↗	27 ↗	27 ↗	27 ↗
Output level	dBµV	-	109 [1]	109 [1]	109 [1]	109 [1)]
	dBµV		109 [2]			
Noise factor	dB	-	7	7	7	7,5

Type	**GNS 445 A**
Order number	944 652-001
Power consumption min. 6.5 W/max. 8.5 W	
Dimensions 200 x 105 x 63 mm	



		LMK	FM	BI	BIII	BIV/V
Frequency range	MHz	0.15-10	87.5-108	47-68	174-230	470-862
Gain	dB	26 ↗	27 ↗	27 ↗	27 ↗	27 ↗
Output level	dBµV	113 [3]	109 [1]	109 [1]	109 [1]	109 [1]
	dBµV		109 [2]			
Noise factor	dB	-	7	7	7	7.5

[1] In accordance with EN 50083-5, 66 dB IMA if configured with 2 channels (interference products third order)
[2] In accordance with EN 50083-5, 60 dB (interference products second order)
[3] For 66 dB harmonic distortion attenuation (ak2 and ak3) at f = 260 kHz
All values with level adjuster T on 0 dB