

“ Music was my first love. And it will be my last.
Music of the future. And music of the past.” John Miles

WHD



MAIN CATALOGUE 2009/2010

- SPEAKERS
- AUDIO ELECTRONICS
- MULTI-ROOM SYSTEMS



Sound Solutions for commercial and residential buildings.

WE CAN HEAR BETTER THAN WE CAN SEE.

Linguistics is the science of language. Linguists, for example, work out where our words come from. Let us take the German word 'Vernunft' which means reason or good sense. It comes from the verb 'vernehmen' which in turn comes from 'hören' (to hear). The word 'Versehen' however, which relates to a 'mistake' comes from 'sehen' or 'to see'. So when someone speaks about a mistake, their first thought is sight. The eye deceives us, the ear doesn't. The reason for this is that people can hear better than they can see. We now know that the bandwidth of our hearing system is tenfold wider than for our vision. Put it another way, we can hear better than we can see.

These are just a few reasons for why WHD has been giving us good sounds for over 75 years. As a medium-sized family-run firm, we are one of the leading suppliers of high-quality speakers, audio electronics and multi-room systems in the world. An innovative R&D department, our own paint-shop and being able to flexibly produce customer-specific products have helped make WHD a name which has resonance for customers across the globe. And precisely because our ears are so sensitive is good reason why we should spoil them to the best products.



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THE SOUND OF THE SOLAR WINDS



In Science Fiction, the universe is described as a soundless space. In fact the opposite is true. The German geophysicist August Julius Bartels discovered that our sun throws an enormous amount of radiation and particles into our planetary system. These solar winds come into contact with the earth's magnetic field and cause friction. Friction causes noise. Physicists at Princeton University and the Columbia University Computer Center have captured these noises, stored them on a computer and made them audible for us. This allows us to experience the music of the sun winds.

You will find WHD speakers almost all over the world: In hotels, department stores, football stadia, on cruise ships, in buses and trains, even at traffic lights- to help visually-impaired people get across the road safely. Of course you will also find them in numerous private homes, often used in combination with a multi-room system which brings

one's music tastes to all rooms of the house. WHD is even at home in places where every day is a question of life and death - in the health industry- with its voice coils for breathing apparatus. Unfortunately, we have not managed to install any speakers in space yet. To capture the sound of solar winds at their origin would sum up our passion for meeting technological challenges. Who knows what may come in the future.

GERANIUMS LOVE C SHARP

Radiation physicists agree that we are surrounded by a sea of sound which comes from the constant movement of systems. For this reason, so say the physicists, why shouldn't we be able to make the sound of the sun audible? It all began with calculating the time it takes the earth to circle the sun, also known as the tropical year. It came out as 365.242 days, or 31 million, 556,926 seconds. Physicists calculated the reciprocal of this value, transposed this figure into the human audible range and ended up with a tone of exactly 136.10 Hertz: A C Sharp on the musical chromatic scale. Could it really be a coincidence that C Sharp is the basic key of all Indian music? Bells and temple gongs in India, Japan, Tibet or Bali are tuned to this note. And that is not all: At the Biomedical Institute at the University of Munich, scientists forced geraniums to blossom in the middle of winter by holding a tuning fork tuned to this frequency to the flower for a few minutes each day.

Stories like these also motivate us to achieve the best possible reproduction of music,

speech and sound. Our customers all over the world are thankful for that. It is no surprise to find WHD speakers at many international airports: At New York's John F. Kennedy Airport, at Charles de Gaulle in Paris or at the Madrid International Airport. The Hilton hotel in Athen has also put its faith in WHD as has the Dubai Creek in the United Arab Emirates. The Pont-Aven cruise ship, the Alexa shopping centre on Berlin's Alexanderplatz, the DURAVIT design centre and almost all of Germany's stadia from the last World Cup use our equipment. Even if you are just looking to play the sunny C Sharp to your geraniums in winter, we will still have the right solution for you.



THE WORLD IS SOUND



The famous German astronomer Johannes Kepler was someone who acted from conviction. He needed to be too, since anyone born 2 months premature in the late 1500s would need such will just to survive. Kepler established the fundamentals for modern optics and with his “*Harmonice mundi*” brought us further in our understanding of the universe. There is a great deal of music even in the title “*Harmony of the Worlds*”. So much so that the Swiss mathematician Hans Cousto used Kepler’s calculations on the extreme points on elliptical orbits to calculate the frequency of the earth and to transpose it to the middle of the human auditory range. The result was a G, a clean, pure G note. Kepler seemed to have suspected that the universe is based on the laws of music. These days we know about musical scales in atomic nuclei, metals, in cell division, even in human DNA.

“At WHD, we also act from conviction. We do not make any compromises when good

sound is at stake which is why we built one of the largest acoustic laboratories in Germany. A lot of physics and mathematics is behind every note. We make precise measurements and calculations so you can experience the best-possible hearing pleasure. Since we laud the ear but cannot ignore what we see, design is also important at WHD. We put as much work into how our products look as to how they sound. As you might image, we are a little proud in having received the prestigious innovation award for architecture and technology for our M 240 speaker. The jury’s verdict: “Clear tectonic appearance in timeless design”. People who act from conviction would have it no other way.”



THE EARTH NOTE G

Transposing the G note further into the range of electromagnetic vibrations produces a frequency of 428 million Hertz or 700 nanometres. A brilliant orange-red in the colour spectrum. The same colour that has been the symbol of the Sannyasans, Tibetan and Indian Hindu and Buddhist monks for more than 3,000 years.

We learn something new everyday from the world of acoustics – and at WHD we tinker along to this tune. This has enabled us to become pioneers in music and building automation. We are not only the first but still the “only” company to appear in the EIB/KNX Bus system database under “Audio”. Integral building system engineering is our hobby; distributing music across standard network systems is our speciality. How so? Perhaps because tinkering with electronics is in our blood. Perhaps it’s because good is by no means good enough. But mostly because we put ourselves into the minds of our customers and make their

problems ours. It follows logically that WHD solutions always produce optimum customer solutions.



HOW THE SINGER CAN REACH THE FULL SCALE



Today we are able to hear sounds which would have put our forefathers in a state of shock. How do pulsars sound – those fast-rotating neutron stars discovered by Jocelyn Bell and Antony Hewish in 1967? The University of Bonn has the answers: Like bongos, small drums originating from Cuba. If our world is full of such sounds, why wouldn't one go for the best sound system around? WHD loudspeakers even allow you to enjoy eavesdropping on one of the most astonishing music phenomena – overtone music. We have learnt how they came about from the Upanishads, which were written in India 700 years before Christ: By bringing in the peritoneum and rib cavity whilst manipulating the lips and tongue produces up to six additional notes when singing. This allows a singer to reach

the full scale. Alongside the Tibetan monks, the Mongolian Tuvan tribe are also masters of overtone singing.

We would like to end with a little recommendation: Why don't you let us talk to you about your sound-related needs and desires? We will almost certainly find the optimum solution for you too; one which will ensure your ears are exposed to only the best sounds in the future.

SPEAKERS

WHD

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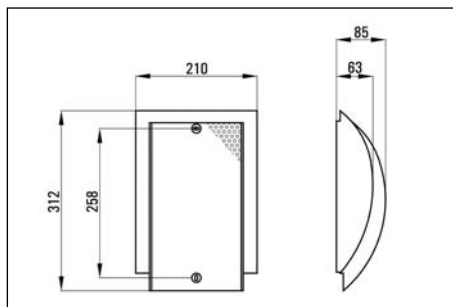
ICONS DEFINITION

	Suitable for speech reproduction. A speech transm. factor of 90% can be achieved in the frequ. range of 500-4000 Hz.		Special painting: in all RAL colours for extra charge.
	Suitable for background music: low level with a frequency range of 200-10 000 Hz.		Volume control: optional for extra charge or regular equipment: -Re: 6 W without stopper; -Re50: 6 W /50 ohm potentiometer with stopper.
			
	Suitable for Fullrange reproduction with a frequency range of 50-15 000 Hz.		Program selector: 6 programs, without stopper.
			
	Moisture proof cone: Protection against humidity. Direct water contact is not recommended.		24 V mandatory relais: for extra charge.
			
	Weather proof: For long time outdoor use.		Fire proof optional: material according UL 94 V 0.
			
	IP-protection: 1st number: protection against touch of high tension parts. 2nd number: protection against water.		Fire proof standard: material according UL 94 V 0.
			
	Shock-proof: for use in sport halls.		With integrated Amplifier (AMP 10) available
			
	The grill is walkable but not to ride over with a vehicle		

Temperature range speaker: -20 to +60°C

WL 6

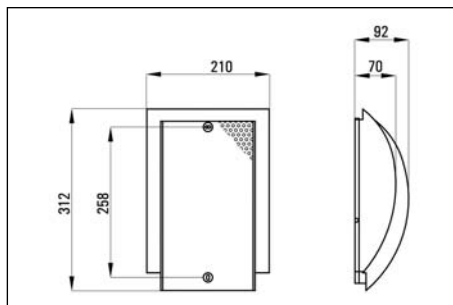
Design speaker for wall-assembly, suitable for the reproduction of speech and background music e.g. in offices, doctor's practices/legal practices, government offices, This speaker's appealing, asymmetric design is a real trendsetter. The WL 6 comes with 135 mm full-range chassis with additional subcone. As an option a volume control and/or programme selector switch can be integrated unobtrusively. A rear panel is available as an accessory.



Technical Datas	WL 6-4, -20	WL 6-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4, 20 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	91 dB	91 dB
SPL PNenn/1m	99 dB	99 dB
SPL PNenn/1m/f	106 dB/3 kHz	106 dB/3 kHz
Frequency Range (-3 dB)	100-20000 Hz	100-20000 Hz
Frequency Range (-10 dB)	70-22000 Hz	70-22000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/90/40 °	180/-/90/40 °
Component Set	1x PM 135	1x PM 135
Material	Housing: plastic, grille: metal	Housing: plastic, grille: metal
Net Weight	1.1 kg	1.4 kg
Colors	white (RAL 9016), silver (RAL 9006)	white (RAL 9016), silver (RAL 9006)
Accessories	RW WL 6: plastic rear panel	RW WL 6: plastic rear panel

WL 6/2

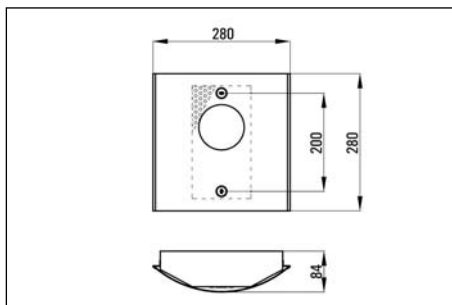
2-way Hi-Fi design speakers for wall-assembly, suited to background music reproduction and with subwoofer SUB 200 for high-quality music reproduction, e.g. in the home, restaurants, cafes, massage parlours, etc.... This speaker's appealing, asymmetric design is a real trendsetter. The WL 6/2 comes with a 135 mm woofer and coaxial tweeter arrangement. As an option a volume control and/or programme selector switch can be integrated unobtrusively. In the 8 Ohm version a rear panel comes as standard.



Technical Datas	WL 6/2-8	WL 6/2-T10	WL 6/2-T25
Load Rating / Music Power	25/40 W	10 W	25 W
Impedance	8 Ohm		
Transformer		10/5/2.5 W	25/12.5/6.25 W
SPL 1W/1m	89 dB	89 dB	89 dB
SPL PNenn/1m	103 dB	99 dB	103 dB
SPL PNenn/1m/f	107 dB/3 kHz	103 dB/3 kHz	107 dB/3 kHz
Frequency Range (-3 dB)	100-21000 Hz	100-21000 Hz	100-21000 Hz
Frequency Range (-10 dB)	80-25000 Hz	80-25000 Hz	80-25000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	160/-/70/50 °	160/-/70/50 °	160/-/70/50 °
Component Set	1 x PM 135/2-8	1 x PM 135/2-8	1 x PM 135/2-8
Material	Housing: plastic, grille: metal	Housing: plastic, grille: metal	Housing: plastic, grille: metal
Net Weight	1.3 kg	1.8 kg	2.1 kg
Colors	white (RAL 9016), silver (RAL 9006)	white (RAL 9016), silver (RAL 9006)	white (RAL 9016), silver (RAL 9006)
Accessories	incl. plastic rear panel RW WL 6	RW WL 6: plastic rear panel	RW WL 6: plastic rear panel

WL 8/2

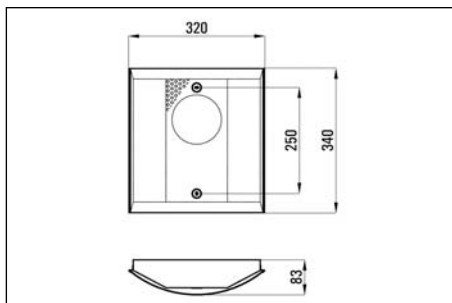
2-way Hi-Fi design speakers for wall-assembly, suited to background music reproduction and with subwoofer SUB 200 for high-quality music reproduction, e.g. in the home, restaurants, cafes, massage parlours, etc.... Thanks to its 102 mm-woofer with coaxial tweeter arrangement and special crossover, these speakers have a linear frequency response and very wide radiating characteristics. The bowed cover is fitted with modern square sections and stands slightly away from the wall so that a shadow gap is created.



Technical Datas	WL 8/2-8	WL 8/2-T6
Load Rating / Music Power	25/30 W	6 W
Impedance	8 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	85 dB	85 dB
SPL PNenn/1m	99 dB	93 dB
SPL PNenn/1m/f	101 dB/7 kHz	95 dB/7 kHz
Frequency Range (-3 dB)	120-20000 Hz	120-20000 Hz
Frequency Range (-10 dB)	80-22000 Hz	80-22000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/90/60 °	180/-/90/60 °
Component Set	1 x BB 102/2-8	1 x BB 102/2-8
Material	metal	metal
Net Weight	2.2 kg	2.5 kg
Colors	white (RAL 9016), silver (RAL 9006)	white (RAL 9016), silver (RAL 9006)
Accessories		

WL 10

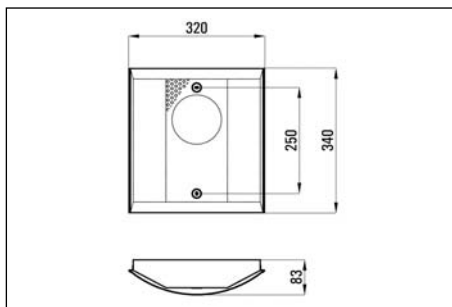
Design speaker for wall-assembly, suitable for the reproduction of speech and background music e.g. in offices, doctor's practices/legal practices, government offices, The WL 10 impresses with its High-performance 135 mm full-range chassis with additional subcone. The bowed cover is fitted with modern square sections and stands slightly away from the wall so that a shadow gap is created.



Technical Datas	WL 10-4	WL 10-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	93 dB	93 dB
SPL PNenn/1m	101 dB	101 dB
SPL PNenn/1m/f	107 dB/3 kHz	107 dB/3 kHz
Frequency Range (-3 dB)	150-20000 Hz	150-20000 Hz
Frequency Range (-10 dB)	120-22000 Hz	120-22000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	160/-/80/40 °	160/-/80/40 °
Component Set	1 x PM 135-4	1 x PM 135-4
Material	metal	metal
Net Weight	2.2 kg	2.5 kg
Colors	white (RAL 9016), silver (RAL 9006)	white (RAL 9016), silver (RAL 9006)
Accessories		

WL 10/2

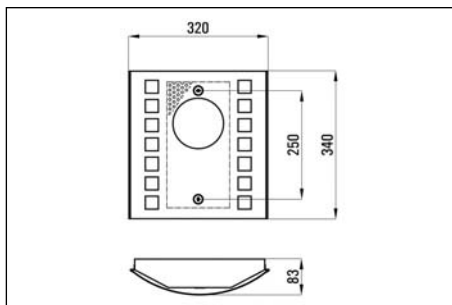
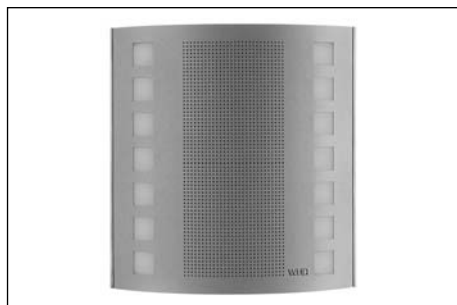
2-way Hi-Fi-designer speaker for wall-assembly, suitable for the reproduction of background music and with subwoofer for high-quality music reproduction e.g. in the home, restaurants/cafes, massage parlours, etc.... The WL 10/2 comes with a 135 mm woofer and coaxial tweeter arrangement. The bowed cover is fitted with modern square sections and stands slightly away from the wall so that a shadow gap is created.



Technical Datas	WL 10/2-8	WL 10/2-T12
Load Rating / Music Power	25/40 W	12 W
Impedance	8 Ohm	
Transformer		12/6/3/1.5 W
SPL 1W/1m	89 dB	89 dB
SPL PNenn/1m	103 dB	100 dB
SPL PNenn/1m/f	107 dB/3 kHz	104 dB/3 kHz
Frequency Range (-3 dB)	90-21000 Hz	90-21000 Hz
Frequency Range (-10 dB)	60-25000 Hz	60-25000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	160/-/80/40 °	160/-/80/40 °
Component Set	1 x PM 135/2-8	1 x PM 135/2-8
Material	metal	metal
Net Weight	2.3 kg	2.7 kg
Colors	white (RAL 9016), silver (RAL 9006)	white (RAL 9016), silver (RAL 9006)
Accessories		

WL 10/2 LED

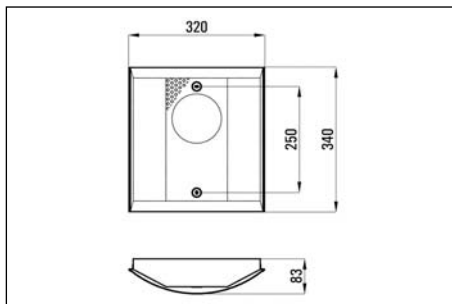
2-way Hi-Fi-designer speaker with LED light for wall-assembly, suitable for the reproduction of background music and with subwoofer SUB 200 for high-quality music reproduction e.g. in the home, restaurants/cafes, in wellness resorts or doctor's practices. Features a 135 mm woofer and coaxial tweeter arrangement. The 14 installed red, green and blue LEDs allow you to reproduce various light shades. The integrated RGB control unit with 230V power supply gives you the desired colour changing, adjustable using an externally-accessible potentiometer.



Technical Datas	WL 10/2-LED-8	WL 10/2-LED-T12
Load Rating / Music Power	25/40 W	12 W
Impedance	8 Ohm	
Transformer		12/6/3/1.5 W
SPL 1W/1m	89 dB	89 dB
SPL PNenn/1m	103 dB	100 dB
SPL PNenn/1m/f	107 dB/13 kHz	104 dB/13 kHz
Frequency Range (-3 dB)	90-21000 Hz	90-21000 Hz
Frequency Range (-10 dB)	60-25000 Hz	60-25000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	160/-/80/40 °	160/-/80/40 °
Component Set	1 x PM 135/2-8, LED/RGB-technics, 230 V-power supply	1 x PM 135/2-8, LED/RGB-technics, 230 V-power supply
Material	metal	metal
Net Weight	3 kg	3.4 kg
Colors	silver (RAL 9006)	silver (RAL 9006)
Accessories		

WL 10 AB

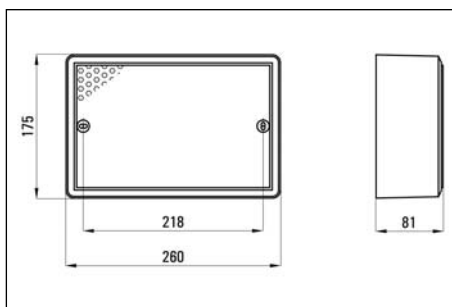
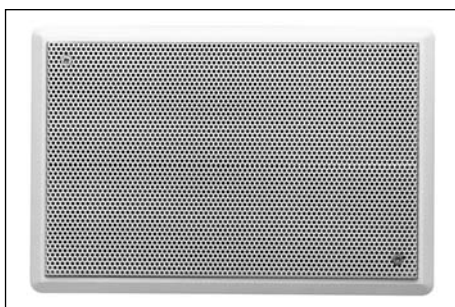
Wall-mounted speaker for AB cabling. Suitable for use in small rooms, can be used in combination with electrical-acoustic emergency warning systems where two-speaker installation is not possible. The WL 10 AB-T6 is fitted with two 87 mm full-range speakers with additional subcone and two 100V/6W transformers. This means it can be operated simultaneously via two cables on two different amplifiers. The signal can still be reproduced even if one of the amps fails or in the event of a defect cable – even if somewhat quieter. It is connected via a ceramic terminal and special stranded wires; the transformers are fitted with a thermofuse in accordance with British standards. The bent perforated grille prevents the unit from damage and is secured against theft via two screws.



Technical Datas	WL 10 AB-T6
Load Rating / Music Power	12 W
Impedance	
Transformer	6/3/1.5 W
SPL 1W/1m	93 dB
SPL PNenn/1m	101 dB
SPL PNenn/1m/f	108 dB/4 kHz
Frequency Range (-3 dB)	170-22000 Hz
Frequency Range (-10 dB)	100-24000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	200/-/130/60 °
Component Set	2 x PM 87 BB-4
Material	metal
Net Weight	2.5 kg
Colors	white (RAL 9016), silver (RAL 9006)
Accessories	

ZL 135 G

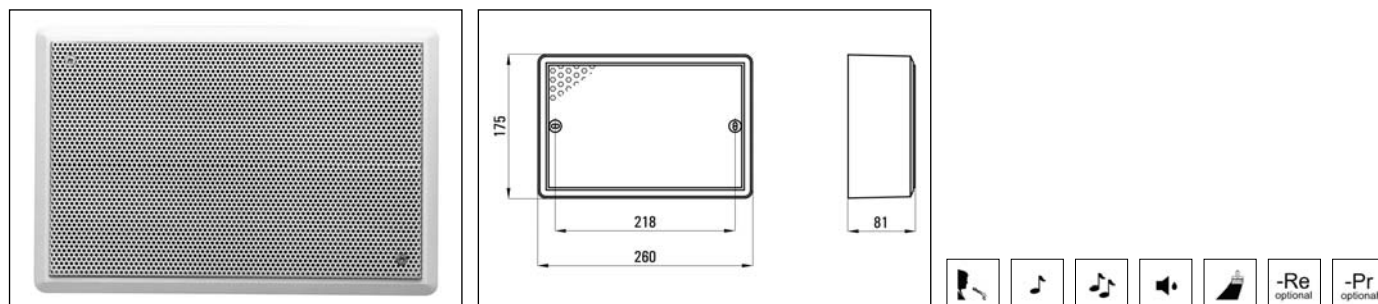
Decent-priced wall-mounted speaker, suitable for the reproduction of speech and background music, e.g. in stores, stairwells The ZL 135 G offers high efficiency and a wide transmission angle on account of its 135 mm full-range chassis with additional subcone. As an option a volume controller and/or programme selector switch, with a 24 V mandatory relay can also be integrated. Mounting is achieved by two screws. A plastic rear panel is available as an accessory, which can be screwed onto the ZL 135 G.



Technical Datas	ZL 135 G-4, -20	ZL 135 G-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4, 20 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	91 dB	91 dB
SPL PNenn/1m	99 dB	99 dB
SPL PNenn/1m/f	106 dB/3 kHz	106 dB/3 kHz
Frequency Range (-3 dB)	100-20000 Hz	100-20000 Hz
Frequency Range (-10 dB)	70-23000 Hz	70-23000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/90/40 °	180/-/90/40 °
Component Set	1 x PM 135-4	1 x PM 135-4
Material	Housing: plastic, grille: metal	Housing: plastic, grille: metal
Net Weight	1 kg	1.3 kg
Colors	white (RAL 9016)	white (RAL 9016)
Accessories	RW ZL 135: plastic rear panel, BEF ZL 135: metal wall bracket	RW ZL 135: plastic rear panel, BEF ZL 135: metal wall bracket

ZL 135/2

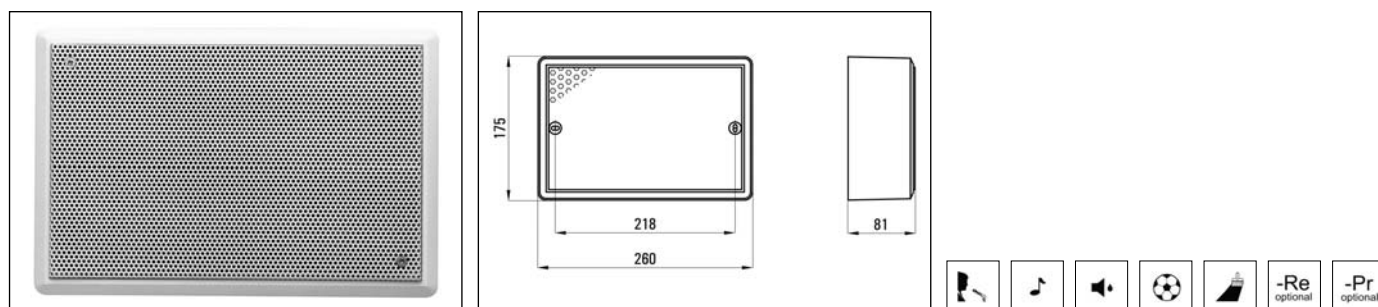
High-performance 2-way wall-mounted speaker, suitable for high-quality background music in rooms in which function is what matters most. Comes with a 135 mm woofer and coaxial tweeter arrangement. An optional volume controller or programme selector switch can be integrated, also with 24 V mandatory relay. Mounting is achieved by two screws. The perforated metal cover must first be removed to do this. As an option we can provide a plastic rear panel which can be screwed onto the ZL 135/2 housing.



Technical Datas	ZL 135/2-8	ZL 135/2-T10
Load Rating / Music Power	25/40 W	10 W
Impedance	8 Ohm	
Transformer		10/5/2.5 W
SPL 1W/1m	89 dB	89 dB
SPL PNenn/1m	103 dB	99 dB
SPL PNenn/1m/f	107 dB/5 kHz	103 dB/5 kHz
Frequency Range (-3 dB)	90-21000 Hz	90-21000 Hz
Frequency Range (-10 dB)	50-25000 Hz	50-25000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/70/40 °	180/-/70/40 °
Component Set	1 x PM 135/2-8	1 x PM 135/2-8
Material	Housing: plastic, grille: metal	Housing: plastic, grille: metal
Net Weight	1.3 kg	1.5 kg
Colors	white (RAL 9016)	white (RAL 9016)
Accessories	RW ZL 135: plastic rear panel, BEF ZL 135: metal wall bracket	RW ZL 135: plastic rear panel, BEF ZL 135: metal wall bracket

ZL 135 BWS

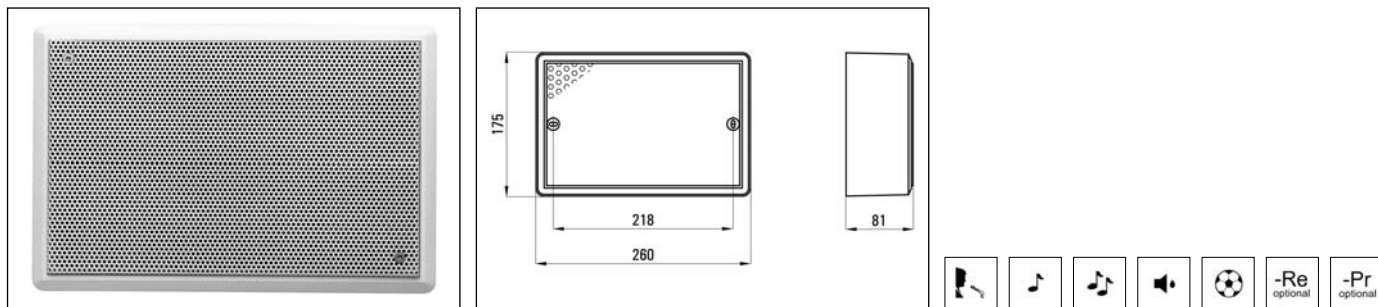
Shock-resistant wall-mounted speaker, suitable for background music and speech reproduction in public areas, such as schools and gyms, for example. The ZL 135 BWS offers high efficiency and a wide transmission angle on account of its 135 mm full-range chassis with additional subcone. Mounting is achieved by two screws. The perforated metal cover must first be removed to do this. Also attached with two visible screws.



Technical Datas	ZL 135 BWS-4	ZL 135 BWS-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	91 dB	91 dB
SPL PNenn/1m	99 dB	99 dB
SPL PNenn/1m/f	106 dB/3 kHz	106 dB/3 kHz
Frequency Range (-3 dB)	100-20000 Hz	100-20000 Hz
Frequency Range (-10 dB)	70-23000 Hz	70-23000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/90/40 °	180/-/90/40 °
Component Set	1 x PM 135-4	1 x PM 135-4
Material	Housing: plastic, grille: metal	Housing: plastic, grille: metal
Net Weight	1 kg	1.3 kg
Colors	white (RAL 9016)	white (RAL 9016)
Accessories	RW ZL 135: plastic rear panel, BEF ZL 135: metal wall bracket	RW ZL 135: plastic rear panel, BEF ZL 135: metal wall bracket

ZL 135/2 BWS

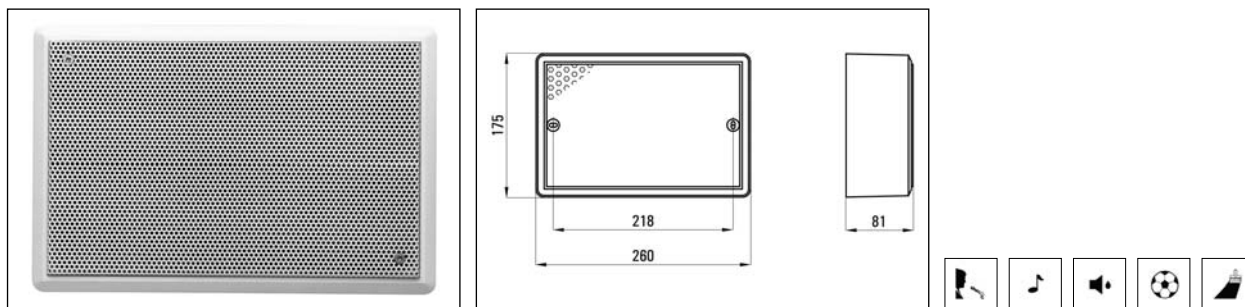
High-performance, shock-proof 2-way wall-mounted speaker, suitable for high-quality background music in public areas, such as schools and indoor gyms for example. Comes with a 135 mm woofer and coaxial tweeter arrangement. Mounting is achieved by two screws. The perforated metal cover must first be removed to do this. Also attached with two visible screws.



Technical Datas	ZL 135/2 BWS-8	ZL 135/2 BWS-T10
Load Rating / Music Power	25/40 W	10 W
Impedance	8 Ohm	
Transformer		10/5/2.5 W
SPL 1W/1m	89 dB	89 dB
SPL PNenn/1m	103 dB	99 dB
SPL PNenn/1m/f	107 dB/5 kHz	103 dB/5 kHz
Frequency Range (-3 dB)	90-21000 Hz	90-21000 Hz
Frequency Range (-10 dB)	50-25000 Hz	50-25000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/70/40 °	180/-/70/40 °
Component Set	1 x PM 135/2-8	1 x PM 135/2-8
Material	housing: plastic, grille: metal	housing: plastic, grille: metal
Net Weight	1.3 kg	1.5 kg
Colors	white (RAL 9016)	white (RAL 9016)
Accessories	RW ZL 135: plastic rear panel, BEF ZL 135: metal wall bracket	RW ZL 135: plastic rear panel, BEF ZL 135: metal wall bracket

ZL 135 BWS AB

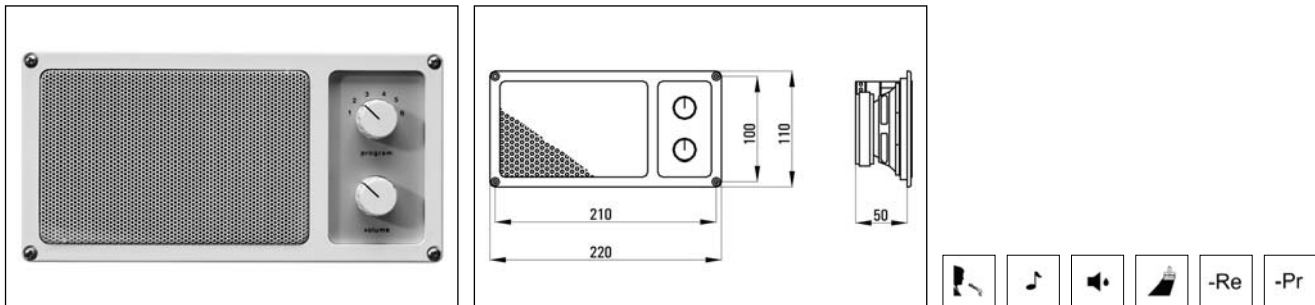
Wall-mounted speaker for AB cabling. Suitable for use in small rooms, can be used in combination with electrical-acoustic emergency warning systems where two-speaker installation is not possible. The ZL 135 AB-T3 comes with a 135 mm two-voice-coil speaker with additional subcone and two 100V/6W transformers. This means it can be operated simultaneously via two cables on two different amplifiers. The signal can still be reproduced even if one of the amps fails or in the event of a defect cable – even if somewhat quieter. It is connected via a ceramic terminal and special stranded wires; the transformers are fitted with a thermofuse in accordance with British standards. The perforated metal cover is secured using two visible screws.



Technical Datas	ZL 135 BWS AB-T3
Load Rating / Music Power	6 W
Impedance	
Transformer	3/1.5 W
SPL 1W/1m	91 dB
SPL PNenn/1m	99 dB
SPL PNenn/1m/f	106 dB/3 kHz
Frequency Range (-3 dB)	100-20000 Hz
Frequency Range (-10 dB)	70-23000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/90/40 °
Component Set	1 x PM 135 DSS
Material	Housing: plastic, grille: metal
Net Weight	1.7 kg
Colors	white (RAL 9016)
Accessories	RW ZL 135: plastic rear panel, BEF ZL 135: metal wall bracket

HL 1

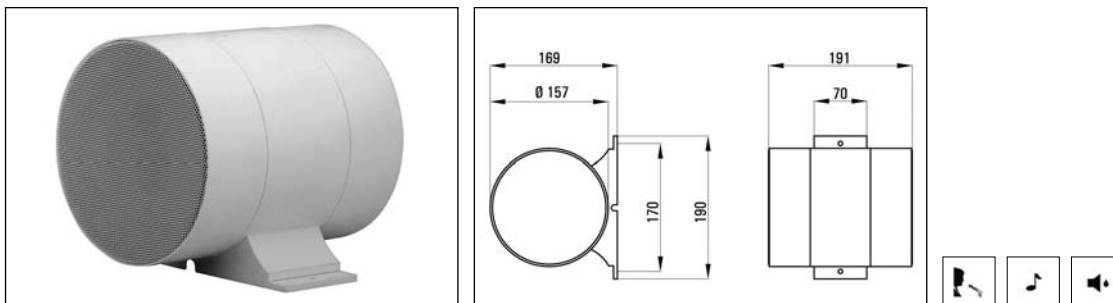
Compact speaker/control unit with integral programme selector switch and 100V volume control, suitable for close range applications, e.g. in hotel rooms, cloakrooms (audio auditioning). Both dials are without a limit stop thus ensuring safe operation. Six different programmes can be selected on the speaker. As an option, 24 V mandatory relays can be integrated. Mounting is by four visible screws. As an accessory a plastic flush mounting enclosure is available for setting in concrete or a surface mounting enclosure in wood.



Technical Datas	HL 1-T
Load Rating / Music Power	1 W
Impedance	
Transformer	1 W
SPL 1W/1m	89 dB
SPL PNenn/1m	89 dB
SPL PNenn/1m/f	95 dB/5 kHz
Frequency Range (-3 dB)	170-20000 Hz
Frequency Range (-10 dB)	110-21000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/130/80 °
Component Set	1 x PM 87 BB-4
Material	Acoustic wall: plastic, grille: metal
Net Weight	0.9 kg
Colors	white (RAL 9016)
Accessories	HL 1 UG: flush housing, HL 1 AG: surface housing

DLS 12

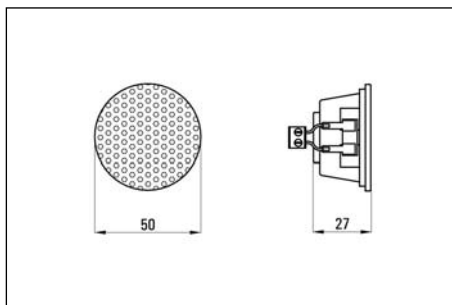
Bi-directional speaker for the radiation of long, narrow rooms such as corridors and stairwells. This speaker is equipped with two 135 mm full-range chas-sis with additional subcones. These are connected in phase opposition thereby forming cancellations at 90 degrees to the main radiation direction, which gives rise to a cone-shaped radiation characteristic. Mounting is achieved by two screws.



Technical Datas	DLS 12-T12
Load Rating / Music Power	12 W
Impedance	
Transformer	12/6/3 W
SPL 1W/1m	89 dB
SPL PNenn/1m	100 dB
SPL PNenn/1m/f	108 dB/4 kHz
Frequency Range (-3 dB)	120-20000 Hz
Frequency Range (-10 dB)	70-22000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	160/-/120/50 °
Component Set	2 x PM 135-4
Material	Housing: plastic, grille: metal
Net Weight	2 kg
Colors	white (RAL 9016)
Accessories	

HLS 51

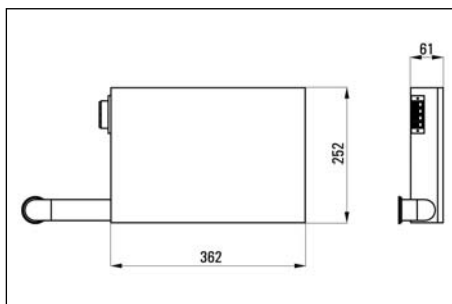
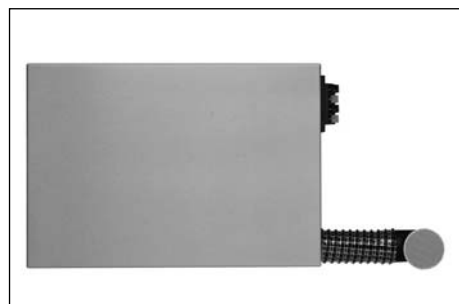
Halogen spotlight speaker with outstanding sound quality for its size, ideal for the reproduction of speech and background music in low-ceilinged rooms (2.4 - 4 m), for example in the home, in offices, doctor's offices/legal practices, etc.... The HLS 51 fits in all halogen installation spotlights designed for lights 51 mm in diameter. This allows you to combine light and sound to optimal effect providing uniform coverage. Comes with a 51 mm full-range chassis with neodymium magnet. As accessory we recommend subwoofer HLS 51 SUB and HLS 51 Radio.



Technical Datas	HLS 51-20
Load Rating / Music Power	3/4 W
Impedance	20 Ohm
Transformer	
SPL 1W/1m	82 dB
SPL PNenn/1m	87 dB
SPL PNenn/1m/f	92 dB/15 kHz
Frequency Range (-3 dB)	200-16000 Hz
Frequency Range (-10 dB)	150-20000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/120/140 °
Component Set	
Material	Housing, grille: metal, shipment without frame
Cut Out	
Depth	27 mm
Net Weight	0.06 kg
Colors	white (RAL 9016), chrome
Accessories	Subwoofer HLS 51 SUB, HLS 51 Radio

HLS 51 SUB

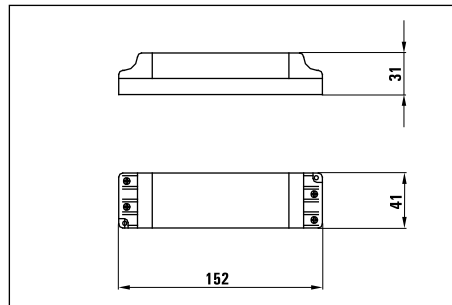
Bandpass subwoofer to be built into suspended ceilings especially for use with the halogen spot speaker HLS 51. The HLS 51 SUB has a 130mm woofer with a Neodym magnet and a satellite output which can be connected to one or two halogen spot speakers HLS 51. Stereo sound will need two HLS 51 SUBs. The sound exits the housing of the HLS 51 SUB via a tube that fixes into any standard 51 mm diameter halogen luminaire. As accessory we recommend the HLS 51 Radio.



Technical Datas	HLS 51 SUB-8
Load Rating / Music Power	15/30 W
Impedance	8 Ohm
Transformer	
SPL 1W/1m	85 dB
SPL PNenn/1m	97 dB
SPL PNenn/1m/f	
Frequency Range (-3 dB)	
Frequency Range (-10 dB)	80-200 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	
Component Set	1x BMT 135/8-LH
Material	housing: steel
Cut Out	
Depth	
Net Weight	3.4 kg
Colors	zinc plated
Accessories	satellites HLS 51 chrome or white, HLS 51 Radio

HLS 51 Radio

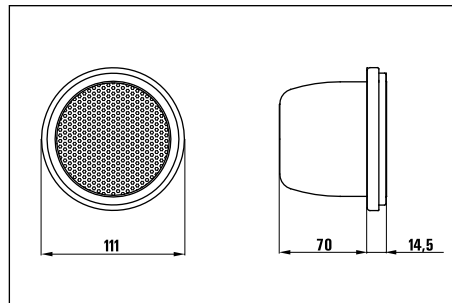
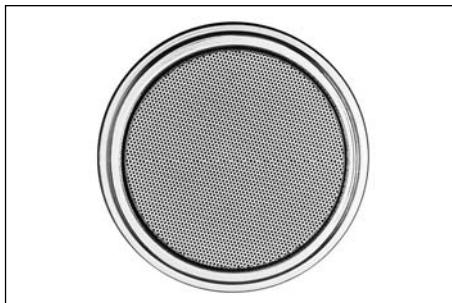
The HLS 51 Radio is the ideal sound system for rooms with suspended ceilings, which have built-in halogen spot lights – e.g. kitchens, bathrooms, doctors' practices. The powerful tuner has good reception, even with the most basic dipole aerial. And the quality of the reception can be improved again by connecting the radio to an external aerial. The HLS 51 Radio can be slid into the suspended ceiling through a cut-out for a halogen spot light – just like a halogen light transformer. The IR receiver is placed into the ceiling, so that the device can be fully controlled via infrared remote control. You can connect five halogen spot speakers HLS 51. Available also as set. For backup in the bass range we recommend subwoofer HLS 51 SUB.



Technical Datas	HLS 51 Radio
Audio IN	-
Audio OUT	Connection for 1 x 4, 2 x 8 or 5 x 20 ohm speakers
Connections / Interfaces	75 Ohm coax aerial connection, external IR receiver
Rated Power	2 W
Operating Voltage	230 VAC / 50 Hz
Current Consumption	
Component Set	Power supply, amplifier, IR-receiver
Material	Case: plastic
Colors	white
Accessories	RC TAP incl., HLS 51: Halogenspotspeaker and HLS 51 SUB: Subwoofer optional

KLS 111

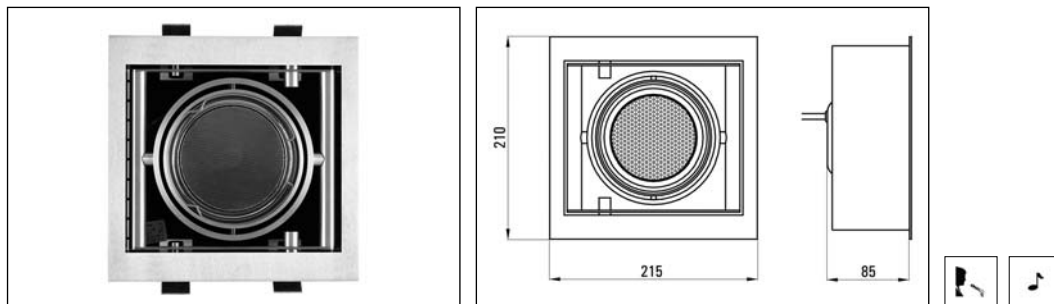
Cardan speakers, ideal for speech and background music reproduction in low-ceilinged rooms (2.4 - 4 m), e.g. in shops/boutiques, homes, etc... The KLS 111 fits in all cardan spotlights designed for a light 111 mm in diameter. This allows you to combine light and sound to optimal effect providing uniform coverage. Features a 87 mm full-range chassis with subcone and neodymium magnet. Thanks to its wide radiation characteristics a large area can be evenly radiated with just a few of these boxes. For backup in the bass range we recommend the subwoofer UP 14 SUB.



Technical Datas	KLS 111-20	KLS 111-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	20 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	86 dB	86 dB
SPL PNenn/1m	94 dB	94 dB
SPL PNenn/1m/f	101 dB/12 kHz	101 dB/12 kHz
Frequency Range (-3 dB)	150-20000 Hz	150-20000 Hz
Frequency Range (-10 dB)	80-21000 Hz	80-21000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/130/80 °	180/-/130/80 °
Component Set	1x KLS 111-20	1x KLS 111-20
Material	Housing and grille: metal chrome plated	Housing and grille: metal chrome plated
Cut Out		
Depth	70 mm	70 mm
Net Weight	0.8 kg	1 kg
Colors	chrome	chrome
Accessories		

KLS 111 UP

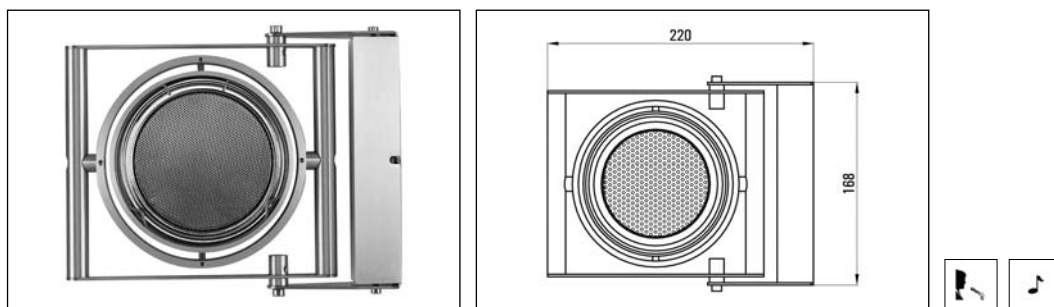
Cardan recessed speakers, ideal for speech and background music reproduction in low-ceilinged rooms (2.4 - 4 m), e.g. in shops/boutiques, homes, etc.... The KLS 111 UP comprises speaker and installation frame in which an optional light 111 mm in diameter can also be installed. This allows you to combine light and sound to optimal effect providing uniform coverage. Features a 87mm full-range chassis with subcone and neodymium magnet. Thanks to its wide radiation characteristics a large area can be evenly radiated with just a few of these boxes. For backup in the bass range we recommend the subwoofer UP 14 SUB.



Technical Datas	KLS 111 UP-20	KLS 111 UP-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	20 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	86 dB	86 dB
SPL PNenn/1m	94 dB	94 dB
SPL PNenn/1m/f	101 dB/12 kHz	97 dB/12 kHz
Frequency Range (-3 dB)	150-20000 Hz	150-20000 Hz
Frequency Range (-10 dB)	80-21000 Hz	80-21000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/130/80 °	180/-/130/80 °
Component Set	1x KLS 111-20	1x KLS 111-20
Material	frame: stainless steel, housing and grille: metal chrome plated	frame: stainless steel, housing and grille: metal chrome plated
Cut Out	198 x 190 mm	198 x 190 mm
Depth	85 mm	85 mm
Net Weight	2.1 kg	2.3 kg
Colors	chrome / stainless steel	chrome / stainless steel
Accessories		

KLS 111 AP

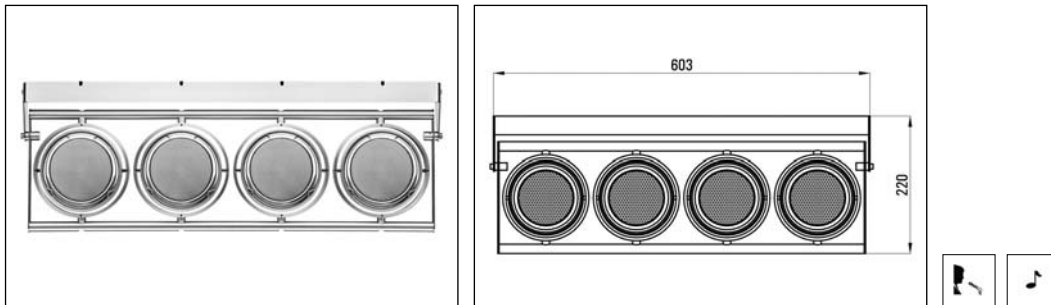
Cardan design loudspeakers, ideal for speech and background music reproduction, e.g. in shops/boutiques, homes, etc.... The KLS 111 AP comprises speaker and frame in which an optional light 111 mm in diameter can also be integrated. This allows you to combine light and sound to optimal effect. Features a 87mm full-range chassis with subcone and neodymium magnet. Its wide radiation characteristics allow even radiation over a large area with just a few of these boxes. For backup in the bass range we recommend the subwoofer UP 14 SUB.



Technical Datas	KLS 111 AP-20	KLS 111 AP-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	20 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	86 dB	86 dB
SPL PNenn/1m	94 dB	94 dB
SPL PNenn/1m/f	101 dB/12 kHz	101 dB/12 kHz
Frequency Range (-3 dB)	150-20000 Hz	150-20000 Hz
Frequency Range (-10 dB)	80-21000 Hz	80-21000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/130/80 °	180/-/130/80 °
Component Set	1x KLS 111-20	1x KLS 111-20
Material	Frame: stainless steel, housing and grille: metal chrome plated	Frame: stainless steel, housing and grille: metal chrome plated
Cut Out		
Depth		
Net Weight	0.8 kg	1 kg
Colors	chrome / stainless steel	chrome / stainless steel
Accessories		

KLS 111 TS

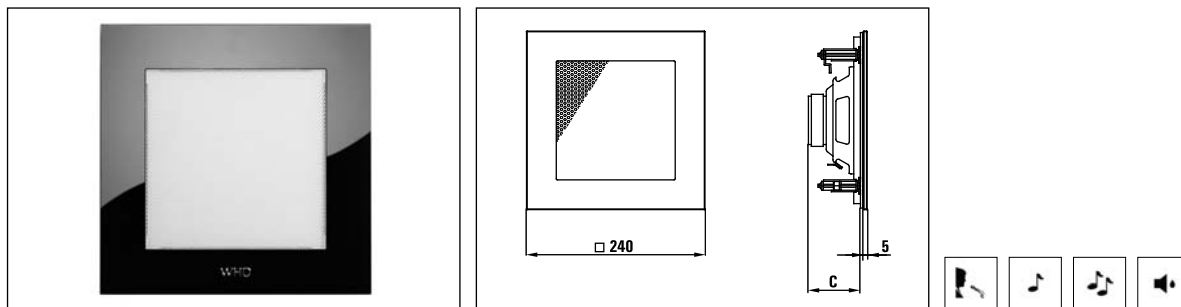
Cardan design sound column, ideal for the reproduction of speech and background music, e.g. in modern conference rooms, churches, museums, ... The KLS 111 TS comprises four speakers and surface-mounting frame in which speakers can also be integrated with a light 111 mm in diameter where required. This allows you to combine light and sound to optimal effect. Comes with four 87 mm full-range chassis with subcone and neodymium magnet built-in. This produces a narrow vertical transmission angle, making these speakers ideal for resonant rooms. For back-up in the bass range, we recommend subwoofer SUB 200.



Technical Datas	KLS 111 TS-4	KLS 111 TS-T6
Load Rating / Music Power	40/25 W	25 W
Impedance	4 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	96 dB	96 dB
SPL PNenn/1m	110 dB	110 dB
SPL PNenn/1m/f	117 dB/12 kHz	117 dB/12 kHz
Frequency Range (-3 dB)	150-20000 Hz	150-20000 Hz
Frequency Range (-10 dB)	80-21000 Hz	80-21000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	60/-/20/10 °	60/-/20/10 °
Component Set	4x KLS 111-20	4x KLS 111-20
Material	frame: stainless steel, housing and grille: metal chrome plated	frame: stainless steel, housing and grille: metal chrome plated
Cut Out		
Depth		
Net Weight	3.7 kg	4.1 kg
Colors	chrome / stainless steel	chrome / stainless steel
Accessories		

M 240 Basic

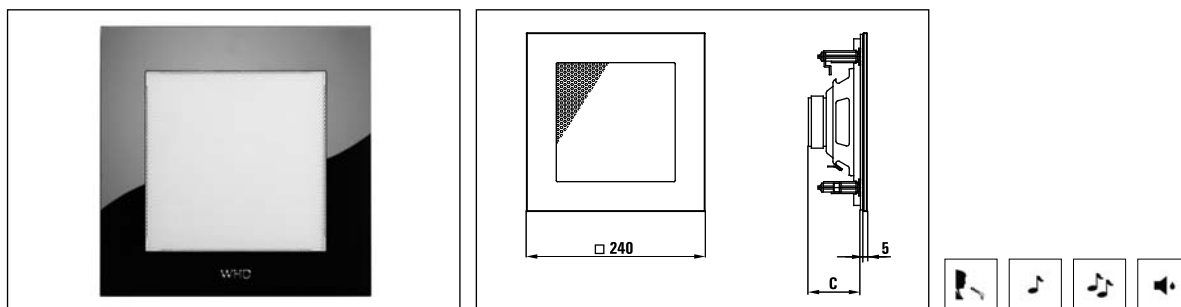
Low cost 2-way Hi-Fi design speaker, ideal for music reproduction in restaurants, lobbies, conference rooms, ... The M 240 was awarded with the prize for innovation for architecture and technology. Comes with a 166 mm woofer chassis and coaxial tweeter arrangement. The frame, grille and the surface-mounted housing AG 240 (accessory) are available in white or anthracite as required.



Technical Datas	M 240-8 Basic	M 240-T6 Basic	M 240-T25 Basic
Load Rating / Music Power	40/50 W	6 W	25 W
Impedance	8 Ohm		
Transformer		6/3/1.5 W	25/12.5/6.25 W
SPL 1W/1m	89 dB	89 dB	89 dB
SPL PNenn/1m	105 dB	97 dB	103 dB
SPL PNenn/1m/f	116 dB/3 kHz	108 dB/3 kHz	114 dB/3 kHz
Frequency Range (-3 dB)	100-20000 Hz	100-20000 Hz	100-20000 Hz
Frequency Range (-10 dB)	50-22000 Hz	50-22000 Hz	50-22000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/50/40 °	180/-/50/40 °	180/-/50/40 °
Component Set	1 x PM 166 A/2	1 x PM 166 A/2	1 x PM 166 A/2
Material	Acoustic wall, frame: plastic, grille: metal	Acoustic wall, frame: plastic, grille: metal	Acoustic wall, frame: plastic, grille: metal
Cut Out	ø 214 mm	ø 214 mm	ø 214 mm
Depth	76 mm	76 mm	78 mm
Net Weight	2.6 kg	2.9 kg	3.8 kg
Colors	white, anthracite	white, anthracite	white, anthracite
Accessories	AG 240: surface housing, flush housing company Kaiser	AG 240: surface housing, flush housing company Kaiser	AG 240: surface housing, flush housing company Kaiser

M 240

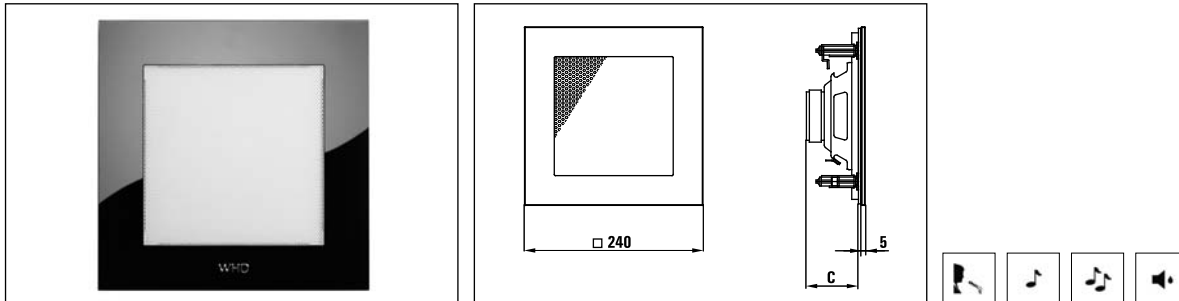
2-way Hi-Fi design recessed speaker, ideal for music reproduction in villas, restaurants, lobbies, conference rooms, ... The M 240 was awarded with the prize for innovation for architecture and technology. Comes with a 166 mm woofer chassis and coaxial tweeter arrangement. The huge variety of different covers offers endless possibilities for configuration. Covers are available in white- green or black glass. Covers are also available in polished or brushed high-grade steel, in a Wenge wood look, as plasterboard which can be coated with a wall paint of your choice, or as plasterboard with perforated grille. The grille and the surface-mounted housing AG 240 (accessory) are available in white or anthracite as required.



Technical Datas	M 240-8	M 240-T6	M 240-T25
Load Rating / Music Power	40/50 W	6 W	25 W
Impedance	8 Ohm		
Transformer		6/3/1.5 W	25/12.5/6.25 W
SPL 1W/1m	89 dB	89 dB	89 dB
SPL PNenn/1m	105 dB	97 dB	103 dB
SPL PNenn/1m/f	111 dB/15 kHz	103 dB/15 kHz	109 dB/15 kHz
Frequency Range (-3 dB)	100-20000 Hz	100-20000 Hz	100-20000 Hz
Frequency Range (-10 dB)	50-22000 Hz	50-22000 Hz	50-22000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/90/40 °	180/-/90/40 °	180/-/90/40 °
Component Set	1 x PM 166/2 FW	1 x PM 166/2 FW	1 x PM 166/2 FW
Material	Acoustic wall: plastic, grille: metal, different frames	Acoustic wall: plastic, grille: metal, different frames	Acoustic wall: plastic, grille: metal, different frames
Cut Out	ø 214 mm	ø 214 mm	ø 214 mm
Depth	76 mm	76 mm	78 mm
Net Weight	2.6 kg	2.9 kg	3.8 kg
Colors	white, green or black glass, high grade steel-polished or brushed, wood, plaster	white, green or black glass, high grade steel-polished or brushed, wood, plaster	white, green or black glass, high grade steel-polished or brushed, wood, plaster
Accessories	AG 240: surface housing, flush housing company Kaiser	AG 240: surface housing, flush housing company Kaiser	AG 240: surface housing, flush housing company Kaiser

M 240 stereo

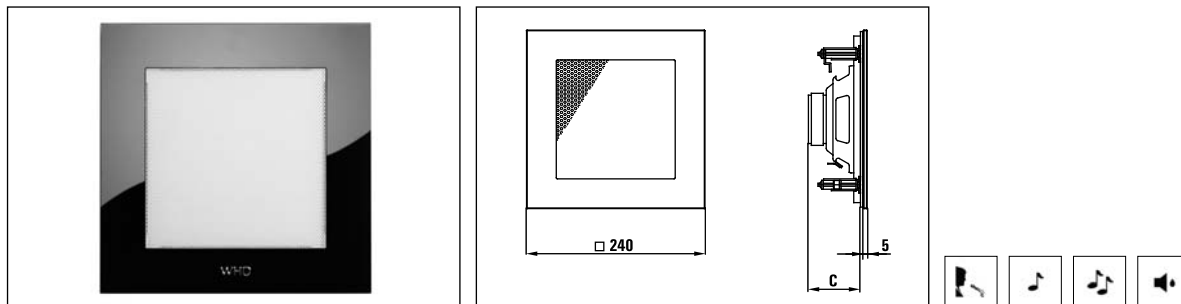
High-performance 2-way stereo recessed speaker, ideal for relatively small rooms such as bathrooms or entrance halls, where two normal stereo speakers could not be properly positioned in the classical way for music reproduction in villas, restaurants, lobbies, conference rooms with modern architecture. The M 240 was awarded with the prize for innovation for architecture and technology. The M 240 stereo comes with a 166 mm two-voice-coil woofer and two tweeters. Both stereo channels come from a single speaker. The huge variety of different covers offers endless possibilities for configuration. Covers are available in white- green or black glass. Covers are also available in polished or brushed high-grade steel, in a Wenge wood look, as plasterboard which can be coated with a wall paint of your choice, or as plasterboard with perforated grille. The grille and the surface-mounted housing AG 240 (accessory) are available in white or anthracite as required.



Technical Datas	M 240-8 stereo
Load Rating / Music Power	25/40 W
Impedance	8 Ohm
Transformer	
SPL 1W/1m	86 dB
SPL PNenn/1m	100 dB
SPL PNenn/1m/f	100 dB/4 kHz
Frequency Range (-3 dB)	60-23000 Hz
Frequency Range (-10 dB)	40-26000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	170/-/60/120 °
Component Set	1 x PM 166 DSS-8 Stereo (Coax)
Material	Acoustic wall: plastic, grille: metal, different frames
Cut Out	ø 214 mm
Depth	78 mm
Net Weight	2.6 kg
Colors	white, green or black glass, high grade steel-polished or brushed, wood, plaster
Accessories	AG 240: surface housing, flush housing company Kaiser

M 240 HQ

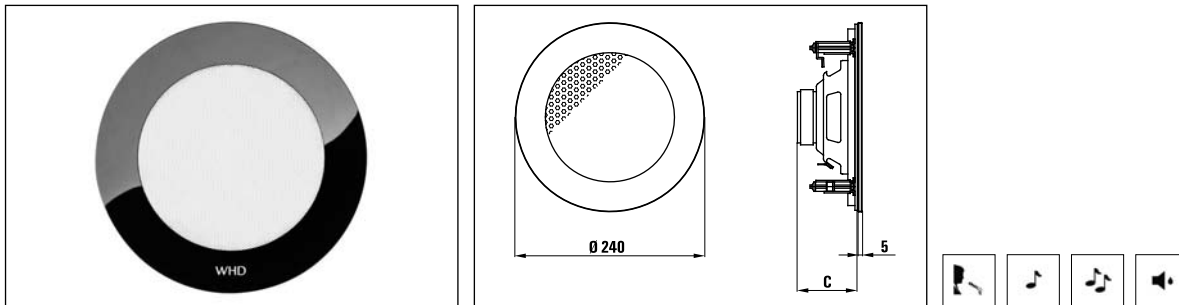
2-way high-end Hi-Fi design recessed speaker, ideal for music reproduction in villas, home cinemas, conference rooms with modern architecture. The M 240 HQ was awarded with the prize for innovation for architecture and technology. Comes with a 166 mm woofer chassis with a carbon fibre cone and a silk dome coaxial tweeter arrangement. The huge variety of different covers offers endless possibilities for configuration. Covers are available in white-green or black glass. Covers are also available in polished or brushed high-grade steel, in a Wenge wood look, as plasterboard which can be coated with a wall paint of your choice, or as plasterboard with perforated grille. The grille and the surface-mounted housing AG 240 (accessory) are available in white or anthracite as required.



Technical Datas	M 240-8 HQ
Load Rating / Music Power	40/50 W
Impedance	8 Ohm
Transformer	
SPL 1W/1m	83 dB
SPL PNenn/1m	99 dB
SPL PNenn/1m/f	108 dB/12 kHz
Frequency Range (-3 dB)	40-22000 Hz
Frequency Range (-10 dB)	30-25000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/50/40 °
Component Set	1 x PM 166 A/2-8 HQ
Material	Acoustic wall: plastic, grille: metal, different frames
Cut Out	ø 214 mm
Depth	76 mm
Net Weight	2.7 kg
Colors	white, green or black glass, high grade steel-polished or brushed, wood, plaster
Accessories	AG 240: surface housing, flush housing company Kaiser

R 240

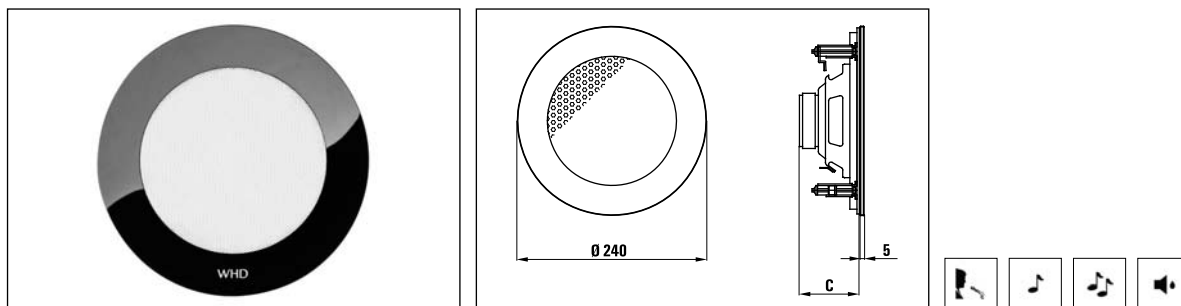
2-way Hi-Fi design recessed speaker, ideal for music reproduction in villas, restaurants, lobbies, conference rooms, ... The square version of this speaker was awarded with a prize for innovation for architecture and technology. The R 240 is fitted with a 166 mm woofer and coaxial tweeter arrangement. The huge variety of available covers offers endless possibilities for configuration. Covers are available in white- green or black glass. Covers are also available in brushed high-grade steel, in a Wenge wood look, as plaster board which can be coated with a wall paint of your choice. The grille and the surface-mounted housing AG R 240 (accessory) are available in white or anthracite as required.



Technical Datas	R 240-8	R 240-T6	R 240-T25
Load Rating / Music Power	40/50 W	6 W	25 W
Impedance	8 Ohm		
Transformer		6/3/1.5 W	25/12.5/6.25 W
SPL 1W/1m	89 dB	89 dB	89 dB
SPL PNenn/1m	105 dB	97 dB	103 dB
SPL PNenn/1m/f	111 dB/15 kHz	103 dB/15 kHz	109 dB/15 kHz
Frequency Range (-3 dB)	100-20000 Hz	100-20000 Hz	100-20000 Hz
Frequency Range (-10 dB)	50-22000 Hz	50-22000 Hz	50-22000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/90/40 °	180/-/90/40 °	180/-/90/40 °
Component Set	1x PM 166/2 FW	1x PM 166/2 FW	1x PM 166/2 FW
Material	baffle: plastic, surface housing, grille: metal, various covers	baffle: plastic, surface housing, grille: metal, various covers	baffle: plastic, surface housing, grille: metal, various covers
Cut Out	ø 214 mm	ø 214 mm	ø 214 mm
Depth	76 mm	76 mm	78 mm
Net Weight	2.6 kg	2.9 kg	3.8 kg
Colors	white, green or black glass, high grade steel brushed, Wenge wood, plaster	white, green or black glass, high grade steel brushed, Wenge wood, plaster	white, green or black glass, high grade steel brushed, Wenge wood, plaster
Accessories	AG R 240: surface housing, flush housing company Kaiser	AG R 240: surface housing, flush housing company Kaiser	AG R 240: surface housing, flush housing company Kaiser

R 240 stereo

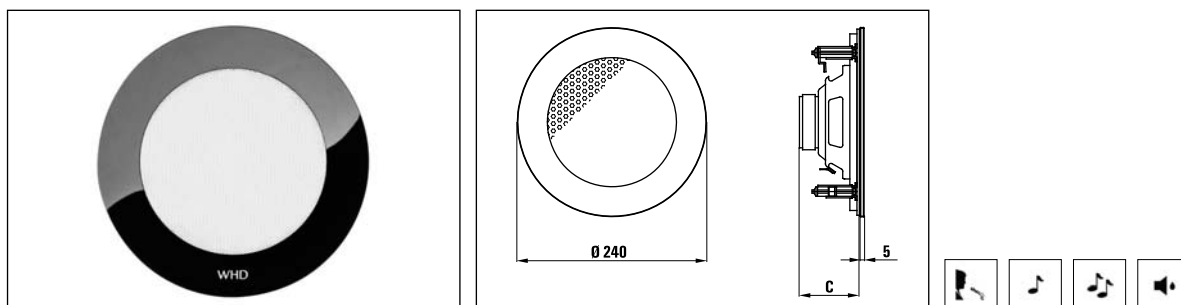
High-performance 2-way stereo recessed speaker, ideal for relatively small rooms such as bathrooms or entrance halls, where two normal stereo speakers could not be properly positioned in the classical way for music reproduction in villas, restaurants, lobbies, conference rooms... The square version of this speaker was awarded with a prize for innovation for architecture and technology. The R 240 stereo comes with a 166 mm two-voice-coil woofer and two tweeters. Both stereo channels come from a single speaker. The huge variety of available covers offers endless possibilities for configuration. Covers are available in white- green or black glass. Covers are also available in brushed high-grade steel, in a Wenge wood look, as plasterboard which can be coated with a wall paint of your choice. The grille and the surface-mounted housing AG R 240 (accessory) are available in white or anthracite as required.



Technical Datas	R 240-8 stereo
Load Rating / Music Power	25/40 W
Impedance	8 Ohm
Transformer	
SPL 1W/1m	86 dB
SPL PNenn/1m	100 dB
SPL PNenn/1m/f	106 dB/4 kHz
Frequency Range (-3 dB)	60-23000 Hz
Frequency Range (-10 dB)	40-26000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	170/-/60/120 °
Component Set	1x PM 166 DSS-8 Stereo (Coax)
Material	baffle: plastic, surface housing and grille: metal, various covers
Cut Out	ø 214 mm
Depth	78 mm
Net Weight	2.6 kg
Colors	white, green or black glass, high grade steel brushed, Wenge wood, plaster
Accessories	AG R 240: surface housing, flush housing company Kaiser

R 240 HQ

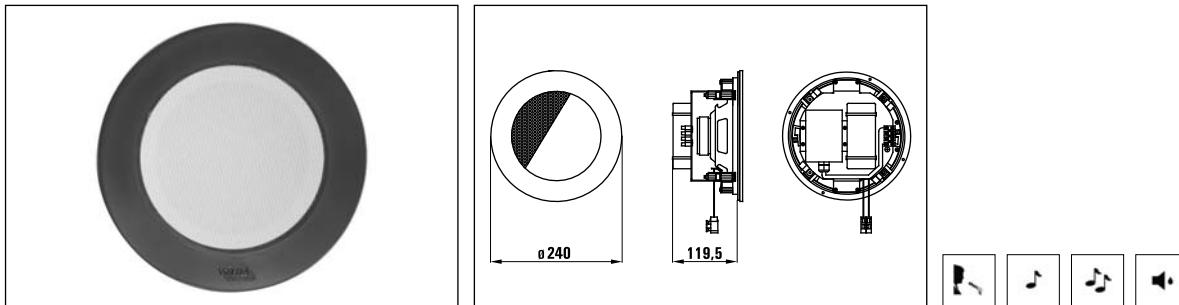
2-way high-end Hi-Fi design recessed speaker, ideal for music reproduction in villas, home cinemas, conference rooms, ... The square version of this speaker was awarded with a prize for innovation for architecture and technology. The R 240 is fitted with a 166 mm woofer with a carbon fibre cone and a silk dome coaxial tweeter arrangement. The huge variety of different covers offers endless possibilities for configuration. Covers are available in white- green or black glass. Covers are also available in brushed high-grade steel, in a Wenge wood look, as plasterboard which can be coated with a wall paint of your choice. The grille and the surface-mounted housing AG R 240 (accessory) are available in white or anthracite as required.



Technical Datas	R 240-8 HQ
Load Rating / Music Power	40/50 W
Impedance	8 Ohm
Transformer	
SPL 1W/1m	83 dB
SPL PNenn/1m	99 dB
SPL PNenn/1m/f	108 dB/12 kHz
Frequency Range (-3 dB)	40-22000 Hz
Frequency Range (-10 dB)	30-25000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/50/40 °
Component Set	1x PM 166 A/2-8 HQ
Material	baffle: plastic, surface housing, grille: metal, various covers
Cut Out	ø 214 mm
Depth	76 mm
Net Weight	2.7 kg
Colors	white, green or black glass, high grade steel brushed, Wenge wood, plaster
Accessories	AG R 240: surface housing, flush housing company Kaiser

R 240 LED

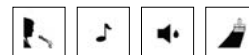
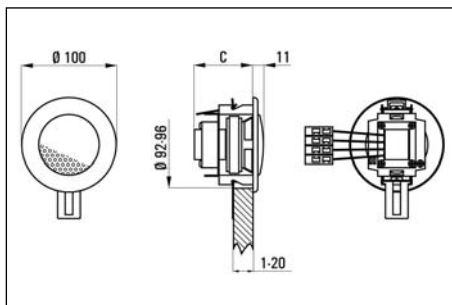
2-way Hi-Fi design recessed speaker, ideal for music reproduction in villas, restaurants, lobbies, doctor's offices/legal practices, ... The R 240 LED is fitted with a 166 mm woofer and coaxial tweeter arrangement. There are two variants available: The "R 240 LED-8" is equipped with a 230V power supply, a wireless radio receiver and a RGB-LED controller. The white glass screen can be brought thus in different colors to shining. The color processes is controlled via the radio remote control contained in the scope of supply. The "R 240 LED-8 Slave" is available with RGB LEDs and can only be operated in connection with one "R 240 LED-8 Controller". Max. 9 "Slaves" can be operated with one "Controller".



Technical Datas	R 240-8 LED Controller	R 240-8 LED Slave
Load Rating / Music Power	40/50 W	40/50 W
Impedance	8 Ohm	8 Ohm
Transformer		
SPL 1W/1m	89 dB	89 dB
SPL PNenn/1m	105 dB	105 dB
SPL PNenn/1m/f	111 dB/15 kHz	111 dB/15 kHz
Frequency Range (-3 dB)	100-20000 Hz	100-20000 Hz
Frequency Range (-10 dB)	50-22000 Hz	50-22000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/90/40 °	180/-/90/40 °
Component Set	1x PM 166/2 FW, 110-230V-power supply, controlling with radio receiver, RGB-LEDs	1x PM 166/2 FW, RGB-LEDs
Material	baffle: plastic, grille: metal, frame: white-glass	baffle: plastic, surface housing, grille: metal, frame: white-glass
Cut Out	ø 214 mm	ø 214 mm
Depth	120 mm	76 mm
Net Weight	3 kg	2.8 kg
Colors	white glass, grille white, change of colours adjustable by remote control.	white glass, grille white, change of colours adjustable by remote control.
Accessories		AG R 240: surface housing, flush housing company Kaiser

UPM 100

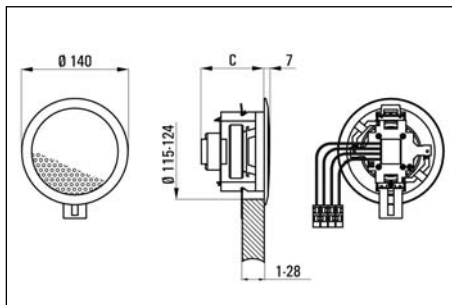
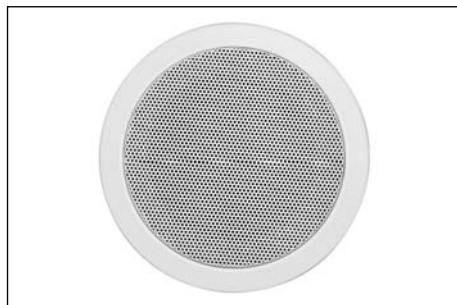
Tiny recessed speakers for ceilings made of metal, with outstanding sound quality. Ideal for speech and background music in low-ceilinged rooms (2.4 - 4 m), such as in the home, offices, doctor's surgeries/legal offices. The UPM 100 stands out due to the very wide radiating characteristics of its 66 mm full range speaker. This enables a large area to be evenly radiated with just a few UP 100 speakers. Other features include: Earthing screw and draw release. The unit can be installed on a ceiling very quickly using unique spring clips.



Technical Datas	UPM 100-4, -20	UPM 100-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4, 20 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	86 dB	86 dB
SPL PNenn/1m	94 dB	94 dB
SPL PNenn/1m/f	100 dB/4 kHz	100 dB/4 kHz
Frequency Range (-3 dB)	250-20000 Hz	250-20000 Hz
Frequency Range (-10 dB)	170-21000 Hz	170-21000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/120/140 °	180/-/120/140 °
Component Set	1 x B 66 BB	1 x B 66 BB
Material	Metal	Metal
Cut Out	ø 92 mm	ø 92 mm
Depth	52 mm	67 mm
Net Weight	0.4 kg	0.6 kg
Colors	white (RAL 9003), chrome, gold	white (RAL 9003), chrome, gold
Accessories	flush housing company Kaiser or company Spelsberg	flush housing company Kaiser or company Spelsberg

UPM 140

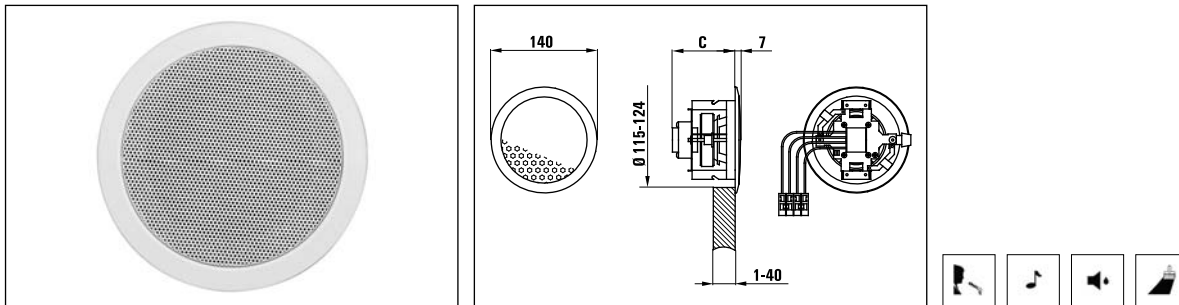
Compact ceiling speakers, ideal for speech and background music reproduction in low-ceilinged rooms (2.4 - 4 m), e.g. in homes, offices, doctor's surgeries/legal practices, etc... Comes with a 87 mm full-range chassis with additional subcone. Thanks to its wide radiation characteristics a large area can be evenly radiated with just a few UPM 140s. Other features include: Earthing screw and draw release. The unit can be installed on a ceiling very quickly using unique spring clips. The AG 140 surface housing is available as an accessory.



Technical Datas	UPM 140-4, -20	UPM 140-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4, 20 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	87 dB	87 dB
SPL PNenn/1m	95 dB	95 dB
SPL PNenn/1m/f	102 dB/4 kHz	102 dB/4 kHz
Frequency Range (-3 dB)	170-22000 Hz	170-22000 Hz
Frequency Range (-10 dB)	100-24000 Hz	100-24000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/130/80 °	180/-/130/80 °
Component Set	1 x PM 87 BB	1 x PM 87 BB
Material	Metal	Metal
Cut Out	ø 116 mm	ø 116 mm
Depth	63 mm	88 mm
Net Weight	0.7 kg	0.9 kg
Colors	white (RAL 9003)	white (RAL 9003)
Accessories	AG 140: metal surface housing, flush housing company Kaiser or company Spelsberg	AG 140: metal surface housing, flush housing company Kaiser or comp. Spelsberg

UPM 140 S

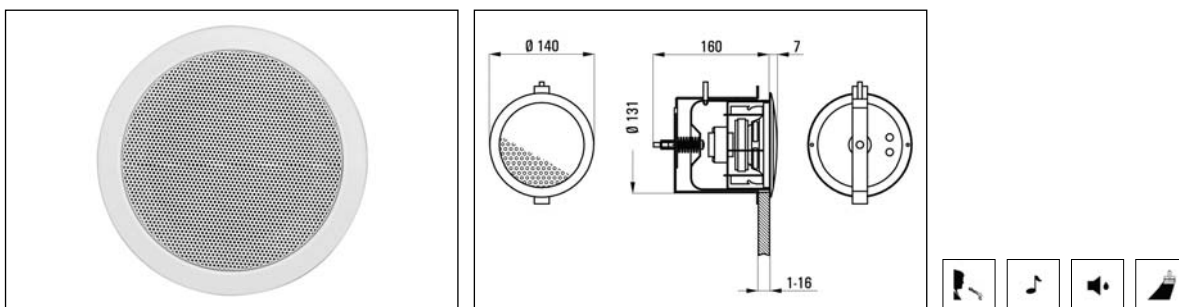
Compact ceiling speaker, ideal for speech and background music reproduction in low-ceilinged rooms (2.4 - 4 m), e.g. in classrooms... Comes with a 87 mm full-range chassis with additional subcone enabling a large area can be evenly radiated with just a few UPM 140s. Other features include: Earthing screw and draw release. The UPM 140S is fixed using 2 screws. As the screws are tightened the retaining brackets turn and secure the speaker. Next, the grille is placed on top and covers the screws, ensuring moderate anti-theft protection. The steel dome ST 140 (mounting with brackets) or ST 140 WB (mounting with screws) and AG 140 surface housing are available as accessories.



Technical Datas	UPM 140 S-4, -20	UPM 140 S-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4, 20 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	87 dB	87 dB
SPL PNenn/1m	95 dB	95 dB
SPL PNenn/1m/f	102 dB/4 kHz	102 dB/4 kHz
Frequency Range (-3 dB)	170-22000 Hz	170-22000 Hz
Frequency Range (-10 dB)	100-24000 Hz	100-24000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180-/130/80 °	180-/130/80 °
Component Set	1 x PM 87 BB	1 x PM 87 BB
Material	Metal	Metal
Cut Out	ø 117 mm	ø 117 mm
Depth	54 mm	91 mm
Net Weight	0.7 kg	0.9 kg
Colors	white (RAL 9003)	white (RAL 9003)
Accessories	ST 140, ST 140 WB: steel pots, AG 140: surface housing	ST 140, ST 140 WB: steel pots, AG 140: metal surface housing

UPM 140 B

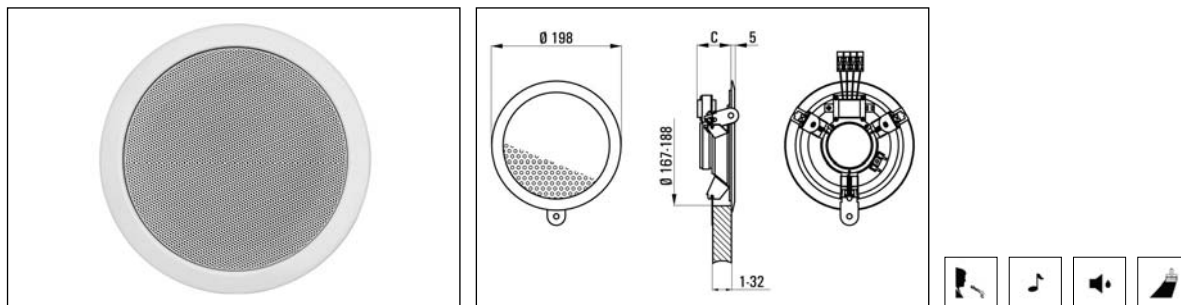
Compact ceiling speaker incl. steel dome, ideal for the reproduction of speech and background music low-ceilinged rooms inside public buildings, such as toilets, offices, etc ... Comes with a 87 mm full-range chassis with additional subcone enabling a large area to be evenly radiated with just a few UPM 140s. Other features include: Earthing screw and draw release. The UPM 140 B clicks into the steel dome ST 140 (mounting with brackets) or ST 140 WB (mounting with screws) with a bayonet fitting.



Technical Datas	UPM 140 B-T6 / ST 140	UPM 140 B-T6 / ST 140 WB
Load Rating / Music Power	6 W	6 W
Impedance		
Transformer	6/3/1.5 W	6/3/1.5 W
SPL 1W/1m	87 dB	87 dB
SPL PNenn/1m	95 dB	95 dB
SPL PNenn/1m/f	102 dB/4 kHz	102 dB/4 kHz
Frequency Range (-3 dB)	170-22000 Hz	170-22000 Hz
Frequency Range (-10 dB)	100-24000 Hz	100-24000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180-/130/80 °	180-/130/80 °
Component Set	1 x PM 87 BB	1 x PM 87 BB
Material	Metal	Metal
Cut Out	ø 131 mm	ø 121 mm
Depth	160 mm	110 mm
Net Weight	1.5 kg	1.3 kg
Colors	white (RAL 9003)	white (RAL 9003)
Accessories	incl. steel pot with brackets ST 140	incl. steel pot with screw mounting ST 140 WB

UPM 200

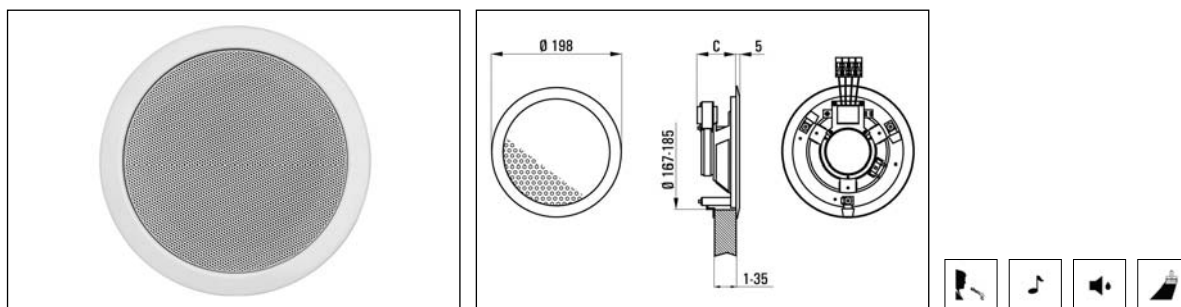
Standard ceiling speaker in an extra-shallow design (5 mm), ideal for the reproduction of speech and background music in high-ceilinged rooms (3...5 m), e.g. department stores ... The UPM 200 impresses with its powerful 135 mm full-range chassis with additional subcone. Other features include: Earthing screw and draw release. The unit can be installed on a ceiling very quickly using unique spring clips. The AG 200 surface housing is available as an accessory.



Technical Datas	UPM 200-4, -20	UPM 200-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4, 20 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	90 dB	90 dB
SPL PNenn/1m	98 dB	98 dB
SPL PNenn/1m/f	108 dB/15 kHz	108 dB/15 kHz
Frequency Range (-3 dB)	100-20000 Hz	100-20000 Hz
Frequency Range (-10 dB)	60-23000 Hz	60-23000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/60/40 °	180/-/60/40 °
Component Set	1 x PM 135	1 x PM 135
Material	Metal	Metal
Cut Out	ø 168 mm	ø 168 mm
Depth	54 mm	66 mm
Net Weight	0.9 kg	1.1 kg
Colors	white (RAL 9003)	white (RAL 9003)
Accessories	AG 200: metal surface housing, flush housing company Kaiser	AG 200: metal surface housing, flush housing company Kaiser

UPM 200 S

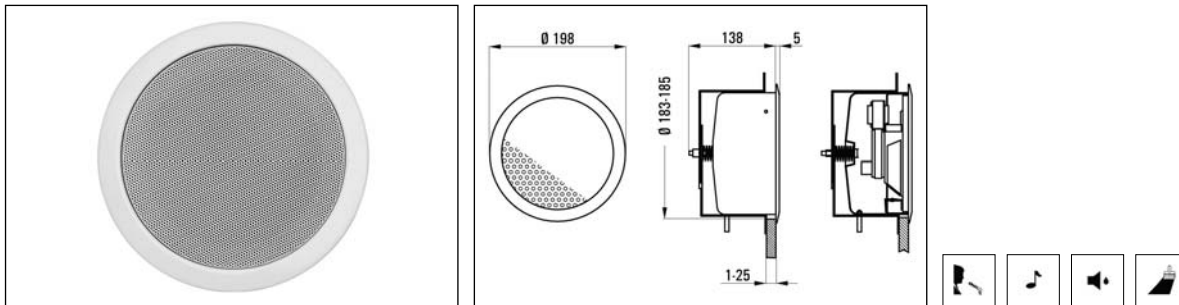
Standard ceiling speaker in an extra-shallow design (5 mm), ideal for the reproduction of speech and background music in high-ceilinged rooms (3...5 m), e.g. department stores, schools, ... The UPM 200 impresses with its powerful 135 mm full-range chassis with additional subcone. Other features include: Earthing screw and draw release. The UPM 200 S is attached with 3 screws. As the screws are tightened the retaining brackets turn and secure the speaker. Next, the grille is placed on top and covers the screws, ensuring moderate anti-theft protection. The AG 200 surface housing and the steel dome ST 200 BS are available as accessories.



Technical Datas	UPM 200 S-4, -20	UPM 200 S-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4, 20 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	90 dB	90 dB
SPL PNenn/1m	98 dB	98 dB
SPL PNenn/1m/f	108 dB/15 kHz	108 dB/15 kHz
Frequency Range (-3 dB)	100-20000 Hz	100-20000 Hz
Frequency Range (-10 dB)	60-23000 Hz	60-23000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/60/40 °	180/-/60/40 °
Component Set	1 x PM 135	1 x PM 135
Material	Metal	Metal
Cut Out	ø 168 mm	ø 168 mm
Depth	58 mm	66 mm
Net Weight	0.9 kg	1.1 kg
Colors	white (RAL 9003)	white (RAL 9003)
Accessories	AG 200: metal surface housing, ST 200 BS: steel pot	AG 200: metal surface housing, ST 200 BS: steel pot

UPM 200 BS

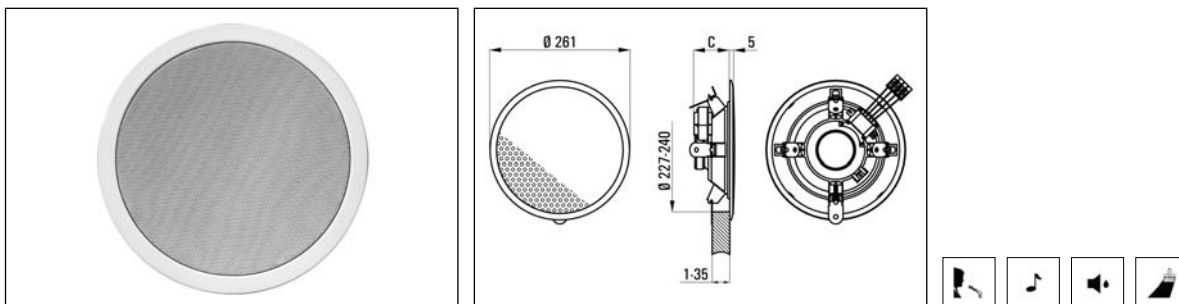
This ceiling speaker offers the highest safety standard, ideal for the reproduction of speech and background music in high-ceilinged rooms (3...5 m), in which security is paramount, e.g. in department stores, schools,... The UPM 200 BS offers impressive acoustics thanks to its powerful 135 mm full-range chassis with additional subcone. The UPM 200 BS comes with a ceramic terminal block, thermofuse and fire-resistant stranded wires to prevent a short circuit in the event of a fire and to meet the applicable safety norms. Other features include: Earthing screw and draw release. The steel dome ST 200 BS, an integral part of the unit, delays the spread of fire through the building.



Technical Datas	UPM 200 BS-T6
Load Rating / Music Power	6 W
Impedance	
Transformer	6/3/1.5 W
SPL 1W/1m	91 dB
SPL PNenn/1m	99 dB
SPL PNenn/1m/f	109 dB/15 kHz
Frequency Range (-3 dB)	150-20000 Hz
Frequency Range (-10 dB)	140-22000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/60/40 °
Component Set	1 x PM 135
Material	Metal
Cut Out	ø 184 mm
Depth	138 mm
Net Weight	2.2 kg
Colors	white (RAL 9003)
Accessories	incl. steel pot ST 200 BS

UPM 260

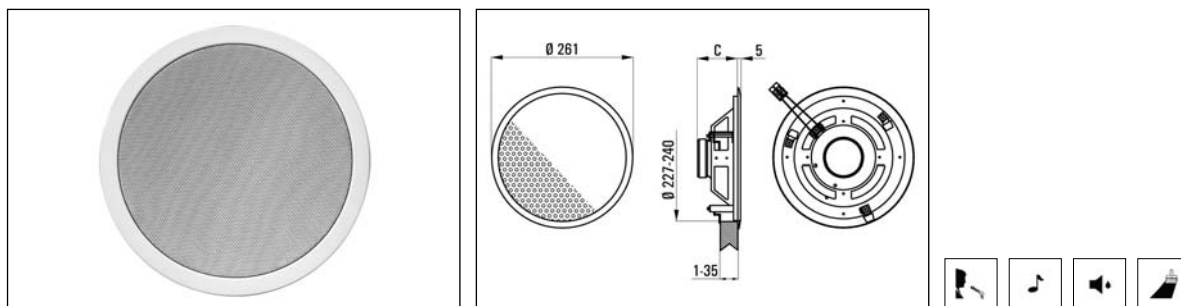
Large, highly-efficient flat ceiling speaker, ideal for the reproduction of speech and background music in high-ceilinged rooms (max.4 - 6 m) e.g. in foyers, department stores or indoor shopping arcades. The UP 260 features a 210 mm full-range chassis with additional subcone. Other features include: Earthing screw and draw release. The unit can be installed on a ceiling very quickly using unique spring clips.



Technical Datas	UPM 260-4, -20	UPM 260-T6	UPM 260-T10
Load Rating / Music Power	10/12 W	6 W	10 W
Impedance	4, 20 Ohm		
Transformer		6/3/1.5 W	10/5/2.5 W
SPL 1W/1m	91 dB	91 dB	91 dB
SPL PNenn/1m	101 dB	99 dB	101 dB
SPL PNenn/1m/f	112 dB/3 kHz	110 dB/3 kHz	112 dB/3 kHz
Frequency Range (-3 dB)	50-18000 Hz	50-18000 Hz	50-18000 Hz
Frequency Range (-10 dB)	40-20000 Hz	40-20000 Hz	40-20000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/60/50 °	180/-/60/50 °	180/-/60/50 °
Component Set	1 x PM 210 BB	1 x PM 210 BB	1 x PM 210 BB
Material	Metal	Metal	Metal
Cut Out	ø 228 mm	ø 228 mm	ø 228 mm
Depth	75 mm	82 mm	90 mm
Net Weight	1 kg	1.2 kg	1.3 kg
Colors	white (RAL 9003)	white (RAL 9003)	white (RAL 9003)
Accessories	flush housing company Kaiser	flush housing company Kaiser	flush housing company Kaiser

UPM 260 S

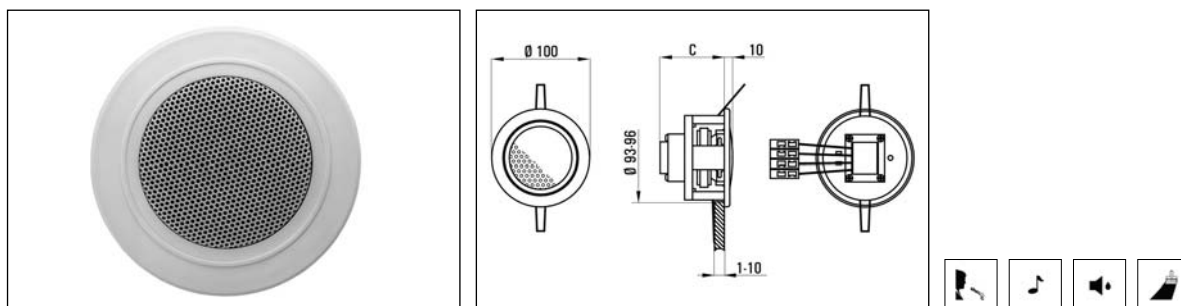
Large, highly-efficient flat ceiling speaker, ideal for the reproduction of speech and background music in high-ceilinged rooms (max.4 - 6 m) e.g. in foyers, department stores or indoor shopping arcades. The UP 260 features a 210 mm full-range chassis with additional subcone. Other features include: Earthing screw and draw release. The UPM 260 S is attached with 3 screws. As the screws are tightened the retaining brackets turn and secure the speaker. Next, the grille is placed on top and covers the screws, ensuring a degree of anti-theft protection. The steel dome ST 260 (mounting with brackets) or ST 260 WB (mounting with screws) are available as accessories.



Technical Datas	UPM 260 S-4, -20	UPM 260 S-T6	UPM 260 S-T10
Load Rating / Music Power	10/12 W	6 W	10 W
Impedance	4, 20 Ohm		
Transformer		6/3/1.5 W	10/5/2.5 W
SPL 1W/1m	91 dB	91 dB	91 dB
SPL PNenn/1m	101 dB	99 dB	101 dB
SPL PNenn/1m/f	112 dB/3 kHz	110 dB/3 kHz	112 dB/3 kHz
Frequency Range (-3 dB)	50-18000 Hz	50-18000 Hz	50-18000 Hz
Frequency Range (-10 dB)	40-20000 Hz	40-20000 Hz	40-20000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180°/-60/50 °	180°/-60/50 °	180°/-60/50 °
Component Set	1 x PM 210 BB	1 x PM 210 BB	1 x PM 210 BB
Material	Metal	Metal	Metal
Cut Out	ø 228 mm	ø 228 mm	ø 228 mm
Depth	75 mm	82 mm	90 mm
Net Weight	1 kg	1.1 kg	1.3 kg
Colors	white (RAL 9003)	white (RAL 9003)	white (RAL 9003)
Accessories	ST 260, ST 260 WB: steel pots	ST 260, ST 260 WB: steel pots	ST 260, ST 260 WB: steel pots

UP 6

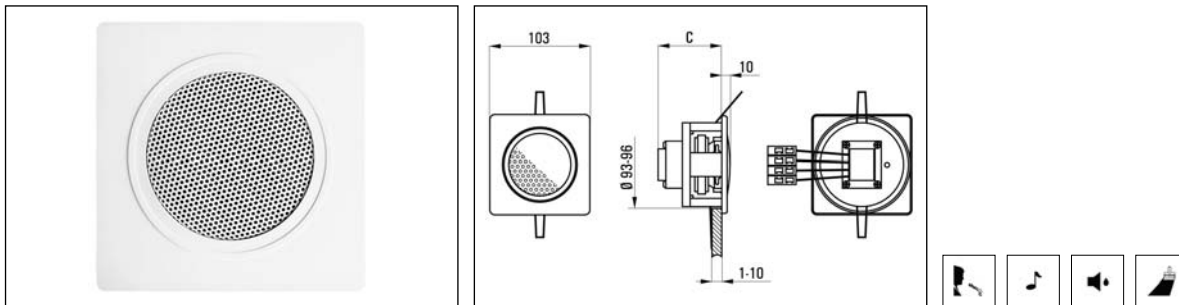
Tiny plastic recessed speaker for ceiling installation with outstanding sound quality, ideal for the reproduction of speech and background music in low-ceilinged rooms (2.4...4 m), for example in homes, in offices, doctor's surgeries/legal practices, ... The UP 6 stands out due to its very wide radiating characteristics on account of its 66 mm full range speaker, a large area can be radiated with just a few speakers of this type. The unit can be quickly installed in a ceiling using the spring clip system.



Technical Datas	UP 6-4, -20	UP 6-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4, 20 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	86 dB	86 dB
SPL PNenn/1m	94 dB	94 dB
SPL PNenn/1m/f	100 dB/4 kHz	100 dB/4 kHz
Frequency Range (-3 dB)	250-20000 Hz	250-20000 Hz
Frequency Range (-10 dB)	170-21000 Hz	170-21000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180°/-120/140 °	180°/-120/140 °
Component Set	1 x B 66 BB	1 x B 66 BB
Material	Housing: plastic, grille: metal	Housing: plastic, grille: metal
Cut Out	ø 93 mm	ø 93 mm
Depth	42 mm	67 mm
Net Weight	0.4 kg	0.6 kg
Colors	white (RAL 9016), black (RAL 9005), chrome, gold	white (RAL 9016), black (RAL 9005), chrome, gold
Accessories	flush housing company Kaiser or company Spelsberg	flush housing company Kaiser or company Spelsberg

UP 6 Q

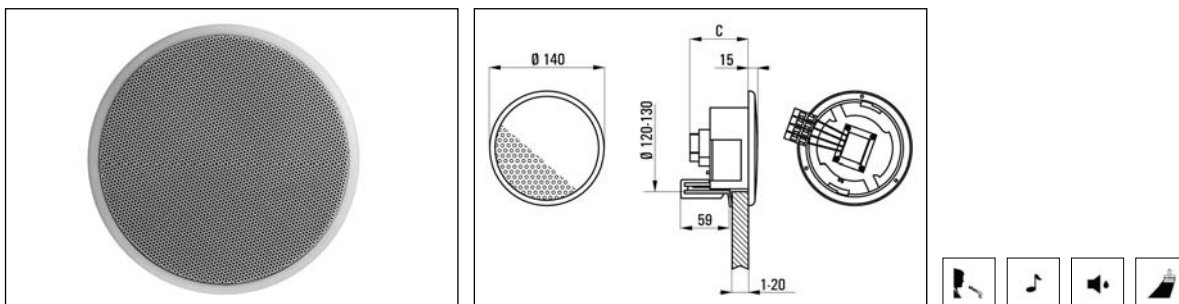
Tiny plastic, square-shaped recessed speaker for ceiling installation with outstanding sound quality, ideal for the reproduction of speech and background music in low-ceilinged rooms (2.4...4 m), for example in homes, in offices, doctor's surgeries/legal practices, ... The UP 6 Q stands out due to its very wide radiating characteristics on account of its 66 mm full range speaker, a large area can be radiated with just a few speakers of this type. The unit can be quickly installed in a ceiling using the spring clip system.



Technical Datas	UP 6 Q-4, -20	UP 6 Q-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4, 20 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	86 dB	86 dB
SPL PNenn/1m	94 dB	94 dB
SPL PNenn/1m/f	100 dB/4 kHz	100 dB/4 kHz
Frequency Range (-3 dB)	250-20000 Hz	250-20000 Hz
Frequency Range (-10 dB)	170-21000 Hz	170-21000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/120/140 °	180/-/120/140 °
Component Set	1 x B 66 BB	1 x B 66 BB
Material	Housing: plastic, grille: metal	Housing: plastic, grille: metal
Cut Out	ø 93 mm	ø 93 mm
Depth	42 mm	67 mm
Net Weight	0.4 kg	0.6 kg
Colors	white (RAL 9016)	white (RAL 9016)
Accessories	flush housing company Kaiser or company Spelsberg	flush housing company Kaiser or company Spelsberg

UP 10

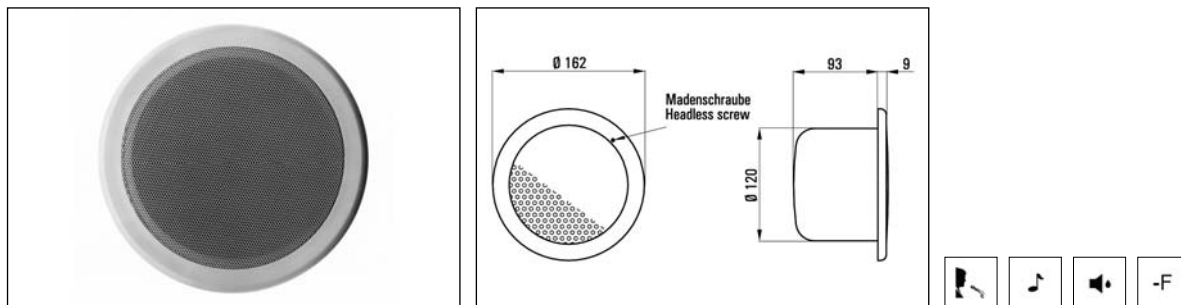
Compact recessed speakers for ceiling installation, ideal for speech and background music reproduction in low-ceilinged rooms (2.4...4 m), e.g. in homes, offices, doctor's surgeries/legal practices,... Comes with a 87 mm full-range chassis with additional subcone. Thanks to its wide radiation characteristics a large area can be evenly radiated with just a few UP 10s. The assembly is secured using two clamps and the front ring is screwed on via a bayonet connection. The EGT 10 housing for concrete ceilings is an available option.



Technical Datas	UP 10-4, -20	UP 10-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4, 20 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	87 dB	87 dB
SPL PNenn/1m	95 dB	95 dB
SPL PNenn/1m/f	102 dB/4 kHz	102 dB/4 kHz
Frequency Range (-3 dB)	170-22000 Hz	170-22000 Hz
Frequency Range (-10 dB)	100-24000 Hz	100-24000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/130/80 °	180/-/130/80 °
Component Set	1 x PM 87 BB	1 x PM 87 BB
Material	Front and mounting ring: plastic, grille: metal	Front and mounting ring: plastic, grille: metal
Cut Out	ø 120 mm	ø 120 mm
Depth	48 mm	72 mm
Net Weight	0.8 kg	1.1 kg
Colors	white (RAL 9016)	white (RAL 9016)
Accessories	EGT 10: pour-in pot, flush housing company Kaiser or company Spelsberg	EGT 10: pour-in pot, flush housing company Kaiser or company Spelsberg

UP 12

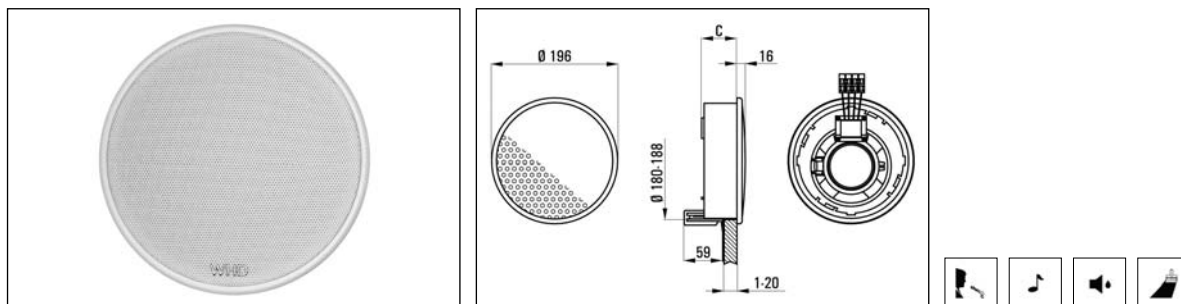
Compact ceiling speaker with fire-retardant steel dome for heightened safety level, ideal for the reproduction of speech and background music in low-ceilinged rooms (2.4...4 m), in buildings with increased security requirements, such as shopping centres, exhibition- and conference centres, museums, ... The UP 12-F features a 87 mm full-range chassis with additional subcone. The steel dome ST 12 is secured to the ceiling by four screws and the front ring made from fire-retardant (to UL 94 V-0) plastic is screwed on over a bayonet connection.



Technical Datas	UP 12-F-4	UP 12-F-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	87 dB	87 dB
SPL PNenn/1m	95 dB	95 dB
SPL PNenn/1m/f	102 dB/4 kHz	102 dB/4 kHz
Frequency Range (-3 dB)	170-22000 Hz	170-22000 Hz
Frequency Range (-10 dB)	100-24000 Hz	100-24000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180°-/130/80 °	180°-/130/80 °
Component Set	1 x PM 87 BB	1 x PM 87 BB
Material	Frontring: plastic (flame-retardant), grille: metal	Frontring: plastic (flame-retardant), grille: metal
Cut Out	ø 121 mm	ø 121 mm
Depth	93 mm	93 mm
Net Weight	0.8 kg	1.1 kg
Colors	white (RAL 9016)	white (RAL 9016)
Accessories	incl. steel pot ST 12	incl. steel pot ST 12

UP 14

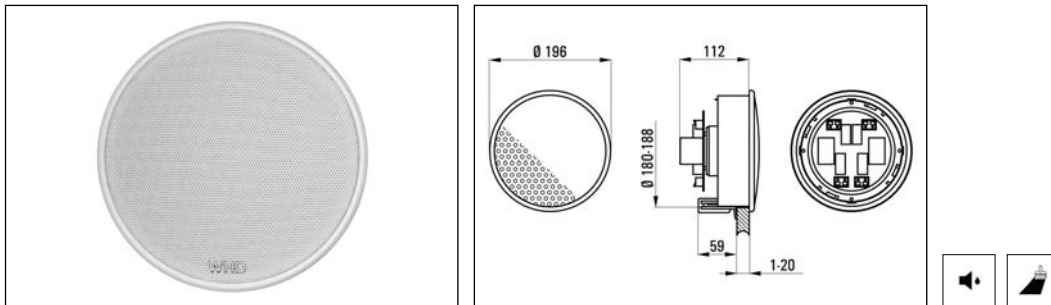
High-performing standard ceiling speaker with plastic frame, ideal for the reproduction of speech and background music in high-ceilinged rooms (3...5 m), e.g. department stores, foyers,... The UP 14 features a powerful 135 mm full-range chassis with additional subcone. The mounting ring is secured using four clamps and the front ring is screwed in via a bayonet connection. The housings for concrete ceilings EGT 14 and EGT 14/2 (with moveable flange) and surface-mounting housing AG 14 are available as accessories.



Technical Datas	UP 14-4, -20	UP 14-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4, 20 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	90 dB	90 dB
SPL PNenn/1m	98 dB	98 dB
SPL PNenn/1m/f	108 dB/15 kHz	108 dB/15 kHz
Frequency Range (-3 dB)	100-20000 Hz	100-20000 Hz
Frequency Range (-10 dB)	60-23000 Hz	60-23000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180°-/60/40 °	180°-/60/40 °
Component Set	1 x PM 135	1 x PM 135
Material	Front and mounting ring: plastic, grille: metal	Front and mounting ring: plastic, grille: metal
Cut Out	ø 180 mm	ø 180 mm
Depth	54 mm	55 mm
Net Weight	1 kg	1.2 kg
Colors	white (RAL 9016)	white (RAL 9016)
Accessories	EGT 14, EGT 14/2: pour-in pot, AG 14: surface housing, flush housing co. Kaiser	EGT 14, EGT 14/2: pour-in pot, AG 14: surface housing, flush housing co. Kaiser

UP 14 SUB

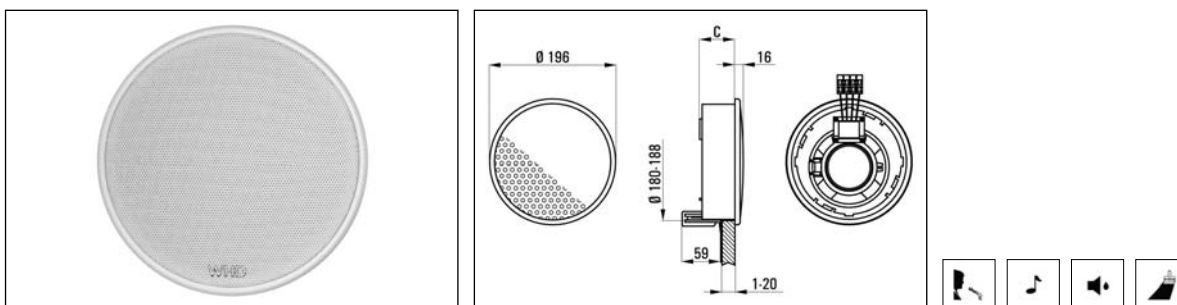
Powerful subwoofer for recessed ceiling installation, ideal as backups for small ceiling speakers, e.g. in the home, in restaurants, boutiques,... The UP 14 SUB comes with a 166 mm two-voice-coil woofer and a high-quality crossover. This provides a stereo satellite output and is designed for the small 20 Ohm WHD ceiling loudspeakers. Two 20 Ohm loudspeakers or one 8 Ohm speaker can be connected to each satellite output. The mounting ring is secured using four clamps and the front ring is screwed in via a bayonet connection. The EGT 14/2 housing (with moveable flange) for concrete ceilings is available as an accessory.



Technical Datas	UP 14-SUB-8
Load Rating / Music Power	25/40 W
Impedance	8 Ohm
Transformer	
SPL 1W/1m	86 dB
SPL PNenn/1m	100 dB
SPL PNenn/1m/f	
Frequency Range (-3 dB)	50-200 Hz
Frequency Range (-10 dB)	40-300 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	
Component Set	1 x PM 166 DSS SUB
Material	Front and mounting ring: plastic, grille: metal
Cut Out	ø 180 mm
Depth	112 mm
Net Weight	1.4 kg
Colors	white (RAL 9016)
Accessories	EGT 14/2: pour-in pot, flush housing company Kaiser

UP 14 AB

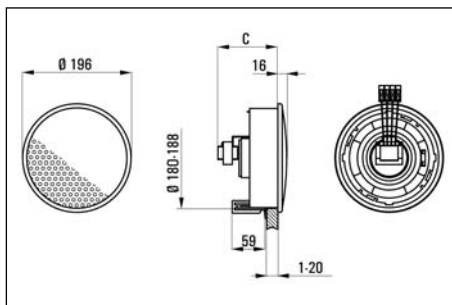
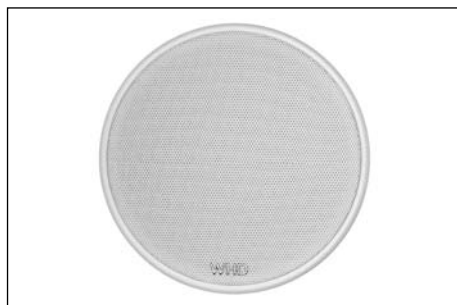
Compact-sized ceiling speaker with plastic frame for AB cabling. Suitable for use in small rooms. Can be used in combination with electrical-acoustic emergency warning systems where two-speaker installation is not possible. The UP 14 AB-T3 comes with a 135 mm two-voice-coil speaker with additional subcone and two 100V/3W transformers. This means it can be operated simultaneously using two cables on two different amplifiers. The signal can still be reproduced even if one of the amps fails or in the event of a defect cable – even if somewhat quieter. It is connected via a ceramic terminal and special stranded wires; the transformers are fitted with a thermofuse in accordance with British standards. The installation is achieved using a bayonet fitting. The housings for concrete ceilings EGT 14 and EGT 14/2 (with moveable flange) and surface-mounting housing AG 14 are available as accessories.



Technical Datas	UP14 AB-T3
Load Rating / Music Power	6 W
Impedance	
Transformer	3/1.5/0.75 W
SPL 1W/1m	90 dB
SPL PNenn/1m	98 dB
SPL PNenn/1m/f	98 dB/15 kHz
Frequency Range (-3 dB)	100-20000 Hz
Frequency Range (-10 dB)	60-23000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/90/40 °
Component Set	1 x PM 135 DSS
Material	Front and mounting ring: plastic, grille: metal
Cut Out	ø 180 mm
Depth	55 mm
Net Weight	1.4 kg
Colors	white (RAL 9016)
Accessories	EGT 14, EGT 14/2: pour-in pot, AG 14: surface housing, flush housing co. Kaiser

UP 14/2

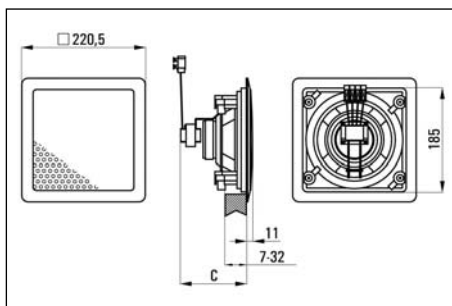
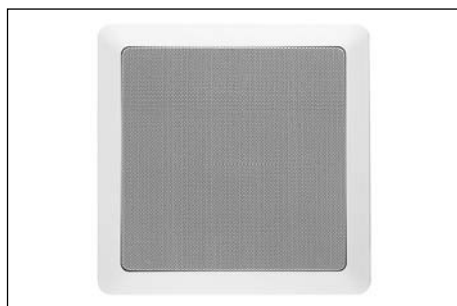
High-performance 2-way Hi-Fi ceiling speaker with plastic frame for high-end applications, ideal for the reproduction of music in homes, restaurants, boutiques/stores... The UP 14/2 comes with a 166 mm woofer chassis and coaxial tweeter arrangement. The unit stands out thanks to its thin front ring. The mounting ring is secured using four clamps and the front ring is screwed in via a bayonet connection. The EGT 14/2 housing (with moveable flange) for concrete ceilings is available as an accessory.



Technical Datas	UP 14/2-8	UP 14/2-T6	UP 14/2-T25
Load Rating / Music Power	40/50 W	6 W	25 W
Impedance	8 Ohm		
Transformer		6/3/1.5 W	25/12.5/6.25 W
SPL 1W/1m	89 dB	89 dB	89 dB
SPL PNenn/1m	105 dB	97 dB	103 dB
SPL PNenn/1m/f	116 dB/3 kHz	108 dB/3 kHz	114 dB/3 kHz
Frequency Range (-3 dB)	100-20000 Hz	100-20000 Hz	100-20000 Hz
Frequency Range (-10 dB)	50-22000 Hz	50-22000 Hz	50-22000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/50/40 °	180/-/50/40 °	180/-/50/40 °
Component Set	1 x PM 166 A/2	1 x PM 166 A/2	1 x PM 166 A/2
Material	Front and mounting ring: plastic, grille: metal	Front and mounting ring: plastic, grille: metal	Front and mounting ring: plastic, grille: metal
Cut Out	ø 180 mm	ø 180 mm	ø 180 mm
Depth	71 mm	110 mm	71 mm
Net Weight	1.2 kg	1.5 kg	2.4 kg
Colors	white (RAL 9016)	white (RAL 9016)	white (RAL 9016)
Accessories	EGT 14/2: pour-in pot, AG 14: surface housing, flush housing company Kaiser	EGT 14/2: pour-in pot, flush housing company Kaiser	EGT 14/2: pour-in pot, AG 14: surface housing, flush housing company Kaiser

UP 14/2 Q

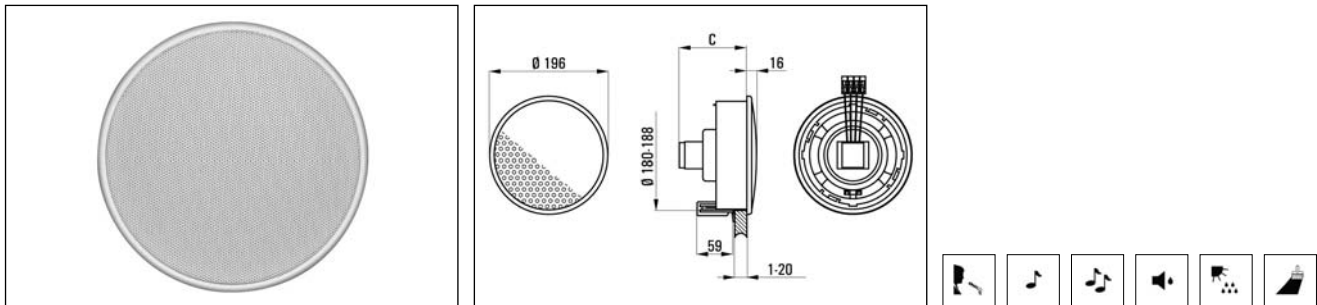
High-performance, square 2-way Hi-Fi ceiling speaker with plastic frame for high-end applications, ideal for the reproduction of music in homes, restaurants, boutiques/stores... Comes with a 166 mm woofer chassis and coaxial tweeter arrangement. Four retaining clamps are used for installation. To do so, the grille must first be dismounted and four screws tightened.



Technical Datas	UP 14/2 Q-8	UP 14/2 Q-T6	UP 14/2 Q-T25
Load Rating / Music Power	40/50 W	6 W	25 W
Impedance	8 Ohm		
Transformer	116 W	6/3/1.5 W	25/12.5/6.25 W
SPL 1W/1m	89 dB	89 dB	89 dB
SPL PNenn/1m	105 dB	97 dB	103 dB
SPL PNenn/1m/f	116 dB/3 kHz	108 dB/3 kHz	114 dB/3 kHz
Frequency Range (-3 dB)	100-20000 Hz	100-20000 Hz	100-20000 Hz
Frequency Range (-10 dB)	50-22000 Hz	50-22000 Hz	50-22000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/50/40 °	180/-/50/40 °	180/-/50/40 °
Component Set	1 x PM 166 A/2	1 x PM 166 A/2	1 x PM 166 A/2
Material	Frame: plastic, grille: alu	Frame: plastic, grille: alu	Frame: plastic, grille: alu
Cut Out	188 x 188 mm	188 x 188 mm	188 x 188 mm
Depth	77 mm	119 mm	77 mm
Net Weight	1.2 kg	1.5 kg	2.4 kg
Colors	white (RAL 9016)	white (RAL 9016)	white (RAL 9016)
Accessories	flush housing company Kaiser	flush housing company Kaiser	flush housing company Kaiser

UP 14/2 Marine

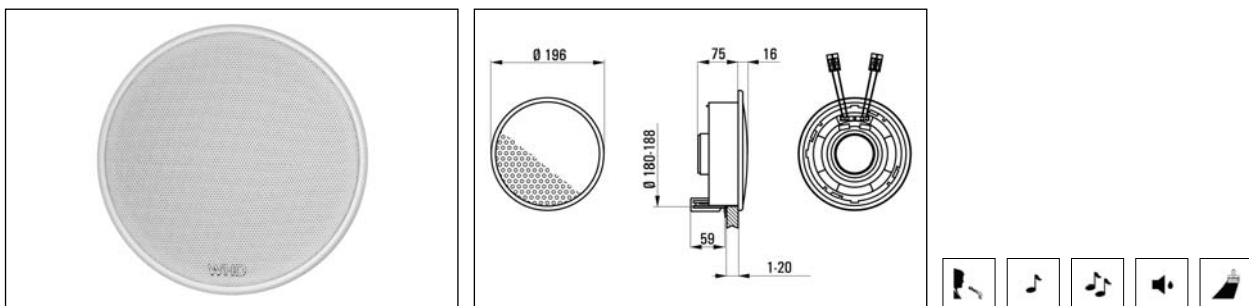
High-performance 2-way ceiling speaker for demanding conditions. Thus, suitable for use in damp rooms (e.g. public swimming baths, wellness centres) or outdoors (e.g. for shop window displays). Comes with a 166 mm woofer chassis and additional tweeter. The cone of the woofer is made of polypropylene and the transformers (version -T6, -T25) are cast. The perforated metal cover is made of high-grade steel. The UP 14/2 Marine can also be used at foot level in saunas (max. temperature 40°C). The mounting ring is secured using four clamps and the front ring is screwed in via a bayonet connection. The EGT 14/2 housing (with moveable flange) for concrete ceilings is available as an accessory.



Technical Datas	UP 14/2-4 Marine	UP 14/2-T6 Marine	UP 14/2-T25 Marine
Load Rating / Music Power	25/40 W	6 W	25 W
Impedance	4 Ohm		
Transformer		6/3/1.5 W	25/12.5/6.25 W
SPL 1W/1m	87 dB	87 dB	87 dB
SPL PNenn/1m	101 dB	95 dB	101 dB
SPL PNenn/1m/f	112 dB/4 kHz	106 dB/4 kHz	112 dB/4 kHz
Frequency Range (-3 dB)	100-21000 Hz	100-21000 Hz	100-21000 Hz
Frequency Range (-10 dB)	60-22000 Hz	60-22000 Hz	60-22000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/60/50 °	180/-/60/50 °	180/-/60/50 °
Component Set	1 x PM 166 A/2 Marine (Coax)	1 x PM 166 A/2 Marine (Coax)	1 x PM 166 A/2 Marine (Coax)
Material	Front, mounting ring and basket: plastic, grille: high-grade steel	Front, mounting ring and basket: plastic, grille: high-grade steel	Front, mounting ring and basket: plastic, grille: high-grade steel
Cut Out	ø 180 mm	ø 180 mm	ø 180 mm
Depth	73 mm	117 mm	76 mm
Net Weight	1.2 kg	1.5 kg	2.7 kg
Colors	white (RAL 9016)	white (RAL 9016)	white (RAL 9016)
Accessories	EGT 14/2: pour-in pot, flush housing company Kaiser	EGT 14/2: pour-in pot, flush housing company Kaiser	EGT 14/2: pour-in pot, flush housing company Kaiser

UP 14/2 stereo

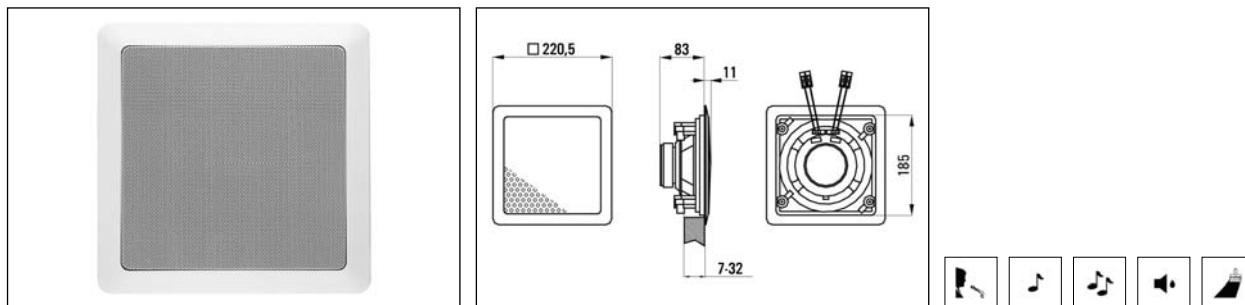
High-performance 2-way stereo ceiling speaker with plastic frame. Ideal for relatively small rooms such as bathrooms or entrance halls, where two normal stereo speakers could not be properly positioned in the classical way. The UP 14/2 Stereo comes with a 166 mm two-voice-coil woofer and two tweeters. The mounting ring is secured using four clamps and the front ring is screwed in via a bayonet connection. The EGT 14/2 housing (with moveable flange) for concrete ceilings is available as an accessory.



Technical Datas	UP 14/2-8 stereo
Load Rating / Music Power	25/40 W
Impedance	2 x 8 Ohm
Transformer	
SPL 1W/1m	86 dB
SPL PNenn/1m	100 dB
SPL PNenn/1m/f	106 dB/4 kHz
Frequency Range (-3 dB)	60-23000 Hz
Frequency Range (-10 dB)	40-26000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	170/-/60/120 °
Component Set	1 x PM 166 DSS-8 Stereo (Coax)
Material	Front and mounting ring: plastic, grille: metal
Cut Out	ø 180 mm
Depth	75 mm
Net Weight	1.2 kg
Colors	white (RAL 9016)
Accessories	EGT 14/2: pour-in pot, flush housing company Kaiser

UP 14/2 Q stereo

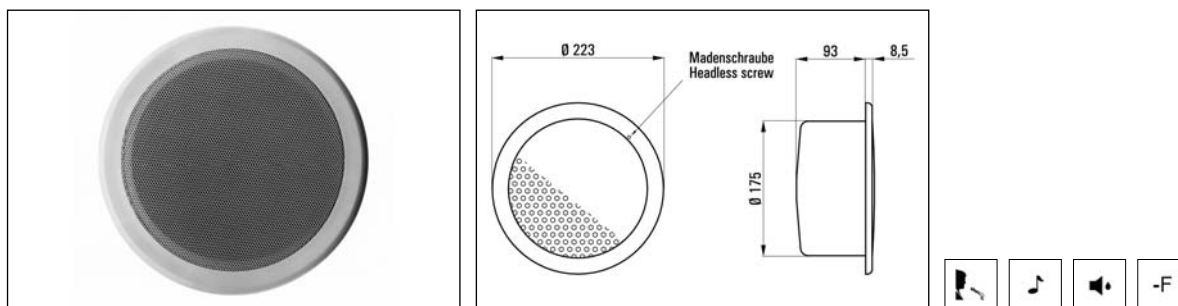
High-performance, square, 2-way stereo ceiling speaker with plastic frame. Ideal for relatively small rooms such as bathrooms or entrance halls, where two normal stereo speakers could not be properly positioned in the classical way. The UP 14/2-Q Stereo comes with a 166 mm two-voice-coil woofer and two tweeters. Both stereo channels come from a single speaker. Four retaining clamps are used for installation. To do so, the grille must first be dismantled and four screws tightened.



Technical Datas	UP 14/2 Q-8 stereo
Load Rating / Music Power	25/40 W
Impedance	2 x 8 Ohm
Transformer	
SPL 1W/1m	86 dB
SPL PNenn/1m	100 dB
SPL PNenn/1m/f	106 dB/4 kHz
Frequency Range (-3 dB)	60-23000 Hz
Frequency Range (-10 dB)	40-26000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	170/-/60/120 °
Component Set	1 x PM 166 DSS-8 Stereo (Coax)
Material	Frame: plastic, grille: alu
Cut Out	188 x 188 mm
Depth	83 mm
Net Weight	1.2 kg
Colors	white (RAL 9016)
Accessories	flush housing company Kaiser

UP 16 F

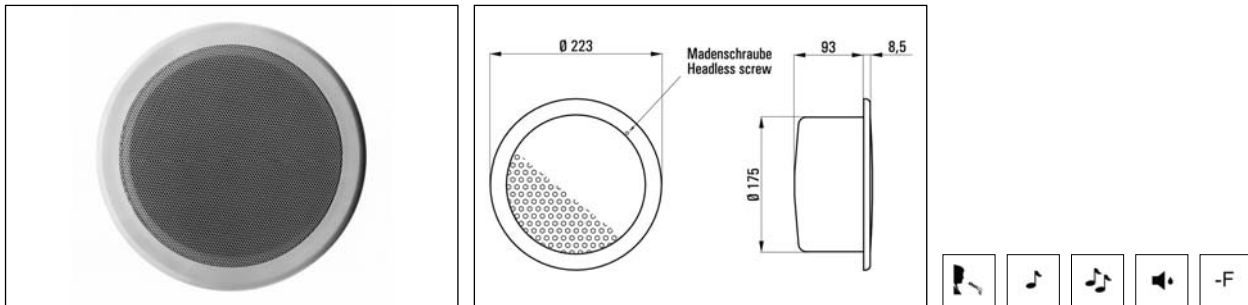
Ceiling speaker for enhanced safety applications, ideal for the reproduction of speech and background music in high-ceilinged rooms (3 - 5 m) and in buildings with increased safety requirements, such as shopping centres, exhibition- and conference centres, museums, etc ... The UP 16-F features a 135 mm full-range woofer chassis with additional subcone. The fire-retardant steel dome ST 16 is secured to the ceiling by four screws and the front ring made from fire-retardant (to UL 94 V-0) plastic is screwed in using a bayonet connection. A safety screw that prevents the loosening of the bayonet connection is an available option.



Technical Datas	UP 16 F-4	UP 16 F-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	90 dB	90 dB
SPL PNenn/1m	98 dB	98 dB
SPL PNenn/1m/f	108 dB/15 kHz	108 dB/15 kHz
Frequency Range (-3 dB)	100-20000 Hz	100-20000 Hz
Frequency Range (-10 dB)	60-23000 Hz	60-23000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/90/40 °	180/-/90/40 °
Component Set	1x PM 135-4	1x PM 135-4
Material	frontring: plastic (flame-retardant), grille: metal	frontring: plastic (flame-retardant), grille: metal
Cut Out	ø 176 mm	ø 176 mm
Depth	93 mm	93 mm
Net Weight	1.4 kg	1.7 kg
Colors	white (RAL 9016)	white (RAL 9016)
Accessories	incl. steel pot ST 16	incl. steel pot ST 16

UP 16/2 F

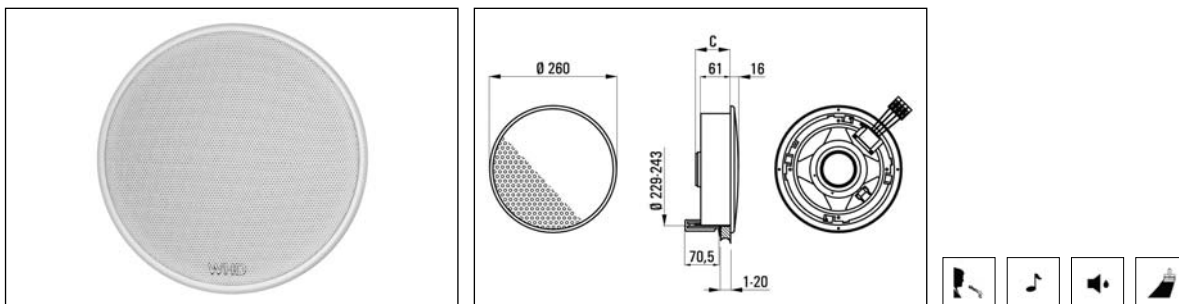
2-way ceiling speaker for heightened safety applications, ideal for the reproduction of speech and background music in high-ceilinged rooms (3 - 5 m) and in buildings with increased safety requirements, such as shopping centres, exhibition- and conference centres, museums, etc ... The UP 16/2 -F comes with a 166 mm woofer chassis and coaxial tweeter arrangement. The fire-retardant steel dome ST 16 is secured to the ceiling by four screws and the front ring made from fire-retardant (to UL 94 V-0) plastic is screwed in using a bayonet connection. A safety screw that prevents the loosening of the bayonet connection is an available option.



Technical Datas	UP 16/2 F-4	UP 16/2 F-T25
Load Rating / Music Power	40/50 W	25 W
Impedance	4 Ohm	
Transformer		25/12.5/6.25 W
SPL 1W/1m	89 dB	89 dB
SPL PNenn/1m	105 dB	103 dB
SPL PNenn/1m/f	116 dB/3 kHz	114 dB/3 kHz
Frequency Range (-3 dB)	60-20000 Hz	60-20000 Hz
Frequency Range (-10 dB)	45-20000 Hz	45-20000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180°/-50/40 °	180°/-50/40 °
Component Set	1x PM 166-A/2-4	1x PM 166-A/2-4
Material	frontring: plastic (flame-retardant), grille: metal	frontring: plastic (flame-retardant), grille: metal
Cut Out	ø 176 mm	ø 176 mm
Depth	93 mm	93 mm
Net Weight	1.4 kg	2.6 kg
Colors	white (RAL 9016)	white (RAL 9016)
Accessories	incl. steel pot ST 16	incl. steel pot ST 16

UP 22

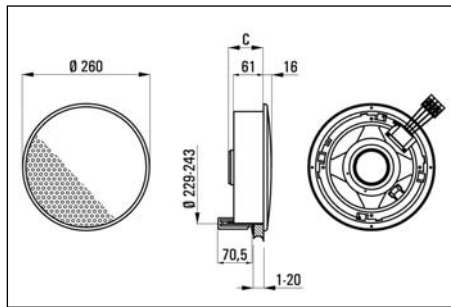
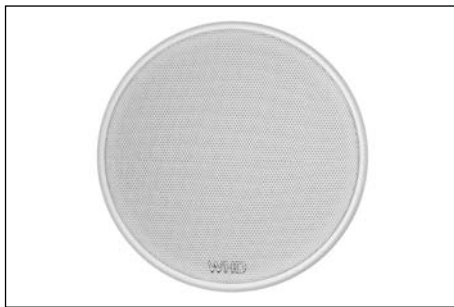
Large ceiling speaker with plastic frame, ideal for the reproduction of speech and background music in high-ceilinged rooms (max.4 - 6 m) e.g. in foyers, department stores or indoor shopping arcades. The UP 22 features a 210 mm full-range chassis with additional subcone. The unit stands out thanks to its extra-thin front ring. The mounting ring is secured by four clamps and the front ring is screwed in using a bayonet connection.



Technical Datas	UP 22-4, -20	UP 22-T6
Load Rating / Music Power	10/12 W	6 W
Impedance	4 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	91 dB	91 dB
SPL PNenn/1m	101 dB	99 dB
SPL PNenn/1m/f	112 dB/3 kHz	110 dB/3 kHz
Frequency Range (-3 dB)	50-18000 Hz	50-18000 Hz
Frequency Range (-10 dB)	40-20000 Hz	40-20000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180°/-60/50 °	180°/-60/50 °
Component Set	1x PM 210 BB-4	1x PM 210 BB-4
Material	front and mounting ring plastic, grille: metal	front and mounting ring plastic, grille: metal
Cut Out	ø 230 mm	ø 230 mm
Depth	72 mm	72 mm
Net Weight	1.3 kg	1.7 kg
Colors	white (RAL 9016)	white (RAL 9016)
Accessories	flush housing company Kaiser	flush housing company Kaiser

UP 23

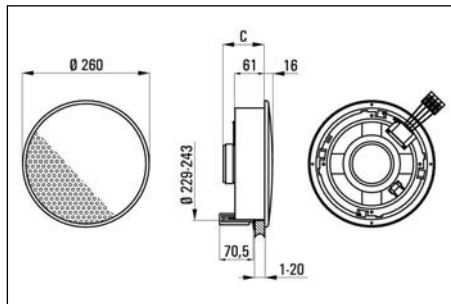
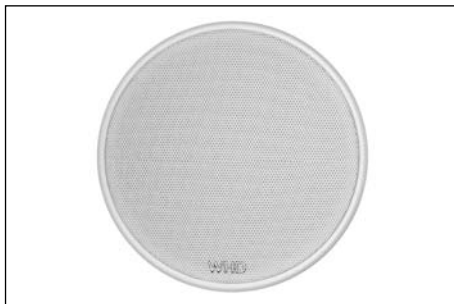
Large, shock-proof ceiling speaker with plastic frame, ideal for the reproduction of speech and background music in high-ceilinged rooms (max. 4 - 6 m) in public areas, such as schools and indoor gyms for example. The UP 23 features a 210 mm full-range chassis with additional subcone. The mounting ring is secured by four clamps and the front ring is screwed in using a bayonet connection, a safety screw prevents the loosening of the bayonet connection.



Technical Datas	UP 23-4	UP 23-T10
Load Rating / Music Power	10/12 W	10 W
Impedance	4 Ohm	
Transformer		10/5/2.5 W
SPL 1W/1m	91 dB	91 dB
SPL PNenn/1m	101 dB	101 dB
SPL PNenn/1m/f	112 dB/3 kHz	112 dB/3 kHz
Frequency Range (-3 dB)	50-18000 Hz	50-18000 Hz
Frequency Range (-10 dB)	40-20000 Hz	40-20000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/60/50 °	180/-/60/50 °
Component Set	1x PM 210 BB-4	1x PM 210 BB-4
Material	front and mounting ring plastic, grille: solid perf. sheet steel cover	front and mounting ring plastic, grille: solid perf. sheet steel cover
Cut Out	ø 230 mm	ø 230 mm
Depth	72 mm	72 mm
Net Weight	1.5 kg	1.9 kg
Colors	white (RAL 9016)	white (RAL 9016)
Accessories	flush housing company Kaiser	flush housing company Kaiser

UP 26

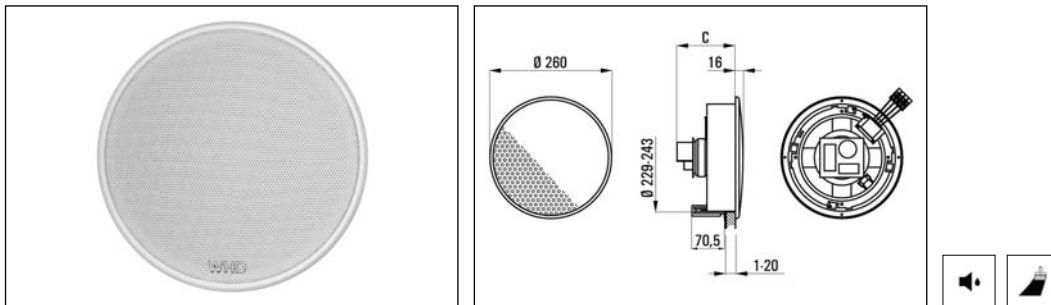
Large 2-way Hi-Fi ceiling speaker with plastic frame for enhanced performance, ideal for the reproduction of music in high-ceiling rooms (4 - 6 m) where demands on sound quality are high, e.g. in the home, in restaurants, boutiques/stores... The UP 26 comes with a 205 mm woofer and coaxial tweeter arrangement. The unit stands out thanks to its extra-thin front ring. The mounting ring is secured by four clamps and the front ring is screwed in using a bayonet connection.



Technical Datas	UP 26-8	UP 26-T6	UP 26-T25
Load Rating / Music Power	40/50 W	6 W	25 W
Impedance	8 Ohm		
Transformer		6/3/1.5 W	25/12.5/6.25 W
SPL 1W/1m	91 dB	91 dB	91 dB
SPL PNenn/1m	107 dB	99 dB	105 dB
SPL PNenn/1m/f	113 dB/3 kHz	105 dB/3 kHz	111 dB/3 kHz
Frequency Range (-3 dB)	50-18000 Hz	50-18000 Hz	50-18000 Hz
Frequency Range (-10 dB)	35-22000 Hz	35-22000 Hz	35-22000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/90/80 °	180/-/90/80 °	180/-/90/80 °
Component Set	1x CX-850 (Coax)	1x CX-850 (Coax)	1x CX-850 (Coax)
Material	front and mounting ring: plastic, grille: metal	front and mounting ring: plastic, grille: metal	front and mounting ring: plastic, grille: metal
Cut Out	ø 230 mm	ø 230 mm	ø 230 mm
Depth	85 mm	85 mm	85 mm
Net Weight	1.6 kg	2 kg	2.1 kg
Colors	white (RAL 9016)	white (RAL 9016)	white (RAL 9016)
Accessories	flush housing company Kaiser	flush housing company Kaiser	flush housing company Kaiser

UP 26 SUB

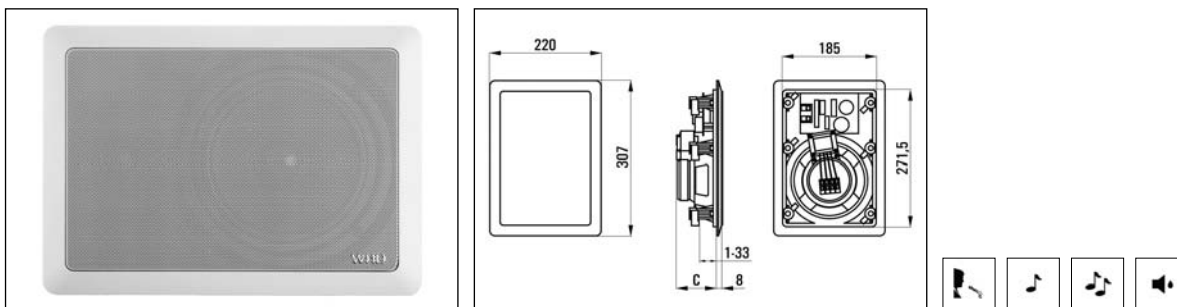
Big and powerful subwoofer with plastic frame for recessed ceiling installation, ideal for supplementing small ceiling speakers, e.g. in the home, in restaurants, boutiques,... The UP 26 SUB comes with a 205 mm woofer and a high-quality crossover. This provides a low-impedance satellite output and is designed for the small 20-Ohm, WHD ceiling loudspeakers. Two 20 Ohm loudspeakers or one 8 Ohm speaker can be connected. The mounting ring is secured by four clamps and the front ring is screwed in using a bayonet connection.



Technical Datas	UP 26 SUB-8	UP 26 SUB-T25
Load Rating / Music Power	25/35 W	25 W
Impedance	8 Ohm	
Transformer		25/12.5/6.25 W
SPL 1W/1m	91 dB	91 dB
SPL PNenn/1m	105 dB	105 dB
SPL PNenn/1m/f		
Frequency Range (-3 dB)	45-150 Hz	45-150 Hz
Frequency Range (-10 dB)	30-300 Hz	30-300 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)		
Component Set	1x B 205	1x B 205
Material	front and mounting ring: plastic, grille: metal	front and mounting ring: plastic, grille: metal
Cut Out	ø 230 mm	ø 230 mm
Depth	125 mm	125 mm
Net Weight	1.5 kg	2.9 kg
Colors	white (RAL 9016)	white (RAL 9016)
Accessories	flush housing company Kaiser	flush housing company Kaiser

UP 40

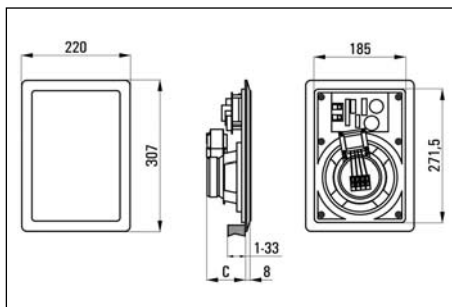
Powerful 2-way Hi-Fi ceiling speaker, made of plastic, ideal for applications where sound quality demands are higher, e.g. in the home, in boutiques/stores,... The UP 40 features a 175 mm woofer and a 26 mm dome tweeter. Four retaining clamps are used for installation. To install, the grille must first be dismounted and six screws tightened.



Technical Datas	UP 40-8	UP 40-T6	UP 40-T25
Load Rating / Music Power	40/60 W	6 W	25 W
Impedance	8 Ohm		
Transformer		6/3/1.5 W	25/12.5/6.25 W
SPL 1W/1m	86 dB	86 dB	86 dB
SPL PNenn/1m	102 dB	94 dB	100 dB
SPL PNenn/1m/f	107 dB/8 kHz	99 dB/8 kHz	105 dB/8 kHz
Frequency Range (-3 dB)	80-18000 Hz	80-18000 Hz	80-18000 Hz
Frequency Range (-10 dB)	40-21000 Hz	40-21000 Hz	40-21000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/160/110 °	180/-/160/110 °	180/-/160/110 °
Component Set	1 x B 175/25 PP, 1 x CAL 26/8	1 x B 175/25 PP, 1 x CAL 26/8	1 x B 175/25 PP, 1 x CAL 26/8
Material	Frame: plastic, grille: alu	Frame: plastic, grille: alu	Frame: plastic, grille: alu
Cut Out	273 x 186 mm	273 x 186 mm	273 x 186 mm
Depth	79 mm	83 mm	85 mm
Net Weight	2 kg	2.3 kg	3.4 kg
Colors	white (RAL 9016)	white (RAL 9016)	white (RAL 9016)
Accessories	flush housing company Kaiser	flush housing company Kaiser	flush housing company Kaiser

UP 40 EGT

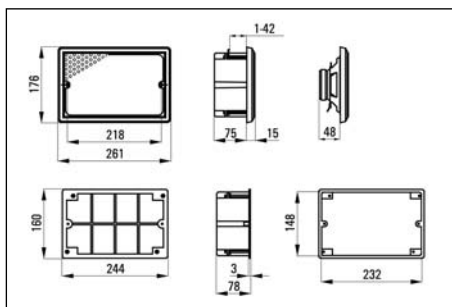
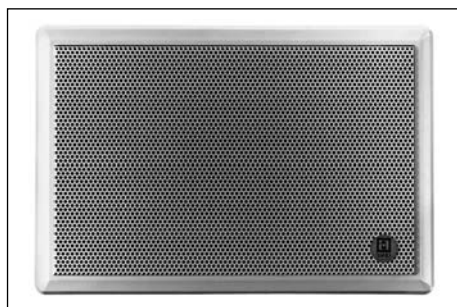
Powerful 2-way Hi-Fi ceiling speaker, made of plastic, ideal for applications where sound quality demands are higher, e.g. in the home, in boutiques/stores,... The UP 40 features a 175 mm woofer and a 26 mm dome tweeter. Screwed on the frame included with the speaker. To do so, the grille must first be dis-mounted. The EGT 40 housing for concrete ceilings is an available option.



Technical Datas	UP 40-8 EGT	UP 40-T6 EGT	UP 40-T25 EGT
Load Rating / Music Power	40/60 W	6 W	25 W
Impedance	8 Ohm		
Transformer		6/3/1.5 W	25/12.5/6.25 W
SPL 1W/1m	86 dB	86 dB	86 dB
SPL PNenn/1m	102 dB	94 dB	100 dB
SPL PNenn/1m/f	107 dB/8 kHz	99 dB/8 kHz	105 dB/8 kHz
Frequency Range (-3 dB)	80-18000 Hz	80-18000 Hz	80-18000 Hz
Frequency Range (-10 dB)	40-21000 Hz	40-21000 Hz	40-21000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/160/110 °	180/-/160/110 °	180/-/160/110 °
Component Set	1 x B 175/25 PP, 1 x CAL 26/8	1 x B 175/25 PP, 1 x CAL 26/8	1 x B 175/25 PP, 1 x CAL 26/8
Material	Frame: plastic, grille: alu	Frame: plastic, grille: alu	Frame: plastic, grille: alu
Cut Out	273 x 186 mm	273 x 186 mm	273 x 186 mm
Depth	79 mm	83 mm	85 mm
Net Weight	2 kg	2.3 kg	3.4 kg
Colors	white (RAL 9016)	white (RAL 9016)	white (RAL 9016)
Accessories	EGT 40: pour-in pot	EGT 40: pour-in pot	EGT 40: pour-in pot

UP 135

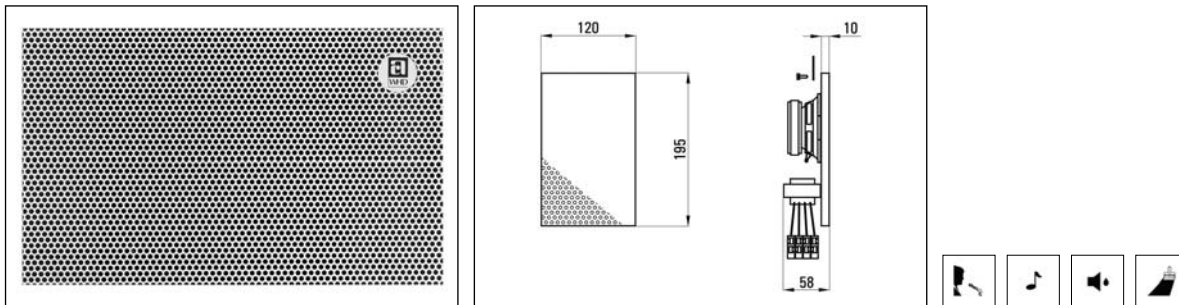
Recessed speaker for cavity mounting or for setting in concrete, ideal for the reproduction of speech and background music in stairwells, warehouses,... The UP 135 features a 135 mm full-range chassis with additional subcone. As an option a volume controller and/or programme selector switch, with a 24 V mandatory relay can also be integrated. The cavity housing, delivered as standard, which can also be set in concrete, is fixed in place using four retaining clamps and the baffle is fixed to it using two screws. The perforated metal cover must first be removed to do this.



Technical Datas	UP 135-4	UP 135-T6
Load Rating / Music Power	6/8 W	
Impedance	4 Ohm	
Transformer		6/3 W
SPL 1W/1m	91 dB	91 dB
SPL PNenn/1m	99 dB	
SPL PNenn/1m/f	106 dB/3 kHz	106 dB/3 kHz
Frequency Range (-3 dB)	100-21000 Hz	100-21000 Hz
Frequency Range (-10 dB)	65-23000 Hz	65-23000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/60/40 °	180/-/60/40 °
Component Set	1x PM 135-4	1x PM 135-4
Material	acoustic wall and cavity box: plastic, grille: metal	acoustic wall and cavity box: plastic, grille: metal
Cut Out	233 x 149 mm	233 x 149 mm
Depth	75 mm	75 mm
Net Weight	1.3 kg	1.6 kg
Colors	white (RAL 9016)	white (RAL 9016)
Accessories	flush housing company Kaiser	

PL 120

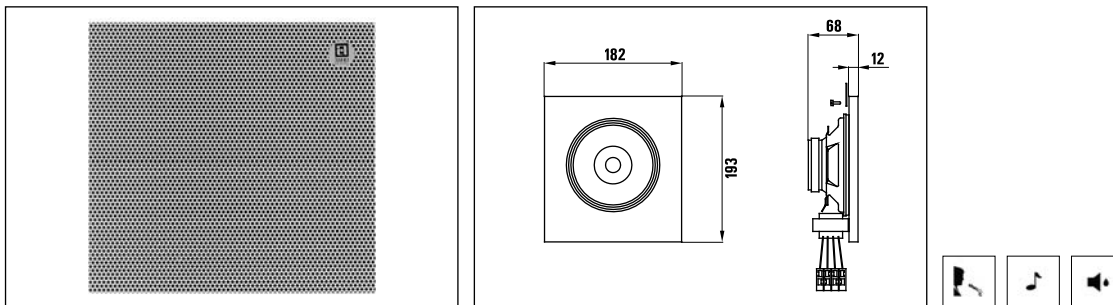
Speaker for panel-style ceilings, ideal for speech and background music reproduction in low-ceilinged rooms (2.4...4 m) with panel ceilings, e.g. in toilets, motorway service stations. The PL 120 features a 87 mm full-range chassis with additional subcone. A large area can be evenly radiated with just a few of these boxes thanks to its wide radiation characteristics. Includes two metal straps. These are screwed onto the baffle allowing the speaker to be suspended from a cut-out in the panelled ceiling.



Technical Datas	PL 120-T6
Load Rating / Music Power	6 W
Impedance	
Transformer	6/3/1.5 W
SPL 1W/1m	87 dB
SPL PNenn/1m	95 dB
SPL PNenn/1m/f	102 dB/4 kHz
Frequency Range (-3 dB)	170-22000 Hz
Frequency Range (-10 dB)	100-24000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/130/80 °
Component Set	1 x PM 87 BB-4
Material	Acoustic wall: wood, grille: metal
Cut Out	
Depth	58 mm
Net Weight	1.1 kg
Colors	white (RAL 9010)
Accessories	

SW 135

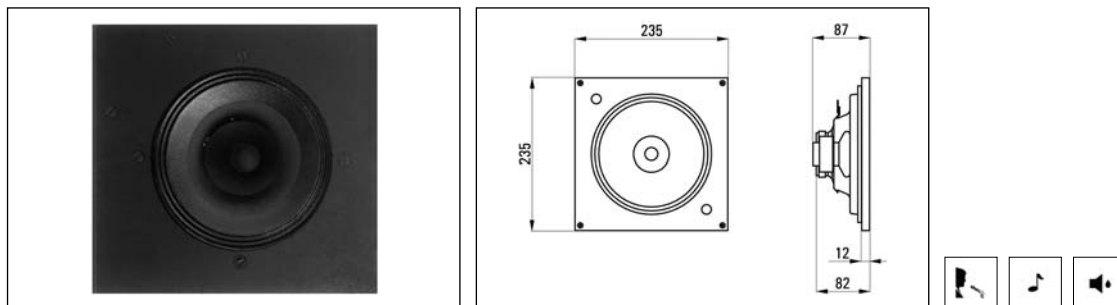
Powerful wall-mounted baffle speaker, ideal for the reproduction of speech and background music in high-ceilinged rooms (3-5 m), e.g. home furnishing stores, motorway service stations, etc... The SW 135 features a 135 mm full-range chassis with additional subcone. It can be laid onto a perforated plate cover or suspended from the ceiling using a suitable structure. The perforated metal cover LB 135 is also available as an accessory.



Technical Datas	SW 135-T6
Load Rating / Music Power	6 W
Impedance	
Transformer	6/3/1.5 W
SPL 1W/1m	90 dB
SPL PNenn/1m	98 dB
SPL PNenn/1m/f	108 dB/15 kHz
Frequency Range (-3 dB)	100-20000 Hz
Frequency Range (-10 dB)	60-23000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/60/40 °
Component Set	1 x PM 135-4
Material	Acoustic wall: wood
Cut Out	
Depth	68 mm
Net Weight	1 kg
Colors	black
Accessories	LB 135: perforated metal cover

SW 2023

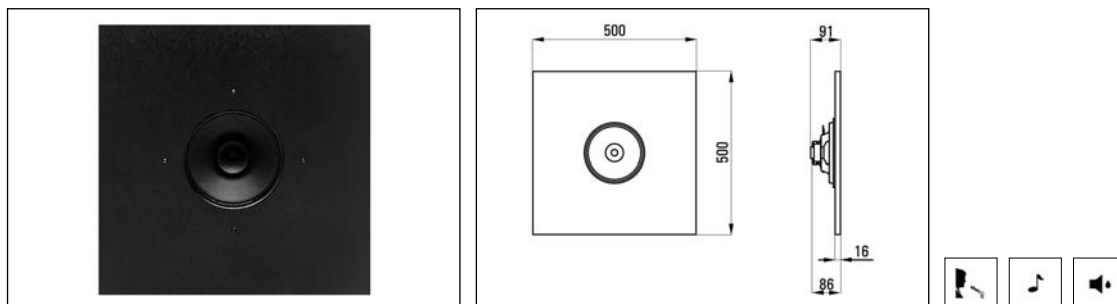
Big and powerful wall-mounted baffle speaker, ideal for the reproduction of speech and background music in high-ceilinged rooms (4-6 m), e.g. home furnishing stores, motorway service stations, etc... The SW 2023 features a 210 mm full-range chassis with additional subcone. The size of the baffle helps suppress acoustic short circuits, even at lower frequencies. The baffle can be laid on a perforated plate cover or suspended from a ceiling using a suitable structure, or built into a cavity. The wooden housing SW2 and perforated metal cover SW3 are available as accessories.



Technical Datas	SW 2023-T6
Load Rating / Music Power	6 W
Impedance	
Transformer	6/3/1.5 W
SPL 1W/1m	91 dB
SPL PNenn/1m	99 dB
SPL PNenn/1m/f	110 dB/3 kHz
Frequency Range (-3 dB)	50-18000 Hz
Frequency Range (-10 dB)	40-20000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/80/40 °
Component Set	1 x PM 210 BB-4
Material	Acoustic wall: wood
Cut Out	
Depth	82 mm
Net Weight	1.3 kg
Colors	black
Accessories	SW 2: wooden housing, SW 3: perforated metal cover

SW 2050

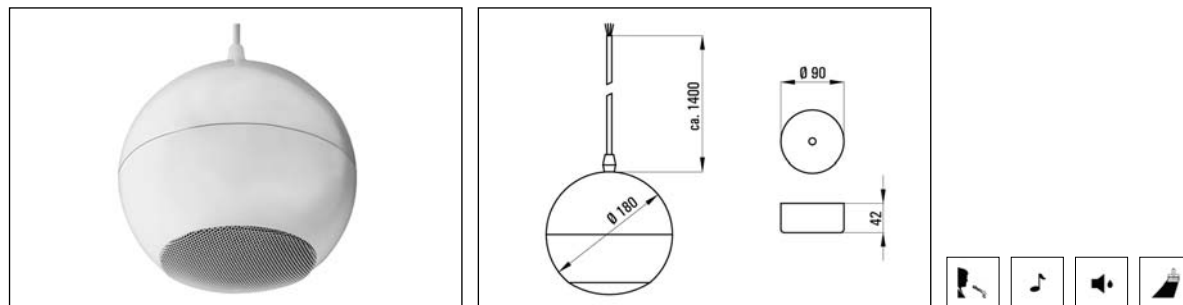
Huge and powerful wall-mounted baffle speaker, ideal for the reproduction of speech and background music in high-ceilinged rooms (4-6 m), e.g. in home furnishing stores, motorway service stations, etc... The SW 2050 features a 210 mm full-range chassis with additional subcone. The size of the baffle helps suppress acoustic short circuits, even at low frequencies. The baffle can be laid on a perforated plate cover or suspended from a ceiling using a suitable structure, or built into a cavity. The wooden housing SW2 is also available as an accessory.



Technical Datas	SW 2050-T6
Load Rating / Music Power	6 W
Impedance	
Transformer	6/3/1.5 W
SPL 1W/1m	91 dB
SPL PNenn/1m	99 dB
SPL PNenn/1m/f	110 dB/3 kHz
Frequency Range (-3 dB)	50-18000 Hz
Frequency Range (-10 dB)	40-20000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/80/40 °
Component Set	1x PM 210 BB-4
Material	acoustic wall: wood
Cut Out	
Depth	86 mm
Net Weight	3.1 kg
Colors	black
Accessories	SW 2: wooden housing

KL 1400 D

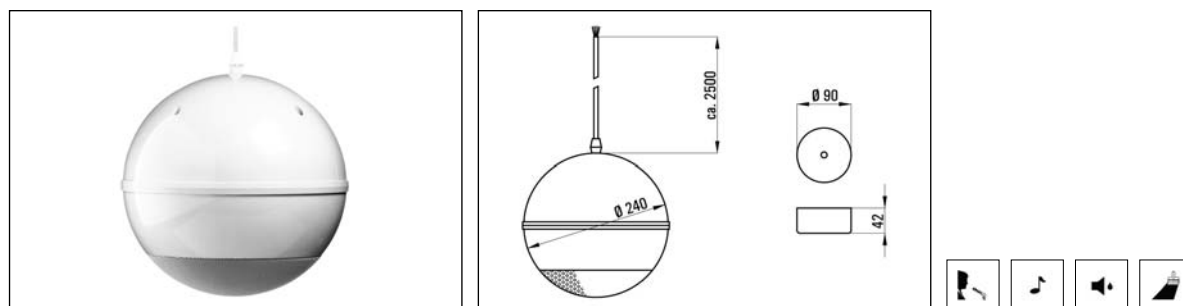
Compact spherical speaker, ideal for speech and background music reproduction, e.g. in bars, department stores, motorway service stations, etc... (assembly height 2.4 - 4 m). The KL 1400 D features an 87 mm full-range chassis with subcone. A large area can be evenly radiated with just a few of these boxes thanks to its wide radiation characteristics. It is suspended from the ceiling via a draw release fixed to the cable. A canopy conceals the suspension point and ensures a harmonious appearance.



Technical Datas	KL 1400 D-4, -20	KL 1400 D-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4, 20 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	87 dB	87 dB
SPL PNenn/1m	95 dB	95 dB
SPL PNenn/1m/f	103 dB/3 kHz	103 dB/3 kHz
Frequency Range (-3 dB)	170-22000 Hz	170-22000 Hz
Frequency Range (-10 dB)	150-24000 Hz	150-24000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	200/-/80/60 °	200/-/80/60 °
Component Set	1 x PM 87 BB	1 x PM 87 BB
Material	Housing: plastic, grille: metal	Housing: plastic, grille: metal
Net Weight	1 kg	1.2 kg
Colors	white (RAL 9016)	white (RAL 9016)
Accessories	incl. strain relief and cover	incl. strain relief and cover

KL 1603

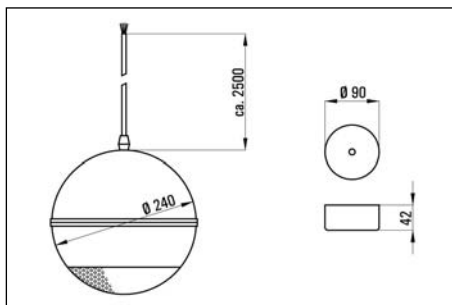
Standard, powerful spherical speaker, ideal for the reproduction of speech and background music in DIY centres, indoor markets, .. (mounting height 3 - 5 m). Comes with a 166 mm full-range chassis. The KL 1603 is suspended from the ceiling via a draw release attached to the cable. A canopy conceals the suspension point and ensures a harmonious appearance.



Technical Datas	KL 1603-4	KL 1603-T12
Load Rating / Music Power	12/15 W	12 W
Impedance	4 Ohm	
Transformer		12/6/3/1.5 W
SPL 1W/1m	91 dB	91 dB
SPL PNenn/1m	102 dB	102 dB
SPL PNenn/1m/f	108 dB/4 kHz	108 dB/4 kHz
Frequency Range (-3 dB)	100-12000 Hz	100-12000 Hz
Frequency Range (-10 dB)	50-18000 Hz	50-18000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	200/-/60/40 °	200/-/60/40 °
Component Set	1x PM 166 KL	1x PM 166 KL
Material	housing: plastic, grille: metal	housing: plastic, grille: metal
Net Weight	1.7 kg	2.2 kg
Colors	white (RAL 9016)	white (RAL 9016)
Accessories	incl. strain relief and cover	incl. strain relief and cover

KL 1603/2

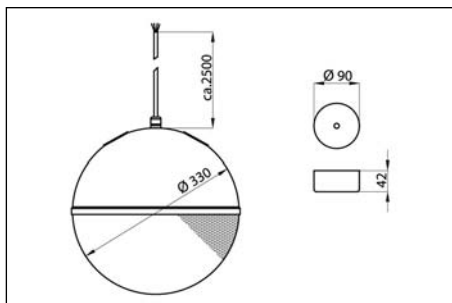
2-way high-end Hi-Fi spherical speaker, ideal for the reproduction of background music, such as in motorway service stations, foyers, ... (mounting height 3 - 5 m). The KL 1603/2 comes with a 166 mm woofer chassis and coaxial tweeter arrangement. It is suspended from the ceiling via a draw release fixed to the cable. A canopy conceals the suspension point and ensures a harmonious appearance. The special edition KL 1603/2 in chrome is the eye-catching element in buildings with modern architecture.



Technical Datas	KL 1603/2-4	KL 1603/2-T12	KL 1603/2-T25
Load Rating / Music Power	40/50 W	12 W	25 W
Impedance	4 Ohm		
Transformer		12/6/3/1.5 W	25/12.5/6.25 W
SPL 1W/1m	89 dB	89 dB	89 dB
SPL PNenn/1m	105 dB	100 dB	103 dB
SPL PNenn/1m/f	114 dB/4 kHz	109 dB/4 kHz	112 dB/4 kHz
Frequency Range (-3 dB)	100-20000 Hz	100-20000 Hz	100-20000 Hz
Frequency Range (-10 dB)	50-22000 Hz	50-22000 Hz	50-22000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/50/40 °	180/-/50/40 °	180/-/50/40 °
Component Set	1 x PM 166-A/2 (Coax)	1 x PM 166-A/2 (Coax)	1 x PM 166-A/2 (Coax)
Material	Housing: plastic, grille: metal	Housing: plastic, grille: metal	Housing: plastic, grille: metal
Net Weight	1.9 kg	2.4 kg	2.5 kg
Colors	white (RAL 9016), chrome	white (RAL 9016), chrome	white (RAL 9016), chrome
Accessories	incl. strain relief and cover	incl. strain relief and cover	incl. strain relief and cover

KL 1900

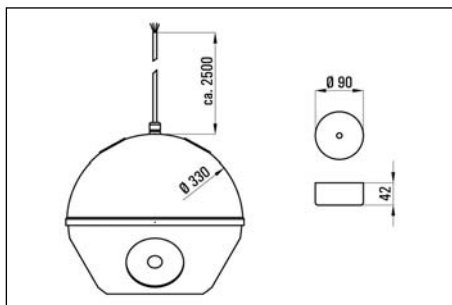
2-way high-end Hi-Fi spherical speaker, ideal for the reproduction of music, such as in hotel lobbies, ... (mounting height 3 - 5 m). It comes with a 170 mm woofer and 4 dome tweeters. The result are wide radiation characteristics. The bass reflex technology provides an enhanced low-frequency reproduction. It is suspended from the ceiling via a draw release fixed to the cable. A canopy conceals the suspension point and ensures a harmonious appearance.



Technical Datas	KL 1900-4	KL 1900-T12	KL 1900-T25
Load Rating / Music Power	50/70 W	12 W	25 W
Impedance	4 Ohm		
Transformer		12/6/3/1.5 W	25/12.5/6.25 W
SPL 1W/1m	88 dB	88 dB	88 dB
SPL PNenn/1m	105 dB	99 dB	102 dB
SPL PNenn/1m/f	113 dB/0,125 kHz	107 dB/0,125 kHz	102 dB/0,125 kHz
Frequency Range (-3 dB)	63-16000 Hz	63-16000 Hz	63-16000 Hz
Frequency Range (-10 dB)	50-16000 Hz	50-16000 Hz	50-16000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	200/-/140/200 °	200/-/140/200 °	200/-/140/200 °
Component Set	1 x B 175-4, 4 x PM 166-16	1 x B 175-4, 4 x PM 166-16	1 x B 175-4, 4 x PM 166-16
Material	Housing: plastic, grille: metal	Housing: plastic, grille: metal	Housing: plastic, grille: metal
Net Weight	4.5 kg	5 kg	5.3 kg
Colors	white (RAL 9016)	white (RAL 9016)	white (RAL 9016)
Accessories	incl. strain relief and cover	incl. strain relief and cover	incl. strain relief and cover

KL 1900 WG

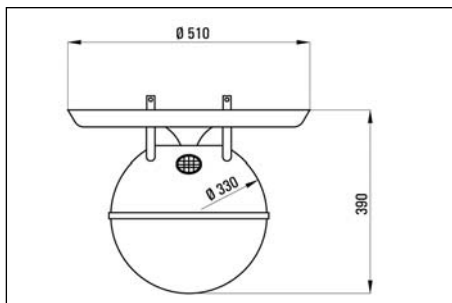
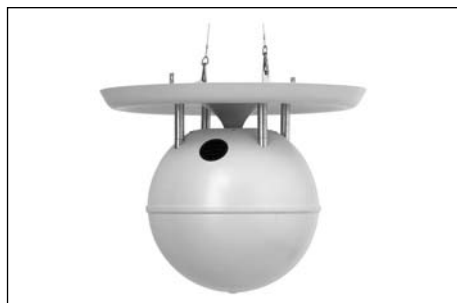
2-way high-end Hi-Fi spherical speaker with metallic silver finish and visible speakers, thus making it ideal for the reproduction of music in buildings with modern architecture, such as in hotel lobbies for example... (mounting height 3 - 5 m). The KL 1900 WG comes with a 170 mm woofer and 4 dome tweeters. The result are wide radiation characteristics. The bass reflex technology provides an enhanced low-frequency reproduction. It is suspended from the ceiling via a draw release fixed to the cable. A canopy conceals the suspension point and ensures a harmonious appearance.



Technical Datas	KL 1900 WG-4	KL 1900 WG-T12	KL 1900 WG-4
Load Rating / Music Power	50/70 W	12 W	25 W
Impedance	4 Ohm		
Transformer		12/6/3/1.5 W	25/12.5/6.25 W
SPL 1W/1m	88 dB	88 dB	88 dB
SPL PNenn/1m	105 dB	99 dB	102 dB
SPL PNenn/1m/f	113 dB/0,125 kHz	107 dB/0,125 kHz	110 dB/0,125 kHz
Frequency Range (-3 dB)	63-16000 Hz	63-16000 Hz	63-16000 Hz
Frequency Range (-10 dB)	50-16000 Hz	50-16000 Hz	50-16000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	200/-/140/200 °	200/-/140/200 °	200/-/140/200 °
Component Set	1 x B175-4, 4 x PM 66-16	1 x B175-4, 4 x PM 66-16	1 x B175-4, 4 x PM 66-16
Material	Spherical: plastic	Spherical: plastic	Spherical: plastic
Net Weight	4.3 kg	4.8 kg	5.2 kg
Colors	silver (RAL 9006)	silver (RAL 9006)	silver (RAL 9006)
Accessories	incl. strain relief and cover	incl. strain relief and cover	incl. strain relief and cover

R 1900

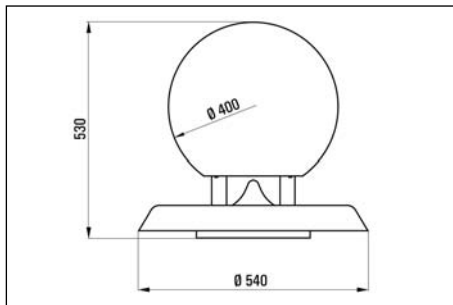
Omnidirectional speaker with wide radiation characteristics, ideal for the reproduction of speech and background music in warehouses, DIY centres. (mounting height 4 - 6 m). The R 1900 comes with a powerful 175 mm full-range chassis. The bass reflex technology provides an enhanced low-frequency reproduction. It is suspended from the ceiling by four wire cables.



Technical Datas	R 1900-T35
Load Rating / Music Power	35 W
Impedance	
Transformer	35/20/10 W
SPL 1W/1m	93 dB
SPL PNenn/1m	108 dB
SPL PNenn/1m/f	114 dB/0,6 kHz
Frequency Range (-3 dB)	100-10000 Hz
Frequency Range (-10 dB)	50-12000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	60/-/130/360 °
Component Set	1 x BMT 175-8
Material	housing, reflector: plastic
Net Weight	7.3 kg
Colors	white (RAL 9016)
Accessories	incl. 4 wire cables

R 1900 WPL

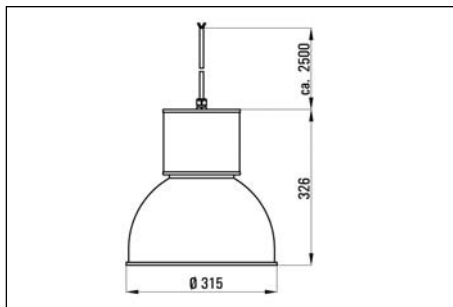
2-way omnidirectional speaker with light, ideal for the reproduction of music indoors and out, e.g. in amusement parks, in gardens or terraces in hotels or for domestic use, outdoor swimming pools, pub gardens,... The R 1900 WPL is fitted with a 166 mm woofer and coaxial tweeter arrangement. The two integral lights (230 V) ensures the ball is evenly illuminated. The speaker is mounted on a plate screwed onto the surface which provides anti-theft protection.



Technical Datas	R 1900 WPL-4	R 1900 WPL-T25
Load Rating / Music Power	25/40 W	25 W
Impedance	4 Ohm	
Transformer		25/12.5/6.25 W
SPL 1W/1m	87 dB	87 dB
SPL PNenn/1m	101 dB	101 dB
SPL PNenn/1m/f	112 dB/0,6 kHz	112 dB/0,6 kHz
Frequency Range (-3 dB)	80-20000 Hz	80-20000 Hz
Frequency Range (-10 dB)	60-22000 Hz	60-22000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	60/-/190/360 °	60/-/190/360 °
Component Set	1 x PM 166 A/2 Marine (Coax), illuminants: 2 x E 27/11 W (230 V)	1 x PM 166 A/2 Marine (Coax), illuminants: 2 x E 27/11 W (230 V)
Material	Spherical: Polyethylene, stand: PVC, mounting plate: metal zinc plated	Spherical: Polyethylene, stand: PVC, mounting plate: metal zinc plated
Net Weight	4,5 kg	5.3 kg
Colors	spherical white-transparent, stand granite-grey	spherical white-transparent, stand granite-grey
Accessories	incl. lamp	incl. lamp

RLS 166/2

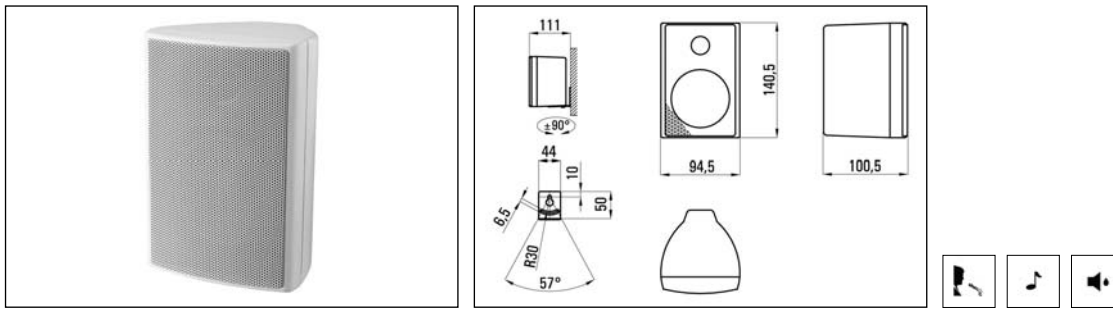
2-way pendulum speaker with the same design as standard commercially available reflector lights, suitable for the reproduction of speech and background music in important rooms frequented by the public, e.g. in hotel lobbies, car showrooms, museums, ... (mounting height 3 - 5 m). The RLS 166/2 comes with a 166 mm woofer chassis and coaxial tweeter arrangement. It is suspended from the ceiling via a draw release fixed to the cable. The included canopy conceals the suspension point.



Technical Datas	RLS 166/2-T12
Load Rating / Music Power	12 W
Impedance	
Transformer	12/6/3/1.5 W
SPL 1W/1m	89 dB
SPL PNenn/1m	100 dB
SPL PNenn/1m/f	109 dB/4 kHz
Frequency Range (-3 dB)	100-20000 Hz
Frequency Range (-10 dB)	50-22000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	120/-/60/50 °
Component Set	1x PM 166 A/2-4 Coax
Material	housing: plastic, grille: metal
Net Weight	4.1 kg
Colors	silver (RAL 9006) - transparent
Accessories	incl. strain relief and cover

Micro 2

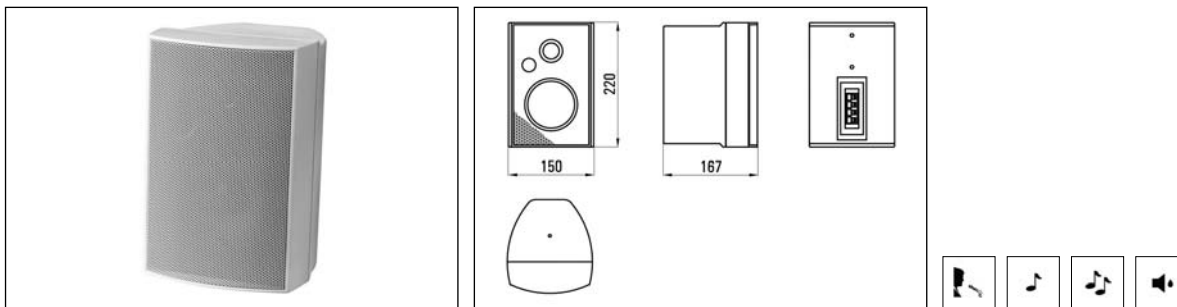
Tiny 2-way Hi-Fi box, ideal for speech and background music wherever space is limited which still require a neutral sound reproduction, e.g. in museums, in the home, in restaurants, ... The speaker comes with a 70 mm mid range-bass speaker and a 13 mm dome tweeter. To supplement the bass range we recommend the subwoofer SUB 200. Assembly is achieved using the wall bracket included with delivery.



Technical Datas	Micro 2-T6
Load Rating / Music Power	10/15 W
Impedance	8 Ohm
Transformer	6/3/1.5 W
SPL 1W/1m	86 dB
SPL PNenn/1m	94 dB
SPL PNenn/1m/f	96 dB/2 kHz
Frequency Range (-3 dB)	150-20000 Hz
Frequency Range (-10 dB)	120-22000 Hz
Transmission Angle, horizontale	360/-/360/160 °
1/2/4/8 kHz (-6 dB)	
Transmission Angle, verticale	360/-/360/160 °
1/2/4/8 kHz (-6 dB)	
Component Set	1 x B 70-8, 1 x CAL 13
Material	Housing: plastic, grille: metal
Net Weight	0.8 kg
Colors	white (RAL 9003), black (RAL 9004), silver (RAL 9006)
Accessories	incl. wall mounting

Mini 4

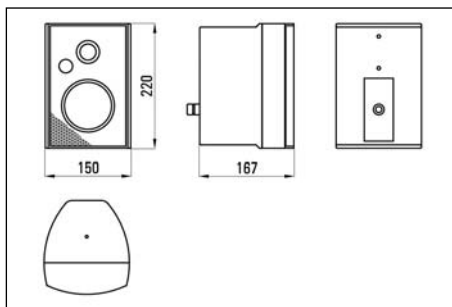
Compact 2-way Hi-Fi box with bass reflex channel, ideal for music reproduction in the home, in restaurants, shops, ... The Mini 4 comes with a 100 mm mid range-bass speaker and a 10 mm dome tweeter. We recommend the subwoofer SUB 200 for supplementing the bass range. The U-type bracket WBMini and ball joint mounting are available as accessories.



Technical Datas	Mini 4-8	Mini 4-T30
Load Rating / Music Power	50/70 W	30 W
Impedance	8 Ohm	
Transformer		30/15/7.5 W
SPL 1W/1m	88 dB	88 dB
SPL PNenn/1m	105 dB	103 dB
SPL PNenn/1m/f	110 dB/15 kHz	108 dB/15 kHz
Frequency Range (-3 dB)	100-20000 Hz	100-20000 Hz
Frequency Range (-10 dB)	70-23000 Hz	70-23000 Hz
Transmission Angle, horizontale	220/-/190/130 °	220/-/190/130 °
1/2/4/8 kHz (-6 dB)		
Transmission Angle, verticale	180/-/160/130 °	180/-/160/130 °
1/2/4/8 kHz (-6 dB)		
Component Set	1 x B 100-8, 1 x CAL 10	1 x B 100-8, 1 x CAL 10
Material	Housing: plastic, grille: metal	Housing: plastic, grille: metal
Net Weight	1.5 kg	2.2 kg
Colors	white (RAL 9016), black (RAL 9005), silver (RAL 9006)	white (RAL 9016), black (RAL 9005), silver (RAL 9006)
Accessories	WBMini: u-type bracket, WHMini: ball joint mounting	WBMini: u-type bracket, WHMini: ball joint mounting

Mini 4 WP

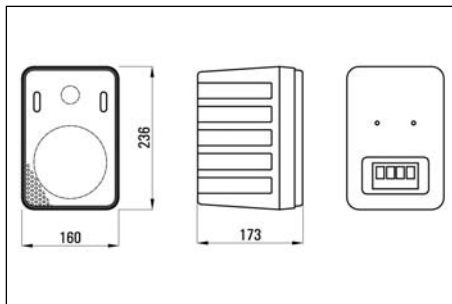
Compact, weatherproof 2-way Hi-Fi box, ideal for music reproduction, such as in pub gardens, for terraces, for shop window displays, for example,... The Mini 4 WP comes with a 100 mm mid range-bass speaker and a 10 mm dome tweeter. The U-type bracket WBMMini and ball joint mounting WHMini are available as accessories.



Technical Datas	Mini 4 WP-8	Mini 4 WP-T30
Load Rating / Music Power	50/70 W	30 W
Impedance	8 Ohm	
Transformer		30/15/7.5 W
SPL 1W/1m	88 dB	88 dB
SPL PNenn/1m	105 dB	103 dB
SPL PNenn/1m/f	110 dB/15 kHz	108 dB/15 kHz
Frequency Range (-3 dB)	100-20000 Hz	100-20000 Hz
Frequency Range (-10 dB)	70-23000 Hz	70-23000 Hz
Transmission Angle, horizontale	220/-/190/130 °	220/-/190/130 °
1/2/4/8 kHz (-6 dB)		
Transmission Angle, verticale	180/-/160/130 °	180/-/160/130 °
1/2/4/8 kHz (-6 dB)		
Component Set	1 x B 100-8, 1 x CAL 10	1 x B 100-8, 1 x CAL 10
Material	Housing: plastic, grille: aluminium	Housing: plastic, grille: aluminium
Net Weight	1.5 kg	2.2 kg
Colors	white (RAL 9016), black (RAL 9005)	white (RAL 9016), black (RAL 9005)
Accessories	WBMMini: u-type bracket, WHMini: ball joint mounting	WBMMini: u-type bracket, WHMini: ball joint mounting

MX 40

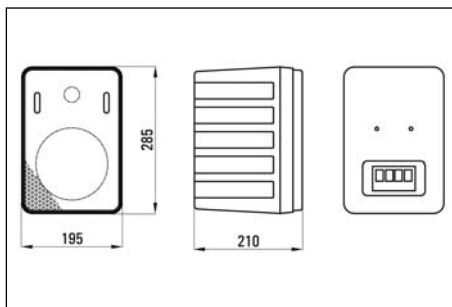
Compact, value-for-money 2-way Hi-Fi box with bass reflex channel, suitable for music reproduction, such as in shops, fitness studios, ... The speaker comes with a 130 mm woofer and a 26 mm dome tweeter and has an impressive linear frequency response. We recommend the subwoofer SUB 200 for supplementing the bass range. The U-type bracket WBMX40 and wall bracket WHMX with tilt/rotate feature are available as accessories.



Technical Datas	MX 40-8	MX 40-T10	MX 40-T25
Load Rating / Music Power	40/60 W	10 W	25 W
Impedance	8 Ohm		
Transformer		10/5/2.5 W	25/12.5/6.25 W
SPL 1W/1m	88 dB	88 dB	88 dB
SPL PNenn/1m	104 dB	98 dB	102 dB
SPL PNenn/1m/f	107 dB/18 kHz	101 dB/18 kHz	105 dB/18 kHz
Frequency Range (-3 dB)	90-20000 Hz	90-20000 Hz	90-20000 Hz
Frequency Range (-10 dB)	70-22000 Hz	70-22000 Hz	70-22000 Hz
Transmission Angle, horizontale	360/-/140/120 °	360/-/140/120 °	360/-/140/120 °
1/2/4/8 kHz (-6 dB)			
Transmission Angle, verticale	360/-/220/110 °	360/-/220/110 °	360/-/220/110 °
1/2/4/8 kHz (-6 dB)			
Component Set	1 x B 130-8 MX, 1 x CAL 26-MX	1 x B 130-8 MX, 1 x CAL 26-MX	1 x B 130-8 MX, 1 x CAL 26-MX
Material	Housing: plastic, grille: metal	Housing: plastic, grille: metal	Housing: plastic, grille: metal
Net Weight	2.1 kg	2.4 kg	2.6 kg
Colors	white (RAL 9003), black (RAL 9004)	white (RAL 9003), black (RAL 9004)	white (RAL 9003), black (RAL 9004)
Accessories	WBMX40: u-type bracket, WHMX: ball joint mounting	WBMX40: u-type bracket, WHMX: ball joint mounting	WBMX40: u-type bracket, WHMX: ball joint mounting

MX 50

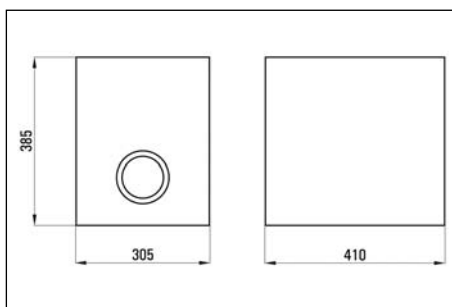
Value-for-money 2-way Hi-Fi box with bass reflex channel, suitable for music reproduction, such as in shops, fitness studios, ... The speaker comes with a 170 mm woofer and a 26 mm dome tweeter and has an impressive linear frequency response. We recommend the subwoofer SUB 200 for supplementing the bass range. The U-type bracket WBMX50 and wall bracket WHMX with tilt/rotate feature are available as accessories.



Technical Datas	MX 50-8	MX 50-T10	MX 50-T25
Load Rating / Music Power	50/80 W	10 W	25 W
Impedance	8 Ohm		
Transformer		10/5/2.5 W	25/12.5/6.25 W
SPL 1W/1m	90 dB	90 dB	90 dB
SPL PNenn/1m	107 dB	100 dB	104 dB
SPL PNenn/1m/f	111 dB/17 kHz	104 dB/17 kHz	108 dB/17 kHz
Frequency Range (-3 dB)	90-22000 Hz	90-22000 Hz	90-22000 Hz
Frequency Range (-10 dB)	60-23000 Hz	60-23000 Hz	60-23000 Hz
Transmission Angle, horizontale	360/-/160/120 °	360/-/160/120 °	360/-/160/120 °
1/2/4/8 kHz (-6 dB)			
Transmission Angle, verticale	360/-/170/90 °	360/-/170/90 °	360/-/170/90 °
1/2/4/8 kHz (-6 dB)			
Component Set	1 x B 170-8 MX, 1 x CAL 26-MX	1 x B 170-8 MX, 1 x CAL 26-MX	1 x B 170-8 MX, 1 x CAL 26-MX
Material	Housing: plastic, grille: metal	Housing: plastic, grille: metal	Housing: plastic, grille: metal
Net Weight	2.9 kg	3.2 kg	3.4 kg
Colors	white (RAL 9003), black (RAL 9004)	white (RAL 9003), black (RAL 9004)	white (RAL 9003), black (RAL 9004)
Accessories	WBMX50: u-type bracket, WHMX: ball joint mounting	WBMX50: u-type bracket, WHMX: ball joint mounting	WBMX50: u-type bracket, WHMX: ball joint mounting

SUB 200

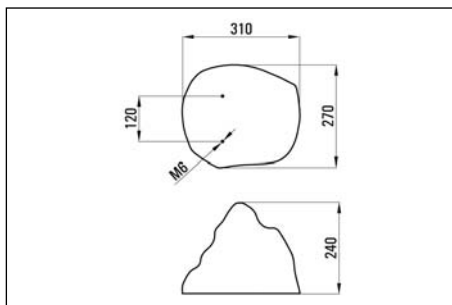
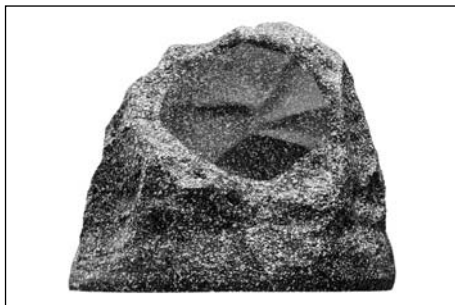
Band pass subwoofer perfect for supporting WHD satellites from the WL-, Mini/Micro- and MX line. The SUB 200 comes with a 200 mm dual-voice coil chassis. It features a stereo connection terminal with two inputs and two outputs. The outputs are switched by a special tuned crossover network for the satellites mentioned above. Other satellites (8 Ohm) can also be connected at this point. The built-in volume control allows you to adjust the ratio of bass and satellites.



Technical Datas	SUB 200
Load Rating / Music Power	50/70 W
Impedance	8 Ohm
Transformer	
SPL 1W/1m	88 dB
SPL PNenn/1m	108 dB
SPL PNenn/1m/f	
Frequency Range (-3 dB)	50-130 Hz
Frequency Range (-10 dB)	40-150 Hz
Transmission Angle, horizontale	
1/2/4/8 kHz (-6 dB)	
Transmission Angle, verticale	
1/2/4/8 kHz (-6 dB)	
Component Set	1 x BDS 200-8
Material	Housing: chipboard, inlayed
Net Weight	10.1 kg
Colors	black, white
Accessories	

SL 25/2

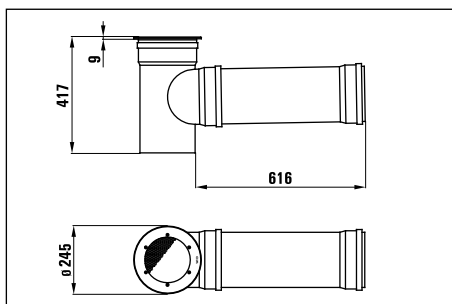
High-quality 2-way Hi-Fi speakers in a stone look for uncompromising applications indoors and out. Typical areas of application include hotel lobbies, health spa resorts, amusement parks, pub gardens, ... or in the garden or on the patio at home. The SL 25/2 features a powerful 165 mm woofer and 13 mm dome tweeter. The SL 25/2 can be fixed and secured against theft using the two M6 insert threads provided.



Technical Datas	SL 25/2-T25
Load Rating / Music Power	25 W
Impedance	4 Ohm
Transformer	25/12.5/6.25 W
SPL 1W/1m	85 dB
SPL PNenn/1m	99 dB
SPL PNenn/1m/f	106 dB/1 kHz
Frequency Range (-3 dB)	80-20000 Hz
Frequency Range (-10 dB)	70-22000 Hz
Transmission Angle, horizontale	160/-/40/40 °
1/2/4/8 kHz (-6 dB)	
Transmission Angle, verticale	160/-/40/40 °
1/2/4/8 kHz (-6 dB)	
Component Set	1 x B 165/2-4
Material	Housing: plastic, grille: aluminium
Net Weight	4.9 kg
Colors	granite-grey, granite-red
Accessories	

IG 220

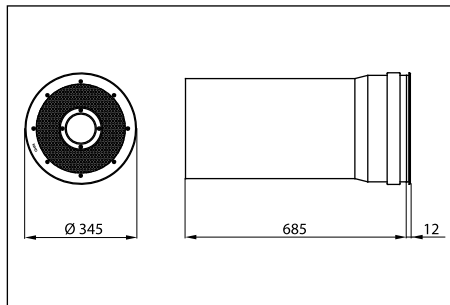
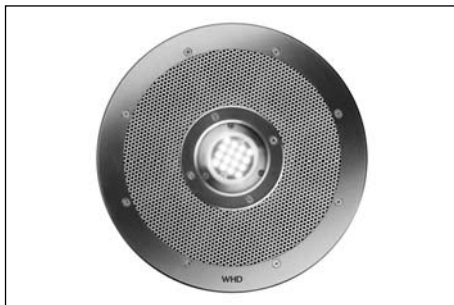
Built-in floor loudspeakers for playing music outside, in the garden, on restaurant terraces, in theme parks... The housing is dug or cemented directly into the soil. Then the loudspeaker unit is inserted into the housing and the bezel with the durable grille will be screwed into it. Weather-proof 2-way coaxial driver, which is built into the ground at a 90° angle. A special sound channeling system reflects the sound upwards. Water and dirt can seep into the ground via the reflector. We recommend providing the speakers with drainage.



Technical Datas	IG 220-4
Load Rating / Music Power	25/40 W
Impedance	4 Ohm
Transformer	
SPL 1W/1m	87 dB
SPL PNenn/1m	101 dB
SPL PNenn/1m/f	112 dB/4 kHz
Frequency Range (-3 dB)	100-18000 Hz
Frequency Range (-10 dB)	50-20000 Hz
Transmission Angle, horizontale	180/-/60/50 °
1/2/4/8 kHz (-6 dB)	
Transmission Angle, verticale	180/-/60/50 °
1/2/4/8 kHz (-6 dB)	
Component Set	1x MS 165-4
Material	housing: plastic, bezel and grille: stainless steel
Net Weight	6.5 kg
Colors	stainless steel
Accessories	

IG 340 LED

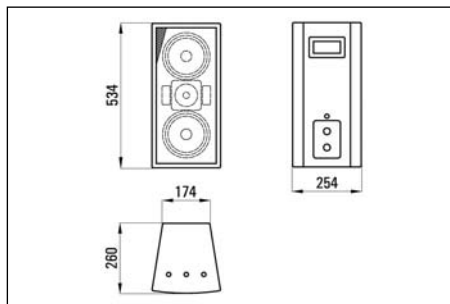
Built-in floor loudspeakers with integrated LED (230 V) for playing music outside, in the garden, on restaurant terraces, in theme parks... The housings are dug or cemented directly into the soil. Then the loudspeaker unit is inserted into the housing and the bezel with the durable grille will be screwed into it. Weather-proof full-range driver, which is built into the ground at a 180° angle. A special sound channeling system on both models reflects the sound upwards. Water and dirt can seep into the ground via the reflector. We recommend providing the speakers with drainage.



Technical Datas	IG 340 LED-4
Load Rating / Music Power	25/40 W
Impedance	4 Ohm
Transformer	
SPL 1W/1m	90 dB
SPL PNenn/1m	104 dB
SPL PNenn/1m/f	109 dB/3 kHz
Frequency Range (-3 dB)	150-12000 Hz
Frequency Range (-10 dB)	100-15000 Hz
Transmission Angle, horizontale	70/-/100/40 °
1/2/4/8 kHz (-6 dB)	
Transmission Angle, verticale	70/-/100/40 °
1/2/4/8 kHz (-6 dB)	
Component Set	1x PM 166 KLM-4, 230 V LEDs
Material	housing: plastic, bezel and grille: stainless steel
Net Weight	12.3 kg
Colors	stainless steel
Accessories	

BSB 80

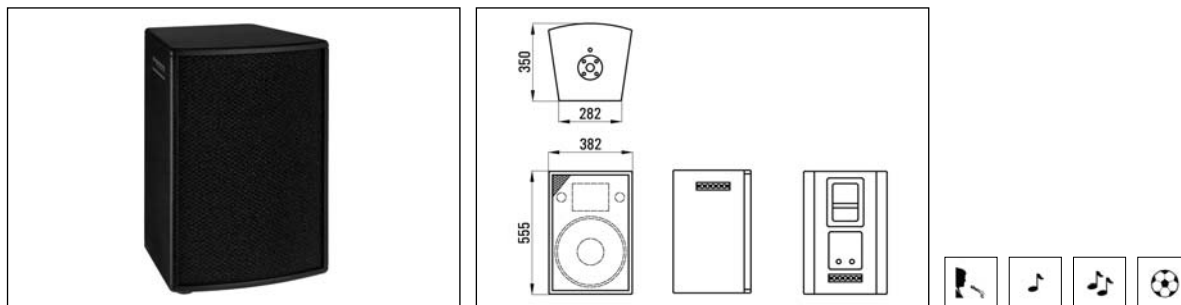
Compact, shock-resistant PA-box, ideal for reproducing speech and background music in acoustically problematic rooms, such as sports halls, hotel lobbies, exhibition halls... It features two 175 mm chassis and a horn tweeter. A d'Appolito arrangement enables the box to achieve a vertical focusing, making it a perfect match for resonant rooms. The U-type bracket WBM 80 and wall bracket WH 120 with tilt/rotate feature are available as accessories. The box can also be hung from its three mounting points using M10 eyelet slots. In addition the enclosure base incorporates a flange adapter for standard speaker stands.



Technical Datas	BSB 80-4	BSB 80-T80
Load Rating / Music Power	80/120 W	80 W
Impedance	4 Ohm	
Transformer		80/40 W
SPL 1W/1m	96 dB	96 dB
SPL PNenn/1m	115 dB	115 dB
SPL PNenn/1m/f	119 dB/8 kHz	119 dB/8 kHz
Frequency Range (-3 dB)	120-16000 Hz	120-16000 Hz
Frequency Range (-10 dB)	80-18000 Hz	80-18000 Hz
Transmission Angle, horizontale	280/-/40/70 °	280/-/40/70 °
1/2/4/8 kHz (-6 dB)		
Transmission Angle, verticale	150/-/50/40 °	150/-/50/40 °
1/2/4/8 kHz (-6 dB)		
Component Set	2 x BMT 175-8, 1 x HO 25	2 x BMT 175-8, 1 x HO 25
Material	Housing: wood (MDF), grille: metal	Housing: wood (MDF), grille: metal
Net Weight	11 kg	16 kg
Colors	white (RAL 9010), black (RAL 9010)	white (RAL 9010), black (RAL 9010)
Accessories	WBM80: u-type bracket WH 120: wall mounting, RSM10: screws, NL 4 FC: plug	WBM80: u-type bracket, WH120: wall mounting, RSM10: screws, NL 4 FC: plug

BSB 300

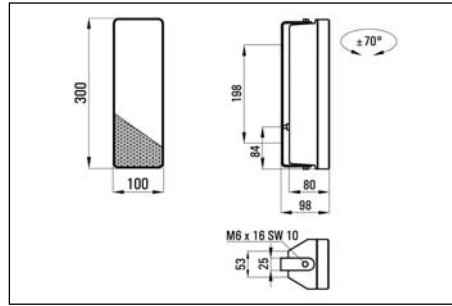
Full-range PA-box for use in rooms with enhanced requirements for music reproduction, such as multipurpose- or exhibition halls, conference and event centres,.... The BSB 300 features a 12" bass chassis and a 3/4" driver with CD horn. It therefore focuses even at lower frequencies and has an impressive linear reproduction. The U-type bracket WBM 300 is available as an accessory. The box can also be suspended from its three locking rails. In addition the enclosure base incorporates a flange adapter for standard speaker stands.



Technical Datas	BSB 300-8	BSB 300-T120
Load Rating / Music Power	300/350 W	120 W
Impedance	8 Ohm	
Transformer		120/60 W
SPL 1W/1m	100 dB	100 dB
SPL PNenn/1m	125 dB	121 dB
SPL PNenn/1m/f	126 dB/15 kHz	122 dB/15 kHz
Frequency Range (-3 dB)	80-15000 Hz	80-15000 Hz
Frequency Range (-10 dB)	60-17000 Hz	60-17000 Hz
Transmission Angle, horizontale	120/-/60/50 °	120/-/60/50 °
1/2/4/8 kHz (-6 dB)		
Transmission Angle, verticale	80/-/60/50 °	80/-/60/50 °
1/2/4/8 kHz (-6 dB)		
Component Set	1 x 12", 1 x 3/4" + CD-Horn	1 x 12", 1 x 3/4" + CD-Horn
Material	Housing: wood (MDF), grille: metal	Housing: wood (MDF), grille: metal
Net Weight	20 kg	25 kg
Colors	white (RAL 9010), black (RAL 9010)	white (RAL 9010), black (RAL 9010)
Accessories	WBM300: u-type bracket, 71138: 3 attachment hook for locking rail, NL 4 FC: plug	WBM300: u-type bracket, 71138: 3 attachment hook for locking rail, NL 4 FC: plug

AL 10/1

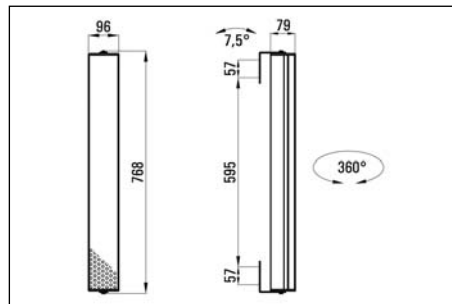
Compact, highly-efficient and weather-proof sound column for use indoors and out. Ideal for the reproduction of speech and background music, e.g. in amusement parks, outdoor installations, warehouses, production sites, ... The speaker, featuring two 87mm full-range chassis with polypropylene cone creates a light vertical focussing. Assembly is achieved by the U-type bracket included in the delivery. Cable entry is via an M12 screw connection.



Technical Datas	AL 10/1-4	AL 10/1-T12
Load Rating / Music Power	12/15 W	12 W
Impedance	4 Ohm	
Transformer		12/6.3/1.5 W
SPL 1W/1m	94 dB	94 dB
SPL PNenn/1m	105 dB	105 dB
SPL PNenn/1m/f	110 dB/8 kHz	110 dB/8 kHz
Frequency Range (-3 dB)	220-16000 Hz	220-16000 Hz
Frequency Range (-10 dB)	170-18000 Hz	170-18000 Hz
Transmission Angle, horizontale	220/-/60/60 °	220/-/60/60 °
1/2/4/8 kHz (-6 dB)		
Transmission Angle, verticale	140/-/100/30 °	140/-/100/30 °
1/2/4/8 kHz (-6 dB)		
Component Set	2 x PM 87-8 M	2 x PM 87-8 M
Material	Housing: plastic, grille: aluminium	Housing: plastic, grille: aluminium
Net Weight	1.6 kg	2 kg
Colors	white (RAL 9016), black (RAL 9016)	white (RAL 9016), black (RAL 9016)
Accessories	incl. u-type bracket, as an option MB 1/2: mast attachment (70-210 mm)	incl. u-type bracket, as an option MB 1/2: mast attachment (70-210 mm)

TS 25/4

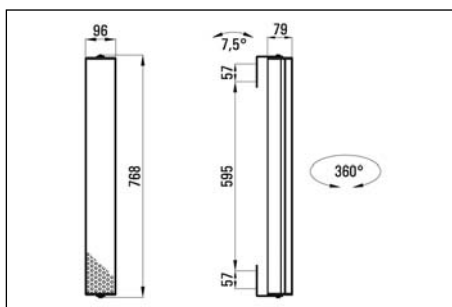
2-way sound column, ideal for speech and background music in churches, conference rooms, lecture theatres, ... The TS 25/4 features four 87 mm full-range chassis and two 66 mm dome tweeters. This produces focussed vertical radiating characteristics which is reinforced at high frequencies by the additional tweeters. Assembly is via two brackets included in the delivery. The housing underside has a 1/2" thread and M6 insert. The optional reducing flange for a speaker stand RF 25 is fitted to this point.



Technical Datas	TS 25/4-T25
Load Rating / Music Power	25 W
Impedance	
Transformer	25/12.5/6.25 W
SPL 1W/1m	95 dB
SPL PNenn/1m	109 dB
SPL PNenn/1m/f	115 dB/18 kHz
Frequency Range (-3 dB)	250-20000 Hz
Frequency Range (-10 dB)	180-23000 Hz
Transmission Angle, horizontale	120/-/70/60 °
1/2/4/8 kHz (-6 dB)	
Transmission Angle, verticale	80/-/70/60 °
1/2/4/8 kHz (-6 dB)	
Component Set	4 x PM 87-8, 2 x PM 66-16
Material	Housing: aluminium, grille: metal
Net Weight	4.6 kg
Colors	white (RAL 9010), black (RAL 9005)
Accessories	incl. 2 mounting stirrups, as an option RF25: reducing flange for speaker stand

TS 25/5

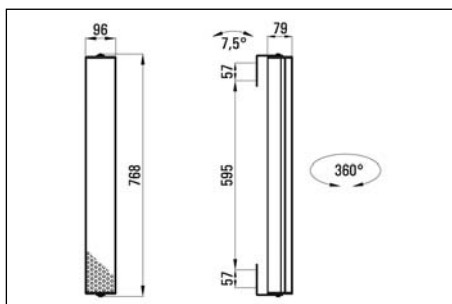
Highly-effective sound column, suitable for speech and background music in churches, conference rooms, lecture theatres,... The TS 25/5 features four 87 mm full-range chassis with additional sub cones. This produces very strong vertical focussing at high frequencies. Assembly is via two brackets included in the delivery. The housing underside has a 1/2" thread and M6 insert. The optional reducing flange for a speaker stand RF 25 is fitted to this point.



Technical Datas	TS 25/5-T25
Load Rating / Music Power	25 W
Impedance	
Transformer	25/12.5/6.25 W
SPL 1W/1m	96 dB
SPL PNenn/1m	110 dB
SPL PNenn/1m/f	113 dB/6 kHz
Frequency Range (-3 dB)	280-11000 Hz
Frequency Range (-10 dB)	230-12000 Hz
Transmission Angle, horizontale	360/-/150/110 °
1/2/4/8 kHz (-6 dB)	
Transmission Angle, verticale	60/-/20/10 °
1/2/4/8 kHz (-6 dB)	
Component Set	4 x PM 87-8
Material	Housing: alu, grille: metal
Net Weight	4 kg
Colors	white (RAL 9010), black (RAL 9005)
Accessories	incl. 2 mounting stirrups, as an option RF 25: reducing flange for speaker stand

TS 25 S 1

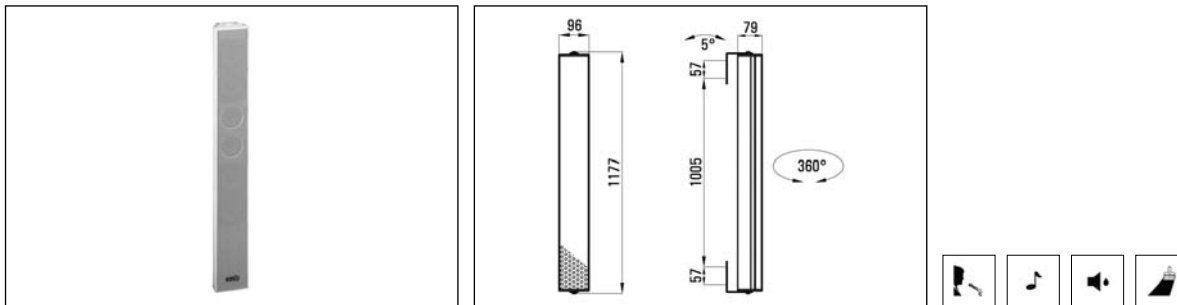
2-way sound column, ideal for speech and background music in churches, conference rooms, lecture theatres, ... The TS 25/ S-1 features four 87 mm full-range chassis and two horn tweeters. This produces focussed vertical radiating characteristics which is reinforced at high frequencies by the additional tweeters. Assembly is via two brackets included in the delivery. The housing underside has a 1/2" thread and M6 insert. The optional reducing flange for a speaker stand RF 25 is fitted to this point.



Technical Datas	TS 25 S1-T25
Load Rating / Music Power	25 W
Impedance	
Transformer	25/12.5/6.25 W
SPL 1W/1m	95 dB
SPL PNenn/1m	109 dB
SPL PNenn/1m/f	114 dB/8 kHz
Frequency Range (-3 dB)	200-16000 Hz
Frequency Range (-10 dB)	100-22000 Hz
Transmission Angle, horizontale	280/-/40/70 °
1/2/4/8 kHz (-6 dB)	
Transmission Angle, verticale	150/-/50/70 °
1/2/4/8 kHz (-6 dB)	
Component Set	4 x PM 87-8, 2 x HO 10
Material	Housing: aluminium, grille: metal
Net Weight	5.1 kg
Colors	white (RAL 9010), black (RAL 9005)
Accessories	incl. 2 mounting stirrups, as an option RF 25: reducing flange for speaker stand

TS 25/40 S

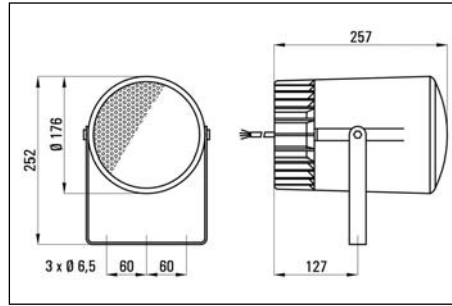
2-way sound column, ideal for speech and background music in churches, conference rooms, lecture theatres, ... The TS 25/ S-1 features eight 87 mm full-range chassis and two horn tweeters. This produces strongly focussed vertical radiating characteristics, reinforced at high frequencies by the additional tweeters. Assembly is via two brackets included in the delivery. The housing underside has a 1/2" thread and M6 insert. The optional reducing flange for a speaker stand RF 25 is fitted to this point.



Technical Datas	TS 25/40 S-T25
Load Rating / Music Power	25 W
Impedance	
Transformer	25/12.5/6.25 W
SPL 1W/1m	93 dB
SPL PNenn/1m	107 dB
SPL PNenn/1m/f	114 dB/7 kHz
Frequency Range (-3 dB)	200-16000 Hz
Frequency Range (-10 dB)	100-22000 Hz
Transmission Angle, horizontale	220/-/60/60 °
1/2/4/8 kHz (-6 dB)	
Transmission Angle, verticale	140/-/100/30 °
1/2/4/8 kHz (-6 dB)	
Component Set	8 x PM 87-8, 2 x HO 10
Material	Housing: aluminium, grille: metal
Net Weight	8.3 kg
Colors	white (RAL 9010), black (RAL 9005)
Accessories	incl. 2 mounting stirrups, as an option RF 25: reducing flange for speaker stand

SP 12

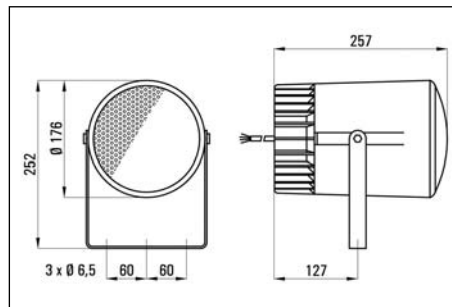
Standard, highly-effective sound projector, ideal for speech and background music indoors and out, e.g. in warehouses, multi-storey car parks and amusement parks... The SP 6 features a 166 mm full-range chassis. Mounting is via a U-type bracket included in the delivery. Can also be mounted to a stand via the optional mast attachment MB 1/2. Cable entry is via an M12 screw connection.



Technical Datas	SP 12-4	SP 12-T6	SP 12-T12
Load Rating / Music Power	12/15 W	6 W	12 W
Impedance	4 Ohm		
Transformer		6/3/1.5 W	12/6/3/1.5 W
SPL 1W/1m	93 dB	93 dB	93 dB
SPL PNenn/1m	104 dB	101 dB	104 dB
SPL PNenn/1m/f	109 dB/3 kHz	106 dB/3 kHz	109 dB/3 kHz
Frequency Range (-3 dB)	140-12000 Hz	140-12000 Hz	140-12000 Hz
Frequency Range (-10 dB)	90-18000 Hz	90-18000 Hz	90-18000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	160/-/80/50 °	160/-/80/50 °	160/-/80/50 °
Component Set	1 x PM 166 KL-4	1 x PM 166 KL-4	1 x PM 166 KL-4
Material	Housing, acoustic wall: plastic (weatherproof), grille: aluminium	Housing, acoustic wall: plastic (weatherproof), grille: aluminium	Housing, acoustic wall: plastic (weatherproof), grille: aluminium
Net Weight	1.7 kg	2 kg	2.2 kg
Colors	white (RAL 9010)	white (RAL 9010)	white (RAL 9010)
Accessories	MB 1/2: mast attachment for mast diameter 70-210 mm	MB 1/2: mast attachment for mast diameter 70-210 mm	MB 1/2: mast attachment for mast diameter 70-210 mm

SP 25/2

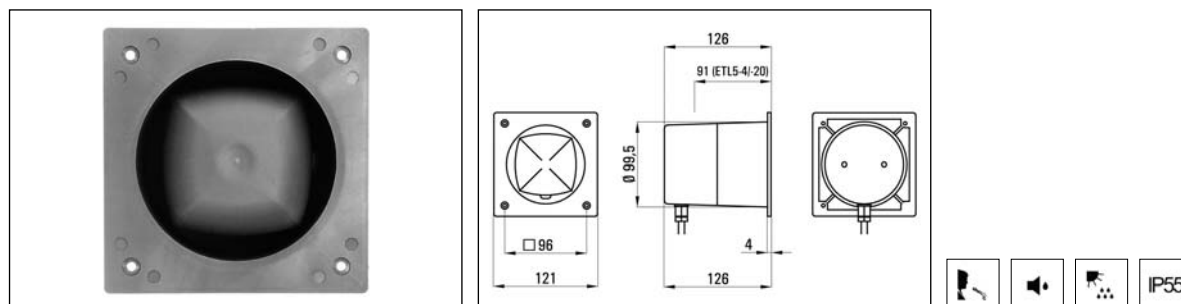
2-way sound projector, ideal for background music indoors and out, e.g. in warehouses, production spaces, amusement parks,... The SP 25/2 comes with a 166 mm woofer chassis and coaxial tweeter arrangement. Mounting is via a U-type bracket included in the delivery. Can also be mounted to a stand via the optional mast attachment MB 1/2. Cable entry is via an M12 screw connection.



Technical Datas	SP 25/2-4	SP 25/2-T25
Load Rating / Music Power	40/50 W	25 W
Impedance	4 Ohm	
Transformer		25/12.5/6.25 W
SPL 1W/1m	89 dB	89 dB
SPL PNenn/1m	105 dB	103 dB
SPL PNenn/1m/f	113 dB/15 kHz	111 dB/15 kHz
Frequency Range (-3 dB)	100-20000 Hz	100-20000 Hz
Frequency Range (-10 dB)	50-22000 Hz	50-22000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	180/-/50/60 °	180/-/50/60 °
Component Set	1 x PM 166 A/2 (Coax)	1 x PM 166 A/2 (Coax)
Material	Housing, acoustic wall: plastic (weatherproof), grille: aluminium	Housing, acoustic wall: plastic (weatherproof), grille: aluminium
Net Weight	2 kg	2.6 kg
Colors	white (RAL 9010)	white (RAL 9010)
Accessories	MB 1/2: mast attachment for mast diameter 70-210 mm	MB 1/2: mast attachment for mast diameter 70-210 mm

ETL 5

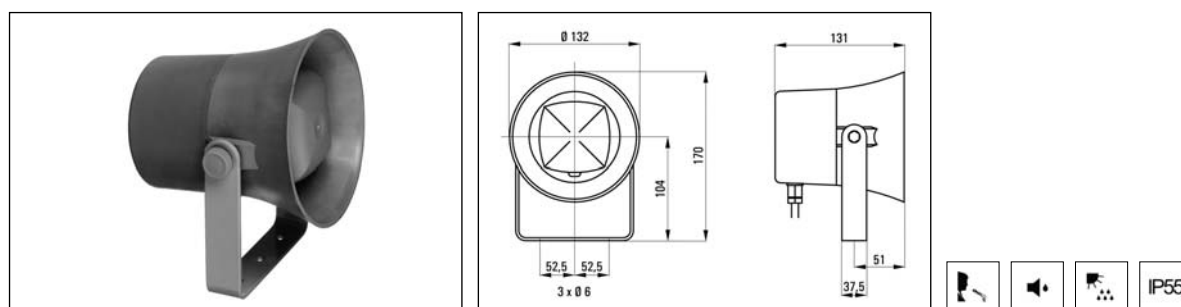
Compact horn speaker for recessed installation, suitable for loudspeaker- and alarm systems indoors and out, e.g. in production spaces, roadside emergency telephones, ... Unlike normal horn speakers this model is fitted with a 66 mm cone type full-range loudspeaker rather than a driver. This produces a larger bandwidth, which makes loudspeaker voices sound very authentic. The speaker is screwed into place using the four drill holes in the flange. Cable entry is via an M12 screw connection.



Technical Datas	ETL 5-4, -20	ETL 5-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4, 20 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	97 dB	97 dB
SPL PNenn/1m	105 dB	105 dB
SPL PNenn/1m/f	109 dB/3 kHz	109 dB/3 kHz
Frequency Range (-3 dB)	400-13000 Hz	400-13000 Hz
Frequency Range (-10 dB)	350-14000 Hz	350-14000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	360/-/60/50 °	360/-/60/50 °
Component Set	1 x B 66 BB	1 x B 66 BB
Material	Housing: plastic	Housing: plastic
Net Weight	0.4 kg	0.7 kg
Colors	grey (RAL 7037)	grey (RAL 7037)
Accessories		

TL 5

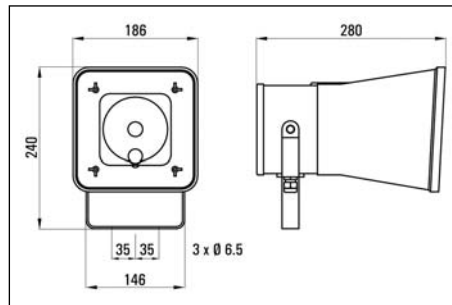
Compact horn speaker, ideal for loudspeaker- and alarm systems indoors and out, e.g. in production spaces, underground car parks, etc ... Unlike normal horn speakers this model is fitted with a 66 mm cone type full-range loudspeaker rather than a driver. This produces a larger bandwidth, which makes loudspeaker voices sound very authentic. Assembly is via a U-type bracket. It can also be mounted on a stand using an MB 1/2 optional mast attachment. Cable entry is via an M12 screw connection.



Technical Datas	TL 5-4, -20	TL 5-T6
Load Rating / Music Power	6/8 W	6 W
Impedance	4, 20 Ohm	
Transformer		6/3/1.5 W
SPL 1W/1m	97 dB	97 dB
SPL PNenn/1m	105 dB	105 dB
SPL PNenn/1m/f	109 dB/3 kHz	109 dB/3 kHz
Frequency Range (-3 dB)	400-13000 Hz	400-13000 Hz
Frequency Range (-10 dB)	350-14000 Hz	350-14000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	360/-/60/50 °	360/-/60/50 °
Component Set	1 x B 66 BB	1 x B 66 BB
Material	Housing: plastic, u-type bracket: aluminium	Housing: plastic, u-type bracket: aluminium
Net Weight	0.4 kg	0.7 kg
Colors	grey (RAL 7037)	grey (RAL 7037)
Accessories	MB 1/2: mast attachment for mast diameter 70-210 mm	MB 1/2: mast attachment for mast diameter 70-210 mm

TL 10

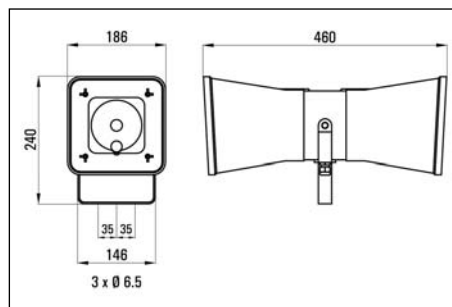
Highly-effective compact horn speaker, ideal for loudspeaker- and alarm systems indoors and out, e.g. in production spaces, underground car parks, etc railway stations... Unlike normal horn speakers this model is fitted with a 87 mm cone type full-range loudspeaker rather than a driver. This produces a larger bandwidth, which makes loudspeaker voices sound very authentic. Assembly is achieved by the U-type bracket included in the delivery. It can also be mounted on a stand using an MB 1/2 optional mast attachment.



Technical Datas	TL 10-8	TL 10-T10
Load Rating / Music Power	10/12 W	10 W
Impedance	8 Ohm	
Transformer		10/5/2.5 W
SPL 1W/1m	98 dB	98 dB
SPL PNenn/1m	108 dB	108 dB
SPL PNenn/1m/f	116 dB/3 kHz	116 dB/3 kHz
Frequency Range (-3 dB)	280-10000 Hz	280-10000 Hz
Frequency Range (-10 dB)	200-12000 Hz	200-12000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	160/-/40/30 °	160/-/40/30 °
Component Set	1 x PM 87-8	1 x PM 87-8
Material	Housing: plastic, u-type bracket: aluminium	Housing: plastic, u-type bracket: aluminium
Net Weight	2.1 kg	2.5 kg
Colors	white (RAL 9010), grey (RAL 7011)	white (RAL 9010), grey (RAL 7011)
Accessories	MB 1/2: mast attachment for mast diameter 70-210 mm	MB 1/2: mast attachment for mast diameter 70-210 mm

DTL 10

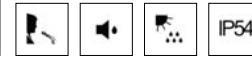
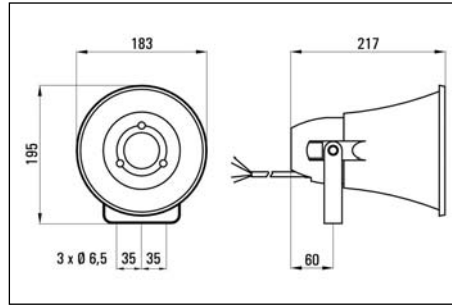
Bi-directional radiating horn speaker, ideal for loudspeaker- and alarm systems indoors and out, e.g. in production spaces, underground car parks, etc railway stations... Unlike normal horn speakers this model is fitted with two 87 mm cone type full-range loudspeakers rather than a driver. This produces a larger bandwidth, which makes loudspeaker voices sound very authentic. Depending on whether the two loudspeakers are in phase or reversed polarity, an all round radiation or dipolar effect is created. The dipole characteristic should be used when a long narrow area is to be radiated (e.g. on station platforms). Assembly is achieved by the U-type bracket included in the delivery. It can also be mounted on a stand using an MB 1/2 optional mast attachment.



Technical Datas	DTL 10-4	DTL 10-T10
Load Rating / Music Power	20/24 W	10 W
Impedance	4 Ohm	
Transformer		10/5/2.5 W
SPL 1W/1m	98 dB	98 dB
SPL PNenn/1m	111 dB	108 dB
SPL PNenn/1m/f	119 dB/3 kHz	116 dB/3 kHz
Frequency Range (-3 dB)	280-10000 Hz	280-10000 Hz
Frequency Range (-10 dB)	200-12000 Hz	200-12000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	140/-/25/15 °	140/-/25/15 °
Component Set	2 x PM 87-8	2 x PM 87-8
Material	Housing: plastic, u-type bracket: aluminum	Housing: plastic, u-type bracket: aluminum
Net Weight	3.6 kg	4 kg
Colors	white (RAL 9010), grey (RAL 7011)	white (RAL 9010), grey (RAL 7011)
Accessories	MB 1/2: mast attachment for mast diameter 70-210 mm	MB 1/2: mast attachment for mast diameter 70-210 mm

TL 310

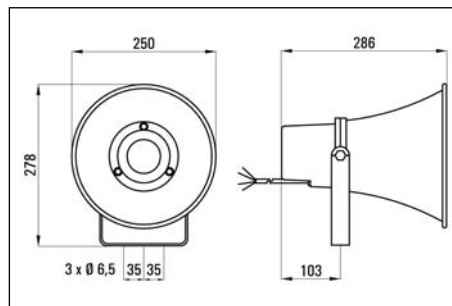
Small, attractively-priced and highly-effective horn speaker, ideal for loudspeaker- and alarm systems indoors and out, e.g. in production spaces, underground car parks, etc ... The TL 310 comes with a standard driver. This makes it highly efficient. Assembly is achieved by the U-type bracket included in the delivery. It can also be mounted on a stand using an MB 1/2 optional mast attachment.



Technical Datas	TL 310-8	TL 310-T10
Load Rating / Music Power	10/12 W	10 W
Impedance	8 Ohm	
Transformer		10/5/2.5 W
SPL 1W/1m	105 dB	105 dB
SPL PNenn/1m	115 dB	115 dB
SPL PNenn/1m/f	120 dB/2 kHz	120 dB/2 kHz
Frequency Range (-3 dB)	600-7000 Hz	600-7000 Hz
Frequency Range (-10 dB)	400-7500 Hz	400-7500 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	160/-/50/30 °	160/-/50/30 °
Component Set		
Material	Housing: plastic, u-type bracket: aluminium	Housing: plastic, u-type bracket: aluminium
Net Weight	1.1 kg	1.3 kg
Colors	grey (RAL 7042)	grey (RAL 7042)
Accessories	MB 1/2: mast attachment for mast diameter 70-210 mm	MB 1/2: mast attachment for mast diameter 70-210 mm

TL 320

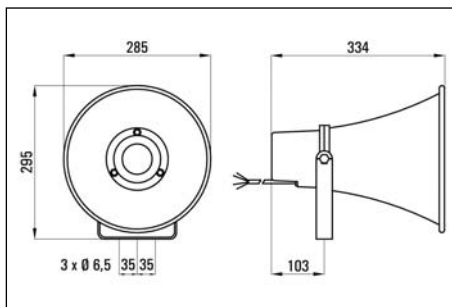
Attractively-priced horn speaker, ideal for loudspeaker- and alarm systems indoors and out, e.g. in production spaces, underground car parks, etc ... The TL 320 comes with a standard driver. This makes it highly efficient. Assembly is achieved by the U-type bracket included in the delivery. It can also be mounted on a stand using an MB 1/2 optional mast attachment.



Technical Datas	TL 320-8	TL 320-T20
Load Rating / Music Power	20/25 W	20 W
Impedance	8 Ohm	
Transformer		20/10/5 W
SPL 1W/1m	105 dB	105 dB
SPL PNenn/1m	118 dB	118 dB
SPL PNenn/1m/f	124 dB/2 kHz	124 dB/2 kHz
Frequency Range (-3 dB)	500-3500 Hz	500-3500 Hz
Frequency Range (-10 dB)	350-4000 Hz	350-4000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	160/-/40/20 °	160/-/40/20 °
Component Set		
Material	Horn, u-type bracket: alu, transformer housing: plastic	Horn, u-type bracket: alu, transformer housing: plastic
Net Weight	2 kg	
Colors	grey (RAL 7042)	grey (RAL 7042)
Accessories	MB 1/2: mast attachment for mast diameter 70-210 mm	MB 1/2: mast attachment for mast diameter 70-210 mm

TL 330

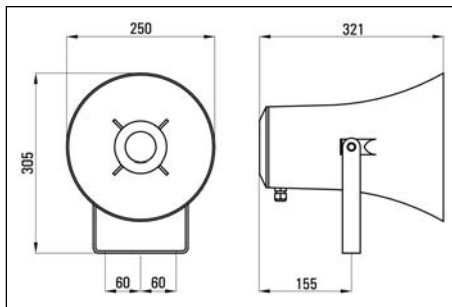
Small, attractively-priced and extremely effective horn speaker, ideal for loudspeaker- and alarm systems indoors and out, e.g. in production spaces, underground car parks, etc ... The TL 330 comes with a standard driver. This makes it highly efficient. Assembly is achieved by the U-type bracket included in the delivery. It can also be mounted on a stand using an MB 1/2 optional mast attachment.



Technical Datas	TL 330-8	TL 330-T30
Load Rating / Music Power	30/35 W	30 W
Impedance	8 Ohm	
Transformer		30/15/7.5 W
SPL 1W/1m	105 dB	105 dB
SPL PNenn/1m	120 dB	120 dB
SPL PNenn/1m/f	126 dB/2 kHz	126 dB/2 kHz
Frequency Range (-3 dB)	420-3500 Hz	420-3500 Hz
Frequency Range (-10 dB)	300-4000 Hz	300-4000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	120/-/50/40 °	120/-/50/40 °
Component Set		
Material	Horn, u-type bracket: alu, transformer housing: plastic	Horn, u-type bracket: alu, transformer housing: plastic
Net Weight	2.4 kg	2.7 kg
Colors	grey (RAL 7042)	grey (RAL 7042)
Accessories	MB 1/2: mast attachment for mast diameter 70-210 mm	MB 1/2: mast attachment for mast diameter 70-210 mm

TL 115-2

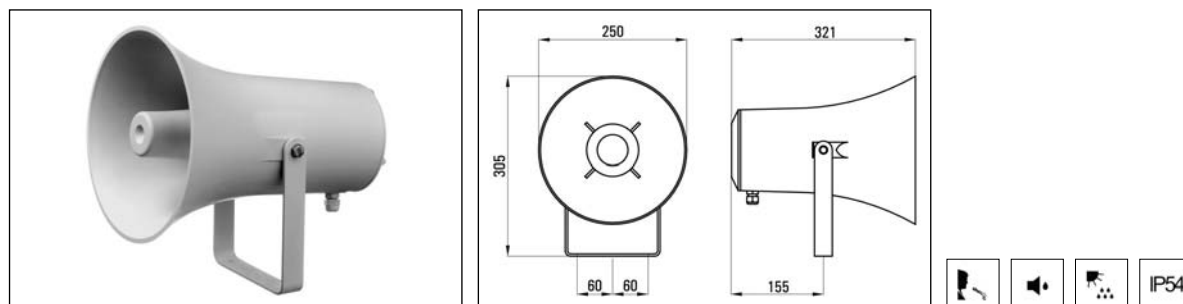
High-end extremely effective horn speaker, made of plastic, ideal for loudspeaker- and alarm systems indoors and out, e.g. in production spaces, underground car parks, etc school playgrounds ... The TL 115-2 comes with a standard driver. This makes it highly efficient. Assembly is achieved by the U-type bracket included in the delivery. It can also be mounted on a stand using an MB 1/2 optional mast attachment. Cable entry is via an M20 screw connection. A second entry blind plug is also provided.



Technical Datas	TL 115-2-8	TL 115-2-T15
Load Rating / Music Power	15/20 W	15 W
Impedance	8 Ohm	
Transformer		15/7.5/3.75 W
SPL 1W/1m	103 dB	103 dB
SPL PNenn/1m	115 dB	115 dB
SPL PNenn/1m/f	123 dB/2 kHz	123 dB/2 kHz
Frequency Range (-3 dB)	370-6500 Hz	370-6500 Hz
Frequency Range (-10 dB)	260-7000 Hz	260-7000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	190/-/130/70 °	190/-/130/70 °
Component Set		
Material	Housing: plastic, u-type bracket: aluminium	Housing: plastic, u-type bracket: aluminium
Net Weight	2.4 kg	2.8 kg
Colors	grey (RAL 7035)	grey (RAL 7035)
Accessories	MB 1/2: mast attachment for mast diameter 70-210 mm	MB 1/2: mast attachment for mast diameter 70-210 mm

TL 130-2

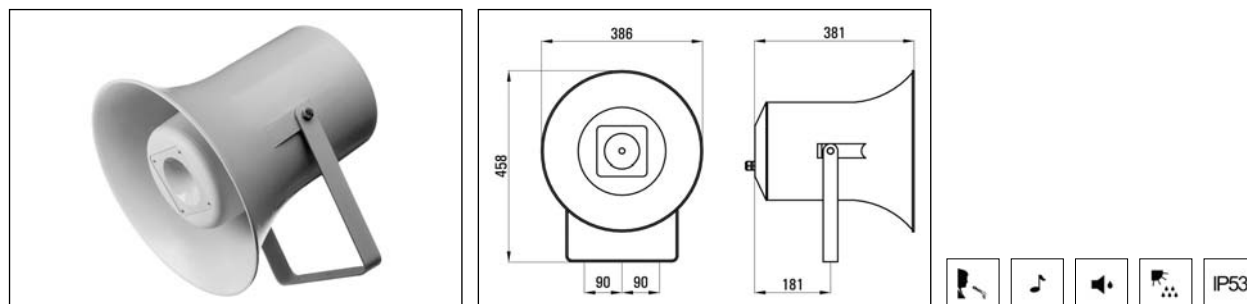
High-end extremely effective horn speaker, made of plastic, ideal for loudspeaker- and alarm systems indoors and out, e.g. in production spaces, underground car parks, etc school playgrounds ... The TL 130-2 comes with a standard driver. This makes it highly efficient. Assembly is achieved by the U-type bracket included in the delivery. It can also be mounted on a stand using an MB 1/2 optional mast attachment. Cable entry is via an M20 screw connection. A second entry blind plug is also provided.



Technical Datas	TL 130-2-8	TL 130-2-T30
Load Rating / Music Power	30/35 W	30 W
Impedance	8 Ohm	
Transformer		30/15/7.5 W
SPL 1W/1m	103 dB	103 dB
SPL PNenn/1m	118 dB	118 dB
SPL PNenn/1m/f	126 dB/2 kHz	126 dB/2 kHz
Frequency Range (-3 dB)	370-6500 Hz	370-6500 Hz
Frequency Range (-10 dB)	260-7000 Hz	260-7000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	190/-/130/70 °	190/-/130/70 °
Component Set		
Material	Housing: plastic, u-type bracket: aluminium	Housing: plastic, u-type bracket: aluminium
Net Weight	2.7 kg	3.3 kg
Colors	grey (RAL 7035)	grey (RAL 7035)
Accessories	MB 1/2: mast attachment for mast diameter 70-210 mm	MB 1/2: mast attachment for mast diameter 70-210 mm

TL 230

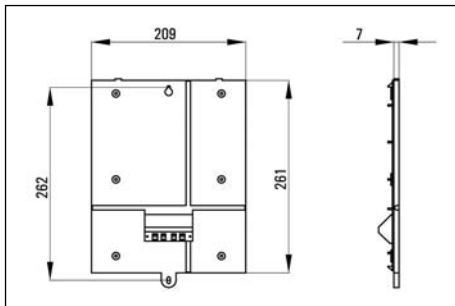
High-end, 2-way plastic music horn for speech and background music indoors and out, e.g. in indoor eventing arenas, outdoor swimming pools, on football fields,... The TL 230 features a 166 mm woofer chassis and a horn tweeter. The bass reflex technology extends the frequency range down to low frequencies; the horn tweeter helps it achieve brilliant reproduction. Assembly is via the U-type bracket included in the delivery or via the optional mast attachment MB 3/MB 3 N (tiltable). Cable entry is via an M20 screw connection. A second entry blind plug is also provided.



Technical Datas	TL 230-4	TL 230-T30
Load Rating / Music Power	30/40 W	30 W
Impedance	4 Ohm	
Transformer		30/15/7.5 W
SPL 1W/1m	100 dB	100 dB
SPL PNenn/1m	115 dB	115 dB
SPL PNenn/1m/f	120 dB/3 kHz	120 dB/3 kHz
Frequency Range (-3 dB)	350-16000 Hz	350-16000 Hz
Frequency Range (-10 dB)	300-18000 Hz	300-18000 Hz
Transmission Angle 1/2/4/8 kHz (-6 dB)	70/-/100/40 °	70/-/100/40 °
Component Set	1 x PM 166-A, 1 x HO 25	1 x PM 166-A, 1 x HO 25
Material	Housing: plastic, u-type bracket: aluminium	Housing: plastic, u-type bracket: aluminium
Net Weight	5 kg	6.5 kg
Colors	grey (RAL 7035)	grey (RAL 7035)
Accessories	MB 3: mast attachment (70-210 mm), MB 3 N: declining mast attachment (70-210 mm)	MB 3: mast attachment (70-210 mm), MB 3 N: declining mast attachm. (70-210 mm)

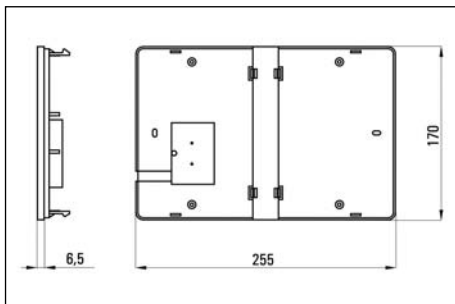
RW WL 6

Plastic rear panel (grey) for wall-mounted design speaker WL 6 and WL 6/2. Please note with the order: "for 100V-" or "low impedance-version".



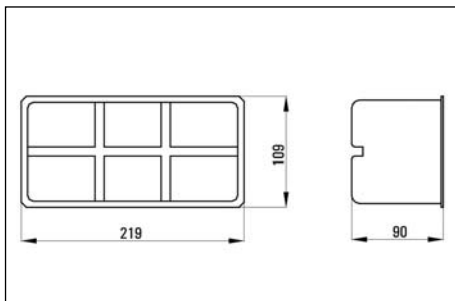
RW ZL 135

Plastic rear panel (white) for wall-mounted speaker ZL 135.



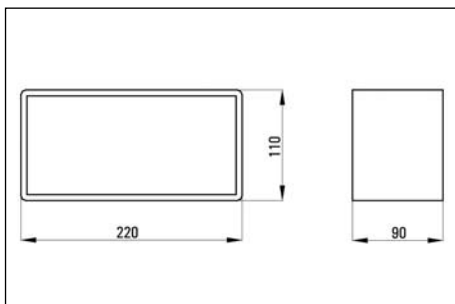
HL 1 UG

Flush-mounting enclosure (white) for setting in concrete for Hotel Speaker HL 1.



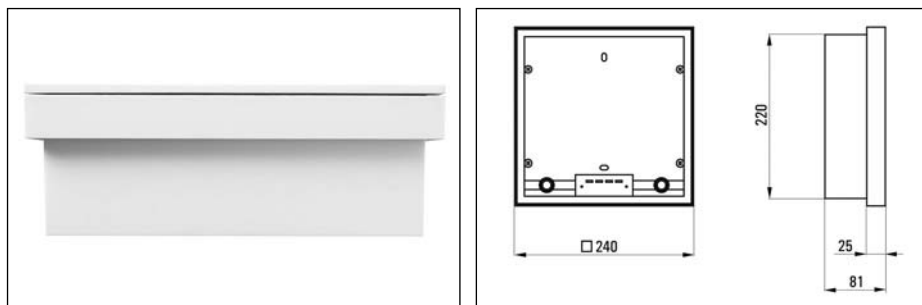
HL 1 AG

Surface-mounting enclosure in wood for Hotel Speaker HL 1.

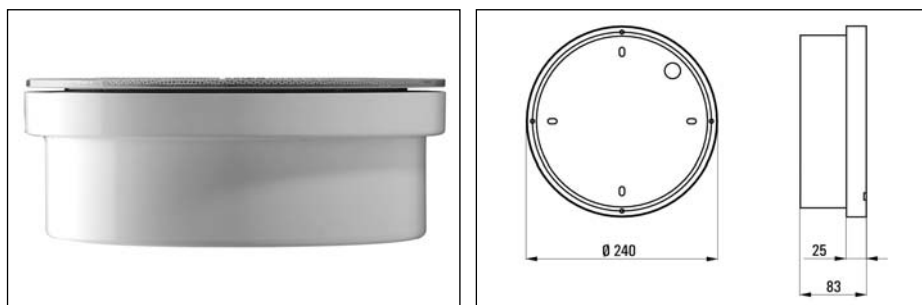


AG 240

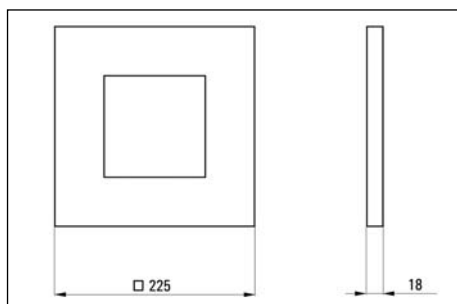
Plastic on-wall housing for design speaker M 240 in colour white or anthracite.

**AGR 240**

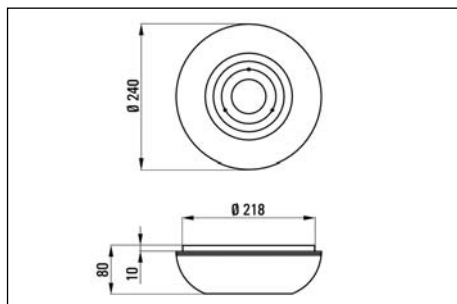
Metal on-wall housing for design speaker R 240 in colour white or anthracite.

**SF 240**

Styrofoam moulded part for design loudspeaker M 240 fitting to the "Kompax 1" onsite-mixed concrete housing made by Kaiser.

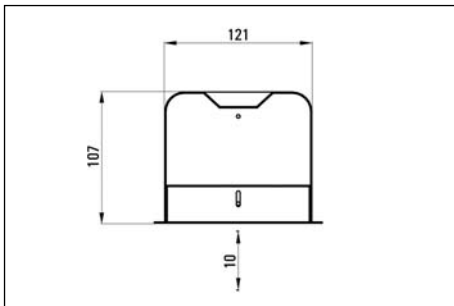
**AG 140**

Metal on-wall housing (white) for ceiling speaker UPM 140 and UPM 140S.

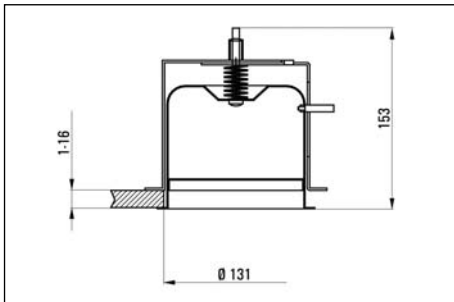


ST 140 WB

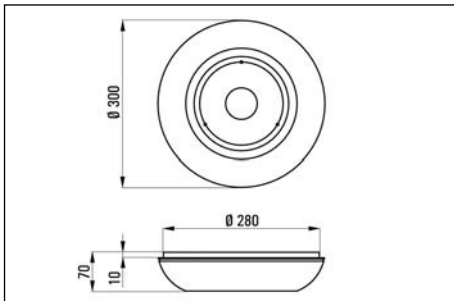
Fire-retardant steel dome with screw fastening for ceiling speaker UPM 140 S.

**ST 140**

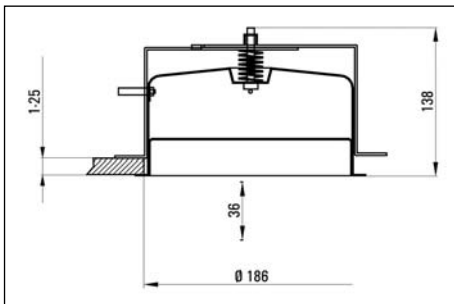
Fire-retardant steel dome with clamp fixing for ceiling speaker UPM 140 S.

**AG 200**

Metal on-wall housing (white) for ceiling speaker UPM 200 and UPM 200 S.

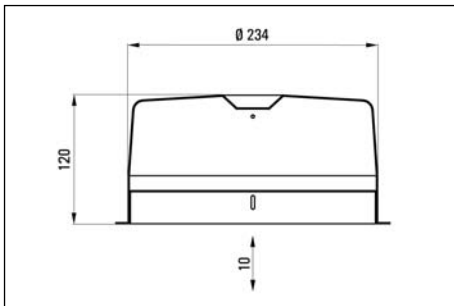
**ST 200 BS**

Fire-retardant steel dome with clamp fixing for ceiling speaker UPM 200 S.



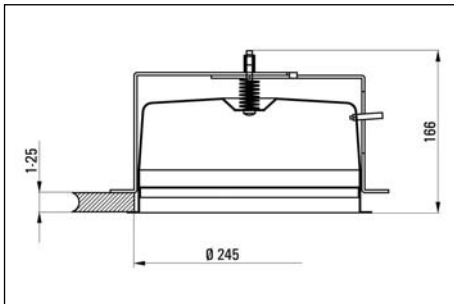
ST 260 WB

Fire-retardant steel dome with screw fastening for ceiling speaker UPM 260 S.



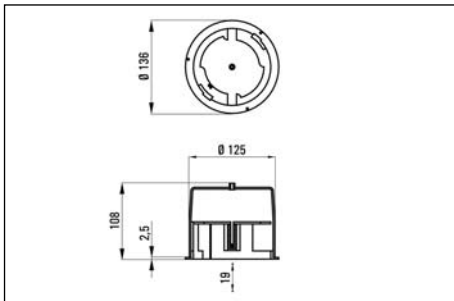
ST 260

Fire-retardant steel dome with clamp fixing for ceiling speaker UPM 260 S.



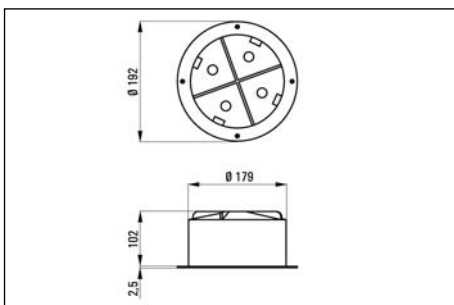
EGT 10

Plastic housing for concrete ceilings including a moveable flange for ceiling speaker UP 10.



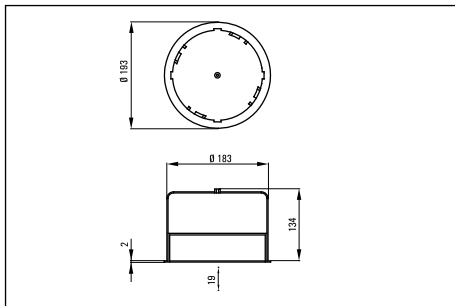
EGT 14

Plastic housing for concrete ceilings without moveable flange for ceiling speaker UP 14! After set into concrete no additional plaster must be applied to ensure a proper bayonet connection with the speaker. Version including moveable flange: EGT 14/2.



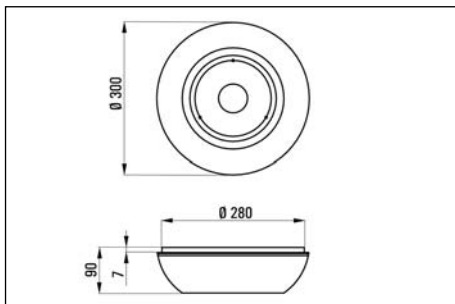
EGT 14/2

Plastic housing for concrete ceilings including a moveable flange for ceiling speaker UP 14 and UP 14/2.



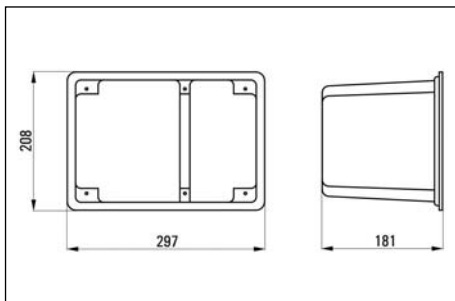
AG 14

Metal on-wall housing (white) for ceiling speaker UP 14.



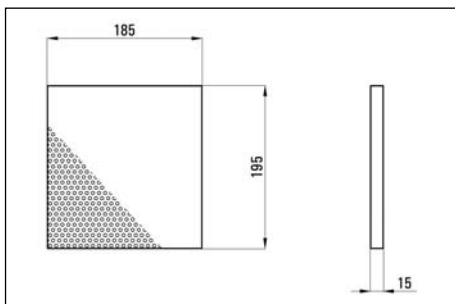
EGT 40

Plastic housing for concrete ceilings for speaker UP 40 EGT.



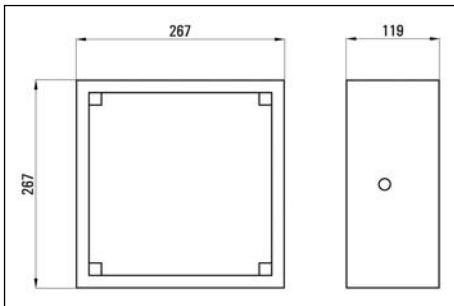
LB 135

Perforated metal cover (white) for acoustic wall speaker SW 135.



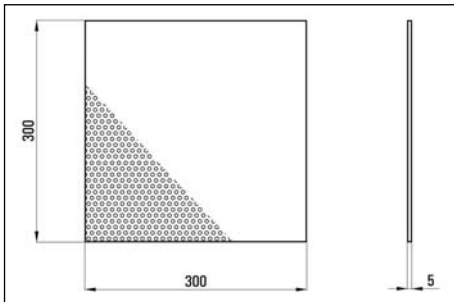
SW 2

Wooden enclosure for acoustic wall speaker SW 2023 and SW 2050.



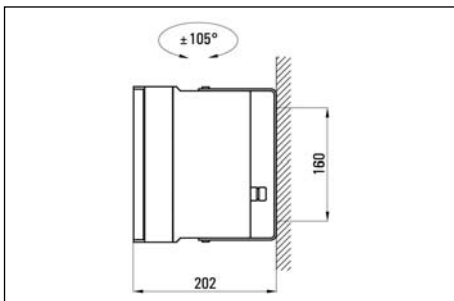
SW 3

Perforated metal cover (white) for acoustic wall speaker SW 2023.



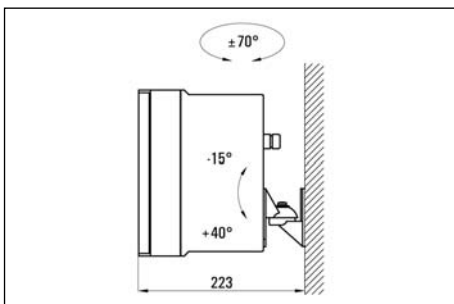
WB Mini

Aluminum U-bracket in colour silver, white or black for 2-way HiFi-box Mini 4 and Mini 4 WP.



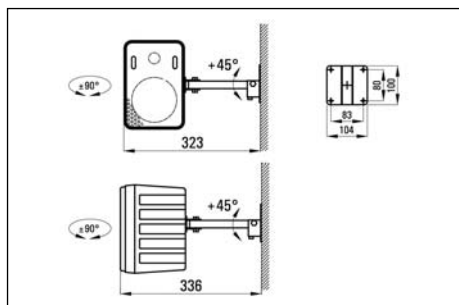
WH Mini

Plastic ball joint bracket in colour silver, white or black for 2-way HiFi-box Mini 4 and Mini 4 WP.



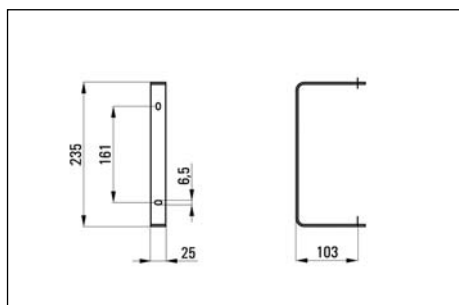
WHMX

Horizontal and vertical adjustable metal bracket in colour white or black for 2-way HiFi-box MX 40 and MX 50.



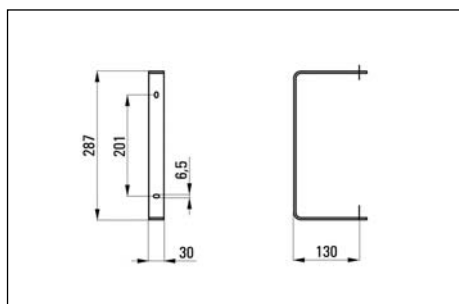
WBMX 40

Aluminum U-bracket in colour white or black for 2-way HiFi-box MX 40.



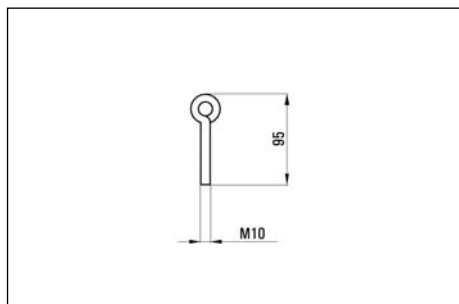
WBMX 50

Aluminum U-bracket in colour white or black for 2-way HiFi-box MX 50.



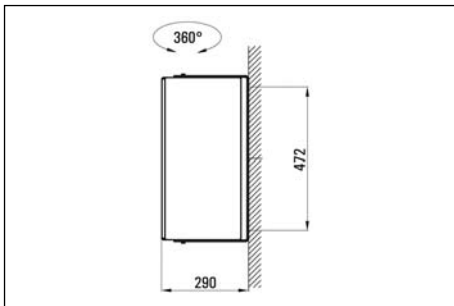
RSM10-BSB80

Eye bolt M10 for suspended mounting of PA speaker BSB 80 (Packing unit = 3 pce.).



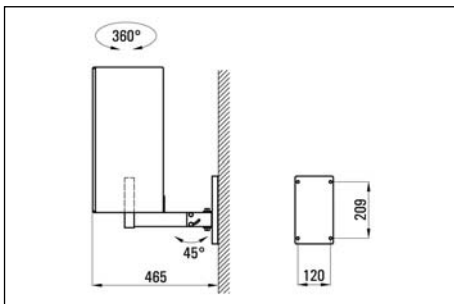
WBM 80

Metal U-bracket in colour white or black for PA speaker BSB 80.



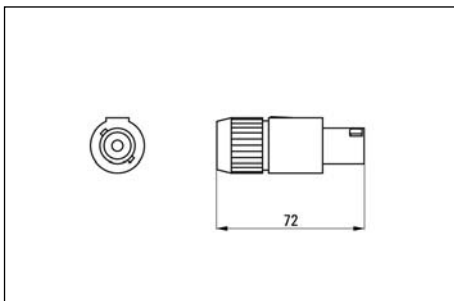
WH 120

Horizontal and vertical adjustable metal bracket (black) for PA speaker BSB 80.



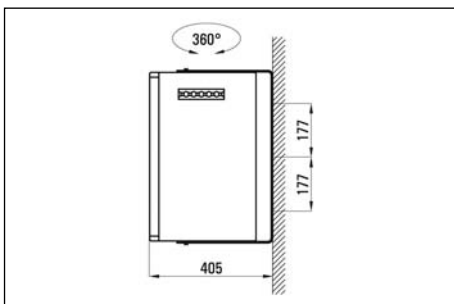
NL 4 FC

Speakon plug for PA speaker BSB 80 and BSB 300.



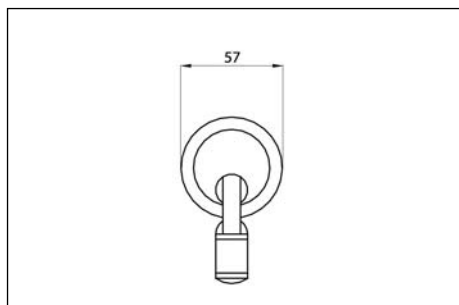
WBM 300

Metal U-bracket in colour white or black for PA speaker BSB 300.



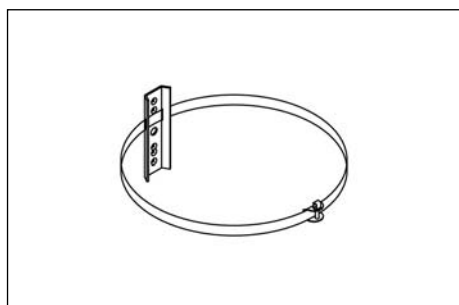
71138

Eye bolt for locking rails for PA speaker BSB 300 (Packing unit = 3 pce.).



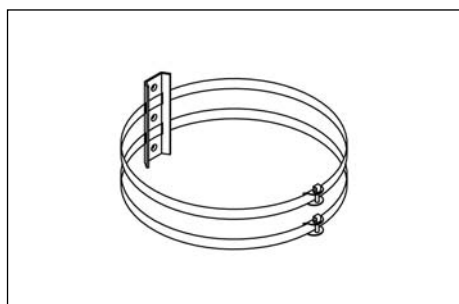
MB 1/2

Mast attachment for various speakers suitable for pole diameter 70 -210 mm.



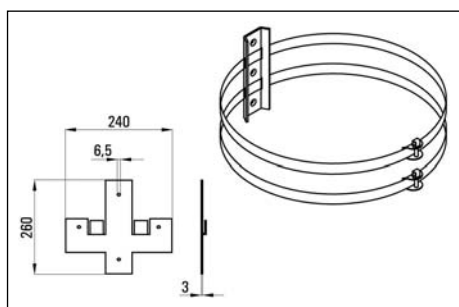
MB 3

Mast attachment for 2-way music horn TL 230 suitable for pole diameter 70 -210 mm.



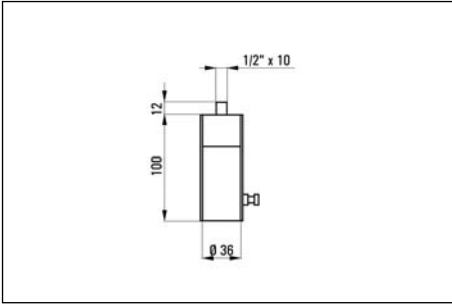
MB 3N

Adjustable mast attachment for 2-way music horn TL 230 suitable for pole diameter 70 -210 mm.



RF 25

Reducing flange for speaker stands suitable for the TS 25 sound collum range.



Speaker	FlamoX	HaloX	KompaX	Universal housing with mineral fibre board	EnoX housing
WHD Product	Fire protection housing	Halox-O (Onsite-mixed concrete)	Halox P (Slab ceilings)		
UPM 100-4/-20	9430-01	1290-40+1290-22			
UPM 100T6	9430-01	1290-40+1290-22			
UPM 140S-4/-20	9435-02				
UPM 140S-T6	9435-02				
UPM 200S-4/-20/-T6	9435-02				
UPM 260S-4/-20/TT/-T10	9435-02				
UP 6-4/-20	9430-01	1290-40+1290-22			
UP 6-T6	9430-01	1290-40+1290-22			
UP 10-4/-20	9435-02				
UP10-T6	9435-02				
UP 14-4/-20/-T6	9435-02				
UP 14/2-8/T25	9435-02				
UP14/2-4/-2-8 stereo/-T25 marine	9435-02				
UP 14/2 T6 (marine) /-SUB-8	9435-01				
UP 14/2 Q-8/-T25/stereo	9435-02				
UP 14/2 Q-T6	9435-01				
UP 22-4/-20/-T6	9435-02				
UP 23-4/-T10	9435-02				
UP 26-4/-T6/-T25	9435-02				
UP 26 SUB-8/-T25	9435-01				
UP 12+ST12	9435-02				
UP 16+ST16	9435-02				
UP 40-8/-T6/-T25					
UP 135-4	9435-02				
M 240-8/-T6/-T25/-8-stereo/8-HQ					
R 240-8/-T6/-8-stereo/-8-HQ	9435-02				
		Onsite-mixed concrete	Slab ceilings	Concrete construction	Brick wall
		1294-00 + 1292-06/1294-27	1294-15/1294-28	1298-27	1096-22
		1294-00 + 1292-06/1294-27	1294-15/1294-28	1298-27	1096-22
		1294-00 + 1293-18/1294-27	1294-15/1294-28	1297-27	1096-22
		1293-00 + 1293-24/1293-27	1294-15/1293-28	1298-28	1092-28
				1298-27	1096-22
		1294-00 + 1292-06/1294-27	1294-15/1294-28	1298-27	1096-22
		1294-00 + 1292-06/1294-27	1294-15/1294-28	1298-27	1092-28
		1294-00 + 1293-18/1294-27	1294-15/1294-28	1298-27	1092-28
		1294-00 + 1293-18/1294-27	1294-15/1294-28	1298-28	1092-28
		1294-00 + 1293-18/1294-27	1294-15/1294-28	1298-28	1092-28
		1294-00 + 1294-13 + 1293-18/1294-27 + 1294-13	1294-15 + 1294-13 + 1293-18/1294-28 + 1294-13	1297-25	1297-25
		1293-00 + Styrofoam moulded part	1293-28	1298-28	1092-28
		188 x 188 x 20/1293-27		1298-28	
		1293-00 + Styrofoam moulded part	1293-28 + 1293-13	1298-28	1298-28
		part 188 x 188 x 20/1293-27 + 1293-13		1298-28	
		1293-00 + 1293-24/1293-27	1293-15/1293-28	1298-28	1298-28
		1293-00 + 1293-24/1293-27	1293-15/1293-28	1298-28	1298-28
		1293-00 + 1293-24/1293-27	1293-15/1293-28	1298-28	1298-28
		1293-00 + 1294-14 + 1293-24/1293-27 + 1293-14	1293-15 + 1294-14/1293-28 + 1293-14	1298-28	1298-28
		1293-27 + 1293-14		1298-28	
		1293-27	1293-15/1293-28	1298-28	1092-28
		1294-00 + 1293-18/1294-27	1294-15/1293-28	1298-28	1092-28
		1293 + Styrofoam moulded part	1293-28	1298-28	1298-28
		276 x 189 x 20/1293-27		1298-28	
		1293-27	1293-28	1298-28	1298-28
		1293 + Styrofoam moulded part	1293-28	1298-28	1298-28
		Ø 214 x 20/1293-27	1293-28	1298-28	1298-28
		1293 + Styrofoam moulded part	1293-15/1293-28	1298-28	1298-28
		Ø 214 x 20/1293-27		1298-28	

No responsibility is taken for the correctness of this information.

■ KOMPAx housing with mineral fibre board

Reference address: KAISER GmbH & Co. KG · D-58579 Schalksmühle
www.kaiser-elektro.de

Speaker	Spelsberg IBTronic			
	IBT	IBT	IBT-TT	IBT-TT
WHD Product				
UPM 100-4/-20/-T6	Onsite-mixed concrete	Onsite-mixed concrete	Onsite-mixed concrete	Onsite-mixed concrete
UPM 140S-4/-20/-T6	Slab ceilings	Slab ceilings	Slab ceilings	Slab ceilings
UP 6-4/-20/-T6	976 003 01	976 103 01	976 203 01	976 303 01
UP 10-4/-20/-T6	976 003 01	976 105 01	976 203 01	976 303 01
	976 004 01	976 104 01	976 204 01	976 304 01
	976 003 01	976 103 01	976 203 01	976 303 01
	976 004 01	1976 104 01	976 204 01	976 304 01
	976 003 01	976 105 01	976 203 01	976 303 01
	Reference address: Günther Spelsberg GmbH & Co. KG · D-58579 Schalksmühle www.spelsberg.de			
	No responsibility is taken for the correctness of this information			

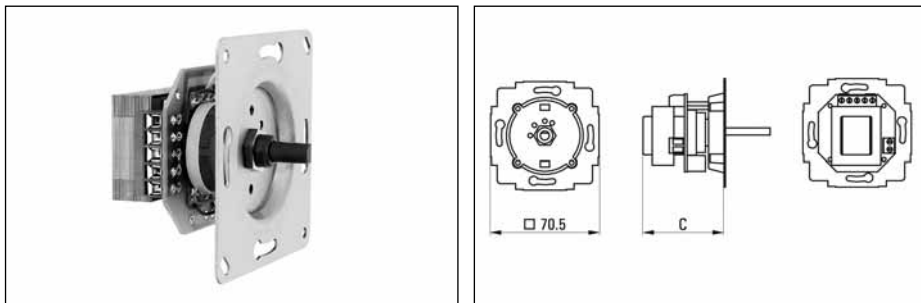
- > **Volume Controls** p. 78-86
 - suitable for various switch ranges
 - suitable for JUNG CD 500
 - complete and cost effective
- > **Program Selector Switches** p. 87-88
 - suitable for various switch ranges
 - suitable for JUNG CD 500
 - complete and cost effective
- > **Musicport MP 55** p. 89
- > **Amplifiers** p. 89-95
 - suitable for various switch ranges
 - suitable for JUNG CD 500
- > **Speakers** p. 96-99
 - suitable for various switch ranges
 - complete and cost effective
- > **Microphones** p. 100
 - suitable for various switch ranges
- > **Order details** p. 101-103



100V-volume control fitting to switch boxes

LST 6 ... UP, LST 50 ... UP

100V volume control, suitable e.g. for offices, restaurants, shops, etc... The LST 6 and LST 50 come with a rotary dial without limit stop and auto-transformer. Also available with an optional mandatory relay. The metal support plate is screwed onto a standard flush-mounted box 63 mm in depth. It comes pre-configured for Venetian blind cover plates with rotary dial for the particular switch program. These parts can be obtained from any electrical wholesaler. For exact order information according to the switch program please refer to the table at the end of this chapter.

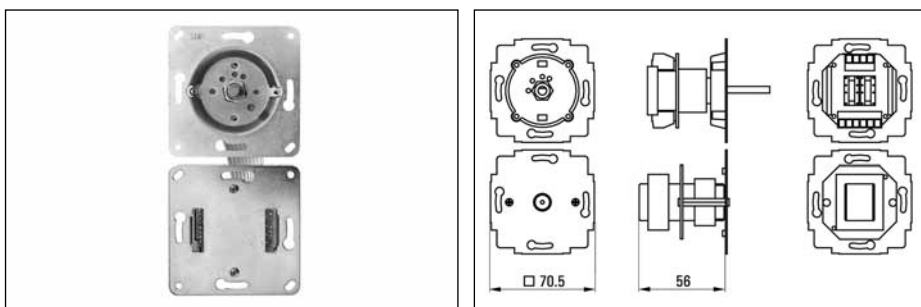


Technical Datas	LST 6... UP	LST 50 ... UP
Rated Power	6 W	50 W
Mandatory Relais Voltage	24 V	24 V
Mandatory Relais Current	0.012 A	0.012 A
Depth	49 mm	54 mm
Component Set	rotary switch without stopper, 9 volume levels, 3 off positions	rotary switch without stopper, 9 volume levels, 3 off positions
Net Weight	0.1 kg	0.18 kg
Colors	depending on switch program	depending on switch program
Accessories		

100V-volume control fitting to switch boxes

LST 50 AB ... UP

100V volume control suitable for controlling two speaker circuits (AB cabling), e.g. in offices, department stores, ... The LST 50 AB comes with a rotary dial without limit stop and two 25W auto-transformers. Also available with an optional mandatory relay. The metal support plate is screwed onto two standard flush-mounted boxes 63 mm in depth. Comes pre-configured for the Venetian blind cover plate with rotary knob for the blanking plate suitable for the particular switch program. These parts can be obtained from any electrical wholesaler. For exact order information according to the switch program please refer to the table at the end of this chapter.

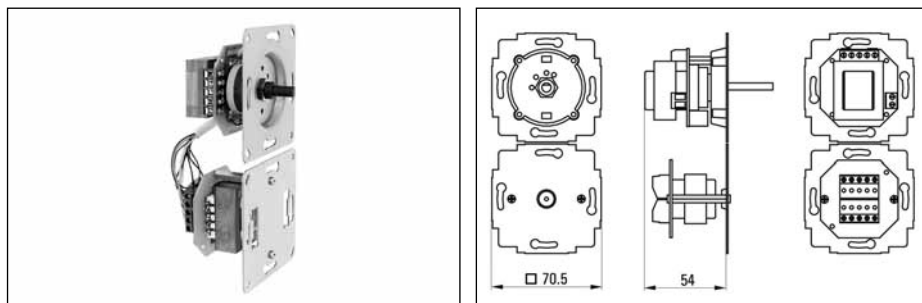


Technical Datas	LST50 AB... UP
Rated Power	2x25 W
Mandatory Relais Voltage	24 V
Mandatory Relais Current	0.012 A
Depth	56 mm
Component Set	rotary switch without stopper, 11 volume levels, 1 off position
Net Weight	0.42 kg
Colors	depending on switch program
Accessories	

100V-volume control fitting to switch boxes

LST 100 ... UP

100V volume control, suitable for offices, restaurants, department stores,... The LST 100 comes with a rotary dial without limit stop and two 50W low-voltage transformers. Also available with an optional mandatory relay. The metal support plate is screwed onto two standard flush-mounted boxes 63 mm in depth. Comes pre-configured for the Venetian blind cover plate with rotary knob for the blanking plate suitable for the particular switch box. These parts can be obtained from any electrical wholesaler. For exact order information according to the switch box please refer to the table at the end of this chapter.

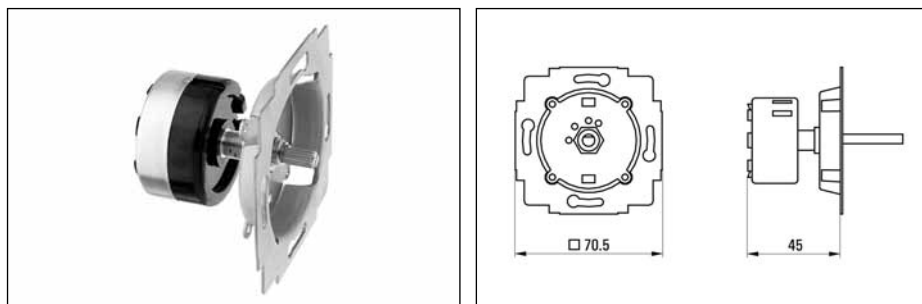


Technical Datas	LST 100... UP
Rated Power	100 W
Mandatory Relais Voltage	24 V
Mandatory Relais Current	0.012 A
Depth	54 mm
Component Set	rotary switch without stopper, 9 volume levels, 3 off positions
Net Weight	0.43 kg
Colors	depending on switch program
Accessories	

volume control for 4-, 8-, 20 ohm speakers fitting to switch boxes

LR 15 mono ... UP

Analogue volume control, suitable for homes, doctor's surgeries, etc... The LR 15 Mono comes with a potentiometer with stopper. The metal support plate is screwed onto a standard flush-mounted box 63 mm in depth. It comes preconfigured for Venetian blind cover plates with rotary knob for the particular switch program. These parts can be obtained from any electrical wholesaler. For exact order data according to the switch program please refer to the table at the end of this chapter.

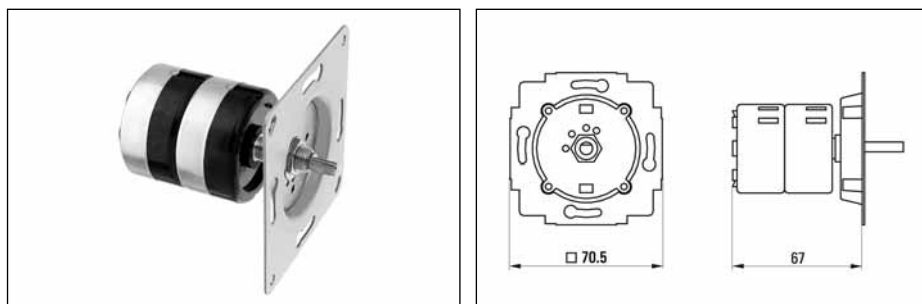


Technical Datas	LR 15 mono ... UP
Rated Power	15 W
Impedance	50 Ohm
Max. Number of Loudspeakers (4 Ohm)	1 Pcs.
Max. Number of Loudspeakers (8 Ohm)	2 Pcs.
Max. Number of Loudspeakers (20 Ohm)	5 Pcs.
Depth	45 mm
Component Set	1 potentiometer with stopper, minimum level might stay when set to zero
Net Weight	0.08 kg
Colors	depending on switch program
Accessories	NVU 100: low voltage transformer

volume control for 4-, 8-, 20 ohm speakers fitting to switch boxes

LR 15 stereo ... UP

Analogue volume control, suitable for homes, doctor's surgeries, ...The LR 15 Stereo features two potentiometers with stoppers. The metal support plate is screwed onto a flush-mounted box. It comes preconfigured for Venetian blind cover plates with rotary knob for the particular switch program. These parts can be obtained from any electrical wholesaler. For exact order data according to the switch program please refer to the table at the end of this chapter.

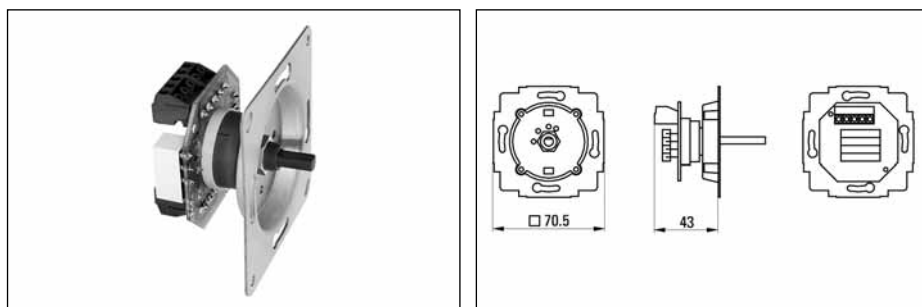


Technical Datas	LR 15 stereo ... UP
Rated Power	2x15 W
Impedance	2x50 Ohm
Max. Number of Loudspeakers (4 Ohm)	2 Pcs.
Max. Number of Loudspeakers (8 Ohm)	4 Pcs.
Max. Number of Loudspeakers (20 Ohm)	10 Pcs.
Depth	67 mm
Component Set	2 Potentiometer with stopper, minimum level might stay when set to zero
Net Weight	0.11 kg
Colors	depending on switch program
Accessories	NVU 100: low voltage transformer

volume control for 4-, 8-, 20 ohm speakers fitting to switch boxes

LR 20 ... UP

Volume control, suitable for restaurants, hotel bathrooms...The LR 20 Mono features a rotary dial without limit stop and a resistor network. This makes it especially suitable for use in public buildings. The metal support plate is screwed onto a standard flush-mounted box 61/63 mm in depth. It comes preconfigured for Venetian blind cover plates with rotary knob for the particular switch box. These parts can be obtained from any electrical wholesaler. For exact order data according to the switch box please refer to the table at the end of this chapter.

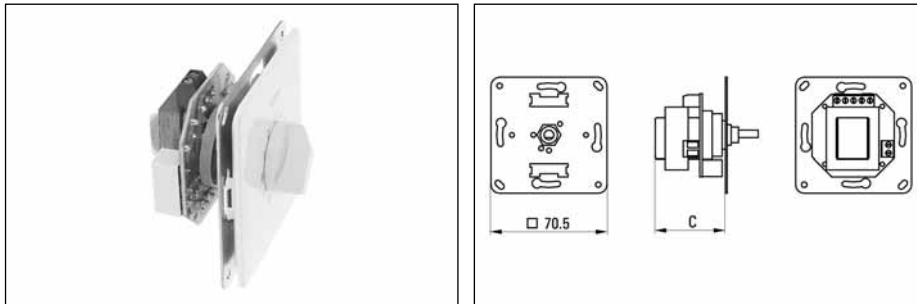


Technical Datas	LR 20 mono... UP
Rated Power	20 W
Impedance	4 Ohm
Max. Number of Loudspeakers (4 Ohm)	1 Pcs.
Max. Number of Loudspeakers (8 Ohm)	2 Pcs.
Max. Number of Loudspeakers (20 Ohm)	5 Pcs.
Depth	43 mm
Component Set	resistance network, rotary switch without stopper, 9 vol. levels, 3 off positions
Net Weight	0.08 kg
Colors	depending on switch program
Accessories	NVU 100: low voltage transformer

100V-volume control fitting to JUNG CD 500

LST6 CD 500 UP, LST 50 CD 500 UP

100V volume control, suitable for offices, restaurants, shops, etc... The LST 6 and LST 50 CD 500 come with a rotary dial without limit stop and auto-transformer. Also available with an optional mandatory relay. The metal support plate is screwed onto a standard flush-mounted box, 42 mm (LST 6)/ 63 mm (LST 50) in depth. A printed cover plate and rotary knob in alpine white are included in the delivery. A matching 1x frame/surface-mounted housing (for LST 6 CD 500 only) in alpine white are available accessories.

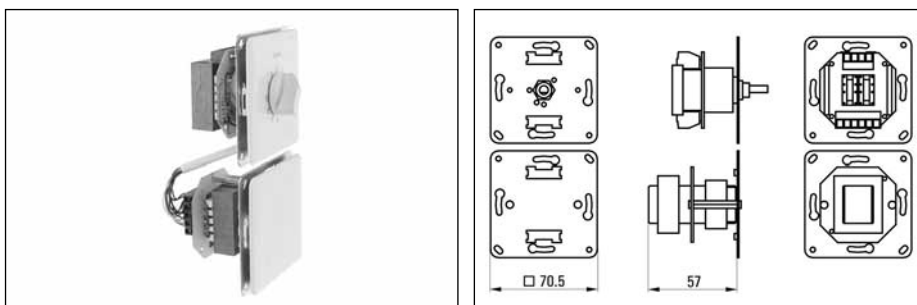


Technical Datas	LST 6 CD 500 UP	LST 50 CD 500 UP
Rated Power	6 W	50 W
Mandatory Relais Voltage	24 V	24 V
Mandatory Relais Current	0.012 A	0.012 A
Depth	39 mm	45 mm
Component Set	rotary switch without stopper, 9 volume levels, 3 off positions	rotary switch without stopper, 9 volume levels, 3 off positions
Net Weight	0.1 kg	0.18 kg
Colors	alpine white	alpine white
Accessories	CD 581 WW: 1x frame, CD 581 A WW: 1x surface-mounted housing	CD 581 WW: 1x frame

100V-volume control fitting to JUNG CD 500

LST 50 AB CD 500 UP

100V volume control suitable for controlling two speaker circuits (AB cabling), e.g. in offices, department stores, ... The LST 50 AB CD 500 comes with a rotary dial without limit stop and two 25W auto-transformers. Also available with an optional mandatory relay. The metal support plate is screwed onto two standard flush-mounted boxes 63 mm in depth. A printed cover plate and rotary knob and blanking plate in alpine white are included in the delivery. A matching 2x frame in alpine white is an available accessory.

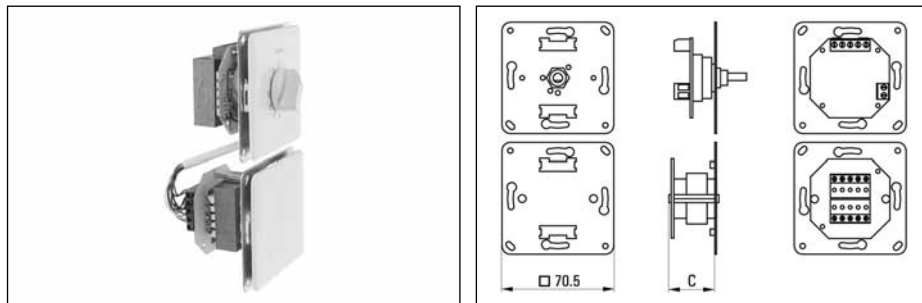


Technical Datas	LST 50 AB CD 500 UP
Rated Power	2x25 W
Mandatory Relais Voltage	24 V
Mandatory Relais Current	0.012 A
Depth	57 mm
Component Set	rotary switch without stopper, 11 volume levels, 1 off position
Net Weight	0.42 kg
Colors	alpine white
Accessories	CD 582 WW: cover frame, double

100V-volume control fitting to JUNG CD 500

LST80 CD 500 UP, LST 100 CD 500 UP

100V volume control, suitable for offices, restaurants, department stores, ... The LST 80/ LST 100 CD 500 comes with a rotary dial without limit stop and two auto-transformers. Also available with an optional mandatory relay. The metal support plate is screwed onto two standard flush-mounted boxes 63 mm in depth. The LST 80 CD 500 can also be built into a 2x surface-mounted housing. A printed cover plate and rotary knob and blanking plate in alpine white are included in the delivery. A matching 2x frame and a 2x surface-mounted housing (only for LST 80) in alpine white is an available accessory.

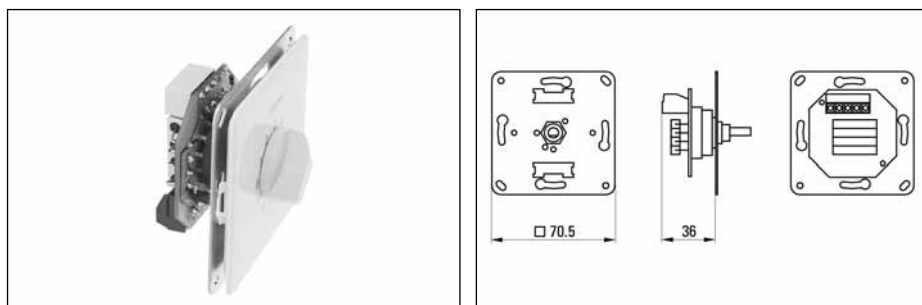


Technical Datas	LST80 CD 500 UP	LST 100 CD 500
Rated Power	80 W	100 W
Mandatory Relais Voltage	24 V	24 V
Mandatory Relais Current	0.012 A	0.012 A
Depth	32 mm	50 mm
Component Set	rotary switch without stopper, 9 volume levels, 3 off positions	rotary switch without stopper, 9 volume levels, 3 off positions
Net Weight	0.39 kg	0.43 kg
Colors	alpine white	alpine white
Accessories	CD 582 WW: 2x frame, CD 582 A WW: 2x surface-mounted housing	CD 582 WW: 2x frame

100V-volume control fitting to JUNG CD 500

LST W 6 CD 500, LST W 20 CD 500

100V volume control suitable for offices, restaurants, etc... The LSTW 6-/LSTW 20 CD 500 features a rotary dial without limit stop and resistor network. This makes a minimum installation depth possible, which means it can also be installed in a surface-mounted housing. The metal support plate is screwed onto a standard flush-mounted box 42 mm in depth, or a surface-mounted housing. A printed cover plate and rotary knob in alpine white are included in the delivery. A matching 1x frame/surface-mounted housing in alpine white is an available accessory.

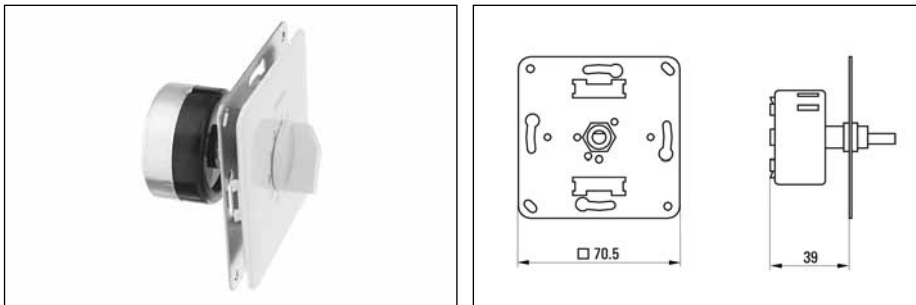


Technical Datas	LST W 6 CD 500	LST W 20 CD 500
Rated Power	6 W	20 W
Mandatory Relais Voltage	24 V	24 V
Mandatory Relais Current	0.012 A	0.012 A
Depth	36 mm	36 mm
Component Set	rotary switch without stopper, 9 volume levels, 3 off positions	rotary switch without stopper, 9 volume levels, 3 off positions
Net Weight	0.09 kg	0.09 kg
Colors	alpine white	alpine white
Accessories	CD 581 WW: 1x frame, CD 581 A WW: 1x surface-mounted housing	CD 581 WW: 1x frame, CD 581 A WW: 1x surface-mounted housing

volume control for 4-, 8-, 20 ohm speakers fitting to JUNG CD 500

LR 15 mono CD 500

Analogue volume control, suitable for homes, doctor's surgeries, ... The LR 15 CD 500 Mono features a potentiometer with stopper. The metal support plate is screwed onto a standard flush-mounted box 42 mm in depth, or a surface-mounted housing. A printed cover plate and rotary knob in alpine white are included in the delivery. A matching 1x frame/surface-mounted housing produced by Jung/CD 500 in alpine white is an available accessory.

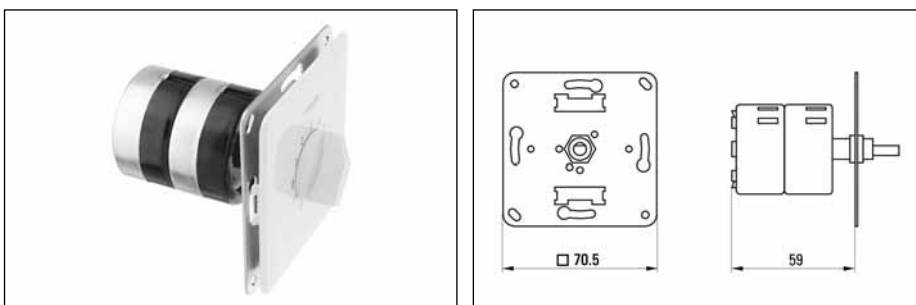


Technical Datas	LR 15 mono CD
Rated Power	15 W
Impedance	50 Ohm
Max. Number of Loudspeakers (4 Ohm)	1 Pcs.
Max. Number of Loudspeakers (8 Ohm)	2 Pcs.
Max. Number of Loudspeakers (20 Ohm)	5 Pcs.
Depth	39 mm
Component Set	1 potentiometer with stopper, minimum level might stay when set to zero
Net Weight	0.08 kg
Colors	alpine white
Accessories	CD 581 WW: 1x frame, CD 581 A WW: 1x surface-mounted housing

volume control for 4-, 8-, 20 ohm speakers fitting to JUNG CD 500

LR 15 stereo CD 500 UP

Analogue volume control, suitable for homes, doctor's surgeries, ... The LR 15 CD 500 Stereo features two potentiometers with stoppers. The metal support plate is screwed onto a standard flush-mounted box 63 mm in depth. A printed cover plate and rotary knob in alpine white are included in the delivery. A matching 1x frame produced by Jung/CD 500 in alpine white is an available accessory.

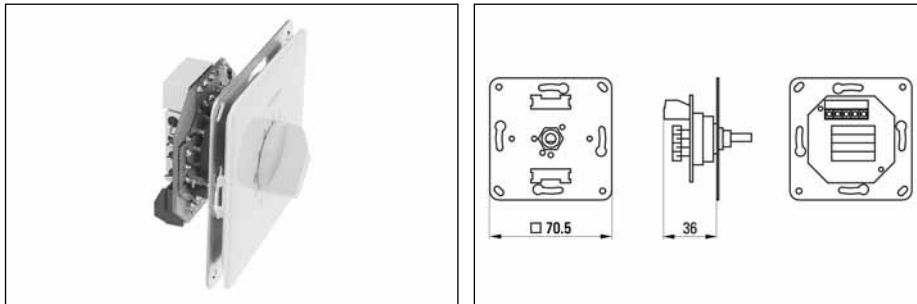


Technical Datas	LR 15 stereo CD 500 UP
Rated Power	2x15 W
Impedance	2x50 Ohm
Max. Number of Loudspeakers (4 Ohm)	2 Pcs.
Max. Number of Loudspeakers (8 Ohm)	4 Pcs.
Max. Number of Loudspeakers (20 Ohm)	10 Pcs.
Depth	59 mm
Component Set	2 potentiometer with stopper, minimum level might stay when set to zero
Net Weight	0.11 kg
Colors	alpin white
Accessories	CD 581 WW: 1x frame

volume control for 4-, 8-, 20 ohm speakers fitting to JUNG CD 500

LR 20 mono CD 500

Volume control, suitable for restaurants, hotel bathrooms, ... The LR 20 Mono CD 500 features a rotary dial without limit stop and a resistor network. This makes it especially suitable for use in public buildings. The metal support plate is screwed onto a standard flush-mounted box 42 mm in depth, or a surface-mounted housing. A printed cover plate and rotary knob in alpine white are included in the delivery. A matching 1x frame/surface-mounted housing produced by Jung/CD 500 in alpine white is an available accessory.

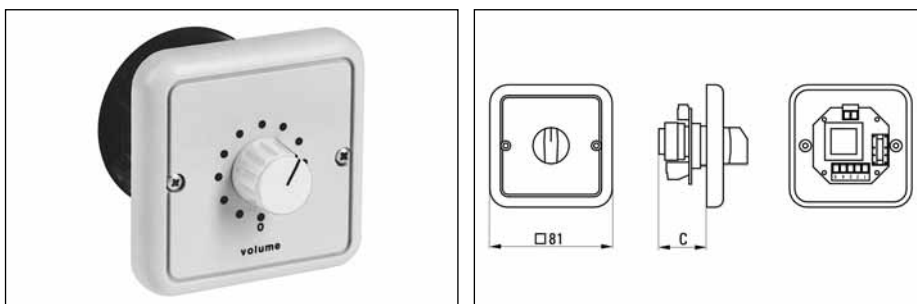


Technical Datas	LR 20 mono CD 500
Rated Power	20 W
Impedance	4 Ohm
Max. Number of Loudspeakers (4 Ohm)	1 Pcs.
Max. Number of Loudspeakers (8 Ohm)	2 Pcs.
Max. Number of Loudspeakers (20 Ohm)	5 Pcs.
Depth	36 mm
Component Set	resistance-network, rotary switch without stopper, 9 volume and 3 off positions
Net Weight	0.08 kg
Colors	alpine white
Accessories	CD 581 WW: 1x frame, CD 581 A WW: 1x surface-mounted housing

100V volume control complete and cost effective

LST 6 UP/AP, LST 50 UP/AP

100V volume control, suitable for offices, restaurants, shops, etc... The LST 6 and LST 50 UP/AP come with a rotary dial without limit stop and auto-transformer. Also available with an optional mandatory relay. The printed cover plate (included in the delivery) is screwed onto a standard flush-mounted box (42 mm in depth), or onto the 1x surface-mounted housing (LST 6 only). Both housings may also be supplied (depending on the version). A rotary knob is also included in the delivery.

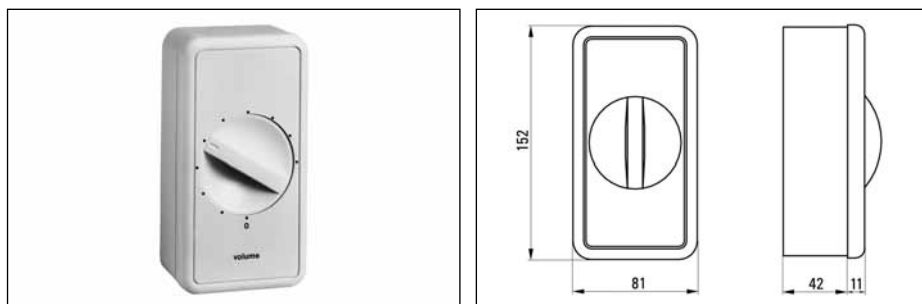


Technical Datas	LST 6 UP/AP	LST 50 UP
Rated Power	6 W	50 W
Mandatory Relais Voltage	24 V	24 V
Mandatory Relais Current	0.012 A	0.012 A
Depth	35 mm	40 mm
Component Set	rotary switch without stopper, 9 volume levels, 3 off positions	rotary switch without stopper, 9 volume levels, 3 off positions
Net Weight	0.1 kg	0.18 kg
Colors	white (RAL 9010)	white (RAL 9010)
Accessories	incl. flush-/surface-mounted housing (depending on the version)	incl. flush-/surface-mounted housing (depending on the version)

100V volume control complete and cost effective

LST15 UP/AP, LST40 UP/AP, LST80 UP/AP

100V volume control, suitable for offices, restaurants, shops, etc... The LST 15-, 40- 80 UP/AP feature a rotary dial without limit stop and a auto-transformer and are also available with an optional mandatory relay. The printed cover plate (included in the delivery) is screwed on the 2x flush-mounted box (also supplied) or the 2x surface-mounted housing. A rotary knob is also included.

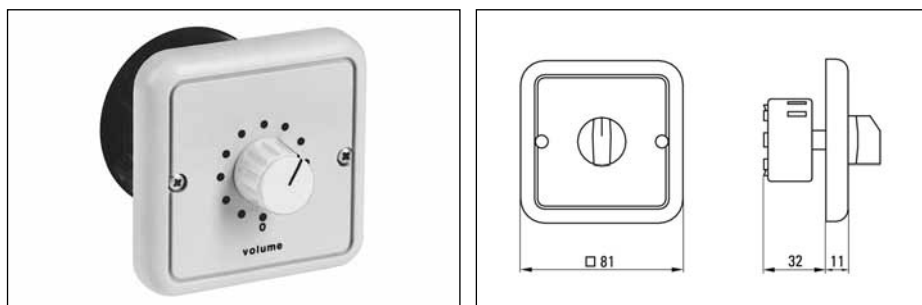


Technical Datas	LST 15 UP/AP	LST40 UP/AP	LST 80 UP/AP
Rated Power	15 W	40 W	80 W
Mandatory Relais Voltage	24 V	24 V	24 V
Mandatory Relais Current	0.012 A	0.012 A	0.012 A
Depth	42 mm	42 mm	42 mm
Component Set	rotary switch without stopper, 9 volume levels, 3 off positions	rotary switch without stopper, 9 volume levels, 3 off positions	rotary switch without stopper, 9 volume levels, 3 off positions
Net Weight	0.27 kg	0.26 kg	0.39 kg
Colors	white (RAL 9010)	white (RAL 9010)	white (RAL 9010)
Accessories	incl. flush-/surface-mounted housing (depending on the version)	incl. flush-/surface-mounted housing (depending on the version)	incl. flush-/surface-mounted housing (depending on the version)

volume control for 4-, 8-, 20 ohm speakers complete and cost effective

LR 15 mono UP/AP

Analogue volume control, suitable for restaurants, etc... The LR 15 mono UP/AP features a potentiometer with stopper. The printed cover plate (included in the delivery) is screwed onto a standard flush-mounted box (42 mm in depth), or onto the 1x surface-mounted housing. Both housings may also be supplied (depending on the version). A rotary knob is also included in the delivery.

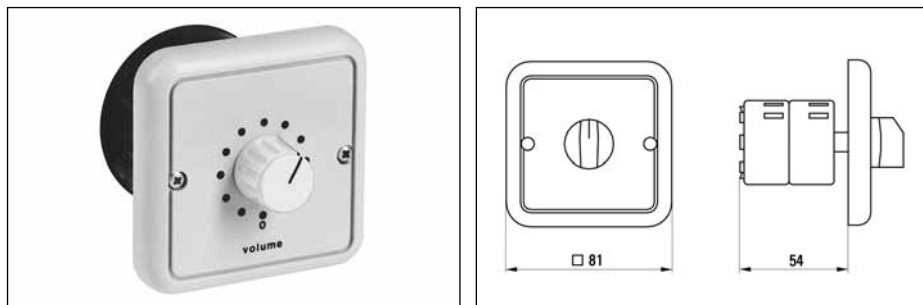


Technical Datas	Volume control LR 15 mono
Rated Power	15 W
Impedance	50 Ohm
Max. Number of Loudspeakers (4 Ohm)	1 Pcs.
Max. Number of Loudspeakers (8 Ohm)	2 Pcs.
Max. Number of Loudspeakers (20 Ohm)	5 Pcs.
Depth	32 mm
Component Set	1 potentiometer with stopper, minimum level might stay when set to zero
Net Weight	0.08 kg
Colors	white (RAL 9010)
Accessories	NVU 100: low voltage transformer, incl. flush-/surface-mounted housing

volume control for 4-, 8-, 20 ohm speakers complete and cost effective

LR 15 stereo UP

Analogue volume control, suitable for restaurants, etc... The LR 15 stereo UP features a potentiometer with stopper. The printed cover plate included in the delivery is screwed onto a standard flush-mounted box included in the delivery with a depth of 63 mm. A rotary knob is also included as before.

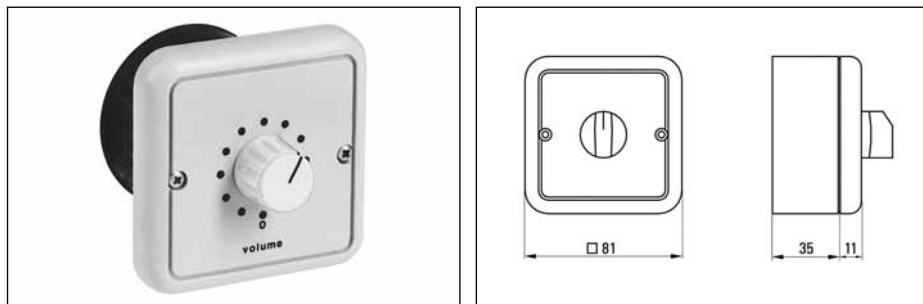


Technical Datas	LR 15 stereo UP
Rated Power	2x15 W
Impedance	2x50 Ohm
Max. Number of Loudspeakers (4 Ohm)	2 Pcs.
Max. Number of Loudspeakers (8 Ohm)	4 Pcs.
Max. Number of Loudspeakers (20 Ohm)	10 Pcs.
Depth	54 mm
Component Set	2 potentiometer with stopper, minimum level might stay when set to zero
Net Weight	0.11 kg
Colors	white (RAL 9010)
Accessories	NVÜ 100: low voltage transformer, incl. flush-/surface-mounted housing

volume control for 4-, 8-, 20 ohm speakers complete and cost effective

LR 20 mono UP/AP

Volume control, suitable for restaurants, etc... The LR 20 mono UP/AP features a rotary dial without limit stop and a resistor network. This makes it especially suitable for use in public buildings. The printed cover plate included in the delivery is screwed onto a standard flush-mounted box (42 mm in depth), or onto the 1x surface-mounted housing. Both housings may also be supplied (depending on the version). A rotary knob is also included in the delivery.

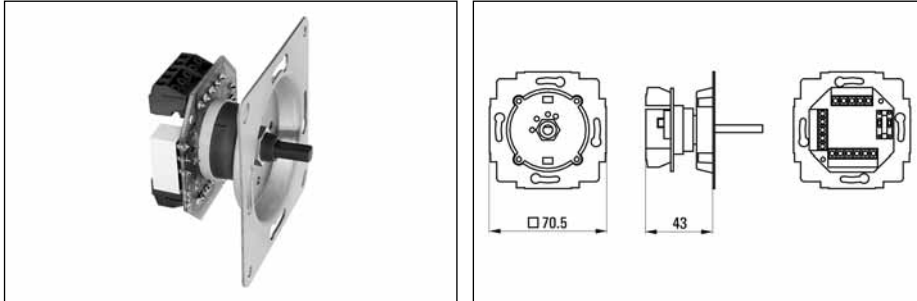


Technical Datas	Volume control LR 20 mono
Rated Power	20 W
Impedance	4 Ohm
Max. Number of Loudspeakers (4 Ohm)	1 Pcs.
Max. Number of Loudspeakers (8 Ohm)	2 Pcs.
Max. Number of Loudspeakers (20 Ohm)	5 Pcs.
Depth	31 mm
Component Set	resistance-network, rotary switch without stopper, 9 volume and 3 off positions
Net Weight	0.08 kg
Colors	white (RAL 9010)
Accessories	NVÜ 100: low voltage transformer, incl. flush-/surface-mounted housing

program selectors fitting to switch boxes

PRO 3 ... UP

Programme selector switch, e.g for restaurants, shops, ... The PRO 3 UP features a rotary dial without limit stop for 6 programmes. Also available with an optional mandatory relay. The metal support plate is screwed onto a standard flush-mounted box 63 mm in depth. It comes preconfigured for Venetian blind cover plates with rotary knob for the particular switch program. These parts can be obtained from any electrical wholesaler. For exact order data according to the switch program please refer to the table at the end of this chapter.

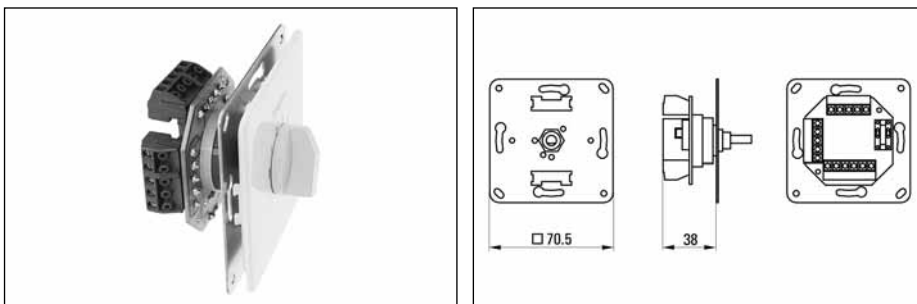


Technical Datas	Pro 3... UP
Mandatory Relais Voltage	24 V
Mandatory Relais Current	0.012 A
Depth	43 mm
Component Set	12 steps for 6 programs without stopper
Net Weight	0.08 kg
Colors	depending on switch program
Accessories	

program selectors fitting to JUNG CD 500

PRO 3 CD 500

Programme selector switch, e.g for restaurants, shops, etc... The PRO 3 CD 500 features a rotary dial without limit stop for 6 programmes. Also available with an optional mandatory relay. The metal support plate is screwed onto a standard flush-mounted box 42 mm in depth, or a surface-mounted housing. A printed cover plate and rotary knob in alpin white are included in the delivery. A matching 1x frame/surface-mounted housing in alpin white is an available accessory.

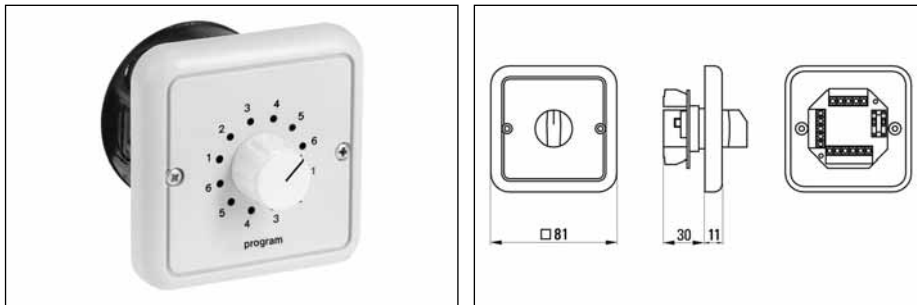


Technical Datas	Pro 3 CD 500
Mandatory Relais Voltage	24 V
Mandatory Relais Current	0.012 A
Depth	38 mm
Component Set	12 steps for 6 programs without stopper
Net Weight	0.08 kg
Colors	alpin white
Accessories	CD 581 WW: 1x frame, CD 581 A WW: 1x surface-mounted housing

program selectors complete and cost effective

PRO 1 UP/AP

Programme selector switch, e.g for restaurants, shops, etc... The PRO 1 UP/AP features a rotary dial without limit stop for 6 programmes. Also available with an optional mandatory relay. The printed cover plate included in the delivery is screwed onto a standard flush-mounted box (42 mm in depth), or onto the 1x surface-mounted housing. Both housings may also be supplied (depending on the version). A rotary knob is also included in the delivery.

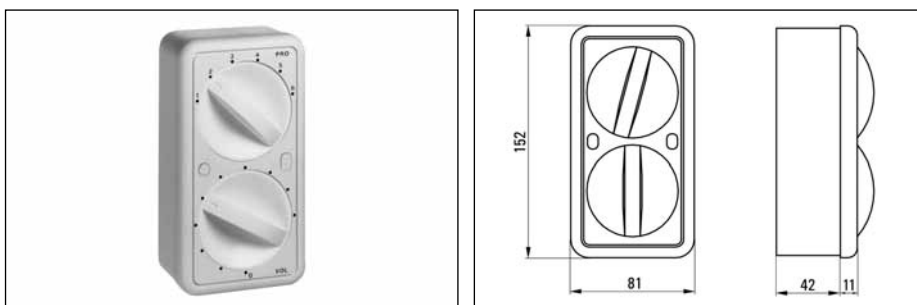


Technical Datas	PRO 1 UP/AP
Mandatory Relais Voltage	24 V
Mandatory Relais Current	0.012 A
Depth	30 mm
Component Set	12 steps for 6 programmes without stopper
Net Weight	0.09 kg
Colors	white (RAL 9010)
Accessories	incl. flush-/surface-mounted housing (depending on the version)

program selectors complete and cost effective

LST40 PRO UP/AP

100V volume control, with programme selector switch, suitable for restaurants, shops, etc... The LST 40 PRO UP/AP features two rotary dials without limit stop and a auto-transformer, as well as a rotary dial for selecting between 6 programmes. It is also available with an optional mandatory relay. The printed cover plate included in the delivery is screwed on the 2x flush-mounted box or the 2x surface-mounted housing. Both housings may also be included (depending on the version). Two rotary knobs are also included in the delivery.



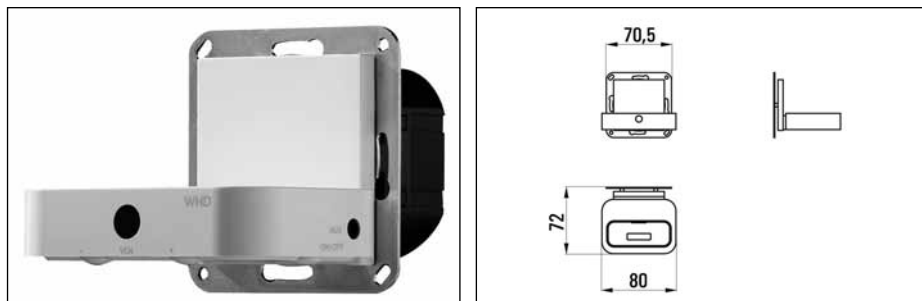
Technical Datas	LST 40 PRO UP/AP
Mandatory Relais Voltage	24 V
Mandatory Relais Current	0.012 A
Depth	42 mm
Component Set	Two switches without stopper for 6 programs and 9 volume levels/3 off positions
Net Weight	0.33 kg
Colors	white (RAL 9010)
Accessories	incl. flush-/surface-mounted housing (depending on the version)

music port with stereo amplifier and charging function

MP 55 UP

Wall holder with amplifier and charger for portable music players like iPod and iPhone. Built-in infrared receiver and push buttons for volume control. Additional AUX input (3.5 mm jack) connects to almost any portable sound system with line or headphone connectivity. Can be combined with loudspeaker KEL 55 to match with switch ranges or connects to any other loudspeaker (impedance min. 4 ohm). 55x55 mm front plate compatible with various switch ranges. A fixed line-level stereo output connects the MP 55 to a WHD multiroom or a hi-fi system.

* iPod and iPhone are registered trademarks of Apple Inc.

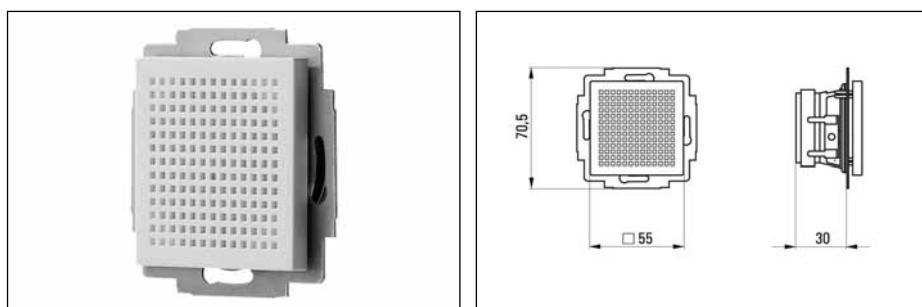


Technical Datas	MP 55 UP
Input Voltage Mic/ILne	-/200 mV
Input Imedance Mic/Line	-/15 kOhm
Max. Output Voltage	3.5 V
Output Impedance	4 Ohm
Rated Power	2x1.5 W
Control Voltage	
Operating Voltage	230 V
Current Consumption	
Max. Number of Loudspeakers (4 Ohm)	1 Pcs.
Max. Number of Loudspeakers (8 Ohm)	2 Pcs.
Max. Number of Loudspeakers (20 Ohm)	5 Pcs.
Depth	36 mm
Component Set	230V power supply, charger for iPod/iPhone, stereo amplifier
Net Weight	0.15 kg
Colors	pure white shiny
Accessories	KEL 55 8 ohms: speaker, TP 55: remote control

monitor speakers

KEL 55 8 ohms

Speaker ideal to combine with Musicport 55 for example in homes, hotel rooms,... The KEL 55 offers outstanding sound for its size. It features a 50 mm full range speaker. The metal support plate is screwed onto a standard flush-mounted box 42 mm in depth. The grille included in the delivery in color pure white shiny with a size of 55 x 55 mm is inserted into the metal support plate thus securing the frame of the switch. This can be obtained from any electrical wholesaler.

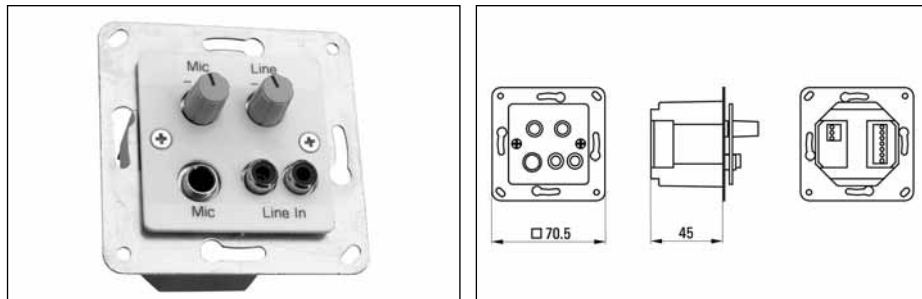


Technical Datas	KEL 55 8 ohms
Load Rating / Music Power	3/4 W
Impedance	8 Ohm
Transformer	
SDP 1W/1m	83 dB
SDP PNenn/1m	88 dB
SDP PNenn/1m/f	92 dB/12 kHz
Frequency Range (-3 dB)	150-20000 Hz
Frequency Range (-10 dB)	100-21000 Hz
Component Set	1 x B 50 BB
Net Weight	0.15 kg
Colors	pure white shiny
Accessories	perfectly suitable for MP 55 UP

amplifier fitting to switch boxes

Preamp UP

Preamplifier for connecting up a microphone and a line source, e.g. a CD- or MP3 player. Suitable for homes, small training rooms, doctor's surgeries, etc.... The volume level from each source is separately controllable. The Preamp UP can also be switched on/off. The pre-amplified signal can be forwarded to up 50x AMP 10 (DC) or to a 100V amplifier for example. The metal support plate is screwed onto a standard flush-mounted box 63 mm in depth. A 50 x 50 mm printed cover plate is included in the delivery. A suitable adapter frame, obtainable from any electrical wholesaler is available for the particular switch program.

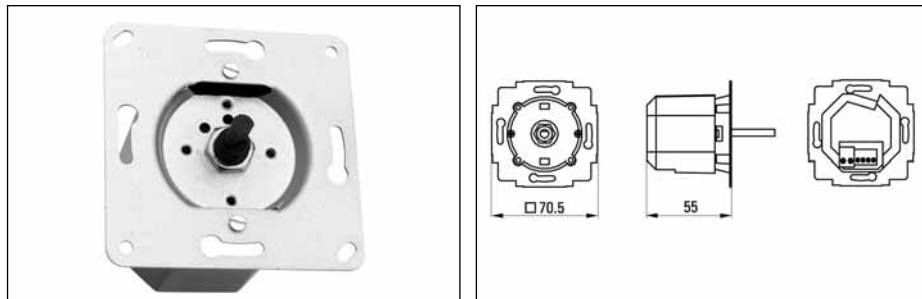


Technical Datas	Preamp UP
Input Voltage Mic/Line	4 mV/400 mV
Input Impedance Mic/Line	4.7 kOhm/47 kOhm
Max. Output Voltage	5 V
Output Impedance	50 Ohm
Rated Power	
Control Voltage	0-10 V
Operating Voltage	22 - 26 V
Current Consumption	0.025 A
Max. Number of Loudspeakers (4 Ohm)	
Max. Number of Loudspeakers (8 Ohm)	
Max. Number of Loudspeakers (20 Ohm)	
Depth	45 mm
Component Set	
Net Weight	0.12 kg
Colors	pure white, dull
Accessories	PS 24/1,5: power supply

amplifiers fitting to switch boxes

AMP 10 ... UP

Power amplifier for use with the preamplifier Preamp UP, suitable for homes, small training rooms, doctor's surgeries, etc... The AMP 10 features a potentiometer with switch allowing you to adjust the volume independently and to switch the amplifier on/off. The metal support plate is screwed onto a standard flush-mounted box 63 mm in depth. It comes preconfigured for Venetian blind cover plates with rotary dial for the particular switch program. These parts can be obtained from any electrical wholesaler. For exact order information according to the switch program please refer to the table at the end of this chapter.

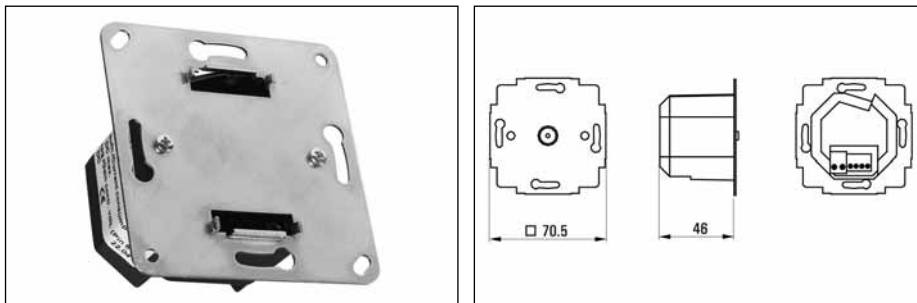


Technical Datas	AMP 10 ... UP
Input Voltage Mic/ILne	-/0 dB or 5 V (switchable)
Input Imedance Mic/Line	-/47 kOhm
Max. Output Voltage	6.3 V
Output Impedance	4 Ohm
Rated Power	10 W
Control Voltage	- V
Operating Voltage	22 - 26 V
Current Consumption	0.77 A
Max. Number of Loudspeakers (4 Ohm)	1 Pcs.
Max. Number of Loudspeakers (8 Ohm)	2 Pcs.
Max. Number of Loudspeakers (20 Ohm)	5 Pcs.
Depth	55 mm
Component Set	
Net Weight	0.15 kg
Colors	depending on switch program
Accessories	PS 24/1,5: power supply

amplifiers fitting to switch boxes

AMP 10 DC ... UP

Power amplifier with 0-10V control for use with the preamplifier Preamp UP or EIB/KNX audio system, suitable for homes, small training rooms, doctor's surgeries, etc... The AMP 10 DC features a 0-10V control which enables independent volume adjustment. The metal support plate is screwed onto a standard flush-mounted box 63 mm in depth. It has been pre-configured for a blanking plate specific to the particular switch program. These can be obtained from any electrical wholesaler. For exact order information according to the switch program please refer to the table at the end of this chapter.

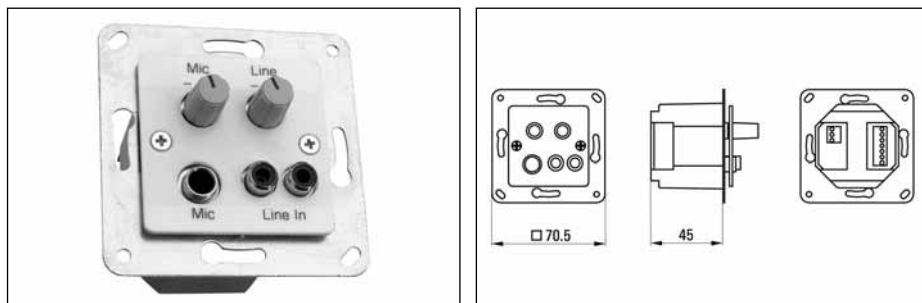


Technical Datas	AMP 10 DC ... UP
Input Voltage Mic/ILne	-/0 dB or 5 V (switchable)
Input Imedance Mic/Line	-/47 kOhm
Max. Output Voltage	6.3 V
Output Impedance	4 Ohm
Rated Power	10 W
Control Voltage	0-10 V
Operating Voltage	22 - 26 V
Current Consumption	0.77 A
Max. Number of Loudspeakers (4 Ohm)	1 Pcs.
Max. Number of Loudspeakers (8 Ohm)	2 Pcs.
Max. Number of Loudspeakers (20 Ohm)	5 Pcs.
Depth	46 mm
Component Set	
Net Weight	0.1 kg
Colors	depending on switch program
Accessories	PS 24/1,5: power supply

amplifiers fitting to JUNG CD 500

Preamp CD 500 UP

Preamplifier for connecting up a microphone and a line source, e.g. a CD- or MP3 player. Suitable for homes, small training rooms, doctor's surgeries, etc.... The volume from each source is separately controllable. The Preamp UP CD 500 can also be switched on/off. The pre-amplified signal can be forwarded to up 50x AMP 10 (DC) or to a 100V amplifier for example. The metal support plate is screwed onto a standard flush-mounted box 63 mm in depth. A 50 x 50 mm printed cover plate and adapter frame for JUNG/CD 500 are included in the delivery.

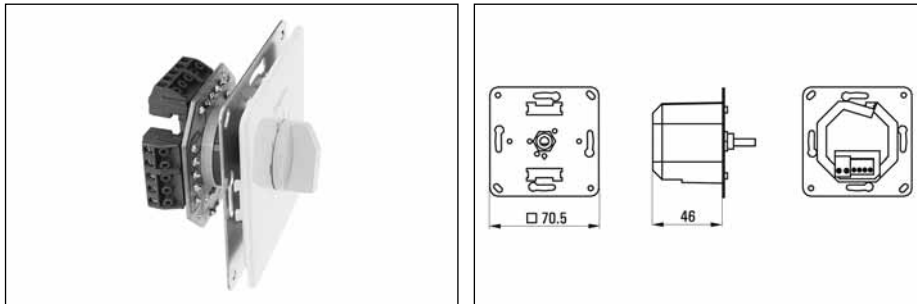


Technical Datas	Preamp CD 500 UP
Input Voltage Mic/Line	4 mV/400 mV
Input Impedance Mic/Line	4.7 kOhm/47 kOhm
Max. Output Voltage	5 V
Output Impedance	50 Ohm
Rated Power	
Control Voltage	0-10 V
Operating Voltage	22 - 26 V
Current Consumption	0.025 A
Max. Number of Loudspeakers (4 Ohm)	
Max. Number of Loudspeakers (8 Ohm)	
Max. Number of Loudspeakers (20 Ohm)	
Depth	45 mm
Component Set	
Net Weight	0.12 kg
Colors	alpin white
Accessories	PS 24/1,5: power supply

amplifier fitting to JUNG CD 500

AMP 10 CD 500 UP

Power amplifier for use with the preamplifier Preamp UP, suitable for homes, small training rooms, doctor's surgeries, etc... The AMP 10 CD 500 features a potentiometer with switch which allows you to adjust the volume independently and to switch the amplifier on/off. The metal support plate is screwed onto a standard flush-mounted box 63 mm in depth. A printed cover plate and rotary knob in alpine white are included in the delivery. A matching 1x frame in alpine white is an available accessory.

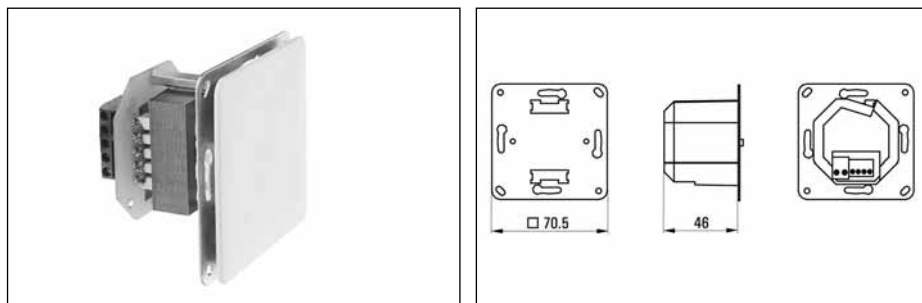


Technical Datas	AMP 10 CD 500 UP
Input Voltage Mic/ILne	-/0 dB or 5 V (switchable)
Input Imedance Mic/Line	-/47 kOhm
Max. Output Voltage	6.3 V
Output Impedance	4 Ohm
Rated Power	10 W
Control Voltage	- V
Operating Voltage	22 - 26 V
Current Consumption	0.77 A
Max. Number of Loudspeakers (4 Ohm)	1 Pcs.
Max. Number of Loudspeakers (8 Ohm)	2 Pcs.
Max. Number of Loudspeakers (20 Ohm)	5 Pcs.
Depth	46 mm
Component Set	
Net Weight	0.15 kg
Colors	alpin white
Accessories	PS 24/1,5: power supply, CD 581 WW: 1x frame

amplifier fitting to JUNG CD 500

AMP 10 DC CD 500 UP

Power amplifier with 0-10V control for use with the preamplifier Preamp UP or EIB/KNX audio system, suitable for homes, small training rooms, doctor's surgeries, etc... The AMP 10 DC features a 0-10V control. This enables independent volume adjustment. The metal support plate is screwed onto a standard flush-mounted box 63 mm in depth. A blanking plate in alpine white is included in the delivery. A matching 1x frame in alpine white is an available accessory.

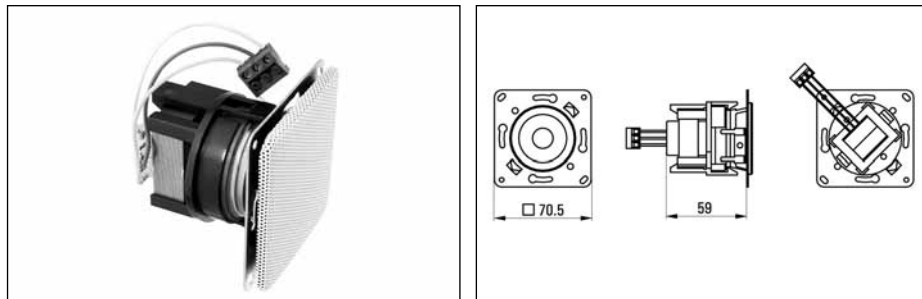


Technical Datas	AMP 10 DC CD 500 UP
Input Voltage Mic/ILne	-/0 dB or 5 V (switchable)
Input Imedance Mic/Line	-/47 kOhm
Max. Output Voltage	6.3 V
Output Impedance	4 Ohm
Rated Power	10 W
Control Voltage	0-10 V
Operating Voltage	22 - 26 V
Current Consumption	0.77 A
Max. Number of Loudspeakers (4 Ohm)	1 Pcs.
Max. Number of Loudspeakers (8 Ohm)	2 Pcs.
Max. Number of Loudspeakers (20 Ohm)	5 Pcs.
Depth	46 mm
Component Set	
Net Weight	0.1 kg
Colors	alpin white
Accessories	PS 24/1,5: power supply, CD 581 WW: 1x frame

100V-speakers fitting to switch boxes

KEL ... UP T

Speaker suitable for speech and background music, e.g. in offices, homes, hotel bathrooms, ... The KEL ... UP T offers outstanding sound for its size. It features a 50 mm full range speaker and 100V transformer attached to the rear of the unit. The metal support plate is screwed onto a standard flush-mounted box 63 mm in depth. The grille (included in the delivery) is available in white, anthracite or silver and is inserted into the metal support plate thus securing the frame of the switch. This can be obtained from any electrical wholesaler. For exact order information according to the switch program please refer to the table at the end of this chapter.

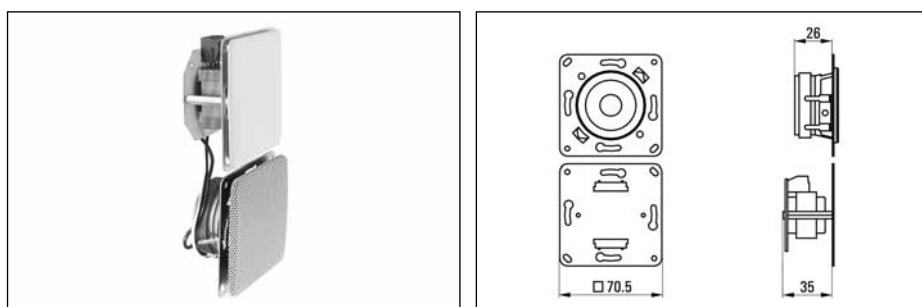


Technical Datas	KEL ... UP T
Load Rating / Music Power	3 W
Impedance	
Transformer	3/1.5 W
SDP 1W/1m	83 dB
SDP PNenn/1m	88 dB
SDP PNenn/1m/f	92 dB/12 kHz
Frequency Range (-3 dB)	150-20000 Hz
Frequency Range (-10 dB)	100-21000 Hz
Component Set	1 x B 50 BB
Net Weight	0.29 kg
Colors	white, silver, anthracite
Accessories	

100V-speakers fitting to switch boxes

KEL ... AP T

Speaker suitable for speech and background music, e.g. in offices, homes, hotel bathrooms, ... The KEL ... AP T offers outstanding sound for its size. It features a 50 mm full range speaker and 100V transformer which is housed in a separate flush box. The metal support plates are screwed onto a standard surface-mounted housing. The grille (included in the delivery) is available in white, anthracite or silver and is inserted into the metal support plate thus securing the frame. The second metal support plate has been pre-configured for a blanking plate designed for the specific switch program. These can be obtained from any electrical wholesaler. For exact order information according to the switch program please refer to the table at the end of this chapter.

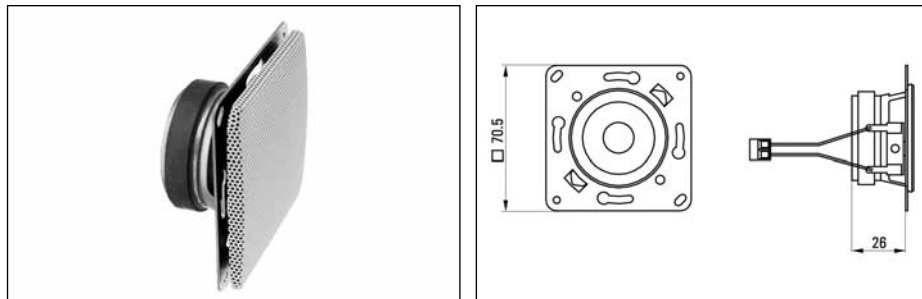


Technical Datas	KEL ... AP T
Load Rating / Music Power	3 W
Impedance	
Transformer	3/1.5 W
SDP 1W/1m	83 dB
SDP PNenn/1m	88 dB
SDP PNenn/1m/f	92 dB/12 kHz
Frequency Range (-3 dB)	150-20000 Hz
Frequency Range (-10 dB)	100-21000 Hz
Component Set	1 x B 50 BB
Net Weight	0.29 kg
Colors	white, silver, anthracite
Accessories	

8-, 20 ohm speakers fitting to switch boxes

KEL ... 8 Ohm, KEL ... 20 Ohm

Speaker suitable for speech and background music, e.g. in offices, homes, hotel bathrooms, ... The KEL ... 8/20 Ohm offers outstanding sound for its size. Comes with a 50 mm full-range speaker. The metal support plate is screwed onto a standard flush-mounted box 42 mm in depth, or a surface-mounted housing. The grille (included in the delivery) is available in white, anthracite or silver and is inserted into the metal support plate thus securing the frame of the switch. This can be obtained from any electrical wholesaler. For exact order information according to the switch program please refer to the table at the end of this chapter.

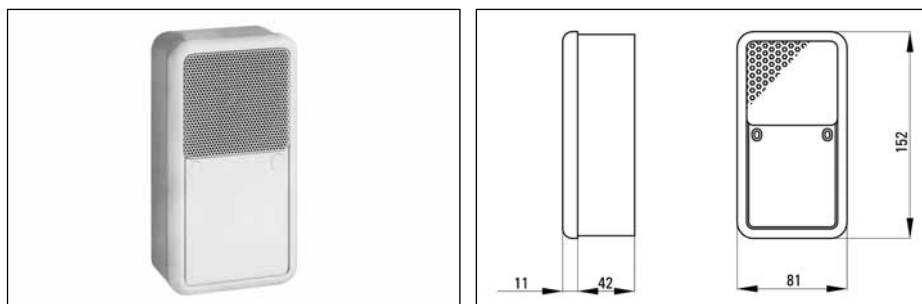


Technical Datas	KEL ... 8 Ohm, KEL ... 20 Ohm
Load Rating / Music Power	3/4 W
Impedance	8, 20 Ohm
Transformer	
SDP 1W/1m	83 dB
SDP PNenn/1m	88 dB
SDP PNenn/1m/f	92 dB/12 kHz
Frequency Range (-3 dB)	150-20000 Hz
Frequency Range (-10 dB)	100-21000 Hz
Component Set	1 x B 50 BB
Net Weight	0.15 kg
Colors	white, silver, anthracite
Accessories	

100V-speakers complete and cost effective

KEL 2/1 T UP/AP

Speaker suitable for speech and background music, for example in offices, homes, hotel bathrooms, ... The KEL 2/1 UP/AP offers outstanding sound for its size. It features a 66 mm full range speaker and 100V transformer. The printed cover plate included in the delivery is screwed on the 2x flush-mounted box or the 2x surface-mounted housing. Both housings are also supplied (depending on the version). The flush-mounted UP version can also be attached in a hollow cavity, such as a cable duct.

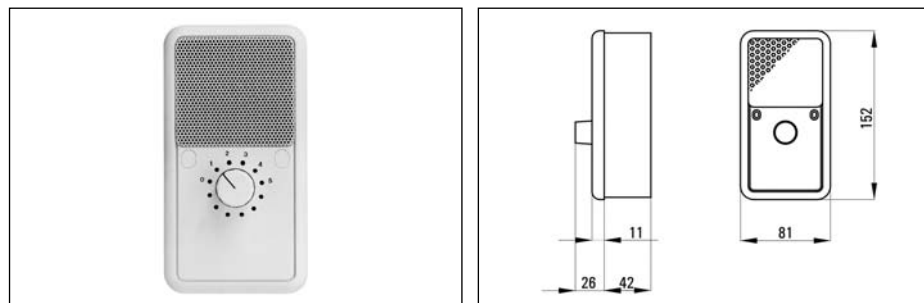


Technical Datas	KEL 2/1 T UP/AP
Load Rating / Music Power	2 W
Impedance	
Transformer	2/1 W
SDP 1W/1m	86 dB
SDP PNenn/1m	89 dB
SDP PNenn/1m/f	95 dB/4 kHz
Frequency Range (-3 dB)	170-20000 Hz
Frequency Range (-10 dB)	110-20000 Hz
Component Set	1 x B 66 BB-4
Net Weight	0.43 kg
Colors	white (RAL 9010)
Accessories	incl. flush-/surface-mounted housing (depending on the version)

100V-speakers complete and cost effective

KEL 2/1 T UP-RE / AP-RE

Speaker suitable for speech and background music, for example in offices, homes, hotel bathrooms, ... The KEL 2/1 UP/AP-Re offers outstanding sound for its size. It features a 66 mm full range speaker and 100V transformer and volume control. Also available with an optional mandatory relay. The printed cover plate included in the delivery is screwed on the 2x flush-mounted box or the 2x surface-mounted housing. Both housings are also supplied (depending on the version). A rotary knob is also included in the delivery. The flush-mounted UP version can also be attached in a hollow cavity, such as a cable duct.

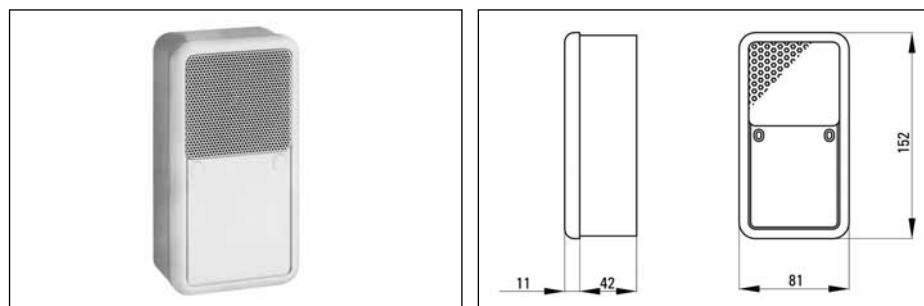


Technical Datas	KEL 2/1 T UP-Re / AP-Re
Load Rating / Music Power	2 W
Impedance	
Transformer	2/1 W
SDP 1W/1m	86 dB
SDP PNenn/1m	89 dB
SDP PNenn/1m/f	95 dB/4 kHz
Frequency Range (-3 dB)	170-20000 Hz
Frequency Range (-10 dB)	110-20000 Hz
Component Set	1 x B 66 BB-4
Net Weight	0.43 kg
Colors	white (RAL 9010)
Accessories	incl. volume control and flush-/surface-mounted housing (dep on the version)

4-, 20 ohm speakers complete and cost effective

KEL 2/1-4 UP/AP, KEL 2/1-20 UP/AP

Speaker suitable for speech and background music, for example in offices, homes, hotel bathrooms, ... The KEL 2/1 4/20 UP/AP offers outstanding sound for its size. Comes with a 66 mm full-range speaker. The printed cover plate included in the delivery is screwed on the 2x flush-mounted box or the 2x surface-mounted housing. Both housings are also supplied (depending on the version). The flush-mounted UP version can also be attached in a hollow cavity, such as a cable duct.

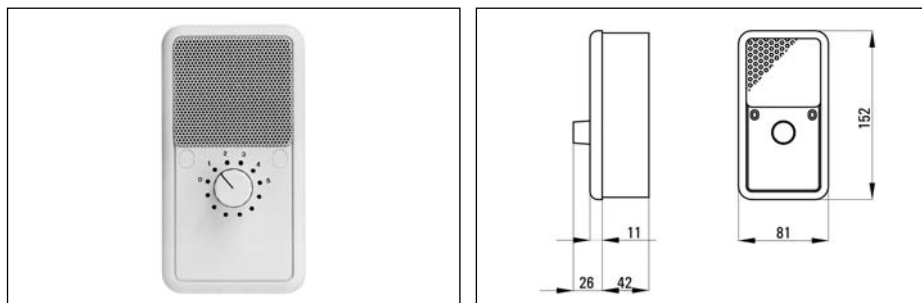


Technical Datas	KEL 2/1-4 UP/AP, KEL 2/1-20 UP/AP
Load Rating / Music Power	6/8 W
Impedance	4, 20 Ohm
Transformer	
SDP 1W/1m	86 dB
SDP PNenn/1m	94 dB
SDP PNenn/1m/f	100 dB/4 kHz
Frequency Range (-3 dB)	170-20000 Hz
Frequency Range (-10 dB)	110-20000 Hz
Component Set	1 x B 66 BB
Net Weight	0.32 kg
Colors	white (RAL 9010)
Accessories	incl. flush-/surface-mounted housing (depending on the version)

4-, 20 ohm speakers complete and cost effective

KEL 2/1-4-Re UP/AP

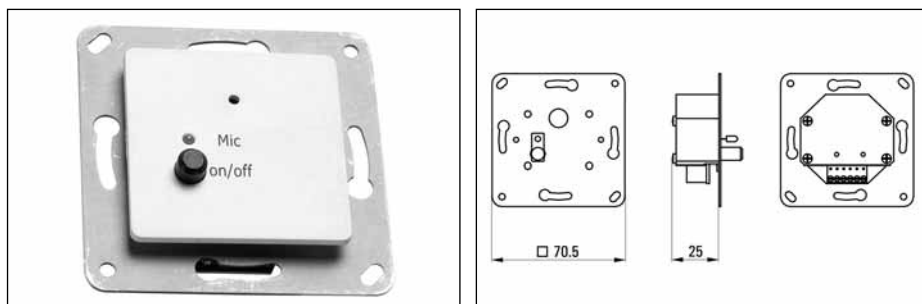
Speaker suitable for speech and background music, for example in offices, homes, hotel bathrooms, ... The KEL 2/1 4/20 UP/AP-Re offers outstanding sound for its size. It features a 66 mm full range speaker and volume control. The printed cover plate included in the delivery is screwed on the 2x flush-mounted box or the 2x surface-mounted housing. Both housings are also supplied (depending on the version). A rotary knob is also included in the delivery. The flush-mounted UP version can also be attached in a hollow cavity, such as a cable duct.



Technical Datas	KEL 2/1-4-Re UP/AP
Load Rating / Music Power	6/8 W
Impedance	4 Ohm
Transformer	
SDP 1W/1m	86 dB
SDP PNenn/1m	94 dB
SDP PNenn/1m/f	100 dB/4 kHz
Frequency Range (-3 dB)	170-20000 Hz
Frequency Range (-10 dB)	110-20000 Hz
Component Set	1 x B66 BB-4, -20
Net Weight	0.32 kg
Colors	white (RAL 9010)
Accessories	incl. 50 ohms volume control and flush-/surface-mounted housing

Mic UP

Microphone for public announcements, for example in doctor's surgeries, ... The microphone has an electret capsule. The On/Off button can be used to switch the microphone on/off. At the same time, it triggers a relay contact which in turn can control a EIB/KNX interface, e.g. a binary input. This allows integration of the Mic UP into the EIB/KNX audio system. The metal support plate is screwed onto a standard flush-mounted box 42 mm in depth, or a surface-mounted housing. A 50 x 50 mm printed cover plate in pure white is included in the delivery. A suitable adapter frame, obtainable from any electrical wholesaler is available for the particular switch box.



Technical Data	Mic UP
Power supply	24 VDC
Sensitivity	7,9 mV/Pa/1 KHz
Output impedance	2 KOhm
Frequency range	20-16.000 Hz
Current consumption	9 mA
Connection	6 pole screw terminal
Depth	25 mm

Audio electronics fitting to switch programs without center plates, frames and sockets

Power
Type

Order details (... -R: incl. mandatory relay)

Berker

ARSYS
B.1
B.3
B.7
K.1
K.5
Modul 2
S.1
Twinpoint

Busch-Jaeger

alpha nea
alpha exclusive
axcent
Busch-Duro
carat
future
future linear
impuls
Reflex SI
solo

GIRA

High-grade steel
S-Color
Merten
System M
1-M
Atelier-M
M-Smart
M-Plan
M-Arc
M-Star
Design-Antik
Atelier
Artec
M1
OctoColor
PEHA
AURA
DIALOG
STANDARD

GIRA

-System 55-
E2
Event
Esprit
Standard 55

GIRA

F-Line

JUNG

A 500
AS 500
A Creation
CD 500
CD plus
Stainless Steel
LS 990
SL 500
ELSO
FASHION
NOVIA
SCALA

100 V

Volume control

6 Watt
100 V transformer

LST 6 BE UP
LST 6 BE UP -R

LST 6 BJ UP
LST 6 BJ UP -R

LST 6 GMP UP
LST 6 GMP UP -R

LST 6 GE UP
LST 6 GE UP -R

LST 6 GF UP
LST 6 GF UP -R

LST 6 JU UP
LST 6 JU UP -R

50 Watt
100 V transformer

LST 50 BE UP
LST 50 BE UP -R

LST 50 BJ UP
LST 50 BJ UP -R

LST 50 GMP UP
LST 50 GMP UP -R

LST 50 GE UP
LST 50 GE UP -R

LST 50 GF UP
LST 50 GF UP -R

LST 50 JU UP
LST 50 JU UP -R

100 Watt
100 V transformer
double version

LST 100 BE UP
LST 100 BE UP -R

LST 100 BJ UP
LST 100 BJ UP -R

for GIRA:
LST 100 GI UP
LST 100 GI UP -R
for Merten:
LST 100 ME UP
LST 100 ME UP -R
for PEHA:
LST 100 PE UP
LST 100 PE UP -R

LST 100 GE UP
LST 100 GE UP -R

LST 100 GF UP
LST 100 GF UP -R

for JUNG
SL 500,
LS 990, Edelstahl:
LST 100 JU UP
LST 100 JU UP -R
for JUNG
CD 500, ST 550:
LST 100 JCDST UP
LST100JCDST UP-R

8 Ω / 50 Ω

Volume control

15 Watt
50 Ω, mono
Potentiometer

LR15 mono BE UP

LR15 mono BJ UP

LR15 mono GMP UP

LR15 mono GE UP

LR15 mono GF UP

LR15 mono JU UP

15 Watt
50 Ω, stereo
Potentiometer

LR15 stereo BE UP

LR15 stereo BJ UP

LR15 stereo GMP UP

LR15 stereo GE UP

LR15 stereo GF UP

LR15 stereo JU UP

20 Watt
8 Ω, mono
resistor network

LR20 mono BE UP

LR20 mono BJ UP

LR20 mono GMP UP

LR20 mono GE UP

LR20 mono GF UP

LR20 mono JU UP

**Program selector
switch**

6 programs

PRO 3 BE UP
PRO 3 BE UP -R

PRO 3 BJ UP
PRO 3 BJ UP -R

PRO 3 GMP UP
PRO 3 GMP UP-R

PRO 3 GE UP
PRO 3 GE UP -R

PRO 3 GF UP
PRO 3 GF UP -R

PRO 3 JU UP
PRO 3 JU UP -R

All the listed switch programs request the following supplement from the switch manufacturers:

- cover with toggle button for blind rotary switches and suitable outward frames
- for LST100 an additional blind cover and suitable outward frame

Deep-seated in-wall sockets are strictly recommended.

Amplifier for switch programs, without center plates, frames and sockets

Power Type

Order details

Berker

ARSYS
B.1
B.3
B.7
K.1
K.5
Modul 2
S.1
Twinpoint

Busch-Jaeger

alpha nea
alpha exclusive
axcent
Busch-Duro
carat
future
future linear
impuls
Reflex SI
solo

GIRA

High-grade steel
S-Color

Merten

-System M-1-M
Atelier-M
M-Smart
M-Plan
M-Arc
M-Star
Design-Antik
Atelier
Artec
M1
OctoColor

PEHA

AURA
DIALOG
STANDARD

GIRA

-System 55-E2
Event
Esprit
Standard 55

GIRA

F-Line

JUNG

A 500
AS 500
A Creation
CD 500
CD plus
Stainless Steel
LS 990
SL 500
ELSO
FASHION
NOVIA
SCALA

Amplifier mono

Preamplifier incl. center plate (50 x 50 mm) alpine white	PREAMP UP	PREAMP UP	PREAMP UP	PREAMP UP	PREAMP UP	PREAMP UP
Lineamplifier 10 Watt 4 Ω	AMP 10 BE UP	AMP 10 BJ UP	AMP 10 GMP UP	AMP 10 GE UP	AMP 10 GF UP	AMP 10 JU UP
Lineamplifier for EIB/KNX 10 Watt 4 Ω	AMP 10 DC BE JU UP	AMP 10 DC BJ UP	for GIRA: AMP 10 DC GI UP for Merten: AMP 10 DC ME UP for PEHA: AMP 10 DC PE UP	AMP 10 DC GI UP	AMP 10 DC GI UP	for JUNG: AMP 10 DC BE JU UP
Lineamplifier for EIB/KNX, suitable for DIN rail mounting 10 Watt 4 Ω	AMP 10 DC HS	AMP 10 DC HS	AMP 10 DC HS	AMP 10 DC HS	AMP 10 DC HS	AMP 10 DC HS

For the mentioned range of switch boxes you require the following parts from the switch producer:

Preamplifier (PREAMP ...): Intermediate frame for 50 x 50 mm center plates and cover frame.

Lineamplifier (AMP 10 ...): Cover plate with knob and cover frame.

Lineamplifier for EIB/KNX (AMP 10 DC ...): Blank center plate and cover frame. Suitable EIB/KNX Audioactuator AM 840.

You have always to use deep inwall outlets.

Monitor speaker incl. metal grid, without frames and sockets

Power Type	Order details					
	Busch-Jaeger impuls GIRA S-Color JUNG High-grade steel LS 990 PEHA DIALOG	GIRA -System 55- E2 Event Esprit Standard 55 JUNG A500	JUNG CD 500 CD plus	Busch-Jaeger Solo Future	Merten M1, Atelier, Epoca (direct installation) Artec, Antik, Tracent (only with adapter) OctoColor (only with adapter)	Merten M-SMART M-ARC M-PLAN (not for M-PLAN II) M-STAR Berker B.1 B.3 B.7 S.1
100 V Version						
3/1,5 Watt 100 V transformer UP-Version single	KEL GBJP UP T	KEL GE UP T white KEL GE UP T alu KEL GE UP T anthrazit	KEL JU UP T	KEL BJ T UP studiowhite	KEL ME T UP polarwhite	KEL MM T UP polarwhite
3/1,5 Watt 100 V transformer AP-Version double	for GIRA: KEL GI AP T for JUNG: KEL GTJL AP T for PEHA: KEL PE AP T	KEL GE APT* white KEL GE APT* alu KEL GE APT* anthrazit	KEL JU AP T	KEL BJ T AP studiowhite	KEL ME T AP polarwhite	KEL MM T AP polarwhite
8 Ω Version						
3 Watt 8 Ω	KEL GBJP 8 Ω	KEL GE 8 Ω white KEL GE 8 Ω alu KEL GE 8 Ω anthrazit	KEL JU 8 Ω	KEL BJ 8 Ω studiowhite	KEL ME 8 Ω polarwhite	KEL MM 8 Ω polarwhite
20 Ω Version						
3 Watt 20 Ω	KEL GBJP 20 Ω	KEL GE 20 Ω white KEL GE 20 Ω alu KEL GE 20 Ω anthrazit	KEL JU 20 Ω	KEL BJ 20 Ω studiowhite	KEL ME 20 Ω polarwhite	KEL MM 20 Ω polarwhite

*only suitable for GIRA

MULTI-ROOM

WHD

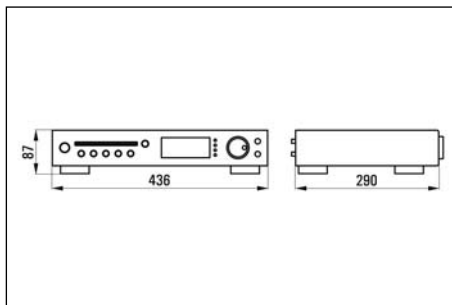
- > Digital Audio Multi-Room System p. 106-109
- > EIB/KNX Audio System p. 110-112
- > Amplifier p. 113-114
- > Infra-Red Control, IR Roomlink p. 115
- > Remote Controlled Radio p. 116-118
- > Passive Audio Distribution p. 119
- > Low Voltage Transformer p. 120
- > Mixing Amplifier p. 121
- > Multi-Room Systems Accessories p. 122-123
- > Technical Annex p. 124-130



Digital Audio Multiroom System for transmitting audio- and digital data via standard IT networks (100BaseT systems: Ethernet, Twisted Pair, 100 Mbit/s) in max. 254 zones. Latency free, uncompressed data transmission in real time (CD quality). 6 Hi-Fi audio sources can be reproduced centrally, and an additional 4 via local input modules (DAM-LI) can be played at any node in the network and controlled remotely. It can be remote controlled via customised IR-key-pad units – which fits into all standard switch boxes- or via IP (e.g. via touch panels, PCs, PDAs or media controls). The DAM KNX link is available for the integration into the KNX building automation. For information about the structure of the system, please see the Technical Annex at the back of the catalogue.

Soundserver hifidelio pro

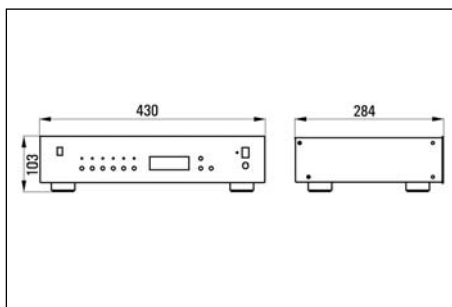
This audio music archive including 160 GB storage capacity for up to 2,700 hours of music, sorted by album, artist or track is an ideal music source for use in the entire house. As well as its CD library, the music server MS 160 also allows users to play Internet radio stations and to visualise and play music from devices such as iPods connected to it via USB. Control of the music server is integrated into the DAM PC software but can also be realised by touchpanel or PDA using VNC software.



Technical Datas	hifidelio
Audio IN	1x analogue (RCA)
Audio OUT	1x analogue (RCA) + digital (S/P-DIF optical toslink and coaxial RCA)
Connections / Interfaces	4 port switch with 10/100 Mbit/s, 54 Mbit/s WLAN-Access-Point, 2xUSB 1.1/2.0
Rated Power	
Operating Voltage	230 V AC/50Hz
Current Consumption	
Material	housing: metal
Colors	black, silver
Accessories	

DAM 6000 V3

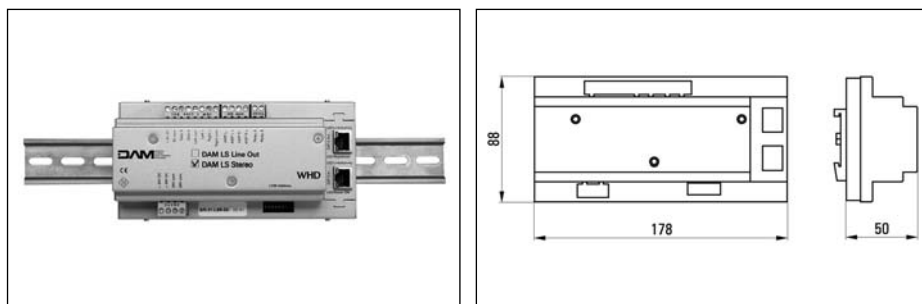
The DAM Central unit DAM 6000 is responsible for digitising the connected sound sources and full control of the system. A detailed menu can be used to configure all the settings on the device itself or via the network interface (TCP/IP) using a PC and the integrated web browser. Software to enable the user to control the DAM system using a touch panel or PDA is also included in the delivery. The central unit also has the functionality of a learnable remote control. It stores the IR commands and sends the learnt IR commands to the sources via the IR transmitter. The digitalised audio data are subsequently made available to the digital DAM audio interface (RJ 45) together with the control data. Up to 254 zones are possible at this data string with the DAM LS stereo/line out speaker modules via a daisy-chain or star configuration. Other features include: 6 Preset buttons used to save scenarios, timer function/alarm clock, switched network sockets for the sound sources and the PSUs for supplying the LS modules, trigger input detects the status of the sound sources and prevents accidental switch-off when used together with a home cinema system.



Technical Datas	DAM 6000 V3
Audio IN	5 x analogue (RCA), 1x digital (S/P-DIF optical toslink or coaxial RCA)
Audio OUT	DAM Audio Network to DAM LS-Modules (RJ45) real time uncompressed audio
Connections / Interfaces	switched outlets 110-250 VAC, 50/60 Hz, trigger-out, Ethernet, 6 routed IR ports
Rated Power	
Operating Voltage	110-250 VAC, 50/60 Hz
Current Consumption	
Material	housing metal
Colors	black, silver
Accessories	

DAM V3 LS Stereo, DAM V3 LS Line-Out

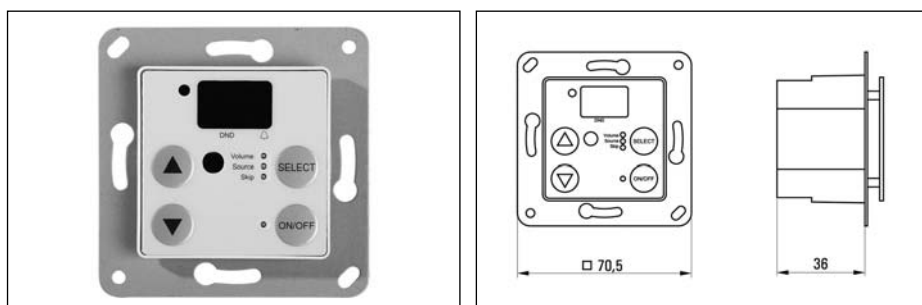
Speaker module with 2 x 20 W stereo amp and line out output for top-hat rail assembly. Each speaker module represents a zone, selects a stereo audio signal from the DAM network and converts it to an analogue signal before making it available to the line out/speaker outputs. RJ45 sockets for connecting and looping within the DAM audio network. Up to 254 zones are possible. The DAM LS provides a relay contact switch, e.g. to trigger an active speaker or external power amplifier. A connection for up to three control unit DAM-IR is also available. The built-in digital signal processor enables you to make sound settings adjusted to the particular speaker and room. DAM system addresses are assigned by DIP switches.



Technical Datas	DAM V3 LS Stereo	DAM V3 LS Line-Out
Audio IN		
Audio OUT	Speaker level stereo & variable line level stereo	Variable line level stereo
Connections / Interfaces	Relay, IR-Module interface, audio network in/out	Relay, IR-Module interface, audio network in/out
Rated Power	2 x 20 W	
Operating Voltage	24 VDC	24 VDC
Current Consumption	2.5 A	0.15 A
Material	housing: metal	housing: metal
Colors	silver	silver
Accessories	Power supply 24/2,5	Power supply PS 24/1,5

DAM V3 IR

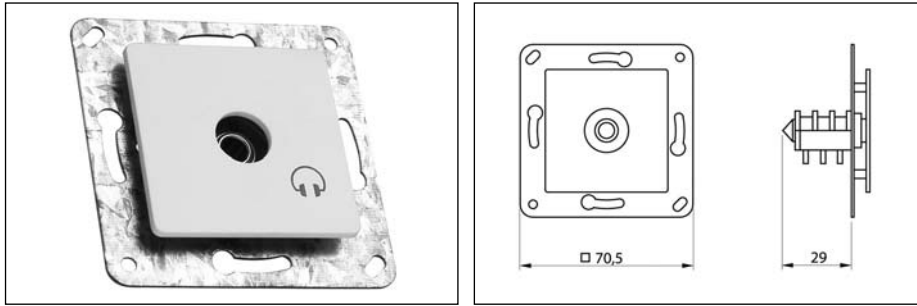
Combined IR-keypad module with display. Connection to the DAM LS speaker module for controlling DAM zones via a keypad or IR remote control. Easy to use: The most important functions can be controlled using 4 keys. The Select button is used to switch between "Volume", "Source" and "Skip". Depending on the source, the Skip button moves to the next track or next radio station. The On/Off-key turns off the zone (short key press) or the whole DAM system (long key press). The second function can be disabled. The DAM IR's film keypad measures 50x50 mm and fits almost all standard switch boxes using adapter frames available from any electrical wholesalers. The DAM IR also comes with a headphone amplifier which can be connected to the optional socket for headphones DAM-HP.



Technical Datas	DAM V3 IR
Audio IN	
Audio OUT	Stereo headphone (backside screw socket)
Connections / Interfaces	Interface to DAM V3 LS
Rated Power	
Operating Voltage	9 VDC
Current Consumption	
Material	Membrane keypad 50x50 mm, diecast aluminium
Colors	white, grey
Accessories	Headphone Module DAM V3 HP

DAM V3 HP

Socket for headphones. The loudspeakers in this zone are switched to silent when headphones are plugged in (6.3 mm stereo jack). Connection via DAM combined IR keypad. The DAM HP comes with a 50 mm printed centre plate in pure matt white. It fits almost all standard switch boxes using an adapter frame available from any electrical wholesaler.

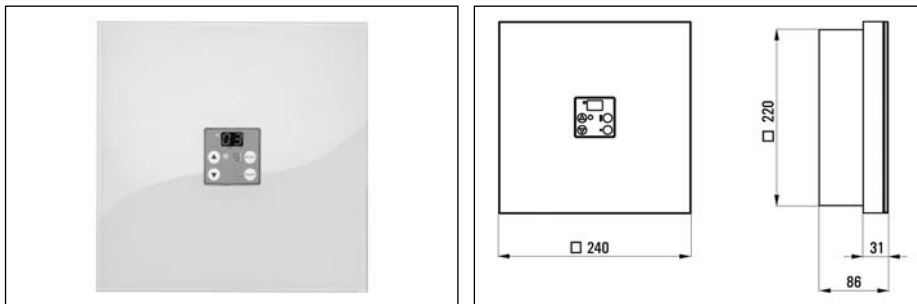


Technical Datas	DAM V3 HP
Audio IN	
Audio OUT	6.3 mm Stereo jack (switched)
Connections / Interfaces	
Rated Power	0.15 W
Operating Voltage	
Current Consumption	
Material	Plastic cover 50 x 50 mm
Colors	white
Accessories	

DAM V3 CL

Compact all-in-one solution for adding an additional zone to the DAM system or to upgrade existing structured cabling systems in buildings. The DAM CL only requires 230V AC and an RJ45 connection to the DAM network. It brings together the following zone components DAM LS stereo module, DAM combined IR keypad and power supply in a single housing suitable for wall-mounting and matches the visual appearance and size of the design speaker M 240 with surface-mounted housing.

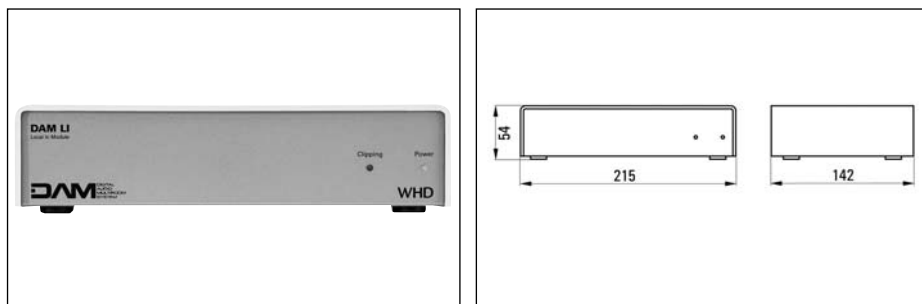
The DAM CL comes with a de-lux green glass cover and a DAM IR combined IR keypad.



Technical Datas	DAM V3 CL
Audio IN	
Audio OUT	Stereo speaker level output
Connections / Interfaces	Audio network in/out
Rated Power	2 x 20 W
Operating Voltage	110-250 VAC, 50/60 Hz
Current Consumption	
Material	Case: metal, frame: glass
Colors	Case:white, frame: green-glass
Accessories	

DAM V3 LI

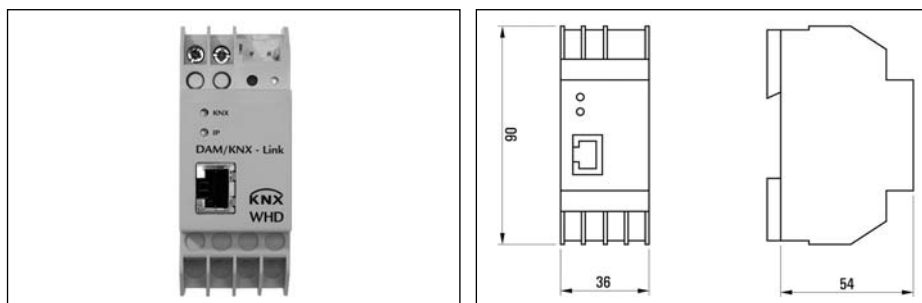
Local Input module for connecting a line source or a microphone to feed an audio signal into the system from any point of the DAM audio network. Changeover switch for LINE/MIC and separate gain controls with clipping LED. The IR output can be used to control the connected source remotely from all zones. CAT 5 In/Out sockets for the DAM audio network loop the digital signal to the following DAM module. A switch input enables the audio signal connected to the DAM LI to be activated at all speaker modules in the network. This enables the system to function as a public address system, e.g. from an ELA system or a microphone connected directly. Up to 127 DAM LI modules can be connected up to a network, for of which can be activated at any one time. DAM system addresses are assigned by DIP switches.



Technical Datas	DAM V3 LI
Audio IN	Microphone (XLR), line stereo (RCA)
Audio OUT	DAM Audio-Network
Connections / Interfaces	Trigger input, IR port
Rated Power	
Operating Voltage	24 VDC
Current Consumption	
Material	Case: metal, cover: plastic
Colors	Case: silver, cover: white
Accessories	

DAM V3 KNX Link

KNX-certified and IP-addressable interface for DAM control using KNX. The DAM-KNX link allows up to 10 DAM zones to be controlled using standard KNX keypad sensors. A second KNX link can be used to control up to 20 DAM zones. RJ 45 connection for connecting main unit DAM 6000. The following functions can be carried out using KNX sensors: (a selection) Zone On/Off, volume, source selection, mute, tone control, zone broadcast and priority override, control connected sources via IR. Feedback objects: e.g. On/Off, volume, source, IR commands,...

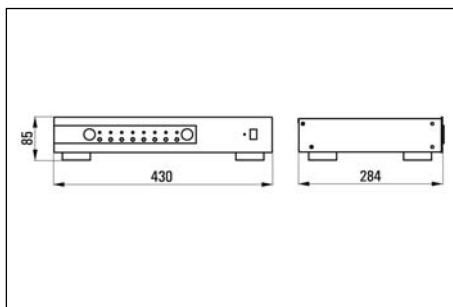


Technical Datas	DAM V3 KNX Link
Audio IN	
Audio OUT	
Connections / Interfaces	KNX, RJ 45 DAM IP control (Ethernet)
Rated Power	
Operating Voltage	24 VDC
Current Consumption	
Material	housing: 2 REG DIN rail mount, plastic
Colors	grey
Accessories	

KNX is the global standard for modern building and house automation. When using the KNX audio system, you select the audio source you require via KNX keypad sensors or touchpanels and can control both volume and sound characteristics either separately in each room or centrally. The audio sources from your stereo system are connected with the 8-channel preamplifier PREAMP 800 which amplifies these audio signals so as to ensure an audio quality free of interference, even across the long distances in the distribution boxes to the audio actuator AM 840. Multiple power amplifiers of type AMP 10 DC or AMP 250 can be connected to the 4 zone outputs on an AM 840. The AM 840 is easy to chain when other zones are required. This enables the KNX audio system to be scaled freely to the needs of the homeowner with respect to the number of speakers per room and the number of rooms required. The power amplifiers are mounted centrally on the top-hat rail together with the AM 840, although they can also find room in a distributed system in sub-distributed boards or flush-mounted boxes. Various types of speaker are also offered with built-in power amplifiers. Connecting a microphone to a PREAMP 800 will even enable you to send announcements to any zone of your choice. For information about the structure of the system, please see the Technical Annex at the back of the catalogue.

Preamp 800

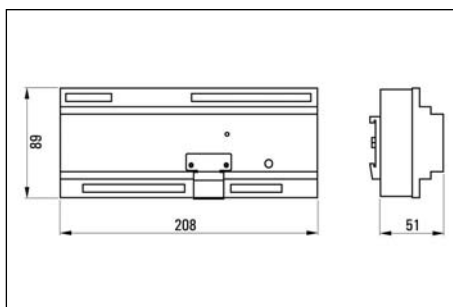
This 8-channel preamplifier PREAMP 800 with identical format to standard commercially-available Hi-Fi devices amplifies the signals of up to 4 stereo or up to 8 mono sources (CD, DVD, radio...), enabling them to be carried across longer lengths of cable without interference. A microphone or a sound source can be connected to channel 8 as you require. Behind the cover on the front, there is a control and LED (for sensitivity adjustment) per input channel. This allows you to balance the volume levels from different sound sources to avoid jumps in volume when switching sources. 19" bracket for rack mounting and mains power supply included in the delivery. A single channel preamplifier for flush boxes is also available (please refer to the chapter on Audio electronics for flush boxes).



Technical Datas	Preamp 800
Audio IN	Ch. 1-7 line (Stereo-RCA), Ch. 8 line or microphone (Stereo RCA/screw socket)
Audio OUT	8 x mono or 4 x stereo (screw socket)
Connections / Interfaces	Selector mic/line (ch 8), mute-circuit (to AM 840)
Rated Power	
Operating Voltage	24 VDC
Current Consumption	0.18 A
Material	Case: metal
Colors	silver, black
Accessories	

AM 840

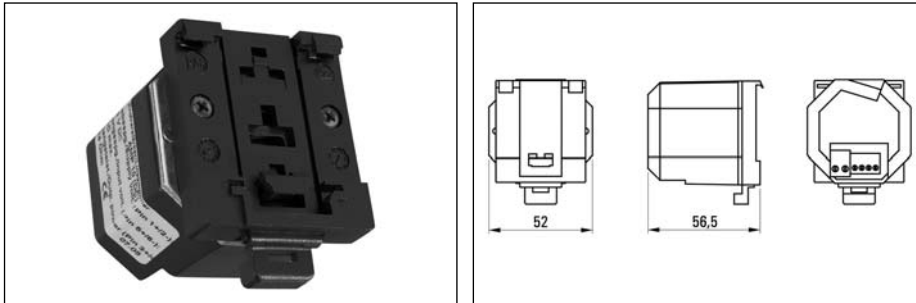
The KNX audio actuator AM 840 distributes the signals from the connected sources (stereo: 4, mono: 8). Functions which can be carried out using KNX sensors: Zone On/Off, volume, source selection, mute, tone control, zone broadcast and priority override (with attention signal/pre-gong). Feedback objects: Amplifier On/Off, volume, source. When using more than 2 stereo or 4 mono zones, several audio actuators can be chained. Setting parameters with ETS. Power supply: 24 V DC via a separate power supply, size of power supply depends on number of power amplifiers connected. Housing for mounting on top-hat rail in REG format, 208 mm wide. Product database: Download from www.whd.de.



Technical Datas	AM 840
Audio IN	8 x mono or 4 x stereo (screw socket)
Audio OUT	4 zone mono or 2 zone stereo (screw socket)
Connections / Interfaces	24 VDC In, control voltage out 4x 0-10 VDC, supply voltage out 4x 24VDC, D-SUB
Rated Power	
Operating Voltage	24 VDC
Current Consumption	0.18 A
Material	12 REG DIN rail mount metal case
Colors	silver
Accessories	D-SUB AM 840 interconnect/Loop-through audio cable

AMP 10 DC HS

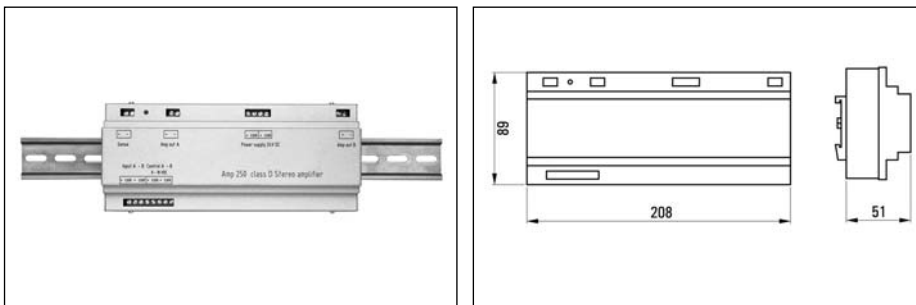
The power amplifier AMP 10 DC HS suitable for top-hat rail mounting offers enough power at 10 Watts for wall-mounted or recessed ceiling speakers. Either one 4 Ohm-, two 8-Ohm- or up to 5x 20 Ohm speakers can be connected in parallel. The AM 840 audio actuator provides the power supply and control. A power amplifier with built-in potentiometer is also available (AMP 10...UP see the chapter on Audio electronics). It is simply connected up in parallel to the standard AMP 10 DC on one of four AM 840 zone outputs, thus allowing for operation in a 5th room. When the "Master" zone is activated, the music signal will also be made available to the subzone; its volume can be controlled via the built-in potentiometer or switched off separately. Speakers with built-in amps are also available.



Technical Datas	AMP 10 DC HS
Audio IN	5 VAC or 0.7 VAC (0dB) selectable
Audio OUT	Speaker level
Connections / Interfaces	Control voltage 0-10VDC
Rated Power	10 W
Operating Voltage	24 VDC
Current Consumption	0.8 A
Material	DIN rail mount (3U), diecast aluminium
Colors	black
Accessories	Power Supply PS 24/1.5

AMP 250

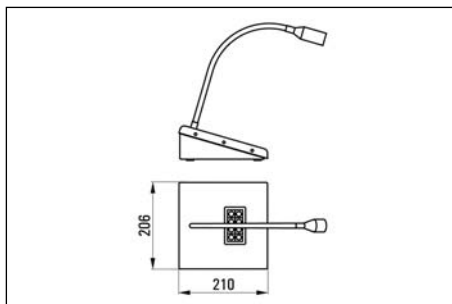
Powerful stereo audio amplifier for top-hat rail mounting. The metal housing which has been prepared for top-hat rail assembly houses 2 amplifiers with a total output of 100 W (2 x 50 W) in just 12 device widths. The amplifiers have Class D technology - the very latest technology with the best levels of efficiency with low thermal loads. The built-in, switchable loudness function optimises the sound output which means the amplifier sounds just as good at all volumes. Input sensitivity can be switched from 5V (Preamp UP/Preamp 800) to 0dB (line level). This means the device can also be used in direct combination with standard audio components.



Technical Datas	AMP 250
Audio IN	5 VAC or 0,7 VAC (0dB) A/B or stereo
Audio OUT	Speaker level A/B or stereo
Connections / Interfaces	2x control coltage 0-10VDC, sense input
Rated Power	2 x 50 W
Operating Voltage	24 VDC
Current Consumption	5 A
Material	12 REG DIN rail mount metal case
Colors	silver
Accessories	Power supply PS 24/5

MIC 800

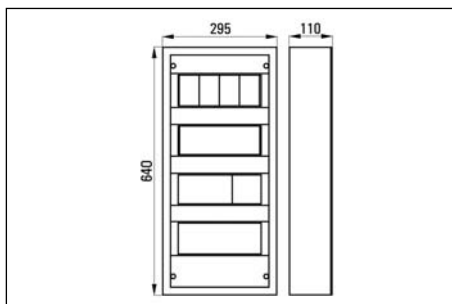
KNX-controlled paging desk with preamplifier and goose-neck microphone for use with the WHD KNX audio actuator. The MIC 800 enables announcements to be sent to specific zones (zone paging) - or to all zones (priority override). It comprises a table-top housing and a separate flush-mounted insert with 8x KNX key interface. Both units are connected via the SUB-D cable included in the delivery. The MIC 800 is connected directly to the KNX-audio actuator AM 840. A microphone is also available matching all common switch boxes with relay output for controlling a KNX binary interface (Mic UP, see the chapter on Audio electronics).



Technical Datas	MIC 800
Audio IN	
Audio OUT	Line level
Connections / Interfaces	SUB-D connector (system wiring to wall mount unit), KNX-Interface (TP)
Rated Power	
Operating Voltage	24 VDC
Current Consumption	
Material	Mic base: metal/plastic, wall mount unit: 50 x 50 mm plastic cover plate
Colors	Mic base: black, cover plate: matt white
Accessories	

KP 800

Fully pre-wired KNX audio system for 4 rooms in surface-mounted distribution box. Simple wiring on the customer-side using REG terminals for mains, pre-amp, speaker connections and bus supply. Easy to commission. The preamplifier Preamp 800 is also included in the delivery.

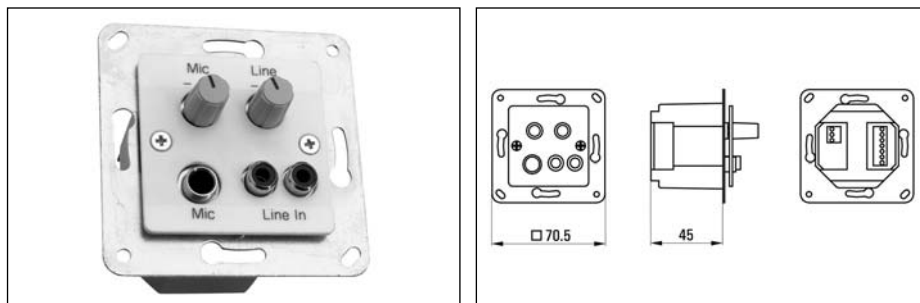


Technical Datas	KP 800
Audio IN	8 x mono or 4 x stereo
Audio OUT	4 zone mono or 2 zone stereo
Connections / Interfaces	8-ch-audio input, KNX (TP), 230V Input, 4 loudspeaker output. Terminal blocks.
Rated Power	4 x 10 W
Operating Voltage	230 VAC
Current Consumption	
Material	Wall-mounted sub-distribution cabinet, plastic
Colors	white
Accessories	Microphone base MIC 800 (tabletop), MIC UP (flushmount)

amplifier fitting to switch boxes

Preamp UP

Preamplifier for connecting up a microphone and a line source, e.g. a CD- or MP3 player. Suitable for homes, small training rooms, doctor's surgeries, etc.... The volume level from each source is separately controllable. The Preamp UP can also be switched on/off. The pre-amplified signal can be forwarded to up 50x AMP 10 (DC) or to a 100V amplifier for example. The metal support plate is screwed onto a standard flush-mounted box 63 mm in depth. A 50 x 50 mm printed cover plate is included in the delivery. A suitable adapter frame, obtainable from any electrical wholesaler is available for the particular switch program.

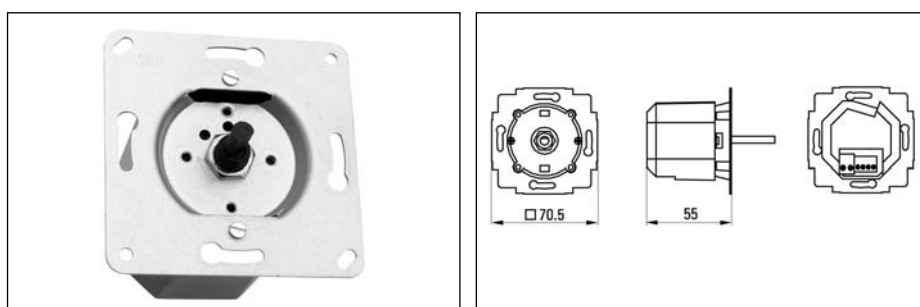


Technical Datas	Preamp UP
Input Voltage Mic/ILne	4 mV/400 mV
Input Imedance Mic/Line	4.7 kOhm/47 kOhm
Max. Output Voltage	5 V
Output Impedance	50 Ohm
Rated Power	
Control Voltage	0-10 V
Operating Voltage	22 - 26 V
Current Consumption	0.025 A
Max. Num. of Loudspeakers (4 Ohm)	
Max. Num. of Loudspeakers (8 Ohm)	
Max. Num. of Loudspeakers (20 Ohm)	
Depth	45 mm
Component Set	
Net Weight	0.12 kg
Colors	pure white, dull
Accessories	PS 24/1,5: power supply

amplifiers fitting to switch boxes

AMP 10 ... UP

Power amplifier for use with the preamplifier Preamp UP, suitable for homes, small training rooms, doctor's surgeries, etc... The AMP 10 features a potentiometer with switch allowing you to adjust the volume independently and to switch the amplifier on/off. The metal support plate is screwed onto a standard flush-mounted box 63 mm in depth. It comes preconfigured for Venetian blind cover plates with rotary dial for the particular switch program. These parts can be obtained from any electrical wholesaler. For exact order information according to the switch program please refer to the table at the end of this chapter.

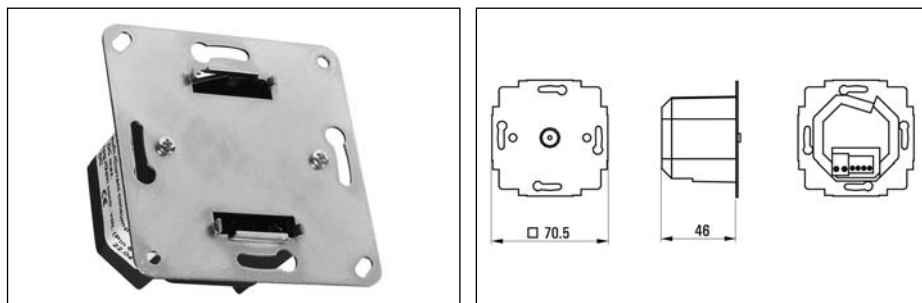


Technical Datas	AMP 10 ... UP
Input Voltage Mic/ILne	-/0 dB or 5 V (switchable)
Input Imedance Mic/Line	-/47 kOhm
Max. Output Voltage	6.3 V
Output Impedance	4 Ohm
Rated Power	10 W
Control Voltage	- V
Operating Voltage	22 - 26 V
Current Consumption	0.77 A
Max. Num. of Loudspeakers (4 Ohm)	1 Pcs.
Max. Num. of Loudspeakers (8 Ohm)	2 Pcs.
Max. Num. of Loudspeakers (20 Ohm)	5 Pcs.
Depth	55 mm
Component Set	
Net Weight	0.15 kg
Colors	depending on switch program
Accessories	PS 24/1,5: power supply

amplifiers fitting to switch boxes

AMP 10 DC ... UP

Power amplifier with 0-10V control for use with the preamplifier Preamp UP or EIB/KNX audio system, suitable for homes, small training rooms, doctor's surgeries, etc... The AMP 10 DC features a 0-10V control which enables independent volume adjustment. The metal support plate is screwed onto a standard flush-mounted box 63 mm in depth. It has been pre-configured for a blanking plate specific to the particular switch program. These can be obtained from any electrical wholesaler. For exact order information according to the switch program please refer to the table at the end of this chapter.

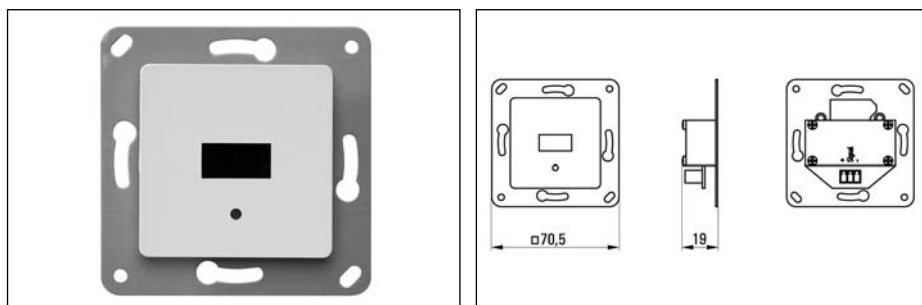


Technical Datas	AMP 10 DC ... UP
Input Voltage Mic/ILne	-/0 dB or 5 V (switchable)
Input Imedance Mic/Line	-/47 kOhm
Max. Output Voltage	6.3 V
Output Impedance	4 Ohm
Rated Power	10 W
Control Voltage	0-10 V
Operating Voltage	22 - 26 V
Current Consumption	0.77 A
Max. Num. of Loudspeakers (4 Ohm)	1 Pcs.
Max. Num. of Loudspeakers (8 Ohm)	2 Pcs.
Max. Num. of Loudspeakers (20 Ohm)	5 Pcs.
Depth	46 mm
Component Set	
Net Weight	0.1 kg
Colors	depending on switch program
Accessories	PS 24/1,5: power supply

Cable-based system for permanent installation for the remote control of Hi-Fi systems in homes from different rooms, comprising up to 7 receivers (6 x distributed, 1 x local), a cable outlet and the transmitter electronics. The transmitter is connected with the IR transmitter diodes affixed to the amplifiers or sound sources. For information about the structure of the system, please see the Technical Annex at the back of the catalogue.

IR-Target

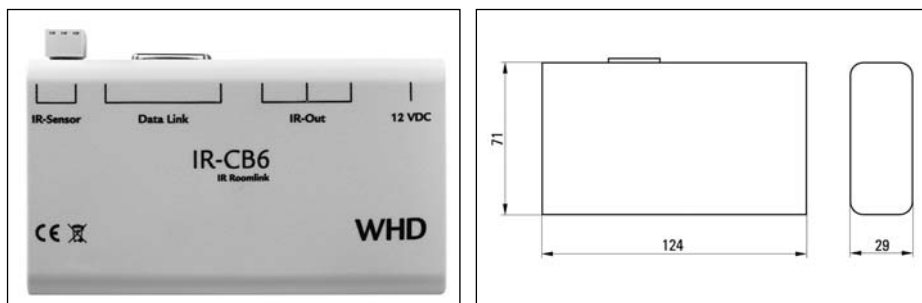
Infrared receiver for connection to the Roomlink Infrared driver electronics unit. Comes with a 50 x 50 mm front plate in pure matt white. The IR Target fits all commonly available switch boxes using adapter frames from electrical wholesalers. One receiver is needed for each room.



Technical Datas	IR-Target
Audio IN	
Audio OUT	
Connections / Interfaces	
Rated Power	
Operating Voltage	5 VDC from IR-CBC6
Current Consumption	
Material	Cover plate 50 x 50 mm: plastic
Colors	matt white
Accessories	

IR-CBC 6

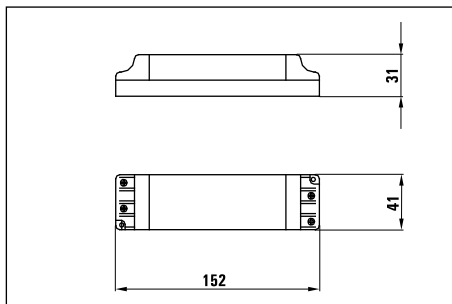
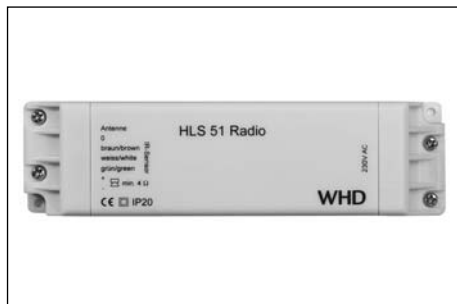
Transmitter with driver electronic unit, separate cable outlet insert, mains power supply and 3 double transmitter diodes for 6 sources. The cable outlet insert comes with a 50 x 50 mm front plate in pure matt white. It fits all commonly available switch boxes using adapter frames from electrical wholesalers. One of these sets is needed per system.



Technical Datas	IR-CB-6
Audio IN	
Audio OUT	
Connections / Interfaces	SUB-D connector for system wiring, local IR receiver input, 3 IR-emitter ports
Rated Power	
Operating Voltage	12 VDC
Current Consumption	
Material	Tabletop case, wall mount unit cover plate 50 mm: plastic
Colors	Tabletop case grey, cover plate matt white
Accessories	Power supply included, IR-remote control TP 6000 optional

HLS 51 Radio

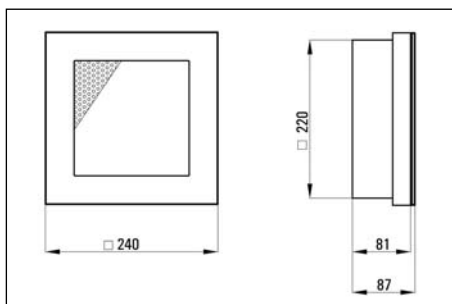
The HLS 51 Radio is the ideal sound system for rooms with suspended ceilings, which have built-in halogen spot lights – e.g. kitchens, bathrooms, doctors' practices. The powerful tuner has good reception, even with the most basic dipole aerial. And the quality of the reception can be improved again by connecting the radio to an external aerial. The HLS 51 Radio can be slid into the suspended ceiling through a cut-out for a halogen spot light – just like a halogen light transformer. The IR receiver is placed into the ceiling, so that the device can be fully controlled via infrared remote control. You can connect five halogen spot speakers HLS 51. Available also as set. For backup in the bass range we recommend subwoofer HLS 51 SUB. For further information, please see the Technical Annex at the back of the catalogue.



Technical Datas	HLS 51 Radio
Audio IN	-
Audio OUT	Connection for 1 x 4, 2 x 8 or 5 x 20 ohm speakers
Connections / Interfaces	75 Ohm coax aerial connection, external IR receiver
Rated Power	2 W
Operating Voltage	230 VAC / 50 Hz
Current Consumption	
Component Set	Power supply, amplifier, IR-receiver
Material	Case: plastic
Colors	white
Accessories	RC TAP incl., HLS 51: Halogenspotspeaker and HLS 51 SUB: Subwoofer optional

M 240 Radio

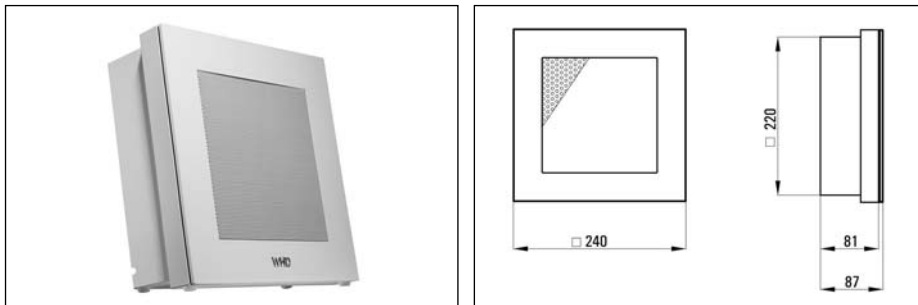
The M 240 Radio is based on the hi-fi loudspeaker technology of the designer loudspeaker M 240, which has been awarded the innovation prize for architecture and technology. The M 240 Radio is the ideal sound system for kitchens, bathrooms, doctors' practices and hair salons... The powerful tuner has good reception, even with the most basic indoor aerial. And the quality of the reception can be improved again by connecting the radio to an external aerial. The table-top radio is remote-controllable via infrared. Via the AUX input at the back, it can be used as an active loudspeaker for portable music sources like iPod* or PC/laptop. The 12 VDC power supply makes the use of the M 240 Radio safe in any bathroom. The appearance of the M 240 Radio can be personalised according to your own taste. We can deliver a wide range of frames made of high-quality materials like glass, stainless steel, Wenge wood or gypsum. The grille and the housing are available in white or anthracite.



Technical Datas	M 240 Radio
Audio IN	AUX: 3,5 mm stereo jack, switched
Audio OUT	
Connections / Interfaces	75 Ohm coax aerial input
Rated Power	2 W
Operating Voltage	12 VDC
Current Consumption	
Component Set	166 mm woofer with coaxial tweeter, amplifier, IR-receiver
Material	Case plastic, frames glass, stainless steel, plaster, wood
Colors	Frame: white-,mint-,black-glass, stainl.steel brushed or polished, plaster, wood
Accessories	Remote control RC TAP and Plug top power supply included

M 240 Radio Basic

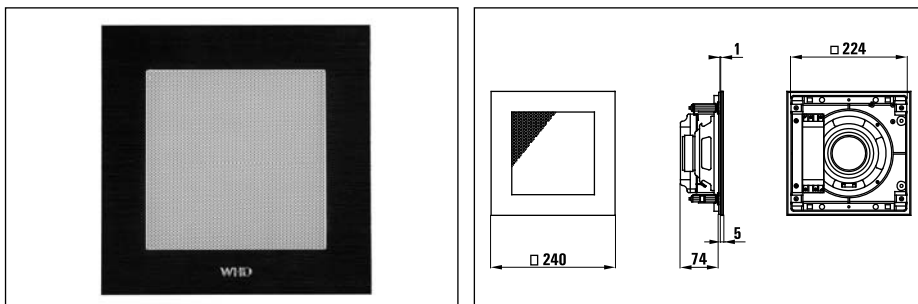
This low cost radio is based on the hi-fi loudspeaker technology of the designer loudspeaker M 240, which has been awarded the innovation prize for architecture and technology. The M 240 Radio Basic is the ideal sound system for kitchens, bathrooms, doctors' practices and hair salons... The powerful tuner has good reception, even with the most basic indoor aerial. And the quality of the reception can be improved again by connecting the radio to an external aerial. The table-top radio is remote-controllable by infrared. The frame, grille and the housing are available in white or anthracite.



Technical Datas	M 240 Radio Basic
Audio IN	-
Audio OUT	-
Connections / Interfaces	75 Ohm coax aerial input
Rated Power	2 W
Operating Voltage	230 VAC / 50 Hz
Current Consumption	
Component Set	166mm-woofer with coaxial tweeter, power supply, amplifier, IR-receiver
Material	Case, frame: plastic
Colors	Frame: white, anthracite
Accessories	Remote control RC TAP included

M 240 Radio UP

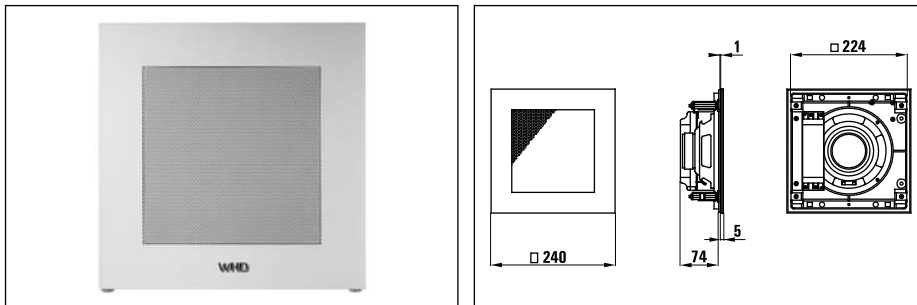
The M 240 Radio UP to install is based on the hi-fi loudspeaker technology of the designer loudspeaker M 240, which has been awarded the innovation prize for architecture and technology. The M 240 Radio UP is the ideal sound system for kitchens, bathrooms, doctors' practices and hair salons... The powerful tuner has good reception, even with the most basic indoor aerial. And the quality of the reception can be improved again by connecting the radio to an external aerial. The radio is remote-controllable via infrared. The appearance of the M 240 Radio UP can be personalised according to your own taste. We can deliver a wide range of frames made of high-quality materials like glass, stainless steel, Wenge wood or gypsum. The grille and the housing are available in white or anthracite.



Technical Datas	M 240 Radio UP
Audio IN	-
Audio OUT	-
Connections / Interfaces	75 Ohm coax aerial input
Rated Power	2 W
Operating Voltage	230 VAC / 50 Hz
Current Consumption	
Component Set	166 mm woofer with coaxial tweeter, power supply, amplifier, IR-receiver
Material	Baffle: plastic, frame: glass, stainless steel, plaster or wood
Cut out	225 x 225 mm
Depth	74 mm
Colors	Frame: white-,mint-,black-glass, stainl. steel brushed o.polished, plaster, wood
Accessories	Remote control RC TAP included

M 240 Radio Basic UP

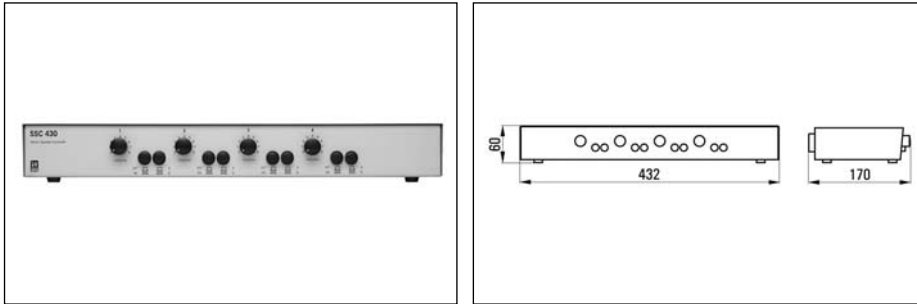
This low cost radio to install is based on the hi-fi loudspeaker technology of the designer loudspeaker M 240, which has been awarded the innovation prize for architecture and technology. The M 240 Radio Basic UP is the ideal sound system for kitchens, bathrooms, doctors' practices and hair salons... The powerful tuner has good reception, even with the most basic indoor aerial. And the quality of the reception can be improved again by connecting the radio to an external aerial. The radio is remote-controllable via infrared. The frame, grille and the housing are available in white or anthracite.



Technical Datas	M 240 Radio Basic UP
Audio IN	-
Audio OUT	-
Connections / Interfaces	75 Ohm coax aerial input
Rated Power	2 W
Operating Voltage	230 VAC / 50 HZ
Current Consumption	
Component Set	166 mm woofer with coaxial tweeter, power supply, amplifier, IR-receiver
Material	Case, frame: plastic
Cut out	225 x 225 mm
Depth	74 mm
Colors	Frame: white, anthracite
Accessories	Remote control RC TAP included

SSC 430

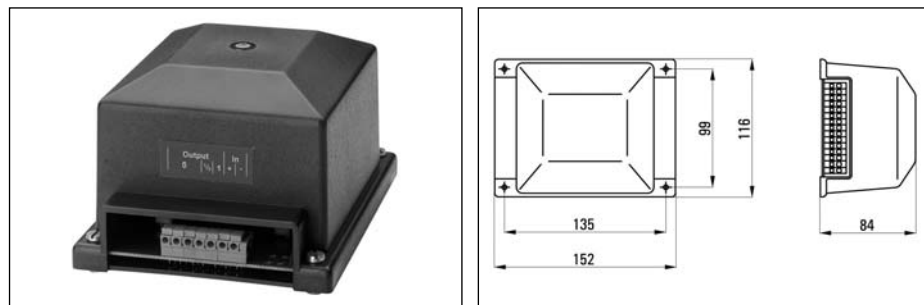
The SSC 430 is placed within the Hi-Fi system and can provide stereo sound to 4 rooms. Suitable for homes, restaurants, ... Passive device for connection to speaker outputs on an amplifier or receiver. High operating stability with impedance correction for standard, commercially-available Hi-Fi speakers (not a 100V system!). Connecting a second amplifier allows you to switch between two sound sources. The features of each of the four zones can be controlled independently and centrally from the SSC 430: Volume, On/Off, source A/B. For further information, please see the Technical Annex at the back of the catalogue.



Technical Datas	SSC 430
Audio IN	2 x speaker level stereo inputs (amplifier A/B)
Audio OUT	4 x speaker level stereo outputs (zone 1...4)
Connections / Interfaces	
Rated Power	4 x 30 W Stereo
Operating Voltage	
Current Consumption	
Material	Case: metal
Colors	black, silver
Accessories	IR-Roomlink System

NVÜ 100

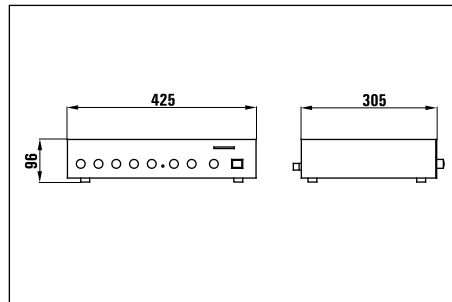
Low-voltage transformer for impedance correction to run multiple low-impedance single speakers using standard, commercially-available Hi-Fi amplifier electronic units. Various tappings are available for performance adjustment purposes, for example to set different volumes for different groups of speakers. Two NVÜ 100s are required for stereo operation. The NVÜ 100 can be combined with the low-impedance WHD volume control for individual volume control per room (refer to the chapter on Audio electronics for switch boxes). For further information, please see the Technical Annex at the back of the catalogue.



Technical Datas	NVÜ 100
Audio IN	1 speaker level input
Audio OUT	
Connections / Interfaces	Speaker level output taps from 1/1 to 1/50 to match with number of speakers
Rated Power	100 W
Operating Voltage	
Current Consumption	
Material	Case: plastic
Colors	black
Accessories	Volume control LR 15 mono / stereo, LR 20 (see chapter Audioelectronics)

AMP 120/100 V

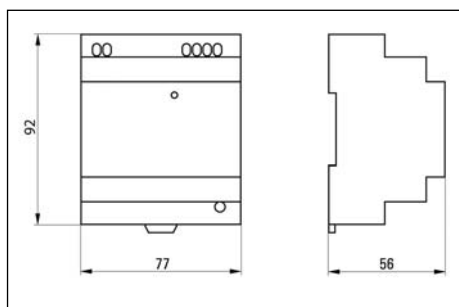
100V mix-amplifier for the professional use e.g. in shops, community centers, restaurants... At the four MIC inputs microphones of most different design are connectable. Each microphone entrance has its own volume control. Beyond that an controller is available for the total volume as well as for base and treble. Further two external sources are connectable for music transmission. The source choice is made by the front-lateral selection tracer. The AMP 120/100V can be used as a desktop device or can be mounted in 19" - Rack (2 HE). It is laid out for continuous use and is provided with a thermal protection as well as an electronic protective circuit. For further information, please see the Technical Annex at the back of the catalogue.



Technical Datas	AMP 120/100 V
Audio IN	4x Mic input with request permanent switches, 2x Line inputs (CD/AUX)
Audio OUT	Speaker output mono, selectable 100V or 8 ohms
Connections / Interfaces	Speaker output mono, 100V speech only (activated with request switch)
Rated Power	120 W
Operating Voltage	230 V / 50 Hz, 24 V DC
Current Consumption	
Material	Case: metal
Colors	black
Accessories	

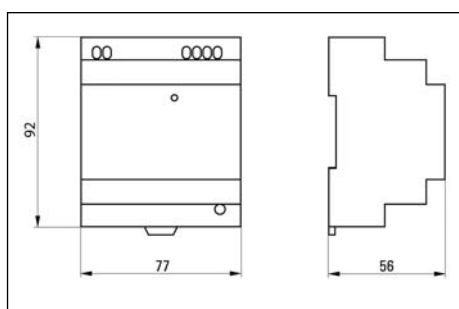
PS 24/1,5

Switched power supply selected by WHD for top-hat rail assembly, stabilised, with short-circuit protection, can be switched in parallel. Suitable for 1x amplifier AMP 10 DC.



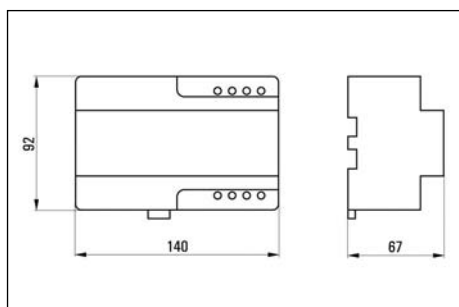
PS 24/2,5

Switched power supply selected by WHD for top-hat rail assembly, stabilised, with short-circuit protection, can be switched in parallel. Suitable for 3x amplifier AMP 10 DC or 1x DAM LS stereo.



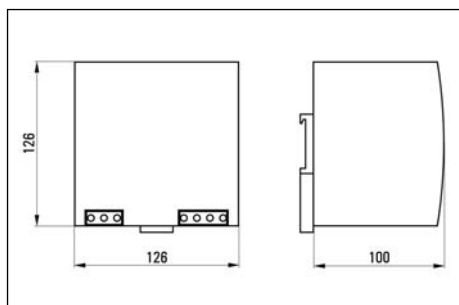
PS 24/5

Switched power supply selected by WHD for top-hat rail assembly, stabilised, with short-circuit protection, can be switched in parallel. Suitable for 6x amplifier AMP 10 DC or 2x DAM LS stereos.



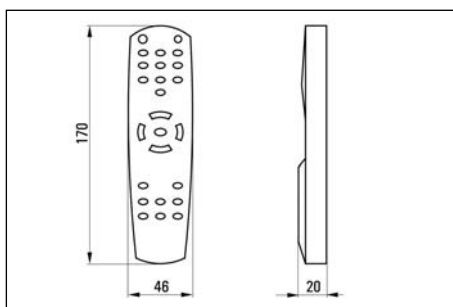
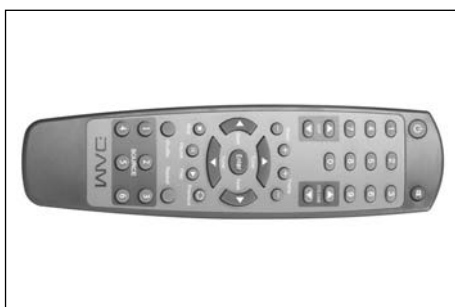
PS 24/10

Switched power supply selected by WHD for top-hat rail assembly, stabilised, with short-circuit protection, can be switched in parallel. Suitable for 12x amplifiers AMP 10 DC or 4x DAM LS stereos.



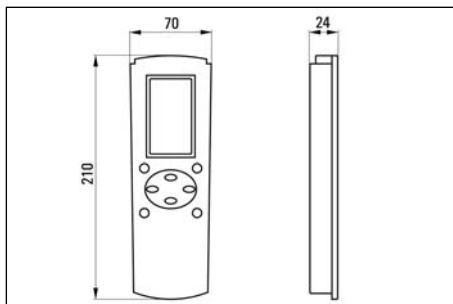
DAM V3 RC 6000

Value-for-money Infrared remote control for the DAM system with all important functions including source control. Each main unit DAM 6000 includes a remote control RC 6000.



DAM V3 TP 6000

Elegant universal touchpanel remote control with back-lit LCD display, pre-programmed for controlling DAM 6000s and connected sources. Can control up to 63 other infrared remote control-enabled units such as TVs or IR-remote control KNX keypad sensors. Key functions and labels are easy to edit using a PC; can also learn IR commands from other remote controls. PC Link cable (USB), a table-top stand with charger station/power supply and 3 xNiMH batteries are included in the delivery.

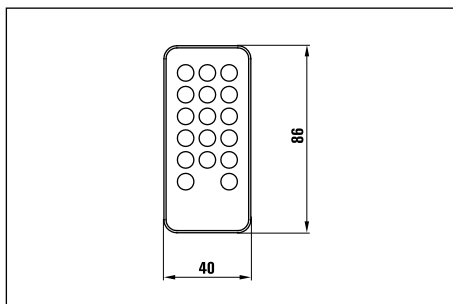


SUB D AM 840

When more than 4 mono (or 2 stereo) zones are needed, at least one other audio actuator AM 840 will have to be used. The AM 840 provides two SUB-D sockets for looping the audio inputs. A suitable SUB-D cable, 0.5m in length is available as an accessory.

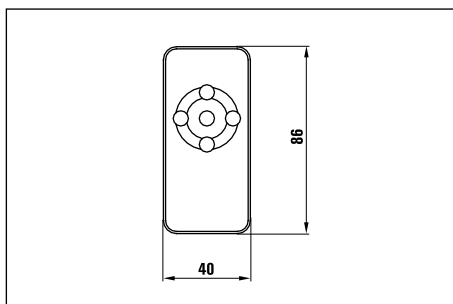
RC TAP

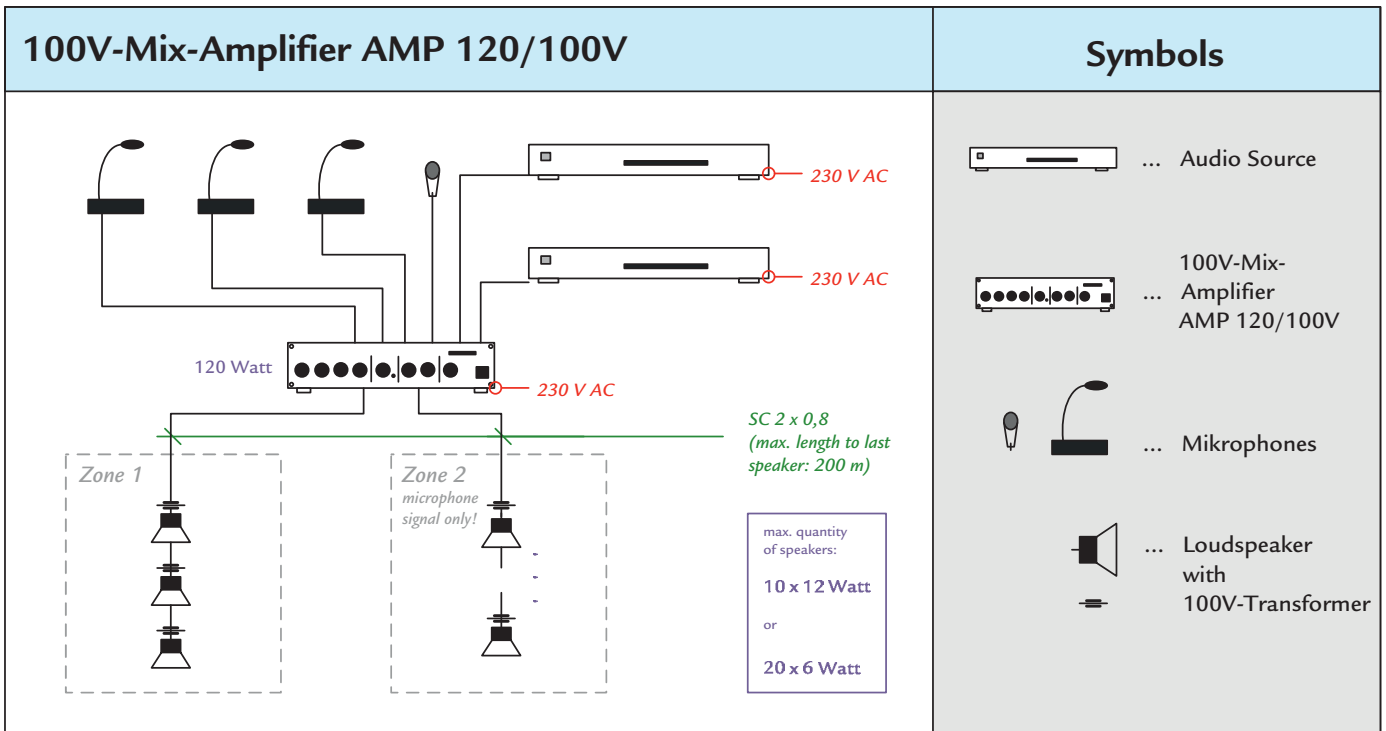
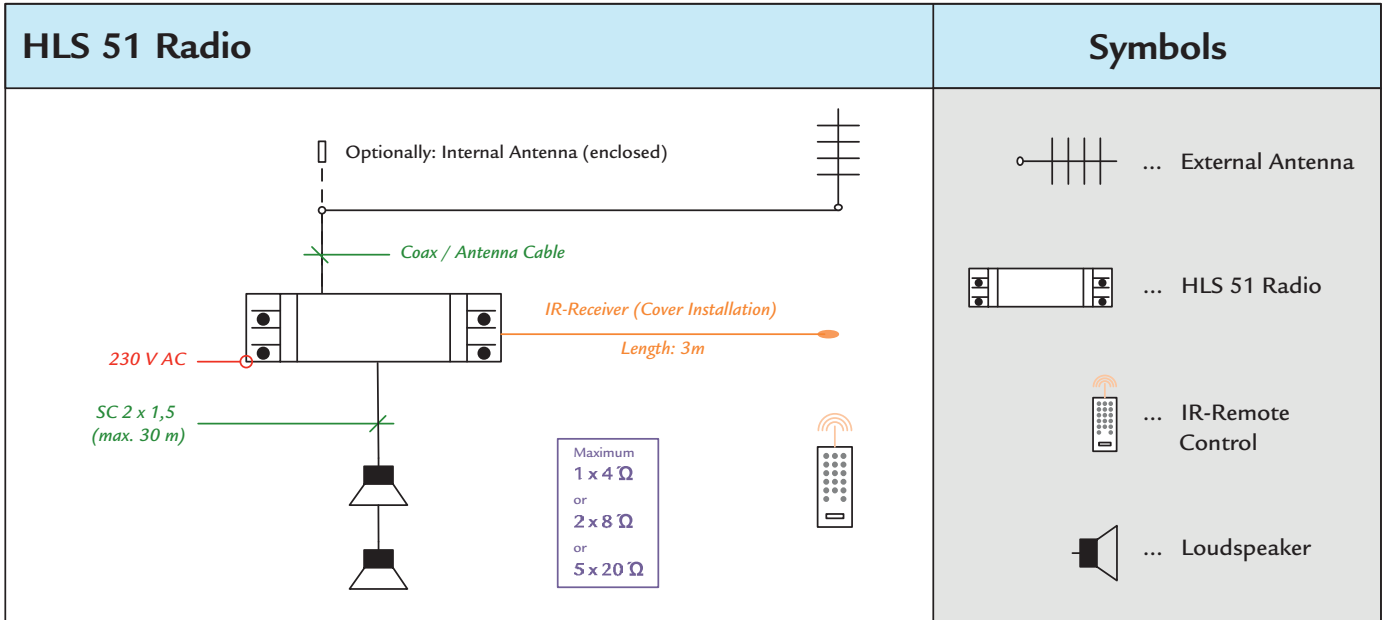
Remote control suitable for M 240 Radio (Basic) and HLS 51 Radio.

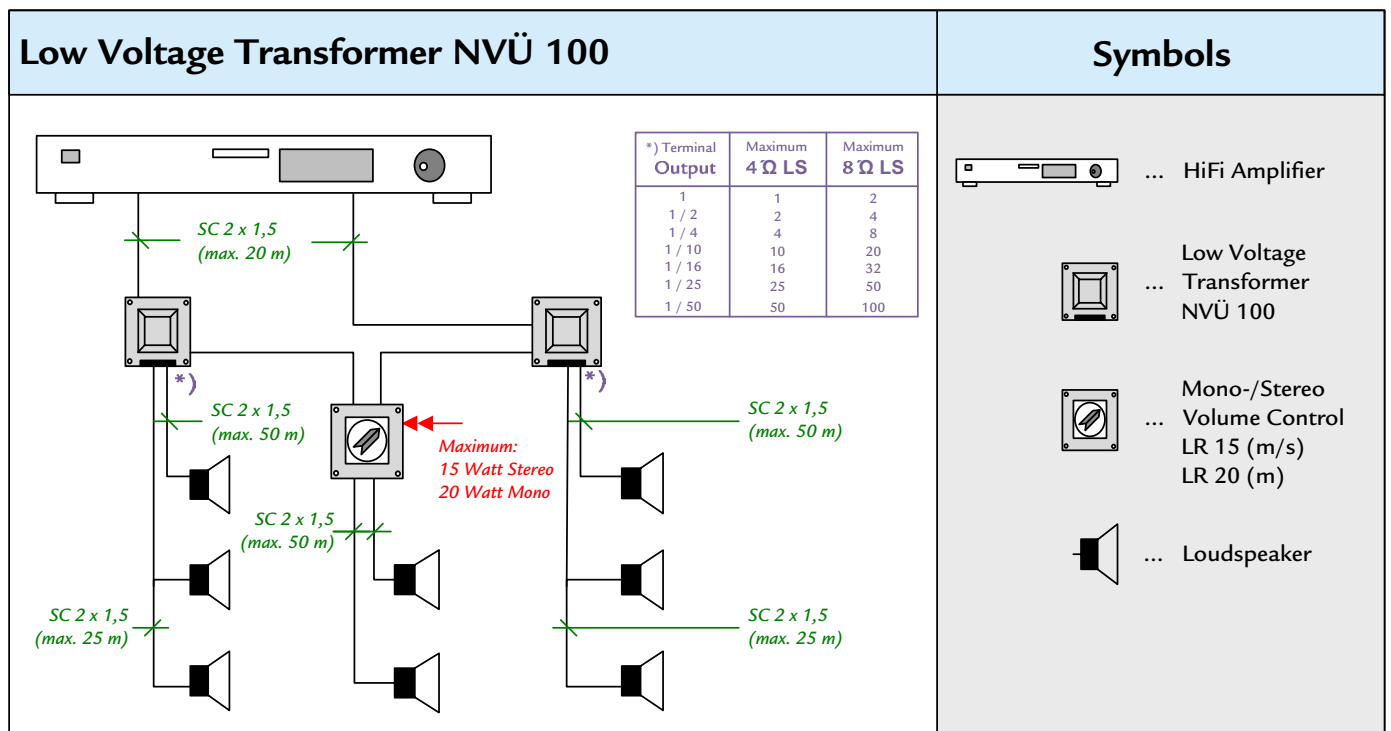
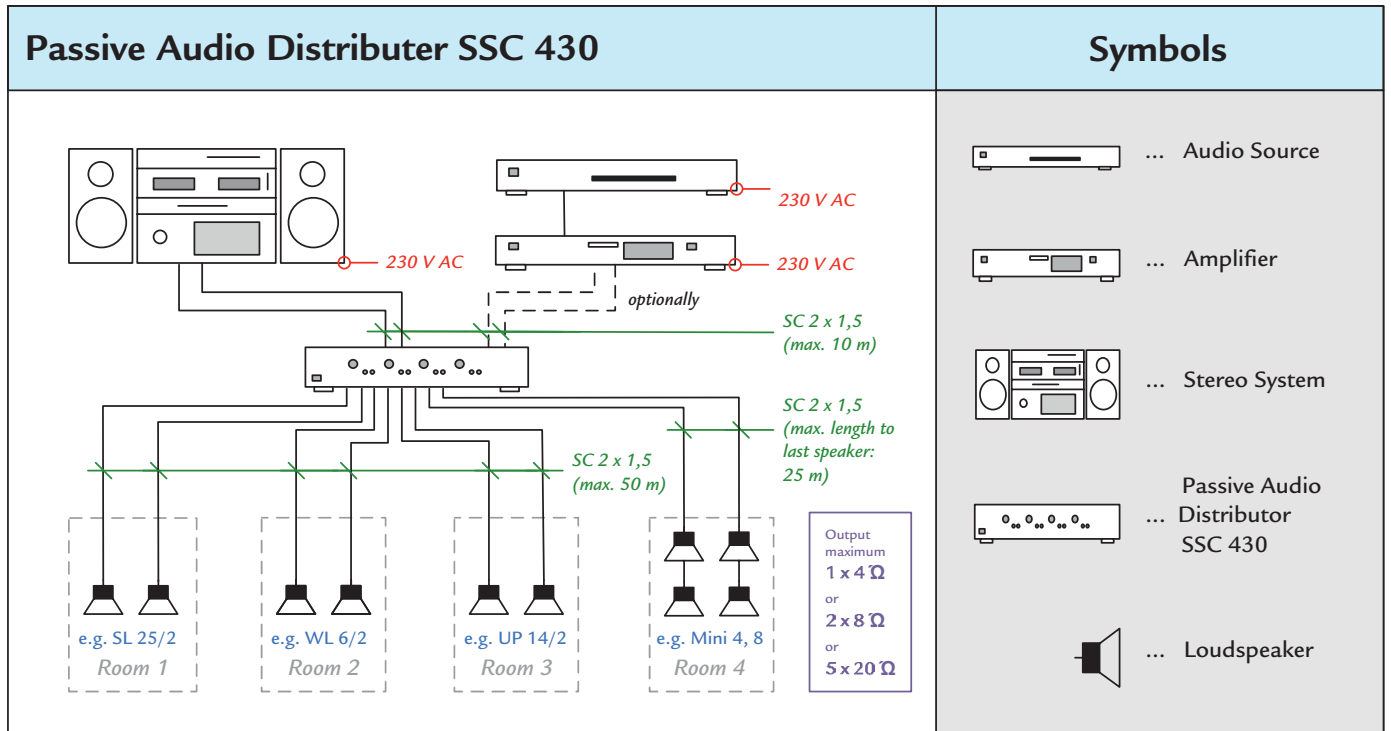


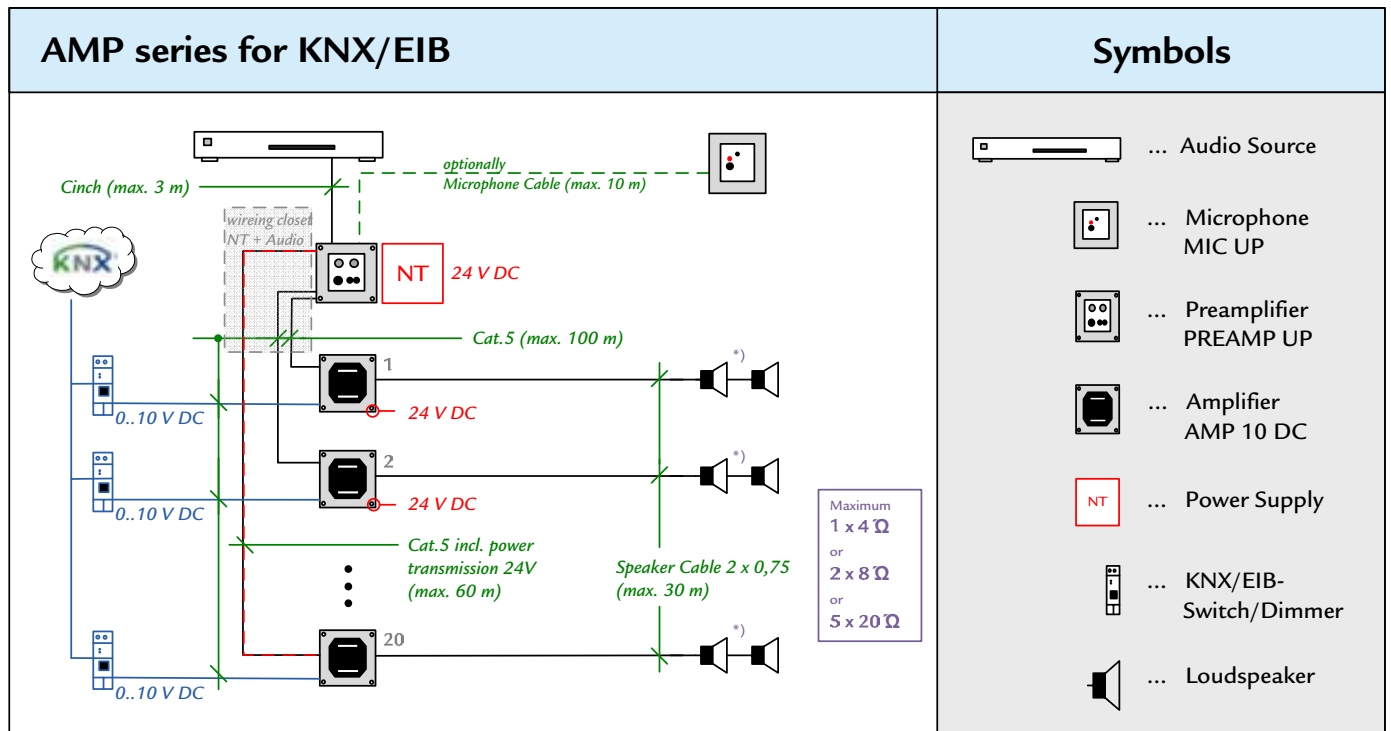
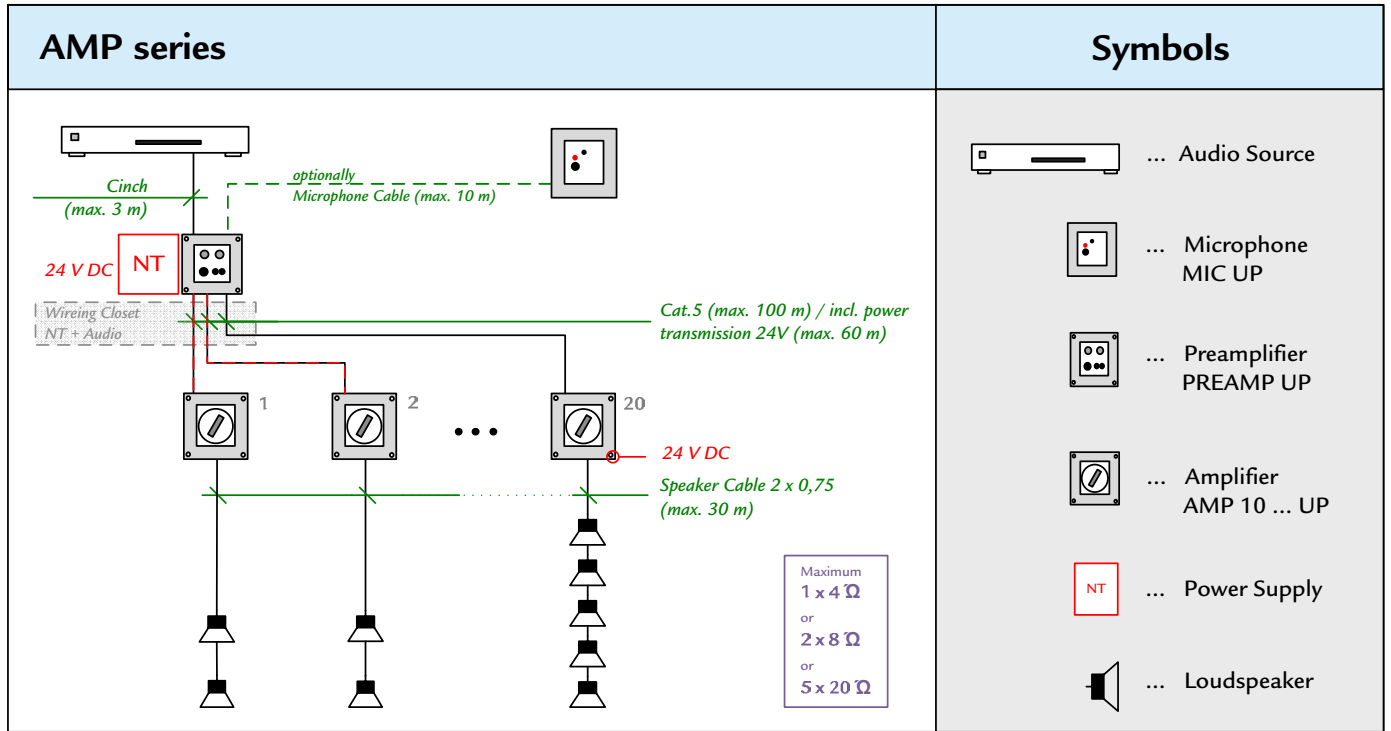
RC TP 55

Remote control suitable for Musicport MP 55.

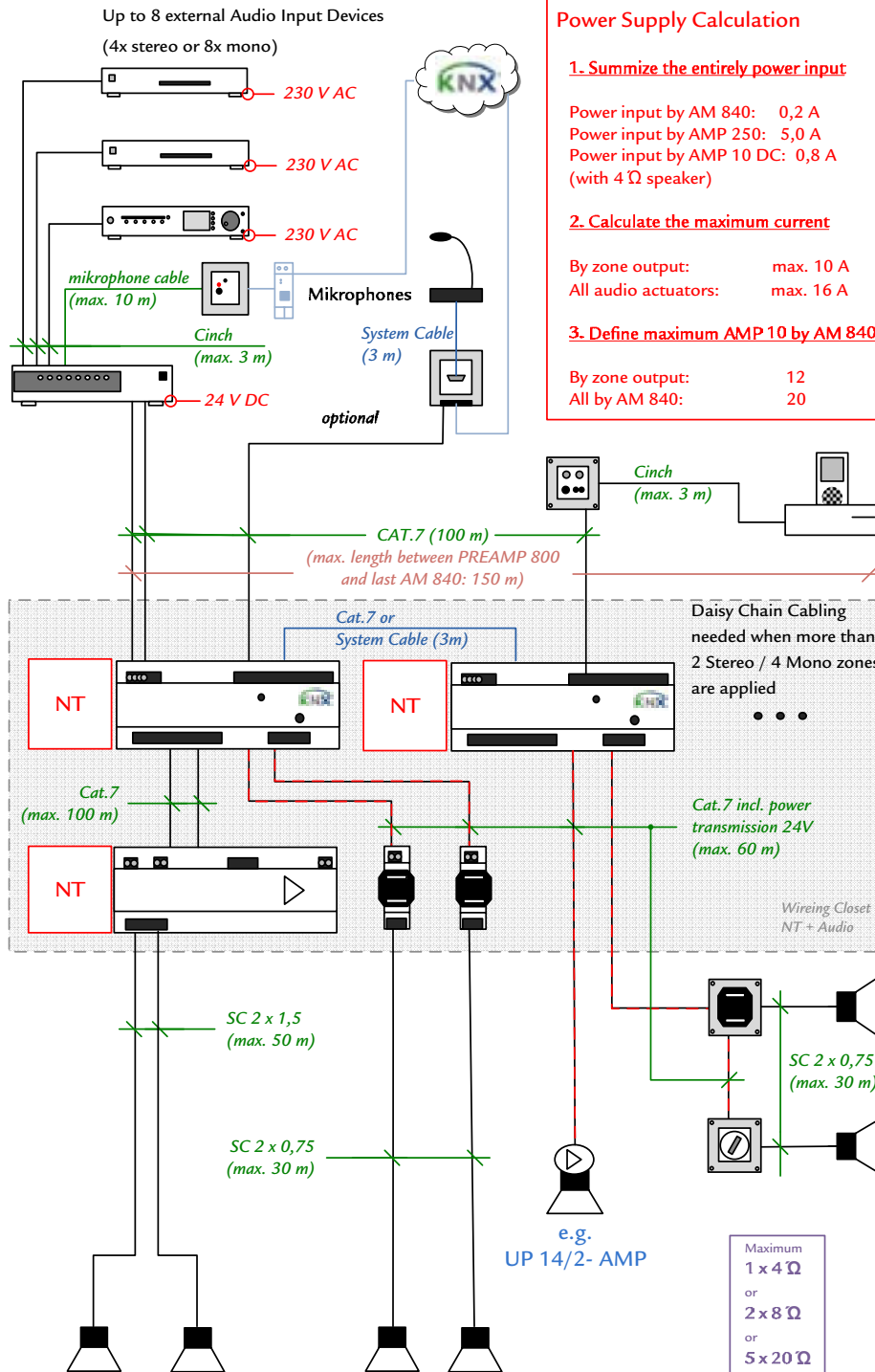








KNX/EIB Audio



Power Supply Calculation

1. Summize the entirely power input

Power input by AM 840: 0,2 A
 Power input by AMP 250: 5,0 A
 Power input by AMP 10 DC: 0,8 A (with 4 Ω speaker)







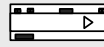









2. Calculate the maximum current

By zone output: max. 10 A
 All audio actuators: max. 16 A

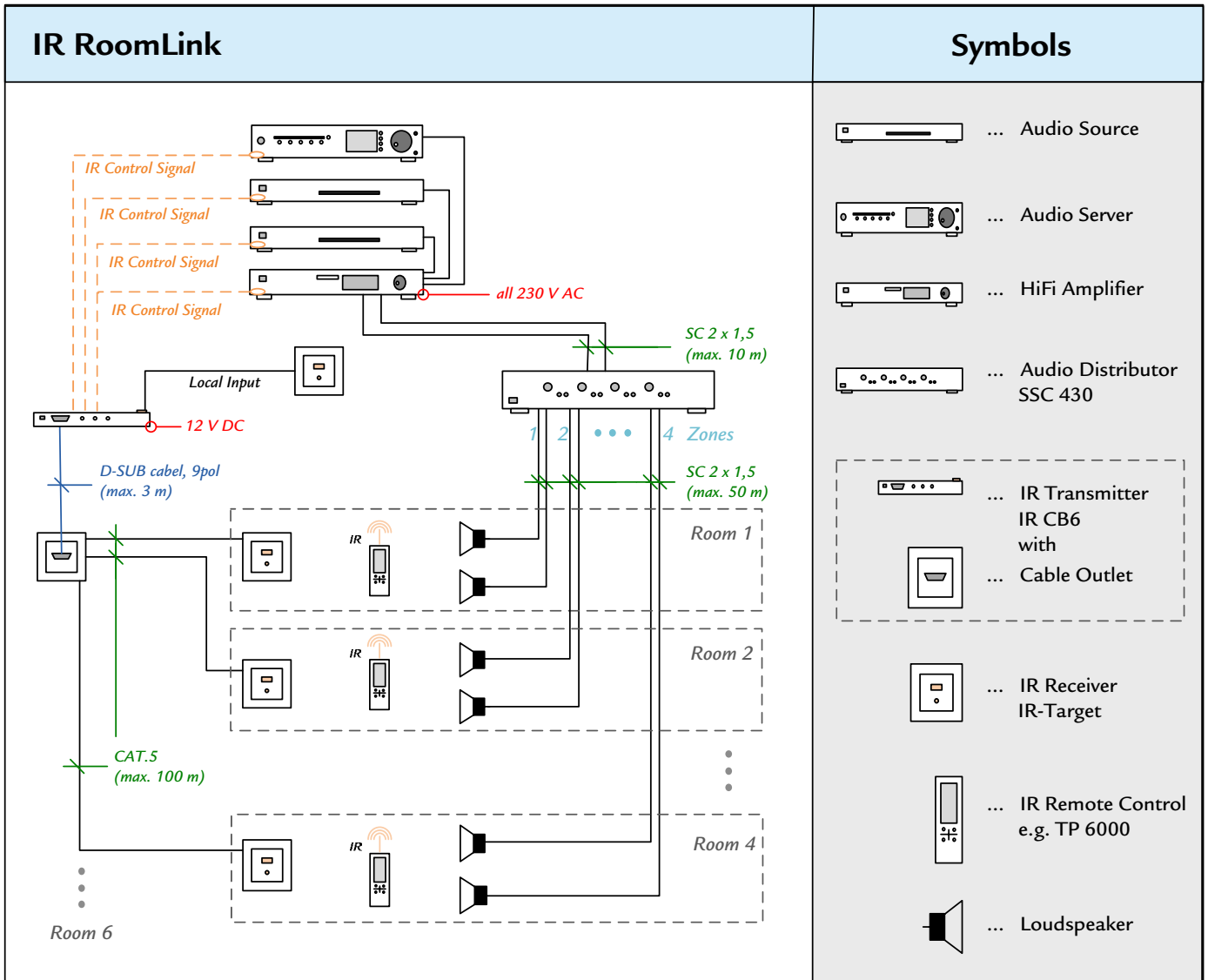
3. Define maximum AMP 10 by AM 840

By zone output: 12
 All by AM 840: 20

Symbols

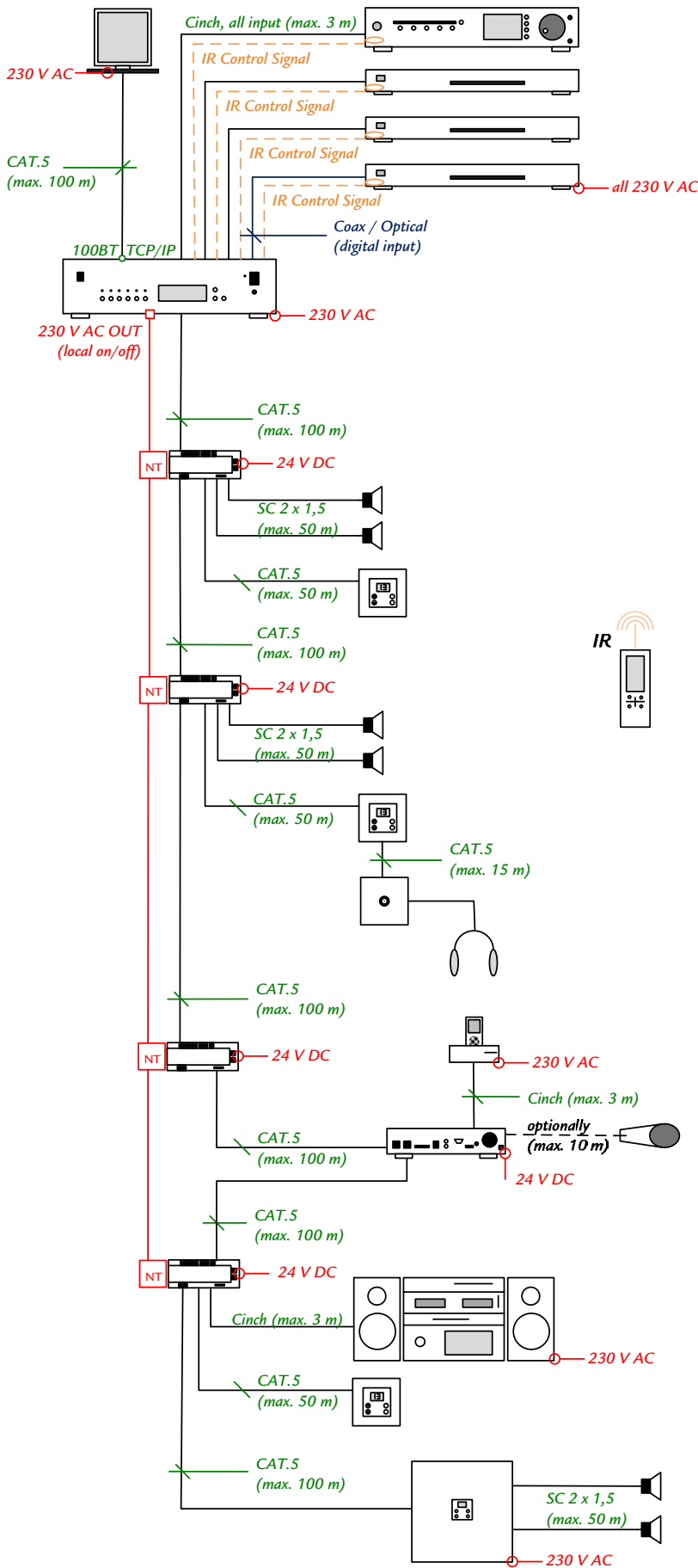
-  ... Audio Source
-  ... Audio Server
-  ... Preamplifier PREAMP 800
-  ... Mobile MP3 Player e.g. iPod
-  ... Preamplifier PREAMP UP
-  ... Audio Actuator AM 840
-  ... Stereo Amplifier AMP 250
-  ... Amplifier for In-wall assembly AMP 10 DC UP
-  ... Amplifier for DIN rail mount AMP 10 DC HS
-  ... KNX/EIB Binary Input
-  ... Amplifier with potentiometer AMP 10 ... UP
-  ... Power Supply Subzone
-  ... Loudspeaker
-  ... with Amplifier
-  ... Microphone MIC UP
-  ... Microphone Speaker Unit MIC 800 with In-wall assembly


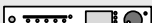














MULTI-ROOM SYSTEMS



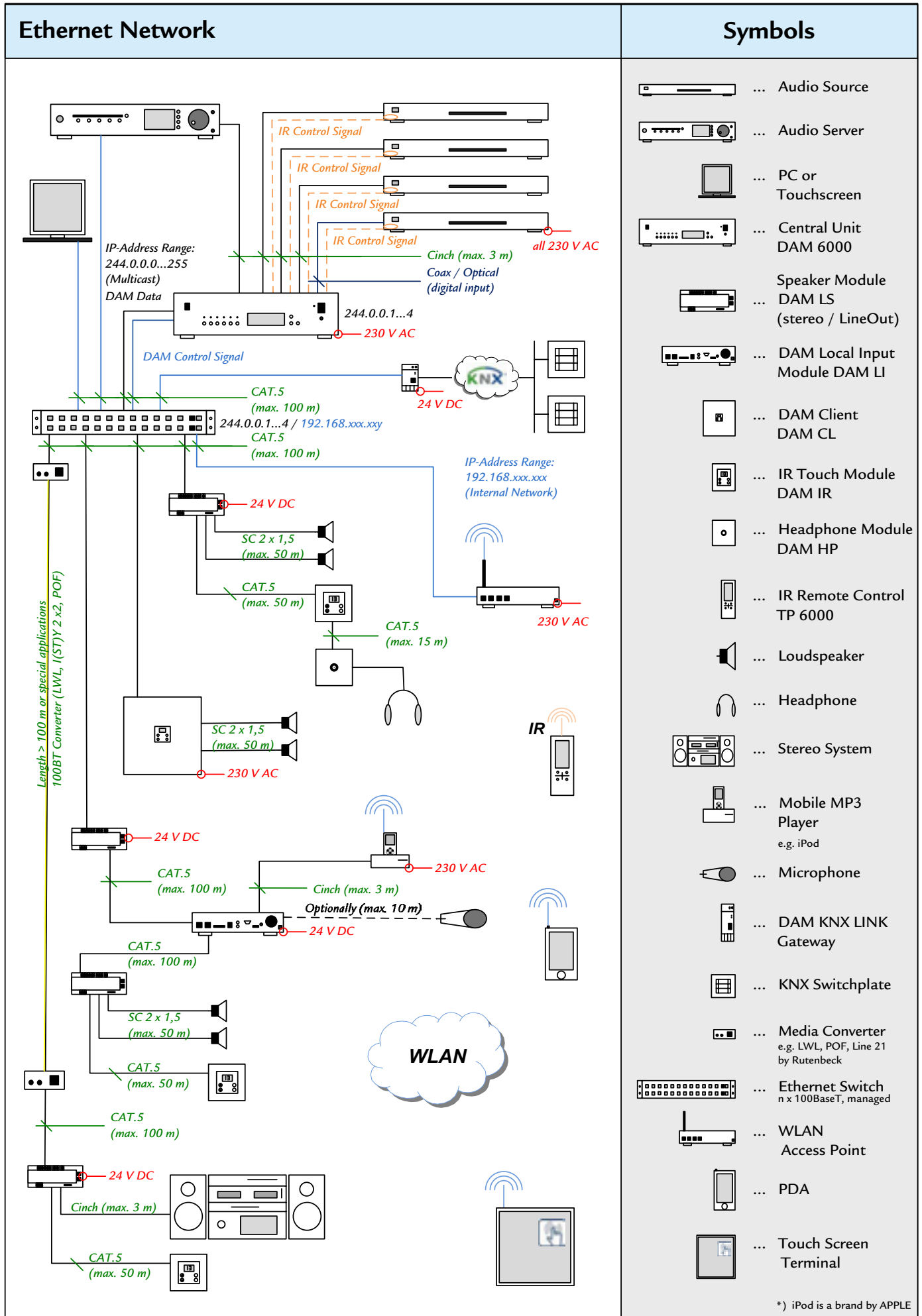
DAM Network (Daisy Chain)

Symbols



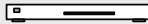
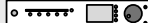



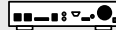
















-  ... Audio Source
-  ... Audio Server
-  ... PC or Touchscreen
-  ... Central Unit DAM 6000
-  ... Speaker Module DAM LS (stereo / LineOut)
-  ... DAM Local Input Module DAM LI
-  ... DAM Client DAM CL
-  ... IR Touch Module DAM IR
-  ... Headphone Module DAM HP
-  ... IR Remote Control TP 6000
-  ... Loudspeaker
-  ... Headphone
-  ... Stereo System
-  ... Mobile MP3 Player (e.g. iPod*)
-  ... Microphone
-  ... Power Supply

*) iPod is a brand by APPLE



Ethernet Network

Symbols

-  ... Audio Source
-  ... Audio Server
-  ... PC or Touchscreen
-  ... Central Unit DAM 6000
-  ... Speaker Module DAM LS (stereo / LineOut)
-  ... DAM Local Input Module DAM LI
-  ... DAM Client DAM CL
-  ... IR Touch Module DAM IR
-  ... Headphone Module DAM HP
-  ... IR Remote Control TP 6000
-  ... Loudspeaker
-  ... Headphone
-  ... Stereo System
-  ... Mobile MP3 Player
e.g. iPod
-  ... Microphone
-  ... DAM KNX LINK Gateway
-  ... KNX Switchplate
-  ... Media Converter
e.g. LWL, POF, Line 21 by Rutenbeck
-  ... Ethernet Switch
n x 100BaseT, managed
-  ... WLAN Access Point
-  ... PDA
-  ... Touch Screen Terminal

*) iPod is a brand by APPLE

“ Music is the common language of humankind. ”

Henry Wadsworth Longfellow (1807-1882)

WHD

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