brähler

*DIGI**MIC*** ®

Digital Discussion System - wireless

Operating instructions

Release 1.2

Printed in Germany

Should you have questions about this manual please contact:

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About this manual

Please keep this manual together with the system units. If you pass on the units to other parties, please include this manual.

Symbols

The meanings of the symbols and fonts used in this manual are as follows:

Indicates an important note, if not minded, the functionality of the unit, the security of your data, or your health are put at risk.

Supplementary information, remarks, and tips follow this symbol.

Text which follows this symbol describes activities that must be performed in the order shown.

Texts in bolded letters require your special attention.

General information

Please read the manual carefully, taking special care when you see this symbol as indicates important information!

All brand names (marked with *) are registered trademarks of their respective owners.

The warranty invalidates, if you cause (generate, precipitate) inappropriate use or handling of the unit.

Important information

Important safety instructions

- Read these instructions for use.
- Keep these instructions in a safe place.
- Heed all warnings.
- Follow all instructions.
- Do not use near water.
- Clean only with a dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as central heating radiators, electric heaters, stoves, or other units that produce heat (e.g. amplifiers).
- This unit is supplied with an IEC mains cable complete with a molded mains plug. This is for your safety – do not tamper with the mains. If the supplied cable does not fit your mains socket, please consult a competent electrician for a replacement cable that matches the power output sockets in your country, or to replace the obsolete socket with one to current standards.
- Protect the mains cable from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where it exits from the unit.
- Only use attachments/accessories specified by the manufacturer.
- Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the unit. When a cart is used, use caution when moving the cart/unit combination to avoid injury from tip-over.
- Unplug during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required if the unit has been damaged in any way, such as mains cable or plug damage, liquid has been spilled, objects have fallen inside, the unit has been exposed to rain or moisture, does not operate properly or has been dropped.

Important safety information

Warning!

To reduce the risk of fire or electric shock, do not expose the unit to rain or moisture. Do not open the unit as there are potentially dangerous voltages present inside. Refer all servicing to qualified service personnel.

Caution!

Use only accessories recommended by the manufacturer to avoid fire, electric shock, or other hazards. To prevent the risk of electric shock, do not remove cover or back. No user serviceable parts inside! Refer all servicing to qualified service personnel.

Warning! Power source

The central control unit is a Class 1 unit. It must only be connected to properly grounded power outlets. This unit should be operated only from the type of power source indicated on the marking label.

If you are not sure of the type of power supply to your building, consult your dealer or local power company.

Disconnection from the mains

To disconnect the unit from the mains, pull the mains plug out of the wall outlet.

Overload

Do not overload wall outlets and extension cables as this may result in fire and electric shock.

Objects and liquids

Never push objects of any kind through openings of this unit as they may touch dangerous voltage points or short-out parts that could result in fire or electric shock. Never spill liquids of any kind onto the unit. Should a spillage occur, unplug the unit and have it checked by a technician.

Maintenance and care

No user serviceable parts inside! Do not attempt to service this unit yourself as opening or removing covers may expose dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
Clean only with a dry cloth. Do not use detergents or other liquids.

Replacement parts

When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or those that have the same characteristics as the original part.

Unauthorized substitutions may result in fire, electric shock, or other hazards.

Safety check

Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

The DIGIMIC conference system is state of the art and has been designed to meet the regulations in force. Nevertheless, the individual components of the DIGIMIC conference system can cause danger for persons and material assets if:

- the system is not used as intended,
- the system is set up by personnel not familiar with the safety regulations,
- the system is converted or altered incorrectly,
- the safety instructions are not observed.

⚠ Warning!

This system is capable of producing sound pressure exceeding 85 dB(A). 85 dB(A) is the sound pressure corresponding to the maximum permissible volume which is by law (in some countries) allowed to affect your hearing for the duration of a working day. It is used as a basis according to the specifications of industrial medicine. Higher volumes or longer durations can damage your hearing. At higher volumes, the duration must be shortened in order to prevent hearing damage.

The following are sure signs that you have been subjected to excessive noise for too long a time:

You can hear ringing or whistling sounds in your ears.

You have the impression (even for a short time only) that you can no longer hear high notes.

Disposal

This symbol on the product, in the instructions or on the packaging means that your electrical and electronic equipment should be disposed at the end of its life separately from your household waste. There are separate collection systems for recycling in the EU. For more information, please contact the local authority or your retailer where you purchased the product.

Make sure to dispose of used batteries as required by local waste disposal rules.
Never throw batteries into a fire (risk of explosion) or dustbin.

When scrapping the equipment, remove the batteries, separate the case, circuit boards, and cables, and dispose of all components in accordance with local waste disposal rules.

DIGIMIC® Digital Conference System

DIGIMIC stands for digitally controlled microphone management system. With DIGIMIC the digital age of conference technology began. Technical advancements and user benefits defined DIGIMIC as a market leader. DIGIMIC is used today throughout the world and in many regions it is a synonym for discussion systems.

DIGIMIC set the standard for transmission quality, reliability, and compatibility. More importantly DIGIMIC raised the bar regarding real value.

Brähler continues to lead with the introduction of the new DIGIMIC. Our new platform for conferencing encompasses 50 years of experience and extraordinary innovation. With DIGIMIC it is no longer a question of what to use but rather how to use it best. The wired system is upgraded to a wireless system by simply adding the wireless docking unit whenever needed. It is a simple and elegant solution for both rental and sales applications.

Simple, versatile, DIGIMIC!

The digital conference system provides a 100% stand alone solution and is completely self-configuring. With DIGIMIC it is easier then ever before to setup even the most complex conference systems. True plug (and / or unplugged) and play setup ensures that any microphone unit is operational instantly when connected.

DIGIMIC matches digital broadcast and studio audio requirements, meeting the needs of today's conferencing world. At any time the system can be expanded to include our conference software. TCP/ IP communication is utilized to offer microphone control and name handling as well as other conference requirements.

The delegate's frontend – the microphone unit – offers a thoughtful ergonomic design enabling the delegate to concentrate on the conference.

Wireless system components

- **DSpark**   Radio Transceiver Unit
- **DChair**   Chairperson's Conference Unit
- **DMic**   Delegates´ Conference Unit
- **TMD/01**   Conference Microphone
- **TM58/6**   Conference Microphone
- **DDoc**   Docking Unit for DChair/DMic
- **DTray**   Charging and Transport Tray
              for 10 rechargeable batteries
- **DPack**   Transport Case
              for 10 DIGIMIC wireless units
- **Antennas**   for DSpark Radio Transceiver Unit

Wired system components

- **DCen**   Central Control Unit
- **DChair**   Chairperson's Conference Unit
- **DMic**   Delegates´ Conference Unit
- **TMD/01**   Conference Microphone
- **TM58/6**   Conference Microphone
- **D9**   System cable

CE Conformity and FCC Statement

C€ This equipment has been tested and found to comply with the limits of the European Council Directive on the approximation of the member states relating to electromagnetic compatibility (98/336/EEC) according to EN 55022 Class A.

FC This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

NOTICE:
Changes or modifications made to this equipment not expressly approved by Brähler ICS Konferenztechnik AG may void the FCC authorization to operate this equipment.

NOTICE:
This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada.

Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

NOTICE:
This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Radiofrequency radiation exposure Information:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Autonomous mode

The digital conference system provides a 100% stand alone solution and is completely self-configuring. With DIGIMIC it is easier then ever before to setup even the most complex conference systems. DIGIMIC matches digital broadcast and studio audio requirements, meeting the needs of today's conferencing world. When connected to the DCen the system can be expanded to include our conference software. TCP/ IP communication is utilized to offer microphone control and name handling as well as other conference requirements. The delegate's frontend – the microphone unit – offers a thoughtful ergonomic design enabling the delegate to concentrate on the conference.

DIGIMIC wireless can be used in different system modes as described in the following:

- Autonomous mode (also Multi-room mode, described in a separate chapter)
- Slave mode (please refer to page 19)

System overview wireless basic discussion system
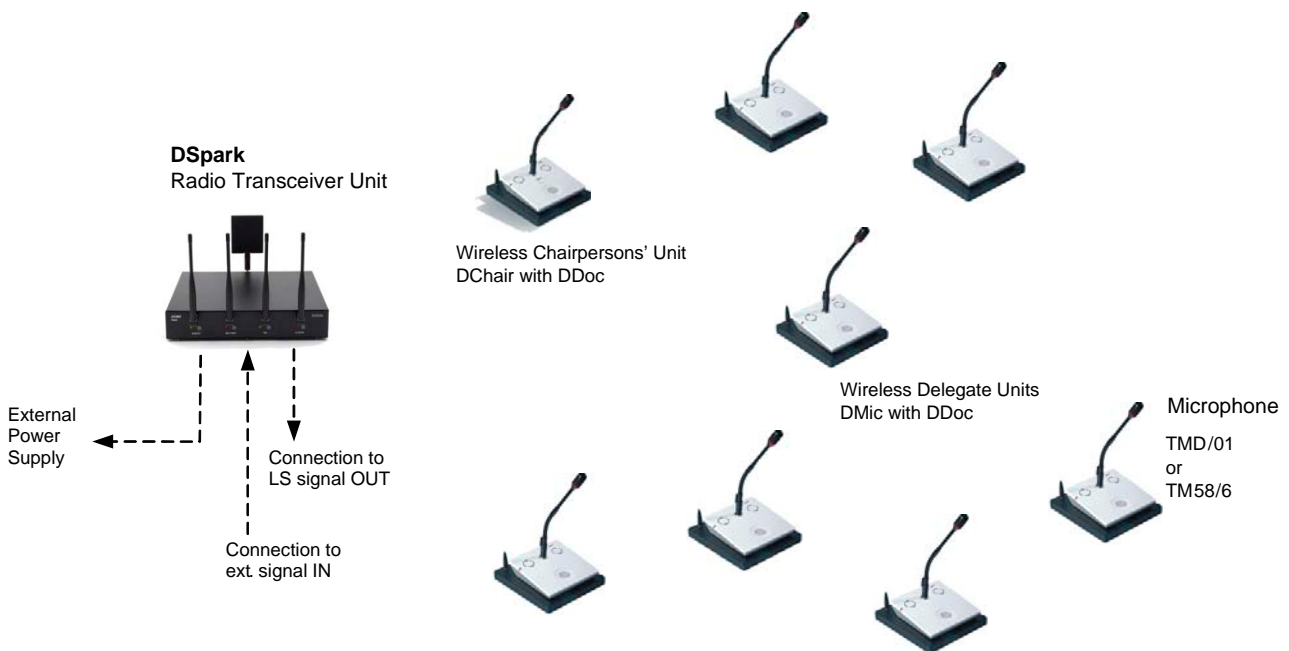

DSpark
Radio Transceiver Unit

Wireless Chairpersons' Unit
DChair with DDoc

Wireless Delegate Units
DMic with DDoc

Microphone

TMD/01
or
TM58/6

External
Power
Supply

Connection to
LS signal OUT

Connection to
ext. signal IN

Figure 1

DSpark Radio Transceiver Unit

The radio transceiver unit DSpark together with the docking unit DDoc ensures reliable wireless audio transmission.

For basic configurations the DSpark can be used autonomously offering the most common functionalities for discussion systems. This solution offers an inexpensive first step into the wireless world of conferencing without loosing the opportunity for future system upgrading and expansion, either wired or wireless.

The radio transmission is based on the unique intelligent adaptive narrow band protocol (APRON) which combines for the first time ever several wireless transmission security features within one single protocol ensuring co-existence with Wi-Fi systems and resistance to mobile phones or Bluetooth emission, also suppressing unwanted interception.

The wireless DIGIMIC provides also a multi-room solution, offering the possibility of using the same system within one building in several rooms at the same time.

The DSpark is equipped with four independent antennas, receiving independently the individual signals of each active microphone, providing a high audio quality and transmission reliability even under critical RF congested environments.

The DSpark can also be wall mounted like shown in the next illustration. In this case also see HIGH POWER in "Settings of DSpark" next chapter.

Rear side

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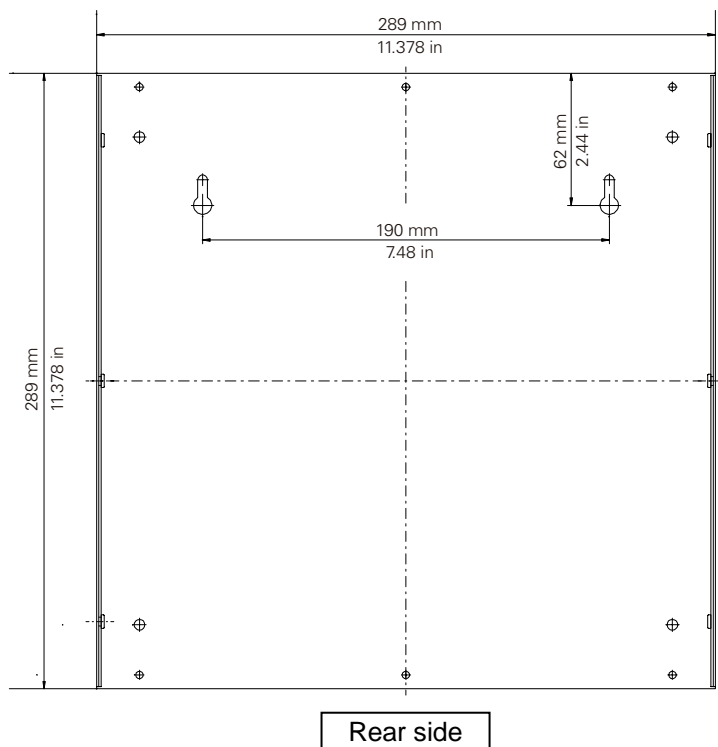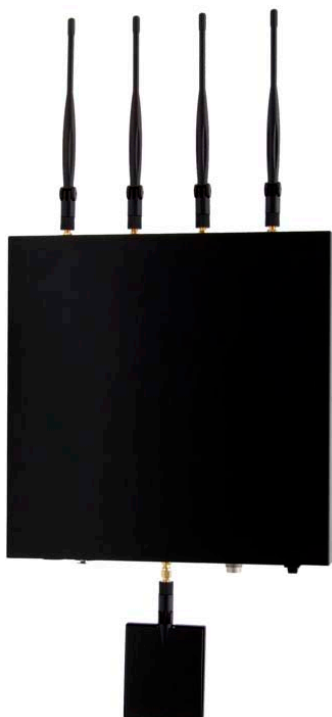
Connecting the Power Supply

For the basic functions of the Radio Transceiver Unit you just have to connect the external desktop power supply to the DSpark (Figure 2).

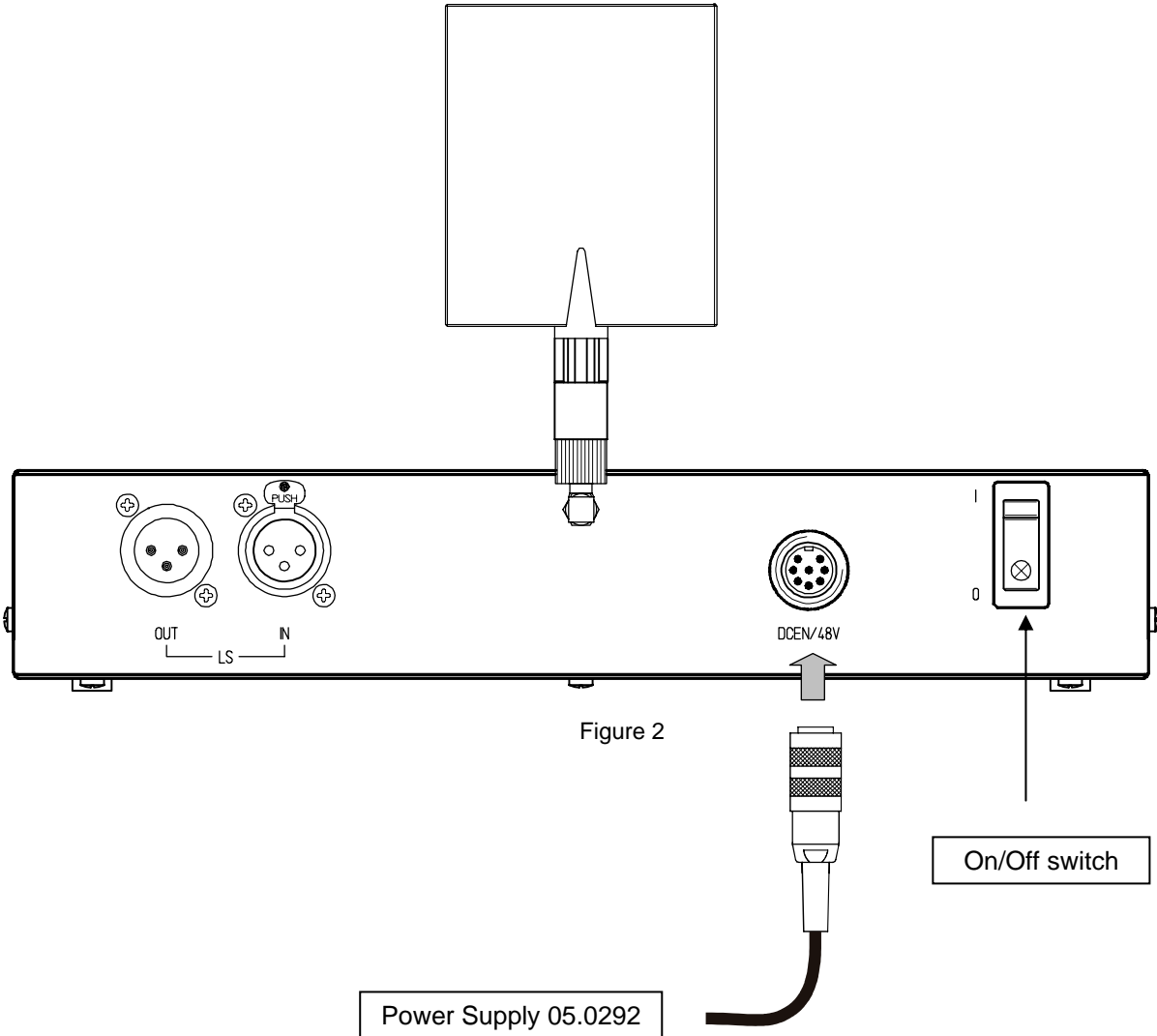Then you can start to place the wireless delegate units DMic with DDoc for your conference.

Figure 2

On/Off switch

Power Supply 05.0292

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Transmitting antenna

The powerful directed transmission antenna ensures the continuous control and audio downstream to each single delegate unit within the system even over longer distances of up to 50m radius and beyond, depending on the installation environment.
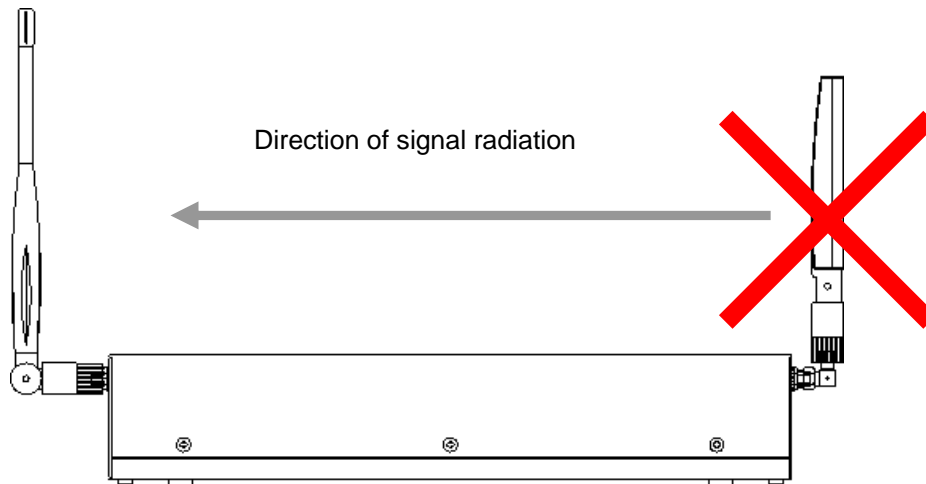

Adjustment of the transmitting antenna

The radiating side of the transmission antenna is the curved front side. This side must be adjusted toward the room/microphone units.
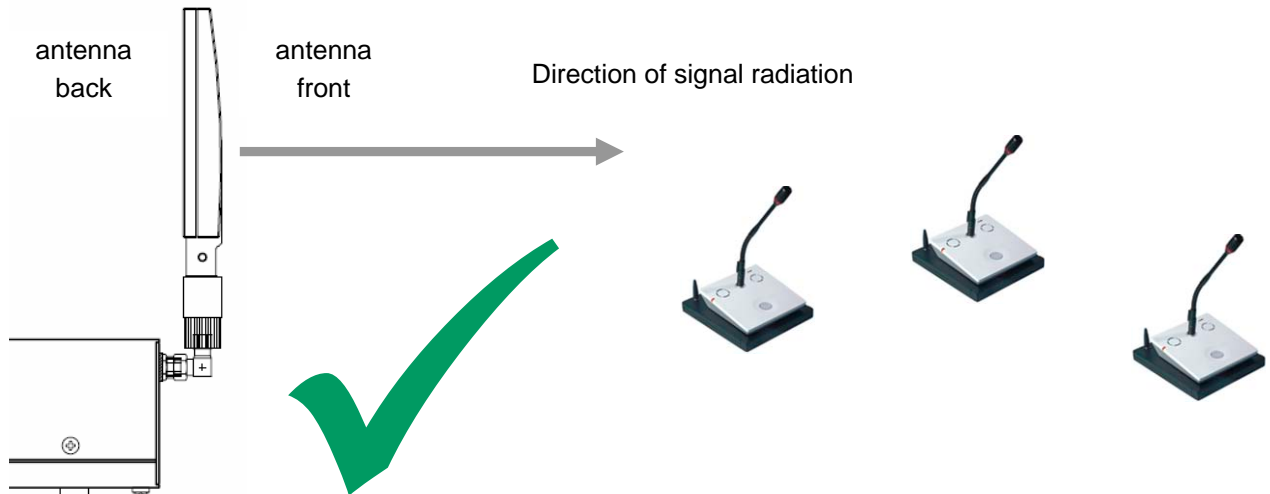
To avoid interference it is not recommended to adjust the front side of the transmitting antenna toward the receiving antennas.

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Settings

All functions are activated when pressing the corresponding push-button. The corresponding control LED will light up when a function is activated.

Receiving antennas

Transmitting antenna

DIGIMIC
DSpark

brāhler

REGISTER   HIGH POWER   PRIO   LS INTERN
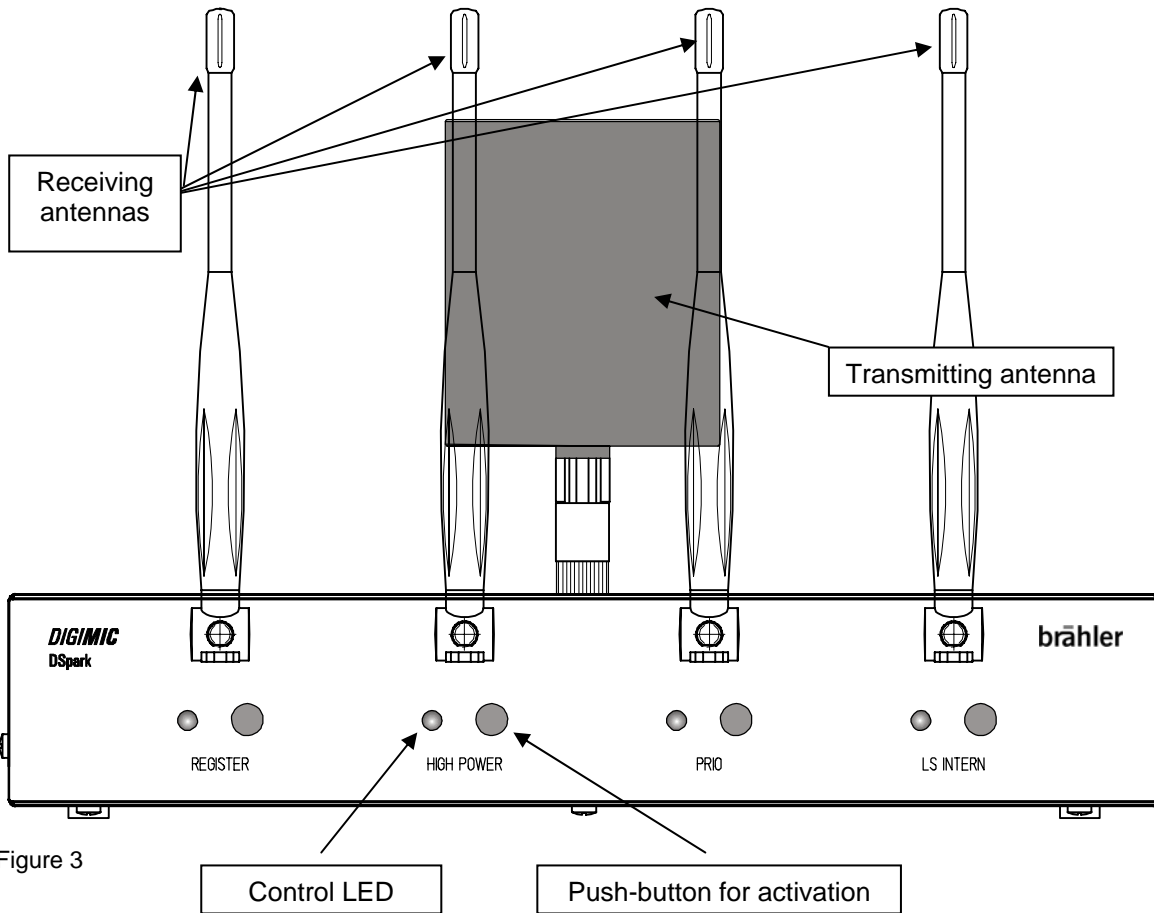
Figure 3

Control LED

Push-button for activation

For basic configurations the DSpark can be used autonomously offering the most common functionalities for discussion systems like AUT3 or PRIO.

REGISTER

REGISTER can be opened (LED off) or closed (LED on).

Use REGISTER open (LED off) during setup.

During setup you switch on and register your units to the DSpark. The DSpark will automatically put all recognized units into an internal list. This list will be expanded as long as the register function is open (LED off).

To save this list close the Register (LED on). Once the register is closed no more units can be registered to the DSpark. This function offers you the following opportunities:

1. The wireless system is now completely closed (like a wired one) and cannot be intercepted by any other wireless DIGIMIC unit. This is important because to exclude interception you have to take out the unit which are designed to work perfectly with the DIGIMIC wireless: DMic and DDoc.

2. This register function also enables to use multiple DIGIMIC wireless systems within one building by simply assign your units to the DSpark of the corresponding room (please refer to page 26 for more details)

Note: The list is stored automatically.

To delete the list press and hold button "register" for minimum 5 seconds. The corresponding LED will flash two times to indicate that the list is deleted.

Note: You can exchange the battery pack and re-register the units which had already registered even when the register is closed.

HIGH POWER

With this option the power of sending is increased in the case DSpark is used as desktop. When DSpark is wall mounted, there is no need of increasing the output power.

PRIOrity mode

If a DChair unit is to be used, PRIO mode is available with this setting. Press button PRIO to enable this option. Maximum 2 DChair units are supported as chairpersons at the same time. They will be identified automatically. With 2 DChair units 2 active Delegate units DMic are possible at the same time.

This means:

0 DChair → max 4 active delegates' are possible

1 DChair → max 3 active delegates' are possible

2 DChair → max 2 active delegates' are possible

LS INTERN

When active (LED on) the audio signals from the DMic units are directly routed to the DMic loudspeakers.

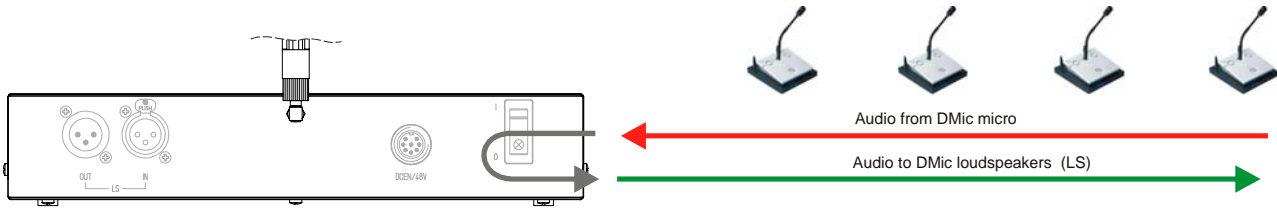Audio from DMic micro

Audio to DMic loudspeakers (LS)

Figure 4

Otherwise (LED off) external signals are routed to the DMic loudspeakers, e.g. from a mixing console like shown below.

Audio from DMic micro

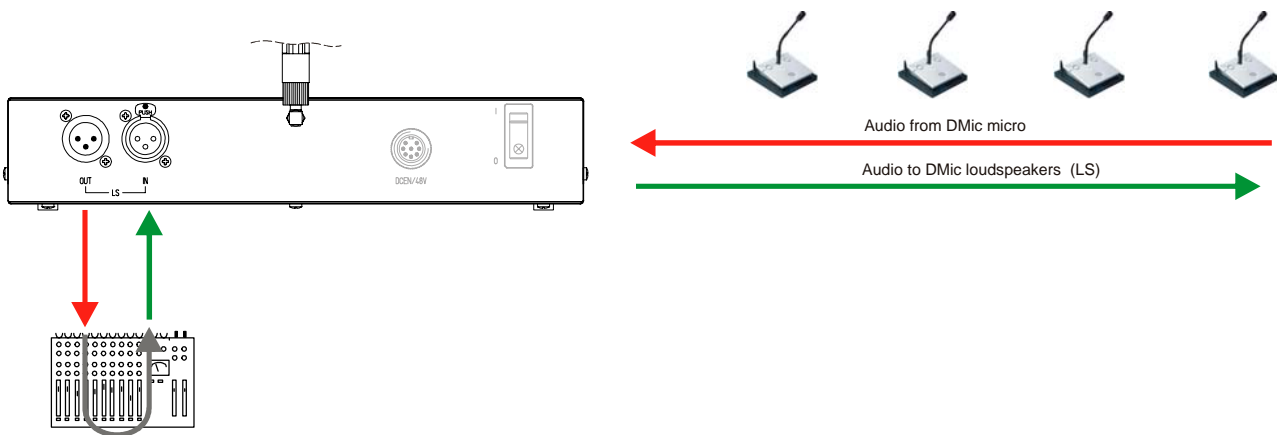Audio to DMic loudspeakers (LS)

Figure 5

DDoc Docking Unit

The docking unit DDoc transforms the delegate unit DMic into a wireless discussion unit, replacing the tasks of a cable by its powerful rechargeable battery and the reliable and stable wireless communication protocol.

DMic and DChair are delivered with a cover to protect the contact bar.

Before using the DDoc the first time we recommend to check or charge the rechargeable batteries. (please refer to page 23)

Antennas

Rechargeable battery pack

The transformation of the wired DIGIMIC delegate units is easily be done by unplugging the cable and sliding the DMic on the docking station DDoc.

But before sliding the DMic on the docking station, it is necessary to remove the covering of the contact bar on the rear side. This is done in the way shown below:

1. Turn the DMic upside down, if there is no microphone plugged in. We recommend handling on a soft surface.
2. Press the two clips in the shown direction.
3. Turn the DMic on top, the covering should fall down.

2.   2.

Cover

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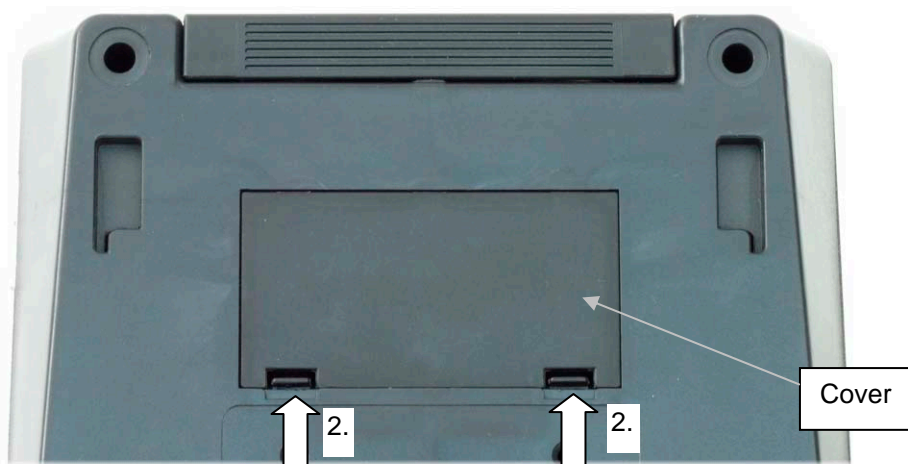
Slide the DMic on the docking station DDoc.

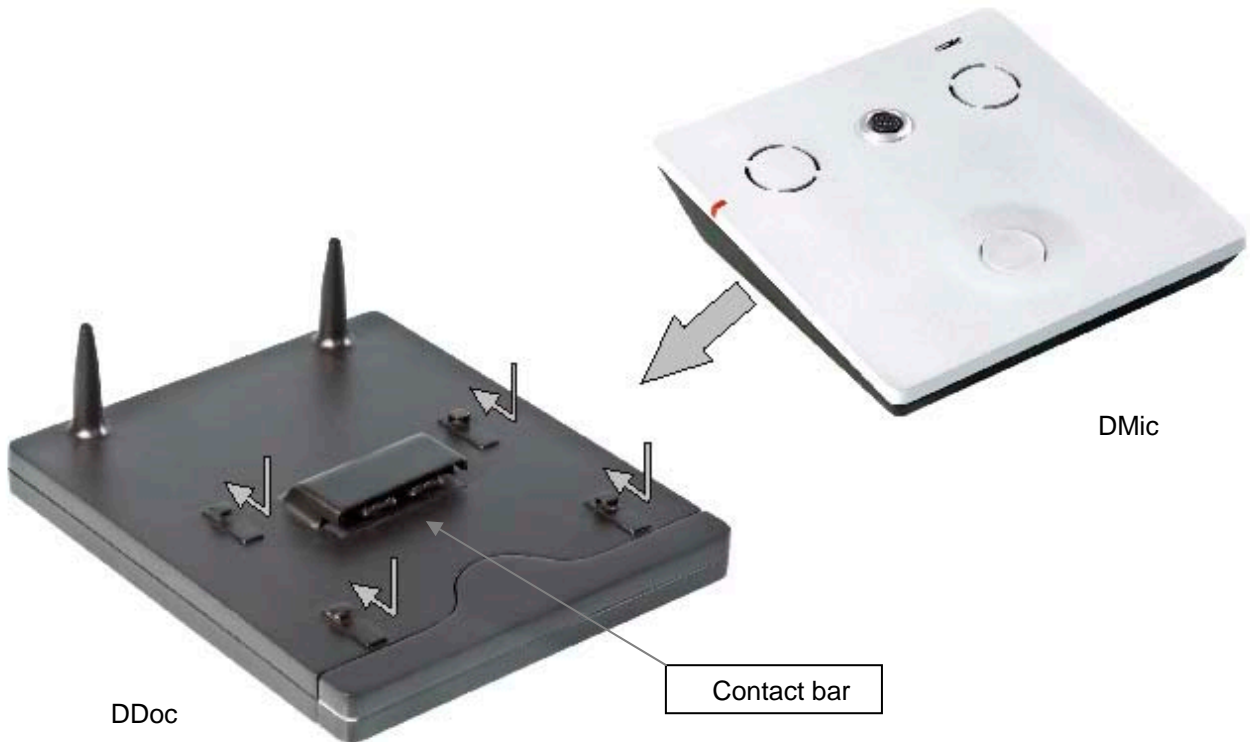Ensure that the unit is connected properly with the contact bar.

DMic

Contact bar

DDoc

This solution introduces unique flexibility in terms of the installation of rental and sales projects and maintains a high level of connectivity. DIGIMIC wireless is based on an intelligent transmission protocol, which assures the audio quality and reliability of a wired conference system, combined with the flexibility and freedom offered by wireless.

The complete DMic Delegates Conference Unit with the DDoc Docking Unit looks like shown below. Don't forget to assemble the microphone.

Slave mode

For additional discussion functions, like Request-to-Speak-mode, name handling, robotic camera control, software interfaces or combination with wired units the DSpark can be connected easily to the DIGIMIC central control unit DCen. Only in this mode DDoc can be set into standby.

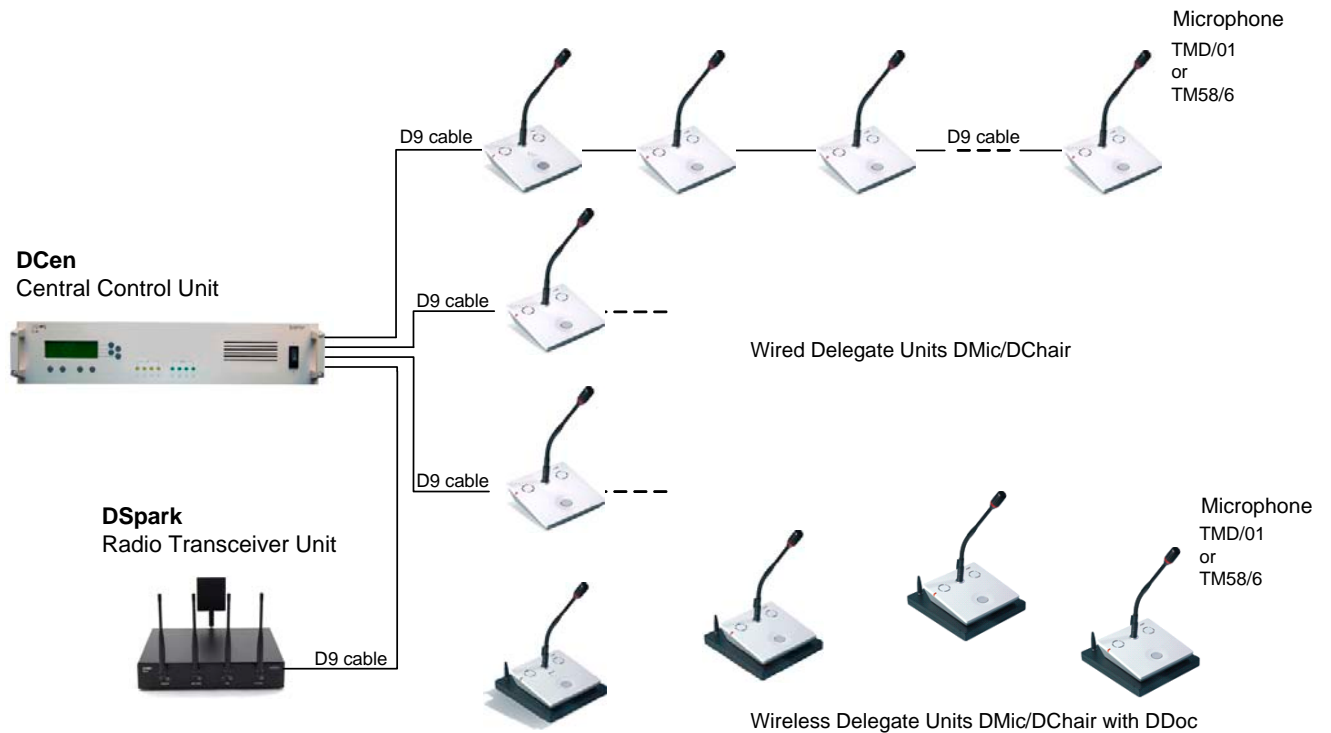**Configuration of slave mode together with wired units**

Figure 6

The connection to the DCen Central Control Unit is done by the D9 system cable used for the wired delegate units DMic.

Once connected to the DCen, the DSpark falls automatically into the Slave Mode. All registered wireless DIGIMIC discussion units will be controlled now only by the DCen Central Control Unit and behave just like another line of wired discussion units. The D9 system cable is a high flexible shielded CAT5 cable with lockable S8G-connectors.

Note:

The DSpark Radio Transceiver Unit will switch over automatically into Slave Mode if it is connected to a DCen Central Control Unit. In this case no settings are possible at the DSpark. The DIGIMIC discussion units will be controlled now only by the DCen Central Control Unit and also all settings will be made here.
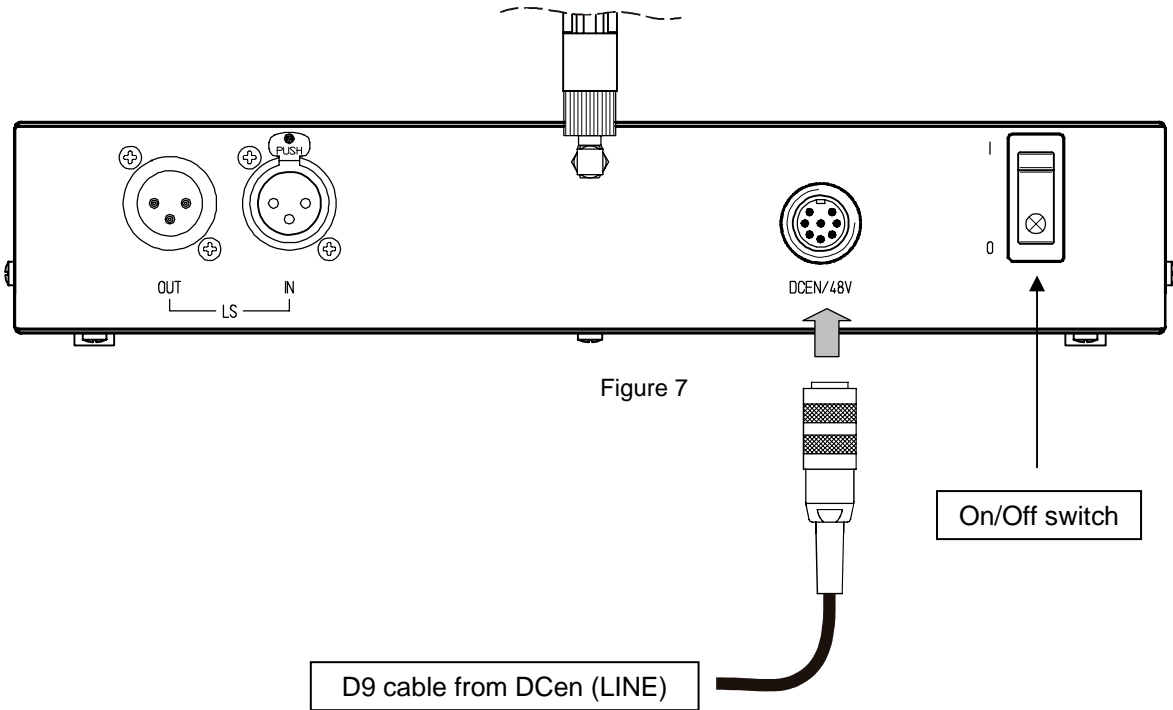
Figure 7

D9 cable from DCen (LINE)

On/Off switch

For detailed operating description of the DCen Central Control Unit please refer to the manual "DIGIMIC digital discussion system - wired".

Single operation mode

The following chapter describes the operation with one DSpark in autonomous mode.

System startup

Before starting a conference all units have to be registered by the Radio Transceiver Unit DSpark. This is easily done by just pressing the microphone key. Please ensure that the REGISTER LED is off. Successful registration will cause the microphone ring and microphone button to flash twice.

DDoc Docking Unit

Before starting operation with the DIGIMIC wireless equipment make sure that the rechargeable batteries inside the DDoc units are properly charged. Otherwise the battery pack has to be charged, either in the DTray (Charging and transport tray for 10 DDoc) or with an external power supply.

For successful login status see table below.

Indication of battery status

There are three possibilities of checking the status of the rechargeable batteries:

1) In operation → by a Multicolor-LED in front of the docking station.
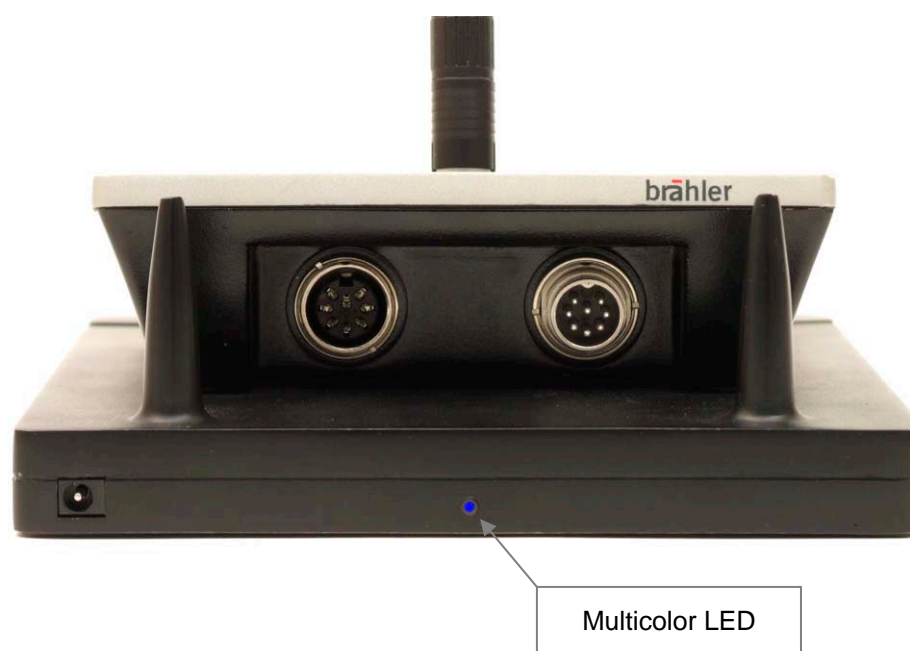
Multicolor LED

The Multicolor LED has different indication modes:

| White – for a few seconds	ready for operation
BLUE – flashing	no reception, battery ok
BLUE – not flashing	radio reception ok, battery ok (more than 1h operation time)
OFF – permanent	Switches off automatically after 30 sec for power saving (standard operation mode)
RED – not flashing	radio reception ok, battery low
RED – flashing	no reception, battery low (for less than 1h operation time)

Easy rule to remember:

Mode flashing or permanent → receiving status

Color red or blue → status of rechargeable batteries

2) Not in operation → by a test key at the bottom of the battery pack.

| Test key | Indicator lights |
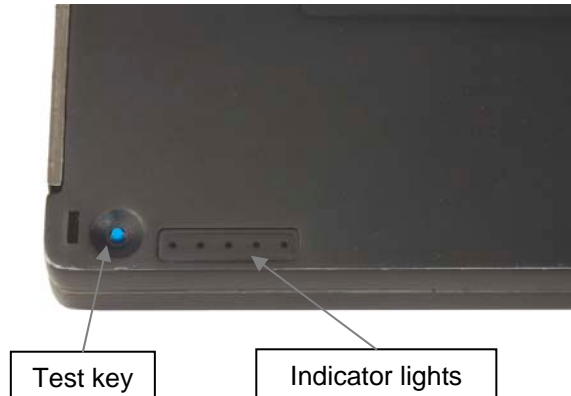
Press and hold the blue test key with a peaked object or your fingernail. The green LEDs will then indicate the current battery status in 20% increments.

For example:
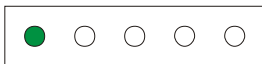
Low battery power
> 80% battery power
Full battery, end of charging
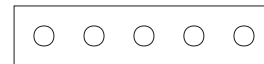
LEDs on	Battery power	Operating time
1 *	20%	up to 4h
2	20 – 40%	up to 8h
3	40 – 60%	up to 12h
4	60 – 80%	up to 16h
5	80 – 100%	up to 20h

* If one LED is flashing, the battery is almost empty.

3) Not in operation → by charging in the DTray charging tray.

The status indication of the battery power is the same as shown above. The LED indication by charging the docking unit in the DTray is permanently, so you don't have to push the test key for this purpose.

Automatic switch off

The DDoc switches off automatically, if:

- the DMic will be disconnected from DDoc (immediately switching off)
- the battery pack is removed from the DDoc unit
- a switch off signal arrives from the DSpark (immediately switching off)
- there is no radio communication for 30 seconds (e.g. outside the radio range)
- the battery is empty

Note: If you switch off the DSpark radio transceiver unit, all registered DMic / DDoc units will switch off immediately.

Charging of the battery pack

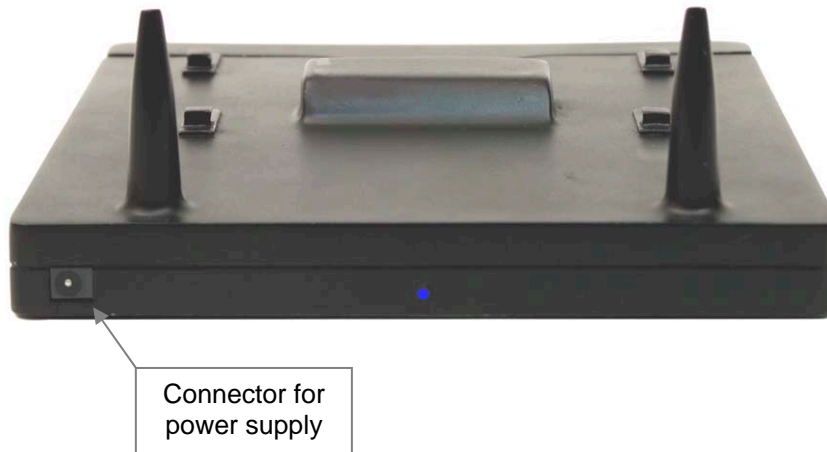There are two options of charging the battery pack.

Charging via power supply

For a quick charging of a single unit an external power supply (05.0902) is provided. You do not need to remove the battery pack from the DDoc. Just connect the plug to the connector of the DDoc.

Connector for power supply

Note: The discussion function of the unit is disabled when the external power supply is connected. Charging with the external power supply is only possible if the unit is not in use.

Charging via DTray Charging Tray

For charging more than one battery pack an external Charging Unit DTray is provided. With DTray it is possible to charge 10 units at once. First you have to remove the battery pack from DDoc.

Removing the battery pack

No tools are necessary to remove the battery pack. If not already done, separate the DMic unit from the DDoc docking unit as shown below.

Note: This charging solution offers you the opportunity to leave all units on the tables in your conference room. Just collect all batteries after the conference day to re-charge them.

You also can just exchange low batteries (during conference) with charged one's offering the possibility of an "unlimited" wireless conference period.

To remove the rechargeable battery pack, pick up the DDoc and turn it upside down, press the marked position and pull as shown:

Never under any circumstances place the DDoc unit upside down on a table or something else. This can damage the antennas!

1 Press and hold here

2 Pull here
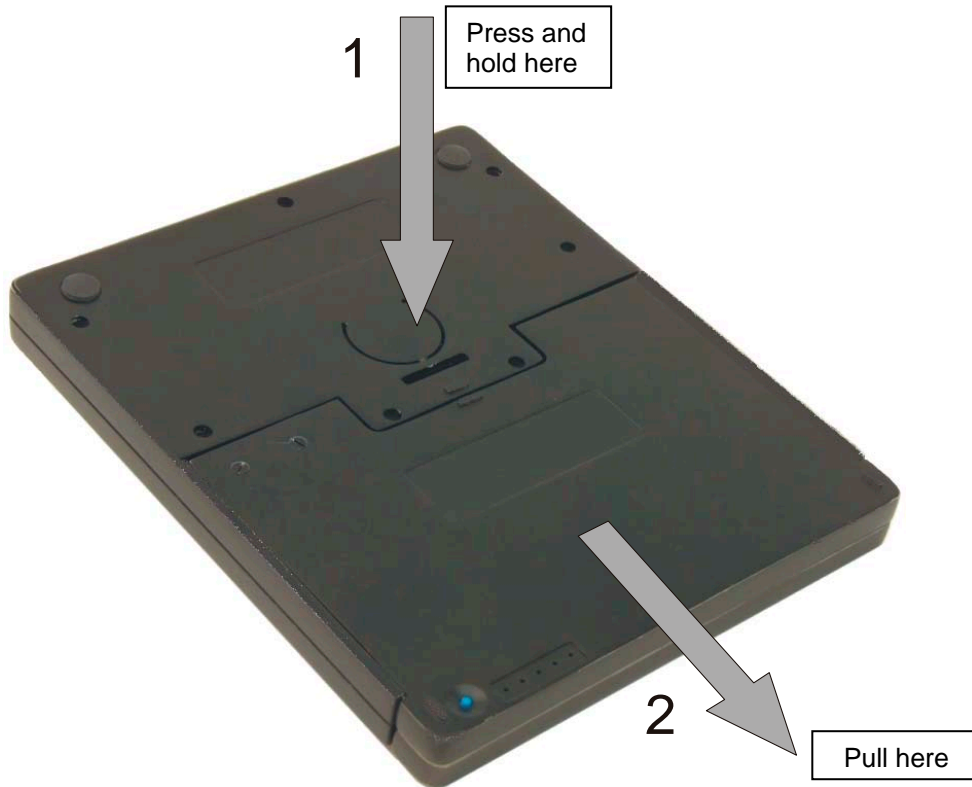
Insert the battery pack into a free slot of the DTray charging tray.

The charging time is max. 9 hours if the battery is completely empty.

Specifications of the battery pack:
- Lithium polymers (built in)
- 3.7 VDC
- 13.2 Ah

Please be sure to avoid a short circuit of the electrical connections.

To put back the battery pack after charging simply slide it back in the DDoc. The sophisticated design of the DDoc ensures that the battery pack is slide in always correctly.

DTray Charging and Transport Tray

DTray is a charging and transport tray for 10 rechargeable DDoc batteries. It is equipped with a switching power supply 85-240VAC.

Mains connector

Mains switch

10 Slots for battery pack
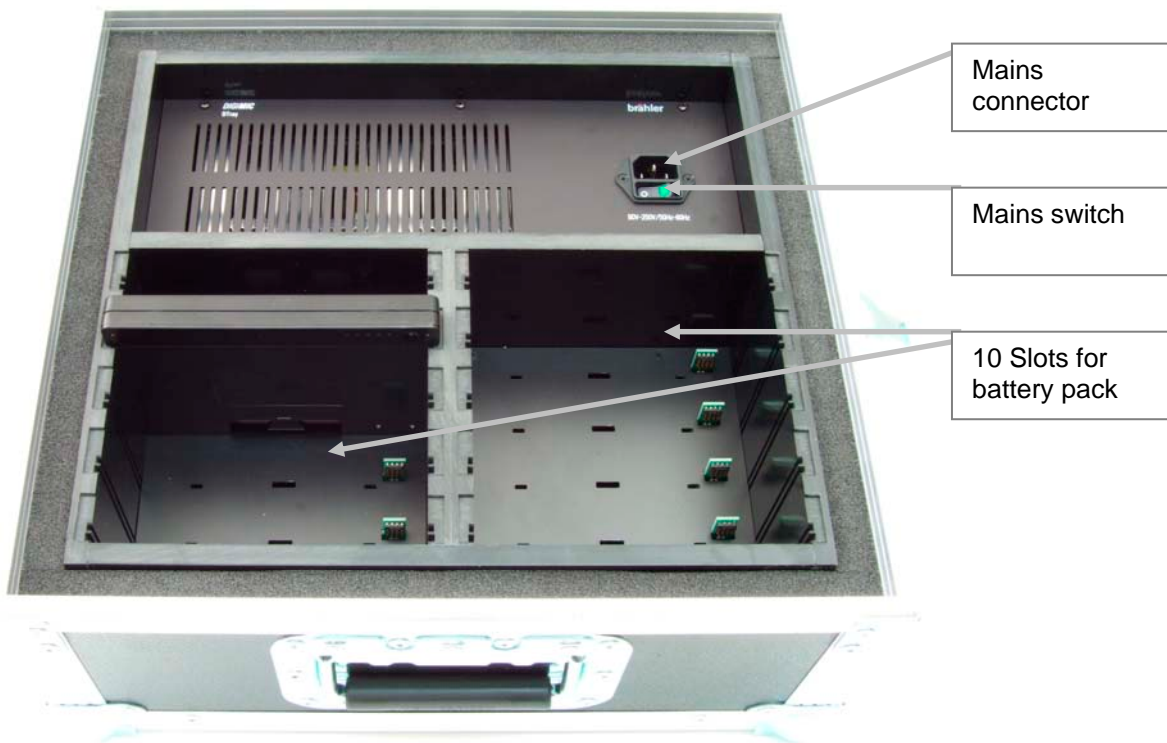
Multi room operation

The following chapter describes the operation in autonomous mode with more than one DSpark. Multi operation mode is also available for slave mode in combination with DCen (wired central unit). The setup procedure is the same.

With DIGIMIC wireless it is possible to handle parallel operation of different conferences in the immediate vicinity. To enable a reliable operation each DSpark has to be configured with its own ID. Up to 5 radio channel numbers (0 to 4) are possible.

Note: channel #0 is factory default

Multi room operation mode examples

a) Parallel operation with 3 DIGIMIC wireless systems in three conference rooms:

radio system number 0	radio system number 1	radio system number 2
Room 1	Room 2	Room 3
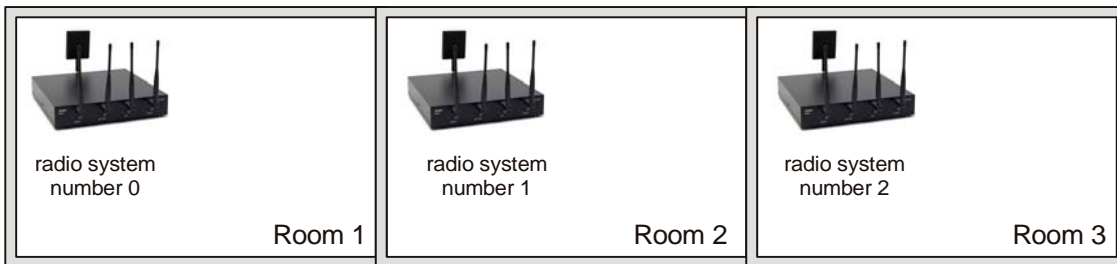
This sample enables a reliable and autonomous operation.

b) Parallel operation with more than 3 DIGIMIC wireless systems in seven rooms:
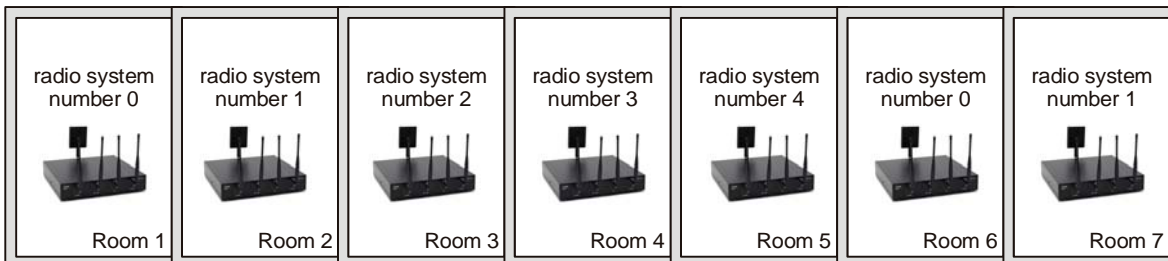
This constellation enables also a reliable and autonomous operation. Please notice that room 6 has the same radio system number than room 1. It is essential that there is a greater distance to room 1.

Radio system number

For allocation of another channel number press the keys REGISTER and LS INTERN of the DSpark Radio Transceiver Unit simultaneously. This will enter the configuration mode.

Figure 8

DSpark confirms this mode by blinking two times of all 4 LEDs (REGISTER + HIGH POWER + PRIO + LS INTERN). The current radio channel number is displayed.

The pattern of the LEDs is shown in the table below:

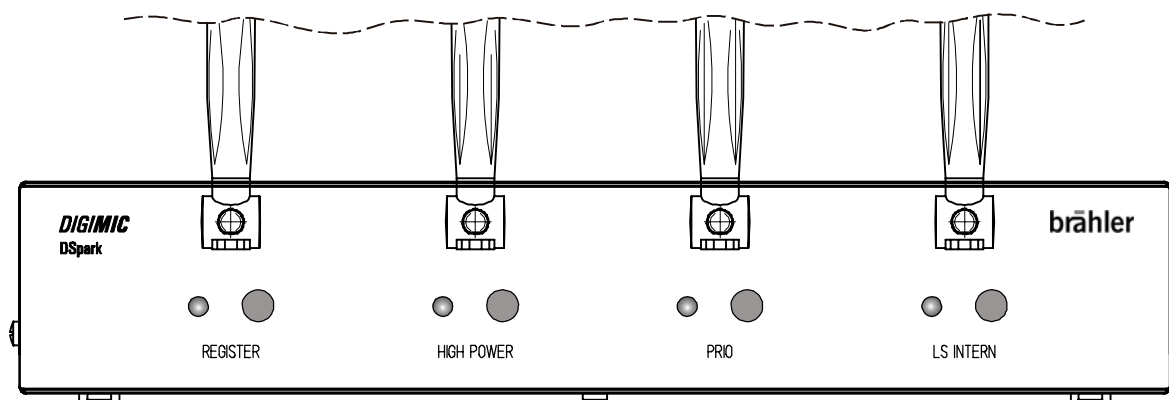| logical radio number	LED REGISTER	LED HIGH POWER	LED PRIO	LED LS INTERN	
0	off	off	off	off	factory default
1	**on**	off	off	off	
2	**on**	**on**	off	off	
3	**on**	**on**	**on**	off	
4	**on**	**on**	**on**	**on**	

Table 1

Now the user can specify the new logical radio number by setting the LEDs with the corresponding buttons on or off. It is insignificant which LEDs are switched, or in what order this happens. Only the number of LEDs lucent is relevant as input for the new radio system number.

Examples for valid input of radio system number 2:

logical radio number	LED REGISTER	LED HIGH POWER	LED PRIO	LED LS INTERN
2	**on**	**on**	off	off
2	off	off	**on**	**on**
2	off	**on**	off	**on**
2	off	**on**	**on**	off

Five seconds after **pressing** any button the configuration mode is finished. This is indicated by blinking two times of all 4 LEDs (REGISTER + HIGH POWER + PRIO + LS INTERN). The new radio system number is now saved will be used until this setting is changed again.

Also the primary status of the LEDs and the function of the buttons are restored. The new settings are immediately effective; there is no need to switch DSpark on and off.

If no changes are made in configuration modus the current setting persists when leaving the configuration. Therefore this procedure can be used to show the current setting of the radio system number.

Adjusting DMic/DDoc combination to a room (0 – 4)

Please make sure only one DSpark in your venue has activated the register function (register open – LED OFF).

Please make sure that the preset of the several DSpark Radio Transceiver Units is like described above.

Open Register (LED OFF) on your first DSpark (Local radio channel number 0). Make sure other DSpark have their Register **closed** (LED on). Place the desired number of units on the table and press the MIC button one after each other.

Resetting of DDoc Docking Units

DSpark can reset all docking stations DDoc which are allocated to this DSpark (Radio Transceiver Unit) and are in operating distance. Therefore press the inner buttons HIGH POWER and PRIO simultaneously for about 5 seconds. The LEDs of HIGH POWER and PRIO are flashing for the time of deleting, but minimum three times.

If you do this, all DDoc units will forget the room number they were tied to. This requires a new setup.

Allocation of DDoc Docking Units

To configure the DDoc units press and hold the MIC button for at least 4 seconds. This procedure is indicated by flashing of the multi MIC-LED. The current radio channel number is reset. In this mode DDoc searches for any DSpark Radio Transceiver Units. If one is recognized DDoc tries to log in. When successful DDoc gets confirmation and stores the new radio channel number as default.

This will finish the configuration mode.

If there is no log-in possible DDoc will terminate the configuration mode after 30 seconds and then switch off.

When all microphones are working (successful login) a quick microphone test is recommended. Close the Register (LED ON). After this you can go to the second room and perform the same procedure with a DSpark assigned to the next room (local radio number 1).

Technical data

DSpark Radio Transceiver Unit

HF Properties

Kind of Modulation	FSK, FHSS
Frequency Range	2400-2480 MHz
Quality of Service (QoS)	Predictive & Adaptive Frequency Hopping Algo (PFH & AFH)
Receiver Sensitivity	< - 81 dBm at 10^{-3} BER
Number of Channels	38
Channel Spacing (minimal)	2.048 MHz
Channel Bandwidth (20 dB)	< 2 MHz
Frequency Stability	10 ppm
Number of RF Paths	1 x TX, 4 x RX
Antenna RX Path	Swivel omni-directional antennas (4.5 dBi)
Antenna TX Path	Swivel directional panel antenna (6 dBi)
	Alternative: External directional panel antenna (12dBi)
	connection with special coax cable (min. length 6m)
RF Power Out (EIRP)	typ. 19 dBm (max. < 20 dBm)
RF Range	typ. 400 m (free space range)

Digital Audio Frequency Characteristics

Digital Audio Resolution	16 Bit
Sample Rate	48 kHz
End to End Latency	5-13 ms

Analog Audio Frequency Characteristics

AF Range	20 Hz - 20 kHz
Harmonic Distortion	< 0.1 %
SNR + Noise	typ. 78 dB(A)

Analog Input / Output Characteristics

Audio Input Nominal Level (-9 dBFS)	1.22 V (= +4 dBu)
Audio Output Nominal Level (-9 dBFS)	1.22 V (= +4 dBu)

General Properties

Temperature Range	0°C to +50°C (with connection to DCen)
	0°C to +40°C (with external power supply 05.0292)
Power Supply Voltage	24 - 48 VDC
Current Consumption	typ. 185 mA
Dimensions (without antennas)	ca. 290 mm x 56 mm x 290 mm (W x H x D)
Weight (incl. antennas)	ca. 2.8 kg
In Accordance with standards	ETS 300 445, ETS 300 422, FCC Part 15.247, FCC Part 15B, FCC 15_209, FCC 15_407, EN 61000-6-1, EN 61000-6-3, EN 61000-4-3, EN 55022, EN 300328, EN 301489-1/-17, IEC/EN 60065, CISPR22.

DDoc Docking Unit

HF Properties

Kind of Modulation	FSK, FHSS
FSK Raw Data Rate	1.536 Mbits/s
Frequency Range	2400-2480 MHz
Quality of Service (QoS)	Predictive & Adaptive Frequency Hopping Algo (PFH & AFH)
Receiver Sensitivity	< - 81 dBm at 10^{-3} BER
Number of Channels	38
Channel Spacing (minimal)	2.048 MHz
Channel Bandwidth (20 dB)	< 2 MHz
Frequency Stability	10 ppm
Number of RF Paths	1 x TX, 1 x RX
Antenna	Quarter wave length monopole antenna (one for each RF Path)
RF Power Out (EIRP)	typ. 19 dBm (max. < 20 dBm)
RF Range	typ. 400 m (free space range)

Digital Audio Frequency Characteristics

Digital Audio Resolution	16 Bit
Sample Rate	48 kHz
End to End Latency	5-13 ms

Analog Audio Frequency Characteristics (in combination with DMIC)

AF Range	20 Hz - 20 kHz
Harmonic Distortion	< 0.1 %
SNR	typ. 78 dB(A)

Analog Input / Output Characteristics (in combination with DMIC)

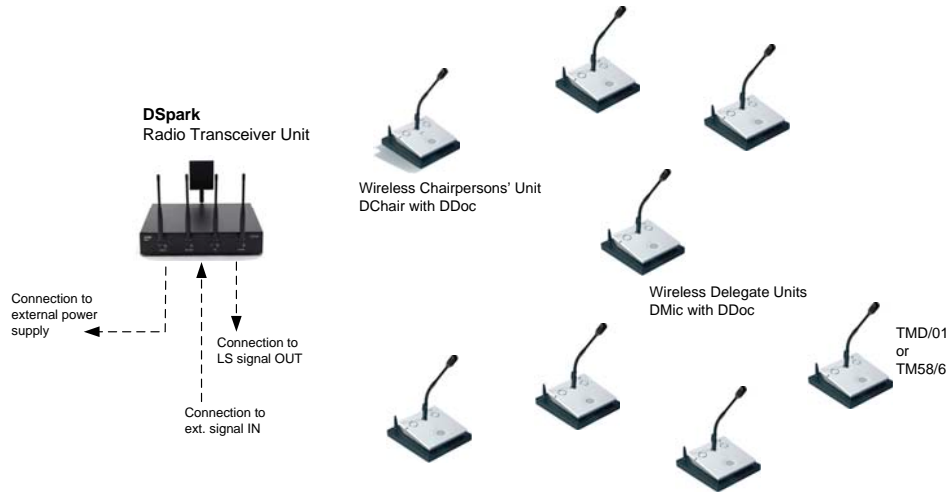|	
Microphone Input Nominal Level	typ. 8 mV
Loudspeaker Output Nominal Level	- 8 dB
Headset Output Nominal Level	0 dB

General Properties

|	
Temperature Range	-10°C to +55°C
Accumulator Voltage	3.0 - 4.1 VDC, nominal 3.7 VDC
Power Supply Voltage (battery charging)	7.5 VDC
Current Consumption	typ. 550 mA (RX) / 740mA (TX) in combination with DMIC
Standby Current Consumption	< 1 μA
Dimensions (W x H x D)	ca. 161 mm x 60 mm x 189 mm
Weight (incl. accumulator)	ca. 550 g
In Accordance with standards	ETS 300 445, ETS 300 422, FCC Part 15.247, FCC Part 15B, FCC 15_209, FCC 15_407, EN 61000-6-1, EN 61000-6-3, EN 61000-4-3, EN 55022, EN 300328, EN 301489-1/-17, IEC/EN 60065, CISPR22.

Appendix

Block diagrams

DIGIMIC wireless

DSpark
Radio Transceiver Unit

Wireless Chairpersons' Unit
DChair with DDoc

Wireless Delegate Units
DMic with DDoc

TMD/01
or
TM58/6

Connection to
external power
supply

Connection to
LS signal OUT

Connection to
ext. signal IN

Components:

DSpark   Radio Transceiver Unit

DChair   Chairpersons´ Conference Unit

DMic   Delegates´ Conference Unit with Microphone

DDoc   Docking Unit with rechargeable battery

DTray   Storage / Charging tray

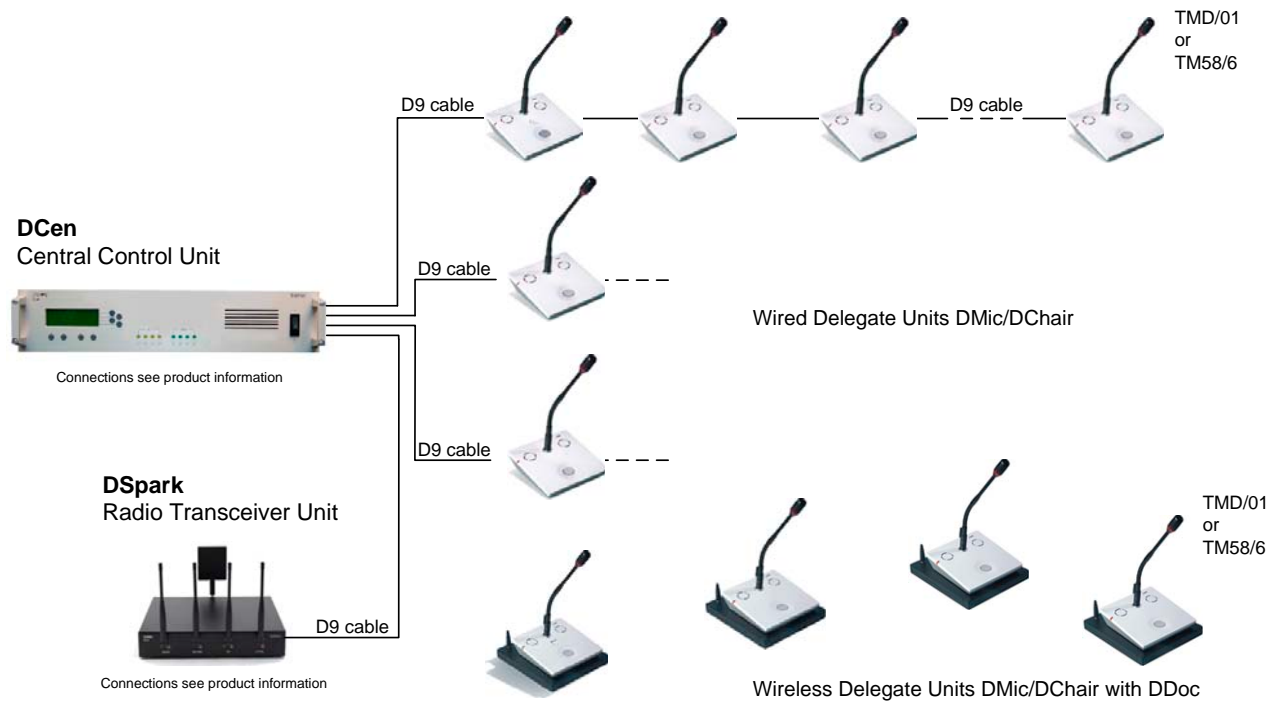TMD/01   Conference Microphone, electret

DIGIMIC wired
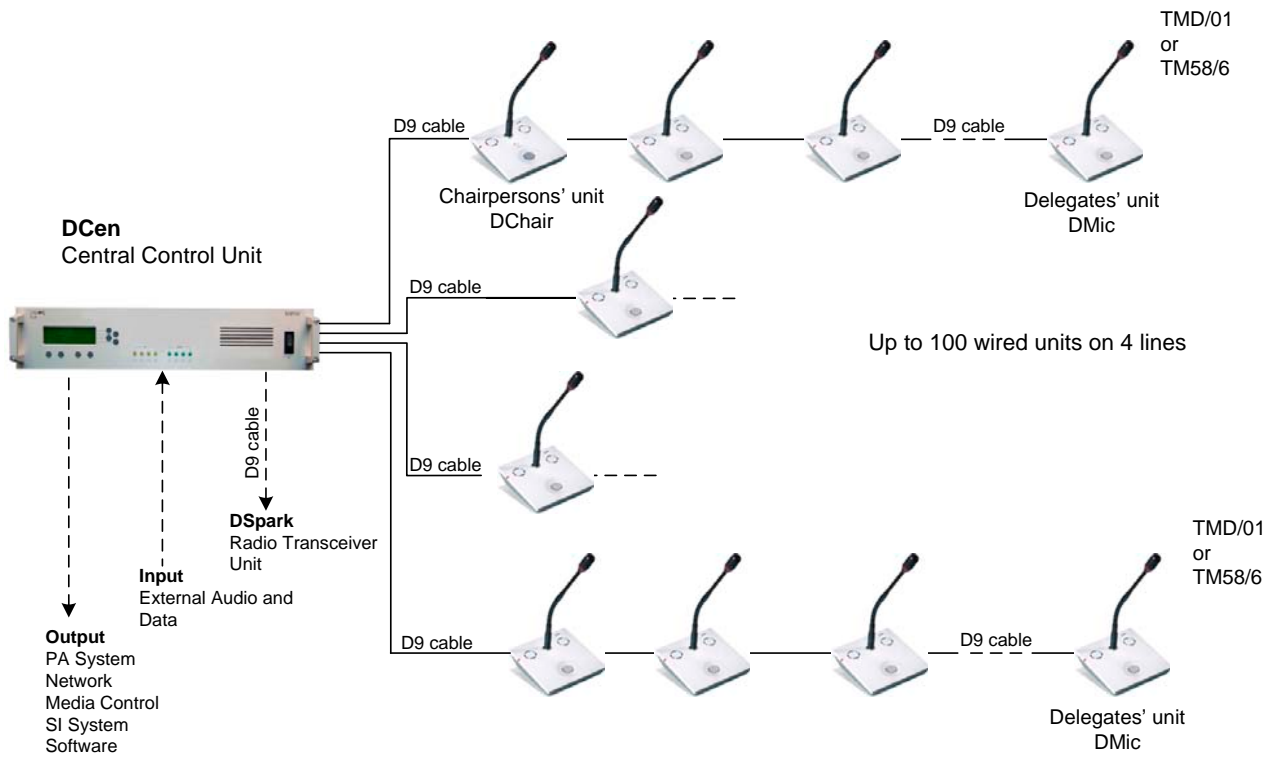
Components:

DCen   Central Control Unit

DChair   Chairpersons' Conference Unit with Microphone

DMic   Delegates' Conference Unit with Microphone

TMD/01 Conference Microphone, electret

D9   System cable

For detailed operating description of the DCen Central Control Unit please refer to the manual "DIGIMIC digital discussion system - wired"

DIGIMIC wired and wireless

Components:

DCen	Central Control Unit
DSpark	Radio Transceiver Unit
DChair	Chairpersons' Conference Unit with Microphone
DMic	Delegates' Conference Unit with Microphone
DTray	Storage / Charging tray
TMD/01	Conference Microphone, electret

SERVICE FORM

Material return shipments for repair-, service-, or guaranty purposes please send to:
BRÄHLER ICS Konferenztechnik AG, Auf der Alten Burg 6, D-53639 Königswinter, Germany

Phone +49 (0)2244 930-0, Fax +49 (0)2244 930-450

Dear customer,
please ask our sales staff for the **RMA number** (**R**eturn of **M**aterial **A**uthorization).
Without RMA number a treatment is not possible!
Please always include this service form, fully completed, with any complaint or repair wish you may have. Please note that only returns with the proper and complete paperwork can be dealt within time.

A detailed fault description will reduce costs and period of repair.

Please contact us before you return equipment in order to find the most efficient way of sending.

RMA number: _____

Article description: _____ Serial no.: _____ Code: _____

Delivery note no.: _____ Invoice no.: _____

Reason for return/Fault description:
_____

_____

Company: _____

Contact person: _____

Phone: _____ Fax: _____

Notes/Comments:
_____

_____

_____

Transport damages have to be reported immediately to the responsible forwarding agent.

Remarks for Non-EU customers:

Please add to each return a delivery note or a proforma invoice, addressed to Brähler ICS AG, Königswinter, with following statements:

- Reason for return (repair or credit note)
- Exact declaration of the goods, exact no. of pieces, article no. / model, serial no.
- Price which was invoiced by us, better our invoice no. with date

Return shipments from Non-EU countries have to be sent **either by air freight** to Cologne airport, to the attention of:

Calenberg Oversea Logistics, Mrs. Taxacher, Welser Str. 8, 51449 Köln, Tel: +49 2203 3592-838

or by the following courier services:

DHL Express, Federal Express, TNT Worldwide Express, UPS Express
Please do not use any other courier service, because only the four companies mentioned above perform return shipments.
To enable quick and cost efficient customs clearance, kindly take care that the airway bill mentions

a) 'return for repair' as well as
b) the customs tariff code number of the goods (which will be advised by us together with the return of material authorization number)

Any expenses (duties and taxes) incurred by deviant handling will be charged to the sender.

Date   Signature/Company seal

Contact information

Company offices

Head office

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