

Overview DAB-Repeater-Products

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Digital Radio DAB+ is now becoming more and more important. Therefore, users inside of buildings want to have a good in-house reception.



Sumatronic has been working intensively with DAB / DAB + / DAB for more than 10 years and is an international manufacturer of professional devices, in particular DAB multiplexers and repeaters, but also special solutions and other services.

1.1 DAB-Repeater-Devices

For your safety: Our repeaters have an extremely low signal delay (<100 ns). Interferences of the reception in the surrounding area are avoided even when the transmission signal is getting out of the building. Interference of other radio services (such as fire brigades, police and ambulances) is also prevented by a complex technique, which is very important because of liabilities. The quality is designed so that they usually work reliably and without maintenance for well over ten years.



These devices are according to the current OFCOM technical standard NT-3003 from 20.6.2016.

<https://www.bakom.admin.ch/dam/bakom/de/dokumentel/mk/nt-3003> - band_iiiidabumsetzenvongeringererleistungwelcheingebau.pdf.download.pdf/nt-3003 - band_iiiidabumsetzenvongeringererleistungwelcheingebau.pdf

Device	Remarks	$P_{max\ ultra}$ typical theoretical max. channel-power *	$P_{max\ nom}$ Max. channel-power per DAB- ensemble Planning value at three ensembles**
Low-Power LPRI DAB-Repeater	Standard version e.g. for shops	1'000 μW = 0 dBm	250 μW = -6 dBm
Mid-Power MPRI DAB Repeater	in production	316'000 μW = +15 dBm	10'000 μW = +10 dBm
High-Power HPRI DAB Repeater	in production	600'000 μW = +27.8 dBm	200'000 μW = +23 dBm

* This is the technically maximum possible output power of the device. Often, this value is specified at many repeaters only. However, in practice, this value can only be achieved under the most optimal conditions and only for one ensemble in the laboratory. Therefore, this value is little relevant to practical use. We therefore use the realistic value $P_{max\ nom}$ (maximum channel power for three DAB ensembles) for our planning.

** This is a serious planning value with good signal quality. This value is achievable with medium-good or better DAB reception.

1.2 Antennas for DAB-Repeater-Transmissions



Sumatronic DAB Ant TX5
heavy version



TSM 200HA
strait shortened

TSM 200HA
with joint



DAB Ant TSM 200S
straight uncut (optimal)




These models are intended for indoor use only. Outdoor models are available on request.

The antennas can also be coloured on request. In addition, they can also be installed behind plastic panels.



Optimal solution for best radiation:
Discrete appearance with the DAB GP
metal plate
DAB-GP plate (white or black)

1.3 RF splitter-types:

2-way splitter		Connector: BNC	Outputs	Through ratio [%]*	Attenuation*
			2	46 %	3.3 dB
3- way splitter		Connector: BNC	Outputs	Through ratio [%]*	Attenuation*
			3	29 %	5.3 dB
4- way splitter		Connector: BNC	Outputs	Through ratio [%]*	Attenuation*
			4	21 %	6.9 dB

* typical, at each exit

1.4 DAB signal inserters and extractors for telecom systems up to 2.4 GHz



Inserter: For inserting DAB (Band III) signals into existing in-house repeater systems, e.g. mobile phone repeaters.

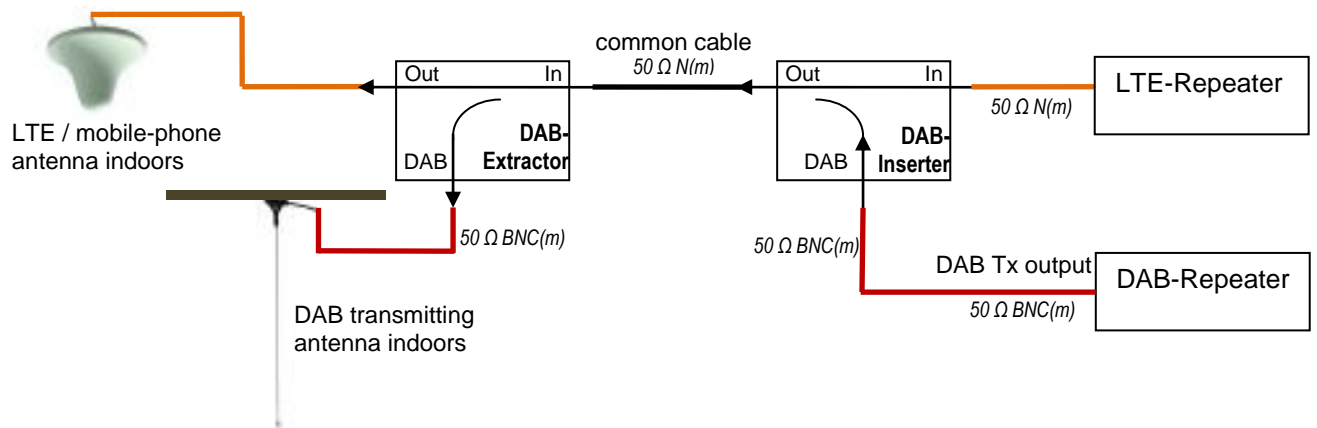
Extractor: For routing DAB (Band III) signals in RF systems, e.g. at antennas or distribution points.

Attenuations:

DAB (BNC): 0.2 dB
Telecom (N): 0.2 - 0.5 dB

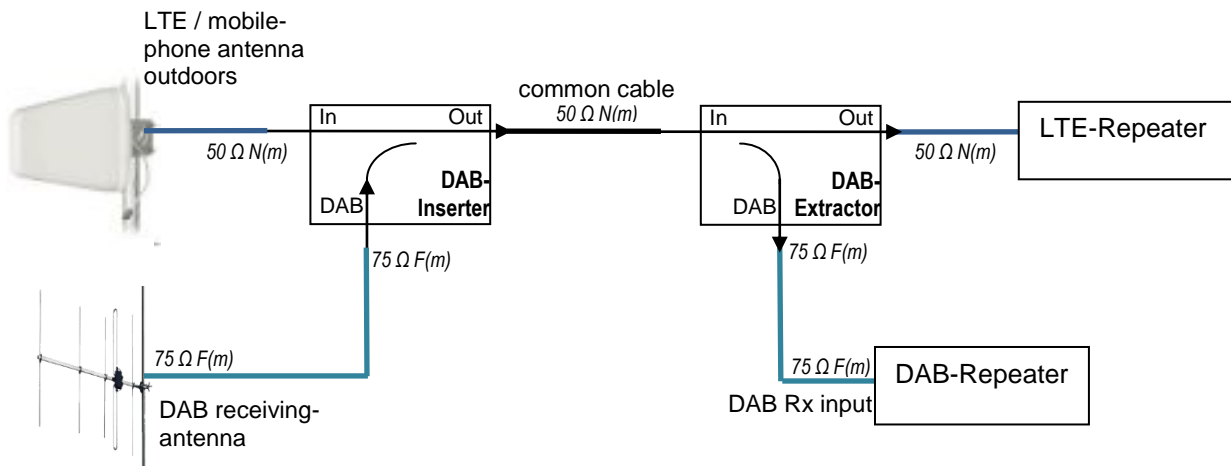
Isolation:
@ 0.7 GHz: ≥ 34 dB @ 2.4 GHz: ≥ 39 dB

Sharing LTE / mobile-phone cable for transmitting antenna(s)



Sharing LTE / mobile-phone cable for the receiving antenna

Make use of an existing receiving cable and share it to save costs for a new installation.



1.5 DAB Filters



Versions 50 Ω or 50 / 75 Ω

Ideal to protect DAB reception, when there are strong signals from other radio services in near.

(Not necessary if an xPRI repeater is used, since these already contain an excellent filter).

Attenuations:

DAB (BIII):	1.2 dB (50/75 Ω : 1.8dB)
FM:	> 30 dB
330 MHz:	> 40 dB
400 MHz:	> 55 dB

1.6 Diplexers DAB / FM



Ideal for separating reception signals or to transport DAB and FM on the same cable.

With variants 50 Ω or 50/75 Ω input.

Outputs 50 Ω .

Other diplexer frequencies on request.

Attenuations:

DAB (BIII):	1.0 dB (50/75 Ω : 1.4dB)
FM:	1.0 dB (50/75 Ω : 1.4dB)
Isolation:	> 35 dB

1.7 Others

Other RF products such as 75 \leftrightarrow 50 Ω converters, RF couplers, filters, special solutions, custom-made solutions are available on request.

Please note that our DAB-repeaters are manufactured according to the regulations for Switzerland and Liechtenstein and the proper operation in these countries is legal. In other countries, there may be other regulations or laws that may restrict or even prohibit the use. The purchaser and/or the user is fully responsible for the full compliance with the laws and regulations in his country. **Sumatronic expressly disclaims any liability.**

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