

A photograph of a long, dimly lit tunnel with concrete walls and a road surface. The perspective is from the end of the tunnel, looking down its length. The lighting is low, with some overhead lights visible, creating a sense of depth and enclosure. The image is framed by a blue geometric shape on the right side.

**CRITICAL
COMMUNICATIONS**
FM / DAB / VHF FAMILY

BHE BONN HUNGARY ELECTRONICS LTD.

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CRITICAL COMMUNICATIONS

FM / DAB / VHF FAMILY

COMPLETE
TUNNEL
SOLUTIONS

ACCESSORIES

PLUG-IN
MODULES



EMERGENCY
SERVICES
SUPPORT:
VHF, UHF AND
TETRA

RACK
MOUNT
CONFIGURATIONS

OPTICAL
SOLUTIONS

COMPLETE TUNNEL SOLUTIONS

BHE offers both FM/DAB AND VHF solutions: they contain a channel module which - combined with the relevant amplifier - can amplify the selected FM/DAB/VHF signals. The amplifiers itself can work as independent units, in this case the whole band is amplified. Placed in a modern rackmount box, these units can be combined with BHE rackmount **TETRA** repeaters fulfilling the various communications need of special places like tunnels or underground stations. FM and DAB repeaters provide essential features such as **VOICE BREAK-IN** ensuring the dispatch of vital information to everyone in case of emergency situation.



MODEL	BRRF24 FM CHANNEL SELECTIVE MODULE	BRRD14 DAB CHANNEL SELECTIVE MODULE
Input/Output frequency	87.5 to 108 MHz in 50 kHz step	174 to 240 MHz in 25 kHz step
Selectivity	-3 dB @ +/-100 kHz typ -50 dB @ +/-300 kHz typ	-3 dB @ +/-0.77 MHz typ -45 dB @ +/-0.97 MHz typ
P _{1dB} Output power	min. +18 dBm	
Gain (typ.)	98 dB, programmable in 4-98 dB range in 0.5 dB step	
Power supply	+12 V DC	
M&C	via LAN, built-in web server interface	
Break in mode	Built-in voice break in with RDS	with external DAB break in unit
Construction	5HP wide, 3U high module (to 19" rack)	

MODEL	BRRF28 FM AMPLIFIER	BRRD28 DAB AMPLIFIER
Frequency range	87.5 to 108 MHz	174 to 240 MHz
P _{1dB} Output power	min. +18 dBm	
Gain (typ.)	65 dB, programmable in 3-65 dB range in 1 dB step	
Power supply	+12 V DC	
M&C	via LAN, built-in web server interface	
Construction	5HP wide, 3U high module (to 19" rack)	

MODEL	BRRF25 FM POWER AMPLIFIER	BRRD25 DAB POWER AMPLIFIER	BRRV25 VHF POWER AMPLIFIER
Input/Output freq. band	87.5 to 108 MHz	174 to 240 MHz	148 to 174 MHz
Input level	0 dBm typ. 16 dBm abs max.		
Gain (typ.)	35 dB, programmable in 10-35 dB range in 0.5 dB step, MUTE function		
Typical P _{1dB} /Output IP3	35 dBm / 52 dBm		
Power supply	+12 V DC		
M&C	via LAN, built-in web server interface		
Construction	15 HP wide, 3U high module (to 19" rack)		

MODEL	BRRV20 VHF CHANNEL SELECTIVE MODULE	BRRV18 VHF CHANNEL SELECTIVE MODULE
Input/Output frequency	148 to 174 MHz	
Frequency Step	50 kHz	50 kHz
Bandwidth	120 kHz typ.	1.5 MHz - 5 MHz typ.
P _{1dB} Output power	min. +17.5 dBm	min. +7 dBm
Gain	2 to 96 dB programmable in 1 dB step	3 to 65 dB programmable in 1 dB step
Power supply	+12 V DC	
M&C	via LAN, built-in web server interface	
Construction	5HP wide, 3U high module (to 19" rack)	

RACK MOUNT CONFIGURATIONS

BROADCAST AMPLIFIERS

MODEL	OPERATION FREQUENCY RANGE		NO. OF CHANNELS PER BAND		GAIN MAX	COMPOSITE RF OUTPUT POWER PER BAND	REMOTE CONTROL WEB GUI VIA LAN CONNECTION	HOUSING 19" WIDE 3U HIGH RACK
	FM 87.5-108 MHz	DAB 174-240 MHz	FM	DAB				
BRRF16	✓		2		43 dB	40 dBm	✓	✓
BRRF16S	✓		1		43 dB	40 dBm	✓	✓
BRRD16		✓		2	43 dB	38 dBm	✓	✓
BRRD16S		✓		1	43 dB	38 dBm	✓	✓
BRRC10	✓	✓	1	1	43 dB	40 dBm / 38 dBm	✓	✓

SDR BASED FM REPEATER

- Up to 8 independent channels
- Automatic RDS recognition
- Programme ID and programme name indication
- Automatic gain settings
- Channel equalising function
- 18dBm, 30dBm or 40dBm composite RF output power versions
- Analogue and digital input for voice break-in function



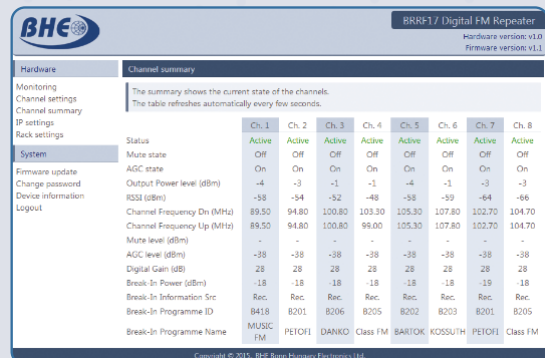
BRRF17



BRRF19



Control software main window



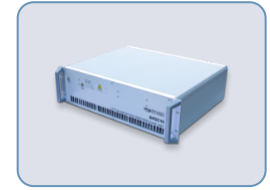
FM channel information window

OPTICAL SOLUTIONS

OPTICAL MASTER REPEATERS



BRMF47



BRSC10

MODEL	OPERATION		TECHNICAL		EXTENDABLE	MAX NUMBER OF OPTICAL MODULES	MAX NUMBER OF SLAVES	REDUNDANT SUPPORT
	FM 87.5-108 MHz	DAB 174-240 MHz	GAIN	ABS. MAX INPUT POWER LEVEL				
BRMF40	✓	✓	0 dB	+5 dBm		1	4	
BRMF41	✓	✓	-4 dB	+9 dBm		2	8	
BRMF42	✓	✓	-8 dB	+13 dBm		3	12	
BRMF47	✓	✓	-20 dB	+26 dBm	✓	8	32	✓

OPTICAL SLAVE REPEATERS

MODEL	OPERATION		TECHNICAL		CONSTRUCTION			
	FM 87.5-108 MHz	DAB 174-240 MHz	GAIN MAX *	COMPOSITE RF OUTPUT POWER / BAND	WALL MOUNT	19" RACK MOUNT	SNMP CONTROL	DUAL OPTICAL FEED
BRSF10	✓		75 dB	30 dBm		✓	✓	
BRSD10		✓	75 dB	30 dBm		✓	✓	
BRRC21	✓	✓	65 dB	30 dBm	✓		✓	✓
BRSC10	✓	✓	45 dB	30 dBm		✓	✓	

* Other gain settings are also available

EMERGENCY SERVICES SUPPORT: VHF, UHF AND TETRA*

- High selectivity
- High dynamic range & gain
- Full duplex operation
- Ethernet control via built in web server interface

With these special VHF or UHF repeaters you can easily extend your covered area. Two independent channels are used in full duplex operation mode at high power level. With this solution you even have the opportunity to make RF connection between separated rescue teams in parallel tunnel lines.



BRRV21

*Full offering of TETRA portfolio can be found in separate brochure.

CABLE MONITOR AND SWITCHING DEVICES

MODEL	CONTROL SIGNAL		HOUSING		BUILT-IN REDUNDANCY SWITCH
	RF PILOT TONE	DC CURRENT	19" RACK MOUNT PLUG-IN	WALL MOUNTABLE	
BUXM16	✓		✓		
BUXM15	✓			✓	
BUXM17	✓	✓		✓	✓
BUXM18	✓	✓		✓	✓
BUST11		✓		✓	
BUST12		✓		✓	✓

BUSU11 – MULTI TUNNEL SWITCH MATRIX

- 1 FM & 1 DAB inputs
- 1 FM & 1 DAB voice break-in inputs
- 4 independent outputs
- Ethernet control



BUSU11

PASSIVE

Full set of related passive components are available such as:

- Splitters
- Combiners
- Diplexers
- Couplers
- Filters



BHLV11

2 / 2 way power splitter / combiner



BFDV12

FM & DAB / TETRA combiner

For more information please visit our website here:



Facility Security Clearance since 2020

These certificates refer to BHE's quality management systems. All our products are manufactured according to ISO 9001. Other, sector-specific management systems are only used in case of the customer's explicit request.

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