

The background of the central section is a blue-tinted aerial view of a city at night. Numerous skyscrapers are visible, with their lights glowing. Overlaid on this cityscape are several white, glowing arcs that represent communication signals or data paths connecting different points in the city. The overall aesthetic is modern and technological.

**CRITICAL  
COMMUNICATIONS**  
TETRA FAMILY

BHE BONN HUNGARY ELECTRONICS LTD.

[WWW.BHE-MW.EU](http://WWW.BHE-MW.EU)



# CRITICAL COMMUNICATIONS TETRA FAMILY



# DIGITAL OFF-AIR REPEATERS

- SDR based digital filtering
- Band and channel selective characteristics (up to 7 MHz bandwidth or up to 8 channels)
- 24 or 36 dBm downlink output power
- In band frequency offset function
- Built in isolation measurements between mobile and donor ports
- Built in spectrum analyser function
- Ethernet remote control option
- NMS capability & compatibility
- Wall mount construction with IP65 protection or rack mount



**BRTL31**

Spectrum characteristic

Control software

Spectrum Analyser

## PARAMETERS

MODEL	MAXIMUM BANDWIDTH		RF GAIN	OUTPUT POWER		CONSTRUCTION		COMMENTS
	5 MHz	7 MHz		DOWNLINK	UPLINK	WALL MOUNT	19" RACK MOUNT	
BRTM31	✓		76 dB	24 dBm	22 dBm	✓		Mini repeater
BRTM34	✓		76 dB	24 dBm	22 dBm		✓	Mini repeater, separated donor port
BRTM35	✓		76 dB	24 dBm	22 dBm		✓	Mini repeater
BRTL31	✓		90 dB	36 dBm	24 dBm	✓		Macro repeater
BRTL33	✓		90 dB	36 dBm	36 dBm	✓		Macro repeater
BRTL35	✓		90 dB	36 dBm	24 dBm	✓		Macro repeater with dual local control
BRTL39		✓	90 dB	36 dBm	24 dBm	✓		Macro repeater with 7 MHz operational bandwidth

## OPTICAL REPEATERS

- Master – Slave configuration
- Various architectures: point to point, star, daisy chain
- Modular construction, easy to extend
- Mini and Macro Slave units can be combined
- Wavelength-division multiplexing (WDM)
- Dual TETRA – UHF band support
- Various radio systems support (TETRA, PMR, DMR)
- Multiband options (FM / DAB / TETRA / GSM / UMTS)
- NMS capability & compatibility
- Up to 32 slaves supported with 1 master
- Ethernet, SNMP control interface
- Optional 3G remote control
- 19" rack mount master units
- Different level of redundancy
- 24 or 36 dBm composite downlink output power
- Remote control by the master (RS-232 or Ethernet interface on slave units)
- Wall mount, 19" rack mount or optional ATEX housing

## OPTICAL MASTER REPEATERS

MODEL	TECHNICAL		RF BAND		EXTENDABLE	MAX NUMBER OF SLOTS	MAX NUMBER OF SLAVES	SLOT MODEL	OPTICAL WDM		
	GAIN	ABS. MAX INPUT POWER LEVEL	SINGLE	DUAL					2 WAVES	5 WAVES	REDUNDANT SUPPORT
BRMF50	-15 dB	+16 dBm	✓			2	2	BRMF31	✓		✓
BRMF52	-20 dB	+26 dBm	✓		✓	8	8	BRMF31	✓		✓
BRMF55	-20 dB	+26 dBm	✓		✓	8	32	BRMF31		✓	✓
BRMF65	-23 dB	+26 dBm		✓	✓	8	32	BRMF31		✓	✓



### BRMF50

Simple optical master for redundant point-to-point network. Suitable for in-building coverage.

### BRMF52

Single RF band 2 wave WDM optical master unit. Supports up to 8 optical channels for redundant star topology, extendable on site.

### BRMF65

Dual RF band 5 wave WDM master unit for redundant star and daisy chain topology. Supports up to 32 optical slave units, extendable on site.



### BRDF22

Optical macro slave  
Dual TETRA band  
5 wave WDM  
For star/daisy chain topology

### BRTF15

Dual Optical macro slave  
2 wave WDM  
For redundant star topology

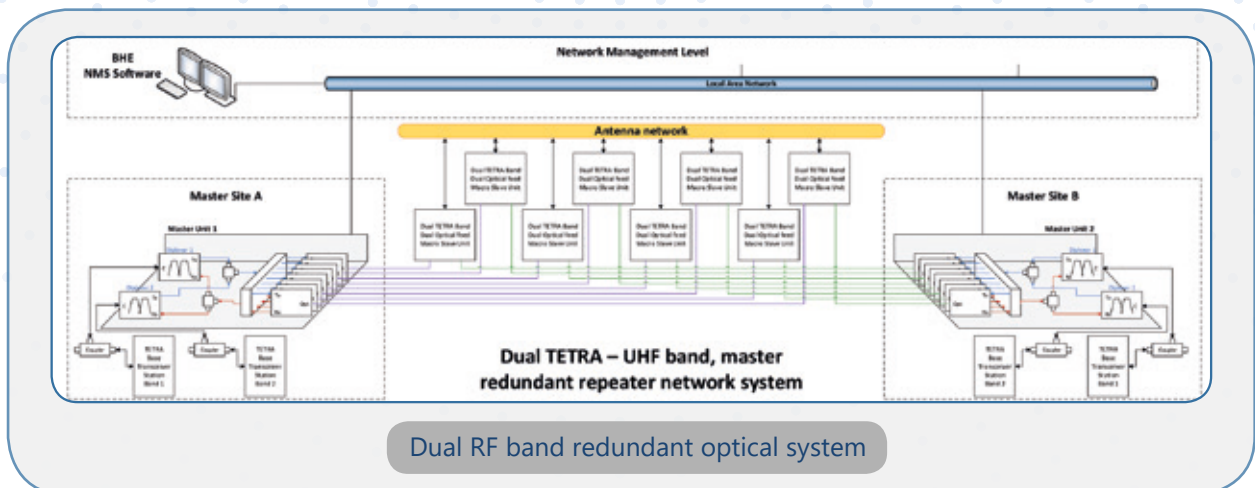
### BRTF19

Optical macro slave  
2 wave WDM  
For star topology

## OPTICAL SLAVE REPEATERS

MODEL	TECHNICAL		BAND		CONSTRUCTION			OPTICAL WAVELENGTHS		DAISY CHAIN CAPABILITY	DUAL OPTICAL FEED
	RF GAIN	OUTPUT POWER / BAND	SINGLE	DUAL	WALL MOUNT	19" RACK MOUNT	Ex	2 WAVE	5 WAVE		
BRTF13	50 dB	24 dBm	✓		✓			✓			
BRTF17	50 dB	24 dBm	✓			✓		✓			
BRTF23	50 dB	24 dBm	✓		✓				✓		
BRTF40	50 dB	24 dBm	✓				✓	✓			
BRTF41	50 dB	24 dBm	✓				✓		✓	✓	
BRTF14	65 dB	36 dBm	✓		✓			✓			
BRTF15	65 dB	36 dBm	✓		✓			✓			✓
BRTF18	85 dB	36 dBm	✓			✓		✓			
BRTF19	65 dB	36 dBm	✓			✓		✓			
BRTF20	65 dB	36 dBm	✓			✓		✓			✓
BRTF24	65 dB	36 dBm	✓		✓				✓	✓	
BRDF22	65 dB	33 dBm		✓	✓				✓	✓	
BRDF23	65 dB	33 dBm		✓		✓			✓	✓	✓

Slaves can be used in point to point and star configuration as well.



Dual RF band redundant optical system

# ANALOGUE OFF-AIR REPEATERS

- 15, 18, 22 or 36 dBm downlink output power
- 5 or 7 MHz bandwidth
- Optional uplink squelch function
- Various control interfaces (RS-232, Ethernet, SNMP)
- 2G / 3G remote control
- Indoor or outdoor application
- Wall mounted or 19" rack mount constructions
- Dual TETRA band option



**BRTS27**

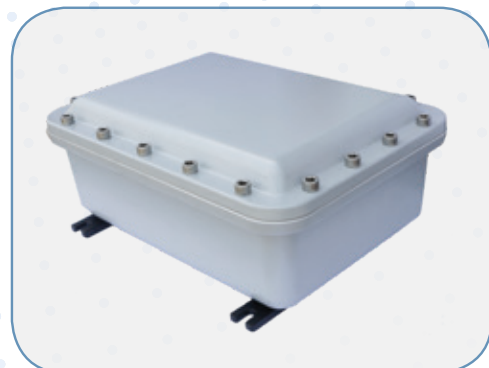
MODEL	MAXIMUM BANDWIDTH		RF GAIN	DOWNLINK OUTPUT POWER	CONSTRUCTION			COMMENTS
	5 MHz	7 MHz			WALL MOUNT	19" RACK MOUNT		
BRTS25	✓		70 dB	15 dBm	✓			Pico repeater
BRTS27	✓		70 dB	18 dBm	✓			High power pico repeater with uplink squelch function
BRTS40	✓		70 dB	15 dBm			✓	BRTS25 equivalent in ATEX housing
BRTM14	✓		70 dB	22 dBm	✓			Band selective analogue mini repeater
BRTM40	✓		70 dB	22 dBm			✓	BRTM14 equivalent in ATEX housing
BRTM16	✓		70 dB	22 dBm		✓		BRTM14 equivalent in rack mountable housing with separated donor port
BRTM18	✓		70 dB	22 dBm		✓		BRTM14 equivalent in rack mountable housing
BRTM19		✓	70 dB	22 dBm	✓			Band selective medium power repeater with 7 MHz operational bandwidth
BRTL32	✓		90 dB	36 dBm	✓			Band selective analogue macro repeater
BRTL36	✓		90 dB	36 dBm		✓		Band selective analogue macro repeater, with SNMP control via LAN connection, separated donor port
BRTL38	✓		90 dB	36 dBm		✓		Band selective analogue macro repeater, with SNMP control via LAN connection, combined donor port



## RACK - WALL MOUNT OR ATEX HOUSING



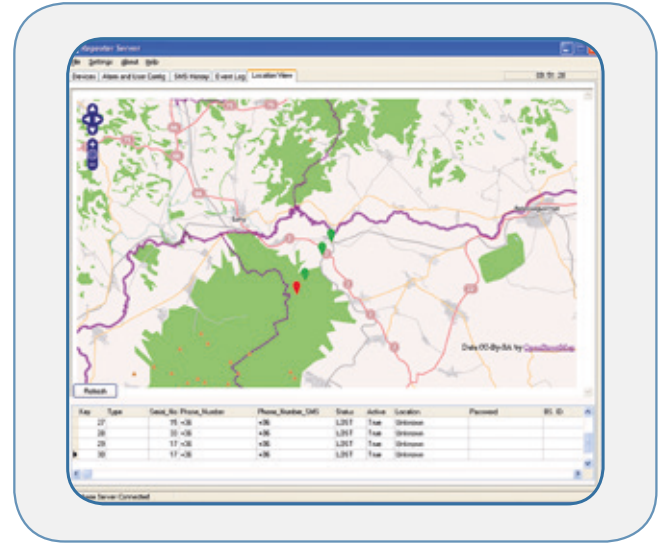
**Pico repeater in ATEX housing**



**Mini repeater in ATEX housing**

# NETWORK MANAGEMENT SYSTEM

- Server-Client architecture
- GSM modem for SMS reception or SNMP based interface
- MySQL 5.1 database engine
- Log and history function
- Location and status visualization
- Event and alarm handling
- Web GUI option



# PASSIVE COMPONENTS



**BDST1x**

Directional coupler  
6-10-30-50 dB



**BFDP47**

Diplexer  
TETRA-multiband



**BHTD22**

6 channel radio  
terminal combiner



**BUST15**

Redundant switch  
19" rackmount



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