



## DUAL CHANNEL DUPLEX VHF REPEATER

- **HIGH SELECTIVITY**
- **HIGH DYNAMIC RANGE & HIGH GAIN**
- **7U HIGH, 19" RACK**
- **ETHERNET CONTROL WITH WEBSERVER**

The BRRV17 is a 19" rack mounted, 2-2 uplink and downlink channel frequency repeater with built in duplexers. BRRV17 includes four independent BRRV14 VHF channel selective amplifiers and two BRRV15 power amplifiers with ETHERNET control. The unit can be combined with BHE rackmount TETRA, FM Broadcast and DAB repeaters fulfilling the various communications need of special places like tunnels or underground stations. The unit can be completed two additional BRRV15 power amplifiers for the obtaining of the higher uplink RF power.

### Electrical characteristics:

Input characteristics (per channel)	
Frequencies	Uplink channel 1:161.125MHz
	Uplink channel 2:161.325MHz
	Downlink channel 1:168.35MHz
	Downlink channel 2:168.90MHz
	Other frequencies also are selectable in 148 – 174MHz range, (fixed by the factory) Uplink channel spacing must be $\leq 800$ kHz Downlink channel spacing must be $\leq 800$ kHz Duplex channel distance $> 6$ MHz
Channel spacing	25kHz nominal (optionally 20kHz or 12.5kHz can be shipped)
Frequency step	25kHz nominal, (according to the channel spacing)
Input power range	-80...-30dBm nominal, Then the output level can reach +13dBm nominal in uplink and +30dBm in downlink direction. Absolute. maximum input power is +10dBm
Input & Output return loss	$< -10$ dB
Selectivity (typical)	-3dB @centre freq +/-7.5kHz (at 25kHz channel spacing) -75dB@centre freq +/-25kHz-
Sensitivity at 20dB SINAD	-113dBm typical
Uplink Output characteristics (per channels)	
Frequencies	Same as the received frequency
Max. Gain	93dB typ. (110dB typ with optional BRRV15 power amplifiers)
Programmable attenuation	0 - 93dB in 1dB step (0-110dBm with optional BRRV15 power amplifiers)
Output P1dB	+15dBm min. (+30dBm min with optional BRRV15 power amplifiers)
Output IP3	+33dBm min. (+63dBm min with optional BRRV15 power amplifiers)



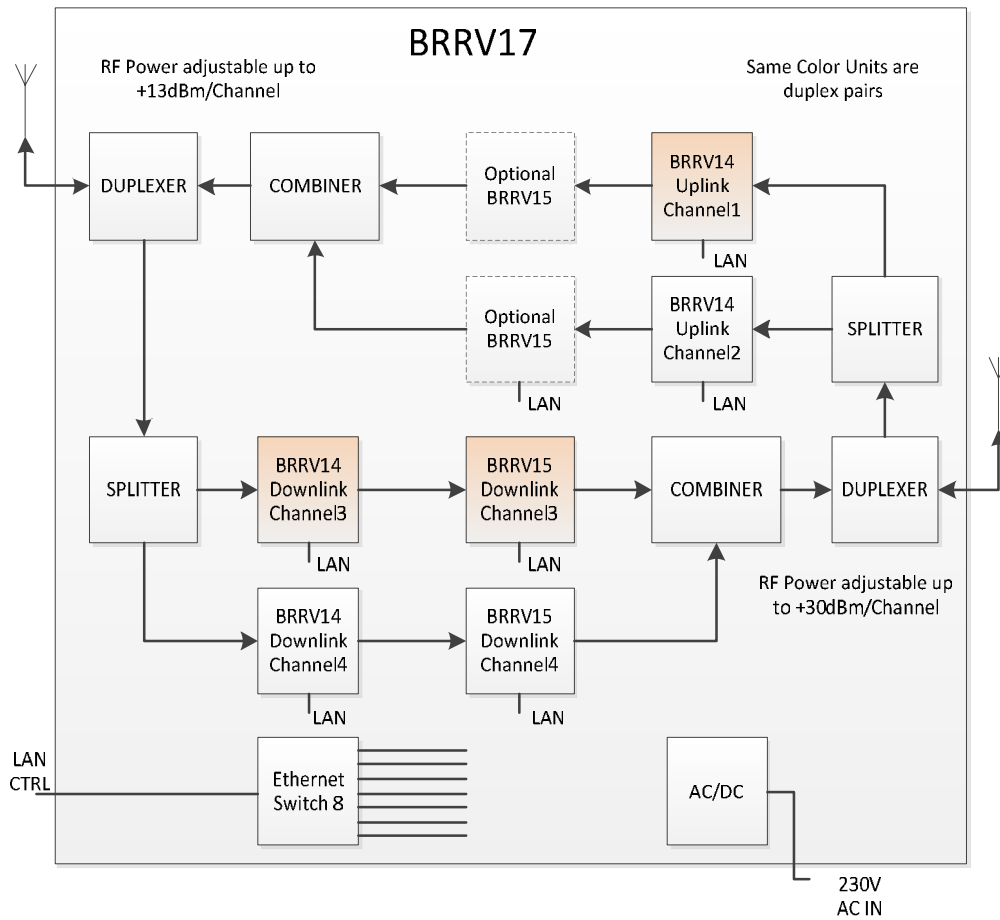
# BRRV17

## DUAL CHANNEL DUPLEX VHF REPEATER

Harmonics	-85dBc typ.,
Output threshold level	0 to +13dBm (warning level), adjustable in 1dB
Spurious @max. gain	<-70dBc
Residual FM	10Hz typical
Start delay	15msec typ.
<b>Downlink Output characteristics (per channels)</b>	
Frequencies	Same as the received frequency
Max. Gain	110dB typ.
Programmable attenuation	0 - 110dB in 1dB step
Output P1dB	+30dBm min.
Output IP3	+63dBm min.
Harmonics	-85dBc typ.,
Output threshold level	0 to +18dBm (warning level), adjustable in 1dB in the selective amplifier 0 to +30dBm (warning level), adjustable in 1dB in the power amplifier
Spurious @max. gain	<-70dBc
Residual FM	10Hz typical
Start delay	15msec typ.
<b>Other parameters</b>	
Control and monitoring	via LAN, SNMP Web server
Connectors	Control: RJ45 for ETHERNET.
	RF:IN/OUT N type female connectors
Status LEDs on front / channel	continuous GREEN light in normal operation, various flashing at warnings
Monitoring / per channel	Input/ Output level, Lock status, Internal DC voltages, Temperature
Control / per channel	Input/ Output attenuations (Gain), Squelch level, Output alarm level, Mute
Power Supply	100 to 250VAC@ 47 to 63Hz, 230VAC & 50Hz nominal,
Power Consumption	80W typ.@ 230VAC & 50Hz
Operating temperature	0°C ... +50°C
Dimension	19" rack mount, 7U high, 405 mms deep,
Weight	18.7kgs

## DUAL CHANNEL DUPLEX VHF REPEATER

### Blockdiagram



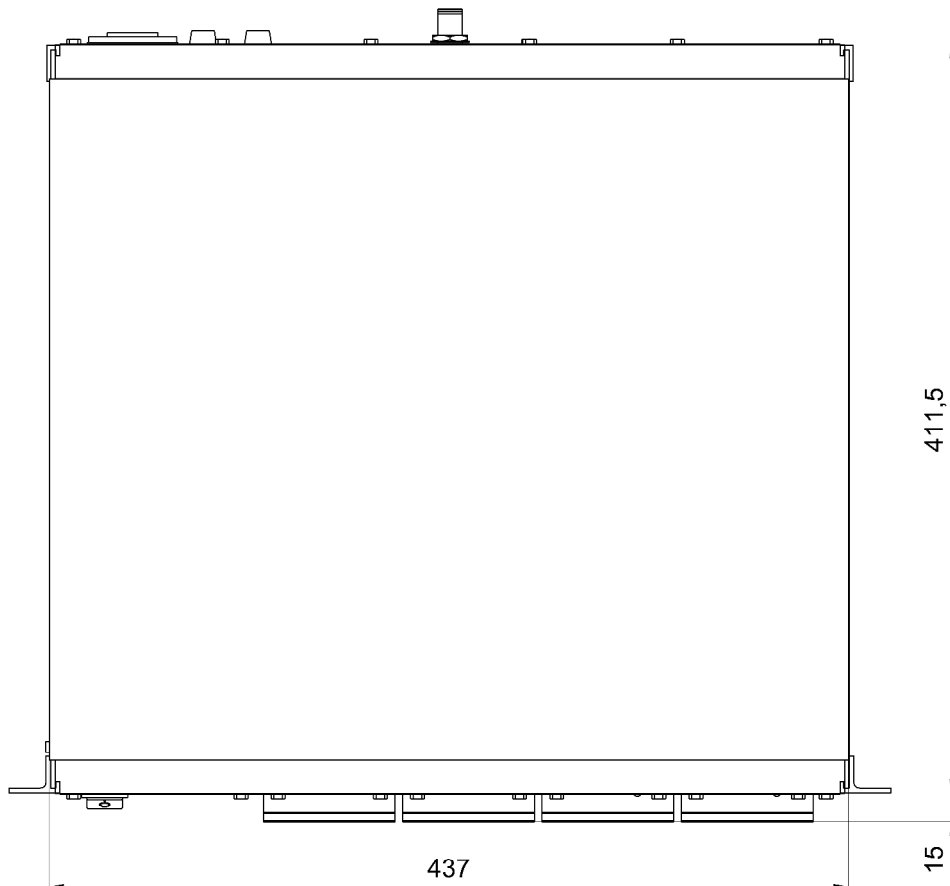
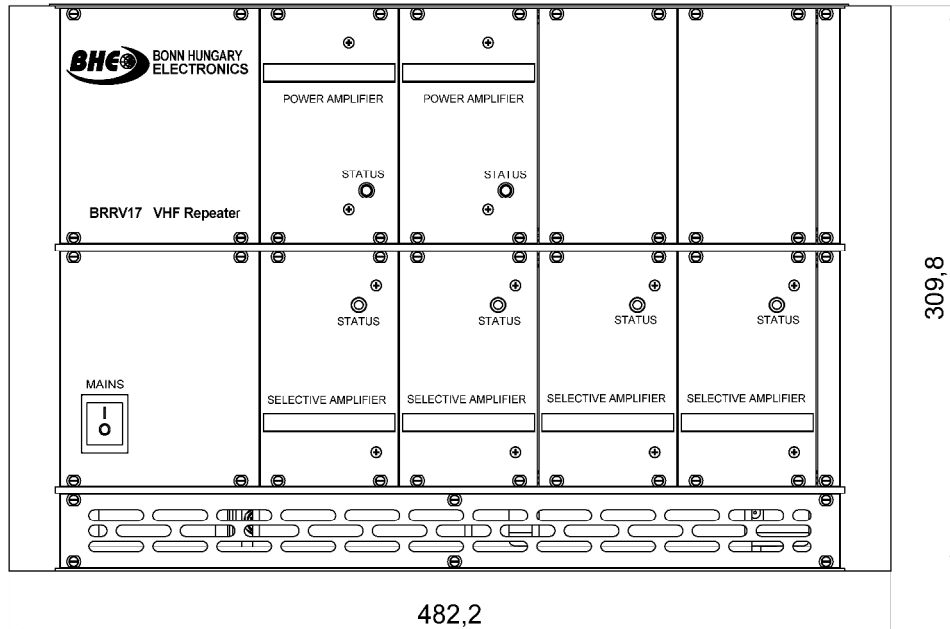
**Dual Duplex system**  
**Uplink BW and Downlink BW < 800kHz**



**BRRV17**

**DUAL CHANNEL  
DUPLEX VHF REPEATER**

**Outline dimensions (mm) BRRV17**



## DUAL CHANNEL DUPLEX VHF REPEATER

### Pictures



1. Figure Front side of the repeater



2. Figure Back side of the repeater



## DUAL CHANNEL DUPLEX VHF REPEATER

### Control Software

The screenshot shows the BRRV17 Control Software v1.3 interface. It is divided into several sections:

- Channel Selection:** CH1U, CH1D, CH2U, CH2D. The 'DOWNLINK CH2' section is currently selected.
- STATUS:** A list of system parameters including Mute, Temperature, Input Voltage, Input Current, Int. Voltage (+3.3V), Int. Voltage (+5.0V / +7.0V), Int. Voltage (+20V), Int. Voltage (-3V), RF Output / Forward Power, RF Input / Reflected Power, IF Power, Gain, Actual IP Address, Date, Version Number, and Serial Number.
- BRRV14 Parameters:** Shows 'CONNECTED' status. Parameters include Temperature (34 °C), Input Voltage (12.0 V), Input Current (-), Int. Voltage (+3.3 V), Int. Voltage (+5.0 V), Int. Voltage (-), RF Output / Forward Power (19.0 dBm), RF Input / Reflected Power (-79.0 dBm), IF Power (-34.0 dBm), Gain (105 dB), Actual IP Address (192.168.16.213), Date (2013. 06. 19.), Version Number (v2.3), and Serial Number (00001).
- BRRV15 Parameters:** Shows 'RF Level Error' status. Parameters include Temperature (31 °C), Input Voltage (11.7 V), Input Current (1.8 A), Int. Voltage (3.3 V), Int. Voltage (7.0 V), Int. Voltage (-2.8 V), RF Output / Forward Power (28.0 dBm), RF Input / Reflected Power (32.0 dBm), IF Power (-), Gain (107 dB), Actual IP Address (192.168.16.221), Date (2013. 06. 19.), Version Number (v2.5), and Serial Number (00001).
- Controlled Parameters:** Includes Frequency (168,9 MHz), Attenuator (0 dB), Output Attenuator (0 dB), Squelch Level (-78 dBm), Output Level (18 dBm), Mute by Control Software (ON/OFF), and Saved IP Address (192.168.16.213).
- BRRV17 PARAMETERS:** Shows 'ALL DEVICES CONNECTED' status. Includes Last Email Sent, Network Parameters (Select Network Adapter: 192.168.16.63), Devices list (IP Address, Type), and Alarm Settings (Email Server IP, Email Server Port, Server username, Server Password, Mail From, Mail To, Error Send Interval, Enable Email).
- ERRORS:** A section at the bottom showing no errors.