

- Permits frequency selection when operating in a tightly spaced channel environment.
- Integrated optional wireless modem for remote configuration, monitor and control.
- Internal backup battery keeps the alarm unit running for up to three hours after power failure.
- Optional OMC is available for remote operation and maintenance.
- Designed for all outdoor application - waterproof, damp-proof and omni-sealed (IP65).
- 3GPP compliant.



The RD-8122 channel selective repeater is designed for operation in the WCDMA850 band. Channel-specific linear amplifier and filtering effectively amplifies the desired BTS carrier and provides superior out-of-band rejection. Typical units incorporate up to two pairs (uplink and downlink) of channel selective modules with frequencies programmed to specific requirements of the network. Remote configuration and surveillance is possible through Comba's remote control and monitoring system, via PC or wireless modem to the OMC. Internal Li-ion battery backup ensures alarm signals are sent out in the event of power failure. The RD-8122 comes in a sealed, well-ventilated cast aluminum enclosure, suitable for all weather conditions.

The diagram illustrates the system architecture, which is divided into an external environment and a central processing unit (indicated by a dashed box).

External Environment:

- BTS (Base Transceiver Station):** Represented by a blue tower icon, it communicates with the **Donor Ant**.
- Donor Ant:** A purple antenna that receives signals from the BTS and transmits them to the **DT** (Distributed Transceiver) block.
- Mobile Ant:** A purple antenna that receives signals from the **MT** (Mobile Transceiver) block and transmits them to the **Mobile Phone**.
- Mobile Phone:** A standard mobile phone icon.
- OMT (Over-the-air Monitoring Terminal):** A laptop icon that receives data from the **Main Control Unit**.
- External Power:** A power source that provides energy to the **Main Control Unit**.

Central Processing Unit (Dashed Box):

- DT (Distributed Transceiver):** The main processing block, which contains:
 - DL Channel Selective Module:** Two modules for downlink signal processing.
 - UL Channel Selective Module:** Two modules for uplink signal processing.
 - LNA1 (Low Noise Amplifier):** Amplifies the downlink signal.
 - PA1 (Power Amplifier):** Amplifies the downlink signal for transmission to the **Mobile Ant**.
 - LNA2 (Low Noise Amplifier):** Amplifies the uplink signal.
 - PA2 (Power Amplifier):** Amplifies the uplink signal for transmission to the **BTS**.
- Modem:** A component that interfaces with the **DT** and the **Main Control Unit**.
- Alarm Indicator:** A component that provides status feedback to the **Main Control Unit**.
- Main Control Unit:** The central brain of the system, receiving data from the **Modem** and **Alarm Indicator**, and controlling the **DT** and **Power Supply**.
- Power Supply:** A component that provides power to the **Main Control Unit** and is connected to **Li-ion BATT** (Lithium-ion Battery).

Technical Specifications

Model (Total Output Power)		3W	5W	10W	
Electrical					
Frequency Range, Uplink		MHz	824-849		
Frequency Range, Downlink		MHz	869-894		
Number of Channels			1-2		
Output Power per Channel, Uplink	1 Channel	dBm	23 ± 1	23 ± 1	23 ± 1
	2 Channel		19 ± 1	19 ± 1	19 ± 1
Output Power per Channel, Downlink	1 Channel	dBm	34 ± 1	37 ± 1	40 ± 1
	2 Channel		30 ± 1	33 ± 1	36 ± 1
Maximum System Gain		dB	95 ± 2		
Gain Adjustment Range (1dB Step)		dB	0 – 30		
Pass Band Ripple within 3.84MHz, p-p		dB	≤ 2		
System Noise Figure at Maximum Gain		dB	≤ 4		
System Group Delay		μsec	≤ 5		
Out-of-Band Emission			3GPP TS 25.106 standards compliant		
Out-of-Band Gain					
Spurious and Intermodulation					
Modulation Accuracy					
Input VSWR			≤ 1.5		
Absolute Maximum RF Input Power		dBm	+13		
Impedance		Ω	50		
Power, Mechanical & Environmental					
Dimensions, H x W x D		mm	615 x 330 x 200		
Weight (approx.)		kg	28		
Power Supply		VAC	100-240 / 47 – 63MHz		
Power Consumption (approx.)		W	180	200	
Power Up Waiting Time (approx.)		sec	60		
MCU Battery Backup Time (approx.)		hr	2		
Enclosure Cooling			Convection		
RF Connectors			N-Female		
Operating Temperature		°C	-33 to +55		
Operating Humidity		%	≤ 95		
Environmental Class			IP65		
MTBF		hr	≥ 50,000		

Note: Typical specification at room temperature

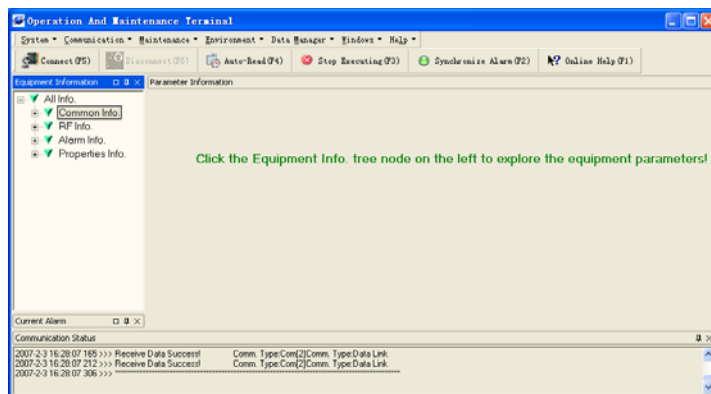
Operation and Maintenance

Using a direct serial connection to a PC, installation and commissioning of the RD-8122 is accomplished by the OMT. Using the integrated wireless modem (data or SMS mode), the equipment parameters can be monitored and controlled remotely.

Controlled equipment parameters include: Carrier Switch, Channel No. Range, ATT, RF Switch, Over-Temp Threshold, DL Output Power Threshold, DL Input Power Threshold and Alarm Report Enable.

Monitored equipment parameters include: Alarms (LNA, PA, PLL unlock, Power Down, PSU Fault, Chassis Lock, Self-Oscillation, DL Output Power Low, DL Input power Overload, Over Temp, VSWR), DL Output Power and DL Input Power.

The RD-8122 has been developed to take advantage of advanced network operation, where the OMC (optional) provides an effective solution for central monitoring of a group of Comba products.



Outline Drawing

