R-9110H

GSM900 Hybrid (Band and Channel Selective) Repeater

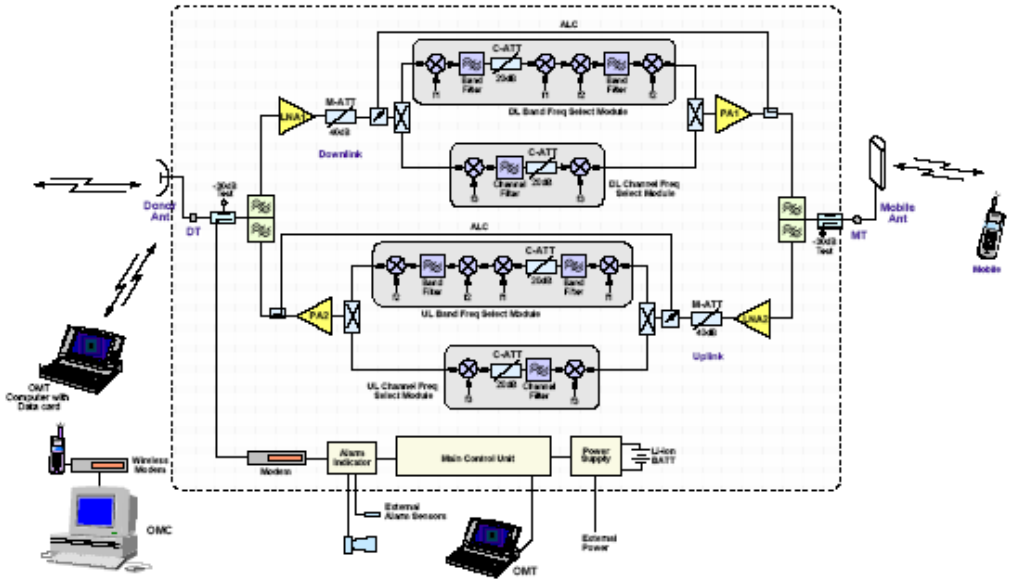
Features

- Featuring one band selective module and one channel selective module integrated into one repeater system unit.
- Permits easy selection of donor broadcast channel when operating in a tightly spaced channel environment with synthesized frequency hopping.
- Integrated GSM radio modem for remote configuration, monitor and control.
- Automatic gain stabilization prevents self oscillation caused by a low isolation between DT and MT antennas.
- Internal backup battery keeps the alarm unit running for up to 6 hours after power loss.
- Optional OMC is available for remote operation and maintenance of repeaters.
- Designed for all weather outdoor – waterproof, damp-proof and omni-sealed (IP65).

Product Description

The R-9110H hybrid repeater is designed for outdoor operation in the GSM900 band. This unique repeater incorporates a band- and channel-selective module, making it suitable for synthesized frequency hopping applications. The R-9110H provides an adjustable band selective bandwidth from 2 to 25MHz and a channel module with channel frequency programmed to specific requirements of the network. The band- and channel-specific filtering modules permit the selection of the desired BTS broadcast (BCCH) and hopping traffic (TCH) channels, while providing superior rejection for unwanted donor signals. Remote configuration and surveillance is possible through Comba's remote control and monitoring system, via laptop or wireless modem to the OMC. Li-ion battery backup ensures alarm signals are sent out in the event of power failure, and optional full battery backup ensures operation in unstable mains supply. The R-9110H comes in a completely sealed, well-ventilated cast aluminum chassis, suitable for all weather conditions.

System Block Diagram



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Technical Specifications

Electrical

Frequency Range, Uplink – [MHz]	890 – 915
Frequency Range, Downlink – [MHz]	935 – 960
Bandwidth – [MHz]	
- Band Selective Module (Bw)	2 – 25
- Channel Selective Module	0.2
Max. System Gain – [dB]	92 ± 2
Gain Adjustable Range (1 dB step) – [dB]	0 – 32 ±1.5
Output Power - [dBm]	
- Low Power Option	33 ±1
- High Power Option	40 ±1
Pass Band Ripple, p-p – [dB]	≤ 3.0
System Noise Figure – [dB]	≤ 5
Group Delay – [μsec]	≤ 8
Channel Selectivity – [dB]	
- at ±100kHz	> -2
- at ±400kHz	≤ -60
- at ±600kHz	≤ -65
- at ±1MHz	≤ -70
Band Selectivity – [dB]	
- at Bw	≥ -3
- at Bw+1.2MHz	≤ -45
- at Bw+2MHz	≤ -60
Spurious – [dBm]	
- 9kHz to 1GHz	≤ -36
- 1GHz to 12.75GHz	≤ -30
Intermodulation – [dBm] (@ Pout = 30dBm)	≤ -36
Max. RF Input Power – [dBm]	+10
Input VSWR	≤ 1.4
Impedance – [Ω]	50

Power, Mechanical, Environmental

Power Supply – [VAC]	155–285 / 45-55Hz
Power Consumption – [W]	≤170
MCU Battery Backup Time – [hr]	6 (approx.)
Power Up Waiting Time – [sec]	60 (approx.)
Dimensions, L x W x H – [mm]	600 x 450 x 195
Housing Material	Aluminum
Housing Colour	Grey Anodised, RAL877U
Weight – [kg]	40
Connector Type	N-Female or 7/16 DIN Female
Operation Temperature – [°C]	-40 to +55
Operating Humidity – [%]	≤ 95
Cooling	Convection
MTBF – [hrs]	> 50,000
Environmental Class	IP65

Operation & Maintenance

Local Monitoring Feature	PC via RS232
Remote Data Transfer	via Line modem, build-in wireless GSM modem (data or SMS)
Local and Remote Controlled Parameters	Channel No, ATT, Soft ON/OFF, Oscillation Elimination ON/OFF, Over-Temp Threshold, UL/DL Output Power Threshold, VSWR Threshold, Alarm Report Enable
Local and Remote Monitored Parameters	Alarms (LNA, PA, PLL unlock, Power Down, PSU Fault, Door Open, Self oscillation, Over Temp, VSWR, UL/DL Output Power Low), UL/DL Output Power, DL Input Power

Mechanical Outline Drawing