Channel Selective – Frequency Shifting Repeater

RF-1822

Features

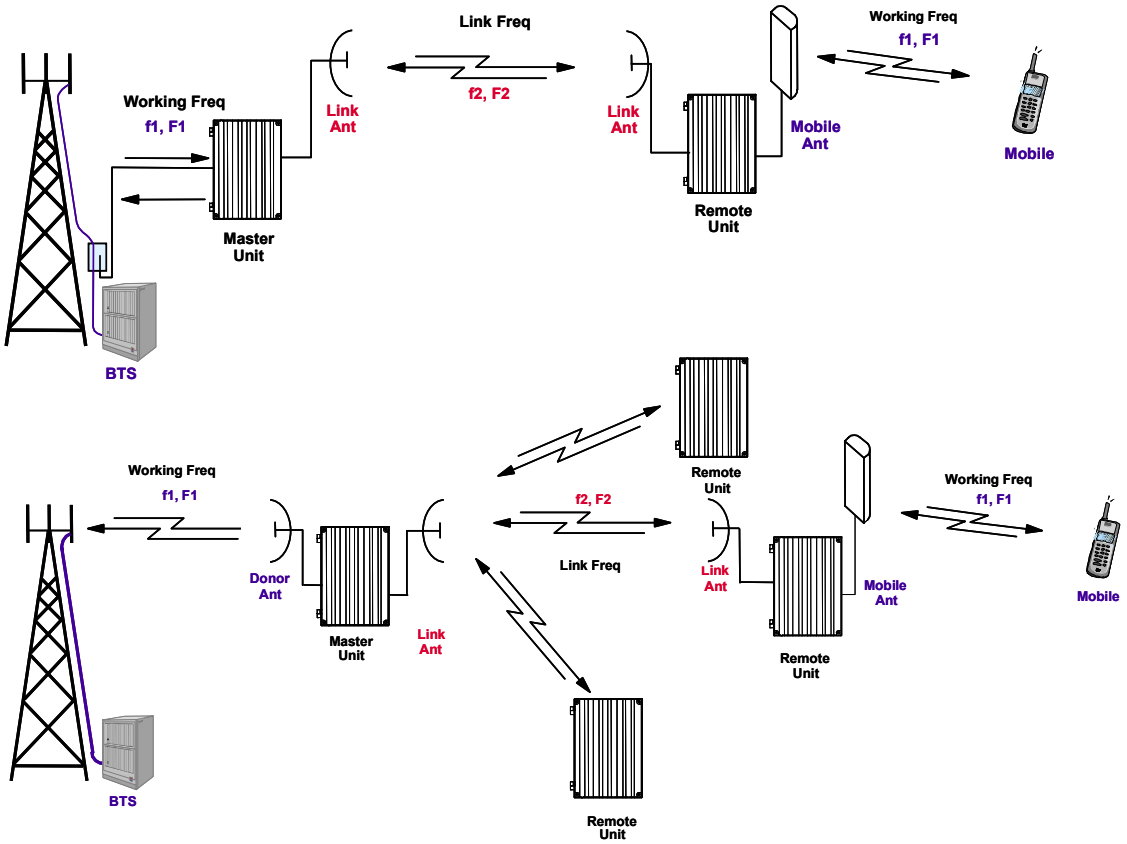
- Reduces site deployment costs by eliminating donor antenna isolation problem through frequency translation.
- Supports various output power levels with two carriers.
- High link power gives maximum link distance between Master Unit and Remote Unit(s).
- Link frequency is available in standard GSM1800 band.
- Permits local monitoring via PC and remotely by wireless modem.
- Alarm data can be transmitted to the OMC via SMS or data call. (Optional)
- Internal backup battery ensures alarming information to be transmitted during power failure.
- Designed for all-weather outdoor installation – waterproof, damp-proof and omni-sealed (IP65).

Product Description

The RF-1822 is a point-to-point or point-to-multipoint frequency shifting repeater system that overcomes the antenna isolation problem in conventional repeater system. The Master Unit (MU) receives the GSM1800 donor signal by either direct or wireless coupling, and translates it to another GSM1800 link frequency for transmission to the Remote Units (RU). The RU receives the link signals and translates them back to the original GSM1800 signals, which are then transmitted to the service areas.

The mapping of working and link channels is user-defined through the OMT/OMC software. The RF-1822 comes with separate connectors for connection to external link and service antennas. Each RF-1822 can support two frequencies and can be connected in parallel for higher number of channels.

Functional Block Diagram



Technical Specifications

Model			10W (2 CH)	20W (2 CH)
Electrical				
Working Frequency Range	Downlink	MHz	1805 – 1880	
	Uplink	MHz	1710 – 1785	
Link Frequency Range	Downlink	MHz	1805 – 1880	
	Uplink	MHz	1710 – 1785	
Number of Channels			2	
Max. Gain	Direct Coupling MU	dB	40 ± 2	
	Wireless Coupling MU		105 ± 2	
	RU (IC)		105 ± 2	
	RU (EC)			108 ± 2
Gain Adjustment Range (1dB Step)		dB	1 – 30 ± 1	
Output Power per Channel, Downlink	Direct Coupling MU	dBm	40 ± 1	
	Wireless Coupling MU		40 ± 1	
	RU (IC)		40 ± 1	
	RU (EC)			43 ± 1
Output Power per Channel, Uplink	Direct Coupling MU	dBm	-10 ± 1	
	Wireless Coupling MU		33 ± 1	
	RU		40 ± 1	
Min. Channel Spacing	Within Working or Link Band	KHz	≥ 600	
	Between Working and Link Band		≥ 800	
Min. Isolation Between Antenna Ports for In-band FSR		dB	≥ 65	
Pass Band Ripple, p-p within any 15MHz Bandwidth		dB	≤ 3	
System Group Delay	Direct Coupling MU	μsec	≤ 15	
	Wireless Coupling MU	μsec	≤ 20	
System Noise Figure at Max. Gain		dB	≤ 5.0 (typ. 4.0)	
Spurious	9KHz – 1GHz	dBm	≤ -36	
	1GHz – 12.75GHz	dBm	≤ -30	
Intermodulation, In-band	9KHz – 1GHz	dBm	≤ -36	
	1GHz – 12.75GHz	dBm	≤ -30	
Input VSWR			≤ 1.5 (typ. 1.4)	
Absolute Max. RF Input Power		dBm	+10	
Impedance		Ω	50	
Frequency Error		ppm	≤ 0.05	
Power, Mechanical & Environmental				
Dimensions, H x W x D	MU	mm	600 x 450 x 195	
	RU		600 x 450 x 295	
Weight (approx.)	MU	kg	37	
	RU		51	
Power Supply		VAC	176 – 264 / 47 – 63Hz	
		VDC	-48 ± 20% or +24 ± 10%	
AC Power Consumption (approx.)	Direct Coupling MU	W	210	
	Wireless Coupling MU		240	
	RU		300	
Power Up Waiting Time (approx.)		sec	60	
MCU Battery Backup Time (approx.)		hr	3	
Enclosure Cooling			Convection	
RF Connectors	Service and Link Antenna		N-Female	
	Wireless Modem Antenna		SMA-Female	
Operating Temperature		°C	-33 to +55	
Operating Humidity		%	≤ 95	
Environmental Class			IP65	
MTBF		hr	> 50,000	

Note: Typical specification at room temperature
IC-Internally combined carriers
EC-Externally combined carriers

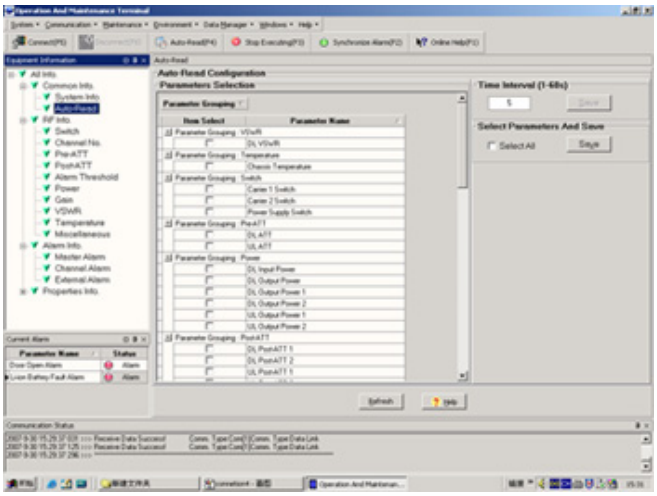
Operation and Maintenance

By using a direct serial connection to a PC, the installation and commissioning of the RF-1822 is accomplished by the OMT. With the integrated wireless modem (data or SMS mode), equipment parameters can be monitored and controlled remotely.

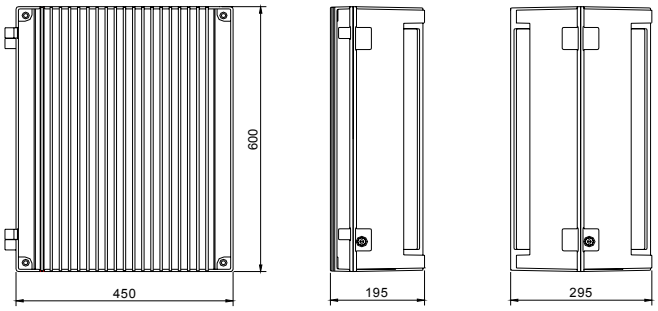
Controlled equipment parameters include: Working Channel Number, Translation Channel Number, ATT, Soft PA ON/OFF, Over-Temp Threshold, Alarm Report Enable.

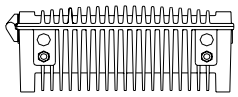
Monitored equipment parameters include: Alarms (LNA, PA, PLL Unlock, Power Down, PSU Fault, Over-Temp, Chassis Lock, DL Output Power High/Low, UL/DL Output Power), Modem Receive Field Intensity, UL/DL Output Power and DL Input Power.

The RF-1822 has been developed to take advantage of advanced network operation, where the OMC (optional) provides an effective solution for central monitoring a group of Comba products.

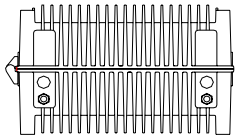


Outline Drawing

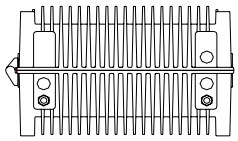




Master Unit



Remote Unit (IC)



Remote Unit (EC)