TPA-9010A / TPA-9010B

GSM900/EGSM Tower-Mounted Booster, Band-Selective

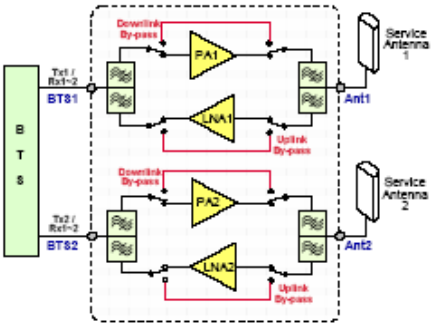
Features

- High downlink power of 40dBm, 43dBm or 46dBm per carrier provides for extended cell coverage.
- Low noise amplifier reduces uplink system noise figure and results in reduced dropped call and better voice quality.
- Reduces handset output power for improved uplink C/I.
- Alarms can be sent via BTS alarm relay contacts for easy operation and maintenance.
- Automatic bypass feature permits BTS operation when TPA or power supply fails.
- Designed for all weather – waterproof, damp-proof and omni-sealed.
- Permits local monitoring via notebook computer and remotely by wire or GSM modem.
- Alarms can be transmitted to OMC via data call or SMS.
- Internal battery backup ensures alarm messages are transmitted when power fails.

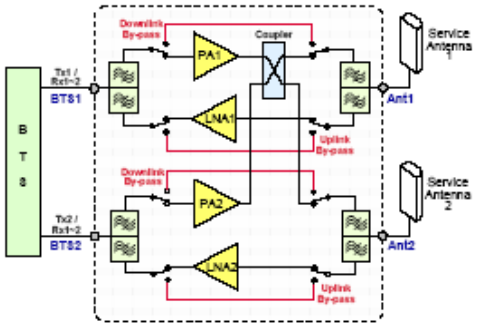
Product Description

The TPA-9010 is a GSM900/EGSM tower-top power amplifier (PA) that provides both uplink and downlink amplification for 2 carriers. The tower-top PA unit is installed near the antenna at the tower top to raise the transmitted power for extended cell coverage. The uplink low-noise amplifier (LNA) serves to improve the sensitivity of the BTS to cope with the extended cell coverage in the downlink. The TPA-9010A series has PA with 43dBm output, while the TPA-9010B series has 46dBm output. The 02 series features an integrated hybrid coupler for a 2-carrier per antenna port output, permitting covering 2 different cells through 2 service antennas.

The TPA is powered through a separate power cable, with various power supply options. The system comprises of duplexers, uplink LNA, downlink PA, RF by-pass switch, main control unit (MCU), RS232 board, power supply unit, lightning arrestor, wireless GSM modem, and backup Li-on battery. Parameter settings of the TPA can be done locally via a notebook computer with installed OMT software, or remotely via wireless modem using OMC software. Alarms are displayed on the MCU and will trigger the BTS external alarm. Through the wireless modem, the alarm data can be transmitted to the OMC automatically, or be sent as SMS to the maintenance personnel's handset.



TPA-9010A-01 / TPA-9010B-01



TPA-9010A-02 / TPA9010B-02

TPA-9010A / TPA-9010B

GSM900/EGSM Tower-Mounted Booster, Band-Selective

Technical Specifications

Electrical

Frequency Range, Uplnk – [MHz]	
- GSM900	890 – 915
- EGSM	880 - 915
Frequency Range, Downlink – [MHz]	
- GSM900	935 – 960
- EGSM	925 – 960
Number of Carriers	2
Output Power per Carrier – [dBm]	
- TPA-9010A-01	43
- TPA-9010A-02	40
- TPA-9010B-01	46
- TPA-9010B-02	43
Max. System Gain, Uplink – [dB]	12 ± 1
Max. System Gain, Downlink – [dB]	
- TPA-9010A-01	25 ± 1
- TPA-9010A-02	22 ± 1
- TPA-9010B-01	18 ± 1
- TPA-9010B-02	15 ± 1
Gain Adjustment Range (1dB step) – [dB]	
- Uplink (TPA-9010A, TPA-9010B)	0–10 ± 1
- Downlink (TPA-9010A)	0–20 ± 1
- Downlink (TPA-9010B)	0–18 ± 1
Input Power Range, Downlink – [dBm]	
- TPA-9010A	18 – 38 / carrier
- TPA-9010B	28 – 40 / carrier
Passband Ripple, p-p – [dB]	≤ 1.5
Spurious – [dBm]	
- 9kHz - 1GHz	≤ -36
- 1 – 12.75 GHz	≤ -30
Noise Figure, Uplink – [dB]	≤ 2.5 (typ. 2)
Input Intercept Point, IIP3 – [dBm]	≥ 10
By-pass Loss – [dB]	
- TPA-9010A	≤ 3.5
- TPA-9010B	≤ 7.0
System Group Delay – [μsec]	≤ 1.5
Max. RF Input Power – [dBm]	
- Uplink (TPA-9010A, TPA-9010B)	+13
- Downlink (TPA-9010A)	+40
- Downlink (TPA-9010B)	+43

Electrical, Power, Mechanical, Environmental

VSWR	≤ 1.4
Impedance – [Ω]	50
Power Supply Options	155-285 VAC / 45-55Hz or –48 VDC or +24 VDC
Power Consumption (approx.) – [W]	
- TPA-9010A	180
- TPA-9010B	300
MCU Battery Backup Time – [hr]	6 (approx.)
Power Up Waiting Time – [sec]	60 (approx.)
Dimensions, HxWxD – [mm]	
- TPA-9010A	600 x 450 x 195
- TPA-9010B	600 x 450 x 295
Weight – [kg]	
- TPA-9010A	35 (approx.)
- TPA-9010B	51 (approx.)
RF Connector	4 x N-Female or 4 x 7/16 DIN
Operating 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 Monitoring and Transmission Feature	via build-in wireless GSM modem or Short Message (SMS)
Local and Remote Monitored Parameters	Alarms (LNA, DL PA, DL PLL unlock, Power Down, PSU Fault, Door Open, DL Input Power Low, DL Output Power Low, Over Temp, VSWR), Temp, UL/DL Gain, DL Output Power
Local and Remote Controlled Parameters	ATT, Soft ON/OFF, Over-Temp Threshold, DL Output Power Threshold, DL Input Power Threshold, Alarm Report Enable

Mechanical Outline Drawing