

**200W Digital Mobile Broadcast  
Terrestrial Repeater****Description**

The UBS Terrestrial Repeater system is a fusion of proven principles and solutions, combined with recent advancements in thermal management and digital signal processing technology.

The implementation of innovative concepts, in conjunction with our extensive knowledge and experience in the design and development of transmitter equipment has allowed us to create a new generation of Terrestrial Transmitters, which are more efficient and reliable, while supporting all the features required in functionality and serviceability.

**Frequency bands:**

UHF Band  
L-Band (1.4 GHz - 1.5 GHz and 1.67 GHz)  
S-Band (2.1 GHz - 2.3 GHz)  
MMDS-Band (2.5 GHz - 2.7 GHz)

**Supported Waveforms:**

ATSC, ISDB-T/T<sub>B</sub>, DVB-T/H, DVB-SH, DAB, DAB+, T-DMB, DTMB and CMMB

**Repeater Features**

- Compact outdoor self-contained 200W Terrestrial Repeater platform
- Environmentally protected light-weight cabinet
- Forced air cooling system with easily replaceable air filter
- Front and rear hinged doors for service access to various test ports
- Modular construction for easy maintenance
- Protected AC outlet for connecting external test equipment
- DVB-S/S2 satellite receiver
- Built-in GPS synchronization
- High Performance LDMOS Power Amplifier
- Digital Linear and Non-linear Predistorter
- Remote Control Interfaces WEB GUI and SNMP Agent
- RF overdrive, high VSWR and over-temperature protection

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## Repeater System Components



### **Exciter (see separate data sheet)**

The Exciter receives an input signal from a satellite and performs digital, analog and RF signal processing. The output waveform generated by the Exciter drives the High Power amplifier at the required frequency and appropriate amplitude level. The Exciter includes the following sub-modules:

**The DVB-S/S2 Satellite Receiver processes an RF signal from a satellite LNB and outputs an ASI transport stream.**

**The Modulator** accepts a transport stream from an ASI interface, extracts the useful data payload, demodulates and re-modulates the signal, performs stream synchronization and generates analogue I&Q signals.

**The Upconverter** performs quadrature modulation of I&Q signals and converts them to the required RF frequency. The variable gain amplifier inside the Upconverter is used for automatic level control of the RF output.

**The Main System Controller** monitors and controls the entire repeater system and provides an interface to a Network Management System. The Controller is built on an MCP860 microprocessor, which realized all functionality related to site management. This includes controlling the GPS Receiver, modem and input interface cards. The Controller also employs a supervisory ATmega2560 microprocessor, which communicates with the Power Amplifier and RF Detectors to maintain the output power level.

**The Internal UPS (optional)** provides an uninterrupted power source to the Main Controller for about 1.5 minutes. During this time, the Main Controller will be able to send alarm notifications and store the system log file in the EEPROM.

## 200W Digital Mobile Broadcast Terrestrial Repeater

### **200W Power Amplifier** (see separate data sheet)

The Power Amplifier represents the final amplification stage for the terrestrial output signal. The amplifier receives the RF signal from the Upconverter and amplifies it to a level of 200 Watts at the Repeater output.

The Power Amplifier is powered from a highly efficient, integrated switching power supply. The amplifier functionality is controlled by its embedded microcontroller, which maintains amplifier gain control, provides monitoring of operational parameters and protection from abnormal conditions. The Power Amplifier utilizes an advanced heat sink design, based on a material with enhanced thermal conductivity.

### **S-Band band-pass Filter**

The output band-pass filter is built using high performance dielectric resonator (DR) coupled cavities. The DR design minimize the size and weight of the filter, while maintaining low insertion loss and providing high rejection of out-of-band spectrum components.

### **Output Coupler**

The output coupler provides sample ports for output signal level control and monitoring. It employs coaxial air line design for low losses and high directivity.

### **RF Detectors**

The RF Detector provide accurate forward and reverse RMS power level measurements from the Output Coupler. The power level measurement is waveform and temperature independent.

### **Technical Specifications**

Primary AC Power	198-242 VAC, 50/60Hz
AC power consumption	2,200 Watts
Operating temperature range	-20°C to +50°C
Operating humidity	max. 99%
Dimensions	26.5" (W) x 27.0" (H) x 40.5" (D)
Weight	120 Kg