Product Line DRM Modulator / Exciter LV

General

The RFmondial DRM modulator uses MDI-delivered radio content to produce a modulated signal conform to ETSI ES 201 980 and outputs I/Q baseband via AES/EBU.

Basic Features

- DRM modulation from MDI/DCP
- Highly reliable embedded platform
- No PC components
- Proven long term stability

Modulator

DRM30: below 30 MHz, including the SW, MW and LW bands.

- Robustness modes A, B, C, D
- Spectrum occupancy 4.5, 5, 9, 10, 18, 20 kHz
- MSC modes 16 QAM, 64 QAM, and hierarchical (HMmix, HMsym)
- SDC modes 4 QAM and 16 QAM
- Interleaver length 0.4 s and 2 s
- EEP and UEP with all protection ratios / code rates

DRM+: above 30 MHz, incl. the VHF broadcast bands I, II (FM) and III.

- Robustness mode E
- Spectrum occupancy 96 kHz
- MSC modes 4 and 16 QAM
- SDC modes 4 QAM, CR 0.5 & 0.25
- Interleaver length 0.6 s
- EEP and UEP with all protection ratios / code rates

Interfaces

Input Interfaces

- 2 Ethernet (100 Mbit) for MDI/DCP, configuration, webinterface
- 10 MHz input
- 1 pps, NMEA (RS232) for external GNSS (optional)

Output Interfaces

- 1 Digital IQ via AES/EBU XLR (48, 192 kHz)
- Additional Digital IQ via AES/EBU XLR (48kHz, 192 kHz) if no RF option present
- High performance (MER >45dB @ >20dB difference to spectral mask)
- RF out via SMA (optional)

	MER	Mask dist.	Power level
LW	>35 dB	>15 dB	-8 dBm
MW	>35 dB	>15 dB	-2 dBm
SW	>35 dB	>15 dB	-4 dBm
DRM+	>30 dB	> 8 dB	-5 dBm

Synchronization

- Reliable operation (no gaps, no delay accumulation) in all possible operating modes
- Possible clock sources:
  - Internal incl. adaptive synchronization to MDI
  - External 10 MHz
  - GNSS for SFN
  - NTP (optional)

Configuration and monitoring

- Webinterface (via Ethernet)
- Via LCD Display
- Modbus TCP
- SNMP (optional)

Transmission Features

- SFN (single frequency capability)
- GNSS module integrated (optional)
- MFN: Multiple Frequency Network (one program on several frequencies) (optional / with external transmitters)
- Spectrum Shaping: Appropriate filtering algorithms
- Transmit Diversity: The modulated stream is output to a second output interface with a defined delay to increase reception in flat fading areas
- Crest Factor Reduction: Crest factor reduction algorithms reduce the necessary backoff in the transmitter and improve protection ratios
- Advanced Zero Power Prevention algorithms (optional)
- Pre-correction to linearize analog transmitters (optional)

Reliability & Fallback

- Reliable Input Connection: Input MDI/DCP stream with data Protection, Fragmentation and Transport (PFT) Layer
- Multi-MDI & Monitoring Failover: Reception capability of two redundant MDI-streams. Monitoring of streams and automatic failover strategy, if one stream fails
- Local MDI-Backup: If MDI from input interfaces fail, a backup MDI-stream is played from local storage device and looped (optional)

Device

Electrical

- AC input: 110 – 240 V, 50/60 Hz
- Power consumption: <10 W, passive cooling

Mechanical

- Case: 19" 1RU, Rack-mountable
- Dimensions: 420 (483) x 220 x 44 mm
- Weight: 2 kg
- Temperature range: 0 – 45°C
- Humidity: 20 - 80% non-condensing
- Extended temperature range and humidity range (optional)

Ordering information

`LVDRM30 : DRM30 Modulator, AES out`	`LVDRMplus : DRM+ Modulator, AES out`
`LVDRM30-RF: Option RF out`	`LVDRMplus-RF: Option RF out`