

# MPX-1g FM-RDS Encoder

## Datasheet

### Highlights

- 1-channel dynamic RDS/RBDS encoder
- Complete UECP support
- Off-the-shelf option package

# MPX-1g RDS Edition



The MPX-1g is designed for MPX generation and rebroadcasting – ideal for broadcasters and operators of FM networks. This off-the-shelf option package is the RDS Edition of the MPX-1g designed for the generation of RDS/RBDS signals. It comes readily equipped with an RDS encoder and integrates seamlessly into existing and new FM-RDS distribution chains.

## Dedicated to your use case

The MPX-1g RDS Edition is a dedicated option package for the generation of RDS/RBDS signals:

- Full replacement of the established 2wcom C02 and C04 RDS Encoders
- Supports dynamic generation of a full-featured RDS signal
- FM transmitters with integrated stereo encoder

The MPX-1g RDS Edition complements systems where FM-stereo coding is performed in a separate device:

- Setups with separate stereo encoders, for example the existing 2wcom S02
- FM transmitters with integrated stereo encoder

## Off-the-shelf Option Package

The MPX-1g RDS Edition contains exactly the software and hardware modules required for a pure RDS Generator:

- Single internal AC power supply
- RDS encoder
- Analog and digital interfaces for 19 kHz pilot and RDS output

If additional functionality is required, please refer to the MPX-1g FM-MPX Stereo/RDS Encoder which can be flexibly equipped with software and hardware module according to your needs.



## FM-RDS encoder

- Support of international RDS standards
- Flexible regionalization and combination of multiple RDS data sources
- Scrolling RDS with up to 160 characters allowing marketing and program information to be displayed on radio devices
- Compatible with different RDS data interfaces for flexible integration into radio playout and automation systems
- Built-in RDS decoder for live view
- Synchronization of RDS and stereo pilot enables stable and undistorted RDS decoding at the receiver
- Compatible with ARCOS Config or ARCOS Network for RDS encoder fleet

## Reliable and Uninterrupted Operation

- 2 dedicated IP interfaces for data transmission, along with an extra IP interface for control, allow a dependable IP streaming experience.
- All 3 IP interfaces can be flexibly configured for either data transmission or control.

## User-Friendly and Streamlined Access

- Modern and easy-to-use web interface
- Uniform operating concept across all 2wcom devices for maximum usability
- LCD menu for direct on-site access
- Audio monitoring via web interface or any web stream client with Live Listening

## Smart Management and Seamless Integration

- Well-established APIs and physical control seamlessly integrate into your current infrastructure: Rest API, Ember+, SNMP, NMOS, and GPI
- Stay informed: Flexibly configurable alarm events and notifications over SNMP, GPO, and front panel LED
- Monitoring and alarm control of RDS and MPX parameters

## Verified IP Security

- High-level security within open IP infrastructures
- Thoroughly examined by independent audit authorities through whitelist/blacklist penetration tests



## Formats and Protocols

### RDS Signal

Standards	UECP 7.05, CENELEC, EN 50067, IEC 62106, (RDS 2.0 ready)
Coding	Differential and biphase
Modulation	double-sideband amplitude modulation (DSSC) with suppressed carrier
Center frequency	57 kHz $\pm$ 6 Hz
Bandwidth	$\pm$ 2.4 kHz
RDS level	0 – 8191 mVpp
RDS phase offset	-180° – 180°
Linear distortion	< 0.5 dB between upper and lower sidebands
SNR	> 80 dB
Carrier suppression	> 85 dB

### RDS Synchronization

Mode	Synchronized to external pilot or internal stereo encoder
Fallback	Automatic switchover to internal oscillator
Frequency	19 kHz $\pm$ 2 Hz
Level external	< 9 Vpp

### RDS Features

RDS functions	PS, PI, TP, TA, PTY, PTYN, MS, DI, RT, CT, AF 64 lists, EON, EWS, ODA, TMC, TDC, IH, RP, PIN, SLC, LINKAGE, EPP, ECC, FFG, SPS
Data sets	16



## MPX

Format	PCM raw
Bit depth	12, 13, 14, 15, 16, 20, 24 bit
Bitrates	2.4 – 4.6 Mbit/s (without FEC)
Sample rates	132, 192 kHz

## FM MPX Signal

Signal	FM MPX digital or analog
Frequency response	20 Hz – 90 kHz: < 0.05 dB
Stereo separation	> 55 dB
Harmonic distortion	< 0.0025 dB
SNR (CCIR-weighted)	> 75 dB
SNR (A-weighted)	> 90 dB

## Interfaces

### Audio

Digital (in)	2x AES/EBU, 110 $\Omega$ balanced integrated XLR female, shared with analog in (configurable)
Digital (out)	2x AES/EBU, 110 $\Omega$ balanced integrated XLR male, shared with analog out (configurable) up to 192 kHz sampling rate for MPX
Analog (in)	1x L/R, < 20 $\Omega$ balanced integrated XLR female, shared with digital in (configurable)
Analog (out)	1x L/R, < 20 $\Omega$ balanced integrated XLR male, shared with digital out (configurable)
Analog MPX (in)	2x integrated 50 $\Omega$ BNC socket
Analog MPX (out)	2x integrated 50 $\Omega$ BNC socket
Analog reference level	+6 dBU max. +18 dBU (input/output)
Digital reference level	-9 dBFS
Adjustable gain	20 – +6 dB
Harmonic distortion	< 0.05 % / < -66 dB (40 Hz – 10 kHz)
Dynamic range	16 Bit: > 89 dB; 24 Bit: > 130 dB
Frequency response	Depends on sample rate. For example: 48 kHz: 0.1 dB; 20 Hz – 22.5 kHz

# Specifications



## Ethernet

Connector	3x RJ45 (1x Control, 2x Data)
Type	Auto-switching 10/100/1000 BASE-T

## Synchronization

1PPS input	75 $\Omega$ BNC socket
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## Serial and GPIO

DTE 1+2	2x 9 pole D-Sub male connector for serial RS-232C data communication
USB	USB 2.0 interface for service, configuration, and firmware updates
GPIO	26 pole D-Sub male; combined connector for inputs (GPI) and outputs (GPO)

## Front Panel

Headphone	6.3 mm / 1/4" socket, < 10 $\Omega$
LEDs	Power, Input, Output, Warning
Operation	Display and Jog Wheel
Display	LCD, graphical, 264x64 pixel

## General Data

### Integrated Web GUI

Languages	English
Web technologies	HTML5, Java Script

### Device

Power consumption	< 20 W
Case dimensions	19", 1 RU, depth: 310 mm, width: 424 mm, front panel: 484 mm
Weight	< 5 kg
Material	Steel plate, aluminum-zinc coated
Operating temp. range	0 – +45 °C
Storage temp. range	-40 – +70 °C

### Power Supply

Standard AC	1x internal IEC power connector voltage range 90 – 260 VAC (nominal 100 – 240 VAC) frequency range 47 – 63 Hz (nominal 50 – 60 Hz)
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