FM2TS Gateway

Professional, flexible MPEG Encoding Gateway

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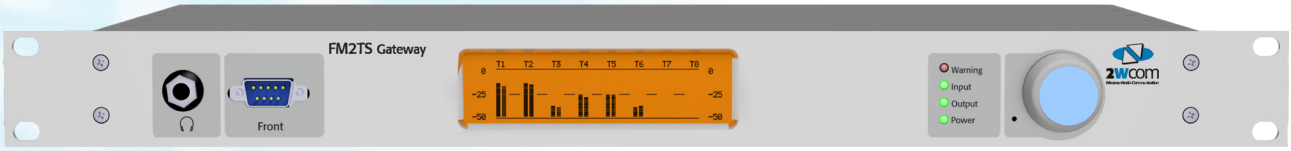
Wireless-World-Communication



green *Energy efficient, no moving harddisks*

- Professional FM Tuner concept:
  8 FM Tuner modules with digital output for MPEG encoding, streaming
- FM know how:
  Programmable FM tuner parameters (soft mute, Stereo to Mono blending)
  RDS data forwarding
- Multiple, free programmable, free combinable and redundant TS outputs (2 IP ports, 2 ASI ports)
- Optional: Advanced IP robustness with Pro MPEG FEC
- 8 channel MPEG encoding to transport stream (MPTS/SPTS) via IP or ASI and streaming via IP (RTP, optional: UDP Unicast/Multicast)
- Monitoring of FM quality parameters and RDS signal parameters (PI, PS)
- Alarm reporting via: e-mail, SNMP, Web interface, activation of relay contacts
- Audio live streaming for monitoring (MPEG 1/2, AAC-LC/LD, HE-AAC) via IP port or ASI
- Decoding of all RDS parameters including TMC and RT+ messages and conversion into UECP per channel (Ver. 6.+ compliant) for RDS forwarding
- Large signal immunity: Up to 120dBµV RF input
- Integrated web server for easy setup and simple control via standard web browser

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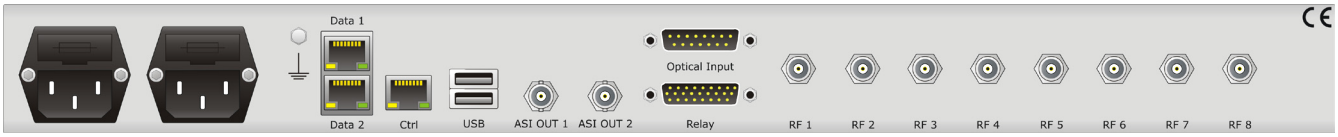

according to CENELEC EN 60950,
EMV EN55022 and EN55024

FM2TS Gateway – Technical Details

Inputs

RF

Tuner	8 independent FM tuner
Connector	8x F-Connector
Impedance	75 Ω
Frequency Range	87.5...108.0 MHz 50 kHz steps
RF sensitivity (S/N 40 dB, stereo)	20 dBµV
RF input level range	25 ... 120 dBµV
Input Frequency Accuracy	< ± 2 kHz
Amplitude response	< ± 0,3 dB
SNR (A)	> 65 dB (>63 dB)
SNR quasi peek unweighted	> 63 dB (with 15 kHz low pass)
SNR quasi peek weighted (ITU (CCIR) Rec. 468-2	> 56 dB
Total harmonic distortion	> 68 dB
Crosstalk attenuation	> 38 dB
Return loss	> 15 dB
De-Emphasis	50 µs, 75 µs

Outputs

MPEG-Encoder

	MPTS and multiple SPTS RTP, UDP IP Unicast/Multicast
Supported Codecs	MPEG 1/2 Layer 1/2/3, AAC-LC, HeAAC-v1/v2, AAC-LD, G.711, G.722, PCM acc. ETSI TS 101 154 (MPEG-1) ISO/EIE 11172-3(Layer II)
Sampling frequencies	16, 22.05, 24, 32, 44.1 and 48 kHz
PCM processing	Loudness Measurement and Compensation (optional) Compliant to CALM and EBU R128
Framework System	TS Multiplexing
Framework TS Format	ISO/IEC 13818-1 MPEG-2 Transport Stream (TS)
FEC	Pro-MPEG Code of Practice #3 release 2 compliant
Configuration	user configuration for selection of encode and TS-output parameters: PAT/PMT, SDT, PSI/SI tables
Audio streaming (for monitoring)	MPTS and multiple SPTS RTP, UDP IP Unicast/Multicast Adjustable MPEG Encoder quality Adjustable sample rates
Audio level	-6 dB fullscale at ± 40 kHz input signal frequency shift

RDS/Ancillary data

Data output format	UECP (Ver. 6.+ compliant), transparent (other formats possible)
Data output	via serial interface or TCP/IP

Headphone (front)

Connector	6.35 mm
Impedance	600 Ω
Output channel selection	switchable

Alarm functions / Control

FM/RDS

FM control	Mute Enable, Mute Attenuation, Mute Threshold (Start, End), Stereo Blend Threshold (Start, End), Tuner Mode (Auto, Stereo, Mono)
RDS control	PI, PS, DI, MS, TA, PTY, RT, RT+, CT
RDS decoder	PI, PS, TA, TP, PTY, CT, RT, RT+
RF level Alarm	25...120 dBµV, resolution 1 dBµV
FM / Audio alarm	Failure monitoring (Pilot, RDS sync, silence detection, L, R)
Signal Muting alarm	Muting of input signals <= 10 dB below reference value
Hardware alarm	Power supply failure, fan failure, case temp.
Alarm types	Serial interface, potential free relay contact, SNMP, E-mail (e.g. to send automaticly SMS)
Alarm report	Can be read out via TCP/IP Enhanced logging functions and local event logging (permanent storage)
NTP Server	Two NTP-Server configurable

Interfaces

Front panel

LCDisplay	Graphical, 264x64 pixel
Jog wheel	impulse, ENTER button
8 LED's	Power 1, Power 2, Warning, Status

Remote control input

	7 opto-isolated inputs (excludes option: 24 relay contacts)
Connector	15 pole sub-D female

Remote control output

	12 floating relays (10x SPST, 2x SPDT) (for DC: max. 30 V, 0.5 A) 26 pole sub-D male
optional:	24 floating relays (excludes: 7 opto isolated inputs)

Setup

RS-232C (Front)	1x serial interface for setup data and setup function
USB	2x USB 2.0 Interface for service, configuration and firmware updates

TCP/IP

	2x data and 1x control
Type	Auto switching 10/100/1000 BASE-T, Unicast, Multicast
Data format	ARP (RFC 826), IPv4 (RFC 791), IPv6 (RFC 2460), ICMP (RFC 792), TCP (RFC 793, RFC 1323), UDP (RFC 768), NTP v3 (RFC 1305), TFTP (RFC 1350, RFC 2347), Telnet (RFC 854 to RFC 861), SNMPv2c (RFC 1901, 1905, 1906), HTTP 1.1 (RFC 2616)
Modules	2x SFP slot (according SFF-8724 Multi Source Agreement) 1000BASE-T, 1000BASE-SX (data) 1x RJ45 (control)

ASI out

Data	MPEG2 TS
Connector	BNC 270 Mbps

General data

Power consumption	60 VA
Case dimensions	19“, 1 HU, 310/424/484 mm
Weight	5 kg
Housing	Steel plate (aluminum-zinc coated)
Operating temp. range	0...+45 °C
Storage temp. range	-40...+70 °C
Redundant power supply	2x internal, 90...260 V, 47...63 Hz 2x power port, aut. switchover
Redundant fan technology	2x internal cooling fan aut. switchover

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These data are subject to modifications and amendments.
Errors excepted

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