

SYNAPSE Series

High Performances Analogue
FM Stereo Modulator Output
Power Ranges 30W



- HIGH PERFORMANCE: TOP QUALITY AT REASONABLE PRICE
- NOMINAL RF OUTPUT POWER: 30W
- COMPACT SIZE: ONLY ONE 19" RACK UNIT CABINET
- VERY LOW SIGNAL/NOISE: TYP. 80 dB
- HIGH STEREO SEPARATION: TYP. 65 dB
- LOW DISTORTION: THD, IMD & TIM TYP. 0,05%.
- TOTAL SPECTRAL PURITY: > -100 dBc SPURIOUS, > - 75 dBc HARMONICS
- REMOTE CONTROL:TCP/IP: WEB + SNMP OF ALL SIGNAL PARAMETERS
- FULL – RANGE POWER SUPPLY: 90-260 VAC MAINS VOLTAGE
- COMPLIANT WITH ALL THE STANDARD: ETSI – CCIR - FCC.

Options

- DIGITAL STEREO CODER: SUPERIOR STEREO QUALITY
- FULL FEATURES RDS/RBDS CODER: EASY PROGRAMMABLE BY PC
- OIRT and JPN: FREQUENCY BAND VERSION
- LPFM ODE STATION: FCC IDENTIFICATIONS CODE

Synapse is a compact and cost-effective FM Exciter featuring outstanding performance specifically designed for budget applications, both as low power stand-alone transmitter and as driver for low and medium power transmitters. The output power can be adjusted from 0 to 30W and it is housed into an ultra-compact cabinet of only one unit height.

Synapse is available in JPN and OIRT frequencies.

For best final price, the **Synapse** is available in two versions: MONO/MPX and STEREO. The Stereo Coder can be easily upgraded on site at any time, even after the first installation.

To meet all the customer needs, **Synapse** allows the possibility to be upgraded with useful options like RDS, AES/EBU Digital audio Input, TCP/IP WEB Remote Control and Encoder and FCC station coding.

The **Synapse** integrated CPU card allows the monitoring of a large number of parameters.

The user friendly menu is available on a clear LCD display; it allows the setting of all the working parameters and the monitoring of the operating figures.

- HIGH PERFORMANCE: TOP QUALITY AT REASONABLE PRICE
- NOMINAL RF OUTPUT POWER: 30W, 50W, 100W, 150W, 300W
- COMPACT SIZE: ONLY ONE 19" RACK UNIT CABINET
- VERY LOW SIGNAL/NOISE: TYP. 60 dB
- HIGH STEREO SEPARATION: TYP. 65 dB
- LOW DISTORTION: THD, IMD & TIM TYP. 0,05%.
- TOTAL SPECTRAL PURITY: > -100 dBc SPURIOUS, > - 75 dBc HARMONICS
- REMOTE CONTROL: TCP/IP WEB Remote Control and DB9 TELEMETRY PORT
- FULL – RANGE POWER SUPPLY: 90-260 VAC MAINS VOLTAGE
- COMPLIANT WITH ALL THE STANDARD: ETSI – CCIR - FCC.

Options

- DIGITAL STEREO CODER: SUPERIOR STEREO QUALITY
- FULL FEATURES RDS/RBDS CODER: EASY PROGRAMMABLE BY PC
- OIRT and JPN: FREQUENCY BAND VERSION
- LPFM MODE STATION: FCC IDENTIFICATIONS CODE
- AES/EBU Digital Input
- Internal RDS Dynamic Encoder



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|--------------------------------|--|
| 1. RF OUT | RF Output. N (50 Ohm) type connector |
| 2. RF Monitor | RF Output Monitor. BNC (50 Ohm) , female. |
| 3. AUX Input | RDS/SCA Input. BNC female connector. |
| 4. MPX Input | Unbalanced Input. BNC female |
| 5. MONO Input | Analog Audio Input |
| 6. IMPEDANCE Audio Setting | 600 / 10K |
| 7. Interlock | NO. NC |
| 8. Remote Connectors | RJ45, 1 DB9 for remote control. |
| 9. 19 kHz Output (Optional) | 19 kHz Pilot Output. BNC female connector. |
| 10. Left (Optional) | Stereo Analog Audio Input |
| 11. Right (Optional) | Analog Audio Input |
| 12. IMPEDANCE Audio Setting | 600/10K |
| 13. Preenphasys setting | Lin / 50uS / 75uS |
| 14. AC Mains | AC Main Source. VDE Mains socket. |
| 15. Audio mode | Lin /25uS/ 50uS / 75uS |
| 16. RDS Programming (OPTIONAL) | |

TECHNICAL CHARACTERISTICS

GENERAL

Power Output: 0-30 W adjustable from front panel, TCP/IP WEB Remote Control

RF Output Impedance: 50 ohm.

RF Output Connector: "N" type.

Monitor RF: -53 dBc, 50Ω post harmonic filter VSWR: 1.5:1

Maximum with automatic fold-back at higher VSWR Frequency Range: 87.5 ÷ 108.00 MHz, on request 66 ÷ 74 MHz (OIRT), 76 ÷ 90 MHz (JPN) Programmable in 10 KHz steps. Frequency

Stability: better than ±200Hz (±1 ppm from -5 to 50°C).

Frequency Control: Synthesizer μprocessor control. Type of Modulation: Direct frequency modulation of carrier frequency, F3E stereo and mono.

Lock in Time: Typ. 4 second.

Off Lock Attenuation: ≥ -60 dBc.

Modulation Capability: ±150 KHz (up to 300kHz). Modulation

Mode: Mono, Stereo, Multiplex, Aux. Preemphasis:

0 - 50 -75μs (selectable)

Asynchronous AM S/N Ratio: Better than ≥55 dB/-65 dB below reference carrier with 100% AM modulation @ 400 Hz, without FM modulation.

Synchronous AM S/N Ratio: Better than ≥50dB/-65 dB below reference carrier with 100% AM modulation @ 400 Hz with FM modulation ±75 KHz @ 400 Hz.

RF Harmonics: Exceeds EBU/CCIR/FCC requirements. RF

Spurious: Exceeds ETSI/CCIR/FCC requirements.

AUDIO INPUTS-TYPE OF MODULATIONS

Mono, Stereo

Multiplex (MPX)

RDS, SCA, , Auxialary

Audio Backup automatic failover

MONAURAL OPERATION

Audio Input Impedance: 600 ohm balanced, 10 Kohms unbalanced.

Audio Input Level: -9 to +18 dBu.

Input Connector: XLR female.

Audio Frequency Response: ±0.1 dB, 30 Hz to 15 KHz. Total Harmonic Distortion + Noise: 0.05% @ 400 Hz Intermodulation Distortion: 0.05%, 1 KHz/1.3 KHz, 1:1 ratio

Transient Interm. Dist.: 0,05%, 2.96 KHz square wave and 14 KHz sine wave.

Distortion: 0.05%, 2.96KHz square wave and 14 KHz sine wave.

FM S/N Ratio: -82 dB RMS, -80 dB at ±75 KHz dev., 50 μs de-emphasis, weighted.

MULTIPLEX OPERATION

Composite Input Impedance: 2 Kohm unbalanced. Composite

Input Level: 3,5Vp-p +1dBu to +16 dBu for 75kHz Deviation

Input Connector: BNC female.

Composite Amplitude Response: ±0.1 dB, 30 Hz to 100KHz.

Total Harmonic Distortion + Noise: 0.05% @ 400 Hz Intermodulation Distortion: 30 Hz to 15 kHz * 0.05% @ 400 Hz

Transient Interm. Dist.: 0,05%, 2.96 KHz square wave and 14 KHz sine wave.

FM S/N Ratio: -83 dB RMS detector, -80 dB AT ±75 KHz dev., 50 μs de-emphasis, weighted.

STEREO OPERATION

Audio Input Impedance: 600 ohm balanced, 10 Kohm unbalanced.

Audio Input Level: -3 to +9 dBm.

Input Connector: XLR female. Audio Frequency Response: ±0.1 dB, 30 Hz to 15 KHz.

Total Harmonic Distortion + Noise: 0.05% @ 400 Hz Intermodulation Distortion: 0.05%, 1 KHz/1.3 KHz, 1:1 ratio

Transient Interm. Dist.: 0,05%, 2.96 KHz square wave and 14 KHz sine wave.

FM S/N Ratio: -71 dB at ±75 KHz dev,

50 μs de-emphasis, weighted.

Stereo Separation: 30÷80 Hz ≥ -50 dB, 80Hz÷15 KHz ≥ -60 dB (Typ. 65 dB).

Crosstalk attenuation:

Main to Sub -50 dB 30 Hz to 15 KHz

(typ. -55 dB 100 Hz to 8 KHz).

38 KHz Suppression: ≥ -65 dB (typ. -80 dB).

Pilot Frequency: 19 kHz ± 0,1 Hz or better

Output Pilot: 1 Vpp., BNC female

Audio Filter Attenuation: ≥ -44 dB @ 19 KHz, > -27 dB 20 KHz to 100 KHz.

Modes: Stereo, Mono

AES/EBU OPERATION

Input Level: -10dBfs to 0dBfs

Input Connector: XLR female, optical TOS-LINK.

Input Impedance: 110 ohm.

Data Format: S/PDF, AES/EBU, IEC958, EIAJCP340/1201.

D/A Converter: 24 bit.

Sampling Frequency: from 32 to 96 KHz with automatic selection

Stereo separation (crosstalk): ≥50dB, 100Hz to 5kHz

Amplitude response: ≤ ± 0.1dB, from 30Hz to 15kHz

AUXILIARY INPUT SCA

Input Impedance: 2 Kohm.

Input Level: -3 to +6 dBm.

Frequency Response: ±0.2 dB, 40 KHz to 100 KHz.

Input Connector: BNC female. Most SCA, RDS, AUX, performance parameters

are determined primarily by the generator used.

TELEMERTY CONNECTOR

RJ45 , DB9 Female: back panel for remote connections.

OPTIONS

DIGITAL STEREO CODERY
RDS/RBDS CODER PROGRAMMABLE BY PC
OIRT & JPN VERSION
LPFM CODE STATION

ELECTRICAL

AC Input Power: 90-260 VAC 50/60 HZ single phase.
Cooling: Forced air with internal long life brushless ball bearing fan.
Acoustic noise: < -56 dBa @ 1 m.

ENVIRONMENTAL

Operating temperature: -10°C to +50°C.
Max Operating Altitude: 3000 mt asl.
Relative Humidity Range: 0 to 95% non condensing.

PHYSICAL DIMENSION

Mounting: Standard 19" chassis 1 U rack.
W: 485 mm. x D: 405 mm. x H: 44 mm.
Weight: ~ 4,0 Kg