

exciters



PTX30- LCD
PTX50- LCD
PTX60- LCD
PTX100-LCD

Mono/Stereo/MPX

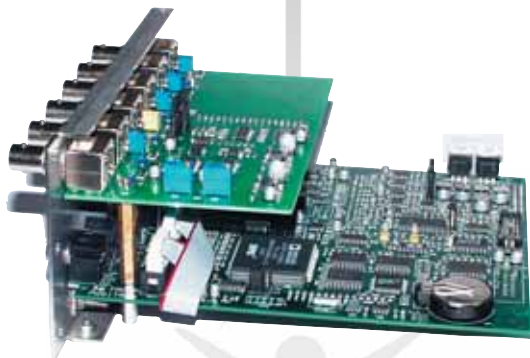
Professional FM Exciter

87.5 - 108 MHz

30W, 50W, 60W

and 100W

**(OIRT and JPN Band
upon request)**



Built-in digital signal processing module.

**BROADCAST
EQUIPMENT**

90 dB signal/noise, 60 dB stereo separation.

Transparency and clearness with CD-quality FM.

RVR's PTX LCD exciter is the result of 25 years of experience in addition to the highest technology. PTXLCD has broken the barrier between CD sound quality and FM sound quality.

Tests comparing the audio performance of a CD-Player/PTXLCD/Tuner combination and the CD-Player itself have demonstrated the "TRANSPARENCY" that can be achieved with PTXLCD exciters.

The response from several groups of listeners in sound trials was always the same: NO DISCERNIBLE DIFFERENCE.

The best sold FM transmitter in the World! PTXLCD is a complete family of transmitters with several options to meet all the requirements of the professional broadcast operators everywhere in the world.

Designed at State of the Art to obtain the best audio quality and a superior transparency and clearness.

Features

State of the Art of the transmitting quality.

Superior sound quality: low noise, low distortion, high stereo separation.

Balanced and unbalanced audio inputs.

Full power range for application as stand-alone exciter.

Suitable for any configuration.

Easy adjustment through an user-friendly graphic interface.

Support of analog, digital, balanced, unbalanced and MPX audio inputs.

ITU limiter for a professional control of the modulation level.

Output power continuously adjustable from 0 to the nominal level.

Fold-Back control for an effective VSWR protection.

IAMLC (Intelligent Automatic Modulation Level Control) for a constant modulation level.

SMD technology for optimized performance, reliability and high MTBF.

Setting and Monitoring of the Working Parameters using RS232, RS485 and I2C interfaces.

Self-protected switching power supply.

Complete telemetry control by means of PC, PTT-Modem or GSM Modem.

RS232 connector

Serial RS232 interface can be used to connect the PTXLCD exciter to the service PC of the local maintenance operator or, via modem, to the remote Technical Assistance Centre. Different configurations can be made for Telecontrol and Telemetry purpose.

Telemetry connector

8 analog input sockets, 2 relays output terminals and a I2C bus interface are the telemetry connectors available which data are displayed either on the LCD or on the PC monitor.

Remote connector

Two signal input sockets for the control of "foldback" output power are present on this connector: Direct and Reflected Power Signal.

By adjusting the RFL trimmer, the Reflected Power Threshold level (Reflected Fold-Back) can be regulated: the exciter supplies the maximum possible Direct Power so that the Reflected Power never exceeds the pre-set level. In this way, the transmission signal continues to be present, albeit more weakly, even in the event of very high VSWR levels (a typical example is the presence of ice on the antenna).

By adjusting the FWD trimmer, the Direct Power Threshold

level (Forward Fold-Back) can be regulated: the modulator stabilises the Forward Output Power within 1dB in AGC. This function is especially useful when the system includes tube amplifiers which are subject to output power variations in the event of fluctuations of the main voltage. The remote connector has 6 analogue input sockets and 2 relay output terminals. These signals are used to read measurements and to perform the on/off functions of the RF Power Amplifier. There is also a I2C line for data transfer with other equipment (RVR's TLC300, SCM4, TLC2000, etc.).

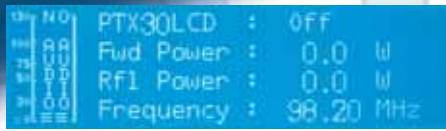


Personal computer link-up

It is possible to read and adjust through RVR's Supervisory Software all the exciter's settings by linking the exciter to a PC (either directly or by means of a telephone/radio modem). The System Manager can select the settings to be accessed by the user. Different properties, such as visible-yes/no, modifiable-yes/no, name, maximum level, unit of measurement, etc., for each setting can be adjusted. RVR's Supervisory Software allows to use customized configurations for Type and Format of the data to be displayed. A telephone directory with name, number and automatic dialling of all stations makes it possible to set up a control and Supervisory System for a specific geographical area.



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On the PTX LCD's front panel, by means of a user-friendly graphic interface, are displayed all the exciter's diagnostic and control capabilities, depending on the customized software and the installed options (DIGITAL-IN, DIGITAL-IN/DSP). The settings that can be monitored and adjusted with a standard SW-Version are the following:



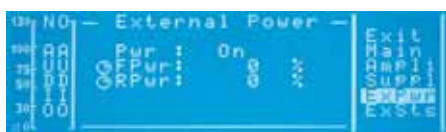
Main menu

Display and Setting of the Working Frequency, Output Power, Reflected Power, Audio Levels and Modulation. From this menu, by selecting ADMIN, the user can move on to other Menus like:



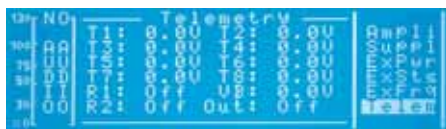
RF Amplifier/Power Supply menu

Display of the characteristics of the RF operational power supply, power supply voltage, VCO voltage, RF power amplifier temperature, etc.



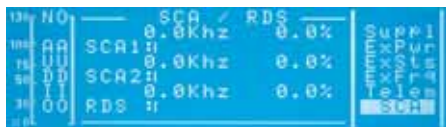
External Power/External Status menu

Display of Direct and Reflected RF power, Alarms, operating Voltages and Currents of the RF Power Amplifier.



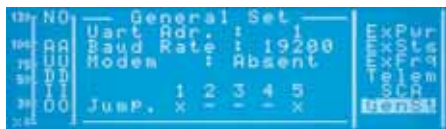
Telemetry menu

Display of Telemetry Board readings, setting of Output Relays.



SCA/RDS menu

Display of the three SCA/RDS subcarrier levels, independently of audio modulation, thus enabling "on air" level readings.



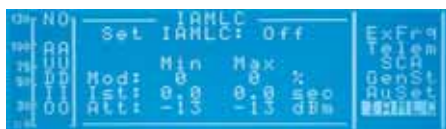
General set menu

Display of communication settings, node number in case of networking and baudrate. Display of "jumper" operating mode settings.



Audio set/board set menu

On/off settings for the following functions: channels, clipper, input impedance, pre-emphasis, etc.



IAML menu

Intelligent Automatic Modulation Level Control settings. This system keeps the signal modulation constant even in the presence of significant variations in the input signal level (from -13 to +14dbm). By intervening in the final stage of transmission, by means of the digital input attenuator, it is possible to correct variations caused at other stages of the transmission chain (studio, STL, etc.).

Hardware Highlights

RVR's PTXLCD exciter was carefully designed to have superior parameters and operating stability. Several details permit to reach the state of the art. The audio inputs are equipped with RF filters and protection circuits all housed in a metal box. The connections between the box and the audio input board are by means of through-pass capacitors, ensuring that RF or any other kind of interference on the cables are discharged onto the Exciter casing. The total shielding of audio signal and RF circuits guarantee the quality of the radio-electric characteristics S/N, Spurious, etc. as well as full electromagnetic compatibility with other equipment.





DIGITAL-IN

Features

Input card for the acquisition of Analogue and Digital Audio Signals with automatic changeover.

A simple way to use digital audio signals on PTXLCD exciters.

Support of S/PDIF, AES/EBU (32 to 96 kHz sampling frequency) and EIAJ CP340/1201 data format.

DIGITAL-IN / DSP

Features

Input card for the acquisition of Analogue and Digital Audio Signals with built-in digital stereo encoder and digital RDS Encoder.

All in one! The professional integration of digital MPX and digital RDS.

Generates the stereo composite MPX signal directly generated in digital form.

Support of S/PDIF, AES/EBU (32 to 96 kHz sampling frequency) and EIAJ CP340/1201 data format.

High performance DSP digital stereo coder, high fidelity Stereo signal, stereo separation > 65 dB S/N ratio > 80 dB.

DSP based integrated RDS Coder fully compliant with CEN-ELEC 500067 and many other features.

DIGITAL-IN / DSP / SFN

Features

Input card for the acquisition of Analogue and Digital Audio Signals with built-in digital stereo encoder, digital RDS Encoder and SFN capability.

Advanced digital features: fully integrated SFN capability.

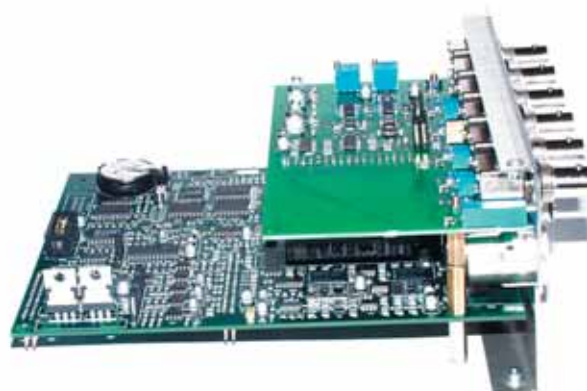
Stereo composite MPX signal directly generated in digital form.

Support of S/PDIF, AES/EBU (32 to 96 kHz sampling frequency) and EIAJ CP340/1201 data format.

High performance DSP digital stereo coder high fidelity Stereo signal, stereo separation > 65 dB S/N ratio > 80 dB.

DSP based integrated RDS Coder fully compliant with CEN-ELEC 500067 and many other features.

Supports all the functions needed for SFN Applications: Stereocoder synchronisation and delay setting for MPX and AF Inputs.



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Parameters	Conditions	U.M.
GENERALS		
Frequency range	OIRT (66 - 74 MHz) and JPN (76-90 MHz) on request	MHz
Frequency programmability		
Frequency stability	WT from -10°C to 50°C	ppm
Rated output power	Continuously variable by software from 0 to maximum	W
Modulation type		
Modulation capability		kHz
Operational Mode		
Physical Dimensions	Front panel width	mm
	Front panel height	HE
	Overall depth	mm
Ambient working temperature	Without condensing	°C
Pre-emphasis mode		mS
Spurious & harmonic suppression		dBc
Asynchronous AM S/N ratio	Referred to 100% AM, with no de-emphasis	dB
Synchronous AM S/N ratio	Referred to 100% AM, FM deviation 75 kHz by 400Hz sine, without de-emphasis	dB
MONO OPERATION		
S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 mS de-emphasis	dB
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 mS de-emphasis	dB
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 mS de-emphasis	dB
Frequency Response	30Hz ÷ 15kHz	dB
Total Harmonic Distortion	THD+N 30Hz ÷ 15kHz	%
Intermodulation Distortion	Measured with a 1 KHz and 1.3 KHz tones, 1:1ratio, at FM 75 kHz	%
Transient intermodulation distortion	Measured with a 3.18 kHz square wave and a 15 kHz sine wave at 75 kHz FM	%
MPX OPERATION		
Composite S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - no LPF, 50 mS de-emphasis	dB
Frequency Response	30Hz ÷ 53kHz	dB
	53kHz ÷ 100kHz	dB
Total Harmonic Distortion	THD+N 30Hz ÷ 53kHz	%
	THD+N 53kHz ÷ 100kHz	%
Intermodulation distortion	Measured with a 1 KHz and 1.3 KHz tones, 1:1, modulation at FM 75 kHz	%
Transient intermodulation distortion	Measured with a 3.18 kHz square wave and a 15 kHz sine wave at 75 kHz FM	%
Stereo separation	30Hz ÷ 53kHz	dB
STEREO OPERATION		
Stereo S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 mS de-emphasis, L & R demodulated	dB
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 mS de-emphasis, L & R demodulated	dB
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 mS de-emphasis, L & R demodulated	dB
Frequency Response	30Hz ÷ 15kHz	dB
Total Harmonic Distortion	THD+N 30Hz ÷ 15kHz	%
Intermodulation distortion	Measured with 1 KHz and 1.3 KHz tones, 1:1 ratio, modulation at FM 75 kHz	%
Transient intermodulation distortion	Measured with a 3.18 kHz square wave and a 15 kHz sine wave at 75 kHz FM	%
Stereo separation		dB
SCA OPERATION		
Frequency response	40kHz ÷ 100kHz	dB
Crosstalk to main or to stereo channel	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0mS de-emphasis, with 67 kHz tone on SCA input @ 7,5kHz FM deviation	dB
	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0mS de-emphasis, with 92 kHz tone on SCA input @ 7,5kHz FM deviation	dB
AUDIO INPUTS		
Mono/Left	Connector	
	Type	
	Impedance (selectable by software)	Ohm
	Input Level, Adjustment Range	dBu
MPX balanced/Right	Connector	
	Type	
	Impedance (selectable by software)	Ohm
	Input Level, Adjustment Range	dBu
MPX unbalanced	Connector	
	Type	
	Impedance (selectable by internal jumper)	Ohm
	Input Level, Adjustment Range	dBu
SCA / RDS	Connector	
	Type	
	Impedance	Ohm
	Input Level, Adjustment Range	dBu

These are general specifications. They show typical values and are subject to change without notice.

CE 99/5/CE Rev.: 02/2005

Technical specifications PTX-LCD

PTX30-LCD	PTX50-LCD	PTX60-LCD	PTX100-LCD
Value	Value	Value	Value
87.5 ÷ 108	87.5 ÷ 108	87.5 ÷ 108	87.5 ÷ 108
From software, with 10 kHz steps	From software, with 10 kHz steps	From software, with 10 kHz steps	From software, with 10 kHz steps
±1	±1	±1	±1
30	50	60	100
Direct carrier frequency modulation	Direct carrier frequency modulation	Direct carrier frequency modulation	Direct carrier frequency modulation
150 Stereo, 200 Mono/MPX	150 Stereo, 200 Mono/MPX	150 Stereo, 200 Mono/MPX	150 Stereo, 200 Mono/MPX
Mono, Stereo, Multiplex	Mono, Stereo, Multiplex	Mono, Stereo, Multiplex	Mono, Stereo, Multiplex
483	483	483	483
2	2	2	2
400	400	400	400
0 to + 50 (operational -10)	0 to + 50 (operational -10)	0 to + 50 (operational -10)	0 to + 50 (operational -10)
0, 25, 50 (CCIR), 75 (FCC)	0, 25, 50 (CCIR), 75 (FCC)	0, 25, 50 (CCIR), 75 (FCC)	0, 25, 50 (CCIR), 75 (FCC)
<75 (80 typical)	<75 (80 typical)	<75 (80 typical)	<75 (80 typical)
≥ 70	≥ 70	≥ 70	≥ 70
≥ 50	≥ 50	≥ 50	≥ 50
> 85 (typical 87)	> 83 (typical 85)	> 83 (typical 85)	> 80 (typical 84)
>75	>73	>73	>73
>70	>69	>69	>68
better than ± 0.5 dB (typical ± 0.2)	better than ± 0.5 dB (typical ± 0.2)	better than ± 0.5 dB (typical ± 0.2)	better than ± 0.5 dB (typical ± 0.2)
< 0.05 (Typical 0.03%)	< 0.05 (Typical 0.03%)	< 0.05 (Typical 0.03%)	< 0.05 (Typical 0.03%)
< 0.02	< 0.02	< 0.02	< 0.02
< 0.1 (typical 0.05)	< 0.1 (typical 0.05)	< 0.1 (typical 0.05)	< 0.1 (typical 0.05)
> 85 (typical 87)	> 83 (typical 85)	> 83 (typical 85)	> 80 (typical 84)
± 0.2	± 0.2	± 0.2	± 0.2
± 0.5	± 0.5	± 0.5	± 0.5
< 0.05	< 0.05	< 0.05	< 0.05
< 0.1	< 0.1	< 0.1	< 0.1
< 0.05	< 0.05	< 0.05	< 0.05
< 0.1 (typical 0.05)	< 0.1 (typical 0.05)	< 0.1 (typical 0.05)	< 0.1 (typical 0.05)
> 50 dB (typical 60)	> 50 dB (typical 60)	> 50 dB (typical 60)	> 50 dB (typical 60)
> 80 (Typical 82)	> 80 (Typical 82)	> 80 (Typical 82)	> 80 (Typical 82)
> 68 dB	> 69 dB	> 69 dB	> 68 dB
> 67 dB	> 67 dB	> 67 dB	> 67 dB
± 0.5	± 0.5	± 0.5	± 0.5
< 0.05	< 0.05	< 0.05	< 0.05
≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
< 0.1 (typical 0.05)	< 0.1 (typical 0.05)	< 0.1 (typical 0.05)	< 0.1 (typical 0.05)
> 50 (typical 60)	> 50 (typical 60)	> 50 (typical 60)	> 50 (typical 60)
± 0.5	± 0.5	± 0.5	± 0.5
> 75 (typical 79 dB)	> 75 (typical 79)	> 75 (typical 79)	> 75 dB (typical 79)
> 80 (typical 81 dB)	> 80 (typical 81)	> 80 (typical 81)	> 80 dB (typical 81)
XLR F	XLR F	XLR F	XLR F
balanced or externally unbalanced	balanced or externally unbalanced	balanced or externally unbalanced	balanced or externally unbalanced
10 k or 600	10 k or 600	10 k or 600	10 k or 600
-13 to +14	-13 to +14	-13 to +14	-13 to +14
XLR F	XLR F	XLR F	XLR F
balanced or externally unbalanced	balanced or externally unbalanced	balanced or externally unbalanced	balanced or externally unbalanced
10 k or 600	10 k or 600	10 k or 600	10 k or 600
-13 to +14	-13 to +14	-13 to +14	-13 to +14
BNC	BNC	BNC	BNC
unbalanced	unbalanced	unbalanced	unbalanced
10 k or 50	10 k or 50	10 k or 50	10 k or 50
-13 to +14	-13 to +14	-13 to +14	-13 to +14
3 x BNC	3 x BNC	3 x BNC	3 x BNC
unbalanced	unbalanced	unbalanced	unbalanced
10 k	10 k	10 k	10 k
-3 to +15	-3 to +15	-3 to +15	-3 to +15

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CE 99/5/CE Rev.: 02/2005

Parameters	Conditions	U.M.
OUTPUTS		
RF Output	Connector	
	Impedance	Ohm
RF Monitor	Connector / Impedance	/ Ohm
	Output Level (referred to the output)	dB
Pilot output	Connector / Impedance	/ Ohm
	Output Level	Vpp
MPX Monitor	Connector / Impedance	/ Ohm
	Output Level	dBu
POWER REQUIREMENTS		
AC Power Input	AC Supply Voltage	VAC
	AC Apparent Power Consumption	VA
	Active Power Consumption	W
	Power Factor	
DC Power Input	Connector	
	DC Supply Voltage	VDC
	DC Current	ADC
MECHANICAL DIMENSIONS		
Phisical Dimensions	Front panel width	mm
	Front panel height	mm
	Overall depth	mm
	Chassis depth	mm
Weigh		kg
TELEMETRY-TELECONTROL SW		
Telecon		
VARIOUS		
Cooling		
Acoustic Noise		dBA
STANDARD COMPLIANCE		
Safety		
EMC		
Spectrum Optimization		
AUXILIARY CONNECTIONS		
Interlock / RS232 Serial Interface / Remote Interface		
OPTIONS		
Input 10 MHz / 24V backup input / Telemetry interface / DIGITAL-IN / DIGITAL-IN/ DSP / DIGITAL-IN / DSP /SFN		

These are general specifications. They show typical values and are subject to change without notice.

CE 99/5/CE Rev.: 02/2005

Technical specifications PTX-LCD

PTX30-LCD	PTX50-LCD	PTX60-LCD	PTX100-LCD
Value	Value	Value	Value
N type	N type	N type	N type
50	50	50	50
BNC / 50	BNC / 50	BNC / 50	BNC / 50
approx. -30	approx. -30	approx. -30	approx. -30
BNC / 50	BNC	BNC	BNC
1	1	1	1
BNC / > 600	BNC / > 600	BNC / > 600	BNC / > 600
0	0	0	0
115 - 125 - 230 - 250	115 - 125 - 230 - 250	115 - 125 - 230 - 250	115 - 125 - 230 - 250
135	220	220	350
95	150	150	250
0,7	0,68	0,68	0,71
IEC Standard	IEC Standard	IEC Standard	IEC Standard
24	24	24	24
3,5	5	6	6
483 (19")	483 (19")	483 (19")	483 (19")
88 (3 1/2")	88 (3 1/2")	88 (3 1/2")	88 (3 1/2")
400	400	400	400
389	389	389	389
About 10	About 13	About 15	About 15
Yes	Yes	Yes	Yes
Forced, with internal fan	Forced, with internal fan	Forced, with internal fan	Forced, with internal fan
< 56	< 56	< 56	< 56
EN60215:1989	EN60215:1989	EN60215:1989	EN60215:1989
EN 301 489-11 V1,2,1	EN 301 489-11 V1,2,1	EN 301 489-11 V1,2,1	EN 301 489-11 V1,2,1
ETS 300 447	ETS 300 447	ETS 300 447	ETS 300 447
Standard for all versions			
Available for all versions			

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CE 99/5/CE Rev.: 02/2005



RVR Elettronica S.p.A.
 Via del Fonditore, 2/2c
 Zona Industriale Roveri • 40138 Bologna • Italy
 Phone: +39 051 6010506 • Fax: +39 051 6011104
 e-mail: info@rvr.it • web: http://www.rvr.it

