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**TRANSMITTER
THESLA TX / EX / SLIM SERIES**

USER MANUAL
VOLUME 1



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THESLA TX / EX / SLIM SERIES - User Manual
Version 1.0

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Notification of intended purpose and limitations of product use

This product is a FM transmitter intended for FM audio broadcasting. It utilizes operating frequencies not harmonised in the intended countries of use. The user must obtain a license before using the product in intended country of use. Ensure respective country licensing requirements are complied with. Limitations of use can apply in respect of operating frequency, transmitter power and/or channel spacing.

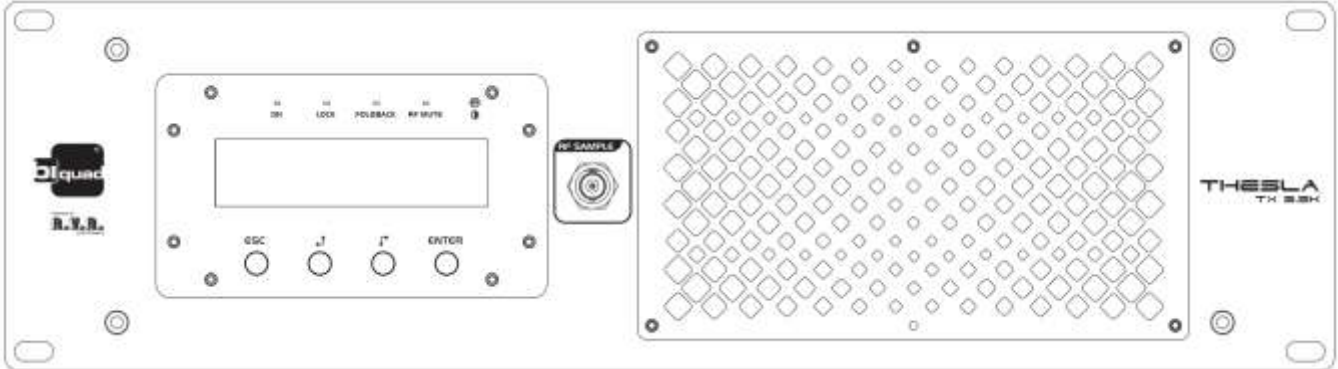
Declaration of Conformity

Hereby, Biquad Broadcast, declares that this FM transmitter is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

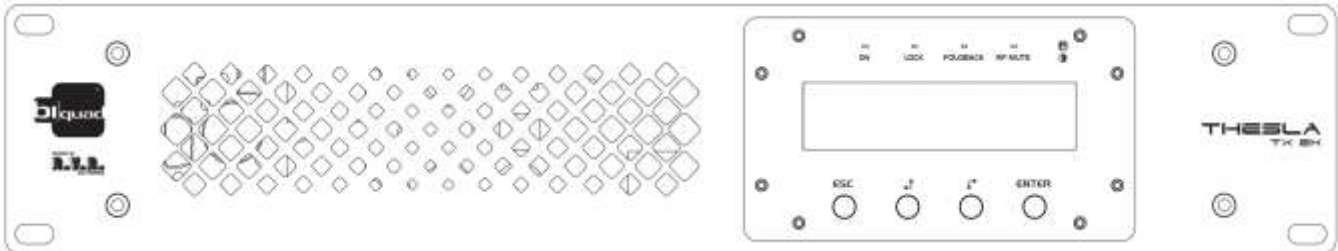


OVERVIEW OF THESLA FM TRANSMITTER FAMILY:

THESLA TX3.5K – FM TRANSMITTER, 10W - 3500W MAX POWER, 87-108MHz FREQUENCY OPERATION
MPX / ANALOG (L/R) / DIGITAL AES INPUT / STEREO CODER - DEFAULT CONFIGURATION

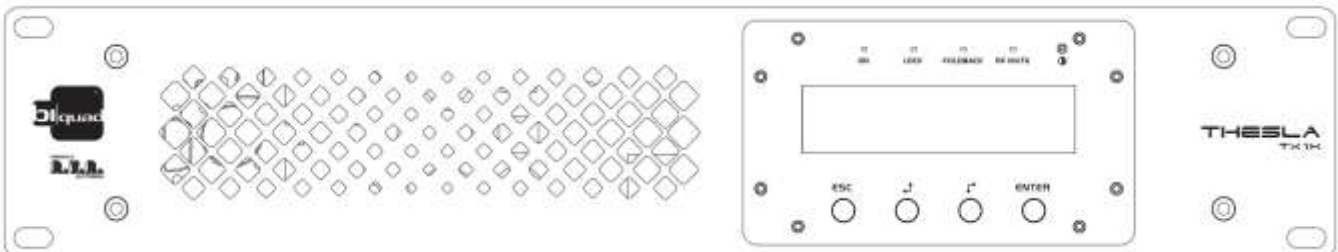


THESLA TX2K - FM TRANSMITTER, 10W - 2000W MAX POWER, 87-108MHz FREQUENCY OPERATION
MPX / ANALOG (L/R) / STEREO CODER - DEFAULT CONFIGURATION



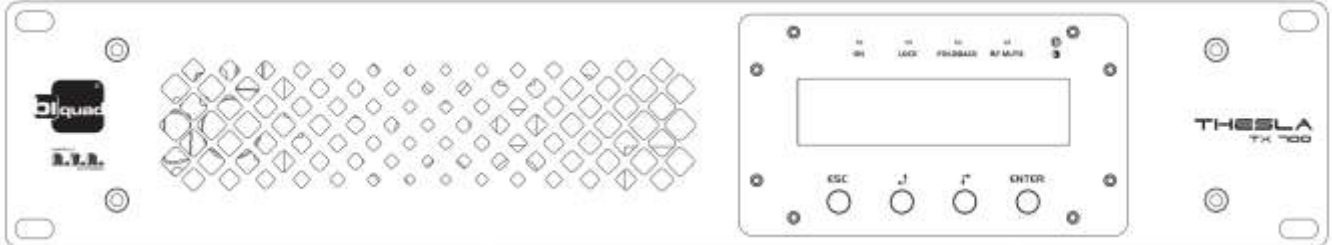
THESLA TX1K - FM TRANSMITTER, 10W - 1000W MAX POWER, 87-108MHz FREQUENCY OPERATION
MPX / ANALOG (L/R) / STEREO CODER - DEFAULT CONFIGURATION

THESLA TX1KD - FM TRANSMITTER, 10W - 1000W MAX POWER, 87-108MHz FREQUENCY OPERATION
MPX / ANALOG (L/R) / DIGITAL AES INPUT / STEREO CODER - DEFAULT CONFIGURATION

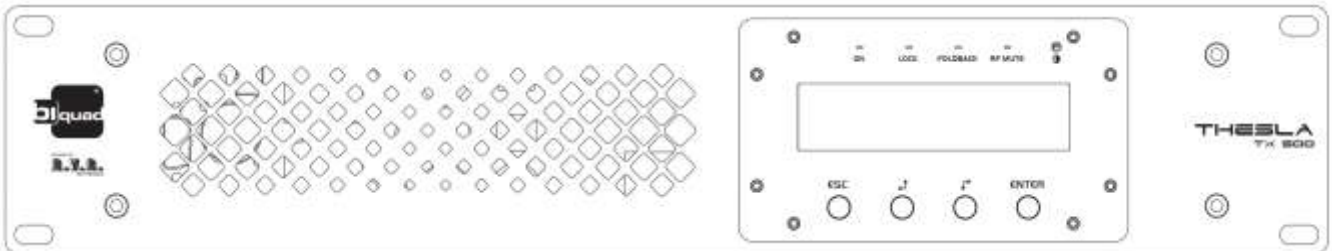


TESLA TX700 - FM TRANSMITTER, 10W - 700W MAX POWER, 87-108MHz FREQUENCY OPERATION
MPX / ANALOG (L/R) / STEREO CODER - DEFAULT CONFIGURATION

TESLA EX700D - FM TRANSMITTER, 10W - 700W MAX POWER, 87-108MHz FREQUENCY OPERATION
MPX / ANALOG (L/R) / DIGITAL AES INPUT / STEREO CODER - DEFAULT CONFIGURATION

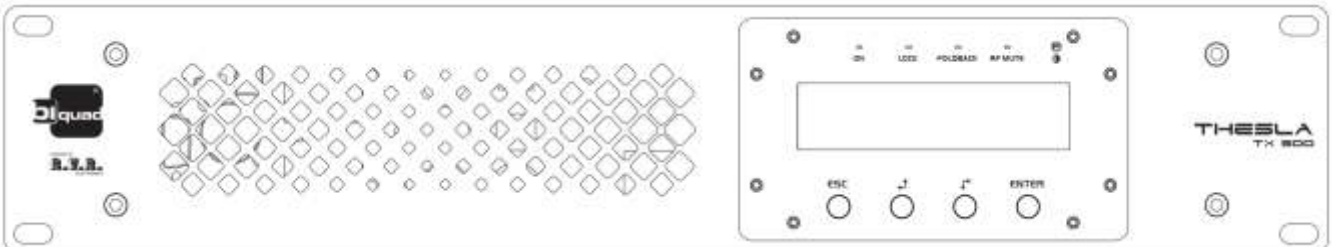


TESLA TX500 - FM TRANSMITTER, 10W - 500W MAX POWER, 87-108MHz FREQUENCY OPERATION
MPX / ANALOG (L/R) / STEREO CODER - DEFAULT CONFIGURATION



TESLA TX300 - FM TRANSMITTER, 10W - 300W MAX POWER, 87-108MHz FREQUENCY OPERATION
MPX / ANALOG (L/R) / STEREO CODER - DEFAULT CONFIGURATION

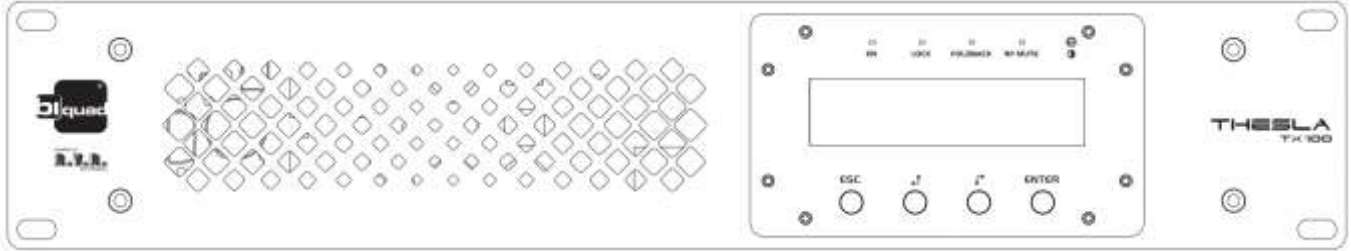
TESLA EX300D - FM TRANSMITTER, 10W - 300W MAX POWER, 87-108MHz FREQUENCY OPERATION
MPX / ANALOG (L/R) / DIGITAL AES INPUT / STEREO CODER - DEFAULT CONFIGURATION



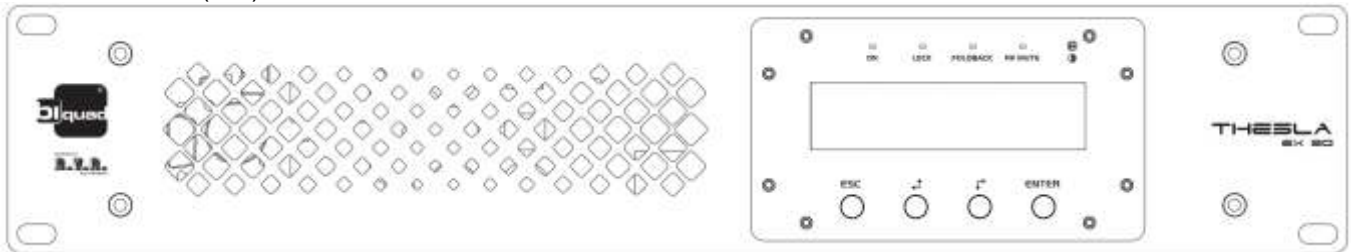
TESLA TX100 - FM TRANSMITTER, 5W - 100W MAX POWER, 87-108MHz FREQUENCY OPERATION
MPX - DEFAULT CONFIGURATION

TESLA EX100 - FM TRANSMITTER, 5W - 100W MAX POWER, 87-108MHz FREQUENCY OPERATION
MPX / ANALOG (L/R) / STEREO CODER - DEFAULT CONFIGURATION

TESLA EX100D - FM TRANSMITTER, 5W - 100W MAX POWER, 87-108MHz FREQUENCY OPERATION
MPX / ANALOG (L/R) / DIGITAL AES INPUT / STEREO CODER - DEFAULT CONFIGURATION



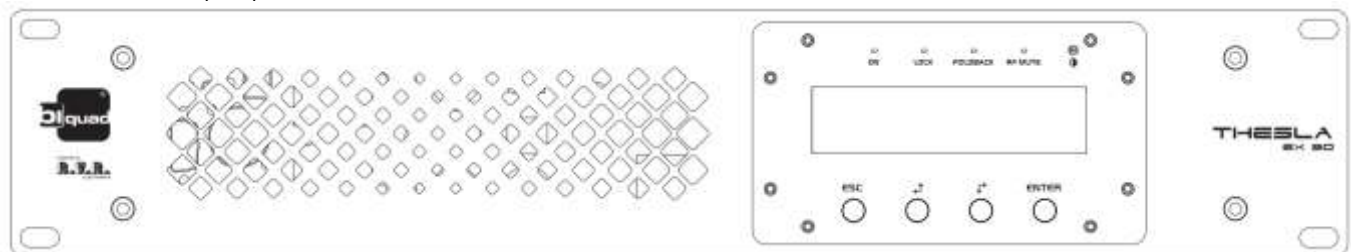
TESLA SLIM50 - FM TRANSMITTER, 1W - 50W MAX POWER, 87-108MHz FREQUENCY OPERATION
MPX / ANALOG (L/R) / DIGITAL AES INPUT / STEREO CODER - DEFAULT CONFIGURATION



TESLA SLIM30 - FM TRANSMITTER, 1W - 30W MAX POWER, 87-108MHz FREQUENCY OPERATION
MPX - DEFAULT CONFIGURATION

TESLA EX30 - FM TRANSMITTER, 1W - 30W MAX POWER, 87-108MHz FREQUENCY OPERATION
MPX / ANALOG (L/R) / STEREO CODER - DEFAULT CONFIGURATION

TESLA EX30D - FM TRANSMITTER, 1W - 50W MAX POWER, 87-108MHz FREQUENCY OPERATION
MPX / ANALOG (L/R) / DIGITAL AES INPUT / STEREO CODER - DEFAULT CONFIGURATION



Technical Specifications

THESLA SLIM 30

1/2

Aggiornato il 21/08/2017	Legenda: Verde = Green Line Rosso = Obsoleto Giallo = Normali		THESLA SLIM 30	
Parameters		U.M.	Value	Notes
GENERALS				
Frequency range		MHz	87.5 + 108	
Rated output power		W	30	Continuously variable by software from 0 to maximum
Modulation type			Direct carrier frequency	
Operational Mode			Mono, Stereo, Multiplex	
Ambient working temperature		°C	-5 to + 50	
Ambient Working Humidity		%	85 (Without condensing)	
Frequency programmability			From software, with 10 kHz steps	
Frequency stability	WT from -10°C to 50°C	ppm	±1	
Modulation capability		kHz	150 Stereo, 180 Mono/MPX	Meets or exceeds all FCC and CCIR rules
Pre-emphasis mode		µS	0, 50 (CCIR), 75 (FCC)	selectable by rear panel dip switches
Spurious & harmonic suppression		dBc	<75 (80 typical)	Meets or exceeds all FCC and CCIR rules
Asynchronous AM S/N ratio	Referred to 100% AM, with no de-emphasis	dB	≥ 65 (typical 70)	
Synchronous AM S/N ratio	Referred to 100% AM, FM deviation 75 kHz by 400Hz sine, without de-emphasis	dB	≥ 50 (typical 60)	
MONO OPERATION				
S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis	dB	> 80 (typical 85)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>73	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>68	
Frequency Response	30Hz + 15kHz	dB	better than ± 0.5 dB (typical ± 0.2)	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.1 (Typical 0.07%)	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
MPX OPERATION				
Composite S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - no LPF, 50 µS de-emphasis	dB	> 80 (typical 85)	
Frequency Response	30Hz + 53kHz	dB	± 0.2	
	53kHz + 100kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 53kHz	%	< 0.1	
	THD+N 53kHz + 100kHz	%	< 0.15	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.05	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation	30Hz + 53kHz	dB	> 50 dB (typical 60)	
STEREO OPERATION				
Stereo S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis, L & R demodulated	dB	> 75 (78 typical)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 65 dB	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 58 dB	
Frequency Response	30Hz + 15kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.05	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	≤ 0.03	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation		dB	> 50 (typical 55)	
Main / Sub Ratio	30Hz + 15kHz	dB	> 40 (typical 45)	

Technical Specifications

THE SLA SLIM 30

2/2

SCA OPERATION				
Frequency response	40kHz - 100kHz	dB	± 0.5	
Crosstalk to main or to stereo channel	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 67 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 75 (typical 78)	
	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 92 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 78 (typical 80)	
POWER REQUIREMENTS				
AC Power Input	AC Supply Voltage	VAC	80 + 260	(*) Internal switch (**) monophase (***) Threephases Y
	AC Apparent Power Consumption	VA	120	
	Active Power Consumption	W	70	
	Power Factor		0,5	
	Overall Efficiency	%		
DC Power Input	Connector		VDE IEC Standard	
	DC Supply Voltage	VDC	24	
	DC Current	ADC	3,5 (*)	(**)max 25W (***) max 140W
MECHANICAL DIMENSIONS				
Physical Dimensions	Front panel width	mm	483 (19")	19" EIA rack
	Front panel height	mm	44 (3 1/2") 1HE	convertire in pollici
	Overall depth	mm	394	
	Chassis depth	mm	372	escluso il pannello, esclusi i connettori, convertire in pollici
Weight	kg	about 5,5		
VARIOUS				
Cooling			Forced, with internal fan	
Acoustic Noise		dBa	< 58	
AUDIO INPUTS				
Left / Mono	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	Selectable by rear panel dip switches
	Input Level / Adjust	dBu	-13 to +13	continuously variable
Right	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	Selectable by rear panel dip switches
	Input Level	dBu	-13 to +13	continuously variable
MPX	Connector		BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k or 50	Selectable by rear panel dip switches
	Input Level / Adjust	dBu	*-13 to +13	for 75 KHz FM, externally adjustable
SCA/RDS	Connector		2 x BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k	
	Input Level / Adjust	dBu	*-8 to +13	for 7,5 KHz FM, externally adjustable
AES/EBU (optional)	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	110	
	Input Level / Adjust	dBfs	0 to -10	for 7,5 KHz FM, externally adjustable
TOS/Link (optional)	Connector			
	Type			
OUTPUTS				
RF Output	Connector		N type	
	Impedance	Ohm	50	
RF Monitor	Connector		BNC	
	Impedance	Ohm	50	
	Output Level	dB	approx. -30	Referred to the RF output
Pilot output	Connector		BNC	For RDS and isofrequency synchronizing purpose
	Impedance	Ohm	>5 k	
	Output Level	Vpp	1	
AUXILIARY CONNECTIONS				
Interlock	Connector		BNC	Input and output for remote power inhibition (short is RF off)
Service	Connector		DB9 F	Factory reserved for firmware program
Remote Interface	Connector		DB15F	IIC + 5 analog / digital inputs, 5 analog / digital outputs
FUSES				
On Mains			1 External fuse F 3,15 T - 5x20 mm	
On services				
On PA Supply				
On Driver Supply				
HUMAN INTERFACES				
Input device			Mechanical encoder with pushbutton	
Display			Alphanumerical LCD - 2 x 16	
TELEMETRY / TELECONTROL				
Remote connector inputs	Analogical level	10	FWD fold	For P.A. A.G.C. purpose, min 0,5 Vcc
		2	REF fold	For P.A. A.G.C. purpose, min 0,5 Vcc
	Pulse to GND	14	RF ON	
		15	RF OFF	
Close to GND	1	Interlock	for remote power inhibition (short is RF off)	
Remote connector outputs	Analogical level	6	FWD	max 5 Vcc
		13	REF	max 5 Vcc
		5	VPA	max 5 Vcc
		12	IPA	max 5 Vcc
		7	Power Good	open collector

Technical Specifications

THESLA SLIM 50

1/2

Aggiornato il 21/08/2017	Legenda: Verde = Green Line Rosso = Obsoleto Giallo = Normali		THESLA SLIM 50	
Parameters		U.M.	Value	Notes
GENERALS				
Frequency range		MHz	87.5 ± 108	
Rated output power		W	50	Continuously variable by software from 0 to maximum
Modulation type			Direct carrier frequency	
Operational Mode			Mono, Stereo, Multiplex	
Ambient working temperature		°C	-5 to +50	
Ambient Working Humidity		%	85 (Without condensing)	
Frequency programmability			From software, with 10 kHz steps	
Frequency stability	WT from -10°C to 50°C	ppm	±1	
Modulation capability		kHz	150 Stereo, 180 Mono/MPX	Meets or exceeds all FCC and CCIR rules
Pre-emphasis mode		µS	0, 50 (CCIR), 75 (FCC)	selectable by rear panel dip switches
Spurious & harmonic suppression		dBc	<75 (80 typical)	Meets or exceeds all FCC and CCIR rules
Asynchronous AMS/N ratio	Referred to 100% AM, with no de-emphasis	dB	≥ 65 (typical 70)	
Synchronous AMS/N ratio	Referred to 100% AM, FM deviation 75 kHz by 400Hz sine, without de-emphasis	dB	≥ 50 (typical 60)	
MONO OPERATION				
SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis	dB	> 80 (typical 85)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	> 73	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	> 68	
Frequency Response	30Hz ± 15kHz	dB	better than ± 0.5 dB (typical ± 0.2)	
Total Harmonic Distortion	THD+N 30Hz ± 15kHz	%	< 0.1 (Typical 0.07%)	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1 ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
MPX OPERATION				
Composite SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - no LPF, 50 µS de-emphasis	dB	> 80 (typical 85)	
Frequency Response	30Hz ± 53kHz	dB	± 0.2	
	53kHz ± 100kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz ± 53kHz	%	< 0.1	
	THD+N 53kHz ± 100kHz	%	< 0.15	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1 ratio, @ 75 kHz FM	%	< 0.05	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation	30Hz ± 53kHz	dB	> 50 dB (typical 60)	
STEREO OPERATION				
Stereo SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis, L & R demodulated	dB	> 75 (78 typical)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 65 dB	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 58 dB	
Frequency Response	30Hz ± 15kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz ± 15kHz	%	< 0.05	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1 ratio, @ 75 kHz FM	%	≤ 0.03	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation		dB	> 50 (typical 55)	
Main / Sub Ratio	30Hz ± 15kHz	dB	> 40 (typical 45)	

Technical Specifications

THE SLA SLIM 50

2/2

SCA OPERATION				
Frequency response	40kHz - 100kHz	dB	± 0.5	
Crosstalk to main or to stereo channel	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 67 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 75 (typical 78)	
	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 92 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 78 (typical 80)	
POWER REQUIREMENTS				
AC Power Input	AC Supply Voltage	VAC	80 ± 260	(*) Internal switch (**) monophase (***) Three-phases Y
	AC Apparent Power Consumption	VA	200	
	Active Power Consumption	W	100	
	Power Factor		0.5	
	Overall Efficiency	%		
DC Power Input	Connector		VDE IEC Standard	
	DC Supply Voltage	VDC	***	
	DC Current	ADC	***	(*)max 25W (**) max 140W
MECHANICAL DIMENSIONS				
Physical Dimensions	Front panel width	mm	483 (19")	19" EIA rack
	Front panel height	mm	44 (3 1/2") 1HE	convertire in pollici
	Overall depth	mm	394	
	Chassis depth	mm	372	escluso il pannello, esclusi i connettori, convertire in pollici
Weight	kg	about 5.5		
VARIOUS				
Cooling			Forced, with internal fan	
Acoustic Noise		dBa	< 58	
AUDIO INPUTS				
Left / Mono	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	
	Input Level / Adjust	dBu	-13 to +13 continuously variable	
Right	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	
	Input Level	dBu	-13 to +13 continuously variable	
MPX	Connector		BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k or 50	
	Input Level / Adjust	dBu	*-13 to +13 for 75 KHz FM, externally adjustable	
SCARDS	Connector		2 x BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k	
	Input Level / Adjust	dBu	*-8 to +13 for 7.5 KHz FM, externally adjustable	
AES/EBU (optional)	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	110	
	Input Level / Adjust	dBfs	0 to -10 for 7.5 KHz FM, externally adjustable	
TOS/Link (optional)	Connector			
	Type			
OUTPUTS				
RF Output	Connector		N type	
	Impedance	Ohm	50	
RF Monitor	Connector		BNC	
	Impedance	Ohm	50	
	Output Level	dB	approx -30 Referred to the RF output	
Pilot output	Connector		BNC	
	Impedance	Ohm	>5 k	
	Output Level	Vpp	1 For RDS and isofrequency synchronizing purpose	
AUXILIARY CONNECTIONS				
Interlock	Connector		BNC	Input and output for remote power inhibition (short is RF off)
Service	Connector		DB9 F	Factory reserved for firmware program
Remote Interface	Connector		DB15F	IIC + 5 analog / digital inputs, 5 analog / digital outputs
FUSES				
On Mains			1 External fuse F 6,3 T - 5x20 mm	
On services				
On PA Supply				
On Driver Supply				
HUMAN INTERFACES				
Input device			Mechanical encoder with pushbutton	
Display			Alphanumerical LCD - 2 x 16	
TELEMETRY / TELECONTROL				
Remote connector inputs	Analogical level	10	FWD fold	For P.A. A.G.C. purpose, min 0.5 Vcc
		2	REF fold	For P.A. A.G.C. purpose, min 0.5 Vcc
	Pulse to GND	14	RF ON	
		15	RF OFF	
Remote connector outputs	Close to GND	1	Interlock	for remote power inhibition (short is RF off)
	Analogical level	6	FWD	max 5 Vcc
		13	REF	max 5 Vcc
		5	VPA	max 5 Vcc
		12	IPA	max 5 Vcc
		Open Collector	7	Power Good

Technical Specifications

THESLA TX100

1/2

Aggiornato il 21/08/2017	Legenda: Verde = Green Line Rosso = Obsoleto Giallo = Normali		THESLA TX100	
Parameters		U.M.	Value	Notes
GENERALS				
Frequency range		MHz	87.5 + 108	
Rated output power		W	100	Continuously variable by software from 0 to maximum
Modulation type			Direct carrier frequency	
Operational Mode			Mono, Stereo, Multiplex	
Ambient working temperature		°C	-5 to +50	
Ambient Working Humidity		%	85 (Without condensing)	
Frequency programmability			From software, with 10 kHz steps	
Frequency stability	WT from -10°C to 50°C	ppm	±1	
Modulation capability		kHz	150 Stereo, 180 Mono/MPX	Meets or exceeds all FCC and CCIR rules
Pre-emphasis mode		µS	0, 50 (CCIR), 75 (FCC)	selectable by rear panel dip switches
Spurious & harmonic suppression		dBc	<75 (80 typical)	Meets or exceeds all FCC and CCIR rules
Asynchronous AMS/N ratio	Referred to 100% AM with no de-emphasis	dB	≥ 65 (typical 70)	
Synchronous AMS/N ratio	Referred to 100% AM, FM deviation 75 kHz by 400Hz sine, without de-emphasis	dB	≥ 50 (typical 60)	
MONO OPERATION				
SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis	dB	> 80 (typical 85)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>73	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>68	
Frequency Response	30Hz + 15kHz	dB	better than ± 0.5 dB (typical ± 0.2)	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.1 (Typical 0.07%)	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
MPX OPERATION				
Composite SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - no LPF, 50 µS de-emphasis	dB	> 80 (typical 85)	
Frequency Response	30Hz + 53kHz	dB	± 0.2	
	53kHz + 100kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 53kHz	%	< 0.1	
	THD+N 53kHz + 100kHz	%	< 0.15	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.05	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation	30Hz + 53kHz	dB	> 50 dB (typical 60)	
STEREO OPERATION				
Stereo SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis, L & R demodulated	dB	> 75 (78 typical)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 65 dB	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 58 dB	
Frequency Response	30Hz + 15kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.05	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	≤ 0.03	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation		dB	> 50 (typical 55)	
Main / Sub Ratio	30Hz + 15kHz	dB	> 40 (typical 45)	

Technical Specifications

THE SLA TX100

2/2

SCA OPERATION				
Frequency response	40kHz + 100kHz	dB	± 0.5	
Crosstalk to main or to stereo channel	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 67 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 75 (typical 78)	
	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 92 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 78 (typical 80)	
POWER REQUIREMENTS				
AC Power Input	AC Supply Voltage	VAC	115 / 230 ±15% (*)	(*) Internal switch (**) monophas (***) Threephases Y
	AC Apparent Power Consumption	VA	330	
	Active Power Consumption	W	212	
	Power Factor		0,6	
	Overall Efficiency	%		
DC Power Input	Connector		VDE IEC Standard	
	DC Supply Voltage	VDC	28	
	DC Current	ADC	8,2 (**)	(**)max 25W (***) max 140W
MECHANICAL DIMENSIONS				
Physical Dimensions	Front panel width	mm	483 (19")	19" EIA rack
	Front panel height	mm	88 (3 1/2") 2HE	convertire in pollici
	Overall depth	mm	394	
	Chassis depth	mm	372	escluso il pannello, esclusi i connettori, convertire in pollici
Weight		kg	about 8,5	
VARIOUS				
Cooling			Forced, with internal fan	
Acoustic Noise		dBa	< 58	
AUDIO INPUTS				
Left / Mono	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	
	Input Level / Adjust	dBu	-13 to +13 continuously variable	
Right	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	
	Input Level	dBu	-13 to +13 continuously variable	
MPX	Connector		BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k or 50	
	Input Level / Adjust	dBu	*-13 to +13 for 75 KHz FM, externally adjustable	
SCARDS	Connector		2 x BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k	
	Input Level / Adjust	dBu	*-8 to +13 for 7,5 KHz FM, externally adjustable	
AES/EBU (optional)	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	110	
	Input Level / Adjust	dBfs	0 to -10 for 7,5 KHz FM, externally adjustable	
TOS/Link (optional)	Connector		TOS-LINK	
	Type		Optical	
OUTPUTS				
RF Output	Connector		N type	
	Impedance	Ohm	50	
RF Monitor	Connector		BNC	
	Impedance	Ohm	50	
	Output Level	dB	approx. -60 Referred to the RF output	
Pilot output	Connector		BNC	
	Impedance	Ohm	>5 k For RDS and isofrequency synchronizing purpose	
	Output Level	Vpp	1	
AUXILIARY CONNECTIONS				
Interlock	Connector		BNC	Input and output for remote power inhibition (short is RF off)
Service	Connector		DB9 F	Factory reserved for firmware program
Remote Interface	Connector		DB15F	IIC + 5 analog / digital inputs, 5 analog / digital outputs
FUSES				
On Mains			1 External fuse F 6,3 T - 5x20 mm	
On services				
On PA Supply				
On Driver Supply				
HUMAN INTERFACES				
Input device			4 pushbutton	
Display			Alphanumerical LCD - 2 x 16	
TELEMETRY / TELECONTROL				
Remote connector inputs	Analogue level	10	FWD fold	For P.A. A.G.C. purpose, min 0,5 Vcc
		2	REF fold	For P.A. A.G.C. purpose, min 0,5 Vcc
	Pulse to GND	14	RF ON	
		15	RF OFF	
Remote connector outputs	Close to GND	1	Interlock	for remote power inhibition (short is RF off)
	Analogue level	6	FWD	max 5 Vcc
		13	REF	max 5 Vcc
		5	VPA	max 5 Vcc
		12	IPA	max 5 Vcc
Open Collector	7	Power Good	open collector	

Technical Specifications

THESLA TX300

1/2

Aggiornato il 21/08/2017	Legenda: Verde = Green Line Rosso = Obsoleto Giallo = Normali		THESLA TX300	
Parameters		U.M.	Value	Notes
GENERALS				
Frequency range		MHz	87.5 + 108	
Rated output power		W	300	Continuously variable by software from 0 to maximum
Modulation type			Direct carrier frequency	
Operational Mode			Mono, Stereo, Multiplex	
Ambient working temperature		°C	-5 to +50	
Ambient Working Humidity		%	85 (Without condensing)	
Frequency programmability			From software, with 10 kHz steps	
Frequency stability	WT from -10°C to 50°C	ppm	±1	
Modulation capability		kHz	150 Stereo, 180 Mono/MPX	Meets or exceeds all FCC and CCIR rules
Pre-emphasis mode		µS	0, 50 (CCIR), 75 (FCC)	selectable by rear panel dip switches
Spurious & harmonic suppression		dBc	<75 (80 typical)	Meets or exceeds all FCC and CCIR rules
Asynchronous AMS/N ratio	Referred to 100% AM with no de-emphasis	dB	≥ 65 (typical 70)	
Synchronous AMS/N ratio	Referred to 100% AM, FM deviation 75 kHz by 400Hz sine, without de-emphasis	dB	≥ 50 (typical 60)	
MONO OPERATION				
SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis	dB	> 80 (typical 85)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>73	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>68	
Frequency Response	30Hz + 15kHz	dB	better than ± 0.5 dB (typical ± 0.2)	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.1 (Typical 0.07%)	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
MPX OPERATION				
Composite SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - no LPF, 50 µS de-emphasis	dB	> 80 (typical 85)	
Frequency Response	30Hz + 53kHz	dB	± 0.2	
	53kHz + 100kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 53kHz	%	< 0.1	
	THD+N 53kHz + 100kHz	%	< 0.15	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.05	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation	30Hz + 53kHz	dB	> 50 dB (typical 60)	
STEREO OPERATION				
Stereo SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis, L & R demodulated	dB	> 75 (78 typical)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 65 dB	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 58 dB	
Frequency Response	30Hz + 15kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.05	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	≤ 0.03	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation		dB	> 50 (typical 55)	
Main / Sub Ratio	30Hz + 15kHz	dB	> 40 (typical 45)	

Technical Specifications

THE SLA TX300

2/2

SCA OPERATION				
Frequency response	40kHz + 100kHz	dB	± 0.5	
Crosstalk to main or to stereo channel	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 67 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 75 (typical 78)	
	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 92 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 78 (typical 80)	
POWER REQUIREMENTS				
AC Power Input	AC Supply Voltage	VAC	80 ÷ 260	(*) Internal switch (**) monophase (***) Three phases Y
	AC Apparent Power Consumption	VA	560	
	Active Power Consumption	W	520	
	Power Factor		0,98	
	Overall Efficiency	%		
DC Power Input	Connector		VDE IEC Standard	
	DC Supply Voltage	VDC		
	DC Current	ADC		(**)max 25W (***) max 140W
MECHANICAL DIMENSIONS				
Physical Dimensions	Front panel width	mm	483 (19")	19" EIA rack
	Front panel height	mm	88 (3 1/2") 2HE	convertire in pollici
	Overall depth	mm	394	
	Chassis depth	mm	372	escluso il pannello, esclusi i connettori, convertire in pollici
Weight		kg	about 9	
VARIOUS				
Cooling			Forced, with internal fan	
Acoustic Noise		dBa	<75	
AUDIO INPUTS				
Left / Mono	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	
	Input Level / Adjust	dBu	-13 to +13 Selectable by rear panel dip switches continuously variable	
Right	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	
	Input Level	dBu	-13 to +13 Selectable by rear panel dip switches continuously variable	
MPX	Connector		BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k or 50	
	Input Level / Adjust	dBu	*-13 to +13 Selectable by rear panel dip switches for 75 KHz FM, externally adjustable	
SCA/RDS	Connector		2 x BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k	
	Input Level / Adjust	dBu	*-8 to +13 for 7,5 KHz FM, externally adjustable	
AES/EBU (optional)	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	110	
	Input Level / Adjust	dBfs	0 to -10 for 7,5 KHz FM, externally adjustable	
TOS/Link (optional)	Connector		TOS-LINK	
	Type		Optical	
OUTPUTS				
RF Output	Connector		N type	
	Impedance	Ohm	50	
RF Monitor	Connector		BNC	
	Impedance	Ohm	50	
	Output Level	dB	approx. -60 Referred to the RF output	
Pilot output	Connector		BNC	
	Impedance	Ohm	>5 k For RDS and isofrequency synchronizing purpose	
	Output Level	Vpp	1	
AUXILIARY CONNECTIONS				
Interlock	Connector		BNC Input and output for remote power inhibition (short is RF off)	
Service	Connector		DB9 F Factory reserved for firmware program	
Remote Interface	Connector		DB15F IIC + 5 analog / digital inputs, 5 analog / digital outputs	
FUSES				
On Mains			1 External fuse F 8L - 5x20 mm	
On services				
On PA Supply				
On Driver Supply				
HUMAN INTERFACES				
Input device			4 pushbutton	
Display			Alphanumerical LCD - 2 x 16	
TELEMETRY / TELECONTROL				
Remote connector inputs	Analogical level	10	FWD fold	For P.A. A.G.C. purpose, min 0,5 Vcc
		2	REF fold	For P.A. A.G.C. purpose, min 0,5 Vcc
	Pulse to GND	14	RF ON	
		15	RF OFF	
	Close to GND	1	Interlock	for remote power inhibition (short is RF off)
Remote connector outputs	Analogical level	6	FWD	max 5 Vcc
		13	REF	max 5 Vcc
		5	VPA	max 5 Vcc
		12	IPA	max 5 Vcc
		Open Collector	7	Power Good

Technical Specifications

THESLA TX500

1/2

Aggiornato il 21/08/2017	Legenda: Verde = Green Line Rosso = Obsoleto Giallo = Normali		THESLA TX500	
Parameters		U.M.	Value	Notes
GENERALS				
Frequency range		MHz	87.5 + 108	
Rated output power		W	500	Continuously variable by software from 0 to maximum
Modulation type			Direct carrier frequency	
Operational Mode			Mono, Stereo, Multiplex	
Ambient working temperature		°C	-5 to +50	
Ambient Working Humidity		%	85 (Without condensing)	
Frequency programmability			From software, with 10 kHz steps	
Frequency stability	WT from -10°C to 50°C	ppm	±1	
Modulation capability		kHz	150 Stereo, 180 Mono/MPX	Meets or exceeds all FCC and CCIR rules
Pre-emphasis mode		µS	0, 50 (CCIR), 75 (FCC)	selectable by rear panel dip switches
Spurious & harmonic suppression		dBc	<75 (80 typical)	Meets or exceeds all FCC and CCIR rules
Asynchronous AMS/N ratio	Referred to 100% AM with no de-emphasis	dB	≥ 65 (typical 70)	
Synchronous AMS/N ratio	Referred to 100% AM, FM deviation 75 kHz by 400Hz sine, without de-emphasis	dB	≥ 50 (typical 60)	
MONO OPERATION				
SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis	dB	> 78 (typical 83)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	> 71	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	> 67	
Frequency Response	30Hz + 15kHz	dB	better than ± 0.5 dB (typical ± 0.2)	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.1 (Typical 0.07%)	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
MPX OPERATION				
Composite SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - no LPF, 50 µS de-emphasis	dB	> 78 (typical 83)	
Frequency Response	30Hz + 53kHz	dB	± 0.2	
	53kHz + 100kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 53kHz	%	< 0.1	
	THD+N 53kHz + 100kHz	%	< 0.15	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.05	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation	30Hz + 53kHz	dB	> 50 dB (typical 60)	
STEREO OPERATION				
Stereo SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis, L & R demodulated	dB	> 71 (74 typical)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 65 dB	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 58 dB	
Frequency Response	30Hz + 15kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.05	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	≤ 0.03	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation		dB	> 50 (typical 55)	
Main / Sub Ratio	30Hz + 15kHz	dB	> 40 (typical 45)	

Technical Specifications

THE SLA TX500

2/2

SCA OPERATION				
Frequency response	40kHz + 100kHz	dB	± 0.5	
Crosstalk to main or to stereo channel	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 67 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 75 (typical 78)	
	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 92 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 78 (typical 80)	
POWER REQUIREMENTS				
AC Power Input	AC Supply Voltage	VAC	80 + 260	(*) Internal switch (**) monophas (***) Threephases Y
	AC Apparent Power Consumption	VA	653	
	Active Power Consumption	W	650	
	Power Factor		0,998	
	Overall Efficiency	%	Typical 70	
DC Power Input	Connector		VDE IEC Standard	
	DC Supply Voltage	VDC		
	DC Current	ADC		(**)max 25W (***) max 140W
MECHANICAL DIMENSIONS				
Physical Dimensions	Front panel width	mm	483 (19")	19" EIA rack
	Front panel height	mm	88 (3 1/2") 2HE	convertire in pollici
	Overall depth	mm	394	
	Chassis depth	mm	372	escluso il pannello, esclusi i connettori, convertire in pollici
Weight	kg	about 9,5		
VARIOUS				
Cooling			Forced, with internal fan	
Acoustic Noise		dBa	<75	
AUDIO INPUTS				
Left / Mono	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	
	Input Level / Adjust	dBu	-13 to +13 continuously variable	
Right	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	
	Input Level	dBu	-13 to +13 continuously variable	
MPX	Connector		BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k or 50	
	Input Level / Adjust	dBu	*-13 to +13 Selectable by rear panel dip switches for 75 KHz FM, externally adjustable	
SCARDS	Connector		2 x BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k	
	Input Level / Adjust	dBu	*-8 to +13 for 7,5 KHz FM, externally adjustable	
AES/EBU (optional)	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	110	
	Input Level / Adjust	dBfs	0 to -10 for 7,5 KHz FM, externally adjustable	
TOS/Link (optional)	Connector		TOS-LINK	
	Type		Optical	
OUTPUTS				
RF Output	Connector		N type	
	Impedance	Ohm	50	
RF Monitor	Connector		BNC	
	Impedance	Ohm	50	
	Output Level	dB	approx -60 Referred to the RF output	
Pilot output	Connector		BNC	
	Impedance	Ohm	>5 k For RDS and isofrequency synchronizing purpose	
	Output Level	Vpp	1	
AUXILIARY CONNECTIONS				
Interlock	Connector		BNC	Input and output for remote power inhibition (short is RF off)
Service	Connector		DB9 F	Factory reserved for firmware program
Remote Interface	Connector		DB15F	IIC + 5 analog / digital inputs, 5 analog / digital outputs
FUSES				
On Mains			1 External fuse F 16 A - 5x20 mm	
On services				
On PA Supply				
On Driver Supply				
HUMAN INTERFACES				
Input device			4 pushbutton	
Display			Alphanumerical LCD - 2 x 16	
TELEMETRY / TELECONTROL				
Remote connector inputs	Analogical level	10	FWD fold	For P.A. A.G.C. purpose, min 0,5 Vcc
		2	REF fold	For P.A. A.G.C. purpose, min 0,5 Vcc
	Pulse to GND	14	RF ON	
		15	RF OFF	
	Close to GND	1	Interlock	for remote power inhibition (short is RF off)
Remote connector outputs	Analogical level	6	FWD	max 5 Vcc
		13	REF	max 5 Vcc
		5	VPA	max 5 Vcc
		12	IPA	max 5 Vcc
	Open Collector	7	Power Good	open collector

Technical Specifications

THESLA TX700

1/2

Aggiornato il 21/08/2017	Legenda: Verde = Green Line Rosso = Obsoleto Giallo = Normali		THESLA TX700	
Parameters		U.M.	Value	Notes
GENERALS				
Frequency range		MHz	87.5 + 108	
Rated output power		W	700	Continuously variable by software from 0 to maximum
Modulation type			Direct carrier frequency	
Operational Mode			Mono, Stereo, Multiplex	
Ambient working temperature		°C	-5 to +50	
Ambient Working Humidity		%	85 (Without condensing)	
Frequency programmability			From software, with 10 kHz steps	
Frequency stability	WT from -10°C to 50°C	ppm	±1	
Modulation capability		kHz	150 Stereo, 180 Mono/MPX	Meets or exceeds all FCC and CCIR rules
Pre-emphasis mode		µS	0, 50 (CCIR), 75 (FCC)	selectable by rear panel dip switches
Spurious & harmonic suppression		dBc	<75 (80 typical)	Meets or exceeds all FCC and CCIR rules
Asynchronous AMS/N ratio	Referred to 100% AM with no de-emphasis	dB	≥ 65 (typical 70)	
Synchronous AMS/N ratio	Referred to 100% AM, FM deviation 75 kHz by 400Hz sine, without de-emphasis	dB	≥ 50 (typical 60)	
MONO OPERATION				
SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis	dB	> 80 (typical 85)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>73	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>68	
Frequency Response	30Hz + 15kHz	dB	better than ± 0.5 dB (typical ± 0.2)	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.1 (Typical 0.07%)	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
MPX OPERATION				
Composite SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - no LPF, 50 µS de-emphasis	dB	> 80 (typical 85)	
Frequency Response	30Hz + 53kHz	dB	± 0.2	
	53kHz + 100kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 53kHz	%	< 0.1	
	THD+N 53kHz + 100kHz	%	< 0.15	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.05	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation	30Hz + 53kHz	dB	> 50 dB (typical 60)	
STEREO OPERATION				
Stereo SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis, L & R demodulated	dB	> 75 (78 typical)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 65 dB	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 58 dB	
Frequency Response	30Hz + 15kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.05	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	≤ 0.03	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation		dB	> 50 (typical 55)	
Main / Sub Ratio	30Hz + 15kHz	dB	> 40 (typical 45)	

Technical Specifications

THE SLA TX700

2/2

SCA OPERATION				
Frequency response	40kHz + 100kHz	dB	± 0.5	
Crosstalk to main or to stereo channel	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 67 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 75 (typical 78)	
	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 92 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 78 (typical 80)	
POWER REQUIREMENTS				
AC Power Input	AC Supply Voltage	VAC	80 ÷ 260	(*) Internal switch (**) monophase (***) Threephases Y
	AC Apparent Power Consumption	VA	912	
	Active Power Consumption	W	910	
	Power Factor		0,998	
	Overall Efficiency	%	Typical 70	
DC Power Input	Connector		VDE IEC Standard	
	DC Supply Voltage	VDC		
	DC Current	ADC		(*)max 25W (**) max 140W
MECHANICAL DIMENSIONS				
Physical Dimensions	Front panel width	mm	483 (19")	19" EIA rack
	Front panel height	mm	88 (3 1/2") 2HE	convertire in pollici
	Overall depth	mm	394	
	Chassis depth	mm	372	escluso il pannello, esclusi i connettori, convertire in pollici
Weight		kg	about 9,5	
VARIOUS				
Cooling			Forced, with internal fan	
Acoustic Noise		dBa	<75	
AUDIO INPUTS				
Left / Mono	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	
	Input Level / Adjust	dBu	-13 to +13 Selectable by rear panel dip switches continuously variable	
Right	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	
	Input Level	dBu	-13 to +13 Selectable by rear panel dip switches continuously variable	
MPX	Connector		BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k or 50	
	Input Level / Adjust	dBu	*-13 to +13 Selectable by rear panel dip switches for 75 KHz FM, externally adjustable	
SCA/RDS	Connector		2 x BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k	
	Input Level / Adjust	dBu	*-8 to +13 for 7,5 KHz FM, externally adjustable	
AES/EBU (optional)	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	110	
	Input Level / Adjust	dBfs	0 to -10 for 7,5 KHz FM, externally adjustable	
TOS/Link (optional)	Connector		TOS-LINK	
	Type		Optical	
OUTPUTS				
RF Output	Connector		N type	
	Impedance	Ohm	50	
RF Monitor	Connector		BNC	
	Impedance	Ohm	50	
	Output Level	dB	approx. -60 Referred to the RF output	
Pilot output	Connector		BNC	
	Impedance	Ohm	>5 k For RDS and isofrequency synchronizing purpose	
	Output Level	Vpp	1	
AUXILIARY CONNECTIONS				
Interlock	Connector		BNC Input and output for remote power inhibition (short is RF off)	
Service	Connector		DB9 F Factory reserved for firmware program	
Remote Interface	Connector		DB15F IIC + 5 analog / digital inputs, 5 analog / digital outputs	
FUSES				
On Mains			1 External fuse F 16 A - 5x20 mm	
On services				
On PA Supply				
On Driver Supply				
HUMAN INTERFACES				
Input device			4 pushbutton	
Display			Alphanumerical LCD - 2 x 16	
TELEMETRY / TELECONTROL				
Remote connector inputs	Analogical level	10	FWD fold For P.A. A.G.C. purpose, min 0,5 Vcc	
		2	REF fold For P.A. A.G.C. purpose, min 0,5 Vcc	
	Pulse to GND	14	RF ON	
		15	RF OFF	
	Close to GND	1	Interlock for remote power inhibition (short is RF off)	
Remote connector outputs	Analogical level	6	FWD max 5 Vcc	
		13	REF max 5 Vcc	
		5	VPA max 5 Vcc	
		12	IPA max 5 Vcc	
		Open Collector	7	Power Good open collector

Technical Specifications

THESLA TX1K

1/2

Aggiornato il 21/08/2017	Legenda: Verde = Green Line Rosso = Obsoleto Giallo = Normali		THESLA TX1K	
Parameters		U.M.	Value	Notes
GENERALS				
Frequency range		MHz	87.5 + 108	
Rated output power		W	1000	Continuously variable by software from 0 to maximum
Modulation type			Direct carrier frequency	
Operational Mode			Mono, Stereo, Multiplex	
Ambient working temperature		°C	-5 to +50	
Ambient Working Humidity		%	85 (Without condensing)	
Frequency programmability			From software, with 10 kHz steps	
Frequency stability	WT from -10°C to 50°C	ppm	±1	
Modulation capability		kHz	150 Stereo, 180 Mono/MPX	Meets or exceeds all FCC and CCIR rules
Pre-emphasis mode		µS	0, 50 (CCIR), 75 (FCC)	selectable by rear panel dip switches
Spurious & harmonic suppression		dBc	<75 (80 typical)	Meets or exceeds all FCC and CCIR rules
Asynchronous AMS/N ratio	Referred to 100% AM with no de-emphasis	dB	≥ 65 (typical 70)	
Synchronous AMS/N ratio	Referred to 100% AM, FM deviation 75 kHz by 400Hz sine, without de-emphasis	dB	≥ 50 (typical 60)	
MONO OPERATION				
SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis	dB	> 80 (typical 85)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>73	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>68	
Frequency Response	30Hz + 15kHz	dB	better than ± 0.5 dB (typical ± 0.2)	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.1 (Typical 0.07%)	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
MPX OPERATION				
Composite SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - no LPF, 50 µS de-emphasis	dB	> 80 (typical 85)	
Frequency Response	30Hz + 53kHz	dB	± 0.2	
	53kHz + 100kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 53kHz	%	< 0.1	
	THD+N 53kHz + 100kHz	%	< 0.15	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.05	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation	30Hz + 53kHz	dB	> 50 dB (typical 60)	
STEREO OPERATION				
Stereo SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis, L & R demodulated	dB	> 75 (78 typical)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 65 dB	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 58 dB	
Frequency Response	30Hz + 15kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.05	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	≤ 0.03	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation		dB	> 50 (typical 55)	
Main / Sub Ratio	30Hz + 15kHz	dB	> 40 (typical 45)	

Technical Specifications

THE SLA TX1K

2/2

SCA OPERATION				
Frequency response	40kHz + 100kHz	dB	± 0.5	
Crosstalk to main or to stereo channel	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 67 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 75 (typical 78)	
	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 92 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 78 (typical 80)	
POWER REQUIREMENTS				
AC Power Input	AC Supply Voltage	VAC	230 ± 15%	(*) Internal switch (**) monophase (***) Three phases Y
	AC Apparent Power Consumption	VA	1450	
	Active Power Consumption	W	1420	
	Power Factor		0,998	
	Overall Efficiency	%	Typical 70	
DC Power Input	Connector		Terminal Block	
	DC Supply Voltage	VDC		
	DC Current	ADC		(**)max 25W (***) max 140W
MECHANICAL DIMENSIONS				
Physical Dimensions	Front panel width	mm	483 (19")	19" EIA rack
	Front panel height	mm	88 (3 1/2") 2HE	convertire in pollici
	Overall depth	mm	516	
	Chassis depth	mm	372	escluso il pannello, esclusi i connettori, convertire in pollici
Weight	kg	about 11		
VARIOUS				
Cooling			Forced, with internal fan	
Acoustic Noise		dBa	<75	
AUDIO INPUTS				
Left / Mono	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	Selectable by rear panel dip switches
	Input Level / Adjust	dBu	-13 to +13	continuously variable
Right	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	Selectable by rear panel dip switches
	Input Level	dBu	-13 to +13	continuously variable
MPX	Connector		BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k or 50	Selectable by rear panel dip switches
	Input Level / Adjust	dBu	*-13 to +13	for 75 KHz FM, externally adjustable
SCA/RDS	Connector		2 x BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k	
	Input Level / Adjust	dBu	*-8 to +13	for 7,5 KHz FM, externally adjustable
AES/EBU (optional)	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	110	
	Input Level / Adjust	dBfs	0 to -10	for 7,5 KHz FM, externally adjustable
TOS/Link (optional)	Connector		TOS-LINK	
	Type		Optical	
OUTPUTS				
RF Output	Connector		7/8"	
	Impedance	Ohm	50	
RF Monitor	Connector		BNC	
	Impedance	Ohm	50	
	Output Level	dB	approx. -60	Referred to the RF output
Pilot output	Connector		BNC	For RDS and isofrequency synchronizing purpose
	Impedance	Ohm	>5 k	
	Output Level	Vpp	1	
AUXILIARY CONNECTIONS				
Interlock	Connector		BNC	Input and output for remote power inhibition (short is RF off)
Service	Connector		DB9 F	Factory reserved for firmware program
Remote Interface	Connector		DB15F	IIC + 5 analog / digital inputs, 5 analog / digital outputs
FUSES				
On Mains			2 External fuse F 10 A - 6x30 mm	
On services				
On PA Supply				
On Driver Supply				
HUMAN INTERFACES				
Input device			4 pushbutton	
Display			Alphanumerical LCD - 2 x 16	
TELEMETRY / TELECONTROL				
Remote connector inputs	Analogical level	10	FWD fold	For P.A. A.G.C. purpose, min 0,5 Vcc
		2	REF fold	For P.A. A.G.C. purpose, min 0,5 Vcc
	Pulse to GND	14	RF ON	
		15	RF OFF	
	Close to GND	1	Interlock	for remote power inhibition (short is RF off)
Remote connector outputs	Analogical level	6	FWD	max 5 Vcc
		13	REF	max 5 Vcc
		5	VPA	max 5 Vcc
		12	IPA	max 5 Vcc
		Open Collector	7	Power Good

Technical Specifications

THESLA TX2K

1/2

Aggiornato il 21/08/2017	Legenda: Verde = Green Line Rosso = Obsoleto Giallo = Normali		THESLA TX2K	
Parameters		U.M.	Value	Notes
GENERALS				
Frequency range		MHz	87.5 ÷ 108	
Rated output power		W	2000	Continuously variable by software from 0 to maximum
Modulation type			Direct carrier frequency	
Operational Mode			Mono, Stereo, Multiplex	
Ambient working temperature		°C	-5 to +50	
Ambient Working Humidity		%	85 (Without condensing)	
Frequency programmability			From software, with 10 kHz steps	
Frequency stability	WT from -10°C to 50°C	ppm	±1	
Modulation capability		kHz	150 Stereo, 180 Mono/MPX	Meets or exceeds all FCC and CCIR rules
Pre-emphasis mode		µS	0, 50 (CCIR), 75 (FCC)	selectable by rear panel dip switches
Spurious & harmonic suppression		dBc	<75 (80 typical)	Meets or exceeds all FCC and CCIR rules
Asynchronous AMS/N ratio	Referred to 100% AM with no de-emphasis	dB	≥ 65 (typical 70)	
Synchronous AMS/N ratio	Referred to 100% AM, FM deviation 75 kHz by 400Hz sine, without de-emphasis	dB	≥ 50 (typical 60)	
MONO OPERATION				
SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis	dB	> 78 (typical 83)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>70	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>67	
Frequency Response	30Hz ÷ 15kHz	dB	better than ± 0.5 dB (typical ± 0.2)	
Total Harmonic Distortion	THD+N 30Hz ÷ 15kHz	%	< 0.1 (Typical 0.07%)	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
MPX OPERATION				
Composite SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - no LPF, 50 µS de-emphasis	dB	> 78 (typical 83)	
Frequency Response	30Hz ÷ 53kHz	dB	± 0.2	
	53kHz ÷ 100kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz ÷ 53kHz	%	< 0.1	
	THD+N 53kHz ÷ 100kHz	%	< 0.15	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.05	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation	30Hz ÷ 53kHz	dB	> 50 dB (typical 60)	
STEREO OPERATION				
Stereo SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis, L & R demodulated	dB	> 73 (75 typical)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 65 dB	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 58 dB	
Frequency Response	30Hz ÷ 15kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz ÷ 15kHz	%	< 0.05	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	≤ 0.03	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation		dB	> 50 (typical 55)	
Main / Sub Ratio	30Hz ÷ 15kHz	dB	> 40 (typical 45)	

Technical Specifications

THE SLA TX2K

2/2

SCA OPERATION				
Frequency response	40kHz + 100kHz	dB	± 0.5	
Crosstalk to main or to stereo channel	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 67 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 75 (typical 78)	
	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 92 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 78 (typical 80)	
POWER REQUIREMENTS				
AC Power Input	AC Supply Voltage	VAC	230 ±15%	(*) Internal switch (**) monophase (***) Threephases Y
	AC Apparent Power Consumption	VA	3380	
	Active Power Consumption	W	3340	
	Power Factor		0,998	
	Overall Efficiency	%		
DC Power Input	Connector		Terminal Block	
	DC Supply Voltage	VDC		
	DC Current	ADC		(*)max 25W (**) max 140W
MECHANICAL DIMENSIONS				
Physical Dimensions	Front panel width	mm	483 (19")	19" EIA rack
	Front panel height	mm	132 (3HE)	convertire in pollici
	Overall depth	mm	675	
	Chassis depth	mm	650	escluso il pannello, esclusi i connettori, convertire in pollici
Weight		kg	about 31	
VARIOUS				
Cooling			Forced, with internal fan	
Acoustic Noise		dBa	<75	
AUDIO INPUTS				
Left / Mono	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	Selectable by rear panel dip switches
	Input Level / Adjust	dBu	-13 to +13	continuously variable
Right	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	Selectable by rear panel dip switches
	Input Level	dBu	-13 to +13	continuously variable
MPX	Connector		BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k or 50	Selectable by rear panel dip switches
	Input Level / Adjust	dBu	*-13 to +13	for 75 KHz FM, externally adjustable
SCARDS	Connector		2 x BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k	
	Input Level / Adjust	dBu	*-8 to +13	for 7,5 KHz FM, externally adjustable
AES/EBU (optional)	Connector			
	Type			
	Impedance	Ohm		
	Input Level / Adjust	dBfs		for 7,5 KHz FM, externally adjustable
TOS/Link (optional)	Connector			
	Type			
OUTPUTS				
RF Output	Connector		7/8" EIA	
	Impedance	Ohm	50	
RF Monitor	Connector		BNC	
	Impedance	Ohm	50	
	Output Level	dB	approx. -60	Referred to the RF output
Pilot output	Connector		BNC	For RDS and isofrequency synchronizing purpose
	Impedance	Ohm	>5 k	
	Output Level	Vpp	1	
AUXILIARY CONNECTIONS				
Interlock	Connector		2 x BNC	Input and output for remote power inhibition (short is RF off)
Service	Connector		DB9 F	Factory reserved for firmware program
Remote Interface	Connector		DB15F	IIC + 5 analog / digital inputs, 5 analog / digital outputs
FUSES				
On Mains			2 External fuse F 25 T - 10 x 38 mm	
On services			1 External fuse F 3.15 T - 5x20 mm	
On PA Supply			4 Internal fuses F 25 A 10 x 38 mm	
On Driver Supply				
HUMAN INTERFACES				
Input device			4 pushbutton	
Display			Alphanumerical LCD - 2 x 16	
TELEMETRY / TELECONTROL				
Remote connector inputs	Analogical level	10	FWD fold	For P.A. A.G.C. purpose, min 0,5 Vcc
		2	REF fold	For P.A. A.G.C. purpose, min 0,5 Vcc
	Pulse to GND	14	RF ON	
		15	RF OFF	
	Close to GND	1	Interlock	for remote power inhibition (short is RF off)
Remote connector outputs	Analogical level	6	FWD	max 5 Vcc
		13	REF	max 5 Vcc
		5	VPA	max 5 Vcc
		12	IPA	max 5 Vcc
	Open Collector	7	Power Good	open collector

Technical Specifications

THESLA TX3.5K

1/2

Aggiornato il 21/08/2017	Legenda: Verde = Green Line Rosso = Obsoleto Giallo = Normali		THESLA TX3.5K	
Parameters		U.M.	Value	Notes
GENERALS				
Frequency range		MHz	87.5 + 108	
Rated output power		W	3500	Continuously variable by software from 0 to maximum
Modulation type			Direct carrier frequency	
Operational Mode			Mono, Stereo, Multiplex	
Ambient working temperature		°C	-5 to +50	
Ambient Working Humidity		%	85 (Without condensing)	
Frequency programmability			From software, with 10 kHz steps	
Frequency stability	WT from -10°C to 50°C	ppm	±1	
Modulation capability		kHz	150 Stereo, 180 Mono/MPX	Meets or exceeds all FCC and CCIR rules
Pre-emphasis mode		µS	0, 50 (CCIR), 75 (FCC)	selectable by rear panel dip switches
Spurious & harmonic suppression		dBc	< 82 (85 typical)	Meets or exceeds all FCC and CCIR rules
Asynchronous AMS/N ratio	Referred to 100% AM with no de-emphasis	dB	≥ 65 (typical 70)	
Synchronous AMS/N ratio	Referred to 100% AM, FM deviation 75 kHz by 400Hz sine, without de-emphasis	dB	≥ 50 (typical 60)	
MONO OPERATION				
SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis	dB	> 78 (typical 83)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	> 70	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	> 67	
Frequency Response	30Hz + 15kHz	dB	better than ± 0.5 dB (typical ± 0.2)	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.1 (Typical 0.07%)	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
MPX OPERATION				
Composite SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - no LPF, 50 µS de-emphasis	dB	> 78 (typical 83)	
Frequency Response	30Hz + 53kHz	dB	± 0.2	
	53kHz + 100kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 53kHz	%	< 0.1	
	THD+N 53kHz + 100kHz	%	< 0.15	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.05	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation	30Hz + 53kHz	dB	> 50 dB (typical 60)	
STEREO OPERATION				
Stereo SN FMRatio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis, L & R demodulated	dB	> 73 (75 typical)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 65 dB	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 58 dB	
Frequency Response	30Hz + 15kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.05	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	≤ 0.03	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @ 75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation		dB	> 50 (typical 55)	
Main / Sub Ratio	30Hz + 15kHz	dB	> 40 (typical 45)	

Technical Specifications

THE SLA TX3.5K

2/2

SCA OPERATION				
Frequency response	40kHz + 100kHz	dB	± 0.5	
Crosstalk to main or to stereo channel	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 67 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 75 (typical 78)	
	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 92 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 78 (typical 80)	
POWER REQUIREMENTS				
AC Power Input	AC Supply Voltage	VAC	230 +10% -15% (**) 400 +10% -15% (***)	(*) Internal switch (**) monophase (***) Threephases Y
	AC Apparent Power Consumption	VA	4996	
	Active Power Consumption	W	4987	
	Power Factor		0,998	
	Overall Efficiency	%	Typical 70	
DC Power Input	Connector		Terminal Block	
	DC Supply Voltage	VDC		
	DC Current	ADC		(*)max 25W (**) max 140W
MECHANICAL DIMENSIONS				
Physical Dimensions	Front panel width	mm	483 (19")	19" EIA rack
	Front panel height	mm	132 (3HE)	convertire in pollici
	Overall depth	mm	675	
	Chassis depth	mm	650	escluso il pannello, esclusi i connettori, convertire in pollici
Weight	kg	about 29		
VARIOUS				
Cooling			Forced, with internal fan	
Acoustic Noise		dBa	<75	
AUDIO INPUTS				
Left / Mono	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	Selectable by rear panel dip switches
	Input Level / Adjust	dBu	-13 to +13	continuously variable
Right	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	Selectable by rear panel dip switches
	Input Level	dBu	-13 to +13	continuously variable
MPX	Connector		BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k or 50	Selectable by rear panel dip switches
	Input Level / Adjust	dBu	*-13 to +13	for 75 KHz FM, externally adjustable
SCA/RDS	Connector		2 x BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k	
	Input Level / Adjust	dBu	*-8 to +13	for 7,5 KHz FM, externally adjustable
AES/EBU (optional)	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	110	
	Input Level / Adjust	dBfs	0 to -10	for 7,5 KHz FM, externally adjustable
TOS/Link (optional)	Connector		TOS-LINK	
	Type		Optical	
OUTPUTS				
RF Output	Connector		7/8" EIA	
	Impedance	Ohm	50	
RF Monitor	Connector		BNC	
	Impedance	Ohm	50	
	Output Level	dB	approx. -60	Referred to the RF output
Pilot output	Connector		BNC	For RDS and isofrequency synchronizing purpose
	Impedance	Ohm	>5 k	
	Output Level	Vpp	1	
AUXILIARY CONNECTIONS				
Interlock	Connector		2 x BNC	Input and output for remote power inhibition (short is RF off)
Service	Connector		DB9 F	Factory reserved for firmware program
Remote Interface	Connector		DB15F	IIC + 5 analog / digital inputs, 5 analog / digital outputs
FUSES				
On Mains			3 External F 10 T - 6 x 30 mm	
On services				
On PA Supply			4 Internal F 32 A 10 x 38 mm	
On Driver Supply				
HUMAN INTERFACES				
Input device			4 pushbutton	
Display			Alphanumerical LCD - 2 x 16	
TELEMETRY / TELECONTROL				
Remote connector inputs	Analogical level	10	FWD fold	For P.A. A.G.C. purpose, min 0,5 Vcc
		2	REF fold	For P.A. A.G.C. purpose, min 0,5 Vcc
	Pulse to GND	14	RF ON	
		15	RF OFF	
	Close to GND	1	Interlock	for remote power inhibition (short is RF off)
Remote connector outputs	Analogical level	6	FWD	max 5 Vcc
		13	REF	max 5 Vcc
		5	VPA	max 5 Vcc
		12	IPA	max 5 Vcc
		Open Collector	7	Power Good

Technical Specifications

THESLA EX30

1/2

Aggiornato il 18/03/2017	Legenda: Verde = Green Line Rosso = Obsoleto Giallo = Normali		THESLA EX30	
Parameters		U.M.		Notes
GENERALS				
Frequency range		MHz	87.5 ± 108	
Rated output power		W	30	Continuously variable by software from 0 to maximum
Modulation type			Direct carrier frequency	
Operational Mode			Mono, Stereo, Multiplex	
Ambient working temperature		°C	-5 to + 50	
Ambient Working Humidity		%	85 (Without condensing)	
Frequency programmability			From software, with 10 kHz steps	
Frequency stability	WT from -5°C to 50°C	ppm	±1	
Modulation capability		kHz	150 Stereo, 200 Mono/MPX	Meets or exceeds all FCC and CCIR rules
Pre-emphasis mode		µs	0, 25, 50 (CCIR), 75 (FCC)	Selectable by software
Spurious & harmonic suppression		dBc	<75 (80 typical)	Meets or exceeds all FCC and CCIR rules
Asynchronous AMS/N ratio	Referred to 100% AM, with no de-emphasis	dB	≥ 70	
Synchronous AMS/N ratio	Referred to 100% AM, FM deviation 75 kHz by 400Hz sine, without de-emphasis	dB	≥ 50	
MONO OPERATION				
S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis	dB	> 85 (typical 87)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>75	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>70	
Frequency Response	30Hz ± 15kHz	dB	better than ± 0.5 dB (typical ± 0.2)	
Total Harmonic Distortion	THD+N 30Hz ± 15kHz	%	< 0.05 (Typical 0.03%)	
Intermodulation Distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
MPX OPERATION				
Composite S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - no LPF, 50 µS de-emphasis	dB	> 85 (typical 87)	
Frequency Response	30Hz ± 53kHz	dB	± 0.2	
	53kHz ± 100kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz ± 53kHz	%	< 0.05	
	THD+N 53kHz ± 100kHz	%	< 0.1	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.05	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation	30Hz ± 53kHz	dB	> 50 dB (typical 60)	
STEREO OPERATION				
Stereo S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis, L & R demodulated	dB	> 80 (Typical 82)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 68 dB	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 67 dB	
Frequency Response	30Hz ± 15kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz ± 15kHz	%	< 0.05	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	≤ 0.03	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation		dB	> 50 (typical 60)	
Main / Sub Ratio	30Hz ± 15kHz	dB	> 40 (typical 45)	

Technical Specifications

THE SLA EX30

2/2

SCA OPERATION				
Frequency response	40kHz + 100kHz	dB	± 0.5	
Crosstalk to main or to stereo ch	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 67 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 75 (typical 79)	
	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 92 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 80 (typical 81)	
POWER REQUIREMENTS				
AC Power Input	AC Supply Voltage	VAC	115 - 125 - 230 - 250	
	AC Apparent Power Consumption	VA	135	
	Active Power Consumption	W	95	
	Power Factor		0.7	
	Overall Efficiency	%	31	
DC Power Input (option)	Connector		IEC Standard	
	DC Supply Voltage	VDC	24	
	DC Current	ADC	3.5	
max 60W RF out (PTX100LCD e PTX150LCD)				
MECHANICAL DIMENSIONS				
Physical Dimensions	Front panel width	mm	483 (19")	
	Front panel height	mm	88 (3 1/2") 2HE	
	Overall depth	mm	400	
	Chassis depth	mm	389	
Weight	kg	About 10		
VARIOUS				
Cooling			Forced, with internal fan	
Acoustic Noise		dBA	< 56	
Leq 3 min @ 1 m				
AUDIO INPUTS				
Left / Mono	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	
	Input Level, Adjustment Range	dB	-13 to +14	
	externally fine adjustable	dB	±0.5	
Internal jumper	dB	-12		
Right / MPX balanced	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	
	Input Level, Adjustment Range	dB	-13 to +14	
	externally fine adjustable	dB	±0.5	
Internal jumper	dB	-12		
MPX unbalanced	Connector		BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k or 50	
	Input Level, Adjustment Range	dB	-13 to +14	
	externally fine adjustable	dB	±0.5	
Internal jumper	dB	-12		
SCA/RDS	Connector		3 x BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k	
	Input Level, Adjustment Range	dB	-3 to +15	
	externally adjustable	dB	-20	
Internal jumper for RDS input	dB	-30		
AES/EBU (option)	Connector		XLR F	
	Type		Balanced	
TOS/Link (option)	Connector		TOS Link	
	Type		optical	
S/P DIF (option)	Connector		RCA (chinch)	
	Type		unbalanced	
Impedance	Ohm	75		
OUTPUTS				
RF Output	Connector		N type	
	Impedance	Ohm	50	
RF Monitor	Connector		BNC	
	Impedance	Ohm	50	
	Output Level	dB	approx. -30	
Pilot output	Connector		BNC	
	Impedance	Ohm	> 4.7 k	
	Output Level	Vpp	1	
MPX Monitor	Connector		BNC	
	Impedance	Ohm	>600	
	Output Level	dBu	0	
@ ±75 kHz peak FM, externally adjustable +12 / -6				
AUXILIARY CONNECTIONS				
Interlock	Connector		BNC	
RS232 Serial Interface	Connector		DB9 F	
Remote Interface	Connector		DB15 F	
Remote RDS Interface	Connector		DB15 F	
for remote power inhibition (short is RF off) for modem and PC control software communication IIC + 8 analog / digital input RDS coder commands				
FUSES				
On Mains			1 External fuse F 6.3 T - 5x20 mm	
On PA Supply			1 External fuse F 6.3 A - 5x20 mm	
HUMAN INTERFACE				
Input device			Optical encoder with pushbutton	
Display			Graphical LCD - 240 x 64 pixels	
TELEMETRY / TELECONTROL				
Remote connector inputs	Analogical level		FWD fold	
	Analogical level		REF fold	
	Analogical level		6 input for P.A. telemetry purpose	
Remote connector outputs	ON / OFF level		Interlock	
	ON / OFF level		Power good 1	
	ON / OFF level		Power good 2	
Remote connector others		I2Cbus		
Remote RDS connector input	ON / OFF level		For telecontrol purposes	
	ON / OFF level		For telecontrol purposes	
	ON / OFF level		For telecontrol purposes	
For Is of frequency purposes				

Technical Specifications

THESLA EX100

1/2

Aggiornato il 18/03/2017	<i>Legenda:</i> Verde = Green Line Rosso = Obsoleto Giallo = Normali		THESLA EX100	
Parameters		U.M.		Notes
GENERALS				
Frequency range		MHz	87.5 + 108	
Rated output power		W	100	Continuously variable by software from 0 to maximum
Modulation type			Direct carrier frequency	
Operational Mode			Mono, Stereo, Multiplex	
Ambient working temperature		°C	-5 to + 50	
Ambient Working Humidity		%	85 (Without condensing)	
Frequency programmability			From software, with 10 kHz steps	
Frequency stability	WT from -5°C to 50°C	ppm	±1	
Modulation capability		kHz	150 Stereo, 200 Mono/MPX	Meets or exceeds all FCC and CCIR rules
Pre-emphasis mode		µS	0, 25, 50 (CCIR), 75 (FCC)	Selectable by software
Spurious & harmonic suppression		dBc	<75 (80 typical)	Meets or exceeds all FCC and CCIR rules
Asynchronous AMS/N ratio	Referred to 100% AM, with no de-emphasis	dB	≥ 70	
Synchronous AMS/N ratio	Referred to 100% AM, FM deviation 75 kHz by 400Hz sine, without de-emphasis	dB	≥ 50	
MONO OPERATION				
S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis	dB	> 80 (typical 84)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>73	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>68	
Frequency Response	30Hz + 15kHz	dB	better than ± 0.5 dB (typical ± 0.2)	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.05 (Typical 0.03%)	
Intermodulation Distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
MPX OPERATION				
Composite S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - no LPF, 50 µS de-emphasis	dB	> 80 (typical 84)	
Frequency Response	30Hz + 53kHz	dB	± 0.2	
	53kHz + 100kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 53kHz	%	< 0.05	
	THD+N 53kHz + 100kHz	%	< 0.1	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.05	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation	30Hz + 53kHz	dB	> 50 dB (typical 60)	
STEREO OPERATION				
Stereo S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis, L & R demodulated	dB	> 80 (Typical 82)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 68 dB	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 67 dB	
Frequency Response	30Hz + 15kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.05	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	≤ 0.03	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation		dB	> 50 (typical 60)	
Main / Sub Ratio	30Hz + 15kHz	dB	> 40 (typical 45)	

Technical Specifications

THE SLA EX100

2/2

SCA OPERATION				
Frequency response	40kHz + 100kHz	dB	± 0.5	
Crosstalk to main or to stereo ch	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 67 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 75 (typical 79)	
	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 92 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 80 (typical 81)	
POWER REQUIREMENTS				
AC Power Input	AC Supply Voltage	VAC	115 - 125 - 230 - 250	
	AC Apparent Power Consumption	VA	350	
	Active Power Consumption	W	250	
	Power Factor		0.71	
	Overall Efficiency	%	40	
DC Power Input (option)	Connector		IEC Standard	
	DC Supply Voltage	VDC	24	
	DC Current	ADC	6	
max 60W RF out (PTX100LCD e PTX150LCD)				
MECHANICAL DIMENSIONS				
Physical Dimensions	Front panel width	mm	483 (19")	
	Front panel height	mm	88 (3 1/2") 2HE	
	Overall depth	mm	400	
	Chassis depth	mm	389	
Weight	kg	About 15		
VARIOUS				
Cooling			Forced, with internal fan	
Acoustic Noise		dBA	< 56	
			Leq 3 min @ 1 m	
AUDIO INPUTS				
Left / Mono	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	
	Input Level, Adjustment Range externally fine adjustable	dB	-13 to +14	
	Internal jumper	dB	±0.5	
			1 dB step variable by software	
Right / MPX balanced	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	
	Input Level, Adjustment Range externally fine adjustable	dB	-13 to +14	
	Internal jumper	dB	±0.5	
			1 dB step variable by software	
MPX unbalanced	Connector		BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k or 50	
	Input Level, Adjustment Range externally fine adjustable	dB	-13 to +14	
	Internal jumper	dB	±0.5	
			1 dB step variable by software	
SCA/RDS	Connector		3 x BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k	
	Input Level, Adjustment Range externally fine adjustable	dB	-3 to +15	
	Internal jumper for RDS input	dB	-20	
			externally adjustable	
AES/EBU (option)	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	110	
TOS/Link (option)	Connector		TOS Link	
	Type		optical	
S/P DIF (option)	Connector		RCA (chinch)	
	Type		unbalanced	
	Impedance	Ohm	75	
OUTPUTS				
RF Output	Connector		N type	
	Impedance	Ohm	50	
RF Monitor	Connector		BNC	
	Impedance	Ohm	50	
	Output Level	dB	approx. -30	
			Referred to the RF output	
Pilot output	Connector		BNC	
	Impedance	Ohm	> 4,7 k	
	Output Level	Vpp	1	
MPX Monitor	Connector		BNC	
	Impedance	Ohm	>600	
	Output Level	dBu	0	
			@ ±75 kHz peak FM, externally adjustable +12 / -6	
AUXILIARY CONNECTIONS				
Interlock	Connector		BNC	
			for remote power inhibition (short is RF off)	
RS232 Serial Interface	Connector		DB9 F	
Remote Interface	Connector		DB15 F	
Remote RDS Interface	Connector		DB15 F	
			IIC + 8 analog / digital input	
			RDS coder commands	
FUSES				
On Mains			1 External fuse F 6,3 T - 5x20 mm	
On PA Supply			1 External fuse F 10 A - 5x20 mm	
HUMAN INTERFACE				
Input device			Optical encoder with pushbutton	
Display			Graphical LCD - 240 x 64 pixels	
TELEMETRY / TELECONTROL				
Remote connector inputs	Analogical level		FWD fold	
	Analogical level		REF fold	
	Analogical level		6 input for P.A. telemetry purpose	
Remote connector outputs	ON / OFF level		Interlock	
	ON / OFF level		Power good 1	
	ON / OFF level		Power good 2	
Remote connector others			I2Cbus	
Remote RDS connector input	ON / OFF level		For telecontrol purposes	
	ON / OFF level		For telecontrol purposes	
	ON / OFF level		For telecontrol purposes	
			For Isotfrequency purposes	

Technical Specifications

THESLA EX30D

1/2

Aggiornato il 18/03/2017	Legenda: Verde = Green Line Rosso = Obsoleto Giallo = Normali		THESLA EX30D	Notes
Parameters	Conditions	U.M.	Value	
GENERALS				
Frequency range		MHz	87.5 ± 108	
Rated output power		W	30	Continuously variable by software from 0 to maximum
Modulation type			Direct Digital Synthesis	
Operational Mode			Mono, Stereo, Multiplex	
Ambient working temperature		°C	-5 to + 50	
Ambient Working Humidity		%	85 (Without condensing)	
Frequency programmability			By software, with 1, 10, 100 , 1000 kHz steps	
Frequency stability	WT from -10°C to 50°C	ppm	±1	
Modulation capability		kHz	150	
Pre-emphasis mode		µS	0, 50 (CCIR), 75 (FCC)	
Spurious & harmonic suppression		dBc	< 80 (85 typical)	
Asynchronous AMS/N ratio	Referred to 100% AM, with no de-emphasis	dB	≥ 60 (65 typical)	
Synchronous AMS/N ratio	Referred to 100% AM, FM deviation 75 kHz by 400Hz sine, without de-emphasis	dB	≥ 50 (55 typical)	
MONO OPERATION				
S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis	dB	> 80 (typical 83)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>76	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>70	
Frequency Response	30Hz ± 15kHz	dB	better than ± 0.5 dB (typical ± 0.2)	
Total Harmonic Distortion	THD+N 30Hz ± 15kHz	%	< 0.05 (Typical 0.03%)	
Intermodulation Distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
MPX OPERATION				
Composite S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - no LPF, 50 µS de-emphasis	dB	> 75 (typical 79)	
Frequency Response	30Hz ± 53kHz	dB	± 0.2	
	53kHz ± 100kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz ± 53kHz	%	< 0.05	
	THD+N 53kHz ± 100kHz	%	< 0.1	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.05	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation	30Hz ± 53kHz	dB	> 70	
STEREO OPERATION				
Stereo S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis, L & R demodulated	dB	> 80 (Typical 83)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 70 (Typical 73)	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 68 (Typical 70)	
Frequency Response	30Hz ± 15kHz	dB	± 0.2	
Total Harmonic Distortion	THD+N 30Hz ± 15kHz	%	< 0.03	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation		dB	> 70	
Main / Sub Ratio	30Hz ± 15kHz	dB	> 45 (typical 50)	

Technical Specifications

TESLA EX30D

2/2

SCA OPERATION				
Frequency response	40kHz ± 100kHz	dB	± 0.5	
Crosstalk to main or to stereo chan	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 67 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 75 (typical 79)	
	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 92 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 80 (typical 81)	
POWER REQUIREMENTS				
AC Power Input	AC Supply Voltage	VAC	115 / 230 ±15%	Internal switch
	AC Apparent Power Consumption	VA	280	
	Active Power Consumption	W	160	
	Power Factor		0,57	
	Overall Efficiency	%	18	
	Connector		VDE IEC Standard	
DC Power Input (option)	DC Supply Voltage	VDC		
	DC Current	ADC		
MECHANICAL DIMENSIONS				
Physical Dimensions	Front panel width	mm	483 (19")	19" EIA rack
	Front panel height	mm	88 (3 1/2") 2HE	
	Overall depth	mm	400	
	Chassis depth	mm	389	
Weight	kg	About 10		
VARIOUS				
Cooling		Forced, with internal fan		
Acoustic Noise		dBa	< 56	Leq 3 min @ 1 m
AUDIO INPUTS				
Left	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	Selectable by internal switch
Right	Input Level, Adjustment Range	dBu	-12.5 to +12.5	0.1 dB step variable by software
	Connector		XLR F	
	Type		Balanced	
MPX	Impedance	Ohm	10 k or 600	Selectable by internal switch
	Input Level, Adjustment Range	dBu	-12.5 to +12.5	0.1 dB step variable by software
	Connector		BNC	
SCARDS	Type		unbalanced	
	Impedance	Ohm	10 k	
	Input Level, Adjustment Range	dBu	-12.5 to +12.5	0.1 dB step variable by software
AES/EBU	Connector		2 x BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k	
TOS/Link	Input Level, Adjustment Range	dBu	-12.5 to +12.5	0.1 dB step variable by software
	Connector		XLR F	
	Type		Balanced	
OUTPUTS				
RF Output	Connector		N type	
	Impedance	Ohm	50	
RF Monitor	Connector		BNC	
	Impedance	Ohm	50	
Pilot output	Output Level	dB	approx. -30	Referred to the RF output
	Connector		BNC	
	Impedance	Ohm	>600	
	Output Level	Vpp	2.2	
MPX Monitor	Output Level, Adjustment Range	dBu	-12.5 to +5; or -6.5 to +11 (*); or -0.5 to 17 (**)	0.1 dB step variable by software; (*) internally adjustable +6dBu (**) internally adjustable +12dBu
	Connector		BNC	
	Impedance	Ohm	>600	
AUXILIARY CONNECTIONS				
Interlock	Connector		BNC	for remote power inhibition (short is RF off)
RS232 Serial Interface	Connector		DB9 F	for modem and PC control software communication
1PPS	Connector		BNC	for TTL signal input of 1PPS
Remote Interface	Connector		DB15F	IIC + 8 analog / digital input
Input 10 MHz	Connector		BNC	For optional 10 MHz external synch
FUSES				
On Mains			1 External fuse 6,3 AT - 5x20 mm	
HUMAN INTERFACE				
Input device			Optical encoder with pushbutton	
Display			Graphical LCD - 240 x 64 pixels	
TELEMETRY / TELECONTROL				
Remote connector inputs	Analogical level		FWD fold	
	Analogical level		REF fold	
	Analogical level		6 input for P.A. telemetry purpose	
Remote connector outputs	ON / OFF level		Interlock	
	ON / OFF level		Power good 1	
Remote connector others	ON / OFF level		Power good 2	
	ON / OFF level		I2Cbus	
Remote RDS connector inputs	ON / OFF level		RDS TP	
	ON / OFF level		RDS TA	
	ON / OFF level		RDS MS	
			1 Hz	

Technical Specifications

THESLA EX100D

1/2

Aggiornato il 18/03/2017	Legenda: Verde = Green Line Rosso = Obsoleto Giallo = Normali		THESLA EX100D	Notes
Parameters	Conditions	U.M.	Value	
GENERALS				
Frequency range		MHz	87.5 + 108	
Rated output power		W	100	Continuously variable by software from 0 to maximum
Modulation type			Direct Digital Synthesis	
Operational Mode			Mono, Stereo, Multiplex	
Ambient working temperature		°C	-5 to + 50	
Ambient Working Humidity		%	85 (Without condensing)	
Frequency programmability			By software, with 1, 10, 100 , 1000 kHz steps	
Frequency stability	WT from -10°C to 50°C	ppm	±1	
Modulation capability		kHz	150	
Pre-emphasis mode		µS	0, 50 (CCIR), 75 (FCC)	
Spurious & harmonic suppression		dBc	< 80 (85 typical)	
Asynchronous AMS/N ratio	Referred to 100% AM, with no de-emphasis	dB	≥ 60 (65 typical)	
Synchronous AMS/N ratio	Referred to 100% AM, FM deviation 75 kHz by 400Hz sine, without de-emphasis	dB	≥ 50 (55 typical)	
MONO OPERATION				
S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis	dB	> 80 (typical 83)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>76	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>70	
Frequency Response	30Hz + 15kHz	dB	better than ± 0.5 dB (typical ± 0.2)	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.05 (Typical 0.03%)	
Intermodulation Distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
MPX OPERATION				
Composite S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - no LPF, 50 µS de-emphasis	dB	> 75 (typical 79)	
Frequency Response	30Hz + 53kHz	dB	± 0.2	
	53kHz + 100kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 53kHz	%	< 0.05	
	THD+N 53kHz + 100kHz	%	< 0.1	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.05	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation	30Hz + 53kHz	dB	> 70	
STEREO OPERATION				
Stereo S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis, L & R demodulated	dB	> 80 (Typical 83)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 70 (Typical 73)	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 68 (Typical 70)	
Frequency Response	30Hz + 15kHz	dB	± 0.2	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.03	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation		dB	> 70	
Main / Sub Ratio	30Hz + 15kHz	dB	> 45 (typical 50)	

Technical Specifications

THE SLA EX100D

2/2

SCA OPERATION				
Frequency response	40kHz ± 100kHz	dB	± 0.5	
Crosstalk to main or to stereo chan	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 67 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 75 (typical 79)	
	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 92 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 80 (typical 81)	
POWER REQUIREMENTS				
AC Power Input	AC Supply Voltage	VAC	115 / 230 ±15%	Internal switch
	AC Apparent Power Consumption	VA	410	
	Active Power Consumption	W	250	
	Power Factor		0,6	
	Overall Efficiency	%	40	
	Connector		VDE IEC Standard	
DC Power Input (option)	DC Supply Voltage	VDC		
	DC Current	ADC		
MECHANICAL DIMENSIONS				
Physical Dimensions	Front panel width	mm	483 (19")	19" EIA rack
	Front panel height	mm	88 (3 1/2") 2HE	
	Overall depth	mm	400	
	Chassis depth	mm	389	
Weight	kg	About 10		
VARIOUS				
Cooling		Forced, with internal fan		
Acoustic Noise		dBa	< 56	Leq 3 min @ 1 m
AUDIO INPUTS				
Left	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	Selectable by internal switch
Right	Input Level, Adjustment Range	dBu	-12.5 to +12.5	0.1 dB step variable by software
	Connector		XLR F	
	Type		Balanced	
MPX	Impedance	Ohm	10 k or 600	Selectable by internal switch
	Input Level, Adjustment Range	dBu	-12.5 to +12.5	0.1 dB step variable by software
	Connector		BNC	
SCA/RDS	Type		unbalanced	
	Impedance	Ohm	10 k	
	Input Level, Adjustment Range	dBu	-12.5 to +12.5	0.1 dB step variable by software
AES/EBU	Connector		2 x BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k	
TOS/Link	Input Level, Adjustment Range	dBu	-12.5 to +12.5	0.1 dB step variable by software
	Connector		XLR F	
	Type		Balanced	
OUTPUTS				
RF Output	Connector		N type	
	Impedance	Ohm	50	
RF Monitor	Connector		BNC	
	Impedance	Ohm	50	
Pilot output	Output Level	dB	approx. -40	Referred to the RF output
	Connector		BNC	
	Impedance	Ohm	>600	
	Output Level	Vpp	2.2	
MPX Monitor	Output Level, Adjustment Range	dBu	-12.5 to +5; or -6.5 to +11 (*); or -0.5 to 17 (**)	0.1 dB step variable by software; (*) internal jumper to increase the output level of +6dBu (**) internal jumper to increase the output level of +12dBu
	Connector		BNC	
	Impedance	Ohm	>600	
AUXILIARY CONNECTIONS				
Interlock	Connector		BNC	for remote power inhibition (short is RF off)
RS232 Serial Interface	Connector		DB9 F	for modem and PC control software communication
1PPS	Connector		BNC	for TTL signal input of 1PPS
Remote Interface	Connector		DB15F	IIC + 8 analog / digital input
Input 10 MHz	Connector		BNC	For optional 10 MHz external synch
FUSES				
On Mains			1 External fuse 6,3 AT - 5x20 mm	
HUMAN INTERFACE				
Input device			Optical encoder with pushbutton	
Display			Graphical LCD - 240 x 64 pixels	
TELEMETRY / TELECONTROL				
Remote connector inputs	Analogical level		FWD fold	
	Analogical level		REF fold	
	Analogical level		6 input for P.A. telemetry purpose	
	ON / OFF level		Interlock	
Remote connector outputs	ON / OFF level		Power good 1	
	ON / OFF level		Power good 2	
Remote connector others			I2Cbus	
Remote RDS connector inputs	ON / OFF level		RDS TP	
	ON / OFF level		RDS TA	
	ON / OFF level		RDS MS	
			1 Hz	

Technical Specifications

THESLA EX300D

1/2

Aggiornato il 18/03/2017	<i>Legenda:</i> Verde = Green Line Rosso = Obsoleto Giallo = Normali		THESLA EX300D	Notes
Parameters	Conditions	U.M.		
GENERALS				
Frequency range		MHz	87.5 + 108	
Rated output power		W	300	Continuously variable by software from 0 to maximum
Modulation type			Direct Digital Synthesis	
Operational Mode			Mono, Stereo, Multiplex	
Ambient working temperature		°C	-5 to + 50	
Ambient Working Humidity		%	85 (Without condensing)	
Frequency programmability			By software, with 1, 10, 100 , 1000 kHz steps	
Frequency stability	WT from -10°C to 50°C	ppm	±1	
Modulation capability		kHz	150	
Pre-emphasis mode		µS	0, 50 (CCIR), 75 (FCC)	
Spurious & harmonic suppression		dBc	< 80 (85 typical)	
Asynchronous AM/S/N ratio	Referred to 100% AM, with no de-emphasis	dB	≥ 60 (65 typical)	
Synchronous AM/S/N ratio	Referred to 100% AM, FM deviation 75 kHz by 400Hz sine, without de-emphasis	dB	≥ 50 (55 typical)	
MONO OPERATION				
S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis	dB	> 80 (typical 83)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>76	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>70	
Frequency Response	30Hz ± 15kHz	dB	better than ± 0.5 dB (typical ± 0.2)	
Total Harmonic Distortion	THD+N 30Hz ± 15kHz	%	< 0.05 (Typical 0.03%)	
Intermodulation Distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
MPX OPERATION				
Composite S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - no LPF, 50 µS de-emphasis	dB	> 75 (typical 79)	
Frequency Response	30Hz ± 53kHz	dB	± 0.2	
	53kHz ± 100kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz ± 53kHz	%	< 0.05	
	THD+N 53kHz ± 100kHz	%	< 0.1	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.05	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation	30Hz ± 53kHz	dB	> 70	
STEREO OPERATION				
Stereo S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis, L & R demodulated	dB	> 80 (Typical 83)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 70 (Typical 73)	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 68 (Typical 70)	
Frequency Response	30Hz ± 15kHz	dB	± 0.2	
Total Harmonic Distortion	THD+N 30Hz ± 15kHz	%	< 0.03	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation		dB	> 70	
Main / Sub Ratio	30Hz ± 15kHz	dB	> 45 (typical 50)	

Technical Specifications

TESLA EX300D

2/2

SCA OPERATION				
Frequency response	40kHz ± 100kHz	dB	± 0.5	
Crosstalk to main or to stereo chan	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 67 kHz tone on SCA input @ 7,5kHz FM deviation	dB	> 75 (typical 79)	
	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 92 kHz tone on SCA input @ 7,5kHz FM deviation	dB	> 80 (typical 81)	
POWER REQUIREMENTS				
AC Power Input	AC Supply Voltage	VAC	80 - 260	Internal switch
	AC Apparent Power Consumption	VA	620	
	Active Power Consumption	W	580	
	Power Factor		0,98	
	Overall Efficiency	%		
DC Power Input (option)	Connector		VDE IEC Standard	
	DC Supply Voltage	VDC		
	DC Current	ADC		
MECHANICAL DIMENSIONS				
Phisical Dimensions	Front panel width	mm		19" EIA rack
	Front panel height	mm		
	Overall depth	mm		
	Chassis depth	mm		
Weight		kg		
VARIOUS				
Cooling			Forced, with internal fan	
Acoustic Noise		dBA	< 56	Leq 3 min @ 1 m
AUDIO INPUTS				
Left	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	Selectable by internal switch
Right	Input Level, Adjustment Range	dBu	-12.5 to +12.5	0.1 dB step variable by software
	Connector		XLR F	
	Type		Balanced	
MPX	Impedance	Ohm	10 k or 600	Selectable by internal switch
	Input Level, Adjustment Range	dBu	-12.5 to +12.5	0.1 dB step variable by software
	Connector		BNC	
SCA/RDS	Type		unbalanced	
	Impedance	Ohm	10 k	
	Input Level, Adjustment Range	dBu	-12.5 to +12.5	0.1 dB step variable by software
AES/EBU	Connector		2 x BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k	
TOS/Link	Input Level, Adjustment Range	dBu	-12.5 to +12.5	0.1 dB step variable by software
	Connector		XLR F	
	Type		Balanced	
OUTPUTS				
RF Output	Connector		N type	
	Impedance	Ohm	50	
RF Monitor	Connector		BNC	
	Impedance	Ohm	50	
Pilot output	Output Level	dB	approx. -40	Referred to the RF output
	Connector		BNC	
	Impedance	Ohm	>600	
	Output Level	Vpp	2.2	
MPX Monitor	Output Level, Adjustment Range	dBu	-12.5 to +5; or -6.5 to +11 (*); or -0.5 to 17 (**)	0.1 dB step variable by software; (*) internally jumper to increase the ouput level of +6dBu (**) internally jumper to increase the ouput level of +12dB
	Connector		BNC	
	Impedance	Ohm	>600	
AUXILIARY CONNECTIONS				
Interlock	Connector		BNC	for remote power inhibition (short is RF off)
RS232 Serial Interface	Connector		DB9 F	for modem and PC control software communication
1PPS	Connector		BNC	for TTL signal input of 1PPS
Remote Interface	Connector		DB15F	IIC + 8 analog / digital input
Input 10 MHz	Connector		BNC	For optional 10 MHz external synch
FUSES				
On Mains			1 External fuse 6,3 AT - 5x20 mm	
HUMAN INTERFACE				
Input device			Optical encoder with pushbutton	
Display			Graphical LCD - 240 x 64 pixels	
TELEMETRY / TELECONTROL				
Remote connector inputs	Analogical level		FWD fold	
	Analogical level		REF fold	
	Analogical level		6 input for P.A. telemetry purpose	
	ON / OFF level		Interlock	
Remote connector outputs	ON / OFF level		Power good 1	
	ON / OFF level		Power good 2	
Remote connector others			I2Cbus	
Remote RDS connector inputs	RDS TP		RDS TP	
	ON / OFF level		RDS TA	
	ON / OFF level		RDS MS	
	ON / OFF level		1 Hz	

Technical Specifications

THESLA EX700D

1/2

Aggiornato il 18/03/2017	Legenda: Verde = Green Line Rosso = Obsoleto Giallo = Normali		THESLA EX700D	Notes
Parameters	Conditions	U.M.		
GENERALS				
Frequency range		MHz	87.5 + 108	
Rated output power		W	700	Continuously variable by software from 0 to maximum
Modulation type			Direct Digital Synthesis	
Operational Mode			Mono, Stereo, Multiplex	
Ambient working temperature		°C	-5 to + 50	
Ambient Working Humidity		%	85 (Without condensing)	
Frequency programmability			By software, with 1, 10, 100 , 1000 kHz steps	
Frequency stability	WT from -10°C to 50°C	ppm	±1	
Modulation capability		kHz	150	
Pre-emphasis mode		µS	0, 50 (CCIR), 75 (FCC)	
Spurious & harmonic suppression		dBc	< 80 (85 typical)	
Asynchronous AMS/N ratio	Referred to 100% AM, with no de-emphasis	dB	≥ 60 (65 typical)	
Synchronous AMS/N ratio	Referred to 100% AM, FM deviation 75 kHz by 400Hz sine, without de-emphasis	dB	≥ 50 (55 typical)	
MONO OPERATION				
S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis	dB	> 80 (typical 83)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>76	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>70	
Frequency Response	30Hz + 15kHz	dB	better than ± 0.5 dB (typical ± 0.2)	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.05 (Typical 0.03%)	
Intermodulation Distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
MPX OPERATION				
Composite S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - no LPF, 50 µS de-emphasis	dB	> 75 (typical 79)	
Frequency Response	30Hz + 53kHz	dB	± 0.2	
	53kHz + 100kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 53kHz	%	< 0.05	
	THD+N 53kHz + 100kHz	%	< 0.1	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.05	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation	30Hz + 53kHz	dB	> 70	
STEREO OPERATION				
Stereo S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis, L & R demodulated	dB	> 80 (Typical 83)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 70 (Typical 73)	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 68 (Typical 70)	
Frequency Response	30Hz + 15kHz	dB	± 0.2	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.03	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation		dB	> 70	
Main / Sub Ratio	30Hz + 15kHz	dB	> 45 (typical 50)	

Technical Specifications

THE SLA EX700D

2/2

SCA OPERATION				
Frequency response	40kHz ± 100kHz	dB	± 0.5	
Crosstalk to main or to stereo chan	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 67 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 75 (typical 79)	
	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 92 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 80 (typical 81)	
POWER REQUIREMENTS				
AC Power Input	AC Supply Voltage	VAC	80 ± 260	Internal switch
	AC Apparent Power Consumption	VA	970	
	Active Power Consumption	W	980	
	Power Factor		0,998	
	Overall Efficiency	%		
DC Power Input (option)	Connector		VDE IEC Standard	
	DC Supply Voltage	VDC		
	DC Current	ADC		
MECHANICAL DIMENSIONS				
Physical Dimensions	Front panel width	mm		19" EIA rack
	Front panel height	mm		
	Overall depth	mm		
	Chassis depth	mm		
Weight		kg		
VARIOUS				
Cooling			Forced, with internal fan	
Acoustic Noise		dBA	< 56	
				Leq 3 min @ 1 m
AUDIO INPUTS				
Left	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	
Right	Input Level, Adjustment Range	dBu	-12.5 to +12.5	
	Connector		XLR F	
	Type		Balanced	
MPX	Impedance	Ohm	10 k or 600	
	Input Level, Adjustment Range	dBu	-12.5 to +12.5	
	Connector		BNC	
SCA/RDS	Type		unbalanced	
	Impedance	Ohm	10 k	
	Input Level, Adjustment Range	dBu	-12.5 to +12.5	
AES/EBU	Connector		2 x BNC	
	Type		unbalanced	
	Impedance	Ohm	10 k	
TOS/Link	Input Level, Adjustment Range	dBu	-12.5 to +12.5	
	Connector		XLR F	
	Type		Balanced	
OUTPUTS				
RF Output	Connector		7/16" type	
	Impedance	Ohm	50	
RF Monitor	Connector		BNC	
	Impedance	Ohm	50	
Pilot output	Output Level	dB	approx. -40	
	Connector		BNC	
	Impedance	Ohm	>600	
MPX Monitor	Output Level	Vpp	2.2	
	Output Level, Adjustment Range	dBu	-12.5 to +5; or -6.5 to +11 (*); or -0.5 to 17 (**)	
	Connector		BNC	
MPX Monitor	Impedance	Ohm	>600	
	Output Level, Adjustment Range	dBu	-12.5 to +5; or -6.5 to +11 (*); or -0.5 to 17 (**)	
	Connector		BNC	
AUXILIARY CONNECTIONS				
Interlock	Connector		BNC	
RS232 Serial Interface	Connector		DB9 F	
1PPS	Connector		BNC	
Remote Interface	Connector		DB15F	
Input 10 MHz	Connector		BNC	
FUSES				
On Mains			1 External fuse 6,3 AT - 5x20 mm	
HUMAN INTERFACE				
Input device			Optical encoder with pushbutton	
Display			Graphical LCD - 240 x 64 pixels	
TELEMETRY / TELECONTROL				
Remote connector inputs	Analogical level		FWD fold	
	Analogical level		REF fold	
	Analogical level		6 input for P.A. telemetry purpose	
Remote connector outputs	ON / OFF level		Interlock	
	ON / OFF level		Power good 1	
Remote connector others	ON / OFF level		Power good 2	
	ON / OFF level		I2Cbus	
Remote RDS connector inputs	ON / OFF level		RDS TP	
	ON / OFF level		RDS TA	
	ON / OFF level		RDS MS	
			1 Hz	

Technical Specifications

THESLA EX1000D

1/2

Aggiornato il 18/03/2017	<i>Legenda:</i> Verde = Green Line Rosso = Obsoleto Giallo = Normali		THESLA EX1000D	Notes
Parameters	Conditions	U.M.		
GENERALS				
Frequency range		MHz	87.5 + 108	
Rated output power		W	1000	Continuously variable by software from 0 to maximum
Modulation type			Direct Digital Synthesis	
Operational Mode			Mono, Stereo, Multiplex	
Ambient working temperature		°C	-5 to + 50	
Ambient Working Humidity		%	85 (Without condensing)	
Frequency programmability			By software, with 1, 10, 100 , 1000 kHz steps	
Frequency stability	WT from -10°C to 50°C	ppm	±1	
Modulation capability		kHz	150	
Pre-emphasis mode		µS	0, 50 (CCIR), 75 (FCC)	
Spurious & harmonic suppression		dBc	< 80 (85 typical)	
Asynchronous AM S/N ratio	Referred to 100% AM, with no de-emphasis	dB	≥ 60 (65 typical)	
Synchronous AM S/N ratio	Referred to 100% AM, FM deviation 75 kHz by 400Hz sine, without de-emphasis	dB	≥ 50 (55 typical)	
MONO OPERATION				
S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis	dB	> 80 (typical 83)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>76	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis	dB	>70	
Frequency Response	30Hz + 15kHz	dB	better than ± 0.5 dB (typical ± 0.2)	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.05 (Typical 0.03%)	
Intermodulation Distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
MPX OPERATION				
Composite S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - no LPF, 50 µS de-emphasis	dB	> 75 (typical 79)	
Frequency Response	30Hz + 53kHz	dB	± 0.2	
	53kHz + 100kHz	dB	± 0.5	
Total Harmonic Distortion	THD+N 30Hz + 53kHz	%	< 0.05	
	THD+N 53kHz + 100kHz	%	< 0.1	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.05	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation	30Hz + 53kHz	dB	> 70	
STEREO OPERATION				
Stereo S/N FM Ratio	RMS @ ± 75 kHz peak, HPF 20Hz - LPF 23 kHz, 50 µS de-emphasis, L & R demodulated	dB	> 80 (Typical 83)	
	Qpk @ ± 75 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 70 (Typical 73)	
	Qpk @ ± 40 kHz peak, CCIR weighted, 50 µS de-emphasis, L & R demodulated	dB	> 68 (Typical 70)	
Frequency Response	30Hz + 15kHz	dB	± 0.2	
Total Harmonic Distortion	THD+N 30Hz + 15kHz	%	< 0.03	
Intermodulation distortion	Measured with a 1 KHz, 1.3 KHz tones, 1:1ratio, @ 75 kHz FM	%	< 0.02	
Transient intermodulation distortion	3.18 kHz square wave, 15 kHz sine wave @75 kHz FM	%	< 0.1 (typical 0.05)	
Stereo separation		dB	> 70	
Main / Sub Ratio	30Hz + 15kHz	dB	> 45 (typical 50)	

Technical Specifications

THE SLA EX1000D

2/2

SCA OPERATION				
Frequency response	40kHz ± 100kHz	dB	± 0.5	
Crosstalk to main or to stereo chan	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 67 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 75 (typical 79)	
	RMS, ref @ ± 75 kHz peak, no HPF/LPF, 0µS de-emphasis, with 92 kHz tone on SCA input @ 7.5kHz FM deviation	dB	> 80 (typical 81)	
POWER REQUIREMENTS				
AC Power Input	AC Supply Voltage	VAC	80 ± 260	Internal switch
	AC Apparent Power Consumption	VA	1460	
	Active Power Consumption	W	1450	
	Power Factor		0.99	
	Overall Efficiency	%		
DC Power Input (option)	Connector		Terminal Block	
	DC Supply Voltage	VDC		
	DC Current	ADC		
MECHANICAL DIMENSIONS				
Physical Dimensions	Front panel width	mm		19" EIA rack
	Front panel height	mm		
	Overall depth	mm		
	Chassis depth	mm		
Weight		kg		
VARIOUS				
Cooling			Forced, with internal fan	
Acoustic Noise		dBA	< 56	Leq 3 min @ 1 m
AUDIO INPUTS				
Left	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	10 k or 600	Selectable by internal switch
Right	Input Level, Adjustment Range	dBu	-12.5 to +12.5	0.1 dB step variable by software
	Connector		XLR F	
	Type		Balanced	
MPX	Impedance	Ohm	10 k or 600	Selectable by internal switch
	Input Level, Adjustment Range	dBu	-12.5 to +12.5	0.1 dB step variable by software
	Connector		BNC	
SCA/RDS	Type		unbalanced	
	Impedance	Ohm	10 k	
	Input Level, Adjustment Range	dBu	-12.5 to +12.5	0.1 dB step variable by software
AES/EBU	Connector		2 x BNC	
	Type		unbalanced	
	Impedance	Ohm	110	
TOS/Link	Connector		XLR F	
	Type		Balanced	
	Impedance	Ohm	110	
RF Output	Connector		TOS-LINK	
	Type		Optical	
	Impedance	Ohm	50	
RF Monitor	Connector		7/8" type	
	Type		Balanced	
	Impedance	Ohm	50	
Pilot output	Output Level	dB	approx. -40	Referred to the RF output
	Connector		BNC	
	Impedance	Ohm	>600	
MPX Monitor	Output Level	Vpp	2.2	
	Output Level, Adjustment Range	dBu	-12.5 to +5; or -6.5 to +11 (*); or -0.5 to 17 (**)	0.1 dB step variable by software; (*) internally adjustable +6dBu by jumper; (**) internally adjustable +12dBu by jumper
	Connector		BNC	
AUXILIARY CONNECTIONS	Impedance	Ohm	>600	
	Output Level, Adjustment Range	dBu	-12.5 to +5; or -6.5 to +11 (*); or -0.5 to 17 (**)	0.1 dB step variable by software, @ ±75 kHz peak FM; (*) internally adjustable +6dBu by jumper; (**) internally adjustable +12dBu by jumper;
	Connector		BNC	
Interlock	Connector		BNC	for remote power inhibition (short is RF off)
RS232 Serial Interface	Connector		DB9 F	for modem and PC control software communication
1PPS	Connector		BNC	for TTL signal input of 1PPS
Remote Interface	Connector		DB15F	IIC + 8 analog / digital input
Input 10 MHz	Connector		BNC	For optional 10 MHz external synch
FUSES				
On Mains			1 External fuse 6.3 AT - 5x20 mm	
HUMAN INTERFACE				
Input device			Optical encoder with pushbutton	
Display			Graphical LCD - 240 x 64 pixels	
TELEMETRY / TELECONTROL				
Remote connector inputs	Analogical level		FWD fold	
	Analogical level		REF fold	
	Analogical level		6 input for P.A. telemetry purpose	
Remote connector outputs	ON / OFF level		Interlock	
	ON / OFF level		Power good 1	
Remote connector others	ON / OFF level		Power good 2	
	ON / OFF level		I2Cbus	
Remote RDS connector inputs	ON / OFF level		RDS TP	
	ON / OFF level		RDS TA	
	ON / OFF level		RDS MS	
			1 Hz	

IMPORTANT



The symbol of lightning inside a triangle placed on the product, evidences the operations for which is necessary gave it full attention to avoid risk of electric shocks.



The symbol of exclamation mark inside a triangle placed on the product, informs the user about the presence of instructions inside the manual that accompanies the equipment, important for the efficacy and the maintenance (repairs).

1. Preliminary Instructions

• General Warnings

This equipment should only be operated, installed and maintained by "trained" or "qualified" personnel who are familiar with risks involved in working on electric and electronic circuits. "Trained" means personnel who have technical knowledge of equipment operation and who are responsible for their own safety and that of other unqualified personnel placed under their supervision when working on the equipment. "Qualified" means personnel who are trained in and experienced with equipment operation and who are responsible for their own safety and that of other unqualified personnel placed under their supervision when working on the equipment.

⚡ WARNING: Residual voltage may be present inside the equipment even when the ON/OFF switch is set to Off. Before servicing the equipment, disconnect the power cord or switch off the main power panel and make sure the safety earth connection is connected. Some service situations may require inspecting the equipment with live circuits. Only trained and qualified personnel may work on the equipment live and shall be assisted by a trained person who shall keep ready to disconnect power supply at need.

Biquad Broadcast shall not be liable for injury to persons or damage to property resulting from improper use or operation by trained/untrained and qualified/unqualified persons.

⚡ WARNING: The equipment is not water resistant. Any water entering the enclosure might impair proper operation. To prevent the risk of electrical shock or fire, do not expose this equipment to rain, dripping or moisture.

Please observe local codes and fire prevention rules when installing and operating this equipment.

⚡ WARNING: This equipment contains exposed live parts involving an electrical shock hazard. Always disconnect power supply before removing any covers or other parts of the equipment.

Ventilation slits and holes are provided to ensure reliable operation and prevent overheating; do not obstruct or cover these slits. Do not obstruct the ventilation slits under any circumstances. The product must not be incorporated in a rack unless adequate ventilation is provided or the manufacturer's instructions are followed closely.

⚠ WARNING: This equipment can radiate radiofrequency energy and, if not installed in compliance with manual instructions and applicable regulations, may cause interference with radio communications.



WARNING: This equipment is fitted with earth connections both in the power cord and for the chassis. Make sure both are properly connected.

Operation of this equipment in a residential area may cause radio interference, in which case the user may be required to take adequate measures.

The specifications and data contained herein are provided for information only and are subject to changes without prior notice. Biquad Broadcast disclaims all warranties, express or implied. While Biquad Broadcast attempts to provide accurate information, it cannot accept responsibility or liability for any errors or inaccuracies in this manual, including the products and the software described herein. Biquad Broadcast reserves the right to make changes to equipment design and/or specifications and to this manual at any time without prior notice.

• **Notice concerning product intended purpose and use limitations.**

This product is a radio transmitter suitable for frequency-modulation audio radio broadcasting. Its operating frequencies are not harmonised in designated user countries. Before operating this equipment, user must obtain a licence to use radio spectrum from the competent authority in the designated user country. Operating frequency, transmitter power and other characteristics of the transmission system are subject to restrictions as specified in the licence.

2. Warranty

La Biquad Broadcast warrants this product to be free from defects in workmanship and its proper operation subject to the limitations set forth in the supplied Terms and Conditions. Please read the Terms and Conditions carefully, as purchase of the product or acceptance of the order acknowledgement imply acceptance of the Terms and Conditions. For the latest updated terms and conditions, please visit our web site at www.biquadbroadcast.com. The web site may be modified, removed or updated for any reason whatsoever without prior notice. The warranty will become null and void in the event the product enclosure is opened, the product is physically damaged, is repaired by unauthorised persons or is used for purposes other than its intended use, as well as in the event of improper use, unauthorised changes or neglect. In the event a defect is found, follow this procedure:

- 1 Contact the seller or distributor who sold the equipment; provide a description of the problem or malfunction for the event a quick fix is available.

Sellers and Distributors can provide the necessary information to troubleshoot the most frequently encountered problems. Normally, Sellers and Distributors can offer a faster repair service than the Manufacturer would. Please note that Sellers can pinpoint problems due to wrong installation.

- 2 If your Seller cannot help you, contact Biquad Broadcast and describe the problem; if our staff deems it appropriate, you will receive an authorisation to return the equipment along with suitable instructions;

- 3 When you have received the authorisation, you may return the unit. Pack the unit carefully before shipment; use the original packaging whenever possible and seal the package perfectly. The customer bears all risks of

Table of Contents

1. Preliminary Instructions	1
2. Warranty	1
3. First Aid	2
3.1 Treatment of electrical shocks	2
3.2 Treatment of electrical Burns	2
4. General Description	3
4.1 Unpacking	3
4.2 Features	3
4.3 Frontal Panel Description - Model THESLA 3.5K	5
4.4 Frontal Panel Description - Model THESLA Family 30W to 2KW	5
4.5 Rear Panel Description - Model THESLA 3.5K	6
4.6 Rear Panel Description - Model THESLA 700 / 1K / 2K	7
4.7 Rear Panel Description - Model THESLA 30 to 500W (all models)	8
4.8 Connectors Pinouts	10
5. Installation and use	12
5.1 Installation	13
5.2 Operation	23
5.3 Management Firmware	25

loss (i.e., Biquad shall not be liable for loss or damage) until the package reaches the Biquad factory. For this reason, we recommend insuring the goods for their full value. Returns must be sent on a C.I.F. basis (PREPAID) to the address stated on the authorisation as specified by the Biquad Service Manager.



Units returned without a return authorisation may be rejected and sent back to the sender.

- 4 Be sure to include a detailed report mentioning all problems you have found and copy of your original invoice (to show when the warranty period began) with the shipment.

Please send spare and warranty replacement parts orders to the address provided below. Make sure to specify equipment model and serial number, as well as part description and quantity.



BIQUAD TECNOLOGIA LTDA.
Rua Marcos Flávio e Dias, 260 - Jardim Beira Rio,
Santa Rita do Sapucaí / MG - Brazil CEP: 37540-000
Telephone: +55 35 3471-6399

3. First Aid

All personnel engaged in equipment installation, operation and maintenance must be familiar with first aid procedures and routines.

3.1 Electric shock treatment

3.1.1 If the victim is unconscious

Follow the first aid procedures outlined below.

- Lay the victim down on his/her back on a firm surface.
- the neck and tilt the head backwards to free the airway system (**Figure 1**).

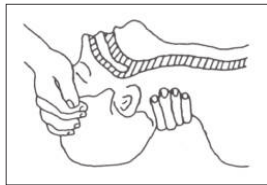


Figure 1

- If needed, open the victim's mouth and check for breathing.
- If there is no breathing, start artificial respiration without delay (**Figure 2**) as follows: tilt the head backwards, pinch the nostrils, seal your mouth around the victim's mouth and give four fast rescue breaths.



Figure 2

- Check for heartbeat (**Figure 3**); if there is no heartbeat, begin chest compressions immediately (**Figure 4**) placing your hands in the centre of the victim's chest (**Figure 5**).

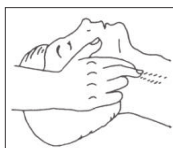


Figure 3

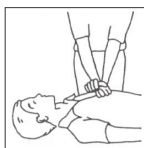


Figure 4

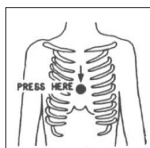


Figure 5

- One rescuer: give 2 quick rescue breaths after each 15 compressions.
- Two rescuers: one rescue breath after each 5 compressions.
- Do not stop chest compressions while giving artificial breathing.
- Call for medical help as soon as possible.

3.1.2 If the victim is conscious

- Cover victim with a blanket.
- Try to reassure the victim.
- Loosen the victim's clothing and have him/her lie down.
- Call for medical help as soon as possible.

3.2 Treatment of electric burns

3.2.1 Large burns and broken skin

- Cover affected area with a clean cloth or linen.
- Do not break any blisters that have formed; remove any clothing or fabric that is stuck to the skin; apply adequate ointment.
- Administer adequate treatment for the type of accident.
- Get the victim to a hospital as quickly as possible.
- Elevate arms and legs if injured.

If medical help is not available within an hour, the victim is conscious and is not retching, administer a solution of table salt and baking soda (one teaspoon of table salt to half teaspoon of baking soda every 250 ml of water).

Have the victim slowly drink half a glass of solution for four times during a period of 15 minutes.

Stop at the first sign of retching.

Do not administer alcoholic beverages.

3.2.2 Minor Burns

- Apply cold (not ice cold) strips of gauze or dress wound with clean cloth.
- Do not break any blisters that have formed; remove any clothing or fabric that is stuck to the skin; apply adequate ointment.
- If needed, have the victim change into clean, dry clothing.
- Administer adequate treatment for the type of accident.
- Get the victim to a hospital as quickly as possible.
- Elevate arms and legs if injured.

4. General Description

THESLA FAMILY is a compact **FM transmitter** manufactured by Biquad Broadcast for audio radio broadcasting in the 87.5 to 108 MHz band in 10kHz steps, featuring adjustable RF output up to 3500 W, respectively, under 50 Ohm standard load.

THESLA FAMILY is designed to being contained into a 19" rack box of 2 and 3HE.

4.1 Unpacking

The package contains:

- 1 THESLA unit trasnmitter
- 1 User Manual
- 1 Mains power cables

The following accessories are also available from Your Biquad Dealer:

- **Options for the machine**
- **Spare parts**
- **Cables**

4.2 Features

The overall efficiency of **THESLA FAMILY** is better than 78% across the bandwidth, for this reason are part of Biquad Green Line family

This performance characteristic is guaranteed in a range between +0.25 dB and -3 dB (+5% and -50%) referred to the nominal power of the equipment: for example from 1750W to 3675W in case of **THESLA TX3.5K**; outside these limits the equipment is able to work properly but can not guarantee an efficiency of 78%.

This transmitter incorporate a low-pass filter to keep harmonics below the limits provided for by international standards (CCIR, FCC or ETSI) and can be connected directly to the antenna.

Two major features of **THESLA FAMILY** is compact design and user-friendliness. Another key feature is its modular-concept design: the different functions are performed by modules with most connections achieved through male and female connectors or through flat cables terminated by connectors. This design facilitates maintenance and module replacement.

The RF power section of **THESLA FAMILY** uses one LD-MOSFET module delivering up to 1000W output power



Operating frequency stability is ensured by a temperature-compensated reference oscillator and is maintained by a PLL (Phase Locked Loop) system. The transmitter will go into frequency lock within 30 seconds after power-on.

THESLA FAMILY can operate throughout the frequency bank with no need for calibration or set-up.

An LCD on the front panel and a push-button panel provide for user interfacing with the microprocessor control system, which implements the following features:

- Output power setup.
- Working frequency setup.
- Power output enable/disable.
- User-selectable threshold settings for output power alarm (Power Good feature)
- Measurement and display of transmitter operating parameters.
- Communication with external devices such as programming or telemetry systems via RS232 serial interface or I²C.

Four LEDs on the front panel provide the following status indications: **ON**, **LOCK**, **FOLDBACK** and **RF MUTE**.

The transmitter management firmware is based on a menu system. User has four navigation buttons available to browse submenus: **ESC** , , , and **ENTER**.

The rear panel features the mains input connectors, as well as audio input connectors and RF output connector, telemetry connector, protection fuses and two inputs for signals modulated onto subcarriers by suitable external coders, such as RDS (Radio Data System) signals commonly used in Europe.



IMPORTANT: *The equipment works in three-phase, with star-center connection, and can also be used in single-phase.*

4.3 Frontal Panel Description - Model THESLA 3.5K

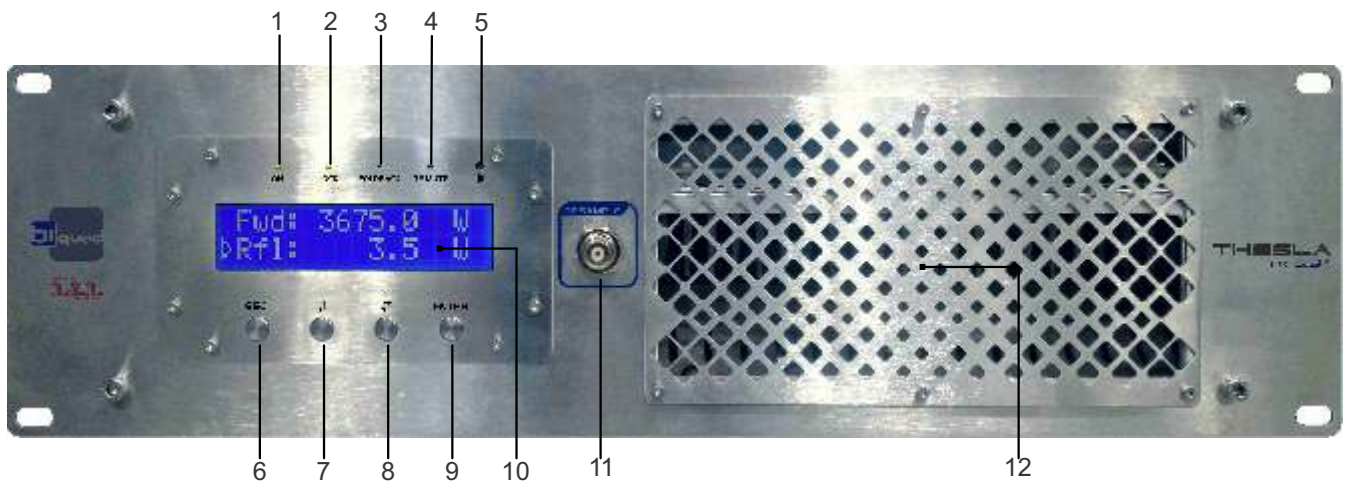


Figure 4.1

4.4 Frontal Panel Description - Model THESLA Family 30W to 2KW

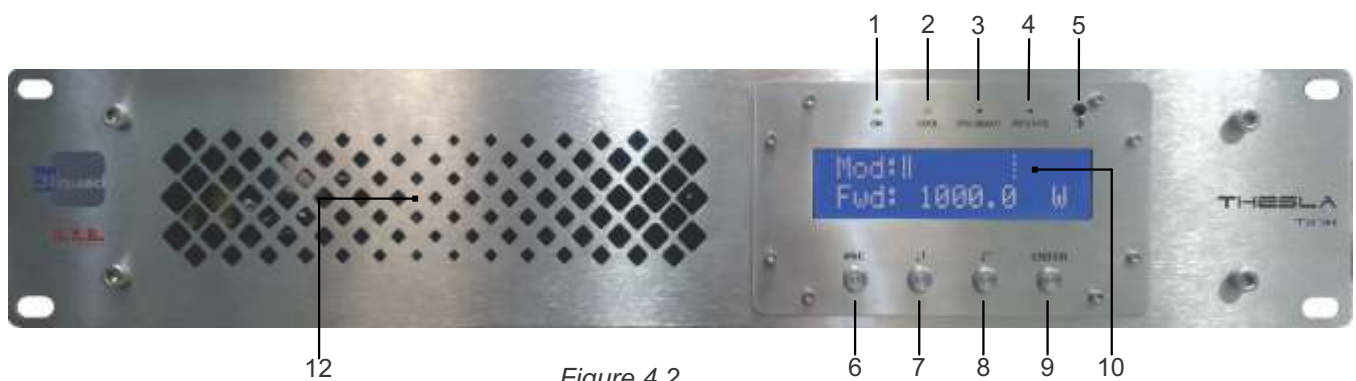


Figure 4.2

- | | |
|----------------|--|
| [1] ON | Green LED, lit when the transmitter is working. |
| [2] LOCK | Green led, lit when the PLL is locked on the working frequency. |
| [3] FOLDBACK | Yellow LED, lit when the foldback function is operating (automatic reduction of the delivered RF power). |
| [4] R.F. MUTE | Yellow LED, lit when the transmitter's power output is inhibited by an external interlock command. |
| [5] CONTRAST | Display contrast adjusting trimmer (on the top of the equipment). |
| [6] ESC | Push button to exit from a menu. |
| [7] ↗ | Push button to move in the menu system and to modify the parameters. |
| [8] ↘ | Push button to move in the menu system and to modify the parameters. |
| [9] ENTER | Push button to confirm a parameter and to enter in a menu. |
| [10] DISPLAY | Liquid crystals display. |
| [12] R.F. TEST | Output with level -60 dBc lower than output power level, suitable for modulation monitoring. Not suitable for spectrum analysis. |
| [12] AIRFLOW | Air flow for the forced ventilation. |

4.5 Rear Panel Description - Model TESLA 3.5K

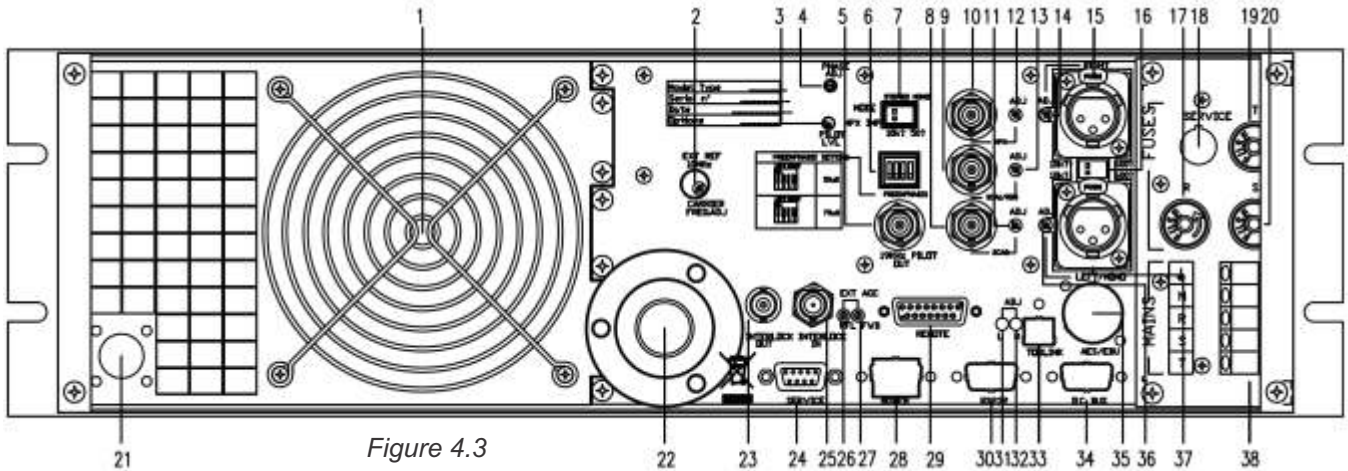
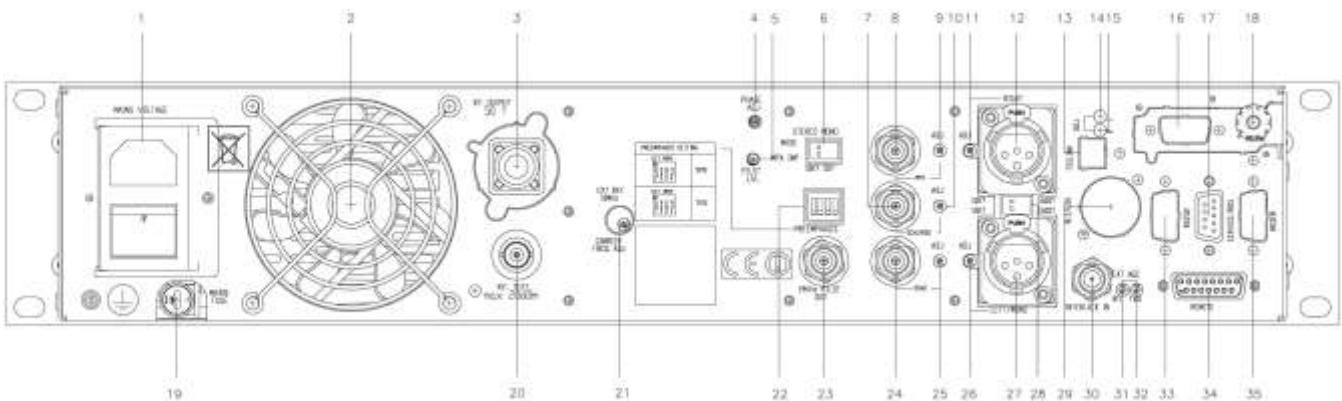


Figure 4.3

- | | |
|----------------------|--|
| [1] AIRFLOW | Air flow for the forced ventilation. |
| [2] EXT REF 10MHz | Reserved for future implementations. |
| [3] PILOT ADJ | Pilot tone adjustment trimmer. |
| [4] PHASE ADJ | Phase adjustment trimmer. |
| [5] 19 kHz PILOT OUT | BNC output for the 19 kHz pilot tone. This can be used for external devices (e.g. RDS coders) synchronization. |
| [6] PREEMPHASIS | Dip-switch to set the preemphasis at 50 or 75µs. The preemphasis setting is relevant only for the Left and Right inputs in stereo mode and for the mono input in mono mode, while MPX input is unaffected by this setting. |
| [7] MODE/MPX IMP | Dip-switch to set the operation mode (STEREO or MONO) and the MPX input impedance, 50Ω or 10kΩ. |
| [8] SCA2 | BNC connector, SCA2 unbalanced input. |
| [9] SCA1/RDS | BNC connector, SCA1/RDS unbalanced input. |
| [10] MPX | BNC connector, MPX unbalanced input. |
| [11] SCA2 ADJ | Adjustment trimmer for SCA2 input. |
| [12] MPX ADJ | Adjustment trimmer for MPX input. |
| [13] SCA1/RDS ADJ | Adjustment trimmer for SCA1/RDS input. |
| [14] RIGHT ADJ | Adjustment trimmer for the Right channel input. |
| [15] RIGHT | XLR connector, balanced Right channel input. |
| [16] IMPEDANCE | Dip-switch to set the balanced input impedance, 600Ω or 10kΩ. |
| [17] FUSE R | Mains power supply fuse. |
| [18] SERVICE | Reserved for future implementations. |
| [19] FUSE T | Mains power supply fuse. |
| [20] FUSE S | Mains power supply fuse. |
| [21] INPUT POWER | Not used. |
| [22] R.F. OUTPUT | RF output connector, type 7/8" EIA Flange, 50Ω. |
| [23] INTERLOCK OUT | Interlock output BNC connector: when the transmitter goes into stand-by mode, the (normally floating) central conductor is switched to ground. |
| [24] SERVICE | DB9 connector for interconnection with other devices and for factory parameters programming. |
| [25] INTERLOCK IN | Interlock input BNC connector: the exciter is forced in standby mode when the inner conductor is grounded. |
| [26] FWD EXT. AGC | Trimmer for the control of the delivered power in function of the FWD fold input. |
| [27] RFL EXT. AGC | Trimmer for the control of the delivered power in function of the RFL fold input. |
| [28] MODEM/LAN | Reserved for optional implementations. |
| [29] REMOTE | DB15 connector for telemetry of the machine. |
| [30] RS232 | DB9 connector for direct serial communication or modem (only with telemetry option). |

[20] AIR FLOW	Air flow for the forced ventilation.
[21] MODEM	DB9 connector connected to GSM modem (only with telemetry option).
[22] SERVICE	DB9 connector for interconnection with other devices and for factory parameters programming (only for factory programming).
[23] L ADJ	Adjustment trimmer for Left digital channel input.
[24] R ADJ	Adjustment trimmer for Right digital channel input.
[25] TOSLINK	TOS-LINK connector for digital audio input through fiber optic.
[26] AES/EBU	XLR connector for AES/EBU digital audio input.
[27] GSM ANT	SMA connector for GSM Antenna.
[28] RIGHT	XLR connector, balanced Right channel input.
[29] RIGHT ADJ	Adjustment trimmer for the Right channel input.
[30] MPX ADJ	Adjustment trimmer for MPX input.
[31] MPX	BNC connector, MPX unbalanced input.
[32] MODE/MPX IMP	Dip-switch to set the operation mode (STEREO or MONO) and the MPX input impedance, 50Ω or 10kΩ.
[33] PREEMPHASIS	Dip-switch to set the preemphasis at 50 or 75 μs. The preemphasis setting is relevant only for the Left and Right inputs in stereo mode and for the mono input in mono mode, while MPX input is unaffected by this setting.
[34] PHASE ADJ	Phase adjustment trimmer.
[35] PILOT LVL	Pilot tone adjustment trimmer.
[36] POWER	ON/OFF switch.
[37] MAINS	Connectors for 230 V (+/- 15%) 50-60 Hz mains power supply.

4.7 Rear Panel Description - Model TESLA 30 to 500W (all models)



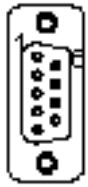
[1] PLUG	VDE plug for mains supply.
[2] FAN	Fan for the forced ventilation of the exciter.
[3] R.F. OUTPUT	RF output connector, N-type, 50Ω.
[4] PHASE ADJ	Pilot tone phase adjustment trimmer.
[5] PILOT LVL	BNC output for the pilot tone. This can be used for external devices (e.g. RDS coders) synchronization.
[6] MODE/MPX IMP	Dip-switch to set the operation mode (STEREO or MONO) and the MPX input impedance, 50Ω or 10kΩ.
[7] SCA 1/RDS	BNC connector, SCA 1/RDS unbalanced input.
[8] MPX	BNC connector, MPX unbalanced input.
[9] MPX ADJ	Adjustment trimmer for MPX input.
[10] SCA 1/RDS ADJ	Adjustment trimmer for SCA 1/RDS input.
[11] RIGHT ADJ	Adjustment trimmer for the Right channel input.
[12] RIGHT	XLR connector, balanced Right channel input.
[13] TOSLINK	TOS-LINK connector for digital audio input through fiber optic.

[14] L ADJ	Adjustment trimmer for Left digital channel input.
[15] R ADJ	Adjustment trimmer for Right digital channel input.
[16] SLOT	Not used.
[17] SERVICE/RDS	DB9 connector for interconnection with other devices and for factory parameters programming (only for factory programming).
[18] 24 VDC IN	External 24Vdc supply input. Positiv (red).
[19] FUSE BLOCK	Fuse carrier. Use a screwdriver to access the fuse.
[20] RF TEST POIN	RF test output, ,approx. 20dBm wrt the RF output power level.
[21] CARRIER FREQ. ADJ	Fine adjustment trimmer for the transmission frequency.
[22] PREEMPHASIS	Dip-switch to set the preenphasys at 50 or 75 μ s. The preenphasys setting is relevant only for the Left and Right inputs in stereo mode and for the mono input in mono mode, while MPX input is unaffected by this setting.
[23] 19 kHz PILOT OUT	BNC output for the 19 kHz pilot tone. This can be used for external devices (e.g. RDS coders) synchronization.
[24] SCA2	BNC connector, SCA2 unbalanced input.
[25] SCA2 ADJ	Adjustment trimmer for SCA2 input.
[26] LEFT-MONO ADJ	Adjustment trimmer for Left-Mono channel input.
[27] LEFT-MONO	XLR connector, balanced Left-Mono channel input.
[28] IMPEDANCE	Dip-switch to set the balanced input impedance, 600 Ω or 10k Ω .
[29] AES/EBU	XLR connector for AES/EBU digital audio input.
[30] INTERLOCK IN	Interlock input BNC connector: the exciter is forced in standby mode when the inner conductor is grounded.
[31] RFL EXT. AGC	Trimmer for the control of the delivered power in function of the RFL fold input.
[32] FWD EXT. AGC	Trimmer for the control of the delivered power in function of the FWD fold input.
[33] RS232	Not used.
[34] REMOTE	Db15 connector for telemetry of the machine.
[35] MODEM	Not used.

4.8 Connector Pinouts

4.8.1 RS232 (optional)

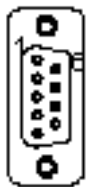
Type: Female DB9



1	NC
2	TX_D
3	RX_D
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

4.8.2 Service (for programming of factory parameters)

Type: Female DB9



1	NC
2	TX_D
3	RX_D
4	Internally connected to 6
5	GND
6	Internally connected to 4
7	Internally connected to 8
8	Internally connected to 7
9	NC

4.8.3 Left (MONO) / Right

Type: Female XLR



1	GND
2	Positive
3	Negative

4.8.4 AES (Digital Audio)

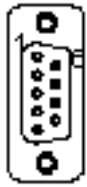
Type: Female XLR



1	GND
2	Positive
3	Negative

4.8.5 I²C Bus

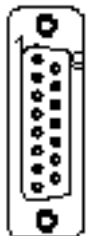
Type: Male DB9



- 1 NC
- 2 TX_D
- 3 RX_D
- 4 Internally connected to 6
- 5 GND
- 6 Internally connected to 4
- 7 Internally connected to 8
- 8 Internally connected to 7
- 9 NC

4.8.6 Remote

Type: Female DB15



Pin	Name	Type	Purpose
1	Interlock	IN	Inhibits power if closed to GND
2	Ext AGC FWD	IN	Ext. signal, 1-12V, for limitation (AGC)
3	GND		Ground
4	SDA IIC	I/O	Serial data for IIC communication
5	VPA TIm	ANL OUT	PA supply voltage: 3.9V F.S.
6	FWD TIm	ANL OUT	Forward power: 3.9V F.S.
7	Power Good	DIG OUT	Indicates activation by switching the normally-open contact to ground.
8	GND		Ground
9	GND		Ground
10	Ext AGC RFL	IN	Ext. signal, 1-12V, for limitation (AGC)
11	SCL IIC	I/O	Clock for IIC communication
12	IPA TIm	ANL OUT	PA supply current: 3.9V F.S.
13	RFL TIm	ANL OUT	Reflected power: 3.9V F.S.
14	On cmd	DIG IN	A pulse towards ground (500 ms) triggers power output
15	OFF cmd	DIG IN	A pulse towards ground (500 ms) inhibits power output.

5. Installation and use

This section provides a step-by-step description of equipment installation and configuration procedure. Follow these procedures closely upon first power-on and each time any change is made to general configuration, such as when a new transmission station is added or the equipment is replaced.



IMPORTANT: *always remove the mains voltage before carrying out any type of installation and/or maintenance. It is essential to interrupt the power supply to avoid the risk of electric shock which could cause material damage to people or property, serious injuries and even death.*

The equipment must only be installed by qualified personnel.

With qualified personnel, it identifies personnel who respond to all directives, laws and regulations concerning safety, applicable to installation and operation of this device.

The choice of qualified, and appropriately trained, personnel is always under responsibility of the company in which this personnel is a part, because is the company in question that determines whether a worker is suitable for a particular job, in order to protect its safety by respecting the applicable law on workplace safety matter.

These companies must provide appropriate training to their staff on electrical devices, and make sure that they familiarize themselves with the contents of this manual.

The respect of the safety instructions set, forth in this manual or in the specified legislation, does not exempt you from compliance with other specific regulations regarding installation, place, Country or other circumstances affecting the equipment.



IMPORTANT: *there is a possible danger due electric shock, therefore it is mandatory to comply with the applicable law on safety with regard to electrical aspects.*

Once the desired configuration has been set up, no more settings are required for normal operation; at each power-up (even after an accidental shutdown), the equipment defaults to the parameters set during the initial configuration procedure.

The topics covered in this section are discussed at greater length in the next sections, with detailed descriptions of all hardware and firmware features and capabilities. Please see the relevant sections for additional detail.



IMPORTANT: *When configuring and testing the transmitter in which the equipment is integrated, be sure to have the Final Test Table supplied with the equipment ready at hand throughout the whole procedure; the Final Test Table lists all operating parameters as set and tested at the factory.*

5.1 Installation

5.1.1 Preliminary Requirements

The equipment ventilation and the work space must be suitable for maintenance operations according to the directive in force in the country in which this device is installed.

It is necessary to leave a minimum distance of 50 cm on the front and back sides of the device to have a proper functioning and to facilitate air circulation through the ventilation grids.

In any case, the device must respect the distance established by the safety directive in force in the country where this equipment is installed.

This device is designed to operate at -10 °C to 45 °C without loss of performance. The ambient air must be clean of dust and not condensed; the maximum humidity must never exceed 95%.

It is important to remember that strong changes in temperature can lead to generation of condensation, in particular environmental conditions. In case of the station where this device is located should be subjected to these physical events, it is good to monitor these devices, once you put it into service, in addition to trying to protect the device itself as much as possible.



IMPORTANT: *never supply voltage to the equipment in presence of condensation. This problem can occur more frequently in devices warehoused for a long time or in those used as an active reserve.*

The antenna RF, power supply and connection cables must have the section suitable for the maximum current intensity.

5.1.2 Preliminary checks

Unpack the transmitter and immediately inspect it for transport damage. Check carefully that all the connectors are in perfect condition and check for the absence of humidity. Otherwise, wait until it is completely dry.

In case of problems in this step, immediately contact after-sales assistance.

The mains power supply protection fuses are conveniently located externally on rear panel. Remove the fuse holder with a screwdriver to check its integrity or to replace it if necessary. The following fuse are used:

	THESLA TX3.5K @ 230/380 Vac	THESLA TX 1k to 2kW @ 230 Vac	THESLA 30 to 700W @ 90 to 240 Vac
Mains fuses	(3x) 10A type 6x30	2KW - (2x) 20A type 6x30 1KW - (2x) 10A type 6x30	500/700 - (1x) 8A type 5x20 100/300 - (1x) 6.3A type 5x20 30/50 - (1x) 5A type 5x20

Table 5.1: *Fuses*

5.1.3 Placement of equipment

Useful tips for a correct installation:

- Do not use in presence of external elements near inlets and outlets ventilation systems, as they could prevent a proper ventilation of the device.
- Do not place near any source of heat or flammable gas.
- Avoid places subject to accumulation of humidity, dust, sand, salt or environments that could compromise the correct operation of the equipment.
- Avoid installing the equipment into inhabited places due to possible noise pollution or on fragile supports. The operation of the equipment can cause a noise due to forced ventilation. The mounting surface must be able to withstand the weight of the device and must be sturdy.



Note: below we will refer to a complete station, where the device can be a part of it. The same procedures also apply in case of the device is used individually.

The device is usually connected inside a 19 “rack and fixed with M5 screws in the appropriate holes.

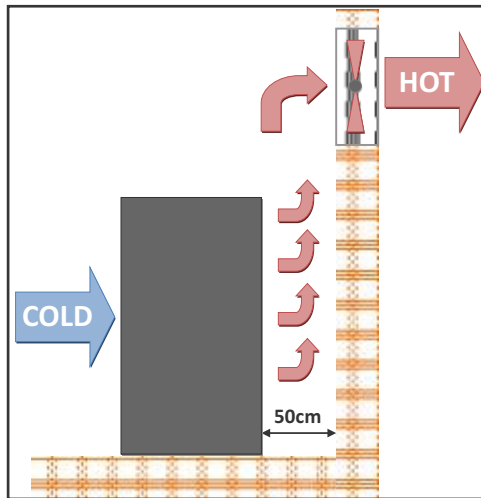
The equipment must be installed at least 1 mt from the ground.

Install the rack in the point in which the transmitter will be put in operation. The rack is mounted on wheels for easy movement so that, once placed in the desired location, it is advisable to use the four screws located at the base of the rack to stabilize it perpendicularly to ground.

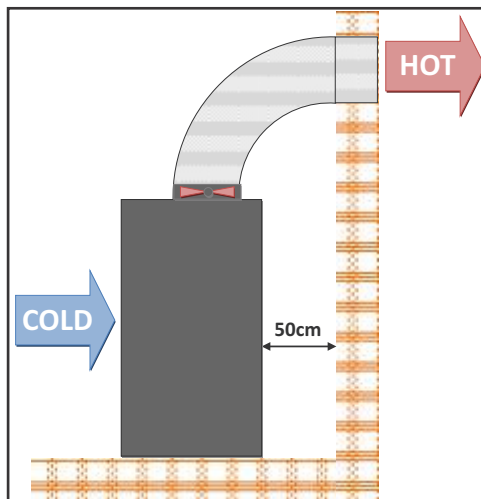
The environment, where you have decided to install the rack, should be set up for about 25°C of air conditioning and equipped with a filter to remove dust and salt air.



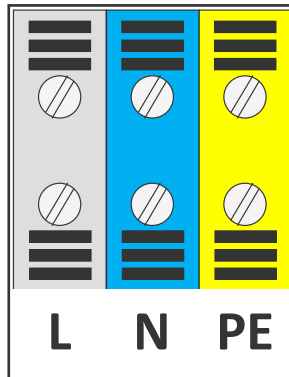
The transmitter normally have the outlet air in the back of machine. In this case, provide adequate ventilation of the room.



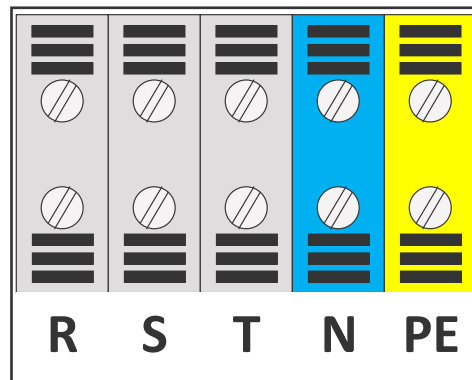
In alternative is cooled by forced ventilation and the air outlet is located on the roof of machine. Is recommended a length of tube approximatively of 1,5 meter.



If transmitter require a single-phase power with F (black or brown or grey) + N (blue) + GND (green yellow), keep in mind this requirement to connect to your distribution board.



If transmitter require three-phase power with 3F (black, brown and grey) + N (blue) + GND (green yellow), keep in mind this requirement to connect to your distribution board.

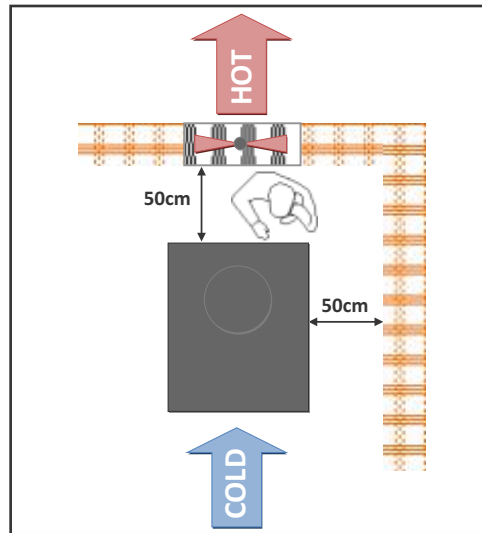


Note: the mains must be equipped with adequate earth connection properly connected to the equipment. This is a pre-requisite for ensuring operator safety and correct operation.

The following table shows the recommended cable cross-sections:

CONNECTOR	THREE-PHASE CABLE SECTION	SINGLE-PHASE CABLE SECTION
L	/	∅ 6mm
R	∅ 4mm	/
S	∅ 4mm	/
T	∅ 4mm	/
N	∅ 4mm	∅ 6mm
PE	∅ 4mm	∅ 6mm

Is highly recommended to install the rack at least 50 cm from the rear and side wall as to allow an optimum airflow and to facilitate workers.



5.1.2.1 Rack power supply connections

Provide for the following (applicable to operating tests and putting into service):

- √ Single-phase 230 or Three Phases 380 (-15% / +10%) Vac mains power for, **THESLA TX3.5K** supply with adequate earth connection.
- √ For operating tests only: dummy load with 50 Ohm impedance and adequate capacity (minimum 5000W for **THESLA TX3.5K**).

Connect the overall power cord of machine. The cable can be slid through the cable gland located on the back, or on the roof, of the machine and conductors must be attached to the general disconnecting switch terminals.



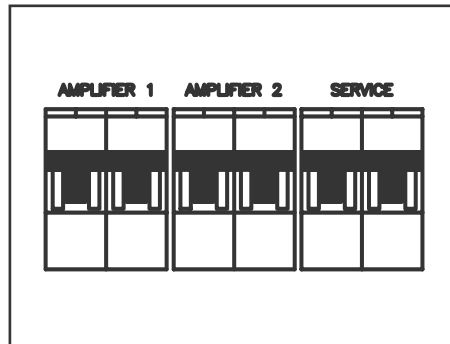
Note: The connection of machine to power supply is done by fixing a multi-pole cable with exposed terminals to a terminal board. Make sure, with no possibility of error, that the cable is not under tension when you connect it to the machine.



WARNING: Is highly recommended to don't turn on the machine without first having connected the RF output to antenna or dummy load!

If you have a dummy load capable to dissipate the RF power generated by the transmitter, it is advisable to carry out first tests by linking to it rather than to the transmission antenna.

Typically the distribution board contains the thermal-magnetic circuit breakers for each amplifier included in the system and one for service.



WARNING: Electric shock hazard! Never handle the RF output connector when the equipment is powered on and no load is connected. Injury or death may result.

Ensure that the distribution board of the transmitter is set to “OFF”.

5.1.3 Device power supply connections

Provide for the following (applicable to operating tests and putting into service):

- √ Single-phase 230 or Three Phases 380 (-15% / +10%) Vac mains power for, **THESLA TX3.5K** supply with adequate earth connection.
- √ For operating tests only: dummy load with 50 Ohm impedance and adequate capacity (minimum 5000W for **THESLA TX3.5K**).



Note: to ensure the safety of the operators, carry out the wiring according to the laws and regulations in force in the country where this equipment is installed.

Check that the **POWER** switch on the rear and rear of **THESLA UNIT** is in the “**OFF**” position.

Connect the mains power cable to the MAINS connector on the rear panel.



Attention: Be sure to connect the equipment correctly, to **avoid the risk of damaging**. It is necessary connect the ground conductor of the power supply cable to the specific terminal in the multipole socket and check the efficiency of your own grounding system.



Note: *The mains must be equipped with adequate ground connection properly connected to the machine. This is a pre-requisite for ensuring operator safety and correct operation.*

Useful tips for a correct connection:

- Provide an adequate grounding of the electrical system. This has both a direct protection function, as it prevents receiving shocks by touching directly the metallic enclosures of the equipments, as well as an indirect protection function, as it interrupts the energy supply when a leak occurs due to poor insulation. This is possible on its own even through discharge devices, like the installation of a picket and an inspectable cockpit, through specific companies with qualified personnel to carry out the work.
- Provide an internal lightning protection such as a surge arrester (internal SPD) or a thermal-magnetic circuit breaker, requiring the installation in the distribution panel through qualified personnel. This solution allows you to protect from violent atmospheric electric shocks that strike the surrounding ground up to several kilometers.
- Provide an internal protection against interference on the distribution line such as EMI filters or stabilizers online voltages, requiring the installation in the distribution panel through qualified personnel, which allow to filter the interferences caused by electrical equipment and sudden surges of the line, in addition to providing a voltage regulation.

5.1.4 RF Connections

Provide for the following setup (applicable to operating tests and putting into service):

√ Connection cable kit including:

- Mains power cable.
- Coaxial cable with BNC connectors for interlock signal connection between exciter and amplifier.
- RF cable for output to load / antenna (50 Ohm coaxial cable with standard 7/8" connector).
- Audio cables between transmitter and audio signals sources.



WARNING: risk of burns due to RF. Make sure that the device can not emit RF at the output, before connecting the antenna cable.



WARNING: For electromagnetic compatibility reasons, only double shielded cables must be used on the RF output.

Don't forget to equip yourself with a 7/8" 50 Ohm RF cable for the connection between the Antenna and the device; the part that goes towards the device must be equipped with a 7/8" type connector.

Connect the RF output of the transmitter to an antenna cable or to a dummy load capable of dissipating the power generated by the amplifier. To begin with, set exciter to minimum output power and switch it off.

Connect the amplifier INTERLOCK OUT output to the matching INTERLOCK IN input fitted on all Biquad Broadcast exciters as standard; if your exciter is a different brand, identify an equivalent input.

Connect the RF output to an adequately rated dummy load or to the antenna.



WARNING: To avoid electrical shock and electrocution, never touch the RF output connector when the equipment is switched on and no dummy load is connected.

Ensure that the POWER switch on the front panel of **TESLA UNIT** is set to "OFF".

Connect the mains power cable to the MAINS connector on the rear panel.



Note: *the mains must be equipped with adequate earth connection properly connected to the equipment. This is a pre-requisite for ensuring operator safety and correct operation.*

Connect the audio and RDS/SCA signals from user's sources to the transmitter input connectors.

5.1.5 First power-on and setup

Perform this procedure upon first power-up and each time you make changes to the configuration of the transmitter this component is integrated into.



Note : *Standard factory settings are RF output power off (**Pwr OFF**) and regulated output power set to upper limit (unless otherwise specified by customer).*

5.1.5.1 Power-on

When you have performed all of the connections described in the previous paragraph, power on the transmitter using the suitable power switch on the back panel.

5.1.5.2 Power check

Ensure that the **ON** LED turns on. Forward power and modulation readings should appear briefly on the display. If the RF output is disabled, those readings will be zero.

When the **PLL** locks to operating frequency, the **LOCK** LED will turn on.

5.1.5.3 How to enable the RF output

Check output power level and set it to maximum level (unless it has already been set) from the *Power Setup* menu that you will have accessed by pressing the following sequence of key: **ESC** (opens **Default Menu**) ⇒ **ENTER** (hold down for 2 seconds) ⇒ **SET** ⇒ use keys to set bar to upper limit.



Check the state of the **Pwr** output power by the **Fnc** menu. If it is set to **OFF**, press **ENTER** to bring the selection to **ON**.

5.1.5.4 Output power level control



IMPORTANT: *The exciter incorporates Automatic Gain Control (AGC) and output power is modulated based on the power level set by the user and actual operating conditions, such as temperature, reflected power and other parameters. Please read section 5.3 for more details of RF power modulation.*

Access the **Power Setup Menu** pressing the following keys in the order: **ESC** (opens **Default Menu**) ⇒ **ENTER** (hold down for 2 seconds).

Use the keys  and  in the **SET** menu to set transmitter output power; the setting bar at the side of **SET** provides a graphic indication of power setting; please consider that the forward power readout provided on the display (**FWD:xxxx W**) reflects actual output power reading, **which may be lower than regulated power supply when Automatic Gain Control is running in power supply limitation mode** (please read section 5.3 about RF power supply modulation for more details).



Note: *Output power may be set using the **Pwr OFF** control. In this condition, the output power readout (**Fwd**) on the display will read 0 (zero); the **SET** bar will reflect any adjustments you make using the keys and provides a graphic indication of how much power supply will be delivered the moment you return to **Pwr On** state.*

5.1.5.5 Changing the *Power Good* alarm threshold

Change Forward Power Good alarm setting **PgD** from the **Fnc** menu as desired (factory setting is 50%).

5.1.5.6 Setting equipment I²C address

Change the **IIC** address in the **MIX** (Miscellaneous) menu as desired (factory setting is 01).

5.1.5.7 Adjustments and calibration

The only manual adjustments are the level adjustments and the audio mode adjustment.

The rear panel holds the trimmers for all transmitter inputs. Trimmer identification is printed on the rear panel and the input sensitivity can be set through these trimmers.

When setting input sensitivity, please consider that the default menu reports instantaneous modulation level and an indicator provides a 75 kHz reading. To ensure correct adjustment, apply a signal with the same level as user's audio broadcast maximum level and then adjust using the trimmer until instantaneous deviation matches the 75 kHz reading.

To set subcarrier input levels, you may use the same procedure and option "x10" available in the Fnc menu. With this option, modulation level is multiplied by a factor of 10, which means that default menu bar meter reflects a 7.5 kHz deviation.

A special menu with separate indications of Left and Right channel levels and relating indicators of nominal levels for maximum deviation (75 kHz) is provided.

- Preemphasis:



- L and R (XLR type) input impedance:



Switch 1: R XLR input impedance, ON = 600 W, OFF = 10 kW

Switch 2: L XLR input impedance, ON = 600 W, OFF = 10 kW

- MPX input operation mode/impedance:



Switch 1: Mode of operation ON = Mono, OFF = Stereo

Switch 2: MPX input impedance, ON = 50 W, OFF = 10 kW

5.2 Operation

- 1) Power on the transmitter and ensure that the **ON** light turns on. Equipment names should appear briefly on the display, quickly followed by modulation and forward power readings, provided that the transmitter is delivering output power.



Menu 1

- 1b) In case of a password has been set, through the Miscellaneous menu, enter the code and then confirm to be able to view or modify the parameters of the machine.

The screen that is shown is similar to the following:



Menu 2





NOTE: *It is advisable to write down the password set, if you forget the password it is not possible to recover it automatically. To recover the password, contact Customer Service by sending the alphanumeric PUK code of 6 characters generated automatically when entering the password.*

- 1c) To **modify power level setting**, hold down the **ENTER** button until opening the **power setup menu**.

The edit screen will look like this:



Menu 3

The bottom line provides instantaneous power reading (in this example 3.5kW for **THESLA TX3.5K**, falling below 1.6kW the reading back to Watt. As result of hysteresis power up , exceeding 1400W the reading back to kWatt); press button  to increase level, press  to decrease it. When you have achieved the desired level, press **ENTER** to confirm and exit the **default menu**. Please note that the setting is stored automatically; in other words, if you press **ESC** or do not press any keys before the preset time times out, the latest power level set will be retained.



NOTE: This feature prevents the machine from delivering maximum power as soon as output is enabled from menu 4, or in the event the machine is already set to **ON** and energised.

- 1d) If the equipment is not used for some time, it will enter in **STAND-BY mode**, where the screen will remain backlit and indications on time and date will be indicated on the display.



Menu 0

Press any button to exit from this screen.

- 2) Ensure that machine is not in a locked-out state. Press the **ESC** key to call up the selection screen (Menu 3). Highlight **Fnc** and press **ENTER** to confirm and access the appropriate menu (menu 4).

In the same menu, ensure that power limiting is disabled: if **PWR** is set to **OFF**, i.e. power output is disabled, move cursor to **PWR**. Press **ENTER** and label will switch to **ON**, i.e. power output enabled.

Press **ESC** twice to go back to the **default menu** (menu 1).

- 3) Fine tune power setting from menu 2 (see description of item 1b) until achieving the desired value.



WARNING: Machine is capable of delivering more than rated output power (3500 W for **THESLA TX3.5K**); however, never exceed the specified power rating .



NOTE: If power is set to 0 W in the **Power Setup Menu**, the INTERLOCK OUT contact is activated and any external appliances connected to it are immediately inhibited.

Next, you can review all operating parameters of the machine through the management firmware.

Normally, the machine can run unattended. Any alarm condition is handled automatically by the safety system or is signalled by the LED indicators on the panel or by display messages.



NOTE: Standard factory settings are: output power set to upper limit (unless otherwise specified by customer) and **OFF**.

5.3 Management Firmware

The machine features an LCD with two lines by 16 characters that displays a set of menus. Figure 5.2 below provides an overview of machine menus.

The symbols listed below appear in the left portion of the display as appropriate:

- (Cursor) - Highlights selected (i.e. accessible) menu.
- ▶ (Filled arrow) - Editable parameter marker. This symbol appears in menus that take up more than two lines to aid browsing.
- ▶▶▶ (Three empty arrows) - Parameter is being edited.
- ▶ (Empty arrow) - Current line marker; the parameter in this line cannot be edited. This symbol appears in menus that take up more than two lines to aid browsing.

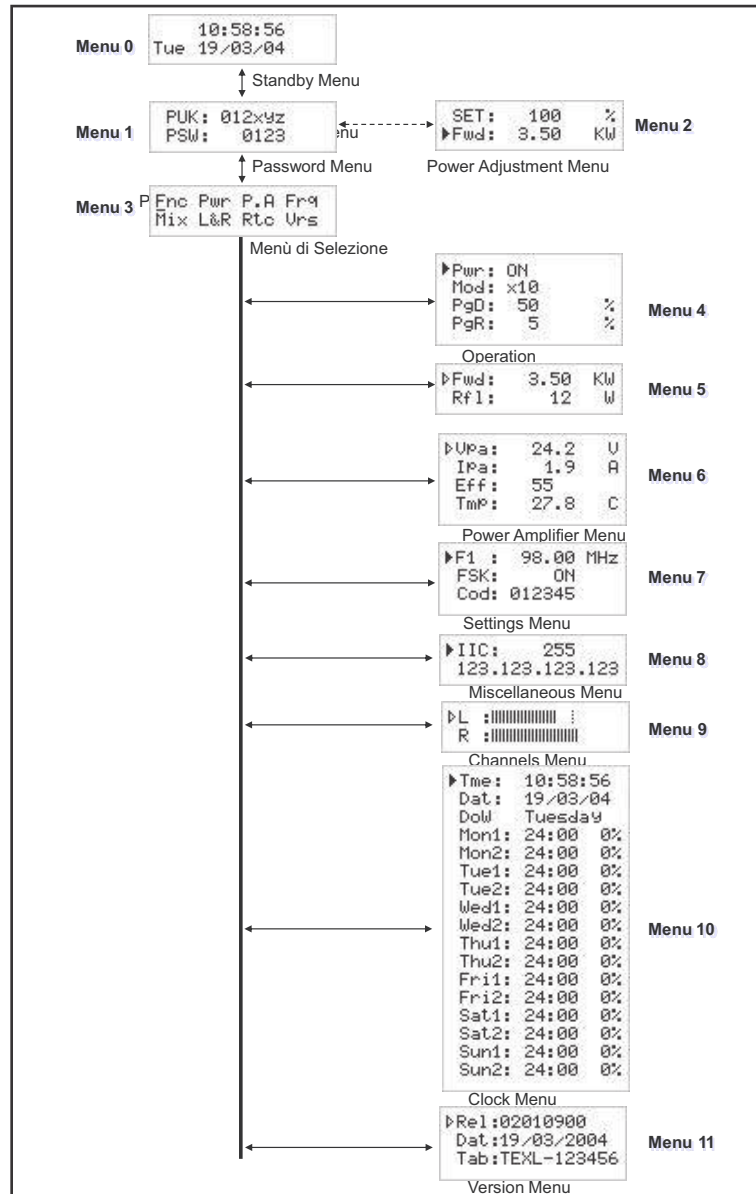


Figure 5.2

When the display is off, touching any key will turn on backlighting.

When the display is on, pressing the **ESC** button from the **default menu** (menu 1) calls up the **selection screen** (menu 3), which gives access to all other menus:



Menu 4

If the temperature alarm is enabled and the alarm threshold is exceeded, the following screen will be displayed (only if you are in the default screen):



State 1

As soon as operating conditions are restored, power output is re-enabled with the same settings in use prior to the alarm condition.

Under 20kHz, no modulation occurs. After a preset time of about 5 minutes (not editable), a NO AUDIO condition is indicated in the main screen, but power is not inhibited.





State 2

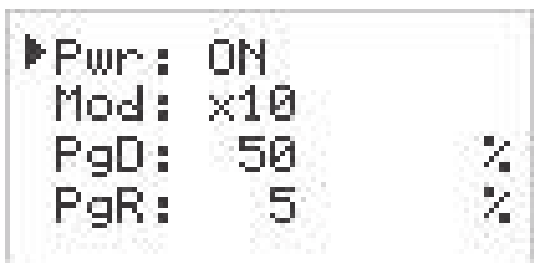
To gain access to a submenu, select menu name (name is highlighted by cursor) using button  or  and press the **ENTER** button.

To return to the **default menu** (menu 1), simply press **ESC** again.

5.3.1 Operation Menu (Fnc)

In this menu, you can toggle transmitter **power output** On/Off, set **deviation display mode** and the threshold rate for **Forward (PgD)** or **Reflected (PgR)** Power Good.

To edit an item, highlight the appropriate line using the  and  buttons and then press and hold the **ENTER** button until the command is accepted. This way, Pwr setting is toggled between On and Off and Mod setting is toggled between “x1” and “x10”. To edit the Power Good rate, simply select item “PgD” or “PgR” and edit its value using the UP and DOWN buttons; finally, press **ENTER** to confirm.



Menu 5

- Pwr Enables (ON) or disables (OFF) transmitter power output.
- Mod Modifies modulation display (toggles between “x1” and “x10”). In “x10” mode, instantaneous deviation indication is multiplied by a factor of 10, and the bar meter on the default menu will reflect 7.5 kHz instead of 75 kHz. This display mode is convenient when you wish to display low deviation levels, such as those caused by pilot tone or subcarriers.
- PgD Modifies Power Good threshold for forward power. The Power Good rate is a percent of equipment rated power (3500W for **THESLA TX3.5K**), not of forward output power. This means that this threshold set at 50% will give 1750 W, respectively, regardless of set power level. The Power Good feature enables output power control and reporting. When output power drops below set Power Good threshold, the equipment changes the state of pin [7] of the DB15 “Remote” connector located on the rear panel.
- PgR Modifies Power Good threshold for reflected power. The Power Good rate is a percent of equipment rated power (350W for **THESLA TX3.5K**), not of reflected output power. This means that this threshold set at 4%, respectively, will give 14W regardless of set power level. The Power Good feature enables output power control and alarm management.



NOTE: This alarm does not trip any contacts in the DB15 “Remote” connector and is only available in systems equipped with telemetry.

5.3.2 Power Menu (Pwr)

This screen holds all readings related to equipment output power:



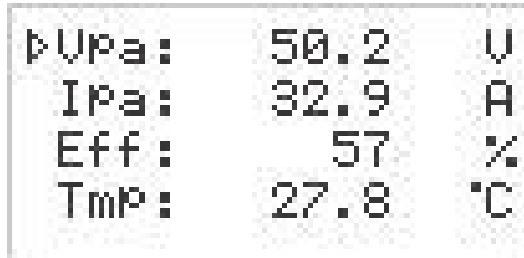
Menu 6

- Fwd Forward power reading.
- Rfl Reflected power reading.

Note that these are readings, rather than settings, and cannot be edited (note the empty triangle). To change power setting, go to the **default menu** as outlined earlier.

5.3.3 Power Amplifier(P.A)Menu

This screen is made up of four lines that can be scrolled using the and buttons and shows the readings relating to final power stage:



Menu 7

Note that these are readings, rather than settings, and cannot be edited (note the empty arrow).

- VPA Voltage supplied by amplifier module.
- IPA Current draw of amplifier module.
- Eff Efficiency based on ratio of forward power to amplifier module power, in percent (FWD PWR/(Vpa x Ipa) %).
- Tmp Equipment internal temperature reading.

5.3.4 Setup Menu (Set)

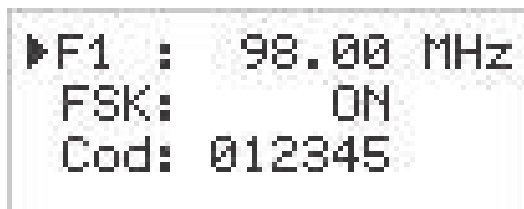
This menu lets you view and set operating frequency.

The FSK function generates periodic carrier frequency shifts to generate a Morse-coded station ID code.



NOTE: This function is typically used in the USA.

The factory setting for frequency shift amplitude is +10KHz and code repetition period is 60 minutes (please contact Biquad Broadcast if you need different settings), whereas station identified may be programmed by the user following the indications provided in next section.



Menu 7

- F1 Operating frequency setup. Set a new frequency value and then press the **ENTER** button to confirm your selection; the transmitter unlocks from current frequency (the **LOCKLED** turns off) and will lock to the new operating frequency (**LOCK** turns back on again). If you press **ESC** or let the preset time time out, the previous frequency setting is retained.
- FSK Enables / disables FSK code transmission.
- Cod Adjustment of the Morse code sent normally. The code is considered only if complete with 6 characters (alphanumeric and without spaces)

5.3.4.1 Changing the ID code

User may change the FSK code used as a station identifier at any time.

This procedure requires:

- 1 RS232 male-female cable;
- Hyper Terminal interface (make sure it has been installed together with Windows®) or equivalent serial communication software

A brief description of the procedure is provided below:

- Connect the PC serial port COM to the SERVICE connector on the rear panel of **THESLA TX3.5K** using a standard Male DB9 - Female DB9 serial cable.
- Power on the transmitter;
- Launch the serial communication software;
- Set communication parameters as follows:

Baud Rate: 19200

Data Bit: 8

Parity: None

Stop Bit: 1

Flow control: None;

- Activate Caps-Lock through the communication software and send string CODE followed by the 6-character station ID code followed by Enter.



NOTE: To be treated as valid, the code must be made up of 6 alphanumeric characters and must contain no blank spaces; if acknowledged as valid, code is echoed back to the terminal, illegal codes are not echoed.

5.3.5 Miscellaneous Menu (Mix)

This menu lets you set equipment address in an I²C bus serial connection:



Menu 9

- IIC I²C address setting. The I²C network address becomes significant when the transmitter is connected in an Biquad transmission system that uses this protocol. Do not change it unless strictly required.
- IP Shows the IP address assigned to the equipment (with /TLW-TEX-E-3HE option).
- PSW Setting a numeric password of 4 characters. At the time of purchase, the password is set to [0000] by default; this configuration automatically disables the entry of the password in default screen.

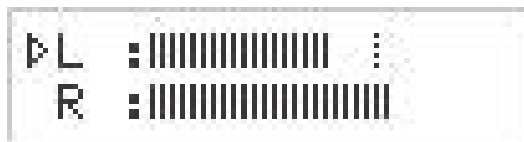


NOTE: It is advisable to write down the password set, if you forget the password it is not possible to recover it automatically. To recover the password, contact Customer Service by sending the alphanumeric PUK code of 6 characters generated automatically when entering the password.

5.3.6 Channels Menu (L&R)

Right and left channel input levels are displayed as horizontal bars as shown in the figure below.

The bar meter reflects the level corresponding to a 100% deviation for each channel and provides a convenient reference when setting audio channel input levels.



Menu 11

- L Left channel Vmeter.
- R Right channel Vmeter.

5.3.7 Clock Menu (Rtc)

This menu it lets you to set the time and date of the equipment, as well as to set temporal events to modify the power of the equipment.

```

▶Tme : 10:58:56
Dat : 19/03/04
Dow Tuesday
Mon1: 24:00 0%
Mon2: 24:00 0%
Tue1: 24:00 0%
Tue2: 24:00 0%
Wed1: 24:00 0%
Wed2: 24:00 0%
Thu1: 24:00 0%
Thu2: 24:00 0%
Fri1: 24:00 0%
Fri2: 24:00 0%
Sat1: 24:00 0%
Sat2: 24:00 0%
Sun1: 24:00 0%
Sun2: 24:00 0%
    
```

Menu 10

- Tme Adjustment of the hours, minutes and seconds of the equipment (HH:mm:ss)
- Dat Adjustment of the date of the equipment (dd/MM/yy).
- DoW Adjustment of the name of the day of the week.
- Mon1 Adjusting the first Monday event in which occurs the power variation set in percentage.
- Mon2 Adjusting the second Monday event in which occurs the power variation set in percentage.
- Tue1 Adjusting the first Tuesday event in which occurs the power variation set in percentage.

- Tue2 Adjusting the second Tuesday event in which occurs the power variation set in percentage.
- Wed1 Adjusting the first Wednesday event in which occurs the power variation set in percentage.
- Wed2 Adjusting the second Wednesday event in which occurs the power variation set in percentage.
- Thu1 Adjusting the first Thursday event in which occurs the power variation set in percentage.
- Thu2 Adjusting the second Thursday event in which occurs the power variation set in percentage.
- Fri1 Adjusting the first Friday event in which occurs the power variation set in percentage.
- Fri2 Adjusting the second Friday event in which occurs the power variation set in percentage.
- Sat1 Adjusting the first Saturday event in which occurs the power variation set in percentage.
- Sat2 Adjusting the second Saturday event in which occurs the power variation set in percentage.
- Sun1 Adjusting the first Sunday event in which occurs the power variation set in percentage.
- Sun2 Adjusting the second Sunday event in which occurs the power variation set in percentage.



NOTE: The correct setting of events provides a power ranging between 0 and 105%, and a time ranging between 00:00 and 23:59.
If the set time is 24:00, then the event is disabled.



NOTE: The power change set in the event will be maintained until the next set event; in case of remote modifies, the power change will be instantaneous until to the next event.

5.3.6 Version Menu (Vrs)

This screen holds equipment version/release information:


```
▶Rel:02010900  
Dat:19/03/2004  
Tab:TEXL-123456
```

Menu 10

Note that these are readings, rather than settings, and cannot be edited (note the empty arrow).

Rel	Firmware release information.
Dat	Release date.
Tab	Shows table loaded in the memory.



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