





# FROM 2.5kW TO 5kW

FM AMPLIFIER

**ELENOS**<sup>®</sup>  
World Broadcast Experience



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our technologies



Indium



Icefet



Ecosaving



Life Extender



Brochure

## FM AMPLIFIER MEDIUM POWER

### FM AMPLIFIER MEDIUM POWER

The E series line of Indium amplifiers comprises models with an RF power rating of between 2500W and 5000W, usable as a basic module for high power transmitters.

This series represents the world's most advanced technology in terms of electrical efficiency, compact and lightweight design, ease of use, diagnostics, and completeness of operating data, protection strategies and service maintenance under extreme operating conditions.

This line of products is designed to guarantee maximum satisfaction and a reduction of operating costs through energy savings.

These units provide overall electrical efficiency values that have never been achieved before, combined with a very high level of operating safety even under extreme conditions (high ambient temperature, antenna mismatching, fluctuations from the mains line).

How is this possible? Thanks to innovative design features for the RF and switching power supply units, as well as exclusive optimized operation management algorithms.

The unsurpassed efficiency of the RF amplifier section and power supply units has also resulted in a significant reduction in weight and dimensions for the cooling system. The advantages derived from these factors are crucial: greater installation facility, and reduced transportation and housing costs.

These units provide accurate operating data, allowing users to precisely analyze the machine's status and easily pinpoint any faults, either via the user interface or remote devices.

The user can acquire this data and control the device via a telephone line connection (SMS, GPRS) or from the internet (WEB technology, SNMP protocol).

## Features:

### **Smart Design**

Extremely contained dimensions, lightweight, clean layout, easy maintenance and servicing.

### **Low energy consumption**

Highly reduced electricity consumption and operating costs thanks to innovative and accurate design techniques.

### **Reliability**

Very high reliability and a capacity to maintain operating functionality even under extreme conditions, thanks to intelligent protection systems, Icefet technology and Lifextender algorithms.

### **Total control**

Accurate, detailed data on the device's operation, available at an analytical level (voltage, current, power, temperature, efficiency, protections, settings, audio levels, communications). Remote connection possible via SMS, GPRS, SNMP and WEB.

### **Scalability**

All projects are designed to be scalable, with the great advantage of replicating the technologies and knowhow from the basic modules on a larger scale.



Datasheet

## FM AMPLIFIER MEDIUM POWER | E2500

E2500

FM AMPLIFIER MEDIUM POWER

### GENERAL DATA

Output Nominal Power	2500 W adjustable
Operating band	87.5 ÷ 108 MHz
RS232/RS485	Yes. Connector DB9 female
Points of measure	RF Sample - MPX Monitor
Displayed Parameters	More than 50 parameters displayed on a wide graphic OLED
Adjustments	From the frontal panel through OLED/from PC
Number of L-DMOS in amplifier stage	4
RF power stage technology	ICEFET & ECOSAVING
Dimensions: Rack units	4U
Dimensions: W - H - D	48.5 - 17.6 - 70 cm
Weight	35 Kg
Number of power supplies	3
Number of cooling fans	6
RF Output connector	7/8"
RF Input connector	N

### RF PERFORMANCE

Output impedance	50 Ω
Automatic power RF control	Stabilizes the output power value on the set value
Overall output power RF stability	+/- 0,1 dB
VSWR	2:1 at full power. Automatic power reduction beyond 1.7:1. Transmitter is protected for open and short circuit.
Harmonics	< -75 dBc
Out of band emission (spurious)	< -80 dBc

### AUDIO AND EXCITER PERFORMANCE

Driving power	2W *
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### INSTALLATION REQUIREMENTS

Power supply	230/400 Threephase-Singlephase Version 50-60 Hz VAC
Power consumption (typical)	3.5 KW

\* Elenos suggests to drive this amplifier with ETG20 Elenos Indium Series

## FM AMPLIFIER MEDIUM POWER | E2500

Overall efficiency (typical from -3 dB to Pnom)	> = 70%
Power factor	> 0.95
Current Consumption @ 230VAC/single phase	15 Amp
Magneto-thermic capacity @ 230VAC/single phase	32 Amp
Conductor size @ 230VAC/single phase	6 sqrt.mm
Conductor size @ 230VAC/single phase	9 AWG
Current Consumption @ 230VAC/three phase	9 Amp
Magneto-thermic capacity @ 230VAC/three phase	20 Amp
Conductor size @ 230VAC/three phase	4 sqrt.mm
Conductor size @ 230VAC/three phase	11 AWG
Current Consumption @ 400VAC/three phase	5 Amp
Magneto-thermic capacity @ 400VAC/three phase	10 Amp
Conductor size @ 400VAC/three phase	2.5 sqrt.mm
Conductor size @ 400VAC/three phase	13 AWG

### COOLING/NOISE/DATA

Cooling system	Forced air-cooling . From 600 to 1200 m3/h
Air temperature increase	17 °C
Acoustic noise	< 65 phon @ transmitter room, 2 m distance of the front of transmitter

### ENVIRONMENT

Temperature range (operating)	-5 ÷ +45 °C, 23 ÷ 113 °F
Temperature range (non operating)	-20 ÷ +55 °C, -4 ÷ 131 °F
Humidity range (operating)	95% @ 40 °C, 104 °F
Humidity range (non operating)	90% @ 55 °C, 131 °F
Altitude range (operating)	<3000 meters / <9840 Feet
Altitude range (non operating)	<15000 meters / < 49200 Feet

### TELECONTROL & TELEMETRY

Remote control	Yes
Remote control, dry contacts	Yes
SNMP option	Yes (external)





Datasheet

## FM AMPLIFIER MEDIUM POWER | E3500

E3500

FM AMPLIFIER MEDIUM POWER

### GENERAL DATA

Output Nominal Power	3500 W adjustable
Operating band	87.5 ÷ 108 MHz
RS232/RS485	Yes. Connector DB9 femate
Points of measure	RF Sample - MPX Monitor
Displayed Parameters	More than 50 parameters displayed on a wide graphic OLED
Adjustments	From the frontal panel through OLED/from PC
Number of L-DMOS in amplifier stage	5
RF power stage technology	ICEFET & ECOSAVING
Dimensions: Rack units	4U
Dimensions: W - H - D	48.5 - 17.6 - 70 cm
Weight	35 Kg
Number of power supplies	3
Number of cooling fans	6

### CONNECTORS

RF Output connector	7/8"
RF Input connector	N

### RF PERFORMANCE

Output impedance	50 Ω
Automatic power RF control	Stabilizes the output power value on the set value
Overall output power RF stability	+/- 0,1 dB
VSWR	2:1 at full power. Automatic power reduction beyond 1.7:1. Transmitter is protected fro open and short circuit.
Harmonics	< -75 dBc
Out of band emission (spurious)	< -80 dBc

### AUDIO AND EXCITER PERFORMANCE

Driving power	2W *
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### INSTALLATION REQUIREMENTS

Power supply	230/400 Threephase-Singlephase Version 50-60 Hz VAC
Power consumption (typical)	4.9 KW

\* Elenos suggests to drive this amplifier with ETG20 Elenos Indium Series

## FM AMPLIFIER MEDIUM POWER | E3500

Overall efficiency (typical from -3 dB to Pnom)	> = 70%
Power factor	> 0.95
Current Consumption @ 230VAC/single phase	21.3 Amp
Magneto-thermic capacity @ 230VAC/single phase	32 Amp
Conductor size @ 230VAC/single phase	10 sqrt.mm
Conductor size @ 230VAC/single phase	7 AWG
Current Consumption @ 230VAC/three phase	12.5 Amp
Magneto-thermic capacity @ 230VAC/three phase	20 Amp
Conductor size @ 230VAC/three phase	6 sqrt.mm
Conductor size @ 230VAC/three phase	9 AWG
Current Consumption @ 400VAC/three phase	7.1 Amp
Magneto-thermic capacity @ 400VAC/three phase	16 Amp
Conductor size @ 400VAC/three phase	4 sqrt.mm
Conductor size @ 400VAC/three phase	11 AWG

### COOLING/NOISE/DATA

Cooling system	Forced air-cooling . From 600 to 1200 m3/h
Air temperature increase	17 °C
Acoustic noise	< 65 phon @ transmitter room, 2 m distance of the front of transmitter

### ENVIRONMENT

Temperature range (operating)	-5 ÷ +45 °C, 23 ÷ 113 °F
Temperature range (non operating)	-20 ÷ +55 °C, -4 ÷ 131 °F
Humidity range (operating)	95% @ 40 °C, 104 °F
Humidity range (non operating)	90% @ 55 °C, 131 °F
Altitude range (operating)	<3000 meters / <9840 Feet
Altitude range (non operating)	<15000 meters / < 49200 Feet

### TELECONTROL & TELEMETRY

Remote control	Yes
Remote control, dry contacts	Yes
SNMP option	Yes (external)



Datasheet

## FM AMPLIFIER MEDIUM POWER | E5000

E5000

FM AMPLIFIER MEDIUM POWER

<b>GENERAL DATA</b>	
Output Nominal Power	5000 W adjustable
Operating band	87.5 ÷ 108 MHz
RS232/RS485	Yes. Connector DB9 female
Points of measure	RF Sample - MPX Monitor
Displayed Parameters	More than 50 parameters displayed on a wide graphic 0-LED screen
Adjustments	From the frontal panel through OLED/from PC
Number of L-DMOS in amplifier stage	7
RF power stage technology	ICEFET & ECOSAVING
Dimensions: Rack units	4U
Dimensions: W - H - D	48.5 - 17.6 - 70 cm
Weight	35 Kg
Number of power supplies	3
Number of cooling fans	6
<b>CONNECTORS</b>	
RF Output connector	7/8
RF Input connector	N
<b>RF PERFORMANCE</b>	
Output impedance	50 Ω
Automatic power RF control	Stabilizes the output power value on the set value
Overall output power RF stability	+/- 0,1 dB
VSWR	2:1 at full power. Automatic power reduction beyond 1.7:1. Transmitter is protected fro open and short circuit.
Harmonics	< -75 dBc
Out of band emission (spurious)	< -80 dBc
<b>AUDIO AND EXCITER PERFORMANCE</b>	
Driving power	2W *
<b>INSTALLATION REQUIREMENTS</b>	
Power supply	230/400 Threephase-Singlephase Version 50-60 Hz VAC
Power consumption (typical)	7.1 KW

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## FM AMPLIFIER MEDIUM POWER | E5000

Overall efficiency (typical from -3dB to Pnom)	> = 70%
Power factor	> 0.95
Current Consumption @ 230VAC/single phase	31 Amp
Magneto-thermic capacity @ 230VAC/single phase	45 Amp
Conductor size @ 230VAC/single phase	10 sqrt.mm
Conductor size @ 230VAC/single phase	7 AWG
Current Consumption @ 230VAC/three phase	18.5 Amp
Magneto-thermic capacity @ 230VAC/three phase	32 Amp
Conductor size @ 230VAC/three phase	6 sqrt.mm
Conductor size @ 230VAC/three phase	9 AWG
Current Consumption @ 400VAC/three phase	10.5 Amp
Magneto-thermic capacity @ 400VAC/three phase	20 Amp
Conductor size @ 400VAC/three phase	4 sqrt.mm
Conductor size @ 400VAC/three phase	11 AWG

### COOLING/NOISE/DATA

Cooling system	Forced air-cooling . From 600 to 1200 m3/h
Air temperature increase	17 °C
Acoustic noise	< 65 phon @ transmitter room, 2 m distance of the front of transmitter

### ENVIRONMENT

Temperature range (operating)	-5 ÷ +45 °C, 23 ÷ 113 °F
Temperature range (non operating)	-20 ÷ +55 °C, -4 ÷ 131 °F
Humidity range (operating)	95% @ 40 °C, 104 °F
Humidity range (non operating)	90% @ 55 °C, 131 °F
Altitude range (operating)	<3000 meters / <9840 Feet
Altitude range (non operating)	<15000 meters / < 49200 Feet

### TELECONTROL & TELEMETRY

Remote control	Yes
Remote control, dry contacts	Yes
SNMP option	Yes (external)