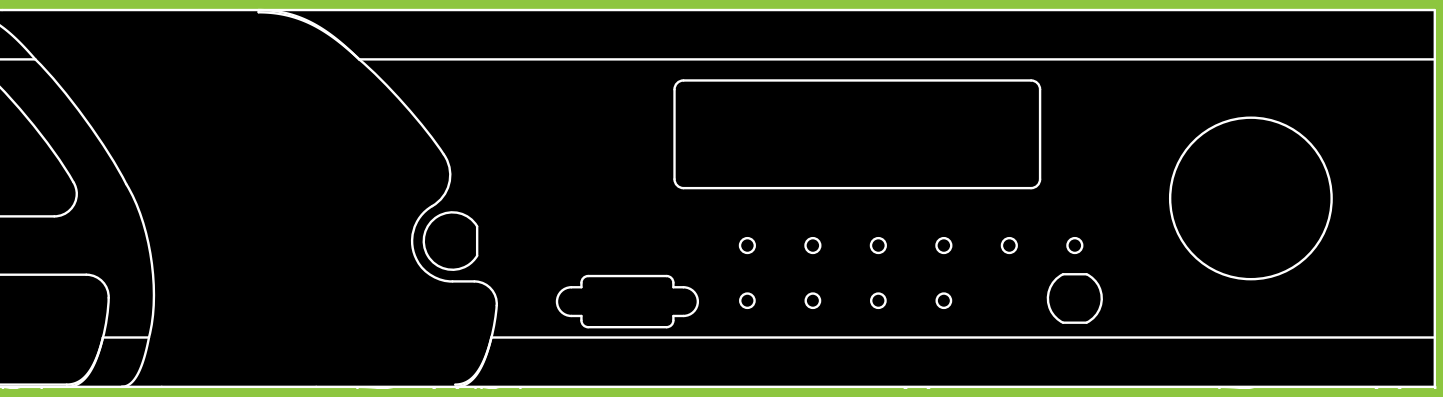


FROM 150W TO 2kW

FM TRANSMITTER

ELENOS®

World Broadcast Experience

*All images are proprietary from Elenos and are for indicative purposes only.
Technical data can be subject to change without notice.

our technologies

Indium

Icefet

Ecosaving

Life Extender

Brochure

FM TRANSMITTER INDIUM SERIES

The transmitters in this product line are available in 6 different power levels (150W, 300W, 500W, 1000W, 1500W and 2000W).
Winner of the Cool Stuff Award in 2012, these products combine ultra high efficiency, high reliability and low energy consumption in a sleek, 2RU high, compact rack mountable unit.

The 2U line maximizes the concepts of energy efficiency, compactness and reliability that have steered the design over the past ten years. All the transmitters in this line are extremely compact and light, which makes for greater ease in their installation and lower transportation costs. Their high energy efficiency also allows for a considerably lower operating cost. The line is also characterized by extremely high reliability and the ability to ensure high performance even under extreme operating conditions due to intelligent safety protocols, Icefet technology, and Lifextender algorithms. The intelligent safety protocols are activated proportionately to the severity of the environmental condition, thus guaranteeing the maximum power output in respect to the safety of the equipment.
The models from 150 to 500 watts can also operate with a DC power supply of 48VDC (operating range 40-56 VDC), designed for operation with renewable energy sources such as wind and/or solar.

Features:

High efficiency

Extremely low-power consumption and reduced operating costs.

Smart functions/synaptic functions

Extraordinary performance level through the use of powerful operational algorithms and inter-module communications within the transmitter. These software algorithms adapt the transmitter to environmental conditions or to any connected device, preventing poor RF operation or diminished audio quality.

Very compact size and condensed power

Two rack units in height, with a weight of less than 14 kilograms (30.8 lbs), unmatched power versus volume and power versus weight ratio.

Planar technology

Exceptional stability, repeatability, reliability and ease of maintenance through the use of planar technology within the entire RF section (RF modules, combiners, splitter and low-pass filter). This allows for the minimization of internal connections and soldering, which increases the long term operation and performance.

Connected everywhere

The remote control and management features allow users to receive data and send instructions to the transmitter via several state-of-the-art communication channels — SMS, GPRS, TCP/IP and SNMP.

2U

Solar
Renewable

FM TRANSMITTER INDIUM SERIES

ELENOS ECO SUSTAINABLE

Our photovoltaic systems generate energy which respects the environment

The Elenos Indium Series Low Power FM Series (LPFM) ETG150, 300.3 and 500.5 are now available for DC Operation in applications where AC Power is not available.

The Elenos LPFM Indium series can now be purchased with a DC source option which is designed to operate with renewable energy such as photovoltaic panels or wind turbines which natively produce DC power.

The new ETG LPFM FM Transmitters require a DC input voltage of 48V (40 - 56 VDC) from photovoltaic panels or other DC power source.

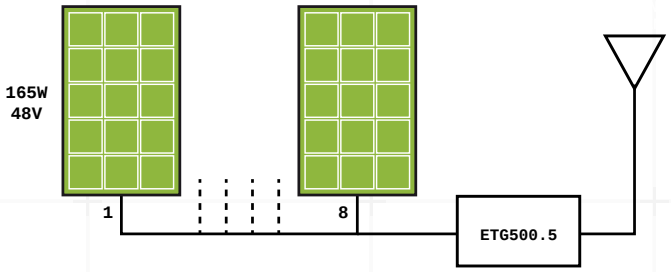
The guaranteed audio and RF performance. Is identical to that of our Indium LPFM transmitters which use single phase AC. The typical DC to RF efficiency is 80%.

The transmitter typical consumption is as follows:

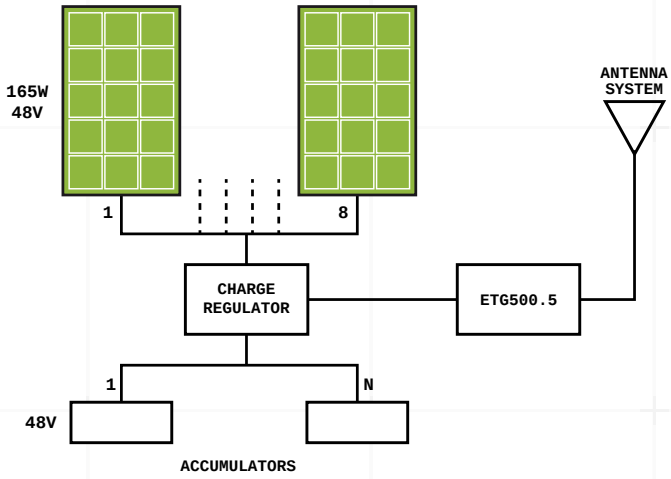
@150W RF: 250W DC.
@300W RF: 500W DC.
@500W RF: 800W DC.

For transmitter technical data please see the ETG 150, ETG 300.3 or ETG 500 datasheets.

A |



B |



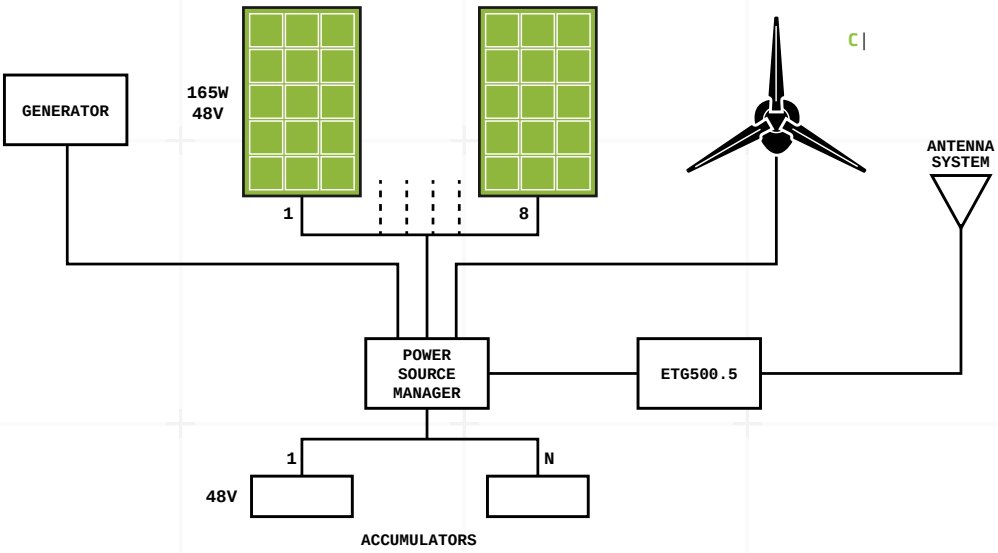
APPLICATION EXAMPLES

A |
Photovoltaic solar panels without accumulators / batteries low cost and high reliability, service available only with the sun as the power source).

B |
Photovoltaic panels with accumulators/batteries and charge regulator for most practical situations.

C |
The transmitter can be supplied by a complete redundant system in order to avoid interruptions. In this case any combination of DC Power sources such as photovoltaic solar panels, wind generators or even a diesel generator which produces DC power can be used.

C |



Datasheet

GENERAL DATA	
Output Nominal Power	150 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	1
RF power stage technology	ICEFET & ECOSAVING
Dimensions: Rack units	2 RU
Dimensions: W - H - D	48.5 - 8.5 - 58.5 cm / 19.11 - 3.35 - 23.05 inches
Weight	9.4 Kg / 20.72 lbs
Number of cooling fans	2
CONNECTORS	
RF Output	N
MPX	BNC Female
LEFT & RIGHT	XLR Female
AES/EBU	XLR Female
AUX	BNC Female
Monitor/19 kHz	BNC Female
RF PERFORMANCE	
Output impedance	50 Ω
Automatic power RF control	Stabilizes the output power value to the Target power level selected
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 PERFORMANCE	
MPX input level	+15/-10 dBu for 75 KHz standard deviation
MPX level adjustment	Soft adjust 0.1 dB steps from front panel
MPX input impedance	5 KΩ selectable
L/R input level	+15/-10 dBu for 75 KHz standard deviation
L/R level adjustment	Soft adjust 0.1 dBu steps from front panel
L/R Input Impedance	Selectable 10 K - 600 Ω, balanced
AES/EBU input resolution	24 bits
AES/EBU input sample rate	32,44.1,48,96 KHz Automatically selected
AES/EBU input level	-20 dBFS - 0 dBFS
AES/EBU input impedance	110 Ω balanced
AES/EBU-Analog input automatic changeover	Yes
PILOT Amplitude adjustment	Soft adjust 0.05% steps from front panel
PILOT Phase adjustment	Soft adjust 0.01 degree steps from front panel
PILOT tone frequency	19 KHz
PILOT tone deviation	Soft adjust +/- 7.5 KHz
PILOT tone frequency stability	+/- 1 Hz
THD+N (stereo/mono operation)	< 0.05% with 75 KHz frequency deviation < 0.05% with 100 KHz frequency deviation 30 Hz to 15 KHz
Pre-emphasis	0/25/50/75 microseconds, selectable
Pre-emphasis tolerance	+/- 0.1 dB
FM S/N (MPX operation)	82 dB 20 Hz to 23 KHz @ 53 KHz - detector RMS
FM S/N CCIR (stereo/mono operation)	> = 72 dB weighted > = 72 dB unweighted 400 Hz, 75 KHz frequency deviation, quasi-peak detector, 50 us de-emphasis
Asynchronous AM S/N unweighted	> = 55 dB a 400 Hz, 75 us de-emphasis
Synchronous AM S/N	> = 50 dB a 400 Hz, 75 us de-emphasis

Amplitude-frequency characteristic (stereo/mono operation)	+/- 0.1 dB (without pre-emphasis) +/- 0.1 dB (with pre-emphasis) 20 Hz to 15 KHz, @ 400 Hz
Stereo Crosstalk	>60 dB @ 20 Hz to 15 KHz
Linear crosstalk	>60 db 20 Hz to 15 KHz
Intermodulation distortion	<0.05% Measured with two of tones 1 KHz & 1.3 KHz, ratio 1:1 at 100% modulation
Class of emission	F3
Stereo emission	According to ITU-R reccomendation 450 (pilot tone)
EXCITER PERFORMANCE	
PLL lock time	<10 sec
Frequency deviation	+/- 75 KHz 0.1 dB steps adjustable
Maximum frequency deviation	+/- 150 KHz
Frequency stability	1 ppm
RF Frequency steps	10 KHz
Phase Response	+/- 0.1 degree from linear phase; 20 KHz to 100 KHz
INSTALLATION REQUIREMENTS	
Power supply	110, 230 Two-Singlephase Version 50-60 Hz VAC
Power consumption (typical)	230 W
Current consumption (typical@230 V)	1 A
Overall efficiency (typical from -3 dB to Pnom)	> = 70%
Power factor	> 0.95
COOLING/NOISE/DATA	
Cooling system	Forced air-cooling
Acoustic noise	< 65 phone @ transmitter room, 2 M distance from the front of the 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)

GENERAL DATA	
Output Nominal Power	300 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	1
RF power stage technology	ICEFET & ECOSAVING
Dimensions: Rack units	2 RU
Dimensions: W - H - D	48.5 - 8.5 - 58.5 cm / 19.11 - 3.35 - 23.05 inches
Weight	9.4 Kg / 20.72 lbs
Number of cooling fans	2
CONNECTORS	
RF Output	N
MPX	BNC Female
LEFT & RIGHT	XLR Female
AES/EBU	XLR Female
AUX	BNC Female
Monitor/19 kHz	BNC Female
RF PERFORMANCE	
Output impedance	50 Ω
Automatic power RF control	Stabilizes the output power value to the Target power level selected
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 PERFORMANCE	
MPX input level	+15/-10 dBu for 75 KHz standard deviation
MPX level adjustment	Soft adjust 0.1 dB steps from front panel
MPX input impedance	5 KΩ selectable
L/R input level	+15/-10 dBu for 75 KHz standard deviation
L/R level adjustment	Soft adjust 0.1 dBu steps from front panel
L/R Input Impedance	Selectable 10 K - 600 Ω, balanced
AES/EBU input resolution	24 bits
AES/EBU input sample rate	32,44.1,48,96 KHz Automatically selected
AES/EBU input level	-20 dBFS - 0 dBFS
AES/EBU input impedance	110 Ω balanced
AES/EBU-Analog input automatic changeover	Yes
PILOT Amplitude adjustment	Soft adjust 0.05% steps from front panel
PILOT Phase adjustment	Soft adjust 0.01 degree steps from front panel
PILOT tone frequency	19 KHz
PILOT tone deviation	Soft adjust +/- 7.5 KHz
PILOT tone frequency stability	+/- 1 Hz
THD+N (stereo/mono operation)	< 0.05% with 75 KHz frequency deviation < 0.05% with 100 KHz frequency deviation 30 Hz to 15 KHz
Pre-emphasis	0/25/50/75 microseconds, selectable
Pre-emphasis tolerance	+/- 0.1 dB
FM S/N (MPX operation)	82 dB 20 Hz to 23 KHz @ 53 KHz - detector RMS
FM S/N CCIR (stereo/mono operation)	> = 72 dB weighted > = 72 dB unweighted 400 Hz, 75 kHz frequency deviation, quasi-peak detector, 50 us de-emphasis
Asynchronous AM S/N unweighted	> = 55 dB a 400 Hz, 75 us de-emphasis
Synchronous AM S/N	> = 50 dB a 400 Hz, 75 us de-emphasis

Amplitude-frequency characteristic (stereo/mono operation)	+/- 0.1 dB (without pre-emphasis) +/- 0.1 dB (with pre-emphasis) 20 Hz to 15 KHz, @ 400 Hz
Stereo Crosstalk	>60 dB @ 20 Hz to 15 kHz
Linear crosstalk	>60 db 20 Hz to 15 KHz
Intermodulation distortion	<0.05% Measured with two of tones 1 KHz & 1.3 KHz, ratio 1:1 at 100% modulation
Class of emission	F3
Stereo emission	According to ITU-R reccomendation 450 (pilot tone)
EXCITER PERFORMANCE	
PLL lock time	<10 sec
Frequency deviation	+/- 75 KHz 0.1 dB steps adjustable
Maximum frequency deviation	+/- 150 KHz
Frequency stability	1 ppm
RF Frequency steps	10 KHz
Phase Response	+/- 0.1 degree from linear phase; 20 KHz to 100 KHz
INSTALLATION REQUIREMENTS	
Power supply	110, 230 Two-Singlephase Version 50-60 Hz VAC
Power consumption (typical)	430 W
Current consumption (typical@230 V)	1.9 A
Overall efficiency (typical from -3 dB to Pnom)	> = 70%
Power factor	> 0.95
COOLING/NOISE/DATA	
Cooling system	Forced air-cooling
Acoustic noise	< 65 phone @ transmitter room, 2 M distance from the front of the 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

GENERAL DATA	
Output Nominal Power	500 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	1
RF power stage technology	ICEFET & ECOSAVING
Dimensions: Rack units	2 RU
Dimensions: W - H - D	48.5 - 8.5 - 58.5 cm / 19.11 - 3.35 - 23.05 inches
Weight	9.4 Kg / 20.72 lbs
Number of cooling fans	2
CONNECTORS	
RF Output	7/16" DIN Female (or on demand) or N on demand
MPX	BNC Female
LEFT & RIGHT	XLR Female
AES/EBU	XLR Female
AUX	BNC Female
Monitor/19 kHz	BNC Female
RF PERFORMANCE	
Output impedance	50 Ω
Automatic power RF control	Stabilizes the output power value to the Target power level selected
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 PERFORMANCE	
MPX input level	+15/-10 dBu for 75 KHz standard deviation
MPX level adjustment	Soft adjust 0.1 dB steps from front panel
MPX input impedance	5 KΩ selectable
L/R input level	+15/-10 dBu for 75 KHz standard deviation
L/R level adjustment	Soft adjust 0.1 dBu steps from front panel
L/R Input Impedance	Selectable 10 K - 600 Ω, balanced
AES/EBU input resolution	24 bits
AES/EBU input sample rate	32,44.1,48,96 KHz Automatically selected
AES/EBU input level	-20 dBFS - 0 dBFS
AES/EBU input impedance	110 Ω balanced
AES/EBU-Analog input automatic changeover	Yes
PILOT Amplitude adjustment	Soft adjust 0.05% steps from front panel
PILOT Phase adjustment	Soft adjust 0.01 degree steps from front panel
PILOT tone frequency	19 KHz
PILOT tone deviation	Soft adjust +/- 7.5 KHz
PILOT tone frequency stability	+/- 1 Hz
THD+N (stereo/mono operation)	< 0.05% with 75 KHz frequency deviation < 0.05% with 100 KHz frequency deviation 30 Hz to 15 KHz
Pre-emphasis	0/25/50/75 microseconds, selectable
Pre-emphasis tolerance	+/- 0.1 dB
FM S/N (MPX operation)	82 dB 20 Hz to 23 KHz @ 53 KHz - detector RMS
FM S/N CCIR (stereo/mono operation)	> = 72 dB weighted > = 72 dB unweighted 400 Hz, 75 KHz frequency deviation, quasi-peak detector, 50 us de-emphasis
Asynchronous AM S/N unweighted	> = 55 dB a 400 Hz, 75 us de-emphasis
Synchronous AM S/N	> = 50 dB a 400 Hz, 75 us de-emphasis

Amplitude-frequency characteristic (stereo/mono operation)	+/- 0.1 dB (without pre-emphasis) +/- 0.1 dB (with pre-emphasis) 20 Hz to 15 KHz, @ 400 Hz
Stereo Crosstalk	>60 dB @ 20 Hz to 15 KHz
Linear crosstalk	>60 db 20 Hz to 15 KHz
Intermodulation distortion	<0.05% Measured with two of tones 1 KHz & 1.3 KHz, ratio 1:1 at 100% modulation
Class of emission	F3
Stereo emission	According to ITU-R reccomendation 450 (pilot tone)
EXCITER PERFORMANCE	
PLL lock time	<10 sec
Frequency deviation	+/- 75 KHz 0.1 dB steps adjustable
Maximum frequency deviation	+/- 150 KHz
Frequency stability	1 ppm
RF Frequency steps	10 KHz
Phase Response	+/- 0.1 degree from linear phase; 20 KHz to 100 KHz
INSTALLATION REQUIREMENTS	
Power supply	110, 230 Two-Singlephase Version 50-60 Hz VAC
Power consumption (typical)	690 W
Current consumption (typical@230 V)	3 A
Overall efficiency (typical from -3 dB to Pnom)	> = 70%
Power factor	> 0.95
COOLING/NOISE/DATA	
Cooling system	Forced air-cooling
Acoustic noise	< 65 phone @ transmitter room, 2 M distance from the front of the 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

GENERAL DATA	
Output Nominal Power	1000 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	2
RF power stage technology	ICEFET & ECOSAVING
Dimensions: Rack units	2 RU
Dimensions: W - H - D	48.5 - 8.5 - 58.5 cm / 19.11 - 3.35 - 23.05 inches
Weight	13.2 Kg / 29.1 lbs
Number of cooling fans	3
CONNECTORS	
RF Output	7/16" DIN Female
MPX	BNC Female
LEFT & RIGHT	XLR Female
AES/EBU	XLR Female
AUX	BNC Female
Monitor/19 kHz	BNC Female
RF PERFORMANCE	
Output impedance	50 Ω
Automatic power RF control	Stabilizes the output power value to the Target power level selected
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 PERFORMANCE	
MPX input level	+15/-10 dBu for 75 KHz standard deviation
MPX level adjustment	Soft adjust 0.1 dB steps from front panel
MPX input impedance	5 KΩ selectable
L/R input level	+15/-10 dBu for 75 KHz standard deviation
L/R level adjustment	Soft adjust 0.1 dBu steps from front panel
L/R Input Impedance	Selectable 10 K - 600 Ω, balanced
AES/EBU input resolution	24 bits
AES/EBU input sample rate	32,44.1,48,96 KHz Automatically selected
AES/EBU input level	-20 dBFS - 0 dBFS
AES/EBU input impedance	110 Ω balanced
AES/EBU-Analog input automatic changeover	Yes
PILOT Amplitude adjustment	Soft adjust 0.05% steps from front panel
PILOT Phase adjustment	Soft adjust 0.01 degree steps from front panel
PILOT tone frequency	19 KHz
PILOT tone deviation	Soft adjust +/- 7.5 KHz
PILOT tone frequency stability	+/- 1 Hz
THD+N (stereo/mono operation)	< 0.05% with 75 KHz frequency deviation < 0.05% with 100 KHz frequency deviation 30 Hz to 15 KHz
Pre-emphasis	0/25/50/75 microseconds, selectable
Pre-emphasis tolerance	+/- 0.1 dB
FM S/N (MPX operation)	82 dB 20 Hz to 23 KHz @ 53 KHz - detector RMS
FM S/N CCIR (stereo/mono operation)	> = 72 dB weighted > = 72 dB unweighted 400 Hz, 75 KHz frequency deviation, quasi-peak detector, 50 us de-emphasis
Asynchronous AM S/N unweighted	> = 55 dB a 400 Hz, 75 us de-emphasis
Synchronous AM S/N	> = 50 dB a 400 Hz, 75 us de-emphasis

Amplitude-frequency characteristic (stereo/mono operation)	+/- 0.1 dB (without pre-emphasis) +/- 0.1 dB (with pre-emphasis) 20 Hz to 15 KHz, @ 400 Hz
Stereo Crosstalk	>60 dB @ 20 Hz to 15 KHz
Linear crosstalk	>60 db 20 Hz to 15 KHz
Intermodulation distortion	<0.05% Measured with two of tones 1 KHz & 1.3 KHz, ratio 1:1 at 100% modulation
Class of emission	F3
Stereo emission	According to ITU-R reccomendation 450 (pilot tone)
EXCITER PERFORMANCE	
PLL lock time	<10 sec
Frequency deviation	+/- 75 KHz 0.1 dB steps adjustable
Maximum frequency deviation	+/- 150 KHz
Frequency stability	1 ppm
RF Frequency steps	10 KHz
Phase Response	+/- 0.1 degree from linear phase; 20 KHz to 100 KHz
INSTALLATION REQUIREMENTS	
Power supply	230 Singlephase Version 50-60 Hz VAC
Power consumption (typical)	1430 W
Current consumption (typical@230 V)	6.2 A
Overall efficiency (typical from -3 dB to Pnom)	> = 70%
Power factor	> 0.95
COOLING/NOISE/DATA	
Cooling system	Forced air-cooling
Acoustic noise	< 65 phone @ transmitter room, 2 M distance from the front of the 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)

GENERAL DATA	
Output Nominal Power	1500 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	2
RF power stage technology	ICEFET & ECOSAVING
Dimensions: Rack units	2 RU
Dimensions: W - H - D	48.5 - 8.5 - 58.5 cm / 19.11 - 3.35 - 23.05 inches
Weight	13.2 Kg / 29.1 lbs
Number of cooling fans	3
CONNECTORS	
RF Output	7/16" DIN Female
MPX	BNC Female
LEFT & RIGHT	XLR Female
AES/EBU	XLR Female
AUX	BNC Female
Monitor/19 kHz	BNC Female
RF PERFORMANCE	
Output impedance	50 Ω
Automatic power RF control	Stabilizes the output power value to the Target power level selected
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 PERFORMANCE	
MPX input level	+15/-10 dBu for 75 KHz standard deviation
MPX level adjustment	Soft adjust 0.1 dB steps from front panel
MPX input impedance	5 KΩ selectable
L/R input level	+15/-10 dBu for 75 KHz standard deviation
L/R level adjustment	Soft adjust 0.1 dBu steps from front panel
L/R Input Impedance	Selectable 10 K - 600 Ω, balanced
AES/EBU input resolution	24 bits
AES/EBU input sample rate	32,44.1,48,96 KHz Automatically selected
AES/EBU input level	-20 dBFS - 0 dBFS
AES/EBU input impedance	110 Ω balanced
AES/EBU-Analog input automatic changeover	Yes
PILOT Amplitude adjustment	Soft adjust 0.05% steps from front panel
PILOT Phase adjustment	Soft adjust 0.01 degree steps from front panel
PILOT tone frequency	19 KHz
PILOT tone deviation	Soft adjust +/- 7.5 KHz
PILOT tone frequency stability	+/- 1 Hz
THD+N (stereo/mono operation)	< 0.05% with 75 KHz frequency deviation < 0.05% with 100 KHz frequency deviation 30 Hz to 15 KHz
Pre-emphasis	0/25/50/75 microseconds, selectable
Pre-emphasis tolerance	+/- 0.1 dB
FM S/N (MPX operation)	82 dB 20 Hz to 23 KHz @ 53 KHz - detector RMS
FM S/N CCIR (stereo/mono operation)	> = 72 dB weighted > = 72 dB unweighted 400 Hz, 75 KHz frequency deviation, quasi-peak detector, 50 us de-emphasis
Asynchronous AM S/N unweighted	> = 55 dB a 400 Hz, 75 us de-emphasis
Synchronous AM S/N	> = 50 dB a 400 Hz, 75 us de-emphasis

Amplitude-frequency characteristic (stereo/mono operation)	+/- 0.1 dB (without pre-emphasis) +/- 0.1 dB (with pre-emphasis) 20 Hz to 15 KHz, @ 400 Hz
Stereo Crosstalk	>60 dB @ 20 Hz to 15 KHz
Linear crosstalk	>60 db 20 Hz to 15 KHz
Intermodulation distortion	<0.05% Measured with two of tones 1 KHz & 1.3 KHz, ratio 1:1 at 100% modulation
Class of emission	F3
Stereo emission	According to ITU-R reccomendation 450 (pilot tone)
EXCITER PERFORMANCE	
PLL lock time	<10 sec
Frequency deviation	+/- 75 KHz 0.1 dB steps adjustable
Maximum frequency deviation	+/- 150 KHz
Frequency stability	1 ppm
RF Frequency steps	10 KHz
Phase Response	+/- 0.1 degree from linear phase; 20 kHz to 100 kHz
INSTALLATION REQUIREMENTS	
Power supply	230 Singlephase Version 50-60 Hz VAC
Power consumption (typical)	2000 W
Current consumption (typical@230 V)	8.7 A
Overall efficiency (typical from -3 dB to Pnom)	> = 70%
Power factor	> 0.95
COOLING/NOISE/DATA	
Cooling system	Forced air-cooling
Acoustic noise	< 65 phone @ transmitter room, 2 M distance from the front of the 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 TRANSMITTER INDIUM SERIES | ETG2000

GENERAL DATA	
Output Nominal Power	2000 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	3
RF power stage technology	ICEFET & ECOSAVING
Dimensions: Rack units	2 RU
Dimensions: W - H - D	48.5 - 8.5 - 58.5 cm / 19.11 - 3.35 - 23.05 inches
Weight	13.2 Kg / 29.1 lbs
Number of cooling fans	3
CONNECTORS	
RF Output	7/16" DIN Female
MPX	BNC Female
LEFT & RIGHT	XLR Female
AES/EBU	XLR Female
AUX	BNC Female
Monitor/19 kHz	BNC Female
RF PERFORMANCE	
Output impedance	50 Ω
Automatic power RF control	Stabilizes the output power value to the Target power level selected
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 PERFORMANCE	
MPX input level	+15/-10 dBu for 75 KHz standard deviation
MPX level adjustment	Soft adjust 0.1 dB steps from front panel
MPX input impedance	5 KΩ selectable
L/R input level	+15/-10 dBu for 75 KHz standard deviation
L/R level adjustment	Soft adjust 0.1 dBu steps from front panel
L/R Input Impedance	Selectable 10 K - 600 Ω, balanced
AES/EBU input resolution	24 bits
AES/EBU input sample rate	32,44.1,48,96 KHz Automatically selected
AES/EBU input level	-20 dBFS - 0 dBFS
AES/EBU input impedance	110 Ω balanced
AES/EBU-Analog input automatic changeover	Yes
PILOT Amplitude adjustment	Soft adjust 0.05% steps from front panel
PILOT Phase adjustment	Soft adjust 0.01 degree steps from front panel
PILOT tone frequency	19 KHz
PILOT tone deviation	Soft adjust +/- 7.5 KHz
PILOT tone frequency stability	+/- 1 Hz
THD+N (stereo/mono operation)	< 0.05% with 75 KHz frequency deviation < 0.05% with 100 KHz frequency deviation 30 Hz to 15 KHz
Pre-emphasis	0/25/50/75 microseconds, selectable
Pre-emphasis tolerance	+/- 0.1 dB
FM S/N (MPX operation)	82 dB 20 Hz to 23 KHz @ 53 KHz - detector RMS
FM S/N CCIR (stereo/mono operation)	> = 72 dB weighted > = 72 dB unweighted 400 Hz, 75 KHz frequency deviation, quasi-peak detector, 50 us de-emphasis
Asynchronous AM S/N unweighted	> = 55 dB a 400 Hz, 75 us de-emphasis
Synchronous AM S/N	> = 50 dB a 400 Hz, 75 us de-emphasis

Amplitude-frequency characteristic (stereo/mono operation)	+/- 0.1 dB (without pre-emphasis) +/- 0.1 dB (with pre-emphasis) 20 Hz to 15 KHz, @ 400 Hz
Stereo Crosstalk	>60 dB @ 20 Hz to 15 KHz
Linear crosstalk	>60 db 20 Hz to 15 KHz
Intermodulation distortion	<0.05% Measured with two of tones 1 KHz & 1.3 KHz, ratio 1:1 at 100% modulation
Class of emission	F3
Stereo emission	According to ITU-R reccomendation 450 (pilot tone)
EXCITER PERFORMANCE	
PLL lock time	<10 sec
Frequency deviation	+/- 75 KHz 0.1 dB steps adjustable
Maximum frequency deviation	+/- 150 KHz
Frequency stability	1 ppm
RF Frequency steps	10 KHz
Phase Response	+/- 0.1 degree from linear phase; 20 KHz to 100 KHz
INSTALLATION REQUIREMENTS	
Power supply	230 Singlephase Version 50-60 Hz VAC
Power consumption (typical)	2700 W
Current consumption (typical@230 V)	11.7 A
Overall efficiency (typical from -3 dB to Pnom)	> = 70%
Power factor	> 0.95
COOLING/NOISE/DATA	
Cooling system	Forced air-cooling
Acoustic noise	< 65 phone @ transmitter room, 2 M distance from the front of the transmitter
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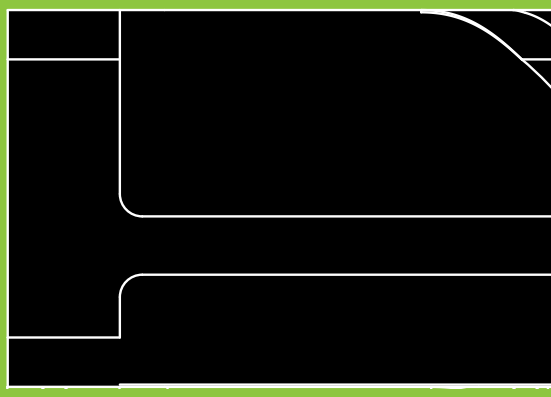

indiumseries FM TRANSMITTER

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