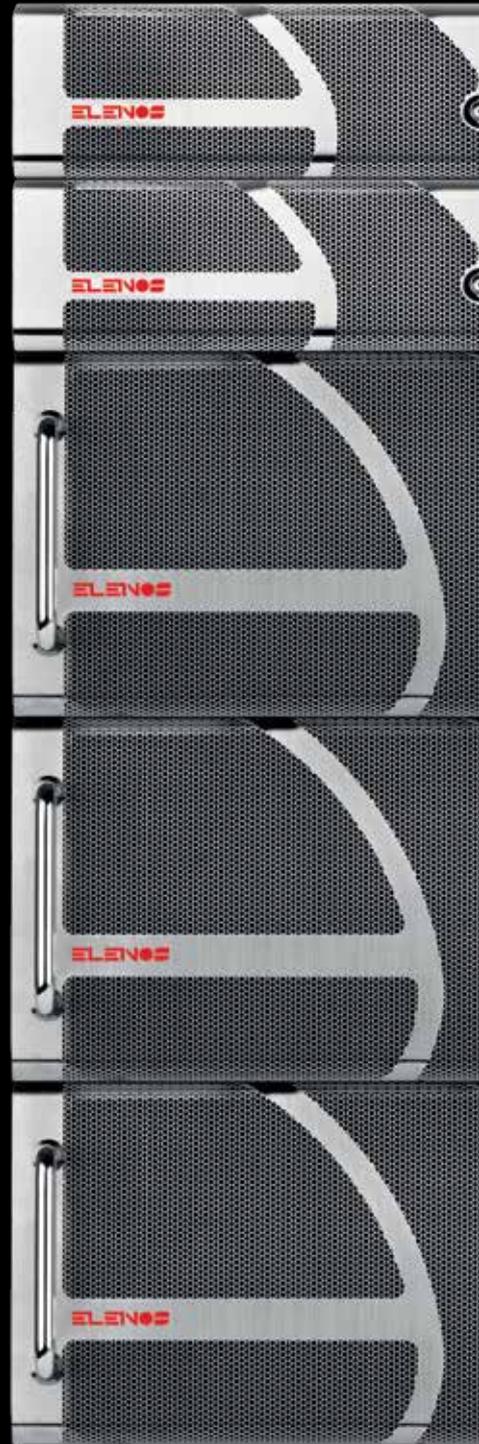


FROM **10kW**
TO **30kW**

ETG DIGITAL TRANSMITTERS SERIES
HIGH POWER

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

ETG DIGITAL TRANSMITTERS SERIES FROM 10kW TO 30kW

ETG DIGITAL TRANSMITTERS SERIES

In the ET Digital transmitters series (high power), with direct to channel digital exciter from Elenos, the high power output is obtained through the combination of a suitable number of 4RU medium power amplifier, an ETG Digital Exciter and a combiner for the power amplifiers. The overall RF Power of the models in this product series ranges from 10kW to 30kW and each system can be housed in a single 19" rack.

These products represent the most advanced technology in terms of electrical efficiency, compactness, reduced weight, ease of use and diagnostics.

Additionally the technology used on it offers the most complete access to transmitter operating data, protection operation and the ability to operate under severe environmental conditions while maintaining undiminished RF and audio specifications.

This product line has been designed to guarantee the maximum performance and operation while lowering operational costs through energy saving technology. The ET Digital transmitters achieve levels of overall electrical efficiency unseen in the market today. The great efficiency of the RF amplifiers, modulator, combiner and power supplies has also allowed a noticeable reduction in operating temperature, system weight and size. The resulting advantages are substantial: easier installation, and lowered transportation, rack space and energy costs. How is this possible? Mainly due to innovative techniques in RF design, intelligent power supplies, and through the use of powerful algorithms designed for optimal performance management. High audio performance is ensured by advanced digital signal processing technology (e.g.: 2.4 GHz clock, 24-bit analog converter). Sound fidelity, purity and the total absence of microphonic noise are guaranteed over the entire band. The extremely fast performance is particularly important in N+1 systems, allowing the transmitter to remain on air without interruption even in the case of a system failure. Through the use of trimmer electronics (presets), the characteristics and performance remain unchanged over time, even under different environmental conditions. The system is equipped with audio MPX input (balanced and unbalanced), L&R (or mono) with stereo generator, AES/EBU (electrical and optical), SCA, RDS, and an option for an Ethernet input for IP audio streaming. Each of these audio channels are independent and simultaneous with the infinite possibility of switching back and forth from one to another. The ETG is also equipped with a USB port for storing audio program data in the event of a complete loss of the studio to transmitter live data link. The Single Frequency Network (SFN) function allows for reception continuity, which is particularly important for applications that require extended coverage. This also includes a built in GPS receiver and antenna with the transmitter. Equipped with remote control and management, the user can receive data and send instructions to the transmitter via several communication channels — SMS, GPRS, TCP/IP and SNMP.

Features

Smart Design

Ultra compact size, light weight, clean layout, ease of maintenance and repair.

Low energy consumption

Highly reduced energy consumption and significantly lowered operating costs due to state of the art nature of the design.

Reliability

Extremely high reliability and the ability to ensure continuity of the service even under extreme operating conditions due to intelligent safety protocols, Icefet technology, and Lifextender algorithms.

Total control

Accurate and detailed real time data on the operating status of the transmitter, available at the analytical level, (voltage, current, power, temperature, efficiency, safety, settings, audio levels, communications.) Local and remote management and control via Sereial Protocol, SMS, GPRS, SNMP, WEB.

Scalability

All products are designed to be scalable with the greatest advantage that any technological improvement affecting the base product is directly transferred to all equipment in the product family via upgrades.

Steady performance

Through the use of trimmer electronics (presets) and the most advanced components, the characteristics and performance of the system remain unchanged over time, even under adverse environmental conditions. The SFN function allows for reception continuity.

Sound purity and fidelity

Clean audio with the absence of distortion on all requecies, including the lowest. No microphonic noise.



Datasheet

ETG DIGITAL TRANSMITTERS SERIES | ET10000 DIGITAL

FM TRANSMITTER | ET10000 DIGITAL

COMPOSITION

Exciter (ETG DIGITAL SERIES)	n°1 Exciter ETG DIGITAL single drive configuration n°2 Exciter ETG DIGITAL dual drive configuration
Amplifier	n°2 Amplifier E5000 Indium Series
Combiner/Control unit	n°1 2-way combiner IN 5000 - OUT 10000 with an internal load composed by 1 group of 6 resistance of 800 W 50 Ω
RF output connector	1+5/8"
Circuit breaker box	4U (on front or rear panel on demand)

GENERAL DATA

Output nominal maximum power	10000 W
Output power range	1500 ÷ 10000 W
Operating band	87.5 ÷ 108 MHz
Dimensions: Rack units	min. 20U
Dimensions: W - H - D	56.5 - 105 - 107.8cm
Weight	270 kg
RF power stage technology	ICEFET & ECOSAVING
Automatic power RF control	Stabilized output power value on the set value
Overall output power RF stability	+/- 0.1 dB
Cooling system	Forced air-cooling
Air outlet	On the top or on the rear. Cooling flow 2200/2400 m3/h (depending on environment)
RS232/RS485	Yes. Connector DB9 Female
Points of measure	RF Sample - MPX Monitor

AUDIO PERFORMANCE

MPX input level	+15/-10 dBu for 75 KHz standard deviation
MPX input impedance	Selectable 5 K unbalanced, 600Ω balanced
L/R input level	+15/-10 dBu for 75 KHz standard deviation
L/R input impedance	Selectable 10 K - 600 Ω, balanced
AES/EBU	Electric and optical input
AES/EBU input resolution	24 bits
AES/EBU input sample rate	32,44.1,48,96,192 KHz automatically selected
AES/EBU input level	-20 dBFS - 0 dBFS
AES/EBU input impedance	110 Ω balanced
SCA/RDS input level	0 dBu for 10% deviation
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 (Mpx operation)	< 0.01% or better with 75 KHz frequency deviation < 0.01% or better with 100 KHz frequency deviation 30 Hz to 15 KHz
THD+N (Stereo/Mono operation)	< 0.03% or better with 75 KHz frequency deviation < 0.03% or better 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)	85 dB 20 Hz to 23 KHz @ 53 KHz - detector RMS
FM S/N CCIR (Stereo/Mono operation)	> 80 dB weighted > 80 dB unweighted @ 400 Hz, 75 KHz frequency deviation, quasi-peak detector, 50 us de-emphasis
Asynchronous AM S/N unweighted	> 60 dB @ 400 Hz, 75 us de-emphasis
Synchronous AM S/N	> 50 dB @ 400 Hz, 75 us de-emphasis
Amplitude-frequency characteristic (Mpx operation)	+/- 0.1 dB (without pre-emphasis) 20 Hz to 100 kHz @ 400 Hz

ETG DIGITAL TRANSMITTERS SERIES | ET10000 DIGITAL

Amplitude frequency characteristic (Stereo/Mono operation)	+/- 0.1 dB (without pre-emphasis) +/- 0.2 dB (with pre-emphasis) 20 Hz to 15 kHz @ 400 Hz
Stereo separation	> 70 dB 20 Hz to 15 kHz
Linear crosstalk	> 70 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 recommendation 450 (pilot tone)
EXCITER PERFORMANCE	
Frequency deviation	+/- 75 KHz 0.1 dB steps adjustable
Maximum frequency deviation	+/- 150 KHz
Frequency stability	+/- 0.1ppm with oven
RF frequency steps	1 Hz
Phase Response	+/- 0.1 degree from linear phase 20 Hz to 100 KHz
Internal sample rate	2.4 GHz
Oven 10 MHz	Yes internal, aging +/- 0.1ppm year
GPS	Yes internal
SFN	Yes, with delay from 0 to 1s, step 100ns
INSTALLATION REQUIREMENTS	
Power supply	380 V or 400 V, Threephase + neutral wire 50-60 Hz* 210 V, Threephase (WYE without neutral)* * to be specified when placing the order
Power consumption	15 KW
Current drain @230VAC/Threephase	42 A
Overall efficiency (typical from - 3 dB to Pman)	68%
Power factor	>0.95
Current drain @380VAC/Threephase	24 A
Fuses and circuit breakers	Breaker 3P 400V-20A 6KA C curve Breaker 2P 400V-10A 6KA C curve Breaker 2P 400V-6A 6KA C curve Breaker 2P 250V-16A 6KA C curve 16A SCHUKO outlet
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 at clean contacts	Yes
SNMP option	Yes (external)



Datasheet

ETG DIGITAL TRANSMITTERS SERIES | ET15000 DIGITAL

FM TRANSMITTER | ET15000 DIGITAL

COMPOSITION

Exciter (ETG DIGITAL SERIES)	n°1 Exciter ETG DIGITAL single drive configuration n°2 Exciter ETG DIGITAL dual drive configuration
Amplifier	n°3 Amplifier E5000 Indium Series
Combiner/Control unit	n°1 3-Way Combiner IN 5000 - OUT 15000 with an internal load composed by 3 group of 6 resistance of 800 W 50 Ω
RF output connector	3+1/8"
Circuit breaker box	4U (on front or rear panel on demand)

GENERAL DATA

Output nominal maximum power	15000 W
Output power range	1500 ÷ 15000 W
Operating band	87.5 ÷ 108 MHz
Dimensions: Rack units	min. 32U
Dimensions: W - H - D	56.5 - 160.3 - 107.8 cm
Weight	320 kg
RF power stage technology	ICEFET & ECOSAVING
Automatic power RF control	Stabilized output power value on the set value
Overall output power RF stability	+/- 0.1 dB
Cooling system	Forced air-cooling
Air outlet	On the top. Cooling flow 3250/4500 m3/h (depending on environment)
RS232/RS485	Yes. Connector DB9 female
Points of measure	RF Sample - MPX Monitor

AUDIO PERFORMANCE

MPX input level	+15/-10 dBu for 75 KHz standard deviation
MPX input impedance	Selectable 5 K unbalanced, 600Ω balanced
L/R input level	+15/-10 dBu for 75 KHz standard deviation
L/R input impedance	Selectable 10 K - 600 Ω, balanced
AES/EBU	Electric and optical input
AES/EBU input resolution	24 bits
AES/EBU input sample rate	32,44.1,48,96,192 KHz automatically selected
AES/EBU input level	-20 dBFS - 0 dBFS
AES/EBU input impedance	110 Ω balanced
SCA/RDS input level	0 dBu for 10% deviation
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 (Mpx operation)	< 0.01% or better with 75 KHz frequency deviation < 0.01% or better with 100 KHz frequency deviation 30 Hz to 15 KHz
THD+N (Stereo/Mono operation)	< 0.03% or better with 75 KHz frequency deviation < 0.03% or better 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)	85 dB 20 Hz to 23 KHz @ 53 KHz - detector RMS
FM S/N CCIR (Stereo/Mono operation)	> 80 dB weighted > 80 dB unweighted @ 400 Hz, 75 KHz frequency deviation, quasi-peak detector, 50 us de-emphasis
Asynchronous AM S/N unweighted	> 60 dB @ 400 Hz, 75 us de-emphasis
Synchronous AM S/N	> 50 dB @ 400 Hz, 75 us de-emphasis
Amplitude-frequency characteristic (Mpx operation)	+/- 0.1 dB (without pre-emphasis) 20 Hz to 100 kHz @ 400 Hz
Amplitude frequency characteristic (Stereo/Mono operation)	+/- 0.1 dB (without pre-emphasis) +/- 0.2 dB (with pre-emphasis) 20 Hz to 15 kHz @ 400 Hz

ETG DIGITAL TRANSMITTERS SERIES | ET15000 DIGITAL

Stereo separation	> 70 dB 20 Hz to 15 KHz
Linear crosstalk	> 70 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 recommendation 450 (pilot tone)

EXCITER PERFORMANCE

Frequency deviation	+/- 75 KHz 0.1 dB steps adjustable
Maximum frequency deviation	+/- 150 KHz
Frequency stability	+/- 0.1ppm with oven
RF frequency steps	1 Hz
Phase Response	+/- 0.1 degree from linear phase 20 Hz to 100 KHz
Internal sample rate	2.4 GHz
Oven 10 MHz	Yes internal, aging +/- 0.1ppm year
GPS	Yes internal
SFN	Yes, with delay from 0 to 1s, step 100ns

INSTALLATION REQUIREMENTS

Power supply	380 V or 400 V, Threephase + neutral wire 50-60 Hz* 210 V, Threephase (WYE without neutral)* * to be specified when placing the order
Power consumption	22 KW
Current drain @230VAC/Threephase	63 A
Overall efficiency (typical from - 3 dB to Pman)	68%
Power factor	>0.95
Current drain @380VAC/Threephase	36 A
Fuses and circuit breakers	Breaker 3P 400V-20A 6KA C curve Breaker 2P 400V-10A 6KA C curve Breaker 2P 400V-6A 6KA C curve Breaker 2P 250V-16A 6KA C curve 16A SCHUKO outlet

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 at clean contacts	Yes
SNMP option	Yes (external)



Datasheet

ETG DIGITAL TRANSMITTERS SERIES | ET20000 DIGITAL

FM TRANSMITTER | ET20000 DIGITAL

COMPOSITION

Exciter (ETG DIGITAL SERIES)	n°1 Exciter ETG DIGITAL single drive configuration n°2 Exciter ETG DIGITAL dual drive configuration
Amplifier	n°4 Amplifier E5000 Indium Series
Combiner	n°1 4-way combiner IN 5000 - OUT 20000 with external CPU/control unit and load (4U)
Dummy load	n°1 dummy load (4U)
Control unit	n° 1 control unit (4U). From the frontal panel/ from PC, a careful analysis of the functioning through detailed measurement of currents, voltages, temperatures and powers
RF output connector	3+1/8"
Circuit breaker box	6U (on front or rear panel on demand)

GENERAL DATA

Output nominal maximum power	20000 W
Output power range	1500 ÷ 20000 W
Operating band	87.5 ÷ 108 MHz
Dimensions: Rack units	min. 32U
Dimensions: W - H - D	56.5 - 192.5 - 107.8 cm (with fan)
Weight	370 kg
RF power stage technology	ICEFET & ECOSAVING
Automatic power RF control	Stabilized output power value on the set value
Overall output power RF stability	+/- 0.1 dB
Cooling system	Forced air-cooling
Air outlet	On the top. Cooling flow 4000 m3/h (depending on environment)
RS232/RS485	Yes. Connector DB9 female
Points of measure	RF Sample - MPX Monitor
Air outlet	On the top. Cooling flow 3250 /4500 m3/h (depending on environment)
RS232/RS485	Yes. Connector DB9 female
Points of measure	RF Sample - MPX Monitor

AUDIO PERFORMANCE

MPX input level	+15/-10 dBu for 75 KHz standard deviation
MPX input impedance	Selectable 5 K unbalanced, 600Ω balanced
L/R input level	+15/-10 dBu for 75 KHz standard deviation
L/R input impedance	Selectable 10 K - 600 Ω, balanced
AES/EBU	Electric and optical input
AES/EBU input resolution	24 bits
AES/EBU input sample rate	32,44.1,48,96,192 KHz automatically selected
AES/EBU input level	-20 dBFS - 0 dBFS
AES/EBU input impedance	110 Ω balanced
SCA/RDS input level	0 dBu for 10% deviation
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 (Mpx operation)	< 0.01% or better with 75 KHz frequency deviation < 0.01% or better with 100 KHz frequency deviation 30 Hz to 15 KHz
THD+N (Stereo/Mono operation)	< 0.03% or better with 75 KHz frequency deviation < 0.03% or better 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)	85 dB 20 Hz to 23 KHz @ 53 KHz - detector RMS
FM S/N CCIR (Stereo/Mono operation)	> 80 dB weighted > 80 dB unweighted @ 400 Hz, 75 KHz frequency deviation, quasi-peak detector, 50 us de-emphasis

ETG DIGITAL TRANSMITTERS SERIES | ET20000 DIGITAL

Asynchronous AM S/N unweighted	> 60 dB @ 400 Hz, 75 us de-emphasis
Synchronous AM S/N	> 50 dB @ 400 Hz, 75 us de-emphasis
Amplitude-frequency characteristic (Mpx operation)	+/- 0.1 dB (without pre-emphasis) 20 Hz to 100 kHz @ 400 Hz
Amplitude frequency characteristic (Stereo/Mono operation)	+/- 0.1 dB (without pre-emphasis) +/- 0.2 dB (with pre-emphasis) 20 Hz to 15 kHz @ 400 Hz
Stereo separation	> 70 dB 20 Hz to 15 KHz
Linear crosstalk	> 70 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 recommendation 450 (pilot tone)
EXCITER PERFORMANCE	
Frequency deviation	+/- 75 KHz 0.1 dB steps adjustable
Maximum frequency deviation	+/- 150 KHz
Frequency stability	+/- 0.1ppm with oven
RF frequency steps	1 Hz
Phase Response	+/- 0.1 degree from linear phase 20 Hz to 100 KHz
Internal sample rate	2.4 GHz
Oven 10 MHz	Yes internal, aging +/- 0.1ppm year
GPS	Yes internal
SFN	Yes, with delay from 0 to 1s, step 100ns
INSTALLATION REQUIREMENTS	
Power supply	380 V or 400 V, Threephase + neutral wire 50-60 Hz* 210 V, Threephase (WYE without neutral)*
	* to be specified when placing the order
Power consumption	29 KW
Current drain @230VAC/Threephase	73 A
Overall efficiency (typical from - 3 dB to Pman)	68%
Power factor	>0.95
Current drain @380VAC/Threephase	43 A
Fuses and circuit breakers	Breaker 3P 400V-20A 6KA C curve Breaker 2P 400V-10A 6KA C curve Breaker 2P 400V-6A 6KA C curve Breaker 2P 250V-16A 6KA C curve 16A SCHUKO outlet
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 at clean contacts	Yes
SNMP option	Yes (external)



Datasheet

ETG DIGITAL TRANSMITTERS SERIES | ET25000 DIGITAL

FM TRANSMITTER | ET25000 DIGITAL

COMPOSITION

Exciter (ETG DIGITAL SERIES)	n°1 Exciter ETG DIGITAL single drive configuration n°2 Exciter ETG DIGITAL dual drive configuration
Amplifier	n°5 Amplifier E5000 Indium Series
Combiner	n°1 5-way combiner IN 5000 - OUT 25000 with external CPU/control unit and load (4U)
Dummy load	n°1 dummy load (4U)
Control unit	n°1 control unit (4U). From the frontal panel/from PC, a careful analysis of the functioning through detailed measurement of currents, voltages, temperatures and powers
RF output connector	3+1/8"
Circuit breaker box	6U (on rear panel)

GENERAL DATA

Output nominal maximum power	25000 W
Output power range	2500 ÷ 25000 W
Operating band	87.5 ÷ 108 MHz
Dimensions: Rack units	min. 40U
Dimensions: W - H - D	56.5 - 228.2 - 107.8 cm (with fan)
Weight	400 kg
RF power stage technology	ICEFET & ECOSAVING
Automatic power RF control	Stabilized output power value on the set value
Overall output power RF stability	+/- 0.1 dB
Cooling system	Forced air-cooling
Air outlet	On the top. Cooling flow 4000 m3/h (depending on environment)
RS232/RS485	Yes. Connector DB9 female
Points of measure	RF Sample - MPX Monitor

AUDIO PERFORMANCE

MPX input level	+15/-10 dBu for 75 KHz standard deviation
MPX input impedance	Selectable 5 K unbalanced, 600Ω balanced
L/R input level	+15/-10 dBu for 75 KHz standard deviation
L/R input impedance	Selectable 10 K - 600 Ω, balanced
AES/EBU	Electric and optical input
AES/EBU input resolution	24 bits
AES/EBU input sample rate	32,44.1,48,96,192 KHz automatically selected
AES/EBU input level	-20 dBFS - 0 dBFS
AES/EBU input impedance	110 Ω balanced
SCA/RDS input level	0 dBu for 10% deviation
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 (Mpx operation)	< 0.01% or better with 75 KHz frequency deviation < 0.01% or better with 100 KHz frequency deviation 30 Hz to 15 KHz
THD+N (Stereo/Mono operation)	< 0.03% or better with 75 KHz frequency deviation < 0.03% or better 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)	85 dB 20 Hz to 23 KHz @ 53 KHz - detector RMS
FM S/N CCIR (Stereo/Mono operation)	> 80 dB weighted > 80 dB unweighted @ 400 Hz, 75 KHz frequency deviation, quasi-peak detector, 50 us de-emphasis
Asynchronous AM S/N unweighted	> 60 dB @ 400 Hz, 75 us de-emphasis
Synchronous AM S/N	> 50 dB @ 400 Hz, 75 us de-emphasis

ETG DIGITAL TRANSMITTERS SERIES | ET25000 DIGITAL

Amplitude-frequency characteristic (Mpx operation)	+/- 0.1 dB (without pre-emphasis) 20 Hz to 100 kHz @ 400 Hz
Amplitude frequency characteristic (Stereo/Mono operation)	+/- 0.1 dB (without pre-emphasis) +/- 0.2 dB (with pre-emphasis) 20 Hz to 15 kHz @ 400 Hz
Stereo separation	> 70 dB 20 Hz to 15 KHz
Linear crosstalk	> 70 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 recommendation 450 (pilot tone)
EXCITER PERFORMANCE	
Frequency deviation	+/- 75 KHz 0.1 dB steps adjustable
Maximum frequency deviation	+/- 150 KHz
Frequency stability	+/- 0.1ppm with oven
RF frequency steps	1 Hz
Phase Response	+/- 0.1 degree from linear phase 20 Hz to 100 KHz
Internal sample rate	2.4 GHz
Oven 10 MHz	Yes internal, aging +/- 0.1ppm year
GPS	Yes internal
SFN	Yes, with delay from 0 to 1s, step 100ns
INSTALLATION REQUIREMENTS	
Power supply	380 V or 400 V, Threephase + neutral wire 50-60 Hz* 210 V, Threephase (WYE without neutral)* * to be specified when placing the order
Power consumption	37 KW
Current drain @230VAC/Threephase	92 A
Overall efficiency (typical from - 3 dB to Pman)	68%
Power factor	>0.95
Current drain @380VAC/Threephase	53 A
Fuses and circuit breakers	Breaker 3P 400V-20A 6KA C curve Breaker 2P 400V-10A 6KA C curve Breaker 2P 400V-6A 6KA C curve Breaker 2P 250V-16A 6KA C curve 16A SCHUKO outlet
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 at clean contacts	Yes
SNMP option	Yes (external)



Datasheet

ETG DIGITAL TRANSMITTERS SERIES | ET30000 DIGITAL

ET30000 DIGITAL

FM TRANSMITTER

COMPOSITION

Exciter (ETG DIGITAL SERIES)	n°1 Exciter ETG DIGITAL single drive configuration n°2 Exciter ETG DIGITAL dual drive configuration
Amplifier	n°6 Amplifier E5000 Indium Series
Combiner	n°1 6-way combiner IN 5000 - OUT 30000 with external CPU/control unit and load (4U)
Dummy load	n°1 dummy load (4U)
Control unit	n°1 control unit (4U). From the frontal panel/from PC, a careful analysis of the functioning through detailed measurement of currents, voltages, temperatures and powers
RF output connector	3+1/8"
Circuit breaker box	6U (on rear panel)

GENERAL DATA

Output nominal maximum power	30000 W
Output power range	3000 ÷ 30000 W
Operating band	87.5 ÷ 108 MHz
Dimensions: Rack units	min. 40U
Dimensions: W - H - D	56.5 - 228.2 - 107.8 cm (with fan)
Weight	460 kg
RF power stage technology	ICEFET & ECOSAVING
Automatic power RF control	Stabilized output power value on the set value
Overall output power RF stability	+/- 0.1 dB
Cooling system	Forced air-cooling
Air outlet	On the top. Cooling flow 4000 m3/h (depending on environment)
RS232/RS485	Yes. Connector DB9 female
Points of measure	RF Sample - MPX Monitor

AUDIO PERFORMANCE

MPX input level	+15/-10 dBu for 75 KHz standard deviation
MPX input impedance	Selectable 5 K unbalanced, 600Ω balanced
L/R input level	+15/-10 dBu for 75 KHz standard deviation
L/R input impedance	Selectable 10 K - 600 Ω, balanced
AES/EBU	Electric and optical input
AES/EBU input resolution	24 bits
AES/EBU input sample rate	32,44.1,48,96,192 KHz automatically selected
AES/EBU input level	-20 dBFS - 0 dBFS
AES/EBU input impedance	110 Ω balanced
SCA/RDS input level	0 dBu for 10% deviation
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 (Mpx operation)	< 0.01% or better with 75 KHz frequency deviation < 0.01% or better with 100 KHz frequency deviation 30 Hz to 15 KHz
THD+N (Stereo/Mono operation)	< 0.03% or better with 75 KHz frequency deviation < 0.03% or better 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)	85 dB 20 Hz to 23 KHz @ 53 KHz - detector RMS
FM S/N CCIR (Stereo/Mono operation)	> 80 dB weighted > 80 dB unweighted @ 400 Hz, 75 KHz frequency deviation, quasi-peak detector, 50 us de-emphasis
Asynchronous AM S/N unweighted	> 60 dB @ 400 Hz, 75 us de-emphasis
Synchronous AM S/N	> 50 dB @ 400 Hz, 75 us de-emphasis

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Amplitude-frequency characteristic (Mpx operation)	+/- 0.1 dB (without pre-emphasis) 20 Hz to 100 kHz @ 400 Hz
Amplitude frequency characteristic (Stereo/Mono operation)	+/- 0.1 dB (without pre-emphasis) +/- 0.2 dB (with pre-emphasis) 20 Hz to 15 kHz @ 400 Hz
Stereo separation	> 70 dB 20 Hz to 15 KHz
Linear crosstalk	> 70 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 recommendation 450 (pilot tone)
EXCITER PERFORMANCE	
Frequency deviation	+/- 75 KHz 0.1 dB steps adjustable
Maximum frequency deviation	+/- 150 KHz
Frequency stability	+/- 0.1ppm with oven
RF frequency steps	1 Hz
Phase Response	+/- 0.1 degree from linear phase 20 Hz to 100 KHz
Internal sample rate	2.4 GHz
Oven 10 MHz	Yes internal, aging +/- 0.1ppm year
GPS	Yes internal
SFN	Yes, with delay from 0 to 1s, step 100ns
INSTALLATION REQUIREMENTS	
Power supply	380 V or 400 V, Threephase + neutral wire 50-60 Hz* 210 V, Threephase (WYE without neutral)* * to be specified when placing the order
Power consumption (typical)	44 KW
Current drain (typical @230VAC/Threephase)	110 A
Overall efficiency (typical from - 3 dB to Pman)	68%
Power factor	>0.95
Current drain (typical @380VAC/Threephase)	64 A
Fuses and circuit breakers	Breaker 3P 400V-20A 6KA C curve Breaker 2P 400V-10A 6KA C curve Breaker 2P 400V-6A 6KA C curve Breaker 2P 250V-16A 6KA C curve 16A SCHUKO outlet
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 at clean contacts	Yes
SNMP option	Yes (external)

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