

COBALT



Cobalt C-30 Fully-Featured Exciter
5 Plug-in 2.2 kW amplifiers
Control Unit
Optional: Second Exciter

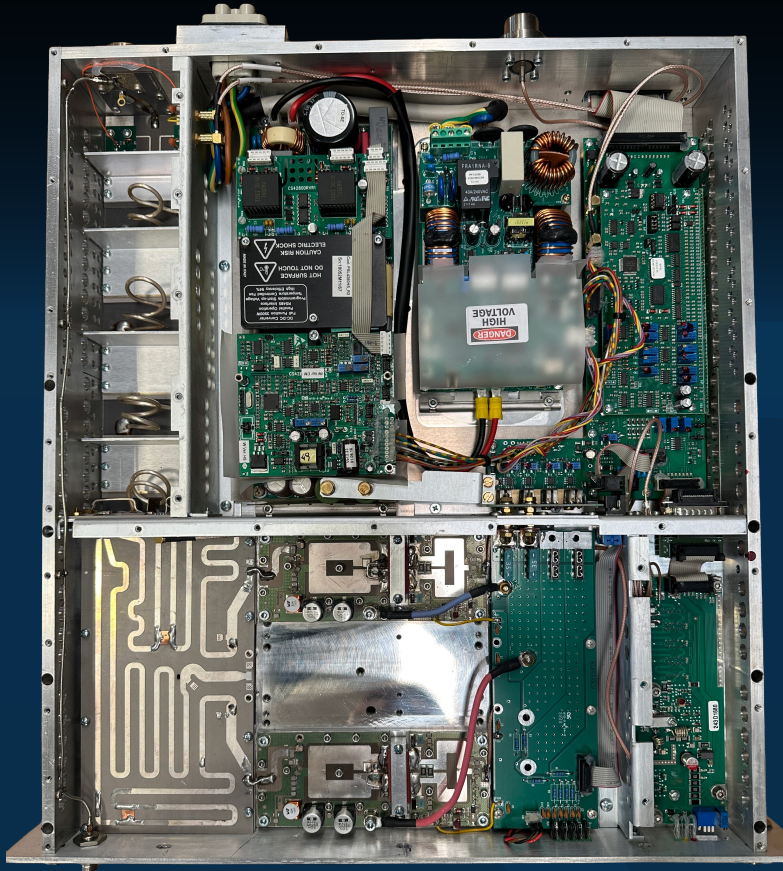
CP-10000 Fully Featured FM Transmitter

Single or Dual COBALT Exciter

Datasheet and Specifications

Specifications are subject to change without notice

CP-10000 Fully Featured FM Transmitter



Hotplug RF module
Standard: 2 RF pallet
Option: 3 RF pallet



Electromechanical section



Hot swap cooling system

FEATURES

Full-band tunable across 87.5–108 MHz

70% efficiency with switching-mode power supply and automatic power control

Hot-pluggable, RF power modules (5x 2.2 kW)

Designed for 24/7 continuous operation

Comprehensive protection: high VSWR, overdrive, overcurrent, overheating

Exciter Compliant with IEC, ETSI, CCIR, FCC (incl. FCC Part 73 LPFM & IC Canada)

Supports mono and stereo broadcasting with direct digital synthesized modulation

Integrated 4-band audio processor with ITU-R BS412.9 limiter

Dynamic UECP-compliant RDS encoder

Digital MPX (AES192)

Audio failover, silence detection, and USB backup audio player

Shoutcast / Icecast stream input support

GPS synchronization for SFN operation

Front panel RGB display with full system monitoring

Remote control via Ethernet (HTTPS) and SNMP (v1/v2c/v3)

Web-based audio monitoring and control

Advanced automation, scheduling, and configuration tools

Emergency stop button

Other available options

MicroMPX

MicroMPX SFN

2wcom MOIN CODEC

6 Band Audio Processor

FM Tuner

A-10000 RF Amplifier Parameters

GENERAL

Frequency range	87.5 - 108 MHz
Rated output power	10 kW + 10%
Driver power for rated output	30 W
VSWR	1.4:1 with automatic fold-back at higher VSWR
Asynchronous AM S/N Ratio	Typically > 70 dB
Synchronous AM S/N Ratio	Typically > 55 dB
Harmonics suppression and Spurious	Typically < 85 dB
RF Harmonics	Exceeds ETSI/CCIR/FCC requirements
RF Spurious	Exceeds ETSI/CCIR/FCC requirements
Environmental working conditions	-10 °C to + 50 °C / 95% relative Humidity non condensing

POWER REQUIREMENTS

AC Power Input	
AC Supply Voltage	400V ±10% AC Three-Phase 3F+N 230V ±10% AC Three-Phase 3F+N 230V ±10% AC Mono-Phase 50/60 Hz
Active Power Consumption	about 14.7 kW
Power factor	> 0.95
Overall Efficiency	68/70 %
Connector	Terminal Block Standard

MECHANICAL DIMENSIONS

Physical Dimensions LxHxW	685 mm x 1935 mm x 1000 mm
Weight	about 380 kg
Cooling	Forced, with internal fan
Acoustic Noise	< 75 dBA

OUTPUTS

RF Output	50 Ohm (1+5/8" EIA flange type)
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C-30 Colbalt Exciter Parameters

GENERAL

Output Power (W)	30
Range (W)	5-30
RF Output connector	N-Type (Female)
Input ACV @ 50/60Hz	100-240 (277 North America only)
Power Connector	IEC 13A filtered
Power consumption	~101W @ max power
AC-RF efficiency typ	~30%
Dimensions WxDxH (inch)	19 x 15 x 1RU (1.75")
Dimensions WxDxH (cm)	48.3 x 38 x 4.45
Weight	3.7kg / 8.14lb

MODULATOR

Transmitter type	Solid-state FM Stereo transmitter
Modulator	Direct-to-channel (DDS)
RF Output Frequency Range	VHF Band II, 87-108MHz
RF Frequency Steps	100kHz
Frequency Stability	±1 ppm or ±150Hz range with internal 10MHz clock reference
FM Modulation Range Capability	75kHz default, 100% modulation user adjustable up to 105kHz 140%, maximum 300kHz

RF

Power Stability	≤ ± 0.25dB
Asynchronous/AM noise	≤ -60dB
Synchronous AM s/n ratio	≤ -60dB
RF Harmonic and Spurious Suppression	Meets ETSI requirements Fully protected against gradual or sudden VSWR condition Proportional power reduction from VSWR 1.5:1
VSWR operation	

STEREO ENCODER

Performance	400Hz/1kHz test tones at modulation level ≤75kHz
Modes	Stereo, Mono L+R, Mono L, Mono R
Frequency response	20Hz-15kHz ±0.02dB
Pre-emphasis	0, 50 or 75µs
Pilot tone	19kHz, adjustable level 0-12%
Subcarriers suppression	≤ -70dB
Stereo Suppression	≥75dB AES/EBU input
Stereo SNR	≥70dB Analogue input
Stereo THD+N	≥80dB with 75us de-emphasis ≥75dB without de-emphasis on both inputs
Crosstalk	<0.03% ≥70dB, between L+R and L-R due to channel matching, both inputs

MONO PERFORMANCE

Frequency response	20Hz - 15kHz ±0.02dB
Pre-emphasis	0, 50 or 75 µs
Mono SNR	≥100dB, with 75us de-emphasis
Mono THD+N	≤0.002% analogue input, ≤0.001% AES input, with 75us de-emphasis

ANALOGUE AUDIO PERFORMANCE

Frequency response	10Hz-53kHz ±0.03dB
FM SNR	53kHz-70kHz ±0.3dB
THD+N	≥90dB, with 75us de-emphasis
	≤0.003% with 75us de-emphasis

DIGITAL

Frequency response	0-90kHz ±0.005dB ≥100dB, with 75us de-emphasis ≤ 0.001% with 75us de-emphasis
FM SNR	
THD+N	

AUDIO INPUTS

Analogue	2 x XLR female, 10kΩ impedance, level adjustable 0-24dBu AES/EBU via RJ45 per StudioHUB+ Level adjustable -20-0dBFS, sampling rates 32-192kHz
Digital	

AUDIO OUTPUT

Headphones Out	14" (6.3mm) female stereo socket software adjustable volume minimum load impedance 16Ω
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WIDEBAND INPUTS

Analogue MPX	adjustable 0-12dBu AES/EBU via RJ45 per StudioHUB+ level -20-0dBFS, sampling rate 192kHz left channel
Digital MPX	

Analogue RDS	BNC, 10kΩ impedance, level adjustable from 0.1-10Vpp
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WIDEBAND OUTPUTS

Analogue MPX	BNC, 10Ω impedance, level adjustable 0-12dBu
Analogue Pilot	BNC, 10Ω impedance, level adjustable 0-12dBu

RDS GENERATOR

Type	Fully Dynamic RDS/RDS2/RBDS Generator
Protocols	ASCII commands, UECP protocol and over USB-RS485 interface

Ports

WIDEBAND INPUTS

10MHz input	BNC, 50Ω terminated
1PPS input	BNC, 50Ω terminated
RF sample output	SMA, 50Ω, -30dBc
UART over USB	USB-B, system control

USB	USB 2 x USB-A, storage & FW upgrade
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Ethernet	
RS232	DB25 shared connector, system control

Interlock/ External RF Off	GPIO DB25 shared connector, 8 x output & 8 x input, all optically isolated
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Analogue voltage output	DB25 shared connector, programmable logic/polarity DB25 shared connector, 4-channel 0-5V range
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ENVIRONMENTAL

Altitude	15,000 ft / 4,420m AMSL
Temperature range	0 to +45°C working, -10 to +55°C storage
Humidity	95% @ 35°C non-condensing

CERTIFICATION

FCC/IC Certified	
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AQUABROADCAST

Aqua Broadcast was formed by a diverse and experienced team of people with extensive Broadcast and electronics experience. We love Broadcast just as much as you do, and we saw the need to do things differently to all our competitors.

With an international presence and offering multi-lingual staff, Aqua Broadcast has positioned itself as a dynamic and innovative company, driven by its passion for Broadcast and Studio products.

At our core are our customers. We focus on designing and building products for engineers and station owners who demand reliability, ease of use, with cutting-edge design and features. Listening to customer's ideas, feedback and success stories allows us to build products that are feature rich, reliable as well as easy to use.

Our strategically located offices worldwide mean you are never out of touch due to time zones. Sales and support are available round the clock. Whether it's a phone call, or email we are always with you every step of the way.

For details of your local dealer or Distributor, please refer to our [website](#) or contact us. The purchaser will be responsible for all import taxes, customs, duties, freight costs and insurance.

Warranty Information

At Aqua Broadcast Ltd, we are devoted to building the highest quality products and the never-ending pursuit of providing a better experience to our customers.

Our warranty statements are a continued commitment to providing reliable solutions with our technologies. All Aqua Broadcast Ltd benefit from a 2 year Manufacturer's Warranty. Further information on the Warranty can be seen in each products user manual, or by contacting us.



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