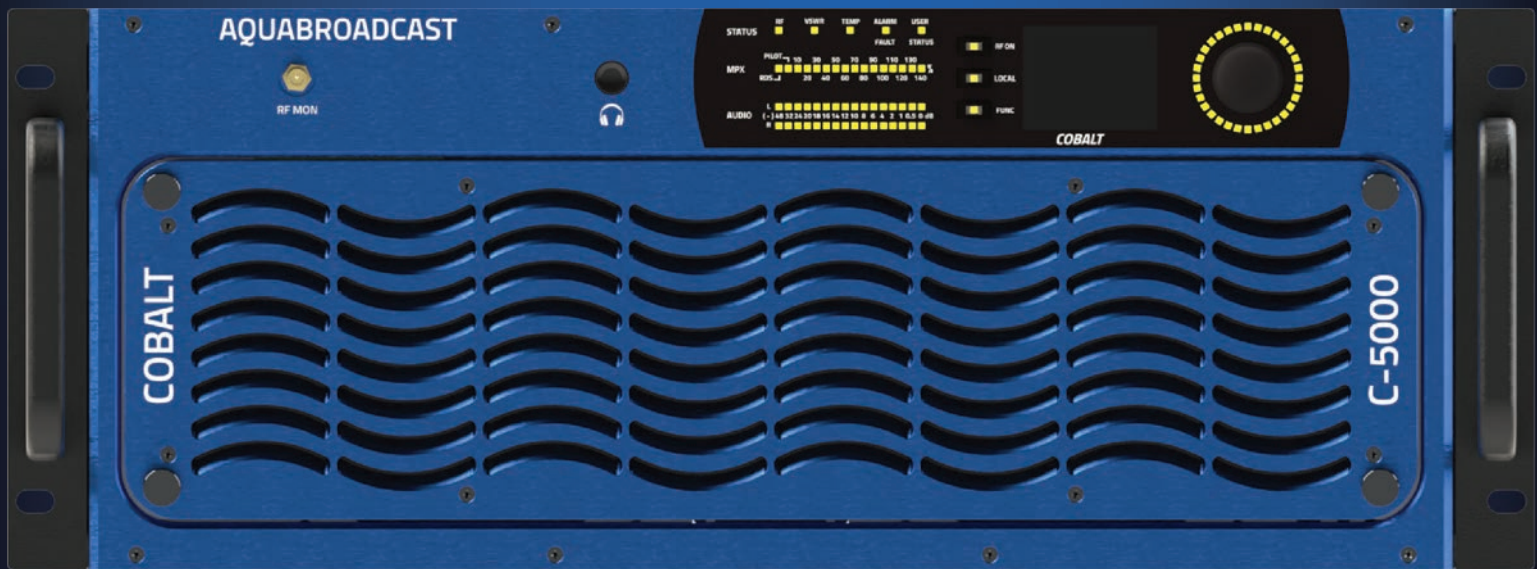# Made by engineers, for engineers

C-5000

Fully Featured FM Transmitter

Datasheet and Specifications

COBALT C-5000

FULLY FEATURED FM TRANSMITTER

The COBALT C-5000 is a fully featured 5000W / 5kW FM Transmitter that has superior audio quality and sound clarity thanks to it's Direct to Channel Digital technology (DDS). Running on a fully customized LINUX OS system, this low distortion modulator is available on all models within the COBALT family of FM Transmitters. Inputs and outputs include Analog, AES/EBU, Digital MPX (AES192), Ethernet, USB, GPIO, GPS Sync with built in SFN capabilities. A backup PSU is included as standard giving you redundancy right from the start.

Ideal for many Medium power Broadcast applications where High quality audio is needed.

COBALT Medium Power Transmitters have an industry standard 7/8" EIA output, ready to connect to your Transmission line.

Powered by single phase or 3 phase power, and protected by a breaker at the rear, its quick and easy to connect to a new or existing system. COBALT Medium Power Transmitters are designed for durability and reliability with features such as redundant fans and hot-swap power supplies. The compact design also includes easily accessible, washable air filters on the front panels of the power supplies.

An optional DC Input lets you run the COBALT C-5000 on a 48V DC power system and allows the telemetry and alarms functions to still be accessible in the event of a mains power failure that opens further possibilities for off-grid power options.

Radio market beating sound will let you stand out to your listeners, with its built-in 4 band Audio Processor with Bass enhancement, Pilot protection, Wide AGC and a whole bunch of expertly designed modern presets, so you sound great right from the start.

The modern design lets you easily read the Ultra-clear RGB display, and the intuitive Joystick controls with Haptic feedback and additional silicon buttons allows fast setup, getting you on the air even faster.
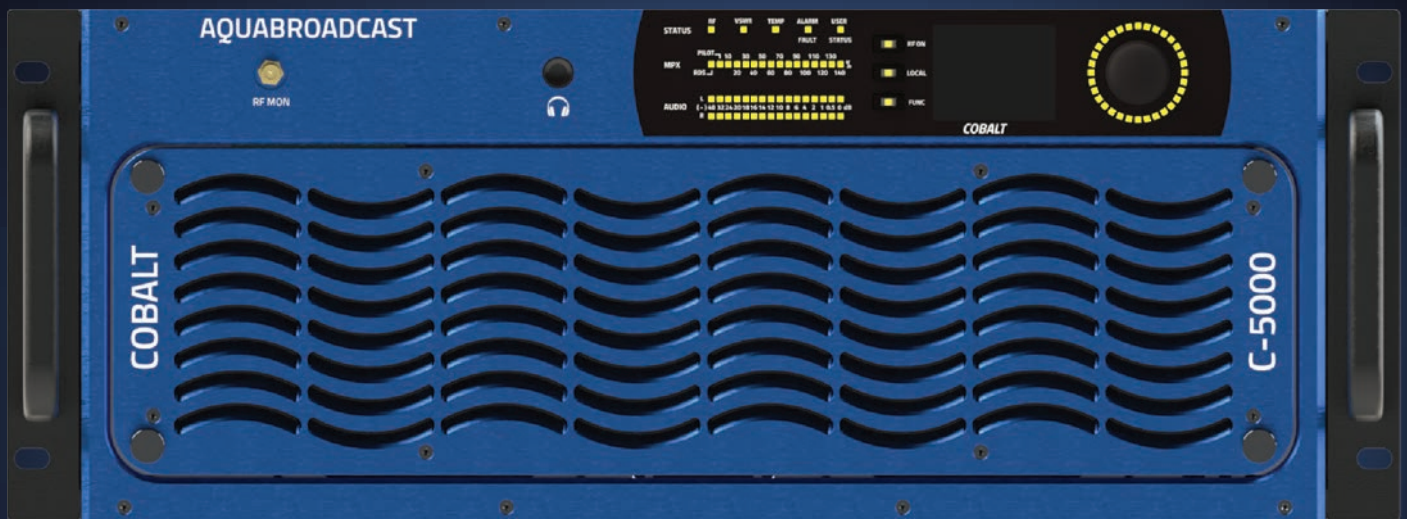
The advanced communication package with Intuitive web interface and remote control via Ethernet (https) lets you make changes or monitor the COBALT Transmitter. Full SNMP Version 3 management and the ability to send emails, alerts and monitor audio remotely gives you added confidence knowing you have full control from anywhere in the world on any device with a Web browser.

Audio monitoring is a new function that lets you stream confidence audio monitoring back to any web enabled device. Simply log in to your Cobalt Transmitter, and easily listen to audio form any source or the audio that's being processed prior to entering the PA going on-air. This is great so you can hear what your market is listening to. Change the source to the Analog, Digital or a test tone and listen to that too. Great for checking in on Audio coming in from an STL or direct out of your mixer. If you have the optional Tuner or MicroMPX in your Cobalt, those too can also be monitored.

A Shoutcast / Icecast stream input is now included as standard, acting as a primary or back-up audio input.

Easy access to all components and software controlled variable fan speed, will guarantee you low cost of maintenance. The highest AC efficiency, a compact design and reduced weight mean low cost of transportation and far the lowest total cost of ownership in its class.

STANDARD FEATURES

Direct to Digital Synthesized modulation

FCC Part 73 Certified for LPFM, IC Certification for Canada

Linux OS

RGB Screen

4 Band Audio Processor

Redundant PSU

Audio confidence monitoring by web browser

Dynamic, UECP Compliant RDS Encoder

ITU-R BS412.9 Limiter

Digital MPX (AES192)

Ethernet Control with HTTPS

SNMP v1, v2c, v3

Advanced Automations and configurations

Scheduler

Audio Failover and Silence Detection

Backup Audio player via USB

Shoutcast / Icecast Stream input

GPS Sync for SFN

OPTIONS

MicroMPX

MicroMPX SFN

Tuner

2wcom MOIN CODEC

6 Band Audio Processor

48V DC Power input (Exciter only, no RF power is available)

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GENERAL

Output Power (W)	5000
Range (W)	5000W adjustable
RF Output connector	7/8" EIA, 50 ohm
Input ACV @ 50/60Hz	208 Single phase and 400Vac Three phase 47÷63 Hz
Power Connector	Phoenix connector (supplied)
Power supplies	3 (Including one backup)
Dimensions WxDxH (inch)	19 x 24 x 4RU (7")
Dimensions WxDxH (cm)	48.3 x 60.0 x 17.8
Weight	38kg / 84lb

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. 75kHz default, 100% modulation user adjustable
FM Modulation Range Capability	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
VSWR operation	Fully protected against gradual or sudden VSWR condition Proportional power reduction from VSWR 1.5:1

STEREO ENCODER

Performance	400Hz/1kHz test tones at
Modes	modulation level ≤75kHz
Frequency response	Stereo, Mono L+R, Mono L, Mono R
Pre-emphasis	20Hz-15kHz ±0.02dB
Pilot tone	0, 50 or 75μs
Subcarriers suppression	19kHz, adjustable level 0-12%
Stereo Suppression	≤ -70dB
Stereo SNR	≥75dB AES/EBU input
Stereo THD+N	≥70dB Analogue input
Crosstalk	≥80dB with 75us de-emphasis
	≥75dB without de-emphasison
	both inputs<0.03%
	≥70dB, between L+R and L-R dueto 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
	53kHz-70kHz ±0.3dB
FM SNR	≥90dB, with 75us de-emphasis
THD+N	≤0.003% with 75us de-emphasis

DIGITAL

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

AUDIO INPUTS

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

AUDIO OUTPUT

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

WIDEBAND INPUTS

Analogue MPX	BNC, 10kΩ impedance, level adjustable 0-12dBu
Digital MPX	AES/EBU via RJ45 per StudioHUB+ level -20-0dBFS, sampling rate 192kHz left channel
Analogue RDS	BNC, 10kΩ impedance, level adjustable from 0.1-10Vpp

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 X-Command Multi-port, UART over USB-B & Ethernet
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
Ethernet	1 x RJ45
RS232	DB25 shared connector, system control GPIO DB25 shared connector, 8 x output & 8 x input, all optically isolated
Interlock/ External RF Off	DB25 shared connector,programmable logic/polarity
Analogue voltage output	DB25 shared connector, 4-channel 0-5V range

ENVIRONMENTAL

Altitude	15,000 ft / 4,420m AMSL
Temperature range	0 to +45ºC working. -10 to +50ºC storage
Humidity	95% @ 35ºC, non-condensing

At Aqua Broadcast, we are on a mission to revolutionize the world of FM transmitters and broadcast audio. With a deep commitment to innovation and excellence, we specialize in creating high-quality, cutting-edge products that set new standards in the industry.

Founded with a vision to seamlessly blend cutting-edge technology with dynamic content, we specialize in delivering high-quality products. Our award -winning COBALT range of Fully Featured FM Transmitters have set a new standard with its custom Linux operating system.

Aqua Broadcast is shaping its own future, for you, our customers. Our transmitters are equipped with cutting-edge network security features, offering broadcasters peace of mind in an increasingly connected world. As we continue to develop new solutions, we aim to anticipate the future of broadcasting and deliver products that exceed expectations—helping our customers not just meet their goals but shape the future of broadcasting itself.

At Aqua Broadcast, we live by the mantra: "Made by engineers, for engineers." With a team of highly skilled engineers and industry professionals boasting over 100 years of cumulative experience, we understand the technical challenges and demands faced by broadcasters. Our staff is driven by a passion for engineering excellence and a deep understanding of the intricacies of broadcast technology. Every product we create is designed with the precision and quality that only seasoned engineers can deliver.

We are not just a product manufacturer; we are a trusted partner for broadcasters across the globe. Our commitment to supporting our clients goes beyond just selling a product. We take the time to understand each station's unique needs, offering tailored solutions and providing ongoing support to help them achieve their goals. Whether it's ensuring smooth broadcasts, optimizing performance, or delivering custom-built features, Aqua Broadcast is always there to ensure your success.

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and options, please call or email us**

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COBALT
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