

Made by engineers, for engineers



C-300

Fully Featured FM Transmitter

Datasheet and Specifications

COBALT C-300

FULLY FEATURED FM TRANSMITTER

The COBALT C-300 is a robust 300W FM Broadcast Transmitter, boasting FCC part 73 LPFM and IC certifications. Its exceptional audio quality and clear sound from the Direct to Channel Digital technology with minimal manipulation, maintains audio integrity.

Operating on a fully customized LINUX OS system, this transmitter features a low-distortion modulator available across all COBALT FM Transmitter models. Input and output options 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.

Tailored for applications like Community Radio Gap-filling and scenarios, or as an exciter requiring high-quality audio, the COBALT C-300 ensures market-leading sound. It comes equipped with a built-in 4-band Audio Processor, featuring Bass enhancement, Pilot protection, Wide AGC, and a range of expertly designed modern presets for an impressive start.

The modern design with its Ultra-clear RGB display and Intuitive Joystick controls with Haptic feedback and silicon buttons allow for swift setup, ensuring you get on the air in no time.

The advanced communication package includes an intuitive web interface and remote control via Ethernet (https). Full SNMP v1, v2c, and v3 management, with the ability to send emails, alerts, and remotely monitor audio, provide confidence with global control from any device with a web browser.

An advanced automations package enables settings changes based on conditions, SNMP, GPI, or through the scheduler function – all built into the system.

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 from 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 included as standard, acting as a primary or back-up audio input.

With the highest AC efficiency, a compact design, and reduced weight, the COBALT C-300 ensures low transportation costs and stands as the model with the lowest total cost of ownership in its class.





STANDARD FEATURES

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| <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 |
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OPTIONS

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|---|---|
| <ul style="list-style-type: none"> MicroMPX MicroMPX SFN Tuner | <ul style="list-style-type: none"> 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)	300
Range (W)	50-300
RF Output connector	N-Type (Female)
Input ACV @ 50/60Hz	110-240
Power Connector	IEC 13A filtered
Power supplies	2 (Including one backup)
Dimensions WxDxH (inch)	19 x 18 x 2RU (3.5")
Dimensions WxDxH (cm)	48.3 x 45.7 x 8.8
Weight	7.2kg / 15.87lb

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 up to 105kHz, 140%, maximum 300kHz
FM Modulation Range Capability	

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 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
Crosstalk	≥75dB without de-emphasis 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 \pm 0.005dB
FM SNR	\geq 100dB, with 75us de-emphasis
THD+N	\leq 0.001% with 75us de-emphasis
	10Hz-53kHz \pm 0.03dB
	53kHz-70kHz \pm 0.3dB
	\geq 90dB, with 75us de-emphasis
	\leq 0.003% with 75us de-emphasis

AUDIO INPUTS

Analogue	2 x XLR female, 10k Ω 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 16 Ω
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WIDEBAND INPUTS

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

WIDEBAND OUTPUTS

Analogue MPX	BNC, 10 Ω impedance, level adjustable 0-12dBu
Analogue Pilot	BNC, 10 Ω 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, 50 Ω terminated
1PPS input	BNC, 50 Ω terminated
RF sample output	SMA, 50 Ω , -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 +45°C working, -10 to +50°C storage
Humidity	95% @ 35°C, non-condensing

AQUABROADCAST

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.

CONTACTS

Aqua Broadcast Ltd
Unit 7, First Quarter
Blenheim Road
Epsom
KT19 9QN
United Kingdom
Tel: +44 203 411 0387

For more information on our products
and options, please call or email us

info@aquabroadcast.co.uk



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