

AQUABROADCAST

COBALT

C-100 FM Transmitter



DATASHEET AND SPECIFICATIONS

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100W FM Transmitter



Perfect for low-power applications like smaller Transmitter sites, use as an Exciter or as a Gap-filler, Sporting where low power, and High quality audio are needed.

The COBALT C-100 Transmitter has a superior audio quality and sound clarity thanks to it's Direct to Channel Digital technology. Running on a fully customised 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.

Radio market beating sound will let you stand out to your listeners, with it's built-in 4 band Audio rocessor 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 managment 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.

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 it's class.

- ~ 4 Band Audio Processing
- ~ Dynamic, UECP Compliant RDS Encoder
- ~ Direct to Digital Synthesized modulation
- ~ Digital MPX Encoder
- ~ MPX Power Limiter
- ~ Linux OS
- ~ RGB Screen
- ~ Ethernet Control and SNMP
- ~ GPS Sync
- ~ Optional Auxiliary DC power input



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Technical Specifications

General

Output Power (W)	100
Range (W)	1-100
RF Output connector	N-Type (Female)
Input ACV @ 50/60Hz	100-240 (277 North America only)
Power Connector	IEC 13A filtered
Power consumption	~177W @ max power
AC-RF efficiency typ	~56%
Temperature controlled fan	1
Power supplies	1
Dimensions WxDxH (inch)	19x15x1RU (1.75")
Dimensions WxDxH (cm)	48.3x38x4.45
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 in 0-50°C 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
VSWR operation	Fully protected against gradual or sudden VSWR conditions. 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 separation	≥75dB AES/EBU input, ≥70dB Analogue input
Stereo SNR	≥80dB with 75us de-emphasis, ≥75dB without de-emphasis, both inputs
Stereo THD+N	<0.03%
Crosstalk	≥70dB, between L+R and L-R due to channel matching, both inputs



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Mono Performance

Frequency response	20Hz - 15kHz ± 0.02 dB
Pre-emphasis	0, 50 or 75 μ s
Mono SNR	≥ 75 dB AES/EBU input, ≥ 70 dB Analogue input
Mono THD+N	$\leq 0.002\%$ analogue input, $\leq 0.001\%$ AES input, with 75us de-emphasis

Analogue MPX Input Performance

Frequency response	10Hz-53kHz ± 0.03 dB, 53kHz-70kHz ± 0.3 dB	2 x
FM SNR	10Hz-53kHz ± 0.03 dB, 53kHz-70kHz ± 0.3 dB	
THD+N	$\leq 0.003\%$ with 75us de-emphasis	

Digital MPX Input Performance

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

Audio Inputs

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

Audio Output

Headphones Out	1/4" (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 AES/EBU via RJ45 per StudioHUB+, level -20-0dBFS, sampling rate 192kHz left channel
Digital MPX	
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



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RDS Generator

Type	Fully Dynamic RDS/RDS2/RBDS Generator
Protocols	ASCII commands, UECP protocol and X-Command Multi-port architecture:
Ports	UART over USB-B & Ethernet

Communication and Control

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	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/ ExternalRF 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

Specifications are subject to change without prior notice

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