

AQUABROADCAST

COBALT

C-10 FM Transmitter



DATASHEET AND SPECIFICATIONS

COBALT

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COBALT C-10 10W FM Transmitter



Perfect for low-power applications like Drive-in Cinemas, Sporting events and scenarios where low power, and High quality audio are needed.

The COBALT C-10 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) | 10 |
| Range (W) | 1-10 |
| RF Output connector | N-Type (Female) |
| Input ACV @ 50/60Hz | 100-240 (277 North America only) |
| Power Connector | IEC 13A filtered |
| Power consumption | ~50W @ max power |
| AC-RF efficiency typ | ~30% |
| 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 | ≥ 100 dB, with 75us de-emphasis |
| 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 |
| FM SNR | ≥ 90 dB, with 75us de-emphasis |
| 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 |
| Digital | AES/EBU via RJ45 per StudioHUB+, level adjustable -20-0dBFS, sampling rates 32-192kHz |

Audio Output

| | |
|----------------|---|
| Headphones Out | 1/4" (6.3mm) female stereo socket, software adjustable volume, minimum load impedance 16 Ω |
|----------------|---|

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 |



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RDS Generator

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

Communication and Control

| | |
|---------------------------|--|
| 10MHz input | BNC, 50Ω terminated |
| 1PPS input | BNC, 50Ω terminated |
| RF sample output | SMA, 50Ω, -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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