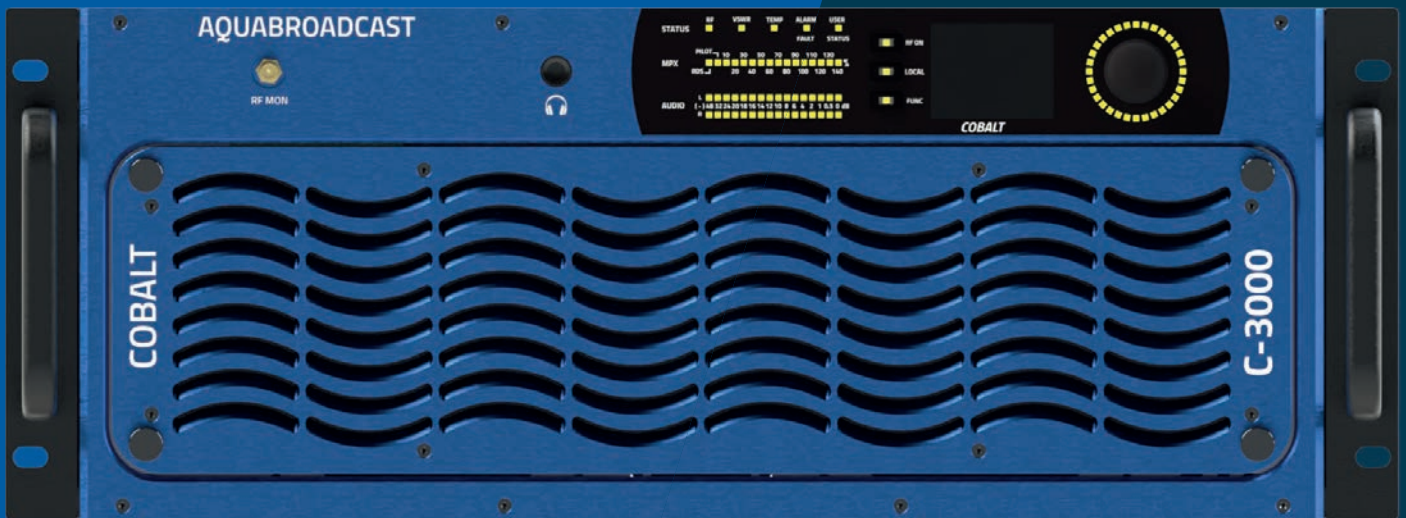


COBALT



C-3000

FULLY FEATURED FM TRANSMITTER

DATASHEET AND SPECIFICATIONS



3kW Medium Power in a compact size

- ~ 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
- ~ Hot-Swap PSU
- ~ High efficiency up to 76%

When you need a Medium power FM Transmitter that is packed with many standard features, the COBALT C-3000 sets new standards for Compact Transmitters. Perfect for any Broadcast applications when High quality audio is needed. The COBALT C-3000 is a fully featured FM Transmitter that has superior audio quality and sound clarity thanks to its 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.

Its compact, 4RU form factor features Power supplies that are Hot-swappable from the front panel. Externally mounted fans and filters also can be replaced on a Hot-swap basis, keeping you on the air without any downtime.

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.

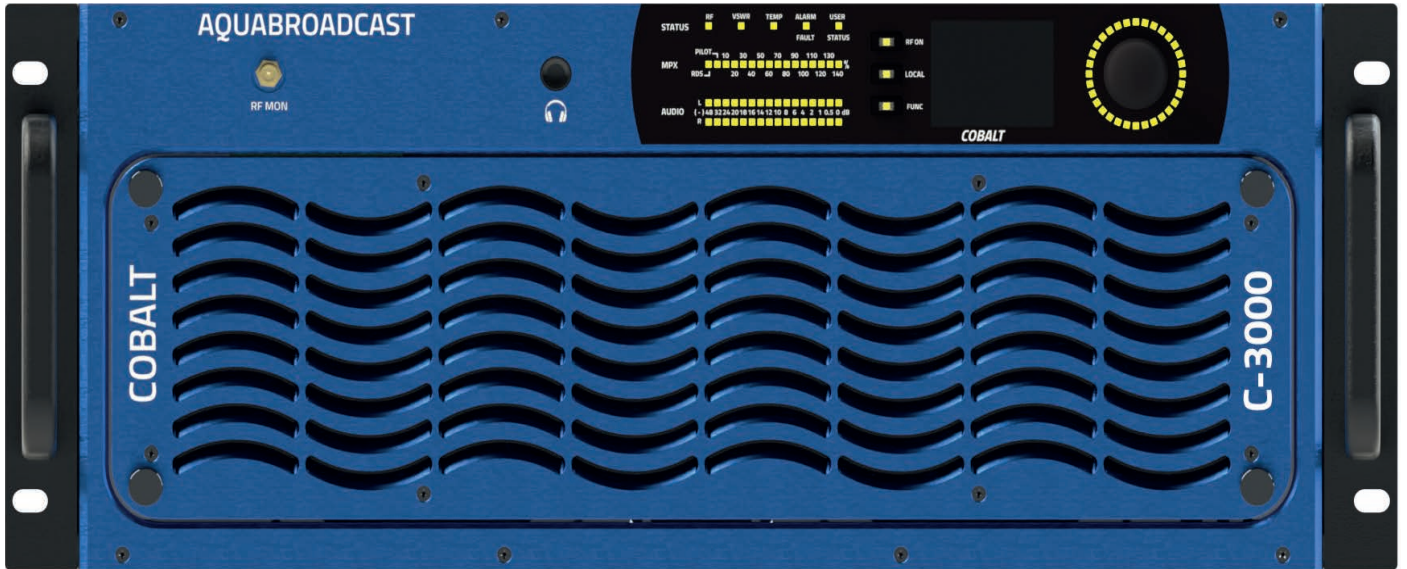
Easy access to all components and software controlled variable fan speed, will guarantee you low cost of maintenance. The highest AC efficiency, a compact design and reduced weight mean low cost of transportation and by far the lowest total cost of ownership in its class.

Common Connections

COBALT Medium Power Transmitters has an industry standard 7/8" EIA output, ready to connect to your Transmisison line. Powered by 3 phase power, and protected by a breaker at the rear, its quick and easy to connect to a new or existing system.

Simple, Serviceable Design

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.





LINUX OS

All COBALT FM Transmitters run on a rock-solid LINUX Operating System that we have fully customized to exceed the demands of 24/365 Broadcasting. With enhanced Network Security, the COBALT is at the forefront of Technology.



DDS EXCITER

Our DDS (Direct to Digital Synthesis) modulation gives the COBALT C-3000 an FM generated signal that is pure, and free of distortion or spurious artifacts.



AUDIO PROCESSOR

All COBALT FM Transmitters feature an on-board Audio Processor with 21 Presets. Sound great right out of the box or even use any external Audio Processor.



RDS ENCODER ONBOARD

An RDS Encoder (UECP Compliant) is included as standard on all COBALT FM Transmitters. Either use it as a static RDS, or with external software like Magic RDS where you can manage and feed entire RDS broadcast network from one place.



BS412.9 LIMITER ONBOARD

An ITU-R BS412.9 Limiter is included with all COBALT FM Transmitters, which defines the ultimate peak/average ratio of the program output. Required in many European countries, rest easy as it's included free of charge.



RGB DISPLAY

A clear RGB Display lets you either set up any COBALT Transmitter, and see parameters at a glance. Coupled with an intuitive menu system and Joystick providing Haptic feedback, it's so easy to control any COBALT Transmitter.



COMPACT AIR COOLED

With their compact design, all COBALT Transmitters are specifically designed to maximize on air flow and cooling. Designed for use in the harshest of environments, be assured of maximum cooling and heat dissipation.



SFN READY

On the rear are 1PPS and 10 MHz sync inputs letting you connect to any compatible GPS receiver, to allow for Single Frequency Network (SFN) operation of multiple COBALT Transmitters on the same frequency. The menu controls allow for several parameters to be set up the SFN fast and correctly.



SNMP

SNMP ready to provide users with easy and flexible real-time monitoring and remote-control options. The included WEB interface also provides Alarm and email communication of alerts and Alarms.



OPTIONAL 24/48VDC INPUT

Run the COBALT C-3000 on 48V DC power. This factory fitted option lets you run a backup input to run essential Alarms and communications in the event of a power failure.



HOT-SWAP PSU

The COBALT C-3000 has easily replaceable, Hot-Swap Power supplies, accessed from the front panel.



OPTIONAL EXTERNAL FANS

The COBALT C-3000 has Hot-Swap Externally mounted Fans for easy maintenance and replacement.

TECHNICAL SPECIFICATIONS

GENERAL

Output Power	3000W adjustable
Efficiency	Up to 78%
RF Output connector	7/16" EIA, 50 ohm
Input Power	180-264 Vac Single phase or 208/400Vac Three phases 47-63 Hz
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
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 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 separation	≥75dB AES/EBU input ≥70dB Analogue input
Stereo SNR	≥80dB with 75us de-emphasis ≥75dB without de-emphasis on both inputs
Stereo THD+N	<0.03%
Crosstalk	≥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 53kHz-70kHz ±0.3dB
FM SNR	≥90dB, with 75us de-emphasis
THD+N	≤0.003% with 75us de-emphasis

DIGITAL MPX INPUT PERFORMANCE

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	1/4" (6.3mm) female stereo socket, software adjustable volume minimum load impedance 16Ω
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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
Ports	UART over USB-B & Ethernet

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	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	15,100 ft / 4,600m AMSL
Temperature range	-10 to +45°C working, 0 to +50°C storage
Humidity	95% @ 35°C, non-condensing

Our Story

Aqua Broadcast is a team of diverse and experienced team 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.

Always innovating and designing and 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.

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.

We think

Always looking to the future, our design engineers innovate, with breakthrough Technology designed for engineers, by engineers.

We stand for

Premium materials, sleek design, and our environmentally conscious ethos, brings you only the best Broadcast products.

We do amazing

Aqua Broadcast is well known as a FM transmitter manufacturer, but we also offer a comprehensive range of R&D services in both hardware and software design.

We support

Service and support well after normal service life, no matter what happens we make it happen.

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SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE - E&OE EXCEPTED