

COBALT

Fully Featured 3 kW COBALT FM Transmitter

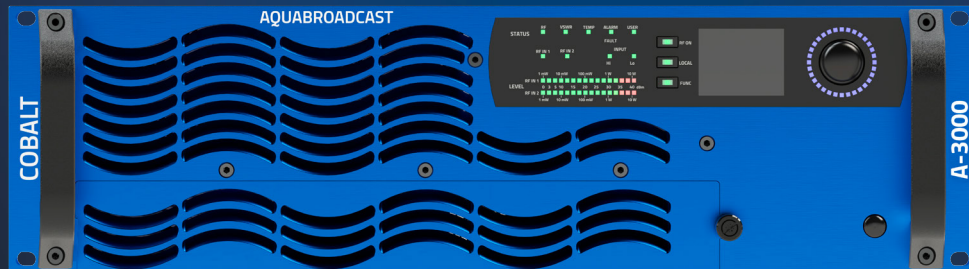
C-10 Exciter



(Dual exciter option available)



A-3000 Amplifier



With Single or Dual Exciters

Datasheet and Specifications

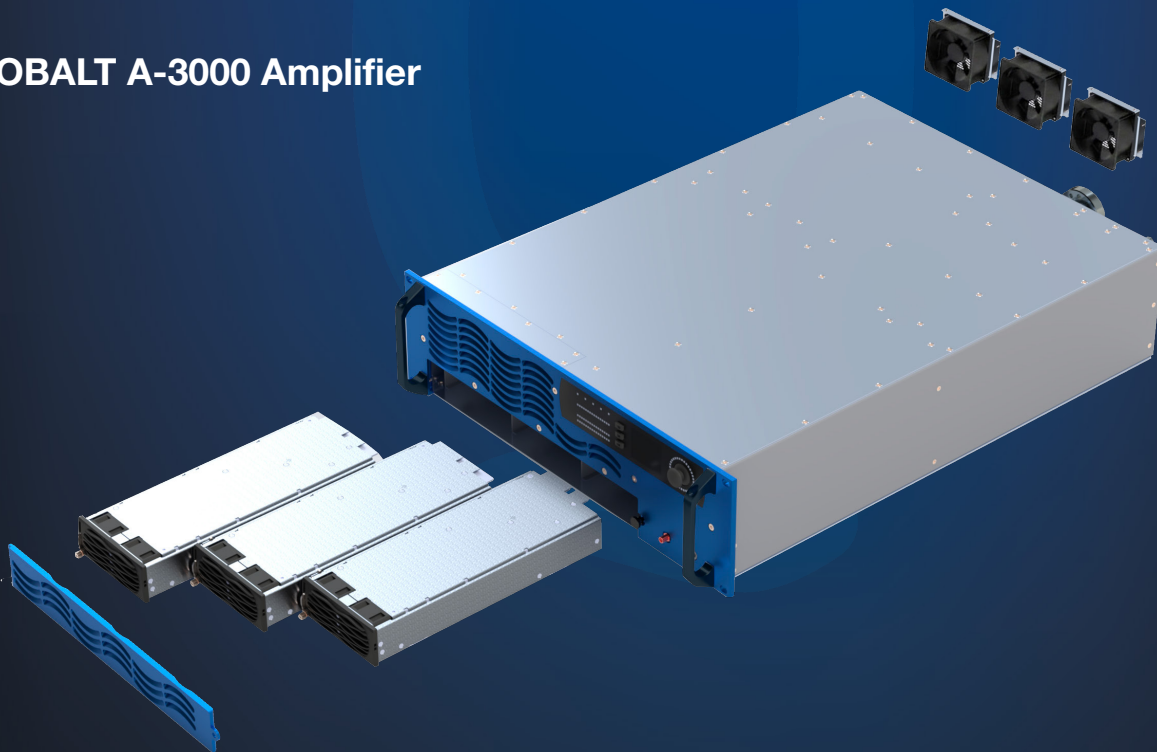
Specifications are subject to change without notice

3-kW FM fully featured transmitter system

COBALT C-10 Exciter
(Optional: Dual Exciter)



COBALT A-3000 Amplifier



- Hot-swappable power supplies
- Backup (redundant) power supply included with the amplifier
- Hot-swappable fans

FEATURES

- Full-band tuner from 87.5 to 108 MHz
- Efficiency exceeding 70% with amplifiers featuring hot-swappable power supplies and automatic power control
- One C-10 solid-state exciter with DDS modulation. Optional dual exciter
- One 3000 W RF power amplifier with a 7/8" EIA RF output connector
- Total output power of 3000 W
- Designed for 24/7 continuous operation
- Comprehensive protection: high ROE, overload, overcurrent, and overheating
- Transmitter compliant with IEC, ETSI, CCIR, and FCC (including FCC Part 73 LPFM and IC Canada)
- Supports mono and stereo transmission with direct-synthesized digital modulation
- Integrated 4-band audio processor with ITU-R BS412.9 limiter
- UECP-compatible dynamic RDS encoder
- MPX digital (AES192)
- Audio error switching, silence detection, and audio player USB backup and/or internal memory
- Two stream inputs (Shoutcast/Icecast)
- GPS Synchronization for SFN Operation
- RGB display on the front panel with full system monitoring
- Remote control via Ethernet HTTPS and SNMP (v1/v2c/v3)
- Web Audio Monitoring and Control

Options

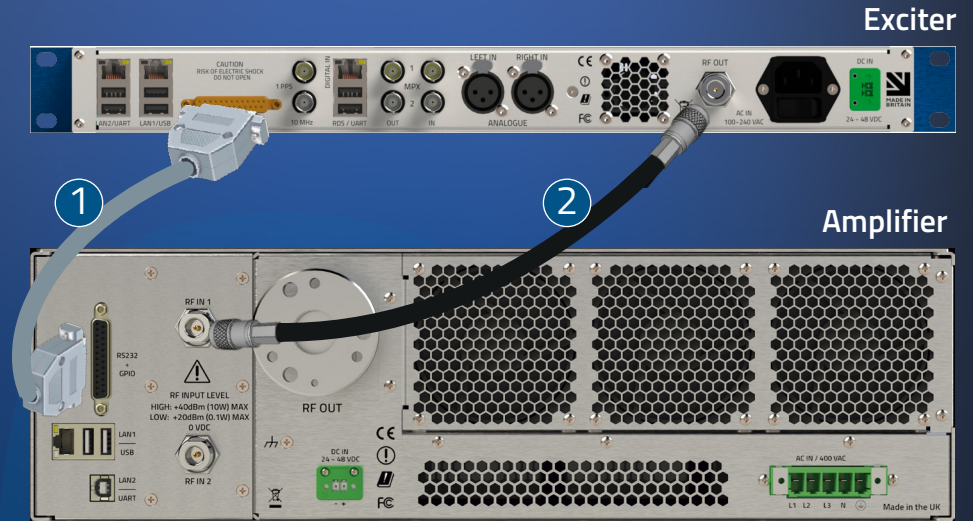
- MicroMPX
- MicroMPX SFN
- Códec IP 2wcom MOIN
- Procesador de audio de 6 bandas
- Sintonizador FM

DATA & RF CONNECTION DIAGRAM

Configuration with single exciter

1 DATA CONNECTION:
COMMUNICATION BETWEEN THE EXCITER AND THE AMPLIFIER
(NOTE: IN THE CASE OF A DUAL-EXCITER CONFIGURATION, PLEASE PAY CLOSE ATTENTION TO THE IDENTIFICATION LABEL ON EACH CONNECTOR)

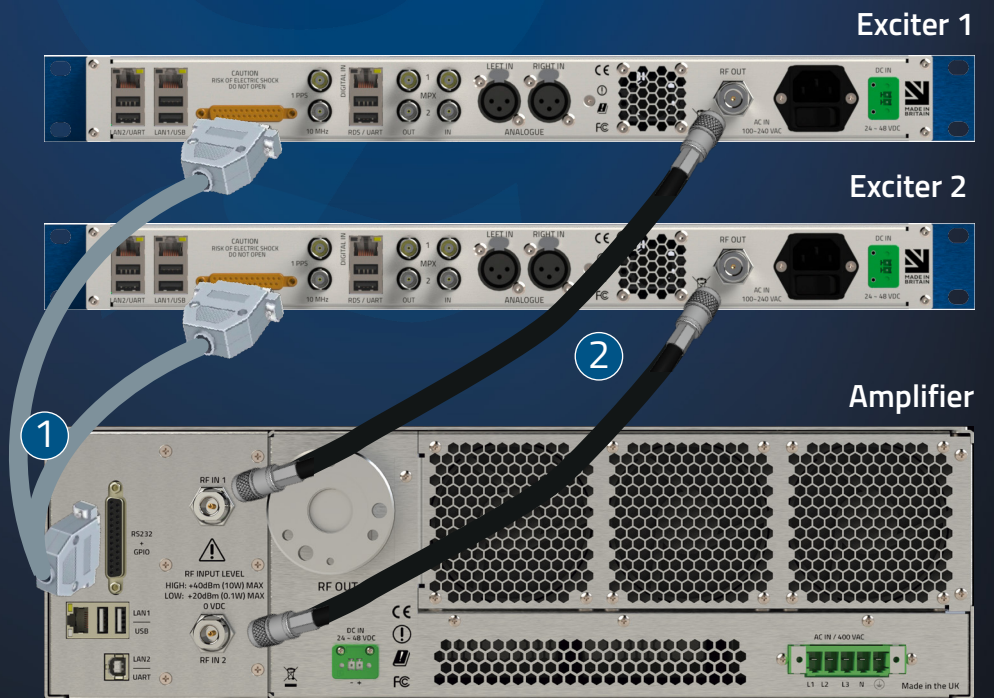
2 DATA CONNECTION
COMMUNICATION BETWEEN THE EXCITER AND THE AMPLIFIER
(NOTE: IN THE CASE OF A DUAL-EXCITER CONFIGURATION, PLEASE PAY CLOSE ATTENTION TO THE IDENTIFICATION LABEL ON EACH CONNECTOR)



Configuration with dual exciters

1 DATA CONNECTION
COMMUNICATION BETWEEN THE EXCITER AND THE AMPLIFIER
(NOTE: IN THE CASE OF A DUAL-EXCITER CONFIGURATION, PLEASE PAY CLOSE ATTENTION TO THE IDENTIFICATION LABEL ON EACH CONNECTOR)

2 RF CONNECTION
RF POWER SUPPLY TO THE AMPLIFIER
(NOTE: SET THE RF OUT OF THE EXCITER TO 1W OR 2W. NO ADDITIONAL POWER IS REQUIRED AT THE AMPLIFIER INPUT.)



Cobalt C-10 Specifications

GENERAL

| | |
|-------------------------|----------------------------------|
| Output Power (W) | 15 |
| Range (W) | 1-15 |
| 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% |
| Dimensions WxDxH (inch) | 19 x 15 x 1RU (1.75") |
| Dimensions WxDxH (cm) | 48.3 x 38 x 4.45 |
| 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 \pm 1 ppm or \pm 150kHz |
| Frequency Stability | 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 | $\leq \pm 0.25$ dB |
| Asynchronous/AM noise | ≤ -60 dB |
| Synchronous AM s/n ratio | ≤ -60 dB |
| RF Harmonic and Spurious Suppression | Meets ETSI requirements Fully protected against gradual or sudden VSWR condition |
| VSWR operation | Proportional power reduction from VSWR 1.5:1 |

STEREO ENCODER

| | |
|-------------------------|--|
| Performance | 400Hz/1kHz test tones at modulation level ≤ 75 kHz |
| Modes | Stereo, Mono L+R, Mono L, Mono R |
| Frequency response | 20Hz-15kHz ± 0.02 dB |
| Pre-emphasis | 0, 50 or 75 μ s |
| Pilot tone | 19kHz, adjustable level 0-12% |
| Subcarriers suppression | ≤ -70 dB |
| Stereo Suppression | ≥ 75 dB AES/EBU input |
| Stereo SNR | ≥ 70 dB Analogue input |
| Stereo THD+N | ≥ 80 dB with 75 μ s de-emphasis ≥ 75 dB without de-emphasis on both inputs $< 0.03\%$ ≥ 70 dB, between L+R and L-R due to channel matching, both inputs |
| Crosstalk | |

MONO PERFORMANCE

| | |
|--------------------|--|
| Frequency response | 20Hz - 15kHz ± 0.02 dB |
| Pre-emphasis | 0, 50 or 75 μ s |
| Mono SNR | ≥ 100 dB, with 75 μ s de-emphasis |
| Mono THD+N | $\leq 0.002\%$ analogue input, $\leq 0.001\%$ AES input, with 75 μ s de-emphasis |

ANALOGUE AUDIO PERFORMANCE

| | |
|--------------------|--|
| Frequency response | 10Hz-53kHz ± 0.03 dB 53kHz-70kHz ± 0.3 dB |
| FM SNR THD+N | ≥ 90 dB, with 75 μ s de-emphasis $\leq 0.003\%$ with 75 μ s de-emphasis |

DIGITAL

| | |
|--------------------|---|
| Frequency response | 0-90kHz ± 0.005 dB |
| FM SNR THD+N | ≥ 100 dB, with 75 μ s de-emphasis $\leq 0.001\%$ with 75 μ s 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 | 14" (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 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 |

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, 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 |
| Interlock/ External RF Off | GPIO DB25 shared connector, 8 x output & 8 x input, all optically isolated |
| Analogue voltage output | DB25 shared connector, programmable logic/polarity DB25 shared connector, 4-channel 0-5V range |

ENVIRONMENTAL

| | |
|-------------------|--|
| Altitude | 15,000 ft / 4,420m AMSL |
| Temperature range | 0 to +45 $^{\circ}$ C working, -10 to +50 $^{\circ}$ C storage |
| Humidity | 95% @ 35 $^{\circ}$ C, non-condensing |

Cobalt A-3000 Specifications

GENERAL

| | |
|-------------------------|---|
| Output Power (W) | 3000W adjustable |
| Efficiency | Up to 78% |
| RF Output connector | 7/8 EIA, 50ohm |
| Input Power | 110-264 VAC Single phase or 208/400VAC Three phase 47-63Hz |
| Dimensions WxDxH (inch) | 19 x 24 x 3RU (7") |
| Dimensions WxDxH (cm) | 48.3 x 60 x 17.8 |
| Weight | 24kg / 53lb |

PREAMP

| | |
|---|--|
| Power Stability | $\leq \pm 0.25\text{dB}$ |
| Asynchronous/AM noise | $\leq -60\text{dB}$ |
| Synchronous AM s/n ratio | $\leq -60\text{dB}$ |
| RF Harmonic and Spurious suppression AM s/n ratio | Meets ETSI requirements |
| VSWR operation | Fully protected against gradual or sudden VSWR condition at 1.35:1 |

RF INPUTS

High mode is default, low mode is factory fitted option.

RF1 N type

23dBm to 40dBm, nominal 30dBm (200mW to 10W, nominal 1W)
Low mode input range is 3dBm to 20dBm, nominal 10dBm (2mW to 100mW, nominal 10mW) Automatic input gain adjustment

RF1

N type
23dBm to 40dBm, nominal 30dBm (200mW to 10W, nominal 1W)
Low mode input range is 3dBm to 20dBm, nominal 10dBm (2mW to 100mW, nominal 10mW) Automatic input gain adjustment

POWER SUPPLIES

| | |
|--------------------------|--|
| Type | Hot swappable |
| Number of Power Supplies | 2 Standard 1 additional Power Supplied fitted as an option at the Factory |

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

Aqua Broadcast was formed by a diverse and experienced team of 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.

With an international presence and offering multi-lingual staff, Aqua Broadcast has positioned itself as a dynamic and innovative company, driven by its passion for Broadcast and Studio products.

Our strategically located offices worldwide mean you are never out of touch due to time zones. 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.

At our core are our customers. We focus on designing and building 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.

For details of your local dealer or Distributor, please refer to our [website](#) or contact us. The purchaser will be responsible for all import taxes, customs, duties, freight costs and insurance.

Warranty Information

At Aqua Broadcast Ltd, we are devoted to building the highest quality products and the never-ending pursuit of providing a better experience to our customers.

Our warranty statements are a continued commitment to providing reliable solutions with our technologies. All Aqua Broadcast Ltd benefit from a 2 year Manufacturer's Warranty. Further information on the Warranty can be seen in each products user manual, or by contacting us.

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